

Programmable Terminal NA-series

Practices Guide

Page Editing – Broken-line Graph

NA5-15□101□

NA5-12□101□

NA5-9□001□

NA5-7□001□



Practices
Guide

■ Introduction

This guide provides reference information on editing pages of the NA. It does not provide safety information.

Be sure to obtain the NA-series Programmable Terminal User's Manuals, read and understand the safety points and other information required for use, and test sufficiently before actually using the equipment.

- (1) All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form, or by any means, mechanical, electronic, photocopying, recording, or otherwise, without the prior written permission of OMRON.
- (2) No patent liability is assumed with respect to the use of the information contained herein. Moreover, because OMRON is constantly striving to improve its high-quality products, the information contained in this manual is subject to change without notice. Every precaution has been taken in the preparation of this manual. Nevertheless, OMRON assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained in this publication.
- (3) Trademarks
 - Sysmac and SYSMAC are trademarks or registered trademarks of OMRON Corporation in Japan and other countries for OMRON factory automation products.
 - Windows, Visual Basic, and Excel are either registered trademarks or trademarks of Microsoft Corporation in the United States, Japan, and other countries.
 - Other company names and product names in this document are the trademarks or registered trademarks of their respective companies.
 - Microsoft product screen shots reprinted with permission from Microsoft Corporation.
 - The product pictures and drawings contained in this document are the graphical images, which may be different from the actual articles.

Terms and Conditions Agreement

Warranty, Limitations of Liability

Warranties

Exclusive Warranty

Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.

Limitations

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.

Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right.

Buyer Remedy

Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.

See <http://www.omron.com/global/> or contact your Omron representative for published information.

Limitation on Liability; Etc

OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY.

Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

Application Considerations

Suitability of Use

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Programmable Products

Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

Disclaimers

Performance Data

Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

Change in Specifications

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

Errors and Omissions

Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

Contents

Terms and Conditions Agreement 3

 Warranty, Limitations of Liability 3

 Application Considerations 4

 Disclaimers 4

1 Broken-line Graphs..... 7

 1-1 Broken-line Graph Basic Settings 7

Revision History 13

Related Manuals

The following manuals are related to this manual.

Cat.No.	Model	Manual Name
W504	SYSMAC-SE2□□□	Sysmac Studio Version 1 Operation Manual
V117	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	NA-series Programmable Terminal Hardware User's Manual
V118	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	NA-series Programmable Terminal Software User's Manual
V119	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	NA-series Programmable Terminal Device Connection User's Manual
V120	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	NA-series Programmable Terminal Startup Guide

1 Broken-line Graphs

1-1 Broken-line Graph Basic Settings

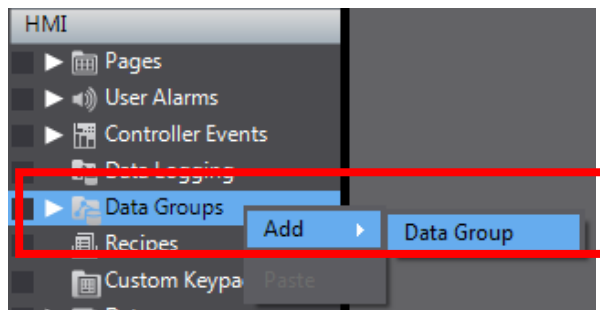
The Broken-line Graph objects display the graphs of the current value of array variables or multiple variables of the same data type.

Beware that a Broken-line Graph object does not operate in the simulation function of Sysmac Studio. You must transfer data to the NA unit and operate the actual unit to confirm operations.

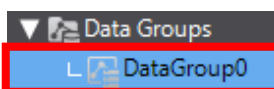
1-1-1 Registering Data Group

The variables that are to be displayed in a Broken-line Graph should be registered in Data Groups. This function is equivalent to the “Broken-line Graph Group Setting” of the NS series.

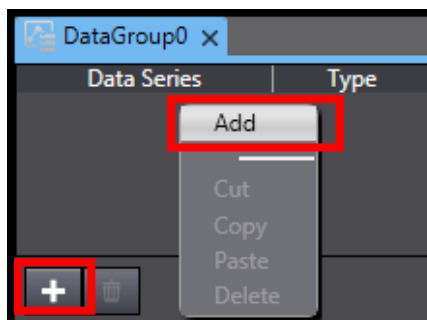
1. In the Multiview Explorer, right-click [HMI]-[Data Groups], and click [Add]-[Data Group].



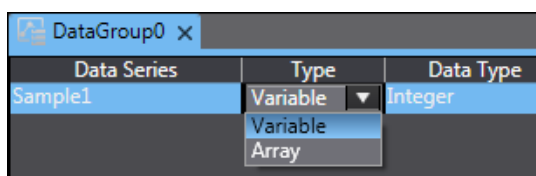
2. Double-click the added [DataGroup0].



3. Create the data to be displayed as a graph. Right-click on the edit pane and click “Add”, or click the [+] button.



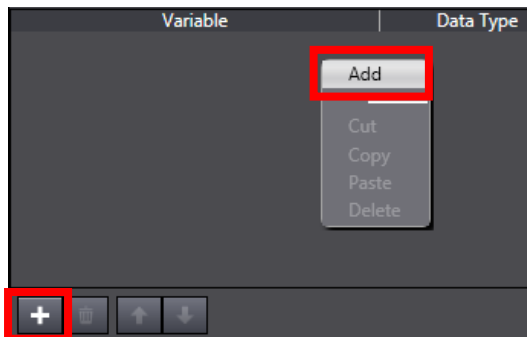
4. Enter an arbitrary name in [Data Series]. The name is used in the Properties of the Broken-line Graph object to be described later. Under [Type], choose the type of variables to be used in a graph from either “Variable” or “Array”. If you use multiple variables as a group, choose “Variable”. To display the data of the array variable as a graph, select “Array”. In [Data Type], specify the data type of the variables to be used in the graph. Make sure to unify the data type of the variables that are to be used in a single data series.



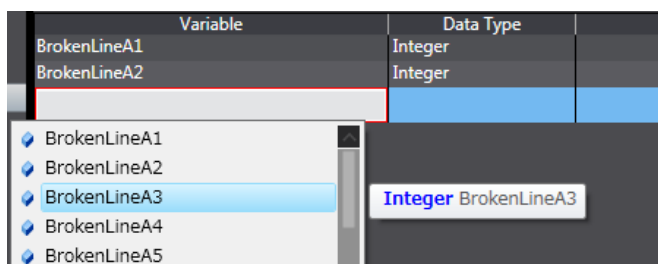
5. You can have different types of data series such as “Variable” and “Array” within a data group.

Data Series	Type	Data Type
Sample1	Variable	Integer
Sample2	Array	Integer

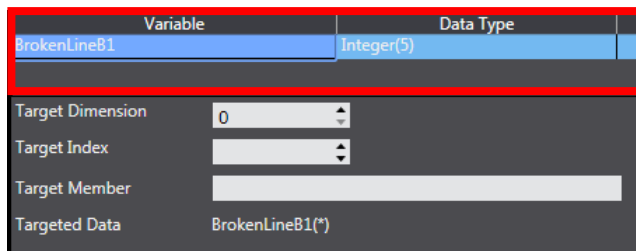
6. Following is the explanation of the settings in cases where “Variable” is specified as the graph type. To add the variables to be displayed in the graph, right-click and select “Add”, or click the [+] button.



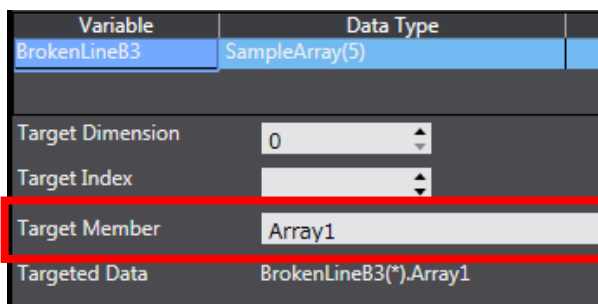
7. Enter as many variable names in [Variable] as the points to be displayed on a line. Make sure to register in advance the variables in [Global Variables].



8. Following is the explanation of the settings in cases where “Array” is specified as the graph type. Set an array variable to be used in the graph. Make sure to register in advance the variable in [Global Variables]. You can use one-dimensional or two-dimensional arrays.



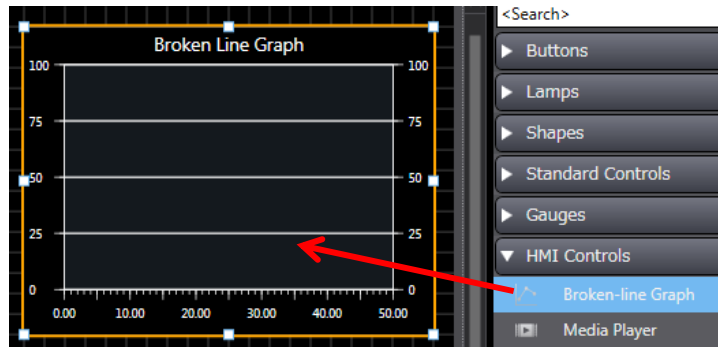
9. If the data type of the array variable is Structure, specify in [Target Member] the name of the member targeted for display. In the example shown on the right, the following names appear in the graph:
 BrokenLineB3(0).Array1,
 BrokenLineB3(1).Array1,
 BrokenLineB3(2).Array1,
 ...



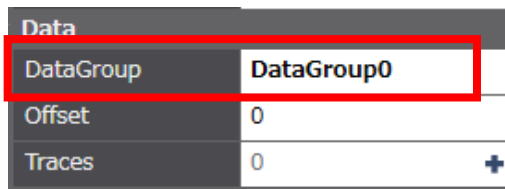
1-1-2 Setting the Properties of a Broken-line Graph Object

Perform settings for displaying as a graph the data group specified in the previous subsection.

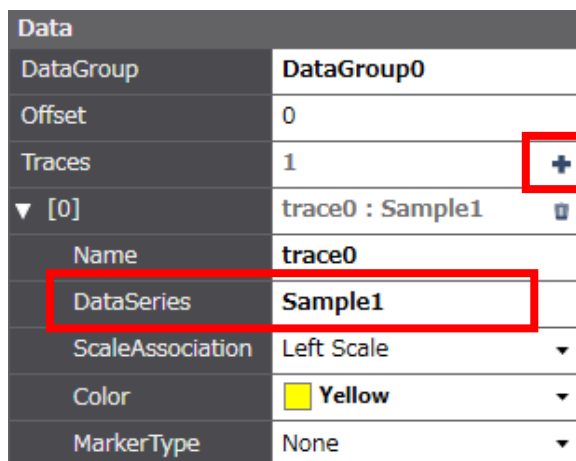
1. From [Toolbox], select [HMI Controls]-[Broken-line Graph] and drag and drop it to the page.



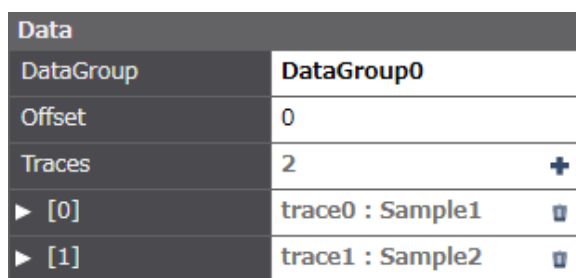
2. In [DataGroup] under [Data] in the Properties, enter the name of the data group created in the previous subsection.



3. When you click the [+] of the [Traces] cell, the setting fields appear under [0]. Register in [DataSet] the name of the data series to be displayed in the graph.



4. Repeat Step 3 the number of times of the data (i.e. the number of lines) to be displayed in the graph.



5. Specify the timing for the graph to be updated. You can select from among two options: to update at a constant interval, or to update when a variable condition is met. If you select "Interval" in [DisplayUpdateType] under [Behavior] in the Properties, the graph display is updated at the interval specified in [UpdateRate] (unit: msec.).

Behavior	
IsEnabled	<input checked="" type="checkbox"/>
IsCursor1Visible	<input type="checkbox"/>
IsCursor2Visible	<input type="checkbox"/>
DisplayUpdateType	Interval
UpdateRate	2000

6. If you select "Condition" under [DisplayUpdateType] under [Behavior] in the Properties, the graph display is updated when the condition specified in [Expression] is met. In the example shown on the right, the display is updated when UpdateFlag is turned ON.

Behavior	
IsEnabled	<input checked="" type="checkbox"/>
IsCursor1Visible	<input type="checkbox"/>
IsCursor2Visible	<input type="checkbox"/>
DisplayUpdateType	Condition
Expression	UpdateFlag = True

7. Edit the vertical axis of the graph as below:
 1. Specify whether to display the axis, major grid lines, and minor grid lines.
 2. Specify the maximum and minimum values of the axis.
 3. Specify the number of decimal places of the axis values and the number of ticks of the axis.
 The figure on the right shows the fields for the left axis. There are the same fields for the right axis.

Left Axis	
IsLeftAxisVisible	<input checked="" type="checkbox"/>
LeftAxisGridMinorLinesVisible	<input checked="" type="checkbox"/>
LeftAxisGridMajorLinesVisible	<input checked="" type="checkbox"/>
LeftAxisMinimumValue	0
LeftAxisMaximumValue	100
LeftAxisNumberOfDecimalPlaces	0
LeftAxisNumberOfMinorTicks	4
LeftAxisNumberOfMajorTicks	5

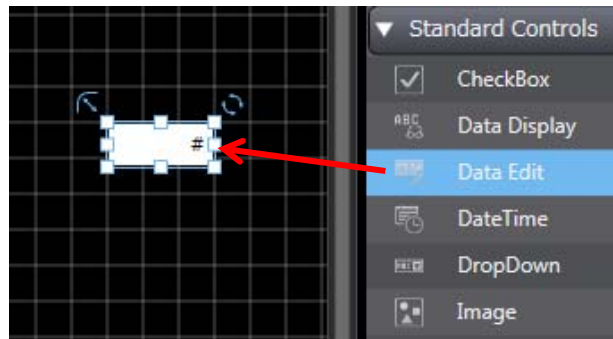
8. Edit the horizontal axis of the graph as below:
 1. Specify whether to display the values and grid lines.
 2. Specify the maximum and minimum values of the axis.
 3. Specify how many traces are to be displayed within a graph.

Horizontal Axis	
IsHorizontalAxisVisible	<input checked="" type="checkbox"/>
HorizontalAxisGridLinesVisible	<input type="checkbox"/>
HorizontalAxisTextMinimumValue	0
HorizontalAxisTextMaximumValue	5
ViewportLength	6

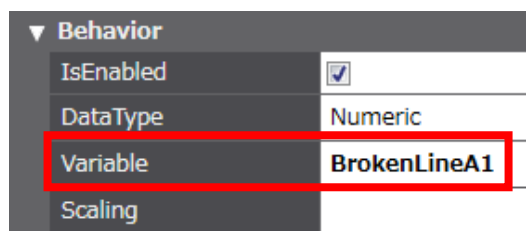
1-1-3 Checking Operations of the Broken-line Graph Object

Check the operations of the Broken-line Graph object created in the previous subsection.

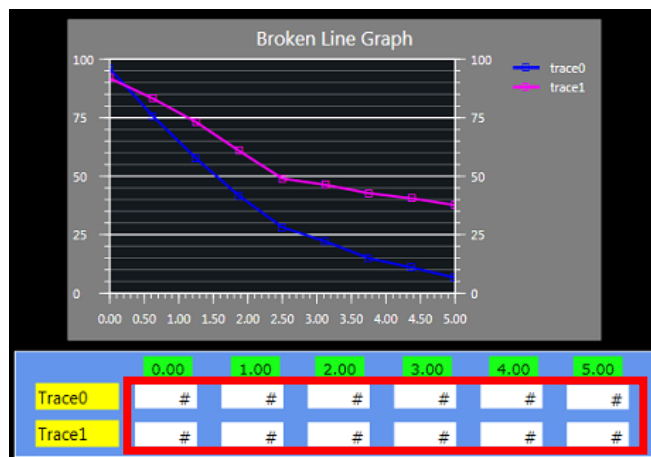
1. Create a Data Edit object for checking the operations. From [Toolbox], select [Standard Controls]-[Data Edit] and drag and drop it to the page. Specify arbitrarily the font type and size.



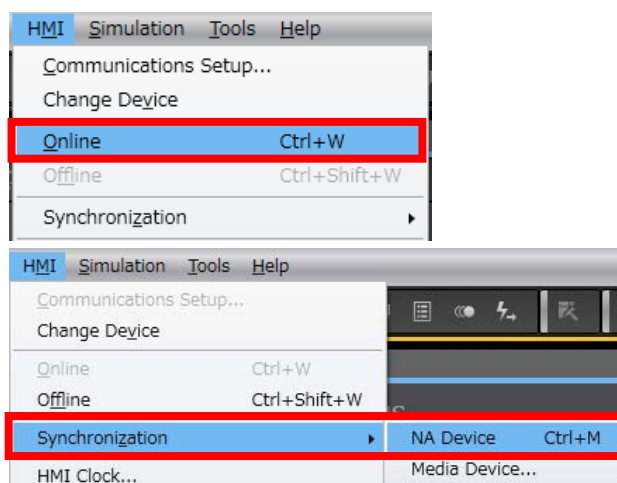
2. In [Variable] in the [Properties] tab for the Data Edit object created in Step 1, set the variable registered in Step 7 of Subsection "1-1-1 Registering Data Group".



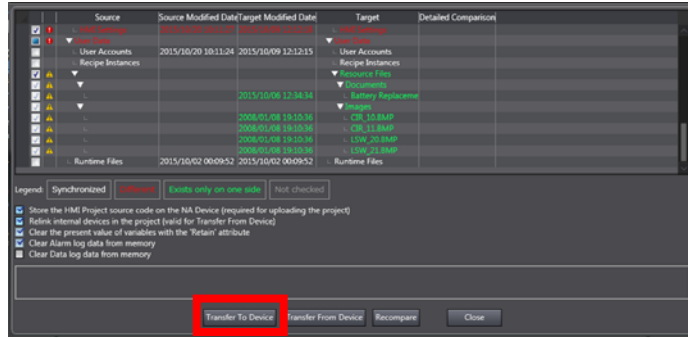
3. Create as many Data Edit objects as the variables registered in the data group that was created in Step 2 of "1-1-2 Setting the Properties of a Broken-line Graph Object". Make sure that all the values of the points can be entered.



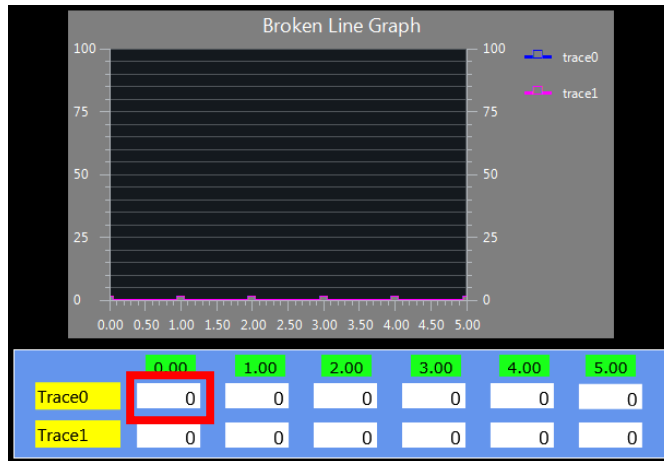
4. Transfer the project to the actual NA unit. Click [HMI]-[Online] to set the unit in the online status. Then, click [HMI]-[Synchronization]-[NA Device]. Connect the PC with the NA unit in advance using the cable that complies with the communications setup. Perform the communications setup in [Communications Setup] under [HMI] on the menu bar.



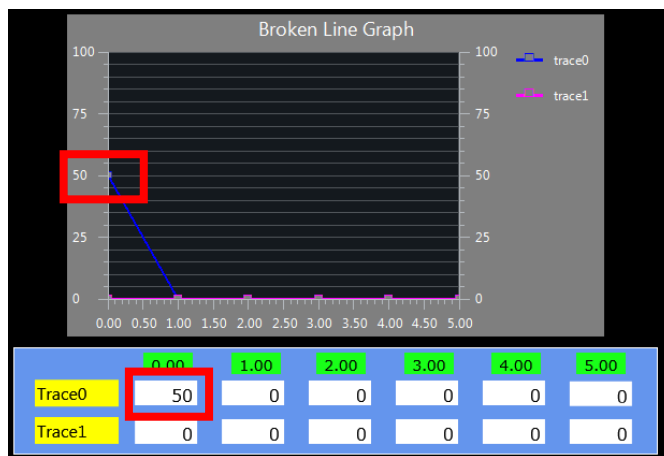
5. Click the [Transfer To Device] Button.



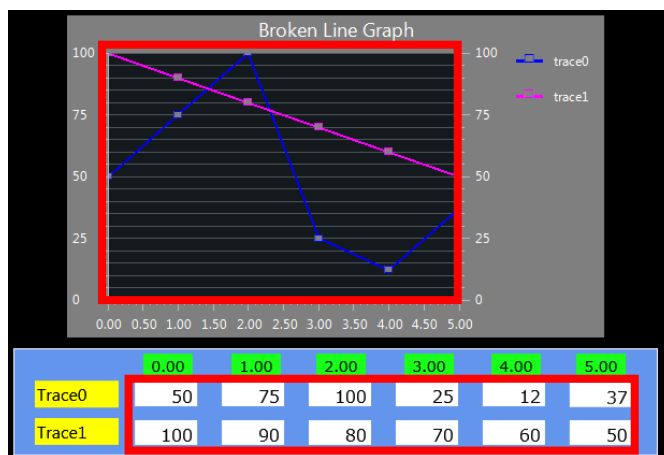
6. After the transfer is completed, enter values in the Data Edit objects created in Steps 1 to 3 on the NA unit.



7. Confirm that the value in the graph changes at the timing specified in Step 5 or 6 in "1-1-2 Setting the Properties of a Broken-line Graph Object", in accordance with the value entered in Step 6.



8. Enter values to all the variables. Confirm that the graph is drawn according to the entered values.



Revision History

Revision code	Date	Revised content
01	December 2015	Original production

Note: Do not use this document to operate the Unit.

OMRON Corporation Industrial Automation Company

Tokyo, JAPAN

Contact: www.ia.omron.com

Regional Headquarters

OMRON EUROPE B.V.

Wegalaan 67-69, 2132 JD Hoofddorp
The Netherlands
Tel: (31)2356-81-300/Fax: (31)2356-81-388

OMRON ELECTRONICS LLC

2895 Greenspoint Parkway, Suite 200
Hoffman Estates, IL 60169 U.S.A
Tel: (1) 847-843-7900/Fax: (1) 847-843-7787

OMRON ASIA PACIFIC PTE. LTD.

No. 438A Alexandra Road # 05-05/08 (Lobby 2),
Alexandra Technopark,
Singapore 119967
Tel: (65) 6835-3011/Fax: (65) 6835-2711

OMRON (CHINA) CO., LTD.

Room 2211, Bank of China Tower,
200 Yin Cheng Zhong Road,
PuDong New Area, Shanghai, 200120, China
Tel: (86) 21-5037-2222/Fax: (86) 21-5037-2200

Authorized Distributor:

© OMRON Corporation 2015 All Rights Reserved.
In the interest of product improvement,
specifications are subject to change without notice.

Cat. No. V424-E1-01

1215 (1215)