This manual is PDF file only.

SYSMAC OMRON FB Library

REFERENCE MANUAL

OMRON

Programmable Controller SYSMAC OMRON FB Library

Reference Manual

Notice:

OMRON products are manufactured for use according to proper procedures by a qualified operator and only for the purposes described in this manual.

The following conventions are used to indicate and classify precautions in this manual. Always heed the information provided with them. Failure to heed precautions can result in injury to people or damage to property.

- DANGER Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
- WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
- Caution Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury, or property damage.

OMRON Product References

All OMRON products are capitalized in this manual. The word "Unit" is also capitalized when it refers to an OMRON product, regardless of whether or not it appears in the proper name of the product.

The abbreviation "Ch," which appears in some displays and on some OMRON products, often means "word" and is abbreviated "Wd" in documentation in this sense.

The abbreviation "PLC" means Programmable Controller. "PC" is used, however, in some Programming Device displays to mean Programmable Controller.

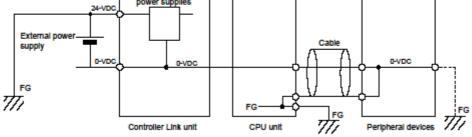
Precautions

Intended Audience	
	 This manual is intended for the following personnel, who must also have knowledge of electrical systems (an electrical engineer or the equivalent). Personnel in charge of installing FA systems. Personnel in charge of designing FA systems. Personnel in charge of managing FA systems and facilities.
General Precautions	
	The user must operate the product according to the performance specifications described in the operation manuals. Before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems, machines, and equipment that may have a serious influence on lives and property if used improperly, consult your OMRON representative. Make sure that the ratings and performance characteristics of the product are sufficient for the systems, machines, and equipment, and be sure to provide the systems, machines, and equipment with double safety mechanisms. This manual provides information for programming and operating the Unit. Be sure to read this manual before attempting to use the Unit and keep this manual close at hand for reference during operation.
Awarning	It is extremely important that a PLC and all PLC Units be used for the specified purpose and under the specified conditions, especially in applications that can directly or indirectly affect human life. You must consult with your OMRON representative before applying a PLC System to the above-mentioned applications.

This OMRON FB Library Reference describes functions of each OMRON Function Block. This Guide does not include limiting conditions of usage of each unit/control component, or combination of them. Please read user's/operation manual of each product for the actual application.

Safety Precautions (CX-Programmer)

Awarning	 Confirm safety sufficiently before transferring I/O memory area status from the CX-Programmer to the PLC. The devices connected to Output Units may malfunction, regardless of the operating mode of the CPU Unit. Caution is required in respect to the following functions. Transferring from the CX-Programmer to real I/O (CIO Area) in the CPU Unit using the <i>PLC Memory</i> window. Transferring from file memory to real I/O (CIO Area) in the CPU Unit using the <i>Memory Card</i> window.
[⊥] Caution	Confirm safety at the destination node before transferring a program to another node or changing contents of the I/O memory area. Doing either of these without confirming safety may result in injury.
[∆] Caution	Execute online edit only after confirming that no adverse effects will be caused by extending the cycle time. Otherwise, the input signals may not be readable.
[∆] Caution	Confirm safety sufficiently before monitoring power flow and present value status in the <i>Ladder Section</i> window or when monitoring present values in the <i>Watch</i> window. If force-set/reset or set/reset operations are inadvertently performed by pressing short-cut keys, the devices connected to Output Units may malfunction, regardless of the operating mode of the CPU Unit.
[⊥] Caution	Caution is required when connecting peripheral devices, such as a personal computer, to the PLC when Units with non-isolated power supplies, such as the CS1W-CLK12/CLK52(-V1), that are connected to an external power supply are mounted to the PLC. If the 24-V side is grounded on the external power supply, a short will be created if the 0-V side of the peripheral device is grounded. When connecting peripheral devices, either ground the 0-V side of the external power supply at all.
24-VDC	Non-Isolated power supplies



Safety Precautions (CPU unit)

- WARNING The CPU Unit refreshes I/O even when the program is stopped (i.e., even in PROGRAM mode). Confirm safety thoroughly in advance before changing the status of any part of memory allocated to I/O Units, Special I/O Units, or CPU Bus Units. Any changes to the data allocated to any Unit may result in unexpected operation of the loads connected to the Unit. Any of the following operation may result in changes to memory status.
 - Transferring I/O memory data to the CPU Unit from a Programming Device.
 - · Changing present values in memory from a Programming Device.
 - · Force-setting/-resetting bits from a Programming Device.
 - Transferring I/O memory files from a Memory Card or EM file memory to the CPU Unit.
 - Transferring I/O memory from a host computer or from another PLC on a network.
- WARNING Do not attempt to take any Unit apart while the power is being supplied. Doing so may result in electric shock.
- WARNING Do not touch any of the terminals or terminal blocks while the power is being supplied. Doing so may result in electric shock.
- WARNING Do not attempt to disassemble, repair, or modify any Units. Any attempt to do so may result in malfunction, fire, or electric shock.
- WARNING Provide safety measures in external circuits (i.e., not in the Programmable Controller), including the following items, to ensure safety in the system if an abnormality occurs due to malfunction of the PLC or another external factor affecting the PLC operation. Not doing so may result in serious accidents.
 - Emergency stop circuits, interlock circuits, limit circuits, and similar safety measures must be provided in external control circuits.
 - The PLC will turn OFF all outputs when its self-diagnosis function detects any error or when a severe failure alarm (FALS) instruction is executed. As a countermeasure for such errors, external safety measures must be provided to ensure safety in the system.
 - The PLC outputs may remain ON or OFF due to deposition or burning of the output relays or destruction of the output transistors. As a countermeasure for such problems, external safety measures must be provided to ensure safety in the system.
 - When the 24-V-DC output (service power supply to the PLC) is overloaded or short-circuited, the voltage may drop and result in the outputs being turned OFF. As a countermeasure for such problems, external safety measures must be provided to ensure safety in the system.
 - Caution Confirm safety before transferring data files stored in the file memory (Memory Card or EM file memory) to the I/O area (CIO) of the CPU Unit using a peripheral tool. Otherwise, the devices connected to the output unit may malfunction regardless of the operation mode of the CPU Unit.
 - Caution Fail-safe measures must be taken by the customer to ensure safety in the event of incorrect, missing, or abnormal signals caused by broken signal lines, momentary power interruptions, or other causes. Serious accidents may result from abnormal operation if proper measures are not provided.

- Caution Execute online edit only after confirming that no adverse effects will be caused by extending the cycle time. Otherwise, the input signals may not be readable.
- ▲ Caution The CS1-H, CJ1-H, CJ1M, and CS1D CPU Units automatically back up the user program and parameter data to flash memory when these are written to the CPU Unit. I/O memory (including the DM, EM, and HR Areas), however, is not written to flash memory. The DM, EM, and HR Areas can be held during power interruptions with a battery. If there is a battery error, the contents of these areas may not be accurate after a power interruption. If the contents of the DM, EM, and HR Areas are used to control external outputs, prevent inappropriate outputs from being made whenever the Battery Error Flag (A40204) is ON.
- Caution Confirm safety at the destination node before transferring a program to another node or changing contents of the I/O memory area. Doing either of these without confirming safety may result in injury.
- Caution Tighten the screws on the terminal block of the AC Power Supply Unit to the torque specified in the operation manual. The loose screws may result in burning or malfunction.
- Caution Do not touch the Power Supply Unit when power is being supplied or immediately after the power supply is turned OFF. The Power Supply Unit will be hot and you may be burned.
- ▲ Caution Be careful when connecting personal computers or other peripheral devices to a PLC to which is mounted a non-insulated Unit (CS1W-CLK12/52(-V1) or CS1W-ETN01) connected to an external power supply. A short-circuit will be created if the 24 V side of the external power supply is grounded and the 0 V side of the peripheral device is grounded. When connecting a peripheral device to this type of PLC, either ground the 0 V side of the external power supply or do not ground the external power supply at all.

Application Precautions (CX-Programmer)

Observe the following precautions when using the CX-Programmer.

- Observe the following precautions before starting the CX-Programmer.
 - Exit all applications not directly related to the CX-Programmer. Particularly exit any software such as screen savers, virus checkers, email or other communications software, and schedulers or other applications that start up periodically or automatically.
 - Disable sharing hard disks, printers, or other devices with other computers on any network.
 - With some notebook computers, the RS-232C port is allocated to a modem or a infrared line by default. Following the instructions in documentation for your computer and enable using the RS-232C port as a normal serial port.
 - With some notebook computers, the default settings for saving energy do not supply the rated power to the RS-232C port. There may be both Windows settings for saving energy, as well as setting for specific computer utilities and BIOS. Following the instructions in documentation for your computer, disable all energy saving settings.
 - Do not turn OFF the power supply to the PLC or disconnect the connecting cable while the CX-Programmer is online with the PLC. The computer may malfunction.
 - With the CS/CJ-series PLCs, when creating an AUTOEXEC.IOM file from the CX-Programmer to automatically transfer data at startup, set the first write address to D20000 and be sure that the size of data written does not exceed the size of the DM Area. When the data file is read from the Memory Card at startup, data will be written in the CPU Unit starting at D20000 even if another address was set when the AUTOEXEC.IOM file was created. Also, if the DM Area is exceeded (which is possible when the CX-Programmer is used), the remaining data will be written to the EM Area. Refer to information on file operations in the CS/CJ-series Programming Manual for details.
 - Confirm that no adverse effect will occur in the system before attempting any of the following. Not doing so may result in an unexpected operation. Changing the operating mode of the PLC.
 - Force-setting/force-resetting any bit in memory.
 - Changing the present value of any word or any set value in memory.
 - Check the user program for proper execution before actually running it on the Unit. Not checking the program may result in an unexpected operation.
 - Precaution on Using Indirect DM and EM Addresses in Comparison
 Instructions:

When indirect DM or EM addresses are used as operands in comparison instructions, the top portion of the comparison instruction will be displayed in yellow when it is being monitored. At that time the power flow will not be monitored to the right of such comparison instructions. The contact and coil status, and present values of operands in special instructions will be displayed normally.

 The user program and parameter area data in CS1-H CPU Units is backed up in the built-in flash memory. The BKUP indicator will light on the front of the CPU Unit when the backup operation is in progress. Do not turn OFF the power supply to the CPU Unit when the BKUP indicator is lit. The data will not be backed up if power is turned OFF.
 To display the status of writing to flash memory on the CX-Programmer, place a checkmark by *Display dialog to show PLC Memory Backup Status* on the PLC properties and then select *Windows* | *PLC Memory Backup Status* from the *Windows* menu. Precaution in Changing the PLC Type

On the CX-Programmer, you can change the PLC (device) type or CPU type. When these are changed, however, only the data for the ladder program and the symbol tables are changed. The following data will be initialized and must be reset.

- PLC Setup
- Expansion instructions
- I/O tables
- PLC memory

Particularly the PLC Setup has a large impact on PLC system operation. Be careful to reset all require settings after changing the PLC type. If expansion instruction allocations are not reset, program errors could occur, preventing the PLC from running. Always restore the expansion instruction allocates to the previous settings after changing the PLC type.

Observe the following precautions when using the CX-Net.

- Do not change the operating mode of the CPU Unit without first confirming that operation of the controlled system will not be affect.
- Do not run the user program on the PLC until its operation has been checked sufficiently.
- The data link mode (manual setting or automatic setting) and data link method are determined according to the data link setting in the startup node. In the startup node, set a data link table in the case of manual setting and data link automatic setting parameters in the case of automatic setting. If the settings are incorrect, the data link will not start.
- Check the following items before starting data links. If incorrect data link tables or parameters are set, injury may result due to unexpected operation of the system. Even if the correct data link tables and parameters have been set, do not start or stop data links before verifying that there will be no adverse influence on the system.
 (1) Manually Set Data Links

Check the data link tables in each node participating in the data link to see that they are correct.

Be sure that data link tables are deleted from nodes that are not participating in the data links.

(2) Automatically Set Data Links

Be sure that the correct DM parameters have been set in the data link startup node.

 CPU Bus Units will be automatically restarted when routing tables are transferred from a Programming Device to the CPU Unit. Resetting is required to use the new tables. Confirm that restarting the CPU Bus Units will not adversely affect system operation before transferring routing tables.

Application Precautions (CPU unit)

Observe the following precautions when using the PLC System.

 You must use the CX-Programmer (programming software that runs on Windows) if you need to program more than one task. A Programming Console can be used to program only one cyclic task plus interrupt tasks.

A Programming Console can, however, be used to edit multitask programs originally created with the CX-Programmer.

- WARNING Always heed these precautions. Failure to abide by the following precautions could lead to serious or possibly fatal injury.
 - Always connect to a ground of 100 Ω or less when installing the Units. Not connecting to a ground of 100 Ω or less may result in electric shock.
 - A ground of 100 Ω or less must be installed when shorting the GR and LG terminals on the Power Supply Unit.
 - Always turn OFF the power supply to the PLC before attempting any of the following. Not turning OFF the power supply may result in malfunction or electric shock.
 - Mounting or dismounting Power Supply Units, I/O Units, CPU Units, Inner Boards, or any other Units.
 - Assembling the Units.
 - · Setting DIP switches or rotary switches.
 - · Connecting cables or wiring the system.
 - · Connecting or disconnecting the connectors.
 - Caution Failure to abide by the following precautions could lead to faulty operation of the PLC or the system, or could damage the PLC or PLC Units. Always heed these precautions.

- The user program and parameter area data in the CS1-H, CS1D, CJ1-H, and CJ1M CPU Units are backed up in the built-in flash memory. The BKUP indicator will light on the front of the CPU Unit when the backup operation is in progress. Do not turn OFF the power supply to the CPU Unit when the BKUP indicator is lit. The data will not be backed up if power is turned OFF.
- When using a CS-series CS1 CPU Unit for the first time, install the CS1W-BAT1 Battery provided with the Unit and clear all memory areas from a Programming Device before starting to program. When using the internal clock, turn ON power after installing the battery and set the clock from a Programming Device or using the DATE(735) instruction. The clock will not start until the time has been set.
- When the CPU Unit is shipped from the factory, the PLC Setup is set so that the CPU Unit will start in the operating mode set on the Programming Console mode switch. When a Programming Console is not connected, a CS-series CS1 CPU Unit will start in PROGRAM mode, but a CS1-H, CS1D, CJ1, CJ1-H, or CJ1M CPU Unit will start in RUN mode and operation will begin immediately. Do not advertently or inadvertently allow operation to start without confirming that it is safe.
- When creating an AUTOEXEC.IOM file from a Programming Device (a Programming Console or the CX-Programmer) to automatically transfer data at startup, set the first write address to D20000 and be sure that the size of data written does not exceed the size of the DM Area. When the data file is read from the Memory Card at startup, data will be written in the CPU Unit starting at D20000 even if another address was set when the AUTOEXEC.IOM file was created. Also, if the DM Area is exceeded (which is possible when the CX-Programmer is used), the remaining data will be written to the EM Area.
- Always turn ON power to the PLC before turning ON power to the control system. If the PLC power supply is turned ON after the control power supply, temporary errors may result in control system signals because the output terminals on DC Output Units and other Units will momentarily turn ON when power is turned ON to the PLC.
- Fail-safe measures must be taken by the customer to ensure safety in the event that outputs from Output Units remain ON as a result of internal circuit failures, which can occur in relays, transistors, and other elements.
- Fail-safe measures must be taken by the customer to ensure safety in the event of incorrect, missing, or abnormal signals caused by broken signal lines, momentary power interruptions, or other causes.
- Interlock circuits, limit circuits, and similar safety measures in external circuits (i.e., not in the Programmable Controller) must be provided by the customer.
- Do not turn OFF the power supply to the PLC when data is being transferred. In particular, do not turn OFF the power supply when reading or writing a Memory Card. Also, do not remove the Memory Card when the BUSY indicator is lit. To remove a Memory Card, first press the memory card power supply switch and then wait for the BUSY indicator to go out before removing the Memory Card.
- If the I/O Hold Bit is turned ON, the outputs from the PLC will not be turned OFF and will maintain their previous status when the PLC is switched from RUN or MONITOR mode to PROGRAM mode. Make sure that the external loads will not produce dangerous conditions when this occurs. (When operation stops for a fatal error, including those produced with the FALS(007) instruction, all outputs from Output Unit will be turned OFF and only the internal output status will be maintained.)

- The contents of the DM, EM, and HR Areas in the CPU Unit are backed up by a Battery. If the Battery voltage drops, this data may be lost. Provide countermeasures in the program using the Battery Error Flag (A40204) to re-initialize data or take other actions if the Battery voltage drops.
- When supplying power at 200 to 240 V AC with a CS-series PLC, always remove the metal jumper from the voltage selector terminals on the Power Supply Unit (except for Power Supply Units with wide-range specifications). The product will be destroyed if 200 to 240 V AC is supplied while the metal jumper is attached.
- Always use the power supply voltages specified in the operation manuals. An incorrect voltage may result in malfunction or burning.
- Take appropriate measures to ensure that the specified power with the rated voltage and frequency is supplied. Be particularly careful in places where the power supply is unstable. An incorrect power supply may result in malfunction.
- Install external breakers and take other safety measures against short-circuiting in external wiring. Insufficient safety measures against short-circuiting may result in burning.
- Do not apply voltages to the Input Units in excess of the rated input voltage. Excess voltages may result in burning.
- Do not apply voltages or connect loads to the Output Units in excess of the maximum switching capacity. Excess voltage or loads may result in burning.
- Disconnect the functional ground terminal when performing withstand voltage tests. Not disconnecting the functional ground terminal may result in burning.
- Install the Units properly as specified in the operation manuals. Improper installation of the Units may result in malfunction.
- With CS-series PLCs, be sure that all the Unit and Backplane mounting screws are tightened to the torque specified in the relevant manuals. Incorrect tightening torque may result in malfunction.
- Be sure that all terminal screws, and cable connector screws are tightened to the torque specified in the relevant manuals. Incorrect tightening torque may result in malfunction.
- Leave the label attached to the Unit when wiring. Removing the label may result in malfunction if foreign matter enters the Unit.
- Remove the label after the completion of wiring to ensure proper heat dissipation. Leaving the label attached may result in malfunction.
- Use crimp terminals for wiring. Do not connect bare stranded wires directly to terminals. Connection of bare stranded wires may result in burning.
- Wire all connections correctly.
- Double-check all wiring and switch settings before turning ON the power supply. Incorrect wiring may result in burning.
- Mount Units only after checking terminal blocks and connectors completely.
- Be sure that the terminal blocks, Memory Units, expansion cables, and other items with locking devices are properly locked into place. Improper locking may result in malfunction.
- Check switch settings, the contents of the DM Area, and other preparations before starting operation. Starting operation without the proper settings or data may result in an unexpected operation.
- Check the user program for proper execution before actually running it on the Unit. Not checking the program may result in an unexpected operation.

- Confirm that no adverse effect will occur in the system before attempting any of the following. Not doing so may result in an unexpected operation.
 - · Changing the operating mode of the PLC.
 - · Force-setting/force-resetting any bit in memory.
 - · Changing the present value of any word or any set value in memory.
- Do not pull on the cables or bend the cables beyond their natural limit. Doing either of these may break the cables.
- Do not place objects on top of the cables or other wiring lines. Doing so may break the cables.
- Do not use commercially available RS-232C personal computer cables. Always use the special cables listed in this manual or make cables according to manual specifications. Using commercially available cables may damage the external devices or CPU Unit.
- Never connect pin 6 (5-V power supply) on the RS-232C port on the CPU Unit to any device other than an NT-AL001 or CJ1W-CIF11 Adapter. The external device or the CPU Unit may be damaged.
- When replacing parts, be sure to confirm that the rating of a new part is correct. Not doing so may result in malfunction or burning.
- Before touching a Unit, be sure to first touch a grounded metallic object in order to discharge any static build-up. Not doing so may result in malfunction or damage.
- When transporting or storing circuit boards, cover them in antistatic material to protect them from static electricity and maintain the proper storage temperature.
- Do not touch circuit boards or the components mounted to them with your bare hands. There are sharp leads and other parts on the boards that may cause injury if handled improperly.
- Do not short the battery terminals or charge, disassemble, heat, or incinerate the battery. Do not subject the battery to strong shocks. Doing any of these may result in leakage, rupture, heat generation, or ignition of the battery. Dispose of any battery that has been dropped on the floor or otherwise subjected to excessive shock. Batteries that have been subjected to shock may leak if they are used.
- UL standards required that batteries be replaced only by experienced technicians. Do not allow unqualified persons to replace batteries.
- With a CJ-series PLC, the sliders on the tops and bottoms of the Power Supply Unit, CPU Unit, I/O Units, Special I/O Units, and CPU Bus Units must be completely locked (until they click into place). The Unit may not operate properly if the sliders are not locked in place.
- With a CJ-series PLC, always connect the End Plate to the Unit on the right end of the PLC. The PLC will not operate properly without the End Plate
- Unexpected operation may result if inappropriate data link tables or parameters are set. Even if appropriate data link tables and parameters have been set, confirm that the controlled system will not be adversely affected before starting or stopping data links.
- CPU Bus Units will be restarted when routing tables are transferred from a Programming Device to the CPU Unit. Restarting these Units is required to read and enable the new routing tables. Confirm that the system will not be adversely affected before allowing the CPU Bus Units to be reset.

Chapter 1 How to use this guide

Chapter 2 List of FB library

Chapter 3 Details of FB library

CONTENTS

Chapter '	How to use this guide	1-2
Chapter 2	2 List of FB library	
	it	
	s unit and board	
	communication unit and board	
	er link unit	
	t unit ·····	
	Net unit	
	I Controller ·····	
		-
	Sensor	
	eader	
	ensor ·····	
	ature Controller (serial) ·····	
	ature Controller (DeviceNet) ·····	
Temper	ature Controller (unit) ······	2-6
-	B Details of FB library rammable Controller CPU Unit	
0-1	BCD Pulse Timer: _CPU001_TP_BCD······	
	Binary Pulse Timer: _CPU002_TP_BIN······	
	BCD ON Delay: _CPU003_TON_BCD ······	
	Binary ON Delay: _CPU004_TON_BIN ······	
	BCD OFF Delay: _CPU005_TOF_BCD	
	Binary OFF Delay: _CPU006_TOF_BIN	
	Make ON Time/OFF Time Clock Pulse in BCD: _CPU007_MakeClockPulse_BCD	
	Make ON Time/OFF Time Clock Pulse in Binary: _CPU008_MakeClockPulse_BIN	
	Send Data: _CPU010_SendData	
	Receive Data: _CPU011_ReceiveData ······	
	Send Command: _CPU012_SendCommand ······	
	Execute Communications Sequence: _CPU013_PMCR	
	Receive from Communications Port: _CPU014_RXD ······	
	Send from Serial Port: _CPU015_TXD	3-34
3-2	CPU bus unit and board	
	Unit Restart: _UNIT001_Restart ·····	
3-3	Serial Communication unit and board	-
	Reset Serial Port: _SCx001_ResetPort	
	Abort in Protocol Macro Mode: _SCx002_PMCR_Abort ·····	

Teset Senar OttSCX001_Teseti Ott	3-40
Abort in Protocol Macro Mode: _SCx002_PMCR_Abort ·····	3-41
Release Wait: _SCx003_PMCR_ReleaseWait	3-42
Set Host Link Port: _SCx600_SetPortSYSWAY ······	3-43
Set NT Link Port: _SCx601_SetPortNTLINK ······	3-45
Set Protocol Macro Mode Port: _SCx602_SetPortPMCR ······	3-47
Set No-protocol Mode: _SCx603_SetPortNOPRTCL ······	3-49
Set Serial Gateway Mode: _SCx604_SetPortGATEWAY ·····	3-53
Set Loopback Test Mode: _SCx605_SetPortLOOPBACK ······	3-55

3-4 Controller Link Unit

Start Data Links: _CLK001_LINK_RunDatalink 3-8	-58
Stop Data Links: _CLK002_LINK_StopDatalink 3-6	-60
Monitor Controller Link Node Errors 32: _CLK003_CheckNode32 ······ 3-6	-62
Monitor Controller Link Node Errors 62: _CLK004_CheckNode62 ·······	-63

3-5 Ethernet unit

Open TCP Socket Passive: _ETN001_SOCKET_TcpOpenPassive
Open TCP Socket Active: _ETN002_SOCKET_TcpOpenActive
Close TCP Socket: _ETN003_SOCKET_TcpClose
Send via TCP Socket: _ETN004_SOCKET_TcpSend ······ 3-73
Receive via TCP Socket: _ETN005_SOCKET_TcpRecv
Open UDP Socket: _ETN011_SOCKET_UdpOpen ······ 3-79
Close UDP Socket: _ETN013_SOCKET_UdpClose
Receive via UDP Socket: _ETN014_SOCKET_UdpRecv
Send via UDP Socket: _ETN015_SOCKET_UdpSend ······ 3-86

Field Bus Device

3-6 DeviceNet Unit

Read Generic Status: _Dnet200_GetGenericStat
Read Network Voltage Present Value: _Dnet201_GetNetVoltage_PV
Read Network Voltage Minimum: _Dnet202_GetNetVoltage_Min ······· 3-96
Read Network Voltage Maximum Value: _Dnet203_GetNetVoltage_Max
Read Present Unit ON Time: _Dnet204_GetONTime_PV
Read Unit ON Time Status: _Dnet205_GetONTime_Stat
Read Input Terminal Maintenance Counter Present Value: _Dnet206_GetCounter_IN_PV 3-108
Read Input Terminal Maintenance Counter Set Value: _Dnet207_GetCounter_IN_SV 3-111
Read Output Terminal Maintenance Counter Present Value: _Dnet208_GetCounter_OUT_PV·· 3-114
Read Output Terminal Maintenance Counter Set Value: _Dnet209_GetCounter_OUT_SV 3-117
Read Maintenance Counter Status: _Dnet210_GetCounter_Stat
Read Input Power Status: _Dnet211_GetInputPower_Stat
Read Output Power Status: _Dnet212_GetOutPower_Stat
Read Load Short-circuit Status: _Dnet213_GetLoadShort_Stat
Read Load OFF Wire Hold Status: _Dnet214_GetLoadOffWire_Hold ······ 3-132
Read Load OFF Wire Status: _Dnet215_GetLoadOffWire_Stat
Read Operation Time Monitor Present Value: _Dnet216_GetOperationTime_PV
Read Operation Time Monitor Set Value: _Dnet217_GetOperationTime_SV
Read Operation Time Monitor Status: _Dnet218_GetOperationTime_Stat
Read Operation Time Monitor Hold Status: _Dnet219_GetOperationTime_Hold 3-147
Read Operation Time Monitor Peak Value Read: _Dnet220_GetOperationTime_Peak 3-150
Read Sensor OFF Wire Status: _Dnet221_GetSensorOffWire_Stat
Read Sensor OFF Wire Hold Status: _Dnet222_GetSensorOffWire_Hold
Read Sensor Power Supply Short-circuit Status: _Dnet223_GetSensorShort_Stat 3-159
Read Sensor Power Supply Short-circuit Hold Status: _Dnet224_GetSensorShort_Hold 3-162

Position Controller

3-7 Position Controller

Move Absolute: _NCF010_MoveAbsolute_ REAL	3
Move Absolute: _NCF011_MoveAbsolute_DINT	9
Move Relative: _NCF020_MoveRelative_ REAL	2
Move Relative: _NCF021_MoveRelative_DINT	5
Speed Control: _NCF030_MoveVelocity_ REAL	3
Speed Control: _NCF031_MoveVelocity_DINT	1

Torque Control: _NCF040_TorqueControl_REAL
Control Torque: _NCF041_TorqueControl_DINT ····································
Origin Search: _NCF050_Home_REAL
Origin Search: _NCF051_Home_DINT
Stop Deceleration: _NCF060_Stop
Operation Command: _NCF070_Power
Reset Axis Error: _NCF080_Reset
Read Status: _NCF200_ReadStatus
Read Parameter: _NCF201_ReadParameter
Read Boolean Parameter: _NCF202_ReadBoolParameter
Read Axis Error: _NCF203_ReadAxisError
Read Present Position: _NCF204_ReadActualPosition_REAL
Read Present Position: _NCF205_ReadActualPosition_DINT
Write Parameter: _NCF401_WriteParameter
Write Boolean Parameter: _NCF402_WriteBoolParameter
Move Absolute: _NCx010_MoveAbsolute_REAL
Move Absolute: _NCx011_MoveAbsolute_DINT
Move Relative: _NCx020_MoveRelative_REAL
Move Relative: _NCx021_MoveRelative_DINT
Origin Search: _NCx050_Home_REAL
Origin Search: _NCx051_Home_DINT ······ 3-243
Deceleration Stop: _NCx060_Stop
Axis Error Reset: _NCx080_Reset
Read Status: _NCx200_ReadStatus ······ 3-249
Read Parameter: _NCx201_ReadParameter
Read Boolean Parameter: _NCx202_ReadBoolParameter
Read Axis Error: _NCx203_ReadAxisError ······ 3-256
Read Present Position: _NCx204_ReadActualPosition_REAL
Read Present Position: _NCx205_ReadActualPosition_DINT
Write Parameter: _NCx401_WriteParameter
Write Boolean Parameter: _NCx402_WriteBoolParameter
Set Unit: _NCx600_Setting ······ 3-268

Inverter

3-8	Inverter (DeviceNe	t)
00		9

Move Inverter Hz: _INVDRT032_MoveVelocityHz ······ 3	3-271
Move Inverter RPM: _INVDRT033_MoveVelocityRPM ······· 3	3-274
Stop Inverter: _INVDRT060_Stop 3	3-277
Reset Inverter Error: _ INVDRT080_Reset	3-279
Read Inverter Status: _INVDRT200_ReadStatus	3-281
Read Inverter Parameter: _INVDRT201_ReadParameter	3-284
Read Inverter Error Information: _INVDRT203_ReadAxisError	3-286
Write Inverter Parameter: _INVDRT401_WriteParameter	3-288

Servo Driver

3-9 Servo Driver

Reset Servo Error: _SRV080_Reset	3-291
Read Servo Parameter: _SRV201_ReadParameter ·····	3-294
Read Servo Error: _SRV203_ReadAxisError ······	3-296
Read Servomotor Value: _SRV206_ReadValue ······	3-299
Write Servo Parameter: _SRV401_WriteParameter ·····	3-302

RFID

3-10 ID Sensor Unit

Check Data Carrier Data: _V60x001_CheckData
Number of Writes Control: _V60x002_ControlWrites
Read Data Carrier Data: _V60x200_ReadData
Write Data to Data Carrier: _V60x400_WriteData
Set Data Carrier Bit: _V60x401_SetBit
Bit Carrier Bit Clear: _V60x402_ClearBit
Write Data Carrier Mask Bits: _V60x403_WriteMaskBit
Write Calculation: _V60x404_WriteCalculation
Fill Data in Data Carrier: _V60x405_FillData
Copy Data Carrier: _V60x406_Copy
Set System Settings: _V60x600_SetSystemSetting

Vision Sensor

3-11 Vision Sensor

Reset: _Fxxx001_Reset.	3-338
Get Scene Number: _Fxxx200_GetSceneNo ·····	3-340
Change Scene: _Fxxx201_ChangeSceneNo	3-342
Get Scene Group Number: _Fxxx202_GetSceneGrNo	3-344
Switch Scene Group: _Fxxx203_ChangeSceneGrNo	3-346
Execute Measurement: _Fxxx401_ExecMeasure ·····	3-348
Execute Picture Measurement: _Fxxx402_ExecPictureMeasure ·····	3-351

■Barcode

3-12 Code Reader

Get Scene Number: _2DCR200_GetSceneNo	3-355
Change Scene Number: _2DCR201_ChangeSceneNo ·····	3-357
Execute Read: _2DCR401_ExecRead ······	3-361

Laser Sensor

3-13 Laser Sensor

Initialize Settings: _ZXL001_InitializeParameter 3-36	365
Start Autoteaching: _ZXL002_StartAutoTeach ······ 3-36	367
Stop Autoteaching: _ZXL003_StopAutoTeach ······ 3-3	370
Execute Zero Reset: _ZXL004_ExeZeroReset 3-3	373
Release Zero Reset: _ZXL005_StopZeroReset ······ 3-3	
Start Load OFF Status: _ZXL006_StartLDOFF 3-3	379
Stop Load OFF Status: _ZXL007_StopLDOFF 3-38	382
Teach 1-point High Threshold: _ZXL008_Teach1HighThreshold	385
Teach 1-point Low Threshold: _ZXL009_Teach1LowThreshold	388
Teach 2-point High Threshold: _ZXL010_Teach2HighThreshold	391
Teach 2-point Low Threshold: _ZXL011_Teach2LowThreshold	394
Read Memory Area: _ZXL200_ReadMemArea ······ 3-39	397
Read Main Display Value: _ZXL201_ReadMainDisplay	
Read Decimal Point Position: _ZXL202_ReadDecimalPoint ······ 3-40	104
Read Incident Light: _ZXL203_ReadIncidentLevel······3-40	107
Read Resolution: _ZXL204_ReadResolution 3-4	10
Read Control Output: _ZXL205_ReadOutputs ······ 3-4	13
Read Enable Data: _ZXL206_ReadEnableData	16
Read High Threshold: _ZXL207_ReadHighThreshold ······ 3-4	19
Read Low Threshold: _ZXL208_ReadLowThreshold	122

Write High Threshold Data:	_ZXL407_WriteHighThreshold	;
Write Low Threshold Data:	ZXL408_WriteLowThreshold	3

Temperature Controller

3-14	Temperature	Controller	(Serial)
------	-------------	------------	----------

[E5AR/E5ER series]	
--------------------	--

Operation Command: _E5xx001_ExeOperation
Start Operation: _E5xx002_Run ······ 3-435
Stop Operation: _E5xx003_Stop
Autotune: _E5xR004_ExecuteAT ······ 3-469
Stop Autotuning: _E5xR005_CancelAT
Read Variable Area: _E5xx200_ReadVariable
Read Status: _E5xx201_ReadStatus
Read Process Value: _E5xx202_ReadPV
Read Set Point: _E5xx203_ReadSP
Read Cooling MV: _E5xx204_ReadCoolingMV····································
Read Heating MV: _E5xx205_ReadHeatingMV ····································
Read Valve Opening: _E5xR206_ReadValveOpening
Write Variable Area: _E5xx400_WriteVariable
Write Set Point: _E5xx403_WriteSP

[E5ZN/E5CN/CN-U series]

Operation Command: _E5xx001_ExeOperation	432
Start Operation: _E5xx002_Run ······ 3-4	435
Stop Operation: _E5xx003_Stop	
Autotune: _E5xN004_ExecuteAT ······ 3-4	475
Stop Autotuning: _E5xN005_CancelAT	478
Read Variable Area: _E5xx200_ReadVariable	441
Read Status: _E5xx201_ReadStatus	444
Read Process Value: _E5xx202_ReadPV	447
Read Set Point: _E5xx203_ReadSP	450
Read Cooling MV: _E5xx204_ReadCoolingMV	453
Read Heating MV: _E5xx205_ReadHeatingMV	456
Write Variable Area: _E5xx400_WriteVariable	462
Write Set Point: _E5xx403_WriteSP	465

3-15 Temperature Controller (DeviceNet)

Operation Command: _E5xxDRT001_ExeOperation ······	3-482
Start Operation: _E5xxDRT002_Run	3-485
Stop Operation: _E5xxDRT003_Stop ·····	3-488
Autotune: _E5xRDRT004_ExecuteAT ······	3-518
Stop Autotuning: _E5xRDRT005_CancelAT·····	3-521
Read Variable Area: _E5xxDRT200_ReadVariable	3-491
Read Status: _E5xxDRT201_ReadStatus ·····	3-494
Read Process Value: _E5xxDRT202_ReadPV	3-497
Read Set Point: _E5xxDRT203_ReadSP	3-500
Read Cooling MV: _E5xxDRT204_ReadCoolingMV ······	3-503
Read Heating MV: _E5xxDRT205_ReadHeatingMV·····	3-506
Read Valve Opening: _E5xRDRT206_ReadValveOpening	3-509
Write Variable Area: _E5xxDRT400_WriteVariable ······	3-512
Write Set Point: _E5xxDRT403_WriteSP	3-515

[E5ZN series]

Operation Command: _E5xxDRT001_ExeOperation
Start Operation: _E5xxDRT002_Run
Stop Operation: _E5xxDRT003_Stop
Autotune: _E5ZNDRT004_ExecuteAT
Stop Autotuning: _E5ZNDRT005_CancelAT
Read Variable Area: _E5xxDRT200_ReadVariable
Read Status: _E5xxDRT201_ReadStatus
Read Process Value: _E5xxDRT202_ReadPV
Read Set Point: _E5xxDRT203_ReadSP
Read Cooling MV: _E5xxDRT204_ReadCoolingMV
Read Heating MV: _E5xxDRT205_ReadHeatingMV
Write Variable Area: _E5xxDRT400_WriteVariable
Write Set Point: _E5xxDRT403_WriteSP 3-515

3-16 Temperature Controller (Unit)

Start Control: _TCx002_Run	3-531
Stop Control: _TCx003_Stop ·····	3-533
Autotune: _TCx004_ExecuteAT	3-535
Cancel Autotuning: _TCx005_CancelAT ·····	3-537
Read Status: _TCx201_ReadStatus ·····	3-539
Read Process Value: _TCx202_ReadPV ······	3-540
Read Set Point: _TCx203_ReadSP	
Write Set Point: _TCx403_WriteSP	3-544

Chapter 1 How to use this guide

Notation and Layout of Function Block Descriptions

FB Name	The name of the function block is described.	
Basic function	The basic function of the function block is described.	
Symbol	The radder symbol used to represent the function block on the CX-Programmer is shown.	
File name	The default position of the function block file is described. For example, the description [Lib\FBL\omronlib\PLC\CPU_CPU007_MakeClockPulse_BCD.cxf] specified that the function block file exists at [c :\ProgramFiles\omron\Lib\ FBL\omronlib\PLC\CPU\] at the default setting.	
Applicable models	The units and components enabled to be applied the function block are described.	
Conditions for usage	The condition enabled to be applied the function block is described.	
Function description	The functions of the function block are described.	
EN input condition	The starting trigger(EN) of the function block is described.	
Restrictions	The restriction of the function block is described.	
Application example	The example of the function block used is described.	

Variable Tables

The name and variable range are described.

Chapter 2 List of FB library

The List of the function block

CPU unit

_CPU001_TP_BCD	BCD Pulse Timer	Turns ON the output for a specified time after the input turns ON.
_CPU002_TP_BIN	Binary Pulse Timer	Turns ON the output for a specified time after the input turns ON.
_CPU003_TON_BCD	BCD ON Delay	Turns ON the output a specified time after the input turns ON.
_CPU004_TON_BIN	Binary ON Delay	Turns ON the output a specified time after the input turns ON.
_CPU005_TOF_BCD	BCD OFF Delay	Turns OFF the output a specified time after the input turns OFF.
_CPU006_TOF_BIN	Binary OFF Delay	Turns OFF the output a specified time after the input turns OFF.
_CPU007_MakeClockPulse_BCD	Make ON Time/OFF Time Clock Pulse in BCD	Generates a clock pulse with the specified ON time and OFF time and outputs it to ENO.
_CPU008_MakeClockPulse_BIN	Make ON Time/OFF Time Clock Pulse in Binary	Generates a clock pulse with the specified ON time and OFF time and outputs it to ENO.
_CPU010_SendData	Send Data	Sends data to a node on a network.
_CPU011_ReceiveData	Receive Data	Receives data from a node on a network.
_CPU012_SendCommand	Send Command	Sends command data to a node on a network.
_CPU013_PMCR	Execute Communications Sequence	Calls a registered communications sequence (protocol data) and executes it.
_CPU014_RXD	Receive from Communications Port	Receives the specified number of bytes of data from the port.
CPU015_TXD	Send from Serial Port	Sends the specified number of bytes of data from the port.

CPU bus unit and board

	UNI	T001_Restart	Unit Restart	Restarts the unit or board.
--	-----	--------------	--------------	-----------------------------

Serial Communication unit and board

Reset Serial Port	Resets a serial port.
Abort in Protocol Macro Mode	Aborts execution in Protocol Macro Mode.
Release Wait	Releases Wait Status in Protocol Macro Mode.
Set Host Link Port	Sets a serial port to Host Link mode.
Set NT Link Port	Sets a serial port to NT Link mode.
Set Protocol Macro Mode Port	Sets a serial port to Protocol Macro mode.
Set No-protocol Mode	Sets a serial port to No-protocol mode.
Set Serial Gateway Mode	Sets a serial port to Serial Gateway mode.
Set Loopback Test Mode	Sets a serial port to Loopback Test mode.
	Abort in Protocol Macro Mode Release Wait Set Host Link Port Set NT Link Port Set Protocol Macro Mode Port Set No-protocol Mode Set Serial Gateway Mode

Controller link unit

_CLK001_LINK_RunDatalink	Start Data Links	Starts the data links.
_CLK002_LINK_StopDatalink	Stop Data Links	Stops the data links.
_CLK003_CheckNode32		Monitors node communications status and data link status using the network status.
_CLK004_CheckNode62	Monitor Controller Link Node Errors 62	Monitors node communications status and data link status using the network status.

Ethernet unit

_ETN001_SOCKET_TcpOpenPa ssive	Open TCP Socket Passive	Issues a request to the specified Ethernet Unit to open a TCP socket using passive processing.
_ETN002_SOCKET_TcpOpenAct ive	Open TCP Socket Active	Issues a request to the specified Ethernet Unit to open a TCP socket using active processing.
_ETN003_SOCKET_TcpClose	Close TCP Socket	Performs TCP socket close processing for the specified Ethernet Unit.
_ETN004_SOCKET_TcpSend	Send via TCP Socket	Issues a request to the specified Ethernet Unit to send using a TCP socket.
_ETN005_SOCKET_TcpRecv	Receive via TCP Socket	Issues a request to the specified Ethernet Unit to receive using a TCP socket.
_ETN011_SOCKET_UdpOpen	Open UDP Socket	Issues a request to the specified Ethernet Unit to open a UDP socket.
_ETN013_SOCKET_UdpClose	Close UDP Socket	Performs UDP socket close processing for the specified Ethernet Unit.
_ETN014_SOCKET_UdpRecv	Receive via UDP Socket	Issues a request to the specified Ethernet Unit to receive using a UDP socket.
_ETN015_SOCKET_UdpSend	Send via UDP Socket	Issues a request to the specified Ethernet Unit to send using a UDP socket.

DeviceNet unit		
_Dnet200_GetGenericStat	Read Generic Status	Reads the generic status from slaves.
_Dnet201_GetNetVoltage_PV	Read Network Voltage Present Value	Reads the present values of the network power supply from slaves.
_Dnet202_GetNetVoltage_Min	Read Network Voltage Minimum	Reads the minimum values of the network power supply from slaves.
_Dnet203_GetNetVoltage_Max	Read Network Voltage Maximum Value	Reads the maximum values of the network power supply from slaves.
_Dnet204_GetONTime_PV	Read Present Unit ON Time	Reads the present Unit ON time (conduction time) from slaves.
_Dnet205_GetONTime_Stat	Read Unit ON Time Status	Reads the Unit ON time (conduction time) status from slaves.
_Dnet206_GetCounter_IN_PV	Read Input Terminal Maintenance Counter Present Value	Reads the present values of terminal maintenance counters from slaves.
_Dnet207_GetCounter_IN_SV	Read Input Terminal Maintenance Counter Set Value	Reads the set values of terminal maintenance counters from slaves.
_Dnet208_GetCounter_OUT_PV	Read Output Terminal Maintenance Counter Present Value	Reads the present values of terminal maintenance counters from slaves.
_Dnet209_GetCounter_OUT_SV	Read Output Terminal Maintenance Counter Set Value	Reads the set values of terminal maintenance counters from slaves.
_Dnet210_GetCounter_Stat	Read Maintenance Counter Status	Reads maintenance counter status from slaves.
	Read Input Power Status	Reads the input power status from slaves.
	Read Output Power Status	Reads the power supply status for outputs from slaves.
Dnet213_GetLoadShort_Stat	Read Load Short-circuit Status	Reads the load OFF short-circuit status from slaves.
Dnet214_GetLoadOffWire_Hold	Read Load OFF Wire Hold Status	Reads the load OFF wire hold status from slaves.
_Dnet215_GetLoadOffWire_Stat	Read Load OFF Wire Status	Reads the load OFF wire status from slaves. Use this FM for output terminals.
_Dnet216_GetOperationTime_PV	Read Operation Time Monitor Present Value	Reads the present values of the operation time monitors from slaves.
_Dnet217_GetOperationTime_SV	Read Operation Time Monitor Set Value	Reads the set values of the operation time monitors from slaves.
_Dnet218_GetOperationTime_ Stat	Read Operation Time Monitor Status	Reads the status of the operation time monitors from slaves.
_Dnet219_GetOperationTime_ Hold	Read Operation Time Monitor Hold Status	Reads the hold status for operation times from slaves.
_Dnet220_GetOperationTime_ Peak	Read Operation Time Monitor Peak Value Read	Reads the peak values for operation times from slaves.
_Dnet221_GetSensorOffWire_ Stat	Read Sensor OFF Wire Status	Reads the sensor OFF wire status from slaves.
_Dnet222_GetSensorOffWire_ Hold	Read Sensor OFF Wire Hold Status	Reads the sensor OFF wire hold status from slaves.
_Dnet223_GetSensorShort_Stat	Read Sensor Power Supply Short-circuit Status	Reads the power supply short circuit status from slaves.
_Dnet224_GetSensorShort_Hold	Read Sensor Power Supply Short-circuit Hold Status	Reads the power supply short circuit hold status from slaves.

Position Controller

FUSICION CONCOLLE		
_NCF010_MoveAbsolute_REAL	Move Absolute	Positions using an absolute move.
_NCF011_MoveAbsolute_DINT	Absolute Move Command	Positions using an absolute move.
_NCF020_MoveRelative_REAL	Move Relative	Positions using a relative move.
_NCF021_MoveRelative_DINT	Relative Move Command	Positions using a relative move.
_NCF030_MoveVelocity_ REAL	Speed Control	Controls the speed.
_NCF031_MoveVelocity_DINT	Speed Control	Controls the speed.
_NCF040_TorqueControl_REAL	Torque Control	Controls torque.
_NCF041_TorqueControl_DINT	Control Torque	Controls torque.
_NCF050_Home_REAL	Origin Search	Performs an origin search operation to establish the origin.
_NCF051_Home_DINT	Origin Search	Performs an origin search operation to establish the origin.
_NCF060_Stop	Stop Deceleration	Decelerates an axis to a stop.
NCF070_Power	Operation Command	Turns the main power circuit ON and OFF.
_NCF080_Reset	Reset Axis Error	Resets and axis error.
_NCF200_ReadStatus	Read Status	Reads the status of an axis.
_NCF201_ReadParameter	Read Parameter	Reads a servo parameter of an axis.
 NCF202_ReadBoolParameter	Read Boolean Parameter	Reads a Boolean parameter.
_NCF203_ReadAxisError	Read Axis Error	Reads axis error information.
_NCF204_ReadActualPosition_	Read Present Position	Reads the present position of an axis.
REAL		
_NCF205_ReadActualPosition_	Read Present Position	Reads the present position of an axis.
DINT		
_NCF401_WriteParameter	Write Parameter	Writes an axis servo parameter.
_NCF402_WriteBoolParameter	Write Boolean Parameter	Writes a Boolean parameter.
_NCx010_MoveAbsolute_REAL	Move Absolute	Positions using an absolute move.
_NCx011_MoveAbsolute_DINT	Move Absolute	Positions using an absolute move.
_NCx020_MoveRelative_REAL	Move Relative	Positions using a relative move.
_NCx021_MoveRelative_DINT	Move Relative	Positions using a relative move.
_NCx050_Home_REAL	Origin Search	Performs an origin search operation to establish the origin.
_NCx051_Home_DINT	Origin Search	Performs an origin search operation to establish the origin.
_NCx060_Stop	Deceleration Stop	Decelerates an axis to a stop.
_NCx080_Reset	Axis Error Reset	Resets and axis error.
_NCx200_ReadStatus	Read Status	Reads the status of an axis.
_NCx201_ReadParameter	Read Parameter	Reads a parameter of an axis.
_NCx202_ReadBoolParameter	Read Boolean Parameter	Reads a boolean parameter of an axis.
_NCx203_ReadAxisError	Read Axis Error	Reads axis error information.
_NCx204_ReadActualPosition_	Read Present Position	Reads the present position of an axis.
REAL		
_NCx205_ReadActualPosition_	Read Present Position	Reads the present position of an axis.
DINT		
_NCx401_WriteParameter	Write Parameter	Writes an axis parameter.
_NCx402_WriteBoolParameter	Write Boolean Parameter	Writes a Boolean parameter.
_NCx600_Setting	Set Unit	Sets the Position Control Unit.

Inverter

_INVDRT032_MoveVelocityHz	Move Inverter Hz	Outputs a run signal, rotation direction, and speed to the Inverter
_INVDRT033_MoveVelocityRPM	Move Inverter RPM	Outputs a run signal, rotation direction, and speed to the Inverter
_INVDRT060_Stop	Stop Inverter	Stops the Inverter.
_INVDRT080_Reset	Reset Inverter Error	An error is reset for the Inverter.
_INVDRT200_ReadStatus	Read Inverter Status	Reads status information from the Inverter.
_INVDRT201_ReadParameter	Read Inverter Parameter	Reads the setting of a parameter in an Inverter.
_INVDRT203_ReadAxisError	Read Inverter Error Information	Reads the error information from an Inverter.
_INVDRT401_WriteParameter	Write Inverter Parameter	Writes the setting of a parameter in an Inverter.

Servo

_SRV080_Reset	Reset Servo Error	Resets an error in the Servo Driver.
_SRV201_ReadParameter	Read Servo Parameter	Reads parameter information from the Servo Driver.
_SRV203_ReadAxisError	Read Servo Error	Reads Servo Driver error information.
_SRV206_ReadValue	Read Servomotor Value	Reads a monitor value from the servo driver.
_SRV401_WriteParameter	Write Servo Parameter	Changes a parameter in the Servo Driver.

RFID

_V60x001_CheckData	Check Data Carrier Data	The CRC is calculated and written for the data in the Data Carrier.
_V60x002_ControlWrites	Number of Writes Control	Updates the number of writes stored in the Data Carrier.
_V60x200_ReadData	Read Data Carrier Data	Reads data from a Data Carrier.
_V60x400_WriteData	Write Data to Data Carrier	Writes data to a Data Carrier.
_V60x401_SetBit	Set Data Carrier Bit	Turns ON the specified bit in the Data Carrier.
_V60x402_ClearBit	Bit Carrier Bit Clear	Turns OFF the specified bits in the Data Carrier.
_V60x403_WriteMaskBit	Write Data Carrier Mask Bits	Writes the specified data to a Data Carrier using the specified mask
		data.
_V60x404_WriteCalculation	Write Calculation	Performs a calculation between Data Carrier data and specified
		data and writes the result to the Data Carrier.
_V60x405_FillData	Fill Data in Data Carrier	Writes fill data to a Data Carrier.
_V60x406_Copy	Copy Data Carrier	Copies the data from one Data Carrier and writes it to another Data
		Carrier.
_V60x600_SetSystemSetting	Set System Settings	Sets the mode of the ID Sensor Unit.

Vision Sensor

_Fxxx001_Reset	Reset	Restarts the Vision Sensor.
_Fxxx200_GetSceneNo	Get Scene Number	Reads the scene number.
_Fxxx201_ChangeSceneNo	Change Scene	Changes the scene.
_Fxxx202_GetSceneGrNo	Get Scene Group Number	Gets the scene group number.
_Fxxx203_ChangeSceneGrNo	Switch Scene Group	Switches the scene group.
_Fxxx401_ExecMeasure	Execute Measurement	Executes one measurement.
_Fxxx402_ExecPictureMeasure	Execute Picture Measurement	Executes one measurement for displayed picture.

Code Reader

_2DCR401_ExecRead	Execute Read	Executes one read for a 2D Code Reader.
_2DCR201_ChangeSceneNo	Change Scene Number	Changes the scene number of the 2D Code Reader.
_2DCR200_GetSceneNo	Get Scene Number	Reads the scene number.

Laser Sensor

_ZXL001_InitializeParameter	Initialize Settings	Initializes the settings in the Smart Sensor.
_ZXL002_StartAutoTeach	Start Autoteaching	Starts automatic teaching.
_ZXL003_StopAutoTeach	Stop Autoteaching	Ends automatic teaching.
_ZXL004_ExeZeroReset	Execute Zero Reset	Executes a zero reset for the Smart Sensor.
_ZXL005_StopZeroReset	Release Zero Reset	Releases the zero reset status of the Smart Sensor.
_ZXL006_StartLDOFF	Start Load OFF Status	Starts the Load-OFF status.
_ZXL007_StopLDOFF	Stop Load OFF Status	Ends the Load-OFF status.
_ZXL008_Teach1HighThreshold	Teach 1-point High Threshold	Uses one point to teach the high threshold.
_ZXL009_Teach1LowThreshold	Teach 1-point Low Threshold	Uses one point to teach the low threshold
_ZXL010_Teach2HighThreshold	Teach 2-point High Threshold	Uses two points to teach the high threshold.
_ZXL011_Teach2LowThreshold	Teach 2-point Low Threshold	Uses two points to teach the low threshold.
_ZXL200_ReadMemArea	Read Memory Area	Reads data from the variable area.
_ZXL201_ReadMainDisplay	Read Main Display Value	Reads the numeric value displayed on the main digital display of a
		Smart Sensor.
_ZXL202_ReadDecimalPoint	Read Decimal Point Position	Reads the decimal point position set for the main digital display of a
		Smart Sensor.
_ZXL203_ReadIncidentLevel	Read Incident Light	Reads the incident light for a Smart Sensor.
_ZXL204_ReadResolution	Read Resolution	Reads the resolution for a Smart Sensor.
_ZXL205_ReadOutputs	Read Control Output	Reads the high, pass, and low control outputs.
_ZXL206_ReadEnableData	Read Enable Data	Checks if the Smart Sensor is currently in enable status.
_ZXL207_ReadHighThreshold	Read High Threshold	Reads the high threshold value from the Smart Sensor.
_ZXL208_ReadLowThreshold	Read Low Threshold	Reads the low threshold value from the Smart Sensor.
_ZXL407_WriteHighThreshold	Write High Threshold Data	Writes the high threshold value.
_ZXL408_WriteLowThreshold	Write Low Threshold Data	Writes the low threshold value.

Temperature Controller (serial)

Temperature Controller (Senar)		
_E5xx001_ExeOperation	Operation Command	Executes the specified operation command.
_E5xx002_Run	Start Operation	Starts operation for the specified channel of the specified Controller.
_E5xx003_Stop	Stop Operation	Stops operation for the specified channel of the specified Controller.
_E5xR004_ExecuteAT	Autotune	Starts autotuning for the specified channel of the specified Controller.
_E5xR005_CancelAT	Stop Autotuning	Cancels autotuning for the specified channel of the specified Controller.
_E5xN004_ExecuteAT	Autotune	Starts autotuning for the specified channel of the specified Controller.
_E5xN005_CancelAT	Stop Autotuning	Cancels autotuning for the specified channel of the specified Controller.
_E5xx200_ReadVariable	Read Variable Area	Reads one element from the specified variable area.
_E5xx201_ReadStatus	Read Status	Reads the status of the specified channel of a Controller.
_E5xx202_ReadPV	Read Process Value	Reads the process value of the specified channel of a Controller.
_E5xx203_ReadSP	Read Set Point	Reads the set point of the specified channel of a Controller.
_E5xx204_ReadCoolingMV	Read Cooling MV	Reads the cooling MV of the specified channel of a Controller.
_E5xx205_ReadHeatingMV	Read Heating MV	Reads the heating MV of the specified channel of a Controller.
_E5xR206_ReadValveOpening	Read Valve Opening	Reads the monitor value for valve opening for the specified channel of a Controller.
_E5xx400_WriteVariable	Write Variable Area	Writes one element to the specified variable area.
_E5xx403_WriteSP	Write Set Point	Writes the set point of the specified channel of a Controller.

Temperature Controller (DeviceNet)

_E5xxDRT001_ExeOperation	Operation Command	Executes the specified operation command for a Controller.		
_E5xxDRT002_Run	Start Operation	Starts operation for a channel of a Controller.		
_E5xxDRT003_Stop	Stop Operation	Stops operation for a channel of a Controller.		
_E5xRDRT004_ExecuteAT	Autotune	Starts autotuning for a channel of a Controller.		
_E5xRDRT005_CancelAT	Stop Autotuning	Cancels autotuning for a channel of a Controller.		
_E5ZNDRT004_ExecuteAT	Autotune	Starts autotuning for a channel of a Controller.		
_E5ZNDRT005_CancelAT	Stop Autotuning	Cancels autotuning for a channel of a Controller.		
_E5xxDRT200_ReadVariable	Read Variable Area	Reads one element from the variable area of a Controller.		
_E5xxDRT201_ReadStatus	Read Status	Reads the status of the specified channel of a Controller.		
_E5xxDRT202_ReadPV	Read Process Value	Reads the process value of the specified channel of a		
		Controller.		
_E5xxDRT203_ReadSP	Read Set Point	Reads the set point of the specified channel of a Controller.		
_E5xxDRT204_ReadCooling	Read Cooling MV	Reads the cooling MV of the specified channel of a		
MV		Controller.		
_E5xxDRT205_ReadHeating	Read Heating MV	Reads the heating MV of the specified channel of a		
MV		Controller.		
_E5xRDRT206_ReadValve	Read Valve Opening	Reads the valve opening monitor value for the specified		
Opening		channel of a Controller.		
_E5xxDRT400_WriteVariable	Write Variable Area	Writes one element to the specified variable area of a Controller.		
_E5xxDRT403_WriteSP	Write Set Point	Writes the set point of the specified channel of a Controller.		

Temperature Controller (unit)

_TCx002_Run	Start Control	Starts control for the specified loop.	
_TCx003_Stop	Stop Control	Stops control for the specified loop.	
_TCx004_ExecuteAT	Autotune	Executes autotuning for the specified loop.	
_TCx005_CancelAT	Cancel Autotuning	Cancels autotuning for the specified loop.	
_TCx201_ReadStatus	Read Status	Reads the status of the specified loop.	
_TCx202_ReadPV	Read Process Value	Reads a process value (PV).	
_TCx203_ReadSP	Read Set Point	Reads the set point (SP) of the specified loop.	
_TCx403_WriteSP	Write Set Point	Writes the set point (SP) of the specified loop.	

Chapter 3 Details of FB library

Programmable Controller

3-1 CPU Unit

Programmable Controller

CS1G, CS1H, CJ1G, CJ1H, CJ1M series

FB Name	Function	Page
_CPU001_TP_BCD	BCD Pulse Timer	3-3
_CPU002_TP_BIN	Binary Pulse Timer	3-5
_CPU003_TON_BCD	BCD ON Delay	3-7
_CPU004_TON_BIN	Binary ON Delay	3-9
_CPU005_TOF_BCD	BCD OFF Delay	3-11
_CPU006_TOF_BIN	Binary OFF Delay	3-13
_CPU007_MakeClockPulse_BCD	Make ON Time/OFF Time Clock Pulse in BCD	3-15
_CPU008_MakeClockPulse_BIN	Make ON Time/OFF Time Clock Pulse in Binary	3-17
_CPU010_SendData	Send Data	3-19
_CPU011_ReceiveData	Receive Data	3-22
_CPU012_SendCommand	Send Command	3-25
_CPU013_PMCR	Execute Communications Sequence	3-28
_CPU014_RXD	Receive from Communications Port	3-31
_CPU015_TXD	Send from Serial Port	3-34

Programmable Controller

CPU -001	BCD Pulse Timer: _CPU001_TP_BCD
Basic function	Turns ON the output for a specified time after the input turns ON.
Symbol	Always ON (P_On) Always ON (P_On) (BOOL) Input - ON time (unit: 100 ms) - (WORD) PT (BOOL) (BOOL) (BOOL) (BOOL) (BOOL) (BOOL) (WORD) PT (BOOL) (BOOL) (WORD) PT (BOOL)
File name	Lib\FLB\omronlib\PLC\CPU_CPU001_TP_BCD10.cxf
Applicable models	CS1-H, CS1-H, and CJ1M CPU Units
Conditions for usage Function description	PLC Properties • The PV update method for timers and counters must be set to BCD in the PLC Setup. A compiling error will occur if BCD mode is not set. The mode can be set in the PLC Properties in the CX-Programmer. PLC Properties General Protection Function Block Ware: NewPLC1 Verify Cerogram © Use gomment instructions © Use gomment instructions © Use genoment instructions PL Use genoment instructions © Use genoment instructions © Use genoment instructions PL Use genoment instructions © Use genoment instructions Execute Timer/Counter as Binary Shared Resources • Timers ENO is turned ON for the time specified in ON time when the Input turns ON. The Elapsed time will be incremented until the ON time is reached. <
	IN ON OFF ENO ON OFF ET PT PT PT
EN input	Connect the EN input to the Always ON Flag (P_On).
condition Restrictions Input variables	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. The ON time input variable must be BCD between #0000 and #9999. If a setting is not within range, ENO is turned OFF.
Application example	Always ON (P_On) Input Bit A ON time (unit: 100 ms) #10 Bit A OFF Is Is Is Input Boll

<u>3-1 CPU</u>

Related FBs	Use the correct FB for the timer/counter PV update mode set in the PLC Setup.
	Binary mode:
	Binary Pulse Timer (_CPU002_TP_BIN)
	BCD mode:
	BCD Pulse Timer (CPU001 TP BCD)

Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Input	IN	BOOL			Turn ON to start timing.
ON time	PT	WORD		#0000 to	Specify the ON pulse time (unit: 100 ms).
				#9999	For example, #30 means 3 seconds.

Output Variables

Output Vallabies				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		Turns ON for a specified time after the input turns ON.
Elapsed time	ET	WORD		Outputs the time that Input was ON until the ON time is
(May be omitted.)				reached (unit: 100 ms).

■ Version History

Version	Date	Contents
1.00	2004.6.	Original production

Programmable Controller

CPU -002	Binary Pulse Timer: _CPU002_TP_BIN
Basic function	Turns ON the output for a specified time after the input turns ON.
Symbol	Always ON (P_On) Always ON (P_On) (BOOL) (BOOL) (BOOL) (BOOL) (UINT) (INT) (UINT) PT (UINT) PT (UINT) (May be omitted.) (May be omit
File name	Lib\FLB\omronlib\PLC\CPU_CPU002_TP_BIN10.cxf
Applicable models	CS1-H, CS1-H, and CJ1M CPU Units
Conditions for usage	PLC Properties • The PV update method for timers and counters must be set to binary in the PLC Setup. A compiling error will occur if BCD mode is set. The mode can be set in the PLC Properties in the CX-Programmer. PLC Properties General Protection Function Block
	Name: NewPLC1 Lype: CS1G-H CPU45 Verify Debug Use comment instructions Monitor Use section markers Display dialog to show PLC Memory Backup Status Use [R/DRs independently per task Execute Timer/Counter as Binary
Function	Timers ENO is turned ON for the time specified in ON time when the Input turns ON.
description	The Elapsed time will be incremented until the ON time is reached. $IN \qquad ON \\ OFF \\ ENO \qquad ON \\ OFF \\ ET \qquad $
EN input	Connect the EN input to the Always ON Flag (P_On).
condition Restrictions	None
Application example	$\begin{array}{c c} Home \\ \hline Hom$

3-5

<u>3-1 CPU</u>

Related FBs	Use the correct FB for the timer/counter PV update mode set in the PLC Setup.
	Binary mode:
	Binary Pulse Timer (_CPU002_TP_BIN)
	BCD mode:
	BCD Pulse Timer (_CPU001_TP_BCD)

■ Variable Tables

Input Variable	Input Variables					
Name	Variable name	Data type	Default	Range	Description	
EN	EN	BOOL			1 (ON): FB started.	
					0 (OFF): FB not started.	
Input	IN	BOOL			Turn ON to start timing.	
ON time	PT	UINT		&0 to	Specify the ON pulse time (unit: 100 ms).	
				&65535	For example, &30 means 3 seconds.	

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		Turns ON for a specified time after the input turns ON.
Elapsed time	ET	UINT		Outputs the time that Input was ON until the ON time is
(May be omitted.)				reached (unit: 100 ms).

■ Version History

Version	Date	Contents		
1.00	2004.6.	Original production		

Programmable Controller

CPU -003	BCD ON Delay: _CPU003_TON_BCD
Basic function	Turns ON the output a specified time after the input turns ON.
Symbol	Always ON (P_On) CPU003_TON_BCD (BOOL) (BOOL) (BOOL) (BOOL) (WORD) Delay time (unit: 100 ms) CPU003_TON_BCD (BOOL) (WORD) PT Elapsed time (May be omitted.) CPU003_TON_BCD (BOOL) (BOOL) (WORD) PT CPU003_TON_BCD (BOOL) (BOOL) (BOOL) (BOOL) (WORD) (May be omitted.) (May be omitted.) (May be omi
File name	Lib\FLB\omronlib\PLC\CPU_CPU003_TON_BCD10.cxf
Applicable models	CS1-H, CS1-H, and CJ1M CPU Units
Conditions for usage	PLC Properties • The PV update method for timers and counters must be set to BCD in the PLC Setup. A compiling error will occur if BCD mode is not set. The mode can be set in the PLC Properties in the CX-Programmer. FIC Properties General Protection Function Block Name: NewPLC1 Use <u>General Protection Function Block</u> Verify <u>Pebug</u> <u>Mode</u> <u>Use gomment instructions</u> <u>Use gomment instructions</u> <u>Use gection markers</u> <u>Use JR/DRs independently per task</u> <u>Execute Imer/Counter as Binary</u> Shared Resources • Timers
Function	• The delay timer is started when <i>Input</i> turns ON. When the time set the <i>Delay time</i> has expired, ENO is turned
description	ON. ENO remains ON until <i>Input</i> turns OFF.
EN input condition	Connect the EN input to the Always ON Flag (P_On).
Restrictions Input variables	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. The <i>Delay time</i> input variable must be BCD between #0000 and #9999. If a setting is not within range, ENO is turned OFF.
Application example	$\begin{bmatrix} Always ON (P_On) \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$

Related FBs	Binary mode:
	Binary ON Delay (_CPU004_TON_BIN)
	BCD mode:
	BCD ON Delay (_CPU003_TON_BCD)

Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Input	IN	BOOL			Turn ON to start timing.
Delay time	PT	WORD		#0000 to	Specify the delay time (unit: 100 ms).
				#9999	For example, #30 means 3 seconds.

Output Variables

Name	Variable name	Data type	Range	Description	
ENO	ENO	BOOL		Turns ON a specified time after the input turns ON.	
Elapsed time (May be omitted.)	ET	WORD		Outputs the time that <i>Input</i> was ON (unit: 100 ms).	

Version History

Version	Date	Contents			
1.00	2004.6.	Original production			

CPU -004	Binary ON Delay: _CPU004_TON_BIN
Basic function	Turns ON the output a specified time after the input turns ON.
Symbol	Always ON (P_On) Always ON (P_On) (BOOL) (BOOL) (BOOL) (UINT) Delay time (unit: 100 ms) (UINT)
File name Applicable models	Lib\FLB\omronlib\PLC\CPU_CPU004_TON_BIN10.cxf CS1-H, CS1-H, and CJ1M CPU Units
Conditions for usage	PLC Properties • The PV update method for timers and counters must be set to binary in the PLC Setup. A compiling error will occur if BCD mode is set. The mode can be set in the PLC Properties in the CX-Programmer. PLC Properties General Protection Function Block Name: NewPLC1 Ignet: CSIG-H CPU45 Verify Content Con
Function description	The delay timer is started when <i>Input</i> turns ON. When the time set the <i>Delay time</i> has expired, ENO is turned ON. ENO remains ON until <i>Input</i> turns OFF.
	IN ON OFF ENO ON OFF ET PT
EN input condition	Connect the EN input to the Always ON Flag (P_On).
Restrictions Application example	None Always ON (P_On) Input Bit A Delay time (unit: 100 ms) &10 Bit A Imput Imput Bit A Imput Imput Bit A Imput Bit A Imput Imput Imput Bit A Imput Imput Imput Imput Imput Imput Imput Imput
	Bit A ON OFF Bit B ON OFF Is

Related FBs	Binary mode:
	Binary ON Delay (_CPU004_TON_BIN)
	BCD mode:
	BCD ON Delay (_CPU003_TON_BCD)

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Input	IN	BOOL			Turn ON to start timing.
Delay time	PT	UINT		&0 to	Specify the delay time (unit: 100 ms).
-				&65535	For example, &30 means 3 seconds.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		Turns ON a specified time after the input turns ON.
Elapsed time (May be omitted.)	ET	UINT		Outputs the time that <i>Input</i> was ON (unit: 100 ms).

Version	Date	Contents
1.00	2004.6.	Original production

CPU -005	BCD OFF Delay: _CPU005_TOF_BCD
Basic function	Turns OFF the output a specified time after the input turns OFF.
Symbol	Always ON (P_On) Always ON (P_On) (BOOL) (BOOL) (BOOL) (BOOL) (WORD) (WORD) Delay time (unit: 100 ms) - PT (Word) PT (BOOL) (BOOL) (Word) (May be omitted.) (May be omit
File name Applicable	Lib\FLB\omronlib\PLC\CPU_CPU005_TOF_BCD10.cxf CS1-H, CS1-H, and CJ1M CPU Units
models	
Conditions for usage	PLC Properties • The PV update method for timers and counters must be set to BCD in the PLC Setup. A compiling error will occur if BCD mode is not set. The mode can be set in the PLC Properties in the CX-Programmer. PLC Properties General Protection Function Block Name: NewPLC1 Image Section Markers Use gomment instructions Use gection markers Display dialog to show PLC Memory Backup Status Use JR/DRs independently per task Execute Timer/Counter as Binary Shared Resources • Timers
Function	ENO is turned ON when the Input turns ON.
description	The delay time is started when <i>Input</i> turns OFF. When the time set for the <i>Delay time</i> has expired, ENO is turned OFF.
EN input condition	Connect the EN input to the Always ON Flag (P_On).
Restrictions Input variables	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. The <i>Delay time</i> input variable must be BCD between #0000 and #9999. If a setting is not within range, ENO is turned OFF.
Application example	$\begin{array}{c c} & & & & & & \\ & & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & &$

Related FBs	Binary mode:
	Binary OFF Delay (_CPU006_TOF_BIN)
	BCD mode:
	BCD OFF Delay (_CPU005_TOF_BCD)

Variable Tables

Input	Variables	

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Input	IN	BOOL			Turn ON to start timing.
Delay time	PT	WORD		#0000 to	Specify the delay time (unit: 100 ms).
				#9999	For example, #30 means 3 seconds.

Output Variables

output fullabioo					
Name	Variable name	Data type	Range	Description	
ENO	ENO	BOOL		Turns ON when the <i>Input</i> turns ON and turns OFF a specified time after the <i>Input</i> turns OFF.	
Elapsed time (May be omitted.)	ET	WORD		Outputs the time that <i>Input</i> was ON (unit: 100 ms).	

Version	Date	Contents
1.00	2004.6.	Original production

CPU -006	Binary OFF Delay: _CPU006_TOF_BIN
Basic function	Turns OFF the output a specified time after the input turns OFF.
Symbol	Always ON (P_On) Always ON (P_On) (BOOL) (BOOL) (BOOL) (BOOL) (UINT) Delay time (unit: 100 ms) (UINT) (UINT)
File name	Lib\FLB\omronlib\PLC\CPU_CPU006_TOF_BIN10.cxf
Applicable models	CS1-H, CS1-H, and CJ1M CPU Units
Conditions for usage	PLC Properties • The PV update method for timers and counters must be set to binary in the PLC Setup. A compiling error will occur if BCD mode is set. The mode can be set in the PLC Properties in the CX-Programmer. PLC Properties General Protection Function Block Name: NewPLC1 Uype: CS1GH CPU45 Verify Use gention markers Use gention markers Display dialog to show PLC Memory Backup Status V Use [R/DRs independently per task Execute Timer/Counter as Binary
	Shared Resources Timers
Function description	ENO is turned ON when the <i>Input</i> turns ON. The delay time is started when <i>Input</i> turns OFF. When the time set for <i>Delay time</i> has expired, ENO is turned OFF. IN ON OFF ENO ON OFF ET PT
EN input condition	Connect the EN input to the Always ON Flag (P_On).
Restrictions	None
Application example	$\begin{array}{c c} BUSY\\ Bit A & ON\\ OFF \\ Bit B & ON\\ OFF \\ \hline \\ 1s \\ \end{array}$
Related FBs	Binary mode: Binary OFF Delay (_CPU006_TOF_BIN) BCD mode: BCD OFF Delay (_CPU005_TOF_BCD)

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL		Julige	1 (ON): FB started.
					0 (OFF): FB not started.
Input	IN	BOOL			Turn ON to start timing.
Delay time	PT	UINT		&0 to	Specify the delay time (unit: 100 ms).
-				&65535	For example, &30 means 3 seconds.

Output Variables

Output Variabies				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		Turns ON when the <i>Input</i> turns ON and turns OFF a specified time after the <i>Input</i> turns OFF.
Elapsed time (May be omitted.)	ET	UINT		Outputs the time that <i>Input</i> was ON (unit: 100 ms).

ſ	Version	Date	Contents
[1.00	2004.6.	Original production

СРИ	Make ON Time/OFF Time Clock Pulse in BCD:					
-007	CPU007 MakeClockPulse BCD					
Basic function	Generates a clock pulse with the specified ON time and OFF time and outputs it to ENO.					
Symbol	Always ON (P_On) CPU007_MakeClockPulse_BCD (BOOL) EN EN EN (WORD) OFF time (unit: 100 ms) OFF time (u					
File name	Lib\FLB\omronlib\PLC\CPU_CPU007_MakeClockPulse_BCD10.cxf					
Applicable	CS1-H, CS1-H, and CJ1M CPU Units					
models Conditions	PLC Properties					
for usage	 The PV update method for timers and counters must be set to BCD in the PLC Setup. A compiling error will occur if BCD mode is not set. The mode can be set in the PLC Properties in the CX-Programmer. PC Properties General Protection Function Block Mode Use general Protection Function Block Verify C Brogram Use general instructions Worker Worker Worker Shared Resources Timers					
Function description	ENO will be OFF for the time set in OFF time and then will be ON for the time set in ON time.					
uescription	ENO ON OFF ENO ON OFF OffTime (*100 ms) OffTime (*100 ms)					
EN input	Connect the EN input to the Always ON Flag (P_On).					
condition Restrictions Input variables	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. Set the ON time and OFF time input variables to between #0000 and #9999 in BCD (100 ms units). If a setting is not within range, ENO is turned OFF. 					
Application	In the following example, bit A will be repeatedly ON for 5 s and OFF for 3 s.					
example	Always ON (P_On) CPU007_MakeClockPulse_BCD Bit A ON time (unit: 100 ms) (BOOL) (BOOL) 0FF time (unit: 100 ms) #50 (WORD) 0ffTime (WORD) (MORD)					
Related FBs	Use the correct FB for the timer/counter PV update mode set in the PLC Setup. Binary mode: Make ON Time/OFF Time Clock Pulse in Binary (_CPU008_MakeClockPulse_BIN) BCD mode: Make ON Time/OFF Time Clock Pulse in BCD (_CPU007_MakeClockPulse_BCD)					

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
ON time	OnTime	WORD		#0000 to	Specify the ON time (unit: 100 ms).
				#9999	For example, #30 means 3 seconds.
OFF time	OffTime	WORD		#0000 to	Specify the OFF time (unit: 100 ms).
				#9999	For example, #30 means 3 seconds.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		Turns ON for the OnTime and OFF for the OffTime.

Version History

Version	Date	Contents
1.00	2004.6.	Original production

CPU	Make ON Time/OFF Time Clock Pulse in Binary:
-008	CPU008 MakeClockPulse BIN
Basic	Generates a clock pulse with the specified ON time and OFF time and outputs it to EN0.
function	
Symbol	Always ON (P_On)
	(BOOL) (BOOL)
	ÈN ÈN ENÒ
	ON Time (unit: 100 ms) — (UINT) OnTime
	OFF Time (unit: 100 ms) — OffTime
	Of the duration of the duratio
File name	Lib\FLB\omronlib\PLC\CPU\ CPU008 MakeClockPulse BIN10.cxf
Applicable	CS1-H, CS1-H, and CJ1M CPU Units
models	
Conditions	PLC Properties
for usage	 The PV update method for timers and counters must be set to binary in the PLC Setup.
	A compiling error will occur if BCD mode is set.
	The mode can be set in the PLC Properties in the CX-Programmer.
	PLC Properties
	General Protection Function Block
	Name: NewPLC1
	Lype: CS1G-H CPU45 Verify C Debug
	C Monitor
	✓ Use comment instructions C Bun ✓ Use section markers
	IV Use <u>s</u> ection markers ☐ Display dialog to show PLC Memory <u>B</u> ackup Status
	✓ Use IR/DRs independently per task
	Execute Timer/Counter as Binary
	Shared Resources
	Timers
Function	ENO will be OFF for the time set in OFF time and then will be ON for the time set in ON time.
description	
	EN ON
	OFF
	OnTime (*100 ms)
	OffTime (*100 ms)
EN input	Connect the EN input to the Always ON Flag (P_On).
condition	None
Restrictions Application	None In the following example, bit A will be repeatedly ON for 5 s and OFF for 3 s.
example	
	Always ON (P_On) Bit A
	(BOOL) (BOOL) EN ENO
	ON Time (unit: 100 ms) UINT) 850 OnTime
	000 OFF Time (unit: 100 ms) (UINT)
	830 OffTime
Data(155	
Related FBs	Use the correct FB for the timer/counter PV update mode set in the PLC Setup.
	Binary mode: Make ON Time/OFF Time Clock Pulse in Binary (_CPU008_MakeClockPulse_BIN)
	BCD mode:
	Make ON Time/OFF Time Clock Pulse in BCD (_CPU007_MakeClockPulse_BCD)

■ Variable Tables

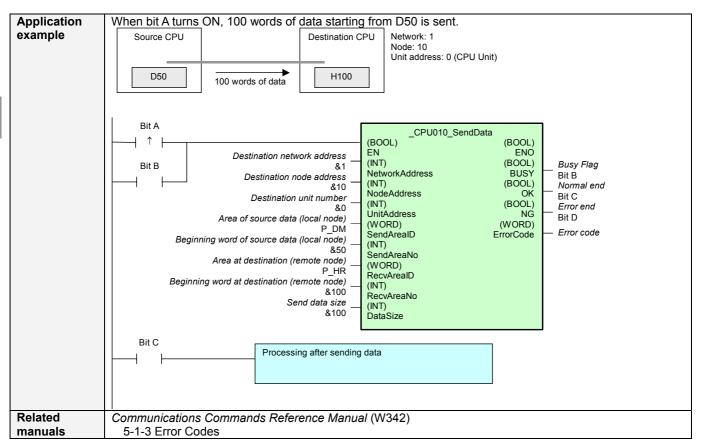
Input	Variables	
mput	Variabico	

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
ON Time	OnTime	UINT			Specify the ON time (unit: 100 ms).
					For example, &30 means 3 seconds.
OFF Time	OffTime	UINT			Specify the OFF time (unit: 100 ms).
					For example, &30 means 3 seconds.

Variable name	Data type	Range	Description
ENO	BOOL		Turns ON for the OnTime and OFF for the OffTime.

Version	Date	Contents
1.00	2004.6.	Original production

CPU -010	Send Data: _CPU010_SendData						
Basic function	Sends data to a node on a network.						
Symbol	Start trigger						
File name	Lib\FLB\omronlib\PLC\CPU\ CPU010 SendData10.cxf						
Applicable	CS1-H, CS1-H, and CJ1M CPU Units						
models							
Conditions for usage	Settings PLC Setup: Shared Settings for Communications Instructions in FBs • Communications Instruction Response Timeout Time (default: 2 s) • Number of retries (default: 0) Shared Resources • Communications ports (internal logical ports)						
Function description	Sends the number of words of data specified in <i>Send data size</i> to the Unit specified by the <i>Send network address, Send node address,</i> and <i>Send unit address.</i> The data word designations are specified using the area type and beginning word address. For example, for D1000, the area type is set to P_DM and the beginning word address is set to &1000.						
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or ON Error end (NG) FB execution completed. 						
EN input condition	At normal end: Sending data has been completed. Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.						
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 						



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Destination network address	NetworkAddress	INT	&0	&0 to &127	&0: Local network
Destination node address	NodeAddress	INT	&0		
Destination unit number	UnitAddress	INT	#0000	#0000 to #00FE	CPU: #0000 CPU Bus Units: Unit number + #10(Hex) Special I/O Units: Unit number + #20(Hex) INNER Board: #00E1 Computer: #0001
Area of source data (local node)	SendAreaID	WORD	#0082	At right	P_CIO (#00B0): CIO Area P_WR (#00B1): Work Area P_HR (#00B2): Holding Area P_DM (#0082): DM Area P_EM0 (#0050) to P_EMC (#005C): EM Area bank 0 to C
Beginning word of source data (local node)	SendAreaNo	INT	&0		
Area at destination (remote node)	RecvArealD	WORD	#0082	At right	P_CIO (#00B0): CIO Area P_WR (#00B1): Work Area P_HR (#00B2): Holding Area P_DM (#0082): DM Area P_EM0 (#0050) to P_EMC (#005C): EM Area bank 0 to C
Beginning word at destination (remote node)	RecvAreaNo	INT	&0		
Send data size	DataSize	INT	&0		The maximum data size depends on the network. For example, the range for a Controller Link network is &1 to &990 words.

Output Variables

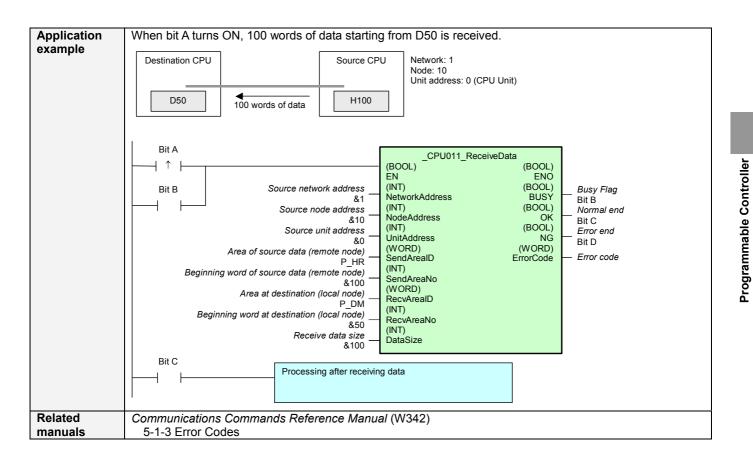
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Error code	ErrorCode	WORD		Outputs the error code when execution ends in an
(May be omitted.)				error in the communications command level. Refer to
				the FINS Command Reference Manual (W227) for
1				details on the error codes.

■ Version History

Version	Date	Contents
1.00	2004.6.	Original production

CPU -011	Receive Data: _CPU011_ReceiveData					
Basic	Receives data from a node on a network.					
function Symbol						
Symbol	Start triggerCPU011_ReceiveData					
	(BOOL) (BOOL) (BOOL) (BOOL) (BOOL)					
	Busy Flag Source network address — (INT) (BOOL)					
	NetworkAddress BUSY Busy Flag Source node address (INT) (BOOL) NodeAddress OK Normal end					
	Source unit address – (INT) (BOOL) UnitAddress NG – Error end					
	Area of source data (remote node) – (WORD) SendAreaID (WORD) (WORD) SendAreaID (WORD) (WORD) ErrorCode (May be omitted.)					
	Beginning word of source data (remote node) – (INT) SendAreaNo					
	Area at destination (local node) — (W ORD) RecvArealD					
	Beginning word at destination (local node) — (INT) RecevAreaNo					
	Receive data size - (INT) DataSize					
File name	Lib\FLB\omronlib\PLC\CPU\ CPU011 ReceiveData10.cxf					
Applicable	CS1-H, CS1-H, and CJ1M CPU Units					
models						
Conditions	Settings					
for usage	PLC Setup: Shared Settings for Communications Instructions in FBs					
	Communications Instruction Response Timeout Time (default: 2 s)					
	Number of retries (default: 3) Shared Resources					
	Communications ports (internal logical ports)					
Function	Receives the number of words of data specified in Receive data size from the Unit specified by the Source					
description	network address, Source node address, and Source unit address.					
	The data word designations are specified using the area type and beginning word address. For example, for D1000, the area type is set to P_DM and the beginning word address is set to &1000.					
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the					
precautions	• The FB is processed over multiple cycles. The BOST output variable can be used to check whether the FB is being processed.					
	• OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect					
	the end of FB processing.					
	Timechart					
	Start Trigger ON OFF					
	Busy Flag (BUSY) ON					
	OFF					
	Normal end (OK) or ON					
	Error end (NG) OFF					
	FB execution completed.					
	At normal end: Data reception is completed and data is stored in designation area.					
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output					
condition	from the FB.					
Restrictions	Always use an upwardly differentiated condition for EN.					
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.					
Output	This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable					
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).					
	 Do not turn the BUSY output variable ON or OFF outside the FB. 					

Do not turn the BUSY output variable ON or OFF outside the FB.



Input Variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Source network address	NetworkAddress	INT	&0	&0 to &127	&0: Local network
Source node address	NodeAddress	INT	&0		
Source unit address	UnitAddress	INT	&0	#0000 to #00FE	CPU: #0000 CPU Bus Units: Unit number + #10(Hex) Special I/O Units: Unit number + #20(Hex) INNER Board: #00E1 Computer: #0001
Area of source data (remote node)	SendAreaID	WORD	#0082	At right	P_CIO (#00B0): CIO Area P_WR (#00B1): Work Area P_HR (#00B2): Holding Area P_DM (#0082): DM Area P_EM0 (#0050) to P_EMC (#005C): EM Area bank 0 to C
Beginning word of source data (remote node)	SendAreaNo	INT	&0		
Area at destination (local node)	RecvArealD	WORD	#0082	At right	P_CIO (#00B0): CIO Area P_WR (#00B1): Work Area P_HR (#00B2): Holding Area P_DM (#0082): DM Area P_EM0 (#0050) to P_EMC (#005C): EM Area bank 0 to C
Beginning word at destination (local node)	RecvAreaNo	INT	&0		
Receive data size	DataSize	INT	&0		The maximum data size depends on the network. For example, the range for a Controller Link network is &1 to &990 words.

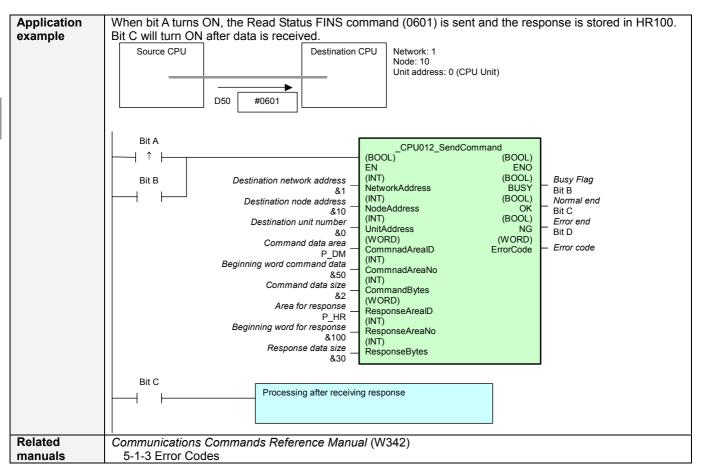
Output Variables

1.1. Name	Variable name	Data type	Range	Description	
ENO	ENO	BOOL		1 (ON): FB processed normally.	
(May be omitted.)				0 (OFF): FB not processed or ended in an error.	
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is	
				completed.	
Normal end	OK	BOOL		Turns ON for one cycle when processing ends	
				normally.	
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an	
				error.	
Error code	ErrorCode	WORD		Outputs the error code when execution ends in an	
(May be omitted.)				error in the communications command level. Refer to	
				the FINS Command Reference Manual (W227) for	
				details on the error codes.	

Version	Date	Contents		
1.00	2004.6.	Original production		

CPU -012	Send Command: _CPU012_SendCommand						
Basic function	Sends command data to a node on a network.						
Symbol	Start trigger						
File name	Lib\FLB\omronlib\PLC\CPU\ CPU012 SendCommand10.cxf						
Applicable	CS1-H, CS1-H, and CJ1M CPU Units						
models							
Conditions for usage	Settings PLC Setup: Shared Settings for Communications Instructions in FBs • Communications Instruction Response Timeout Time (default: 2 s) • Number of retries (default: 3) Shared Resources • Communications ports (internal logical ports)						
Function	• Communications ports (internal logical ports) Sends a command of the number of words of specified in <i>Command data size</i> to the Unit specified by the						
description	Send network address, Send node address, and Send unit address. The data word designations are specified using the area type and beginning word address. For example, for D1000, the area type is set to P_DM and the beginning word address is set to &1000.						
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. 						
	 OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or ON Error end (NG) OFF FB execution completed. At normal end: Sending command data is completed and the response is received. 						
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output						
condition Restrictions Input variables	 from the FB. Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 						

<u>3-1 CPU</u>



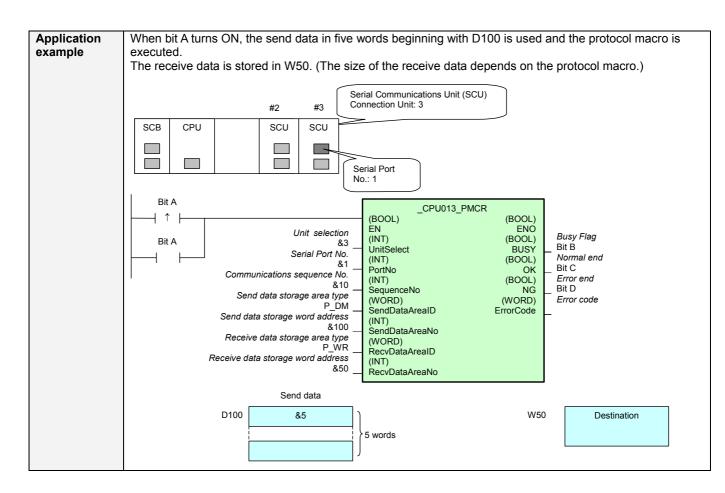
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Destination network address	NetworkAddress	INT	&0	&0 to &127	
Destination node address	NodeAddress	INT	&0		&0: Local network
Destination unit number	UnitAddress	INT	&0	#0000 to #00FE	CPU: #0000 CPU Bus Units: Unit number + #10(Hex) Special I/O Units: Unit number + #20(Hex) INNER Board: #00E1 Computer: #0001
Command data area	CommandAreaID	WORD	#0082	At right	P_CIO (#00B0): CIO Area P_WR (#00B1): Work Area P_HR (#00B2): Holding Area P_DM (#0082): DM Area P_EM0 (#0050) to P_EMC (#005C): EM Area bank 0 to C
Beginning word command data	CommandAreaNo	INT	&0		
Command data size	CommandBytes	INT	&0		Depends on the command.
Area for response	ResponseArealD	WORD	#0082	At right	P_CIO (#00B0): CIO Area P_WR (#00B1): Work Area P_HR (#00B2): Holding Area P_DM (#0082): DM Area P_EM0 (#0050) to P_EMC (#005C): EM Area bank 0 to C
Beginning word for response	ResponseAreaNo	INT	&0		
Response data size	ResponseBytes	INT	&0		Depends on the command.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Error code (May be omitted.)	ErrorCode	WORD		Outputs the error code when execution ends in an error in the communications command level. Refer to the <i>FINS Command Reference Manual</i> (W227) for details on the error codes.

Version History		
Version	Date	Contents
1.00	2004.6.	Original production

CPU -013	Execute Communications Sequence: _CPU013_PMCR					
Basic function	CPU Unit Cannot be used for connection to the CPU Unit. Serial Communications Unit (SCU)/Board (SCB) Calls a registered communications sequence (protocol data) and executes it.					
Symbol	Start trigger					
File name	Lib\FLB\omronlib\PLC\CPU\ CPU013 PMCR10.cxf					
Applicable models	CS1W-SCU21-V1, CJ1W-SCU21-V1, and CJ1W-SCU41-V1 Serial Communications Units CS1W-SCB21-V1 and CS1W-SCB41-V1 Serial Communications Boards					
Conditions	Shared Resources					
for usage	 Communications ports (internal logical ports) Other Communications must be within one network and cannot cross to another network. 					
Function description	The specified registered communications sequence (protocol data) is called and executed for the Serial Communications Unit (SCU) or Serial Communications Board (SCB) serial port for the specified <i>Connection Unit</i> and <i>Serial port No</i> . The word designation for storing the send/receive data is specified using the area type and beginning word address. For example, for D1000, the area type is set to P_DM and the beginning word address is set to &1000.					
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or OFF FB execution completed. 					
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output					
condition	from the FB.					
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 					



Input Variables	Input Variables					
Name	Variable name	Data type	Default	Range	Description	
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.	
Unit selection	UnitSelect	INT	&0	At right.	Specify the Unit and the serial port.	
Serial Port No.	PortNo	INT	&1	&1 to &2	 Connected to CPU Unit Cannot be used. Connected to Serial Communication Board(SCB) Model selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Model selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2 	
Communications sequence No.	SequenceNo	INT	&0	&0 to &999		
Send data storage area type	SendDataArealD	WORD	#00B0	At right.	No Send data: #0000 P_CIO (#00B0): CIO Area P_WR (#00B1): Work Area P_HR (#00B2): Holding Area P_DM (#0082): DM Area P_EM0 (#0050) to P_EMC (#005C): EM Area bank 0 to C	
Send data storage word address	SendDataAreaNo	INT	&0			
Receive data storage area type	RecvDataAreaID	WORD	#00B0	At right.	No Receive data: #0000 P_CIO (#00B0): CIO Area P_WR (#00B1): Work Area P_HR (#00B2): Holding Area P_DM (#0082): DM Area P_EM0 (#0050) to P_EMC (#005C): EM Area bank 0 to C	
Receive data storage word address	RecvDataAreaNo	INT	&0			

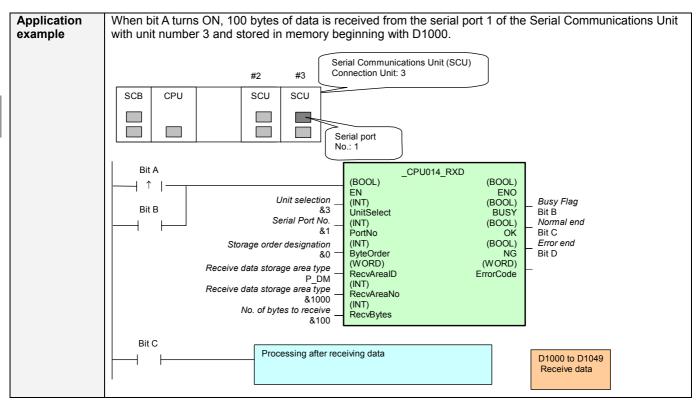
Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Error code (May be omitted.)	ErrorCode	WORD		Outputs the error code when execution ends in an error in the communications command level. Refer to the <i>FINS Command Reference Manual</i> (W227) for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

CPU -014	Receive from Communications Port: _CPU014_RXD
Basic function	CPU Unit Receives the specified number of bytes of data from the built-in RS-232C port on the CPU Unit. Serial Communications Unit (SCU)/Board (SCB) Receives the specified number of bytes of data from the specified port.
Symbol	Start trigger
File name	Lib\FLB\omronlib\PLC\CPU_CPU014_RXD10.cxf
Applicable models	 CPU Units CS1-H, CJ1-H, or CJ1M CPU Units Serial Communications Units/Boards Unit Version 1.2 of CS1W-SCU21-V1, CJ1W-SCU21-V1, and CJ1W-SCU41-V1 Serial Communications Units Unit Version 1.2 of CS1W-SCB21-V1 and CS1W-SCB41-V1 Serial Communications Boards
Conditions	Shared Resources
for usage	When a Serial Communications Unit is specified: Communications ports (internal logical ports)
Function description	The number of bytes specified in <i>Receive size</i> is received from the Serial Communications Unit (SCU) or Serial Communications Board (SCB) serial port for the specified <i>Connection unit</i> and <i>Serial port No.</i> and stored in the specified receive data area. The word designation for storing the receive data is specified using the area type and beginning word address. For example, for D1000, the area type is set to P_DM and the beginning word address is set to &1000.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or ON OFF OFF
	Error end (NG) OFF FB execution completed. At normal end: Receiving data is completed and the data stored in the receive area.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.

<u>3-1 CPU</u>



Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the Unit and the serial port.
Serial Port No.	PortNo	INT	&1	&1 to &2	Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Storage order designation	ByteOrder	INT	&0	&0 to &1	&0: Upper byte to lower byte &1: Lower byte to upper byte
Receive data storage area type	RecvArealD	WORD	#0082	At right.	P_CIO (#00B0): CIO Area P_WR (#00B1): Work Area P_HR (#00B2): Holding Area P_DM (#0082): DM Area P_EM0 (#0050) to P_EMC (#005C): EM Area bank 0 to C
Receive data storage area type	RecvAreaNo	INT	&0		
No. of bytes to receive	RecvBytes	INT	&0	&0 to &256	

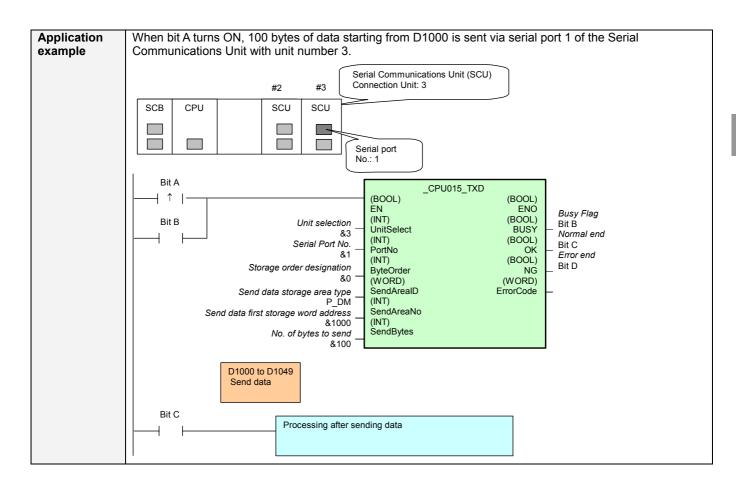
Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Error code	ErrorCode	WORD		CPU Unit/SCB A code of #0000 is always output. SCU Outputs the error code when execution ends in an error in the communications command level. Refer to the <i>FINS Command Reference Manual</i> (W227) for details on the error codes.

Version	Date	Contents			
1.00	2004.6.	Original production			

CPU -015	Send from Serial Port: _CPU015_TXD					
Basic function	CPU Unit Sends the specified number of bytes of data from the built-in RS-232C port on the CPU Unit. Serial Communications Unit (SCU)/Board (SCB) Sends the specified number of bytes of data from the specified port.					
Symbol	Start trigger					
File name	Lib\FLB\omronlib\PLC\CPU_CPU015_TXD10.cxf					
Applicable models	 CPU Units CS1-H, CJ1-H, or CJ1M CPU Units Serial Communications Units/Boards Unit Version 1.2 of CS1W-SCU21-V1, CJ1W-SCU21-V1, and CJ1W-SCU41-V1 Serial Communications Units Unit Version 1.2 of CS1W-SCB21-V1 and CS1W-SCB41-V1 Serial Communications Boards 					
Conditions for usage	 Shared Resources When a Serial Communications Unit is specified: Communications ports (internal logical ports) Communications Unit Settings The use of CTS control depends on the setting in the Serial Communications Unit (SCU) or Serial Communications Board (SCB). 					
Function description	The number of bytes specified in <i>Send size</i> is sent from the Serial Communications Unit (SCU) or Serial Communications Board (SCB) serial port for the specified <i>Connection unit</i> and <i>Serial port No</i> . The word designation for storing the send data is specified using the area type and beginning word address. For example, for D1000, the area type is set to P_DM and the beginning word address is set to &1000.					
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart 					
	Start Trigger ON OFF Busy Flag (BUSY) ON OFF					
	Normal end (OK) or ON Error end (NG) OFF					
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY					
condition Restrictions	output from the FB.Always use an upwardly differentiated condition for EN.					
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). 					

Do not turn the BUSY output variable ON or OFF outside the FB.



■ Variable Tables

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the Unit and the serial port.
Serial Port No.	PortNo	INT	&1	&1 to &2	Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Storage order designation	ByteOrder	INT	&0	&0 to &1	&0: Upper byte to lower byte &1: Lower byte to upper byte
Send data storage area type	SendAreaID	WORD	#0082	At right.	P_CIO (#00B0): CIO Area P_WR (#00B1): Work Area P_HR (#00B2): Holding Area P_DM (#0082): DM Area P_EM0 (#0050) to P_EMC (#005C): EM Area bank 0 to C
Send data first storage word address	SendAreaNo	INT	&0		
No. of bytes to send	SendBytes	INT	&0	&0 to &256	

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Error code	ErrorCode	WORD		CPU Unit/SCB
				A code of #0000 is always output.
				SCU
				Outputs the error code when execution ends in an
				error in the communications command level.
				Refer to the FINS Command Reference Manual
				(W227) for details on the error codes.

Version History		
Version	Date	Contents
1.00	2004.6.	Original production

3-2 CPU bus unit and board

CPU Bus Unit/Innerboard

FB Name	Function	Page
_UNIT001_Restart	Unit Restart	3-38

UNIT Unit Restart: _UNIT001_Restart

Basic	Restarts the unit or board.
function	
Symbol	Start trigger ↓ ↑ ↓ Unit selection ↓ Unit selection ↓ Unit selection ↓ Unit selection ↓ UNIT001_Restart (BOOL) EN (BOOL) EN UNIT001_Restart
File name	¥Lib¥FBL¥omronlib¥PLC¥UNIT¥_UNIT001_Restart10.cxf
Applicable	All Boards
models	All CPU Bus Units
Conditions	None
for usage	
Function	When the Start Trigger turns ON, the unit or board specified by the Unit selection is restarted.
description	
FB	A restart completion check is not performed for this FB.
precautions	To confirm completion, program it using the Unit/Board Restart Flags in the AR Area.
EN input condition	When use an upwardly differentiated bit or the First Cycle Flag (A200.11).
Restrictions	Always use an upwardly differentiated condition for EN.
Input	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
variables	
Application	In the first running cycle, restarts the Unit with a unit number of 3.
example	
	A200.11UNIT001_Restart (BOOL)
	EN
	Unit selection ENU ENU
	UnitSelect

Variable Tables

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the unit or board. Board Unit selection #BBBB Unit Unit selection Unit No. (&0 to &15)

Output Variables

Output Vallabioo				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.

Version	Date	Contents
1.00	2004.6.	Original production

3-3 Serial Communication unit and board

CS1W-SCU21-V1, CJ1W-SCU21-V1/SCU41-V1 CS1W-SCB21-V1/SCB41-V1

FB Name	Function	Daga
		Page
_SCx001_ResetPort	Reset Serial Port	3-40
_SCx002_PMCR_Abort	Abort in Protocol Macro Mode	3-41
_SCx003_PMCR_ReleaseWait	Release Wait	3-42
_SCx600_SetPortSYSWAY	Set Host Link Port	3-43
_SCx601_SetPortNTLINK	Set NT Link Port	3-45
_SCx602_SetPortPMCR	Set Protocol Macro Mode Port	3-47
_SCx603_SetPortNOPRTCL	Set No-protocol Mode	3-49
_SCx604_SetPortGATEWAY	Set Serial Gateway Mode	3-53
_SCx605_SetPortLOOPBACK	Set Loopback Test Mode	3-55

SCx
-001Reset Serial Port: _SCx001_ResetPort

τ
ō
gra
Ĩ
nat
ole
င္ပ
ntr
olle
er

Basic function	Resets a serial port.
Symbol	Any bit Unit selection Serial Port No.
File name	Lib\FBL\omronlib\PLC\SCx_SCx001_ResetPort10.cxf
Applicable models	CS1W-SCU21-V1, CJ1W-SCU21-V1, and CJ1W-SCU41-V1 Serial Communications Units CS1W-SCB21-V1 and CS1W-SCB41-V1 Serial Communications Boards
Conditions	Other
for usage	 Communications must be within one network and cannot cross to another network.
Function	The Serial Communications Unit (SCU) or Serial Communications Board (SCB) serial port for the specified
description	Unit selection and Serial port No. is reset.
EN input	Any bit can be specified.
condition	
Restrictions Input	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
variables	
Application	When bit A turns ON, the serial port 1 of the Serial Communications Unit with unit number 3 is reset.
example	#2 #3 Serial Communications Unit (SCU) Unit selection: 3
	SCB CPU SCU SCU
	Serial Port
	Bit A Unit selection &3 Serial Port No. &1 No.: 1 (BOOL) EN (BOOL) EN (BOOL) EN (BOOL) EN (BOOL) EN ENO (NT) UnitSelect (INT) PortNo

Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the Unit and the serial port.
Serial Port No.	PortNo	INT	&1	&1 to &2	 Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.

Version	Date	Contents
1.00	2004.6.	Original production

SCx -002	Abort in Protocol Macro Mode: _SCx002_PMCR_Abort
Basic function	Aborts execution in Protocol Macro Mode.
Symbol	Any bit Unit selection Serial Port No Serial
File name	Lib/FBL/omronlib/PLC/SCx/_SCx002_PMCR_Abort10.cxf
Applicable models	CS1W-SCU21-V1, CJ1W-SCU21-V1, and CJ1W-SCU41-V1 Serial Communications Units CS1W-SCB21-V1 and CS1W-SCB41-V1 Serial Communications Boards
Conditions	Serial Communications Unit (SCU)/Board (SCB) Settings
for usage	The Serial Communications Mode must be set.
	If this condition is not met, the ENO Flag will turn OFF and the FB will not be processed.
	Other
Function	Communications must be within one network and cannot cross to another network. Execution is aborted in Protocol Macro Mode for the Serial Communications Unit (SCU) or Serial
description	Communications Board (SCB) serial port for the specified <i>Unit selection</i> and <i>Serial port No.</i>
EN input	Any bit can be specified.
condition	
Restrictions Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Application	Execution is aborted for the serial port 1 of the Serial Communications Unit with unit number 3.
example	Serial Communications Unit (SCU)
	#2 #3 Unit selection: 3
	SCB CPU SCU SCU
	Serial Port No.: 1
	Bit A Unit selection &3 Serial Port No. &1 Bit A Unit selection &3 Serial Port No. &1 BOOL) EN (INT) PortNo (INT) PortNo

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the Unit and the serial port.
Serial Port No.	PortNo	INT	&1	&1 to &2	 Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

eutput fullabiee				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.

Version	Date	Contents
1.00	2004.6.	Original production

SCx Release Wait: _SCx003_PMCR_ReleaseWait

Releases Wait Status in Protocol Macro Mode.

τ
Ť
Ö
õ
=
മ
7
2
3
a
σ
Ē
Φ
0
ö
ň
F.
2
<u>o</u>
-
ē

Basic

function	
Symbol	Any bit
	ÉN ENO (INT)
	Unit selection — UnitSelect
	Serial Port No. – (INT) PortNo
File name	Lib\FBL\omronlib\PLC\SCx_SCx003_PMCR_ReleaseWait10.cxf
Applicable	CS1W-SCU21-V1, CJ1W-SCU21-V1, and CJ1W-SCU41-V1 Serial Communications Units
models	CS1W-SCB21-V1 and CS1W-SCB41-V1 Serial Communications Boards
Conditions	Serial Communications Unit (SCU)/Board (SCB) Settings
for usage	The Protocol Macro Mode must be set.
	If this condition is not met, the ENO Flag will turn OFF and the FB will not be processed. Other
	 Communications must be within one network and cannot cross to another network.
Function	The wait status is released in Protocol Macro Mode for the Serial Communications Unit (SCU) or Serial
description	Communications Board (SCB) serial port for the specified <i>Unit selection</i> and <i>Serial port No.</i>
EN input	Any bit can be specified.
condition	
Restrictions	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Input	
variables Application	When hit A turne ON, weit status is released for earial part 1 of the Sarial Communications Unit with unit
example	When bit A turns ON, wait status is released for serial port 1 of the Serial Communications Unit with unit number 3.
	Serial Communications Unit (SCU)
	#2 #3 Unit selection: 3
	SCB CPU SCU SCU
	Serial Port
	Bit A
	_SCx003_PMCR_ReleaseWait
	(BOOL) (BOOL) (Init paranting EN ENO
	$\frac{1}{83} \rightarrow (1NT)$
	Serial Port No. UnitSelect
	&1 PortNo

■ Variable Tables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the Unit and the serial port.
Serial Port No.	PortNo	INT	&1	&1 to &2	 Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.

Version	Date	Contents
1.00	2004.6.	Original production

SCx -600	Set Host Link Port: _SCx600_SetPortSYSWAY				
Basic function	Sets a serial port to Host Link mode.				
Symbol	Start trigger				
File name	Lib\FBL\omronlib\PLC\SCx_SCx600_SetPortSYSWAY10.cxf				
Applicable models	CS1W-SCU21-V1, CJ1W-SCU21-V1, and CJ1W-SCU41-V1 Serial Communications Units CS1W-SCB21-V1 and CS1W-SCB41-V1 Serial Communications Boards				
Conditions for usage	 Other Communications must be within one network and cannot cross to another network. 				
Function description	The Serial Communications Unit (SCU) or Serial Communications Board (SCB) serial port for the specified <i>Unit selection</i> and <i>Serial port No.</i> is set to Host Link Mode. When the <i>Start Trigger</i> turns ON, the operating mode is changed and a port restart is begun.				
FB precautions	 A restart completion check is not performed for this FB. To confirm completion, program it using the Serial Communications Board Settings Changed Flag in the AR Area. 				
EN input condition	Always use an upwardly differentiated bit or the First Cycle Flag (A200.11). If one is not used, the communications port will be continuously restarted.				
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 				
Application example	When operation is started, the mode of serial port 2 on the Serial Communications Unit with unit number 3 is changed and the port is restarted.				
example	#2 #3 Serial Communications Unit (SCU) Unit selection: 3				
	SCB CPU SCU SCU				
	Serial Port No.: 1				
	A200.11 Unit selection Unit selection Serial Port No. 22 Data length 83 Serial Port No. 22 Data length 87 Stop bits 82 Parity Baud rate 8,19200 Delay time 8,31 CtriCts (INT) Baud nut Select (INT) PortNo (INT) PortNo (INT) Baud rate 8,31 Stop bits 10INT) Baud rate 8,31 Stop bits 10INT) Baud rate 8,31 Stop bits 10INT) Baud rate 10INT) Stop bits 10INT) Baud rate 10INT) Baud Rate 10INT) SwyUnitNo				

■ Variable Tables

Input Variables	Input	Variables	
-----------------	-------	-----------	--

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the Unit and the serial port.
Serial Port No.	PortNo	INT	&1	&1 to &2	 Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Data length	DataLen	INT	&7	&7 to &8	&7: 7 bits &8: 8 bits
Stop bits	StopBit	INT	&2	&1 to &2	&1: 1 bit &2: 2 bits
Parity	Parity	INT	&0	&0 to &2	&0: Even parity &1: Odd parity &2: None
Baud rate	BaudRate	DINT	&9600	At right.	1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200 (bits/s)
Delay time	DelayTime	DINT	&0	&0 to &300000	0 to 300,000 (ms) Note: In units of 10 ms. Any digits below the setting unit are truncated.
CTS controls	CtrlCts	INT	&0	&0 to &1	&0: None &1: Use
Host Link unit No.	SwyUnitNo	INT	&0	&0 to &31	

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.

Version	Date	Contents
1.00	2004.6.	Original production

SCx -601	Set NT Link Port: SCx601_SetPortNTLINK
Basic	Sets a serial port to NT Link mode.
function	
Symbol	Start trigger SCx601 SetPortNTLINK
	(BOOL) ENO
	EN (BOOL)
	Unit Select
	Serial Port No. – (INT) PortNo
	Poud sta
	Max. unit No. for 1:N NT Link - NTMaxNo
F ile a e	
File name	Lib\FBL\omronlib\PLC\SCx_SCx601_SetPortNTLINK10.cxf CS1W-SCU21-V1, CJ1W-SCU21-V1, and CJ1W-SCU41-V1 Serial Communications Units
Applicable models	CS1W-SC021-V1, CJ1W-SC021-V1, and CJ1W-SC041-V1 Senal Communications Units
Conditions	Other
for usage	Communications must be within one network and cannot cross to another network.
Function	The Serial Communications Unit (SCU) or Serial Communications Board (SCB) serial port for the specified
description	Unit selection and Serial port No. is set to NT Link Mode.
	When the Start Trigger turns ON, the operating mode is changed and a port restart is begun.
FB	A restart completion check is not performed for this FB.
precautions	To confirm completion, program it using the Serial Communications Board Settings Changed Flag in the AR Area.
EN input	Always use an upwardly differentiated bit or the First Cycle Flag (A200.11). If one is not used, the
condition	communications port will be continuously restarted.
Restrictions	Always use an upwardly differentiated condition for EN.
Input	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
variables	
Application	When operation is started, the mode of serial port 2 on the Serial Communications Unit with unit number 3 is changed and the port is restarted.
example	
	#2 #3 Serial Communications Unit (SCU) Unit selection: 3
	#Z 110
	SCB CPU SCU SCU
	Serial Port
	No.: 1
	A200.11
	EN (BOOL)
	Unit selection (INT) &3 UnitSelect
	Serial Port No (INT)
	&2 PortNo Baud rate (DINT)
	A1 BaudRate Max. unit No. for 1:N NT Link (INT)
	Max. unit No. 101 1:N NT Link (NT) &2 NTMaxNo

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the Unit and the serial port.
Serial Port No.	PortNo	INT	&1	&1 to &2	 Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Baud rate	BaudRate	INT	&0	&0 to &1	&0: High-speed NT Link &1: Standard NT Link
Max. unit No. for 1:N NT Link	NtMaxNo	INT	&0	&0 to &7	

Output Variables

Name	Variable name	Data type	Range	Description	
ENO	ENO	BOOL		1 (ON): FB processed normally.	
(May be omitted.)				0 (OFF): FB not processed or ended in an error.	

Version	Date	Contents
1.00	2004.6.	Original production

SCx Set Protocol Macro Mode Port: SCx602 SetPortPMCR -602 Basic Sets a serial port to Protocol Macro mode. function Symbol Start trigger _SCx602_SetPortPMCR (BOOL) (BOOL) -| ↑ |-FNO FN (INT) Unit selection UnitSelect (INT) Serial Port No PortNo (INT) Data length DataLen (INT) Stop bits StopBit (INT) Parity Parity (DINT) Baud rate BaudŔate (INT) SendMode Send mode (INT) MaxByte Max. send/receive data size (INT)) inkChMode Link word access method (INT) ClearBuffer Receive buffer clear prohibition File name \FBL\omronlib\SerialCommunication\ SCx602 SetPortPMCR10.cxf Applicable CS1W-SCU21-V1, CJ1W-SCU21-V1, and CJ1W-SCU41-V1 Serial Communications Units models CS1W-SCB21-V1 and CS1W-SCB41-V1 Serial Communications Boards Conditions Other for usage · Communications must be within one network and cannot cross to another network. Function The Serial Communications Unit (SCU) or Serial Communications Board (SCB) serial port for the specified description Unit selection and Serial port No. is set to Protocol Macro Mode. When the Start Trigger turns ON, the operating mode is changed and a port restart is begun. The Serial Gateway Send start timeout monitoring time, and response timeout monitoring time are 5s (default) FB • A restart completion check is not performed for this FB. precautions To confirm completion, program it using the Serial Communications Board Settings Changed Flag in the AR Area **EN** input Always use an upwardly differentiated bit or the First Cycle Flag (A200.11). If one is not used, the condition communications port will be continuously restarted. • Always use an upwardly differentiated condition for EN. Restrictions Input If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. variables Application When operation is started, the mode of serial port 2 on the Serial Communications Unit with unit number 3 is changed and the port is restarted. example Serial Communications Unit (SCU) Unit selection: 3 #2 #3 SCB CPU SCU SCU . Serial Port No.: 1 A200.11 _SCx602_SetPortPMCR (BOOL) (BOOL) ENÓ EN Unit selection (INT) UnitSelect 83 Serial Port No. (INT) &2 PortNo Data length (INT) DataLen &7 Stop bits (INT) &2 StopBit Parity (INT) &0 Parity Baud rate (DINT) &19200 BaudRate Send mode (INT) &0 SendMode Max. send/receive data size (INT) &100 MaxByte Link word access method (INT) LinkChMode &0 Receive buffer clear prohibition (INT) &0 ClearBuffer

Variable Tables Input Variables

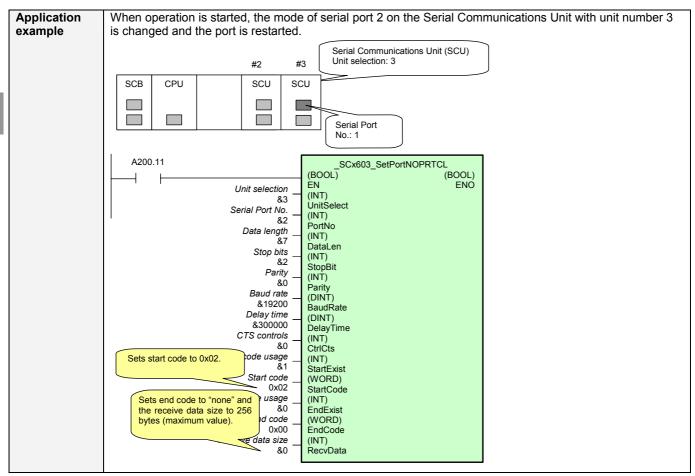
Input Variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the Unit and the serial port.
Serial Port No.	PortNo	INT	&1	&1 to &2	 Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Data length	DataLen	INT	&7	&7 to &8	&7: 7 bits &8: 8 bits
Stop bits	StopBit	INT	&2	&1 to &2	&1: 1 bits &2: 2 bits
Parity	Parity	INT	&0	&0 to &2	&0: Even parity &1: Odd parity &2: None
Baud rate	BaudRate	DINT	&9600	At right.	1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200 (bits/s)
Send mode	SendMode	INT	&0	&0 to &1	&0: Half duplex &1: Duplex
Max. send/receive data size	MaxByte	INT	&0	&200 to &1000	200 to 1,000 (bytes)
Link word access method	LinkChMode	INT	&0	&0 to &1	&0: Immediate refresh mode &1: Cyclic refresh mode
Receive buffer clear prohibition	ClearBuffer	INT	&0	&0 to &1	&0: Enable clearing &1: Prohibit clearing

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.

Version	Date	Contents		
1.00	2004.6.	Original production		

SCx -603	Set No-protocol Mode: _SCx603_SetPortNOPRTCL					
<u>.</u>						
Basic function	Sets a serial port to No-protocol mode.					
Symbol	Start trigger SCx603 SetPortNOPRTCL					
	Start triggerSCx603_SetPortNOPRTCL (BOOL) (BOOL)					
	ÈN ÈNÓ					
	Unit selection – (INT) UnitSelect					
	Serial Port No. – (INT) PortNo					
	Data length — (INT) DataLen					
	Stop bits — (INT) StopBit					
	Parity — (INT) Parity					
	Baud rate — (DINŤ) BaudRate					
	Delay time — (DINT) DelayTime					
	CTS controls — (INT) CtrlCts					
	Start code usage — (INT) StartExist					
	Start code — (WORD) StartCode					
	End code usage — (INT) EndExist					
	End code — (WORD) EndCode					
	Receive data size — (INT) RecvData					
File name	Lib\FBL\omronlib\PLC\SCx\ SCx603 SetPortNOPRTCL10.cxf					
Applicable	CS1W-SCU21-V1, CJ1W-SCU21-V1, and CJ1W-SCU41-V1 Serial Communications Units					
models	CS1W-SCB21-V1 and CS1W-SCB41-V1 Serial Communications Boards					
Conditions	Other					
for usage	 Communications must be within one network and cannot cross to another network. 					
Function	The Serial Communications Unit (SCU) or Serial Communications Board (SCB) serial port for the specified					
description	<i>Unit selection</i> and <i>Serial port No.</i> is set to No-protocol Mode.					
	When the Start Trigger turns ON, the operating mode is changed and a port restart is begun.					
FB	 A restart completion check is not performed for this FB. 					
precautions	To confirm completion, program it using the Serial Communications Board Settings Changed Flag in the AR Area.					
EN input condition	Always use an upwardly differentiated bit or the First Cycle Flag (A200.11). If one is not used, the communications port will be continuously restarted.					
Restrictions	Always use an upwardly differentiated condition for EN.					
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.					



Variable Tables Input Variables

Input Variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the Unit and the serial port.
Serial Port No.	PortNo	INT	&1	&1 to &2	Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Data length	DataLen	INT	&7	&7 to &8	&7: 7 bits &8: 8 bits
Stop bits	StopBit	INT	&2	&1 to &2	&1: 1 bits
					&2: 2 bits
Parity	Parity	INT	&0	&0 to &2	&0: Even parity
					&1: Odd parity
					&2: None
Baud rate	BaudRate	DINT	&9600	At right.	1200, 2400, 4800, 9600, 19200, 38400,
				Ū	57600, or 115200 (bits/s)
Delay time	DelayTime	DINT	&0	&0 to	0 to 300,000 (ms)
-				&300000	Note: In units of 10 ms.
					Any digits below the setting unit are
					truncated.
CTS controls	CtrlCts	INT	&0	&0 to &1	&0: None
					&1: Use
Start code usage	StartExist	INT	&0	&0 to &1	&0: None
-					&1: Use
Start code	StartCode	INT	&0	0x0000 to	Note: Valid only when Start code usage is
				0x00FF	set to &1.
End code usage	EndExist	INT	&0	&0 to &2	&0: None (Receive data size specified.)
C C					&1: Use
					&2: CR+LF
End code	EndCode	INT	&0	0x0000 to	Note: Valid only when End code usage is
				0x0OFF	set to &1.
Receive data size	RecvDataSize	INT	&0	&0 to &256	0: Maximum size (256)
					1 to 256 (bytes)
					Note: Valid only when End code usage is
					set to &0.

■ Sta<u>rt Code</u>

Start code specified	Start code usage	&1: Use
	Start code	0x0000 to 0xFFFF
Start code not used	Start code usage	&0: None
	Start code	(Not accessed.)

End Code

End code specified	End code usage	&1: Use
	End code	0x0000 to 0xFFFF
	Receive data size	(Not accessed.)
CR+LF specified for end code	End code usage	&2: CR+LF
	End code	(Not accessed.)
	Receive data size	(Not accessed.)
End code not specified	End code usage	&0: None
	End code	(Not accessed.)
	Receive data size	&0 to &256

Output Variables

Output Vallabioo							
Name	Variable name	Data type	Range	Description			
ENO	ENO	BOOL		1 (ON): FB processed normally.			
(May be omitted.)				0 (OFF): FB not processed or ended in an error.			

Version	Date	Contents
1.00	2004.6.	Original production

SCx -604	Set Serial Gateway Mode: _SCx604_SetPortGATEWAY
Basic function	Sets a serial port to Serial Gateway mode.
Symbol	Start trigger
File name	Lib\FBL\omronlib\PLC\SCx_SCx604_SetPortGATEWAY10.cxf
Applicable models	CS1W-SCU21-V1, CJ1W-SCU21-V1, and CJ1W-SCU41-V1 Serial Communications Units CS1W-SCB21-V1 and CS1W-SCB41-V1 Serial Communications Boards
Conditions	Other
for usage Function	 Communications must be within one network and cannot cross to another network. The Serial Communications Unit (SCU) or Serial Communications Board (SCB) serial port for the specified
description	<i>Unit selection</i> and <i>Serial port No.</i> is set to Serial Gateway Mode. When the <i>Start Trigger</i> turns ON, the operating mode is changed and a port restart is begun. The Serial Gateway Send start timeout monitoring time, and response timeout monitoring time are 5s (default).
FB precautions	 A restart completion check is not performed for this FB. To confirm completion, program it using the Serial Communications Board Settings Changed Flag in the AR Area.
EN input	Always use an upwardly differentiated bit or the First Cycle Flag (A200.11). If one is not used, the
condition Restrictions	communications port will be continuously restarted.Always use an upwardly differentiated condition for EN.
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Application example	When operation is started, the mode of serial port 2 on the Serial Communications Unit with unit number 3 is changed and the port is restarted.
oxumpio	Science and the port to rootented. #2 #3 Serial Communications Unit (SCU) Unit selection: 3 Science Pules Science Ports Science Ports Science Port No.: 1 A200.11 Unit selection Serial Port No. (NT) Unit selection Serial Port No. (NT) Unit Select (NT) Data length Stop bits St

Input Va	ariables
----------	----------

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the Unit and the serial port.
Serial Port No.	PortNo	INT	&1	&1 to &2	 Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Data length	DataLen	INT	&7	&7 to &8	&7: 7 bits &8: 8 bits
Stop bits	StopBit	INT	&2	&1 to&2	&1: 1 bits &2: 2 bits
Parity	Parity	INT	&0	&1 to &2	&0: Even parity &1: Odd parity &2: None
Baud rate	BaudRate	DINT	&9600	At right.	1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200 (bits/s)
Delay time	DelayTime	DINT	&0	&0 to &300000	0 to 300,000 (ms) Note: In units of 10 ms. Any digits below the setting unit are truncated.
CTS controls	CtrlCts	INT	&0	&0 to &1	&0: None &1: Use

Output Variables				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.

Version	Date	Contents
1.00	2004.6.	Original production

SCx -605	Set Loopback Test Mode: _SCx605_SetPortLOOPBACK					
Basic function	Sets a serial port to Loopback Test mode.					
Symbol	Start trigger					
File name	Lib\FBL\omronlib\PLC\SCx_SCx605_SetPortLOOPBACK10.cxf					
Applicable models	CS1W-SCU21-V1, CJ1W-SCU21-V1, and CJ1W-SCU41-V1 Serial Communications Units CS1W-SCB21-V1 and CS1W-SCB41-V1 Serial Communications Boards					
Conditions	Other					
for usage	Communications must be within one network and cannot cross to another network.					
Function	The Serial Communications Unit (SCU) or Serial Communications Board (SCB) serial port for the specified					
description	<i>Unit selection</i> and <i>Serial port No.</i> is set to Loopback Test Mode. When the <i>Start Trigger</i> turns ON, the operating mode is changed and a port restart is begun.					
FB precautions	A restart completion check is not performed for this FB. To confirm completion, program it using the Serial Communications Board Settings Changed Flag in the AR Area.					
EN input condition	Always use an upwardly differentiated bit or the First Cycle Flag (A200.11). If one is not used, the					
Restrictions	 communications port will be continuously restarted. Always use an upwardly differentiated condition for EN. 					
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.					
Application	When operation is started, the mode of serial port 2 on the Serial Communications Unit with unit number 3					
example	is changed and the port is restarted.					
	#2 #3 Serial Communications Unit (SCU) Unit selection: 3					
	SCB CPU SCU SCU					
	Serial Port No.: 1					
	A200.11 Unit selection Unit selection Serial Port No. Data length Baud rate & 3 Close 1 Close					

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the Unit and the serial port.
Serial Port No.	PortNo	INT	&1	&1 to &2	 Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Data length	DataLen	INT	&7	&7 to &8	&7: 7 bits &8: 8 bits
Stop bits	StopBit	INT	&2	&1 to &2	&1: 1 bits &2: 2 bits
Parity	Parity	INT	&0	&1 to &2	&0: Even parity &1: Odd parity &2: None
Baud rate	BaudRate	DINT	&9600	At right.	1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200 (bits/s)

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.

Version	Date	Contents
1.00	2004.6.	Original production

3-4 Controller Link Unit

CS1W-CLK21-V1/CLK12-V1/CLK52-V1, CJ1W-CLK21-V1

FB Name	Function	Page
_CLK001_LINK_RunDatalink	Start Data Links	3-58
_CLK002_LINK_StopDatalink	Stop Data Links	3-60
_CLK003_CheckNode32	Monitor Controller Link Node Errors 32	3-62
_CLK004_CheckNode62	Monitor Controller Link Node Errors 62	3-63

Start Data Links: _CLK001_LINK_RunDatalink

Pr
0
gr
an
3
ล
p
e
8
ž
5
Ě
ę

Basic function	Starts the data links.
	1
Symbol	Start trigger CLK001_LINK_RunDatalink ↑ ↑ (BOOL) Busy Flag Unit No. Unit No. UnitNo Busy Flag Unit No. Unit No. UnitNo Busy Flag UnitNo UnitNo BUSY Busy Flag UnitNo UnitNo BUSY NodeNo OK NodeNo OK Error end
File name	Lib\FBL\omronlib\PLC\CLK\ CLK001 LINK RunDatalink10.cxf
Applicable	CS1W-CLK21-V1, CS1W-CLK12-V1, CS1W-CLK52-V1, and CJ1W-CLK21-V1 Controller Link Units
models	
Conditions	Other
for usage	Communications must be within one network and cannot cross to another network.
Function	When the Start Trigger turns ON, the data links are started for the Controller Link Unit specified by the
description	UnitNo.
	If the data links are started normally, the OK Flag will turn ON for one cycle. If they cannot be started for any reason, the NG Flag will turn ON for one cycle.
FB	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the
precautions	FB is being processed.
	OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect
	the end of FB processing.
	Timechart
	Start Trigger ON
	OFF
	Busy Flag (BUSY) ON
	OFF
	Normal end (OK) or ON Error end (NG) OFF
	↑ FB execution completed. At normal end: Data links will be executed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY
condition	output from the FB.
Restrictions	Always use an upwardly differentiated condition for EN.
Input variables	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output	This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).
	Do not turn the BUSY output variable ON or OFF outside the FB.
Application	When bit A turns ON, the data links are started for the Unit with unit number 10.
example	Bit C will turn ON when starting the data links has been completed.
	Bit ACLK001_LINK_RunDatalink
	(BOOL) (BOOL) (BOOL)
	Unit No. EN ENO Busy Flag Bit B &10 (INT) (BOOL) Bit B
	Local node address UnitNo BUSY Normal end
	&20 (INT) (BOOL) Bit C NodeNo OK Error end
	(BOOL) Bit D
	NG

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Local node	NodeNo	INT	&1	&1 to &62	
address					

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Version	Date	Contents
1.00	2004.6.	Original production

	CLK -002	Stop Data Links: _CLK002_LINK_StopDatalink						
	Basic function	Stops the data links.						
Programmable Controller	Symbol	Start trigger CLK002_LINK_StopDatallink Image: Provide the start strigger CLK002_LINK_StopDatallink Busy Flag Unit No. Image: Provide the start strigger CLK002_LINK_StopDatallink Busy Flag Unit No. Image: Provide the start string the st						
abl	File name	Lib\FBL\omronlib\PLC\CLK_CLK002_LINK_StopDatalink10.cxf						
e Cor	Applicable models	CS1W-CLK21-V1, CS1W-CLK12-V1, CS1W-CLK52-V1, and CJ1W-CLK21-V1 Controller Link Units						
ntro	Conditions	Other						
vller	for usage Function description	Communications must be within one network and cannot cross to another network. When the Start Trigger turns ON, the data links are stopped for the Controller Link Unit specified by the <i>UnitNo.</i> If the data links are started normally, the OK Flag will turn ON for one cycle. If they cannot be started for any reason, the NG Flag will turn ON for one cycle.						
	EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY						
	condition	output from the FB.						
	Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
	Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or OFF OFF FB execution completed. At normal end: Data links will be stopped. 						
	Application example	When bit A turns ON, the data links are stopped for the Unit with unit number 10. Bit C will turn ON when stopping the data links has been completed. Bit A Unit No. Bit B Local node address &20 UnitNo Bit B Local node address &20 UnitNo Bit B Local node address Bit B NodeNo C CLK002_LINK_StopDatalink BOOL C Busy Flag Bit B Normal end Bit C Error end Bit D						

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Local node	NodeNo	INT	&1	&1 to &62	
address					

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Version	Date	Contents
1.00	2004.6.	Original production

-003 Monitor Controller Link Node Errors 32: _CLK003_CheckNode3	2

Basic	Monitors node communications status and data link status using the network status.					
function						
Symbol	Any bit					
File name	Lib\FBL\omronlib\PLC\CLK_CLK003_CheckNode3210.cxf					
Applicable models	CS1W-CLK21-V1, CS1W-CLK12-V1, CS1W-CLK52-V1, and CJ1W-CLK21-V1 Controller Link Units					
Conditions	Controller Link Unit Settings and Status					
for usage	 The local node must be participating in the network. If it is not participating in the network, the status of the node to be monitored cannot be checked and the node status will indicate a node error. The data link status format for the startup node must be set to 8 bits and the default data link status storage area must be used. If these conditions are not met, the node status will not be stable. Other Communications must be within one network and cannot cross to another network. 					
Function description	The node communications status and data link status of the specified <i>Monitor Node Address</i> is monitored using the network status for the Controller Link Unit specified by <i>UnitNo</i> .					
EN input condition	Any bit can be specified.					
Restrictions	Always use an upwardly differentiated condition for EN.					
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.					

Variable Tables Input Variables

input variables	input variables						
Name	Variable name	Data type	Default	Range	Description		
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.		
Unit No.	UnitNo	INT	&0	&0 to &15			
Local node address	NodeNo	INT	&1	&1 to &32			
Monitor node address	CheckNodeNo	INT	&1	&1 to &32			

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Node status	NodeStatus	BOOL		Shows the status of the specified node.
				1 (ON): Node normal
				0 (OFF): Node error

Version	Date	Contents		
1.00	2004.6.	Original production		

CLK Monitor Controller Link Node Errors 62: _CLK004_CheckNode62

Basic function	Monitors node communications status and data link status using the network status.					
Symbol	Any bit Any bit Unit No. Local node address Monitor node address CLK004_CheckNode62 (BOOL) (BOOL) (BOOL) (NT) NodeStatus NodeNo (INT) NodeNo (INT) CheckNodeNo (INT) (
File name	Lib\FBL\omronlib\PLC\CLK_CLK003_CheckNode6210.cxf					
Applicable models	CS1W-CLK21-V1, CS1W-CLK12-V1, CS1W-CLK52-V1, and CJ1W-CLK21-V1 Controller Link Units					
Conditions	Controller Link Unit Settings and Status					
for usage	 The local node must be participating in the network. If it is not participating in the network, the status of the node to be monitored cannot be checked and the node status will indicate a node error. The data link status format for the startup node must be set to 4 bits and the default data link status storage area must be used. If these conditions are not met, the node status will not be stable. Other Communications must be within one network and cannot cross to another network. 					
Function	The node communications status and data link status of the specified Monitor Node Address is monitored					
description	using the network status for the Controller Link Unit specified by UnitNo.					
EN input condition	Any bit can be specified.					
Restrictions	Always use an upwardly differentiated condition for EN.					
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.					

Variable Tables

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Local node address	NodeNo	INT	&1	&1 to &62	
Monitor node address	CheckNodeNo	INT	&1	&1 to &62	

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Node status	NodeStatus	BOOL		Shows the status of the specified node.
				1 (ON): Node normal
				0 (OFF): Node error

Version	Date	Contents	
1.00	2004.6.	Original production	

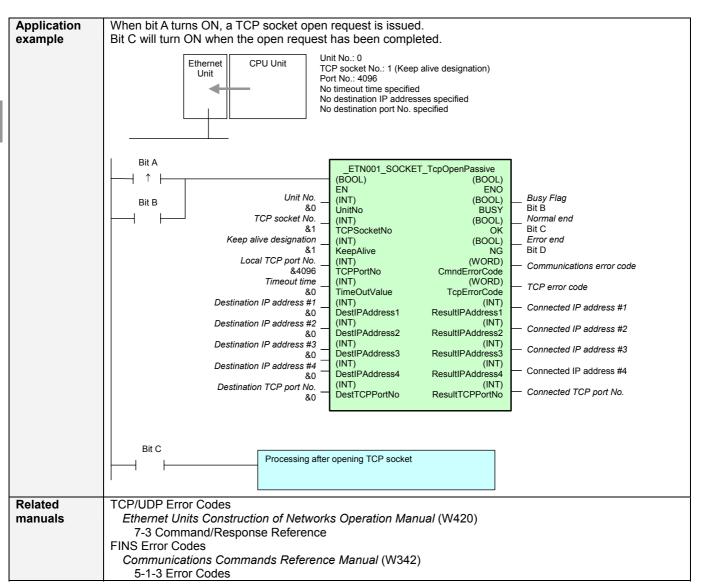
Programmable Controller 3-5 Ethernet unit

CS1W-ETN21, CJ1W-ETN21

FB Name	Function	Page
_ETN001_SOCKET_TcpOpenPassive	Open TCP Socket Passive	3-65
_ETN002_SOCKET_TcpOpenActive	Open TCP Socket Active	3-68
_ETN003_SOCKET_TcpClose	Close TCP Socket	3-71
_ETN004_SOCKET_TcpSend	Send via TCP Socket	3-73
_ETN005_SOCKET_TcpRecv	Receive via TCP Socket	3-76
_ETN011_SOCKET_UdpOpen	Open UDP Socket	3-79
_ETN013_SOCKET_UdpClose	Close UDP Socket	3-81
_ETN014_SOCKET_UdpRecv	Receive via UDP Socket	3-83
_ETN015_SOCKET_UdpSend	Send via UDP Socket	3-86

Programmable Controller

ETN -001	Open TCP Socket Passive: _ETN001_SOCKET_TcpOpenPassive						
Basic function	Issues a request to the specified Ethernet Unit to open a TCP socket using passive processing.						
Symbol	Start trigger						
File name	Lib\FBL\omronlib\PLC\ETN_ETN001_SOCKET_TcpOpenPassive10.cxf						
Applicable models	CS1W-ETN21 and CJ1W-ETN21 Ethernet Units						
Conditions for usage	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs • Communications Instruction Response Timeout Time (default: 2 s) • Number of retries (default: 0) Shared Resources • Communications ports (internal logical ports) Other						
Function	Communications must be within one network and cannot cross to another network. A TCP socket is opened using passive processing for the Ethernet Unit specified by <i>UnitNo</i> . The socket will						
description	A TCP socket is opened using passive processing for the Ethernet Unit specified by Unitive. The socket will wait for a connection from another node. The partner node's IP address and TCP port number are stored in the specified results storage area when the TCP connection has been established. If communications processing produces an error, a completion code indicating the error will be output to the <i>Communications Error Code</i> . If TCP socket open processing produces an error, a completion code indicating the error will be output to the <i>TCP Error Code</i> .						
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF OFF OFF						
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the EB						
Restrictions Input variables	 output from the FB. Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 						



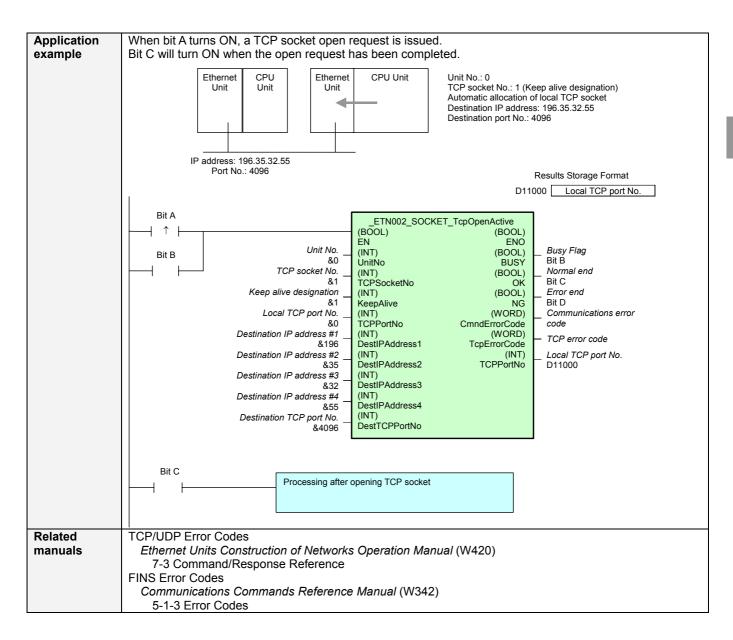
Variable Tables Input Variables

input variables						
Name	Variable name	Data type	Default	Range	Description	
EN	EN	BOOL			1 (ON): FB started.	
					0 (OFF): FB not started.	
Unit No.	UnitNo	INT	&0	&0 to &15	The unit number of the Ethernet Unit.	
TCP socket No.	TCPSocketNo	INT	&1	&1 to 8		
Keep alive	KeepAlive	INT	&0	&0 to &1	&1: Keep alive	
designation					&0: Don't keep alive	
Local TCP port	TCPPortNo	INT	&0			
No.						
Timeout time	TimeOutValue	INT	&0	&0 to	&0: Time not monitored.	
				32767		
Destination IP	DestIPAddress1r	INT	&0	&0 to &254		
address #1						
Destination IP	DestIPAddress2	INT	&0	&0 to &254		
address #2						
Destination IP	DestIPAddress3	INT	&0	&0 to &254		
address #3						
Destination IP	DestIPAddress4	INT	&0	&0 to &254		
address #4						
Destination TCP	DestTCPPortNo	INT	&0	&0 to	&0: Partner node's port number not	
port No.					specified. Will wait for a connection from	
•					any port.	

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Communications error code (May be omitted.)	CmndErrorCode	WORD		Outputs the error code when execution ends in an error in the communications command level. Refer to the <i>FINS Command Reference Manual</i> (W227) for details on the error codes.
TCP error code (May be omitted.)	TCPErrorCode	WORD		Outputs the error code when the TCP socket operation ends in an error. Refer to 7-3 <i>Command/Response Reference</i> in the <i>Ethernet Units</i> <i>Construction of Networks Operation Manual</i> (W420) for details on the error codes.
Connected IP address #1 (May be omitted.)	ResultIPAddress1r	INT	&0 to &254	
Connected IP address #2 (May be omitted.)	ResultIPAddress2	INT	&0 to &254	
Connected IP address #3 (May be omitted.)	ResultIPAddress3	INT	&0 to &254	
Connected IP address #4 (May be omitted.)	ResultIPAddress4	INT	&0 to &254	
Connected TCP port No. (May be omitted.)	ResultTCPPortNo	INT		

Version	Date	Contents	
1.00	2004.6.	Original production	

ETN -002	Open TCP Socket Active: _ETN002_SOCKET_TcpOpenActive					
Basic	Issues a request to the specified Ethernet Unit to open a TCP socket using active processing.					
function	issues a request to the specified Ethemet Onit to open a TCP socket using active processing.					
Symbol	Start trigger					
File name	Lib\FBL\omronlib\PLC\ETN_ETN002_SOCKET_TcpOpenActive10.cxf					
Applicable models	CS1W-ETN21 and CJ1W-ETN21 Ethernet Units					
Conditions	CPU Unit Settings					
for usage	 PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other 					
Function	Communications must be within one network and cannot cross to another network. A TCP socket is opened using active processing for the Ethernet Unit specified by <i>UnitNo</i> . The socket is					
description	connected to another node. The local TCP port number is stored in the specified results storage area when the TCP connection has been established. If communications processing produces an error, a completion code indicating the error will be output to the <i>Communications Error Code</i> . If TCP socket open processing produces an error, a completion code indicating the error will be output to the <i>TCP Error Code</i> .					
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the					
precautions	 FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) OFF FB execution completed. At normal end: Socket is opened. 					
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY					
condition Restrictions	output from the FB. Always use an upwardly differentiated condition for EN.					
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 					



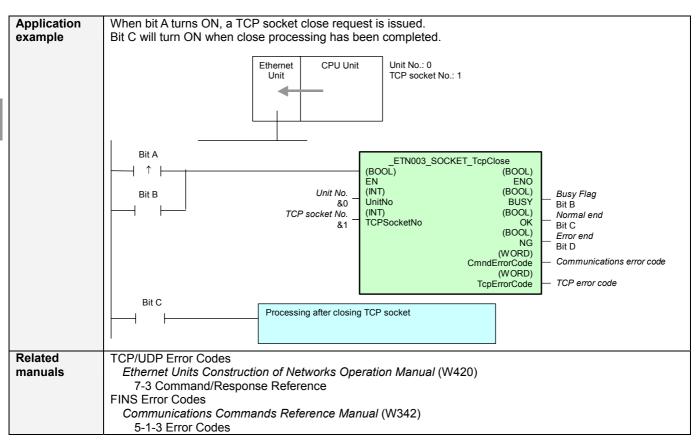
Input Variables Variable name Default Name Data type Range Description ΕN BOOL 1 (ON): FB started. ΕN 0 (OFF): FB not started. &0 The unit number of the Ethernet Unit. Unit No. UnitNo INT &0 to &15 TCP socket No. TCPSocketNo INT &1 &1 to &8 Keep alive KeepAlive INT &0 &0 to &1 &1: Keep alive designation &0: Don't keep alive If 0 is specified, an available port number Local TCP port TCPPortNo INT &0 No. will be automatically allocated. Destination IP INT &0 DestIPAddress1r &0 to &254 address #1 Destination IP DestIPAddress2 INT &0 &0 to &254 address #2 INT Destination IP DestIPAddress3 &0 &0 to &254 address #3 Destination IP DestIPAddress4 INT &0 &0 to &254 address #4 Destination TCP INT DestTCPPortNo &0 &1 to port No.

Output Variables

Name	Variable name	Data type	Range	Description
ENO (May be omitted.)	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Communications error code (May be omitted.)	CmndErrorCode	WORD		Outputs the error code when execution ends in an error in the communications command level. Refer to the <i>FINS Command Reference Manual</i> (W227) for details on the error codes.
TCP error code (May be omitted.)	TcpErrorCode	WORD		Outputs the error code when the TCP socket operation ends in an error. Refer to 7-3 <i>Command/Response Reference</i> in the <i>Ethernet Units</i> <i>Construction of Networks Operation Manual</i> (W420) for details on the error codes.
Local TCP port No. (May be omitted.)	TCPPortNo	INT	&1 to	

Version	Date	Contents
1.00	2004.6.	Original production

ETN -003	Close TCP Socket: _ETN003_SOCKET_TcpClose
Basic	Performs TCP socket close processing for the specified Ethernet Unit.
function	
Symbol	Start triggerETN003_SOCKET_TcpClose
	(BOOL) (BOOL)
	Busy Flag
	Unit No. Unit No. BUSY – Busy Flag
	TCP socket No TCPSocketNo OK - Normal end
	I (BOOL)
	(WORD) Communications area and
	CmndErrorCode (May be omitted)
	(May be omitted.)
File name	Lib\FBL\omronlib\PLC\ETN_ETN002_SOCKET_TcpClose10.cxf
Applicable	CS1W-ETN21 and CJ1W-ETN21 Ethernet Units
models	
Conditions	CPU Unit Settings
for usage	 PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s)
	 Communications instruction Response filmeout filme (default. 2 s) Number of retries (default: 0)
	Shared Resources
	Communications ports (internal logical ports)
	Other
	 Communications must be within one network and cannot cross to another network.
Function	The specified TCP socket is closed for the Ethernet Unit specified by UnitNo.
description	If communications processing produces an error, a completion code indicating the error will be output to the
	Communications Error Code.
	If TCP socket close processing produces an error, a completion code indicating the error will be output to the <i>TCP Error Code</i> .
FB	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the
precautions	FB is being processed.
•	 OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect
	the end of FB processing.
	Timechart Start Trigger ON
	OFF
	Busy Flag (BUSY) ON
	OFF
	Normal end (OK) ON
	or Error end (NG) OFF
	TB execution completed. At normal end: Socket is closed.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions	Always use an upwardly differentiated condition for EN.
Input	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
variables	
Output	This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).
	 Do not turn the BUSY output variable ON or OFF outside the FB.



Input variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	The unit number of the Ethernet Unit.
TCP socket No.	TCPSocketNo	INT	&1	&1 to 8	

Output Variables

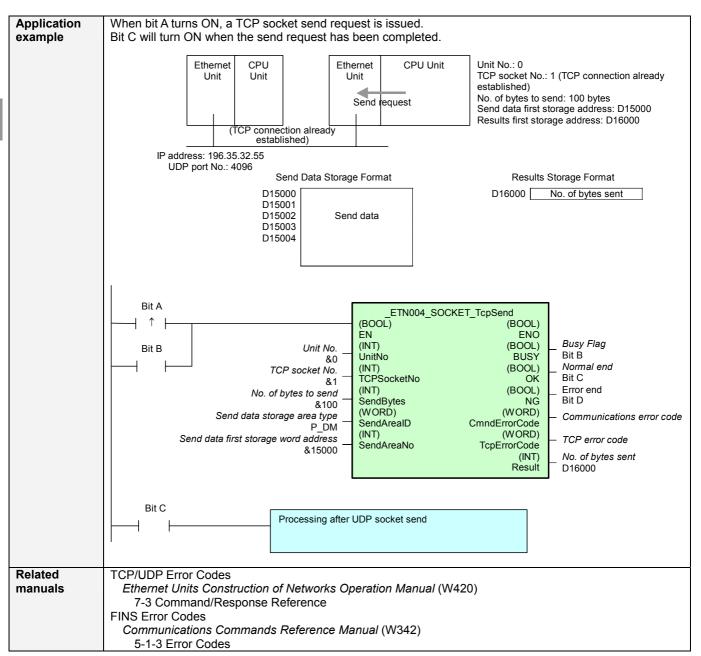
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Communications	CmndErrorCode	WORD		Outputs the error code when execution ends in an
error code				error in the communications command level. Refer to
(May be omitted.)				the FINS Command Reference Manual (W227) for
				details on the error codes.
TCP error code	TcpErrorCode	WORD		Outputs the error code when the TCP socket
(May be omitted.)				operation ends in an error. Refer to 7-3
				Command/Response Reference in the Ethernet Units
				Construction of Networks Operation Manual (W420)
				for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

T

ETN -004	Send via TCP Socket: _ETN004_SOCKET_TcpSend
Basic	Issues a request to the specified Ethernet Unit to send using a TCP socket.
function	issues a request to the specified Ethemet Onit to send using a TCP socket.
Symbol	Start trigger ETN004 SOCKET TcpSend
	(BOOL) (BOOL)
	Busy Flag
	ICP SOCKELINO. – ICP SOCKELINO OK
	No. of bytes to send – SendBytes NG – Error end (WORD) (WORD) Communications error code
	Send data storage area type - SendArealD CmndErrorCode (May be omitted.)
	Send data first storage word address - SendAreaNo TcpErrorCode (May be omitted.)
	(INT) No. of bytes sent Result (May be omitted.)
File name	Lib\FBL\omronlib\PLC\ETN_ETN004_SOCKET_TcpSend10.cxf
Applicable models	CS1W-ETN21 and CJ1W-ETN21 Ethernet Units
Conditions	CPU Unit Settings
for usage	PLC Setup: Shared Settings for Communications Instructions in FBs
	Communications Instruction Response Timeout Time (default: 2 s)
	Number of retries (default: 0) Shared Resources
	Communications ports (internal logical ports)
	Other
Function	Communications must be within one network and cannot cross to another network. A command is sent to the Ethernet Unit specified by <i>UnitNo.</i> to request a send from the specified TCP
description	socket.
	If send processing is completed normally, the number of bytes that was sent will be stored.
	If the request command processing produces an error, a completion code indicating the error will be output to the Communications Error Code.
	If the request command is processed normally but the TCP socket send processing produces an error, a
50	completion code indicating the error will be output to the <i>TCP Error Code</i> .
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed.
P	• OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect
	the end of FB processing.
	Timechart Start Trigger ON
	OFF
	Busy Flag (BUSY) ON OFF
	Normal end (OK) ON
	or Error end (NG) OFF
	FB execution completed. At normal end: Sending is completed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY
condition	output from the FB.
Restrictions	Always use an upwardly differentiated condition for EN.
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable
variables	to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>).
	Do not turn the BUSY output variable ON or OFF outside the FB.

3-5 Ethernet unit



Variable Tables Input Variables

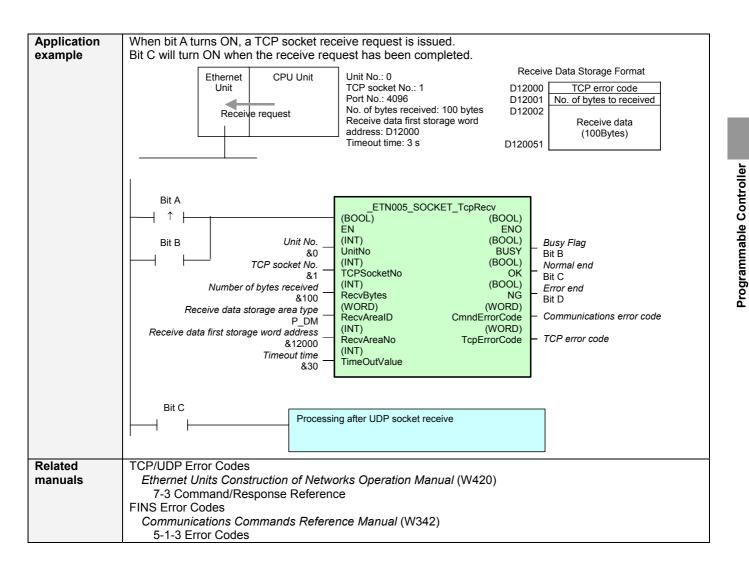
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	The unit number of the Ethernet Unit.
TCP socket No.	TCPSocketNo	INT	&1	&1 to &8	
No. of bytes to	SendBytes	INT	&1	&1 to	
send				&1980	
Send data storage	SendArealD	WORD	#0082	At left.	P_CIO (#00B0): CIO Area
area type					P_WR (#00B1): Work Area
					P_HR (#00B2): Holding Area
					P_DM (#0082): DM Area
					P_EM0 (#0050) to P_EMC (#005C):
					EM Area bank 0 to C
Send data first	SendAreaNo	INT	&0		
storage word					
address					

Output Variables				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Communications error code (May be omitted.)	CmndErrorCode	WORD		Outputs the error code when execution ends in an error in the communications command level. Refer to the <i>FINS Command Reference Manual</i> (W227) for details on the error codes.
TCP error code (May be omitted.)	TcpErrorCode	WORD		Outputs the error code when the TCP socket operation ends in an error. Refer to 7-3 <i>Command/Response Reference</i> in the <i>Ethernet Units</i> <i>Construction of Networks Operation Manual</i> (W420) for details on the error codes.
No. of bytes sent (May be omitted.)	Result	INT		The number of bytes that were actually sent.

Version	Date	Contents
1.00	2004.6.	Original production

Programmable Controller

ETN -005	Receive via TCP Socket: _ETN005_SOCKET_TcpRecv
Basic function	Issues a request to the specified Ethernet Unit to receive using a TCP socket.
Symbol	Start trigger ETN005_SOCKET_TcpRecv ↑ ↓ (BOOL) EN ENO
	Busy Flag Unit No. (INT) (BOOL) TCP socket No. TCP socket No. (INT) (BOOL) Number of bytes received RecvBytes NG Error end Receive data storage area type RecevAreaID CmndErrorCode (MAY be omitted.) Receive data first storage word address Timeout time TimeOutValue TCP error code
File name	Lib\FBL\omronlib\PLC\ETN_ETN005_SOCKET_TcpRecv10.cxf
Applicable models	CS1W-ETN21 and CJ1W-ETN21 Ethernet Units
Conditions for usage	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs • Communications Instruction Response Timeout Time (default: 2 s) • Number of retries (default: 0) Shared Resources • Communications ports (internal logical ports) Other • Communications must be within one network and cannot cross to another network.
Function description	A command is sent to the Ethernet Unit specified by <i>UnitNo.</i> to request receiving from the specified TCP socket. The TCP error code, the number of bytes received and the reception data are stored in the specified results storage area when the reception processing is performed normally. If the request command processing produces an error, a completion code indicating the error will be output to the <i>Communications Error Code</i> . If the request command is processed normally but the TCP socket reception processing produces an error, a completion code indicating the error will be output to the <i>TCP Error Code</i> . And the specified results storage top area.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger OFF Busy Flag (BUSY) ON OFF Normal end (OK) ON OFF FB execution completed. At normal end: Reception is completed and data is stored in storage words.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



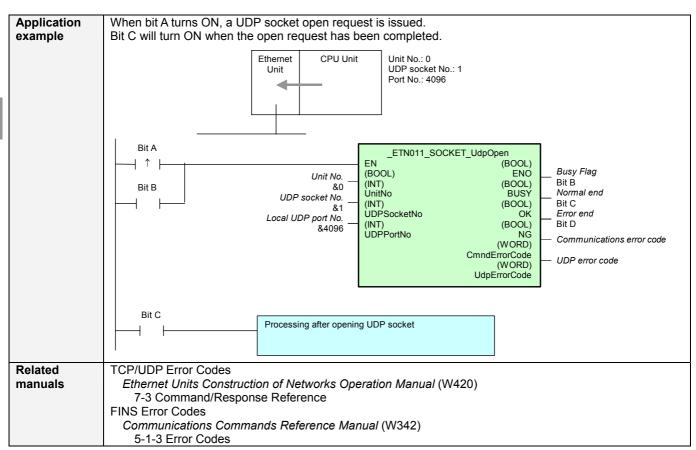
Input Variables Variable name Default Name Data type Range Description ΕN BOOL 1 (ON): FB started. ΕN 0 (OFF): FB not started. The unit number of the Ethernet Unit. Unit No. UnitNo INT &0 &0 to &15 TCP socket No. TCPSocketNo INT &1 &1 to &8 Number of bytes RecvBytes INT &1 &1 to In the case of odd-byte, the lower byte of received &1980 the last word is stored 0. Receive data RecvArealD WORD #0082 At left. P_CIO (#00B0): CIO Area P WR (#00B1): Work Area storage area type P_HR (#00B2): Holding Area P_DM (#0082): DM Area P_EM0 (#0050) to P_EMC (#005C): EM Area bank 0 to C Receive data first RecvAreaNo INT &0 storage word address TimeOutValue INT &0 &0: Time not monitored. Timeout time

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Communications error code (May be omitted.)	CmndErrorCode	WORD		Outputs the error code when execution ends in an error in the communications command level. Refer to the <i>FINS Command Reference Manual</i> (W227) for details on the error codes.
TCP error code (May be omitted.)	TcpErrorCode	WORD		Outputs the error code when the TCP socket operation ends in an error. Refer to 7-3 <i>Command/Response Reference</i> in the <i>Ethernet Units</i> <i>Construction of Networks Operation Manual</i> (W420) for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

ETN -011	Open UDP Socket: _ETN011_SOCKET_UdpOpen				
Basic	Issues a request to the specified Ethernet Unit to open a UDP socket.				
function					
Symbol	Start triggerETN011_SOCKET_UdpOpen				
	(BOOL) (BOOL)				
	Busy Flag (INT) (BOOL)				
	Unit No. UnitNo BUSY Busy Flag				
	UDP socket No. UDP socket No. OK Normal end				
	I (INT) (BOOL)				
	Local UDP port No. UDPPortNo NG Frror end (WORD)				
	CmndErrorCode Communications error code				
	(May be omitted.)				
File name	Lib\FBL\omronlib\PLC\ETN_ETN011_SOCKET_UdpOpen10.cxf				
Applicable	CS1W-ETN21 and CJ1W-ETN21 Ethernet Units				
models					
Conditions	CPU Unit Settings				
for usage	PLC Setup: Shared Settings for Communications Instructions in FBs				
	Communications Instruction Response Timeout Time (default: 2 s)				
	Number of retries (default: 0) Shared Resources				
	Communications ports (internal logical ports)				
	Other				
	Communications must be within one network and cannot cross to another network.				
Function	The specified UDP socket is opened for the Ethernet Unit specified by UnitNo.				
description	If communications processing produces an error, a completion code indicating the error will be output to the				
	Communications Error Code.				
	If UDP socket open processing produces an error, a completion code indicating the error will be output to				
50	the UDP Error Code.				
FB precautions	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the ED is being processed				
precautions	FB is being processed.				
	 OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. 				
	Timechart				
	Start Trigger ON				
	OFF				
	Busy Flag (BUSY) ON				
	OFF				
	Normal end (OK) ON OFF				
	\uparrow FB execution completed.				
	At normal end: Socket is opened.				
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY				
condition	output from the FB.				
Restrictions	Always use an upwardly differentiated condition for EN.				
Input	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 				
variables					
Output	This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable				
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).				
	 Do not turn the BUSY output variable ON or OFF outside the FB. 				



input variables						
Name	Variable name	Data type	Default	Range	Description	
EN	EN	BOOL			1 (ON): FB started.	
					0 (OFF): FB not started.	
Unit No.	UnitNo	INT	&0	&0 to &15	The unit number of the Ethernet Unit.	
UDP socket No.	UDPSocketNo	INT	&1	&1 to 8		
Local UDP port	UDPPortNo	INT	&0			
No.						

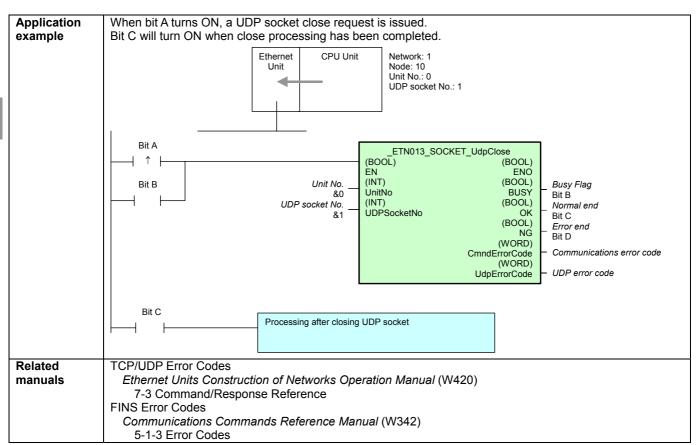
Output Variables

Name	Variable name	Data type	Range	Description
ENO (May be omitted.)	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Communications error code (May be omitted.)	CmndErrorCode	WORD		Outputs the error code when execution ends in an error in the communications command level. Refer to the <i>FINS Command Reference Manual</i> (W227) for details on the error codes.
UDP error code (May be omitted.)	UdpErrorCode	WORD		Outputs the error code when the UDP socket operation ends in an error. Refer to 7-3 <i>Command/Response Reference</i> in the <i>Ethernet Units</i> <i>Construction of Networks Operation Manual</i> (W420) for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Programmable Controller

ETN -013	Close UDP Socket: _ETN013_SOCKET_UdpClose				
Basic	Performs UDP socket close processing for the specified Ethernet Unit.				
function					
Symbol	Start triggerETN013_SOCKET_UdpClose				
	(BOOL) (BOOL) EN ENO				
	Busy Flag (INT) (BOOL)				
	Unit No. Unit No. Unit No. Unit No. (BUSY Busy Flag				
	UDP socket No. UDPSocketNo OK Normal end				
	(BOOL) NG — Error end				
	(WORD) Communications error code				
	CmnderrorCode (May be omitted.)				
	UdpErrorCode UDP error code (May be omitted.)				
File name	Lib\FBL\omronlib\PLC\ETN\ ETN013 SOCKET UdpClose10.cxf				
Applicable	CS1W-ETN21 and CJ1W-ETN21 Ethernet Units				
models					
Conditions	CPU Unit Settings				
for usage	PLC Setup: Shared Settings for Communications Instructions in FBs				
	Communications Instruction Response Timeout Time (default: 2 s) 10 s or more are recommended				
	Number of retries (default: 0) Shared Resources				
	Communications ports (internal logical ports)				
	Other				
	 Communications must be within one network and cannot cross to another network. 				
Function	The specified UDP socket is closed for the Ethernet Unit specified by UnitNo.				
description	If communications processing produces an error, a completion code indicating the error will be output to the				
	Communications Error Code. If UDP socket close processing produces an error, a completion code indicating the error will be output to				
	the UDP Error Code.				
FB	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the				
precautions	FB is being processed.				
	• OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect				
	the end of FB processing.				
	Timechart Start Trigger ON				
	OFF				
	Busy Flag (BUSY) ON				
	OFF				
	Normal end (OK) ON Or Fror end (NG) OFF				
	FB execution completed. At normal end: Socket is closed.				
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY				
condition	output from the FB.				
Restrictions	Always use an upwardly differentiated condition for EN.				
Input	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.				
variables					
Output variables	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see Symbol).				



input variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	The unit number of the Ethernet Unit.
UDP socket No.	UDPSocketNo	INT	&1	&1 to 8	

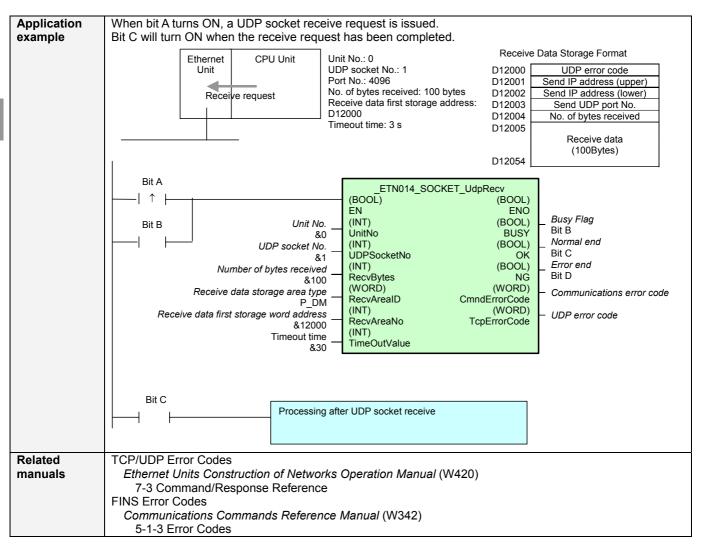
Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Communications	CmndErrorCode	WORD		Outputs the error code when execution ends in an
error code				error in the communications command level. Refer to
(May be omitted.)				the FINS Command Reference Manual (W227) for
				details on the error codes.
UDP error code	TcpErrorCode	WORD		Outputs the error code when the UDP socket
(May be omitted.)				operation ends in an error. Refer to 7-3
				Command/Response Reference in the Ethernet Units
				Construction of Networks Operation Manual (W420)
				for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Programmable Controller

ETN -014	Receive via UDP Socket: _ETN014_SOCKET_UdpRecv
Basic function	Issues a request to the specified Ethernet Unit to receive using a UDP socket.
Symbol	Start trigger
File name	Lib\FBL\omronlib\PLC\ETN\ ETN014 SOCKET UdpRecv10.cxf
Applicable	CS1W-ETN21 and CJ1W-ETN21 Ethernet Units
models Conditions for usage	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs • Communications Instruction Response Timeout Time (default: 2 s)
	 Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other Communications must be within one network and cannot cross to another network.
Function description	A command is sent to the Ethernet Unit specified by <i>UnitNo.</i> to request receiving from the specified UDP socket. The UDP error code, the source IP address, source UDP port number, number of bytes received, and the reception data are stored in the specified results storage area when the reception processing is performed normally. If the request command processing produces an error, a completion code indicating the error will be output to the <i>Communications Error Code</i> . If the request command is processed normally but the UDP socket reception processing produces an error, a completion code indicating the error will be output to the <i>UDP Error Code</i> and, the specified results storage top area
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) ON OFF FB execution completed. At normal end: Reception is completed and data is stored in storage words.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY
condition Restrictions	output from the FB. Always use an upwardly differentiated condition for EN.
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



Variable Tables Input Variables

	1.,				
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	The unit number of the Ethernet Unit.
UDP socket No.	UDPSocketNo	INT	&1	&1 to &8	
Number of bytes	RecvBytes	INT	&1	&1 to	In the case of odd-byte, the lower byte of
received				&1974	the last word is stored 0.
Receive data	RecvArealD	WORD	#0082	At left.	P_CIO (#00B0): CIO Area
storage area type					P_WR (#00B1): Work Area
					P_HR (#00B2): Holding Area
					P_DM (#0082): DM Area
					P_EM0 (#0050) to P_EMC (#005C):
					EM Area bank 0 to C
Receive data first	RecvAreaNo	INT	&0		
storage word					
address					
Timeout time	TimeOutValue	INT	&0		&0: Time not monitored.

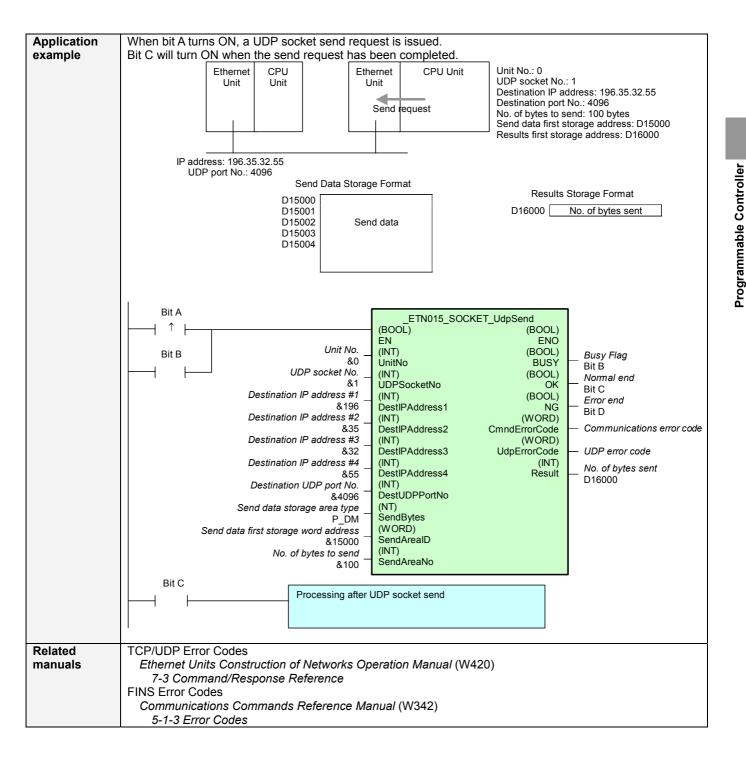
Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Communications error code (May be omitted.)	CmndErrorCode	WORD		Outputs the error code when execution ends in an error in the communications command level. Refer to the <i>FINS Command Reference Manual</i> (W227) for details on the error codes.
UDP error code (May be omitted.)	UdpErrorCode	WORD		Outputs the error code when the UDP socket operation ends in an error. Refer to 7-3 <i>Command/Response Reference</i> in the <i>Ethernet Units</i> <i>Construction of Networks Operation Manual</i> (W420) for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Programmable Controller

ETN -015	Send via UDP Socket: _ETN015_SOCKET_UdpSend
Basic function	Issues a request to the specified Ethernet Unit to send using a UDP socket.
Symbol	Start trigger
File name	Lib\FBL\omronlib\PLC\ETN\ ETN015 SOCKET UdpSend10.cxf
Applicable models	CS1W-ETN21 and CJ1W-ETN21 Ethernet Units
Conditions for usage	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs • Communications Instruction Response Timeout Time (default: 2 s) • Number of retries (default: 0) Shared Resources • Communications ports (internal logical ports) Other • Communications must be within one network and cannot cross to another network.
Function description	A command is sent to the Ethernet Unit specified by <i>UnitNo.</i> to request a send to the specified IP address and destination UDP port number using a UDP socket. If send processing is completed normally, the number of bytes that was sent will be stored. If the request command processing produces an error, a completion code indicating the error will be output to the <i>Communications Error Code</i> . If the request command is processed normally but the UDP socket send processing produces an error, a completion code indicating the error will be output to the <i>UDP Error Code</i> .
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF OFF OFF
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	The unit number of the Ethernet Unit.
UDP socket No.	UDPSocketNo	INT	&1	&1 to &8	
Destination IP address #1	DestIPAddress1	INT	&0	&1 to &254	
Destination IP address #2	DestIPAddress2	INT	&0	&1 to &254	
Destination IP address #3	DestIPAddress3	INT	&0	&1 to &254	
Destination IP address #4	DestIPAddress4	INT	&0	&1 to &254	
Destination UDP port No.	DestUDPProtNo	INT	&0		
No. of bytes to send	SendBytes	INT	&1	&1 to &1974	
Send data storage area type	SendAreaID	WORD	#0082	At left.	P_CIO (#00B0): CIO Area P_WR (#00B1): Work Area P_HR (#00B2): Holding Area P_DM (#0082): DM Area P_EM0 (#0050) to P_EMC (#005C): EM Area bank 0 to C
Send data first storage word address	SendAreaNo	INT	&0		

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Communications error code (May be omitted.)	CmndErrorCode	WORD		Outputs the error code when execution ends in an error in the communications command level. Refer to the <i>FINS Command Reference Manual</i> (W227) for details on the error codes.
UDP error code (May be omitted.)	UdpErrorCode	WORD		Outputs the error code when the UDP socket operation ends in an error. Refer to 7-3 <i>Command/Response Reference</i> in the <i>Ethernet Units</i> <i>Construction of Networks Operation Manual</i> (W420) for details on the error codes.
No. of bytes sent (May be omitted.)	Result	INT		The number of bytes that were actually sent.

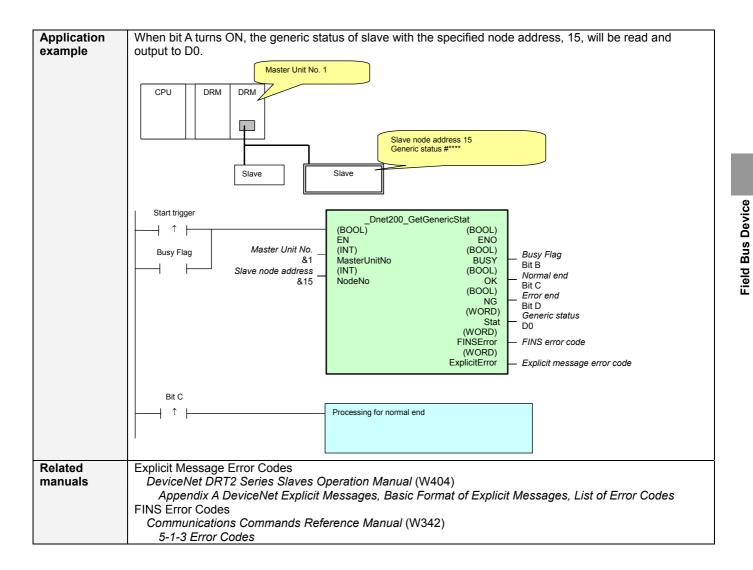
Version	Date	Contents
1.00	2004.6.	Original production

3-6 DeviceNet Unit

CS1W-DRM21(-V1), CJ1W-DRM21

FB Name	Function	Page
_Dnet200_GetGenericStat	Read Generic Status	3-90
_Dnet201_GetNetVoltage_PV	Read Network Voltage Present Value	3-93
_Dnet202_GetNetVoltage_Min	Read Network Voltage Minimum	3-96
_Dnet203_GetNetVoltage_Max	Read Network Voltage Maximum Value	3-99
_Dnet204_GetONTime_PV	Read Present Unit ON Time	3-102
_Dnet205_GetONTime_Stat	Read Unit ON Time Status	3-105
_Dnet206_GetCounter_IN_PV	Read Input Terminal Maintenance Counter Present Value	3-108
_Dnet207_GetCounter_IN_SV	Read Input Terminal Maintenance Counter Set Value	3-111
_Dnet208_GetCounter_OUT_PV	Read Output Terminal Maintenance Counter Present Value	3-114
_Dnet209_GetCounter_OUT_SV	Read Output Terminal Maintenance Counter Set Value	3-117
_Dnet210_GetCounter_Stat	Read Maintenance Counter Status	3-120
_Dnet211_GetInputPower_Stat	Read Input Power Status	3-123
_Dnet212_GetOutPower_Stat	Read Output Power Status	3-126
_Dnet213_GetLoadShort_Stat	Read Load Short-circuit Status	3-129
_Dnet214_GetLoadOffWire_Hold	Read Load OFF Wire Hold Status	3-132
_Dnet215_GetLoadOffWire_Stat	Read Load OFF Wire Status	3-135
_Dnet216_GetOperationTime_PV	Read Operation Time Monitor Present Value	3-138
_Dnet217_GetOperationTime_SV	Read Operation Time Monitor Set Value	3-141
_Dnet218_GetOperationTime_Stat	Read Operation Time Monitor Status	3-144
_Dnet219_GetOperationTime_Hold	Read Operation Time Monitor Hold Status	3-147
_Dnet220_GetOperationTime_Peak	Read Operation Time Monitor Peak Value Read	3-150
_Dnet221_GetSensorOffWire_Stat	Read Sensor OFF Wire Status	3-153
_Dnet222_GetSensorOffWire_Hold	Read Sensor OFF Wire Hold Status	3-156
_Dnet223_GetSensorShort_Stat	Read Sensor Power Supply Short-circuit Status	3-159
_Dnet224_GetSensorShort_Hold	Read Sensor Power Supply Short-circuit Hold Status	3-162

Dnet						
-200	Read Generic S	Status: _Dnet200_GetGenericStat				
Pasia	Reads the generic status from slaves connected to DeviceNet.					
Basic function	Reads the generic statu	s nom slaves connected to DeviceNet.				
Symbol	Start trigger	_Dnet200_GetGenericStat				
		(BOOL) (BOOL)				
	Busy Flag Ma	ster Unit No (INT) (BOOL) Busy Flag				
	Slave n	MasterUnitNo BUSY ode address (INT) (BOOL) – Normal end				
		NodeNo OK (BOOL) – Error end				
		(WORD) – Generic status (WORD) – FINS error code				
		FINSError (May be omitted.)				
		(WORD) Explicit message error code (May be omitted.)				
File name	Lib\EBL\omronlib\Remot	teIO\SmartIO\ Dnet200 GetGenericStat10.cxf				
Applicable	Applicable Master	CS1W-DRM21(-V1) and CJ1W-DRM21				
models	Units					
	Applicable Slave Units	DRT2-ID16, ID08C, HD16C, ID16S, ID16TA, ID32ML, ID32SL, ID32SLH, DRT2-OD16, OD08C, ROS16, OD16TA, OD32ML, OD32SL, OD32SLH,				
		DRT2-MD16S, MD16TA, MD32ML, MD32SL, MD32SLH,				
Conditions	CPU Unit Settings	DRT2-AD04, AD04H, DA02, TS04T, and TS04P				
for usage		ettings for Communications Instructions in FBs				
	DeviceNet Response Timeout Time (default: 2 s) 10 s recommended					
	 Number of retries (c Shared Resources 	lefault: 0)				
		orts (internal logical ports)				
	Other					
Function		ust be within one network and cannot cross to another network. ad from the DeviceNet slave specified by the Master Unit No. and the Slave Node				
description	Address.					
		code and explicit message error code if an error occurs. output as #0000 for a normal end.				
FB		d over multiple cycles. The BUSY output variable can be used to check whether the				
precautions	FB is being process					
	 OK or NB will be tui the end of FB proce 	rned ON for one cycle only after processing is completed. Use these flags to detect				
	Timechart					
	Start Trigger	ON				
	Busy Flag (BUSY)	ON				
		OFF				
	Normal end (OK)	ON 🗖				
	or Error end (NG)	OFF				
		\uparrow FB execution completed.				
EN input	Connect EN to an OP b	etween an upwardly differentiated condition for the start trigger and the BUSY				
condition	output from the FB.	concernent an apwardry differentiated condition for the start myyer and the DOST				
Restrictions		ardly differentiated condition for EN.				
Input variables	 If the input variables 	s are out of range, the ENO Flag will turn OFF and the FB will not be processed.				
Output		ultiple cycles to process. Always connect an OR including the BUSY output variable				
variables		able to ensure that the FB is processed to completion (see <i>Symbol</i>).				
	 Do not turn the BUS 	SY output variable ON or OFF outside the FB.				



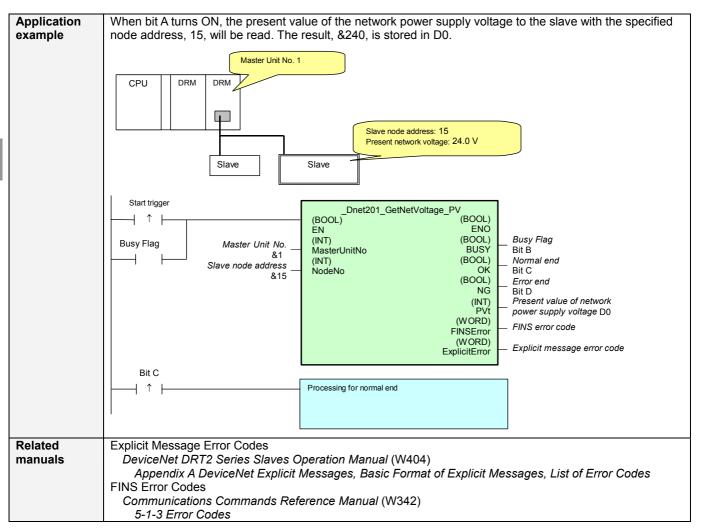
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.

Output Variables

Name	Variable name	Data type	Range	Description		
ENO (May be omitted.)	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error.		
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.		
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.		
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.		
Generic status	Stat	WORD		The generic status is output. Bit 15 8 7 0 Always 0 Generic status		
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.		
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.		

Version	Date	Contents
1.00	2004.6.	Original production

Dnet -201	Read Network Voltage Present Value: _Dnet201_GetNetVoltage_PV			
Basic function	Reads the present values of the network power supply from slaves connected to DeviceNet.			
Symbol	Start trigger			
File name	Lib\FBL\omronlib\RemoteIO\SmartIO_Dnet201_GetNetVoltage_PV10.cxf			
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units			
	Applicable SlaveDRT2-ID16, ID08C, HD16C, ID16S, ID16TA, ID32ML, ID32SL, ID32SLHUnitsDRT2-OD16, OD08C, ROS16, OD16TA, OD32ML, OD32SL, OD32SLHDRT2-MD16S, MD16TA, MD32ML, MD32SL, MD32SLHDRT2-AD04, AD04H, DA02, TS04T, TS04P			
Conditions for usage	 CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other Communications must be within one network and cannot cross to another network. 			
Function description	The present voltage of the network power supply is read from the DeviceNet slave specified by the Master Unit No. and the Slave Node Address. Refer to the FINS error code and explicit message error code if an error occurs. Both error codes will be output as #0000 for a normal end.			
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF OFF OFF			
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.			
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 			
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 			



1	N/	
Input	Variables	

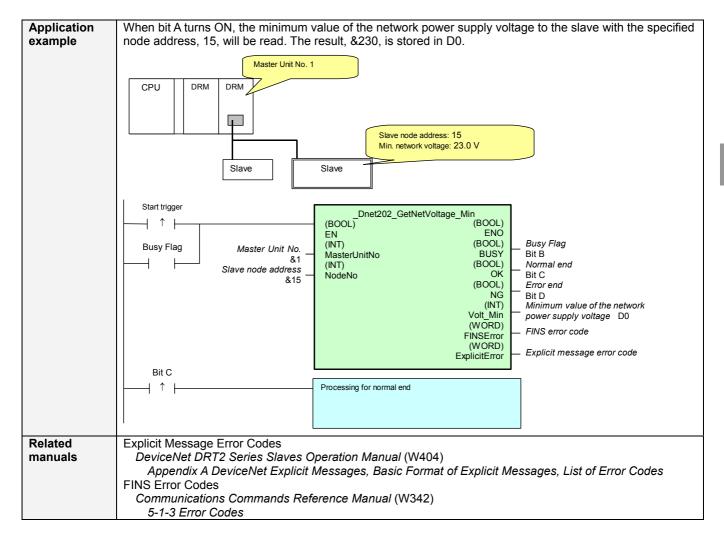
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Destination slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Present value of network power supply voltage	PV	INT	&0 to &300	The present value of the network power supply voltage is output (unit: 0.1 V). For example, &240 would be output for 24.0 V.
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Dnet -202	Read Network Voltage Minimum: _Dnet202_GetNetVoltage_Min				
Basic function	Reads the minimum values of the network power supply from slaves connected to DeviceNet.				
Symbol	Start trigger				
File name	Lib\FBL\omronlib\RemotelO\SmartIO_Dnet202_GetNetVoltage_Min.cxf				
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units				
models	OnitsDRT2-ID16, ID08C, HD16C, ID16S, ID16TA, ID32ML, ID32SL, ID32SLHUnitsDRT2-OD16, OD08C, ROS16, OD16TA, OD32ML, OD32SL, OD32SLHDRT2-MD16S, MD16TA, MD32ML, MD32SL, MD32SLHDRT2-AD04, AD04H, DA02, TS04T, TS04P				
Conditions for usage	 CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other Communications must be within one network and cannot cross to another network. 				
Function description	The minimum voltage of the network power supply is read from the DeviceNet slave specified by the Master Unit No. and the Slave Node Address. Refer to the FINS error code and explicit message error code if an error occurs. Both error codes will be output as #0000 for a normal end.				
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF OFF OFF Normal end (OK) ON OFF FB execution completed. 				
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY				
condition Restrictions	output from the FB.Always use an upwardly differentiated condition for EN.				
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.				
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 				



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Destination slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Minimum value of the network power supply voltage	Volt_Min	INT	&0 to &300	The minimum value of the network power supply voltage is output (unit: 0.1 V). For example, &240 would be output for 24.0 V.
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

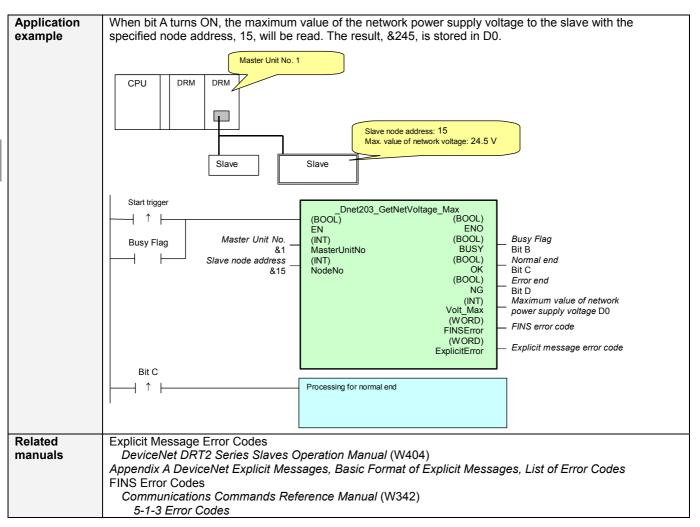
Version	Date	Contents
1.00	2004.6.	Original production

Field Bus Device

Dnet	
-203	

Read Network Voltage Maximum Value: _Dnet203_GetNetVoltage_Max

Basic function	Reads the maximum values of the network power supply from slaves connected to DeviceNet.						
Symbol	Start trigger						
File name	Lib/FBL/omronlib/RemoteIO/SmartIO/_Dnet203_GetNetVoltage_Max10.cxf						
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21						
models	Units Applicable Slave DRT2-ID16, ID08C, HD16C, ID16S, ID16TA, ID32ML, ID32SL, ID32SLH						
	Units DRT2-OD16, OD08C, ROS16, OD16TA, OD32ML, OD32SL, OD32SLH						
	DRT2-MD16S, MD16TA, MD32ML, MD32SL, MD32SLH,						
	DRT2- AD04, AD04H, DA02, TS04T, TS04P						
Conditions	CPU Unit Settings						
for usage	PLC Setup: Shared Settings for Communications Instructions in FBs						
	 DeviceNet Response Timeout Time (default: 2 s) 10 s recommended 						
	Number of retries (default: 0) Shared Resources						
	 Shared Resources Communications ports (internal logical ports) 						
	Other						
	Communications must be within one network and cannot cross to another network.						
Function	The maximum voltage of the network power supply is read from the DeviceNet slave specified by the						
description	Master Unit No. and the Slave Node Address.						
	Refer to the FINS error code and explicit message error code if an error occurs.						
FB	Both error codes will be output as #0000 for a normal end.						
precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. 						
precoutions	 OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect 						
	the end of FB processing.						
	Timechart						
	Start Trigger ON OFF						
	Busy Flag (BUSY) ON OFF						
	Normal end (OK) ON						
	or Error end (NG) OFF						
	\uparrow FB execution completed.						
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY						
EN input condition	output from the FB.						
Restrictions	Always use an upwardly differentiated condition for EN.						
Input variables	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
Output	This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable						
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).						
	Do not turn the BUSY output variable ON or OFF outside the FB.						



Innut	Variables	
Input	variables	

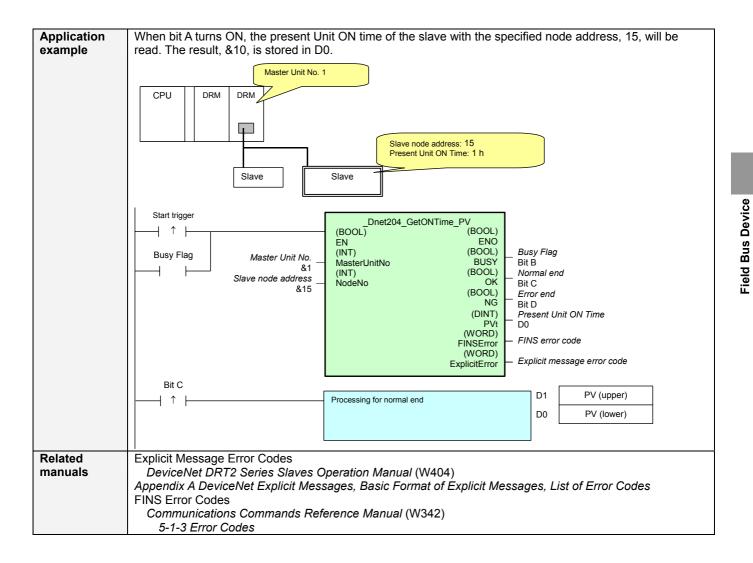
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Destination slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Maximum value of network power supply voltage	Volt_Max	INT	&0 to &300	The maximum value of the network power supply voltage is output (unit: 0.1 V). For example, &240 would be output for 24.0 V.
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Dnet -204	Read Present U	nit ON Time: _Dnet204_GetONTime_PV			
Basic function	Reads the present Unit O	N time (conduction time) from slaves connected to DeviceNet.			
Symbol	Slave not				
File name		Dnet204_GetONTime_PV10.cxf			
Applicable models		CS1W-DRM21(-V1) and CJ1W-DRM21			
	Units I	DRT2-ID16, ID08C, HD16C, ID16S, ID16TA, ID32ML, ID32SL, ID32SLH DRT2-OD16, OD08C, ROS16, OD16TA, OD32ML, OD32SL, OD32SLH DRT2-MD16S, MD16TA, MD32ML, MD32SL, MD32SLH DRT2-AD04/AD04H/DA02/TS04T/TS04P			
Conditions for usage	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs • DeviceNet Response Timeout Time (default: 2 s) 10 s recommended • Number of retries (default: 0) Shared Resources • Communications ports (internal logical ports) Other • Communications must be within one network and cannot cross to another network.				
Function description	The present Unit ON time (conduction time) is read from the DeviceNet slave specified by the Master Unit No. and the Slave Node Address.				
decomption	Refer to the FINS error code and explicit message error code if an error occurs. Both error codes will be output as #0000 for a normal end.				
FB precautions	FB is being processe • OK or NB will be turn the end of FB proces Timechart Start Trigger C Busy Flag (BUSY) C Normal end (OK) or Error end (NG)	ed ON for one cycle only after processing is completed. Use these flags to detect sing. DN DFF DFF DFF FB execution completed.			
EN input condition	Connect EN to an OR bet output from the FB.	tween an upwardly differentiated condition for the start trigger and the BUSY			
Restrictions Input variables	 Always use an upware If the input variables 	rdly differentiated condition for EN. are out of range, the ENO Flag will turn OFF and the FB will not be processed.			
Output variables	to the EN input varial	tiple cycles to process. Always connect an OR including the BUSY output variable ble to ensure that the FB is processed to completion (see <i>Symbol</i>). Y output variable ON or OFF outside the FB.			



Input Variables

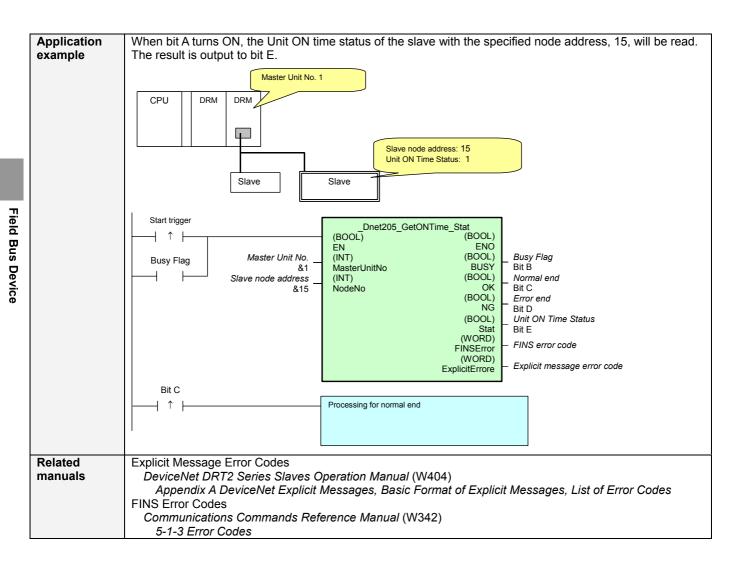
Name	Variable name	Data type	Default	Range	Description	
EN	EN	BOOL			1 (ON): FB started.	
					0 (OFF): FB not started.	
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet	
				#0 to #F	Master Unit.	
Slave node	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.	
address						

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Present Unit ON	PV	DINT		The present Unit ON time is output (unit: 0.1 h).
Time				For example, &20 would be output for 2 hours.
FINS error code	FINSError	WORD		The FINS error code is output. A code of #0000 is
(May be omitted.)				output for a normal end. Refer to the Related Manuals
· · · ·				for details on the error codes.
Explicit message	ExplicitError	WORD		Outputs the explicit message error code. A code of
error code				#0000 is output for a normal end. Refer to the Related
(May be omitted.)				Manuals for details on the error codes.

Version	Date	Contents	
1.00	2004.6.	Original production	

Dnet -205	Read Unit ON Time	e Status: _Dnet205_GetONTime_Stat		
Basic function	Reads the Unit ON time (con	duction time) status from slaves connected to DeviceNet.		
Symbol	Start trigger Busy Flag Slave node ad	ddress – NodeNo (INT) (BOOL) NodeNo OK (BOOL) NG (BOOL) Stat (WORD) FINSError (WORD) ExplicitError HINS error code (May be omitted.) Explicit message error code (May be omitted.)		
File name		SmartIO_Dnet205_GetONTime_Stat10.cxf		
Applicable models	Applicable Master CS1 Units	1W-DRM21(-V1) and CJ1W-DRM21		
	UnitsDRT2-ID16, ID08C, HD16C, ID16S, ID16TA, ID32ML, ID32SL, ID32SLH DRT2-OD16, OD08C, ROS16, OD16TA, OD32ML, OD32SL, OD32SLH DRT2-MD16S, MD16TA, MD32ML, MD32SL, MD32SLH DRT2-AD04, AD04H, DA02, TS04T, TS04P			
Conditions for usage	 CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other Communications must be within one network and cannot cross to another network. 			
Function description	The Unit ON time status is read from the DeviceNet slave specified by the Master Unit No. and the Slave Node Address. Refer to the FINS error code and explicit message error code if an error occurs. Both error codes will be output as #0000 for a normal end.			
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF OFF Normal end (OK) OFF FB execution completed. 			
EN input condition	Connect EN to an OR betwee output from the FB.	en an upwardly differentiated condition for the start trigger and the BUSY		
Restrictions Input variables	 Always use an upwardly If the input variables are	differentiated condition for EN. out of range, the ENO Flag will turn OFF and the FB will not be processed.		
Output variables	to the EN input variable t	e cycles to process. Always connect an OR including the BUSY output variable to ensure that the FB is processed to completion (see <i>Symbol</i>). utput variable ON or OFF outside the FB.		



Variable Tables Input Variables

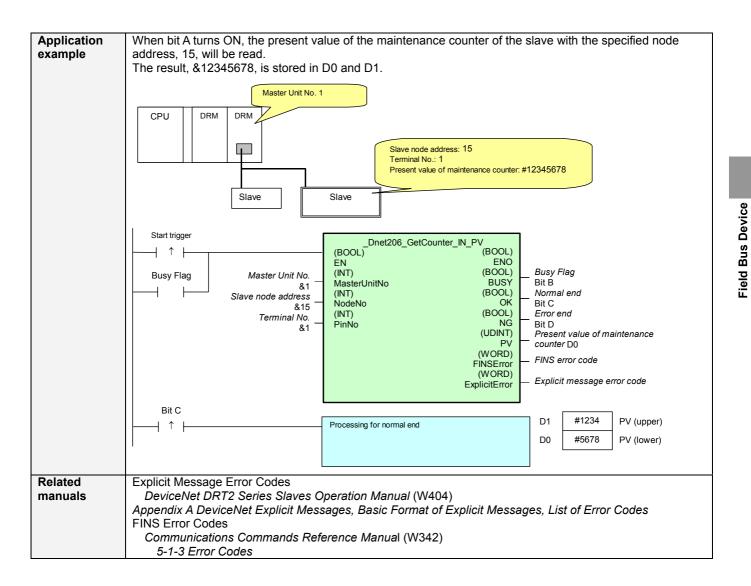
input variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Slave node	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
address					

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Unit ON Time Status	Stat	BOOL		Indicates the Unit ON (conduction) time status. 0 (OFF): Within specified range 1 (ON): Out of range
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

Version	Date	Contents	
1.00	2004.6.	Original production	

Dnet	Read Input Term	ninal Maintenance Counter Present Value:		
-206	Dnet206 GetC			
Basic		s of terminal maintenance counters from slaves connected to DeviceNet.		
function	Use this FB for input terminals.			
Symbol	Start trigger			
File name Applicable		eIO\SmartIO_Dnet206_GetCounter_IN_PV10.cxf CS1W-DRM21(-V1) and CJ1W-DRM21		
models	Units			
		DRT2-ID16, ID08C, HD16C, ID16S, ID16TA, ID32ML, ID32SL, ID32SLH		
A 11/1		DRT2-MD16S, MD16TA, MD32ML, MD32SL, MD32SLH		
Conditions for usage	External Connections	nfigurator, set for each terminal whether to use the total ON time or the number of		
Function	contact operations for the maintenance counter. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs • DeviceNet Response Timeout Time (default: 2 s) 10 s recommended • Number of retries (default: 0) Shared Resources • Communications ports (internal logical ports) Other • Communications must be within one network and cannot cross to another network.			
description	Unit No. and the Slave No.	e maintenance counter is read from the DeviceNet slave specified by the Master		
accomption		ode and explicit message error code if an error occurs.		
	Both error codes will be o	output as #0000 for a normal end.		
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) ON OFF FB execution completed. 			
EN input condition	output from the FB.	tween an upwardly differentiated condition for the start trigger and the BUSY		
Restrictions Input variables	If the input variables	rdly differentiated condition for EN. are out of range, the ENO Flag will turn OFF and the FB will not be processed.		
Output variables	to the EN input varial	tiple cycles to process. Always connect an OR including the BUSY output variable ble to ensure that the FB is processed to completion (see <i>Symbol</i>). Y output variable ON or OFF outside the FB.		



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Master Unit.
Slave node address	NodeNo	INT	&0	&1 to &63	Specify the node address of the slave.
Terminal No.	PinNo	INT	&0	&0 to &31	The terminal (pin) number for which the present value is to be read.

Output Variables

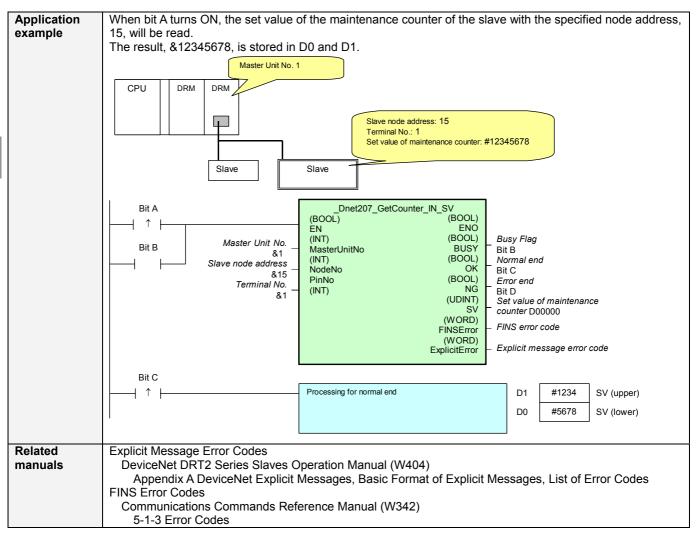
Name	Variable name	Data type	Range	Description
ENO (May be omitted.)	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Present value of maintenance counter	PV	UDINT		The present value of the maintenance counter is output. The present value is either the total ON time or the number of operations. (Unit: seconds for total ON time, operations for the number of operations)
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Dnet	
-207	

Read Input Terminal Maintenance Counter Set Value: _Dnet207_GetCounter_IN_SV

Basic function		Reads the set values of terminal maintenance counters from slaves connected to DeviceNet. Use this FB for input terminals.				
Symbol	Slave not	er Unit No er Unit No de address - erminal No $ \begin{array}{c} Dnet207_GetCounter_IN_SV \\ (BOOL) \\ EN \\ (INT) \\ MasterUnitNo \\ PinNo \\ (INT) \\ (INT$				
File name Applicable		eIO\SmartIO_Dnet207_GetCounter_IN_SV10.cxf CS1W-DRM21(-V1) and CJ1W-DRM21				
models	Units					
		DRT2-ID16, ID08C, HD16C, ID16S, ID16TA, ID32ML, ID32SL, ID32SLH DRT2-MD16S, MD16TA, MD32ML, MD32SL, MD32SLH				
Conditions	External Connections					
for usage		figurator, set for each terminal whether to use the total ON time or the number of				
	CPU Unit Settings	he maintenance counter.				
		ttings for Communications Instructions in FBs				
		e Timeout Time (default: 2 s) 10 s recommended				
	Number of retries (default: 0)					
	Shared ResourcesCommunications ports (internal logical ports)					
	Other					
		st be within one network and cannot cross to another network.				
Function	The set value of the main	tenance counter is read from the DeviceNet slave specified by the Master Unit No.				
description	and the Slave Node Addr					
		ode and explicit message error code if an error occurs. output as #0000 for a normal end.				
FB		over multiple cycles. The BUSY output variable can be used to check whether the				
precautions	FB is being processe					
		ed ON for one cycle only after processing is completed. Use these flags to detect				
	the end of FB proces Timechart	sing.				
	Normal end (OK) 0					
		DFF				
		↑ FB execution completed.				
EN input	Connect EN to an OR bet	tween an upwardly differentiated condition for the start trigger and the BUSY				
condition	output from the FB.					
Restrictions		rdly differentiated condition for EN.				
Input variables	If the input variables	are out of range, the ENO Flag will turn OFF and the FB will not be processed.				
Output	This FR requires mul	tiple cycles to process. Always connect an OR including the BUSY output variable				
variables		ble to ensure that the FB is processed to completion (see Symbol).				
		Y output variable ON or OFF outside the FB.				



Variable Tables Input Variables

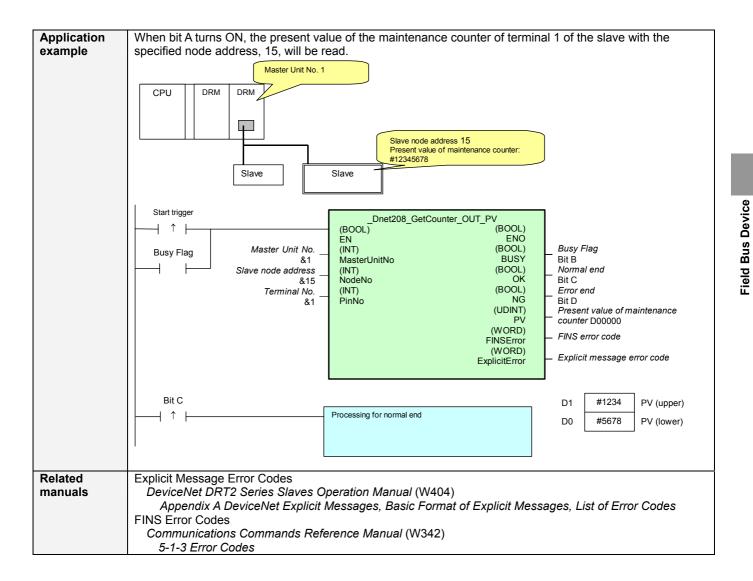
input variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Slave node	NodeNo	INT	&0	&1 to &63	Specify the node address of the slave.
address					
Terminal No.	PinNo	INT	&0	&0 to &31	The terminal (pin) number for which the set
					value is to be read.

Output Variables

Name	Variable name	Data type	Range	Description
ENO (May be omitted.)	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Set value of maintenance counter	SV	UDINT	&0 to &4294967 295	The set value of the maintenance counter is output. The present value is either the total ON time or the number of operations. (Unit: seconds for total ON time, operations for the number of operations)
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

Version	Date	Contents			
1.00	2004.6.	Original production			

Dnet -208	Read Output Terminal Maintenance Counter Present Value: _Dnet208_GetCounter_OUT_PV						
Basic function	Reads the present values of terminal maintenance counters from slaves connected to DeviceNet. Use this FB for output terminals.						
Symbol	Slave n						
File name		teIO\SmartIO_Dnet208_GetCounter_OUT_PV10.cxf					
Applicable	Applicable Master	CS1W-DRM21(-V1) and CJ1W-DRM21					
models	Units Applicable Slave Units	DRT2-OD16, OD08C, ROS16, OD16TA, OD32ML, OD32SL, OD32SLH, DRT2-MD16S, MD16TA, MD32ML, MD32SL, MD32SLH					
Conditions	CPU Unit Settings						
for usage	 PLC Setup: Shared Settings for Communications Instructions in FBs DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other Communications must be within one network and cannot cross to another network. 						
Function description	The present value of the maintenance counter is read from the DeviceNet slave specified by the Master Unit No. and the Slave Node Address. Refer to the FINS error code and explicit message error code if an error occurs. Both error codes will be output as #0000 for a normal end.						
FB		d over multiple cycles. The BUSY output variable can be used to check whether the					
precautions	FB is being process • OK or NB will be tun the end of FB proce Timechart Start Trigger Busy Flag (BUSY) Normal end (OK) or Error end (NG)	on ON OFF OFF OFF OFF OFF OFF OFF					
EN input condition	Connect EN to an OR b output from the FB.	etween an upwardly differentiated condition for the start trigger and the BUSY					
Restrictions Input variables		ardly differentiated condition for EN. s are out of range, the ENO Flag will turn OFF and the FB will not be processed.					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 						



Input Variables	Input	Variables	
-----------------	-------	-----------	--

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Master Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Terminal No.	PinNo	INT	&0	&0 to &31	Specify the terminal (pin) number for which the present value is to be read.

Output Variables

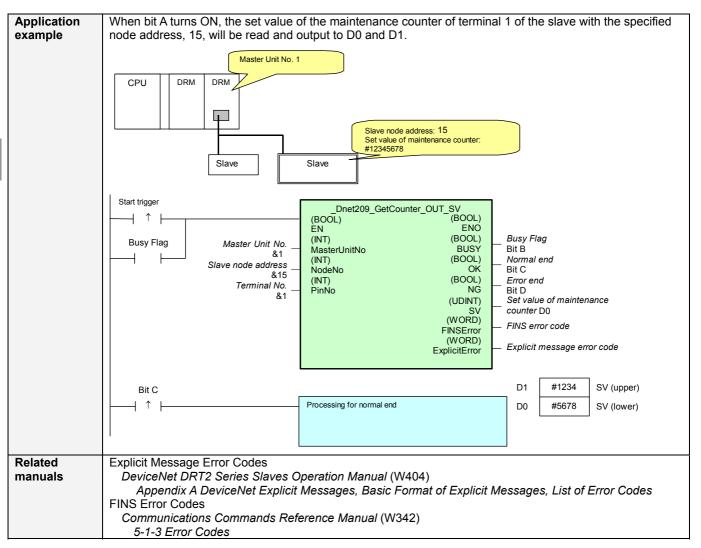
Name	Variable name	Data type	Range	Description
ENO (May be omitted.)	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Present value of maintenance counter	PV	UDINT		The present value of the maintenance counter is output. The present value is either the total ON time or the number of operations. (Unit: seconds for total ON time, operations for the number of operations)
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Dnet	
-209	

Read Output Terminal Maintenance Counter Set Value: _Dnet209_GetCounter_OUT_SV

Basic	Reads the set values of terminal maintenance counters from slaves connected to DeviceNet.						
function	Reset the set value of output terminals.						
Symbol	Start trigger						
	EN ENO Busy Flag (INT) (BOOL)						
	Master Unit No. Master Unit No. BUSY Busy Flag						
	(INT) (BOOL) Slave node address – (INT) (BOOL)						
	(INT) (BOOL)						
	Terminal No PinNo NG Error end (UDINT) Set value of maintenance						
	SV = counter						
	EINSError FINS error code						
	(WORD) (May be omitted.) Explicit message arror code						
	ExplicitError (May be omitted.)						
File name	Lib\FBL\omronlib\RemoteIO\SmartIO\ Dnet209 GetCounter OUT SV10.cxf						
Applicable	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21						
models	Units						
	Applicable Slave DRT2-OD16, OD08C, ROS16, OD16TA, OD32ML, OD32SL, OD32SLH						
0	Units DRT2-MD16S, MD16TA, MD32ML, MD32SL, MD32SLH						
Conditions	CPU Unit Settings						
for usage	PLC Setup: Shared Settings for Communications Instructions in FBs						
	DeviceNet Response Timeout Time (default: 2 s) 10 s recommended						
	Number of retries (default: 0) Shared Resources						
	Communications ports (internal logical ports)						
	Other						
	Communications must be within one network and cannot cross to another network.						
Function	The set value of the maintenance counter is read from the DeviceNet slave specified by the Master Unit No.						
description	and the Slave Node Address.						
	Refer to the FINS error code and explicit message error code if an error occurs. Both error codes will be output as #0000 for a normal end.						
FB	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the						
precautions	• The FB is processed over multiple cycles. The BOSY output variable can be used to check whether the FB is being processed.						
procudienc	 OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect 						
	the end of FB processing.						
	Timechart						
	Start Trigger ON OFF						
	Busy Flag (BUSY) ON						
	OFF						
	Normal end (OK) ON						
	or Error end (NG) OFF						
	\uparrow FB execution completed.						
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY						
condition Restrictions	output from the FB. Always use an upwardly differentiated condition for EN.						
Input	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
variables							
Output	This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable						
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).						
	Do not turn the BUSY output variable ON or OFF outside the FB.						



Variable Tables Input Variables

input variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
MasterUnit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Master Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Terminal No.	PinNo	INT	&0	&0 to &31	Specify the terminal (pin) number for which the set value is to be read.

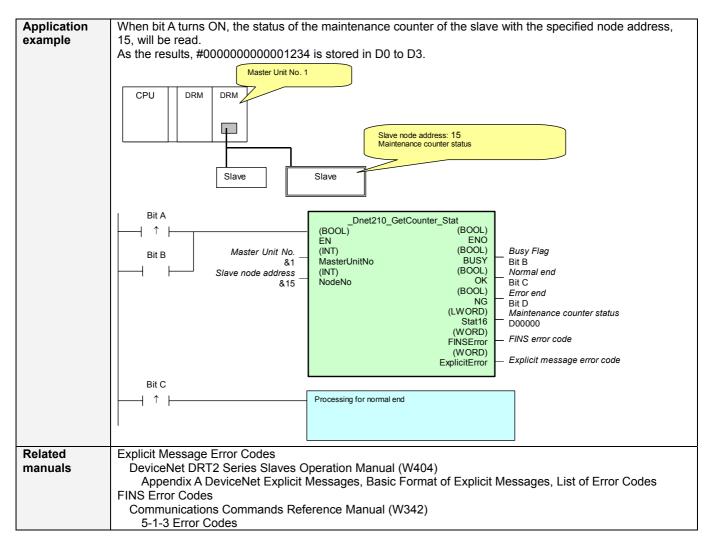
Output Variables

Name	Variable name	Data type	Range	Description
ENO (May be omitted.)	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Set value of maintenance counter	SV	UDINT		The set value of the maintenance counter is output. The present value is either the total ON time or the number of operations. (Unit: seconds for total ON time, operations for the number of operations)
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Field Bus Device

Dnet -210	Read Maintenance Counter Status: _Dnet210_GetCounter_Stat						
Basic function	Reads maintenance counter status from slaves connected to DeviceNet.						
Symbol	Start trigger						
File name	Lib\FBL\omronlib\RemoteIO\SmartIO_Dnet210_GetCounter_Stat10.cxf						
Applicable	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21						
models	UnitsDRT2-ID16, ID08C, HD16C, ID16S, ID16TA, ID32ML, ID32SL, ID32SLHUnitsDRT2-OD16, OD08C, ROS16, OD16TA, OD32ML, OD32SL, OD32SLHDRT2-MD16S, MD16TA, MD32ML, MD32SL, MD32SLH						
Conditions for usage	 External Connections Using a DeviceNet Configurator, set for each terminal whether to use the total ON time or the number of contact operations for the maintenance counter. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) 						
Function	Communications must be within one network and cannot cross to another network. The status of the maintenance counter is read from the DeviceNet slave specified by the Master Unit No.						
description	and the Slave Node Address. Refer to the FINS error code and explicit message error code if an error occurs. Both error codes will be output as #0000 for a normal end.						
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF OFF OFF OFF						
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.						
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 						



Input variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Slave node	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
address					

Field Bus Device

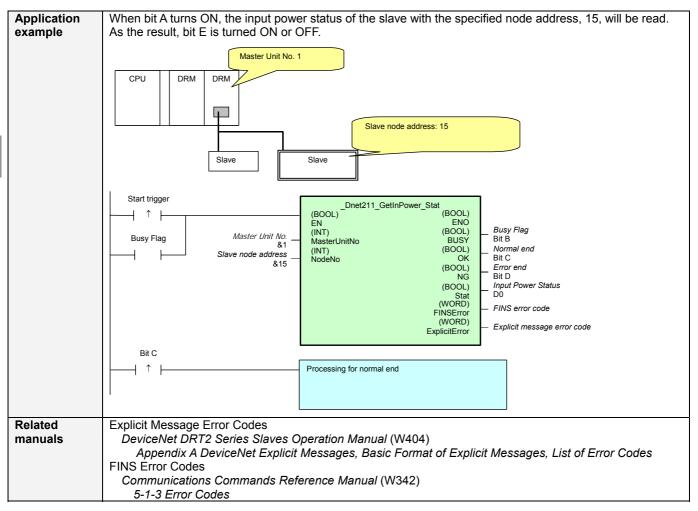
Output Variables

Output Variables	Variable name	Data type	Range	Description
ENO	ENO	BOOL	Range	1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Maintenance counter status	Stat	LWORD		The status of the maintenance counter is output. The status is whether the specified total ON time or the number of operations has been exceed. DRT2-*D16TA(-1)
				Input unit +3 CH +2 CH +1 CH +0 CH
				IN15-0
				Output unit +3 CH +2 CH +1 CH +0 CH
				OUT15-0
				Mix unit +3 CH +2 CH +1 CH +0 CH
				OUT7-0 IN7-0
				DRT2-*D32ML(-1) / DRT2-*D32SL(H)(-1)
				Input unit +3 CH +2 CH +1 CH +0 CH
				IN31-16 IN15-0
				Output unit +3 CH +2 CH +1 CH +0 CH
				OUT31-16 OUT15-0
				Mix unit +3 CH +2 CH +1 CH +0 CH
				OUT15-0 IN15-0
				The other
				Input unit +3 CH +2 CH +1 CH +0 CH
				IN31-16 IN15-0
				Output unit +3 CH +2 CH +1 CH +0 CH
				OUT31-16 OUT15-0
				Mix unit +3 CH +2 CH +1 CH +0 CH
				OUT15-0 IN15-0
				0 (OFF): Within specified range
FINS error code (May be omitted.)	FINSError	WORD		1 (ON): Out of range The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Field Bus Device

Dnet -211	Read Input Power Status: _Dnet211_GetInputPower_Stat						
Basic	Reads the input power status from slaves connected to DeviceNet.						
function	reads the input power status norm slaves connected to bevice vet.						
Symbol	Start trigger						
File name	Lib\FBL\omronlib\RemoteIO\SmartIO_Dnet211_GetInputPower_Stat10.cxf						
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units						
	Applicable Slave UnitsDRT2-ID16, ID08C, HD16C, ID16S, ID16TA, ID32ML, ID32SL, ID32SLH DRT2-OD16, OD08C, ROS16, OD16TA, OD32ML, OD32SL, OD32SLH DRT2-MD16S, MD16TA, MD32ML, MD32SL, MD32SLH						
Conditions	External Connections						
for usage	Using a DeviceNet Configurator, set for each terminal whether to use the total ON time or the number of contact operations for the maintenance counter.						
	CPU Unit Settings						
	PLC Setup: Shared Settings for Communications Instructions in FBs						
	 DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) 						
	Number of retries (default: 0) Shared Resources						
	Communications ports (internal logical ports)						
	 Other Communications must be within one network and cannot cross to another network. 						
Function	The input power supply status for inputs is read from the DeviceNet slave specified by the Master Unit No.						
description	and the Slave Node Address.						
	Refer to the FINS error code and explicit message error code if an error occurs. Both error codes will be output as #0000 for a normal end.						
FB	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the						
precautions	FB is being processed.						
	OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the and of FD exceeded.						
	the end of FB processing. Timechart						
	Start Trigger ON						
	Busy Flag (BUSY) ON OFF						
	Normal end (OK) ON or Error end (NG) OFF						
	FB execution completed.						
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.						
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
Output	This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable						
variables	 to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 						



Variable Tables Input Variables

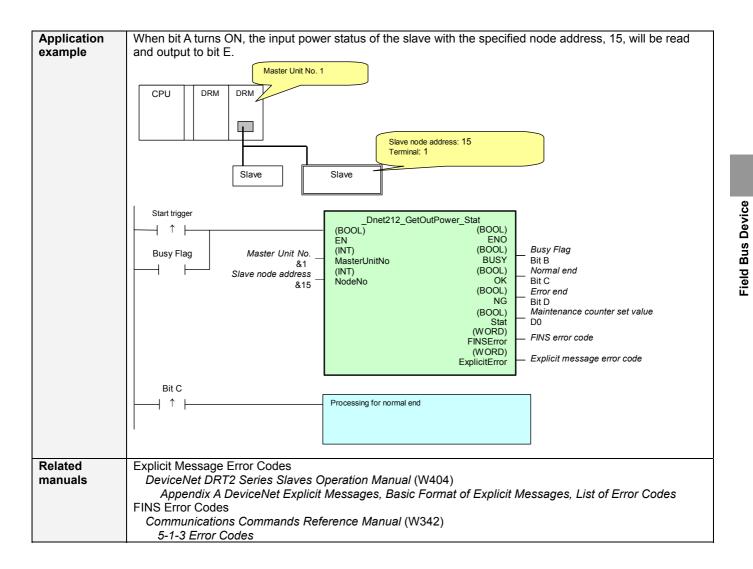
input variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Slave node address	NodeNo	INT	&0	&1 to &63	Specify the node address of the slave.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Input Power Status	Stat	BOOL		Shows the input power status for Input Units. 0 (OFF): Normal 1 (ON): Input power OFF
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Dnet -212	Read Output Power Status: _Dnet212_GetOutPower_Stat
Basic function	Reads the power supply status for outputs from slaves connected to DeviceNet.
Symbol	Start trigger
File name Applicable	Lib\FBL\omronlib\RemoteIO\SmartIO_Dnet212_GetOutPower_Stat10.cxf Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21
models	Units
	Applicable SlaveDRT2-OD16, OD08C, ROS16, OD16TA, OD32ML, OD32SL, OD32SLH,UnitsDRT2-MD16S, MD16TA, MD32ML, MD32SL, MD32SLH
Conditions for usage	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs
	 DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other Communications must be within one network and cannot cross to another network.
Function description	The input power supply status for outputs is read from the DeviceNet slave specified by the Master Unit No. and the Slave Node Address. Refer to the FINS error code and explicit message error code if an error occurs. Both error codes will be output as #0000 for a normal end.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) ON OFF FB execution completed.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN.] If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



Input Variables	
-----------------	--

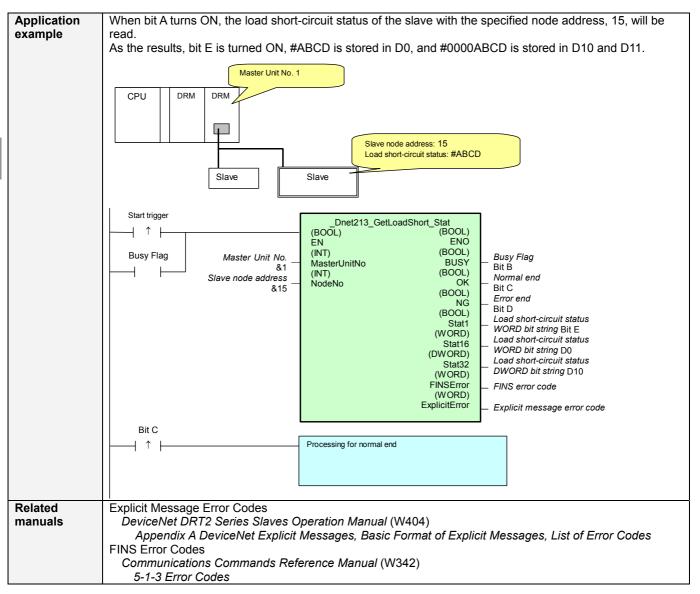
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Slave node	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
address					

Output Variables

Name	Variable name	Data type	Range	Description
ENO (May be omitted.)	ENO	BOOL	Range	1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Output power status	Stat	BOOL		Shows the output power status. 0 (OFF): Normal 1 (ON): Power OFF
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Dnet -213	Read Load Short-circuit Status: _Dnet213_GetLoadShort_Stat
	-
Basic function	Reads the load OFF short-circuit status from slaves connected to DeviceNet.
Symbol	Start trigger
File name	Lib/EDL/amranlib/Damatal//Smartl//Danat212_Catl and Shart_Stat10 avf
File name Applicable	Lib\FBL\omronlib\RemotelO\SmartIO_Dnet213_GetLoadShort_Stat10.cxf Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21
models	Units
	Applicable Slave DRT2-OD08C, MD16S Units
Conditions	CPU Unit Settings
for usage	 PLC Setup: Shared Settings for Communications Instructions in FBs DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other
	 Communications must be within one network and cannot cross to another network.
Function description	The load short-circuit status is read from the DeviceNet slave specified by the Master Unit No. and the Slave Node Address. Refer to the FINS error code and explicit message error code if an error occurs. Both error codes will be output as #0000 for a normal end.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) ON OFF FB execution completed.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



Innut	Variables	
input	variables	

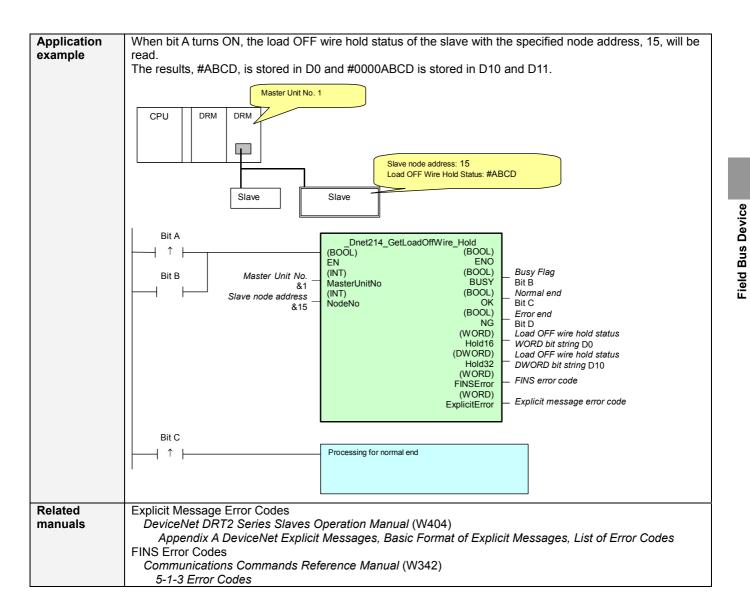
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Slave node	NodeNo	INT	&0	&1 to &63	Specify the node address of the slave.
address					

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Load short-circuit	Stat1	BOOL		The load short-circuit status is output.
status WORD bit				Data
string (May be				 DRT2-OD08C
omitted.)				Short-circuit status of terminal 0
				DRT2-MD16S
				An OR of the short-circuit status of all terminals
				0 (OFF): Normal
				1 (ON): Shorted
Load short-circuit	Stat16	WORD		The load short-circuit status is output.
status WORD bit				Data
string (May be				DRT2-OD08C
omitted.)				Bits 00 to 7: Short-circuit status of terminals 0 to 7
				Bits 8 to 16: Reserved (OFF)
				DRT2-MD16S
				Bit 00: An OR of the short-circuit status for all
				terminals
				Bits 1 to 16: Reserved (OFF)
				0 (OFF): Normal
				1 (ON): Shorted
Load short-circuit	Stat32	DWORD		The load short-circuit status is output.
status DWORD				Data
bit string (May be				DRT2-OD08C
omitted.)				Bits 00 to 7: Short-circuit status of terminals 0 to 7
				Bits 8 to 31: Reserved (OFF)
				DRT2-MD16S
				Bit 00: An OR of the short-circuit status for all
				terminals
				Bits 1 to 31: Reserved (OFF)
				0 (OFF): Normal
				1 (ON): Shorted
FINS error code	FINSError	WORD		The FINS error code is output. A code of #0000 is
(May be omitted.)				output for a normal end. Refer to the Related Manuals
				for details on the error codes.
Explicit message	ExplicitError	WORD		Outputs the explicit message error code. A code of
error code				#0000 is output for a normal end. Refer to the Related
(May be omitted.)				Manuals for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Dnet -214	Read Load OFF Wire Hold Status: _Dnet214_GetLoadOffWire_Hold
Basic function	Reads the load OFF wire hold status from slaves connected to DeviceNet.
Symbol	Start trigger
File name	Lib\FBL\omronlib\RemoteIO\SmartIO_Dnet214_GetLoadOffWire_Hold10.cxf
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units
models	Applicable Slave DRT2-MD32SLH, OD32SLH
Conditions for usage	 CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other Communications must be within one network and cannot cross to another network.
Function	The load OFF wire hold status is read from the DeviceNet slave specified by the Master Unit No. and the
description	Slave Node Address. Refer to the FINS error code and explicit message error code if an error occurs. Both error codes will be output as #0000 for a normal end.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF OFF OFF
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



Input Variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Slave node	NodeNo	INT	&0	&1 to &63	Specify the node address of the slave.
address					

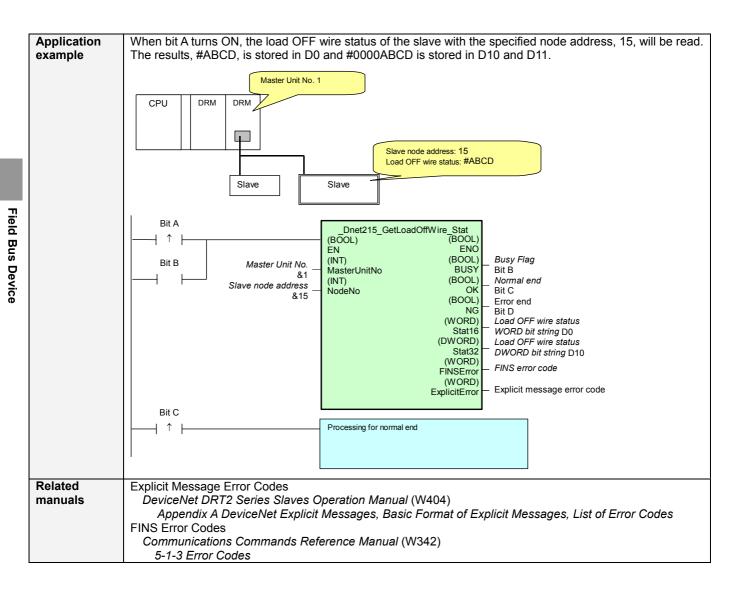
Output Variables

Output Variables				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Load OFF wire	Hold 16	WORD		The load OFF wire hold status is output.
hold status WORD				Data
bit string (May be				DRT2-MD32SLH
omitted.)				Bits 00 to 15: OFF Wire status of terminals 0 to 15
				DRT2-MD32SLH
				Bits 00 to 15: OFF Wire status of terminals 0 to 15
				(status of terminals 16 to 31 is not output)
				0 (OFF): Normal
				1 (ON): Shorted
Load OFF wire	Hold 32	DWORD		The load OFF wire hold status is output.
hold status				Data
DWORD bit string				DRT2-MD32SLH
(May be omitted.)				Bits 00 to 15: OFF Wire status of terminals 0 to 15
				Bits 16 to 31: Reserved (OFF)
				DRT2-OD32SLH
				Bits 00 to 31: OFF Wire status of terminals 0 to 31
				0 (OFF): Normal
				1 (ON): Shorted
FINS error code	FINSError	WORD		The FINS error code is output. A code of #0000 is
(May be omitted.)				output for a normal end. Refer to the Related Manuals
				for details on the error codes.
Explicit message	ExplicitError	WORD		Outputs the explicit message error code. A code of
error code				#0000 is output for a normal end. Refer to the Related
(May be omitted.)				Manuals for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Dnet -215	Read Load OF	F Wire Status: _Dnet215_GetLoadOffWire_Stat
Basic	Reads the load OFF with	re status from slaves connected to DeviceNet. Use this FM for output terminals.
function		
Symbol		
File name	Lib\FBL\omronlib\Remo	telO\SmartIO_Dnet215_GetLoadOffWire_Stat10.cxf
Applicable	Applicable Master	CS1W-DRM21(-V1) and CJ1W-DRM21
models	Units	
	Applicable Slave Units	DRT2-MD32SLH, OD32SLH
Conditions	CPU Unit Settings	
for usage		ettings for Communications Instructions in FBs
-		se Timeout Time (default: 2 s) 10 s recommended
	Number of retries (default: 0)
	Shared Resources	orts (internal logical ports)
	Other	
		ust be within one network and cannot cross to another network.
Function		us is read from the DeviceNet slave specified by the Master Unit No. and the Slave
description	Node Address.	
		code and explicit message error code if an error occurs.
FB		output as #0000 for a normal end. ed over multiple cycles. The BUSY output variable can be used to check whether the
precautions	FB is being process	
-	 OK or NB will be tu 	rned ON for one cycle only after processing is completed. Use these flags to detect
	the end of FB proce	essing.
	Timechart Start Trigger	ON 🗖
	otart miggor	OFF
	Busy Flag (BUSY)	ON
		OFF
	Normal end (OK)	ON 🗖
	or Error end (NG)	OFF
		\wedge FB execution completed.
EN input		etween an upwardly differentiated condition for the start trigger and the BUSY
condition	output from the FB.	
Restrictions		andly differentiated condition for EN.
Input variables		s are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output		ultiple cycles to process. Always connect an OR including the BUSY output variable
variables	to the EN input var	able to ensure that the FB is processed to completion (see Symbol).
	 Do not turn the BU 	SY output variable ON or OFF outside the FB.

3-135



Variable Tables Input Variables

Input variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Slave node	NodeNo	INT	&0	&1 to &63	Specify the node address of the slave.
address					

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Load OFF wire	Stat16	WORD		The load OFF wire hold status is output.
status WORD bit				Data
string (May be				DRT2-MD32SLH
omitted.)				Bits 00 to 15: OFF Wire status of terminals 0 to 15
				DRT2-OD32SLH
				Bits 00 to 15: OFF Wire status of terminals 0 to 15
				(status of terminals 16 to 31 is not output)
				0 (OFF): Normal
				1 (ON): Shorted
Load OFF wire	Stat32	DWORD		The load OFF wire status is output.
status DWORD bit				Data
string (May be				 DRT2-MD32SLH
omitted.)				Bits 00 to 15: OFF Wire status of terminals 0 to 15
				Bits 16 to 31: Reserved (OFF)
				DRT2-OD32SLH
				Bits 00 to 31: OFF Wire status of terminals 0 to 31
				0 (OFF): Normal
				1 (ON): Shorted
FINS error code	FINSError	WORD		The FINS error code is output. A code of #0000 is
(May be omitted.)				output for a normal end. Refer to the Related Manuals
				for details on the error codes.
Explicit message	ExplicitError	WORD		Outputs the explicit message error code. A code of
error code				#0000 is output for a normal end. Refer to the Related
(May be omitted.)				Manuals for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Dnet	Read Operation Time Monitor Present Value:						
-216	_Dnet216_GetOperationTime_PV						
Basic function	Reads the present values of the operation time monitors from slaves connected to DeviceNet.						
Symbol	Start trigger						
File name	Lib\FBL\omronlib\RemoteIO\SmartIO_Dnet216_GetOperationTime_PV10.cxf						
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units						
	Applicable SlaveDRT2-ID16, OD16, ROS16, MD16S, ID16TA, MD16TA, OD16TA, ID32ML,UnitsMD32ML, OD32ML, ID32SL, MD32SL, OD32SL, ID32SLH, MD32SLH, OD32SLH						
Conditions for usage	 External Connections Applicable Models (1) DRT2-ID16(-1) with XWT-ID16/08 (2) DRT2-ROS16 with XWT-ID16/08 (3) DRT2-ROS16 with XWT-ID16/08 (4) DRT2-MD16S Measurements are possible for input 0 and output 0, input 1 and output 1, input 2 and output 2, input 15 and output 15. Note: Only through input 7 and output 7 can be used for XWT Units with 8 I/O points. (5) DRT2-ID/OD/MD-TA, ML, SL Series Mixed I/O Units support input 0 and output 0, input 1 and output 1, input 2 and output 2, input 5. Input Units support input 0 to input 16, input 1 to input 17, input 2 to input 18, input 5 to input 21. Output Units support outputs 0 to 16, outputs 1 to 17, outputs 2 to 8, outputs 5 to 21. Measurement condition: ON edge to ON edge The I/O bit combinations for which to measure the operation time and ON/OFF edges can be selected. Note: Refer to the <i>DeviceNet DRT2 Series Slaves Operation Manual</i> (W404) for details. Note: The conditions shown above are the default conditions. 2. Time Accuracy Accuracy for measurements in milliseconds: ±6 ms CPU Unit Settings for Communications Instructions in FBS DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) Shared Resources Communications must be within one network and cannot cross to another network. 						
Function description	The present value of the operation time monitor is read from the DeviceNet slave specified by the Master Unit No. and the Slave Node Address. Refer to the FINS error code and explicit message error code if an error occurs. Both error codes will be output as #0000 for a normal end.						

Field Bus Device

FB precautions	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the ED is being processed
precautions	FB is being processed.OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect
	the end of FB processing.
	Timechart Start Trigger ON
	OFF
	Busy Flag (BUSY) ON OFF
	Normal end (OK) ON or Error end (NG) OFF
	FB execution completed.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions	Always use an upwardly differentiated condition for EN.
Input variables	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable
variables	 to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.
Application	When bit A turns ON, the present value of the operation time monitor of the slave with the specified node
example	address, 15, will be read.
	Master Unit No. 1
	CPU DRM DRM
	Slave node address: 15 Operation time: &200
	Slave Slave
	Start triggerDnet216_GetOperationTime_PV
	(BOOL) (BOOL) EN ENO
	Busy Flag Master Unit No. (INT) (BOOL) Busy Flag 81 MasterUnitNo BUSY Bit B
	Slave node address (INT) (BOOL) Normal end
	&15 NodeNo OK Bit C Registered No. (INT) (BOOL) Error end
	&1 Number NG Bit D (UINT) Operation time monitor
	PV present value D0 (WORD) FINS error code
	(WORD)
	LAPIGILITO
	Bit C
Related	Explicit Message Error Codes
manuals	DeviceNet DRT2 Series Slaves Operation Manual (W404)
	Appendix A DeviceNet Explicit Messages, Basic Format of Explicit Messages, List of Error Codes FINS Error Codes
	Communications Commands Reference Manual (W342)
	5-1-3 Error Codes

Input Variables

input variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Slave node	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
address					
Registered No.	Number	INT	&0	&0 to &15	Specify the registered number.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Operation time monitor present value	PV	UINT		The present value of the operation time monitor is output. (Unit: ms) For example, &200 would be output for 200 ms.
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

Varaian		
Version Da	Date	Contents
	2004.6.	Original production

Dnet	
-217	

Read Operation Time Monitor Set Value: _Dnet217_GetOperationTime_SV

Basic function	Reads the set values of the operation time monitors from slaves connected to DeviceNet.					
Symbol	Slave r					
File name	Lib\FBL\omronlib\Remo	teIO\SmartIO_Dnet217_GetOperationTime_SV10.cxf				
Applicable	Applicable Master	CS1W-DRM21(-V1) and CJ1W-DRM21				
models	Units					
	Applicable Slave Units	DRT2-ID16, OD16, ROS16, MD16S, ID16TA, MD16TA, OD16TA, ID32ML, MD32ML, OD32ML, ID32SL, MD32SL, OD32SL, ID32SLH, MD32SLH, OD32SLH				
Conditions	External Connections					
for usage	1. Applicable Model	S				
	(1) DRT2-ID16(-1) with XWT-OD16/08					
	(2) DRT2-OD16(-1) with XWT-ID16/08					
	(3) DRT2-ROS16 with	1 XWT-ID16/08				
	(4) DRT2-MD16S					
		for two I/O points from ON edge to ON edge.				
	Measurements are 15 and output 15.	possible for input 0 and output 0, input 1 and output 1, input 2 and output 2, input				
		input 7 and output 7 can be used for XWT Units with 8 I/O points.				
	(5) DRT2-ID, OD, MD-					
	 Mixed I/O Units sup output 5. 	oport input 0 and output 0, input 1 and output 1, input 2 and output 2, … input 5 and				
		input 0 to input 16, input 1 to input 17, input 2 to input 18, input 5 to input 21.				
	• Output Units support outputs 0 to 16, outputs 1 to 17, outputs 2 to 8, outputs 5 to 21.					
		ition: ON edge to ON edge				
	The I/O bit combinations for which to measure the operation time and ON/OFF edges can be select					
	Note: Refer to the <i>DeviceNet DRT2 Series Slaves Operation Manual</i> (W404) for details. Note: The conditions shown above are the default conditions.					
	<u>2. Time Accuracy</u> Accuracy for measurements in milliseconds: ±6 ms CPU Unit Settings					
		tup: Shared Settings for Communications Instructions in FBs				
	DeviceNet Response Timeout Time (default: 2 s) 10 s recommended					
	 Number of retries (Shared Resources 	Jelault. U				
		orts (internal logical ports)				
	Other	······································				
		ust be within one network and cannot cross to another network.				
Function		eration time monitor is read from the DeviceNet slave specified by the Master Unit				
description	No. and the Slave Node					
		code and explicit message error code if an error occurs.				

FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the
precautions	FB is being processed.
	• OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect
	the end of FB processing. Timechart
	Start Trigger ON
	OFF
	Busy Flag (BUSY) ON
	OFF
	Normal end (OK) ON
	or Error end (NG) OFF
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY
condition	output from the FB.
Restrictions	 Always use an upwardly differentiated condition for EN.
Input	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
variables	This ED requires multiple queles to presses. Always connect on QD including the DUCV output veriable
Output variables	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>).
valiables	 Do not turn the BUSY output variable ON or OFF outside the FB.
Application	When bit A turns ON, the set value of the operation time monitor of the slave with the specified node
example	address, 15, will be read.
	The result, #200, is stored in D0.
	Master Unit No. 1
	CPU DRM DRM
	Slave node address: 15
	Operation time monitor set value: 200 ms
	Slave Slave
	Start triggerDnet217_GetOperationTime_SV
	(BOOL) (BOOL)
	EN ENO (INT) (BOOL) Purey Flag
	Busy Flag Master Unit No. Master Unit No. BUSY Busy Flag Bit B
	Slave node address (INT) (BOOL) Normal end
	Boxistered Via (INT) (BOOL) Bit C
	Number NG Life end &1 Number NG Bit D (UINT) Source for an antisector
	SV Uperation time monitor set
	(WORD) FINSError — FINS error code
	(WORD)
	ExplicitError _ Explicit message error code
	Bit C
	Processing for normal end
Related	Evaliait Magagaa Error Codea
manuals	Explicit Message Error Codes DeviceNet DRT2 Series Slaves Operation Manual (W404)
manualə	Appendix A DeviceNet Explicit Messages, Basic Format of Explicit Messages, List of Error Codes
	FINS Error Codes
	Communications Commands Reference Manual (W342)
	5-1-3 Error Codes

Input Variables

Input vanabioo					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Master Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Registered No.	Number	INT	&0	&0 to &15	Specify the registered number.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Operation time monitor set value	SV	UINT	&0 to &65535	The set value of the operation time monitor is output. (Unit: ms) For example, &200 would be output for 200 ms.
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

Version D	Date	Contents
1.00 20	2004.6.	Original production

_	Dood Operation	Time Monitor Status:				
Dnet -218	Read Operation Time Monitor Status:					
-210	_Dnet218_GetOperationTime_Stat					
	[· · · · · · · · · · · · · · · · · · ·				
Basic function	Reads the status of the operation time monitors from slaves connected to DeviceNet.					
Symbol	Slave r					
File name		teIO\SmartIO_Dnet218_GetOperationTime_Stat10.cxf				
Applicable models	Applicable Master	CS1W-DRM21(-V1) and CJ1W-DRM21				
models	Units Applicable Slave	DRT2-ID16, OD16, ROS16, MD16S, ID16TA, MD16TA, OD16TA, ID32ML,				
	Units	MD32ML, OD32ML, ID32SL, MD32SL, OD32SL, ID32SLH, MD32SLH, OD32SLH				
Conditions	External Connections					
for usage	 (2) DRT2-OD16(-1) with XWT-ID16/08 (3) DRT2-ROS16 with XWT-ID16/08 (4) DRT2-MD16S Measures the time for two I/O points from ON edge to ON edge. Measurements are possible for input 0 and output 0, input 1 and output 1, input 2 and output 2, input 15 and output 15. Note: Only through input 7 and output 7 can be used for XWT Units with 8 I/O points. (5) DRT2-ID/OD/MD-TA, ML, SL Series Mixed I/O Units support input 0 and output 0, input 1 and output 1, input 2 and output 2, input 5 and output 5. Input Units support outputs 0 to 16, outputs 1 to input 17, input 2 to input 18, input 5 to input 21. Output Units support outputs 0 to 16, outputs 1 to 17, outputs 2 to 8, outputs 5 to 21. Measurement condition: ON edge to ON edge The I/O bit combinations for which to measure the operation time and ON/OFF edges can be selected. Note: Refer to the <i>DeviceNet DRT2 Series Slaves Operation Manual</i> (W404) for details. Note: The conditions shown above are the default conditions. 2. Time Accuracy Accuracy for measurements in milliseconds: ±6 ms CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other Communications must be within one network and cannot cross to another network. 					
description	and the Slave Node Add	Iress.				
		code and explicit message error code if an error occurs. output as #0000 for a normal end.				

Field Bus Device

FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the
precautions	FB is being processed.
	 OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing.
	Timechart
	Start Trigger ON OFF
	Busy Flag (BUSY) ON OFF
	Normal end (OK) ON or Error end (NG) OFF
	or Error end (NG) OFF FB execution completed.
	FB execution completed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY
condition	output from the FB.
Restrictions	 Always use an upwardly differentiated condition for EN.
Input variables	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output	This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).
	Do not turn the BUSY output variable ON or OFF outside the FB.
Application example	When bit A turns ON, the status of the operation time monitor of the slave with the specified node address,
example	15, will be read.
	Master Unit No. 1
	CPU DRM DRM
	Slave node address: 15 Operation time monitor status: 1
	Slave Slave
	Start triggerDnet218_GetOperationTime_Stat (BOOL) (BOOL)
	EN ENO
	Busy Flag Master Unit No. (INT) (BOOL) Busy Flag Busy Fl
	Slave node address NodeNo OK Bit C
	Registered No. (INT) (BOOL) Error end
	Number NG Bit D 81 (BOOL) Operation time monitor status
	(WORD)
	FINSError — FINS error code (WORD)
	ExplicitError – Explicit message error code
	Bit C
	Processing for normal end
Related	Explicit Message Error Codes
manuals	DeviceNet DRT2 Series Slaves Operation Manual (W404)
	Appendix A DeviceNet Explicit Messages, Basic Format of Explicit Messages, List of Error Codes
	FINS Error Codes
	Communications Commands Reference Manual (W342)

5-1-3 Error Codes

3-145

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Slave node	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
address					
Registered No.	Number	INT	&0	&0 to &15	Specify the registered number.

Output Variables

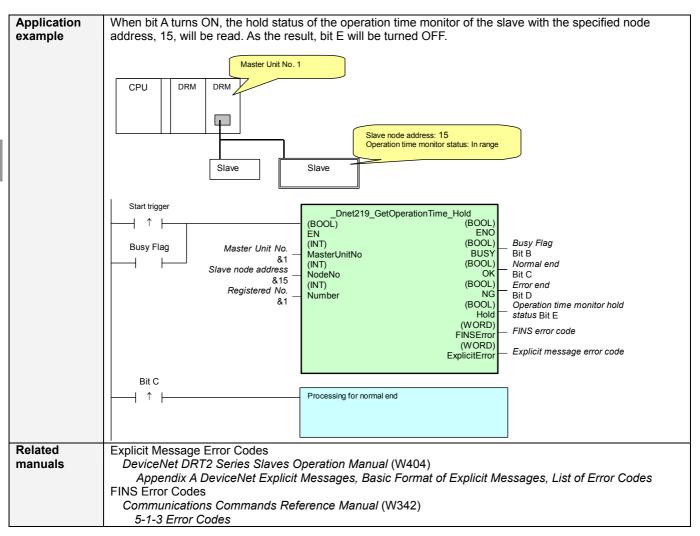
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Operation time monitor status	Stat	BOOL		The status of the operation time monitor is output. 0 (OFF): Within specified range 1 (ON): Out of range
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Dnet	
-219	

Read Operation Time Monitor Hold Status: _Dnet219_GetOperationTime_Hold

Basic function	Reads the hold status for operation times from slaves connected to DeviceNet.
Symbol	Start trigger
Symbol	Start triggerDnet219_GetOperationTime_Hold
	(BOOL) (BOOL) EN ENO
	Busy Flag (INT) (BOOL)
	Master Unit No. – Master Unit No. – Master Unit No. – (INT) (BOOL)
	Slave node address — NodeNo OK — Normal end
	(INT) (BOOL) Registered No. Network NG Error end
	(BOOL) Operation time monitor hold
	Hold WORD Status
	FINSError (May be omitted)
	Explicit Error Explicit message error code
	(May be omitted.)
File name	Lib\FBL\omronlib\RemotelO\SmartIO\ Dnet219 GetOperationTime Hold10.cxf
Applicable	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21
models	Units
	Applicable Slave DRT2-ID16TA, MD16TA, O16TA, ID32ML, MD32ML, OD32ML, ID32SL,
	Units MD32SL, OD32SL, ID32SLH, MD32SLH, OD32SLH
Conditions	External Connections
for usage	1. Conditions for Usage
	 Mixed I/O Units support input 0 and output 0, input 1 and output 1, input 2 and output 2, input 5 and output 5.
	 Input Units support inputs 0 to 16, inputs 1 to 17, inputs 2 to 18, inputs 5 to 21.
	 Output Units support outputs 0 to 16, outputs 1 to 17, inputs 2 to 16, inputs 5 to 21.
	Measurement conditions: From ON edge to ON edge
	The I/O bit combinations for which to measure the operation time and ON, OFF edges can be selected.
	Note: Refer to the DeviceNet DRT2 Series Slaves Operation Manual (W404) for details.
	Note: The conditions shown above are the default conditions.
	2. Time Accuracy
	Accuracy for measurements in milliseconds: ±6 ms
	CPU Unit Settings
	PLC Setup: Shared Settings for Communications Instructions in FBs
	DeviceNet Response Timeout Time (default: 2 s) 10 s recommended
	Number of retries (default: 0) Shared Resources
	Communications ports (internal logical ports)
	Other
	 Communications must be within one network and cannot cross to another network.
Function	The hold status of the operation time monitor is read from the DeviceNet slave specified by the Master Unit
description	No. and the Slave Node Address.
	Refer to the FINS error code and explicit message error code if an error occurs.
FB	Both error codes will be output as #0000 for a normal end.
precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed.
procudiono	 OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect
	the end of FB processing.
	Timechart
	Start Trigger ON
	OFF
	Busy Flag (BUSY) ON OFF
	Normal end (OK) ON
	or Error end (NG) OFF
	✓ FB execution completed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY
condition	output from the FB.
Restrictions	Always use an upwardly differentiated condition for EN.
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output	This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).
	• Do not turn the BUSY output variable ON or OFF outside the FB.



Variable Tables Input Variables

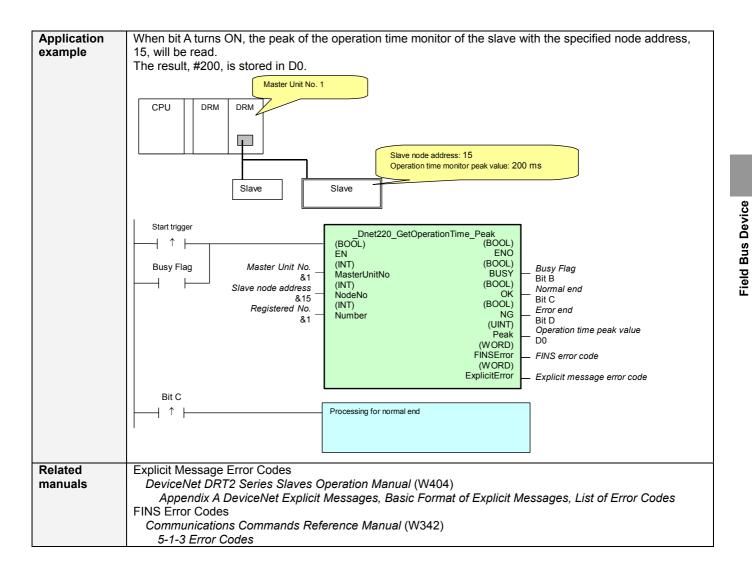
Input variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Master Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Registered No.	Number	INT	&0	&0 to &7	Specify the registered number.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Operation time	Hold	BOOL		The hold status of the operation time monitor is
monitor hold				output.
status				0 (OFF): Within specified range
				1 (ON): Out of range
FINS error code	FINSError	WORD		The FINS error code is output. A code of #0000 is
(May be omitted.)				output for a normal end. Refer to the Related Manuals
				for details on the error codes.
Explicit message	ExplicitError	WORD		Outputs the explicit message error code. A code of
error code				#0000 is output for a normal end. Refer to the <i>Related</i>
(May be omitted.)				Manuals for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Dnet -220	Read Operation Time Monitor Peak Value Read: _Dnet220_GetOperationTime_Peak						
Basic	Reads the peak values for operation times from slaves connected to DeviceNet.						
function							
Symbol	Start trigger						
File name	Lib\FBL\omronlib\RemoteIO\SmartIO_Dnet220_GetOperationTime_Peak10.cxf						
Applicable	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21						
models	Units DRT2-ID16TA, MD16TA, OD16TA, ID32ML, MD32ML, OD32ML, ID32SL, Units MD32SL, OD32SL, ID32SLH, MD32SLH, OD32SLH						
Conditions	External Connections						
for usage	 1. Conditions for Usage Mixed I/O Units support input 0 and output 0, input 1 and output 1, input 2 and output 2, input 5 and output 5. Input Units support outputs 0 to input 16, input 1 to input 17, input 2 to input 18, input 5 to input 21. Output Units support outputs 0 to 16, outputs 1 to 17, outputs 2 to 8, outputs 5 to 21. Measurement conditions: From ON edge to ON edge The I/O bit combinations for which to measure the operation time and ON/OFF edges can be selected. Note: Refer to the <i>DeviceNet DRT2 Series Slaves Operation Manual</i> (W404) for details. Note: The conditions shown above are the default conditions. 2. Time Accuracy Accuracy for measurements in milliseconds: ±6 ms CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other Communications must be within one network and cannot cross to another network. 						
description	No. and the Slave Node Address. Refer to the FINS error code and explicit message error code if an error occurs. Both error codes will be output as #0000 for a normal end.						
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) ON OFF FB execution completed. 						
EN input condition Restrictions	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB. • Always use an upwardly differentiated condition for EN.						
Input variables Output	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable 						
variables	 This FB requires multiple cycles to process. Always connect an OK including the BOSF output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 						



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Slave node	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
address					
Registered No.	Number	INT	&0	&0 to &7	Specify the registered number.

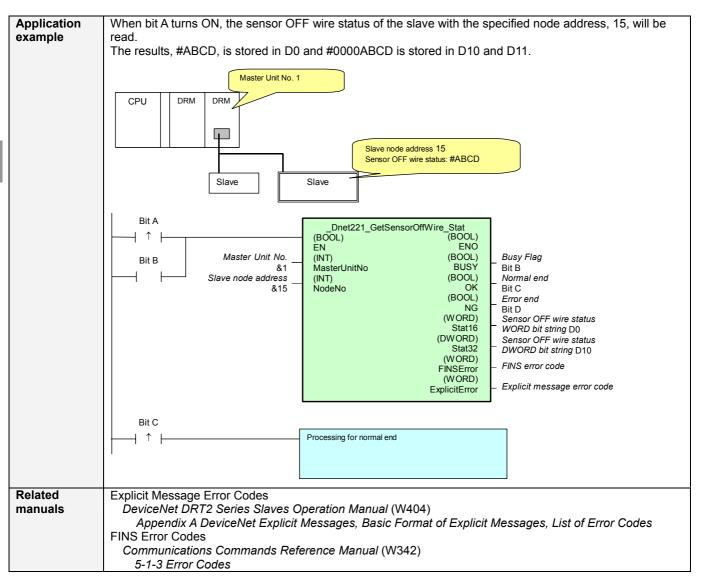
Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Operation time peak value	Peak	UINT	&0 to &65535	The peak value of the operation time monitor is output. (Unit: ms) For example, &200 would be output for 200 ms.
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Dnet -221	Read Sensor OFF Wire Status: _Dnet221_GetSensorOffWire_Stat					
Basic function	Reads the sensor OFF wire status from slaves connected to DeviceNet.					
Symbol	Start trigger					
File name	Lib\FBL\omronlib\RemotelO\SmartIO_Dnet_GetSensorOffWire_Stat10.cxf					
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units					
	Applicable Slave DRT2-ID08C, HD16C, ID32SLH, MD32SLH Units					
Conditions for usage	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs • DeviceNet Response Timeout Time (default: 2 s) 10 s recommended • Number of retries (default: 0) Shared Resources • Communications ports (internal logical ports) Other • Communications must be within one network and cannot cross to another network.					
Function	The sensor OFF wire status is read from the DeviceNet slave specified by the Master Unit No. and the					
description	Slave Node Address. Refer to the FINS error code and explicit message error code if an error occurs.					
	Both error codes will be output as #0000 for a normal end.					
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) ON OFF FB execution completed. 					
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.					
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 					

Field Bus Device



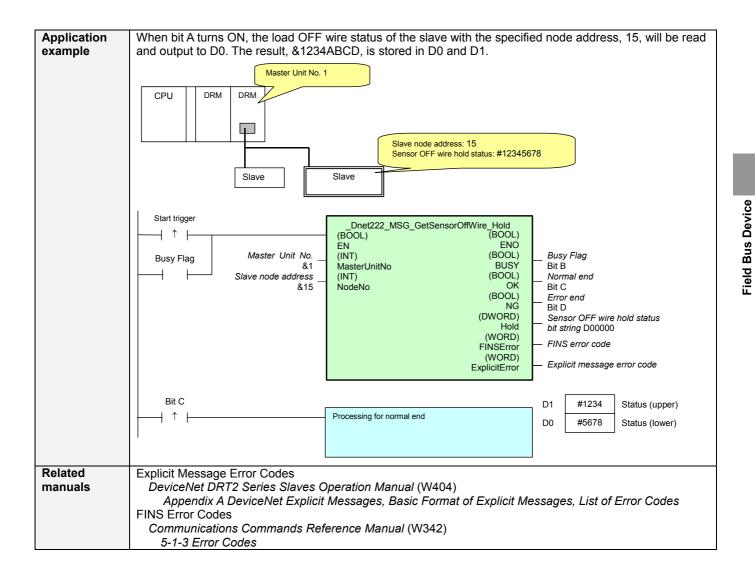
Input Variables	Input Variables					
Name	Variable name	Data type	Default	Range	Description	
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.	
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Master Unit.	
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.	

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ок	BOOL		Turns ON for one cycle when processing ends
Normal chu	OK	DOOL		normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
	NO	DOOL		error.
Sensor OFF wire	Stat16	WORD		The sensor OFF wire status is output.
status WORD bit	Olario	WORD		Data
string (May be				DRT2-ID08C
omitted.)				
omitted.)				Bits 00 to 7: Short-circuit status of terminals 0 to 7
				Bits 8 to 16: Reserved (OFF)
				 DRT2-HD16C •DRT2-ID16S •
				DRT2-MD16S
				Bits 00 to 15: OFF Wire status of terminals 0 to 15
				 DRT2-ID32SLH •DRT2-MD32SLH
				Bits 00 to 15: OFF Wire status of terminals 0 to 15
				(status of terminals 16 to 31 is not output)
				 DRT2-ID16S •DRT2-MD16S
				Bit 00: An OR of the short-circuit status for all
				terminals
				Bits 1 to 16: Reserved (OFF)
				0 (OFF): Normal
				1 (ON): OFF wire
Sensor OFF wire	Stat32	DWORD		The sensor OFF wire status is output.
status DWORD bit				Data
string (May be				DRT2-ID08C
omitted.)				Bits 00 to 7: Short-circuit status of terminals 0 to 7
				Bits 8 to 16: Reserved (OFF)
				 DRT2-HD16C •DRT2-ID16S •
				DRT2-MD16S
				Bits 00 to 15: OFF Wire status of terminals 0 to 15
				Bits 16 to 31: Reserved (OFF)
				 DRT2-ID32SLH •DRT2-MD32SLH
				Bits 00 to 31: OFF Wire status of terminals 0 to 31
				 DRT2-ID16S •DRT2-MD16S
				Bit 00: An OR of the short-circuit status for all
				terminals
				Bits 1 to 31: Reserved (OFF)
				0 (OFF): Normal
				1 (ON): OFF wire
FINS error code	FINSError	WORD		The FINS error code is output. A code of #0000 is
(May be omitted.)		-		output for a normal end. Refer to the Related Manuals
				for details on the error codes.
Explicit message	ExplicitError	WORD		Outputs the explicit message error code. A code of
error code	P			#0000 is output for a normal end. Refer to the <i>Related</i>
(May be omitted.)	1			Manuals for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

	F						
Dnet	Read Sensor OFF Wire Hold Status:						
-222	Dnet222 GetSensorOffWire Hold						
Basic	Reads the sensor OFF wire hold status from slaves connected to DeviceNet.						
function							
Symbol	Start trigger						
	ÈN ENO (INT) (BOOL) – Busy Flag						
	Master Unit No. Master Unit No. BUSY Busy Flag						
	Slave node address – (INT) (BOOL) – Normal end						
	(BOOL) NG – Error end						
	(DWORD) Sensor OFF wire hold status						
	Hold bit string (WORD) FINS error code						
	FINSError (May be omitted.)						
	(WORD) Explicit message error code ExplicitError (May be omitted.)						
File name	Lib\FBL\omronlib\RemoteIO\SmartIO\ Dnet222 GetSensorOffWire Hold10.cxf						
Applicable	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21						
models	Units						
	Applicable Slave DRT2-ID32SLH, MD32SLH						
Conditions	Units CPU Unit Settings						
for usage	PLC Setup: Shared Settings for Communications Instructions in FBs						
lei ueuge	DeviceNet Response Timeout Time (default: 2 s) 10 s recommended						
	Number of retries (default: 0)						
	Shared Resources						
	Communications ports (internal logical ports)						
	Other						
Function	Communications must be within one network and cannot cross to another network. The sensor OFF wire status is read from the DeviceNet slave specified by the Master Unit No. and the						
description	Slave Node Address.						
• • • •	Refer to the FINS error code and explicit message error code if an error occurs.						
	Both error codes will be output as #0000 for a normal end.						
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the						
precautions	FB is being processed.OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect						
	• OK of NB will be turned ON for one cycle only after processing is completed. Use these hags to detect the end of FB processing.						
	Timechart						
	Start Trigger ON						
	Busy Flag (BUSY) ON OFF						
	Normal end (OK) ON						
	or Error end (NG) OFF						
	\uparrow FB execution completed.						
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY						
condition Restrictions	output from the FB.Always use an upwardly differentiated condition for EN.						
Input	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
variables							
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable						
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).						
	 Do not turn the BUSY output variable ON or OFF outside the FB. 						



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.

Output Variables

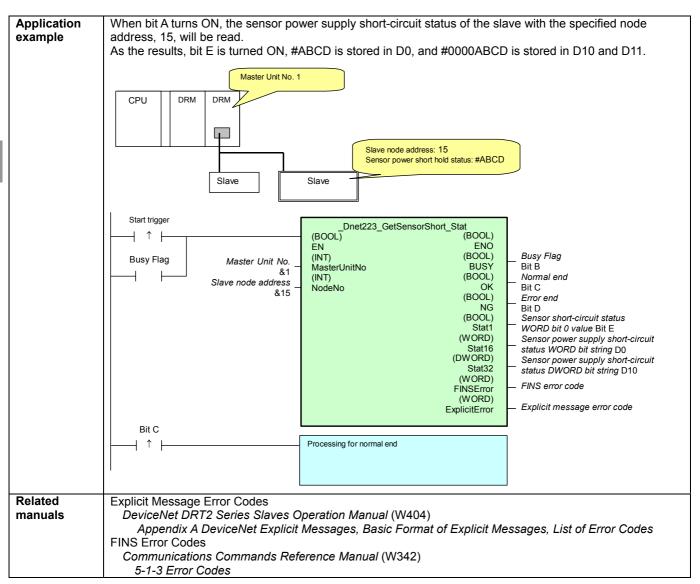
Name	Variable name	Data type	Range	Description
ENO (May be omitted.)	ENO	BOOL	3	1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Sensor OFF wire hold status bit string	Hold	DWORD		The sensor OFF wire hold status is output. Data Bits 00 to 31: OFF wire hold status of terminals 0 to 31 0 (OFF): Normal 1 (ON): OFF wire
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

Version	Date	Contents
1.00	2004.6.	Original production

Read Sensor Power Supply Short-circuit Status: _Dnet223_GetSensorShort_Stat

Basic function	Reads the power supply short circuit status from slaves connected to DeviceNet.						
Symbol	Start trigger						
File name	Lib\FBL\omronlib\RemoteIO\SmartIO\ Dnet223 GetSensorShort Stat10.cxf						
Applicable	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21						
models	Units						
	Applicable Slave DRT2-ID08C, HD16C, MD16S, ID32SLH, MD32SLH						
Conditions	Units CPU Unit Settings						
for usage	PLC Setup: Shared Settings for Communications Instructions in FBs						
ioi uougo	DeviceNet Response Timeout Time (default: 2 s) 10 s recommended						
	• Number of retries (default: 0)						
	Shared Resources						
	Communications ports (internal logical ports)						
	Other						
Function	Communications must be within one network and cannot cross to another network. The sensor power supply short-circuit status is read from the DeviceNet slave specified by the Master Unit						
description	No. and the Slave Node Address.						
	Refer to the FINS error code and explicit message error code if an error occurs.						
	Both error codes will be output as #0000 for a normal end.						
FB	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the ED is being processed						
precautions	FB is being processed.						
	 OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. 						
	Timechart						
	Start Trigger ON						
	OFF						
	Busy Flag (BUSY) ON OFF						
	Normal end (OK) ON						
	or Error end (NG) OFF						
	\uparrow FB execution completed.						
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY						
condition Restrictions	output from the FB.						
Input	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
variables	• In the input variables are out or range, the ENO Flag will turn OFF and the FD will not be processed.						
Output	This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable						
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).						
	Do not turn the BUSY output variable ON or OFF outside the FB.						

3-6 DeviceNet unit



■ Variable Tables

Input Vanabioo						
Name	Variable name	Data type	Default	Range	Description	
EN	EN	BOOL			1 (ON): FB started	
					0 (OFF): FB not started.	
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet	
				#0 to #F	Master Unit.	
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.	

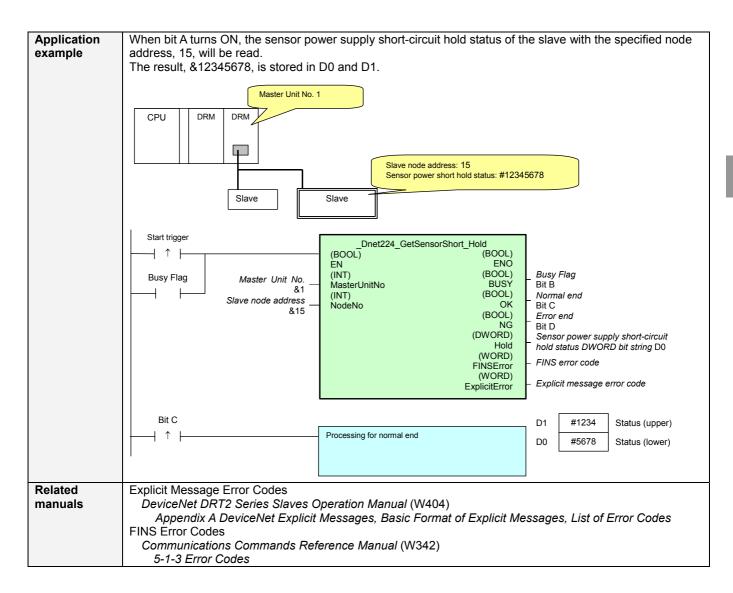
Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Sensor short-circuit status WORD bit 0 value (May be omitted.)	Stat1	BOOL		The sensor power supply short-circuit status is output. Data • DRT2-ID08C DRT2-HD16C •DRT2-MD16S DRT2-ID32SLH •DRT2-MD32SLH Short-circuit status of terminal 0 • DRT2-MD16S An OR of the short-circuit status of all terminals 0 (OFF): Normal 1 (ON): Shorted

Sensor power supply short-circuit status WORD bit string (May be omitted.)	Stat16	WORD	 The sensor power supply short-circuit status is output. Data DRT2-ID08C Bits 00 to 7: Short-circuit status of terminals 0 to 7 Bits 8 to 16: Reserved (OFF) DRT2-HD16C •DRT2-MD16S Bits 00 to 15: Short-circuit status of terminals 0 to 15 DRT2-ID32SLH •DRT2-MD32SLH Bits 00 to 15: Short-circuit status of terminals 0 to 15 (status of terminals 16 to 31 is not output) DRT2-MD16S Bit 00: An OR of the short-circuit status for all terminals Bits 1 to 16: Reserved (OFF) 0 (OFF): Normal 1 (ON): Shorted
Sensor power supply short-circuit status DWORD bit string (May be omitted.)	Stat32	DWORD	The sensor power supply short-circuit status is output. Data DRT2-ID08C Bits 00 to 7: Short-circuit status of terminals 0 to 7 Bits 8 to 31: Reserved (OFF) DRT2-HD16C •DRT2-MD16S Bits 00 to 15: Short-circuit status of terminals 0 to 15 Bits 16 to 31: Reserved (OFF) DRT2-ID32SLH •DRT2-MD32SLH Bits 00 to 31: Short-circuit status of terminals 0 to 31 DRT2-MD16S Bit 00: An OR of the short-circuit status for all terminals Bits 1 to 31: Reserved (OFF) 0 (OFF): Normal 1 (ON): Shorted
FINS error code (May be omitted.)	FINSError	WORD	The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code (May be omitted.)	ExplicitError	WORD	Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.

Version	Date	Contents		
1.00	2004.6.	Original production		

Dnet	Read Sensor Power Supply Short-circuit Hold Status:						
-224	Dnet224 GetSensorShort Hold						
Basic function	Reads the power supply short circuit hold status from slaves connected to DeviceNet.						
Symbol	Start trigger						
File name	Lib\FBL\omronlib\RemoteIO\SmartIO_Dnet224_GetSensorShort_Hold10.cxf						
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units						
	Applicable Slave DRT2-ID32SLH, MD32SLH Units						
Conditions	CPU Unit Settings						
for usage	 PLC Setup: Shared Settings for Communications Instructions in FBs DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other Communications must be within one network and cannot cross to another network. 						
Function	The sensor power supply short-circuit hold status is read from the DeviceNet slave specified by the Master						
description	Unit No. and the Slave Node Address. Refer to the FINS error code and explicit message error code if an error occurs.						
FB	 Both error codes will be output as #0000 for a normal end. The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the 						
precautions	 The B is processed over multiple cycles. The BOST output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF OFF Busy Flag (BUSY) ON OFF Normal end (OK) ON OFF FB execution completed. 						
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY						
condition	output from the FB.						
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 						



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Master Unit.
Slave node	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
address					

Output Variables

	Output variables					
Name	Variable name	Data type	Range	Description		
ENO	ENO	BOOL		1 (ON): FB processed normally.		
(May be omitted.)				0 (OFF): FB not processed or ended in an error.		
Busy Flag	BUSY	BOOL	Automatically turns OFF when processing is completed.			
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.		
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.		
Sensor power supply short-circuit hold status DWORD bit string	Hold	DWORD		The sensor power supply short-circuit hold status is output. Data Bits 00 to 31: Short-circuit hold status of terminals 0 to 31 0 (OFF): Normal 1 (ON): Shorted		
FINS error code (May be omitted.)	FINSError	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.		
Explicit message error code (May be omitted.)	ExplicitError	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.		

Version	Date	Contents		
1.00	2004.6.	Original production		

Position Controller 3-7 Position Controller

CJ1W-NCF71

		_
FB Name	Function	Page
_NCF010_MoveAbsolute_REAL	Move Absolute	3-166
_NCF011_MoveAbsolute_DINT	Absolute Move Command	3-169
_NCF020_MoveRelative_ REAL	Move Relative	3-172
_NCF021_MoveRelative_DINT	Relative Move Command	3-175
_NCF030_MoveVelocity_ REAL	Speed Control	3-178
_NCF031_MoveVelocity_DINT	Speed Control	3-181
_NCF040_TorqueControl_REAL	Torque Control	3-184
_NCF041_TorqueControl_DINT	Control Torque	3-187
_NCF050_Home_REAL	Origin Search	3-190
_NCF051_Home_DINT	Origin Search	3-193
_NCF060_Stop	Stop Deceleration	3-196
_NCF070_Power	Operation Command	3-199
_NCF080_Reset	Reset Axis Error	3-202
_NCF200_ReadStatus	Read Status	3-205
_NCF201_ReadParameter	Read Parameter	3-208
_NCF202_ReadBoolParameter	Read Boolean Parameter	3-211
_NCF203_ReadAxisError	Read Axis Error	3-214
_NCF204_ReadActualPosition_REAL	Read Present Position	3-217
_NCF205_ReadActualPosition_DINT	Read Present Position	3-220
_NCF401_WriteParameter	Write Parameter	3-223
_NCF402_WriteBoolParameter	Write Boolean Parameter	3-226

CS1W-NC113/133/213/233/413/433, CJ1W-NC113/133/213/233/413/433

FB Name	Function	Page
_NCx010_MoveAbsolute_REAL	Move Absolute	3-229
_NCx011_MoveAbsolute_DINT	Move Absolute	3-232
_NCx020_MoveRelative_REAL	Move Relative	3-235
_NCx021_MoveRelative_DINT	Move Relative	3-238
_NCx050_Home_REAL	Origin Search	3-241
_NCx051_Home_DINT	Origin Search	3-243
_NCx060_Stop	Deceleration Stop	3-245
_NCx080_Reset	Axis Error Reset	3-247
_NCx200_ReadStatus	Read Status	3-249
_NCx201_ReadParameter	Read Parameter	3-251
_NCx202_ReadBoolParameter	Read Boolean Parameter	3-254
_NCx203_ReadAxisError	Read Axis Error	3-256
_NCx204_ReadActualPosition_REAL	Read Present Position	3-258
_NCx205_ReadActualPosition_DINT	Read Present Position	3-260
_NCx401_WriteParameter	Write Parameter	3-262
_NCx402_WriteBoolParameter	Write Boolean Parameter	3-266
_NCx600_Setting	Set Unit	3-268

Move Absolute: _NCF010_MoveAbsolute_ REAL

Basic	Positions using an absolute move.
function	
Symbol	Always ON (P_On)
	(BOOL) (BOOL) (BOOL) (BOOL)
	Linit No (INT) (BOOL) Positioning completed
	Unitivo Done C
	Axis No. Axis Command Aborted
	Start – (BOOL) (BOOL) – Error flag
	Position command – (REAL) (WORD) – Error code Position ErrorID (May be omitted.)
	Speed command(REAL)
	Velocity
File name	Lib\FBL\omronlib\PositionController\NCF\ NCF010 MoveAbsolute REAL10.cxf
Applicable	CJ1W-NCF71 Position Control Unit
models	
Conditions	CX-Programmer Settings
for usage	Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocated for the FB Instance Area is set to H512 (the default setting). Always change this setting from the
	CX-Programmer when using function blocks for Position Control Units.
	This value can be changed after selecting PLC - Function block memory - Function block memory
	allocation from the menu bar.
	Function Block Memory Allocation [NewPLC1]
	FB Instance Area Start Address End Address Size OK
	Non Retain H512 H1407 896 Cancel
	Retain H1408 H1535 128
	Timers T3072 T4095 1024 Edit Counters C3072 C4095 1024 Edit
	Default
	Advanced
Function	When the Start Bit (Execute) turns ON, a positioning operation for the axis of the specified Unit No. and Axis
description	No. is started using the specified positioning command value and position control speed. The Positioning Completed Flag (Done) is turned ON when the positioning operation for the FB has been
	completed. This flag will not be turned ON if the positioning operation is canceled because another operation
	has been started from a different instance, for a deceleration stop, or because an error has occurred.
	The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will not occur for error in other FBs or other instances of the FB.
	This status will be reset then the Start Bit (Execute) turns OFF. If the Start Bit (Execute) turns OFF before the
	positioning operation has been completed, the status will be set for at least one cycle when supporting
	conditions have occurred.
	EN ON OFF
	ENO ON OFF
	Execute ON
	OFF
	Speed /
	Command
	speed
	Done ON
	OFF
	Error ON OFF
FB	If execution of another instance is started during the positioning operation, a duplicate start status will
precautions	exist and a positioning operation will be performed for the absolute position specified for Position
	Command from the point at which the last execution was started. Refer to the <i>Related Manuals</i> for
EN input	details. Connect the EN input to the Always ON Flag (P_On).
condition	If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.

Restrictions Other	 The following cannot be specified for this FB: acceleration/deceleration curves, forward torque limit, and reverse torque limit. If any of these functions is required, specify them in advance outside the FB. An error may occur if Execute is turned ON before ENO is turned ON. This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCF) (see note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In that case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON.
Application example	the first time or changing the input variable Unit No. Operation is started for an absolute move for axis 1 of the Servomotor connected to the Position Control Unit with a unit number of 0. CPU NCF Servomotor axis 1 Servomotor: 1 Axis: 1 Servomotor: 1 Bit A Bit A
	Always ON (P_On) NCF010_MoveAbsolute_REAL Bit E Unit No. (BOOL) (BOOL) (BOOL) & & 0 (INT) (BOOL) (BOOL) Axis No. (INT) (BOOL) (BOOL) Axis No. (INT) (BOOL) (BOOL) Axis 1 -> &1 &(BOOL) (BOOL) (BOOL) Bit A (BOOL) (BOOL) (BOOL) Bit A (BOOL) (BOOL) (BOOL) Bit A (REAL) (WORD) Bit D Position command D0 REAL) (WORD) Error code Speed command D2 Velocity Error code
Related manuals	CJ1W-NCF71 Position Control Unit Operation Manual (W426) Section 9 Positioning 12-4 Error Codes

Input Variables

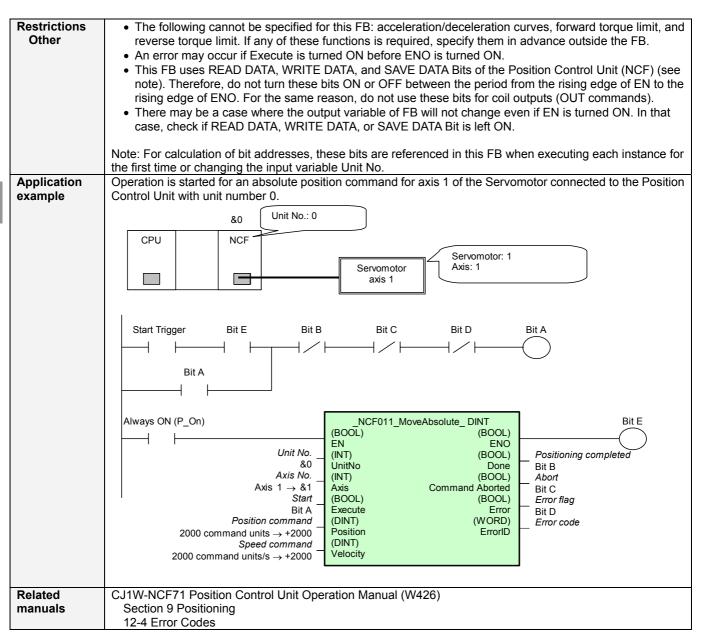
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Start	Execute	BOOL	0 (OFF)		Starts the absolute move.
Position command	Position	REAL	+0.0	-2.147484e+	Specify the numeric value of to set for the
				009 to	present position.
				+2.147484e	Unit: Command units
				+009	
Speed command	Velocity	REAL	+0.0	+0.0 to	Specify the target speed.
				+2.147484e	Unit: Command units/s
				+009	Changing the value while Execute is ON
					will change the actual operating speed.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error. FB not processed Invalid inputs parameter ended in an error Not finished to read the common parameter
Positioning completed	Done	BOOL		Turns ON when the positioning operation has been completed.
Abort	CommandAborted	BOOL		Turns ON when the other Move command done (Duplicate Move) -Stopped with DECELERATION STOP or EMERGENCY STOP. -Executed SERVO UNLOCK on an operating axis. -Attempted to execute FB while SERVO UNLOCK, DECELERATION STOP, or EMERGENCY STOP Bit is ON.
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

NCF -011	Move Absolute: _NCF011_MoveAbsolute_DINT
Basic function	Positions using an absolute move.
Symbol	Always ON (P_On) NCF011_MoveAbsolute_DINT BOOL (BOOL) Unit No. Unit No. Axis No. (INT) Axis No. (INT) Start BOOL) Position command Execute Speed command ErrorID Speed command Clint) Velocity WORD
File name	Lib\FBL\omronlib\PositionController\NCF\ NCF011 MoveAbsolute DINT10.cxf
Applicable models	CJ1W-NCF71 Position Control Unit
Conditions for usage	CX-Programmer Settings Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocated for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory</i> <i>allocation</i> from the menu bar. Function Block Memory Allocation [NewPLC1]
	FB Instance Area Start Address End Address Size OK Non Retain H512 H1407 896 Cancel Retain H1408 H1535 128 Cancel Timers T3072 T4095 1024 Edit Counters C3072 C4095 1024 Edit Default Advanced Advanced Advanced
Function description	When the Start Bit (Execute) turns ON, a positioning operation for the axis of the specified Unit No. and Axis No. is started using the specified positioning command value and position control speed. The Positioning Completed Flag (Done) is turned ON when the positioning operation for the FB has been completed. This flag will not be turned ON if the positioning operation is canceled because another operation has been started from a different instance, for a deceleration stop, or because an error has occurred. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will not occur for errors in other FBs or other instances of the FB. This status will be reset then the Start Bit (Execute) turns OFF. If the Start Bit (Execute) turns OFF before the positioning operation has been completed, the status will be set for at least one cycle when supporting conditions have occurred.
FB precautions	 If execution of another instance is started during the positioning operation, a duplicate start status will exist and a positioning operation will be performed for the absolute position specified for Position Command from the point at which <i>Execute</i> turned ON. Refer to the <i>Related Manuals</i> for details.
EN input condition	Connect the EN input to the Always ON Flag (P_On). If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.



Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Start	Execute	BOOL	0 (OFF)		▲ Starts the absolute move.
Position command	Position	DINT	+0	-2,147,483, 648 to +2,147,483 ,647	Specify the target position. Unit: Command units
Speed command	Velocity	DINT	+0	+0 to +2,147,483 ,647	Specify the target speed. Unit: Command units/s The actual speed of the operation will change if the Speed Command is changed while Execute is ON.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error. FB not processed Invalid inputs parameter ended in an error Not finished to read the common parameter
Positioning completed	Done	BOOL		Turns ON when the positioning operation has been completed.
Abort	CommandAborted	BOOL		 Turns ON when the other Move command done (Duplicate Move) Stopped with DECELERATION STOP or EMERGENCY STOP. Executed SERVO UNLOCK on an operating axis. Attempted to execute FB while SERVO UNLOCK, DECELERATION STOP, or EMERGENCY STOP Bit is ON.
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

MOVE Relative: _NCF020_MoveRelative_ REAL

Basic	Positions using a	relative move				1
function						
Symbol	Always ON (P_On)	Unit N Axis N St Position comma Speed comma	(BOOL) EN (INT) UnitNo (INT) Axis (BOOL) Execute (REAL) Distance (REAL)	F020_MoveRelati Com	ve_REAL (BOOL) ENO (BOOL) Done (BOOL) 1mand Aborted (BOOL) Error (WORD) ErrorID	 Positioning completed Abort Error flag Error code (May be omitted.)
File name	Lib\FBL\omronlib\			ICF020_Move	eRelative_RE	AL10.cxf
Applicable models	CJ1W-NCF71 Pos		Unit			
Conditions for usage	for the FB Instance CX-Programmer v	r Position Co e Area is set t vhen using fu changed afte e menu bar.	to H512 (the nction blocks r selecting P	default setting for Position (g). Always cha Control Units.	ess of the Non Retain area allocated ange this setting from the nory - Function block memory
	FB Instance Area	Start Address	End Address	Size	OK	
	Non Retain Retain Timers Counters	H512 H1408 T3072 C3072	H1407 H1535 T4095 C4095	896 128 1024 1024	Cancel Edit Default Advanced	
Function description	No. is started usin The Positioning C completed. This fla has been started f The Error Flag wil occur for error in c This status will be positioning operat conditions have or EN ON OFF ENO ON OFF Execute ON OFF Speed Command speed Done ON OFF Error ON OFF	g the specifie ompleted Flaq ag will not be rom a differen I be turned Ol other FBs or cor reset then the ion has been occurred.	d positioning g (Done) is tu turned ON if nt instance, fo N and the Err ther instance e Start Bit (E) completed, th	command va irned ON whe the positionin or a decelerat ror Code will I es of the FB. kecute) turns he status will	alue and positi en the position g operation is ion stop, or be be output if an OFF. If the Sta be set for at le	axis of the specified Unit No. and Axis ion control speed. hing operation for the FB has been canceled because another operation ecause an error has occurred. In error occurs for the FB. This will not art Bit (Execute) turns OFF before the east one cycle when supporting
precautions	and a position	ning operation	will be perfo	rmed for the	position speci	fied for position command from the
EN innut	point at which				ed Manuals fo	or details.
EN input condition	Connect the EN in If another bit is co				eld when the	connected bit turns OFF.

Restrictions Other Application example	 The following cannot be specified for this FB: acceleration/deceleration curves, forward torque limit, and reverse torque limit. If any of these functions is required, specify them in advance outside the FB. An error may occur if Execute is turned ON before ENO is turned ON. This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCF) (see note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In that case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instance for the first time or changing the input variable Unit No. Operation is started for a relative move for axis 1 of the Servomotor connected to the Position Control Unit with a unit number of 0.
Related manuals	CJ1W-NCF71 Position Control Unit Operation Manual (W426) 8-3 Present Value Preset 12-4 Error Codes

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Start	Execute	BOOL	0 (OFF)		Starts the relative move.
Position command	Distance	REAL	+0.0	-2.147484e+	Specify the numeric value of to set for the
				009 to	present position.
				+2.147484e	Unit: Command units
				+009	
Speed command	Velocity	REAL	+0.0	+0.0 to	Specify the target speed.
				+2.147484e	Unit: Command units/s
				+009	Changing the value while Execute is ON
					will change the actual operating speed.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error. FB not processed Invalid inputs parameter ended in an error Not finished to read the common parameter
Positioning completed	Done	BOOL		Turns ON when the positioning operation has been completed.
Abort	CommandAborted	BOOL		 Turns ON when the other Move command done (Duplicate Move) Stopped with DECELERATION STOP or EMERGENCY STOP. Executed SERVO UNLOCK on an operating axis. Attempted to execute FB while SERVO UNLOCK, DECELERATION STOP, or EMERGENCY STOP Bit is ON.
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

T

NCF -021	Move Relative: _NCF021_MoveRelative_DINT
Basic function	Positions using a relative move.
Symbol	Always ON (P_On) NCF021_MoveRelative_DINT Unit No. Unit No. Axis No. NCF021_MoveRelative_DINT Axis No. NCF021_MoveRelative_DINT Start NCF021_MoveRelative_DINT Position command NCF021_MoveRelative_DINT Speed command NCF021_MoveRelative_DINT Vinit No. NCF021_MoveRelative_DINT (INT) (BOCL) Command Aborted Abort Position command Execute Speed command OINT) Velocity
File name	Lib\FBL\omronlib\PositionController\NCF_NCF021_MoveRelative_DINT10.cxf
Applicable models	CJ1W-NCF71 Position Control Unit
Conditions for usage	CX-Programmer Settings Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocated for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory</i> <i>allocation</i> from the menu bar. Function Block Memory Allocation [NewPLC1]
	ER Instance Area Start Address End Address Size OK
	To Instance Area Start Address End Address Size
	Non Retain H512 H1407 896 Cancel Retain H1408 H1535 128 Edit Timers T3072 T4095 1024 Edit Counters C3072 C4095 1024 Edit Default Advanced Default
Function description	When the Start Bit (Execute) turns ON, a positioning operation for the axis of the specified Unit No. and Axis No. is started using the specified positioning command value and position control speed. The Positioning Completed Flag (Done) is turned ON when the positioning operation for the FB has been completed. This flag will not be turned on if the positioning operation is canceled because another operation has been started from a different instance, for a deceleration stop, or because an error has occurred. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will not occur for error in other FBs or other instances of the FB. This status will be reset then the Start Bit (Execute) turns OFF. If the Start Bit (Execute) turns OFF before the positioning operation has been completed, the status will be set for at least one cycle when supporting conditions have occurred.
FB	If the input to Execute turns ON again during the positioning operation, a duplicate start status will exist
precautions	and a positioning operation will be performed for the position specified for position command from the point at which <i>Execute</i> turned ON. Refer to the <i>Related Manuals</i> for details.
EN input condition	Connect the EN input to the Always ON Flag (P_On). If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.

3-7 Position controller

Restrictions Other	 The following cannot be specified for this FB: acceleration/deceleration curves, forward torque limit, and reverse torque limit. If any of these functions is required, specify them in advance outside the FB. An error may occur if Execute is turned ON before ENO is turned ON. This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCF) (see note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In that case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instance for the first time or changing the input variable Unit No.
Application example	Operation is started for a relative position command for axis 1 of the Servomotor connected to the Position Control Unit with unit number 0. &0 Unit No:: 0 CPU NCF Start Trigger Bit E Bit A Bit A Always ON (P_On) Unit No: Always ON (P_On) Unit No: Always ON (P_On) Bit A Always ON (P_On) Bit A Always ON (P_On) Bit A Bit A Axis No. Axis 1 Bit A Bit A Bit A Bit A Bit A Bit B Bit B Command Aborte Bit A Bit A Bit A Bit A Bit B Command Aborte Bit D Bit D </th
Related manuals	CJ1W-NCF71 Position Control Unit Operation Manual (W426) 8-3 Present Value Preset 12-4 Error Codes

			-			-	-	
Input	Va	ar	iat	ble	es			

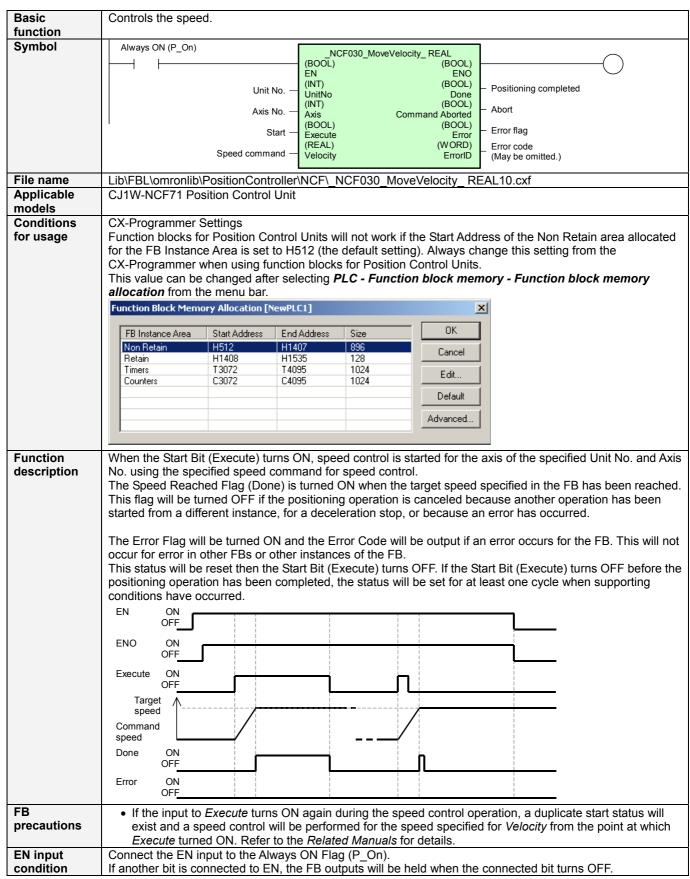
Name	Variable	Data type	Default	Range	Description
	name				
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Start	Execute	BOOL	0 (OFF)		Starts the relative move.
Position command	Distance	DINT	+0	-2,147,483,648	Specify the relative move distance.
				to	Unit: Command units
				+2,147,483,647	
Speed command	Velocity	DINT	+0	+0 to	Specify the target speed.
				+2,147,483,647	Unit: Command units/s
					Changing the value while Execute is ON will
					change the actual operating speed.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error. FB not processed Invalid inputs parameter ended in an error Not finished to read the common parameter
Positioning completed	Done	BOOL		Turns ON when the positioning operation has been completed.
Abort	CommandAborted	BOOL		 Turns ON when the other Move command done (Duplicate Move) Stopped with DECELERATION STOP or EMERGENCY STOP. Executed SERVO UNLOCK on an operating axis. Attempted to execute FB while SERVO UNLOCK, DECELERATION STOP, or EMERGENCY STOP Bit is ON.
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.

Version Da	Date	Contents
1.00 200	.004.6.	Original production

NCF _030 Speed Control: _NCF030_MoveVelocity_ REAL



Application example	 An error may occur if Execute is turned ON before ENO is turned ON. This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCF) (see note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In that case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instance for the first time or changing the input variable Unit No. Operation is started for speed control for axis 1 of the Servomotor connected to the Position Control Unit with a unit number of 0. Servomotor axis 1 Start Trigger Bit E Bit B Bit C Bit D Bit A
Related manuals	Always ON (P_On) NCF030_MoveVelocity_REAL (BOOL) Bit E Unit No. 80 Axis No. 81 Speed command D0 UnitNo ENO (INT) Bit B Speed command D0 Speed command D0 Error (REAL) Bit C CJ1W-NCF71 Position Control Unit Operation Manual (W426) 10-5 Speed Control 12-4 Error Codes Curron Control Unit Operation Manual (W426)

Position Controller

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Start	Execute	BOOL	0 (OFF)		Torque control is started.
Speed command	Velocity	REAL	+0.0	-199.999 to	Specify the target speed.
				+199.999	The unit is % of the maximum speed of the
					motor being used.
					The actual speed of the operation will
					change if the Speed Command is changed
					while Execute is ON.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error. FB not processed Invalid inputs parameter ended in an error Not finished to read the common parameter
Speed reached flag	Invelocity	BOOL		Turns ON when the target speed has been reached.
Abort	CommandAborted	BOOL		Turns ON when - the other Move command done (Duplicate Move) - Stopped with DECELERATION STOP or EMERGENCY STOP. - Executed SERVO UNLOCK on an operating axis. - Attempted to execute FB while SERVO UNLOCK, DECELERATION STOP, or EMERGENCY STOP Bit is ON.
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

Position Controller

Basic function Controls the speed. Symbol Always ON (P_On) Image: Control of the speed of		Speed Control: _NCF031_MoveVelocity_DINT
File name Lib/FBL/omronlib/PositionController/NCF_NCF031_MoveVelocity_DIMT Positioning completed Abort BOOL) Error flag Error code (NT) (WORD) Speed command Velocity Error Velocity Error (May be omitted.) File name Lib/FBL/omronlib/PositionController/NCF_NCF031_MoveVelocity_DINT10.cxf Applicable CJ1W-NCF71 Position Control Units models CX-Programmer Settings For usage Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocate for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting PLC - Function block memory - Function block memory allocation from the menu bar. Function Block Memory Allocation [NewPLC1] FB Instance Area Start Address File instance Area End Address Size DK Cancel Edit Counters C3072 Cancel Edit Default Default		Controls the speed.
Applicable models CJ1W-NCF71 Position Control Unit Conditions for usage CX-Programmer Settings Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocate for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting PLC - Function block memory - Function block memory allocation from the menu bar. Function Block Memory Allocation [NewPLC1] FB Instance Area Start Address Size OK Non Retain H1408 H1535 128 Timers T 3072 T 4095 1024 Edit Default	Symbol	Image: Construction of the second example of the
models Conditions for usage CX-Programmer Settings Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocated for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory allocation</i> from the menu bar. Function Block Memory Allocation [NewPLC1] FB Instance Area Start Address Size OK Non Retain H512 H1407 895 Cancel FB Instance Area Start Address Size OK Immers T3072 T4095 1024 Edit Default Default		
Conditions for usage CX-Programmer Settings Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocate for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory allocation</i> from the menu bar. Function Block Memory Allocation [NewPLC1] FB Instance Area Start Address End Address Size OK Retain H1408 H1535 128 Timers Counters C3072 C4095 1024 Default		CJ1W-NCF71 Position Control Unit
FB Instance AreaStart AddressEnd AddressSizeDKNon RetainH512H1407896CancelRetainH1408H1535128CancelTimersT3072T40951024EditCountersC3072C40951024Default	Conditions	Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocated for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory allocation</i> from the menu bar.
Non Retain H512 H1407 896 Cancel Retain H1408 H1535 128 Cancel Timers T3072 T4095 1024 Edit Counters C3072 C4095 1024 Edit		Function Block Memory Allocation [NewPLC1]
Retain H1408 H1535 128 Lancer Timers T3072 T4095 1024 Edit Counters C3072 C4095 1024 Edit		To instance Area Stat Address End Address Size
		Retain H1408 H1535 128 Cancer Timers T3072 T4095 1024 Edit Counters C3072 C4095 1024 Edit
description No. using the specified speed command for speed control. The Speed Reached Flag (Done) is turned ON when the target speed specified in the FB has been reached This flag will be turned OFF if the positioning operation is canceled because another operation has been started from a different instance, for a deceleration stop, or because an error has occurred. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will r occur for error in other FBs or other instances of the FB. This status will be reset then the Start Bit (Execute) turns OFF. If the Start Bit (Execute) turns OFF before I positioning operation has been completed, the status will be set for at least one cycle when supporting conditions have occurred. EN ON ENO ON OFF	description	The Speed Reached Flag (Done) is turned ON when the target speed specified in the FB has been reached. This flag will be turned OFF if the positioning operation is canceled because another operation has been started from a different instance, for a deceleration stop, or because an error has occurred. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will not occur for error in other FBs or other instances of the FB. This status will be reset then the Start Bit (Execute) turns OFF. If the Start Bit (Execute) turns OFF before the positioning operation has been completed, the status will be set for at least one cycle when supporting conditions have occurred. ENO ON OFF OFF Target OFF OFF OFF OFF OFF OFF OFF OFF OFF OF
		exist and a speed control will be performed for the speed specified for Velocity from the point at which
Execute turned ON. Refer to the Related Manuals for details. EN input Connect the EN input to the Always ON Flag (P_On). condition If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.		Connect the EN input to the Always ON Flag (P_On).

3-7 Position controller

Restrictions Other	 An error may occur if Execute is turned ON before ENO is turned ON. This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCF) (see note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In that case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instance for the first time or changing the input variable Unit No.
Application example	Operation is started using speed control for axis 1 of the Servomotor connected to the Position Control Unit with unit number 0.
	$\begin{array}{c c c c c c c c c c c c c c c c c c c $
Related manuals	CJ1W-NCF71 Position Control Unit Operation Manual (W426) 10-5 Speed Control 12-4 Error Codes

Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Start	Execute	BOOL	0 (OFF)		▲ : Speed control is started.
Speed command	Velocity	DINT	+0	-199999 to +199999	Specify the target speed. The unit is 0.001% of the maximum speed of the motor being used. The actual speed of the operation will change if the Speed Command is changed while Execute is ON.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error. FB not processed Invalid inputs parameter ended in an error Not finished to read the common parameter
Speed reached flag	Invelocity	BOOL		Turns ON when the target speed has been reached.
Abort	CommandAborted	BOOL		Turns ON when the other Move command done (Duplicate Move) - Stopped with DECELERATION STOP or EMERGENCY STOP. - Executed SERVO UNLOCK on an operating axis. - Attempted to execute FB while SERVO UNLOCK, DECELERATION STOP, or EMERGENCY STOP Bit is ON.
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

NCF Torque Control: _NCF040_TorqueControl_REAL

Basic	Controls torque.				
function					
Symbol	Always ON (P_On) NCF040 TorqueControl REAL				
	EN ENO (INT) (BOOL) Torque command completed flag				
	Unit No. UnitNo Done Done				
	Axis No. – (INT) (BOOL) – Abort				
	(BOOL) (BOOL) Error flag				
	(REAL) (WORD) Error code				
	Torque command value Torque ErrorID (May be omitted.)				
	Speed limit - Velocity				
File neme					
File name Applicable	Lib\FBL\omronlib\PositionController\NCF_NCF040_TorqueControl_REAL10.cxf CJ1W-NCF71 Position Control Unit				
models					
Conditions	CX-Programmer Settings				
for usage	Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocated				
	for the FB Instance Area is set to H512 (the default setting). Always change this setting from the				
	CX-Programmer when using function blocks for Position Control Units.				
	This value can be changed after selecting <i>PLC - Function block memory - Function block memory allocation</i> from the menu bar.				
	Function Block Memory Allocation [NewPLC1]				
	FB Instance Area Start Address End Address Size OK				
	Non Retain H512 H1407 896 Cancel Retain H1408 H1535 128 Cancel				
	Timers T3072 T4095 1024 Edit				
	Lounters L3072 L4095 1024				
	Default				
	Advanced				
Function description	When the Start Bit (Execute) turns ON, torque control for the axis of the specified Unit No. and Axis No. is started using the specified torque command value. The <i>Speed Limit</i> can be used to specify the maximum speed during torque control.				
	The Torque Command Completed Flag (Done) is turned ON when the Servo Driver accepts the torque				
	command value for this FB.				
	This flag will be turned OFF if the positioning operation is canceled because another operation has been				
	started from a different instance, for a deceleration stop, or because an error has occurred.				
	The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will not occur for error in other FBs or other instances of the FB.				
	This status will be reset then the Start Bit (Execute) turns OFF.				
	If the Start Bit (Execute) turns OFF before the positioning operation has been completed, the status will be				
	set for at least one cycle when supporting conditions have occurred.				
	EN ON OFF				
	ENO ON OFF				
	Execute ON OFF				
	Command				
	torque				
	reference				
	Value				
	OFF				
	Error ON				
	OFF				
FB	If the input to <i>Execute</i> turns ON again during the torque control operation, a duplicate start status will				
precautions	exist and torque control will be performed for the torque specified for <i>Torque</i> from the point at which				
	Execute turned ON. Refer to the Related Manuals for details.				
EN input	Connect the EN input to the Always ON Flag (P_On).				
condition	If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.				

Restrictions	An error may occur if Execute is turned ON before ENO is turned ON.					
Other	This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCF) (see					
	note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the					
	rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands).					
	• There may be a case where the output variable of FB will not change even if EN is turned ON. In that					
	case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON.					
	Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instance for					
	the first time or changing the input variable Unit No.					
Application	Operation is started for an absolute move for axis 1 of the Servomotor connected to the Position Control Unit					
example	with a unit number of 0.					
	&0 Unit No.: 0					
	CPU NCF					
	Servomotor: 1					
	Servomotor Axis: 1					
	axis 1					
	Start Trigger Bit E Bit B Bit C Bit D Bit A					
	Bit A					
	Always ON (P_On) Bit E					
	(BOOL) (BOOL) EN ENO					
	Unit No. (INT) (BOOL) Torque command completed flag					
	&0 UnitNo Done Bit B Axis No. (INT) (BOOI) Abort					
	Axis No. (INT) (BOOL) Abort &1 Axis Command Aborted Bit C					
	Start (BOOL) (BOOL) Error flag					
	Bit A Execute Error Bit D Torque command value (REAL) (WORD) Error code					
	D0 Torque ErrorID					
	Speed limit (REAL) D2 Velocity					
Related	C 14W NCE71 Desition Control Unit Operation Manual (M/426)					
Related manuals	CJ1W-NCF71 Position Control Unit Operation Manual (W426) 10-6 Torque Control					
manuais	12-4 Error Codes					

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Start	Execute	BOOL	0 (OFF)		Torque control is started.
Torque command	Torque	REAL	+0.0	~-199.999 to	Specify the target torque.
value				+199.999	The unit is % of the rated torque of the
					motor being used.
					The actual torque of the operation will
					change if the Torque Command Value is
					changed while Execute is ON.
Speed limit	Velocity	REAL	+0.0	+0.0 to	Specify the target speed.
				+199.999	The unit is % of the maximum speed of the
					motor being used.

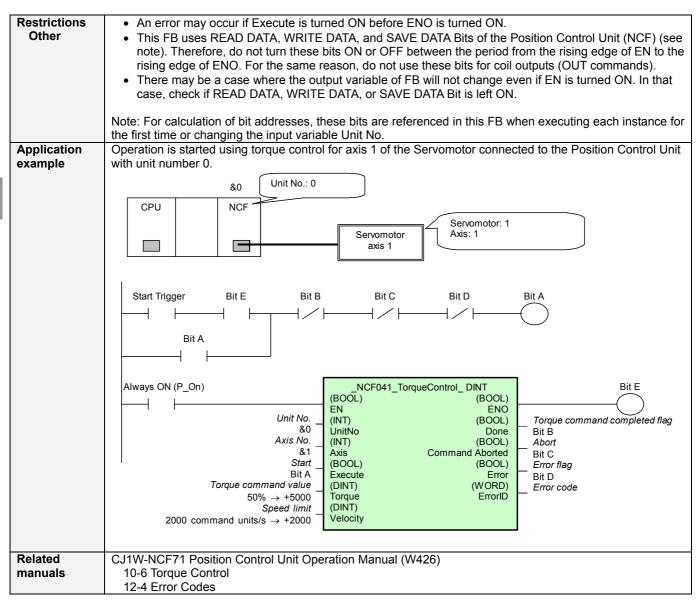
Output Variable

Output Variables				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error. FB not processed Invalid inputs parameter ended in an error Not finished to read the common parameter
Torque command completed flag	Done	BOOL		Turns ON when the torque command has been accepted.
Abort	CommandAborted	BOOL		 Turns ON when the other Move command done (Duplicate Move) Stopped with DECELERATION STOP or EMERGENCY STOP. Executed SERVO UNLOCK on an operating axis. Attempted to execute FB while SERVO UNLOCK, DECELERATION STOP, or EMERGENCY STOP Bit is ON.
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

NCF -041	Control Torque: _NCF041_TorqueControl_DINT					
Basic function	Controls torque.					
Symbol	Always ON (P_On)					
File name	Lib\FBL\omronlib\PositionController\NCF\ NCF041 TorqueControl DINT10.cxf					
Applicable	CJ1W-NCF71 Position Control Unit					
models Conditions for usage	CX-Programmer Settings Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocated for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory</i> <i>allocation</i> from the menu bar.					
	Function Block Memory Allocation [NewPLC1]					
	FB Instance Area Start Address End Address Size OK					
	Non Retain H512 H1407 896 Retain H1408 H1535 128 Timers T3072 T4095 1024 Counters C3072 C4095 1024 Edit Default Advanced					
Function description	When the Start Bit (Execute) turns ON, torque control for the axis of the specified Unit No. and Axis No. is started using the specified torque command value. The <i>Speed Limit</i> can be used to specify the maximum speed during torque control. The Torque Command Completed Flag (Done) is turned ON when the Servo Driver accepts the torque command value for this FB. This flag will be turned OFF if the positioning operation is canceled because another operation has been started from a different instance, for a deceleration stop, or because an error has occurred. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will not occur for error in other FBs or other instances of the FB. This status will be reset then the Start Bit (Execute) turns OFF. If the Start Bit (Execute) turns OFF before the positioning operation has been completed, the status will be set for at least one cycle when supporting conditions have occurred. EN OFF Execute ON OFF Execute ON OFF Execute ON OFF OFF OFF ON OFF ON OFF Done ON OFF					
	Error ON OFF					
FB precautions	 If the input to <i>Execute</i> turns ON again during the torque control operation, a duplicate start status will exist and torque control will be performed for the torque specified for <i>Torque</i> from the point at which <i>Execute</i> turned ON. Refer to the <i>Related Manuals</i> for details. 					
EN input	Connect the EN input to the Always ON Flag (P_On).					
condition	If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.					

3-7 Position controller



■ Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Start	Execute	BOOL	0 (OFF)		Torque control is started.
Torque command value	Torque	DINT	+0	-199999 to +199999	Specify the target torque. The unit is 0.001% of the rated torque of the motor being used. The actual torque of the operation will change if the Torque Command Value is changed while Execute is ON.
Speed limit	Velocity	DINT	+0	+0 to +199999	Specify the target speed. The unit is 0.001% of the maximum speed of the motor being used.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		 1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error. FB not processed Invalid inputs parameter ended in an error Not finished to read the common parameter
Torque command completed flag	Done	BOOL		Turns ON when the torque command has been accepted.
Abort	CommandAborted	BOOL		Turns ON when the other Move command done (Duplicate Move) - Stopped with DECELERATION STOP or EMERGENCY STOP. - Executed SERVO UNLOCK on an operating axis. - Attempted to execute FB while SERVO UNLOCK, DECELERATION STOP, or EMERGENCY STOP Bit is ON.
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

NCF -050	Origin Search: _NCF050_Home_REAL					
Basic function	Performs an origin	n search opera	ation to estal	blish the origir	n.	
Symbol	Always ON (P_On)	Unit N Axis N St Position comma Speed comma	Io (INT) Axis (BOOL) Execute (REAL) Position (REAL)	_NCF050_Home_	REAL (BOOL) ENO (BOOL) nmand Aborted (BOOL) Error (WORD) ErrorID	Origin Search Completed Abort Error flag Error code (May be omitted.)
File name	Lib\FBL\omronlib\			NCF050_Hom	e_REAL10.c>	xf
Applicable models	CJ1W-NCF71 Po	sition Control	Unit			
Conditions for usage	for the FB Instand CX-Programmer	or Position Col e Area is set t when using fur changed afte ne menu bar.	o H512 (the nction blocks r selecting F	default setting for Position (g). Always ch Control Units.	nory - Function block memory
					ОК	
	FB Instance Area Non Retain	Start Address H512	End Address H1407	Size 896		
	Retain	H1408	H1535 T4095	128	Cancel	
	Timers Counters	T 3072 C 3072	C4095	1024 1024	Edit	
					Default	
					Advanced	
Function description	Axis No. is started When the search position is set to t performed even if The Origin Search FB has been com because an error The Error Flag wi occur for error in This status will be	d using the spec operation is con- he value spec in Completed F pleted. This fla- has occurred. Il be turned Of other FBs or o e reset then the tion has been	ecified <i>comn</i> ompleted, th ified in the <i>p</i> command is s Flag (Done) i ag will not be N and the Er ther instance Start Bit (E	nand speed va e preset posit osition common set to 0. s turned ON ve turned ON if ror Code will I es of the FB. xecute) turns	alue as the ini ion preset op <i>and.</i> The pres when the pres operation is be output if an OFF. If the St	e axis of the specified Unit No. and itial search speed. eration is executed and the present sent value preset operation is sent position preset operation for the canceled for a deceleration stop or n error occurs for the FB. This will not art Bit (Execute) turns OFF before the least one cycle when supporting
	ENO ON OFF					
	Execute ON OFF	, 				
	Speed A Command speed				\frown	
	Done ON OFF					
	Error ON OFF					
	to the Related I	<i>Manuals</i> for de	tails.	-	preset function	ns of the Position Control Unit. Refer
EN input	Connect the EN in				eld when the	connected bit turns OFF

Restrictions Other	 The following cannot be specified for this FB: acceleration/deceleration curves, forward torque limit, and reverse torque limit. If any of these functions is required, specify them in advance outside the FB. If the software limits are enabled, so not set the origin at a software upper or lower limit. The FB may not end depending on the specifications of the Servo Drive. An error may occur if Execute is turned ON before ENO is turned ON. This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCF) (see note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In that case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instance for the first time or changing the input variable Unit No.
Application example	An origin search is performed for axis 1 of the Servomotor connected to the Position Control Unit with a unit number of 0. When the origin search has been completed, the preset position preset operation is executed.
Related manuals	CJ1W-NCF71 Position Control Unit Operation Manual (W426) 8-3 Present Value Preset 12-4 Error Codes

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Start	Execute	BOOL	0 (OFF)		: Origin search started
Position command	Position	REAL	+0.0	-2.147484e+	Specify the numeric value of to set for the
				009 to	present position.
				+2.147484e	Unit: Command units
				+009	
Speed command	Velocity	REAL	+0.0	+0.0 to	Specify the target speed.
				+2.147484e	Unit: Command units/s
				+009	

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error. FB not processed Invalid inputs parameter ended in an error Not finished to read the common parameter
Origin Search Completed	Done	BOOL		Turns ON when the origin search operation has been completed.
Abort	CommandAborted	BOOL		 1 (ON): Abort Stopped an operating axis with DECELERATION STOP or EMERGENCY STOP. Executed SERVO UNLOCK on an operating axis. Attempted to execute FB while SERVO UNLOCK, DECELERATION STOP, or EMERGENCY STOP Bit is ON.
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.

Version	Date	Contents			
1.00	2004.6.	Original production			

NCF -051	Origin Search: _NCF051_Home_DINT
Basic function	Performs an origin search operation to establish the origin.
Symbol	Always ON (P_On) NCF051_Home_DINT Unit No. (INT) (BOOL) Unit No. (INT) (BOOL) Axis No. (INT) (BOOL) Start (BOOL)
File name	Lib\FBL\omronlib\PositionController\NCF_NCF051_Home_DINT10.cxf
Applicable models	CJ1W-NCF71 Position Control Unit
Conditions for usage	CX-Programmer Settings Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocated for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory</i> <i>allocation</i> from the menu bar. Function Block Memory Allocation [NewPLC1]
	FB Instance Area Start Address End Address Size OK
	Non Retain H512 H1407 896 Cancel
	Retain H1408 H1535 128 Timers T3072 T4095 1024 Edit Edit
	Lounters C30/2 C4095 1024
	Default Advanced
Function description	 When the Start Bit (Execute) turns ON, an origin search operation for the axis of the specified Unit No. and Axis No. is started using the specified <i>command speed</i> value as the initial search speed. When the search operation is completed, the preset position preset operation is executed and the present position is set to the value specified in the <i>position command</i>. The present value preset operation is performed even if the <i>position command</i> is set to 0. The Origin Search Completed Flag (Done) is turned ON when the present position preset operation for the FB has been completed. This flag will not be turned ON if operation is canceled for a deceleration stop or because an error has occurred. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will not occur for errors in other FBs or other instances of the FB. This status will be reset then the Start Bit (Execute) turns OFF. If the Start Bit (Execute) turns OFF before the positioning operation has been completed, the status will be set for at least one cycle when supporting conditions have occurred.
	ENO ON OFF Execute ON OFF Speed
	Command speed Done ON
	OFF
	Reference This FB executes the origin search and present value preset functions of the Position Control Unit. Refer to the <i>Related Manuals</i> for details.
EN input condition	Connect the EN input to the Always ON Flag (P_On). If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.

	Restrictions Other	 The following cannot be specified for this FB: acceleration/deceleration curves, forward torque limit, and reverse torque limit. If any of these functions is required, specify them in advance outside the FB. If the software limits are enabled, do not set the origin at the upper or lower software limit. The FB may not end depending on the specifications of the Servo Drive. An error may occur if Execute is turned ON before ENO is turned ON. This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCF) (see note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In that case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON.
	Application	the first time or changing the input variable Unit No. An origin search is performed for axis 1 of the Servomotor connected to the Position Control Unit with unit
ъ	example	number 0. A preset position preset operation is executed after the search has been completed.
osi		&0 Unit No.: 0
tion		CPU NCF
Position Controller		Servomotor: 1 Axis: 1
ntro		axis 1
ller		
		Start Trigger Bit E Bit B Bit C Bit D Bit A
		Always ON (P_On) NCF051 Home DINT Bit E
		Unit No (INT) (BOOL) Origin Search Completed &0 UnitNo Done Bit B
		$\begin{array}{c c} Axis No. \\ Axis 1 \rightarrow \&1 \end{array} \begin{array}{c} (INT) \\ Axis \end{array} \begin{array}{c} (BOOL) \\ Command Aborted \end{array} \begin{array}{c} Abort \\ Bit C \end{array}$
		Start (BOOL) (BOOL) Bit A Execute Error
		200 command units → +200 (DINT) (WORD) Error code
		2000 command units/s → (DINT) +2000 Velocity
	Related	CJ1W-NCF71 Position Control Unit Operation Manual (W426)
	manuals	8-3 Present Value Preset
		12-4 Error Codes

1	Variables	
Input	Variables	

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Start	Execute	BOOL	0 (OFF)		▲: Origin search started
Position command	Position	DINT	+0	-2,147,483,648	Specify the numeric value of to set for
				to	the present position.
				+2,147,483,647	Unit: Command units
Speed command	Velocity	DINT	+0	+0 to	Specify the target speed.
				+2,147,483,647	Unit: Command units/s

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
				FB not processed
				Invalid inputs parameter
				ended in an error
				Not finished to read the common parameter
Origin Search	Done	BOOL		Turns ON when the origin search operation has been
Completed				completed.
Abort	CommandAborted	BOOL		1 (ON): Abort
				-Stopped with DECELERATION STOP or
				EMERGENCY STOP.
				-Executed SERVO UNLOCK on an operating axis.
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in
(May be omitted.)				the FB. Refer to the Related Manuals for details on
				errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.

Version	Date	Contents		
1.00	2004.6.	Original production		

NCF -060	Stop Deceleration: _NCF060_Stop
Basic	Decelerates an axis to a stop.
function Symbol	Always ON (P_On)
Symbol	Aways ON (P_Off) Aways ON (P_Off) NCF060_Stop N BN (BOOL) EN (BOOL) (BOOL) (INT) Axis No. Axis No. Start (INT) (BOOL) (INT) (BOOL) (INT) (BOOL) (INT) (BOOL) (BOOL) Error (WORD) Error flag Error code (May be omitted.)
File name	Lib\FBL\omronlib\PositionController\NCF_NCF060_Stop10.cxf
Applicable models	CJ1W-NCF71 Position Control Unit
Conditions for usage	CX-Programmer Settings Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocated for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory</i> <i>allocation</i> from the menu bar. Function Block Memory Allocation [NewPLC1]
	FB Instance AreaStart AddressEnd AddressSizeNon FletainH512H1407896RetainH1408H1535128TimersT3072T40951024CountersC3072C40951024LoundersC3072C40951024LoundersLoundersAdvanced
Function description	When the Start Bit (Execute) turns ON, a deceleration stop is started for the axis of the specified Unit No. and Axis No. An operation command will not be accepted while the Start Bit (Execute) is ON. Refer to the <i>Related</i> <i>Manuals</i> for details. The Deceleration Stop Completed Flag (Done) is turned ON when the deceleration stop has been completed for this FB. This flag will also be turned ON if an error results in an emergency stop. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will not occur for error in other FBs or other instances of the FB. This status will be reset then the Start Bit (Execute) turns OFF. If the Start Bit (Execute) turns OFF before the positioning operation has been completed, the status will be set for at least one cycle when supporting conditions have occurred. Reference This FB executes the deceleration stop function of the Position Control Unit. Refer to the <i>Related Manuals</i> for details. No OFF
EN input condition	Connect the EN input to the Always ON Flag (P_On). If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.

Restrictions	An error may occur if Execute is turned ON before ENO is turned ON.
OTher	• This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCF) (see
	note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the
	 rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In that
	case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON.
	Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instance for the first time or changing the input variable Unit No.
Application	A deceleration stop is performed for axis 1 of the Servomotor connected to the Position Control Unit with unit
example	number 0.
	&0 Unit No.: 0
	CPU NCF
	Servomotor: 1
	Servomotor axis 1
	Start Trigger Bit E Bit B Bit C Bit D Bit A
	Bit A
	Always ON (P_On)NCF060_Stop Bit E
	EN (BOOL) ENO
	Unit No. UnitNo (BOOL) Deceleration stop completed flag
	&0 Axis No.(INT)Done (INT)Bit B Abort
	Axis 1 \rightarrow &1AxisCommand AbortedBit CStart(BOOL)(BOOL)Error flag
	Bit A Execute Error Bit D
	(WORD) ErrorID Error code (may be omitted)
Related	CJ1W-NCF71 Position Control Unit Operation Manual (W426)
manuals	10-9 Stop Functions 12-4 Error Codes

3-197

Position Controller

Input Variables

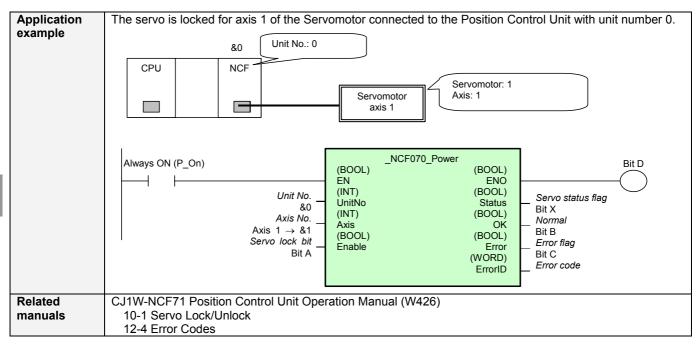
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Start	Execute	BOOL	0 (OFF)		A deceleration stop is started.

Output Variables

	t variables			_	
Name		Variable name	Data type	Range	Description
ENO		ENO	BOOL		1 (ON): FB processed normally.
					0 (OFF): FB not processed or ended in an error.
					FB not processed
					Invalid inputs parameter
					ended in an error
					Not finished to read the common parameter
	ration stop	Done	BOOL		Turns ON when the deceleration stop operation has been completed.
Abort	lieu nag	Command Aborted	BOOL		1 (ON): Abort
7 10 01 1		Command / Contou	2002		-Stopped an operating axis with EMERGENCY STOP.
					-Executed SERVO UNLOCK on an operating axis.
Error fl	ag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error c	ode	ErrorID	WORD		Returns the error code when an error has occurred in
(May b	e omitted.)				the FB. Refer to the <i>Related Manuals</i> for details on
	,				errors. A code of #0000 will be returned when the unit
					number of axis number is out of range.

Version	Date	Contents		
1.00	2004.6.	Original production		

NCF -070	Operation Command: _NCF070_Power
Basic function	Turns the main power circuit ON and OFF.
Symbol	Always ON (P_On) Always ON (P_On) Unit No. Unit No. Axis No. Servo lock bit (BOOL) (BOOL) (BOOL) (INT) (BOOL) (INT) (BOOL) (INT) (BOOL) (INT) (BOOL) (BOOL) (INT) (BOOL) (B
File name Applicable	Lib\FBL\omronlib\PositionController\NCF_NCF070_Power10.cxf CJ1W-NCF71 Position Control Unit
models Conditions for usage	CX-Programmer Settings Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocated for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory</i> <i>allocation</i> from the menu bar.
	Function Block Memory Allocation [NewPLC1] FB Instance Area Start Address End Address Size Non Retain H512 H1407 896 Retain H1408 H1535 128 Timers T3072 T4095 1024 Counters C3072 C4095 1024 Default Advanced
Function description	When the Start Bit (Execute) turns ON, locking the servo is started for the axis of the specified Unit No. and Axis No. When the Start Bit (Execute) turns OFF, unlocking the servo is started Refer to the <i>Related Manuals</i> for details. The Servo Status Flag (Status) is turned ON when command reception has been completed for this FB. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will not occur for error in other FBs or other instances of the FB. This status will be reset then the Start Bit (Execute) turns OFF. If the Start Bit (Execute) turns OFF before the positioning operation has been completed, the status will be set for at least one cycle when supporting conditions have occurred. EN ON OFF
EN input condition Restrictions Other	 Connect the EN input to the Always ON Flag (P_On). If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF. An error may occur if Execute is turned ON before ENO is turned ON. This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCF) (see note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In that case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instance for



Input Variables

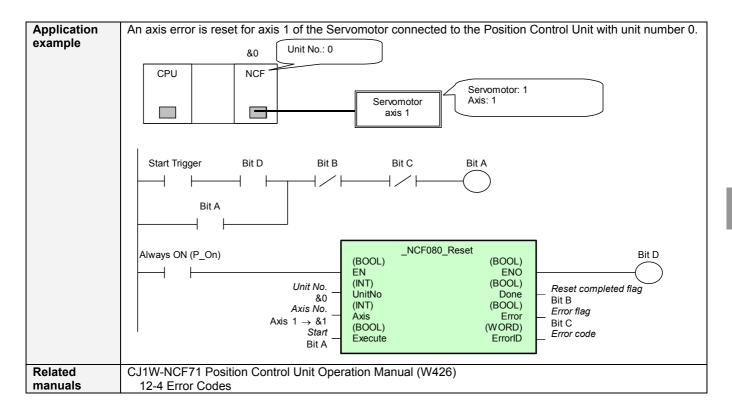
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Servo lock bit	Enable	BOOL	0 (OFF)		▲ : Servo lock started
					↓: Servo unlock started

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
				FB not processed
				Invalid inputs parameter
				ended in an error
				Not finished to read the common parameter
Servo status flag	Status	BOOL		1 (ON): Servo driver running
				0 (OFF): Servo driver no running
Normal	OK	BOOL		Turns ON when the status agrees with the status
				specified by the command.
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in
(May be omitted.)				the FB. Refer to the Related Manuals for details on
				errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

NCF -080	Reset Axis Error: _NCF080_Reset
Basic	Resets and axis error.
function	Resets and axis error.
Symbol	Always ON (P_On)
-	(BOOL) (BOOL) (BOOL)
	Unit No. – EN (INT) (BOOL) Reset completed flag
	Axis No UnitNo Done Frror flag
	Start (INT) (BOOL) Error code Start Axis Error code
	(BOOL) (WORD) (May be omitted.) Execute ErrorID
File name	Lib\FBL\omronlib\PositionController\NCF_NCF080_Reset10.cxf
Applicable	CJ1W-NCF71 Position Control Unit
models Conditions	CX-Programmer Settings
for usage	Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocated
	for the FB Instance Area is set to H512 (the default setting). Always change this setting from the
	CX-Programmer when using function blocks for Position Control Units.
	This value can be changed after selecting <i>PLC - Function block memory - Function block memory allocation</i> from the menu bar.
	Function Block Memory Allocation [NewPLC1]
	FB Instance Area Start Address End Address Size OK
	Non Retain H512 H1407 896 Cancel Retain H1408 H1535 128 Cancel
	Timers T3072 T4095 1024 Edit
	Counters C30/2 C4095 1024
	Default
	Advanced
description	The Reset Completed Flag (Done) will turn ON when resetting the error has been completed and commands can be accepted. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will not occur for errors in other FBs or other instances of the FB. This status will be reset then the Start Bit (Execute) turns OFF. If the Start Bit (Execute) turns OFF before the reset operation has been completed, the status will be set for at least one cycle when supporting conditions have occurred. EN OFF ENO ON OFF Execute ON OFF Internal In progress processing Completed ON or OFF Error Reference This FB executes the error reset function of the Position Control Unit. Refer to the <i>Related Manuals</i> for
EN input	details. Connect the EN input to the Always ON Flag (P_On).
condition Restrictions	If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.
Other	 An error may occur if Execute is turned ON before ENO is turned ON. This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCF) (see note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In that case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instance for
	the first time or changing the input variable Unit No.



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Start	Execute	BOOL	0 (OFF)		: Resetting the error started.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
				FB not processed
				Invalid inputs parameter
				ended in an error
				Not finished to read the common parameter
Reset completed	Done	BOOL		Turns ON when the error reset operation has been
flag				completed.
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in
(May be omitted.)				the FB. Refer to the Related Manuals for details on
				errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

NCF -200	Read Status	:_NCF200	_Read	Status		
Basic function	Reads the status o	f an axis.				
Symbol	Always ON (P_On)	Unit No. — Axis No. — Output enable bit —	(BOOL) EN (INT) UnitNo (INT) Axis (BOOL) Enable	CF200_ReadSta	atus (BOOL ENC (BOOL Cond (BOOL ErrorII (BOOL ErrorStog (BOOL Stopping (BOOL Standstil (BOOL Motior	 Read completed Error flag Error code (May be omitted.) Error stop flag Operation prohibited flag Start standby flag Operating (processing flag
File name	Lib\FBL\omronlib\P	ositionController	NCE NC	E200 Reads	Status10.0	
Applicable	CJ1W-NCF71 Posi					<u></u>
models						
Conditions for usage	for the FB Instance CX-Programmer w	Position Control Area is set to H hen using functio changed after sel	512 (the de n blocks fo	fault setting) or Position Co). Always ontrol Uni	emory - Function block memory
	Function Block Memor	y Allocation [NewPL	C1]			×
	FB Instance Area Non Retain Retain	H512 H14 H1408 H15	07 8 35 1	iize 196 28	OK Cancel	
	Timers Counters	T3072 T40 C3072 C40		024	Edit Default	
-					Advanced.	
Function description	Bit (Enable) is ON. The Read Complet The Error Flag will Flag will actually be The status for this I Control Unit. This status will be r ENO ON OFF ENO ON OFF Done ON OFF Status ON flags OFF	When the Output ed Flag (Done) to be turned ON and turned ON only B is output com reset then the Ou	t Enable B urns ON wi d the Error when the u bining the s	it (Enable) tu hen the statu Code will be unit number status of the	urns OFF, us data is e output if or axis nu CIO Area e) turns O	F an error occurs for the FB. The Error umber is not in range. In bits and words allocated to the Position FF.
	Output variable	Stoppod for an	orror			Output conditions
	ErrorStop Stopping	Stopped for an Stopped for a c emergency sto	deceleratio p and oper	ation prohibi	ited.	Error Flag is ON. Deceleration Stop or Emergency Stop ON, Stop Executed ON, and Error Flag OFF.
	StandStill	Waiting for star				Deceleration Stop and Emergency Stop OFF, Error Flag OFF, and Busy Flag OFF.
	Motion	Operating or proceed of the command, error of the command, error of the command, error of the command of the co	essing pre	sent position	n preset	Positioning Operation Completed OFF and Busy Flag OFF.

EN input	Connect the EN input to the Always ON Flag (P On).
condition	If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.
Restrictions Other	 An error may occur if Execute is turned ON before ENO is turned ON. This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCF) (see note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In that case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instance for the first time or changing the input variable Unit No.
Application example	Status is read from axis 1 of the Servomotor connected to the Position Control Unit with unit number 0. Status is read from axis 1 of the Servomotor connected to the Position Control Unit with unit number 0. Image: Servomotor axis 1 Always ON (P_On) Unit No. Unit No. Wais No. Always ON (P_On) Unit No. Bit H Output enable bit Bit A Bit A Bit A Bit A Bit A Bit B Error flag Bit C Error stop flag Bit C Bit B Bit C C Doutput enable bit Bit B Bit C Bit B Bit C Bit B Bit C C Doutput enable bit A Bit E Standstit Bit E Standstit Bit G
Related manuals	CJ1W-NCF71 Position Control Unit Operation Manual (W426) 12-4 Error Codes

Input Variables

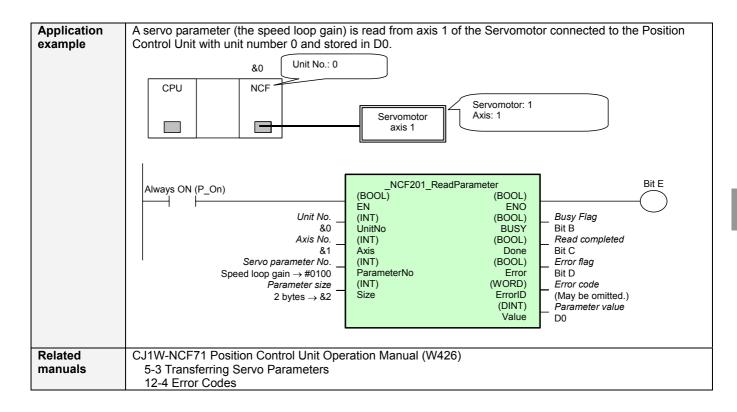
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Output enable bit	Enable	BOOL	0 (OFF)		Turn ON to enable output.
					Turn OFF to reset the output.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		 1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error. FB not processed Invalid inputs parameter ended in an error Not finished to read the common parameter
Read completed	Done	BOOL		Turns ON when the status data is valid.
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.
Error stop flag	ErrorStop	BOOL		Turns ON when operation has been stopped for an error.
Operation prohibited flag	Stopping	BOOL		Turns ON when operation has been stopped for an deceleration stop and operation is prohibited.
Start standby flag	Standstill	BOOL		Turns ON when waiting for a start command.
Operating/ processing flag	Motion	BOOL		Turns ON when an axis is moving or processing is being performed for a present position preset command, error reset command, etc.

Version Date Contents 1.00 2004.6 Original production			
1 00 2004 6 Original production	Version	Date	Contents
	1.00	2004.6.	Criginal production

NOF						
NCF -201	Read Paran	neter: _N	ICF201_	ReadPa	rameter	
.	l			_		
Basic function	Reads a servo par	ameter of an	axis.			
Symbol	Start trigger	Unit N	(BOOL) EN (INT)	NCF201_ReadPa	(BOOL) ENO (BOOL) BUSY	- Busy Flag
		Axis N Servo parameter N Parameter si	Io. – (INT) Paramete (INT)	erNo	(BOOL) Done - (BOOL) Error - (WORD) ErrorID - (DINT) Value -	 Read completed Error flag Error code (May be omitted.) Parameter value
					Value	
File name	Lib\FBL\omronlib\F			ICF201_Read	dParameter10	.cxf
Applicable models	CJ1W-NCF71 Pos	ition Control	Unit			
Conditions	CX-Programmer S	ettinas				
for usage	Function blocks fo for the FB Instance CX-Programmer w	r Position Cor e Area is set t hen using fur changed after e menu bar.	o H512 (the action blocks r selecting P	default setting for Position (g). Always cha Control Units.	ess of the Non Retain area allocated ange this setting from the ory - Function block memory
	FUNCTION BIOCK METHO	ry Allocation [N	ewpttij			
	FB Instance Area	Start Address	End Address	Size	OK	
	Non Retain Retain	H512 H1408	H1407 H1535	896 128	Cancel	
	Timers	T3072	T4095	1024	Edit	
		C3072	C4095	1024	Default	
					Advanced	
Function description	When the Start Trig No. is read from th			ed parameter	value for the a	axis of the specified Unit No. and Axis
	If the FB executior Reference				-	
	Manuals for deta	ails.				on Control Unit. Refer to the Related
FB precautions	FB is being pr	ocessed. will be turned	I ON for one		-	le can be used to check whether the is completed. Use these flags to
	Start Trigger	ON OFF				
	Busy Flag (BU	-				
		-				
	Normal end (C or Error end (N	,				
				∱ FB exe	cution completed	l.
EN input	Connect EN to an	OR between	an upwardlv	differentiated	l condition for	the start trigger and the BUSY output
condition	from the FB.					
Restrictions Input variables	 An error may This FB uses note). Therefore rising edge of 	riables are ou occur if Exec READ DATA, ore, do not tur ENO. For the a case wher	ut of range, ti ute is turned , WRITE DA n these bits e same rease e the output	he ENO Flag ON before E TA, and SAVE ON or OFF bo on, do not use variable of FE	will turn OFF NO is turned (DATA Bits of etween the pe these bits fo will not chan	the Position Control Unit (NCF) (see riod from the rising edge of EN to the r coil outputs (OUT commands). Ige even if EN is turned ON. In that
	Note: For calculati the first time.	on of bit addr	esses, these	bits are refe	renced in this	FB when executing each instance for



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Servo parameter No.	ParameterNo	INT	&0		Specify the number of the Servo Driver parameter to read.
Parameter size	Size	INT	&2	&1 to &4	Specify the number of bytes in the parameter to read.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error.
				FB not processed
				Invalid inputs parameter ended in an error
				Not finished to read the common parameter
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Read completed	Done	BOOL		Turns ON for one cycle when processing ends normally.
Error flag	Error	BOOL		Turns ON for one cycle when processing ends in an error.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on
(May be omitted.)				errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.
Parameter value	Value	DINT		The parameter value that was read. If the parameter
				size is 2 bytes, the data is stored in the lower address.

Version	Date	Contents
1.00	2004.6.	Original production

NCF -202	Read Boolean Parameter: _NCF202_ReadBoolParameter							
_ .								
Basic function	Reads a Boolean parameter.							
Symbol	Start triggerNCF202_ReadBoolParameter							
	(BOOL) (BOOL) (BOOL) (BOOL) (BOOL)							
	Busy Flag (INT) (BOOL) Busy Flag							
	Parameter No. – UnitNo Done (BOOL) – Read completed							
	Read start bit - ParameterNo Error (WORD) - Error flag							
	No of read hits StartBitNo ErrorID Error code							
	Size ENO Borgmeter volue							
	(INT) Value							
File name	Lib\FBL\omronlib\PositionController\NCF_NCF202_ReadBoolParameter10.cxf CJ1W-NCF71 Position Control Unit							
Applicable models	CJTW-NCF7T Position Control Unit							
Conditions	CX-Programmer Settings							
for usage	Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocated							
	for the FB Instance Area is set to H512 (the default setting). Always change this setting from the							
	CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory</i>							
	<i>allocation</i> from the menu bar.							
	Function Block Memory Allocation [NewPLC1]							
	FB Instance Area Start Address End Address Size OK							
	Non Betain U512 U1407 999							
	Retain H1408 H1535 128							
	Timers T 3072 T 4095 1024 Counters C3072 C4095 1024							
	Default							
	Advanced							
Function	When the Start Trigger turns ON, the parameter of the specified parameter number, read start bit, and							
description	number of read bits for the axis of the specified Unit No. and Axis No. is read. Only common parameters or individual axis parameters can be read.							
	Only the specified number of read bits will be transferred to lowest bits of the Parameter Value. Other bits will							
	be 0.							
	If FB execution ends in an error, an error code will be output to the <i>Error Code</i> . Reference							
	This FB executes the parameter transfer function of the Position Control Unit. Refer to the <i>Related</i>							
	Manuals for details.							
FB precautions	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the							
precautions	FB is being processed.Done or Error will be turned ON for one cycle only after processing is completed. Use these flags to							
	• Done of Error will be turned ON for one cycle only after processing is completed. Use these hags to detect the end of FB processing.							
	Timechart							
	Start Trigger ON OFF							
	Busy Flag (BUSY) ON							
	OFF							
	Normal end (OK) ON or Error end (NG) OFF							
	↑ FB execution completed.							
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output							
condition	from the FB.							

Restrictions	 Always use an upwardly differentiated condition for EN. 							
Input	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 							
variables	 An error may occur if Execute is turned ON before ENO is turned ON. 							
	• This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCF) (see							
	note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the							
	rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands).							
	• There may be a case where the output variable of FB will not change even if EN is turned ON. In that							
	case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON.							
	Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instance for							
	the first time.							
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable							
variables	to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>).							
	Do not turn the BUSY output variable ON or OFF outside the FB.							
Application	A parameter is read (axis operation output area designation) from Position Control Unit with unit number 0							
example	and stored in D0.							
even bio								
	&0 Unit No.: 0							
	CPU NCF							
	Servomotor: 1							
	Servomotor X axis							
	axis 1							
	NCF202 ReadBoolParameter Bit E							
	Always ON (P_On) (BOOL) (BOOL)							
	Unit No (INT) (BOOL) Busy Flag							
	&0 UnitNo Done Bit B Parameter No. (INT) (BOOL) Read completed							
	Operation output area \rightarrow #1838 ParameterNo Error Bit C							
	Read start bit (INT) (WORD) Error flag							
	0 bit → &0 StartBitNo ErrorlD Bit D							
	No. of read bits (INT) (BOOL) Error code							
	16 bits \rightarrow &16 Size ENO (May be omitted.)							
	(INT) Parameter value Value D0							
	Value DU							
Related	CJ1W-NCF71 Position Control Unit Operation Manual (W426)							
manuals	5-2 Transferring PCU Parameters							
	12-4 Error Codes							
	1							

Input	Var	iabl	es	

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Parameter No.	ParameterNo	INT	#0000	#1838 to	Specify the address inside the Position
				#199F	Control Unit.
Read start bit	StartBitNo	INT	&0	&0 to &15	Specify the first bit to read in the specified
					parameter.
No. of read bits	Size	INT	&4	&1 to &16	Specify the number of bits to read.

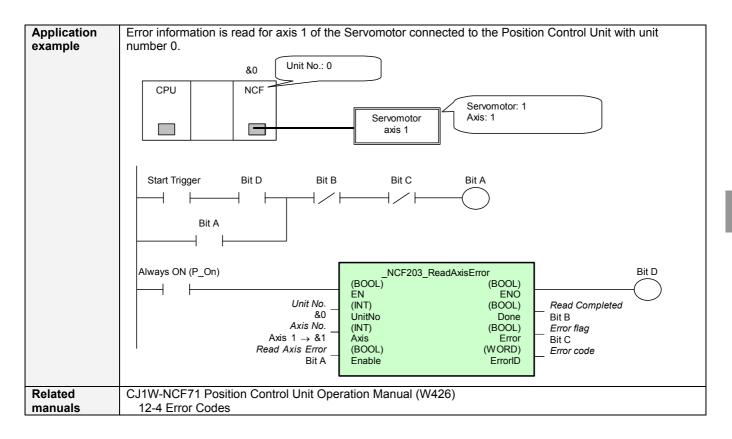
Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
				FB not processed
				Invalid inputs parameter
				ended in an error
				Not finished to read the common parameter
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Read completed	Done	BOOL		Turns ON for one cycle when processing ends
				normally.
Error flag	Error	BOOL		Turns ON for one cycle when processing ends in an
				error.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in
(May be omitted.)				the FB. Refer to the <i>Related Manuals</i> for details on
				errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.
Parameter value	Value	DINT		The specified number of read bits are transferred to
				lowest bits of the Parameter Value.

Version	Date	Contents			
1.00	2004.6.	Original production			

NCF Read Axis Error: _NCF203_ReadAxisError

Basic	Reads axis error information.							
function								
Symbol	Always ON (P_On)							
	(BOOL) (BOOL) (BOOL)							
	EN ENO (INT) (BOOL)							
	Done Read Completed							
	Axis No. – (INT) (BOOL) Axis Error Error flag							
	Read Axis Error — (BOOL) (WORD) Error code							
	Enable ErrorID (May be omitted.)							
File name	Lib\FBL\omronlib\PositionController\NCF\ NCF203 ReadAxisError10.cxf							
Applicable	CJ1W-NCF71 Position Control Unit							
models								
Conditions	CX-Programmer Settings							
for usage	Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocated							
U	for the FB Instance Area is set to H512 (the default setting). Always change this setting from the							
	CX-Programmer when using function blocks for Position Control Units.							
	This value can be changed after selecting PLC - Function block memory - Function block memory							
	allocation from the menu bar.							
	Function Block Memory Allocation [NewPLC1]							
	ER Instance Area Start Address End Address Size							
	FB Instance Area Start Address End Address Size Non Retain H512 H1407 896							
	Retain H1408 H1535 128							
	Timers T3072 T4095 1024 Edit							
	Counters C3072 C4095 1024							
	Default							
	Advanced							
Function	Axis error information for the axis of the specified Unit No. and Axis No. is read when the Read Axis Error Bit							
description	(Enable) is turned ON.							
	The Read Completed Flag (Done) turns ON when there is no error on the Unit.							
	The Error Flag and the Error Code will show the status of errors for the Position Control Unit axis. The Error							
	Flag will also be turned ON when the unit number or axis number is not in range.							
	This status will be reset then the Read Axis Error Flag (Enable) turns OFF.							
	EN ON OFF							
	OFF							
	Execute ON							
	OFF							
	Internal In progress							
	processing Completed							
	Done ON							
	or OFF							
	Error							
EN input	Connect the EN input to the Always ON Flag (P_On).							
condition	If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.							
Restrictions	The Error Flag and Error Code for this FB reflect the status of the CIO Area bits and words allocated to							
Other	• The Error Flag and Error Code for this PB reflect the status of the Cro Area bits and words allocated to the Position Control Unit without alteration.							
U IIU	 An error may occur if Execute is turned ON before ENO is turned ON. 							
	 This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCF) (see 							
	note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the							
	rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands).							
	• There may be a case where the output variable of FB will not change even if EN is turned ON. In that							
	case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON.							
	Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instance for							
	the first time or changing the input variable Unit No.							



Input Variables

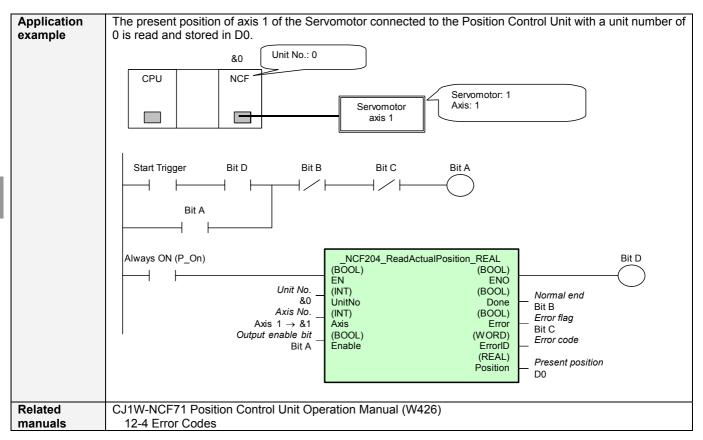
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Read Axis Error	Enable	BOOL	0 (OFF)		Starts reading error

Output Variables

Output Vallabioo				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
				FB not processed
				Invalid inputs parameter
				ended in an error
				Not finished to read the common parameter
Read Completed	Done	BOOL		1 (ON) indicates that there is no error on the specified
				axis.
Error flag	Error	BOOL		Turns ON when an error has occurred in the specified
				axis.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in
(May be omitted.)				the FB. Refer to the Related Manuals for details on
				errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

						_		
NCF -204	Read Prese	ent Positi	ion: _NC	F204	ReadActualPosition_REAL			
Basic function	Reads the presen	t position of a	an axis.					
Symbol	Always ON (P_On)		NCE		ActualPosition REAL			
			(BOOL)	104_ReauA	(BOOL)			
			EN		ENO			
		Unit	No. – (INT) UnitNo		(BOOL) – Normal end			
		Axis	No (INT)		(BOOL) Error flag			
		, , , , ,	Axis (BOOL)		(WORD) Error code			
		Output enable	e bit — (BOOL) Enable		ErrorID (May be omitted.)			
					(REAL) Present position			
					Position			
File name	Lib\FBI \omronlib	PositionCont	roller\NCF\ N	NCF204	ReadActualPosition REAL10.cxf			
Applicable	CJ1W-NCF71 Po			101 201		-		
models			•					
Conditions	CX-Programmer S	Settinas				-		
for usage			ontrol Units w	ill not wo	ork if the Start Address of the Non Retain area allocated			
Ū	for the FB Instanc	e Area is set	to H512 (the	default s	setting). Always change this setting from the			
					sition Control Units.			
	This value can be	changed after	er selecting F	LC - Fu	Inction block memory - Function block memory			
	allocation from th	ne menu bar.						
	Function Block Mem	ory Allocation [N	ewPLC1]		X			
	FB Instance Area	Start Address	End Address	Size	OK			
	Non Retain	H512	H1407	896	Cancel			
	Retain Timers	H1408 T3072	H1535 T4095	128				
	Counters	C3072	C4095	1024	Edit			
					Default			
					Advanced			
	,							
Function					t No. and Axis No. is continuously updated while the			
description			JN. when the		Enable Bit (Enable) turns OFF, the present value is			
	cleared to all zero	-	ne) turns ON	l whon th	he present position data is valid.			
					e will be output if an error occurs for the FB. The Error			
					umber or axis number is not in range.			
					(Enable) turns OFF.			
	EN ON							
	OFF							
	ENO ON							
	OFF							
	Enable ON	-		_				
	OFF			П				
	Done ON or OFF							
	Error		1					
			nable to read Po	aition	▲ Enable to read Position			
		1		SILION				
EN input	Connect the EN in	nput to the Alv	wavs ON Fla	a (P On).			
condition					Í be held when the connected bit turns OFF.			
Restrictions					ct the status of the CIO Area bits and words allocated to	<u>,</u>		
Other	the Position							
	 An error may 	occur if Exec	cute is turned	ON bef	fore ENO is turned ON.			
					SAVE DATA Bits of the Position Control Unit (NCF) (see	Э		
					DFF between the period from the rising edge of EN to the			
	rising edge o	f ENO. For th	ie same reas	on, do n	not use these bits for coil outputs (OUT commands).			
	 There may b 	e a case whe	re the output	variable	e of FB will not change even if EN is turned ON. In that			
					SAVE DATA Bit is left ON.			
					e referenced in this FB when executing each instance fo	r		
	the first time or changing the input variable Unit No.							



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Output enable bit	Enable	BOOL	0 (OFF)		Turn ON to enable output.
			-		Turn OFF to reset the output.

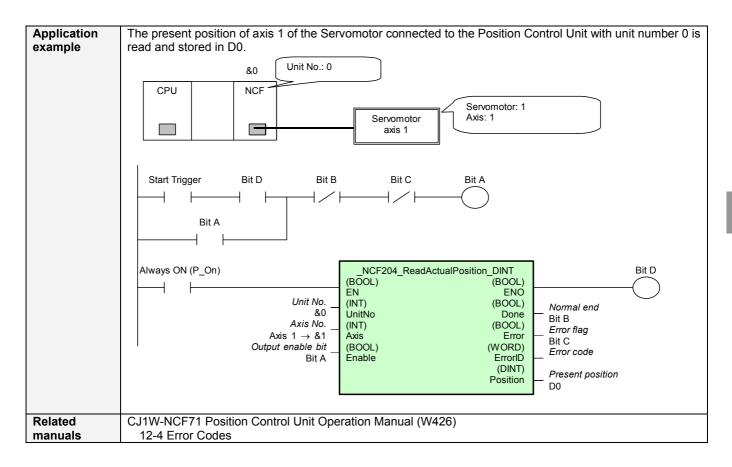
Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
				FB not processed
				Invalid inputs parameter
				ended in an error
				Not finished to read the common parameter
Normal end	Done	BOOL		Turns ON for a normal end.
Error flag	Error	BOOL		Turns ON for an error end.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in
(May be omitted.)				the FB. Refer to the <i>Related Manuals</i> for details on
				errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.
Present position	Position	REAL	-2.147484e+	The present position of the axis controlled by the
			009 to	Position Control Unit.
			+2.147484e	
			+009	

Version	Date	Contents
1.00	2004.6.	Original production

NCF Read Present Position: _NCF205_ReadActualPosition_DINT -205 Basic Reads the present position of an axis. function Symbol Always ON (P_On) NCF205 ReadActualPosition DINT (BOOL) (BOOL) ENÓ ĒΝ (INT) (BOOL) Unit No. Normal end Done ÙnitŃo (BOOL) (INT) Axis No. Error flag Àxis Error (BOOL) (WORD) Error code Output enable bit (May be omitted.) Enable ErrorID (DINT) Present position Position File name Lib\FBL\omronlib\PositionController\NCF\ NCF205 ReadActualPosi DINT10.cxf Applicable CJ1W-NCF71 Position Control Unit models Conditions **CX-Programmer Settings** Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocated for usage for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting PLC - Function block memory - Function block memory allocation from the menu bar. Function Block Memory Allocation [NewPLC1] X ΟK Start Address End Address FB Instance Area Size H1407 Non Retain H512 896 Cancel H1535 Retain H1408 128 T4095 Timers T3072 1024 E dit. Counters C3072 C4095 1024 Default Advanced. Function The present position of the axis of the specified Unit No. and Axis No. is continuously updated while the Output Enable Bit (Enable) is ON. When the Output Enable Bit (Enable) turns OFF, the present value is description cleared to all zeros. The Read Completed Flag (Done) turns ON when the present position data is valid. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. The Error Flag will actually be turned ON only when the unit number or axis number is not in range. This status will be reset then the Output Enable Bit (Enable) turns OFF. FN ON OFF **FNO** ON OFF Enable ON OFF Done ON OFF or Error ↑ Enable to read Position A Enable to read Position EN input Connect the EN input to the Always ON Flag (P_On). condition If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF. Restrictions An error may occur if Execute is turned ON before ENO is turned ON. Other This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCF) (see note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In that • case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON.

Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instance for the first time or changing the input variable Unit No.



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Output enable bit	Enable	BOOL	0(OFF)		Turn ON to enable output.
					Turn OFF to reset the output.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
				FB not processed
				Invalid inputs parameter
				ended in an error
				Not finished to read the common parameter
Read Completed	Done	BOOL		Turns ON for a normal end.
Error flag	Error	BOOL		Turns ON for an error end.
Error code	ErrorID	WORD		Returns the error code when an error has occurred
(May be omitted.)				in the FB. Refer to the Related Manuals for details
				on errors. A code of #0000 will be returned when
				the unit number of axis number is out of range.
Present position	Position	DINT	-2,147,483,648	The present position of the axis controlled by the
			to	Position Control Unit.
			+2,147,483,647	

Version	Date	Contents
1.00	2004.6.	Original production

NCF -401	Write Parameter: _NCF401_WriteParameter							
Basic function	Writes an axis servo parameter.							
Symbol	Start triggerNCF401_WriteParameter							
	(BOOL) (BOOL) (BOOL)							
	Busy Flag Unit No							
	Axis Done Vince completed							
	Servo Parameter No. – (INT) (BOOL) ParameterNo Error – Error flag							
	Parameter size – (INT) (WORD) ErrorID Error code Size ErrorID (May be omitted.)							
	Parameter value (DWORD)							
	Value							
File name	Lib\FBL\omronlib\PositionController\NCF_NCF401_WriteParameter10.cxf							
Applicable	CJ1W-NCF71 Position Control Unit							
models Conditions	CX-Programmer Settings							
for usage	Function blocks for Position Control Units will not work if the Start Address of the Non Retain area allocated							
	for the FB Instance Area is set to H512 (the default setting). Always change this setting from the							
	CX-Programmer when using function blocks for Position Control Units.							
	This value can be changed after selecting <i>PLC - Function block memory - Function block memory</i> allocation from the menu bar.							
	Function Block Memory Allocation [NewPLC1]							
	FB Instance Area Start Address End Address Size OK							
	Non Retain H512 H1407 896 Retain H1408 H1535 128							
	Timers T3072 T4095 1024 Edit							
	Counters C30/2 C4095 1024							
	Default							
	Advanced							
	Setting the Position Control Unit							
	 Parameters written with this FB will be lost when the power supply to the Position Control Unit is interrupted or the Position Control Unit is restarted. If required, save the parameters to nonvolatile 							
	memory in the Position Control Unit using separate processing.							
Function	When the Start Trigger turns ON, the specified parameter value for the axis of the specified Unit No. and Axis							
description	No. is written to the parameters in the specified Servo Driver. Reference							
	This FB executes the servo parameter transfer function of the Position Control Unit. Refer to the <i>Related</i>							
	Manuals for details.							
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the							
precautions	FB is being processed.OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect							
	the end of FB processing.							
	Timechart							
	Start Trigger ON OFF							
	Busy Flag (BUSY) ON OFF							
	Normal end (OK) ON							
	or Error end (NG) OFF							
	↑ FB execution completed.							
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output							
condition	from the FB.							

 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be process. An error may occur if Execute is turned ON before ENO is turned ON. This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCI note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instate the first time. Output 	F) (see N to the s).
 An error may occur if Execute is turned ON before ENO is turned ON. This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCI note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instatt the first time. 	F) (see N to the s).
 An error may occur if Execute is turned ON before ENO is turned ON. This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCL note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instat the first time. 	F) (see N to the s).
 This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCL note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instat the first time. 	N to the s).
 note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands). There may be a case where the output variable of FB will not change even if EN is turned ON. In case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instat the first time. 	N to the s).
 rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands There may be a case where the output variable of FB will not change even if EN is turned ON. In case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instat the first time. 	s).
 There may be a case where the output variable of FB will not change even if EN is turned ON. Ir case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instat the first time. 	
case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instatine the first time.	
Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instation the first time.	i uidl
the first time.	
the first time.	
	ance for
Output This FB requires multiple cycles to process. Always connect an OR including the BUSY output value	
	ariable
variables to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>).	
 Do not turn the BUSY output variable ON or OFF outside the FB. 	
Application A parameter (the speed loop gain) is changed for axis 1 of the Servomotor connected to the Position	Control
example Unit with unit number 0.	
No. Unit No.: 0	
&0 Unit No.: U	
CPU NCF	
Servomotor: 1	
Servomotor Axis: 1	
axis 1	
BitE	
Bit ANCF401_WriteParameter	、
(BOOL) (BOOL) (BOOL))
EN ENO Unit No (INT) (BOOL) Busy flag	
Axis No. (INT) (BOOL) Bit B Write completed	
Axis Done Bit C	
Servo Parameter No. (INT) (BOOL) Error flag	
Speed loop gain $\rightarrow \#0100$ (INT) (WORD) First code	
Parameter sizeSizeFrrorID	
2 bytes → &2 Parameter value (DW ORD)	
#0064 Value	
Related CJ1W-NCF71 Position Control Unit Operation Manual (W426)	
manuals 5-3 Transferring Servo Parameters	
12-4 Error Codes	

Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Axis No.	Axis	INT	&1	&1 to &16	Specify the axis number.
Servo Parameter No.	ParameterNo	INT	&0		Specify the number of the Servo Driver parameter to write.
Parameter size	Size	INT	&2	&1 to &4	Specify the length of the Servo Driver parameter to write in bytes.
Parameter value	Value	DWORD	#0000		Specify the data to write. If the parameter size is 2 bytes, only the data stored in the lower address will be written.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
				FB not processed
				Invalid inputs parameter
				ended in an error
				Not finished to read the common parameter
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Write completed	Done	BOOL		Turns ON for one cycle when processing ends
				normally.
Error flag	Error	BOOL		Turns ON for one cycle when processing ends in an
				error.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in
(May be omitted.)				the FB. Refer to the Related Manuals for details on
				errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

NCF -402	Write Boolea	an Parar	neter: _l	NCF402	_WriteBc	olParameter	
Basic	Writes a Boolean p	arameter.					
function							
Symbol	Start trigger						
	EN ENO Busy Flag Unit No. (INT) (BOOL) Busy Flag						
		Parameter N	Io. UnitNo		BUSY (BOOL)	— Write completed	
		Write start	bit OtertBitN		Done (BOOL)	— Error flag	
		No. of bits to wr	ite — (INT)	0	Error (WORD)	Error code	
		Parameter val	ue – Size (WORD) Value		ErrorID	(May be omitted.)	
Filo nomo					oReelDeremot	tor10 ovf	
File name Applicable	Lib\FBL\omronlib\P CJ1W-NCF71 Posi				ebuurarame		
models							
Conditions	CX-Programmer Se						
for usage	for the FB Instance CX-Programmer w	Area is set f hen using fui changed afte	to H512 (the nction blocks	default settin for Position	g). Always cha Control Units.	ess of the Non Retain area allocated ange this setting from the nory - Function block memory	
	Function Block Memor	y Allocation [N	ewPLC1]		2	<u><</u>	
	FB Instance Area Start Address E		End Address Size		OK		
	Non Retain	H512	H1407	896	Cancel		
	Retain Timers	H1408 T3072	H1535 T4095	128			
	Counters	C3072	C4095	1024	Edit		
					Default		
					Advanced		
					-		
	Setting the Position	n Control Uni	t				
	Parameters wr	itten with this	s FB will be l			to the Position Control Unit is	
						e the parameters to nonvolatile	
Function	memory in the When the Start Tric					eter number, write start bit, and	
description	number of write bits	s for the axis	of the speci	fied Unit No.	and Axis No. i		
	Only common para	meters or in	dividual axis	parameters of	can be read.	Jnit is restarted after first saving the	
	parameters to non						
	Reference		-		·	-	
			eter transfer f	function of the	e Position Cor	ntrol Unit. Refer to the Related	
FB	Manuals for deta	-	multiple cycle	e The BUSY		ble can be used to check whether the	
precautions	FB is being pro			53. THE DOOT		Die can be used to check whether the	
-	OK or NB will I	be turned ON	I for one cyc	le only after p	processing is a	completed. Use these flags to detect	
	the end of FB	processing.					
	Timechart Start Trigger	ON					
		OFF					
	Busy Flag (BUS						
		OFF					
	Normal end (O	K) ON					
	or Error end (N						
			!	∱ FB exe	ecution complete	d.	
EN input condition	Connect EN to an (from the FB.	OR between	an upwardly	differentiated	d condition for	the start trigger and the BUSY output	

Restrictions Input variables	 Always use an upwardly differentiated condition for EN. Set the value to which the parameter is to be set in lowest bits of <i>Value</i>. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. An error may occur if Execute is turned ON before ENO is turned ON. This FB uses READ DATA, WRITE DATA, and SAVE DATA Bits of the Position Control Unit (NCF) (see note). Therefore, do not turn these bits ON or OFF between the period from the rising edge of EN to the rising edge of ENO. For the same reason, do not use these bits for coil outputs (OUT commands).
	 There may be a case where the output variable of FB will not change even if EN is turned ON. In that case, check if READ DATA, WRITE DATA, or SAVE DATA Bit is left ON. Note: For calculation of bit addresses, these bits are referenced in this FB when executing each instance for the first time.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see Symbol).
	Do not turn the BUSY output variable ON or OFF outside the FB.
Application example	A parameter is changed (axis operation output area) for the Position Control Unit with unit number 0.
	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$
Related manuals	CJ1W-NCF71 Position Control Unit Operation Manual (W426) 5-2 Transferring PCU Parameters 12-4 Error Codes

Variable Tables

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &15	
Parameter No.	ParameterNo	INT	#0000	#1838 to	Specify the address inside the Position
				#199F	Control Unit.
Write start bit	StartBitNo	INT	&0	&0 to &15	Specify the first bit to write in the specified
					parameter.
No. of bits to write	Size	INT	&4	&1 to &16	Specify the number of bits to write.
Parameter value	Value	WORD	#0000		Set the value to which the parameter is to
					be set in lowest bits of Value.

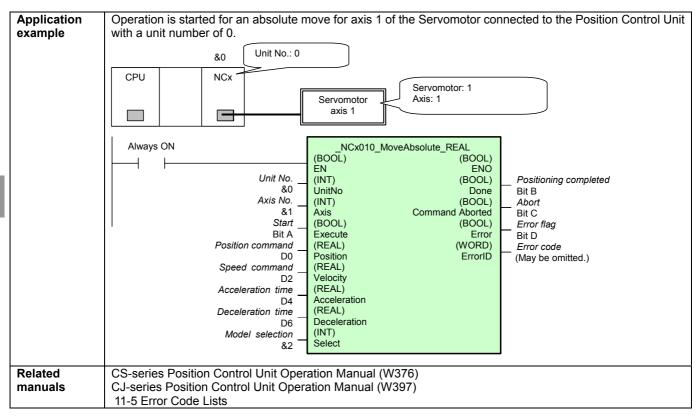
Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error. FB not processed Invalid inputs parameter ended in an error Not finished to read the common parameter
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Write completed	Done	BOOL		Turns ON for one cycle when processing ends normally.
Error flag	Error	BOOL		Turns ON for one cycle when processing ends in an error.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

-010 Basic Positions using an absolute move. function Symbol Always ON (P_On) NCx010_MoveAbsolute_REAL (BOOL) (BOOL) ENO ÈΝ (INT) (BOOL) Unit No. Positioning completed ÙnitŃo Doné (BOOL) (INT) Axis No. Abort Command Aborted Áxis (BOOL) Error flag (BOOL) Start Error (WORD) Execute (REAL) Error code Position command (May be omitted.) Position ErrorID (REAL) Speed command Velocity (REAL) Acceleration time Acceleration (REAL) Deceleration time Deceleration (INT) Model selection Select File name \FBL\omronlib\PositionController\NCx\ NCx010 MoveAbsolute REAL10.cxf CS1W-NC113/133/213/233/413/433 and CJ1W-NC113/133/213/233/413/433 Applicable models Conditions None for usage Function A positioning operation for the axis of the specified Unit No. and Axis No. is started using the specified position description command value, speed command value, acceleration time, and deceleration time. The Positioning Completed Flag (Done) is turned ON when the positioning operation for the FB has been completed. This flag will not be turned ON if the positioning operation is canceled because another operation has been started from a different instance, for a deceleration stop, or because an error has occurred. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will not occur for error in other FBs or other instances of the FB. This status will be reset then the Start Bit (Execute) turns OFF. If the Start Bit (Execute) turns OFF before the positioning operation has been completed, the status will be set for at least one cycle when supporting conditions have occurred. ΕN ON OFF ON Execute OFF Speed Command speed Done ON OFF Error ON OFF FB • If execution of another instance is started during the positioning operation, a duplicate start status will precautions exist and a positioning operation will be performed for the absolute position specified for Position Command from the point at which the last execution was started. Refer to information on direct operation given in the Operation Manual listed in Related Manuals for details. **EN** input Connect the EN input to the Always ON Flag (P_On). condition If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.

Move Absolute: NCx010 MoveAbsolute REAL



Variable Tables Input Variables

Input Variables	Variable name	Data tuna	Default	Banga	Description
		Data type	Delault	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Axis No.	Axis	INT	&1	&1 to &4	&1: X axis
					&2: Y axis
					&3: Z axis
					&4: U axis
Start	Execute	BOOL	0 (OFF)		Starts the absolute move.
Position command	Position	REAL	+0.0	-1.073742e+	Specify the target position.
				009 to	Unit: Pulses
				+1.073742e	
				+009	
Speed command	Velocity	REAL	+1.0	+1.0 to	Specify the target speed.
•				+500000.0	Unit: pps
					The actual speed of the operation will
					change if the Speed Command is changed
					while Execute is ON.
Acceleration time	Acceleration	REAL	+0.0	+0.0 to	Specify the acceleration time.
				+250000.0	Unit: ms
Deceleration time	Deceleration	REAL	+0.0	+0.0 to	Specify the deceleration time.
				+250000.0	Unit: ms
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx)
					&2: 2-axis Unit (NC2xx)
					&4: 4-axis Unit (NC4xx)

Output Variables

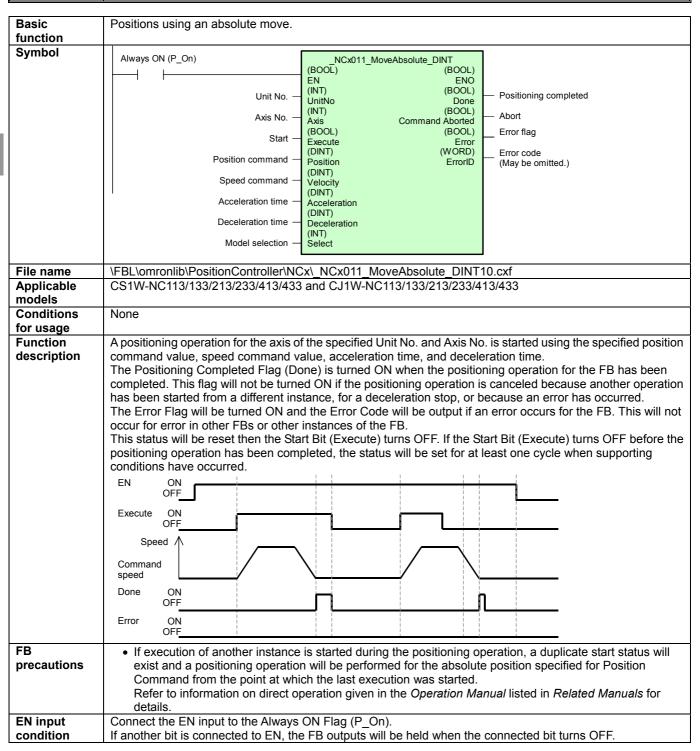
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
Positioning	Done	BOOL		Turns ON when the positioning operation has been
completed				completed.
Abort	Command Aborted	BOOL		1(ON): Aborted
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in
(May be omitted.)				the FB. Refer to the Related Manuals for details on
				errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.

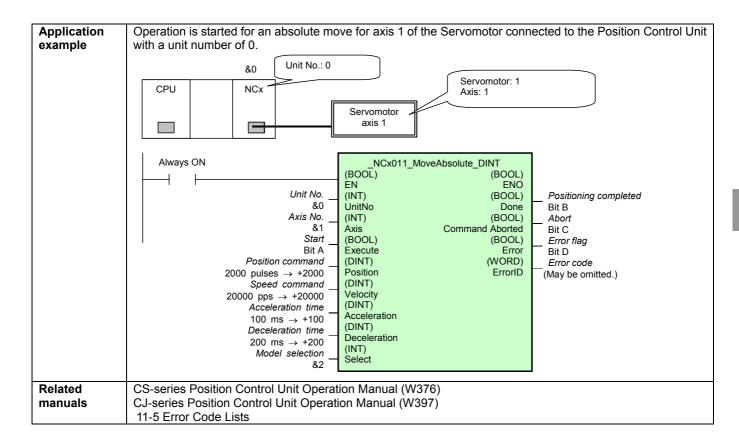
Version	Date	Contents
1.00	2004.6.	Original production

NCx

-011

Move Absolute: _NCx011_MoveAbsolute_DINT





Variable Tables

Input	Varia	bles

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Axis No.	Axis	INT	&1	&1 to &4	&1: X axis &2: Y axis &3: Z axis &4: U axis
Start	Execute	BOOL	0 (OFF)		Starts the absolute move.
Position command	Position	DINT	&0	-1,073,741,823 to +1,073,741,823	Specify the target position. Unit: Pulses
Speed command	Velocity	DINT	+1	+1 to +500,000	Specify the target speed. Unit: pps The actual speed of the operation will change if the Speed Command is changed while Execute is ON.
Acceleration time	Acceleration	DINT	+0	+0 to +250,000	Specify the acceleration time. Unit: ms
Deceleration time	Deceleration	DINT	+0	+0 to +250,000	Specify the deceleration time. Unit: ms
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx) &2: 2-axis Unit (NC2xx) &4: 4-axis Unit (NC4xx)

Output Variables

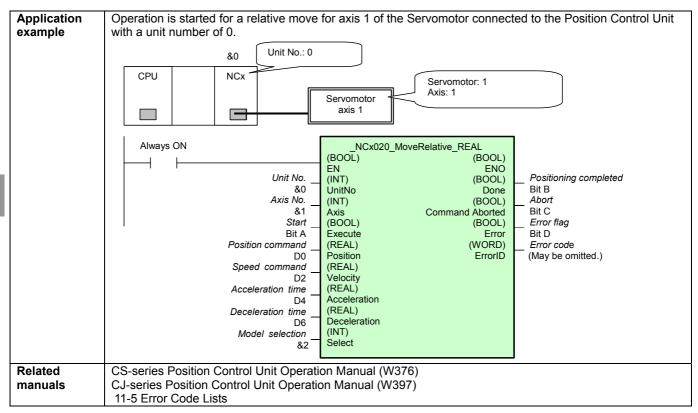
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
Positioning	Done	BOOL		Turns ON when the positioning operation has been
completed				completed.
Abort	Command Aborted	BOOL		1(ON): Aborted
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in
(May be omitted.)				the FB. Refer to the Related Manuals for details on
				errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

Move Relative: NCx020 MoveRelative REAL -020 Basic Positions using a relative move. function Symbol Always ON (P_On) NCx020 MoveRelative REAL (BOOL) (BOOL) ł ENO (BOOL) ÈΝ (INT) Positioning completed Unit No. Done UnitNo (BOOL) (INT) Abort Axis No. Àxis Command Aborted Error flag (BOOL) (BOOL) Start Execute (REAL) Error (WORD) Error code Position command (May be omitted.) Position ErrorID (REAL) Speed command Velocity (REAL) Acceleration time Acceleration (REAL) Deceleration time Deceleration (INT) Model selection Select \FBL\omronlib\PositionController\NCx\ NCx020 MoveRelative REAL10.cxf File name Applicable CS1W-NC113/133/213/233/413/433 and CJ1W-NC113/133/213/233/413/433 models Conditions None for usage Function A positioning operation for the axis of the specified Unit No. and Axis No. is started using the specified position description command value, speed command value, acceleration time, and deceleration time. The Positioning Completed Flag (Done) is turned ON when the positioning operation for the FB has been completed. This flag will not be turned ON if the positioning operation is canceled because another operation has been started from a different instance, for a deceleration stop, or because an error has occurred. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will not occur for error in other FBs or other instances of the FB. This status will be reset then the Start Bit (Execute) turns OFF. If the Start Bit (Execute) turns OFF before the positioning operation has been completed, the status will be set for at least one cycle when supporting conditions have occurred. ΕN ON OFF Execute ON OFF Speed ∧ Command speed Done ON OFF Error ON OFF FR • If the input to Execute turns ON again during the positioning operation, a duplicate start status will exist precautions and a positioning operation will be performed for the position specified for position command from the point at which Execute turned ON. Refer to information on direct operation given in the Operation Manual listed in Related Manuals for details. Connect the EN input to the Always ON Flag (P On). **EN** input condition If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.

NCx

3-235



Variable Tables Input Variables

Input Variables	Variable name	Data type	Default	Range	Description
			Delault	Range	
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	0	&0 to &95	
Axis No.	Axis	INT	&1	&1 to &4	&1: X axis
					&2: Y axis
					&3: Z axis
					&4: U axis
Start	Execute	BOOL	0 (OFF)		Starts the relative move.
Position command	Distance	REAL	+0.0	-1.073742e+	Specify the relative move distance.
				009	Unit: Pulses
				+1.073742e	
				+009	
Speed command	Velocity	REAL	+1.0	+1 to	Specify the target speed.
				+500,000	Unit: pps
				,	The actual speed of the operation will
					change if the Speed Command is changed
					while Execute is ON.
Acceleration time	Acceleration	REAL	+0.0	+0.0 to	Specify the acceleration time.
				+250000.0	Unit: ms
Deceleration time	Deceleration	REAL	+0.0	+0.0 to	Specify the deceleration time.
				+250000.0	Unit: ms
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx)
					&2: 2-axis Unit (NC2xx)
					&4: 4-axis Unit (NC4xx)

Output Variables

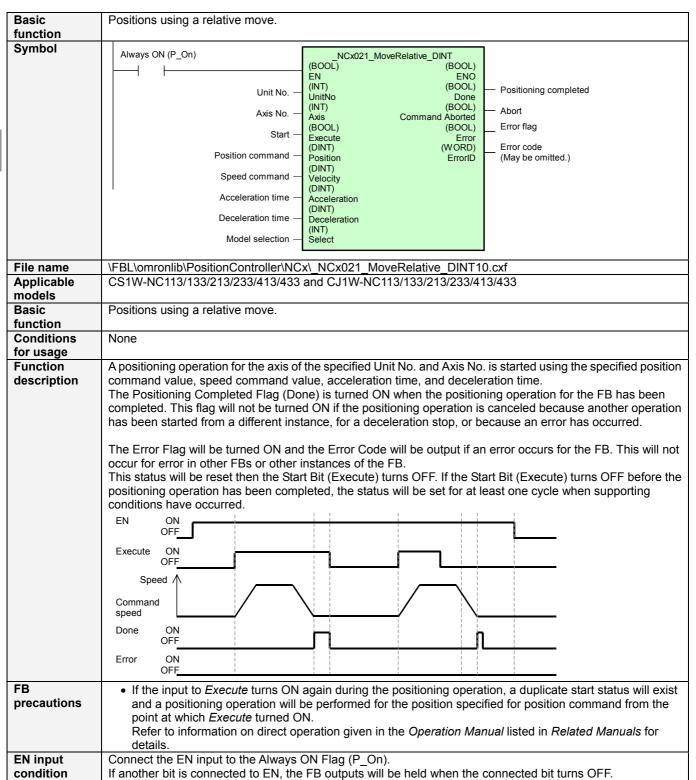
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
Positioning	Done	BOOL		Turns ON when the positioning operation has been
completed				completed.
Abort	Command Aborted	BOOL		1(ON): Aborted
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in
(May be omitted.)				the FB. Refer to the Related Manuals for details on
				errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.

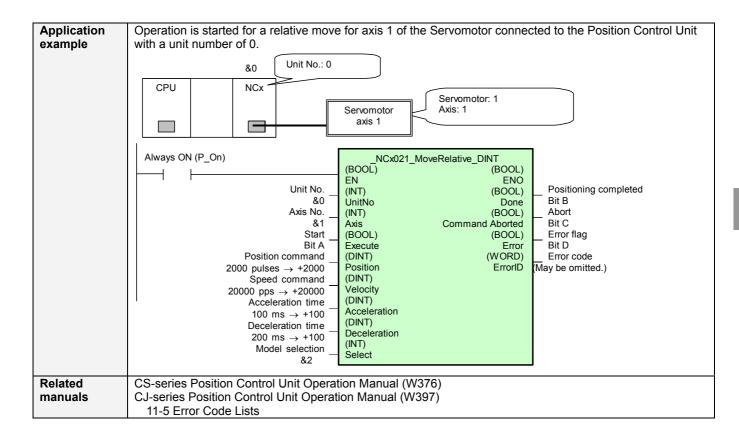
Version	Date	Contents
1.00	2004.6.	Original production

NCx

-021

Move Relative: _NCx021_MoveRelative_DINT





Variable Tables

Input	Varial	oles

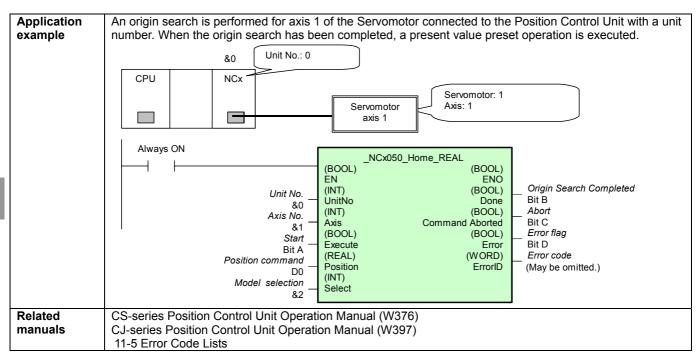
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit No.	UnitNo	INT	0	&0 to &95	
Axis No.	Axis	INT	&1	&1 to &4	&1: X axis &2: Y axis &3: Z axis &4: U axis
Start	Execute	BOOL	0 (OFF)		Starts the relative move.
Position command	Distance	DINT	+0	-1,073,741,823 to +1,073,741,823	Specify the relative move distance. Unit: Pulses
Speed command	Velocity	DINT	+1	+1 to +500,000	Specify the target speed. Unit: pps The actual speed of the operation will change if the Speed Command is changed while Execute is ON.
Acceleration time	Acceleration	DINT	+0	+0 to +250,000	Specify the acceleration time. Unit: ms
Deceleration time	Deceleration	DINT	+0	+0 to +250,000	Specify the deceleration time. Unit: ms
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx) &2: 2-axis Unit (NC2xx) &4: 4-axis Unit (NC4xx)

Output Variables

Output variables				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
Positioning	Done	BOOL		Turns ON when the positioning operation has been
completed				completed.
Abort	Command Aborted	BOOL		1(ON): Aborted
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in
(May be omitted.)				the FB. Refer to the Related Manuals for details on
				errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

NCx -050	Origin Search: _NCx050_Home_REAL
Basic function	Performs an origin search operation to establish the origin.
Symbol	Always ON (P_On) NCx050_Home_REAL (BOCL) (BOOL) Unit No. Unit No. Unit No. (INT) Axis No. Axis No. Start Execute Position command Position Model selection Select
File name	\FBL\omronlib\PositionController\NCx_NCx050_Home_REAL10.cxf
Applicable models	CS1W-NC113/133/213/233/413/433 and CJ1W-NC113/133/213/233/413/433
Conditions	None
for usage	
Function description	An origin search operation is started when <i>Start</i> turns ON for the axis of the specified Unit No. and Axis No. When the search operation is completed, the preset position preset operation is executed and the present position is set to the value specified in the <i>position command</i> . The present value preset operation is performed even if the <i>position command</i> is set to 0. The Origin Serch Completed Flag (Done) is turned ON when the present position preset operation for the FB has been completed. This flag will not be turned ON if operation is canceled for a deceleration stop or because an error has occurred. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will not occur for error in other FBs or other instances of the FB. This status will be reset then the Start Bit (Execute) turns OFF. If the Start Bit (Execute) turns OFF before the positioning operation has been completed, the status will be set for at least one cycle when supporting conditions have occurred. EN OFF Speed OFF ON OFF Error ON OFF I and OFF OFF ON OFF Error ON OFF Erro
EN input condition	Connect the EN input to the Always ON Flag (P_On). If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.



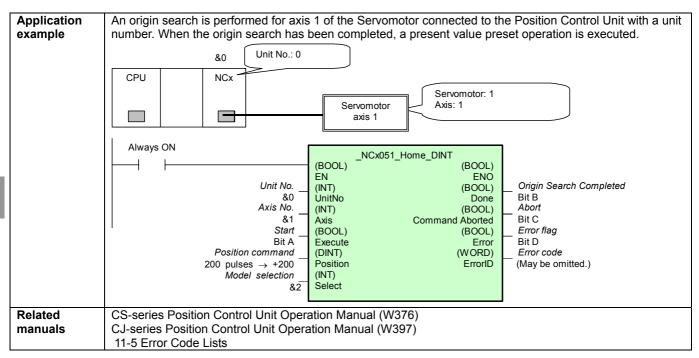
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Axis No.	Axis	INT	&1	&1 to &4	&1: X axis
					&2: Y axis
					&3: Z axis
					&4: U axis
Start	Execute	BOOL	0 (OFF)		: Origin search started
Position command	Position	REAL	+0.0	-1.073742e+	Specify the numeric value of to set for the
				009 to	present position.
				+1.073742e	Unit: Pulses
				+009	
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx)
					&2: 2-axis Unit (NC2xx)
					&4: 4-axis Unit (NC4xx)

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
Origin Search	Done	BOOL		Turns ON when the origin search operation has been
Completed				completed.
Abort	Command Aborted	BOOL		1(ON): Aborted
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in
(May be omitted.)				the FB. Refer to the Related Manuals for details on
				errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

NCx -051	Origin Search: _NCx051_Home_DINT
Basic	Performs an origin search operation to establish the origin.
function	
Symbol	Always ON
File name	\FBL\omronlib\PositionController\NCx_NCx051_Home_DINT10.cxf
Applicable models	CS1W-NC113/133/213/233/413/433 and CJ1W-NC113/133/213/233/413/433
Conditions	None
for usage Function	
description	An origin search operation is started when <i>Start</i> turns ON for the axis of the specified Unit No. and Axis No. When the search operation is completed, the preset position preset operation is executed and the present position is set to the value specified in the <i>position command</i> . The present value preset operation is performed even if the <i>position command</i> is set to 0. The Origin Serch Completed Flag (Done) is turned ON when the present position preset operation for the FB has been completed. This flag will not be turned ON if operation is canceled for a deceleration stop or because an error has occurred. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will not occur for error in other FBs or other instances of the FB. This status will be reset then the Start Bit (Execute) turns OFF. If the Start Bit (Execute) turns OFF before the positioning operation has been completed, the status will be set for at least one cycle when supporting conditions have occurred. EN ON OFF Execute ON OFF Error ON OFF Error ON OFF This FB executes the origin search and present value preset functions of the Position Control Unit. Reference This FB executes the origin search and present value preset functions of the Position Control Unit. Reference the <i>Operation Manual</i> listed in <i>Related Manuals</i> for details. Connect the <i>Dynatul</i> to the Always ON Flag (P. On)
	Refer to the Operation Manual listed in Related Manuals for details.
EN input condition	Connect the EN input to the Always ON Flag (P_On). If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.



■ Variable Tables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Axis No.	Axis	INT	&1	&1 to &4	&1: X axis
					&2: Y axis
					&3: Z axis
					&4: U axis
Start	Execute	BOOL	0 (OFF)		▲ Origin search started
Position command	Position	DINT	+0.0	-1,073,741,823	Specify the numeric value of to set for
				to	the present position.
				+1,073,741,823	Unit: Pulses
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx)
					&2: 2-axis Unit (NC2xx)
					&4: 4-axis Unit (NC4xx)

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
Origin Search	Done	BOOL		Turns ON when the origin search operation has been
Completed				completed.
Abort	Command Aborted	BOOL		1(ON): Aborted
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in
(May be omitted.)				the FB. Refer to the Related Manuals for details on
				errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

NCx -060	Deceleration Stop: _NCx060_Stop						
Basic function	Decelerates an axis to a stop.						
Symbol	Always ON						
File name	\FBL\omronlib\PositionController\NCx_NCx060_Stop10.cxf						
Applicable	CS1W-NC113/133/213/233/413/433 and CJ1W-NC113/133/213/233/413/433						
models Conditions	None						
for usage	None						
Function description	 When the Start Bit (Execute) turns ON, a deceleration stop is started for the axis of the specified Unit No. and Axis No. An operation command will not be accepted while the Start Bit (Execute) is ON. Refer to information on a deceleration stop given in the <i>Operation Manual</i> listed in <i>Related Manuals</i> for details. 						
	 The Deceleration Stop Completed Flag (Done) is turned ON when the deceleration stop has been completed for this FB. This flag will also be turned ON if an error results in an emergency stop. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will not occur for error in other FBs or other instances of the FB. This status will be reset then the Start Bit (Execute) turns OFF. If the Start Bit (Execute) turns OFF before the positioning operation has been completed, the status will be set for at least one cycle when supporting conditions have occurred. Reference This FB executes the deceleration stop function of the Position Control Unit. 						
EN input	Connect the EN input to the Always ON Flag (P_On).						
condition	If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.						
Application example	A deceleration stop is performed for axis 1 of the Servomotor connected to Position Control Unit with a unit number of 0.						
	&0 Unit No.: 0 CPU NCx Servomotor axis 1						
	Always ON NCx060_Stop Unit No. (BOOL) (BOOL) &0 (INT) (BOOL) &0 Axis No. (INT) &1 Start (BOOL) Bit A Bit A Model selection (INT) &2 Select						
Related manuals	CS-series Position Control Unit Operation Manual (W376) CJ-series Position Control Unit Operation Manual (W397) 11-5 Error Code Lists						

Variable Tables

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Axis No.	Axis	INT	&1	&1 to &4	&1: X axis &2: Y axis &3: Z axis &4: U axis
Start	Execute	BOOL			▲ A deceleration stop is started.
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx) &2: 2-axis Unit (NC2xx) &4: 4-axis Unit (NC4xx)

Output variables				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error.
Deceleration stop completed flag	Done	BOOL		Turns ON when the deceleration stop operation has been completed.
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

NCx -080	Axis Error Reset: _NCx080_Reset
Basic function	Resets and axis error.
Symbol	Always ON NCx080_Reset Unit No. (BOOL) (BOOL) Unit No. (INT) (BOOL) Axis No. (INT) (BOOL) Axis No. (INT) (BOOL) Start Execute ErrorID Model selection (INT) ErrorID
File name	\FBL\omronlib\PositionController\NCx\ NCx080 Reset10.cxf
Applicable models	CS1W-NC113/133/213/233/413/433 and CJ1W-NC113/133/213/233/413/433
Conditions for usage	None
Function description	When the Start Bit (Execute) turns ON, an error is reset for the axis of the specified Unit No. and Axis No. The Reset Completed Flag (Done) will turn ON when resetting the error has been completed and commands can be accepted. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. This will not occur for error in other FBs or other instances of the FB. This status will be reset then the Start Bit (Execute) turns OFF. If the Start Bit (Execute) turns OFF before the reset operation has been completed, the status will be set for at least one cycle when supporting conditions have occurred. EN ON OFF Execute ON OFF Done ON OFF Error ON OFF Error ON OFF Error ON OFF This FB executes the error reset/pulse output prohibit function of the Position Control Unit.
EN input condition	Connect the EN input to the Always ON Flag (P_On). If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.
Application example	An axis error is reset for axis 1 (X axis) of the Position Control Unit with a unit number of 0. An axis error is reset for axis 1 (X axis) of the Position Control Unit with a unit number of 0. An axis error is reset for axis 1 (X axis) of the Position Control Unit with a unit number of 0. An axis error is reset for axis 1 (X axis) of the Position Control Unit with a unit number of 0. An axis error is reset for axis 1 (X axis) of the Position Control Unit with a unit number of 0. An axis error is reset for axis 1 (X axis) of the Position Control Unit with a unit number of 0. An axis error is reset for axis 1 (X axis) of the Position Control Unit with a unit number of 0. An axis is 0 (INT) (BOOL) (INT) (INT) (INT) (BOOL) (INT) (INT) (BOOL) (INT) (INT
Related manuals	CS-series Position Control Unit Operation Manual (W376) CJ-series Position Control Unit Operation Manual (W397) 11-5 Error Code Lists

Variable Tables

Input Variables

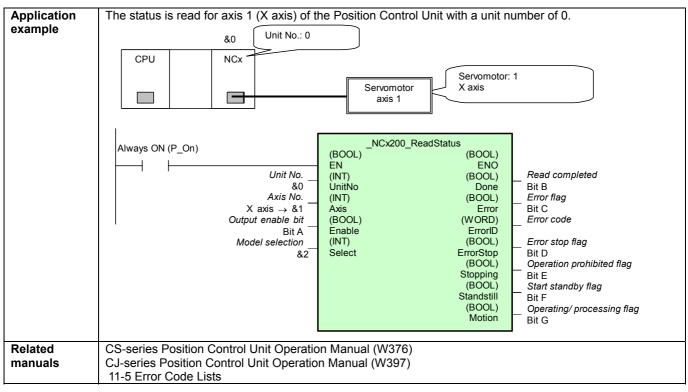
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Axis No.	Axis	INT	&1	&1 to &4	&1: X axis &2: Y axis &3: Z axis &4: U axis
Start	Execute	BOOL	0 (OFF)		F: Resetting the error started.
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx) &2: 2-axis Unit (NC2xx) &4: 4-axis Unit (NC4xx)

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error.
Reset completed flag	Done	BOOL		Turns ON when the error reset operation has been completed.
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

Read Status: NCx200_ReadStatus -200 Basic Reads the status of an axis. function Symbol Always ON _NCx200_ReadStatus (BOOL) (BOOL) ENO (BOOL) EN (INT) Unit No. Normal end UnitNo Done (BOOL) (INT) Axis No. Error flag Error Axis (BOOL) (WORD) Error code Output enable bit (May be omitted.) ErrorID (BOOL) Enable (INT) Model selection Error stop flag Select ErrorStop (BOOL) Operation prohibited flag Stopping (BOOL) Start standby flag Standstill (BOOL) Operating/processing flag Motion \FBL\omronlib\PositionController\NCx\ NCx200 ReadStatus10.cxf File name CS1W-NC113/133/213/233/413/433 and CJ1W-NC113/133/213/233/413/433 Applicable models Conditions None for usage Function The status of the axis of the specified Unit No. and Axis No. is continuously updated while the Output Enable description Bit (Enable) is ON. When the Output Enable Bit (Enable) turns OFF, the status is reset. The Read Completed Flag (Done) turns ON when the status data is valid. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. The Error Flag will actually be turned ON only when the unit number or axis number is not in range. This status will be reset then the Output Enable Bit (Enable) turns OFF. Thestatus for this FB is output combining the status of the CIO Area bits and words allocated to the Position Control Unit. **Output variable** Status **Output conditions** ErrorStop Stopped for an error. Error Flag is ON. Stopping Stopped for a deceleration stop and operation prohibited. Deceleration Stop ON, Stop Executed ON, and Error Flag OFF. StandStill Waiting for start command. Deceleration Stop OFF, Error Flag OFF, and Busy Flag OFF. Motion Operating or processing command. (Including processing present position preset command, error reset command, etc.) Positioning Operation Completed OFF and Busy Flag OFF. **EN** input Connect the EN input to the Always ON Flag (P On). condition If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.

NCx



■ Variable Tables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Axis No.	Axis	INT	&1	&1 to &4	&1: X axis
					&2: Y axis
					&3: Z axis
					&4: U axis
Output enable bit	Enable	BOOL	0 (OFF)		Turn ON to enable output.
					Turn OFF to reset the output.
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx)
					&2: 2-axis Unit (NC2xx)
					&4: 4-axis Unit (NC4xx)

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
Normal end	Done	BOOL		Turns ON when the status data is valid.
Error flag	Error	BOOL		Turns ON when an error has occurred in the FB.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.
Error stop flag	ErrorStop	BOOL		Turns ON when operation has been stopped for an error.
Operation prohibited flag	Stopping	BOOL		Turns ON when operation has been stopped for an deceleration stop and operation is prohibited.
Start standby flag	Standstill	BOOL		Turns ON when waiting for a start command.
Operating/process ing flag	Motion	BOOL		Turns ON when an axis is moving or processing is being performed for a present position preset command, error reset command, etc.

Version	Date	Contents
1.00	2004.6.	Original production

NCx -201	Read Parameter: _NCx201_ReadParameter
Basic function	Reads a parameter of an axis.
Symbol	Start trigger
File name Applicable	\FBL\omronlib\PositionController\NCx_NCx201_ReadParameter10.cxf CS1W-NC113/133/213/233/413/433 and CJ1W-NC113/133/213/233/413/433
models Conditions	None
for usage Function	The value of the specified parameter for the axis of the specified Unit No. and Axis No. is read.
description	When the start trigger turns ON, the parameter is read from the Position Control Unit.
	If FB execution ends in an error, an error code will be output to the <i>Error Code</i> . Reference This FB executes a data read using the IORD instruction for the Position Control Unit. Refer to the <i>Operation Manual</i> listed in <i>Related Manuals</i> for details.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed.
precautions	• Done or Error will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF U OFF OFF Normal end (OK) ON OFF FB execution completed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output
condition Restrictions	from the FB.Always use an upwardly differentiated condition for EN.
Input variables	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.
Application example	A parameter (the initial speed) of axis 1 (X axis) of the Position Control Unit with a unit number of 0 is read and stored in D0.
oxampio	&0 Unit No.: 0
	CPU NCx
	Servomotor: 1 X axis
	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $

Related	CS-series Position Control Unit Operation Manual (W376)
manuals	CJ-series Position Control Unit Operation Manual (W397)
	4-4 Axis Parameter Area
	11-5 Error Code Lists

Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Axis No.	Axis	INT	&1	&1 to &4	&1: X axis
					&2: Y axis
					&3: Z axis
					&4: U axis
Parameter No.	ParameterNo	INT	&1	&1 to &16	See the following table.
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx)
					&2: 2-axis Unit (NC2xx)
					&4: 4-axis Unit (NC4xx)

Parameter Numbers

Parameter	Nama	Address in I	Number of			
No.	Name	X axis	Y axis	Z axis	U axis	words
1	I/O Setting	m+4 (0004)	m+32 (0020)	m+60 (003C)	m+88 (0058)	1 word
2	Operation Mode Setting	m+5 (0005)	m+33 (0021)	m+61 (003D)	m+89 (0059)	1 word
3	Maximum Speed	m+6 (0006)	m+34 (0022)	m+62 (003E)	m+90 (005A)	2 words
4	Initial Speed	m+8 (0008)	m+36 (0024)	m+64 (0040)	m+92 (005C)	2 words
5	Origin Search High Speed	m+10 (000A)	m+38 (0026)	m+66 (0042)	m+94 (005E)	2 words
6	Origin Search Proximity Speed	m+12 (000C)	m+40 (0028)	m+68 (0044)	m+96 (0060)	2 words
7	Origin Compensation	m+14 (000E)	m+42 (002A)	m+70 (0046)	m+98 (0062)	2 words
8	Backlash Compensation	m+16 (0010)	m+44 (002C)	m+72 (0048)	m+100 (0064)	1 word
9	Backlash Compensation Speed	m+17 (0011)	m+45 (002D)	m+73 (0049)	m+101 (0065)	2 words
10	Acceleration/Deceleration Curve	m+19 (0013)	m+47 (002F)	m+75 (004B)	m+103 (0067)	1 word
11	Origin Search Acceleration Time	m+20 (0014)	m+48 (0030)	m+76 (004C)	m+104 (0068)	2 words
12	Origin Search Deceleration Time	m+22 (0016)	m+50 (0032)	m+78 (004E)	m+106 (006A)	2 words
13	Positioning Monitor Time	m+24 (0018)	m+52 (0034)	m+80 (0050)	m+108 (006C)	1 word
14	CCW Software Limit	m+25 (0019)	m+53 (0035)	m+81 (0051)	m+109 (006D)	2 words
15	CW Software Limit	m+27 (001B)	m+55 (0037)	m+83 (0053)	m+111 (006F)	2 words
16	Initial Pulse Designation	m+31 (001F)	m+59 (003B)	m+87 (0057)	m+115 (0073)	1 word

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	Done	BOOL		Turns ON for one cycle when processing ends
				normally.
Error flag	Error	BOOL		Turns ON for one cycle when processing ends in an
				error.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in
(May be omitted.)				the FB. Refer to the Related Manuals for details on
				errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.
Parameter value	Value	DINT		The parameter value that was read. If the parameter
				size is 1 word, the data is stored in the lower word.

Version	Date	Contents
1.00	2004.6.	Original production

NCx -202

Read Boolean Parameter: _NCx202_ReadBoolParameter

Basic function	Reads a boolean parameter of an axis.
Symbol	Any bit NCx202_ReadBoolParameter (BOOL) (BOOL) EN CBOOL) Unit No. Unit No. (INT) (BOOL) Axis No. (INT) (BOOL) Error flag Axis No. (INT) (WORD) Error code Parameter No. (INT) (INT) (INT) Read start bit StartBitNo Error ID House omitted.) No. of read bits Size Select Value
File nome	
File name Applicable	\FBL\omronlib\PositionController\NCx_NCx202_ReadBoolParameter10.cxf CS1W-NC113/133/213/233/413/433 and CJ1W-NC113/133/213/233/413/433
models	
Conditions	None
for usage Function	The parameter of the specified parameter number, read start bit, and number of read bits for the axis of the
Function description	specified Unit No. and Axis No. is read. Only I/O settings and operation mode settings can be read. When EN turns ON, the parameter is read from the DM Area words allocated to the Position Control Unit as a Special I/O Unit. <i>Read Completed</i> and the <i>Error Flag</i> can be used to see whether internal processing has been completed normally. If FB execution ends in an error, an error code will be output to the <i>Error Code</i> .
EN input	Only the specified number of read bits will be transferred to lowest bits of <i>Value</i> . Other bits will be 0. Any bit can be specified.
condition	The data will be read continuously while <i>Any bit</i> is ON.
Application	A parameter (I/O setting) of axis 1 (X axis) of the Position Control Unit with a unit number of 0 is read and
example	stored in D0.
	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$
Related manuals	CS-series Position Control Unit Operation Manual (W376) CJ-series Position Control Unit Operation Manual (W397) 11-5 Error Code Lists

■ Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Axis No.	Axis	INT	&1	&1 to &4	&1: X axis
					&2: Y axis
					&3: Z axis
					&4: U axis
Parameter No.	ParameterNo	INT	&1	&1, &2	See below.
Read start bit	StartBitNo	INT	&0	&0 to &15	Specify the first bit to read in the specified
					parameter.
No. of read bits	Size	INT	&1	&1 to &2	Specify the number of bits to read.
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx)
					&2: 2-axis Unit (NC2xx)
					&4: 4-axis Unit (NC4xx)

Parameter Numbers

Parameter	Name	Address in Pos	Number of			
No.	Name	X axis	Y axis	Z axis	U axis	words
1	I/O Setting	m+4 (0004)	m+32 (0020)	m+60 (003C)	m+88 (0058)	1 word
2	Operation Mode Setting	m+5 (0005)	m+33 (0021)	m+61 (003D)	m+89 (0059)	1 word

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
Normal end	Done	BOOL		Turns ON for a normal end.
Error flag	Error	BOOL		Turns ON for an error end.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in
(May be omitted.)				the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.
Parameter value	Value	DINT		The specified number of read bits are transferred to
				lowest bits of the Parameter Value.

Version	Date	Contents		
1.00	2004.6.	Original production		

NCx -203 Read Axis Error: _NCx203_ReadAxisError

Basic	Reads axis error information.							
function								
Symbol	Always ON							
File name	\FBL\omronlib\PositionController\NCx\ NCx203 ReadAxisError10.cxf							
Applicable models	CS1W-NC113/133/213/233/413/433 and CJ1W-NC113/133/213/233/413/433							
Conditions	None							
for usage								
Function description	Axis error information for the axis of the specified Unit No. and Axis No. is continuously updated while the Output Enable Bit (Enable) is ON. When <i>Enable</i> turns OFF, the status is reset.							
	A rising edge of the Output Enable Bit (Enable) would read the error which occur in the unit. A Read							
	completed is turned ON when no error occur in the unit.							
	The Read Completed Flag (Done) turns ON when the error information is valid. The Error Flag and the Error Code will show the status of errors for the Position Control Unit axis. The Error							
	Flag will also be turned ON when the unit number or axis number is not in range.							
	This status will be reset then the Output Enable Bit (Enable) turns OFF.							
	The Error Flag and Error Code for this FB reflect the status of the CIO Area bits and words allocated to the							
	Position Control Unit without alteration.							
EN input	Connect the EN input to the Always ON Flag (P_On).							
condition	If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.							
Application example	Error information is read for axis 1 (X axis) of the Position Control Unit with a unit number of 0.							
example	&0 Unit No.: 0							
	CPU NCX							
	Servomotor: 1							
	Servomotor X axis							
	axis 1							
	Always ONNCx203_ReadAxisError							
	(BOOL) (BOOL) EN ENO							
	Unit No. (INT) (BOOL) Read completed							
	$\begin{array}{c c} Axis No. \\ X axis \rightarrow \&1 \end{array} \begin{array}{c c} (INT) & (BOOL) \\ Axis \\ Axis \end{array} \begin{array}{c c} Error \\ Error \\ Bit C \\ \end{array}$							
	Output enable bit (BOOL) (WORD) Error code							
	Bit A Bit A (NT) (May be omitted.)							
	Model selection Select							
Related	CS-series Position Control Unit Operation Manual (W376)							
manuals	CJ-series Position Control Unit Operation Manual (W397)							
	11-5 Error Code Lists							

■ Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Axis No.	Axis	INT	&1	&1 to &4	&1: X axis &2: Y axis &3: Z axis &4: U axis
Output enable bit	Enable	BOOL	0 (OFF)		Turn ON to enable output. Turn OFF to reset the output.
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx) &2: 2-axis Unit (NC2xx) &4: 4-axis Unit (NC4xx)

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
Read completed	Done	BOOL		Turns ON when the error information is valid.
Error flag	Error	BOOL		Turns ON when an error has occurred in the specified axis.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

Read Present Position: _NCx204_ReadActualPosition_REAL

Basic	Deade the present position of an avia
function	Reads the present position of an axis.
Symbol	
Symbol	Always ONNCx204_ReadActualPosition_REAL
	(BOOL) (BOOL) EN ENO
	Unit No. – (INT) (BOOL) – Read completed
	Avis No. – (INT) (BOOL) – Error flag
	Axis Error
	Output enable bit – (BOOL) (WORD) Enable ErrorID ErrorID (May be omitted.)
	Model selection — (INT) (REAL) — Present position
	Select Position
File name	\FBL\omronlib\PositionController\NCx\ NCx204 ReadActualPosition REAL10.cxf
Applicable	CS1W-NC113/133/213/233/413/433 and CJ1W-NC113/133/213/233/413/433
models	
Conditions	None
for usage	
Function	The present position of the axis of the specified Unit No. and Axis No. is continuously updated while the
description	Output Enable Bit (Enable) is ON. When the Output Enable Bit (Enable) turns OFF, the present value is
	cleared to all zeros.
	The Read Completed Flag (Done) turns ON when the present position data is valid.
	The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. The Error Flag
	will actually be turned ON only when the unit number or axis number is not in range.
	This status will be reset then the Output Enable Bit (Enable) turns OFF.
EN input	Connect the EN input to the Always ON Flag (P_On).
condition	If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.
Application	The present position of axis 1 of the Position Control Unit with a unit number of 0 is read and stored in D0.
example	80 Unit No.: 0
	Servomotor: 1 X axis
	axis 1
	Always ON
	ÈN ÈNÓ
	Unit No (INT) (BOOL) Read completed &0 UnitNo Done Bit B
	&0 UnitNo Done Bit B Axis No. (INT) (BOOL) Error flag
	X axis \rightarrow &1 Axis Error Bit C
	Output enable bit(BOOL) (WORD) Error code Bit AEnable ErrorID(May be omitted.)
	Model selection (INT) (REAL) Present position
	&2 Select Position D0
Delete d	CC series Decition Control Unit Operation Manual (M/270)
Related manuals	CS-series Position Control Unit Operation Manual (W376) CJ-series Position Control Unit Operation Manual (W397)
manuals	11-5 Error Code Lists

Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Axis No.	Axis	INT	&1	&1 to &4	&1: X axis &2: Y axis &3: Z axis &4: U axis
Output enable bit	Enable	BOOL	0 (OFF)		Turn ON to enable output. Turn OFF to reset the output.
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx) &2: 2-axis Unit (NC2xx) &4: 4-axis Unit (NC4xx)

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
Read completed	Done	BOOL		Turns ON for a normal end.
Error flag	Error	BOOL		Turns ON for an error end.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.
Present position	Position	REAL	-2.147484e+ 009 to +2.147484e +009	The present position of the axis controlled by the Position Control Unit.

Version	Date	Contents
1.00	2004.6.	Original production

NCx -205	Read Present Position: _NCx205_ReadActualPosition_DINT
Basic function	Reads the present position of an axis.
Symbol	Always ON _NCx205_ReadActualPosition_DINT (BOOL) (BOOL) Unit No. Unit No. (INT) (BOOL) Axis No. Axis No. (INT) (BOOL) Output enable bit GOOL) Error (BOOL) Error flag Model selection Error (BOOL) (INT) Present position
File name	\FBL\omronlib\PositionController\NCx\ NCx205 ReadActualPosition DINT10.cxf
Applicable models	CS1W-NC113/133/213/233/413/433 and CJ1W-NC113/133/213/233/413/433
Conditions for usage	None
Function description	The present position of the axis of the specified Unit No. and Axis No. is continuously updated while the Output Enable Bit (Enable) is ON. When the Output Enable Bit (Enable) turns OFF, the present value is cleared to all zeros. The Read Completed Flag (Done) turns ON when the present position data is valid. The Error Flag will be turned ON and the Error Code will be output if an error occurs for the FB. The Error Flag will actually be turned ON only when the unit number or axis number is not in range. This status will be reset then the Output Enable Bit (Enable) turns OFF.
EN input	Connect the EN input to the Always ON Flag (P_On).
condition	If another bit is connected to EN, the FB outputs will be held when the connected bit turns OFF.
Application example	The present position of axis 1 of the Position Control Unit with a unit number of 0 is read and stored in D0.
	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$
Related manuals	CS-series Position Control Unit Operation Manual (W376) CJ-series Position Control Unit Operation Manual (W397) 11-5 Error Code Lists

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Axis No.	Axis	INT	&1	&1 to &4	&1: X axis &2: Y axis &3: Z axis &4: U axis
Output enable bit	Enable	BOOL	0 (OFF)		Turn ON to enable output. Turn OFF to reset the output.
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx) &2: 2-axis Unit (NC2xx) &4: 4-axis Unit (NC4xx)

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
Read completed	Done	BOOL		Turns ON for a normal end.
Error flag	Error	BOOL		Turns ON for an error end.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.
Present position	Position	DINT	-2,147,483,647 to	The present position of the axis controlled by the Position Control Unit.
			+2,147,483, 647	

Version	Date	Contents
1.00	2004.6.	Original production

NCx

-401

Basic

NCx401_WriteParameter Write Parameter:

function Symbol Start trigger ⊣↑ ⊢ Busy Flag Unit No. +Axis No.

Writes an axis parameter.

Symbol	Start trigger NCx401_WriteParameter ↑ ↑ (BOOL) Busy Flag Unit No. Unit No. UnitNo Busy Flag UnitNo Axis No. Axis
	(INT) (BOOL) Front flag
	(DINT) (WORD) Error code
	(INT)
	Model selection — Select
File name	\FBL\omronlib\PositionController\NCx_NCx401_WriteParameter10.cxf
Applicable	CS1W-NC113/133/213/233/413/433 and CJ1W-NC113/133/213/233/413/433
models Conditions	Setting the Position Control Unit
for usage	• To use this FB, the Unit must be set to operate according to the axis parameters set in the DM Area words
	allocated to the Unit as a Special I/O Unit and to set parameters in the DM Area words.
	These settings can be made using the Set Unit FB (_NCx_Setting) or with the common parameters. Refer to 4-3 Common Parameter Area of the Position Control Unit Operation Manual for details.
Function	The set value is written to the specified parameter for the axis of the specified Unit No. and Axis No.
description	If FB execution ends in an error, an error code will be output to the Error Code.
	Reference This FB executes a data write using the IOWR instruction for the Position Control Unit.
	Refer to the Operation Manual listed in Related Manuals for details.
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the
precautions	FB is being processed.
	 Done or Error will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing.
	Timechart
	Start Trigger ON OFF
	Busy Flag (BUSY) ON
	OFF
	Normal end (OK) ON
	or Error end (NG) OFF
	↑ FB execution completed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output
condition	from the FB.
Restrictions	Always use an upwardly differentiated condition for EN.
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to
variables	the EN input variable to ensure that the FB is processed to completion (see Symbol).
	 Do not turn the BUSY output variable ON or OFF outside the FB.

_NCx401_WriteParameter (BOOL) (I EN (I (INT) UnitNo (INT)

3-7 Position controller

Application example	A parameter (maximum speed) is changed for axis 1 (X axis) of the Position Control Unit with a unit number of 0.
	$\begin{array}{c c c c c c c c c c c c c c c c c c c $
Related manuals	CS-series Position Control Unit Operation Manual (W376) CJ-series Position Control Unit Operation Manual (W397) 4-3 Common Parameter Area 4-4 Axis Parameter Area 11-5 Error Code Lists

Variable Tables

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Axis No.	Axis	INT	&1	&1 to &4	&1: X axis
					&2: Y axis
					&3: Z axis
					&4: U axis
Parameter No.	ParameterNo	INT	&1	&1 to &16	See below.
Parameter value	Value	DINT	&0		Specify the data to write with the IOWR
					instruction. If the write size is 1 word, only
					the data stored in the lower address will be
					written.
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx)
					&2: 2-axis Unit (NC2xx)
					&4: 4-axis Unit (NC4xx)

Parameter Numbers

Parameter Nu Parameter		Address in F		Number of		
No.	Name	X axis	Y axis	Z axis	U axis	words
1	I/O Setting	m+4 (0004)	m+32 (0020)	m+60 (003C)	m+88 (0058)	1 word
2	Operation Mode Setting	m+5 (0005)	m+33 (0021)	m+61 (003D)	m+89 (0059)	1 word
3	Maximum Speed	m+6 (0006)	m+34 (0022)	m+62 (003E)	m+90 (005A)	2 words
4	Initial Speed	m+8 (0008)	m+36 (0024)	m+64 (0040)	m+92 (005C)	2 words
5	Origin Search High Speed	m+10 (000A)	m+38 (0026)	m+66 (0042)	m+94 (005E)	2 words
6	Origin Search Proximity Speed	m+12 (000C)	m+40 (0028)	m+68 (0044)	m+96 (0060)	2 words
7	Origin Compensation	m+14 (000E)	m+42 (002A)	m+70 (0046)	m+98 (0062)	2 words
8	Backlash Compensation	m+16 (0010)	m+44 (002C)	m+72 (0048)	m+100 (0064)	1 word
9	Backlash Compensation Speed	m+17 (0011)	m+45 (002D)	m+73 (0049)	m+101 (0065)	2 words
10	Acceleration/Deceleration Curve	m+19 (0013)	m+47 (002F)	m+75 (004B)	m+103 (0067)	1 word
11	Origin Search Acceleration Time	m+20 (0014)	m+48 (0030)	m+76 (004C)	m+104 (0068)	2 words
12	Origin Search Deceleration Time	m+22 (0016)	m+50 (0032)	m+78 (004E)	m+106 (006A)	2 words
13	Positioning Monitor Time	m+24 (0018)	m+52 (0034)	m+80 (0050)	m+108 (006C)	1 word
14	CCW Software Limit	m+25 (0019)	m+53 (0035)	m+81 (0051)	m+109 (006D)	2 words
15	CW Software Limit	m+27 (001B)	m+55 (0037)	m+83 (0053)	m+111 (006F)	2 words
16	Initial Pulse Designation	m+31 (001F)	m+59 (003B)	m+87 (0057)	m+115 (0073)	1 word

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL	-	1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	Done	BOOL		Turns ON for one cycle when processing ends
				normally.
Error flag	Error	BOOL		Turns ON for one cycle when processing ends in an
				error.
Error code	ErrorID	WORD		Returns the error code when an error has occurred in
(May be omitted.)				the FB. Refer to the Related Manuals for details on
				errors. A code of #0000 will be returned when the unit
				number of axis number is out of range.

Version History		
Version	Date	Contents
1.00	2004.6.	Original production

NCx -402

Write Boolean Parameter: _NCx402_WriteBoolParameter

ea words								
eters.								
Refer to 4-3 Common Parameter Area of the Position Control Unit Operation Manual for details. The parameter of the specified parameter number, write start bit, and number of write bits for the axis of the								
specified Unit No. and Axis No. is written. Only I/O settings and operation mode settings can be read.								
Parameters that are written are valid when the power is cycled or the Unit is restarted.								
normally.								
er of 0.								
$ \begin{array}{c c} Write \ start \ bit \\ 0 \ bit \rightarrow \&0 \\ No. \ of \ write \ bits \end{array} (INT) \\ \ StartBitNo \\ (INT) \end{array} $								
$\begin{array}{ c c c c c }\hline No. & or write bits \\ 2 & bits \rightarrow \& 2 \\ Parameter value \\ \hline (INT) \\ \hline (INT) \\ \hline \end{array}$								

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Axis No.	Axis	INT	&1	&1 to &4	&1: X axis
					&2: Y axis
					&3: Z axis
					&4: U axis
Parameter No.	ParameterNo	INT	&1	&1 to &2	See below.
Write start bit	StartBitNo	INT	&0	&0 to &15	Specify the first bit to write in the specified
					parameter.
No. of write bits	Size	INT	&1	&1 to &2	Specify the number of bits to write.
Parameter value	Value	DINT	&0		Set the value to which the parameter is to be
					set in lowest bits of Value.
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx)
					&2: 2-axis Unit (NC2xx)
					&4: 4-axis Unit (NC4xx)

Parameter Numbers

Parameter No.	Name	Address in I	Number of			
	Name	X axis	Y axis	Z axis	U axis	words
1	I/O Setting	m+4 (0004)	m+32 (0020)	m+60 (003C)	m+88 (0058)	1 word
2	Operation Mode Setting	m+5 (0005)	m+33 (0021)	m+61 (003D)	m+89 (0059)	1 word

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error.
Normal end	Done	BOOL		Turns ON for a normal end.
Error flag	Error	BOOL		Turns ON for an error end.
Error code (May be omitted.)	ErrorID	WORD		Returns the error code when an error has occurred in the FB. Refer to the <i>Related Manuals</i> for details on errors. A code of #0000 will be returned when the unit number of axis number is out of range.

Version	Date	Contents
1.00	2004.6.	Original production

-600 Set Unit: _NCx600_Setting

Basic	Sets the Position Control Unit.							
function								
Symbol	Any bit	_NCx600_Setting (BOOL) (BOOL)						
	Unit No. –	ÈN ENÓ (INT) UnitNo						
	Valid data area —	(INT) ValidDataArea						
	Area type -	(WORD) DataArealD (NT)						
	Beginning word address -	(INT) DataAreaNo (INT)						
	Parameter specification -	AxisParam (INT)						
	X axis specification -	ÀxisX (INT)						
	Y axis specification -	ÁxisY (INT)						
	Z axis specification -	AxisZ (INT)						
	U axis specification – Model selection –	AxisU (INT) Select						
File name Applicable	\FBL\omronlib\PositionController\N(CS1W-NC113/133/213/233/413/433	Cx_NCx600_Setting10.cxf 3 and CJ1W-NC113/133/213/233/413/433						
models	Nana							
Conditions for usage	None							
Function description	Sets the Position Control Unit of the specified unit number.							
description	Operating Data Area 1. Using the DM Area (default)							
	2. Using a user-specified areaAxis Parameter Settings	2. Using a user-specified area						
	1. Operate using the parameter	1. Operate using the parameters saved in the flash memory in the Position Control Unit						
	2. Operating using the parameters in the DM Area words allocated to the Position Control Unit The operating data area designation is specified using the area type and beginning word address. For							
	example, for D1000, the area type is set to P_DM and the beginning word address is set to &1000.							
EN input condition	Any bit can be specified.							
Restrictions Other	•	s. Otherwise, incorrect operation may occur. that have been converted to file memory for the operating data area.						
Other		Control Unit is being used in the same PLC, do not allow the operating data area.						
Application	areas to overlap.	ating data area is set to start at D200 for the Position Control Unit with unit						
example	number 3. Operation is set to use D							
	A200.11	_NCx600_Setting						
	Unit No.	(BOOL) (BOOL) EN ENO						
	&3 Valid data area	(INT) UnitNo						
	&1 Area type	(INT) ValidDataArea (WORD)						
	P_DM Beginning word address	DataAreaID (WORD)						
	&200 Parameter specification	DataAreaNo (INT)						
	&1 X axis specification	AxisParam (INT)						
	&0 Y axis specification	AxisX (INT)						
	&0 Z axis specification	AxisY (INT)						
	&0 U axis specification &0	AxisZ (INT) AxisU						
	Model selection	(INT) Select						
Related	CS-series Position Control Unit Ope							
manuals	CJ-series Position Control Unit Ope 4-3 Common Parameter Area							

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Valid data area	ValidDataArea	INT	&0	&0 to &1	0: Default allocation (DM Area words) 1: User-specified area
Area type (Valid only when Valid data area is set to 1 (user-specified area).)	DataAreaID	WORD	&0	At right (Not checked for default area.)	Specify the desired area. "P_DM" (#0082): DM "P_EM0" (#0050) to "P_EMC" (#005C): EM Area bank 0 to C
Beginning word address (Valid only when Valid data area is set to 1 (user-specified area).)	DataAreaNo	INT	&0	Not checked.	Specify the first word of the user-specified area.
Parameter specification	AxisParam	INT	&0	&0 to &1	&0: Use parameters in flash memory &1: Use parameters in DM Area
X axis specification (Valid only when <i>Parameter</i> <i>specification</i> is set to 1 (Use parameters in flash memory)	AxisX	INT	&0	&0 to &1	&0: Use axis parameters in DM Area &1: Set axis parameters to default values.
Y axis specification (Same as above.)	AxisY	INT	&0	&0 to &1	Same as above.
Z axis specification (Same as above.)	AxisZ	INT	&0	&0 to &1	Same as above.
U axis specification (Same as above.)	AxisU	INT	&0	&0 to &1	Same as above.
Model selection	Select	INT	&4	&1, &2, &4	&1: 1-axis Unit (NC1xx) &2: 2-axis Unit (NC2xx) &4: 4-axis Unit (NC4xx)

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
				0 (OFF): FB not processed or ended in an error.

Version	Date	Contents				
1.00	2004.6.	Original production				

Inverter

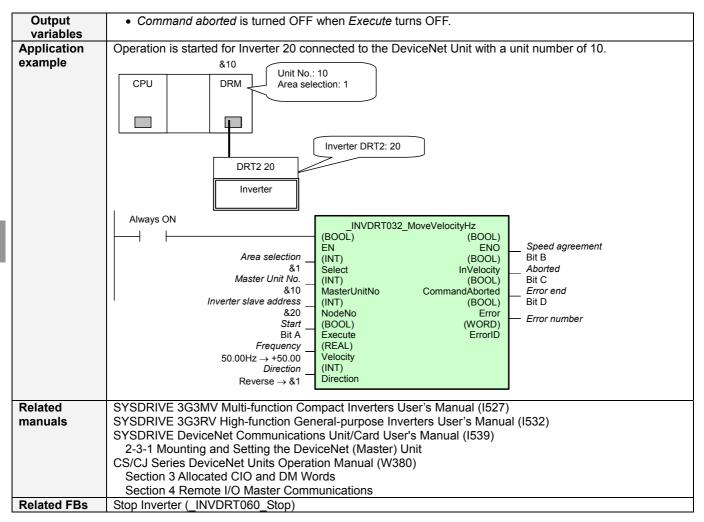
3-8 Inverter (DeviceNet)

3G3MV series / 3G3RV series

FB Name	Function	Page
_INVDRT032_MoveVelocityHz	Move Inverter Hz	3-271
_INVDRT033_MoveVelocityRPM	Move Inverter RPM	3-274
_INVDRT060_Stop	Stop Inverter	3-277
_INVDRT080_Reset	Reset Inverter Error	3-279
_INVDRT200_ReadStatus	Read Inverter Status	3-281
_INVDRT201_ReadParameter	Read Inverter Parameter	3-284
_INVDRT203_ReadAxisError	Read Inverter Error Information	3-286
_INVDRT401_WriteParameter	Write Inverter Parameter	3-288

INVDRT Move Inverter Hz: _INVDRT032_MoveVelocityHz -032 Basic Outputs a run signal, rotation direction, and speed to the Inverter function Symbol Always ON INVDRT032_MoveVelocityHz (BOOL) (BOOL) ÈΝ ENÓ (INT) (BOOL) Speed agreement Area selection Select InVelocity (INT) (BOOL) Aborted Master Unit No. MasterUnitNo CommandAborted (INT) (BOOL) Error end Inverter slave address NodeNo Frror (WORD) (BOOL) Error number ErrorID Start Execute (REAL) Frequency Velocity (INT) Direction Direction File name Lib\FBL\omronlib\Inverter\INVRT\Dnet\ INVDRT032 MoveVelocitvHz10.cxf Applicable 3G3MV-series and 3G3RV-series Inverters models Conditions Inverter Settings for usage The following are necessary for the Inverter connected to DeviceNet. • It must use standard remote I/O. (This is the default setting for the 3G3xV-PDRT2 DeviceNet Unit.) Fixed allocations must be used for I/O memory allocations. Run command selection (3G3MV: n003=3 / 3G3RV: b1-02=3) and Frequency reference selection (3G3MV: n004=9 / 3G3MV: b1-01=3) are set "From the optional DeviceNet Communications Unit" The Fixed Allocation Procedure Software switch 2 in the DeviceNet Unit is used to set fixed allocations. • Refer to section 3 of the DeviceNet Unit Operation Manual for details. Bits in n where n = 1500 + (Master Unit No. \times 25) Bit 08: Slave Fixed Allocation Area Setting 1 CIO 3300 to CIO 3363 (Inverter uses 2 words from unit No. word) IN1 (PLC←INV) Area OUT1 (PLC→INV) Area CIO 3200 to CIO 3263 (Inverter uses 2 words from unit No. word) Bit 09: Slave Fixed Allocation Area Setting 2 IN2 (PLC←INV) Area CIO 3500 to CIO 3563 (Inverter uses 2 words from unit No. word) OUT2 (PLC→INV) Area CIO 3400 to CIO 3463 (Inverter uses 2 words from unit No. word) Bit 10: Slave Fixed Allocation Area Setting 3 CIO 3700 to CIO 3763 (Inverter uses 2 words from unit No. word) IN3 (PLC←INV) Area CIO 3600 to CIO 3663 (Inverter uses 2 words from unit No. word) OUT3 (PLC→INV) Area Note 1: The settings for bits 08 to 10 are effective when they are turned ON and then OFF. (The Master Unit will automatically turn OFF these bits when it detects they have been turned ON.) Refer to section 2 in the SYSDRIVE DeviceNet Communications Unit/Card User's Manual for the complete procedure. Function Operation is started for the Inverter specified by the Master Unit No. and the Inverter Slave Address. description The speed is specified using a frequency (Hz). The run command is written to the command area when Execute turns ON. The speed and direction are written to the command area each cycle while Execute remains ON. If Execute is ON and the run command is OFF, it will be assumed that the Stop Inverter (INVDRT060 Stop) function block has been executed and Command aborted will turn ON FR The words allocated to the Inverter depend on the settings in the DeviceNet Unit. precautions Set the Area selection to the slave area set in the DeviceNet Unit, i.e., area 1, 2 or 3. • The default setting is for area 1. Inverocity or Error will be turned ON for one cycle only after processing is completed. Timechart Start (Execute) ON OFF Frequency Speed agreement (InVelocity) or ON Aborted (CommandAborted) or OFF Error end (Error) **EN** input Connect the EN input to the Always ON Flag (P_On). condition Restrictions · Always use the Always ON Flag for EN. Input If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. variables

Inverter



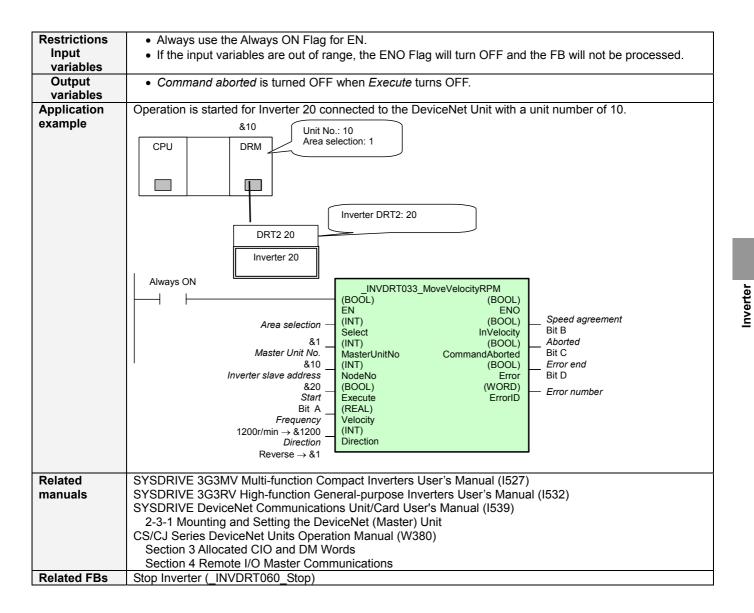
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Area selection	Select	INT	&1	&1 to &3	Specifies the DeviceNet I/O memory area. Specify the area set using the software switch in the DeviceNet Unit. &1: Fixed allocations, IN: CIO 3300, OUT: CIO 3200 &2: Fixed allocations, IN: CIO 3500, OUT: CIO 3400 &3: Fixed allocations, IN: CIO 3700, OUT: CIO 3600
Master Unit No.	MasterUnitNo	INT	0	&0 to &15 #0 to #F	The unit number of the DeviceNet Unit
Inverter slave address	NodeNo	INT	&0	&0 to &63	The address of the slave
Start	Execute	BOOL	0(OFF)		1 (ON): Operation started 0 (OFF): All of the following are turned OFF: InVelocity, CommandAborted, Error, and ErrorID.
Frequency	Velocity	REAL	0	+0.00 to +400.00	Specify the frequency in units of 0.01. Any digits below the setting unit are truncated.
Direction	Direction	INT	&0	&0 to &1	&0: Forward &1: Reverse

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Speed agreement	InVelocity	BOOL		1 (ON): Speed agreement
Aborted	CommandAborted	BOOL		1 (ON): Aborted
Error end	Error	BOOL		0 (OFF): Other status
				1 (ON): Error in FB
Error number	ErrorID	WORD		#0000: No error or communications error prevented
				getting the error number
				#0001 to #FFFF: Error number from Inverter
				Refer to the Related Manuals for details.

Version	Date	Contents			
1.00	2004.6.	Original production			

INVDRT -033	Move Inverter RPM: _INVDRT033_MoveVelocityRPM							
Basic function	Outputs a run signal, rotation direction, and speed to the Inverter							
Symbol	Always ON _INVDRT033_MoveVelocityRPM BOOL) (BOOL) Area selection (INT) Master Unit No. (INT) Inverter slave address (INT) Start (BOOL) Speed (INT) Operation (INT) Inverter slave address (INT) Start (BOOL) Speed (REAL) Velocity Error number Execute Error ID Direction Direction							
File name Applicable models	Lib\FBL\omronlib\Inverter\INVRT\Dnet_INVDRT033_MoveVelocityRPM10.cxf 3G3MV-series and 3G3RV-series Inverters							
Conditions for usage	 Inverter Settings Inverter Settings The following are necessary for the Inverter connected to DeviceNet. It must use standard remote I/O. (This is the default setting for the 3G3xV-PDRT2 DeviceNet Unit.) Fixed allocations must be used for I/O memory allocations. If the Configurator software is used to set any allocation different from the fixed allocation, this FB cannot find the specific inverter and FB does not work properly. Run command selection (3G3MV: n003=3 / 3G3RV: b1-02=3) and Frequency reference selection (3G3MV: n004=9 / 3G3MV: b1-01=3) are set "From the optional DeviceNet Communications Unit" 							
	 The Fixed Allocation Procedure Software switch 2 in the DeviceNet Unit is used to set fixed allocations. Refer to section 3 of the DeviceNet Unit Operation Manual for details. Bits in n where n = 1500 + (Master Unit No. × 25) Bit 08: Slave Fixed Allocation Area Setting 1 IN1 (PLC→INV) Area OUT1 (PLC→INV) Area IN2 (PLC→INV) Area CIO 3300 to CIO 3363 (Inverter uses 2 words from unit No. word) Bit 09: Slave Fixed Allocation Area Setting 2 IN2 (PLC→INV) Area OUT2 (PLC→INV) Area CIO 3500 to CIO 3563 (Inverter uses 2 words from unit No. word) Bit 10: Slave Fixed Allocation Area Setting 3 IN3 (PLC→INV) Area CIO 3500 to CIO 3763 (Inverter uses 2 words from unit No. word) Bit 10: Slave Fixed Allocation Area Setting 3 IN3 (PLC→INV) Area CIO 3700 to CIO 3763 (Inverter uses 2 words from unit No. word) OUT3 (PLC→INV) Area CIO 3600 to CIO 3763 (Inverter uses 2 words from unit No. word) OUT3 (PLC→INV) Area CIO 3600 to CIO 3663 (Inverter uses 2 words from unit No. word) OUT3 (PLC→INV) Area CIO 3600 to CIO 3763 (Inverter uses 2 words from unit No. word) OUT3 (PLC→INV) Area CIO 3600 to CIO 3663 (Inverter uses 2 words from unit No. word) OUT3 (PLC→INV) Area 							
	Note 1: The settings for bits 08 to 10 are effective when they are turned ON and then OFF. (The Master Unit will automatically turn OFF these bits when it detects they have been turned ON.) Refer to section 2 in the SYSDRIVE DeviceNet Communications Unit/Card User's Manual for the complete procedure.							
Function description	Operation is started for the Inverter specified by the Master Unit No. and the Inverter Slave Address. The speed is specified using revolutions per minute.							
	Set the Frequency Reference Setting and Monitor Units parameter (MV: n35, RV: o1-03) in the Inverter to control the references for revolutions per minute The default setting is Hz. The run command is written to the command area when <i>Execute</i> turns ON. The speed and direction are written to the command area each cycle while <i>Execute</i> remains ON. If <i>Execute</i> is ON and the run command is OFF, it will be assumed that the Stop Inverter (_INVDRT060_Stop) function block has been executed and <i>Command aborted</i> will turn ON.							
FB precautions	 The words allocated to the Inverter depend on the settings in the DeviceNet Unit. Set the <i>Area selection</i> to the slave area set in the DeviceNet Unit, i.e., area 1, 2 or 3. The default setting is for area 1. Inverocity or Error will be turned ON for one cycle only after processing is completed. Timechart 							
	Start (Execute) ON OFF							
	Frequency							
	Speed agreement (InVelocity) or ON Aborted (CommandAborted) or OFF Error end (Error)							
EN input condition	Connect the EN input to the Always ON Flag (P_On).							



■ Variable Tables

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Area selection	Select	INT	&1	&1 to &3	Specifies the DeviceNet I/O memory area.
					Specify the area set using the software switch in the DeviceNet Unit.
					&1: Fixed allocations, IN: CIO 3300, OUT: CIO 3200
					&2: Fixed allocations, IN: CIO 3500, OUT:
					CIO 3400
					&3: Fixed allocations, IN: CIO 3700, OUT: CIO 3600
Master Unit No.	MasterUnitNo	INT	0	&0 to 15 #0 to #F	The unit number of the DeviceNet Unit
Inverter slave address	NodeNo	INT	&0	&0 to &63	The address of the slave (n153, H5-01)
Start	Execute	BOOL	0 (OFF)		1 (ON): Operation started
					0 (OFF): All of the following are turned OFF:
					InVelocity, CommandAborted, Error, and
					ErrorID.
Speed	Velocity	REAL	0.0		Specify a REAL integer value.
					Any digits below 1 r/min are truncated.
Direction	Direction	INT	0	&0 to &1	0: Forward
					1: Reverse

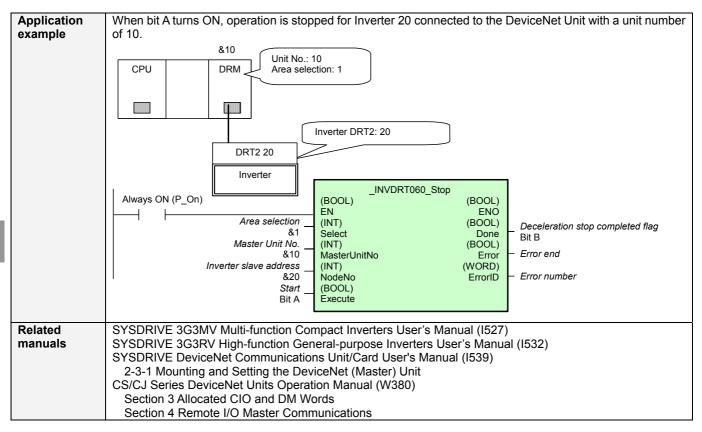
Output Variables

Name	Variable name	Data type	Range	Description	
ENO	ENO	BOOL		1 (ON): FB processed normally.	
(May be omitted.)				0 (OFF): FB not processed or ended in an error.	
Speed agreement	InVelocity	BOOL		1 (ON): Speed agreement	
Aborted	CommandAborted	BOOL		1 (ON): Aborted	
Error end	Error	BOOL		0 (OFF): Other status	
				1 (ON): Error in FB	
Error number	ErrorID	WORD		#0000: No error or communications error prevented	
				getting the error number	
				#0001 to #FFFF: Error number from Inverter	
				Refer to the Related Manuals for details.	

Version	Date	Contents
1.00	2004.6.	Original production

INVDRT Stop Inverter: _INVDRT060_Stop -060 Basic Stops the Inverter. function Symbol Always ON _INVDRT060_Stop (BOOL) (BOOL) ÈN ENÓ (INT) (BOOL) Area selection Deceleration stop completed flag Select Done (INT) (BOOL) Master Unit No. Error end MasterUnitNo Frror (INT) (WORD) Error number Inverter slave address NodeNo (May be omitted.) ErrorID (BOOL) Start Execute File name Lib\FBL\omronlib\Inverter\INVRT\Dnet\ INVDRT060 Stop10.cxf Applicable 3G3MV-series and 3G3RV-series Inverters models Conditions Inverter Settings for usage The following are necessary for the Inverter connected to DeviceNet. • It must use standard remote I/O. (This is the default setting for the 3G3xV-PDRT2 DeviceNet Unit.) Fixed allocations must be used for I/O memory allocations. If the Configurator software is used to set any allocation different from the fixed allocation, this FB cannot find the specific inverter and FB does not work properly. • Run command selection (3G3MV: n003=3 / 3G3RV: b1-02=3) and Frequency reference selection (3G3MV: n004=9 / 3G3MV: b1-01=3) are set "From the optional DeviceNet Communications Unit" The Fixed Allocation Procedure Software switch 2 in the DeviceNet Unit is used to set fixed allocations. Refer to section 3 of the DeviceNet Unit Operation Manual for details. Bits in n where $n = 1500 + (Master Unit No. \times 25)$ Bit 08: Slave Fixed Allocation Area Setting 1 IN1 (PLC←INV) Area CIO 3300 to CIO 3363 (Inverter uses 2 words from unit No. word) OUT1 (PLC→INV) Area CIO 3200 to CIO 3263 (Inverter uses 2 words from unit No. word) Bit 09: Slave Fixed Allocation Area Setting 2 IN2 (PLC←INV) Area CIO 3500 to CIO 3563 (Inverter uses 2 words from unit No. word) OUT2 (PLC→INV) Area CIO 3400 to CIO 3463 (Inverter uses 2 words from unit No. word) Bit 10: Slave Fixed Allocation Area Setting 3 CIO 3700 to CIO 3763 (Inverter uses 2 words from unit No. word) IN3 (PLC←INV) Area OUT3 (PLC→INV) Area CIO 3600 to CIO 3663 (Inverter uses 2 words from unit No. word) Note 1: The settings for bits 08 to 10 are effective when they are turned ON and then OFF. (The Master Unit will automatically turn OFF these bits when it detects they have been turned ON.) Refer to section 2 in the SYSDRIVE DeviceNet Communications Unit/Card User's Manual for the complete procedure Function The Inverter specified by the Master Unit No. and the Inverter Slave Address is stopped. description Deceleration stop completed is turned OFF when Execute turns OFF. The run command is reset (turned OFF) each cycle while Execute remains ON. Deceleration stop completed is turned ON when Execute turns OFF, Forward Run is OFF, and Reverse Run is OFF. FB The words allocated to the Inverter depend on the settings in the DeviceNet Unit. precautions Set the Area selection to the slave area set in the DeviceNet Unit, i.e., area 1, 2 or 3. The default setting is for area 1. • Done or Error will be turned ON for one cycle only after processing is completed. Timechart Start (Execute) ON OFF Normal end (Done) ON OFF or Error end (Error) ↑ Deceleration stop completed **EN** input Connect the EN input to the Always ON Flag (P_On). condition Restrictions · Always use the Always ON Flag for EN. Input If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. variables

Inverter



Variable Tables

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Area selection	Select	INT	&1	&1 to &3	Specifies the DeviceNet I/O memory area. Specify the area set using the software switch in the DeviceNet Unit. &1: Fixed allocations, IN: CIO 3300, OUT: CIO 3200 &2: Fixed allocations, IN: CIO 3500, OUT: CIO 3400 &3: Fixed allocations, IN: CIO 3700, OUT: CIO 3600
Master Unit No.	MasterUnitNo	INT	0	&0 to &15 #0 to #F	The unit number of the DeviceNet Unit
Inverter slave address	NodeNo	INT	&0	&0 to &63	The address of the slave
Start	Execute	BOOL	0(OFF)		1 (ON): Aborts Inverter operation.

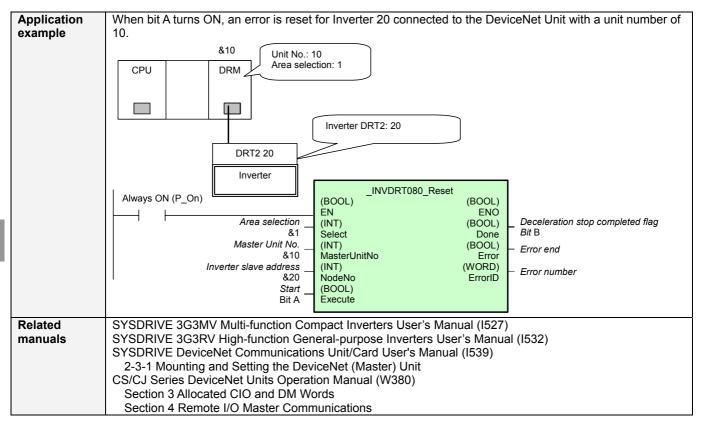
Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		0 (OFF): Status invalid
(May be omitted.)				1 (ON): Status valid
Deceleration stop	Done	BOOL		0 (OFF): Other status
completed flag				1 (ON): Deceleration stop completed flag
Error flag	Error	BOOL		0 (OFF): Other status
				1 (ON): Error in FB
Error number	ErrorID	WORD		#0000: No error or communications error prevented
				getting the error number
				#0001 to #FFFF: Error number from Inverter
				Refer to the Related Manuals for details.

Version	Date	Contents
1.00	2004.6.	Original production

Inverter

INVDRT -080	Reset Inverter Error: _ INVDRT080_Reset
Basic function	An error is reset for the Inverter.
Symbol	Always ON INVDRT080_Reset Always ON (BOCL) (BOOL) Area selection (INT) (BOOL) Master Unit No. (INT) (BOOL) Inverter slave address (INT) (WORD) Start (BOOL) Error rumber
File name Applicable models	Lib\FBL\omronlib\Inverter\INVRT\Dnet_INVDRT080_Reset10.cxf 3G3MV-series and 3G3RV-series Inverters
Conditions for usage	Inverter Settings The following are necessary for the Inverter connected to DeviceNet. • It must use standard remote I/O. (This is the default setting for the 3G3xV-PDRT2 DeviceNet Unit.) • Fixed allocations must be used for I/O memory allocations. If the Configurator software is used to set any allocation different from the fixed allocation, this FB cannot find the specific inverter and FB does not work properly. The Fixed Allocation Procedure DeviceNet Master node address should set to 63 as same as factory setting. Software switch 2 (nCH) in the DeviceNet Unit is used to set fixed allocations. Refer to section 3 of the DeviceNet Unit Operation Manual for details. Bits in n where n = 1500 + (Master Unit No. × 25) Bit 08: Slave Fixed Allocation Area Setting 1 IN1 (PLC→INV) Area CIO 3300 to CIO 3363 (Inverter uses 2 words from unit No. word) OUT1 (PLC→INV) Area CIO 3400 to CIO 3463 (Inverter uses 2 words from unit No. word) Bit 09: Slave Fixed Allocation Area Setting 2 IN3 (PLC←INV) Area IN3 (PLC←INV) Area CIO 3400 to CIO 3463 (Inverter uses 2 words from unit No. word) OUT3 (PLC→INV) Area CIO 3400 to CIO 3463 (Inverter uses 2 words from unit No. word) OUT3 (PLC→INV) Area CIO 3400 to CIO 3463 (Inverter uses 2 words from unit No. word) OUT3 (PLC→INV) Area CIO 3400 to CIO 3463 (Inverter uses 2 words from unit No.
Function description	An error in the Inverter specified by the Master Unit No. and the Inverter Slave Address is reset. <i>Error reset completed</i> is turned OFF when <i>Execute</i> turns OFF. The error reset command is turned ON each cycle while <i>Execute</i> remains ON. <i>Error reset completed</i> is turned ON when <i>Execute</i> is ON and the error status is OFF.
FB precautions	 The words allocated to the Inverter depend on the settings in the DeviceNet Unit. Set the Area selection to the slave area set in the DeviceNet Unit, i.e., area 1, 2 or 3. The default setting is for area 1. Done or Error will be turned ON for one cycle only after processing is completed.
EN input condition	Connect the EN input to the Always ON Flag (P_On).
Restrictions Input variables	 Always use the Always ON Flag for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.



Variable Tables

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Area selection	Select	INT	&1	&1 to &3	Specifies the DeviceNet I/O memory area. Specify the area set using the software switch in the DeviceNet Unit. &1: Fixed allocations, IN: CIO 3300, OUT: CIO 3200 &2: Fixed allocations, IN: CIO 3500, OUT: CIO 3400 &3: Fixed allocations, IN: CIO 3700, OUT: CIO 3600
Master Unit No.	MasterUnitNo	INT	0	&0 to &15 #0 to #F	The unit number of the DeviceNet Unit
Inverter slave address	NodeNo	INT	&0	&0 to &63	The address of the slave
Start	Execute	BOOL	0 (OFF)		1 (ON): Resets an error in the Inverter.

Output Variables

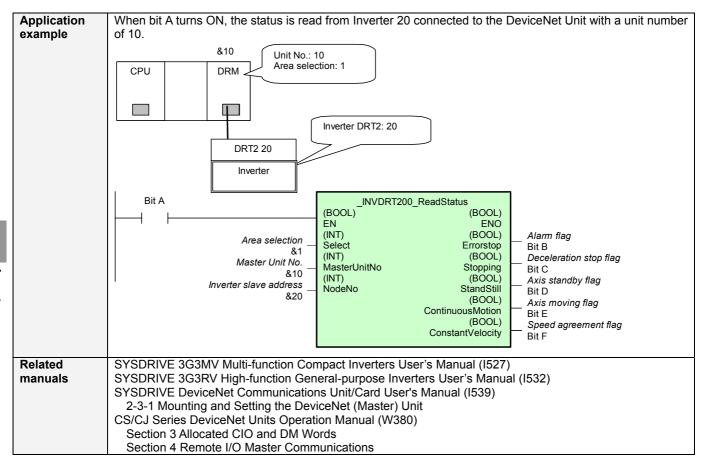
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		0 (OFF): Status invalid
(May be omitted.)				1 (ON): Status valid
Error reset	Done	BOOL		0 (OFF): Other status
completed				1 (ON): Error reset completed.
Error flag	Error	BOOL		0 (OFF): Other status
				1 (ON): Error in FB
Error number	ErrorID	WORD		#0000: No error or communications error prevented
				getting the error number
				#0001 to #FFFF: Error number from Inverter
				Refer to the Related Manuals for details.

Version	Date	Contents
1.00	2004.6.	Original production

-200 Basic Reads status information from the Inverter. function Symbol Start trigger INVDRT200_ReadStatus (BOOL) (BOOL) ENÓ EN (INT) (BOOL) Area selection Alarm flag Select Errorstop (INT) (BOOL) Master Unit No. Deceleration stop flag MasterUnitNo Stopping (BOOL) (INT) Inverter slave address Axis standby flag NodeNo StandStill (BOOL) ContinuousMotion Axis moving flag (BOOL) ConstantVelocity Speed agreement flag Lib\FBL\omronlib\Inverter\INVRT\Dnet\ INVDRT200 ReadStatus10.cxf File name Applicable 3G3MV-series and 3G3RV-series Inverters models Conditions Inverter Settings for usage The following are necessary for the Inverter connected to DeviceNet. • It must use standard remote I/O. (This is the default setting for the 3G3xV-PDRT2 DeviceNet Unit.) • Fixed allocations must be used for I/O memory allocations. If the Configurator software is used to set any allocation different from the fixed allocation, this FB cannot find the specific inverter and FB does not work properly. The Fixed Allocation Procedure Software switch 2 in the DeviceNet Unit is used to set fixed allocations. Refer to section 3 of the DeviceNet Unit Operation Manual for details. Bits in n where n = 1500 + (Master Unit No. \times 25) Bit 08: Slave Fixed Allocation Area Setting 1 IN1 (PLC←INV) Area CIO 3300 to CIO 3363 (Inverter uses 2 words from unit No. word) IN1 (PLC←INV) Area OUT1 (PLC→INV) Area CIO 3200 to CIO 3263 (Inverter uses 2 words from unit No. word) Bit 09: Slave Fixed Allocation Area Setting 2 IN2 (PLC←INV) Area CIO 3500 to CIO 3563 (Inverter uses 2 words from unit No. word) OUT2 (PLC→INV) Area CIO 3400 to CIO 3463 (Inverter uses 2 words from unit No. word) Bit 10: Slave Fixed Allocation Area Setting 3 IN3 (PLC←INV) Area CIO 3700 to CIO 3763 (Inverter uses 2 words from unit No. word) OUT3 (PLC→INV) Area CIO 3600 to CIO 3663 (Inverter uses 2 words from unit No. word) Note 1: The settings for bits 08 to 10 are effective when they are turned ON and then OFF. (The Master Unit will automatically turn OFF these bits when it detects they have been turned ON.) Refer to section 2 in the SYSDRIVE DeviceNet Communications Unit/Card User's Manual for the complete procedure Function The status is read from the Inverter specified by the Master Unit No. and the Inverter Slave Address. description FB • The words allocated to the Inverter depend on the settings in the DeviceNet Unit. precautions Set the Area selection to the slave area set in the DeviceNet Unit, i.e., area 1, 2 or 3. The default setting is for area 1. **EN** input Any bit can be specified. condition Restrictions • If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. Input variables

Read Inverter Status: INVDRT200 ReadStatus

INVDRT



■ Variable Tables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Area selection	Select	INT	&1	&1 to &3	Specifies the DeviceNet I/O memory area. Specify the area set using the software switch in the DeviceNet Unit. &1: Fixed allocations, IN: CIO 3300, OUT: CIO 3200 &2: Fixed allocations, IN: CIO 3500, OUT: CIO 3400 &3: Fixed allocations, IN: CIO 3700, OUT: CIO 3600
Master Unit No.	MasterUnitNo	INT	0	&0 to &15 #0 to #F	The unit number of the DeviceNet Unit
Inverter slave address	NodeNo	INT	&0	&0 to &63	The address of the slave

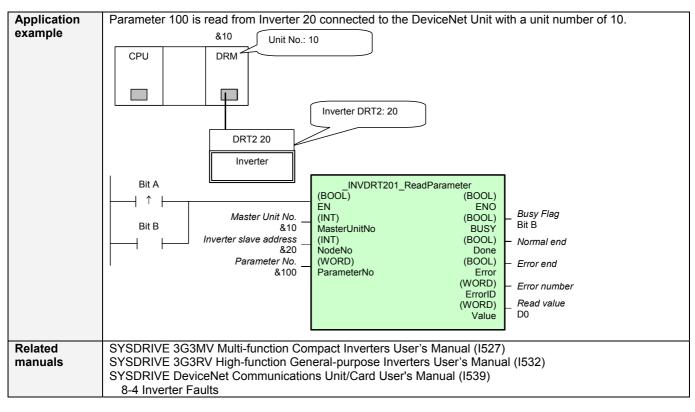
Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		0 (OFF): Status invalid
(May be omitted.)				1 (ON): Status valid
Alarm flag	ErrorStop	BOOL		0 (OFF): Driver normal
				1 (ON): An alarm has occurred.
Deceleration stop flag	Stopping	BOOL		0 (OFF): Other status
				1 (ON): Operating with forward and reverse
				commands of 0.
Axis standby flag	StandStill	BOOL		0 (OFF): Stopping with forward and reverse
				commands of 0.
				1 (ON): Alarm with forward and reverse commands of
				0.
Axis moving flag	ContinuousMotic	BOOL		0 (OFF): Other status
				1 (ON): Inverter is moving for a forward or reverse
				command.
Speed agreement flag	ConstantVelocity	BOOL		0 (OFF): Inverter frequency disagreement
				1 (ON): Inverter frequency agreement

Version History		
Version	Date	Contents
1.00	2004.6.	Original production

Inverter

INVDRT -201	Read Inverter Parameter: _INVDRT201_ReadParameter
Basic function	Reads the setting of a parameter in an Inverter connected to DeviceNet.
Symbol	Start trigger INVDRT201_ReadParameter
File name	Lib\FBL\omronlib\Inverter\INVRT\Dnet_INVDRT201_ReadParameter10.cxf 3G3MV-series and 3G3RV-series Inverters
Applicable models	SUSIVIV-SELIES ALLA SUST V-SELIES ILIVELLEIS
Conditions for usage	 Settings PLC Setup: Shared Settings for Communications Instructions in FBs DeviceNet Response Timeout Time (default: 2 s) Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Inverter Settings The following are necessary for the Inverter connected to DeviceNet. It must use standard remote I/O. (This is the default setting for the 3G3xV-PDRT2 DeviceNet Unit.) Use Fixed allocation for I/O memory allocation. This FB does not use I/O memory for read but is designed to be used under Fixed allocation. If the Configurator software is used to set any allocation different from the fixed allocation, some FB cannot be used. Refer to section 2 in the SYSDRIVE DeviceNet Communications Unit/Card User's Manual for the complete procedure.
Function description	The value is read from the Inverter specified by the Master Unit No. and the Inverter Slave Address. Refer to the manual for the Inverter for parameter register numbers and settings.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. Done or Error will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF OFF OFF OFF
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



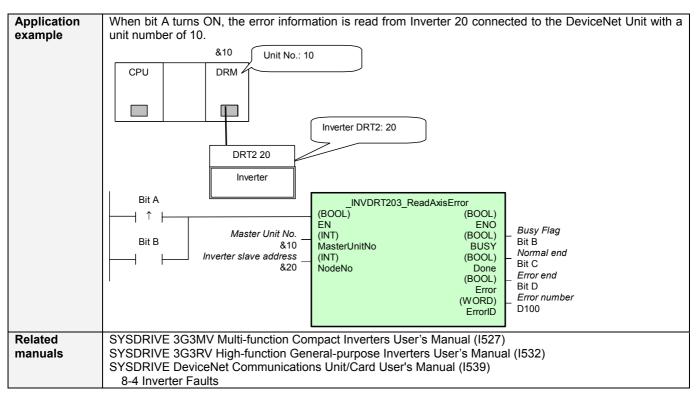
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	0	&0 to &15 #0 to #F	The unit number of the DeviceNet Unit
Inverter slave address	NodeNo	INT	&0	&0 to &63	The address of the slave
Parameter No.	ParameterNo	WORD	&0		The register number in the Inverter

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		0 (OFF): Communication completed (turns OFF for 1
				cycle)
				1 (ON): Communicating
Normal end	Done	BOOL		0 (OFF): Other status
				1 (ON): Communications completed with no error
Error end	Error	BOOL		0 (OFF): Other status
				1 (ON): An error occurred in the Inverter.
Error number	ErrorID	WORD		#0000: No error or communications error prevented
				getting the error number
				#0001 to #FFFF: Error number from Inverter
				Refer to the Related Manuals for details.
Read value	Value	WORD		Read value

Version	Date	Contents
1.00	2004.6.	Original production

INVDRT -203	Read Inverter Error Information: _INVDRT203_ReadAxisError
Basic	Reads the error information from an Inverter connected to DeviceNet.
function	
Symbol	Start trigger
File name	Lib\FBL\omronlib\Inverter\INVRT\Dnet_INVDRT203_ReadAxisError10.cxf
Applicable models	3G3MV-series and 3G3RV-series Inverters
Conditions	Settings
for usage	 Settings PLC Setup: Shared Settings for Communications Instructions in FBs DeviceNet Response Timeout Time (default: 2 s) Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Inverter Settings The following are necessary for the Inverter connected to DeviceNet. It must use standard remote I/O. (This is the default setting for the 3G3xV-PDRT2 DeviceNet Unit.) Use Fixed allocation for I/O memory allocation. This FB does not use I/O memory for read but is designed to be used under Fixed allocation. If the Configurator software is used to set any allocation different from the fixed allocation, some FB cannot be used. Refer to section 2 in the SYSDRIVE DeviceNet Communications Unit/Card User's Manual for the complete procedure.
Function	The error information is read from the Inverter specified by the Master Unit No. and the Inverter Slave
description FB	Address.
гв precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. Done or Error will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF OFF OFF
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output
condition	from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



■ Variable Tables

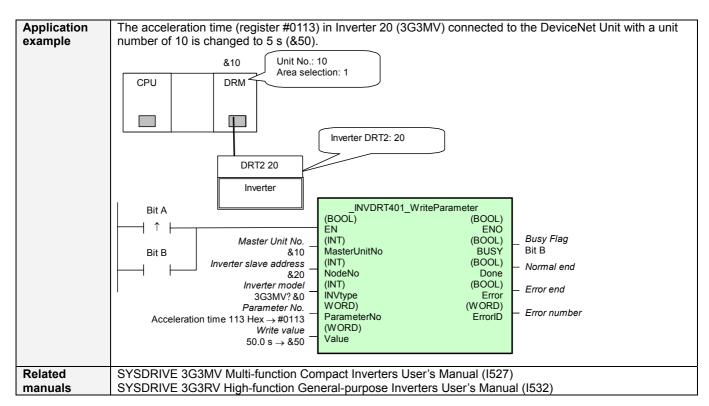
input variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	0	&0 to &15	The unit number of the DeviceNet Unit
				#0 to #F	
Inverter slave	NodeNo	INT	&0	&0 to &63	The address of the slave
address					

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		0 (OFF): Communication completed (turns OFF for 1
				cycle)
				1 (ON): Communicating
Normal end	Done	BOOL		0 (OFF): Other status
				1 (ON): Communications completed with no error
Error end	Error	BOOL		0 (OFF): Other status
				1 (ON): An error occurred in the Inverter.
Error number	ErrorID	WORD		#0000: No error or communications error prevented
				getting the error number
				#0001 to #FFFF: Error number from Inverter
				Refer to the Related Manuals for details.

Version	Date	Contents
1.00	2004.6.	Original production

INVDRT -401	Write Inverter Parameter: _INVDRT401_WriteParameter
Basic function	Writes the setting of a parameter in an Inverter connected to DeviceNet.
Symbol	Start trigger INVDRT401_WriteParameter Image: Provide the start of the star
File name Applicable	Lib\FBL\omronlib\Inverter\INVRT\Dnet_INVDRT401_WriteParameter10.cxf 3G3MV-series and 3G3RV-series Inverters
models Conditions	Settings
for usage	 PLC Setup: Shared Settings for Communications Instructions in FBs DeviceNet Response Timeout Time (default: 2 s) Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Inverter Settings The followings are necessary for the Inverter connected to DeviceNet. It must use standard remote I/O. (This is the default setting for the 3G3xV-PDRT2 DeviceNet Unit.) Use Fixed allocation for I/O memory allocation. This FB does not use I/O memory for read but is designed to be used under Fixed allocation. If the Configurator software is used to set any allocation different from the fixed allocation, some FB cannot be used. EEPROM Write This FB will write data into RAM. Turning the power off would return the parameter to the previous value. Please write into the ENTER command when those value are needed to be saved after turn off the power. Please refer to Chapter 7-4 Entar instruction in SYSDRIVE 3G3MV user's manual for address to write in. Refer to section 2 in the SYSDRIVE DeviceNet Communications Unit/Card User's Manual for the complete procedure.
Function description	The value of the specified parameter is written to the Inverter specified by the Master Unit No. and the Inverter Slave Address. Refer to the manual for the Inverter for parameter register numbers and settings. (For Inverters other than the 3G3MV-series Inverters, the Enter command (FFDD) will be sent immediately after the parameter to automatically enable the new parameter setting.)
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the
precautions	FB is being processed.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



■ Variable Tables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	0	&0 to &15 #0 to #F	The unit number of the DeviceNet Unit
Inverter slave address	NodeNo	INT	&0	&0 to &63	The address of the slave
Inverter model	INVtype	INT	&0	&0 to &1	&0: 3G3MV &1: 3G3RV
Parameter No.	ParameterNo	WORD	&0		The register number in the Inverter
Write value	Value	WORD	&0		Write value

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		0 (OFF): Communication completed (turns OFF for 1
				cycle)
				1 (ON): Communicating
Normal end	Done	BOOL		0 (OFF): Other status
				1 (ON): Communications completed with no error
Error end	Error	BOOL		0 (OFF): Other status
				1 (ON): An error occurred in the Inverter.
Error number	ErrorID	WORD	0 to FFFF	#0000: No error or communications error prevented
				getting the error number
				#0001 to #FFFF: Error number from Inverter
				Refer to the Related Manuals for details.

Version	Date	Contents
1.00	2004.6.	Original production

Servo Driver
3-9 Servo Driver

OMNUC W series / SmartStep A series

FB Name	Function	Page
_SRV080_Reset	Reset Servo Error	3-291
_SRV201_ReadParameter	Read Servo Parameter	3-294
_SRV203_ReadAxisError	Read Servo Error	3-296
_SRV206_ReadValue	Read Servomotor Value	3-299
_SRV401_WriteParameter	Write Servo Parameter	3-302

SRV -080	Reset Servo Error: _SRV080_Reset
Desis	
Basic function	Resets an error in the Servo Driver.
Symbol	
	Start triggerSRV080_Reset (BOOL) (BOOL)
	ÈN ÈN ENÓ
	Busy Flag Unit selection (INT) (BOOL) Busy Flag
	(INT) (BOOL) Normal end
	Serial Port No. – PortNo Done (INT) (BOOL) – Error end
	Servo unit No. – Axis Error (WORD) Error code
	ErrorID (May be omitted.)
File name	Lib\FBL\omronlib\ServoDriver\SRV\ SRV080 Reset10.cxf
Applicable	OMNUC W Series or SmartStep A Series Servo Driver
models	
Conditions for usage	 External Connections When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set
lor dougo	the serial port to the same communications specifications as the Servo Driver.
	1. Serial Gateway mode, or Protocol macro mode must be set.
	2. Baud rate = 9,600 bits/s, Data = 7-bit, Start bits = 1, Stop bits = 1, Parity = even
	Electrically, an RS-422 connection is possible. Refer to the <i>Related Manuals</i> for information on connection cables and other information.)
	Communications must be within one network and cannot cross to another network.
	CPU Unit Settings
	PLC Setup: Shared Settings for Communications Instructions in FBs
	 Communications Instruction Response Timeout Time (default: 2 s) Number of retries (default: 0)
	Shared Resources
	Communications ports (internal logical ports)
Function	An error is reset for the Servo Driver specified by the Unit Selection and Serial Port No.
description	This FB is executed over multiple cycles. Normal end (Done) will turn ON when processing has been completed. If EN is still ON after Normal end (Done) turns ON, an error will be cleared again.
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the
precautions	FB is being processed.Done or Error will be turned ON for one cycle only after processing is completed. Use these flags to
	detect the end of FB processing.
	Timechart
	Start Trigger ON OFF
	Busy Flag (BUSY) ON
	OFF
	Normal end (Done) ON or Error end (Error) OFF
	▲ FB execution completed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output
condition	from the FB.
Restrictions	 Always use an upwardly differentiated condition for EN.
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output	This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).
	Do not turn the BUSY output variable ON or OFF outside the FB.
Related	Serial Communications Boards/Units Operation Manual (W336)
manuals	SMARTSTEP A Series Servomotors/Servo Drivers User's Manual (I533) OMNUC W Series AC Servomotors/Servo Drivers User's Manual (I531)

Variable Tables

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connected Unit and serial port.
Serial Port No.	PortNo	INT	&1	&1 to &2	 Connected to CPU Unit Connection not possible to CPU Unit. Connected to SCB Unit selection #BBBB (UnitSelect) Serial Port No. &1: Port 1 (PortNo) &2: Port 2 Connected to SCU Unit selection Unit No. (&0 to &15) (UnitSelect) Serial Port No. &1: Port 1 (PortNo) &2: Port 2
Servo unit No.	Axis	INT		&0 to &15	The communications unit number of the Servo Driver. (W Series: Pn000.2) (SmartStep: Front-panel rotary switch)

Output Variables

Output Variables				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Deceleration stop completed flag	Done	BOOL		0 (OFF): Other end status 1 (ON): Deceleration stop completed flag
Error end	Error	BOOL		0 (OFF): Other end status 1 (ON): An error occurred in the Servo Driver.
Error code	ErrorID	WORD		The error that occurred in the Servo Driver. See details below.

■ Error Codes W S<u>eries</u>

Series			
Read	W Series	Read	Alarm
value		value	
#0000	Other end status	#0083	Battery error (ABS)
#0002	Parameter corruption	#0084	Absolute error (ABS)
#0003	Main circuit detection error	#0085	Overspeed error (ABS)
#0004	Parameter setting error	#0086	Encoder overheating (ABS)
#0005	Motor mismatch	#00B1	Speed command input reading error
#0010	Overcurrent	#00B2	Torque command input reading error
#0030	Regeneration error	#00BF	System error
#0032	Regenerative overload	#00C1	Runaway detected
#0040	Overvoltage	#00C8	Multi-turn data error (ABS)
#0041	Undervoltage	#00C9	Encoder communications error
#0051	Overspeed	#00CA	Encoder parameter error
#0071	Overload	#00CB	Encoder data error
#0072	Overload	#00CC	Multi-turn limit discrepency
#0073	Dynamic brake overload	#00D0	Deviation counter overflow
#0074	Inrush resistance overload	#00F1	Missing phase detected
#007A	Overheat	#0091	Overload alarm
#0081	Backup error (ABS)	#0092	Regenerative overload alarm
#0082	Checksum error (ABS)		-

SmartStep A Series

Read value	SmartStep A Series	Read value	Alarm
	Other and status		Invictor and a second
#0000	Other end status	#0074	Inrush resistance overload
#0004	Parameter setting error	#007A	Overheat
#0010	Overcurrent	#00BF	System error
#0030	Regeneration error	#00C1	Runaway detected
#0032	Regenerative overload	#00C2	Phase error detected
#0040	Overvoltage/Undervoltage	#00C3	Encoder disconnection detected
#0051	Overspeed	#00D0	Deviation counter overflow
#0070	Overload	#0091	Overload alarm
#0073	Dynamic brake overload	#0092	Regenerative overload alarm

Version History		
Version	Date	Contents
1.00	2004.6.	Original production

SRV	
-201	Read Servo Parameter: _SRV201_ReadParameter
Basic function	Reads parameter information from the Servo Driver.
Symbol	
-	Start trigger SRV201_ReadParameter ↓ ↑ (BOOL)
	ÈN ENÓ
	Busy Flag UnitSelect BUSY - Busy Flag
	Serial Port No. – (INT) (BOOL) PortNo Done – Normal end
	Servo unit No. – (INT) (BOOL) Axis Error – Error end
	Parameter No (WORD) (WORD)
	ParameterNo ErrorID – Error code (May be omitted) (WORD)
	Value – Read value
File name	Lib\FBL\omronlib\ServoDriver\SRV_SRV201_ReadParameter10.cxf
Applicable	OMNUC W Series or SmartStep A Series Servo Driver
models Conditions	External Connections
for usage	• When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set
	the serial port to the same communications specifications as the Servo Driver.
	1. Serial Gateway mode, or Protocol macro mode must be set. 2. Baud rate = 9,600 bits/s, Data = 7-bit, Start bits = 1, Stop bits = 1, Parity = even
	Electrically, an RS-422 connection is possible. (Refer to the Related Manuals for information on
	connection cables and other information.)
	 Communications must be within one network and cannot cross to another network. CPU Unit Settings
	PLC Setup: Shared Settings for Communications Instructions in FBs
	Communications Instruction Response Timeout Time (default: 2 s)
	Number of retries (default: 0) Shared Resources
	Communications ports (internal logical ports)
Basic	The specified parameter is read from the Servo Driver specified by the Unit Selection and Serial Port No.
function	This FB is executed over multiple cycles. <i>Normal end</i> will turn ON when processing has been completed. If EN is still ON after <i>Normal end</i> turns ON, the output value will be cleared and the parameter will be read
	again.
FB	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the ED is being processed
precautions	FB is being processed.<i>Done</i> or <i>Error</i> will be turned ON for one cycle only after processing is completed. Use these flags to
	detect the end of FB processing.
	Timechart Start Trigger ON
	OFF
	Busy Flag (BUSY) ON OFF
	Normal end (Done) ON
	or Error end (Error) OFF
	↑ FB execution completed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output
condition Restrictions	from the FB.Always use an upwardly differentiated condition for EN.
Input	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
variables	
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see Symbol).
	 Do not turn the BUSY output variable ON or OFF outside the FB.
Related	Serial Communications Boards/Units Operation Manual (W336)
manuals	SMARTSTEP A Series Servomotors/Servo Drivers User's Manual (I533) 4-4-2 Parameters
	OMNUC W Series AC Servomotors/Servo Drivers User's Manual (I531)
	6-4 Parameter Setting Tables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connected Unit and serial port.
Serial Port No.	PortNo	INT	&1	&1 to &2	■Connected to CPU Unit Connection not possible to CPU Unit. ■Connected to SCB Unit selection #BBBB (UnitSelect) Serial Port No. &1: Port 1 (PortNo) &2: Port 2 ■Connected to SCU Unit selection Unit No. (&0 to &15) (UnitSelect) Serial Port No. &1: Port 1 (PortNo) &2: Port 2
Axis No.	Axis	INT	&0	&0 to &15	The communications unit number of the Servo Driver. (W Series: Pn000.2) (SmartStep: Front-panel rotary switch)
Parameter No.	ParameterNo	WORD	&0	#0 to #FFF	Specifies the parameter to read as a hexadecimal number #0XXX where XXX is the numeric portion of the parameter number PnXXX. Refer to the <i>Related Manuals</i> for details on parameter numbers.

Output Variables				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	Done	BOOL		0 (OFF): Other end status
				1 (ON): Communications completed with no error
Error end	Error	BOOL		 0 (OFF): Other end status 1 (ON): One of the following error occurred. CMND instruction could not be executed (other message being processed). An input variable is out of range. The corresponding parameter number is not supported.
Error code	ErrorID	WORD		#0000: Normal end
Read value	Value	WORD		The value returned from the Servo Driver.

Version	Date	Contents
1.00	2004.6.	Original production

SRV -203	Read Servo Error: _SRV203_ReadAxisError
200	
Basic function	Reads Servo Driver error information.
Symbol	Start trigger SRV203_ReadAxisError Image: A start trigger Image: A start trigger Busy Flag Unit selection Image: A start trigger Serial Port No. Serial Port No. Serial Port No. Servo unit No. Servo unit No. Servo unit No. Servo unit No.
File name	Lib\FBL\omronlib\ServoDriver\SRV_SRV203_ReadAxisError10.cxf
Applicable models	OMNUC W Series or SmartStep A Series Servo Driver
Conditions for usage	 External Connections When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Servo Driver. Serial Gateway mode, or Protocol macro mode must be set. Baud rate = 9,600 bits/s, Data = 7-bit, Start bits = 1, Stop bits = 1, Parity = even Electrically, an RS-422 connection is possible. (Refer to the <i>Related Manuals</i> for information on connection cables and other information.) Communications must be within one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) Number of retries (default: 0)
Function	Communications ports (internal logical ports) The error code is read from the Servo Driver specified by the <i>Unit Selection</i> and <i>Serial Port No</i> .
description	This FB is executed over multiple cycles. <i>Normal end</i> will turn ON when processing has been completed. If EN is still ON after <i>Normal end</i> turns ON, the output value will be cleared and the parameter will be read again.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. Done or Error will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (Done) OFF OFF
EN input	FB execution completed.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.
Related manuals	Serial Communications Boards/Units Operation Manual (W336) SMARTSTEP A Series Servomotors/Servo Drivers User's Manual (I533) OMNUC W Series AC Servomotors/Servo Drivers User's Manual (I531)

Name	Variable name	Data type	Default	Range	Description	
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.	
Unit selection Serial Port No.	UnitSelect PortNo	INT INT	&0 &1	At right. &1 to &2	Specify the connected Unit and serial port. Connected to CPU Unit	
					Connection not possible to CPU Unit. ■Connected to SCB Unit selection #BBBB (UnitSelect) Serial Port No. &1: Port 1 (PortNo) &2: Port 2 ■Connected to SCU Unit selection Unit No. (&0 to &15) (UnitSelect) Serial Port No. &1: Port 1 (PortNo) &2: Port 2	
Axis No.	Axis	INT	&0	&0 to &15	The communications unit number of the Servo Driver. (W Series: Pn000.2) (SmartStep: Front-panel rotary switch)	

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	Done	BOOL		0 (OFF): Other end status 1 (ON): Processing completed with no error
Error end	Error	BOOL		0 (OFF): Other end status 1 (ON): An error occurred in the Servo Driver.
Error code	ErrorID	WORD		The error that occurred in the Servo Driver. See details below.

■ Error Codes W S<u>eries</u>

W Series	Read	Alarm
	value	
Other end status	#0083	Battery error (ABS)
Parameter corruption	#0084	Absolute error (ABS)
Main circuit detection error	#0085	Overspeed error (ABS)
Parameter setting error	#0086	Encoder overheating (ABS)
Motor mismatch	#00B1	Speed command input reading error
Overcurrent	#00B2	Torque command input reading error
Regeneration error	#00BF	System error
Regenerative overload	#00C1	Runaway detected
Overvoltage	#00C8	Multi-turn data error (ABS)
Undervoltage	#00C9	Encoder communications error
Overspeed	#00CA	Encoder parameter error
Overload	#00CB	Encoder data error
Overload	#00CC	Multi-turn limit discrepency
Dynamic brake overload	#00D0	Deviation counter overflow
Inrush resistance overload	#00F1	Missing phase detected
Overheat	#0091	Overload alarm
Backup error (ABS)	#0092	Regenerative overload alarm
Checksum error (ABS)		-
	Other end status Parameter corruption Main circuit detection error Parameter setting error Motor mismatch Overcurrent Regeneration error Regenerative overload Overvoltage Undervoltage Overload Overload Overload Overload Overload Overload Overload Overload Dynamic brake overload Overheat Backup error (ABS)	ValueOther end status#0083Parameter corruption#0084Main circuit detection error#0085Parameter setting error#0086Motor mismatch#00B1Overcurrent#00B2Regeneration error#00BFRegenerative overload#00C1Overvoltage#00C8Undervoltage#00C9Overload#00CAOverload#00CBOverload#00CCDynamic brake overload#00F1Overheat#0091Backup error (ABS)#0092

SmartStep A Series

Read value	W Series	Read value	Alarm
#0000	Other end status	#0074	Inrush resistance overload
#0004	Parameter setting error	#007A	Overheat
#0010	Overcurrent	#00BF	System error
#0030	Regeneration error	#00C1	Runaway detected
#0032	Regenerative overload	#00C2	Phase error detected
#0040	Overvoltage/Undervoltage	#00C3	Encoder disconnection detected
#0051	Overspeed	#00D0	Deviation counter overflow
#0070	Overload	#0091	Overload alarm
#0073	Dynamic brake overload	#0092	Regenerative overload alarm

3-9 Servo Driver

Version	Date	Contents
1.00	2004.6.	Original production

Servo Driver

SRV -206	Read Servomotor Value: _SRV206_ReadValue
Basic function	Reads a monitor value from the servo driver.
Symbol	Start trigger
File name	Lib\FBL\omronlib\ServoDriver\SRV_SRV206_ReadValue10.cxf
Applicable	OMNUC W Series or SmartStep A Series Servo Driver
models	
Conditions	External Connections
for usage	 When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Servo Driver. Serial Gateway mode, or Protocol macro mode must be set. Baud rate = 9,600 bits/s, Data = 7-bit, Start bits = 1, Stop bits = 1, Parity = even Electrically, an RS-422 connection is possible. (Refer to the <i>Related Manuals</i> for information on connection cables and other information.) Communications must be within one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) Number of retries (default: 0)
	Communications ports (internal logical ports)
Function description	A monitor value is read from the Servo Driver specified by the <i>Unit Selection</i> and <i>Serial Port No</i> . This FB is executed over multiple cycles. <i>Normal end</i> will turn ON when processing has been completed. If EN is still ON after <i>Normal end</i> turns ON, the output value will be cleared and the monitor value will be read again.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. Done or Error will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF OFF OFF
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions	Always use an upwardly differentiated condition for EN.
Input variables	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).
	Do not turn the BUSY output variable ON or OFF outside the FB.
Related	Serial Communications Boards/Units Operation Manual (W336)
manuals	SMARTSTEP A Series Servomotors/Servo Drivers User's Manual (I533) OMNUC W Series AC Servomotors/Servo Drivers User's Manual (I531)

■ Variable Tables

Input Variables

Name	Variable name	Data type	Default	Range	Description	
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.	
Unit selection	UnitSelect	INT	&0	At right.	Specify the connected Unit and serial port.	
Serial Port No.	PortNo	INT	&1	&1 to &2	 Connected to CPU Unit Connection not possible to CPU Unit. Connected to SCB Unit selection #BBBB (UnitSelect) Serial Port No. &1: Port 1 (PortNo) &2: Port 2 Connected to SCU Unit selection Unit No. (&0 to &15) (UnitSelect) Serial Port No. &1: Port 1 (PortNo) &2: Port 2 	
Servo unit No.	Axis	INT		&0 to &15	The communications unit number of the Servo Driver. (W Series: Pn000.2) (SmartStep: Front-panel rotary switch)	
Monitor item No.	MonitorNo	WORD		#0000	Specify the monitor item number from the Monitor Item Tables.	

Servo Driver

Output Variables

Name	Variable name	Data type	Range	Description
ENO (May be omitted.)	ENO	BOOL		1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	Done	BOOL		0 (OFF): Other end status 1 (ON): Communications completed with no error
Error end	Error	BOOL		 0 (OFF): Other end status 1 (ON): One of the following error occurred. CMND instruction could not be executed (other message being processed). An input variable is out of range. The corresponding parameter number is not supported.
Error code	ErrorID	WORD		#0000: Normal end
Read value	Value	WORD		The value returned from the Servo Driver.

Monitor Item Tables The UnXXX and FnXXX parameters listed in the following tables can be read. W Series

eries				
Monitor No.		Monitor item	Unit	Sign
#000	Un000	Speed feedback	r/min	S
#001	Un001	Speed command	r/min	S
#002	Un002	Torque command	%	S
#003	Un003	No. of pulses from phase Z	Pulses	U
#004	Un004	Electrical angle	Degrees	U
#005	Un005	Input signal monitor	-	-
#006	Un006	Output signal monitor	-	-
#007	Un007	Command pulse speed display	r/min	S
#008	Un008	Position error (deviation counter)	Command units	S
#009	Un009	Cumulative load rate	%	U
#00A	Un00A	Regenerative load rate	%	U
#00B	Un00b	Dynamic brake resistance load rate	%	U
#00C	Un00C	Input pulse counter (lower 16 bits)	Command units	U
#00D	Un00C	Input pulse counter (upper 16 bits)	Command units	U
#00E	Un00d	Feedback pulse counter (lower 16 bits)	Pulses	U
#00F	Un00d	Feedback pulse counter (upper 16 bits)	Pulses	U
#500	Fn000-0	Alarm history, error number = 0	Alarm code	-
#501	Fn000-1	Alarm history, error number = 1	Alarm code	-
#502	Fn000-2	Alarm history, error number = 2	Alarm code	-
#503	Fn000-3	Alarm history, error number = 3	Alarm code	-
#504	Fn000-4	Alarm history, error number = 4	Alarm code	-
#505	Fn000-5	Alarm history, error number = 5	Alarm code	-
#506	Fn000-6	Alarm history, error number = 6	Alarm code	-
#507	Fn000-7	Alarm history, error number = 7	Alarm code	-
#508	Fn000-8	Alarm history, error number = 8	Alarm code	-

#509	Fn000-9	Alarm history, error number = 9	Alarm code	-
#50A		Current alarm status	Alarm code	-
#514	Fn011-F	Motor type	Motor code	-
#515	Fn011-P	Motor capacity	10 W	U
#516	Fn011-E	Encoder type	Encoder code	-
#517	Fn011-Y	Special specifications	-	U
#518	Fn012-R	Servo Driver version	-	U
#519	Fn012-E	Encoder software version	-	U

SmartStep A Series

Monitor No.		Monitor item	Unit	Sign
#000	Un000	Speed feedback	r/min	S
#001	Un001	Speed command	r/min	S
#002	Un002	Torque command	%	S
#003	Un003	No. of pulses from phase Z	Pulses	U
#004	Un004	Electrical angle	Degrees	U
#005	Un005	Input signal monitor	-	-
#006	Un006	Output signal monitor	-	-
#007	Un007	Command pulse speed display	r/min	S
#008	Un008	Position error (deviation counter)	Command units	S
#009	Un009	Cumulative load rate	%	U
#00A	Un00A	Regenerative load rate	%	U
#00B	Un00B	Dynamic brake resistance load rate	%	U
#00C	Un00C	Input pulse counter (lower 16 bits)	Command units	U
#00D	Un00C	Input pulse counter (upper 16 bits)	Command units	U
#00E	Un00D	Feedback pulse counter (lower 16 bits)	Pulses	U
#00F	Un00D	Feedback pulse counter (upper 16 bits)	Pulses	U
#105		Gain rotary switch setting	-	
#106		Function selection switch setting	-	
#500	Fn000-0	Alarm history, error number = 0	Alarm code	-
#501	Fn000-1	Alarm history, error number = 1	Alarm code	-
#502	Fn000-2	Alarm history, error number = 2	Alarm code	-
#503	Fn000-3	Alarm history, error number = 3	Alarm code	-
#504	Fn000-4	Alarm history, error number = 4	Alarm code	-
#505	Fn000-5	Alarm history, error number = 5	Alarm code	-
#506	Fn000-6	Alarm history, error number = 6	Alarm code	-
#507	Fn000-7	Alarm history, error number = 7	Alarm code	-
#508	Fn000-8	Alarm history, error number = 8	Alarm code	-
#509	Fn000-9	Alarm history, error number = 9	Alarm code	-
#50A		Current alarm status	Alarm code	-
#50B	Fn007	Autotuning results	%	U
#518	Fn012-R	Servo Driver version	-	U
#800		Driver type		-

Note: Sign: S = Signed data, U = Unsigned data, - = Code or other

Version	Date	Contents
1.00	2004.6.	Original production

Write Servo Parameter: _SRV401_WriteParameter

Basic	Changes a parameter in the Servo Driver.
function	
Symbol	
	Start triggerSRV401_WriteParameter
	(BOOL) (BOOL) EN ENO
	Lisit esteration (INT) (BOOL)
	Busy Flag Unit Selection UnitSelect BUSY Busy Flag
	Serial Port No. – (INT) (BOOL) PortNo. – Done – Normal end
	Servo unit No. – (INT) (BOOL) – Error end
	Parameter No. – (INT) (WORD) Error code
	ParameterNo ErrorID (May be omitted)
	Write value – (WORD) Value
	Value
File name	Lib\FBL\omronlib\ServoDriver\SRV\ SRV401 WriteParameter10.cxf
Applicable	OMNUC W Series or SmartStep A Series Servo Driver
models	Similar of the state of the sta
Conditions	External Connections
for usage	When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial part to the same communications are different to the Series
	the serial port to the same communications specifications as the Servo Driver.
	1. Serial Gateway mode, or Protocol macro mode must be set.
	2. Baud rate = 9,600 bits/s, Data = 7-bit, Start bits = 1, Stop bits = 1, Parity = even
	Electrically, an RS-422 connection is possible. (Refer to the <i>Related Manuals</i> for information on
	connection cables and other information.)
	Communications must be within one network and cannot cross to another network.
	CPU Unit Settings
	PLC Setup: Shared Settings for Communications Instructions in FBs
	 Communications Instruction Response Timeout Time (default: 2 s)
	Number of retries (default: 0)
	Shared Resources
	Communications ports (internal logical ports)
Function	The specified parameter is written to the Servo Driver specified by the Unit Selection and Serial Port No.
description	This FB is executed over multiple cycles. <i>Normal end</i> will turn ON when processing has been completed.
	The parameter set in the Servo Driver will be deleted when power is turned OFF, so parameters that require
	cycling the power supply cannot be changed with this FB.
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the
precautions	FB is being processed.
	• Done or Error will be turned ON for one cycle only after processing is completed. Use these flags to
	detect the end of FB processing.
	Timechart
	Start Trigger ON
	OFF
	Busy Flag (BUSY) ON
	OFF
	Normal end (Done) ON
	or Error end (Error) OFF
	▲ FB execution completed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output
condition	from the FB.
Restrictions	 Always use an upwardly differentiated condition for EN.
Input	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
variables	
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).
	Do not turn the BUSY output variable ON or OFF outside the FB.
Related	Serial Communications Boards/Units Operation Manual (W336)
manuals	SMARTSTEP A Series Servomotors/Servo Drivers User's Manual (I533)
	4-4-2 Parameters
	OMNUC W Series AC Servomotors/Servo Drivers User's Manual (I531)
	6-4 Parameter Setting Tables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connected Unit and serial port.
Serial Port No.	PortNo	INT	&1	&1 to &2	 Connected to CPU Unit Connection not possible to CPU Unit. Connected to SCB Unit selection #BBBB (UnitSelect) Serial Port No. &1: Port 1 (PortNo) &2: Port 2 Connected to SCU Unit selection Unit No. (&0 to &15) (UnitSelect) Serial Port No. &1: Port 1 (PortNo) &2: Port 2
Axis No.	Axis	INT	&0	&0 to &15	The communications unit number of the Servo Driver. (W Series: Pn000.2) (SmartStep: Front-panel rotary switch)
Parameter No.	ParameterNo	WORD	&0	&0 to &4095	Specifies the parameter to written as a decimal number or hexadecimal number #0XXX where XXX is the numeric portion of the parameter number PnXXX. Refer to the <i>Related Manuals</i> for details on parameter numbers.
Write value	Value	WORD			Parameter value

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	Done	BOOL		0 (OFF): Other end status
				1 (ON): Processing completed with no error
Error end	Error	BOOL		0 (OFF): Other end status
				1 (ON): One of the following error occurred.
				 CMND instruction could not be executed (other
				message being processed).
				 An input variable is out of range.
				 The corresponding parameter number is not
				supported.
Error code	ErrorID	WORD		#0000: Normal end

Version	Date	Contents
1.00	2004.6.	Original production

3-10 ID Sensor Unit

CS1W-V600, CJ1W-V600 series

FB Name	Function	Page
_V60x001_CheckData	Check Data Carrier Data	3-305
_V60x002_ControlWrites	Number of Writes Control	3-308
_V60x200_ReadData	Read Data Carrier Data	3-311
_V60x400_WriteData	Write Data to Data Carrier	3-314
_V60x401_SetBit	Set Data Carrier Bit	3-317
_V60x402_ClearBit	Bit Carrier Bit Clear	3-320
_V60x403_WriteMaskBit	Write Data Carrier Mask Bits	3-323
_V60x404_WriteCalculation	Write Calculation	3-326
_V60x405_FillData	Fill Data in Data Carrier	3-329
_V60x406_Copy	Copy Data Carrier	3-332
_V60x600_SetSystemSetting	Set System Settings	3-335

V60x -001	Check Data Carrier Data: _V60x001_CheckData
Basic	The CRC is calculated and written for the data in the Data Carrier.
function Symbol	
Cymbol	Start trigger ↓ ↑ ↓ (BOOL) (BOOL)
	ÈN ÈNÓ (INT) (BOOL) DE FI
	Head No. HeadNo OK Nonna end
	Data Carrier address (WORD) (BOOL) CarrierAddress NG Error end
	Bytes to check in Data Carrier - (INT) (WORD) CheckBytes ErrorCode - Error code (May be omitted.)
	Communications designation - (INT) Communications
	CRC processing designation - (INT) CRC
	(BOOL) Cancel — Cancel
P-11	
File name Applicable	Lib\FBL\omronlib\RFID\V600\V60x001_CheckData10.cxf CS1W-V600C11/V600C12 and CJ1W-V600C11/V600C12 ID Sensor Units
models	
Conditions for usage	CX-Programmer Settings Function blocks for ID Sensor Units will not work if the Start Address of the Non Retain area allocated for
ioi deuge	the FB Instance Area is set to H512 (the default setting). Always change this setting from the
	CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting PLC - Function block memory - Function block memory
	allocation from the menu bar.
	Function Block Memory Allocation [NewPLC1]
	FB Instance Area Start Address End Address Size OK
	Non Retain H512 H1407 896 Cancel
	Hetam H14U8 H1535 128
	Counters C3072 C4095 1024 Edit
	Default
	Advanced
	ID Sensor Unit Settings
	• This FB cannot be executed if the ID Sensor Unit is busy. The NG Flag will turn ON if an attempt is
-	made.
Function description	The CRC is found and written for the Data Carrier specified by the unit number and head number from the specified address to 2 bytes less that the specified number of bytes.
	Between 3 and 2,048 bytes of data can be handled at one time.
	Observe the following precautions for the ID Sensor Unit. Refer to the <i>Related Manuals</i> for details. • The last 2 bytes of the check area are used as the check code area. Leave these two bytes empty
	(i.e., do not write user data to them).
	Verification will not be performed unless it is specified when writing.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed.
p	• OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to
	detect the end of FB processing. Timechart
	Start Trigger ON
	OFF
	Busy Flag (BUSY) ON OFF
	Normal end (OK) ON or Error end (NG) OFF
	↑ FB execution completed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY
condition	output from the FB.

RFID

Restrictions	Always use an upwardly differentiated condition for EN.						
Input	• If the input variables are out of range, the ENO flag will turn OFF and the FB will not be processed.						
variables	Always specify a head number of &1 for One-Head ID Sensor Units (CS1W-V600C11 and						
	CJ1W-V600C11).						
	 Check the memory capacity of the Data Carrier when specifying the address and number of bytes to 						
	process.						
	An address error will be output if the specified address and number of bytes to process are not suitable for the memory capacity of the Data Carrier being communicated with.						
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output						
variables	variable to the EN input variable to ensure that the FB is processed to completion (see Symbol).						
	• Do not turn the BUSY output variable ON or OFF outside the FB.						
Application	When bit A turns ON in the following example, the CRC for the data from address 10 through address 18 in						
example	the Data Carrier connected to Head 1 of the ID Sensor Unit with unit number 3 and the resulting CRC will						
	be written to address 28.						
	42 42 Unit No.: 3						
	#2 #3 Unit No.: 3 Address						
	Read/Write Head						
	Head No.: 1						
	_V60x001_CheckData (BOOL) (BOOL)						
	ÈN ÈN ENÓ						
	Unit No (INT) (BOOL) <i>Busy flag</i> &3 UnitNo BUSY Bit B						
	Head No. (INT) (BOOL) Normal end						
	&1 HeadNo OK Bit C Data Carrier address (WORD) (BOQL) Error end						
	&10 CarrierAddress NG Bit D						
	Bytes to check in Data Carrier (INT) (WORD) &20 CheckBytes ErrorCode Fror code						
	Communications designation (INT)						
	&0 Communications CRC processing designation (INT)						
	Cancel (BOOL) Bit X Cancel						
Related	ID Sensor Unit Operation Manual (Z174)						
manuals	4-3 I/O Data Allocations, Error Codes						
	6-2 Communications Commands, Data Check						

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Head No.	HeadNo	INT	&1	&1 to &2	&1: Head 1 &2: Head 2 (Two-Head Controllers only)
Data Carrier address	CarrierAddress	WORD	#0		Specify the address in the Data Carrier.
Bytes to check in Data Carrier	CheckBytes	INT	&0	&3 to &2048	Consider the Data Carrier capacity when setting.
Communications designation	Communications	INT	&0	&0 to &1	&0: Trigger &1: Auto
CRC processing designation	CRC	INT	&0	&0 to &1	Specify the process to be performed. &0: CRC calculation&1: CRC verification
Cancel	Cancel	BOOL	0 (OFF)		$0 \rightarrow 1$: Cancels processing.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Error code (May be omitted.)	ErrorCode	WORD		Outputs the results from the ID Sensor Unit. Refer to the <i>Related Manuals</i> for details. #0070: Data Carrier communications error #0071: Verification error #0072: Data Carrier missing error #0076: Status Flag #007A: Data Carrier address error #007B: Battery warning #007C: Head error #007D: Write protection error #FFFF: Input parameter error

Version	Date	Contonte
Version	Dale	Contents
1.00	2004.6.	Original production

V60x	Number of Minites Controls V(CO) 000 Control/Minites
-002	Number of Writes Control: _V60x002_ControlWrites
Basic function	Updates the number of writes stored in the Data Carrier.
Symbol	Start trigger
File name Applicable	Lib\FBL\omronlib\RFID\V600_V60x002_WriteCalculation10.cxf CS1W-V600C11/V600C12 and CJ1W-V600C11/V600C12 ID Sensor Units
models	
Conditions for usage	 CX-Programmer Settings Function blocks for ID Sensor Units will not work if the Start Address of the Non Retain area allocated for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory allocation</i> from the menu bar.
	Function Block Memory Allocation [NewPLC1]
	FB Instance Area Start Address End Address Size OK
	Non Retain H512 H1407 896 Retain H1408 H1535 128 Timers T3072 T4095 1024 Counters C3072 C4095 1024 Default Default Default
	Advanced
	 ID Sensor Unit Settings This FB cannot be executed if the ID Sensor Unit is busy. The NG Flag will turn ON if an attempt is made.
Function description	 For the Data Carrier specified by the <i>Unit No.</i> and <i>Vendor No.</i>, sets 3 bytes of data from the specified start address as the Number of Writes Control Area, writes the result of adding to or subtracting from the number of writes counter to the Data Carrier, and outputs the result of adding or subtracting. Observe the following precautions for the ID Sensor Unit. Refer to the <i>Related Manuals</i> for details. Verification will not be performed unless it is specified when writing. Do not write to more than one page at the same time with an EEPROM Data Carrier. The command will not be processed across page boundaries and an address error will be output.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed.
	• OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to
	detect the end of FB processing. Timechart
	Start Trigger ON OFF
	Busy Flag (BUSY) ON OFF
	Normal end (OK) ON or Error end (NG) OFF
	↑ FB execution completed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY
condition	output from the FB.

Restrictions Input variables Output variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. Always specify a head number of &1 for One-Head ID Sensor Units (CS1W-V600C11 and CJ1W-V600C11). Check the memory capacity of the Data Carrier when specifying the address and number of bytes to process. An address error will be output if the specified address or number of bytes to process is not suitable for the memory capacity of the Data Carrier being communicated with. This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the DN including the to the DN including the to completion (con Sumbal).
variables	 variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.
Application example	When bit A turns ON in the following example, three bytes of data are starting at address 10 is set as the Number of Writes Control Area, 5 is added to the value and then written again for the Data Carrier connected to Head 1 of the ID Sensor Unit with unit number 3. The value is also output to D0. #2 #3 Unit No.: 3 #2 #3 Unit No.: 3 CPU UNIT V600 #2 #3 Unit No.: 3 Bit A Read/Write Head Data Carrier Bit B Unit No.: 3 Bool (NT) Bit B Unit No.: 4 Unit No.: 3 Bit B Unit No.: 4 Unit No.: 4 Bit B Unit No.: 4 Unit No.: 4 Bit B Unit No.: 4 Unit No.: 4 Bit B Unit No.: 4 ENO Mead No. BUSY Busy flag Unit No. BUSY Normal end Bit C Carrier Address NG Number of writes counter CarrierAddress NG Counter Result Do Counter Result Do Counter Result Do Counter Bit X Error code Kit No Bool (C
Related manuals	ID Sensor Unit Operation Manual (Z174) 4-3 I/O Data Allocations, Error Codes 6-2-2 Command Descriptions, Number of Writes Control

Variable Tables

Input Variables

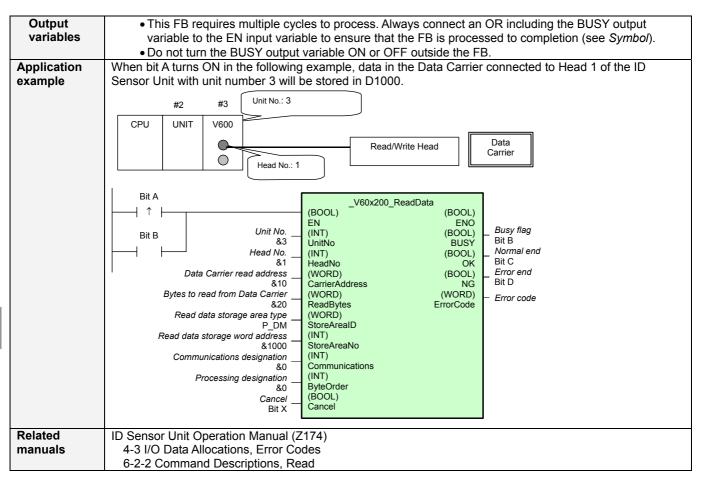
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Head No.	HeadNo	INT	&1	&1 to &2	&1: Head 1 &2: Head 2 (Two-Head Controllers only)
Data Carrier address	CarrierAddress	WORD	#0		Specify the address in the Data Carrier.
Number of writes counter	Counter	INT	&0	&0 to &255	
Communications designation	Communications	INT	&0	&0 to &1	&0: Trigger &1: Auto
Count update method	Calculation	INT	&0	&0 to &1	Specify the count update method. &0: Addition &1: Subtraction
Cancel	Cancel	BOOL	0 (OFF)		$0 \rightarrow 1$: Cancels processing.

RFID

Output Variables Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL	Range	1 (ON): FB processed normally.
(May be omitted.) Busy Flag	BUSY	BOOL		0 (OFF): FB not processed or ended in an error. Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Result	Result	DINT		Outputs the total number of writes stored in the Data Carrier.
Error code (May be omitted.)	ErrorCode	WORD		Outputs the results from the ID Sensor Unit. Refer to the <i>Related Manuals</i> for details. #0070: Data Carrier communications error #0071: Verification error #0072: Data Carrier missing error #0076: Status Flag #007A: Data Carrier address error #007B: Battery warning #007C: Head error #007D: Write protection error #FFFF: Input parameter error

Version	Date	Contents
1.00	2004.6.	Original production

V60x -200	Read Data Carrier Data: _V60x200_ReadData
Basic function	Reads data from a Data Carrier.
Symbol	Start trigger
File name Applicable models	Lib\FBL\omronlib\RFID\V600_V60x200_ReadData10.cxf CS1W-V600C11/V600C12 and CJ1W-V600C11/V600C12 ID Sensor Units
Conditions for usage	CX-Programmer Settings • Function blocks for ID Sensor Units will not work if the Start Address of the Non Retain area allocated for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory allocation</i> from the menu bar. Function Block Memory Allocation [NewPLC1] FB Instance Area Start Address End Address Size OK Non Retain H512 H1407 895 Cancel Edit ID Sensor Unit Settings • This FB cannot be executed if the ID Sensor Unit is busy. The NG Flag will turn ON if an attempt is
Function description	made. Data is read from the specified area of the Data Carrier specified by the <i>Unit No.</i> and <i>Vendor No.</i> Up to 2048 bytes (1024 words) can be read at one time. The word designation for storing the data is specified using the area type and beginning word address. For
FB precautions	example, for D1000, the area type is set to P_DM and the beginning word address is set to &1000. • The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. • OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF OFF Normal end (OK) OFF FB execution completed.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. Always specify a head number of &1 for One-Head ID Sensor Units (CS1W-V600C11 and CJ1W-V600C11). Check the memory capacity of the Data Carrier when specifying the address and number of bytes to process. An address error will be output if the specified address or number of bytes to process is not suitable for the memory capacity of the Data Carrier being communicated with.



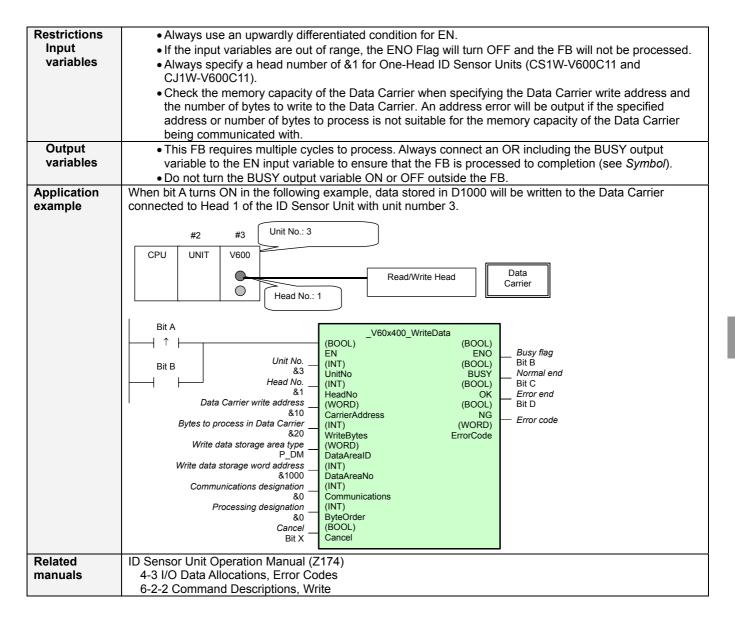
Input Variables		Datat		D	Description
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Head No.	HeadNo	INT	&1	&1 to &2	&1: Head 1
					&2: Head 2 (Two-Head Controllers only)
Data Carrier read	CarrierAddress	WORD	#0		Specify the address in the Data Carrier.
address		-	-		
Bytes to read from	ReadBytes	INT	&0	&0 to	Consider the Data Carrier capacity when
Data Carrier	riouabytee		0.0	&2048	setting. Nothing will be performed and a
Bata Gamer				02010	normal end will be output for &0.
Read data storage	RecvArealD	WORD	#00B0	At right.	P CIO (#00B0): CIO Area
area type	RecvalealD	WORD	#0080	At fight.	P WR (#00B0): CIO Alea
alea type					P HR (#00B2): Holding Area
					P_DM (#0082): DM Area
					P_EM0 (#0050) to P_EMC (#005C):
<u> </u>	_				EM Area bank 0 to C
Read data storage	RecvAreaNo	INT	&0	Not	
word address				checked.	
Communications	Communications	INT	&0	&0 to &2	&0: Trigger
designation					&1: Auto
					&2: Repeat auto
Processing	ByteOrder	INT	&0	&0 to &1	Specify the storage order of the read data
designation					&0: Upper to lower&1: Lower to upper
					0: Upper to lower Address Data Carrier CPU Unit
					Address Data Carrier CPO Unit memory memory
					0010 01 01 02
					$\begin{array}{cccccccccccccccccccccccccccccccccccc$
					0012 <u>03</u> 0013 04
					1: Lower to upper
					Address Data Carrier CPU Unit memory memory
					0010 01 02 01
					$\begin{array}{cccccccccccccccccccccccccccccccccccc$
					0012 <u>03</u> 0013 <u>04</u>
Cancel	Cancel	BOOL	0 (OFF)		$0 \rightarrow 1$: Cancels processing.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Error code (May be omitted.)	ErrorCode	WORD		Outputs the results from the ID Sensor Unit. Refer to the <i>Related Manuals</i> for details. #0070: Data Carrier communications error #0071: Verification error #0072: Data Carrier missing error #0076: Status Flag #007A: Data Carrier address error #007B: Battery warning #007C: Head error #007D: Write protection error #FFFF: Input parameter error

Version	Date	Contents
1.00	2004.6.	Original production

V60x -400	Write Data to Data Carrier: _V60x400_WriteData						
Basic function	Writes data to a Data Carrier.						
Symbol	Start trigger						
File name Applicable	Lib\FBL\omronlib\RFID\V600_V60x400_WriteData10.cxf CS1W-V600C11/V600C12 and CJ1W-V600C11/V600C12 ID Sensor Units						
models Conditions for usage	 CX-Programmer Settings Function blocks for ID Sensor Units will not work if the Start Address of the Non Retain area alloca for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory allocation</i> from the menu bar. 						
	Function Block Memory Allocation [NewPLC1] FB Instance Area Start Address End Address Size OK Non Retain H512 H1407 896 Cancel Edit Retain H1408 H1535 128 Edit Default Counters C3072 C4095 1024 Edit Default Advanced ID Sensor Unit Settings This FB cannot be executed if the ID Sensor Unit is busy. The NG Flag will turn ON if an attempt is						
Function description	made. Data is written to the specified area of the Data Carrier specified by the Unit No. and Vendor No. Up to 2048 bytes (1024 words) can be written at one time. The word designation for storing the data is specified using the area type and beginning word address. For example, for D1000, the area type is set to P_DM and the beginning word address is set to &1000. Observe the following precautions for the ID Sensor Unit. Refer to the Related Manuals for details. • Verification will not be performed unless it is specified when writing.						
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) ON OFF FB execution completed. 						
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.						



Input Variables		_		_	
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Head No.	HeadNo	INT	&1	&1 to &2	&1: Head 1
					&2: Head 2 (Two-Head Controllers only)
Data Carrier write address	CarrierAddress	WORD	#0		Specify the address in the Data Carrier.
Bytes to process in Data Carrier	WriteBytes	INT	&0	&0 to &2048	Nothing will be performed and a normal
in Data Camer				a2040	end will be output for &0. Consider the Data Carrier capacity when
					setting.
Write data storage	DataArealD	WORD	#00B0	At right.	P_CIO (#00B0): CIO Area
area type				_	P_WR (#00B1): Work Area
					P_HR (#00B2): Holding Area
					P_DM (#0082): DM Area
					P_EM0 (#0050) to P_EMC (#005C):
					EM Area bank 0 to C
Write data storage	DataAreaNo	INT	&0	Not	
word address				checked.	
Communications	Communications	INT	&0	&0 to &2	&0: Trigger
designation					&1: Auto
					&2: Repeat auto
Processing	ByteOrder	INT	&0	&0 to &1	Specify the storage order of the write data
designation					&0: Upper to lower
					&1: Lower to upper
					0: Upper to lower Address CPU Unit Data Carrier
					Address CPU Unit Data Carrier memory memory
					n 01 02 01
					$\begin{array}{c cccc} n+1 & 03 & 04 & \longleftrightarrow & 02 \\ n+2 & & & & 03 \end{array}$
					n+3 04
					1: Lower to upper
					Address CPU Unit Data Carrier
					n 02 01 01
					$n+1$ 04 03 \leftrightarrow 02
					n+2 03
					n+3 04
Cancel	Cancel	BOOL	0 (OFF)		0→1: Cancels processing.

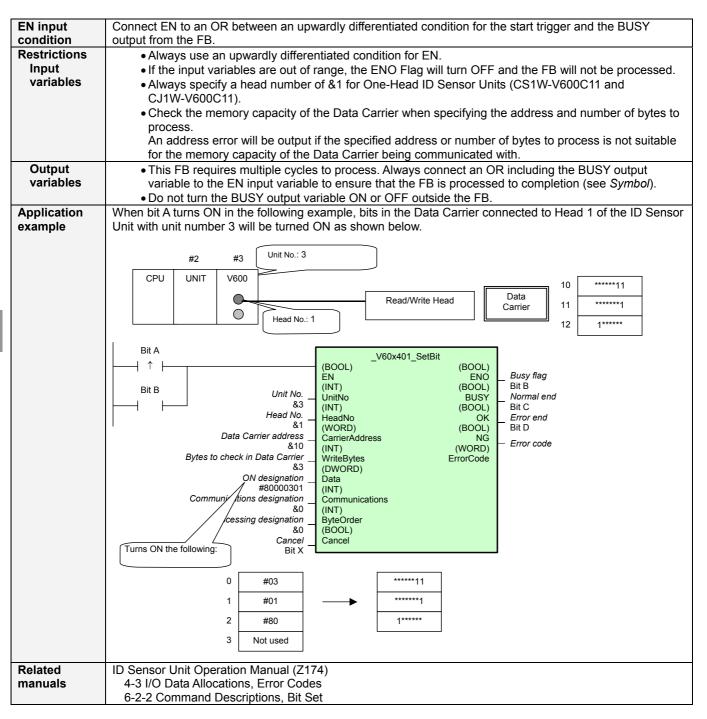
rfid

Output Variables						
Name	Variable name	Data type	Range	Description		
ENO	ENO	BOOL		1 (ON): FB processed normally.		
(May be omitted.)				0 (OFF): FB not processed or ended in an error.		
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is		
				completed.		
Normal end	OK	BOOL		Turns ON for one cycle when processing ends		
				normally.		
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an		
				error.		
Error code	ErrorCode	WORD		Outputs the results from the ID Sensor Unit.		
(May be omitted.)				Refer to the Related Manuals for details.		
				#0070: Data Carrier communications error		
				#0071: Verification error		
				#0072: Data Carrier missing error		
				#0076: Status Flag		

	#0070. Oldido Tildg
	#007A: Data Carrier address error
	#007B: Battery warning
	#007C: Head error
	#007D: Write protection error
	#FFFF: Input parameter error

Version	Date	Contents
1.00	2004.6.	Original production

V60x -401	Set Data Carrier Bit: _V60x401_SetBit
Basic function	Turns ON the specified bit in the Data Carrier.
Symbol	Start trigger
File name Applicable	Lib\FBL\omronlib\RFID\V600_V60x401_SetBit10.cxf CS1W-V600C11/V600C12 and CJ1W-V600C11/V600C12 ID Sensor Units
models Conditions for usage	 CX-Programmer Settings Function blocks for ID Sensor Units will not work if the Start Address of the Non Retain area allocated for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory allocation</i> from the menu bar.
	Function Block Memory Allocation [NewPLC1] FB Instance Area Start Address End Address Size OK Non Retain H512 H1407 896 Cancel Retain H1408 H1535 128 Cancel Timers T3072 T4095 1024 Edit Counters C3072 C4095 1024 Edit Default Advanced Advanced
	 ID Sensor Unit Settings This FB cannot be executed if the ID Sensor Unit is busy. The NG Flag will turn ON if an attempt is made.
Function description	Turns ON the specified data for the bits specified in the ON designation for the Data Carrier specified by the unit number and head number. Up to 4 bytes (2 words) can be written at one time. Bytes To Be Processed: 2, Byte Order: Upper to Lower Data Carrier data 00000001 001000001 010000001
50	 Observe the following precautions for the ID Sensor Unit. Refer to the <i>Related Manuals</i> for details. Verification will not be performed unless it is specified when writing. Do not write to more than one page at the same time with an EEPROM Data Carrier. The command will not be processed across page boundaries and an address error will be output.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF OFF Normal end (OK) OFF ON OFF OFF OFF
	个FB execution completed.



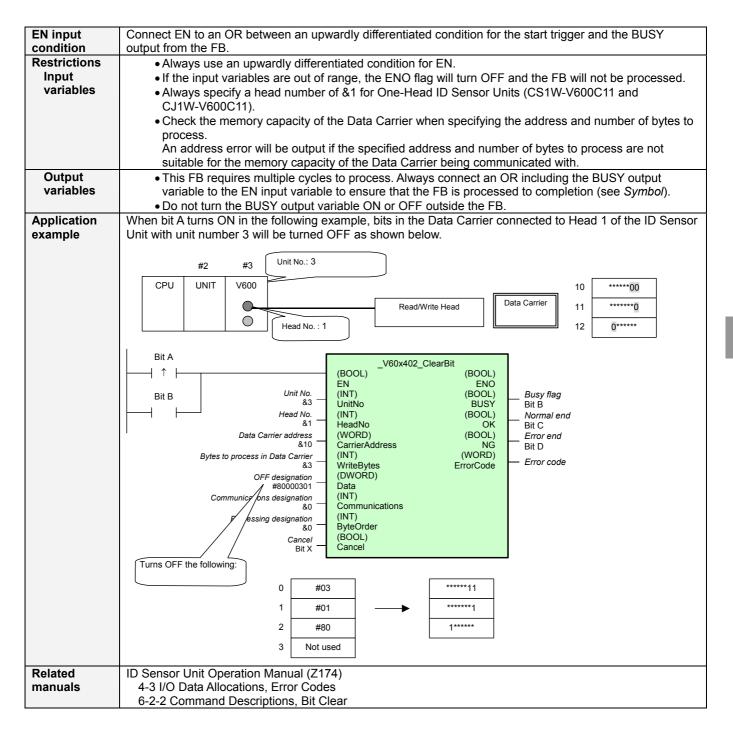
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Head No.	HeadNo	INT	&1	&1 to &2	&1: Head 1
					&2: Head 2 (Two-Head Controllers only)
Data Carrier address	CarrierAddress	WORD			Specify the address in the Data Carrier.
Bytes to check in Data Carrier	WriteBytes	INT		&0 to &4	Consider the Data Carrier capacity when setting. Nothing will be performed and a normal end will be output for &0.
ON designation	Data	DWORD	#00000000		The status of any bits that are OFF in the ON Designation will not be changed. The byte order is specified in the Processing Designation.
Communications designation	Communications	INT	&0	&0 to &2	&0: Trigger &1: Auto &2: Repeat auto
Processing designation	ByteOrder	INT	&0	&0 to &1	Specify the byte order of the designation data.&0: Upper to lower &1: Lower to upper
Cancel	Cancel	BOOL	0 (OFF)		$0 \rightarrow 1$: Cancels processing.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Error code	ErrorCode	WORD		Outputs the results from the ID Sensor Unit.
(May be omitted.)				Refer to the Related Manuals for details.
				#0070: Data Carrier communications error
				#0071: Verification error
				#0072: Data Carrier missing error
				#0076: Status Flag
				#007A: Data Carrier address error
				#007B: Battery warning
				#007C: Head error
				#007D: Write protection error
				#FFFF: Input parameter error

Version	Date	Contents
1.00	2004.6.	Original production

V60x -402	Bit Carrier Bit Clear: _V60x402_ClearBit
Basic function	Turns OFF the specified bits in the Data Carrier.
Symbol	Start trigger
File name Applicable models	Lib\FBL\omronlib\RFID\V600_V60x402_SetBit10.cxf CS1W-V600C11/V600C12 and CJ1W-V600C11/V600C12 ID Sensor Units
Conditions for usage	 CX-Programmer Settings Function blocks for ID Sensor Units will not work if the Start Address of the Non Retain area allocated for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory allocation</i> from the menu bar.
	FB Instance Area Start Address End Address Size UK Non Retain H512 H1407 896 Cancel Retain H1408 H1535 128 Cancel Timers T3072 T4095 1024 Edit Counters C3072 C4095 1024 Edit Default Advanced Iteration Advanced ID Sensor Unit Settings Iterations Iterations Iterations
-	This FB cannot be executed if the ID Sensor Unit is busy. The NG Flag will turn ON if an attempt is made.
Function description	Turns OFF the specified data for the bits specified in the OFF designation for the Data Carrier specified by the unit number and head number. Up to 4 bytes (2 words) can be processed at one time. Bytes To Be Processed: 2, Byte Order: Upper to Lower Data Carrier data 01000001 01000000 00000001 00000001 00000001 00000001 00000001 00000001 00000001 00000001 00000001 00000001 00000001 00000001 </th
FB precautions	 The command will not be processed across page boundaries and an address error will be output. The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON
	Normal end (OK) ON or Error end (NG) OFF



Input Variables					1
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Head No.	HeadNo	INT	&1	&1 to &2	&1: Head 1
					&2: Head 2 (Two-Head Controllers only)
Data Carrier	CarrierAddress	WORD	#0		Specify the address in the Data Carrier in
address					hexadecimal.
Bytes to process	WriteBytes	INT	&0	&0 to &4	Consider the Data Carrier capacity when
in Data Carrier	,				setting. Nothing will be performed and a
					normal end will be output for &0.
OFF designation	Data	DWORD	#00000		Specify the positions of the bits to turn OFF.
J		-	000		The status of any bits that are OFF in the
					OFF Designation will not be changed.
					Turn ON the bits to be cleared.
					The byte order is specified in the
					Processing Designation.
Communications	Communications	INT	&0	&0 to &2	&0: Trigger
designation					&1: Auto
5					&2: Repeat auto
Processing	ByteOrder	INT	&0	&0 to &1	Specify the byte order of the designation
designation	,				data.
0					&0: Upper to lower
					&1: Lower to upper
					0: Upper to lower
					Address CPU Unit Data Carrier memory memory
					n 01 02 01
					$n+1 \qquad 03 \qquad 04 \qquad \longleftrightarrow \qquad 02$
					n+2 03 n+3 04
					1: Lower to upper Address CPU Unit Data Carrier
					memory memory
					$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
					$\begin{array}{c cccc} n+1 & 04 & 03 & \longleftrightarrow & 02 \\ n+2 & & & 03 \end{array}$
					n+3 04
	1	1	0 (OFF)	1	

Output Variables

Name	Variable name	Data turna	Danga	Description
		Data type	Range	
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Error code	ErrorCode	WORD		Outputs the results from the ID Sensor Unit.
(May be omitted.)				Refer to the Related Manuals for details.
· · · ·				#0070: Data Carrier communications error
				#0071: Verification error
				#0072: Data Carrier missing error
				#0076: Status Flag
				#007A: Data Carrier address error
				#007B: Battery warning
				#007C: Head error
				#007D: Write protection error
				#FFFF: Input parameter error

Version	Date	Contents
1.00	2004.6.	Original production

V60x -403	Write Data Carrier Mask Bits: _V60x403_WriteMaskBit
Basic function	Writes the specified data to a Data Carrier using the specified mask data.
Symbol	Start trigger
File name	Lib\FBL\omronlib\RFID\V600_V60x403_WriteMaskBit10.cxf
Applicable models	CS1W-V600C11/V600C12 and CJ1W-V600C11/V600C12 ID Sensor Units
Conditions	CX-Programmer Settings
for usage	 Function blocks for ID Sensor Units will not work if the Start Address of the Non Retain area allocated for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory allocation</i> from the menu bar. Function Block Memory Allocation [NewPLC1]
	FB Instance Area Start Address End Address Size OK
	Non Retain H512 H1407 896 Cancel
	Retam H1408 H1535 128
	Finites Figure Figure Edit Counters C3072 C4095 1024
	Default
	Advanced
	 ID Sensor Unit Settings This FB cannot be executed if the ID Sensor Unit is busy. The NG Flag will turn ON if an attempt is made.
Function	The specified 2-byte data is written using the specified mask data (i.e., unmasked bits are written) for the
description	Data Carrier specified by the <i>Unit No.</i> and <i>Vendor No.</i> Only 2 bytes (1 word) can be written at one time.
	Bytes To Be Processed: 2, Byte Order: Upper to Lower
	Mask data
	Data Carrier data Data Carrier results data 01000101 01000101
	10100001
	Overwrite data
	11000010 10000001 Observe the following precautions for the ID Sensor Unit. Refer to the <i>Related Manuals</i> for details.
	Verification will not be performed unless it is specified when writing.
	 Do not write to more than one page at the same time with an EEPROM Data Carrier.
FB	 The command will not be processed across page boundaries and an address error will be output. The FB is processed over multiple cycles. The BUSY output variable can be used to check whether
precautions	• The PB is processed over multiple cycles. The BOST output variable can be used to check whether the FB is being processed.
	 OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart
	Start Trigger ON OFF
	Busy Flag (BUSY) ON OFF
	Normal end (OK) ON or Error end (NG) OFF
	\uparrow FB execution completed.

RFID

EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY					
condition	output from the FB.					
Restrictions	Always use an upwardly differentiated condition for EN.					
Input	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.					
variables	Always specify a head number of &1 for One-Head ID Sensor Units (CS1W-V600C11 and					
	CJ1W-V600C11).					
	• Check the memory capacity of the Data Carrier when specifying the address and number of bytes to					
	process.					
	An address error will be output if the specified address or number of bytes to process is not suitable					
	for the memory capacity of the Data Carrier being communicated with.					
Output	This FB requires multiple cycles to process. Always connect an OR including the BUSY output					
variables	• This FB requires multiple cycles to process. Always connect an OR including the BOST output variable to the EN input variable to ensure that the FB is processed to completion (see Symbol).					
	• Do not turn the BUSY output variable ON or OFF outside the FB.					
Application	When bit A turns ON in the following example, bits 00 to 03 of the data stored in D0 will be written to the					
example	Data Carrier connected to Head 1 of the ID Sensor Unit with unit number 3.					
•						
	#2 #3 Unit No.: 3 Address					
	Read/Write Head Data 11 Carrier 12					
	Bit A					
	Contraction Contraction (BOOL) (BOOL) (BOOL)					
	Unit No EN ENO					
	Bit B & 3 (INT) (BOOL) Busy flag Head No Unitho BUSY Bit B					
	Head No. UnitNo BUSY Bit B &1 (INT) (BOOL) Bit B Normal end					
	Data Carrier address HeadNo OK Bit C					
	810 (WORD) (BOOL) <i>Error end</i> Mask data CarrierAddress NG Bit D					
	#FFF0 (WORD) (WORD) – Error code					
	Overwrite data Mask ErrorCode					
	D0 (WORD) Communications designation Data					
	80 (INT)					
	Processing designation Communications					
	Cancel ByteOrder					
	Bit X (BOOL) Cancel					
	Cancer					
Related	D Concer Unit Operation Manual (7474)					
	ID Sensor Unit Operation Manual (Z174) 4-3 I/O Data Allocations, Error Codes					
manuals	6-2-2 Command Descriptions, Mask Bit Write					
	0-2-2 Command Descriptions, Mask bit White					

■ Variable Tables

Input Variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Head No.	HeadNo	INT	&1	&1 to &2	&1: Head 1
					&2: Head 2 (Two-Head Controllers only)
Data Carrier address	CarrierAddress	WORD	#0		Specify the address in the Data Carrier.
Mask data	Mask	WORD	#0000		Turn ON the bits to be masked. The original data in the Data Carrier will be maintained for any bits that are ON in the
A					mask data.
Overwrite data	Data	WORD	#0000		
Communications designation	Communications	INT	&0	&0 to &2	&0: Trigger &1: Auto &2: Repeat auto
Processing designation	ByteOrder	INT	&0	&0 to &1	Specify the byte order of the designation data.&0: Upper to lower &1: Lower to upper0: Upper to lower Address0: Upper to lower M+10: Upper to lower 0: Upper n+30: Upper to lower Data Carrier memory memory1: Lower to upper
Cancel	Cancel	BOOL	0 (OFF)		$0 \rightarrow 1$: Cancels processing.

Output Variables

Name	Variable name	Data type	Range	Description
ENO (May be omitted.)	ENO	BOOL	Ŭ	1 (ON): FB processed normally. 0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Error code (May be omitted.)	ErrorCode	WORD		Outputs the results from the ID Sensor Unit. Refer to the <i>Related Manuals</i> for details. #0070: Data Carrier communications error #0071: Verification error #0072: Data Carrier missing error #0076: Status Flag #007A: Data Carrier address error #007B: Battery warning #007C: Head error #007D: Write protection error #FFFF: Input parameter error

Version	Date	Contents
1.00	2004.6.	Original production

V60x	Write Calculation: V60x404 WriteCalculation
-404	
Basic function	Performs a calculation between Data Carrier data and specified data and writes the result to the Data Carrier.
Symbol	
	Start trigger
	Busy Fileg UnitNo BUSY
	HeadNo OK Normal end
	CarrierAddress NG Error end
	Bytes to process in Data Carrier - (INT) (DWORD) WriteBytes Result
	Calculation data (WORD) (WORD) Error Code (May be omitted.)
	Communications designation – (INT) Communications
	Processing designation — (INT) ByteOrder
	Calculation specification — (INT) Calculation
	Cancel – (BOOL) Cancel
File name	Lib\FBL\omronlib\RFID\V600_V60x404_WriteCalculation10.cxf
Applicable models	CS1W-V600C11/V600C12 and CJ1W-V600C11/V600C12 ID Sensor Units
Conditions	CX-Programmer Settings
for usage	• Function blocks for ID Sensor Units will not work if the Start Address of the Non Retain area allocated
	for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units.
	This value can be changed after selecting <i>PLC - Function block memory - Function block</i>
	memory allocation from the menu bar.
	Function Block Memory Allocation [NewPLC1]
	FB Instance Area Start Address End Address Size OK
	Non Retain H512 H1407 896 Cancel Retain H1408 H1535 128 Cancel
	Timers T3072 T4095 1024 Edit
	Counters C3072 C4095 1024 Default
	Advanced
	ID Sensor Unit Settings
	• This FB cannot be executed if the ID Sensor Unit is busy. The NG Flag will turn ON if an attempt is
Function	made.
Function description	The specified data is read, the specified calculation is performed the data, and the result is written to the Data Carrier specified by the unit number and head number.
• • •	Up to 4 bytes (2 words) can be written at one time.
	Observe the following precautions for the ID Sensor Unit. Refer to the <i>Related Manuals</i> for details. • The <i>ErrorCode</i> will be 76 if an overflow occurs for addition or an underflow occurs for subtraction.
	Verification will not be performed unless it is specified when writing.
	• Do not write to more than one page at the same time with an EEPROM Data Carrier.
FB	 The command will not be processed across page boundaries and an address error will be output. The FB is processed over multiple cycles. The BUSY output variable can be used to check whether
precautions	• The PB is being processed.
	• OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to
	detect the end of FB processing. Timechart
	Start Trigger ON
	Busy Flag (BUSY) ON OFF
	Normal end (OK) ON or Error end (NG) OFF
	↑ FB execution completed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY
condition	output from the FB.

RFID

Restrictions	Always use an upwardly differentiated condition for EN.
Input	
variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
valiables	Always specify a head number of &1 for One-Head ID Sensor Units (CS1W-V600C11 and
	CJ1W-V600C11).
	Check the memory capacity of the Data Carrier when specifying the address and number of bytes to
	process.
	An address error will be output if the specified address or number of bytes to process is not suitable
	for the memory capacity of the Data Carrier being communicated with.
Output	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output
variables	variable to the EN input variable to ensure that the FB is processed to completion (see Symbol).
	 Do not turn the BUSY output variable ON or OFF outside the FB.
Application	When bit A turns ON in the following example, three bytes of data are read starting from address 10, #0003
example	is added to the data, and the result is written to D0 and to the Data Carrier connected to Head 1 of the ID
	Sensor Unit with unit number 3.
	40 40 Unit No.: 3
	#2 #3 Unit No.: 3
	CPU UNIT V600
	Read/Wite nead Carrier
	Head No.: 1
	Bit A V60x404 WriteCalculation
	(BOOL) (BOOL)
	Unit No EN ENO Busy flag
	Bit B (INT) (BOOL) Bit B Bit B UnitNo BUSY
	Head No(INT) (POOL) Normal end
	Data Carrier address HeadNo OK Error and
	(WORD) (BOOL) Bit D &10 CarrierAddress NG Bit D
	Bytes to process in Data Carrier (INT) (DWORD) _ Result
	Coloulation data WriteBytes Result DU
	#0003 (WORD) (WORD) Error code
	Communications designation (INT)
	80 Communications
	Processing designation (INT)
	Calculation specification (INT)
	^{&0} Calculation
	Bit X (BOOL) (Cancel
	Cancer
Deleter	
Related	ID Sensor Unit Operation Manual (Z174)
manuals	4-3 I/O Data Allocations, Error Codes
	6-2-2 Command Descriptions, Calculation Write

Input Variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Head No.	HeadNo	INT	&1	&1 to &2	&1: Head 1
					&2: Head 2 (Two-Head Controllers only)
Data Carrier address	CarrierAddress	WORD	#0		Specify the address in the Data Carrier.
Bytes to process	WriteBytes	INT	&0	&0 to &4	A normal end will be output for &0.
in Data Carrier					Consider the Data Carrier capacity when setting.
Calculation data	Data	WORD	#0		× · · · · · · · · · · · · · · · · · · ·
Communications	Communications	INT	&0	&0 to &2	&0: Trigger
designation					&1: Auto
					&2: Repeat auto
Processing	ByteOrder	INT	&0	&0 to &1	Specify the byte order of the designation
designation					data.
					&0: Upper to lower
					&1: Lower to upper 0: Upper to lower
					Address CPU Unit Data Carrier
					n 01 02 01
					n+1 03 04 \leftrightarrow 02
					n+2 03 n+3 04
					1: Lower to upper Address CPU Unit Data Carrier
					memory memory
					$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
					n+2 03
					n+3 04
Calculation	Calculation	INT	&0	&0 to &1	Specify the calculation method.
specification					&0: Addition
<u> </u>					&1: Subtraction
Cancel	Cancel	BOOL	0 (OFF)		$0 \rightarrow 1$: Cancels processing.

Output Variables

rfid

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Result	Result	DWORD		If the number of bytes to process is between 1 and 3, the data in the lower address is valid. 31 24 23 16 15 08 07 00
Error code (May be omitted.)	ErrorCode	WORD		Outputs the results from the ID Sensor Unit. Refer to the <i>Related Manuals</i> for details. #0070: Data Carrier communications error #0071: Verification error #0072: Data Carrier missing error #0076: Status Flag #007A: Data Carrier address error #007B: Battery warning #007C: Head error #007D: Write protection error #FFFF: Input parameter error

Version	Date	Contents
1.00	2004.6.	Original production

V60x -405	Fill Data in Data Carrier: _V60x405_FillData
Basic	Writes fill data to a Data Carrier.
function	
Symbol	Start triggerV60x405_FillData
	(BOOL) = (BOOL) EN ENO
	Busy Flag Unit No (INT) (BOOL) UnitNo BUSY Busy Flag
	Head No (INT) (BOOL) HeadNo OK Normal end
	Data Carrier write address – (WORD) (BOOL) CarrierAddress NG – Error end
	Bytes to write in Data Carrier - (INT) (WORD) Error code
	Fill data — (WORD)
	Lata (INT)
	Communications designation — Communications (INT)
	Fill data size DataSize (BOOL)
	Cancel Cancel
File name	Lib\FBL\omronlib\RFID\V600\ V60x405 FillData10.cxf
Applicable	CS1W-V600C11/V600C12 and CJ1W-V600C11/V600C12 ID Sensor Units
models Conditions	CV Drogrammar Sottinga
for usage	 CX-Programmer Settings Function blocks for ID Sensor Units will not work if the Start Address of the Non Retain area allocated
Jer ange	for the FB Instance Area is set to H512 (the default setting). Always change this setting from the
	CX-Programmer when using function blocks for Position Control Units.
	This value can be changed after selecting <i>PLC - Function block memory - Function block</i> <i>memory allocation</i> from the menu bar.
	Function Block Memory Allocation [NewPLC1]
	EB Instance Area Start Address End Address Size OK
	Non Static Head Jack Addess Lind Addess Jaco
	Retain H1408 H1555 128 Cancel Timers T3072 T4095 1024 Fata
	Times T3072 T4033 T024 Edit Counters C3072 C4095 1024
	Default
	Advanced
	ID Sensor Unit Settings
	 This FB cannot be executed if the ID Sensor Unit is busy. The NG Flag will turn ON if an attempt is made.
Function	The same data is written to the specified area of the Data Carrier specified by the Unit No. and Vendor No.
description	Up to 2,048 bytes (1,024 words) can be written at one time or the entire area from the specified first
	address can be written . Observe the following precautions for the ID Sensor Unit. Refer to the <i>Related Manuals</i> for details.
	• If the specified number of bytes to process is 0, the data will be written to the Data Carrier from the
	specified first address to the last address in the user area.
	 The user area in the Data Carrier will be written even if write protection is set. Verification will not be performed unless it is specified when writing.
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether
precautions	the FB is being processed.
	 OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing.
	Timechart
	Start Trigger ON OFF
	Busy Flag (BUSY) ON
	OFF
	Normal end (OK) ON or Error end (NG) OFF
	\uparrow FB execution completed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY
condition	output from the FB.

RFID

Restrictions	Always use an upwardly differentiated condition for EN.
Input	
variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
variables	Always specify a head number of &1 for One-Head ID Sensor Units (CS1W-V600C11 and
	CJ1W-V600C11).
	• Check the memory capacity of the Data Carrier when specifying the address and number of bytes to
	process.
	An address error will be output if the specified address or number of bytes to process is not suitable
	for the memory capacity of the Data Carrier being communicated with.
Output	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output
variables	variable to the EN input variable to ensure that the FB is processed to completion (see Symbol).
	Do not turn the BUSY output variable ON or OFF outside the FB.
Application	When bit A turns ON in the following example, #AA55 will be written to 20 bytes beginning with address 10
example	in the Data Carrier connected to Head 1 of the ID Sensor Unit with unit number 3.
	#2 #2 Unit No.: 3
	#2 #3 Unit No.: 3
	CPU UNIT V600
	Read/White Head
	Head No.: 1
	Bit A
	Control de la c
	Unit No ÈN ENÓ
	Bit B 83 (INT) (BOOL) Busy flag Head No UnitNo BUSY Bit B
	Head No. UnitNo BUSY Bit B &1 (INT) (BOOL) Normal end
	Data Carrier write address HeadNo OK Bit C
	810 (WORD) (BOOL) Error end
	Bytes to write in Data Carrier CarrierAddress NG Bit D &20 (INT) (WORD) Free and a
	Fill data WriteBytes
	#AA55 (WORD)
	Communications designation
	Fill data size Communications
	81 T (INT)
	Cancel DataSize (BOOL)
	Bit X Cancel
Related	ID Sensor Unit Operation Manual (Z1Z4)
	ID Sensor Unit Operation Manual (Z174)
manuals	4-3 I/O Data Allocations, Error Codes
	6-2-2 Command Descriptions, Data Fill

rfid

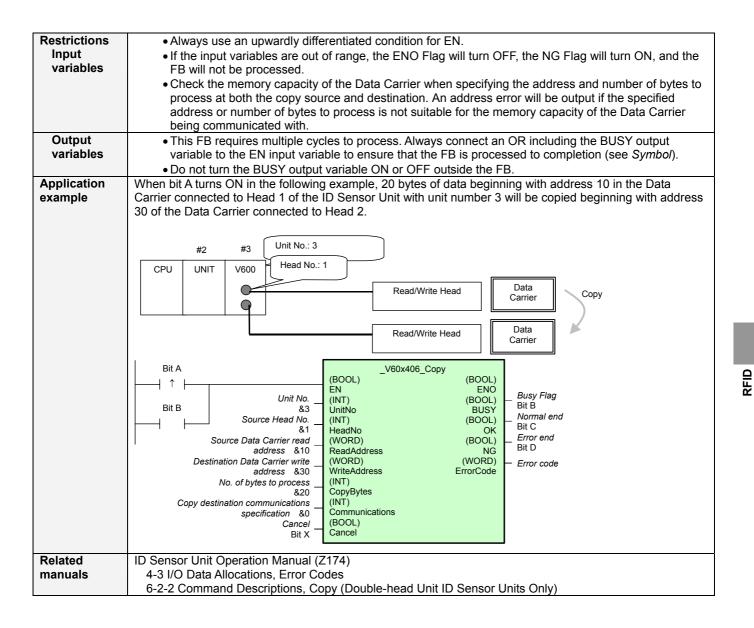
Name	Variable name	Data type	Default	Range	Description	
EN	EN	BOOL			1 (ON): FB started.	
					0 (OFF): FB not started.	
Unit No.	UnitNo	INT	&0	&0 to &95		
Head No.	HeadNo	INT	&1	&1 to &2	&1: Head 1	
					&2: Head 2 (Two-Head Controllers only)	
Data Carrier write address	CarrierAddress	WORD	#0		Specify the address in the Data Carrier.	
Bytes to write in Data Carrier	WriteBytes	INT	&0	&0 to &2048	If the specified number of bytes to process is 0, the data will be written from the specified first address to the last address.	
Fill data	Data	WORD	#0			
Communications	Communications	INT	&0	&0 to &2	&0: Trigger	
designation					&1: Auto	
0					&2: Repeat auto	
Fill data size	DataSize	INT	&0	&0 to &1	Specify the size of the fill data.	
					&0: Byte	
					&1: Word	
Cancel	Cancel	BOOL	0 (OFF)		$0 \rightarrow 1$: Cancels processing.	

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Error code (May be omitted.)	ErrorCode	WORD		Outputs the results from the ID Sensor Unit. Refer to the <i>Related Manuals</i> for details. #0070: Data Carrier communications error #0071: Verification error #0072: Data Carrier missing error #0076: Status Flag #007A: Data Carrier address error #007B: Battery warning #007C: Head error #007D: Write protection error #FFFF: Input parameter error

Version	Date	Contents
1.00	2004.6.	Original production

V60x -406	Copy Data Carrier: _V60x406_Copy		
Basic function	Copies the data from one Data Carrier and writes it to another Data Carrier.		
Symbol	Start trigger		
File name	Lib\FBL\omronlib\RFID\V600_V60x406_Copy10.cxf		
Applicable models	CS1W-V600C12 and CJ1W-V600C12 ID Sensor Units only		
Conditions	CX-Programmer Settings		
for usage	Function blocks for ID Sensor Units will not work if the Start Address of the Non Retain area allocated for the FB Instance Area is set to H512 (the default setting). Always change this setting from the CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting <i>PLC - Function block memory - Function block memory allocation</i> from the menu bar. Function Block Memory Allocation [NewPLC1] FB Instance Area Start Address End Address Size OK Retain H1408 H1535 128 Timers T3072 T4095 1024 Edit		
	Lounters C3072 C4095 1024		
	Advanced		
	ID Sensor Unit Settings		
	This FB cannot be executed if the ID Sensor Unit is busy. The NG Flag will turn ON if an attempt is		
	made.		
Function description	 Data is copied from the specified area of the Data Carrier specified by the Unit No. and Vendor No. and written to the specified area of another Data Carrier. ID Sensor Unit Precautions Refer to Copy (Double-head Unit ID Sensor Units Only) under 6-2-2 Command Descriptions in the ID Sensor Unit Operation Manual (Z174) for details. Verification will not be performed unless it is specified when writing. The update method for the Data Carrier that receives the copy will be set to a trigger. The Status Flag in the error information will turn ON if an error occurs for the Head receiving the copy. 		
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. 		
proceedions	• OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to		
	detect the end of FB processing. Timechart		
	Start Trigger ON		
	Busy Flag (BUSY) ON OFF		
	Normal end (OK) ON		
	or Error end (NG) OFF		
	↑ FB execution completed.		
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY		
condition	output from the FB.		



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Source Head No.	HeadNo	INT	&1	&1 to &2	&1: Head 1 &2: Head 2
Source Data Carrier read address	ReadAddress	INT	#0		Specify the address in the Data Carrier.
Destination Data Carrier write address	WriteAddress	INT	&0		Specify the address in the Data Carrier.
No. of bytes to process	CopyBytes	INT	&0	&0 to &2048	Nothing will be performed and a normal end will be output for &0.
Copy destination communications specification	Communications	INT	&0	&0 to &1	&0: Trigger &1: Auto The communications specification for the destination will be set to a trigger.
Cancel	Cancel	BOOL	0 (OFF)		$0 \rightarrow 1$: Cancels processing.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Error code (May be omitted.)	ErrorCode	WORD		Outputs the results from the ID Sensor Unit. Refer to the <i>Related Manuals</i> for details. #0070: Data Carrier communications error #0071: Verification error #0072: Data Carrier missing error #0076: Status Flag #007A: Data Carrier address error #007B: Battery warning #007C: Head error #007D: Write protection error #FFFF: Input parameter error

Version	Date	Contents
1.00	2004.6.	Original production

V60x -600	Set System Settings: _V60x600_SetSystemSetting						
Basic	Sets the mode of the ID Sensor Unit.						
function							
Symbol	Start triggerV60x600_SetSystemSetting						
	(BOOL) (BOOL) EN ENO						
	UnitNo Head No. – (INT)						
	HeadNo						
	ComTestMode						
	Write verification setting — (INT) Verification						
	Communications mode – (INT) ComMode						
	Auto Wait Time Setting - (INT) AutoWaitTime						
File name	Lib\FBL\omronlib\RFID\V600_V60x600_SetSysetmSetting10.cxf						
Applicable models	CS1W-V600C11/V600C12 and CJ1W-V600C11/V600C12 ID Sensor Units						
Conditions	CX-Programmer Settings						
for usage	• Function blocks for ID Sensor Units will not work if the Start Address of the Non Retain area allocated						
	for the FB Instance Area is set to H512 (the default setting). Always change this setting from the						
	CX-Programmer when using function blocks for Position Control Units. This value can be changed after selecting PLC - Function block memory - Function block						
	<i>memory allocation</i> from the menu bar.						
	Function Block Memory Allocation [NewPLC1]						
	FB Instance Area Start Address End Address Size OK						
	Non Retain H512 H1407 896 Cancel						
	Hetain H1408 H1535 128						
	Times T3072 T4033 T024 Edit Counters C3072 C4095 1024						
	Default						
	Advanced						
	ID Sensor Unit Settings						
	This FB cannot be executed if the ID Sensor Unit is busy. The NG Flag will turn ON if an attempt is						
Function	made. The operating mode is set for the Data Carrier specified by the <i>Unit No.</i> and <i>Vendor No.</i>						
description	When the Start Trigger turns ON, the operating mode is set and a Unit restart is begun.						
	A restart completion check is not performed for this FB.						
	To confirm completion, program it using the Serial Communications Board Settings Changed Flag in the AR Area.						
EN input	Any bit can be specified.						
condition							
Restrictions Input	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. Always specify a head number of &1 for One-Head ID Sensor Units (CS1W-V600C11 and 						
variables	CJ1W-V600C11).						
Application	The following example sets head 1 of the ID Sensor Unit with unit number 3 at the start of operation.						
example	#2 #3 Unit No.: 3						
	CPU UNIT V600						
	Cadriwite Head						
	Head No.: 1						
	A200.11						
	(BOOL) (BOOL)						
	Unit No EN ENO						
	&3 UnitNo Head No (INT)						
	81 HeadNo Operating mode setting (INT)						
	&0 (Enabled) ComTestMode						
	Write verification setting(INT) &0 (Verify) Verification						
	Communications mode (INT) &0 (Distance priority) ComMode						
	Auto Wait Time Setting (INT) &100 (10 s) AutoWaitTime						

Related	ID Sensor Unit Operation Manual (Z174)
manuals	4-2-1 DM Area Allocations and Contents

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit No.	UnitNo	INT	&0	&0 to &95	
Head No.	HeadNo	INT	&1	&1 to &2	&1: Head 1
					&2: Head 2 (Two-Head Controllers only)
Operating mode	ComTestMode	INT	0	&0 to &1	&0: Enabled
setting					&1: Disabled
Write verification	Verification	INT	0	&0 to &1	&0: Verify
setting					&1: Do not verify
Communications	ComMode	INT	0	&0 to &1	&0: Distance priority
mode					&1: Time priority
Auto Wait Time	AutoWaitTime	INT	0	&0 to	&0: Infinite
Setting				&9999	Unit: 0.1 s

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.

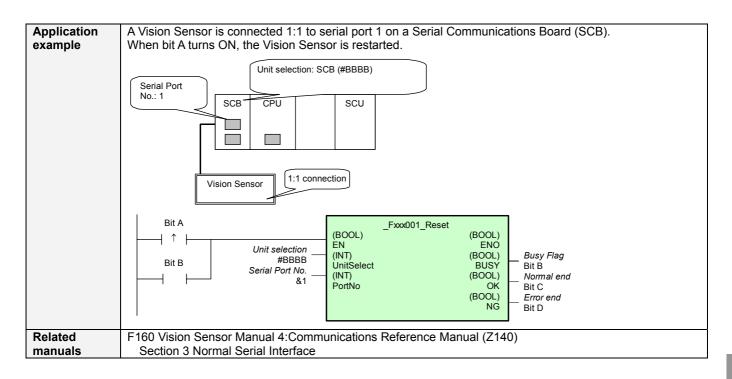
Version	Date	Contents				
1.00	2004.6.	Original production				

Vision Sensor 3-11 Vision Sensor

F160, F210 series

FB Name	Function	Page
_Fxxx001_Reset	Reset	3-338
_Fxxx200_GetSceneNo	Get Scene Number	3-340
_Fxxx201_ChangeSceneNo	Change Scene	3-342
_Fxxx202_GetSceneGrNo	Get Scene Group Number	3-344
_Fxxx203_ChangeSceneGrNo	Switch Scene Group	3-346
_Fxxx401_ExecMeasure	Execute Measurement	3-348
_Fxxx402_ExecPictureMeasure	Execute Picture Measurement	3-351

Fxxx -001	Reset: _Fxxx001_Reset
Basic function	Restarts the Vision Sensor.
Symbol	Start trigger
File name	Lib\FBL\omronlib\VisionSensor\Fxxx_Fxxx001_Reset10.cxf
Applicable models	F160/F210
Conditions for usage	 External Connections Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Vision Sensor (normal/no-protocol). When connected to the built-in RS-232C port on the CPU Unit, set the RS-232C communications port settings (no-protocol) in the PLC Setup to the same communications specifications as the Vision Sensor (normal/no-protocol). Communications must be within one network and cannot cross to another network. This FB is invalid when the serial port error is happend. Multiple FBs cannot simultaneously perform processing for one Vision Sensor. Communication error may occur as PLC serial port receives unexpected data when power is ON. Would recommend restart of the serial port after PLC system is activated Vision Sensor Settings Do not reset the Vision Sensor while a message is displayed indicating that processing is being performed to save or load data. Data will be corrupted and the Vision Sensor will not start normally the next time.
Function description	When the Start Trigger turns ON, the Vision Sensor connected to the serial port specified by the <i>Unit selection</i> and <i>Serial port No.</i> is restarted.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF OFF OFF
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



Input Variables

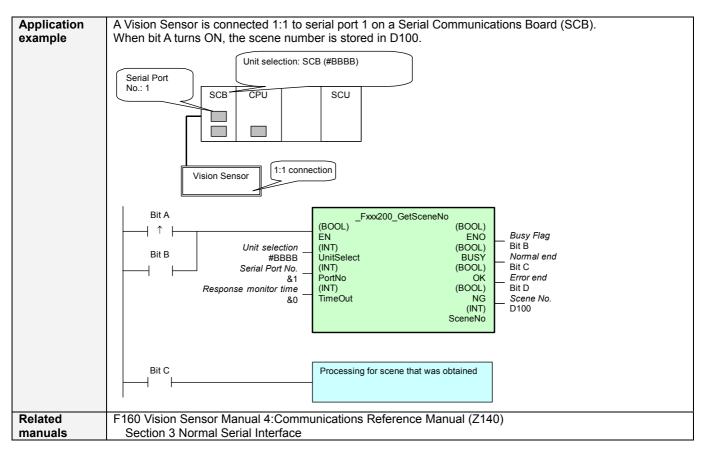
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port.
					 Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.

Version	Date	Contents
1.00	2004.6.	Original production

Fxxx -200	Get Scene Number: _Fxxx200_GetSceneNo						
Basic function	Reads the scene number.						
Symbol	Start trigger						
File name	Lib\FBL\omronlib\VisionSensor\Fxxx_Fxxx200_GetSceneNo10.cxf						
Applicable	F160/F210						
models							
Conditions	External Connections						
for usage	Can be used only for 1:1 connections.						
	• When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set						
	 the serial port to the same communications specifications as the Vision Sensor (normal/no-protocol). When connected to the built-in RS-232C port on the CPU Unit, set the RS-232C communications port 						
	• when connected to the built-in RS-232C port on the CPO Unit, set the RS-232C communications port settings (no-protocol) in the PLC Setup to the same communications specifications as the Vision Sensor						
	(normal/no-protocol).						
	Communications must be within one network and cannot cross to another network.						
	 Communications must be within one network and cannot cross to another network. This FB is invalid when the serial port error is happend. 						
	Vision Sensor Settings						
	Set the Vision Sensor output to the serial interface ASCII format.						
Function	When the Start Trigger turns ON, the scene number is read for the Vision Sensor connected to the serial						
description	port specified by the Unit selection and Serial port No.						
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the						
precautions	FB is being processed.						
	• OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect						
	the end of FB processing.						
	Timechart Start Trigger ON						
	OFF						
	Busy Flag (BUSY) ON						
	OFF						
	Normal end (OK) or ON						
	Error end (NG) OFF						
	FB execution completed.						
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY						
condition	output from the FB.						
Restrictions	Always use an upwardly differentiated condition for EN.						
Input	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
variables							
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable						
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).						
	Do not turn the BUSY output variable ON or OFF outside the FB.						



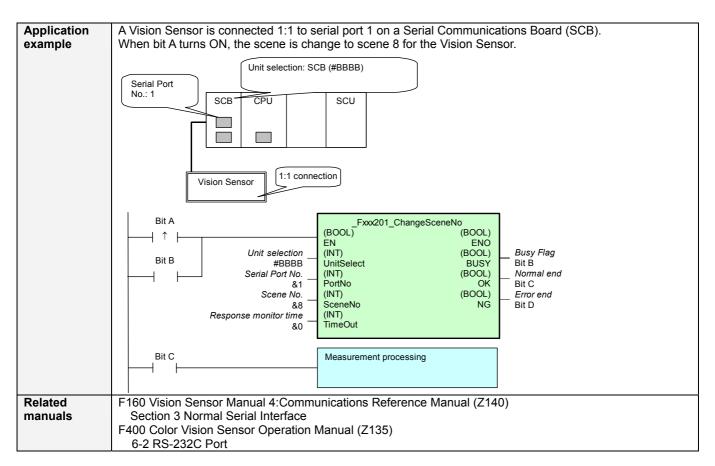
Input variables	Variable nome	Data turna	Default	Danga	Description
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port.
					Connected to CPU Unit
					Unit selection #FFFF
					Serial port No. Not accessed.
					(&1 recommended)
					Connected to Serial Communication Board(SCB)
					Unit selection #BBBB
					Serial port No. &1: Port 1 &2: Port 2
					Connected to Serial Communication Unit(SCU)
					Unit selection SCU Unit No. (&0 to &15)
					Serial port No. &1: Port 1
					&2: Port 2
Response monitor	TimeOut	INT	&0	&0 to	Specify the response monitor time (unit:
time				&1200	100 ms). For example, &100 means 10
					seconds.
					&0: Default (5 seconds)
					au. Delault (0 secolids)

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Scene No.	SceneNo	INT	&0 to &31	

Version	Date	Contents
1.00	2004.6.	Original production

Fxxx -201	Change Scene: _Fxxx201_ChangeSceneNo						
Basic	Changes the scene.						
function							
Symbol	Start triggerFxxx201_ChangeSceneNo						
	(BOOL) (BOOL)						
	EN ENO (INT) (BOOL) Busy Flag						
	Busy riag Unit selection Unit select BUSY						
	Serial Port No. PortNo OK Nonna end						
	Scene No (INT) (BOOL) - Error end						
	Response monitor time — (INT) TimeOut						
File name	Lib\FBL\omronlib\VisionSensor\Fxxx_Fxxx201_ChangeSceneNo10.cxf						
Applicable	F160/F210						
models							
Conditions	External Connections						
for usage	 Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set 						
	• When connected via a Senar communications on (SCO) of Senar Communications Board (SCB), set the serial port to the same communications specifications as the Vision Sensor (normal/no-protocol).						
	• When connected to the built-in RS-232C port on the CPU Unit, set the RS-232C communications port						
	settings (no-protocol) in the PLC Setup to the same communications specifications as the Vision Sensor						
	(normal/no-protocol).						
	 Communications must be within one network and cannot cross to another network. This EB is invalid when the serial port error is happend. 						
	 This FB is invalid when the serial port error is happend. Multiple FBs cannot simultaneously perform processing for one Vision Sensor. 						
	Communication error may occur as PLC serial port receives unexpected data when power is ON.						
	Would recommend restart of the serial port after PLC system is activated						
Function	When the Start Trigger turns ON, the scene is changed to the specified scene number for the Vision Sensor						
description FB	 connected to the serial port specified by the <i>Unit selection</i> and <i>Serial port No.</i> The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the 						
precautions	• The PB is processed over multiple cycles. The BOST output variable can be used to check whether the FB is being processed.						
P	 OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect 						
	the end of FB processing.						
	Timechart						
	Start Trigger ON OFF						
	Busy Flag (BUSY) ON OFF						
	Normal end (OK) or ON						
	Error end (NG) OFF						
	↑ FB execution completed.						
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY						
condition	output from the FB.						
Restrictions Input	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
variables							
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable						
variables	to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>).						
	Do not turn the BUSY output variable ON or OFF outside the FB.						



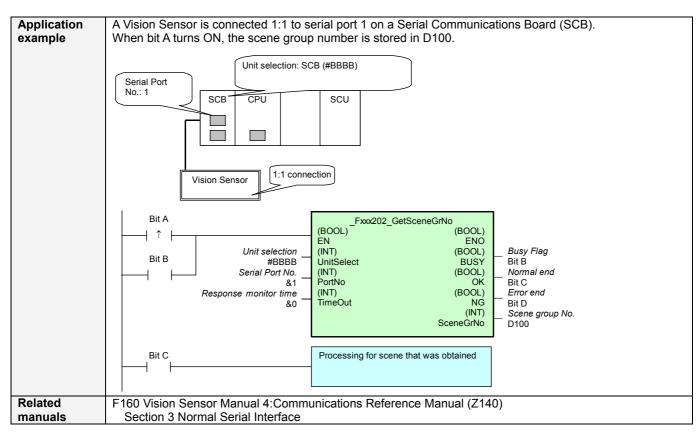
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. &1: Port 1 &2: Port 2
Scene No.	SceneNo	INT	&0	&0 to &31	Specify the scene number.
Response monitor time	TimeOut	INT	&0	&0 to &1200	Specify the response monitor time (unit: 100 ms). For example, &100 means 10 seconds. &0: Default (5 seconds)

Output Variables

Name	Variable name	Data type	Range	Description
			Range	
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Version	Date	Contents
1.00	2004.6.	Original production

Fxxx -202	Get Scene Group Number: _Fxxx202_GetSceneGrNo						
Basic	Gets the scene group number.						
function							
Symbol	Start trigger Fxxx202 GetSceneGrNo						
	(BOOL) − − (BOOL) EN ENO						
	(INT) (BOOL) Busy Flag						
	Busy Flag Unit selection Unit Select BUSY (INT) (BOOL) Normal end						
	Serial Port No. PortNo OK						
	(INT) (BOOL) — Error end TimeOut NG						
	(INT) — Scene group No. SceneGrNo						
	Stelleonino						
File name	Lib\FBL\omronlib\VisionSensor\Fxxx_Fxxx202_GetSceneGrNo10.cxf						
Applicable	F160/F210						
models							
Conditions	External Connections						
for usage	 Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set 						
	the serial port to the same communications specifications as the Vision Sensor (normal/no-protocol).						
	When connected to the built-in RS-232C port on the CPU Unit, set the RS-232C communications port						
	settings (no-protocol) in the PLC Setup to the same communications specifications as the Vision Sensor						
	(normal/no-protocol).						
	 Communications must be within one network and cannot cross to another network. This EB is invalid when the assist part error is beenend. 						
	 This FB is invalid when the serial port error is happend. Multiple FBs cannot simultaneously perform processing for one Vision Sensor. 						
	 Multiple FBS cannot simultaneously perform processing for one vision Sensor. Communication error may occur as PLC serial port receives unexpected data when power is ON. 						
	Would recommend restart of the serial port after PLC system is activated						
	Vision Sensor Settings						
	Set the Vision Sensor output to the serial interface ASCII format.						
Function description	When the Start Trigger turns ON, the scene group number is read for the Vision Sensor connected to the serial port specified by the <i>Unit selection</i> and <i>Serial port No</i> .						
FB	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the						
precautions	FB is being processed.						
	 OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of EP processing 						
	the end of FB processing.						
	Timechart Start Trigger ON						
	OFF						
	Busy Flag (BUSY) ON						
	OFF						
	Normal end (OK) or ON Error end (NG) OFF						
	→ FB execution completed.						
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY						
Restrictions	output from the FB. Always use an upwardly differentiated condition for EN.						
Input	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
variables							
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable						
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).						
	 Do not turn the BUSY output variable ON or OFF outside the FB. 						



Input Variables

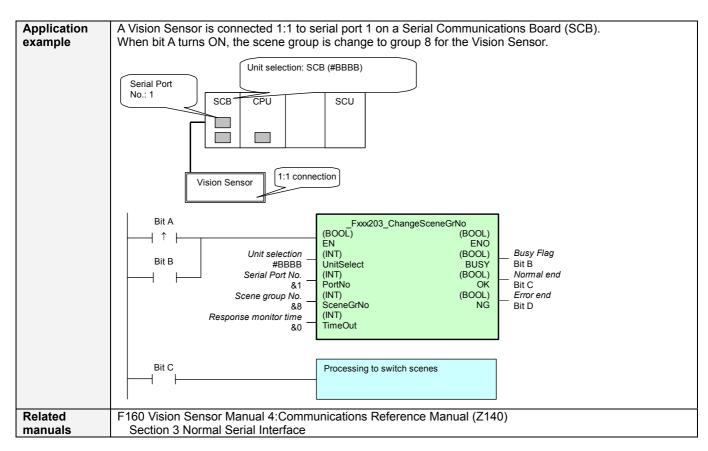
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port.
					 Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Response monitor time	TimeOut	INT	&0	&0 to &1200	Specify the response monitor time (unit: 100 ms). For example, &100 means 10 seconds. &0: Default (5 seconds)

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Scene group No.	SceneGrNo	INT	&0 to &31	

Version	Date	Contents
1.00	2004.6.	Original production

Fxxx -203	Switch Scene Group: _Fxxx203_ChangeSceneGrNo							
Basic function	Switches the scene group.							
Symbol								
	Start triggerFxxx203_ChangeSceneGrNo ↓ ↑ ↓ (BOOL) (BOOL)							
	EN ENÓ							
	Busy Flag Unit selection - (INT) (BOOL) UnitSelect BUSY Busy Flag							
	Serial Port No							
	Scene group No (INT) (BOOL) Error end							
	(INT)							
File name	Lib\FBL\omronlib\VisionSensor\Fxxx_Fxxx203_ChangeSceneGrNo10.cxf							
Applicable	F160/F210							
models Conditions	External Connections							
for usage	Can be used only for 1:1 connections.							
	• When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set							
	the serial port to the same communications specifications as the Vision Sensor (normal/no-protocol).							
	When connected to the built-in RS-232C port on the CPU Unit, set the RS-232C communications port acttings (no protocol) in the PLC Seture to the same communications ensuiting and the Vision Sensor							
	settings (no-protocol) in the PLC Setup to the same communications specifications as the Vision Sensor (normal/no-protocol).							
	Communications must be within one network and cannot cross to another network.							
	 This FB is invalid when the serial port error is happend. 							
	 Multiple FBs cannot simultaneously perform processing for one Vision Sensor. Communication error may occur as PLC serial port receives unexpected data when power is ON. 							
	• Communication error may occur as PLC senar por receives unexpected data when power is ON. Would recommend restart of the serial port after PLC system is activated							
Function	When the Start Trigger turns ON, the scene group is changed to the specified scene group for the Vision							
description	Sensor connected to the serial port specified by the Unit selection and Serial port No.							
FB precautions	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the EB is being processed							
precautions	FB is being processed.OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect							
	the end of FB processing.							
	Timechart							
	Start Trigger ON							
	OFF							
	Busy Flag (BUSY) ON OFF							
	Normal end (OK) or ON							
	Error end (NG) OFF							
	↑ FB execution completed.							
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY							
condition Restrictions	output from the FB. Always use an upwardly differentiated condition for EN.							
Input	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 							
variables								
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable							
variables	 to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 							



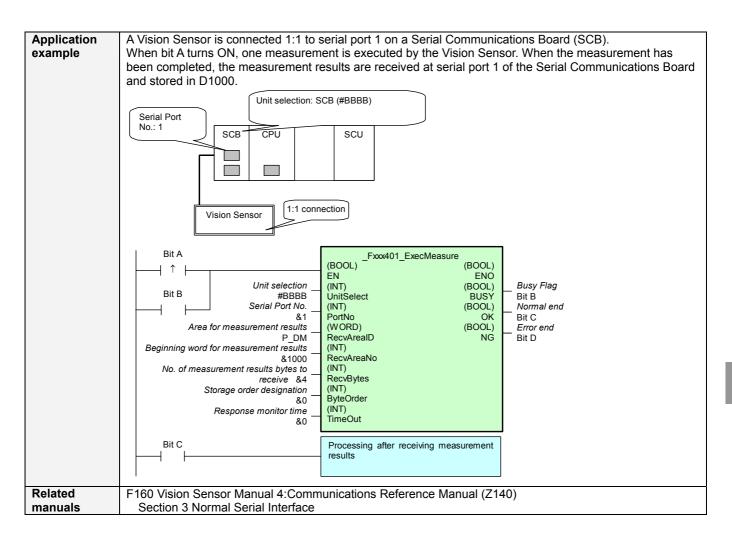
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port.
					 Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Scene group No.	SceneGrNo	INT	&0	&0 to &31	Specify the scene group number.
Response monitor time	TimeOut	INT	&0	&0 to &1200	Specify the response monitor time (unit: 100 ms). For example, &100 means 10 seconds. &0: Default (5 seconds)

Output Variables

Output Variabies				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.

Version	Date	Contents
1.00	2004.6.	Original production

Fxxx -401	Execute Measurement: _Fxxx401_ExecMeasure						
Basic function	Executes one measurement.						
Symbol	Start trigger						
	Area for measurement results Beginning word for measurement results No. of measurement results bytes to receive Storage order designation Response monitor time						
File name	Lib\FBL\omronlib\VisionSensor\Fxxx_Fxxx401_ExecMeasure10.cxf						
Applicable models	F160/F210						
Conditions	External Connections						
for usage	 External Connections Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Vision Sensor (normal/no-protocol). When connected to the built-in RS-232C port on the CPU Unit, set the RS-232C communications port settings (no-protocol) in the PLC Setup to the same communications specifications as the Vision Sensor 						
	(normal/no-protocol).						
	 Communications must be within one network and cannot cross to another network. This FB is invalid when the serial port error is happend. 						
	 Multiple FBs cannot simultaneously perform processing for one Vision Sensor. 						
	Communication error may occur as PLC serial port receives unexpected data when power is ON.						
	Would recommend restart of the serial port after PLC system is activated						
	 Vision Sensor Settings Set the Vision Sensor output to the serial interface ASCII format. 						
	• Set the vision sensor output to the senar interface ASCIT format. The measurement results output by the FB will be in ASCII format.						
Function description	When the Start Trigger turns ON, one measurement is executed and the specified number of bytes of the results are stored in the measurement results storage word for the Vision Sensor connected to the specified serial port for the specified <i>Unit selection</i> and <i>Serial port No</i> . The word designation for storing the measurement results is specified using the area type and beginning						
	word address. For example, for D1000, the area type is set to P_DM and the beginning word address is set to &1000.						
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. 						
	Start Trigger ON OFF						
	Busy Flag (BUSY) ON OFF						
	Normal end (OK) or ON Error end (NG) OFF						
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.						
Restrictions	Always use an upwardly differentiated condition for EN.						
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.						
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable						
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).						
	 Do not turn the BUSY output variable ON or OFF outside the FB. If this FB is used in Verify Mode, input &0 for the No. of Measurement Results Bytes to Receive (RecvBytes). 						
	The measurement results will not be output if this FB is executed in Verify Mode.						



					-	-
Input	Vá	aria	abl	es		

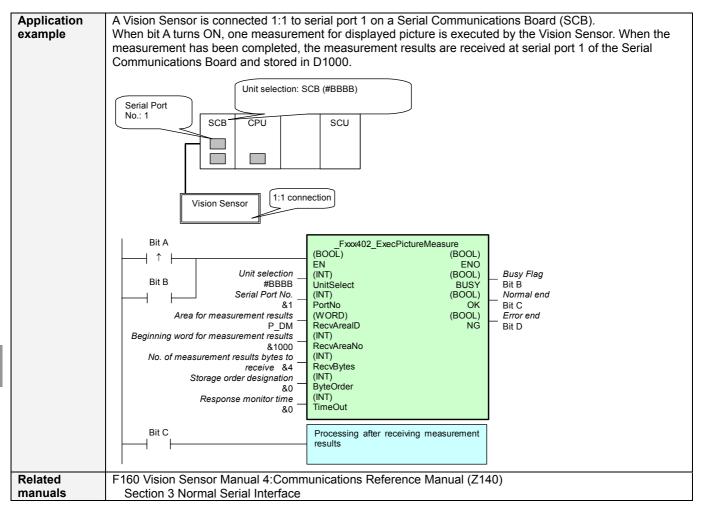
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Area for measurement results	RecvArealD	WORD	#0082	At right.	P_CIO (#00B0): CIO Area P_WR (#00B1): Work Area P_HR (#00B2): Holding Area P_DM (#0082): DM Area P_EM0 (#0050) to P_EMC (#005C): EM Area bank 0 to C
Beginning word for measurement results	RecvAreaNo	INT	&0		
No. of measurement results bytes to receive	RecvBytes	INT	&0	&0 to &256	&0: Verify Mode &1 to &256: RUN Mode
Storage order designation	ByteOrder	INT	&0	&0 to &1	Order for storing measurement results &0: Upper byte to lower byte &1: Lower byte to upper byte ^{0: Upper to lower} Address Measurement CPU Unit results 01 02 03 04
					1: Lower to upper Address Measurement CPU Unit results memory 01 02 03 04 04 03
Response monitor time	TimeOut	INT	&0	&0 to &1200	Specify the response monitor time (unit: 100 ms). For example, &100 means 10 seconds. &0: Default (5 seconds)

Output Vallabioo				-
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Version	Date	Contents
1.00	2004.6.	Original production

Fxxx -402	Execute Picture Measurement: _Fxxx402_ExecPictureMeasure						
Basic function	Executes one measurement on the image being displayed.						
Symbol	Start trigger						
File name	Lib\FBL\omronlib\VisionSensor\Fxxx_Fxxx402_ExecPictureMeasure10.cxf						
Applicable	F160/F210						
models Conditions for usage	 External Connections Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Vision Sensor (normal/no-protocol). When connected to the built-in RS-232C port on the CPU Unit, set the RS-232C communications port settings (no-protocol) in the PLC Setup to the same communications specifications as the Vision Sensor (normal/no-protocol). Communications must be within one network and cannot cross to another network. This FB is invalid when the serial port error is happend. Multiple FBs cannot simultaneously perform processing for one Vision Sensor. Communication error may occur as PLC serial port receives unexpected data when power is ON. Would recommend restart of the serial port after PLC system is activated 						
	 Vision Sensor Settings Set the Vision Sensor output to the serial interface ASCII format. The measurement results output by the EB will be in ASCII format. 						
Function description	The measurement results output by the FB will be in ASCII format. When the Start Trigger turns ON, one measurement on the image being displayed is executed and the specified number of bytes of the results are stored in the measurement results storage word for the Vision Sensor connected to the specified serial port for the specified <i>Unit selection</i> and <i>Serial port No</i> . The word designation for storing the measurement results is specified using the area type and beginning word address. For example, for D1000, the area type is set to P_DM and the beginning word address is set to &1000.						
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF OFF OFF						
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY						
condition Restrictions Input variables	 output from the FB. Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. If this FB is used in Verify Mode, input &0 for the No. of Measurement Results Bytes to Receive (RecvBytes). The measurement results will not be output if this FB is executed in Verify Mode. 						

3-11 Vision Sensor



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15)
Area for measurement results	RecvArealD	WORD	#0082	At right.	Serial port No. &1: Port 1 &2: Port 2 P_CIO (#00B0): CIO Area P_WR (#00B1): Work Area P_HR (#00B2): Holding Area P_DM (#0082): DM Area P_EM0 (#0050) to P_EMC (#005C): EM Area bank 0 to C
Beginning word for measurement results	RecvAreaNo	INT	&0		
No. of measurement results bytes to receive	RecvBytes	INT	&0	&0 to &256	&0: Verify Mode &1 to &256: RUN Mode
Storage order designation	ByteOrder	INT	&0	&0 to &1	Order for storing measurement results &0: Upper byte to lower byte &1: Lower byte to upper byte ^{0: Upper to lower} Address Measurement CPU Unit results $02 \\ 03 \\ 04 \\ 02 \\ 03 \\ 04 \\ 02 \\ 03 \\ 04 \\ 02 \\ 03 \\ 04 \\ 02 \\ 03 \\ 04 \\ 02 \\ 03 \\ 04 \\ 02 \\ 03 \\ 04 \\ 02 \\ 03 \\ 04 \\ 02 \\ 03 \\ 04 \\ 02 \\ 03 \\ 04 \\ 02 \\ 03 \\ 04 \\ 02 \\ 03 \\ 04 \\ 02 \\ 03 \\ 04 \\ 02 \\ 03 \\ 04 \\ 02 \\ 03 \\ 04 \\ 02 \\ 02 \\ 03 \\ 04 \\ 02 \\ 02 \\ 02 \\ 02 \\ 02 \\ 02 \\ 02$
					1: Lower to upper Address Measurement CPU Unit results 01 02 03 04 04 03 04
Response monitor time	TimeOut	INT	&0	&0 to &1200	Specify the response monitor time (unit: 100 ms). For example, &100 means 10 seconds. &0: Default (5 seconds)

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Version	Date	Contents
1.00	2004.6.	Original production

Barcode

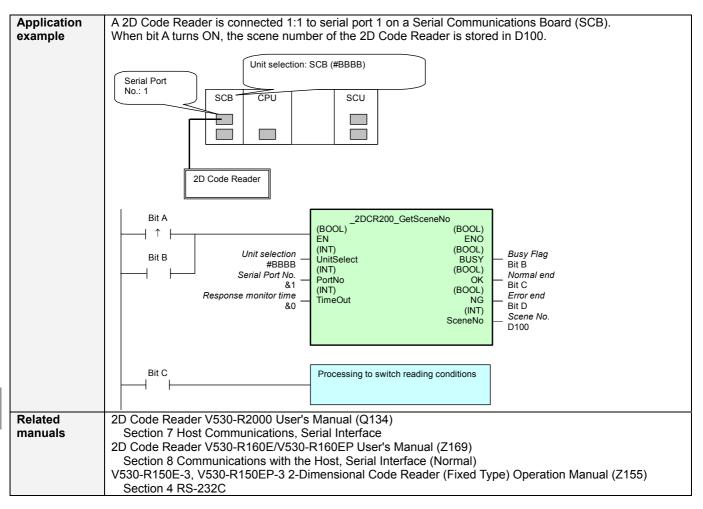
3-12 Code Reader

V530-R2000/R160/R150V3 series

FB Name	Function	Page
_2DCR200_GetSceneNo	Get Scene Number	3-355
_2DCR201_ChangeSceneNo	Change Scene Number	3-358
_2DCR401_ExecRead	Execute Read	3-361

Get Scene Number: 2DCR200 GetSceneNo -200 Basic Reads the scene number. function Symbol Start trigger _2DCR200_GetSceneNo (BOOL) (BOOL) -| ↑ |-ENÓ ĖΝ (INT) (BOOL) **Busy Flag** Busy Flag Unit selection UnitSelect BUSY (BOOL) (INT) Normal end PortNo OK Serial Port No. (INT) (BOOL) TimeOut Error end NG Response monitor time (INT) SceneNo Scene No. File name Lib\FBL\omronlib\Barcode Scanner\2DCR_2DCR200_GetSceneNo10.cxf V530-R2000 Series, V530-R160 Series, and V530-R150V3 Series Applicable models Conditions **External Connections** for usage Can be used only for 1:1 connections. • When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the 2D Code Reader (normal/no-protocol). When connected to the built-in RS-232C port on the CPU Unit, set the RS-232C communications port settings (no-protocol) in the PLC Setup to the same communications specifications as the 2D Code Reader (normal/no-protocol). • Communications must be within one network and cannot cross to another network. This FB is invalid when the serial port error is happend. Multiple FBs cannot simultaneously perform processing for one Code Reader. • When the PLC system is turned ON, the serial port may receive unexpected data, resulting in a communication error. It is recommended to restart the serial port one time after starting up the PLC system. Shared Resources When a Serial Communications Unit is specified: Communications ports (internal logical ports) Code Reader Settings Always set the 2D Code Reader scene number before using this FB. Function When the Start Trigger turns ON, the scene number is read for the 2D Code Reader connected to the serial port and specified by the Unit Selection and Serial Port Number. description FB The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the precautions FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or ON Error end (NG) OFF FB execution completed. At normal end: Scene number is output. **EN** input Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY condition output from the FB Restrictions · Always use an upwardly differentiated condition for EN. Input If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. variables Output This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable variables to the EN input variable to ensure that the FB is processed to completion (see Symbol). · Do not turn the BUSY output variable ON or OFF outside the FB

2DCR



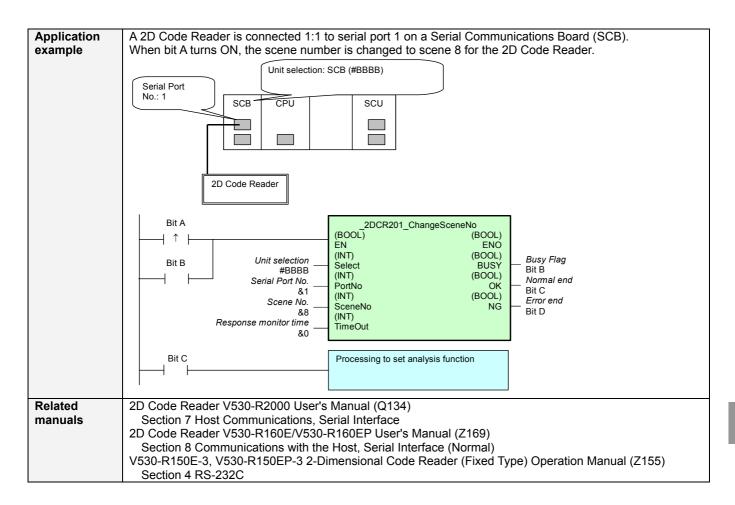
Nome	Variable name	Data turna	Default	Dongo	Description
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Response monitor time	TimeOut	INT	&0	&0 to &990	Specify the response monitor time (unit: 100 ms). &0: Default (99 seconds)

Output Variables

eacpat fallablee				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Scene No.	SceneNo	INT	&0 to &9	

Version	Date	Contents			
1.00	2004.6.	Original production			

2DCR -201	Change Scene Number: _2DCR201_ChangeSceneNo							
Basic function	Changes the scene number of the 2D Code Reader.							
Symbol	Start trigger2DCR201_ChangeSceneNo							
	(BOOL) (BOOL)							
	EN ENO (INT) (BOOL)							
	Busy Flag Unit selection UnitSelect BUSY Busy Flag							
	Serial Port No. — (INT) (BOOL) PortNo OK Normal end							
	Scene No. — (INT) (BOOL) Scene No. — SceneNo NG — Error end							
	(INT)							
	TimeOut							
File name	Lib\FBL\omronlib\Barcode Scanner\2DCR_2DCR201_ChangeSceneNo10.cxf							
Applicable	V530-R2000 Series, V530-R160 Series, and V530-R150V3 Series							
models								
Conditions	External Connections							
for usage	• Can be used only for 1:1 connections.							
	 When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the 2D Code Reader (normal/no-protocol). 							
	 When connected to the built-in RS-232C port on the CPU Unit, set the RS-232C communications port 							
	settings (no-protocol) in the PLC Setup to the same communications specifications as the 2D Code							
	Reader (normal/no-protocol).							
	 Communications must be within one network and cannot cross to another network. 							
	This FB is invalid when the serial port error is happend.							
	 Multiple FBs cannot simultaneously perform processing for one Code Reader. When the PLC system is turned ON, the serial port may receive unexpected data, resulting in a 							
	• When the PEC system is turned ON, the senal port may receive unexpected data, resulting in a communication error.							
	It is recommended to restart the serial port one time after starting up the PLC system							
	Shared Resources							
	When a Serial Communications Unit is specified: Communications ports (internal logical ports). Code Reader Settings							
	Code Reader SettingsAlways set the 2D Code Reader scene number before using this FB.							
Function	When the Start Trigger turns ON, the scene number is changed for the 2D Code Reader connected to the							
description	serial port and specified by the Unit Selection and Serial Port Number.							
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the							
precautions	FB is being processed.							
	OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the and of ED processing.							
	the end of FB processing.							
	Timechart Start Trigger ON							
	OFF							
	Busy Flag (BUSY) ON							
	OFF							
	Normal end (OK) or ON Error end (NG) OFF							
	→ FB execution completed.							
	At normal end: Scene number is changed.							
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY							
condition	output from the FB.							
Restrictions	Always use an upwardly differentiated condition for EN.							
Input	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 							
variables Output	This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable							
variables	 This FB requires multiple cycles to process. Always connect an OR including the BOST output variable to the EN input variable to ensure that the FB is processed to completion (see Symbol). 							
	 Do not turn the BUSY output variable ON or OFF outside the FB. 							



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the Unit selection and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Scene No.	SceneNo	INT	&0	&0 to &9	Specify the scene number.
Response monitor time	TimeOut	INT	&0	&0 to &990	Specify the response monitor time (unit: 100 ms). &0: Default (99 seconds)

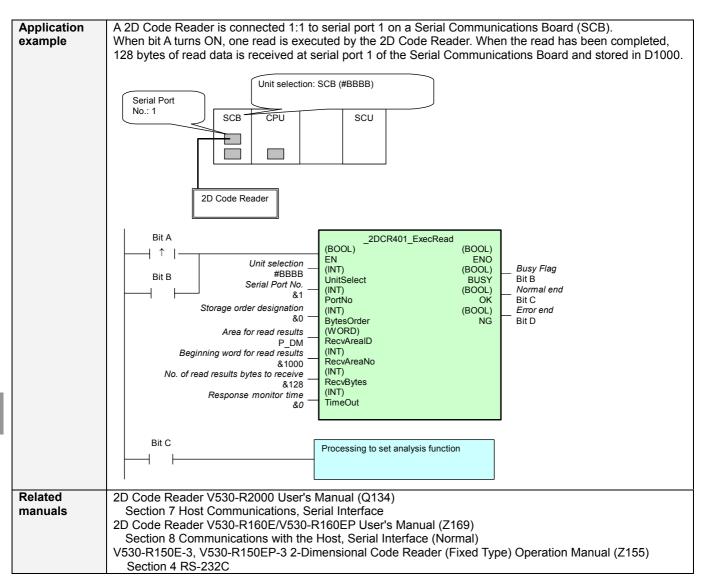
Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Version	Date	Contents			
1.00	2004.6.	Original production			

2DCR -401	Execute Read: _2DCR401_ExecRead							
Basic	Executes one read for a 2D Code Reader.							
function Symbol								
Symbol	Start trigger _2DCR401_ExecRead ↓ ↑ ↓ (BOOL) (BOOL)							
	EN ENÓ (INT) (BOOL)							
	Busy Flag Unit selection UnitSelect BUSY Busy Flag							
	Serial Port No. PortNo OK Normal end							
	Storage order designation BytesOrder (W ORD) NG Error end							
	Area for read results — RecvAreaID							
	results (INT)							
	No. of read results bytes to receive RecvBytes (INT)							
	Response monitor time — TimeOut							
File name	Lib\FBL\omronlib\Barcode Scanner\2DCR_2DCR401_ExecRead10.cxf							
Applicable models	V530-R2000 Series, V530-R160 Series, and V530-R150V3 Series							
Conditions	External Connections							
for usage	 Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set 							
	the serial port to the same communications specifications as the 2D Code Reader (normal/no-protocol).							
	 When connected to the built-in RS-232C port on the CPU Unit, set the RS-232C communications port settings (no-protocol) in the PLC Setup to the same communications specifications as the 2D Code 							
	Reader (normal/no-protocol).							
	 Communications must be within one network and cannot cross to another network. This FB is invalid when the serial port error is happend. 							
	 Multiple FBs cannot simultaneously perform processing for one Code Reader. 							
	 When the PLC system is turned ON, the serial port may receive unexpected data, resulting in a communication error. 							
	communication error. It is recommended to restart the serial port one time after starting up the PLC system							
	 Shared Resources When a Serial Communications Unit is specified: Communications ports (internal logical ports). 							
	• When a Senar Communications only is specified. Communications ports (internal logical ports). Code Reader Settings							
	Always set the 2D Code Reader scene number before using this FB. This FD can be used and under the trigger input mode is set to the and she mode on the lovel mode.							
Function	• This FB can be used only when the trigger input mode is set to the one-shot mode or the level mode. When the Start Trigger turns ON, one read is executed and the specified number of read data reception							
description	bytes are stored in the measurement results storage words for the 2D Code Reader connected to the							
	specified serial port for the specified Unit Selection and serial port number. The word designation for storing the measurement results is specified using the area type and beginning							
	word address. For example, for D1000, the area type is set to P_DM and the beginning word address is set to &1000.							
FB	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the							
precautions	FB is being processed.							
	 OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. 							
	Timechart							
	Start Trigger ON OFF							
	Busy Flag (BUSY) ON							
	Normal end (OK) or ON							
	Error end (NG) OFF							
	At normal end: Data is stored in measurement results storage are							
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY							
condition Restrictions	output from the FB. Always use an upwardly differentiated condition for EN.							
Input	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.							
variables Output	Up to 256 read data reception bytes can be read. This EP requires multiple cycles to process. Always connect on OP including the PLISX output variable.							
variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see Symbol). 							
	Do not turn the BUSY output variable ON or OFF outside the FB.							

3-12 Code Reader



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the Unit selection and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port.
					Connected to CPU Unit
					Unit selection #FFFF Serial port No. Not accessed.
					(&1 recommended)
					Connected to Serial Communication Board(SCB)
					Unit selection #BBBB Serial port No. &1: Port 1
					&1: Port 1 &2: Port 2
					Connected to Serial Communication Unit(SCU)
					Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1
					Serial port No. &1: Port 1 &2: Port 2
Storage order	BytesOrder	INT	&0	&0 to &1	Storage order for read data
designation			0.0		&0: Upper byte to lower byte
<u>-</u>					&1: Lower byte to upper byte
					0: Upper to lower
					Address Read data CPU Unit
					0010 01 01 02
					$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
					0012 03 0013 04
					1: Lower to upper Address Read data CPU Unit
					memory
					$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
					0012 03
					0013 04
Area for read	RecvArealD	WORD	#0082	At left.	P_CIO (#00B0): CIO Area
results					P_WR (#00B1): Work Area
					P_HR (#00B2): Holding Area
					P_DM (#0082): DM Area
					P_EM0 (#0050) to P_EMC (#005C):
<u> </u>					EM Area bank 0 to C
Beginning word for	RecvAreaNo	INT	&0		
read results			80	80 to 8050	
No. of read results	RecvBytes	INT	&0	&0 to &256	
bytes to receive	TimeOut		80	80 to 8000	
Response monitor	TimeOut	INT	&0	&0 to &990	Specify the response monitor time (unit:
time					100 ms).
					&0: Default (99 seconds)

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.

Version	Date	Contents
1.00	2004.6.	Original production

Laser Sensor

3-13 Laser Sensor

ZX-LDA-N series

FB Name	Function	Page
_ZXL001_InitializeParameter	Initialize Settings	3-365
_ZXL002_StartAutoTeach	Start Autoteaching	3-367
_ZXL003_StopAutoTeach	Stop Autoteaching	3-370
_ZXL004_ExeZeroReset	Execute Zero Reset	3-373
_ZXL005_StopZeroReset	Release Zero Reset	3-376
_ZXL006_StartLDOFF	Start Load OFF Status	3-379
_ZXL007_StopLDOFF	Stop Load OFF Status	3-382
_ZXL008_Teach1HighThreshold	Teach 1-point High Threshold	3-385
_ZXL009_Teach1LowThreshold	Teach 1-point Low Threshold	3-388
_ZXL010_Teach2HighThreshold	Teach 2-point High Threshold	3-391
_ZXL011_Teach2LowThreshold	Teach 2-point Low Threshold	3-394
_ZXL200_ReadMemArea	Read Memory Area	3-397
_ZXL201_ReadMainDisplay	Read Main Display Value	3-401
_ZXL202_ReadDecimalPoint	Read Decimal Point Position	3-404
_ZXL203_ReadIncidentLevel	Read Incident Light	3-407
_ZXL204_ReadResolution	Read Resolution	3-410
_ZXL205_ReadOutputs	Read Control Output	3-413
_ZXL206_ReadEnableData	Read Enable Data	3-416
_ZXL207_ReadHighThreshold	Read High Threshold	3-419
_ZXL208_ReadLowThreshold	Read Low Threshold	3-422
_ZXL407_WriteHighThreshold	Write High Threshold Data	3-425
_ZXL408_WriteLowThreshold	Write Low Threshold Data	3-428

ZXL -001	Initialize Settings: _ZXL001_InitializeParameter
Basic function	Initializes the settings in the Smart Sensor.
Symbol	Start trigger ZXL001_InitializeParameter Image: Provide the section of
File name	Lib\FBL\omronlib\LaserSensor\ZXL_ZXL001_InitializeParameter10.cxf
Applicable	ZX-LDA-N
models	
Conditions	External Connections
for usage Function description FB	 Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) When the Start Trigger turns ON, all settings are returned to their default values for the Smart Sensor connected to the Serial Port specified by the Connection unit and Serial port No. The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the
precautions	FB is being processed.
	OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF OFF Normal end (OK) or OFF FB execution completed.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.
Other	 Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON).
Application	A Smart Sensor is connected 1:1 to serial port 1 on a Serial Communications Board (SCB).
example	When bit A turns ON, the Smart Sensor is initialized.
Related	ZX-L-N Series Smart Sensors Laser Type User's Manual (Z197)
manuals	Section 6 Auxiliary Functions ZX Series Smart Sensors Operation Manual (Z157)

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

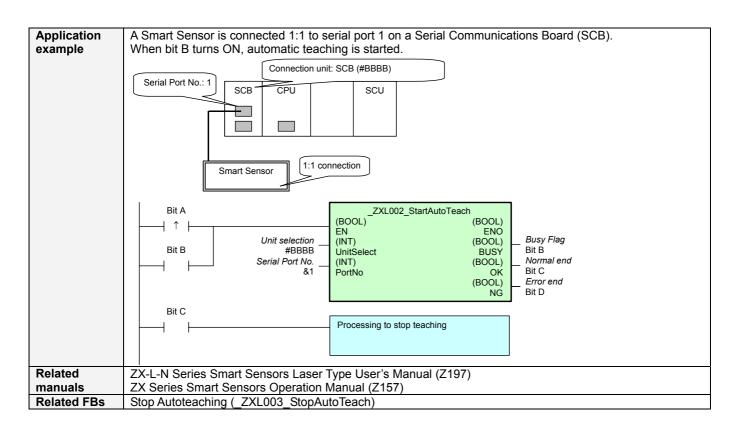
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is
				output to the Error Code.
				See below.

Error Code Details

•••			
	Code	Contents	Meaning
	#0000	Normal end	
	#2203	Operation error	 There is an error in the setting for the model, teaching, or zero reset function. Refer to the Smart Sensor Operation Manual for setting error conditions for teaching and the zero reset function.
	#2204	Operation error	The Sensor is not in RUN mode.

Version	Date	Contents
1.00	2004.6.	Original production

ZXL -002	Start Autoteaching: _ZXL002_StartAutoTeach
Basic	Starts automatic teaching.
function	
Symbol	Start trigger ZXL002_StartAutoTeach ↑ ↑ (BOOL) Busy Flag Unit selection J Serial Port No. V (INT) Busy Flag Serial Port No.
File name	Lib\FBL\omronlib\LaserSensor\ZXL_ZXL002_StartAutoTeach10.cxf
Applicable models	ZX-LDA-N
Conditions for usage	 External Connections Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0)
Function	 Communications ports (internal logical ports) When the Start Trigger turns ON, automatic teaching is started for the Smart Sensor connected to the Serial
description	Port specified by the <i>Connection unit</i> and <i>Serial port No</i> . Use this FB together with the Stop Autoteaching FB (_ZXL003_StopAutoTeach). The highest value achieved between starting and stopping teaching is set as the high threshold and the lowest value is set as the low threshold. Execute the Stop Autoteaching FB (_ZXL003_StopAutoTeach) after the Normal End flag for this FM turns ON. An execution error will occur if the display value is not being held or if the resulting high threshold is lower than the low threshold.
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the
precautions	 FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF
	Normal end (OK) or ON Error end (NG) OFF
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY
condition Restrictions Input variables	 output from the FB. Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.
Other	 Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON).



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description		
ENO	ENO	BOOL		1 (ON): FB processed normally.		
(May be omitted.)				0 (OFF): FB not processed or ended in an error.		
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is		
				completed.		
Normal end	OK	BOOL		Turns ON for one cycle when processing ends		
				normally.		
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an		
				error.		

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

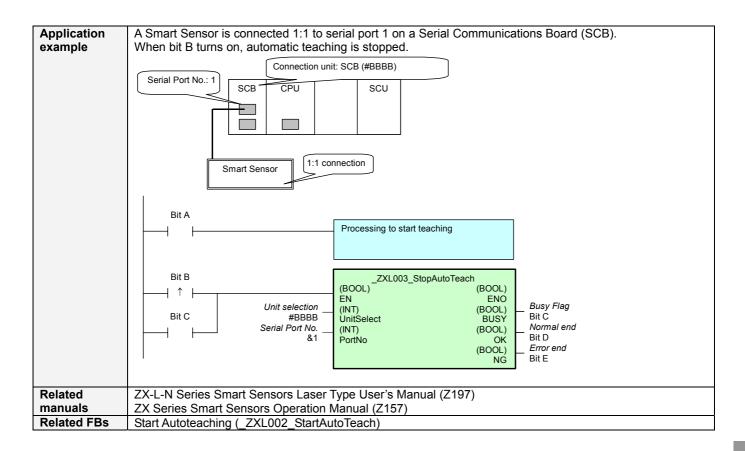
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is
				output to the Error Code.
				See below.

Error Code Details

U							
	Code	Contents	Meaning				
#0000 Normal end							
	#2203	Operation error	• A setting is incorrect. Refer to the <i>Smart Sensor Operation Manual</i> for setting error conditions for teaching and the zero reset function.				
#2204 Operation error • The Sensor is not in RUN mode.							

Version	Date	Contents	
1.00	2004.6.	Original production	

ZXL -003	Stop Autoteaching: _ZXL003_StopAutoTeach						
Basic function	Ends automatic teaching.						
Symbol	Start trigger ZXL003_StopAutoTeach ↑ ↑ (BOOL) Busy Flag Unit selection J Serial Port No. Serial Port No. (INT) Busy Flag Orthon J Serial Port No. Busy Flag Unit selection J Serial Port No.						
File name	Lib\FBL\omronlib\LaserSensor\ZXL_ZXL003_StopAutoTeach10.cxf						
Applicable models	ZX-LDA-N						
Conditions	External Connections						
for usage	Can be used only for 1:1 connections.						
	 When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) 						
Function	Communications ports (internal logical ports) When the Start Trigger turns ON, automatic teaching is stopped for the Smart Sensor connected to the						
description	Serial Port specified by the <i>Connection unit</i> and <i>Serial port No</i> . Use this FB together with the Start Autoteaching FB (_ZXL002_StartAutoTeach). The highest value achieved between starting and stopping teaching is set as the high threshold and the lowest value is set as the low threshold. Execute this FM after the Normal End flag for the Start Autoteaching FB (_ZXL002_StartAutoTeach) turns ON. An execution error will occur if the display value is not being held or if the resulting high threshold is lower than the low threshold.						
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the						
precautions	 FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF 						
	Normal end (OK) or ON Error end (NG) OFF FB execution completed.						
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY						
condition	output from the FB.						
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 						
Other	 Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON). 						



■ Variable Tables

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

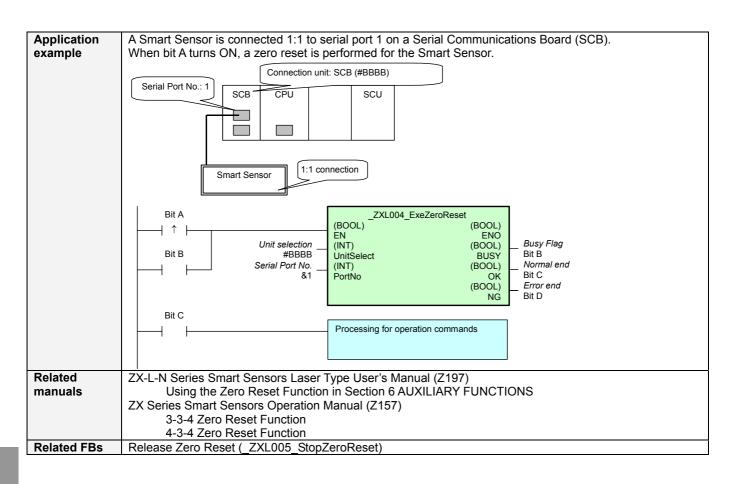
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is
				output to the Error Code.
				See below.

Error Code Details

	OCAC DCL						
Code Contents Meaning							
	#0000	Normal end					
	#2203	Operation error	• A setting is incorrect. Refer to the <i>Smart Sensor Operation Manual</i> for setting error conditions for teaching and the zero reset function.				
	#2204 Operation error • The Sensor is not in RUN mode.		The Sensor is not in RUN mode.				

Version	Date	Contents	
1.00	2004.6.	Original production	

ZXL Execute Zero Reset: ZXL004 ExeZeroReset -004 Executes a zero reset for the Smart Sensor. Basic function Symbol Start trigger _ZXL004_ExeZeroReset (BOOL) (BOOL) ⊣↑ ⊦ ENÓ ÈN (BOOL) BUSY (INT) Unit selection Busy Flag Busy Flag UnitSelect (INT) (BOOL) Normal end Serial Port No. PortNo OK (BOOL) Error end NG File name Lib\FBL\omronlib\LaserSensor\ZXL_ZXL004_ExeZeroReset10.cxf Applicable ZX-LDA-N models Conditions **External Connections** for usage • Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. • When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network. **CPU Unit Settings** PLC Setup: Shared Settings for Communications Instructions in FBs • Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) When the Start Trigger turns ON, a zero reset is executed for the Smart Sensor connected to the Serial Port Function description specified by the Connection unit and Serial port No. FB • The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the precautions FB is being processed. • OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or ON Error end (NG) OFF \uparrow FB execution completed. **EN** input Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY condition output from the FB. Restrictions Always use an upwardly differentiated condition for EN. Input • If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. variables This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable Output variables to the EN input variable to ensure that the FB is processed to completion (see Symbol). • Do not turn the BUSY output variable ON or OFF outside the FB. Other • Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON). Whether the zero reset value is written to EEPROM is determined by the Zero Reset Memory Setting, just as it is when the zero reset is used for the Smart Sensor. Set the Zero Reset Memory Setting to OFF. There is a limit on the number of times that the zero reset value can be written by executing a zero reset, just as there is for writing parameters (1 million writes). • An execution error will occur if the Smart Sensor cannot execute the zero reset function, e.g., if the display value is not being held or the detection range would be exceeded. Additional Information: Section 6 Auxiliary Functions in the ZX-L-N Series Smart Sensors Laser Type User's Manual (Z197)



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description			
ENO	ENO	BOOL		1 (ON): FB processed normally.			
(May be omitted.)				0 (OFF): FB not processed or ended in an error.			
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is			
				completed.			
Normal end	OK	BOOL		Turns ON for one cycle when processing ends			
				normally.			
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an			
				error.			

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

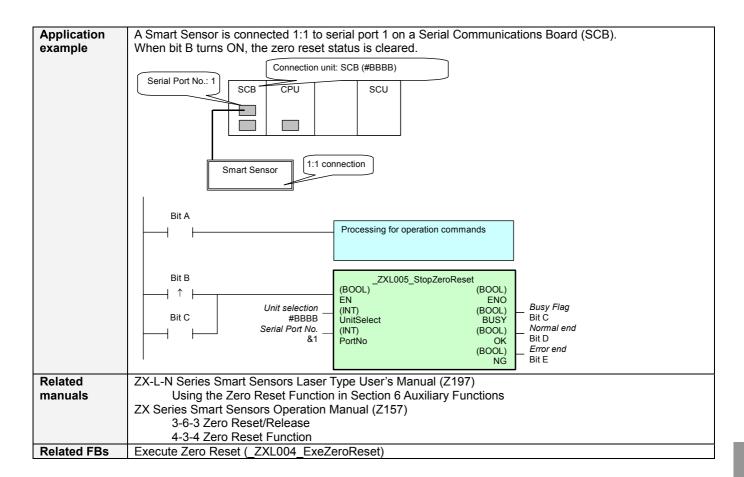
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is
				output to the Error Code.
				See below.

Error Code Details

Code	Contents	Meaning
#0000	Normal end	
#2203	Operation error	 A setting is incorrect. Refer to the Smart Sensor Operation Manual for setting error conditions for teaching and the zero reset function.
#2204	Operation error	The Sensor is not in RUN mode.

Version	Date	Contents	
1.00	2004.6.	Original production	

ZXL -005	Release Zero Reset: _ZXL005_StopZeroReset					
Basic function	Releases the zero reset status of the Smart Sensor.					
Symbol	Start trigger ZXL005_StopZeroReset ↑ ↑ (BOOL) Busy Flag Unit selection Serial Port No. (INT) (INT) (BOOL) PortNo (BOOL) NG					
File name	Lib\FBL\omronlib\LaserSensor\ZXL_ZX005_StopZeroReset10.cxf					
Applicable models	ZX-LDA-N					
Conditions for usage	 External Connections Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F). CompoWay/F). Communications must be vithin one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) S recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other Set the Zero Reset Memory Setting to OFF. There is a limit on the number of times that the zero reset 					
From et la m	value can be written by executing a zero reset, just as there is for writing parameters (1 million writes).					
Function description	 When the Start Trigger turns ON, the zero reset status is released for the Smart Sensor connected to the Serial Port specified by the <i>Connection unit</i> and <i>Serial port No</i>. Whether the zero reset value is written to EEPROM is determined by the Zero Reset Memory Setting, just as it is when the zero reset is used for the Smart Sensor. An execution error will occur if the Smart Sensor cannot execute the zero reset function, e.g., if the display value is not being held or the detection range would be exceeded. Additional Information: Section 6 Auxiliary Functions in the ZX-L-N Series Smart Sensors Laser Type User's Manual (Z197) 					
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the					
precautions	FB is being processed. • OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or OFF FB execution completed.					
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY					
condition Restrictions	output from the FB. Always use an upwardly differentiated condition for EN.					
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 					
Other	 Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON). 					



■ Variable Tables

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

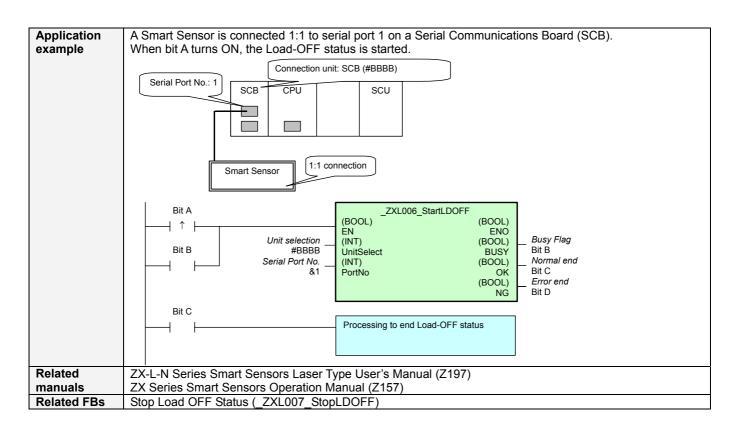
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is
				output to the Error Code.
				See below.

Error Code Details

OCAC DCL	uno	
Code	Contents	Meaning
#0000	Normal end	
#2203	Operation error	• A setting is incorrect. Refer to the <i>Smart Sensor Operation Manual</i> for setting error conditions for teaching and the zero reset function.
#2204	Operation error	The Sensor is not in RUN mode.

Version	Date	Contents	
1.00	2004.6.	Original production	

ZXL -006	Start Load OFF Status: _ZXL006_StartLDOFF
-500	
Basic function	Starts the Load-OFF status.
Symbol	Start trigger ZXL006_StartLDOFF Image: Description of the selection of the selection of the select
File name	Lib\FBL\omronlib\LaserSensor\ZXL\ ZXL006 StartLDOFF10.cxf
Applicable models	ZX-LDA-N
Conditions for usage	 External Connections Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network.
Function	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs • Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended • Number of retries (default: 0) Shared Resources • Communications ports (internal logical ports) When the Cert Trigger turned OFF status is started (i.e. the lease is turned OFF) for the Smort
description	When the Start Trigger turns ON, the Load-OFF status is started (i.e., the laser is turned OFF) for the Smart Sensor connected to the Serial Port specified by the <i>Connection unit</i> and <i>Serial port No</i> .
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or ON Error end (NG) OFF FB execution completed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY
condition Restrictions Input variables	 output from the FB. Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.
Other	• Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON).



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description			
ENO	ENO	BOOL		1 (ON): FB processed normally.			
(May be omitted.)				0 (OFF): FB not processed or ended in an error.			
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is			
				completed.			
Normal end	OK	BOOL		Turns ON for one cycle when processing ends			
				normally.			
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an			
				error.			

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

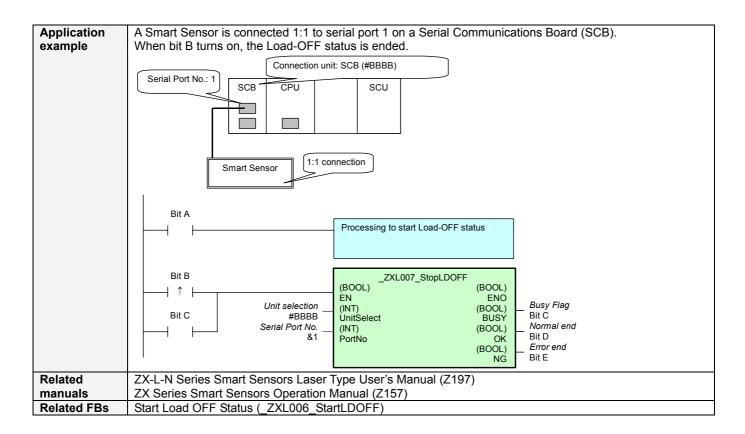
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is
				output to the Error Code.
				See below.

Error Code Details

U	Coue Det	alis	
	Code	Contents	Meaning
	#0000	Normal end	
	#2203	Operation error	• A setting is incorrect. Refer to the <i>Smart Sensor Operation Manual</i> for setting error conditions for teaching and the zero reset function.
	#2204	Operation error	The Sensor is not in RUN mode.

Version	Date	Contents	
1.00	2004.6.	Original production	

ZXL -007	Stop Load OFF Status: _ZXL007_StopLDOFF
Basic function	Ends the Load-OFF status.
Symbol	Start trigger ZXL007_StopLDOFF ↑ ↑ (BOOL) Busy Flag Unit selection ✓ (INT) Busy Flag Unit selection ✓ (INT) ✓ (INT) ✓ (INT) ✓ (INT) ✓ (BOOL) ✓ (INT) ✓ (BOOL) ✓
File name	Lib\FBL\omronlib\LaserSensor\ZXL_ZXL007_StopLDOFF10.cxf
Applicable models	ZX-LDA-N
Conditions for usage	 External Connections Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports)
Function description	When the Start Trigger turns ON, the Load-OFF status is stopped (i.e., the laser is turned ON) for the Smart Sensor connected to the Serial Port specified by the <i>Connection unit</i> and <i>Serial port No</i> .
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or ON OFF FB execution completed.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.
Other	 Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON).



Variable Tables

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

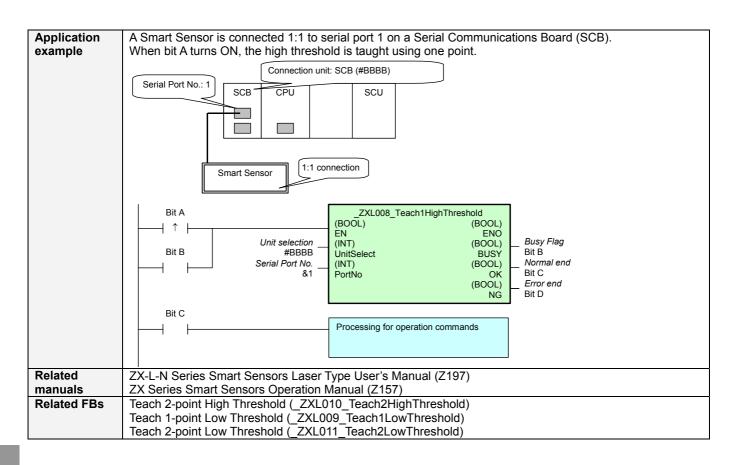
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is
				output to the Error Code.
				See below.

Error Code Details

U,	ooue Dei	ans		
	Code Contents Meaning			
	#0000	Normal end		
	#2203	Operation error	• A setting is incorrect. Refer to the <i>Smart Sensor Operation Manual</i> for setting error conditions for teaching and the zero reset function.	
	#2204	Operation error	The Sensor is not in RUN mode.	

Version	Date	Contents	
1.00	2004.6.	Original production	

ZXL -008	Teach 1-point High Threshold: _ZXL008_Teach1HighThreshold						
Basic function	Uses one point to teach the high threshold.						
Symbol	Start trigger ZXL008_Teach1HighThreshold (BOOL) Image: Description of the selection of the selection of the selection of the selection of the select of the sel						
File name	Lib/FBL/omronlib/LaserSensor/ZXL/_ZXL008_Teach1HighThreshold10.cxf						
Applicable models	ZX-LDA-N						
Conditions	External Connections						
for usage	 Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports)						
Function	When the Start Trigger turns ON, the high threshold is taught using 1 point for the Smart Sensor connected						
description	to the Serial Port specified by the <i>Connection unit</i> and <i>Serial port No</i> . This FB sets to high threshold to the value currently displayed on the main digital display. An execution error will occur if the display value is not being held or if the resulting high threshold would be lower than the low threshold.						
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF OFF						
	Normal end (OK) or ON Error end (NG) OFF						
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.						
Restrictions	Always use an upwardly differentiated condition for EN.						
Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.						
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 						
Other	 Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON). 						



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

eutput fullablee				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

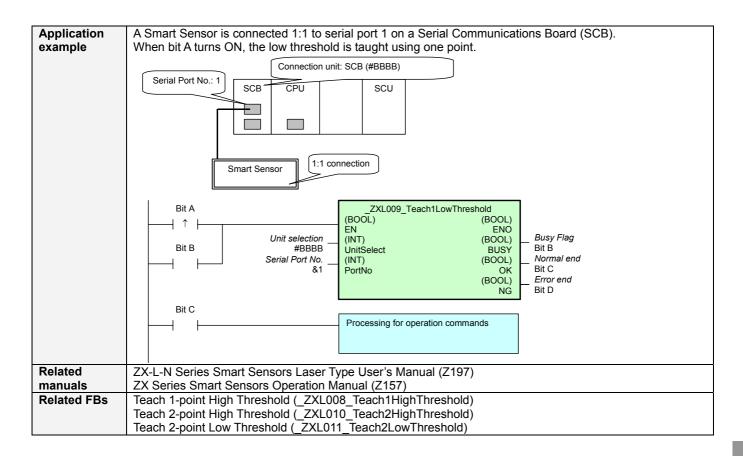
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is
				output to the Error Code.
				See below.

Error Code Details

U	Coue Det	alis				
	Code Contents Meaning					
	#0000	Normal end				
	#2203	Operation error	• A setting is incorrect. Refer to the <i>Smart Sensor Operation Manual</i> for setting error conditions for teaching and the zero reset function.			
	#2204	Operation error	The Sensor is not in RUN mode.			

Version	Date	Contents
1.00	2004.6.	Original production

ZXL -009	Teach 1-point Low Threshold: _ZXL009_Teach1LowThreshold						
Basic function	Uses one point to teach the low threshold.						
Symbol	Start trigger ZXL009_Teach1LowThreshold (BOOL) (BOOL) ↑ ↑ ↑ ■ Unit selection – Busy Flag Unit selection – (INT) (BOOL) UnitSelect BUSY BUSY – BUSY ■ Serial Port No. – Serial Port No. – (INT) (BOOL) BUSY – (INT) Normal end CHOOL) ■ Serial Port No. – Serial Port No. – BUSY – (INT) Serial Port No. – CHOOL) Serial Port No. – CHOOL)						
File name	Lib\FBL\omronlib\LaserSensor\ZXL_ZXL009_Teach1LowThreshold10.cxf						
Applicable models	ZX-LDA-N						
Conditions for usage	 External Connections Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) 						
Function description	When the Start Trigger turns ON, the low threshold is taught using 1 point for the Smart Sensor connected to the Serial Port specified by the <i>Connection unit</i> and <i>Serial port No</i> . This FB sets to low threshold to the value currently displayed on the main digital display. An execution error will occur if the display value is not being held or if the resulting low threshold would be higher than the high threshold.						
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or ON 						
	Error end (NG) OFF						
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY						
condition Restrictions	output from the FB.Always use an upwardly differentiated condition for EN.						
Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 						
Other	 Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON). 						



Variable Tables

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

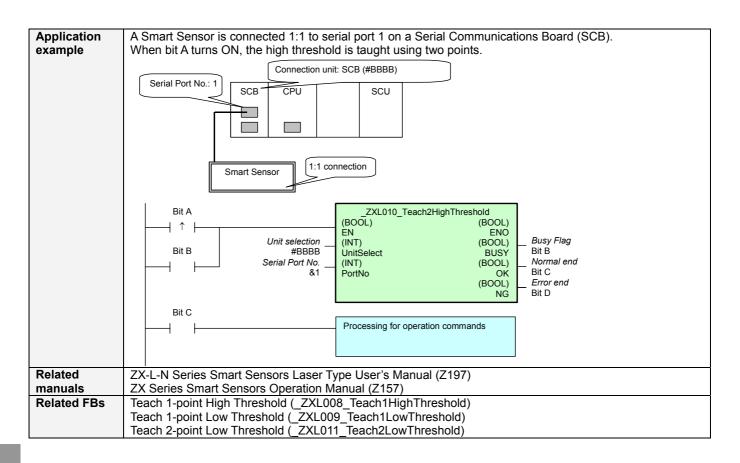
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is
				output to the Error Code.
				See below.

Error Code Details

U,	ooue Dei	ans					
	Code	Contents	Meaning				
	#0000	Normal end					
	#2203	Operation error	• A setting is incorrect. Refer to the <i>Smart Sensor Operation Manual</i> for setting error conditions for teaching and the zero reset function.				
	#2204	Operation error	The Sensor is not in RUN mode.				

Version	Date	Contents
1.00	2004.6.	Original production

ZXL -010	Teach 2-point High Threshold: _ZXL010_Teach2HighThreshold
Basic function	Uses two points to teach the high threshold.
Symbol	Start trigger
File name	Lib\FBL\omronlib\LaserSensor\ZXL_ZXL010_Teach2HighThreshold10.cxf
Applicable models	ZX-LDA-N
Conditions	External Connections
for usage	 Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network.
-	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs • Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended • Number of retries (default: 0) Shared Resources • Communications ports (internal logical ports)
Function description	 When the Start Trigger turns ON, the high threshold is taught using 2 points for the Smart Sensor connected to the Serial Port specified by the <i>Connection unit</i> and <i>Serial port No</i>. This FB sets to high threshold to the value midway between the value currently displayed on the main digital display and the currently set high threshold. An execution error will occur if the display value is not being held or if the resulting high threshold would be lower than the low threshold.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF OFF Busy Flag (BUSY) ON
	Normal end (OK) or ON Error end (NG) OFF
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY
condition Restrictions	output from the FB.
Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.
Other	 Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON).



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description		
ENO	ENO	BOOL		1 (ON): FB processed normally.		
(May be omitted.)				0 (OFF): FB not processed or ended in an error.		
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is		
				completed.		
Normal end	OK	BOOL		Turns ON for one cycle when processing ends		
				normally.		
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an		
				error.		

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

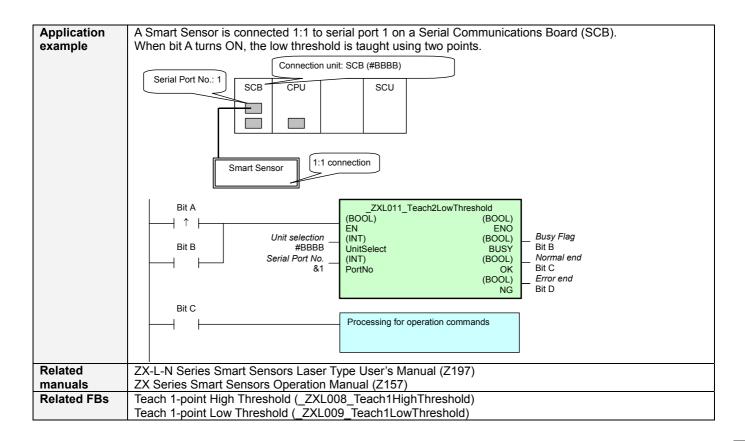
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is
				output to the Error Code.
				See below.

Error Code Details

U	Coue Det	alis	
	Meaning		
	#0000	Normal end	
	#2203	Operation error	• A setting is incorrect. Refer to the <i>Smart Sensor Operation Manual</i> for setting error conditions for teaching and the zero reset function.
	#2204	Operation error	The Sensor is not in RUN mode.

Version	Date	Contents
1.00	2004.6.	Original production

ZXL -011	Teach 2-point Low Threshold: _ZXL011_Teach2LowThreshold					
Basic function	Uses two points to teach the low threshold.					
Symbol	Start trigger					
File name	Lib\FBL\omronlib\LaserSensor\ZXL_ZXL011_Teach2LowThreshold10.cxf					
Applicable models	ZX-LDA-N					
Conditions for usage	 External Connections Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) 					
Function	When the Start Trigger turns ON, the low threshold is taught using 2 points for the Smart Sensor connected					
description	to the Serial Port specified by the <i>Connection unit</i> and <i>Serial port No</i> . This FB sets to low threshold to the value midway between the value currently displayed on the main digital display and the currently set low threshold. An execution error will occur if the display value is not being held or if the resulting low threshold would be higher than the high threshold.					
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the					
precautions	 FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF 					
	Normal end (OK) or ON Error end (NG) OFF					
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY					
condition Restrictions	output from the FB.					
Input	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 					
variables						
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 					
Other	 Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON). 					



Variable Tables

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

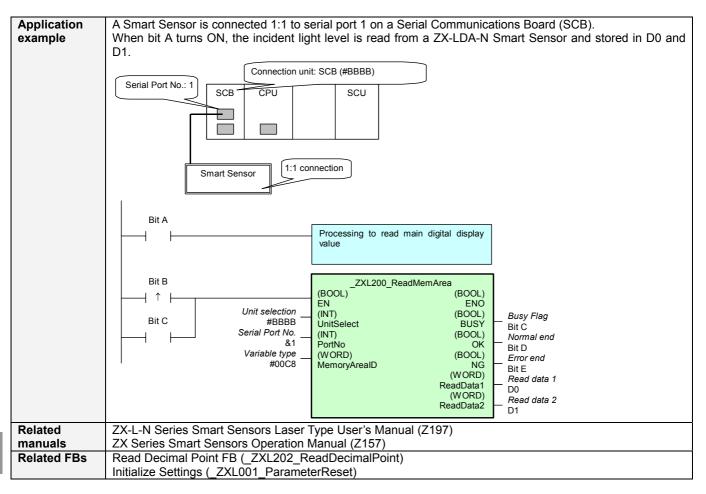
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is
				output to the Error Code.
				See below.

Error Code Details

U,	ooue Dei	ans			
	Code	de Contents Meaning			
	#0000	Normal end			
	#2203	Operation error	• A setting is incorrect. Refer to the <i>Smart Sensor Operation Manual</i> for setting error conditions for teaching and the zero reset function.		
	#2204	Operation error	The Sensor is not in RUN mode.		

Version	Date	Contents
1.00	2004.6.	Original production

ZXL -200	Read Memory Area: _ZXL200_ReadMemArea					
Basic	Reads data from the variable area.					
function Symbol	Start trigger _ZXL200_ReadMemArea					
	(BOOL) (BOOL) EN ENO (NT) (BOOL)					
	Busy Flag UnitSelect BUSY Serial Port No. – (INT) PortNo OK Normal end					
	Variable type — (WORD) (BOOL) MemoryAreaID NG Error end					
	(WORD) ReadData1 — Read data 1 (WORD) — Dead data 2					
	ReadData2 Read data 2					
File name Applicable	Lib\FBL\omronlib\LaserSensor\ZXL_ZXL200_ReadMemArea10.cxf ZX-LDA-N					
models						
Conditions for usage	 External Connections Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). 					
	 Communications must be within one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources 					
Function	Communications ports (internal logical ports) When the Start Trigger turns ON, the specified variable area data is read from the Smart Sensor connected					
description	to the Serial Port specified by the <i>Connection unit</i> and <i>Serial port No</i> . The data read with this FB does not include the decimal point position. Use the Read Decimal Point Position FB (_ZXL202_ReadDecimalPoint) to read the decimal point when using this FB to read the main digital display.					
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the					
precautions	 FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger 					
	OFF					
	Busy Flag (BUSY) ON OFF					
	Normal end (OK) or ON Error end (NG) OFF					
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.					
Restrictions	Always use an upwardly differentiated condition for EN.					
Input variables	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. Do not execute commands other than for the specified variable types. Internal parameters may be rewritten if this FB is used incorrectly. If internal parameters in the connected Sensor are rewritten by mistake, execute the Initialize Settings (_ZXL001_InitializeParameter) FB. 					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 					
Other	 Do not turn the BOSY output variable ON of OFP outside the PB. Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON). 					



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Variable type	ReadMemID	WORD		Not checked.	Specify the command. Unexpected operation may result if a variable type not listed below is specified. Use only the specified variable types.

■ Variable Types

Data	Туре
Incident level	#00C8
Resolution	#00CA
Control output status	#00CE
Enable status	#00CF
Decimal point position	#00D3

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Read data 1	ReadData1	WORD		See below.
Read data 2	ReadData2	WORD		See below.

Read Data

	Read data 1	Read data 2
Incident level	Outputs the sign of the incident light level. #0000:+ #0100:-	Outputs the incident light level in hexadecimal.
Resolution	Outputs the sign of the resolution. #0000:+ #0100:-	Outputs the resolution in hexadecimal.
Control output status	Outputs the control output status. #0000: All outputs OFF #0100: Low output ON #0200: High output ON #0300: Pass output ON #0400: Alarm output ON	Outputs #0000 when reading the control output status.
Enable status	Outputs the enable status. #0000: Enable lit #0100: Enable not lit	Outputs #0000 when reading the enable status.
Decimal point position	Outputs #0000 when reading the decimal point position.	Outputs the decimal point position of the value displayed on the main display. #0000: Leftmost position #0001: 2nd digit from left #0002: 3rd digit from left #0003: 4th digit from left #0004: No decimal point displayed

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is output to the Error Code. See below.

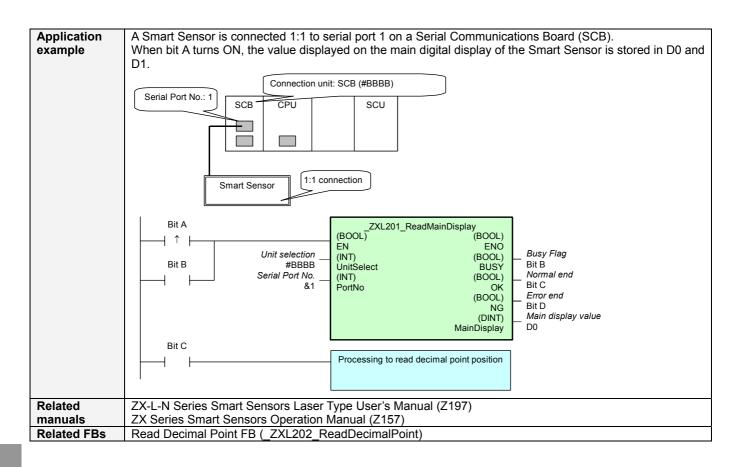
Error Code Details

Code	Contents	Meaning
#0000	Normal end	
#1101	Variable type error	The variable type is incorrect.
#2203	Operation error	 The value displayed on the main digital display is read when an error has occurred, e.g., an incident level error.
#2204	Operation error	The Sensor is not in RUN mode.

Version	Date	Contents
1.00	2004.6.	Original production

ZXL -201	Read Main Display Value: _ZXL201_ReadMainDisplay
Basic function	Reads the numeric value displayed on the main digital display of a Smart Sensor.
Symbol	Start trigger ZXL201_ReadMainDisplay ↑ ↑ ↓ (BOOL) Busy Flag Unit selection – Serial Port No. (INT) PortNo (BOOL) Busy Flag Serial Port No.
File name	Lib\FBL\omronlib\LaserSensor\ZXL_ZXL201_ReadMainDisplay10.cxf
Applicable models	ZX-LDA-N
Conditions for usage	 External Connections Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports)
Function	When the Start Trigger turns ON, numeric value displayed on the main digital display is read for the Smart
description	Sensor connected to the Serial Port specified by the <i>Connection unit</i> and <i>Serial port No</i> . The data read from the main digital display with this FB does not include the decimal point position. Use the Read Decimal Point Position FB (_ZXL202_ReadDecimalPoint) in combination with this FB to read the decimal point.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect
	the end of FB processing. Timechant Start Trigger OFF Busy Flag (BUSY) ON OFF OFF
	Normal end (OK) or ON Error end (NG) OFF
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions	Always use an upwardly differentiated condition for EN.
Input variables	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.
Other	 Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON).

3-13 Laser Sensor



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Main display value	MainDisplay	DINT		Outputs the value displayed on the main digital
				display.

Internal Variables

Internal variables are not output from the FB.

, the following internal variables can be monitored to obtain information on the error.

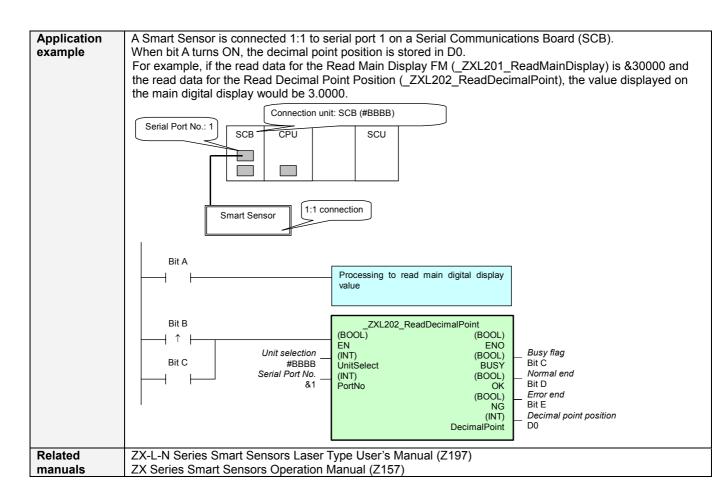
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is output to the Error Code. See below.

Error Code Details

Code	Contents	Meaning
#0000	Normal end	
#2203	Operation error	 The value displayed on the main digital display is read when an error has occurred, e.g., an incident level error.
#2204	Operation error	The Sensor is not in RUN mode.

Version	Date	Contents
1.00	2004.6.	Original production

ZXL -202	Read Decimal Point Position: _ZXL202_ReadDecimalPoint		
Basic function	Reads the decimal point position set for the main digital display of a Smart Sensor.		
Symbol	Start trigger ZXL202_ReadDecimalPoint Image: Provide the section of Busy Flag Unit selection of Unit selection of Unit Select (BOOL) (BOOL) (BOOL) (INT) (INT) (BOOL) (INT) (IN		
File name	Lib\FBL\omronlib\LaserSensor\ZXL_ZXL202_ReadDecimalPoint10.cxf		
Applicable	ZX-LDA-N		
models	External Connections		
Conditions for usage	 External Connections Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Related FBs The FB can be used for the following operations. Read Main Display Value Read Resolution Read Flow Data Read/Write High/Low Threshold Read/Write Hysteresis Width Read/Write Self-trigger Level Read/Write Self-trigger Hysteresis Width Data (Intensity OFF) 		
Function description	When the Start Trigger turns ON, the decimal position of the main digital display is read for the Smart Sensor connected to the Serial Port specified by the <i>Connection unit</i> and <i>Serial port No</i> . This FB reads only the decimal point position of the main digital display.		
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart		
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.		
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 		
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 		
Other	Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON).		



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 & & & & & & & & & & & & & & & & & & &

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Decimal point	DecimalPoint	INT		Outputs the decimal point position of the value
position				displayed on the main display.
				&0: No decimal point displayed
				&1: Leftmost position
				&2: 2nd digit from left
				&3: 3rd digit from left
				&4: 4th digit from left

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

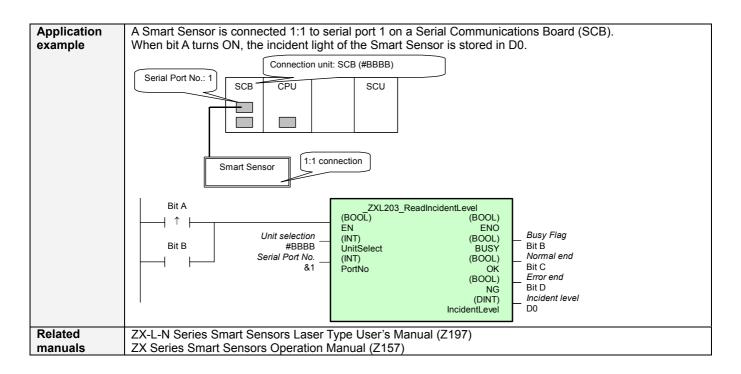
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is
				output to the Error Code.
				See below.

Error Code Details

Code	Contents	Meaning
#0000	Normal end	
#2203	Operation error	 The value displayed on the main digital display is read when an error has occurred, e.g., an incident level error.
#2204	Operation error	The Sensor is not in RUN mode.

Version	Date	Contents
1.00	2004.6.	Original production

ZXL Read Incident Light: _ZXL203_ReadIncidentLevel -203 Basic Reads the incident light for a Smart Sensor. function Symbol Start trigger ZXL203_ReadIncidentLevel (BOOL) (BOOL) $+ \uparrow +$ ENÓ ÈN (INT) (BOOL) Unit selection Busy Flag **Busy Flag** UnitSelect BUSY (BOOL) Serial Port No (INT) Normal end PortNo OK (BOOL) Error end NG (DINT) Incident level IncidentLeve File name Lib\FBL\omronlib\LaserSensor\ZXL\ ZXL203 ReadIncidentLevel10.cxf Applicable ZX-LDA-N models Conditions **External Connections** for usage • Can be used only for 1:1 connections. • When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network. **CPU Unit Settings** PLC Setup: Shared Settings for Communications Instructions in FBs • Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended • Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Function When the Start Trigger turns ON, the incident light is read for the Smart Sensor connected to the Serial Port description specified by the Connection unit and Serial port No. The Incident Light output variable is always output as an integer. The decimal point is disregarded. FB The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the precautions FB is being processed. • OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or ON Error end (NG) OFF ↑ FB execution completed. EN input Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY condition output from the FB. Restrictions Always use an upwardly differentiated condition for EN. Input • If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. variables Output This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable variables to the EN input variable to ensure that the FB is processed to completion (see Symbol). Do not turn the BUSY output variable ON or OFF outside the FB. Other • Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON)



■ Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

output fullasioo				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Incident level	IncidentLevel	DINT		Outputs the incident level.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

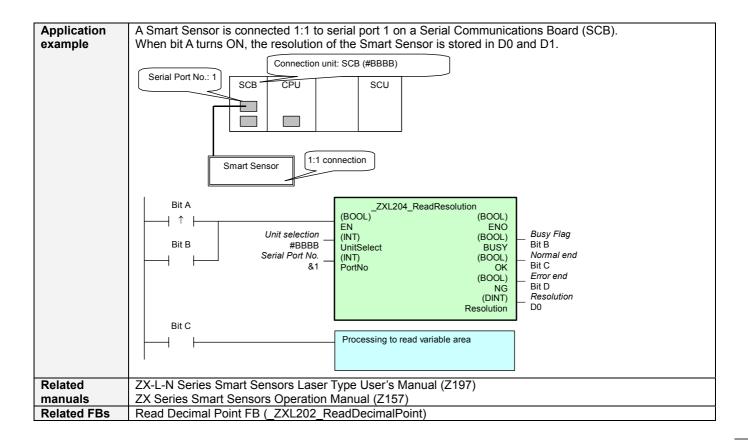
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is output to the Error Code. See below.

Error Code Details

Code	Contents	Meaning
#0000	Normal end	
#2203	Operation error	 The value displayed on the main digital display is read when an error has occurred, e.g., an incident level error.
#2204	Operation error	•The Sensor is not in RUN mode.

Version	Date	Contents
1.00	2004.6.	Original production

ZXL -204	Read Resolution: _ZXL204_ReadResolution
Basic function	Reads the resolution for a Smart Sensor.
Symbol	Start trigger ZXL204_ReadResolution ↑ ↑ ↑ (BOCL) Busy Flag Unit selection J Serial Port No. Serial Port No. (INT) Busy Flag (INT) J (BOCL) Busy Flag
File name Applicable	Lib\FBL\omronlib\LaserSensor\ZXL_ZXL204_ReadResolution10.cxf ZX-LDA-N
models	
Conditions	External Connections
for usage	 Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0)
Function	 Communications ports (internal logical ports) When the Start Trigger turns ON, the current resolution is read for the Smart Sensor connected to the Serial
description	Port specified by the <i>Connection unit</i> and <i>Serial port No</i> Use the Read Decimal Point Position FB (_ZXL_ReadDecimalPoint.cxf) to read the decimal point.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF OFF FB execution completed.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.
Other	 Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON).



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description
			Kaliye	
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
, ,				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Resolution	Resolution	DINT		Outputs the resolution.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

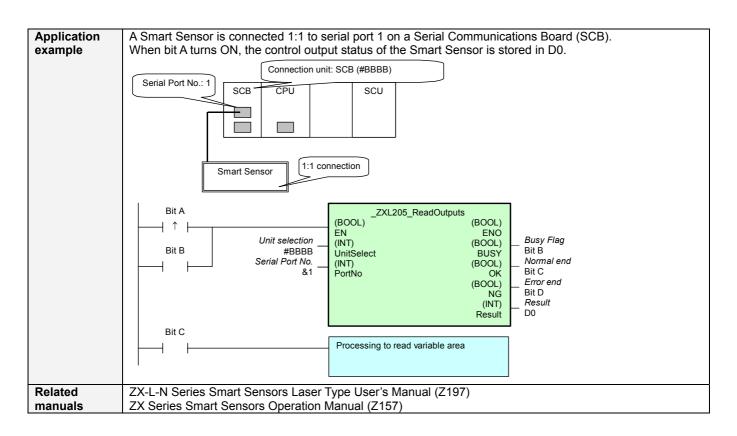
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is output to the Error Code. See below.

Error Code Details

Code	Contents	Meaning
#0000	Normal end	
#2203	Operation error	 The value displayed on the main digital display is read when an error has occurred, e.g., an incident level error.
#2204	Operation error	The Sensor is not in RUN mode.

Version	Date	Contents
1.00	2004.6.	Original production

ZXL -205	Read Control Output: _ZXL205_ReadOutputs					
Basic function	Reads the high, pass, and low control outputs.					
Symbol	Start trigger ZXL205_ReadOutputs ↑ ↓ Busy Flag Unit selection (BOOL) Busy Flag Unit selection Serial Port No. Busy Flag Vertical Port No. Busy Flag Vert No OK Busy Flag Normal end Normal Port No. Normal Port No Normal Port No Normal Port No Normal Port No Normal Port Port Port Port Port Port Port Port					
File name	Lib\FBL\omronlib\LaserSensor\ZXL_ZXL205_ReadOutputs10.cxf					
Applicable models	ZX-LDA-N					
Conditions	External Connections					
for usage	Can be used only for 1:1 connections.					
	• When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set					
	the serial port to the same communications specifications as the Smart Sensor (CompoWay/F).					
	Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher.					
	 When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings 					
	(CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor					
	(CompoWay/F).					
	 Communications must be within one network and cannot cross to another network. 					
	CPU Unit Settings					
	PLC Setup: Shared Settings for Communications Instructions in FBs					
	Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended					
	Number of retries (default: 0)					
	Shared Resources					
F	Communications ports (internal logical ports)					
Function	When the Start Trigger turns ON, the high, pass, and low control outputs are read for the Smart Sensor					
description	connected to the Serial Port specified by the <i>Connection unit</i> and <i>Serial port No</i> .					
FB	 The status of the high, pass, and low control outputs can be checked using the <i>Result</i>. The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the 					
precautions	• The FB is processed over multiple cycles. The BOST output variable can be used to check whether the FB is being processed.					
precautions						
	 OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of EP processing. 					
	the end of FB processing. Timechart					
	Start Trigger ON OFF					
	Busy Flag (BUSY) ON OFF					
	Normal end (OK) or ON					
	Error end (NG) OFF					
	FB execution completed.					
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY					
condition	output from the FB.					
Restrictions	Always use an upwardly differentiated condition for EN.					
Input	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.					
variables						
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable					
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).					
	Do not turn the BUSY output variable ON or OFF outside the FB.					
Other	• Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK					
	or NG Flag turns ON).					



Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Result	Result	INT		&0: All OFF
				&1: Low output ON
				&2: High output ON
				&3: Pass output ON

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

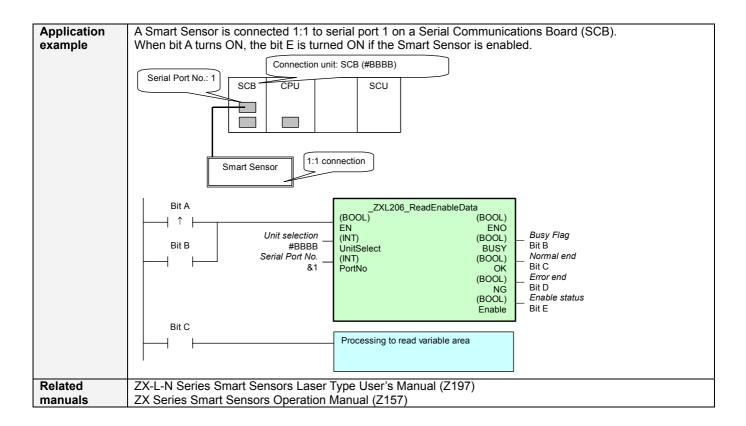
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is output to the Error Code. See below.

Error Code Details

Code	Contents	Meaning
#0000	Normal end	
#2203	Operation error	 The value displayed on the main digital display is read when an error has occurred, e.g., an incident level error.
#2204	Operation error	The Sensor is not in RUN mode.

	= · · · · · · · · · · · · · · · · · · ·				
Version	Date	Contents			
1.00	2004.6.	Original production			

ZXL	Read Enable Data: _ZXL206_ReadEnableData						
-206							
Basic	Checks if the Smart Sensor is currently in enable status.						
function							
Symbol	Start trigger ZXL206 ReadEnableData						
	Start trigger						
	EN ENO						
	Busy Flag Unit Select BUSY						
	Serial Port No. – (INT) (BOOL) – Normal end						
	(BOOL) NG Error end						
	(BOOL) — Enable status						
	Enable						
File name	Lib\FBL\omronlib\LaserSensor\ZXL\ ZXL206 ReadEnableData10.cxf						
Applicable	ZX-LDA-N						
models							
Conditions	External Connections						
for usage	Can be used only for 1:1 connections. When connected via a Social Communications Unit (SCU) or Social Communications Roard (SCR), act						
	 When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). 						
	Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher.						
	• When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings						
	(CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor						
	(CompoWay/F).Communications must be within one network and cannot cross to another network.						
	CPU Unit Settings						
	PLC Setup: Shared Settings for Communications Instructions in FBs						
	Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended						
	Number of retries (default: 0)						
	Shared Resources						
Function	Communications ports (internal logical ports) When the Start Trigger turns ON, the Smart Sensor connected to the Serial Port specified by the						
description	Connection unit and Serial port No. is checked to see if it is enabled.						
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the						
precautions	FB is being processed.						
	 OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of EB processing 						
	the end of FB processing. Timechart						
	Start Trigger ON						
	OFF						
	Busy Flag (BUSY) ON OFF						
	Normal end (OK) or ON						
	Error end (NG) OFF						
	FB execution completed.						
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY						
condition	output from the FB.						
Restrictions	Always use an upwardly differentiated condition for EN.						
Input variables	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
Output	This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable						
variables	 This PB requires multiple cycles to process. Always connect an OK including the BOST output variable to the EN input variable to ensure that the FB is processed to completion (see Symbol). 						
	 Do not turn the BUSY output variable ON or OFF outside the FB. 						
Other	• Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or						
	NG Flag turns ON).						



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Enable status	Enable	BOOL		Outputs the enable status.
				1 (ON): Enable lit
				0 (OFF): Enable not lit

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is output to the Error Code. See below.

Error Code Details

- · ·	0000 200		
	Code	Contents	Meaning
	#0000	Normal end	
	#2203	Operation error	 The value displayed on the main digital display is read when an error has occurred, e.g., an incident level error.
	#2204	Operation error	The Sensor is not in RUN mode.

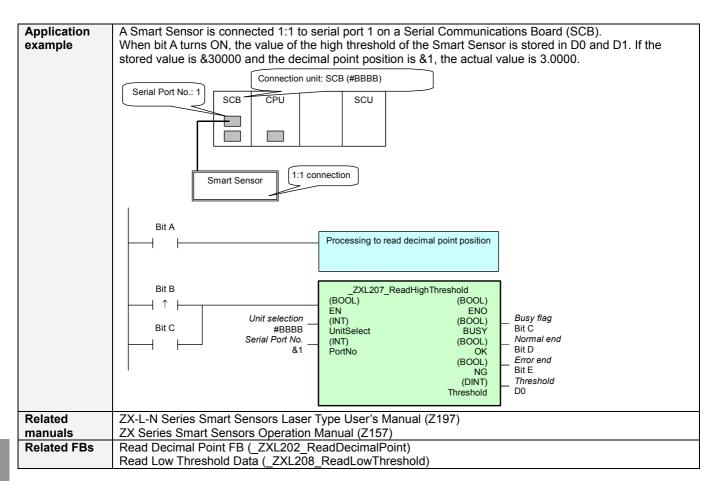
■ Version History

Version	Date	Contents			
1.00	2004.6.	Original production			

Γ

ZXL -207	Read High Threshold: _ZXL207_ReadHighThreshold					
	Deade the high threaded value from the Origin to Origin					
Basic function	Reads the high threshold value from the Smart Sensor.					
Symbol	Start trigger ZXL207_ReadHighThreshold Image: Provide the section of t					
File name	Lib\FBL\omronlib\LaserSensor\ZXL_ZXL207_ReadHighThreshold10.cxf					
Applicable models	ZX-LDA-N					
Conditions for usage	 External Connections Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) 					
Function description	When the Start Trigger turns ON, the high threshold value is read from the Smart Sensor connected to the Serial Port specified by the <i>Connection unit</i> and <i>Serial port No.</i> The threshold data read with this FB does not include the decimal point position.					
FB precautions	 Use the Read Decimal Point Position FB (_ZXL202_ReadDecimalPoint) to read the decimal point. The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF OFF ON OFF ON OFF OFF ON OFF OFF ON OFF OFF ON OFF ON					
	Normal end (OK) or ON Error end (NG) OFF FB execution completed.					
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.					
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 					
Other	• Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON).					

3-13 Laser Sensor



■ Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Name	Variable name	Data type	Range	Description		
ENO	ENO	BOOL		1 (ON): FB processed normally.		
(May be omitted.)				0 (OFF): FB not processed or ended in an error.		
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is		
				completed.		
Normal end	OK	BOOL		Turns ON for one cycle when processing ends		
				normally.		
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an		
				error.		
Threshold	Threshold	DINT	~19999 to	Outputs the value of the high threshold.		
			59999			

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is
				output to the Error Code.
				See below.

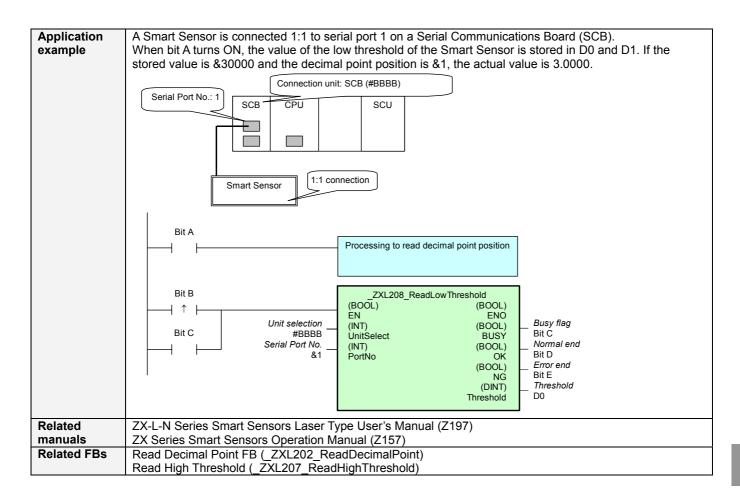
Error Code Details

Code	Contents	Meaning
#0000	Normal end	
#2203	Operation error	• A setting is incorrect. Refer to the <i>Smart Sensor Operation Manual</i> for setting error conditions for thresholds, hystereses, and other parameters.
#2204	Operation error	The Sensor is not in RUN mode.

■ Version History

Version	Date	Contents
1.00	2004.6.	Original production

ZXL -208	Read Low Threshold: _ZXL208_ReadLowThreshold					
Basic	Reads the low threshold value from the Smart Sensor.					
function						
Symbol	Start trigger _ZXL208_ReadLowThreshold ↑ ↑ (BOOL) Busy Flag Unit selection Serial Port No. (INT) (INT) (BOOL) OrtNo OK Normal end (DINT) (BOOL) NG Error end (DINT) Threshold					
File name	Lib\FBL\omronlib\LaserSensor\ZXL_ZXL208_ReadLowThreshold10.cxf					
Applicable models	ZX-LDA-N					
Conditions for usage	 External Connections Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) 					
Function description	When the Start Trigger turns ON, the low threshold value is read from the Smart Sensor connected to the Serial Port specified by the <i>Connection unit</i> and <i>Serial port No.</i>					
	The threshold data read with this FB does not include the decimal point position. Use the Read Decimal Point Position FB (_ZXL202_ReadDecimalPoint) to read the decimal point.					
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF 					
	Normal end (OK) or ON Error end (NG) OFF FB execution completed.					
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY					
condition	output from the FB.					
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 					
Other	 Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON). 					



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2

Output Variables

Output variables				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Threshold	Threshold	DINT	[~] 19999 to	Outputs the value of the low threshold.
			59999	

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is output to the Error Code. See below.

Error Code Details

Code	Contents	Meaning			
#0000	Normal end				
#2203	Operation error	 A setting is incorrect. Refer to the Smart Sensor Operation Manual for setting error conditions for thresholds, hystereses, and other parameters. 			
#2204	Operation error	The Sensor is not in RUN mode.			

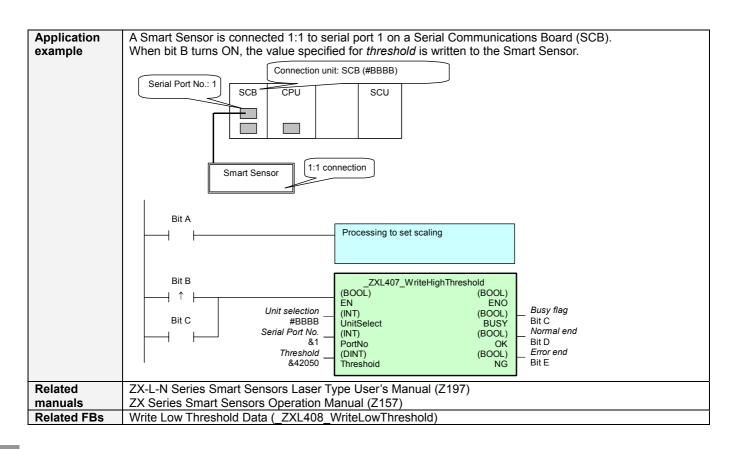
■ Version History

Version	Date	Contents
1.00	2004.6.	Original production

Γ

Write High Threshold Data: _ZXL407_WriteHighThreshold

Basic	Writes the high threshold value.						
function Symbol							
Symbol	Start triggerZXL407_WriteHighThreshold						
	(BOOL) (BOOL)						
	EN ENO (INT) (BOOL) Busy Flag						
	Busy Flag Unit selection UnitSelect BUSY Busy Flag						
	Serial Port No						
	Threshold (DINT) (BOOL) Error end						
	Threshold NG						
File name	Lib\FBL\omronlib\LaserSensor\ZXL_ZXL407_WriteHighThreshold10.cxf						
Applicable	ZX-LDA-N						
models							
Conditions	External Connections						
for usage	 Can be used only for 1:1 connections. 						
	• When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set						
	the serial port to the same communications specifications as the Smart Sensor (CompoWay/F).						
	Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher.						
	 When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings 						
	(CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor						
	(CompoWay/F).						
	Communications must be within one network and cannot cross to another network.						
	CPU Unit Settings						
	PLC Setup: Shared Settings for Communications Instructions in FBs						
	Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended						
	Number of retries (default: 0) Shared Resources						
	Communications ports (internal logical ports)						
Function	When the Start Trigger turns ON, the value specified for the high threshold is written to the Smart Sensor						
description	connected to the Serial Port specified by the Connection unit and Serial port No.						
accomption	When a parameter area write command is executed, the setting is written to internal memory.						
	There is, however, a limit to the number to times that internal memory can be written. If a parameter is						
	written more than 1 million times for the same Sensor, internal memory may be destroyed. Do not execute						
	this FB more than 1 million times for the same parameter for any one Sensor.						
FB	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the 						
precautions	FB is being processed.						
	OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect						
	the end of FB processing.						
	Start Trigger ON						
	OFF						
	Busy Flag (BUSY) ON						
	OFF						
	Normal end (OK) or ON						
	Error end (NG) OFF						
	✓ FB execution completed.						
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY						
condition	output from the FB.						
Restrictions	Always use an upwardly differentiated condition for EN.						
Input	 An error will occur if the high threshold minus the low threshold is less than the hysteresis. 						
variables	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed. 						
Output	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable 						
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).						
	 Do not turn the BUSY output variable ON or OFF outside the FB. 						
Other	Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or						
	NG Flag furns ON).						



■ Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. Connected to CPU Unit Unit selection #FFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Threshold	Threshold	DINT	0	[~] 19999 to +59999	Specify the value for the high threshold.

Output Variables

Output Vallabioo				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is
				output to the Error Code.
				See below.

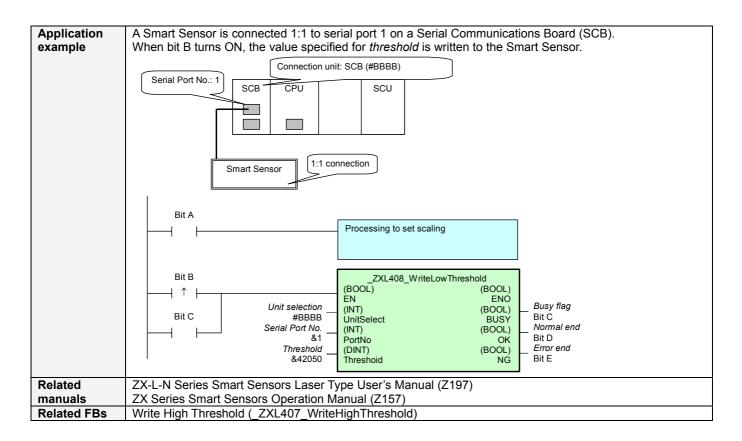
Error Code Details

Code	Contents	Meaning
#0000	Normal end	
#2203	Operation error	 A setting is incorrect. Refer to the Smart Sensor Operation Manual for setting error conditions for thresholds, hystereses, and other parameters.
#2204	Operation error	The Sensor is not in RUN mode.

Version History

Version	Date	Contents	
1.00	2004.6.	Original production	

ZXL -408	Write Low Threshold Data: _ZXL408_WriteLowThreshold					
Basic function	Writes the low threshold value.					
Symbol	Start trigger ZXL408_WriteLowThreshold (BOOL) (BOOL) Busy Flag Unit selection (INT) BUSY Busy Flag Unit selection (INT) BUSY Mathematical Port No. (INT) (BOOL)					
File name Applicable	Lib\FBL\omronlib\LaserSensor\ZXL_ZXL408_WriteLowThreshold10.cxf ZX-LDA-N					
models						
Conditions for usage	 External Connections Can be used only for 1:1 connections. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Smart Sensor (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Smart Sensor (CompoWay/F). Communications must be within one network and cannot cross to another network. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended 					
	Number of retries (default: 0) Shared Resources					
Function	Communications ports (internal logical ports) When the Start Trigger turns ON, the value specified for the low threshold is written to the Smart Sensor					
description	connected to the Serial Port specified by the <i>Connection unit</i> and <i>Serial port No.</i> When a parameter area write command is executed, the setting is written to internal memory. There is, however, a limit to the number to times that internal memory can be written. If a parameter is written more than 1 million times for the same Sensor, internal memory may be destroyed. Do not execute this FB more than 1 million times for the same parameter for any one Sensor.					
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the					
precautions	 FB is being processed. OK or NB will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF 					
	Normal end (OK) or ON Error end (NG) OFF FB execution completed.					
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY					
condition Restrictions	 output from the FB. Always use an upwardly differentiated condition for EN. 					
Input	 An error will occur if the high threshold minus the low threshold is less than the hysteresis. 					
variables	If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 					
Other	 Up to 3 seconds may be required for this FB to be completed (i.e., from EN turning ON until the OK or NG Flag turns ON). 					



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Linit coloction	UnitSelect	INT	&0	At right	
Unit selection Serial Port No.	PortNo	INT	&1	At right. &1 to &2	Specify the connection Unit and the serial port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Threshold	Threshold	DINT	0	19999 to +59999	Specify the value for the low threshold.

Output Variables

Output Valiables				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the follow	ving internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		The results information from the Smart Sensor is output to the Error Code. See below.

Error Code Details

Code	Contents	Meaning			
#0000	Normal end				
#2203	Operation error	• A setting is incorrect. Refer to the <i>Smart Sensor Operation Manual</i> for setting error conditions for thresholds, hystereses, and other parameters.			
#2204	Operation error	The Sensor is not in RUN mode.			

Version History

Version	Date	Contents
1.00	2004.6.	Original production

Temperature Controller

3-14 Temperature Controller (Serial)

E5AR/E5ER series

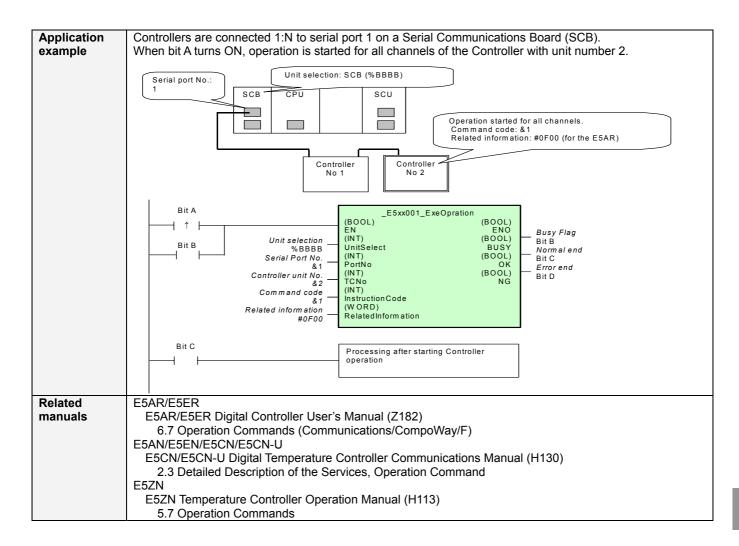
Function	Page
Operation Command	3-432
Start Operation	3-435
Stop Operation	3-438
Autotune	3-469
Stop Autotuning	3-472
Read Variable Area	3-441
Read Status	3-444
Read Process Value	3-447
Read Set Point	3-450
Read Cooling MV	3-453
Read Heating MV	3-456
Read Valve Opening	3-459
Write Variable Area	3-462
Write Set Point	3-465
	Operation Command Start Operation Stop Operation Autotune Stop Autotuning Read Variable Area Read Status Read Process Value Read Set Point Read Heating MV Read Valve Opening Write Variable Area

E5ZN/E5CN/CN-U series

FB Name	Function	Page
_E5xx001_ExeOperation	Operation Command	3-432
_E5xx002_Run	Start Operation	3-435
_E5xx003_Stop	Stop Operation	3-438
_E5xN004_ExecuteAT	Autotune	3-475
_E5xN005_CancelAT	Stop Autotuning	3-478
_E5xx200_ReadVariable	Read Variable Area	3-441
_E5xx201_ReadStatus	Read Status	3-444
_E5xx202_ReadPV	Read Process Value	3-447
_E5xx203_ReadSP	Read Set Point	3-450
_E5xx204_ReadCoolingMV	Read Cooling MV	3-453
_E5xx205_ReadHeatingMV	Read Heating MV	3-456
_E5xx400_WriteVariable	Write Variable Area	3-462
_E5xx403_WriteSP	Write Set Point	3-465

Operation Command: _E5xx001_ExeOperation

Basic	Executes the specified operation command.					
function						
Symbol	Start trigger					
File name	Lib\FBL\omronlib\TemperatureController\E R\Serial_E5xx000_ExeOperation10.cxf Lib\FBL\omronlib\TemperatureController\E5ZN\Serial_E5xx000_ExeOperation10.cxf Lib\FBL\omronlib\TemperatureController\E5CN\Serial_E5xx000_ExeOperation10.cxf					
Applicable	E5AR/E5ER/E5ZN/E5CN/E5CN-U					
models						
Conditions for usage	External Connections					
ior usage	 1:1 connection is possible. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set 					
	the serial port to the same communications specifications as the Controller (CompoWay/F).					
	Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher.					
	• When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings					
	(CompoWay/F) in the PLC Setup to the same communications specifications as the Controller					
	(CompoWay/F).					
	Settings PLC Setup: Shared Settings for Communications Instructions in FBs					
	Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended					
	 Number of retries (default: 0) 					
	Shared Resources					
	Communications ports (internal logical ports)					
Function	When the start trigger turns ON, the operation command specified by the Command code and Related					
description	<i>information</i> is executed. Refer to the manual for the Controller being used for details on command codes and related information.					
	(See Related manuals.)					
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the					
precautions	FB is being processed.					
	• OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect					
	the end of FB processing. Timechart					
	Start Trigger ON					
	OFF					
	Busy Flag (BUSY) ON					
	OFF					
	Normal end (OK) or ON					
	Error end (NG) OFF					
	↑ FB execution completed.					
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output					
condition	from the FB.					
Restrictions	Always use an upwardly differentiated condition for EN.					
Input	• The applicable ranges for input variables depend on the Controller being used. Set values that are					
variables	appropriate for the Controller.					
Outra t	Unable to specify the Reset Command (command code: #06).					
Output variables	This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the EP is processed to completion (acc. Symbol)					
valiables	to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>).					



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connected Unit and serial port.
Serial Port No.	PortNo	INT	&1	&1 to &2	 Connected to CPU Unit Unit selection #FFFF (UnitSelect) Serial Port No. Not accessed. (PortNo) (&1 recommended) Connected to SCB Unit selection #BBBB (UnitSelect) Serial Port No. &1: Port 1 (PortNo) &2: Port 2 Connected to SCU Unit selection Unit No. (&0 to &15) (UnitSelect) Serial Port No. &1: Port 1 (PortNo) &2: Port 2
Controller unit No.	TCNo	INT	&0	At right.	Specify the unit number of the Controller. E5AR/E5ER &0 to &99 E5ZN &0 to &15 (#0 to #F) E5CN/E5CN-U &0 to &99
Command code	InstructionCode	INT	0	Not checked.	Depends on the model of Controller. Refer to the pages provided in <i>Related</i> <i>Manuals</i> for details.
Related information	RelatedInformation	WORD	0	Not checked.	Same as above.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Compoway/F error code	CompowayF_Error Code	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. See below for details

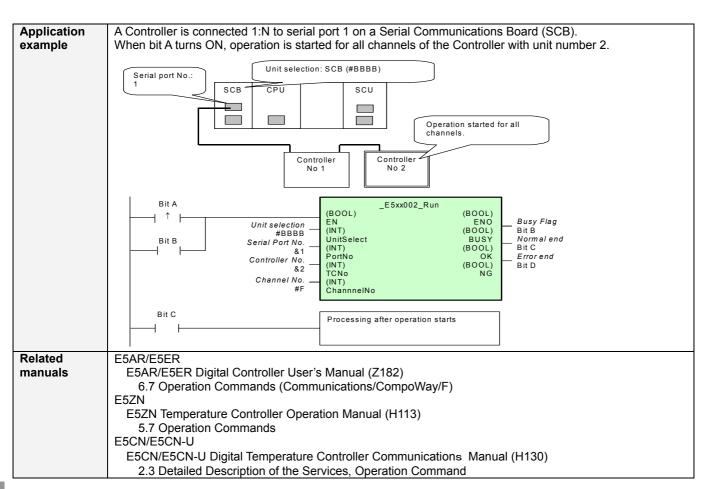
Error Code Details

	0000 000						
Code Contents		Contents	Meaning				
	0000 Normal end						
	1100	Variable setting error	 The value of the input variable is outside of specifications. 				
	2203	Operation error	Writing via communications is prohibited.				
			 An attempt was made to write protect level setting data from outside of protect level. 				
			Autotuning is being executed.				
			Calibration is being executed.				
			Unit error, unit change, display unit error, or internal non-volatile memory error				

Version	Date	Contents
1.00	2004.6.	Original production

E5xx -002	Start Operation: _E5xx002_Run
Desis	
Basic function	Starts operation for the specified channel of the specified Controller.
Symbol	Start trigger
File name	Lib\FBL\omronlib\TemperatureController\E5 R\Serial_E5xx002_Run10.cxf Lib\FBL\omronlib\TemperatureController\E5ZN\Serial_E5xx002_Run10.cxf Lib\FBL\omronlib\TemperatureController\E5CN\Serial_E5xx002_Run10.cxf
Applicable models	E5AR/E5ER/E5ZN/E5CN/E5CN-U
Conditions	External Connections
for usage	 1:1 connection is possible. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Controller (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Controller (CompoWay/F). Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports)
Function description	When the start trigger turns ON, operation is started for the specified channel of the specified Controller.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or ON OFF FB execution completed.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.

Temperature Controller (Serial)



Input Variables	Input Variables					
Name	Variable name	Data type	Default	Range	Description	
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.	
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial	
Serial Port No.	PortNo	INT	&1	&1 to &2	port.	
					Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended)	
					Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2	
					■ Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2	
Controller unit No.	TCNo	INT	&0	At right.	Specify the unit number of the Controller. E5AR/E5ER &0 to &99	
					E5ZN &0 to &15 (#0 to #F)	
					E5CN/E5CN-U	
					&0 to &99	
Channel No.	ChannelNo	INT	&1	At right.	E5AR/E5ER	
					Specify the channel number. &1: Channel 1	
					Etc.	
					&4: Channel 4	
					#F: All channels	
					E5ZN	
					Specify the channel number.	
					&1: Channel 1	
					&2: Channel 2	
					#F: All channels	
					E5CN/E5CN-U	
					Always &1.	

Output Variables

e acput Tullablee				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

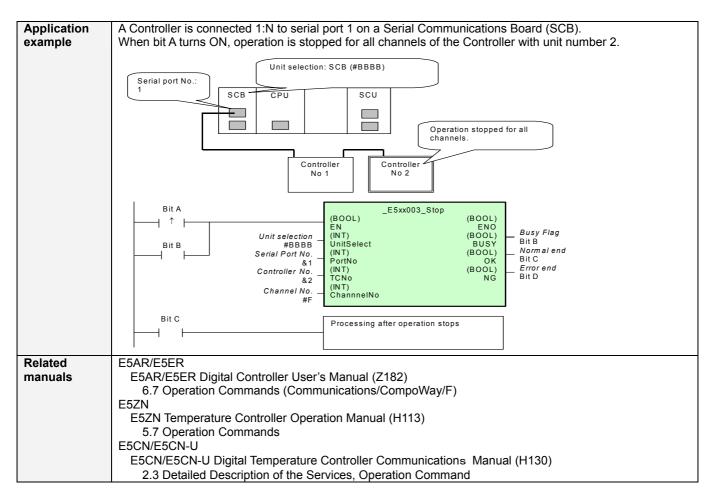
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Compoway/F error code	CompowayF_Error Code	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. See below for details.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
2203	Operation error	 Writing via communications is prohibited.
		 An attempt was made to write protect level setting data from outside of protect level.
		 Autotuning is being executed.
		 Calibration is being executed.
		• Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2004.6.	Original production

E5xx -003	Stop Operation: _E5xx003_Stop
Basic function	Stops operation for the specified channel of the specified Controller.
Symbol	Start trigger
File name	Lib\FBL\omronlib\TemperatureController\E5□R\Serial_E5xx003_Stop10.cxf Lib\FBL\omronlib\TemperatureController\E5ZN\Serial_E5xx003_Stop10.cxf Lib\FBL\omronlib\TemperatureController\E5CN\Serial_E5xx003_Stop10.cxf
Applicable models	E5AR/E5ER/E5ZN/E5CN/E5CN-U
Conditions for usage	 External Connections 1:1 connection is possible. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Controller (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Controller (CompoWay/F). Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports)
Function description	When the start trigger turns ON, operation is stopped for the specified channel of the specified Controller.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or OFF FB execution completed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output
condition Restrictions	from the FB.Always use an upwardly differentiated condition for EN.
Input variables	 The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port.
					 Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Controller unit No.	TCNo	INT	&0	At right.	Specify the unit number of the Controller. E5AR/E5ER &0 to &99 E5ZN &0 to &15 (#0 to #F) E5CN/E5CN-U &0 to &99
Channel No.	ChannelNo	INT	&1	At right.	E5AR/E5ER Specify the channel number. &1: Channel 1 Etc. &4: Channel 4 #F: All channels E5ZN Specify the channel number. &1: Channel 1 &2: Channel 2 #F: All channels E5CN/E5CN-U Always &1.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

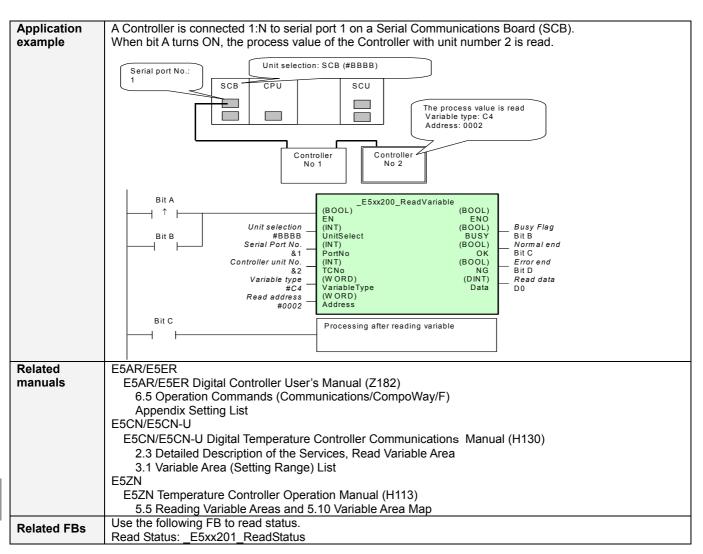
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Compoway/F error code	CompowayF_Error Code	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. See below for details.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
2203	Operation error	Writing via communications is prohibited.
		An attempt was made to write protect level setting data from outside of protect level.
		 Autotuning is being executed.
		 Calibration is being executed.
		 Unit error, unit change, display unit error, or internal non-volatile memory error

_			
	Version	Date	Contents
	1.00	2004.6.	Original production

E5xx -200	Read Variable Area: _E5xx200_ReadVariable						
Basic	People one element from the specified variable area						
function	Reads one element from the specified variable area.						
Symbol	Start trigger						
File name	Lib\FBL\omronlib\TemperatureController\E5□R\Serial_E5xx200_ReadVariable10.cxf Lib\FBL\omronlib\TemperatureController\E5ZN\Serial_E5xx000_ReadVariable10.cxf Lib\FBL\omronlib\TemperatureController\E5CN\Serial_E5xx000_ReadVariable10.cxf						
Applicable models	E5AR/E5ER/E5ZN/E5CN/E5CN-U						
Conditions	External Connections						
for usage	 1:1 connection is possible. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Controller (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Controller (CompoWay/F). Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Shared Resources Shared Resources Settings Communications Instruction Settings Settings Settings Settings Communications Instruction Response Timeout Time (default: 2 s) Settings Setings Settings Settings						
Function	Communications ports (internal logical ports) When the start trigger turns ON, one element, a present value or set value, is read from the specified						
description	Variable Type and Read Address. Refer to the manual for the Controller being used for details on variable types and read addresses. (See Related manuals.)						
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or OFF FB execution completed. 						
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.						
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller. 						
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 						



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port.
					 Connected to CPU Unit Unit selection #FFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Controller unit No.	TCNo	INT	&0	At right.	Specify the unit number of the Controller. E5AR/E5ER &0 to &99 E5ZN &0 to &15 (#0 to #F) E5CN/E5CN-U &0 to &99
Variable type	VariableType	WORD	#0		Specify the variable type. Refer to the <i>Related Manuals</i> for details on variable types.
Read address	Address	WORD	#0		Specify the address to write. Refer to the <i>Related Manuals</i> for details on addresses.

Output Variables

Name	Variable neme	Data tura	Damas	Description
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Read data	Data	DINT		Outputs the read data.
				Refer to the Related Manuals for details on read data.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

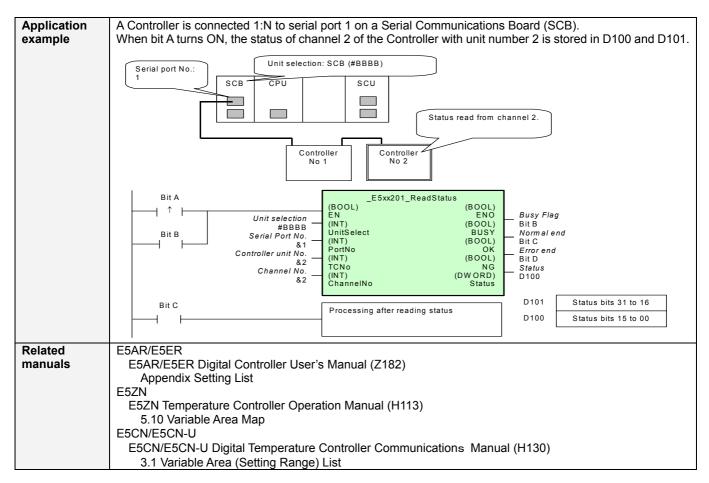
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related</i>
				Manuals for details on the error codes.
Compoway/F error code	CompowayF_Error Code	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. See below for details.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
1002	Variable setting error	 A variable area that is not supported was input.
2203	Operation error	• Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2004.6.	Original production

E5xx -201	Read Status: _E5xx201_ReadStatus
Basic function	Reads the status of the specified channel of a Controller.
Symbol	Start trigger
File name	Lib\FBL\omronlib\TemperatureController\E5 Lib\FBL\omronlib\TemperatureController\E5ZN\Serial_E5xx201_ReadStatus10.cxf Lib\FBL\omronlib\TemperatureController\E5CN\Serial_E5xx201_ReadStatus10.cxf
Applicable models	E5AR/E5ER/E5ZN/E5CN/E5CN-U
Conditions for usage	 External Connections 1:1 connection is possible. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Controller (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Controller (CompoWay/F). Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports)
Function description	When the start trigger turns ON, the status of the specified channel of a Controller is read.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or OFF FB execution completed.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port.
					Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Controller unit No.	TCNo	INT	&0	At right.	Specify the unit number of the Controller. E5AR/E5ER &0 to &99 E5ZN &0 to &15 (#0 to #F) E5CN/E5CN-U &0 to &99
Channel No.	ChannelNo	INT	&1	At right.	E5AR/E5ER Specify the channel number. &1: Channel 1 Etc. &4: Channel 4 E5ZN Specify the channel number. &1: Channel 1 &2: Channel 2 E5CN/E5CN-U Always &1.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Status	Status	DWORD		The format depends on the model of Controller. Refer
				to the manual given in <i>Related Manuals</i> for details.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

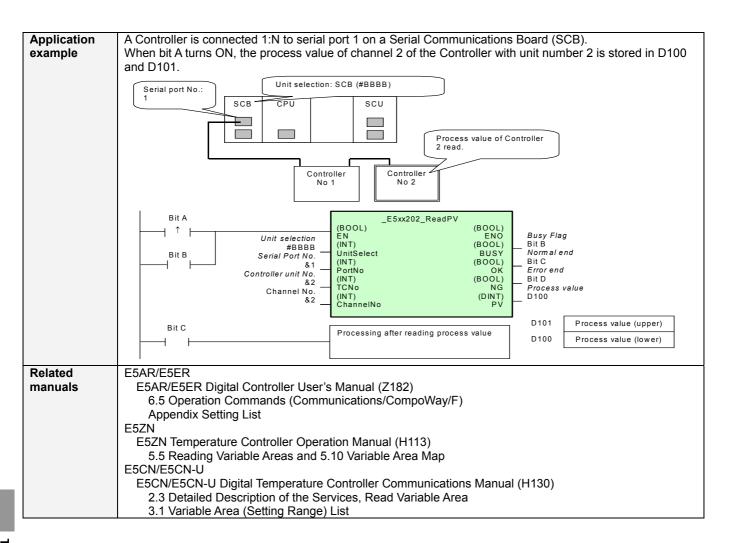
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Compoway/F error code	CompowayF_Error Code	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. See below for details.

Error Code Details

•••							
	Code	Contents	Meaning				
	0000	Normal end					
	2203	Operation error	Unit error, unit change, display unit error, or internal non-volatile memory error				

Version	Date	Contents
1.00	2004.6.	Original production

E5xx -202	Read Process Value: _E5xx202_ReadPV					
Basic function	Reads the process value of the specified channel of a Controller.					
Symbol	Start trigger					
File name	Lib \FBL\omronlib\TemperatureController\Serial\All_E5xx202_ReadPV10.cxf					
Applicable models	E5AR/E5ER/E5ZN/E5CN/E5CN-U					
Conditions	External Connections					
for usage	 1:1 connection is possible. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Controller (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Controller (CompoWay/F). Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) Number of retries (default: 3) Shared Resources Communications ports (internal logical ports) 					
Function	When the start trigger turns ON, the process value of the specified channel of a Controller is read.					
description FB	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the					
precautions	 The PB is processed over multiple cycles. The BOST output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or ON Error end (NG) FB execution completed. 					
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.					
Restrictions	Always use an upwardly differentiated condition for EN.					
Input variables	 The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller. 					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 					



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port. ■ Connected to CPU Unit Unit selection #FFFF
					Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Controller unit No.	TCNo	INT	&0	At right.	Specify the unit number of the Controller. E5AR/E5ER &0 to &99 E5ZN &0 to &15 (#0 to #F) E5CN/E5CN-U &0 to &99
Channel No.	ChannelNo	INT	&1	At right.	E5AR/E5ER Specify the channel number. &1: Channel 1 Etc. &4: Channel 4 E5ZN Specify the channel number. &1: Channel 1 &2: Channel 2 E5CN/E5CN-U

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Process value	PV	DINT		The unit depends on the input type.

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

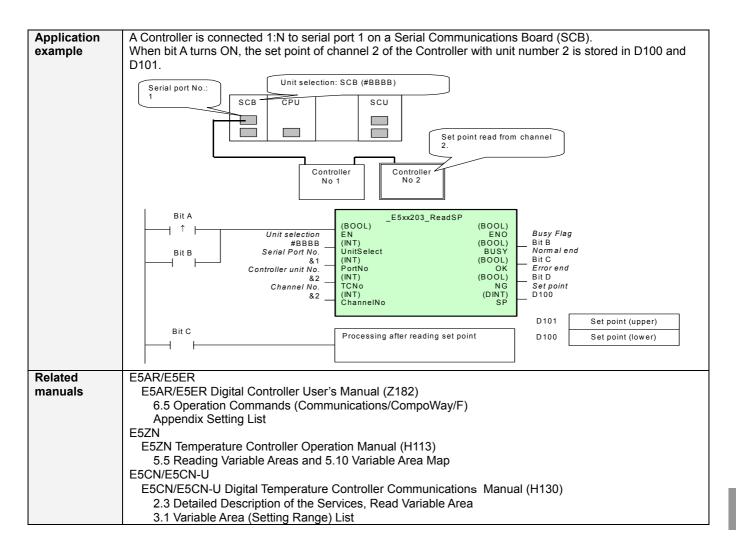
Name	Variable name	Data type	Range	Description
Error code	ErrorCode	WORD		Output the results of the command for the Controller.
				See below for details.

Error Code Details

Code	Contents	Meaning					
0000	Normal end						
2203	Operation error	Unit error, unit change, display unit error, or internal non-volatile memory error					

Version	Date	Contents
1.00	2004.6.	Original production

E5xx -203	Read Set Point: _E5xx203_ReadSP						
Basic function	Reads the set point of the specified channel of a Controller.						
Symbol	Start trigger						
File name	Lib\FBL\omronlib\TemperatureController\E5□R\Serial_E5xx203_ReadSP10.cxf Lib\FBL\omronlib\TemperatureController\E5ZN\Serial_E5xx203_ReadSP10.cxf Lib\FBL\omronlib\TemperatureController\E5CN\Serial_E5xx203_ReadSP10.cxf						
Applicable models	E5AR/E5ER/E5ZN/E5CN/E5CN-U						
Conditions for usage	 External Connections 1:1 connection is possible. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Controller (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Controller (CompoWay/F). Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) 						
Function description	When the start trigger turns ON, the set point of the specified channel of a Controller is read.						
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or OFF FB execution completed. 						
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.						
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller. 						
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 						



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port.
					Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Controller unit No.	TCNo	INT	&0	At right.	Specify the unit number of the Controller. E5AR/E5ER &0 to &99 E5ZN &0 to &15 (#0 to #F) E5CN/E5CN-U &0 to &99
Channel No.	ChannelNo	INT	&1	At right.	E5AR/E5ER Specify the channel number. &1: Channel 1 Etc. &4: Channel 4 E5ZN Specify the channel number. &1: Channel 1 &2: Channel 2 E5CN/E5CN-U Always &1.

Output Variables

Output variables	Output variables				
Name	Variable name	Data type	Range	Description	
ENO	ENO	BOOL		1 (ON): FB processed normally.	
(May be omitted.)				0 (OFF): FB not processed or ended in an error.	
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is	
				completed.	
Normal end	OK	BOOL		Turns ON for one cycle when processing ends	
				normally.	
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an	
				error.	
Set point	SP	DINT		The unit depends on the input type.	

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

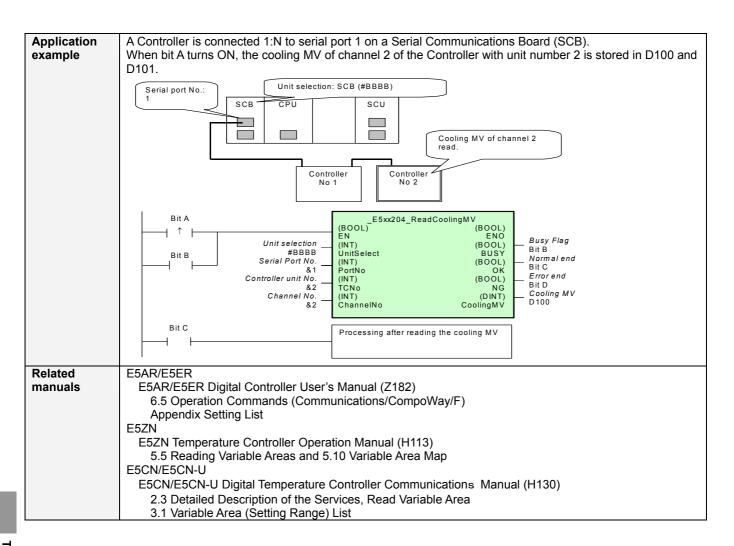
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is
	_			output for a normal end. Refer to the Related
				Manuals for details on the error codes.
Compoway/F	CompowayF Error	WORD		Outputs the explicit message error code. A code of
error code	Code			#0000 is output for a normal end. See below for
				details.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
2203	Operation error	Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2004.6.	Original production

E5xx -204	Read Cooling MV: _E5xx204_ReadCoolingMV
Basic function	Reads the cooling MV of the specified channel of a Controller.
Symbol File name	Start trigger E5∞204_ReadCoolingMV Image: Ima
	Lib\FBL\omronlib\TemperatureController\E5ZN\Serial_E5xx204_ReadCoolingMV10.cxf Lib\FBL\omronlib\TemperatureController\E5CN\Serial_E5xx204_ReadCoolingMV10.cxf
Applicable models	E5AR/E5ER/E5ZN/E5CN/E5CN-U
Conditions for usage	 External Connections 1:1 connection is possible. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Controller (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Controller (CompoWay/F). Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports)
Function description	When the start trigger turns ON, the cooling MV of the specified channel of a Controller is read.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Mormal end (OK) or ON Error end (NG) OFF FB execution completed. When using E5CN/E5CN-U, it is possible to read out the cooling MV when performing heating/cooling control with the reverse operation setting. Also, it is possible to read out heating MV when performing heating/cooling control with the direct operation setting. This FB is not used with the standard control setting.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port.
					Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Controller unit No.	TCNo	INT	&0	At right.	Specify the unit number of the Controller. E5AR/E5ER &0 to &99 E5ZN &0 to &15 (#0 to #F) E5CN/E5CN-U &0 to &99
Channel No.	ChannelNo	INT	&1	At right.	E5AR/E5ER Specify the channel number. &1: Channel 1 Etc. &4: Channel 4 E5ZN Specify the channel number. &1: Channel 1 &2: Channel 2 E5CN/E5CN-U Always &1.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Cooling MV	CoolingMV	DINT		Unit: 0.1%
				For example, &100 means 10.0%.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

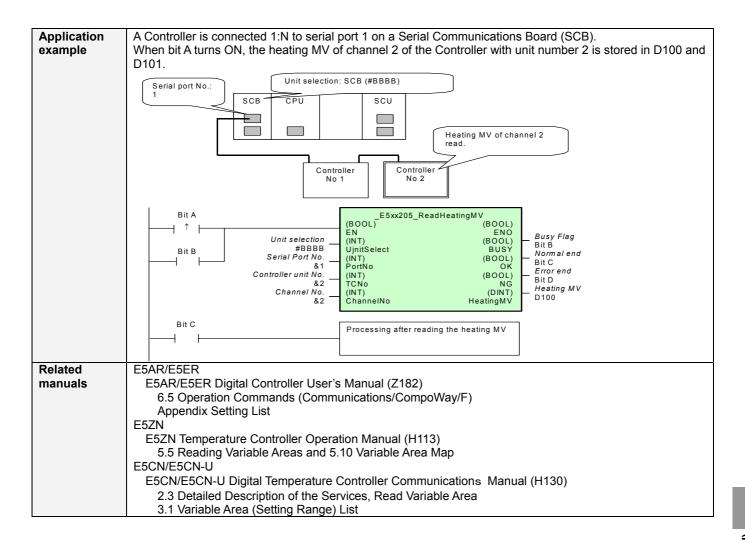
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Compoway/F error code	CompowayF_Error Code	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. See below for details.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
2203	Operation error	Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2004.6.	Original production

E5xx -205	Read Heating MV: _E5xx205_ReadHeatingMV
Basic	Reads the heating MV of the specified channel of a Controller.
function	
Symbol	Start trigger
File name	Lib\FBL\omronlib\TemperatureController\E5□R\Serial_E5xx205_ReadHeatingMV10.cxf Lib\FBL\omronlib\TemperatureController\E5ZN\Serial_E5xx205_ReadHeatingMV10.cxf Lib\FBL\omronlib\TemperatureController\E5CN\Serial_E5xx205_ReadHeatingMV10.cxf
Applicable models	E5AR/E5ER/E5ZN/E5CN/E5CN-U
Conditions for usage	 External Connections 1:1 connection is possible. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Controller (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Controller (CompoWay/F). Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports)
Function description	When the start trigger turns ON, the heating MV of the specified channel of a Controller is read.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or OFF OFF Normal end (OK) or OFF FB execution completed. When using E5CN/E5CN-U, it is possible to read out heating MV when using the reverse operation setting. Also, cooling MV can be read out when using the direct operation setting.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output
condition Restrictions	from the FB.Always use an upwardly differentiated condition for EN.
Input variables	 The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port.
					Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Controller unit No.	TCNo	INT	&0	At right.	Specify the unit number of the Controller. E5AR/E5ER &0 to &99 E5ZN &0 to &15 (#0 to #F) E5CN/E5CN-U &0 to &99
Channel No.	ChannelNo	INT	&1	At right.	E5AR/E5ER Specify the channel number. &1: Channel 1 Etc. &4: Channel 4 E5ZN Specify the channel number. &1: Channel 1 &2: Channel 2 E5CN/E5CN-U Always &1.

Output Variables

Output variables				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Heating MV	HeatingMV	DINT		Unit: 0.1%
				For example, &100 means 10.0%.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

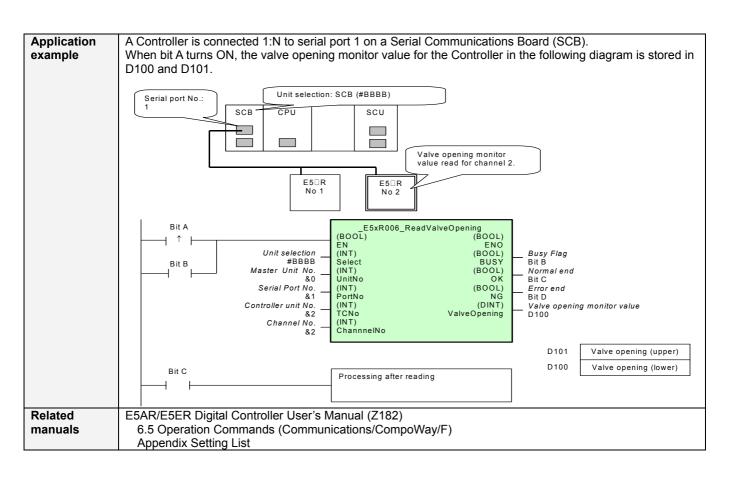
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Compoway/F error code	CompowayF_Error Code	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. See below for details.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
2203	Operation error	Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2004.6.	Original production

E5xR -206	Read Valve Opening: _E5xR206_ReadValveOpening
Basic function	Reads the monitor value for valve opening for the specified channel of a Controller.
Symbol	Start trigger
File name	Lib/FBL/omronlib/TemperatureController/E5 R\Serial E5xR206_ReadValveOpening10.cxf
Applicable models	E5AR/E5ER
Conditions	External Connections
for usage	 1:1 connection is possible. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set
	the serial port to the same communications specifications as the Controller (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher.
	• When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings
	(CompoWay/F) in the PLC Setup to the same communications specifications as the Controller (CompoWay/F).
	Settings PLC Setup: Shared Settings for Communications Instructions in FBs
	 Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0)
	Shared Resources
	Communications ports (internal logical ports)
Function description	When the start trigger turns ON, the valve opening monitor value of the specified channel of a Controller is read.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed.
	 OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing.
	Timechart
	Start Trigger ON OFF
	Busy Flag (BUSY) ON OFF
	Normal end (OK) or ON Error end (NG) OFF
	\uparrow FB execution completed.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions	Always use an upwardly differentiated condition for EN.
Input	• The applicable ranges for input variables depend on the Controller being used. Set values that are
variables	appropriate for the Controller.
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable
variables	 to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.
	י של הסירוטוד נוופ שלטד לטנוטוג אמוזמטופ לא לו לדר לטנשועם נוופ רש.



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port.
					 Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Controller unit No.	TCNo	INT	&0	&0 to &99	Specify the unit number of the Controller.
Channel No.	ChannelNo	INT	&1	&1 to &4	Specify the channel number. &1: Channel 1
					Etc. &4: Channel 4

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Valve opening monitor value	ValveOpening	DINT		Unit: For example, &100 means 10.0%.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Compoway/F error code	CompowayF_Error Code	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. See below for details.

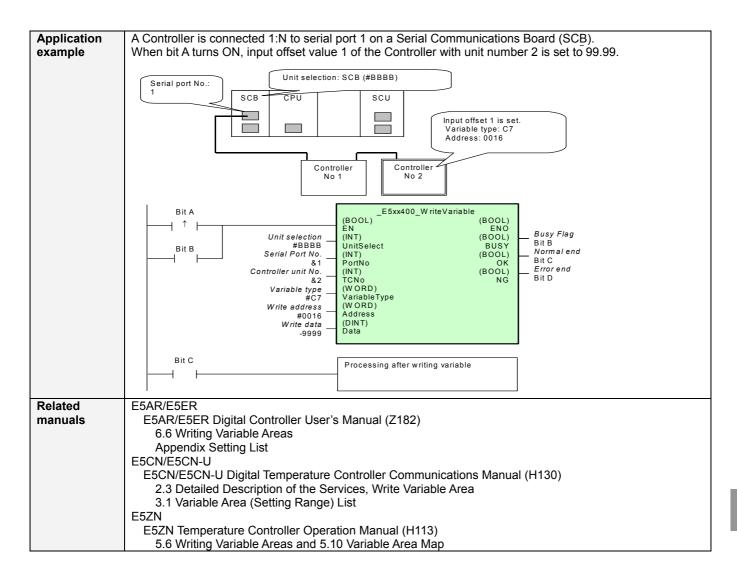
Error Code Details

Code	Contents	Meaning				
0000	Normal end					
2203	Operation error	• Unit error, unit change, display unit error, or internal non-volatile memory error				

Version	Date	Contents	
1.00	2004.6.	Original production	

E5xx -400	Write Variable Area:	_E5xx400_	WriteVariable

Basic	Writes one element to the specified variable area.
function	
Symbol	Start trigger E5xx400 WriteVariable
	Start triggerE5xx400_WriteVariable (BOOL) (BOOL)
	ÉN ENÓ
	Busy Flag Unit selection — (INT) (BOOL) — Busy Flag UnitSelect BUSY
	Serial Port No. (INT) (BOOL) Normal end
	Controller unit No. — (INT) (BOOL) Error end
	Controller unit No. (INI) (BOOL) Error end
	Variable type — (WORD)
	VariableType Write address — (WORD)
	Address
	Write data — (DINT) Data
File name	Lib\FBL\omronlib\TemperatureController\E5□R\Serial\ E5xx400 WriteVariable10.cxf
	Lib/FBL/omronlib/TemperatureController/E5ZN/Serial/ E5xx400 WriteVariable10.cxf
	Lib\FBL\omronlib\TemperatureController\E5CN\Serial_E5xx400_WriteVariable10.cxf
Applicable	E5AR/E5ER/E5ZN/E5CN/E5CN-U
models	
Conditions	External Connections
for usage	• 1:1 connection is possible.
	When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set
	the serial port to the same communications specifications as the Controller (CompoWay/F).
	 Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings
	• When connected to an RS-232C point on the CPO Only, set the RS-232C communications point settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Controller
	(CompoWay/F).
	Settings
	PLC Setup: Shared Settings for Communications Instructions in FBs
	Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended
	Number of retries (default: 0)
	Shared Resources
	Communications ports (internal logical ports)
Function	When the start trigger turns ON, one element, a present value or set value, is written to the specified Variable
description	Type and Write Address.
	Refer to the manual for the Controller being used for details on variable types and read addresses. (See
FB	Related manuals.)
гь precautions	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the EP is being processed
precautions	FB is being processed.OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect
	the end of FB processing.
	Timechart
	Start Trigger ON
	OFF
	Busy Flag (BUSY) ON
	OFF
	Normal end (OK) or ON Error end (NG) OFF
	↓ FB execution completed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output
condition	from the FB.
Restrictions	Always use an upwardly differentiated condition for EN.
Input	• The applicable ranges for input variables depend on the Controller being used. Set values that are
variables	appropriate for the Controller.
Output	This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).
	Do not turn the BUSY output variable ON or OFF outside the FB.



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port.
					 Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Controller unit No.	TCNo	INT	&0	At right.	Specify the unit number of the Controller. E5AR/E5ER &0 to &99 E5ZN &0 to &15 (#0 to #F) E5CN/E5CN-U &0 to &99
Variable type	VariableType	WORD	#0		Specify the variable type. Refer to the <i>Related Manuals</i> for details on variable types.
Write address	Address	WORD	#0		Specify the address to write. Refer to the <i>Related Manuals</i> for details on addresses.
Write data	Data	DINT	&0		Specify the data to write.

Output Variables

Output variables					
Name	Variable name	Data type	Range	Description	
ENO	ENO	BOOL		1 (ON): FB processed normally.	
(May be omitted.)				0 (OFF): FB not processed or ended in an error.	
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is	
				completed.	
Normal end	OK	BOOL		Turns ON for one cycle when processing ends	
				normally.	
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an	
				error.	

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Compoway/F error code	CompowayF_Error Code	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. See below for details.

Error Code Details

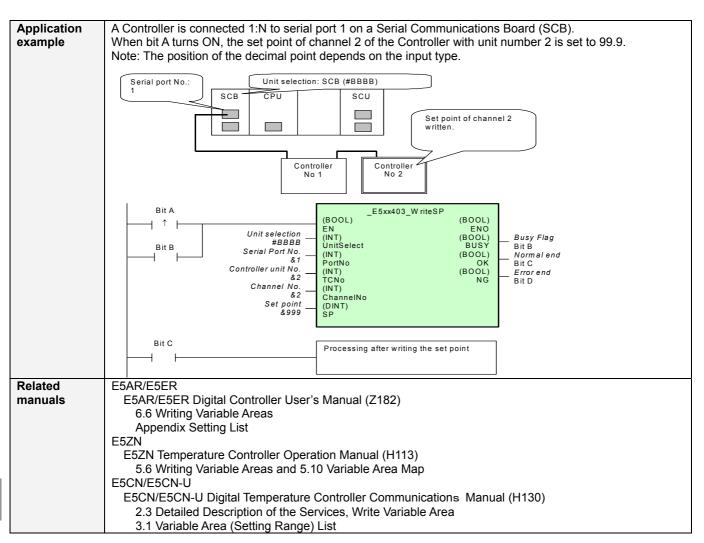
•••	0000 000	ano	
	Code	Contents	Meaning
	0000	Normal end	
	1100	Variable setting error	 The value of the input variable is outside of specifications.
	2203	Operation error	Writing via communications is prohibited.
			An attempt was made to write protect level setting data from outside of protect
			level.
			Autotuning is being executed.
			Calibration is being executed.
			Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents		
1.00	2004.6.	Original production		

Tİ

E5xx -403	Write Set Point: _E5xx403_WriteSP						
Basic function	Writes the set point of the specified channel of a Controller.						
Symbol	Start trigger						
File name	Lib\FBL\omronlib\TemperatureController\E5□R\Serial_E5xx403_WriteSP10.cxf Lib\FBL\omronlib\TemperatureController\E5ZN\Serial_E5xx403_WriteSP10.cxf Lib\FBL\omronlib\TemperatureController\E5CN\Serial_E5xx403_WriteSP10.cxf						
Applicable models	E5AR/E5ER/E5ZN/E5CN/E5CN-U						
Conditions for usage	 External Connections 1:1 connection is possible. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Controller (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Controller (CompoWay/F). Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended 						
	 Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) 						
Function description	When the start trigger turns ON, the set point is written for the specified channel of a Controller.						
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF 						
	Normal end (OK) or ON Error end (NG) OFF						
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.						
Restrictions Input variables Output	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller. This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable 						
variables	to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>).						

Temperature Controller (Serial)



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port.
					Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 Connected to Serial Communication Unit(SCU)
Controller unit No.	TCNo	INT	&0	At right.	&2: Port 2 Specify the unit number of the Controller. E5AR/E5ER &0 to &99 E5ZN &0 to &15 (#0 to #F) E5CN/E5CN-U &0 to &99
Channel No.	ChannelNo	INT	&1	At right.	E5AR/E5ER Specify the channel number. &1: Channel 1 Etc. &4: Channel 4 E5ZN Specify the channel number. &1: Channel 1 &2: Channel 2 E5CN/E5CN-U Always &1.
Set point	SP	DINT	&0		Depends on the input type.

Output Variables

Output variables					
Name	Variable name	Data type	Range	Description	
ENO	ENO	BOOL		1 (ON): FB processed normally.	
(May be omitted.)				0 (OFF): FB not processed or ended in an error.	
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.	
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.	
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.	

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Compoway/F error code	CompowayF_Error Code	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. See below for details.

Error Code Details

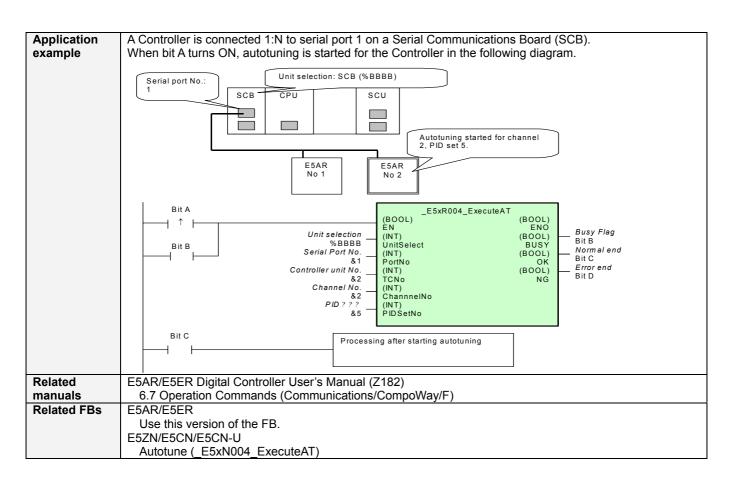
Code	Contents	Meaning
0000	Normal end	
1100	Variable setting error	The value of the input variable is outside of specifications.
2203	Operation error	Writing via communications is prohibited.
		An attempt was made to write protect level setting data from outside of protect level.
		Autotuning is being executed.
		Calibration is being executed.
		Unit error, unit change, display unit error, or internal non-volatile memory error

3-14 Temperature Controller (Serial)

Version	History	
10101011	11101019	

	version history					
Version	Date	Contents				
1.00	2004.6.	Original production				

E5xR -004	Autotune: _E5xR004_ExecuteAT
Basic	Starts autotuning for the specified channel of the specified Controller.
function	
Symbol	Start trigger
File name	Lib\FBL\omronlib\TemperatureController\E5□R\Serial_E5xR004_ExecuteAT10.cxf
Applicable models	E5AR/E5ER Use the Start Autotuning FB (E5xN004 ExecuteAT) for the E5ZN/E5CN/E5CN-U.
Conditions for usage	 External Connections 1:1 connection is possible. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Controller (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Controller (CompoWay/F). Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports)
Function description	When the start trigger turns ON, autotuning is started for the specified channel of the specified Controller.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF OFF OFF
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



Name	Variable name	Data type	Default	Range	
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port.
					Connected to CPU Unit Unit selection (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Controller unit No.	TCNo	INT	&0	&0 to &99	Specify the unit number of the Controller.
Channel No.	ChannelNo	INT	&1	&1 to &4 #F	Specify the channel number. &1: Channel 1 Etc. &4: Channel 4 &F: All channels
PID set No.	PIDSetNo	INT	&1	&1 to &8	Specify the PID set number. &0: Currently selected PID set &1: PID1 Etc. &8: PID8

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

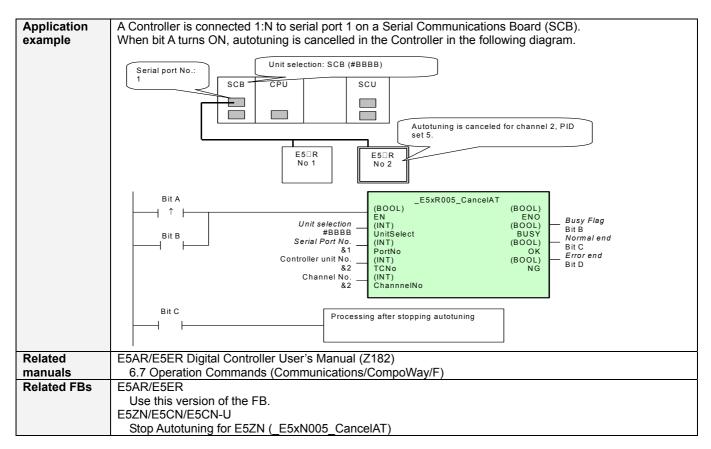
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Compoway/F error code	CompowayF_Error Code	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. See below for details.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
2203	Operation error	 Writing via communications is prohibited.
		 An attempt was made to write protect level setting data from outside of protect level.
		 Autotuning is being executed.
		 Calibration is being executed.
		 Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2004.6.	Original production

E5xR -005	Stop Autotuning: _E5xR005_CancelAT
Basic	Cancels autotuning for the specified channel of the specified Controller.
function	
Symbol	Start trigger
File name	Lib\FBL\omronlib\TemperatureController\E5□R\Serial_E5xR005_CancelAT10.cxf
Applicable models	E5AR/E5ER Use the Stop Autotuning FB (_E5xN005_CancelAT) for the E5ZN/E5CN/E5CN-U.
Conditions	External Connections
for usage	1:1 connection is possible.
	 When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Controller (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Controller (CompoWay/F). Settings PLC Setup: Shared Settings for Communications Instructions in FBs
	 Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources
	Communications ports (internal logical ports)
Function description	When the start trigger turns ON, autotuning is stopped for the specified channel of the specified Controller.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart
	Start Trigger ON OFF
	Busy Flag (BUSY) ON OFF
	Normal end (OK) or ON Error end (NG) OFF
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



Input Variables Name Variable name Data type Default Description Range BOOL ΕN ΕN 1 (ON): FB started. 0 (OFF): FB not started. UnitSelect Unit selection INT &0 At right. Specify the connection Unit and the serial Serial Port No. PortNo INT &1 &1 to &2 port. Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) &1: Port 1 Serial port No. &2: Port 2 Controller unit No. TCNo INT &0 &0 to &99 Specify the unit number of the Controller. Specify the channel number. Channel No. ChannelNo INT &1 to &4 &1 #F &1: Channel 1 Etc. &4: Channel 4 &F: All channels

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

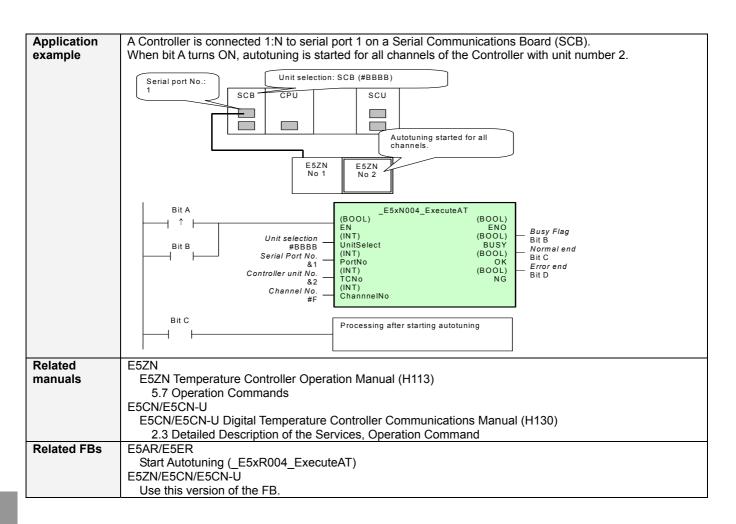
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is
				output for a normal end. Refer to the Related
				Manuals for details on the error codes.
Compoway/F	CompowayF_Error	WORD		Outputs the explicit message error code. A code of
error code	Code			#0000 is output for a normal end. See below for
				details.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
2203	Operation error	Writing via communications is prohibited.
		An attempt was made to write protect level setting data from outside of protect
		level.
		 Autotuning is being executed.
		Calibration is being executed.
		Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2005.6.	Original production

E5xN -004	Autotune: _E5xN004_ExecuteAT
Basic	Starts autotuning for the specified channel of the specified Controller.
function	Starts autotuning for the specified channel of the specified controller.
Symbol	Start trigger
File name	Lib\FBL\omronlib\TemperatureController\Serial\E5ZN_E5xN004_ExecuteAT10.cxf Lib \FBL\omronlib\TemperatureController\Serial\E5CN\ E5xN004 ExecuteAT10.cxf
Applicable	E5ZN/E5CN/E5CN-U
models Conditions	Use the Stop Autotuning FB (_E5xR005_CanceIAT) for the E5AR/E5ER.
for usage	 1:1 connection is possible. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Controller (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Controller (CompoWay/F). Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports)
Function description	When the start trigger turns ON, autotuning is started for the specified channel of the specified Controller.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or OFF FB execution completed.
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output
condition Restrictions Input variables	 from the FB. Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial
Serial Port No.	PortNo	INT	&1	&1 to &2	port.
					 Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2
Controller unit No.	TCNo	INT	&0	At right.	Specify the unit number of the Controller. E5ZN &0 to &15 (#0 to #F) E5CN/E5CN-U &0 to &99
Channel No.	ChannelNo	WORD	&1	At right.	E5ZN Specify the channel number. &1: Channel 1 &2: Channel 2 &F: All channels E5CN/E5CN-U Always &1.

Output Variables	Output Variables						
Name	Variable name	Data type	Range	Description			
ENO	ENO	BOOL		1 (ON): FB processed normally.			
(May be omitted.)				0 (OFF): FB not processed or ended in an error.			
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is			
				completed.			
Normal end	OK	BOOL		Turns ON for one cycle when processing ends			
				normally.			
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an			
				error.			

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

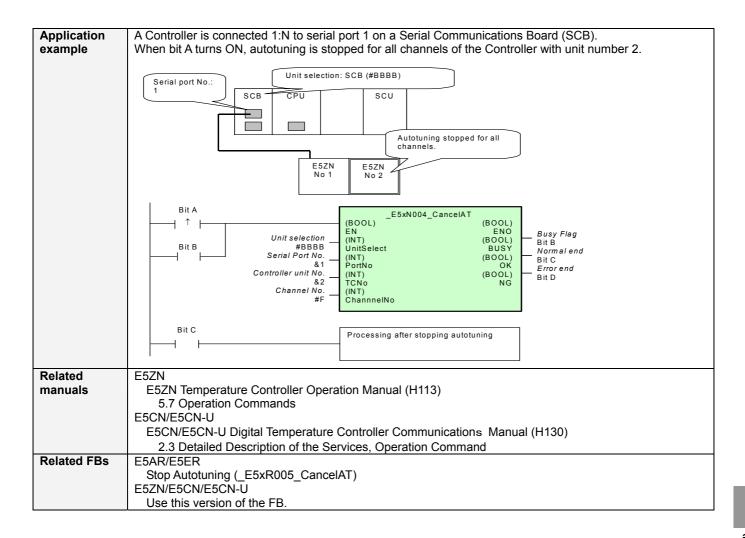
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Compoway/F error code	CompowayF_Error Code	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. See below for details.

Error Code Details

U .	0000 00		
	Code	Contents	Meaning
	0000	Normal end	
	2203	Operation error	Writing via communications is prohibited.
			 An attempt was made to write protect level setting data from outside of protect level.
			Autotuning is being executed.
			Calibration is being executed.
			Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2004.6.	Original production

E5xN -005	Stop Autotuning: _E5xN005_CancelAT						
Basic function	Cancels autotuning for the specified channel of the specified Controller.						
Symbol	Start trigger						
File name	Lib\FBL\omronlib\TemperatureController\E5ZN\Serial_E5xN_005CancelAT10.cxf Lib\FBL\omronlib\TemperatureController\E5CN\Serial_E5xN_005CancelAT10.cxf						
Applicable models	E5ZN/E5CN/E5CN-U Use the Stop Autotuning FB (_E5xR005_CancelAT) for the E5AR/E5ER.						
Conditions for usage	 External Connections 1:1 connection is possible. When connected via a Serial Communications Unit (SCU) or Serial Communications Board (SCB), set the serial port to the same communications specifications as the Controller (CompoWay/F). Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) version 1.2 or higher. When connected to an RS-232C port on the CPU Unit, set the RS-232C communications port settings (CompoWay/F) in the PLC Setup to the same communications specifications as the Controller (CompoWay/F). Settings PLC Setup: Shared Settings for Communications Instructions in FBs Communications Instruction Response Timeout Time (default: 2 s) 5 s recommended Number of retries (default: 0) 						
Function description	Communications ports (internal logical ports) When the start trigger turns ON, autotuning is stopped for the specified channel of the specified Controller.						
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or ON OFF FB execution completed. 						
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.						
Restrictions Input variables Output	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller. This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable 						
variables	 This FB requires multiple cycles to process. Always connect an OR including the BOSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 						



Input Variables

Name	Variable name	Data type	Default	Range	Description	
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.	
Unit selection	UnitSelect	INT	&0	At right.	Specify the connection Unit and the serial	
Serial Port No.	PortNo	INT	&1	&1 to &2	port.	
					 Connected to CPU Unit Unit selection #FFFF Serial port No. Not accessed. (&1 recommended) Connected to Serial Communication Board(SCB) Unit selection #BBBB Serial port No. &1: Port 1 &2: Port 2 Connected to Serial Communication Unit(SCU) Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Port 1 &2: Port 2 	
Controller unit No.	TCNo	INT	&0	At right.	Specify the unit number of the Controller. E5ZN &0 to &15 (#0 to #F) E5CN/E5CN-U &0 to &99	
Channel No.	ChannelNo	WORD	&1	At right.	E5ZN Specify the channel number. &1: Channel 1 &2: Channel 2 &F: All channels E5CN/E5CN-U Always &1.	

Output Variables						
Name	Variable name	Data type	Range	Description		
ENO	ENO	BOOL		1 (ON): FB processed normally.		
(May be omitted.)				0 (OFF): FB not processed or ended in an error.		
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is		
				completed.		
Normal end	OK	BOOL		Turns ON for one cycle when processing ends		
				normally.		
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an		
				error.		

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Compoway/F error code	CompowayF_Error Code	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. See below for details.

Error Code Details

-								
	Code	Contents	Meaning					
	0000	Normal end						
	2203	Operation error	Writing via communications is prohibited.					
			 An attempt was made to write protect level setting data from outside of protect level. 					
			 Autotuning is being executed. 					
			Calibration is being executed.					
			Unit error, unit change, display unit error, or internal non-volatile memory error					

Version	Date	Contents
1.00	2005.6.	Original production

Temperature Controller

3-15 Temperature Controller (DeviceNet)

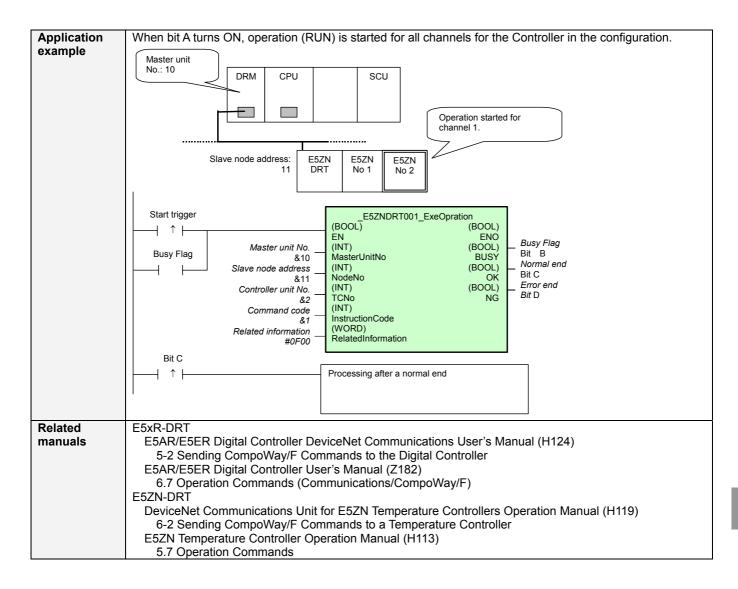
E5AR/E5ER series

FB Name	Function	Page
_E5xxDRT001_ExeOperation	Operation Command	3-482
_E5xxDRT002_Run	Start Operation	3-485
_E5xxDRT003_Stop	Stop Operation	3-488
_E5xRDRT004_ExecuteAT	Autotune	3-518
_E5xRDRT005_CancelAT	Stop Autotuning	3-521
_E5xxDRT200_ReadVariable	Read Variable Area	3-491
_E5xxDRT201_ReadStatus	Read Status	3-494
_E5xxDRT202_ReadPV	Read Process Value	3-497
_E5xxDRT203_ReadSP	Read Set Point	3-500
_E5xxDRT204_ReadCoolingMV	Read Cooling MV	3-503
_E5xxDRT205_ReadHeatingMV	Read Heating MV	3-506
_E5xRDRT206_ReadValveOpening	Read Valve Opening	3-509
_E5xxDRT400_WriteVariable	Write Variable Area	3-512
_E5xxDRT403_WriteSP	Write Set Point	3-515

E5ZN series

FB Name	Function	Page
_E5xxDRT001_ExeOperation	Operation Command	3-482
_E5xxDRT002_Run	Start Operation	3-485
_E5xxDRT003_Stop	Stop Operation	3-488
_E5ZNDRT004_ExecuteAT	Autotune	3-524
_E5ZNDRT005_CancelAT	Stop Autotuning	3-527
_E5xxDRT200_ReadVariable	Read Variable Area	3-491
_E5xxDRT201_ReadStatus	Read Status	3-494
_E5xxDRT202_ReadPV	Read Process Value	3-497
_E5xxDRT203_ReadSP	Read Set Point	3-500
_E5xxDRT204_ReadCoolingMV	Read Cooling MV	3-503
_E5xxDRT205_ReadHeatingMV	Read Heating MV	3-506
_E5xxDRT400_WriteVariable	Write Variable Area	3-512
_E5xxDRT403_WriteSP	Write Set Point	3-515

E5xxDRT -001	Operation Command: _E5xxDRT001_ExeOperation						
Basic	Executes the specified operation command for a Controller on DeviceNet.						
function							
Symbol							
-	Start triggerE5xxDRT001_ExeOpration(BOOL) (BOOL)						
	EN ENO						
	BOOL Busy Flag						
	MasterUnitNo BUSY						
	Slave node address - (INT) (BOOL) - Normal end						
	Controller unit No. – (INT) (BOOL) – Error end						
	Command code instructionCode						
	Related information – (WORD) RelatedInformation						
File name	Lib\FBL\omronlib\TemperatureController\E5 R\Dnet\ E5xxDRT001 ExeOperation10.cxf						
	Lib/FBL/omronlib/TemperatureController/E5ZN/Dnet/_E5xxDRT001_ExeOperation10.cxf						
Applicable	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21						
models	Units						
	Applicable Slave Units E5AR-DRT, E5ER-DRT, and E5ZN-DRT						
Conditions	CPU Unit Settings						
for usage	PLC Setup: Shared Settings for Communications Instructions in FBs						
	 DeviceNet Response Timeout Time (default: 2 s) 10 s recommended 						
	 Number of retries (default: 0) 						
	Shared Resources						
	Communications ports (internal logical ports)						
	Other						
	Communications must be within one network and cannot cross to another network.						
Function	When the start trigger turns ON, the operation command specified by the Command code and Related						
description	information is executed for the Controller on the DeviceNet specified by the Master unit No., Slave node						
	address, and Controller unit No. Refer to the manual for the Controller being used for details on command codes and related information.						
	(See Related manuals.)						
FB	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the						
precautions	FB is being processed.						
productione	OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect						
	the end of FB processing.						
	Timechart						
	Start Trigger ON						
	OFF						
	Busy Flag (BUSY) ON						
	OFF						
	Normal end (OK) or ON						
	Normal end (OK) or ON Error end (NG) OFF						
	✓ FB execution completed.						
	T D execution completed.						
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output						
condition	from the FB.						
Restrictions	Always use an upwardly differentiated condition for EN.						
Input	• The applicable ranges for input variables depend on the Controller being used. Set values that are						
variables	appropriate for the Controller.						
Output	Unable to specify the Reset Command (command code: #06).						
Output variables	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the EP is processed to completion (see Symbol)						
valiables	to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>).						
	Do not turn the BUSY output variable ON or OFF outside the FB.						



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Master unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Controller unit No.	TCNo	INT	&0	At right.	E5AR-DRT/E5ER-DRT Set the same value as for the slave node address. E5ZN-DRT Specify the unit number of the Controller between &0 and &15 (#0 to #F).
Command code	InstructionCode	INT	&0		Refer to the pages provided in <i>Related Manuals</i> for details.
Related information	RelatedInformation	WORD	&0		Same as above.

Output Variables

Output Vallabioo				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code	Explicit_ErrorCode	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
CompoWay/F error code	CompowayF_Error Code	WORD		Outputs the CompoWay/F error code. A code of #0000 is output for a normal end. See below for details on errors.

Error Code Details

•••	COUC DOL	ano	
	Code	Contents	Meaning
	0000	Normal end	
	1100	Variable setting error	 The value of the input variable is outside of specifications.
	2203	Operation error	Writing via communications is prohibited.
			 An attempt was made to write protect level setting data from outside of protect level.
			 Autotuning is being executed.
			Calibration is being executed.
			Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2004.6.	Original production

	T					
E5xxDRT -002	Start Operation: _E5xxDRT002_Run					
-002						
Basic	Starts operation for a channel of a Controller on DeviceNet.					
function						
Symbol						
	Start triggerE5xxDRT002_Run (BOOL) (BOOL)					
	ÈN ÈN (DOOL)					
	Busy Flag Master Unit No. (INT) (BOOL) Busy Flag MasterUnitNo BUSY					
	BOOL Normal end					
	Controller unit No. (INT) (BOOL) Error end					
	TCNo NG (INT)					
	Channel No. ChannelNo					
File neme						
File name	Lib\FBL\omronlib\TemperatureController\E5□R\Dnet_E5xxDRT002_Run10.cxf Lib\FBL\omronlib\TemperatureController\E5ZN\Dnet\ E5xxDRT002 Run10.cxf					
Applicable	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21					
models	Units					
	Applicable Slave Units E5AR-DRT/E5ER-DRT E5ZN-DRT					
Conditions	CPU Unit Settings					
for usage	PLC Setup: Shared Settings for Communications Instructions in FBs					
	DeviceNet Response Timeout Time (default: 2 s) 10 s recommended					
	• Number of retries (default: 0)					
	Shared Resources					
	Communications ports (internal logical ports) Other					
	Communications must be within one network and cannot cross to another network.					
Function	When the start trigger turns ON, operation is started for the specified channel of the Controller on the					
description	DeviceNet specified by the Master unit No., Slave node address, and Controller unit No.					
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the					
precautions	FB is being processed.					
	• OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing.					
	Timechart Start Trigger ON					
	Start Trigger ON OFF					
	Busy Flag (BUSY) ON					
	OFF					
	Normal end (OK) or ON Error end (NG) OFF					
	FB execution completed.					
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.					
Restrictions	Always use an upwardly differentiated condition for EN.					
Input	• The applicable ranges for input variables depend on the Controller being used. Set values that are					
variables	appropriate for the Controller.					
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable					
variables	 to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 					

Application	A Controller is connected as slave 11 to a DeviceNet Unit with unit number 10.
example	When bit A turns ON, operation is started for channel 1 of the Controller with unit number 2.
	Master unit
	No.: 10 DRM CPU SCU
	Operation started for
	channel 1.
	Slave node address E5ZN E5ZN E5ZN E5ZN 11 DRT No1 No 2
	11 DRT No1 No 2
	Bit AE5xxDRT002_Run
	(BOOL) (BOOL)
	Master Unit No EN ENO Busy Flag
	Bit B & 10 MasterUnitNo BUSY Bit B
	Slave node address (INT) (BOOL) Normal end
	Controller unit No. (INT) (BOOL) Error end
	&2 TCNo NG Bit D
	Channel No. (INT) &1 ChannelNo
	Channeliko
	Bit C Processing after operation starts
Related	E5xR-DRT
manuals	E5AR/E5ER Digital Controller DeviceNet Communications User's Manual (H124)
	5-2 Sending CompoWay/F Commands to the Digital Controller
	E5AR/E5ER Digital Controller User's Manual (Z182)
	6.7 Operation Commands (Communications/CompoWay/F)
	E5ZN-DRT
	DeviceNet Communications Unit for E5ZN Temperature Controllers Operation Manual (H119)
	6-2 Sending CompoWay/F Commands to a Temperature Controller
	E5ZN Temperature Controller Operation Manual (H113)
	5.7 Operation Commands

■ Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Controller unit No.	TCNo	INT	&0	At right.	E5AR-DRT/E5ER-DRT Set the same value as for the slave node address. E5ZN-DRT Specify the unit number of the Controller between &0 and &15 (#0 to #F).
Channel No.	ChannelNo	INT	&1	&1 to &2 #F	Specify the channel number. &1: Channel 1 &2: Channel 2 #F: All channels

Output Variables

		D () ())	D	Description of the second s
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is
				output for a normal end. Refer to the Related
				Manuals for details on the error codes.
Explicit message	Explicit_ErrorCode	WORD		Outputs the explicit message error code. A code of
error code				#0000 is output for a normal end. Refer to the
				Related Manuals for details on the error codes.
CompoWay/F	CompowayF_ErrorCode	WORD		Outputs the CompoWay/F error code. A code of
error code				#0000 is output for a normal end. See below for
				details on errors.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
2203	Operation error	Writing via communications is prohibited.
		• An attempt was made to write protect level setting data from outside of protect level.
		Autotuning is being executed.
		Calibration is being executed.
		Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2004.6.	Original production

E5xxDRT -003	Stop Operation: _E5xxDRT003_Stop							
Basic	Stops operation for a channel of a Controller on DeviceNet.							
function								
Symbol	Start trigger E5xxDRT003 Stop							
	Start triggerE5xxDRT003_Stop (BOOL) (BOOL)							
	Master Lloit No. ENÓ Busy Flag							
	Busy Flag Masteri InitNo BUSY Newsci and							
	Controller unit No (INT) (BOOL)							
	Channel No							
	ChannelNo							
File name	Lib/FBL/omronlib/TemperatureController/E5□R/Dnet/_E5xxDRT003_Stop10.cxf							
Applicable	Lib\FBL\omronlib\TemperatureController\E5ZN\Dnet_E5xxDRT003_Stop10.cxf Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21							
models								
mouolo	Applicable Slave Units E5AR-DRT/E5ER-DRT							
	E5ZN-DRT							
Conditions	CPU Unit Settings							
for usage	PLC Setup: Shared Settings for Communications Instructions in FBs							
	DeviceNet Response Timeout Time (default: 2 s) 10 s recommended							
	Number of retries (default: 0) Shared Resources							
	Communications ports (internal logical ports) Other							
	Communications must be within one network and cannot cross to another network.							
Function	When the start trigger turns ON, operation is stopped for the specified channel of the Controller on the							
description FB	 DeviceNet specified by the <i>Master unit No., Slave node address,</i> and <i>Controller unit No.</i> The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the 							
precautions	• The FB is being processed.							
p	 OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect 							
	the end of FB processing.							
	Timechart							
	Start Trigger ON							
	OFF							
	Busy Flag (BUSY) ON OFF							
	Normal end (OK) or ON							
	Error end (NG) OFF							
	\uparrow FB execution completed.							
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output							
condition	from the FB.							
Restrictions	 Always use an upwardly differentiated condition for EN. 							
Input	• The applicable ranges for input variables depend on the Controller being used. Set values that are							
variables	appropriate for the Controller.							
Output variables	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>).							
variables	 Do not turn the BUSY output variable ON or OFF outside the FB. 							

Application	A Controller is connected as slave 11 to a DeviceNet Unit with unit number 10.					
example	When bit A turns ON, operation is stopped for channel 1 of the Controller with unit number 2.					
	Master unit No.: 10 DRM CPU Scu Operation stopped for channel 1 Slave node address 11 DRT No1 No 2					
	Bit A E5xxDRT003_Stop Bool ↑ ↑ Master Unit No. ENO Bit B &10 (INT) (BOOL) Slave node address (INT) (BOOL) Controller unit No. &2 (INT) (BOOL) Controller unit No. &2 Channel No. KINT) Bool Bit C Processing after operation stops Bit C Bit D					
Related manuals	E5xR-DRT E5AR/E5ER Digital Controller DeviceNet Communications User's Manual (H124) 5-2 Sending CompoWay/F Commands to the Digital Controller E5AR/E5ER Digital Controller User's Manual (Z182) 6.7 Operation Commands (Communications/CompoWay/F) E5ZN-DRT DeviceNet Communications Unit for E5ZN Temperature Controllers Operation Manual (H119) 6-2 Sending CompoWay/F Commands to a Temperature Controller E5ZN Temperature Controller Operation Manual (H113)					
	5.7 Operation Commands					

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Controller unit No.	TCNo	INT	&0	At right.	E5AR-DRT/E5ER-DRT Set the same value as for the slave node address. E5ZN-DRT Specify the unit number of the Controller between &0 and &15 (#0 to #F).
Channel No.	ChannelNo	INT	&1	&1 to &2 #F	Specify the channel number. &1: Channel 1 &2: Channel 2 #F: All channels

Output Variables

Output Variables				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

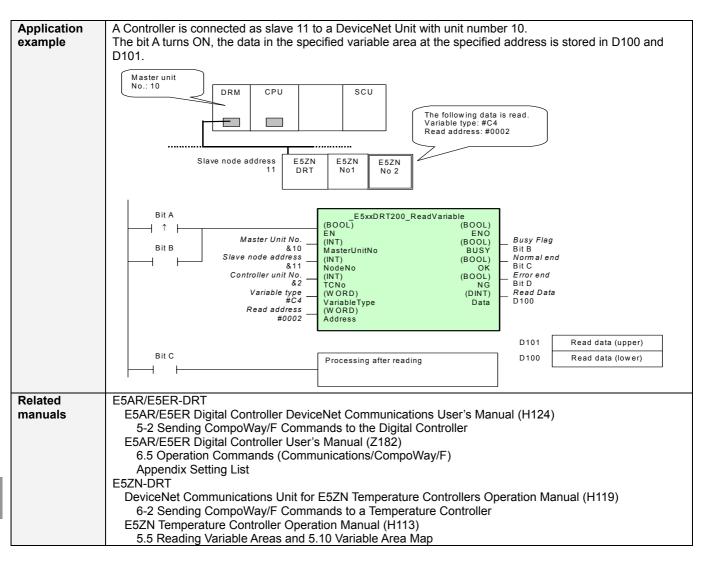
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
Explicit message error code	Explicit_ErrorCode	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
CompoWay/F error code	CompowayF_ErrorCode	WORD		Outputs the CompoWay/F error code. A code of #0000 is output for a normal end. See below for details on errors.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
2203	Operation error	Writing via communications is prohibited.
		 An attempt was made to write protect level setting data from outside of protect level.
		Autotuning is being executed.
		Calibration is being executed.
		Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2004.6.	Original production

E5xxDRT -200	Read Variable Area: _E5xxDRT200_ReadVariable					
Basic function	Reads one element from the variable area of a Controller on DeviceNet.					
Symbol	Start trigger					
File name	Lib\FBL\omronlib\TemperatureController\E5□R\Dnet_E5xxDRT200_ReadVariable10.cxf Lib\FBL\omronlib\TemperatureController\E5ZN\Dnet_E5xxDRT200_ReadVariable10.cxf					
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units					
	Applicable Slave Units E5AR-DRT/E5ER-DRT E5ZN-DRT E5ZN-DRT					
Conditions for usage	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs • DeviceNet Response Timeout Time (default: 2 s) 10 s recommended • Number of retries (default: 0) Shared Resources • Communications ports (internal logical ports) Other • Communications must be within one network and cannot cross to another network.					
Function description	When the start trigger turns ON, one element, a present value or set value, is read from the specified Variable Type and Read Address in the Controller on the DeviceNet specified by the Master unit No., Slave node address, and Controller unit No. Refer to the manual for the Controller being used for details on variable types and read addresses. (See Related manuals.)					
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or OFF FB execution completed. 					
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.					
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller. 					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 					



Variable Tables out Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Controller unit No.	TCNo	INT	&0	At right.	E5AR-DRT/E5ER-DRT Set the same value as for the slave node address. E5ZN-DRT Specify the unit number of the Controller between &0 and &15 (#0 to #F).
Variable type	VariableType	WORD	#0		Specify the variable type. Refer to the <i>Related Manuals</i> for details on variable types.
Read address	Address	WORD	#0		Specify the address to read. Refer to the <i>Related Manuals</i> for details on addresses.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	ОК	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.
Read data	Data	DINT		Outputs the read data. Refer to the <i>Related Manuals</i> for details on read data.

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

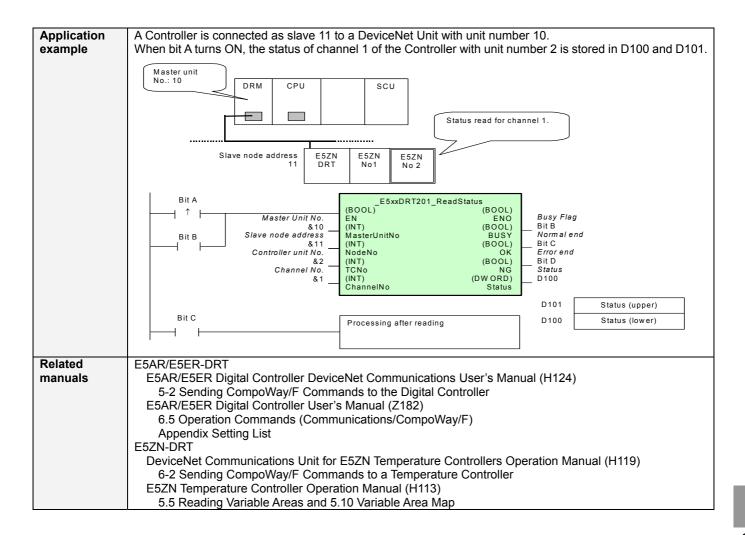
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is
				output for a normal end. Refer to the Related
				Manuals for details on the error codes.
Explicit message	Explicit_ErrorCode	WORD		Outputs the explicit message error code. A code of
error code				#0000 is output for a normal end. Refer to the
				Related Manuals for details on the error codes.
CompoWay/F	CompowayF_ErrorCode	WORD		Outputs the CompoWay/F error code. A code of
error code				#0000 is output for a normal end. See below for
				details on errors.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
1002	Variable setting error	 A variable area that is not supported was input.
2203	Operation error	Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2004.6.	Original production

E5xxDRT -201	Read Status: _E5xxDRT201_ReadStatus					
Basic function	Reads the status of the specified channel of a Controller connected to DeviceNet.					
Symbol	Start trigger E5xxDRT201_ReadStatus					
File name	Lib\FBL\omronlib\TemperatureController\E5 R\Dnet_E5xxDRT201_ReadStatus10.cxf Lib\FBL\omronlib\TemperatureController\E5ZN\Dnet_E5xxDRT201_ReadStatus10.cxf					
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21					
	Applicable Slave Units E5AR-DRT/E5ER-DRT E5ZN-DRT					
Conditions for usage	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs • DeviceNet Response Timeout Time (default: 2 s) 10 s recommended • Number of retries (default: 0) Shared Resources • Communications ports (internal logical ports) Other					
Function description	Communications must be within one network and cannot cross to another network. When the start trigger turns ON, status is read for the specified channel of the Controller on the DeviceNet specified by the <i>Master unit No., Slave node address,</i> and <i>Controller unit No.</i>					
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or ON Error end (NG) OFF FB execution completed. 					
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output					
condition Restrictions	from the FB.					
Input variables	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller. 					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 					



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Controller unit No.	TCNo	INT	&0	At right.	E5AR-DRT/E5ER-DRT Set the same value as for the slave node address. E5ZN-DRT Specify the unit number of the Controller between &0 and &15 (#0 to #F).
Channel No.	ChannelNo	INT	&1	&1 to &2	Specify the channel number. &1: Channel 1 &2: Channel 2

Output Variables

Output variables				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Status	Status	DWORD		Refer to the Related Manuals for the format.

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

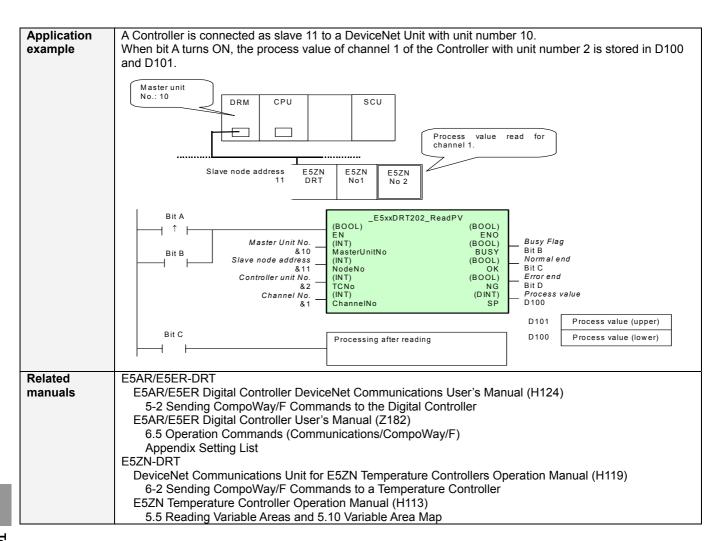
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is
				output for a normal end. Refer to the Related
				Manuals for details on the error codes.
Explicit message	Explicit_ErrorCode	WORD		Outputs the explicit message error code. A code of
error code				#0000 is output for a normal end. Refer to the
				Related Manuals for details on the error codes.
CompoWay/F	CompowayF_ErrorCode	WORD		Outputs the CompoWay/F error code. A code of
error code				#0000 is output for a normal end. See below for
				details on errors.

Error Code Details

	115	
Code	Contents	Meaning
0000	Normal end	
2203	Operation error	Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents			
1.00	2004.6.	Original production			

E5xxDRT -202	Read Process Value: _E5xxDRT202_ReadPV						
Basic function	Reads the process value of the specified channel of a Controller connected to DeviceNet.						
Symbol	Start trigger						
File name	Lib\FBL\omronlib\TemperatureController\E5□R\Dnet_E5xxDRT202_ReadPV10.cxf Lib\FBL\omronlib\TemperatureController\E5ZN\Dnet_E5xxDRT202_ReadPV10.cxf						
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units Applicable Slave Units E5AR-DRT/E5ER-DRT						
Conditions	CPU Unit Settings						
for usage	 PLC Setup: Shared Settings for Communications Instructions in FBs DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other Communications must be within one network and cannot cross to another network. 						
Function description	When the start trigger turns ON, the process value is read for the specified channel of the Controller on the DeviceNet specified by the <i>Master unit No., Slave node address,</i> and <i>Controller unit No.</i>						
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or OFF FB execution completed. 						
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.						
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller. 						
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 						



■ Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Controller unit No.	TCNo	INT	&0	At right.	E5AR-DRT/E5ER-DRT Set the same value as for the slave node address. E5ZN-DRT Specify the unit number of the Controller between &0 and &15 (#0 to #F).
Channel No.	ChannelNo	INT	&1	&1 to &2	Specify the channel number. &1: Channel 1 &2: Channel 2

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Process value	PV	DINT		The unit depends on the input type.

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

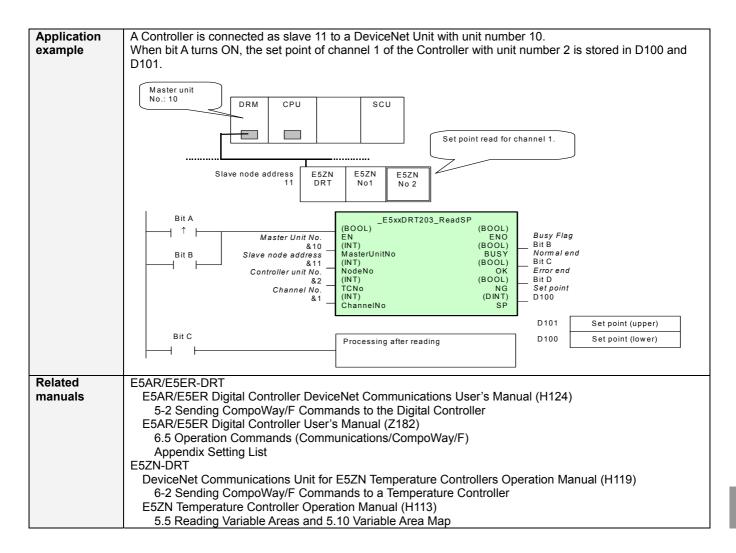
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is
				output for a normal end. Refer to the Related
				Manuals for details on the error codes.
Explicit message	Explicit_ErrorCode	WORD		Outputs the explicit message error code. A code of
error code				#0000 is output for a normal end. Refer to the
				Related Manuals for details on the error codes.
CompoWay/F	CompowayF_ErrorCode	WORD		Outputs the CompoWay/F error code. A code of
error code				#0000 is output for a normal end. See below for
				details on errors.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
2203	Operation error	Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents	
1.00	2004.6.	Original production	

E5xxDRT -203	Read Set Point: _E5xxDRT203_ReadSP
Basic function	Reads the set point of the specified channel of a Controller connected to DeviceNet.
Symbol	Start trigger E5xxDRT203_ReadSP ↑ ↑ BNO Busy Flag Master Unit No.
	Image: Slave node address (INT) (BOOL) Normal end Controller unit No. (INT) (BOOL) Error end Channel No. (INT) (DINT) Set point
File name	Lib\FBL\omronlib\TemperatureController\E5 R\Dnet_E5xxDRT203_ReadSP10.cxf Lib\FBL\omronlib\TemperatureController\E5ZN\Dnet_E5xxDRT203_ReadSP10.cxf
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units
	Applicable Slave Units E5AR-DRT/E5ER-DRT E5ZN-DRT
Conditions for usage	 CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other Communications must be within one network and cannot cross to another network.
Function description	When the start trigger turns ON, the set point is read of the specified channel of the Controller on the DeviceNet specified by the <i>Master unit No., Slave node address,</i> and <i>Controller unit No.</i>
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF ON OFF
	Normal end (OK) or ON Error end (NG) OFF FB execution completed.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Unit.
Slave node	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
address					
Controller unit No.	TCNo	INT	&0	At right.	E5AR-DRT/E5ER-DRT
				_	Set the same value as for the slave node
					address.
					E5ZN-DRT
					Specify the unit number of the Controller
					between &0 and &15 (#0 to #F).
Channel No.	ChannelNo	INT	&1	&1 to &2	Specify the channel number.
					&1: Channel 1
					&2: Channel 2

Output Variables

Output variables				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Set point	SP	DINT		The unit depends on the input type.

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

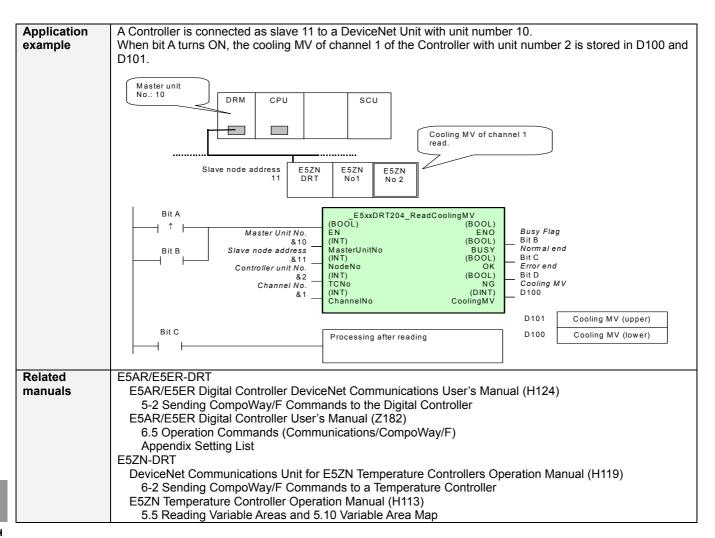
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is
				output for a normal end. Refer to the Related
				Manuals for details on the error codes.
Explicit message	Explicit_ErrorCode	WORD		Outputs the explicit message error code. A code of
error code				#0000 is output for a normal end. Refer to the
				Related Manuals for details on the error codes.
CompoWay/F	CompowayF_ErrorCode	WORD		Outputs the CompoWay/F error code. A code of
error code				#0000 is output for a normal end. See below for
				details on errors.

Error Code Details

 0000 000	Jour Downs						
Code	Contents	Meaning					
0000	Normal end						
2203	Operation error	Unit error, unit change, display unit error, or internal non-volatile memory error					

Version	Date	Contents	
1.00	2004.6.	Original production	

E5xxDRT -204	Read Cooling MV: _E5xxDRT204_ReadCoolingMV					
Basic function	Reads the cooling MV of the specified channel of a Controller connected to DeviceNet.					
Symbol	Start trigger					
File name	Lib\FBL\omronlib\TemperatureController\E5□R\Dnet_E5xxDRT204_ReadCoolingMV10.cxf Lib\FBL\omronlib\TemperatureController\E5ZN\Dnet_E5xxDRT204_ReadCoolingMV10.cxf					
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units Applicable Slave Units E5AR-DRT/E5ER-DRT					
Conditions for usage	E5ZN-DRT CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs • DeviceNet Response Timeout Time (default: 2 s) 10 s recommended • Number of retries (default: 0) Shared Resources • Communications ports (internal logical ports) Other • Communications must be within one network and cannot cross to another network.					
Function description	When the start trigger turns ON, the cooling MV is read for the specified channel of the Controller on the DeviceNet specified by the <i>Master unit No., Slave node address,</i> and <i>Controller unit No.</i>					
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or OFF FB execution completed. 					
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.					
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller. 					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 					



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Controller unit No.	TCNo	INT	&0	At right.	E5AR-DRT/E5ER-DRT Set the same value as for the slave node address. E5ZN-DRT Specify the unit number of the Controller between &0 and &15 (#0 to #F).
Channel No.	ChannelNo	INT	&1	&1 to &2	Specify the channel number. &1: Channel 1 &2: Channel 2

Output Variables

		_	_	
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Cooling MV	CoolingMV	DINT		Unit: 0.1%
-	-			For example, &100 means 10.0%.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

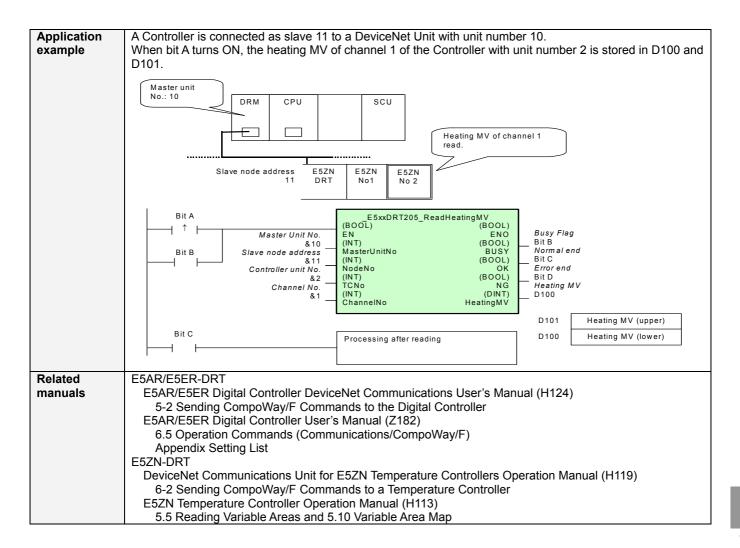
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is
				output for a normal end. Refer to the <i>Related</i>
				Manuals for details on the error codes.
Explicit message	Explicit_ErrorCode	WORD		Outputs the explicit message error code. A code of
error code				#0000 is output for a normal end. Refer to the
				Related Manuals for details on the error codes.
CompoWay/F	CompowayF_ErrorCode	WORD		Outputs the CompoWay/F error code. A code of
error code				#0000 is output for a normal end. See below for
				details on errors.

Error Code Details

۰.								
	Code	Contents	Meaning					
	0000	Normal end						
	2203	Operation error	• Unit error, unit change, display unit error, or internal non-volatile memory error					

Version	Date	Contents
1.00	2004.6.	Original production

E5xxDRT -205	Read Heating MV: _E5xxDRT205_ReadHeatingMV						
Basic function	Reads the heating MV of the specified channel of a Controller connected to DeviceNet.						
Symbol	Start trigger						
File name	Lib\FBL\omronlib\TemperatureController\E5□R\Dnet_E5xxDRT205_ReadHeatingMV10.cxf Lib\FBL\omronlib\TemperatureController\E5ZN\Dnet_E5xxDRT205_ReadHeatingMV10.cxf						
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units						
	Applicable Slave Units E5AR-DRT/E5ER-DRT E5ZN-DRT						
Conditions for usage	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs • DeviceNet Response Timeout Time (default: 2 s) 10 s recommended • Number of retries (default: 0) Shared Resources • Communications ports (internal logical ports) Other						
Function description	Communications must be within one network and cannot cross to another network. When the start trigger turns ON, the heating MV is read for the specified channel of the Controller on the DeviceNet specified by the <i>Master unit No., Slave node address,</i> and <i>Controller unit No.</i>						
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or ON OFF FB execution completed. 						
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output						
condition	from the FB.						
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller. 						
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 						



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15	Specify the unit number of the DeviceNet
				#0 to #F	Unit.
Slave node	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
address					
Controller unit No.	TCNo	INT	&0	At right.	E5AR-DRT/E5ER-DRT
				_	Set the same value as for the slave node
					address.
					E5ZN-DRT
					Specify the unit number of the Controller
					between &0 and &15 (#0 to #F).
Channel No.	ChannelNo	INT	&1	&1 to &2	Specify the channel number.
					&1: Channel 1
					&2: Channel 2

Output Variables

Output variables				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Heating MV	HeatingMV	DINT		Unit: 0.1%
-	-			For example, &100 means 10.0%.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

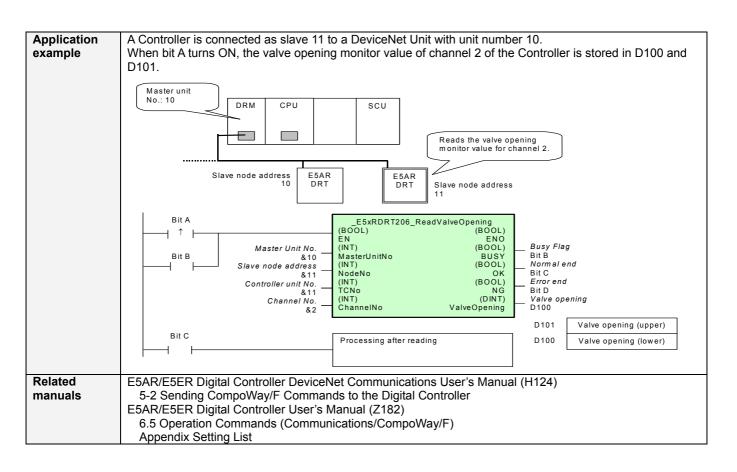
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related</i>
				Manuals for details on the error codes.
Explicit message error code	Explicit_ErrorCode	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
CompoWay/F error code	CompowayF_ErrorCode	WORD		Outputs the CompoWay/F error code. A code of #0000 is output for a normal end. See below for details on errors.

Error Code Details

101									
	Code	Contents	Meaning						
	0000	Normal end							
	2203	Operation error	Unit error, unit change, display unit error, or internal non-volatile memory error						

Version	Date	Contents
1.00	2004.6.	Original production

E5xRDRT -206	Read Valve Opening: _E5xRDRT206_ReadValveOpening							
Basic function	Reads the valve opening monitor value for the specified channel of a Controller connected to DeviceNet.							
Symbol	Start trigger							
File name	Lib\FBL\omronlib\TemperatureController\E5 R\Dnet_E5xRDRT206_ReadValveOpening10.cxf							
Applicable	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21							
models	Units Applicable Slave Units E5AR-DRT/E5ER-DRT							
Conditions	CPU Unit Settings							
for usage	PLC Setup: Shared Settings for Communications Instructions in FBs							
Ū	DeviceNet Response Timeout Time (default: 2 s) 10 s recommended							
	Number of retries (default: 0)							
	Shared Resources							
	Communications ports (internal logical ports)							
	 Other Communications must be within one network and cannot cross to another network. 							
Function	When the start trigger turns ON, the monitor value for the amount of value opening is read for the specified							
description	channel of the Controller on the DeviceNet specified by the <i>Master unit No., Slave node address,</i> and							
-	Controller unit No.							
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the							
precautions	FB is being processed.							
	 OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. 							
	Timechart							
	Start Trigger ON							
	OFF							
	Busy Flag (BUSY) ON							
	OFF							
	Normal end (OK) or ON							
	Error end (NG) OFF							
	\uparrow FB execution completed.							
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output							
condition	from the FB.							
Restrictions	 Always use an upwardly differentiated condition for EN. 							
Input	The applicable ranges for input variables depend on the Controller being used. Set values that are							
variables Output	 appropriate for the Controller. This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable 							
variables	• This FB requires multiple cycles to process. Always connect an OR including the BOSY output variable to the EN input variable to ensure that the FB is processed to completion (see Symbol).							
	 Do not turn the BUSY output variable ON or OFF outside the FB. 							



■ Variable Tables Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Controller unit No.	TCNo	INT	&0	At right.	Set the same value as for the slave node address.
Channel No.	ChannelNo	INT	&1	&1 to &4	Specify the channel number. &1: Channel 1 Etc. &4: Channel 4

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Valve opening	ValveOpening	DINT		Unit: For example, &100 means 10.0%.

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

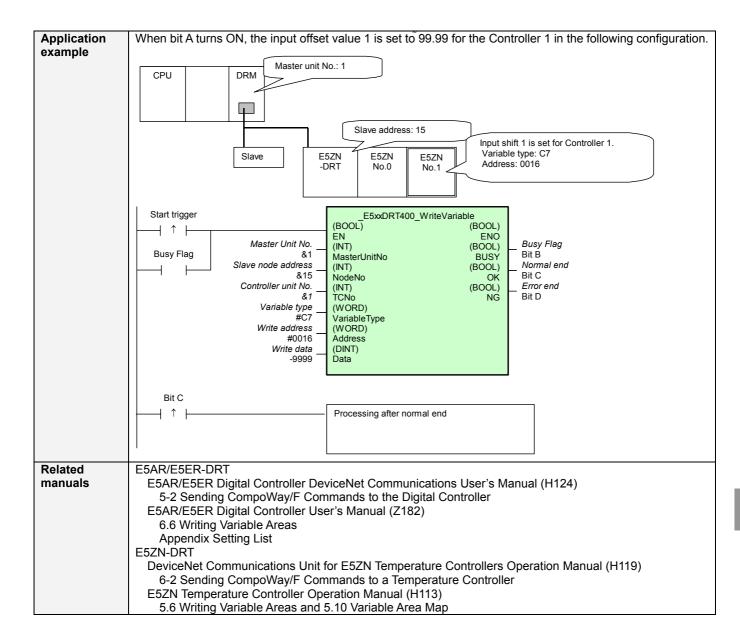
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related</i>
				Manuals for details on the error codes.
Explicit message error code	Explicit_ErrorCode	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
CompoWay/F error code	CompowayF_ErrorCode	WORD		Outputs the CompoWay/F error code. A code of #0000 is output for a normal end. See below for details on errors.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
2203	Operation error	Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2004.6.	Original production

E5xxDRT -400	Write Variable Area: _E5xxDRT400_WriteVariable					
Basic function	Writes one element to the specified variable area of a Controller on DeviceNet.					
Symbol	Start trigger					
File name	Lib\FBL\omronlib\TemperatureController\E5 R\Dnet_E5xxDRT400_WriteVariable10.cxf Lib\FBL\omronlib\TemperatureController\E5ZN\Dnet\ E5xxDRT400 WriteVariable10.cxf					
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21					
models	Applicable Slave Units E5AR-DRT/E5ER-DRT E5ZN-DRT					
Conditions	Settings					
for usage	 PLC Setup: Shared Settings for Communications Instructions in FBs DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other Communications must be within one network and cannot cross to another network. 					
Function	When the start trigger turns ON, one element, a present value or set value, is written to the specified Variable					
description	<i>Type</i> and <i>Write Address</i> in the Controller on the DeviceNet specified by the <i>Master unit No.</i> , <i>Slave node address</i> , and <i>Controller unit No.</i> Refer to the manual for the Controller being used for details on variable types and read addresses. (See <i>Related manuals</i> .)					
FB precautions	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed.					
	OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF					
	Busy Flag (BUSY) ON OFF					
	Normal end (OK) or ON Error end (NG) OFF					
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.					
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller. 					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 					



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started.
					0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Controller unit No.	TCNo	INT	&0	At right.	E5AR-DRT/E5ER-DRT Set the same value as for the slave node address. E5ZN-DRT Specify the unit number of the Controller between &0 and &15 (#0 to #F).
Variable type	VariableType	WORD	#0		Specify the variable type. Refer to the <i>Related Manuals</i> for details on variable types.
Write address	Address	WORD	#0		Specify the address to write. Refer to the <i>Related Manuals</i> for details on addresses.
Write data	Data	DINT	&0		Specify the data to write.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

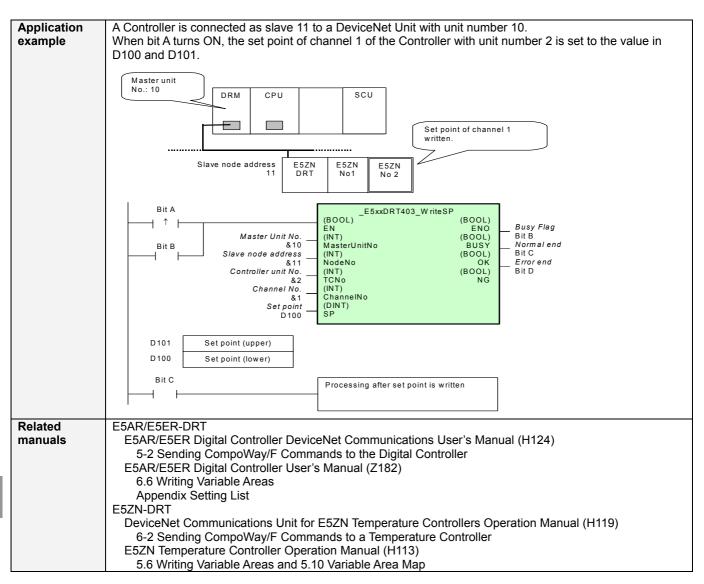
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is
				output for a normal end. Refer to the Related
				Manuals for details on the error codes.
Explicit message	Explicit_ErrorCode	WORD		Outputs the explicit message error code. A code of
error code				#0000 is output for a normal end. Refer to the
				Related Manuals for details on the error codes.
CompoWay/F	CompowayF_ErrorCode	WORD		Outputs the CompoWay/F error code. A code of
error code				#0000 is output for a normal end. See below for
				details on errors.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
1100	Variable setting error	The value of the input variable is outside of specifications.
2203	Operation error	Writing via communications is prohibited.
		• An attempt was made to write protect level setting data from outside of protect level.
		Autotuning is being executed.
		Calibration is being executed.
		• Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2004.6.	Original production

E5xxDRT -403	Write Set Point: _E5xxDRT403_WriteSP					
Basic function	Writes the set point of the specified channel of a Controller connected to DeviceNet.					
Symbol	Start trigger					
File name	Lib\FBL\omronlib\TemperatureController\E5□R\Dnet_E5xxDRT403_WriteSP10.cxf Lib\FBL\omronlib\TemperatureController\E5ZN\Dnet_E5xxDRT403_WriteSP10.cxf					
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units					
	Applicable Slave Units E5AR-DRT/E5ER-DRT E5ZN-DRT					
Conditions for usage	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs					
	 DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) 					
	Shared Resources					
	Communications ports (internal logical ports) Other					
	Communications must be within one network and cannot cross to another network.					
Function description	When the start trigger turns ON, the set point is written for the specified channel of the Controller on the DeviceNet specified by the <i>Master unit No.</i> , <i>Slave node address</i> , and <i>Controller unit No</i> .					
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the					
precautions	FB is being processed.					
	• OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect					
	the end of FB processing.					
	Timechart Start Trigger ON					
	OFF					
	Busy Flag (BUSY) ON OFF					
	Normal end (OK) or ON Error end (NG) OFF					
	✓ FB execution completed.					
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.					
Restrictions	Always use an upwardly differentiated condition for EN.					
Input variables	The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller.					
Output	 appropriate for the Controller. This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable 					
variables	to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>).					
	Do not turn the BUSY output variable ON or OFF outside the FB.					



Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Controller unit No.	TCNo	INT	&0	At right.	E5AR-DRT/E5ER-DRT Set the same value as for the slave node address. E5ZN-DRT Specify the unit number of the Controller between &0 and &15 (#0 to #F).
Channel No.	ChannelNo	INT	&1	&1 to &2	Specify the channel number. &1: Channel 1 &2: Channel 2
Set point	SP	DINT	&0		Depends on the input type.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL	rungo	1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an error.

Internal Variables

Internal variables are not output from the FB. If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is
				output for a normal end. Refer to the Related
				Manuals for details on the error codes.
Explicit message	Explicit_ErrorCode	WORD		Outputs the explicit message error code. A code of
error code				#0000 is output for a normal end. Refer to the
				Related Manuals for details on the error codes.
CompoWay/F	CompowayF_ErrorCode	WORD		Outputs the CompoWay/F error code. A code of
error code				#0000 is output for a normal end. See below for
				details on errors.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
1100	Variable setting error	 The value of the input variable is outside of specifications.
2203	Operation error	 Writing via communications is prohibited.
		 An attempt was made to write protect level setting data from outside of protect level.
		 Autotuning is being executed.
		 Calibration is being executed.
		Unit error, unit change, display unit error, or internal non-volatile memory error

Version History

Version	Date	Contents
1.00	2004.6.	Original production

E5xRDRT -004	Autotune: _E5xRDRT004_ExecuteAT					
Basic function	Starts autotuning for a channel of a Controller on DeviceNet.					
Symbol	Start trigger					
File name	Lib\FBL\omronlib\TemperatureController\E5 R\Dnet_E5xRDRT004_ExecuteAT10.cxf					
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units					
	Applicable Slave Units E5AR-DRT/E5ER-DRT					
Conditions for usage	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs • DeviceNet Response Timeout Time (default: 2 s) 10 s recommended • Number of retries (default: 0) Shared Resources • Communications ports (internal logical ports) Other					
	 Communications must be within one network and cannot cross to another network. 					
Function description	When the start trigger turns ON, autotuning is started for the specified channel of the Controller on the DeviceNet specified by the <i>Master unit No., Slave node address,</i> and <i>Controller unit No.</i>					
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or ON Error end (NG) OFF FB execution completed. 					
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.					
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller. 					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 					

Application example	A Controller is connected as slave 11 to a DeviceNet Unit with unit number 10. When bit A turns ON, autotuning is started for all channels of the Controller.
ехапіріе	Master unit No.: 10
	Bit A
	Bit C Processing after autotuning is started
Related manuals	E5AR/E5ER Digital Controller DeviceNet Communications User's Manual (H124) 5-2 Sending CompoWay/F Commands to the Digital Controller E5AR/E5ER Digital Controller User's Manual (Z182) 6.7 Operation Commands (Communications/CompoWay/F)
Related FBs	E5AR-DRT/E5ER-DRT Use this version of the FB. E5ZN-DRT Autotune (E5ZNDRT004 ExecuteAT)

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Controller unit No.	TCNo	INT	&0	At right.	Set the same value as for the slave node address.
Channel No.	ChannelNo	WORD	&1	&1 to &4 #F	Specify the channel number. &1: Channel 1 Etc. &4: Channel 4 &F: All channels
PID set No.	PIDSetNo	INT	&1	&1 to &8	Specify the PID set number. &0: Currently selected PID set &1: PID1 Etc. &8: PID8

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related</i>
				Manuals for details on the error codes.
Explicit message error code	Explicit_ErrorCode	WORD		Outputs the explicit message error code. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
CompoWay/F error code	CompowayF_ErrorCode	WORD		Outputs the CompoWay/F error code. A code of #0000 is output for a normal end. See below for details on errors.

Error Code Details

Co	ode	Contents	Meaning
00	00	Normal end	
22	03	Operation error	Writing via communications is prohibited.
			An attempt was made to write protect level setting data from outside of protect level.
			Autotuning is being executed.
			Calibration is being executed.
			Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2004.6.	Original production

E5xRDRT -005	Stop Autotuning: _E5xRDRT005_CancelAT				
Basic function	Cancels autotuning for a channel of a Controller on DeviceNet.				
Symbol	Start trigger				
File name	Lib\FBL\omronlib\TemperatureController\E5 R\Dnet_E5xRDRT005_CancelAT10.cxf				
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units				
	Applicable Slave Units E5AR-DRT/E5ER-DRT				
Conditions for usage	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs				
	 DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) Shared Resources Communications ports (internal logical ports) Other Communications must be within one network and cannot cross to another network. 				
Function description	When the start trigger turns ON, autotuning is cancelled for the specified channel of the Controller on the DeviceNet specified by the <i>Master unit No., Slave node address,</i> and <i>Controller unit No.</i>				
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON 				
	OFF Busy Flag (BUSY) ON OFF				
	Normal end (OK) or ON Error end (NG) OFF				
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.				
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller. 				
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 				

Application	A Controller is connected as slave 11 to a DeviceNet Unit with unit number 10.
example	When bit A turns ON, autotuning is cancelled for all channels of the Controller.
	Master unit
	Autotuning is stopped for all channels.
	Slave node address E5AR E5AR DRT DRT Slave node address
	11 Slave node address
	Bit AE5xRDRT005_CancelAT(BOOL) (BOOL)
	Master Unit No. (INT) (BOOL) Busy Flag
	Bit B Slave node address (INT) BUSY Bit B Normal end
	811 NodeNo OK Bit C
	8.11 TCNo NG Bit D
	Channel No. (INT) #F ChannelNo
	Bit C
	Processing after autotuning is stopped
Related	E5AR/E5ER Digital Controller DeviceNet Communications User's Manual (H124)
manuals	5-2 Sending CompoWay/F Commands to the Digital Controller
	E5AR/E5ER Digital Controller User's Manual (Z182)
	6.7 Operation Commands (Communications/CompoWay/F)
Related FBs	E5AR-DRT/E5ER-DRT
	Use this version of the FB.
	E5ZN-DRT Stop Autotuning (E5ZNDRT005 CancelAT)
	Stop Autoruning (_ESZINDK1005_CancelAT)

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Controller unit No.	TCNo	INT	&0	At right.	Set the same value as for the slave node address.
Channel No.	ChannelNo	WORD	&1	&1 to &4 #F	Specify the channel number. &1: Channel 1 Etc. &4: Channel 4 #F: All channels

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is
				output for a normal end. Refer to the Related
				Manuals for details on the error codes.
Explicit message	Explicit_ErrorCode	WORD		Outputs the explicit message error code. A code of
error code				#0000 is output for a normal end. Refer to the
				Related Manuals for details on the error codes.
CompoWay/F	CompowayF_ErrorCode	WORD		Outputs the CompoWay/F error code. A code of
error code				#0000 is output for a normal end. See below for
				details on errors.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
2203	Operation error	Writing via communications is prohibited.
		An attempt was made to write protect level setting data from outside of protect level.
		Autotuning is being executed.
		Calibration is being executed.
		Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2004.6.	Original production

E5ZNDRT -004	Autotune: _E5ZNDRT004_ExecuteAT						
V 4							
Basic function	Starts autotuning for a channel of a Controller on DeviceNet.						
Symbol	Start trigger						
File name	Lib\FBL\omronlib\TemperatureController\E5ZN\Dnet_E5xNDRT004_ExecuteAT10.cxf						
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units						
	Applicable Slave Units E5ZN-DRT						
Conditions for usage	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs						
	 DeviceNet Response Timeout Time (default: 2 s) 10 s recommended Number of retries (default: 0) 						
	Shared Resources						
	Communications ports (internal logical ports)						
	Other						
	Communications must be within one network and cannot cross to another network.						
Function description	When the start trigger turns ON, autotuning is started for the specified channel of the Controller on the DeviceNet specified by the <i>Master unit No., Slave node address,</i> and <i>Controller unit No.</i>						
FB	• The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the						
precautions	FB is being processed. • OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect						
	 OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. 						
	Timechart						
	Start Trigger ON OFF						
	Busy Flag (BUSY) ON OFF						
	Normal end (OK) or ON Error end (NG) OFF						
	/ FB execution completed.						
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.						
Restrictions	Always use an upwardly differentiated condition for EN.						
Input	• The applicable ranges for input variables depend on the Controller being used. Set values that are						
variables	appropriate for the Controller.						
Output	• This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable						
variables	to the EN input variable to ensure that the FB is processed to completion (see Symbol).						
	 Do not turn the BUSY output variable ON or OFF outside the FB. 						

Application	A Controller is connected as slave 11 to a DeviceNet Unit with unit number 10.					
example	When bit A turns ON, autotuning is started for channel 1 of the Controller with unit number 2.					
	Master unit No.: 10 DRM CPU Slave node address 11 E5ZN DRT No1 No 2 Autotuning started for channel 1.					
	Bit A E5ZNDRT004_ExecuteAT I ↑ I Bit B &10 Bit B Slave node address Controller unit No. &11 Controller unit No. (INT) & 2 Channel No. #F ChannelNo					
	Bit C Processing after autotuning is started					
Related manuals	DeviceNet Communications Unit for E5ZN Temperature Controllers Operation Manual (H119) 6-2 Sending CompoWay/F Commands to a Temperature Controller E5ZN Temperature Controller Operation Manual (H113) 5.7 Operation Commands					
Related FBs	E5AR-DRT/E5ER-DRT Autotune (_E5xRDRT004_ExecuteAT) E5ZN-DRT Use this version of the FB.					

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started. 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Controller unit No.	TCNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the Controller.
Channel No.	ChannelNo	INT	&1	&1 to &2 #F	Specify the channel number. &1: Channel 1 &2: Channel 2 #F: All channels

Output Variables

			-	
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

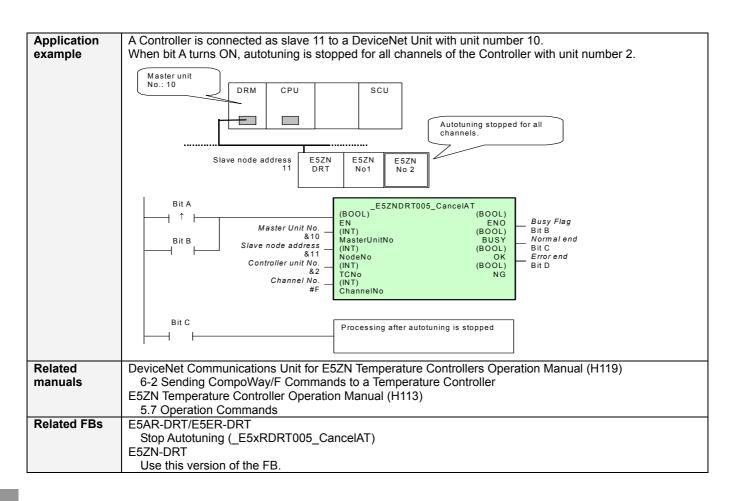
Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is
				output for a normal end. Refer to the Related
				Manuals for details on the error codes.
Explicit message	Explicit_ErrorCode	WORD		Outputs the explicit message error code. A code of
error code				#0000 is output for a normal end. Refer to the
				Related Manuals for details on the error codes.
CompoWay/F	CompowayF_ErrorCode	WORD		Outputs the CompoWay/F error code. A code of
error code				#0000 is output for a normal end. See below for
				details on errors.

Error Code Details

101		ulia	
	Code	Contents	Meaning
	0000	Normal end	
	2203	Operation error	Writing via communications is prohibited.
			 An attempt was made to write protect level setting data from outside of protect level.
			Autotuning is being executed.
			Calibration is being executed.
			Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents
1.00	2004.6.	Original production

E5ZNDRT -005	Stop Autotuning: _E5ZNDRT005_CancelAT					
Basic function	Cancels autotuning for a channel of a Controller on DeviceNet.					
Symbol	Start trigger					
File name	Lib\FBL\omronlib\TemperatureController\E5ZN\Dnet_E5ZNDRT005_CancelAT10.cxf					
Applicable models	Applicable Master CS1W-DRM21(-V1) and CJ1W-DRM21 Units					
	Applicable Slave Units E5ZN-DRT					
Conditions for usage	CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs • DeviceNet Response Timeout Time (default: 2 s) 10 s recommended • Number of retries (default: 0) Shared Resources • Communications ports (internal logical ports) Other					
	 Communications must be within one network and cannot cross to another network. 					
Function description	When the start trigger turns ON, autotuning is cancelled for the specified channel of the Controller on the DeviceNet specified by the <i>Master unit No., Slave node address,</i> and <i>Controller unit No.</i>					
FB precautions	 DeviceNet Specified by the Master unit No., Slave node address, and Controller unit No. The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Normal end (OK) or ON Error end (NG) OFF Normal end (OK) or OFF FB execution completed. 					
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the EB					
Restrictions	 from the FB. Always use an upwardly differentiated condition for EN. 					
Input variables	• The applicable ranges for input variables depend on the Controller being used. Set values that are appropriate for the Controller.					
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFE outside the FB. 					



Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started 0 (OFF): FB not started.
Master Unit No.	MasterUnitNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the DeviceNet Unit.
Slave node address	NodeNo	INT	&0	&0 to &63	Specify the node address of the slave.
Controller unit No.	TCNo	INT	&0	&0 to &15 #0 to #F	Specify the unit number of the Controller.
Channel No.	ChannelNo	INT	&1	&1 to &2 #F	Specify the channel number. &1: Channel 1 &2: Channel 2 #F: All channels

Output Variables

Output variables				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is
				output for a normal end. Refer to the Related
				Manuals for details on the error codes.
Explicit message	Explicit_ErrorCode	WORD		Outputs the explicit message error code. A code of
error code				#0000 is output for a normal end. Refer to the
				Related Manuals for details on the error codes.
CompoWay/F	CompowayF_ErrorCode	WORD		Outputs the CompoWay/F error code. A code of
error code				#0000 is output for a normal end. See below for
				details on errors.

Error Code Details

Code	Contents	Meaning
0000	Normal end	
2203	Operation error	Writing via communications is prohibited.
		 An attempt was made to write protect level setting data from outside of protect level.
		 Autotuning is being executed.
		 Calibration is being executed.
		Unit error, unit change, display unit error, or internal non-volatile memory error

Version	Date	Contents	
1.00	2004.6.	Original production	

Temperature Controller

3-16 Temperature Controller (Unit)

CJ1W-TC series

FB Name	Function	Page
_TCx002_Run	Start Control	3-531
_TCx003_Stop	Stop Control	3-533
_TCx004_ExecuteAT	Autotune	3-535
_TCx005_CancelAT	Cancel Autotuning	3-537
_TCx201_ReadStatus	Read Status	3-539
_TCx202_ReadPV	Read Process Value	3-540
_TCx203_ReadSP	Read Set Point	3-542
_TCx403_WriteSP	Write Set Point	3-544

TCx -002	Start Control: _TCx002_Run
Desia	
Basic function	Starts control for the specified loop.
Symbol	Start trigger
File name	Lib\FBL\omronlib\TemperatureController\TC_TCx002_Run10.cxf
Applicable Units	CJ1W-TC0x0 Temperature Control Unit
Conditions for usage	 Temperature Control Unit Settings The operation of the Temperature Control Unit when CPU Unit is in PROGRAM mode (pin 1 on the DIP switch) must be set to continue operation (ON).
Function description	Control is started for the specified loop for the Temperature Control Unit specified by the Model Selection and Unit No.
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF OFF Normal end (OK) or OFF OFF FB execution completed.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.
Application example	When bit A turns ON, control is started for the Temperature Control Unit with unit number 3. Bit A
Related manuals	Temperature Control Unit Operation Manual (W396) 3-12 Starting and Starting Temperature Control 5-1 Error and Alarm Processing
Related FBs	Stop Control (TCx003 Stop)

Input Va	riables
----------	---------

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Model selection	Select	INT	&2	&2, &4	&2: Two-loop Unit
					&4: Four-loop Unit
Unit No.	UnitNo	INT	&0	&0 to &94	
Loop No.	LoopNo	INT	&1	&1 to &4	The number of loops depends on the Unit.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Error code	ErrorCode	INT		Outputs the error code.
(May be omitted.)				&0: Normal end
				&1: Sensor error
				&2: CT overflow
				&3: Heater burnout
				&4: Setting error, alarm mode 1
				&6: Setting error, alarm mode 2
				&7: Setting error, alarm 1 hysteresis
				&8: Setting error, alarm 2 hysteresis
				&9: Setting error, set point
				&10: Setting error, alarm 1 set value
				&11: Setting error, alarm 2 set value
				&12: Setting error, input compensation
				&13: Setting error, control period
				&14: Setting error, control sensitivity
				&15: Setting error, proportional band
				&16: Setting error, integral time
				&17: Setting error, derivative time
				&18: Setting error, heater burnout set value
				Refer to the Related Manuals for details on errors.
				Temperature Control Unit Operation Manual (W396),
				5-1 Error and Alarm Processing

Version	Date	Contents		
1.00	2004.6.	Original production		

TCx -003	Stop Control: _TCx003_Stop
Basic	Stops control for the specified loop.
function	
Symbol	Start trigger
File name	Lib\FBL\omronlib\TemperatureController\TC_TCx003_Stop10.cxf
Applicable	CJ1W-TC0x0 Temperature Control Unit
Units Conditions	Temperature Control Unit Settings
for usage	 The operation of the Temperature Control Unit when CPU Unit is in PROGRAM mode (pin 1 on the DIP switch) must be set to continue operation (ON).
Function	Control is stopped for the specified loop for the Temperature Control Unit specified by the Model Selection and Unit No.
description FB	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the
precautions	 FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON
	OFF
	Error end (NG) OFF
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	 Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.
Application	When bit B turns ON, control is stopped for the Temperature Control Unit with unit number 3.
example	Bit A Processing to start control Bit B → ↑ ↓
	Bit C Unit No. Loop No. 81 UnitNo (INT) UnitNo (INT) UnitNo (INT) LoopNo NC ErrorCode UnitNo (INT) Error code UnitNo (INT) Error code
Related	Temperature Control Unit Operation Manual (W396) 3-12 Starting and Starting Temperature Control
manuals	5-1 Error and Alarm Processing
Related FBs	Start Control (_TCx002_Run)

Input Va	riables
----------	---------

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Model selection	Select	INT	&2	&2, &4	&2: Two-loop Unit
					&4: Four-loop Unit
Unit No.	UnitNo	INT	&0	&0 to &94	
Loop No.	LoopNo	INT	&1	&1 to &4	The number of loops depends on the Unit.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Error code	ErrorCode	INT		Outputs the error code.
(May be omitted.)				&0: Normal end
				&1: Sensor error
				&2: CT overflow
				&3: Heater burnout
				&4: Setting error, alarm mode 1
				&6: Setting error, alarm mode 2
				&7: Setting error, alarm 1 hysteresis
				&8: Setting error, alarm 2 hysteresis
				&9: Setting error, set point
				&10: Setting error, alarm 1 set value
				&11: Setting error, alarm 2 set value
				&12: Setting error, input compensation
				&13: Setting error, control period
				&14: Setting error, control sensitivity
				&15: Setting error, proportional band
				&16: Setting error, integral time
				&17: Setting error, derivative time
				&18: Setting error, heater burnout set value
				Refer to the Related Manuals for details on errors.
				Temperature Control Unit Operation Manual (W396),
				5-1 Error and Alarm Processing

Version	Date	Contents	
1.00	2004.6.	Original production	

TCx -004	Autotune: _TCx004_ExecuteAT				
Basic function	Executes autotuning for the specified loop.				
Symbol	Start trigger				
File name Applicable	Lib\FBL\omronlib\TemperatureController\TC_TCx004_ExecuteAT 10.cxf CJ1W-TC0x0 Temperature Control Units				
Units Conditions	Temperature Control Unit Settings				
for usage	 The meaning of the data depends on the setting of the data format on pin 3 of the DIP switch. The control method of the Temperature Control Unit (pin 6 on the DIP switch) must be set to PID control (OFF). This FB cannot be executed when operation is stopped or during ON/OFF control. 				
Function description	Autotuning is executed for the specified loop for the Temperature Control Unit specified by the Model Selection and Unit No. When this FB is executed, optimum PID constants for the current set point will be automatically calculated and written to the output area. The calculated PID constants will also be transferred to EEPROM.				
FB precautions	 The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the FB is being processed. OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Mormal end (OK) or OFF FB execution completed. 				
EN input	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output				
condition Restrictions	from the FB. Always use an upwardly differentiated condition for EN. 				
Input					
variables Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB. 				
Application example	When bit A turns ON, autotuning is performed for the Temperature Control Unit with unit number 3.				
ехапріє	Bit A				
Related manuals	Temperature Control Unit Operation Manual (W396) 3-9 Setting the PID Constants 5-1 Error and Alarm Processing				
Related FBs	Cancel Autotuning (_TCx005_CancelAT)				

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Model selection	Select	INT	&2	&2, &4	&2: Two-loop Unit
					&4: Four-loop Unit
Unit No.	UnitNo	INT	&0	&0 to &94	
Loop No.	LoopNo	INT	&1	&1 to &4	The number of loops depends on the Unit.
EEPROM transfer	EEPROM	INT	&0	&0 to &1	Specify whether to transfer the calculated PID constants to EEPROM. &0: Do not transfer. (See note 1.) &1: Transfer. (See note 2.) Note 1: The "Transfer settings in EEPROM" setting (pin 8 of the DIP switch) must be set to not transfer (OFF). Note 2: The "Transfer settings in EEPROM" setting (pin 8 of the DIP switch) must be set to transfer (ON).

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Error code	ErrorCode	INT		Outputs the error code.
(May be omitted.)				&0: Normal end
				&1: Sensor error
				&2: CT overflow
				&3: Heater burnout
				&4: Setting error, alarm mode 1
				&5: Setting error, alarm mode 2
				&6: Setting error, alarm 1 hysteresis
				&7: Setting error, alarm 2 hysteresis
				&8: Setting error, set point
				&9: Setting error, alarm 1 set value
				&10: Setting error, alarm 2 set value
				&11: Setting error, input compensation
				&12: Setting error, control period
				&13: Setting error, control sensitivity
				&14: Setting error, proportional band
				&15: Setting error, integral time
				&16: Setting error, derivative time
				&17: Setting error, heater burnout set value
				&18: Status error, autotuning stopped
				&19: Status error, control stopped
				&20: Status error, PID constants changed
				&21: Status error, PID constants compensated
				&22: Status error, autotuning being executed
				Refer to the <i>Related Manuals</i> for details on errors.
				Temperature Control Unit Operation Manual (W396), 5-1 Error and Alarm Processing

Version	Date	Contents	
1.00	2004.6.	Original production	

TCx -005	Cancel Autotuning (_TCx005_CancelAT)
Basic	Cancels autotuning for the specified loop.
function	
Symbol	Start trigger
File name	Lib\FBL\omronlib\TemperatureController\TC_TCx005_CancelAT 10.cxf
Applicable Units	CJ1W-TC0x0 Temperature Control Units
Conditions for usage	 Temperature Control Unit Settings The meaning of the data depends on the setting of the data format on pin 3 of the DIP switch. The control method of the Temperature Control Unit (pin 6 on the DIP switch) must be set to PID control (OFF).
Function description	Autotuning is cancelled for the specified loop for the Temperature Control Unit specified by the Model Selection and Unit No.
FB	The FB is processed over multiple cycles. The BUSY output variable can be used to check whether the
precautions	FB is being processed. • OK or NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. Timechart Start Trigger ON OFF Busy Flag (BUSY) ON OFF Normal end (OK) or ON Error end (NG) OFF
	FB execution completed.
EN input condition	Connect EN to an OR between an upwardly differentiated condition for the start trigger and the BUSY output from the FB.
Restrictions Input variables	Always use an upwardly differentiated condition for EN.
Output variables	 This FB requires multiple cycles to process. Always connect an OR including the BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the BUSY output variable ON or OFF outside the FB.
Application example	When bit B turns ON, Autotuning is cancelled for the Temperature Control Unit with unit number 3. Bit A Bit B Bit C Bit C C C C C C C C C C
Related manuals	Temperature Control Unit Operation Manual (W396) 3-9 Setting the PID Constants 5-1 Error and Alarm Processing
Related FBs	Autotune (_TCx004_ExecuteIAT)

Input Va	riables
----------	---------

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Model selection	Select	INT	&2	&2, &4	&2: Two-loop Unit
					&4: Four-loop Unit
Unit No.	UnitNo	INT	&0	&0 to &94	
Loop No.	LoopNo	INT	&1	&1 to &4	The number of loops depends on the Unit.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Busy Flag	BUSY	BOOL		Automatically turns OFF when processing is
				completed.
Normal end	OK	BOOL		Turns ON for one cycle when processing ends
				normally.
Error end	NG	BOOL		Turns ON for one cycle when processing ends in an
				error.
Error code	ErrorCode	INT		Outputs the error code.
(May be omitted.)				&0: Normal end
				&1: Sensor error
				&2: CT overflow
				&3: Heater burnout
				&4: Setting error, alarm mode 1
				&5: Setting error, alarm mode 2
				&6: Setting error, alarm 1 hysteresis
				&7: Setting error, alarm 2 hysteresis
				&8: Setting error, set point
				&9: Setting error, alarm 1 set value
				&10: Setting error, alarm 2 set value
				&11: Setting error, input compensation
				&12: Setting error, control period
				&13: Setting error, control sensitivity
				&14: Setting error, proportional band
				&15: Setting error, integral time
				&16: Setting error, derivative time
				&17: Setting error, heater burnout set value
				&18: Status error, autotuning stopped
				&19: Status error, control stopped
				&20: Status error, PID constants changed
				&21: Status error, PID constants compensated
				&22: Status error, autotuning being execute
				Refer to the <i>Related Manuals</i> for details on errors.
				Temperature Control Unit Operation Manual (W396),
				5-1 Error and Alarm Processing

■ Version History						
Version	Date	Contents				
1.00	2004.6.	Original production				

TCx ________ Read Status: _TCx201_ReadStatus

Basic	Reads the status of the specified loop.						
function							
Symbol	Any bit Any bit Any bit Any bit Any bit Any bit Any bit (BOCL) (BOCL) (BOCL) EN (NTT) (WORD) Select Unit No Loop No (INT) Loop No (INT) Loop No						
File name	Lib\FBL\omronlib\TemperatureController\TC_TCx201_ReadStatus10.cxf						
Applicable Units	CJ1W-TC0x0 Temperature Control Units						
Conditions	Temperature Control Unit Settings						
for usage	• The meaning of the data depends on the setting of the data format on pin 3 of the DIP switch.						
Function	Status is read for the specified loop for the Temperature Control Unit specified by the Model Selection and						
description	Unit No.						
EN input condition	Any bit can be specified.						
Restrictions Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.						
Application	When bit A turns ON, the set point of loop 1 of the Temperature Control Unit with unit number 3 is output to						
example	D100.						
	Bit A						

■ Variable Tables

Input Variables						
Name	Variable name	Data type	Default	Range	Description	
EN	EN	BOOL			1 (ON): FB started	
					0 (OFF): FB not started.	
Model selection	Select	INT	&2	&2, &4	&2: Two-loop Unit	
					&4: Four-loop Unit	
Unit No.	UnitNo	INT	&0	&0 to &94		
Loop No.	LoopNo	INT	&1	&1 to &4	The number of loops depends on the Unit.	

Output Variables

•••••••••				
Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Status	Status	WORD		Refer to 2-5-4 Operation Data in Temperature Control
				Unit Operation Manual (W396) for the status format.

Version	Date	Contents
1.00	2004.6.	Original production

TCx -202	Read Process Value _TCx202_ReadPV
Basic function	Reads a process value (PV).
Symbol	Any bit
File name	Lib\FBL\omronlib\TemperatureController\TC_TCx202_ReadPV10.cxf
Applicable Units	CJ1W-TC0x0 Temperature Control Unit
Conditions for usage	 Temperature Control Unit Settings The meaning of the data depends on the setting of the data format on pin 3 of the DIP switch.
Function description	The process value of the specified loop is read for the Temperature Control Unit specified by the Model Selection and Unit No. A flag is turned ON if a sensor error has occurred. This FB reads with process value without considering if there is a decimal point.
EN input condition	Any bit can be specified.
Restrictions Input variables	 If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Application example	When bit A turns ON, the process value of the Temperature Control Unit with unit number 3 is read. Bit A A Model selection & 2 Unit No. & 3 Loop No. Bit A Bit B Bit A Bit A Bit A Bit A Bit B Processing using the PV of loop 1 Unit Set for Binary Data (Pin 3 of DIP Switch) If D100 contains +200 and there is a decimal point, the PV is treated as 20.0. If D100 contains #200 and there is a decimal point, the PV is treated as 20.0. If D100 contains #200 and there is a decimal point, the PV is treated as 20.0. If D100 contains #200 and there is a decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is a decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0.
Related manuals	Temperature Control Unit Operation Manual (W396) 2-1-3 Input Specifications

Variable Tables Input Variables

Input variables						
Name	Variable name	Data type	Default	Range	Description	
EN	EN	BOOL			1 (ON): FB started	
					0 (OFF): FB not started.	
Model selection	Select	INT	&2	&2, &4	&2: Two-loop Unit	
					&4: Four-loop Unit	
Unit No.	UnitNo	INT	&0	&0 to &94		
Loop No.	LoopNo	INT	&1	&1 to &4	The number of loops depends on the Unit.	

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Process value	PV	INT		If there is a sensor error, 16#CCCC will be output.
Sensor error flag	Error	BOOL		Turns ON if there is a sensor error.

Version	Date	Contents
1.00	2004.6.	Original production

TCx -203	Read Set Point: _TCx203_ReadSP
Basic function	Reads the set point (SP) of the specified loop.
Symbol	Any bit Any bit Model selection – Unit No. – Loop No. – (BOOL) EN (BOOL) EN (BOOL) EN (BOOL) EN (INT) Unit No. – Loop No. –
File name	Lib\FBL\omronlib\TemperatureController\TC_TCx203_ReadSP10.cxf
Applicable models	CJ1W-TC0x0 Temperature Control Unit
Conditions	Temperature Control Unit Settings
for usage	• The meaning of the data depends on the setting of the data format on pin 3 of the DIP switch.
Function description	The set point (SP) of the specified loop is read for the specified Unit. This FB reads with set point without considering if there is a decimal point.
EN input	Any bit can be specified.
condition	
Restrictions Input variables	• If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Application example	When bit A turns ON, the set point of loop 1 of the Temperature Control Unit with unit number 3 is output to D100. Bit A Model selection &2 Unit No. &3 Loop No. Bit A Bit A Bit A Processing using the SP of loop 1 Unit Set for Binary Data (Pin 3 of DIP Switch) If D100 contains +200 and there is a decimal point, the PV is treated as 20.0. If D100 contains +200 and there is a decimal point, the PV is treated as 20.0. If D100 contains #200 and there is a decimal point, the PV is treated as 20.0. If D100 contains #200 and there is a decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decimal point, the PV is treated as 20.0. If D100 contains #200 and there is no decima
Related manuals	Temperature Control Unit Operation Manual (W396) 2-1-3 Input Specifications

Input Variables

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Model selection	Select	INT	&2	&2, &4	&2: Two-loop Unit
					&4: Four-loop Unit
Unit No.	UnitNo	INT	&0	&0 to &94	
Loop No.	LoopNo	INT	&1	&1 to &4	The number of loops depends on the Unit.

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.
Set point	SP	INT		

Version	Date	Contents
1.00	2004.6.	Original production

TCx -403	Write Set Point: _TCx403_WriteSP
Basic function	Writes the set point (SP) of the specified loop.
Symbol	Any bit Model selection – Unit No. – Loop No. – Set point – (INT) Loop No. – Set point – (INT) Loop No. – Set point – (INT) Loop No. – (INT) Set point – (INT) (I
File name	Lib\FBL\omronlib\TemperatureController\TC_TCx403_WriteSP10.cxf
Applicable Units	CJ1W-TC0x0 Temperature Control Unit
Conditions for usage	 Temperature Control Unit Settings The meaning of the data depends on the setting of the data format on pin 3 of the DIP switch. Whether there is a decimal point depends on the setting of the input type switch.
Function	The set point is written for the specified loop for the Temperature Control Unit specified by the Model
description EN input condition	Selection and Unit No. Any bit can be specified.
Restrictions Input variables	 The setting range for the set point depends on the setting of the data format on pin 3 of the DIP switch. The range is not checked in the FB. Be sure to set a value within the correct range. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
Application example	When bit A turns ON, the set point of loop 1 of the Temperature Control Unit with unit number 2 is set to 20.0. Note: Whether there is a decimal point depends on the setting of the input type switch. Bit A Model selection &2 Unit No &2 Loop No. &1 Set point When Input Type Switch Is Set to 4? Unit Set for Binary Data (Pin 3 of DIP Switch) -200 Unit Set for BCD Data (Pin 3 of DIP Switch) #F200
Related manuals	Temperature Control Unit Operation Manual (W396) 2-1-3 Input Specifications 3-7 Setting the Set Point

Variable Tables Input Variables

input variables					
Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			1 (ON): FB started
					0 (OFF): FB not started.
Model selection	Select	INT	&2	&2, &4	&2: Two-loop Unit
					&4: Four-loop Unit
Unit No.	UnitNo	INT	&0	&0 to &94	
Loop No.	LoopNo	INT	&1	&1 o &4	The number of loops depends on the Unit.
Set point	SP	INT	&0	At right.	The range depends on the input type.
				-	Temperature Control Unit Operation Manual
					(W396), 2-1-3 Input Specifications

Output Variables

Name	Variable name	Data type	Range	Description
ENO	ENO	BOOL		1 (ON): FB processed normally.
(May be omitted.)				0 (OFF): FB not processed or ended in an error.

Version	Date	Contents
1.00	2004.6.	Original production