ITNC-SGB01-E
SerialGateBox

OPERATION MANUAL

OMRON

ITNC-SGB01-E SerialGateBox

Operation Manual

Produced June 2002

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.

Visual Aids

The following headings appear in the left column of the manual to help you locate different types of information.

Note Indicates information of particular interest for efficient and convenient operation of the product.

1,2,3... 1. Indicates lists of one sort or another, such as procedures, checklists, etc.

Precaution Indicates precautionary information that should heeded in using the product.

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About this Manual:

This manual describes the installation and operation of the ITNC-SGB01 SerialGateBox and includes the sections described below.

The SerialGateBox is an intelligent device created to enable devices with an RS-232C serial interface to connect easily to Ethernet networks. The built-in protocols of the SerialGateBox are available to the devices for use on the LAN.

The SerialGateBox has the following features:

- Industry standard TCP/IP protocol.
- 10Base-T and 100Base-TX network interfaces conforming to IEEE802.3 for fast Ethernet operation.
- Simple connection by RS-232C interface to terminals.
- Fast data transmission, at up to 115.2 kbps.
- Selection of RTS/CTS or XON/XOFF flow control for reliable data transmission.
- Built-in RemoteCOM server.

Refer to *4-3 Limitations* for tested applications and limitations.

Please read this manual carefully and be sure you understand the information provided before attempting to install or operate the SerialGateBox. Be sure to read the precautions provided in the following section. Before beginning the SerialGateBox setup, read Section 1 carefully and be sure that you understand the SerialGateBox functions and the installation and setup procedures.

Precautions provides general precautions for using the SerialGateBox, and related devices.

Section 1 provides an overview of the SerialGateBox and explains the procedures for hardware and software setup.

Section 2 gives the names of SerialGateBox parts, describes SerialGateBox functions, and explains how to install the hardware and perform the setup.

Section 3 describes how to use the SGB Remote Setup Tool for making settings such as the SerialGateBox IP address.

Section 4 describes how to install and set up the software (RemoteCOM client and driver) that runs on the computer, and how to connect the SerialGateBox.

Section 5 provides countermeasures for handling errors that may occur when setting up and using the SerialGateBox.

> ⚠ **WARNING** Failure to read and understand the information provided in this manual may result in personal injury or death, damage to the product, or product failure. Please read each section in its entirety and be sure you understand the information provided in the section and related sections before attempting any of the procedures or operations given.

PRECAUTIONS

This section provides general precautions for using the SerialGateBox and Programmable Controller.

The information contained in this section is important for the safe and reliable application of the SerialGateBox. You must read this section and understand the information contained before attempting to set up or operate a SerialGateBox and PLC system.

1 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.
- Personnel in charge of administering TCP/IP technology.

2 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 installing and operating OMRON SerialGateBoxes. Be sure to read this manual before operation and keep this manual close at hand for reference during operation.

⚠ WARNING It is extremely important that all FA systems products 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 product to the above mentioned applications.

3 Safety Precautions

⚠ WARNING Never attempt to disassemble any Units while power is being supplied. Doing so may result in serious electrical shock or electrocution.

⚠WARNING Never touch any of the terminals while power is being supplied. Doing so may result in serious electrical shock or electrocution.

⚠WARNING Absolutely do not attempt to short-circuit the + and - terminals, charge, dissemble, apply pressure or burn the battery. Doing so may cause the battery to explode, ignite, or leak.

⚠WARNING 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.

⚠WARNING Interlock circuits, limit circuits, and similar safety measures in external circuits (i.e., not in the Programmable Controller) must be provided by the customer.

⚠Caution Execute online editing 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 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 power supply to the torque specified in the operation manual. Loose screws may result in burning or malfunction.

⚠Caution Turn OFF the power before touching operating parts when making DIP switch settings or replacing the battery. Failure to do so may result in malfunction due to static electricity.

4 Operating Environment Precautions

Install the equipment as described in the manual.

Do not operate the control system in the following locations:

- Locations subject to direct sunlight.
- Locations subject to temperatures or humidity outside the range indicated in the specifications.
- Locations subject to condensation as the result of severe changes in temperature.
- Locations subject to corrosive or flammable gases.
- Locations subject to dust (especially iron dust) or salts.

- Locations subject to exposure to water, oil, or chemicals.
- Locations subject to shock or vibration.

Take appropriate and sufficient countermeasures when installing systems in the following locations:

- Locations subject to static electricity or other forms of noise.
- Locations subject to strong electromagnetic fields.
- Locations subject to possible exposure to radioactivity.
- Locations close to power supplies or power lines.

⚠ Caution The operating environment of the system can have a large effect on the longevity and reliability of the system. Improper operating environments can lead to malfunction, failure, and other unforeseeable problems with the system. Be sure that the operating environment is within the specified conditions at installation and remains within the specified conditions during the life of the system.

5 Application Precautions

Observe the following precautions when using the SerialGateBox.

⚠ WARNING Failure to abide by the following precautions could lead to serious or possibly fatal injury. Always heed these precautions.

- Always ground the system to 100 Ω or less when installing the system to protect against electrical shock.
- Always turn OFF the power supply to the SerialGateBox and Programmable Controller before attempting any of the following operations.
  - Mounting or dismounting I/O Units, CPU Units, Memory Cassettes, 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 Unit or the system or could damage the Unit. Always heed these precautions.

- Always use the power supply voltages specified in the operation manuals.
- Take appropriate measures to ensure that the specified power with the rated voltage and frequency is supplied in places where the power supply is unstable.
- Install external breakers and take other safety measures against short-circuiting in external wiring.
- Do not apply voltages to Input Units in excess of the rated input voltage.
- Do not apply voltages or connect loads to Output Units in excess of the maximum switching capacity.
- Disconnect the functional ground terminal when performing withstand voltage tests.
- Do not attempt to disassemble, repair, or modify the product.
- Be sure that all SerialGateBox and Programmable Controller mounting screws, terminal screws, and cable connector screws are tightened to the torque specified in the relevant manuals.
- Do not allow foreign matter to enter the SerialGateBox while wiring it.
- Leave the I/O Unit label attached when wiring.
- Remove the I/O Unit label after the completion of wiring to ensure proper heat dissipation.
- Use crimp terminals for wiring. Do not connect bare stranded wires directly to terminals.
- Double-check all wiring and switch settings before turning ON the power supply.
- Wire all connections correctly.
- 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.
- Check the user program for proper execution before running it in actual operations.
- Resume operation only after transferring to the a replacement CPU Unit the contents of the DM Area, HR Area, and other data required for resuming operation.
- Do not place objects on the cables or other wiring lines.
- Use the correct power supply voltage.
- Do not pull on the cables or bend the cables beyond their natural limit.

- Confirm that no adverse effect will occur in the system before attempting any of the following.
  - Changing the operating mode of the Programmable Controller.
  - Force-setting/force-resetting any bit in memory.
  - Changing any present value or set value in memory.
- Before touching a Unit, be sure to first touch a grounded metallic object in order to discharge any static build-up.

6 EC Directives

The SerialGateBox complies with EC Directives. To ensure, however, that the machines or devices with which it is used comply with EC directives, the SerialGateBox must be installed as follows:

1,2,3...

1. The SerialGateBox must be installed within a control panel.
2. Reinforced insulation or double insulation must be used for the DC power supplies used for the communications, internal-circuit, and I/O power supplies.
3. The SerialGateBox conforms to the Common Emission Standards (EN50081-2). When the product is actually installed in the system, however, the countermeasures required to satisfy these standards may vary depending on factors such as the configuration of the control panel that is used, the relation to other connected devices, the wiring, and so on. Therefore the customer must check to be sure that the entire system conforms to the EC Directives.

Example Countermeasures

The following are examples of countermeasures for reducing noise.

- Radiation noise from a communications cable can be reduced by installing a ferrite core to the communications cable.
- As much as possible, use short, thick power line for the control panel, and connect securely to a ground of 100 W or less.

SECTION 1
Overview, Installation, and Setup

This section provides an overview of the SerialGateBox and explains the procedures for hardware and software setup.

1-1 Overview of SerialGateBox

In order to use the ITNC-SGB01 SerialGateBox, it is necessary to install and set up related software as follows:

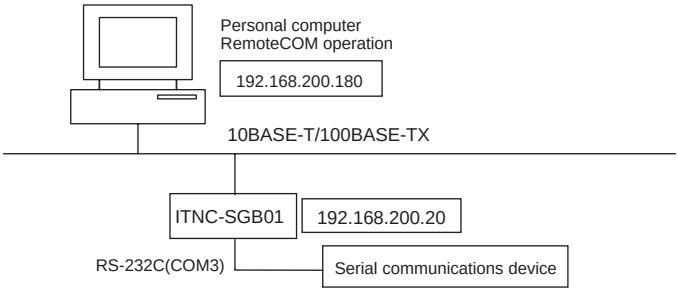
- Execute the SerialGateBox setup.
- Install the RemoteCOM client and RemoteCOM driver in the personal computer and set them up.

When RemoteCOM is used, the serial port of a SerialGateBox connected to a LAN can be used as one of the COM ports of the personal computer. Without changing any software, applications using the COM ports operated by the personal computer can communicate with a serial communications device connected to the COM port of the SerialGateBox on the LAN.

Refer to *4-3-2 Tested Applications* for details on the applications for which the connections and operation have been checked by OMRON.

■ **Connection Example:**

- Running RemoteCOM on a Personal Computer with the SerialGateBox Set to COM3
- As shown in the following example, an IP address must be set for both the personal computer and the SerialGateBox.

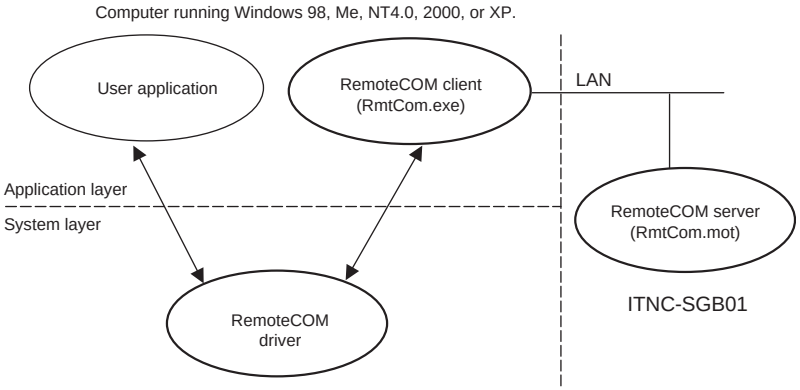


- The personal computer and the ITNC-SGB01 SerialGateBox are connected by TCP/IP and UDP/IP. Communications must be enabled at port numbers 65534 and 65535 and the port number used for RemoteCOM. An open port is automatically used at the personal computer.

RemoteCOM supports the following three configurations. A maximum of 32 SerialGateBoxes can be used from one personal computer.

1,2,3...

1. RemoteCOM client(RmtCom.exe)
2. RemoteCOM driver(RmtCom.vxd, RmtCom.sys, and RmtComL.sys)
3. RemoteCOM server(RmtCom.mot on the SerialGateBox)



Note Cannot be used from DOS prompt and DOS mode in Windows 98 or Me.

RemoteCOM Client

With applications under Windows 98, Me, NT4.0, or 2000, the RemoteCOM client operates as a multi-connection socket client and communicates with the RemoteCOM driver and the RemoteCOM server operating at the SerialGateBox.

The client controls up to 32 COM ports. It handles registrations to and deletions from the system, and controls the COM ports corresponding to SerialGateBoxes.

Note Refer to *SECTION 4 Computer (Remote COM) Setup* for details on specifications and settings.

RemoteCOM Driver

The RemoteCOM driver emulates a COM port. Data to the COM port is sent to the RemoteCOM client, and data from the RemoteCOM client is sent to the COM port.

The RemoteCOM driver can be used after the RemoteCOM client has been started.

RemoteCOM Server

The RemoteCOM server is installed to the SerialGateBox by default. It operates as a single-connection socket server, and communicates with the RemoteCOM client. When the SerialGateBox is started, listening is started at the local port number set for the ITNC-SGB01 operating parameters. If there is a connection, the software connection is made and the RemoteCOM server controls data transmission, control line status, etc.

1-2 Installation and Setup Procedures before Operation

The following flowchart shows the installation and basic setup procedures for the SerialGateBox.

1,2,3...

1. Hardware Installation and Setup
   Refer to SECTION 2 Hardware Installation and Setup.
   - Operating Mode Setting Switch (Refer to *2-3-6 Operating Mode Switch*.)
   - SerialGateBox Installation

     Mounting to DIN Track (Refer to *2-4-2 Mounting to DIN Track*.)

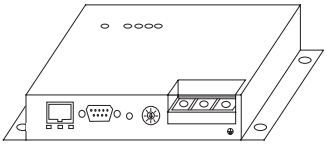
     Mounting without DIN Track (Refer to *2-4-1 Securing the SerialGateBox Directly (without Using DIN Track)*.)
   - Cable Connections (Refer to *2-5 Cable Connections*.)
2. SerialGateBox Setup
   Refer to SECTION 3 SerialGateBox Setup.
   - Installing the SGB Remote Setup Tool (Refer to *3-1 Before Using the SGB Remote Setup*.)
   - Starting the SGB Remote Setup (Refer to *3-2 Starting and Exiting*.)
   - Setting the IP Address for the SerialGateBox (Refer to *3-3 SerialGateBox Setup Procedure*.)
3. Personal Computer (RemoteCOM) Setup
   Refer to SECTION 4 Computer (Remote COM) Setup.
   - Installing the Software on the Computer (RemoteCOM Client/Driver) (Refer to *4-4 Installing the Remote COM Driver and Client*.)
   - Starting the SerialGateBox (Refer to *4-5-2 Starting and Checking SerialGateBoxes*.)
   - Registering the COM Ports (Refer to *4-5-5 COM Port New Registration and Updating*.)
   - Restarting the Computer (Refer to *4-5-5 COM Port New Registration and Updating*.)
   - Testing SerialGateBox Connections (Refer to *4-5-6 SerialGateBox Connection Test*.)
   - Opening Registered COM Ports from Applications (Refer to *4-5-7 Opening Registered COM Ports from Applications*.)
4. Operation

SECTION 2
Hardware Installation and Setup

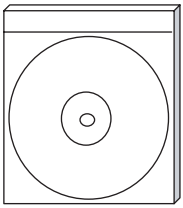
This section gives the names of SerialGateBox parts, describes SerialGateBox functions, and explains how to install the hardware and perform the setup.

2-1 Contents of Package

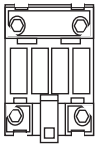
1. ITNC-SGB01 1
2. CD (Manual, RemoteCOM, Remote Setup) 1
3. DIN-track mounting bracket 1
4. M4 screws for DIN-track mounting bracket 2
5. Manual 1
6. User Registration Card 1



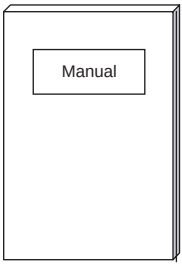
ITNC-SGB01



CD

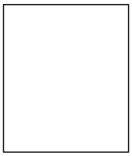


DIN-track mounting bracket



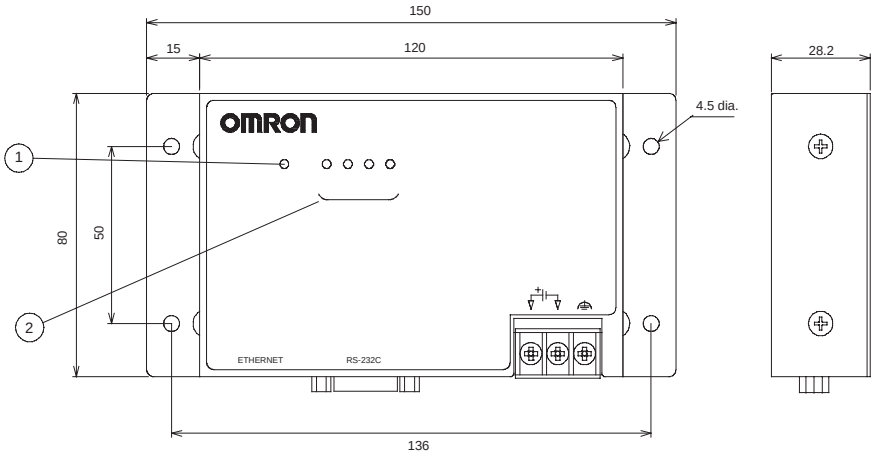
Manual

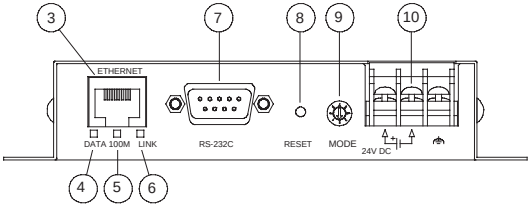
M4 screws



User Registration Card

2-2 Dimensions and Nomenclature





1. Power supply indicator
2. Status indicator
3. Ethernet interface
4. Data indicator
5. Ethernet baud rate indicator
6. Link indicator
7. Serial interface
8. Reset switch
9. Operating mode switch
10. Power supply terminal block

2-3 Functions

2-3-1 Serial Interface

The serial interface is used for communicating with connected devices.

1. Specifications

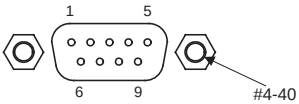
Item	Contents
Electrical characteristics	Conform to EIA RS-232C.
Baud rate	115,200, 57,600, 38,400, 19,200, 9,600, 4,800, 2,400, or 1,200 bps
Data length	7 bits or 8 bits
Parity	Even, odd, or none
Stop bits	1 bit or 2 bits
Communications control	None, XON/XOFF, or RTS/CTS
Communications method	Start-stop synchronization

Parameters are set individually from the user program or in the operating parameters.

2. Connector

Dsub, 9-pin connector (male)

Lock tool #4-40



3. Pin Allocations

Pin No.	Signal	Direction (See note 1.)	Name (See note 1.)
1	DCD	Input	Data Carrier Detection
2	RXD	Input	Receive Data
3	TXD	Output	Transmit Data
4	DTR	Output	Data Terminal Ready

Pin No.	Signal	Direction (See note 1.)	Name (See note 1.)
5	GND	---	Signal Ground
6	DSR	Input	Data Set Ready
7	RTS	Output	Request to Send
8	CTS	Input	Clear to Send
9	N.C.	---	Not Connected

Note The direction and name are as seen from the SerialGateBox.

2-3-2 Ethernet Interface

A 10Base-T or 100Base-TX interface is used to connect to Ethernet.

1. Specifications

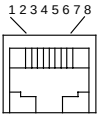
Item	Contents
Bit rate	10 Mbps/100 Mbps, automatic switching; priority: 100 Mbps
Protocol	CSMA/CD (IEEE 802.3)
Communications media	10Base-T, 100Base-TX
Topology	Star

The following table lists the network protocols than can be connected.

Layer	Protocol	Explanation
Physical layer	10Base-T 100Base-TX	IEEE802.3
Data link layer	CSMA/CD	IEEE802.3 Carrier sensing multi-access/Collision detection Applicable frame: Etherframe
Network layer	IP, ICMP ARP, RARP	Standard TCP/IP protocols Network layer protocols
Transport layer	TCP, UDP	Standard TCP/IP protocols Transport layer protocols
Application layer	RemoteCOM (FTP Socket TELNET)	RemoteCOM (proprietary) (File Transfer Protocol Socket Through Protocol Telnet Protocol) Note: Can be used for maintenance.

2. Connector

Modular connector: RJ-45 (Category 5)



View facing the connector

3. 3) Pin Allocations

Pin No.	Signal	Name
1	TXD+	Transmit Data(+)
2	TXD–	Transmit Data(–)
3	RXD+	Receive Data(+)
4	---	Not used.
5	---	Not used.
6	RXD–	Receive Data(–)
7	---	Not used.
8	---	Not used.

4. Recommended Cable

Category-5 twisted-pair cable (UTP or STP).

5. LAN Port

RemoteCOM and SGB Setup operate in Normal Mode.

RemoteCOM uses the local port number set in the operating parameters.

With SGB Setup, ports 65534 and 65535 are used for UDP communications.

2-3-3 Status Display Indicators

RemoteCOM operating status is displayed by four green Indicators as shown below.

RemoteCOM Operating Status (Normal Mode, RUN Mode Switch: 0)

Operation	Status			
	1	2	3	4
RemoteCOM started	¤	¤	●	●
Communicating with computer. (No communications data after COM port opened.)	¤	❍	●	●
Communicating with computer. (Sending data to serial device.)	¤	❍	P	●
Communicating with computer. (Receiving data from serial device.)	¤	❍	●	P

❍=Lit. ●=Not lit. ¤=Flashing (500-ms intervals). P=Lit/not lit in sync with signals.

2-3-4 Power Supply Indicator

The power supply indicator is lit green when power is being supplied.

2-3-5 LAN Status Indicators

1. Link Indicator: Lit (yellow) while a link is established.
2. Ethernet baud rate indicator: Indicates the baud rate in green. (100 Mbps: Lit; 10 Mbps: Not lit)
3. Data Indicator: Flashes (green) during data I/O.

2-3-6 Operating Mode Switch

The operating mode switch must be set to 0 (Normal Mode).

2-3-7 Reset Switch

The reset switch resets the device.

2-4 Installation

This section describes how to install the SerialGateBox.

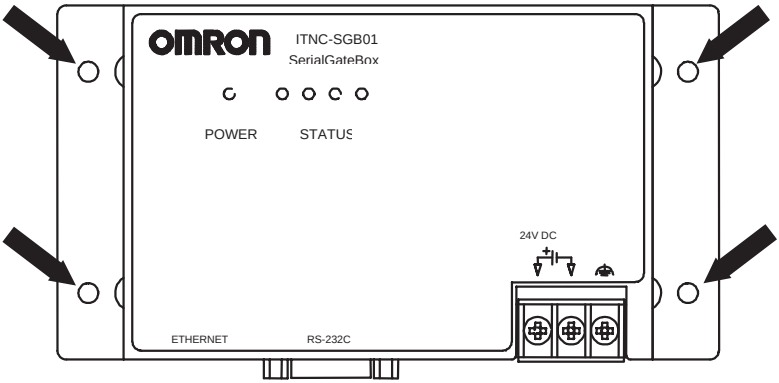
2-4-1 Securing the SerialGateBox Directly (without Using DIN Track)

Secure the SerialGateBox with M4 screws in the four locations shown in the following diagram. Tighten the screw to a torque of 0.9 N·m. (The screws must be provided by the user.) For details on mounting, refer to *2-2 Dimensions and Nomenclature*.

Note The SerialGateBox must be mounted in either of the following directions:

a) Vertical

b) Horizontal (with the mounting side at the bottom)



2-4-2 Mounting to DIN Track

This section describes how to mount the SerialGateBox to DIN track using the DIN-track mounting bracket that is provided.

Using the 6-mm M4 pan-head screws that are provided, mount the DIN track bracket to the SerialGateBox and tighten the screws to a torque of 0.9 N·m.

Note The SerialGateBox must be mounted in either of the following directions:

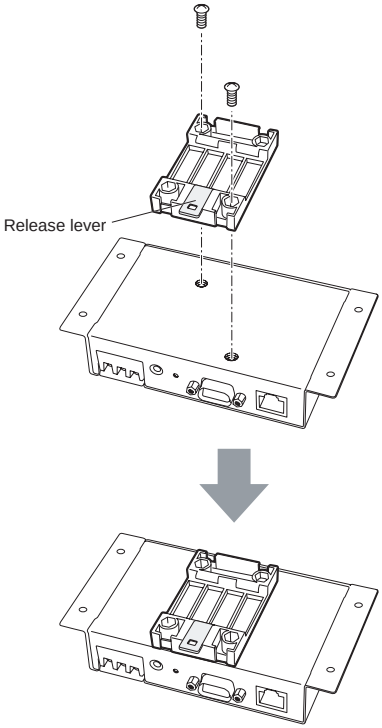
a) Vertical (with the connector side at the bottom).

b) Horizontal (with the mounting side at the bottom).

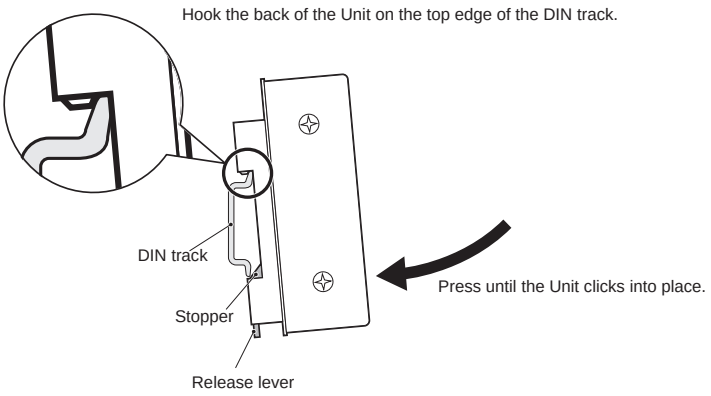
⚠ Caution Do not use any screws other than those that are provided (i.e., the 6-mm M4 pan-head screws). If screws longer than the provided screws are used, the product may be damaged or may malfunction. If screws that are too short are used, the mounting strength may be insufficient.

Use the following procedure:

1,2,3... 1. Using the provided screws, mount the DIN track mounting bracket to the SerialGateBox as shown in the following diagram. Be careful to mount it in the correct direction.



2. Mount the SerialGateBox to the DIN track as shown in the following diagram, with the connector side below.



2-5 Cable Connections

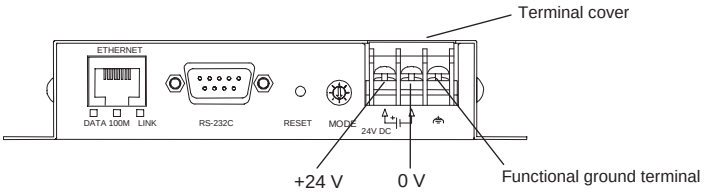
This section describes how to connect the power supply cable, serial cable, and LAN cable.

2-5-1 Connecting the Power Supply Cable

Power Supply Cable Wiring

Connect the power supply cable as described below.

Provide a 24-VDC power supply to the power supply terminal block of the SerialGateBox.



1,2,3...

1. Open the terminal block cover.
2. Loosen the terminal block screws.
3. Connect the power supply cable (with crimp terminals) and the ground cable to the power supply terminal block.

Note Be careful to clear away foreign material such as wire cuttings after wiring the cables.

DC Power Supply

Provide a 24-VDC power supply within the allowable power supply voltage fluctuation range.

Power Supply Capacity

The maximum power consumption is 3 W.

Note

1. Use crimp terminals for the wiring.
2. Do not directly connect to the terminal block power wires that are merely twisted together.
3. Tighten the terminal block screws to a torque of 0.6 N·m.
4. Use crimp terminals with a hole size of M3.

Crimp Terminals for Power Supply

Wiring Ground Lines

The SerialGateBox has a functional ground terminal. To prevent malfunctioning from excessive noise or electric shock provide a ground resistance of 100 Ω max. with a dedicated ground line (wire size of at least 2 mm^2) of no more than 20 m.

Do not share the ground line with other devices or connect it to a building frame, or there may be adverse effects.

If further noise reduction is required, connect a noise filter.

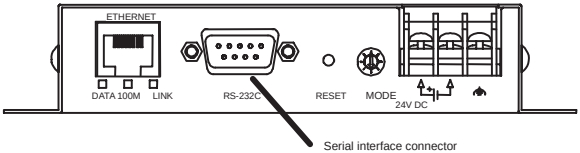
Note To prevent malfunctioning due to noise, always properly connect the ground.

2-5-2 Connecting the Serial Cable

Connect the serial cable to the serial interface connector. Use the connected device's PC/AT cable for the serial cable.

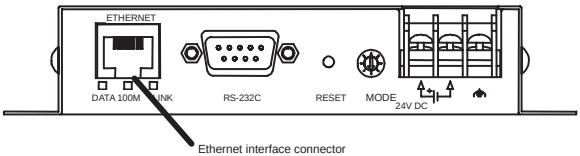
For information on cables used with OMRON PLC products, refer to the manuals provided with the PLC. Use cables that are included in the catalog.

For serial interface specifications, refer to *2-3-1 Serial Interface.*



2-5-3 Connecting the Ethernet Cable

Connect the Ethernet cable to the Ethernet interface connector. For Ethernet interface specifications, refer to *2-3-2 Ethernet Interface.*



2-6 Product Specifications

The following tables provide the specifications for the SerialGateBox.

2-6-1 General Specifications

Item	Specifications
Model number	ITNC-SGB01
Rated power supply voltage	24 VDC
Allowable power supply voltage fluctuation	20.4 to 26.4 VDC(24 VDC +10%, –15%)
Power consumption	3 W max.
Insulation resistance	20 MΩ min. between DC external terminal block and ground terminal (at 100 VDC).
Dielectric strength	500 VAC for 1 min between DC external terminal block and ground terminal; leakage current: 10 mA max.
Noise immunity	Conforming to IEC61000-4-4. 2 kV (power supply lines)
Ground resistance	0.1Ω max. (between FG terminal and chassis).
Vibration resistance	Conforming to JIS C0040. 10 to 57 Hz; amplitude: 0.075 mm; 57 to 150 Hz; acceleration: 9.8 m/s^2, for 80 min each in X, Y, and Z directions. Mounted to DIN track: 2 to 55 Hz, 2.94 m/s2, for 20 min each in X, Y, and Z directions.
Shock resistance	Conforming to JIS C0041. 147 m/s2, for 3 times each in X, Y, and Z directions.
Ambient operating temperature	0 to 55°C
Ambient operating humidity	10% to 90% (with no condensation)
Ambient operating environment	There shall be no corrosive gases.
Storage temperature	–20 to 75°C
Ground	100 Ω max.
Structure	Panel wiring. Not waterproof or drip-proof.
Weight	350 g max.
External dimensions	150 × 28 × 80 mm (W × H × D) ±0.5 (Not including protrusions.)
Applicable standards	• cULus • EC Directives (CE marking)

2-6-2 Performance Specifications

Item	Specifications
LAN	10Base-T, 100Base-TX
Serial	RS-232C

SECTION 3
SerialGateBox Setup

This section describes how to use the SGB Remote Setup Tool for making settings such as the SerialGateBox IP address.

3-1 Before Using the SGB Remote Setup

The SGB Remote Setup is a SerialGateBox setup tool that runs on Windows.

Note This setup tool is required only for the network settings (such as IP addresses) for a SerialGateBox on a network. No other settings are required. The SerialGateBox setup is executed by performing the operations described in *3-1 Before Using the SGB Remote Setup* through *3-3 SerialGateBox Setup Procedure*.

For descriptions of SGB Remote Setup functions, refer to *3-4 SGB Remote Setup Functions*.

The basic operations contained in this manual conform to those of Windows. For descriptions of these operations, refer to the Windows manual or online help.

3-1-1 System Configuration

The system must be configured with the following hardware and software to run the SGB Remote Setup.

- A computer running Microsoft Windows 98, Me, NT 4.0, 2000, or XP.
- The appropriate network card for the computer.
- TCP/IP must be installed as the network protocol, and it must be operating properly.

3-1-2 Installation

1,2,3...

1. Insert the CD provided with the product into the CD drive. (It is assumed here that the CD drive is the D drive.)
2. Start up Windows Explorer.
3. Create a new folder on the hard disk.
4. Copy the D:\SGBSetup\SGBSetup.exe file to the new folder.

This completes the installation of the SGB Remote Setup.

3-2 Starting and Exiting

This section describes how to start and exit the SGB Remote Setup, and describes the window configuration.

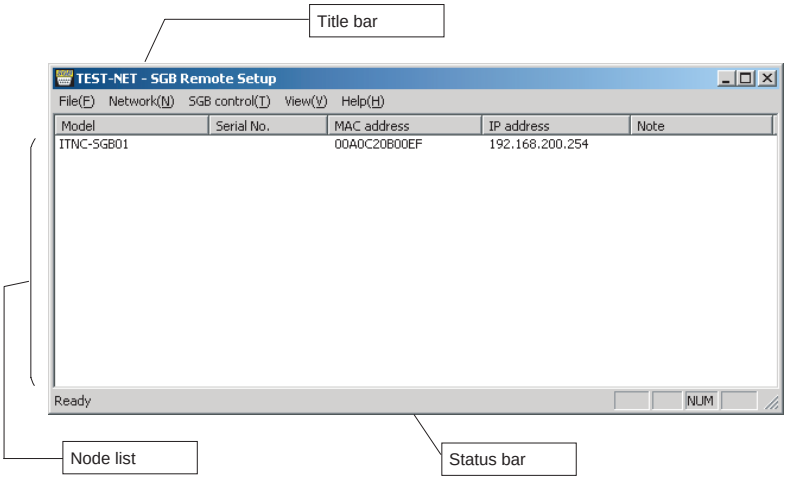
3-2-1 Starting and Exiting the SGB Remote Setup

Starting Up the SGB Remote Setup

1,2,3...

1. Start Windows, and open Windows Explorer.

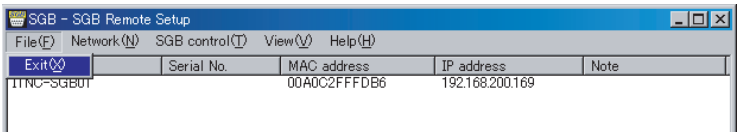
2. Open the folder in which the SGB Remote Setup is installed.
3. Double-click the SGBSetup.exe file.
4. When the program starts, the following window will be displayed.



Note In this example window, the nodes are registered as a block on the TEST-NET.

Exiting the SGB Remote Setup

1,2,3... 1. Select ***File*** and then ***Exit***.



Note **Node List Data File**
When the SGB Remote Setup is exited, a file called SGB-SETUP.DAT is created in the same folder as the SGB Remote Setup. Data for each SerialGateBox in the node list is saved in this file, so do not delete the file or change its contents.

3-2-2 Control Panel

Title Bar

The name of the presently selected network is displayed in the title bar. If the network has not been registered, the title bar will indicate **Network un-choosing**.

Menu Bar The menus for operating the SGB Remote Setup are displayed in the menu bar. A detailed pull-down menu can be displayed by clicking on any item. When any of the items in the pull-down menu is clicked, that operation will be executed.

Node List The node list displays information about SerialGateBoxes that have been registered by executing ***Search*** or ***New registration***. A SerialGateBox in the node list can be selected (highlighted) by clicking it.

Model Indicates the name of the SerialGateBox model.

Serial Number The serial number does not need to be set, because it is not used by the SGB Remote Setup. The user may set it in the ***SGB control - Property*** to facilitate SerialGateBox management.

MAC Address The MAC address is the specific address of the SerialGateBox. It cannot be changed.

IP Address This IP address is assigned to the SerialGateBox by the SGB Remote Setup. If 192.168.200.254 is displayed here, it indicates that no IP address has been set.

Note These are comments about the SerialGateBox. Like the serial number, this information is not used by the SGB Remote Setup. The user may enter comments if desired.

Note The serial number and the comments are not written to the SerialGateBox. They are written only to the file on the hard disk of the computer (SGBSetup.dat).

Status Bar Information about the present operation of the SGB Remote Setup is displayed in the status bar. If the SGB Remote Setup is not presently executing any operation, “Ready” is displayed.

3-3 SerialGateBox Setup Procedure

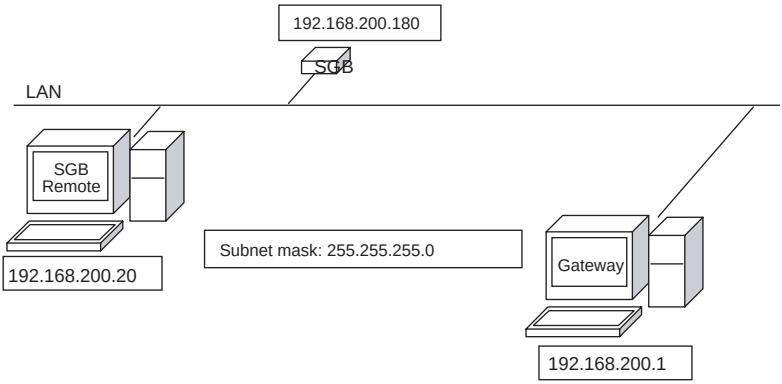
This section provides a simple setup example to demonstrate how to operate the SGB Remote Setup. The SerialGateBox setup can be executed by following the procedure describe below.

With the SGB Remote Setup installed, make the following settings in the SerialGateBox connected to the network configuration (TESTNET) shown in the diagram below.

Settings

IP address: 192.168.200.180

Own port number: 257

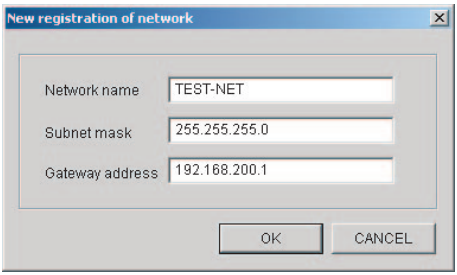


Network Configuration (TEST-NET)

Step 1: Registering the Network

Before making the settings, first register the network environment to be used by the SGB Remote.

Select ***Network*** and then ***New registration***. Then set the name of the network to which the computer that started the SGB Remote Setup is connected, the subnet mask, and the default Gateway IP address. When the registration has been completed, the registered network name will be displayed in the title bar.



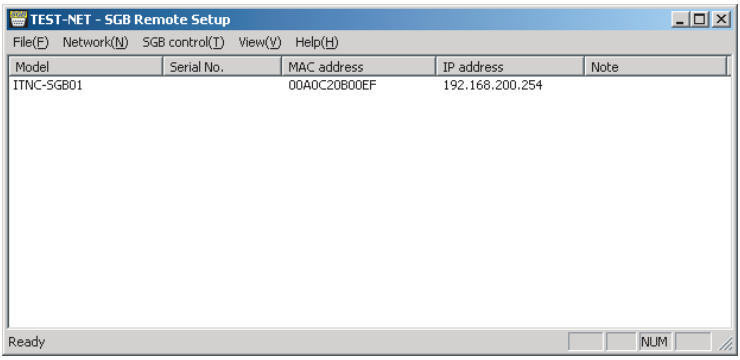
Step 2: Registering the Node List

Register the node list by executing ***Search*** for SerialGateBoxes connected to the LAN.

Note

1. This function finds only SerialGateBoxes connected to the same network.
2. Before executing this function, check that the power is turned ON to the SerialGateBoxes, and that the Ethernet cables are connected.

When ***SGB control*** and then ***Search*** is selected, the SGB Remote Setup automatically finds SerialGateBoxes on the network. The SerialGateBoxes that are found are registered in the node list.



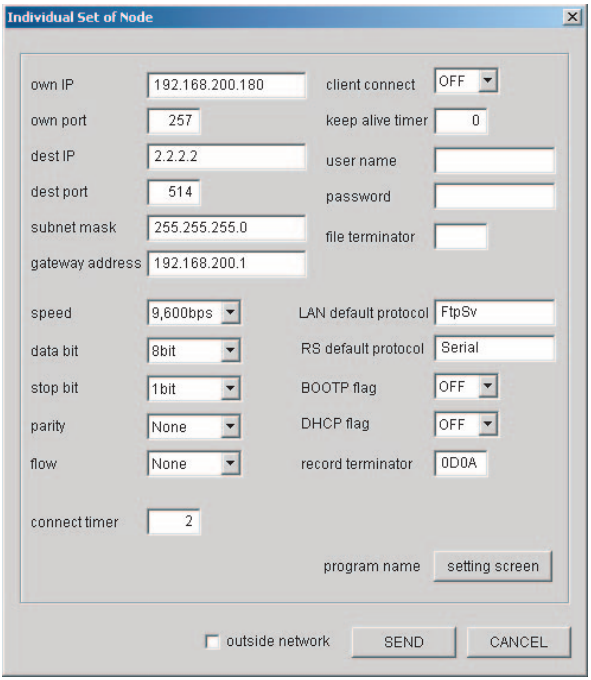
Step 3: Setting Parameters

Select the SerialGateBox that is to be set, and next select ***SGB control*** and ***Individual setting***. Then make the following settings for the SerialGateBox.

Own (local) IP address:	192.168.200.180
Own (local) port number:	257
Gateway address:	192.168.200.1

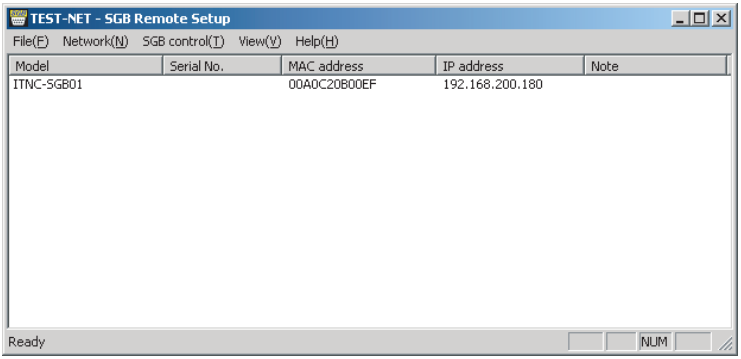
Note Use the default values for all other items.

After the settings have been made, click the **Send** Button to transfer the parameters.



Step 4: Display after Setup

After the setup has been completed through Step 3, the display will appear as follows:



Note The SerialGateBox will restart automatically, so there is no need to turn OFF its power.

This completes the SerialGateBox setup.

Note For information on starting the SerialGateBox and checking its operation, refer to *4-5-2 Starting and Checking SerialGateBoxes*.

3-4 SGB Remote Setup Functions

The SGB Remote Setup runs on Windows. By using the SerialGateBox remote setup functions described below, devices connected to the LAN can be controlled together, and settings and application programs can be downloaded.

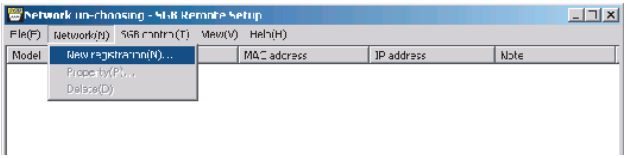
Remote Setup Functions

1,2,3...

1. Node Search Function
   Finds SerialGateBoxes on the network.
2. Settings Acquisition Function
   Obtains the present settings for a specified SerialGateBox.
3. Parameter Setting Function
   Sets the parameters for a specified SerialGateBox or specified model.
4. Initialization Function
   Initializes a SerialGateBox.
5. Download Function
   Downloads application programs to a specified SerialGateBox.

3-4-1 Networks

This section describes the network registrations required for using the SGB Remote Setup to execute the setup.

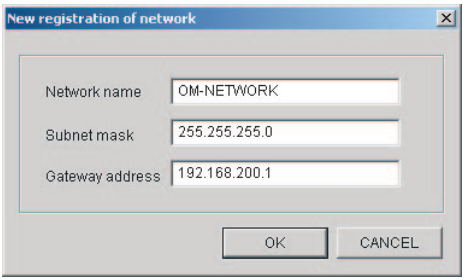


Network Registration

It is necessary to register the network before executing search or setup operations with the SGB Remote Setup. This involves registering the network environment that is to be used by the SGB Remote Setup, so the correct values must be set in order for the setup functions to operate properly.

Newly Registering a Network

Select ***Network*** and then ***New registration***. Then make the settings for the network to be used by the SGB Remote Setup.



Network Name

Set the name of the network that is to be registered. This is the name that will identify the network for users, so set a name that is easy to understand.

Subnet Mask

Specify a subnet mask for the network that is to be used. If you are not familiar with this, ask the network administrator. The value set in the above dialog box is for connecting to the example “OM-NETWORK” shown in the diagram below.

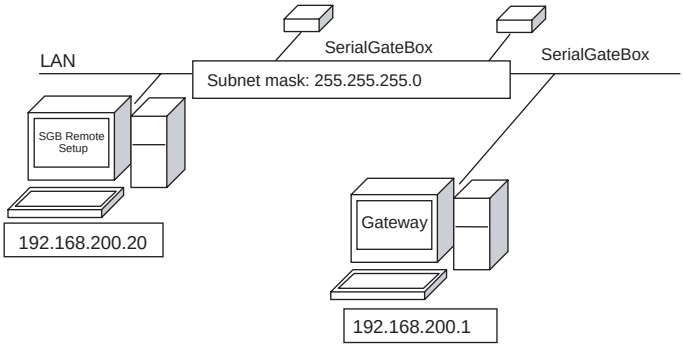
Inputting Addresses

For the addresses (IP address, subnet mask, Gateway address), input numbers from 0 to 255 in four sections delimited by decimal points (.).

Input example: 192.168.200.180

Gateway Address

Specify the IP Gateway address for the network that is to be used by the SGB Remote Setup. If you are not familiar with this, ask the network administrator. The value set in the above dialog box is for connecting to the example “OM-NETWORK” shown in the diagram below.



Network - Property

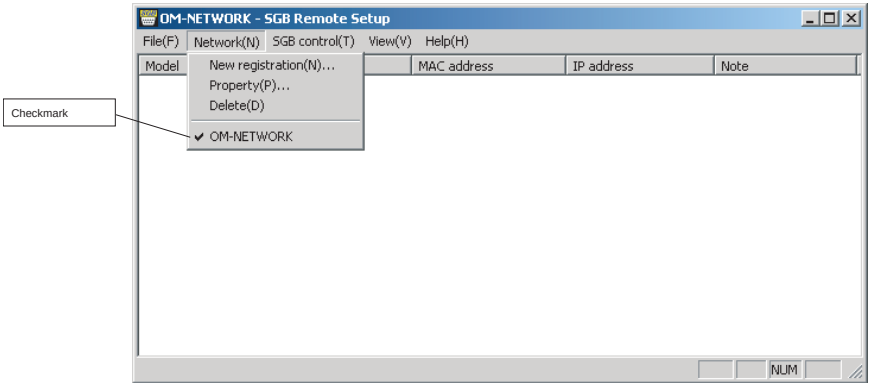
The settings for the selected network are displayed, but they cannot be changed.

Network - Delete

Deletes the network information for the selected network. All the information for SerialGateBoxes registered to the deleted network is also deleted. The SerialGateBox parameters, however, are not changed.

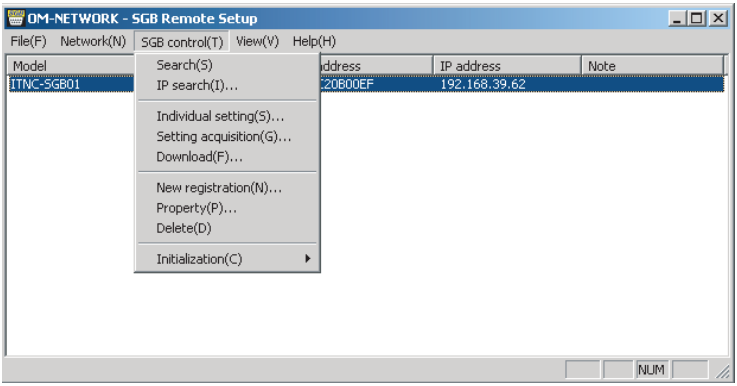
Network - Network Selection

A list of registered network names is displayed on the Network Menu, and the current network is displayed with a checkmark. The network can be changed by clicking on another network name. The node list can also be replaced at the same time.



3-5 SGB Control (SerialGateBox Control)

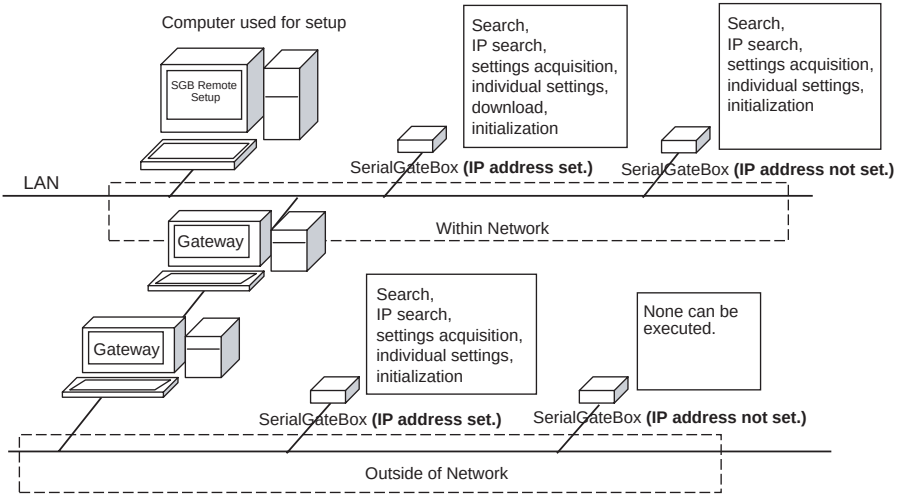
This section describes how to perform SerialGateBox searches, set and obtain parameters, and download applications. In order to be able to execute SGB control, the network must first be registered.



3-5-1 Executable Operations

The operations for which SGB control can be executed depend on whether the nodes are in the network and whether IP addresses have been set. Also, except for ***Search***, node list registration is a prerequisite. Registration to the node list can be performed by either ***Search*** or ***New registration***.

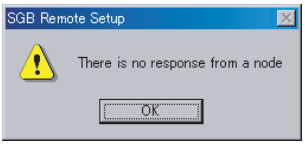
The executable operations are listed below according to the SerialGateBox connection status.



3-5-2 Responses and Timeouts

When a setup operation is selected, the SGB Remote Setup sends a command over the LAN. The setup is completed when a response is received from the SerialGateBox. If no response is received within a given period of time, the error message shown below will be displayed.

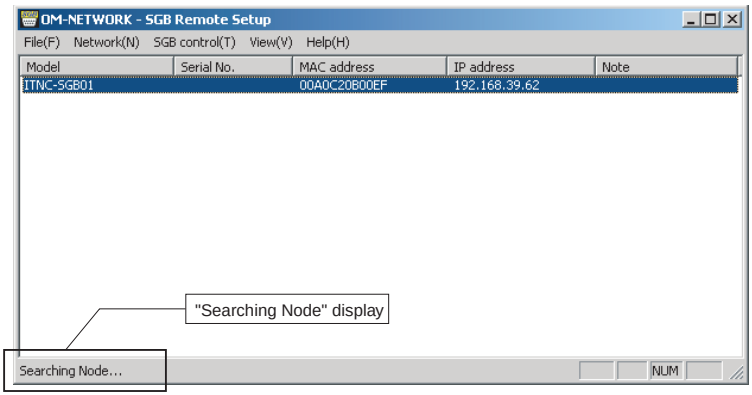
The settings for the response monitoring timers are saved in the file DefParam.ini for saving the default parameters. For information on these settings, refer to *3-7 Setting the Response Monitoring Timers*.



3-5-3 Search

The search function finds active SerialGateBoxes connected in the same network. A SerialGateBox that is found for the first time is added to the node list. If the IP address for a SerialGateBox already on the network has been changed, the information in the node list is updated. Even if there is no response to the search from a SerialGateBox on the network, however, that SerialGateBox is not deleted from the node list.

While the search is in progress, the message “Searching Node” is displayed in the status bar, and no other operations can be received. Depending on the number of SerialGateBoxes connected in the network and the response monitoring timer settings, it may take some time for the search to be completed.



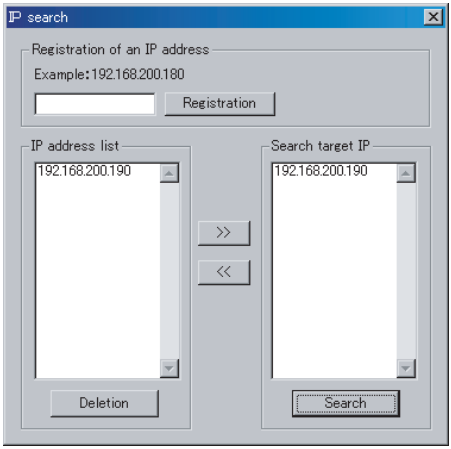
Note Because a broadcast search for MAC addresses is carried out, even SerialGateBoxes without IP addresses set will be displayed if they are connected in the same network.

3-5-4 IP Search

The ***IP search*** function finds SerialGateBoxes with specified IP addresses. The search command is sent to all IP addresses registered in the Search target IP list in the IP Search Dialog Box. Just as with ***Search***, any SerialGateBox that is found for the first time is added to the node list. The search is carried out according to IP addresses, so it is also possible to find SerialGateBoxes outside of the network.

The data in the IP address and the search target IP lists in the IP Search Dialog Box are saved to a file, and that data is automatically loaded when the tool is restarted.

When ***SGB control - IP search*** is selected, the IP Search Dialog Box is displayed.



Registration of an IP Address

This registration adds new IP addresses to the IP address list. First input the IP address in the edit box, and then click the **Registration** Button to add the new address to the IP address list.

IP Address List

Selected IP addresses in the IP address list can be deleted by clicking the **Deletion** Button. They can be added to the *Search target IP* list, as search targets, by clicking the >> Button.

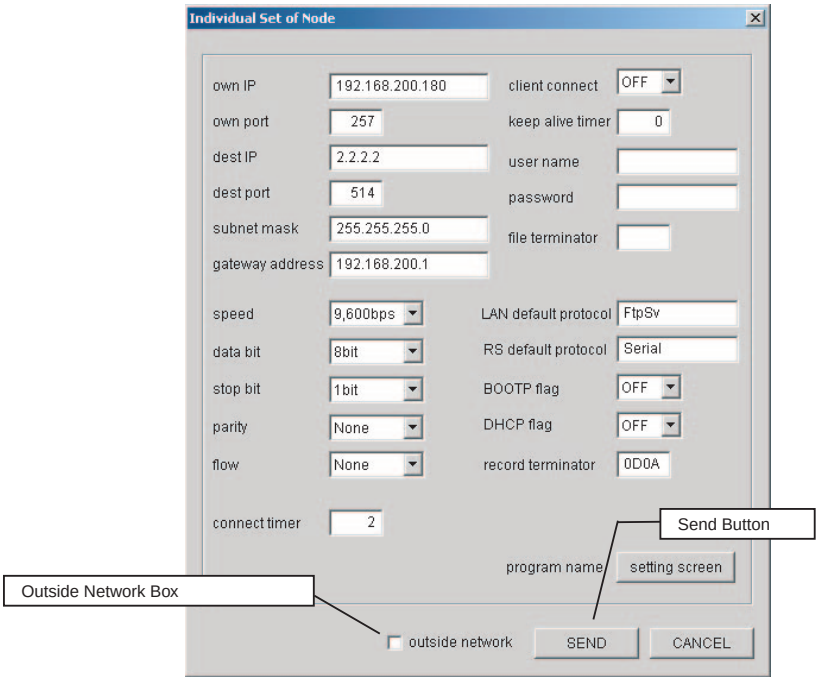
Search Target IP List

Selected IP addresses in the *Search target IP* list can be deleted by clicking the << Button. Clicking the **Search** Button will execute a search for all the IP addresses in the *Search target IP* list.

3-5-5 Individual Settings

Using this function, individual settings can be made for selected SerialGateBoxes in the node list. When ***SGB control - Individual setting*** is selected, the Individual Settings Dialog Box is displayed. Settings other than IP address are set as initial values for the default parameters.

The individual settings are executed by clicking the **Send** Button. If the selected SerialGateBox is not connected to the network, check the Outside Network Box before executing the settings.



Note When RemoteCOM (the default application) is used, only the following items are set.

- Own IP address
- Own port number
- Subnet mask

(• Gateway address)

Use the default values for all other items.

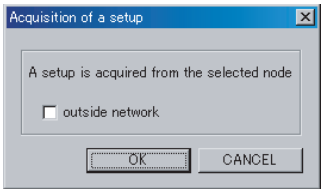
3-5-6 Settings Acquisition

This function obtains the present settings for SerialGateBoxes selected in the node list.

When ***SGB control - Setting acquisition*** is selected, the Settings Acquisition Dialog Box is displayed.

If the specified SerialGateBox exists outside of the network (i.e., via Gateway), check the Outside Network Box and then click the **OK** Button.

The settings can also be reset by changing the settings that are obtained and then clicking the **Send** Button.



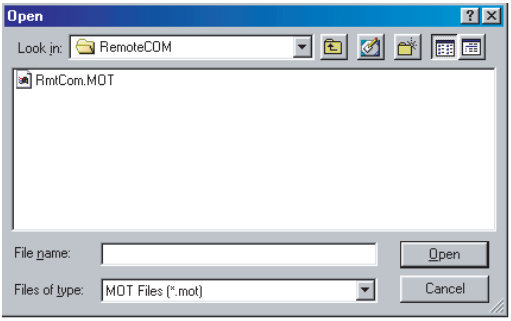
3-5-7 Downloading

The download function downloads applications for SerialGateBoxes selected in the node list. Unlike the other settings, downloading is executed using FTP. Therefore, the IP address for the specified SerialGateBox must be set to a value supported by the present network environment.

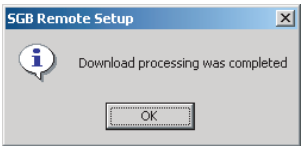
When ***SGB control - Download*** is selected, the specified SerialGateBox is restarted in the Setup mode.

When the restart has been completed, the Open Dialog Box is displayed. When the file to be downloaded is selected, the download begins.

While the download operation is in progress, a downloading message is displayed and no other processing can be received until it is completed. Depending on the size of the file being downloaded, the operation may take some time.



When the download has been completed normally, a message is displayed to indicated that it has been completed and a restart is executed by the user program.

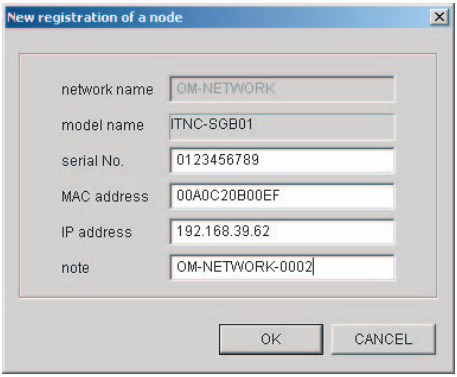


Note With the ITNC-SGB01, the application RmtCom is factory set. This is used for operations such as changing software during version upgrades.

3-5-8 New Registration of SerialGateBoxes

This function adds a new SerialGateBox to the node list for the selected network. If the model name, MAC address, or IP address is incorrect when registering a new SerialGateBox, it will not be possible to perform the setup following the registration. ***New registration function*** must be used for SerialGateBoxes outside of the network, because it is not possible to register them by means of searching.

When ***SGB control - New registration*** is selected, the New Registration Dialog Box is displayed. After each item is input, it is registered to the node list by clicking the **OK** Button.



Network Name The network name is the name of the selected network. It cannot be changed.

Serial Number The serial number does not need to be set. The user may set any serial number if desired.

MAC Address Input the MAC address (a 12-digit hexadecimal number) that is to be set for the SerialGateBox being registered. If the set value for the SerialGateBox does not match the value that is registered, the SGB Remote Setup will not be able to communicate with the SerialGate-Box.

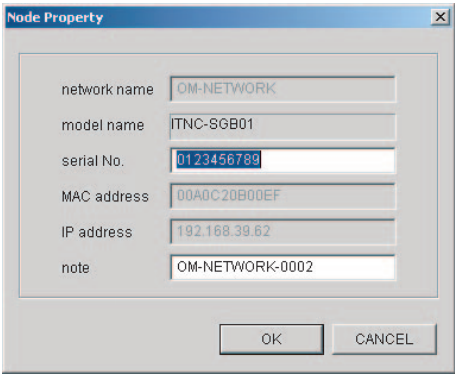
IP Address Input the IP address for the SerialGateBox that is being registered.

Note The user may enter a comment here if desired, but it is not required.

Note The serial number and the comments are not written to the SerialGateBox. They are written only to the file on the hard disk of the computer (SGBSetup.dat).

3-5-9 Node Properties

The node properties function displays the settings of selected SerialGateBoxes in the node list. The serial numbers and notes can be changed.



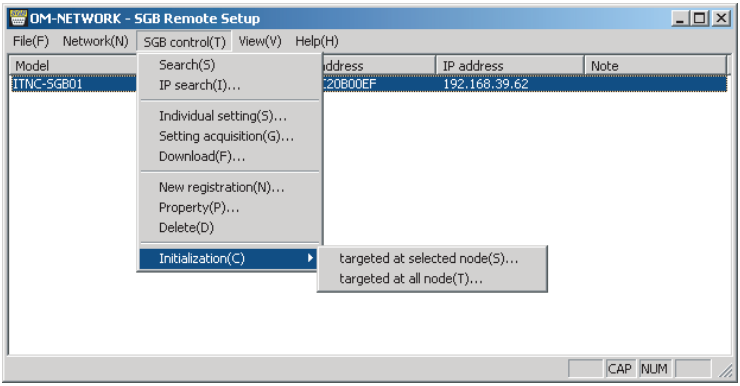
Note The serial numbers and the comments are not written to the SerialGateBox. They are written only to the file on the hard disk of the computer (SGBSetup.dat).

3-5-10 Deleting from the Node List

This function deletes from the node list information about selected SerialGateBoxes. The SerialGateBox parameters are not changed.

3-5-11 Initialization

Initialization restores the SerialGateBox settings to their default values. The initialization can be executed in either of two ways. If ***targeted at selected node*** is selected, only a single SerialGateBox selected from the node list is initialized. If ***targeted at all nodes*** is selected, all of the nodes in the node list are initialized together.



When ***SGB control - Initialization*** is selected, the Initialization Menu is displayed. Select whether only the selected node or all nodes are to be initialized.

Note **Initializing SerialGateBoxes Outside of the Network**
When a SerialGateBox outside of the network is initialized, the setup operations following the initialization cannot be executed.

	Item	Initial value
LAN settings	Own IP address	192.168.200.254
	Own port number	257
	Destination IP address	2.2.2.2
	Destination port number	514
	Default Gateway	2.2.2.2
	Subnet mask	255.255.255.0
	Connect timer	2
	Client connection opportunity	0
	No-communication monitoring timer	0
	User name	None
	Password	None
	File terminator	0, 0, 0
	BOOTP setup	Disabled
	DHCP setup	Disabled
	Auto-negotiation setting	Automatic
Serial settings	Baud rate	9,600
	Data length	8
	Parity	None
	Stop bits	1
	Flow control	None
	Record terminator	2, 0D, 0A
System settings	Startup program names 1 to 16	1: RmtCom 2 to 16: None
	LAN default protocol name	FtpSv
	RS default protocol name	Serial

3-6 About this Program

When ***Help - About SGB Remote Setup*** is selected, version information for the SGB Remote Setup is displayed.

3-7 Setting the Response Monitoring Timers

In a network with a lot of traffic, it may take some time for responses to be received from the SerialGateBox. By changing the settings for the response monitoring time in the DefParam.ini file, the user can adjust the time until a timeout is generated.

There are four types of response monitoring timers, as shown below. After the settings have been changed, the SGB Remote Setup must be restarted before the new settings will go into effect. The unit for all of these settings is ms.

[Application]

Timeout=5000:	Response monitoring time for individual settings and settings acquisition.
Timeout_AutoSet=5000:	Not used.
Timeout_Initial=5000:	Response monitoring time for completion of initialization.
Timeout_Search=1500:	Response monitoring time for SGB01 search.

SECTION 4
Computer (Remote COM) Setup

This section describes how to install and set up the software (RemoteCOM client and driver) that runs on the computer, and how to connect the SerialGateBox.

4-1 Overview

This section describes how to install and set up the RemoteCOM driver and client used at the computer, and how to connect to SerialGateBoxes.

Note

1. The only thing that needs to be set with the RemoteCOM client is the registration of COM ports allocated to SerialGateBoxes on the network. No other settings are required. After the RemoteCOM driver and client are installed (refer to *4-4 Installing the Remote COM Driver and Client*), refer to *4-5 Using RemoteCOM* and register the COM ports.
2. Before making the settings described in this section, use the SGB Remote Setup to execute the SerialGateBox setup. For details, refer to *SECTION 3 SerialGateBox Setup*.

For an overview of RemoteCOM driver, client, and server functions, refer to *SECTION 1 Overview, Installation, and Setup.*

4-2 System Operating Conditions: General Specifications

Item	Contents
Applicable OS	Windows 98, Me, NT 4.0, 2000, or XP Note 1: Cannot be used with Windows 98, Windows Me, DOS prompts, or DOS mode. 2: Cannot be used with Windows 98, Windows Me, DOS prompts, or DOS mode.
Computer requirements	CPU: Pentium® 90 MHz min. recommended. Memory: Minimum of 8 MB available space recommended. HDD: Minimum of 4 MB available space recommended. CRT: VGA (640 × 480) min. recommended. Note 1: TCP/IP and a LAN must be operating. 2: Microsoft Internet Explorer 4.0 or a later version must be installed. 3: Depending on the number of ports used, more memory may be required. The RemoteCOM system itself uses approximately 100 Kbytes of memory for each open port. The communications buffer capacity can be increased by specifying the size from the application.
LAN environment	10Base-T, 100Base-TX
RemoteCOM operation	1. RemoteCOM client (RmtCom.exe) operating. 2. RemoteCOM driver installed. 3. RemoteCOM server operating. RemoteCOM will operate when all of the above conditions are satisfied.
Number of RemoteCOM ports	32 ports max. Set ports from COM3 to COM98. COM99 is used by the RemoteCOM system. Note: The existing COM ports (COM1 and COM2) cannot be used.
Baud rate	115.2k, 57.6k, 38.4k, 19.2k, 9600, 4800, 2400, or 1200
Data length	8 bits or 7 bits
Stop bits	1 bits or 2 bits
Communications control	None, XON/XOFF, or RTS/CTS
Control lines	RTS, CTS, DSR, DTR, and DCD; updated to serial time.
COM open	Opened by CreateFile API in user application.
COM close	Closed by CloseHandle API in user application.
COM port registration and deletion	Set by RemoteCOM application. Computer must be restarted.

4-3 Limitations

4-3-1 RemoteCOM Client and Driver

- Brake signal detection is not supported, so applications requiring brake signal detection will not operate. Brake signal outputs are supported, but the output times are determined by the RemoteCOM client's optional settings.
- Communications parameters not supported by the SerialGateBox cannot be used. Therefore, there is no support for operations such as setting different flow control parameters for receiving and sending, or changing XON/XOFF characters. For information on the communications parameters supported by the SerialGateBox, refer to *2-3 Functions*.
- Delay Time related to Changes in Data and Control Lines
- Delays occur in relation to the input and output of data and control line information through the LAN, and also to changes in control lines. The delay time depends on the operating environments of the PC and the LAN, and cannot be specified precisely, but it may be at least 20 ms. Check the operation of the devices to be used, and determine the delay time for the system.
- Win16API Applications
- The actual COM port drivers and call timing vary with applications that use the CallBack routine in Win16API applications. Operation may be extremely slow and unreliable.
- The TCP connection is set when communications begin from the computer (i.e., when the RS-232C port opens), and the TCP connection is closed when the RS-232C port closes. Therefore, it cannot be used for communications from SerialGateBox RS-232C devices (such as, for example, unsolicited communications from ladder programs in the PLC).

4-3-2 Tested Applications

As of the present time, operation of the following OMRON software has been tested.

- CX-Programmer Ver. 3
- FinsGateway Version 3 Runtime Edition + FinsGateway Version 3 Update 3.12.

Limitations on Tested Applications

- ToolBus (ToolBus, ToolBusC, ToolBusCV) connection is not possible. Use SYSMAC WAY or SYSWAY.
- After RemoteCOM is started, FinsGateway Serial Units must be started manually. They cannot be started automatically.

- When Windows XP, 2000, or NT is used, depending on the software version, COM10 onwards cannot be used. Check the software specifications before doing the setup.
- When FinsGateway is used, normally use an XW2Z-200S-V Connection Cable. RTS flow control is used with FinsGateway, so the following FinsGateway registry must be added if an XW2Z-200S-CV or CS1W-CN226 Connection Cable is used.
  HKEY_LOCAL_MACHINE\SOFTWARE\OMRON\FinsGateway\NetworkProvider\Serial\Lines\COM❍\Parameters
  RTSControl REG_DWORD 1
- Depending on the network traffic, it may not always be possible to connect.
- For information on connection cables, refer to the manuals provided with the PLC.
- The built-in RS-232C port in C20H, C28H, C40H, and C60H PLCs cannot be used.

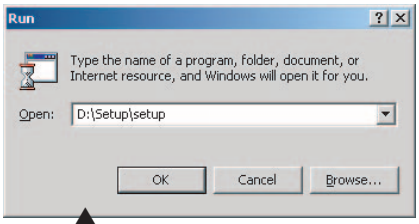
4-4 Installing the Remote COM Driver and Client

This section describes how to install the RemoteCOM client and driver in the computer. The installation procedures described here use Windows 98 as an example, but the procedures are basically the same for the other operating systems.

Note If an earlier version of RemoteCOM is already installed, use “Add or delete application” or “RemoteCOM uninstall” to remove the previous version before installing the new one.

1,2,3...

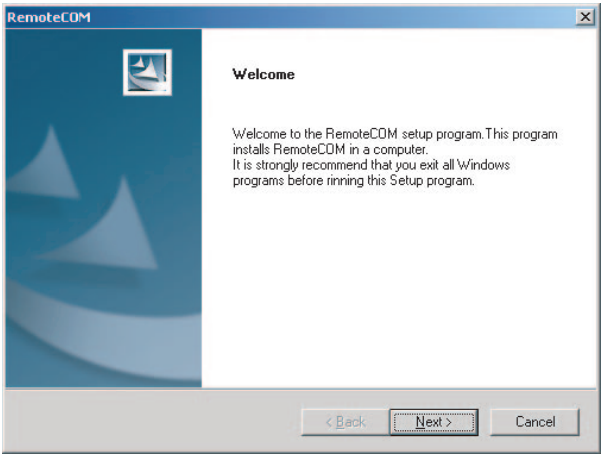
1. Turn ON the power to the computer and start Windows.
2. Insert the CD into the computer.
3. Click the **Start** Button in Windows, and select ***Run***…
4. In the dialog box that is displayed, input the name of the drive for installation and the execute command (Setup), and then click the **OK** Button.



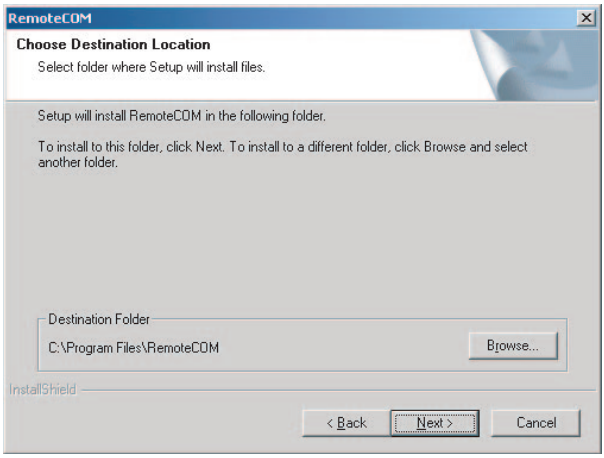
2. Click after the input is complete.

1. Input the path.
Replace " D:\" with the name of the drive where the setup disk is located.
If copied to the hard disk, replace the folder name with the full path for the folder.

5. When the window is displayed, click the **Next** Button.
Read the contents of the window.

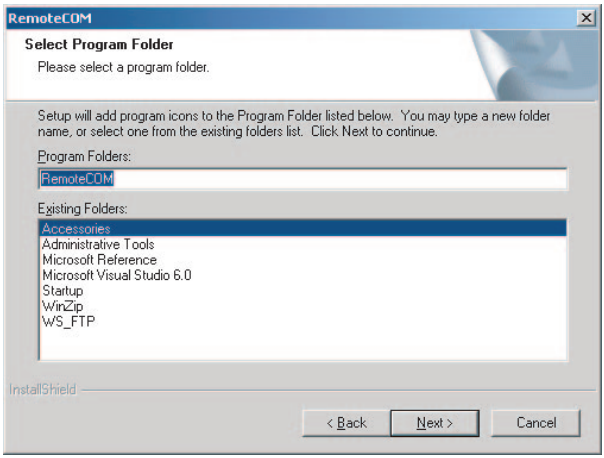


6. Click the **Next** Button.
To change the folder for the installation, click the **Browse** Button and select another folder.

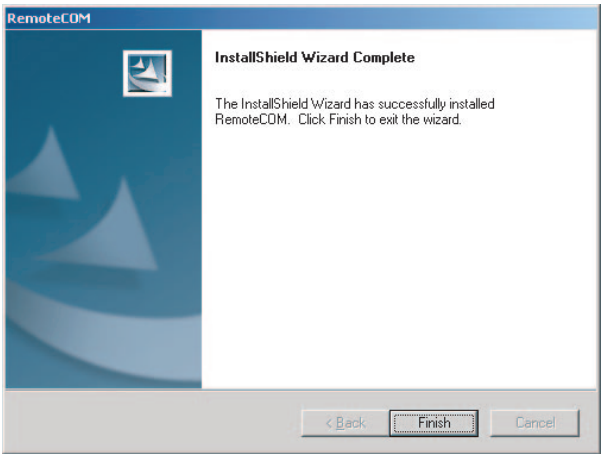


7. When the **Next** Button is clicked, the actual installation will be executed.
   To change the folder where the program icon is to be created, input the folder name where indicated. A program icon will also be added to the startup directory.

Note The program icon created in the folder is initially set as RemoteCOM. If the installation is completed without changing it, a folder called RemoteCOM will be newly registered under Programs in the Start menu.



8. Click the **Finish** Button.
   When the installation is completed, the following window will be displayed. Click the Finish Button to complete the setup.



After the installation is completed, refer to *4-5 Using RemoteCOM* and start the RemoteCOM client application. Then register the COM ports. After the COM ports have been registered, the computer must be restarted. The newly registered COM ports can then be used.

4-5 Using RemoteCOM

4-5-1 Required Operations

When using RemoteCOM for the first time, the following operations and settings are required.

Operation	Reference
Start the SerialGateBox.	*4-5-2 Starting and Checking SerialGateBoxes*
Start the RemoteCOM client.	*4-5-3 Starting and Exiting the RemoteCOM Client*
Register the COM ports and restart the computer.	*4-5-5 COM Port New Registration and Updating*
Test the connection with the SerialGateBox.	*4-5-6 SerialGateBox Connection Test*
Open the registered COM ports from the application.	*4-5-7 Opening Registered COM Ports from Applications*

4-5-2 Starting and Checking SerialGateBoxes

In order for the RemoteCOM to be used, the RemoteCOM server in the SerialGateBox must be operating. Check that the operating mode setting switch is set to 0, and then turn ON the power. The RemoteCOM server will start up.

The RemoteCOM server's startup and communications status can be checked with the SerialGateBox's indicators.

RemoteCOM Server RUN Indicator

RemoteCOM Operating Status (Normal Mode, RUN Mode Switch: 0)

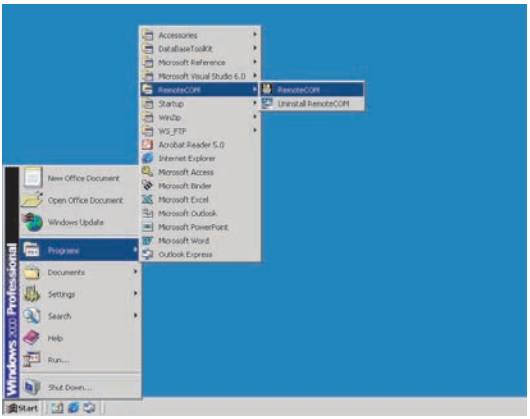
Operation	Status			
	1	2	3	4
RemoteCOM started	¤	¤	●	●
Communicating with computer. (No communications data after COM port opened.)	¤	❍	●	●
Communicating with computer. (Sending data to serial device.)	¤	❍	P	●
Communicating with computer. (Receiving data from serial device.)	¤	❍	●	P

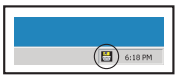
❍=Lit. ●=Not lit. ¤=Flashing (500-ms intervals). P=Lit/not lit in sync with signals.

4-5-3 Starting and Exiting the RemoteCOM Client

Starting the RemoteCOM Client

Select ***Programs - RemoteCOM - RemoteCOM*** from the **Start** Menu.



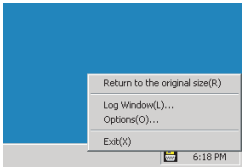


When the RemoteCOM client is started, an icon will be displayed in the task bar.

Exiting the RemoteCOM Client

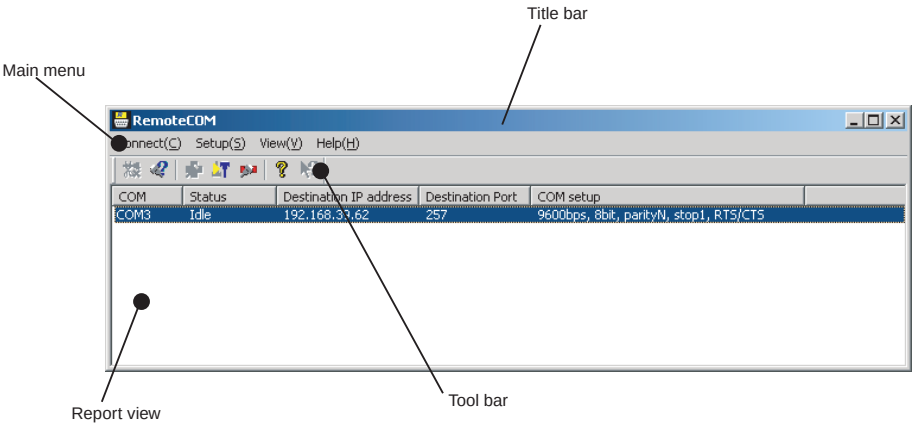
Point to the RemoteCOM icon in the task bar and right-click. When the pop-up menu opens, select ***Exit*** and left-click to exit the RemoteCOM client.

After the RemoteCOM client has been exited, the RemoteCOM ports registered by this software can no longer be used.



4-5-4 Main Window Functions

When the RemoteCOM icon in the task bar is double-clicked, the Main Window is displayed. The registered COM ports are displayed in the report view. When this program is first started after being installed, nothing is displayed because nothing is registered.



The status of connections and settings are displayed in the Main Window, and the register, update, and delete functions can be executed from menus.

These functions are described on the following pages.

Title Bar Displays the application name.

Main Menu

The main menu appears at the top of the Main Window and it includes the following items: Connect, Setup, View, and Help. The menus are configured as shown in the following table. Items that cannot be selected are grayed out.

Menu item	Submenu items	Contents
Connect	Disconnect	Forcibly disconnects a connected SerialGateBox selected from the registration list.
	Connect Test	Tests whether a disconnected SerialGateBox selected from the registration list can be connected.
	Exit	Exits the RemoteCOM and saves setup information.
Setup	New	Displays a dialog box for adding SerialGateBoxes corresponding to COM ports.
	Update	Displays a dialog box for changing registered settings selected from the registration list.
	Delete	Deletes COM ports selected from the registration list.
	Options	Displays a dialog box for setting operation options.
View	Log Window	Toggles between displaying and not displaying a log viewer for reading log files.
	Tool bar	Toggles between displaying and not displaying the tool bar.
Help	About RemoteCOM	Displays detailed information about the application version.

Tool Bar

The tool bar allows various functions to be quickly accessed. Buttons that cannot be selected are grayed out.

From the left, the buttons correspond to the following functions: Connect Test, Disconnect, New, Update, Delete and version information.

Report View

Displays the registration list.

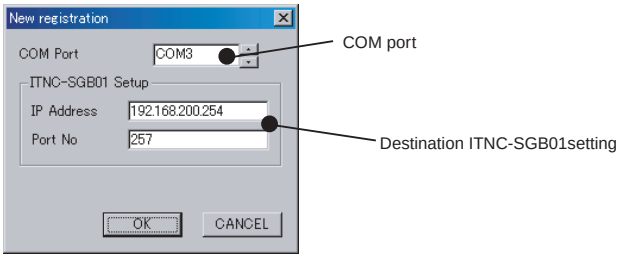
Item	Contents
COM	COM port number
Status	Displays whether a port connected or disconnected.
Destination IP	The IP address for the SerialGateBox corresponding to a COM port.
Destination port	The port number for the SerialGateBox corresponding to a COM port.
COM setup	The communications parameters set for a COM port.

4-5-5 COM Port New Registration and Updating

This function associates a COM port with a SerialGateBox. In order to use RemoteCOM, install the software and then register the COM ports.

Displaying the Setup Dialog Box

The Setup Dialog Box is displayed when ***Setup - New*** is selected from the menu with no COM port selected in the report view, or when ***Setup - Update*** is selected from the menu with a COM port selected in the report view.



Note Do not set more the same IP address for more than one COM port, or it will cause malfunctioning.

■ **COM Ports**

Select the COM port number that is to be registered or updated. A port number that is already registered cannot be used. Also, when updating, COM ports cannot be changed.

The COM port numbers that can be set are COM3 to COM98. COM1 and COM2 may already be incorporated as existing ports, so do not use them. COM99 is used by the RemoteCOM system.

Note For new registration, the serial communications parameters become the initial values (baud rate: 9,600 bps; data length: 8 bits; no parity; 1 stop bit; no flow control). These parameters are registered to the registry.

■ **Destination SerialGateBox Setup**

Input the IP address and port number for the destination SerialGate-Box. These parameters are for communicating with the SerialGate-Box, so input the same values as the destination SerialGateBox's local IP address and local port number.

Relation Between User Applications and Serial Communications Parameters

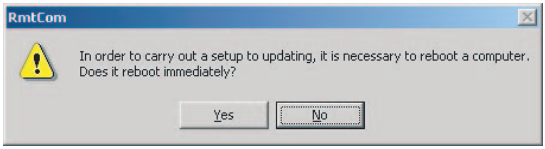
The settings for the serial communications parameters (COM settings) are as follows:

1,2,3...

1. When RemoteCOM is started up (i.e., when the user application opens the COM port with CreateFile), COM is opened according to the serial communications parameter settings saved in the registry.
2. When the user application changes the communications parameters (i.e., when the user application issues SetCommStatus), the changed parameters go into effect. At that time, COM is reopened at the SerialGateBox.

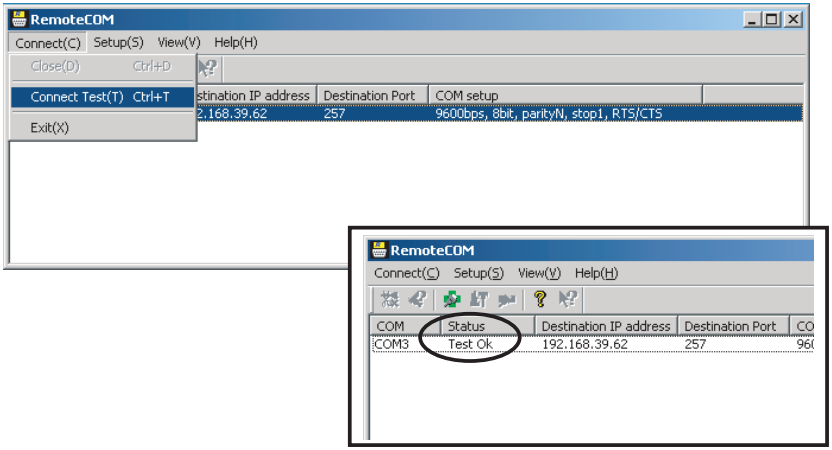
Registering COM Ports

The registration is executed when the OK Button is clicked in the Setup Dialog Box. With new registration, the settings are registered to the system, so the following window will be displayed. Restart the computer to put the new settings into effect.



4-5-6 SerialGateBox Connection Test

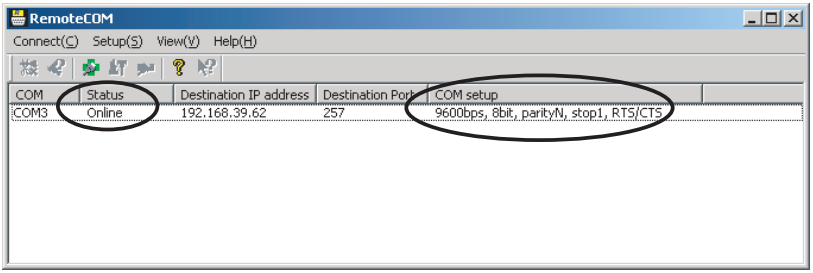
A connection test for a specified SerialGateBox is executed by selecting ***Connect - Connect Test*** with a COM port in the report view selected. If it can be used as a RemoteCOM port, the status will be changed to Test OK.



4-5-7 Opening Registered COM Ports from Applications

When registration can be completed normally, registered COM ports can be selected from applications (such as HyperTerminal) using communications software COM.

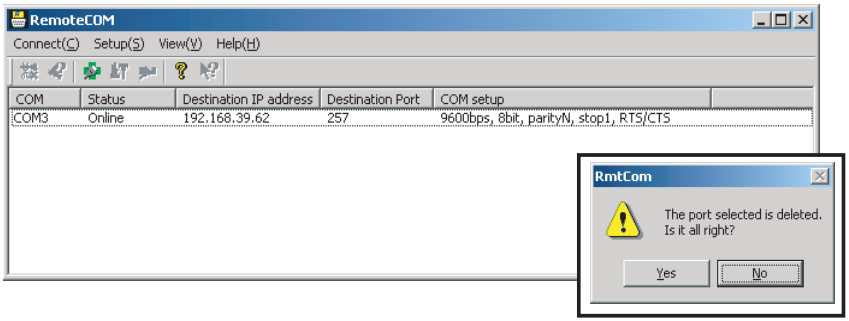
When a registered RemoteCOM port (e.g., COM3) is opened from a communications application such as HyperTerminal, the status of the relevant COM port in the report view is changed to Online and the present serial parameter settings are reflected in the COM setup.



When the status is Online, data sent from the application is sent from the serial port of the destination SerialGateBox and data received from the destination SerialGateBox can be received by the application. Also, control line control and control line status acquisition from the application is reflected in the serial port of the destination SerialGateBox.

4-5-8 Deleting Registered COM Ports

When ***Setup - Delete*** is selected while a COM port in the report view is selected, the registration for that COM port is deleted and the COM port is deleted from the report view.

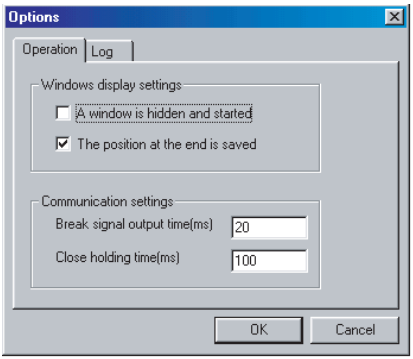


4-5-9 Setting Options

The RemoteCOM client option settings can be changed by selecting ***Setup - Options*** from the Main Menu.

Operation Tab

RemoteCOM client operation settings can be changed here.



■ **Window Display at Startup**

If this box is checked, the Main Window will be hidden when RemoteCOM is started up. If it is not checked, the Main Window will be displayed at startup. The default setting is for the window to not be displayed.

■ **Saving Window Position and Size When Exiting**

If this box is checked, the display position and size of the Main Window will be saved when the program is exited, and the window will be displayed in the same way when the program is next started up. If it is not checked, the default position and size will be used at the next startup.

■ **Brake Signal Output Time**

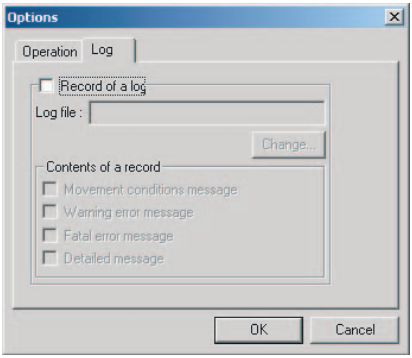
Set (in ms units from 10 to 10,000) the length of brake signals to be output. The default setting is 20 ms.

■ **Close Holding Time**

Use the default setting of 100 ms.

Log Tab

RemoteCOM client logging operation settings can be changed here.



■ Recording Logs

If the log record box is checked, operations will be logged in the specified log file. If it is not checked, logging will be stopped and the subsequent settings will all be disabled.

■ Log File

Specify the file where the log is to be recorded. To change the log file, click the **Change** Button. A File Selection Dialog Box will be displayed. Either input or select the new file.

Normally specify the installation directory and the RmtCom.log file name.

C:\Program Files\RemoteCOM\RmtCom.log

The log file is normally written in append mode. If disk capacity is insufficient, either stop logging or delete the log file.

■ Log Record Contents

Set the contents of the logs to be recorded. The default is for all settings to be OFF.

For information on log contents, refer to *4-5-10 Displaying Logs.*

1. Movement conditions messages
   Log operating conditions such as open and closed.
2. Warning error messages
   Log alarms and errors such as socket connection errors.
3. Fatal error messages
   Log errors that stop the RemoteCOM system from operating.
4. Detailed messages
   Log details on operating conditions.

Note The detailed message log is provided for OMRON support. The increase in log volume can affect operating speed, so this should normally not be set.

Setting Options After setting the options, click the **OK** Button to put them into effect and close the property sheet. To close the property sheet without making the settings, click the **Cancel** Button.

4-5-10 Displaying Logs

Notation: For %d and %x, numbers related to the logs are inserted.

Format (Example) I 2001/06/28 13:06:16 OwnerPort open OK(0x38) !!!

(1) Segment	(2) Date	(3) Time	(4) Message

1 Segment	I	Operating	conditions	message
	W	Warning	error	message
	F	Fatal	error	message
	-	Detailed		message

2 Date Logged date

3 Time Logged time

4 Message Logged message

Operating Conditions Messages

OwnerPort open OK (0x%x) !!!

RemoteCOM applications can operate.

Vxd Version %d.%d.%d load OK (0x%x) !!!

Vxd driver can be used.

COM%d:Socket CONNECT

Connection established for socket corresponding to COM port.

COM%d:Socket CLOSE

Connection closed for socket corresponding to COM port.

COM%d:Socket CLOSE (Receive)

Connection for socket corresponding to COM port closed by remote device.

COM%d:CMD CLOSE

Request made to close COM port.

COM%d:CMD PARAM

Parameters set for COM port.

COM%d:CMD LINE

Control line data set for COM port.

COM%d:Test CONNECT

Connection established for connection test.

COM%d:Test CLOSE

Connection closed for connection test.

COM%d:Test CLOSE (Receive)

Connection for connection test closed by remote device.

Warning Error Messages

COM%d:Socket Connect FAIL

Socket connection error.

Countermeasures: Check whether the COM port's destination IP address and the destination port are correctly set. Check whether the power is turned ON the SerialGateBox and whether the RemoteCOM server is started up.

COM%d:Socket Receive PORT error(0x%x)

COM port number field error in received data packet.

Countermeasure: Check whether the RemoteCOM server is started at the SerialGateBox.

COM%d:Socket Receive LEN error(0x%x)\r\n

Length field error in received data packet.

Countermeasure: Check whether the RemoteCOM server is started at the SerialGateBox.

COM%d:Socket RECEIVE TimeOut

Received data packet timeout.

Countermeasure: Check whether the LAN cable is correctly connected.

COM%d:Test Connect FAIL

Connection error in connection test.

Countermeasures: Check whether the COM port's destination IP address and the destination port are correctly set. Check whether the power is turned ON the SerialGateBox and whether the RemoteCOM server is started up.

COM%d:Test Receive error(0x%x)

Received packet error in connection test.

Countermeasure: Check whether the LAN cable is correctly connected.

COM%d:Test Receive LEN error(0x%x)

Length field error in received data packet in connection test.

Countermeasure: Check whether the RemoteCOM server is started at the SerialGateBox.

COM%d:Test Response TimeOut

Response timeout in connection test data packet.

Countermeasure: Check whether the LAN cable is correctly connected.

COM%d:Test RECEIVE TimeOut

Reception frame timeout in connection test data packet.

Countermeasure: Check whether the LAN cable is correctly connected.

Socket create error (%d)

Error in socket created for connection test.

Countermeasure: Check whether the environment allows the computer to use LAN.

Socket [%s:%d] connect error (%d)

Connection error in socket used for connection test.

Countermeasure: Check whether the environment allows the computer to use LAN.

Fatal Error Messages

OwnerPort open NG (0x%x) !!!

Error in opening owner port for enabling RemoteCOM system operation.

Countermeasure: Correctly reinstall RemoteCOM in the computer. Correctly reinstall RemoteCOM in the computer.

Vxd load NG (0x%x) !!!

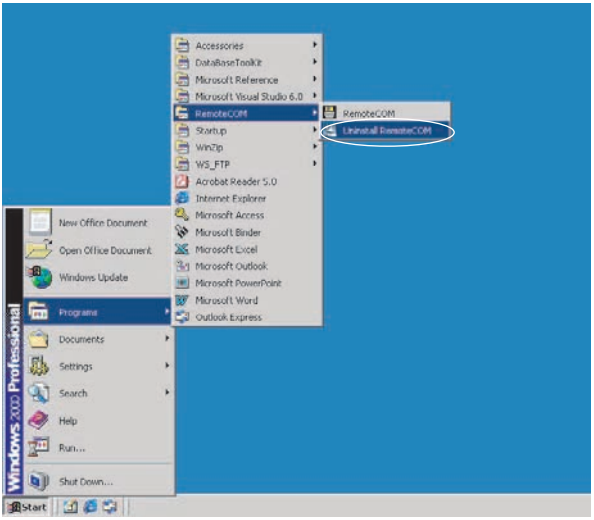
RemoteCOM driver handle acquisition error.

Countermeasure: Correctly reinstall RemoteCOM in the computer.

4-6 Uninstalling RemoteCOM Software

Before uninstalling the RemoteCOM program, refer to *4-5-7 Opening Registered COM Ports from Applications* and delete all registered COM ports.

Then, to uninstall RemoteCOM, select ***Program - RemoteCOM - Uninstall RemoteCOM*** from the **Start** Menu.



SECTION 5
Troubleshooting

This section provides countermeasures for handling errors that may occur when setting up and using the SerialGateBox.

5-1 From Installation to Startup

If the POWER indicator is lit and the STATUS1 and STATUS2 indicators are flashing, the SerialGateBox has started normally.

Problem	Countermeasures
The POWER indicator is not lit.	• Check the power supply cable connections (Refer to Section 2.) • Check whether the 24-VDC power supply is being shared.
The STATUS1 and STATUS2 indicators are not flashing.	• Check whether RmtCom has been registered in the startup program by the node's individual settings. (Refer to *3-5-5 Individual Settings*.) • If it is not registered, click the **Settings Screen** Button for the startup program name, and enter “RmtCom” for startup program name 1 in the displayed window. It is normally registered at the time of purchase and there is normally no need to change it.

5-2 Registering IP Addresses and Port Numbers in SGB Remote Setup

Problem	Countermeasures
A SerialGateBox is not found by the search function.	• Check the SGB Remote Setup settings. (Refer to *3-3 SerialGateBox Setup Procedure*.) • Is the power turned ON to the SerialGateBox? • Is the Ethernet cable properly connected? • If the LINK indicator for the SerialGateBox LAN is lit, connect the SerialGateBox to the hub with a straight cable. • Are the computer and the SerialGateBox on the same network? If not, the search cannot be executed. • Try increasing the response monitoring time for the search. (Refer to *3-7 Setting the Response Monitoring Timers*.)
A SerialGateBox is not found by the IP search function.	• Is the same IP address used more than once? • If no response is returned when a ping is sent from the computer to the SerialGateBox, use the SGB Remote Setup from a computer in the same network to find the SerialGateBox and reset the IP address.

5-3 Communicating by RemoteCOM

Problem	Countermeasures
A COM port cannot be registered.	• Is the port number already in use? It is not possible to register more than one COM port with the same number. • Set the COM port to a number from 3 to 98.
A connection test indicates that the connection cannot be made.	• Is the IP address set correctly? (Refer to *4-5-5 COM Port New Registration and Updating*.) • If no response is returned when a ping is sent from the computer to the SerialGateBox, use the SGB Remote Setup from a computer in the same network to find the SerialGateBox and reset the IP address.

5-4 Applications

Problem	Countermeasures
A COM port cannot be used from an application.	• Start up RemoteCOM. (Refer to *4-5-2 Starting and Checking SerialGateBoxes*.) • If a connection test for the COM port indicates that the connection cannot be made, refer to *5-3 Communicating by RemoteCOM*. • If software other than one of the tested applications is being used, consult with your OMRON representative. (Refer to *4-3-2 Tested Applications*.)

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