

Programmable Terminal NA-series

Practices Guide

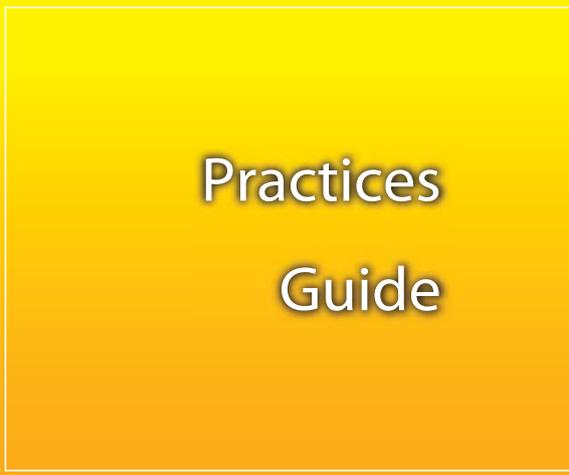
Page Editing – Broken-line Graph

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.

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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

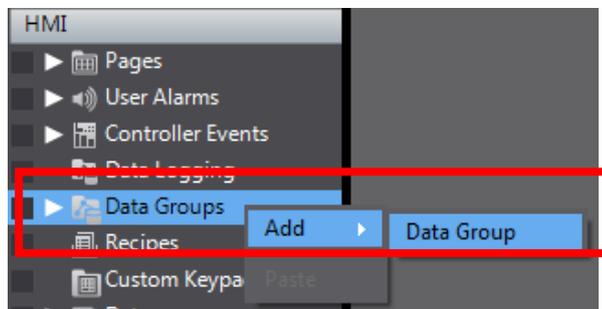
The Broken-line Graph objects display the graphs of the current value of array variables or multiple variables of the same data type.

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.

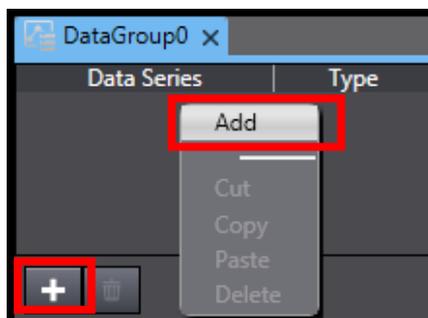
1. In the Multiview Explorer, right-click [HMI]-[Data Groups], and click [Add]-[Data Group].



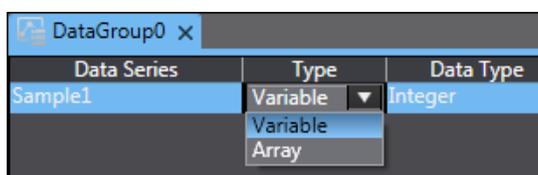
2. Double-click the added [DataGroup0].



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



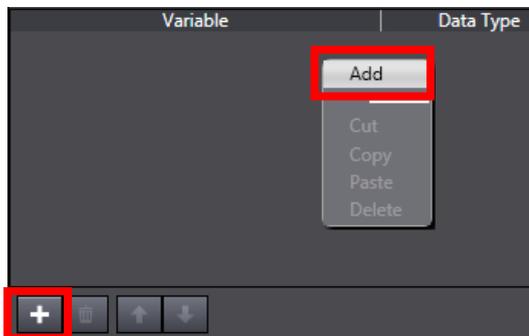
4. Enter an arbitrary name in [Data Series]. The name is used in the Properties of the Broken-line Graph object to be described later. Under [Type], choose the type of variables to be used in a graph from either “Variable” or “Array”. If you use multiple variables as a group, choose “Variable”. To display 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.



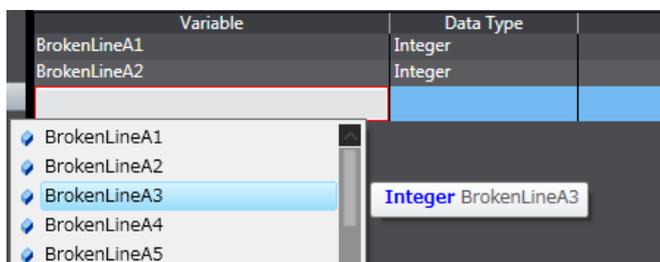
5. You can have different types of data series such as “Variable” and “Array” within a data group.

Data Series	Type	Data Type
Sample1	Variable	Integer
Sample2	Array	Integer

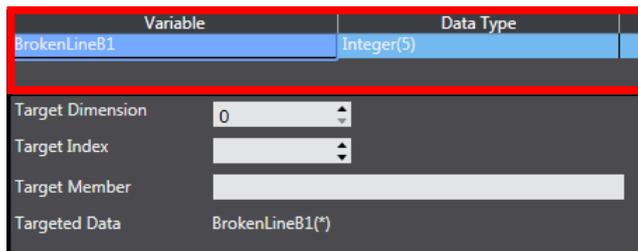
6. Following is the explanation of the settings in cases where “Variable” is specified as the graph type. To add the variables to be displayed in the graph, right-click and select “Add”, or click the [+] button.



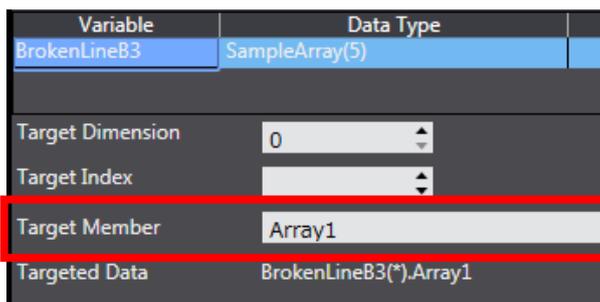
7. Enter as many variable names in [Variable] as the points to be displayed on a line. Make sure to register in advance the variables in [Global Variables].



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.



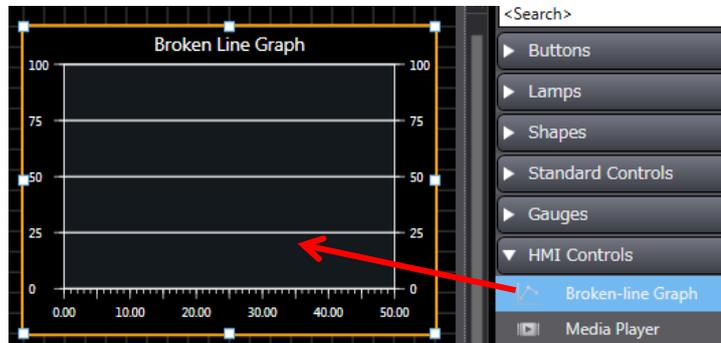
9. If the data type of the array variable is Structure, specify in [Target Member] the name of the member targeted for display. In the example shown on the right, the following names appear in the graph:
 BrokenLineB3(0).Array1,
 BrokenLineB3(1).Array1,
 BrokenLineB3(2).Array1,
 ...



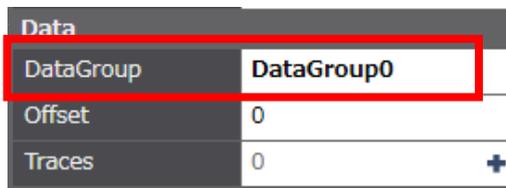
1-1-2 Setting the Properties of a Broken-line Graph Object

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

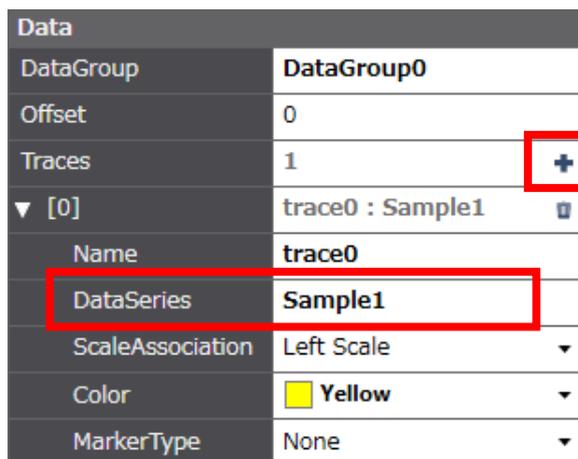
1. From [Toolbox], select [HMI Controls]-[Broken-line Graph] and drag and drop it to the page.



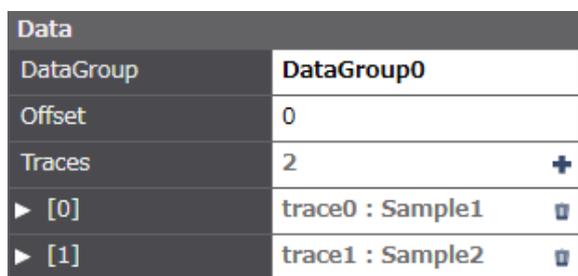
2. In [DataGroup] under [Data] in the Properties, enter the name of the data group created in the previous subsection.



3. When you click the [+] of the [Traces] cell, the setting fields appear under [0]. Register in [DataSeries] 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

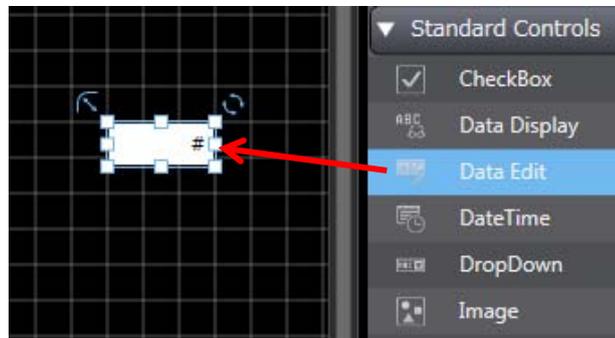
8. Edit the horizontal axis of the graph as below:
 1. Specify whether to display the values and grid lines.
 2. Specify the maximum and minimum values of the axis.
 3. Specify how many traces are to be displayed within a graph.

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

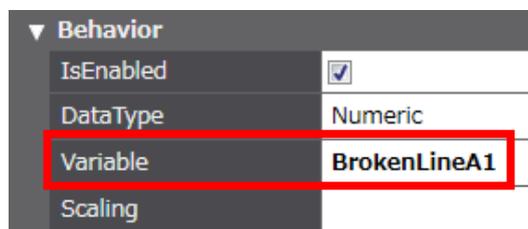
1-1-3 Checking Operations of the Broken-line Graph Object

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.



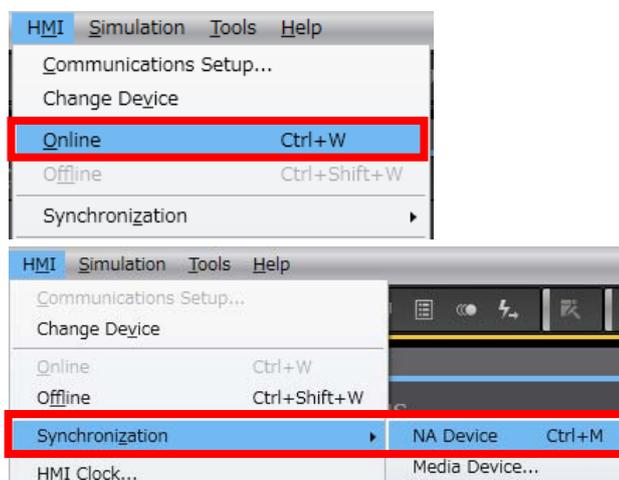
2. In [Variable] in the [Properties] tab for the Data Edit object created in Step 1, set the variable registered in Step 7 of Subsection "1-1-1 Registering Data Group".



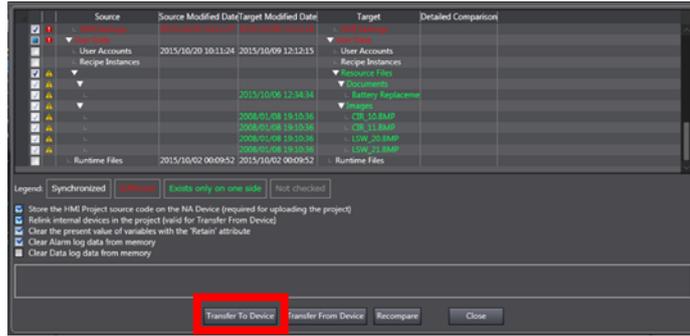
3. Create as many Data Edit objects as the variables registered in the data group that was created in Step 2 of "1-1-2 Setting the Properties of a Broken-line Graph Object". Make sure that all the values of the points can be entered.



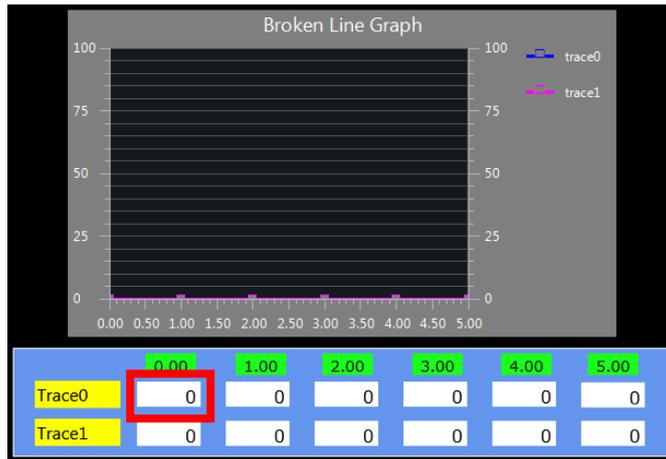
4. Transfer the project to the actual NA unit. Click [HMI]-[Online] to set the unit in the online status. Then, click [HMI]-[Synchronization]-[NA Device]. Connect the PC with the NA unit in advance using the cable that complies with the communications setup. Perform the communications setup in [Communications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



5. Click the [Transfer To Device] Button.



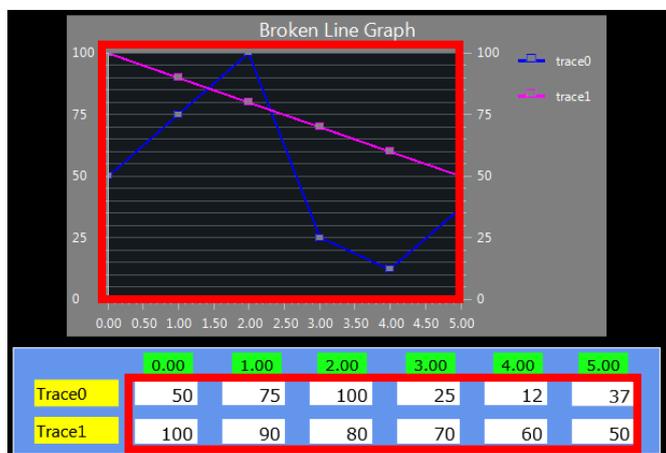
6. After the transfer is completed, enter values in the Data Edit objects created in Steps 1 to 3 on the NA unit.



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.

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