Chapter 9

Data Sampling Screen

Chapter 9 Data Sampling Screen

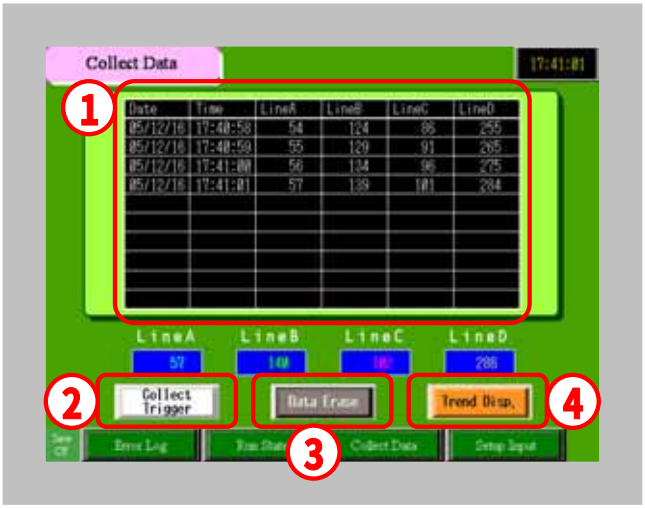
9.1

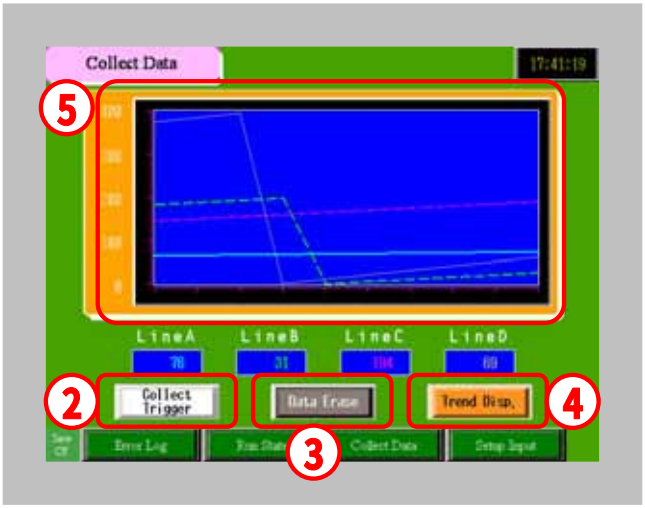
Data Sampling Screen

解説

What is the Data Sampling Screen?

Data input from connected devices, collected and displayed on the GP with specific timing, can be used to control production. The collected data can be printed or transferred to a PC by first saving in the CF Card.





① The screen displays all collected data

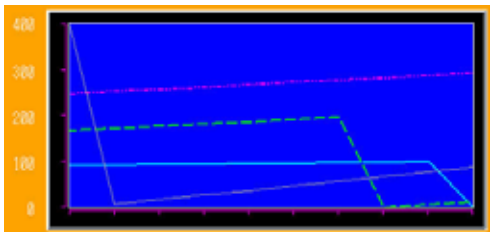
Date	Time	LineA	LineB	LineC	LineD
05/12/16	17:40:58	54	124	86	255
05/12/16	17:40:59	55	129	91	265
05/12/16	17:41:00	56	134	96	275
05/12/16	17:41:01	57	139	101	284

② Touch the [Collect Trigger] button to collect data.

③ Touch the [Data Erase] button to delete all collected data.

④ Touch the [Trend Disp.] ON/OFF button to display trend graphs in panel screen.

⑤ Display all collected data in trend graphs.



9.2

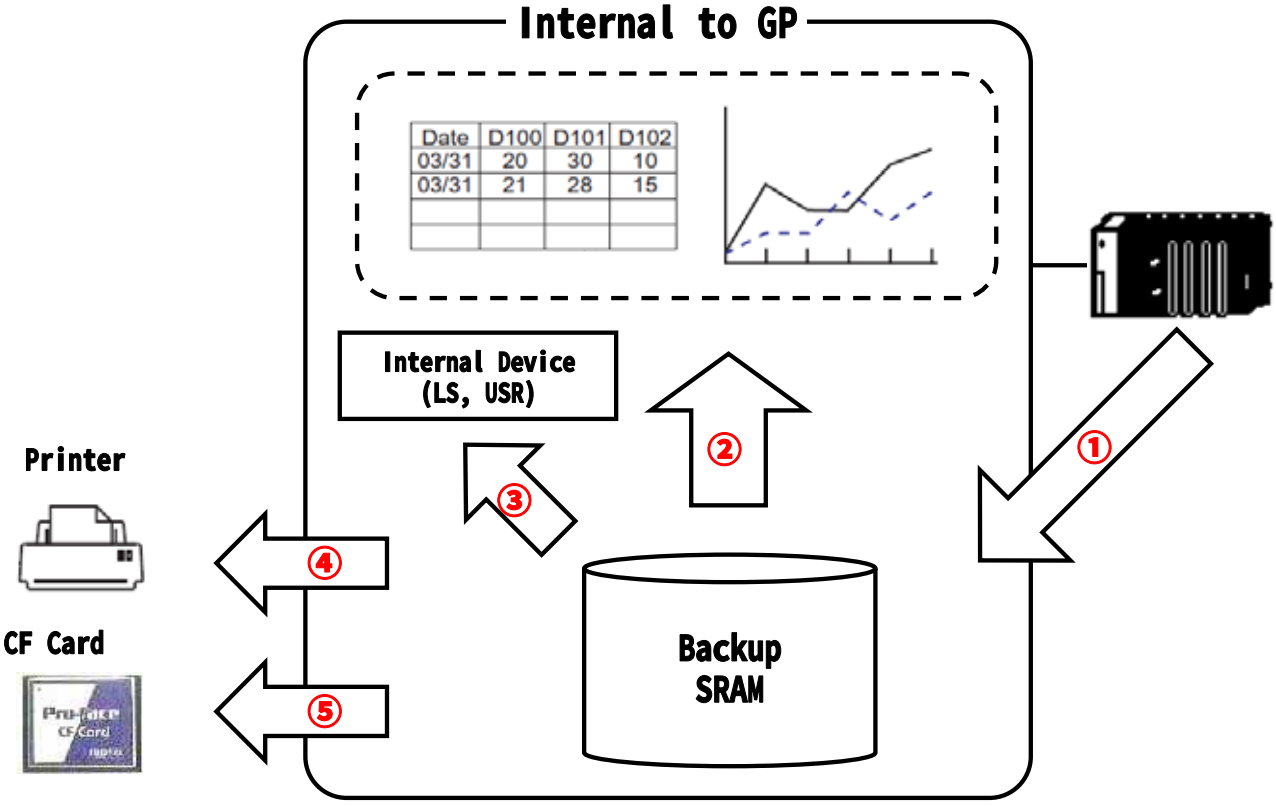
Data Sampling Display

解説

How to collect data

Data from connected devices will be collected/saved to GP using the sampling feature. Data is sampled at each specified time or at a specific time cycle and stored into the backup SRAM in the GP's memory, and the sampled data is displayed in data lists or in trend graphs on the screen. The data can also be printed or saved in the CF Card.

Image of Sampling Feature



(1) Address Settings/Action Settings: Collect/save the data from the connected device with a specified time or cycle.

(2) SRAM → Screen Display: Display SRAM data on the screen.

* The data will be displayed by the sampling data display and historical trend graph.

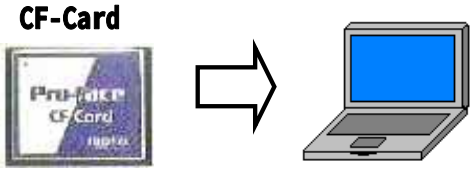
(3) Write Data: Allow data to be edited or displayed by bar graph or trend graph by writing the sampling data into the LS Area in the GP.

(4) Print: Print the sampling data from the GP.

(5) Save CSV: Save the sampling data stored in the GP's SRAM to the CF Card as a CSV file.

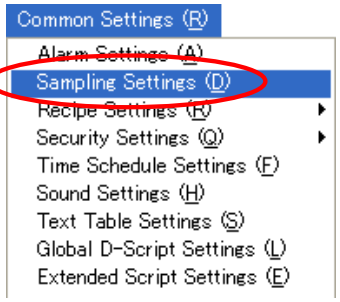
Hint

Since the data from SRAM is backed up to the CF Card as a CSV format file, it can be easily edited from a PC.

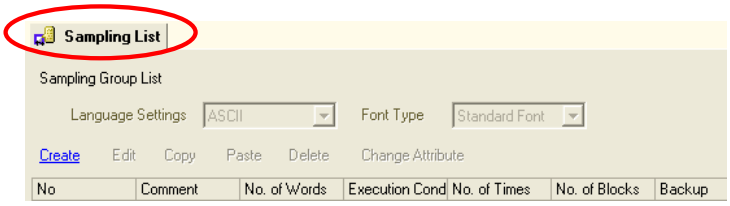


Data Collection Setup

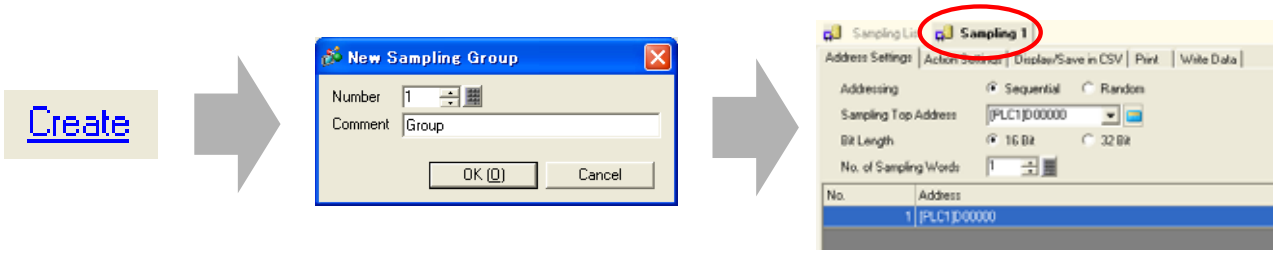
(1) Click [Sampling Settings] from the [Common Settings] menu.



"Sampling Transfer (Action Settings)" Settings

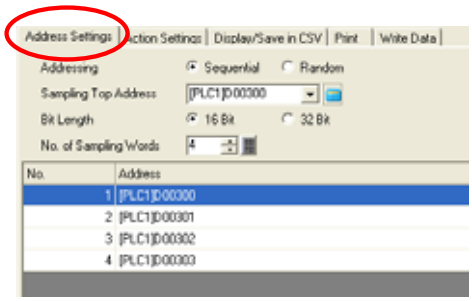


(2) Click "Create" to open the [New Sampling Group] dialog box to set up a sampling group.



(3) [Address Settings] Tab

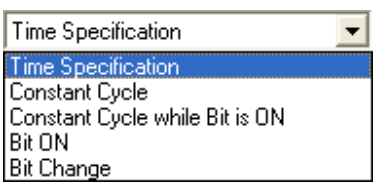
Set up the PLC address to collect data.

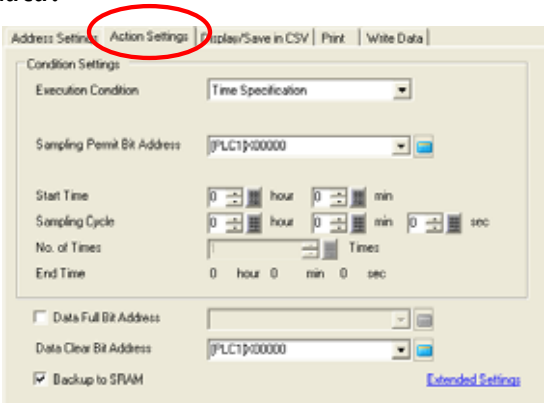


(4) [Action Settings] Tab

Set up which timing will be used for sampling data.

Execution Condition:

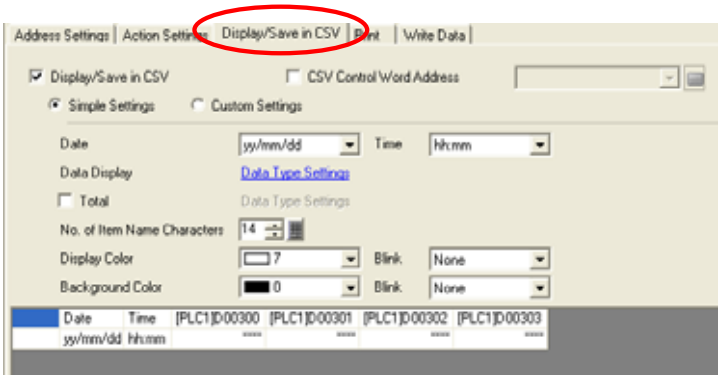




Setup Procedure to display all sampled data

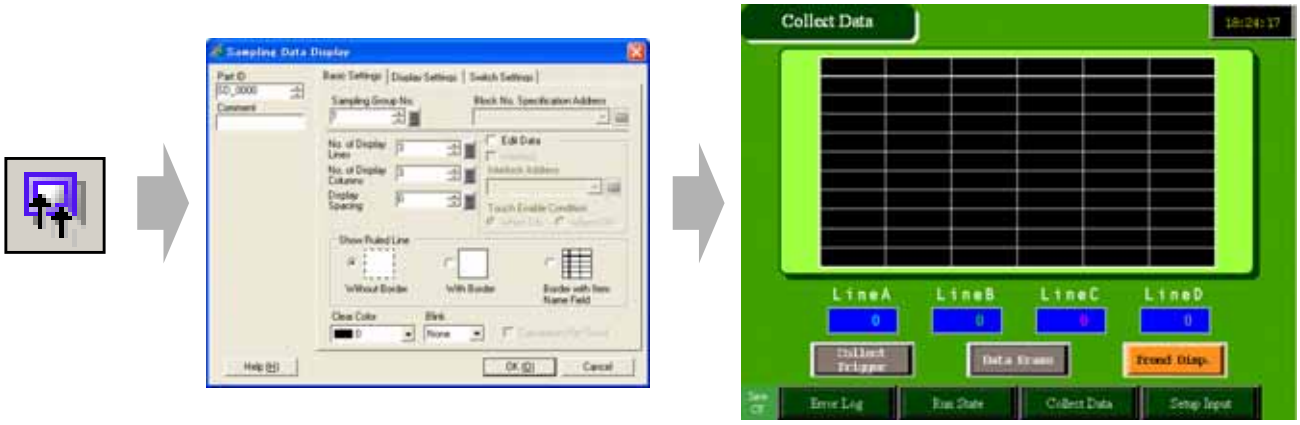
(1) [Display/Save in CSV] Settings

Set up the data display format.



(2) Placing [Sampling Data Display]

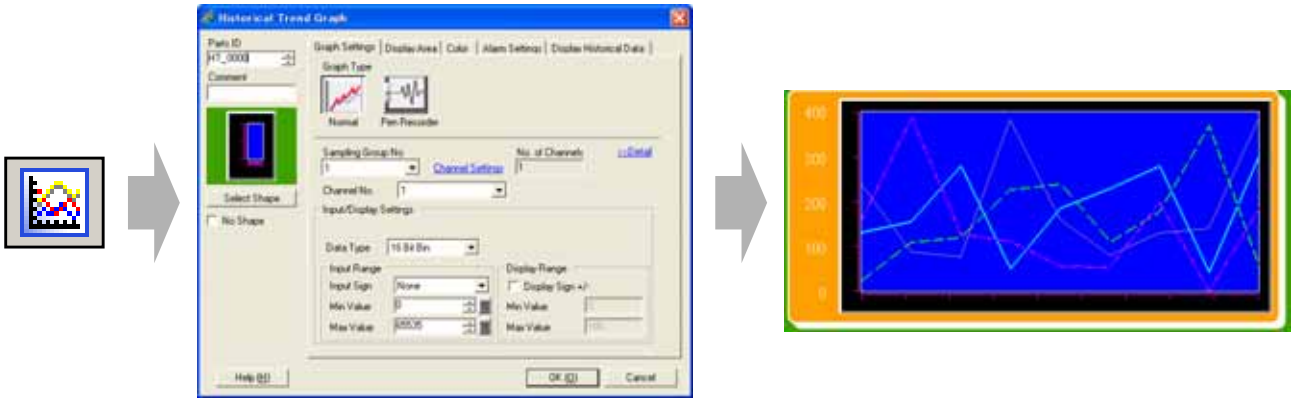
Place a Sampling Data Display on the screen.



Setup Procedure to display the sampled data in trend graphs

Placing [Historical Trend Graph]

Display a [Historical Trend Graph] on the screen.



Let's collect and display all sampled data in a list

Let's collect and display all sampled data in a list.

[Setup Flow]

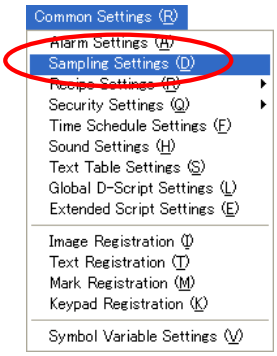
1. Create a sampling group in the [Sampling Settings].
2. Place the [Sampling Data Display] on the base screen "9".

【Practice Version】

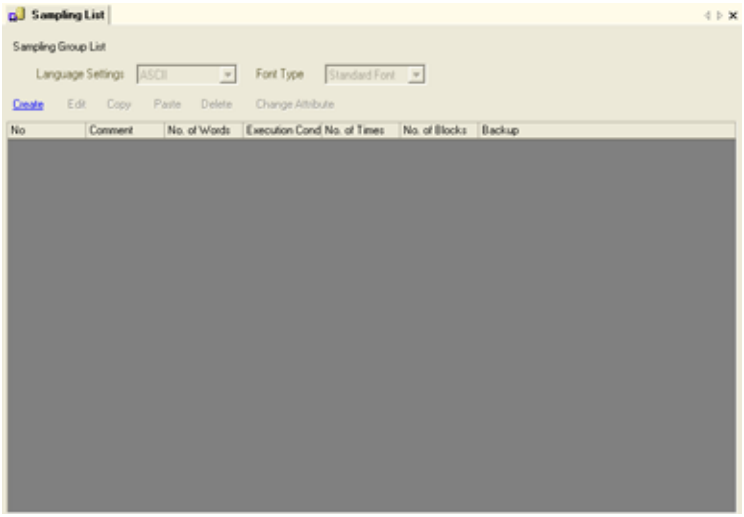
【Completed Version】

(1) Set Up Sampling Settings.

Select [Sampling Settings] from the [Common Settings] menu.

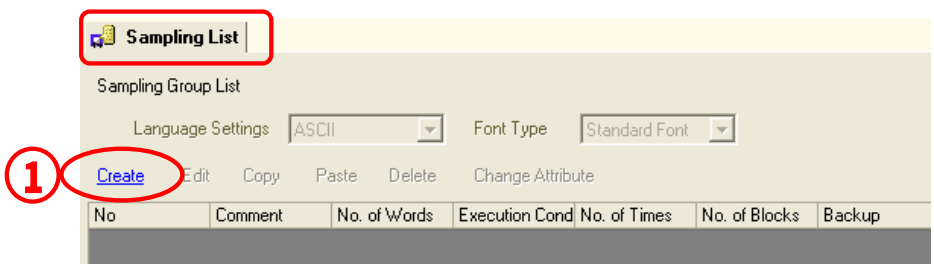


The [Sampling List] window will appear as shown on the right.

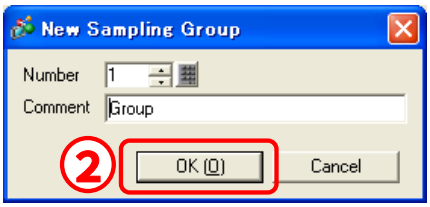


(2) Creating a Sampling Group

① Click [Create].



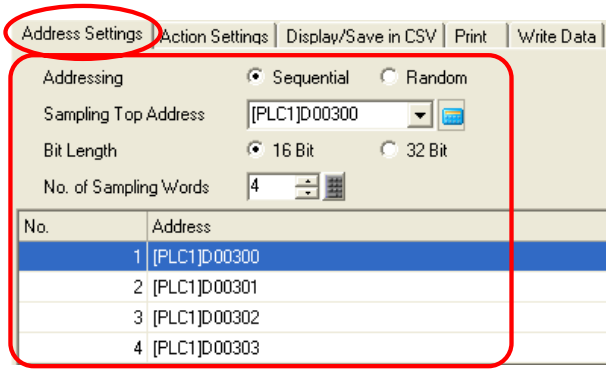
② Set [Number] to "1" and [Comment] to "Group", and then click [OK].



(3) Address Settings

Set up the address where the data is stored.

Set [Addressing] to Sequential, [Sampling Top Address] to D300, [Bit Length] to 16 bit and [No. of Sampling Word] to 4.



(4) Action Settings

Condition Settings: Set up a desired time period to sample data.
(→ Refer to P9-10 for details.)

Execution condition

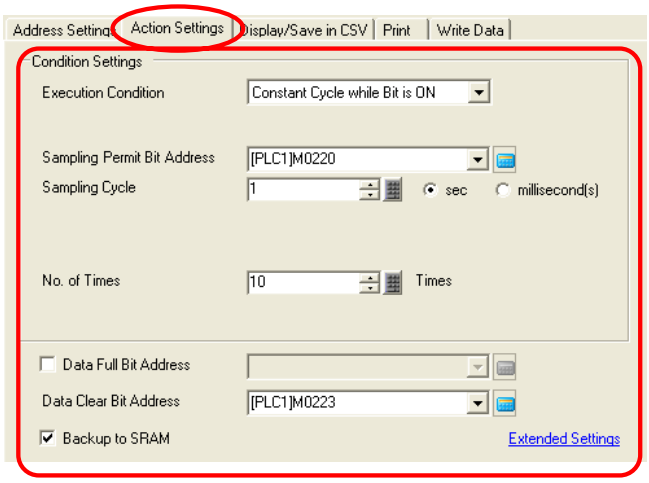
Select "Constant Cycle while Bit is ON".

Sampling Permit Bit Address: Set up the bit address which triggers to start sampling data.

Sampling Cycle: Set up a sampling cycle time.

No. of Times: Set up the number of times to take samples.

* Set a range from 1 to 65535.



Data Full Bit Address: Set up the bit address to turn ON after all sampling is completed.

Data Clear Bit Address: Set up the bit address to control the clearing of the sampling data. When this bit address turns ON, the sampling data will be erased. After clearing the data, this bit address will automatically turn OFF.

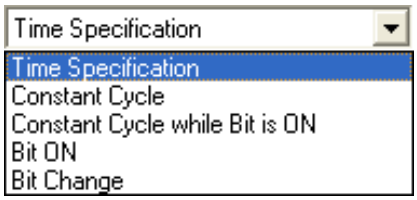
Backup to SRAM: Select whether or not to save the sampling data to the backup SRAM. If this box is disabled, the sampling data will be deleted when the GP unit's power is turned off or reset.

[Settings]
Here, set [Sampling Permit Address] to "M220", [Sampling Cycle] to "1" "Sec", [No. of Times] to "10", deselect [Data Full Bit Address] check box, and enable [Backup to SRAM] check box.

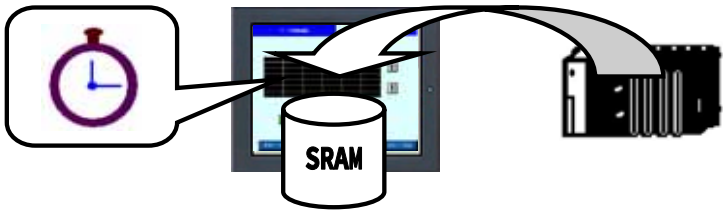
Hint

Execution Condition of Sampling data

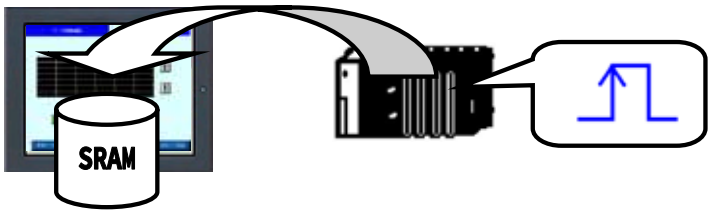
Select a time method to sample data



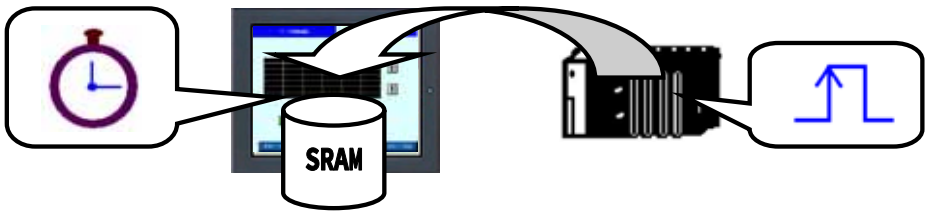
Time Specification, Constant Cycle: Sample data at a certain time/cycle.
* The timer located inside the GP unit will monitor the time, or cycle time.



Bit ON, Bit Change: Sample data every time the designated bit turns ON or changes.



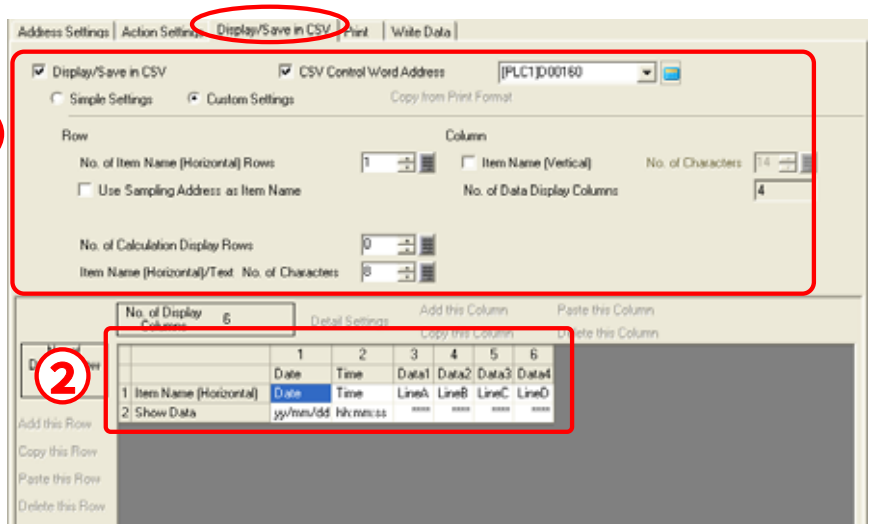
Constant Cycle While Bit is ON: Sample data at a constant cycle while the designated bit is ON.
* The timer located inside the GP will monitor the cycle.



(5) Display/Save in CSV

① **Display/Save in CSV:**
Set whether or not to display the sampling data on the screen or save to the CF card. To display data on the screen or to save data to the CF Card, make sure to enable this box and set the format.

CSV Control Address:
Set whether or not to save the sampling data to the CF card. To save data, set up the bit address to control writing the data to the CF Card.



Simple Settings/Custom Settings: Select a format set mode.

[Simple Settings]: Set up the format easily using a preset format.

[Custom Settings]: Set a custom format.

Here, select [Display/Save in CSV] and set [CSV Control Word Address] to "D160", and select [Custom Settings].

Row Settings: Set up rows of the format.

Select [NO. of Item Name (Horizontal) Rows] to "1", select [Use sampling address as Item Name] to "1", [No. of Calculation Display Rows] to "0", [Item Name (Horizontal)/Text No. of Characters] to "8".

Column Settings: Set up columns of the format.

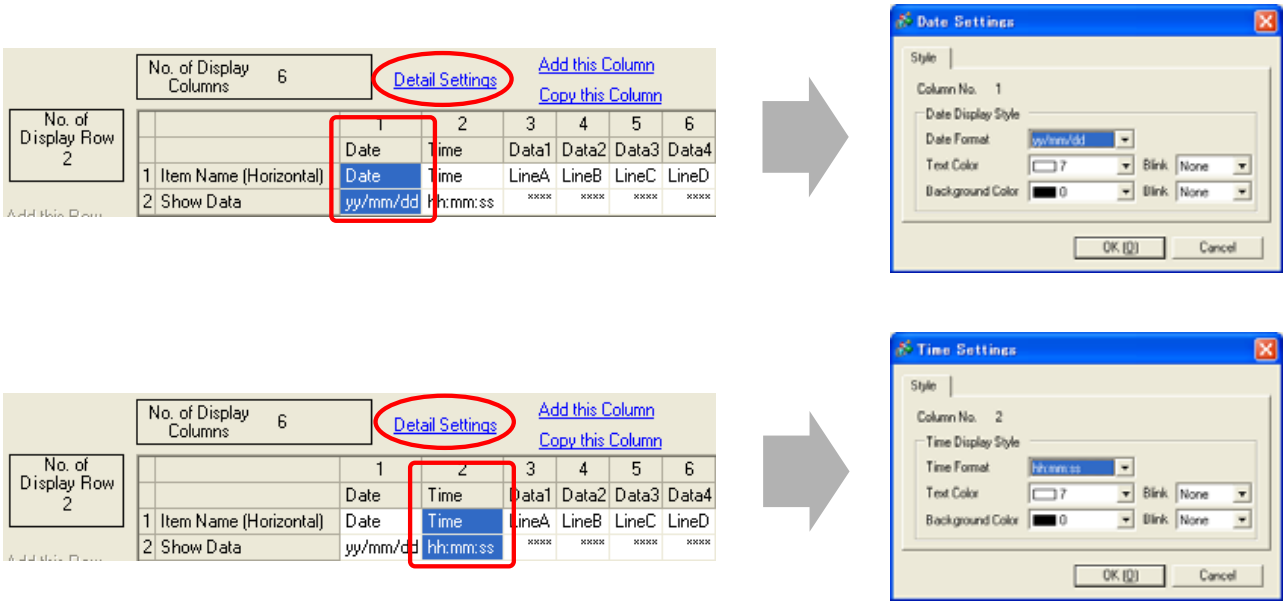
Disable [Item Name (Vertical)].

*[No. of Data Display Columns] will be automatically determined by the number of data per sample selected.

② Type Line A, Line B, Line C, and Line D under the each of item names of Data 1 to 4 shown in the image below.

		1	2	3	4	5	6
		Date	Time	Data1	Data2	Data3	Data4
1	Item Name (Horizontal)	Date	Time	LineA	LineB	LineC	LineD
2	Show Data	yy/mm/dd	hh:mm:ss	****	****	****	****

③ Select the entire Columns of Date and Time. Then set up a data format or color styles in the Detail Settings dialog box as desired.

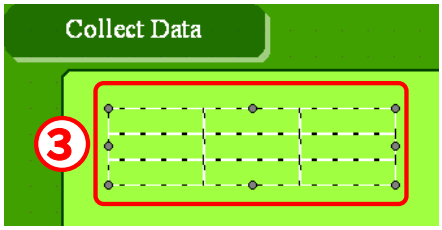


(6) Select/Place Sampling Data Display

① Open base screen "9".

② Click the [Sampling Data Display] icon from the Toolbar.

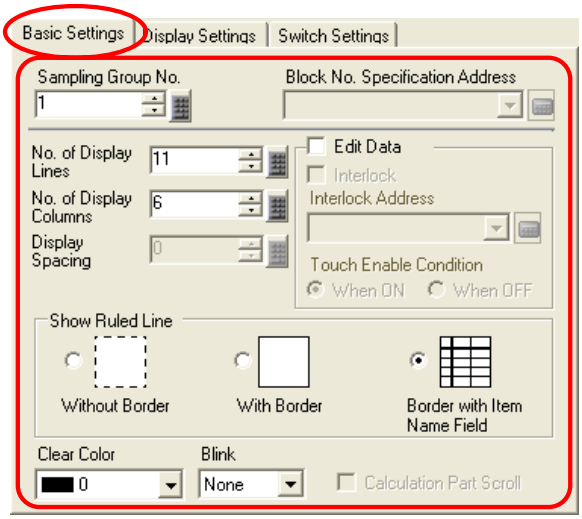
③ Click on the screen where you want to place the display.



(7) Basic Settings

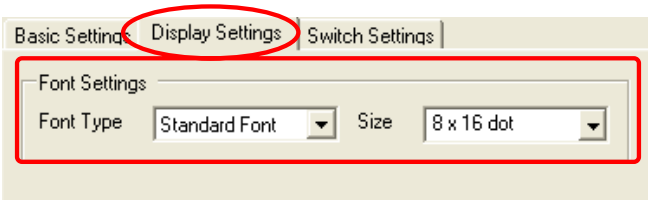
Sampling Group No.:
Select the group number created in the sampling settings.

Here, select [Sampling Group No.] to "1", [No. of Display Lines] to "11", [No. of Display Columns] to "6", deselect [Edit Data], and set [Show Ruled Line] and [Clear Color] as desired.



(8) Display Settings

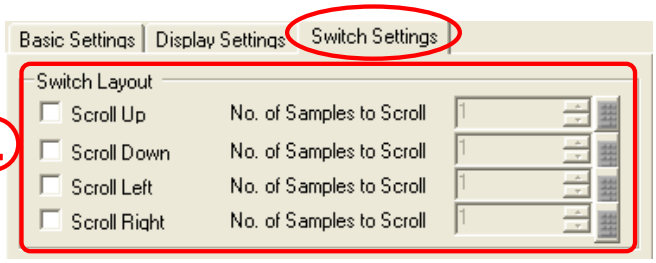
Set [Font Type] to "Standard Font", [Size] to "8x16 dot".



(9) Switch Settings

① Set up Scroll Switches.

In this practice, scroll switch layout will not be included.



② Click [OK] to adjust the placements.

(10) Operation Check

After data transfer, touch the [Data Sampling] button to start sampling data at a one second cycle and to display all data in the list.

Let's display sample data in a trend graph.

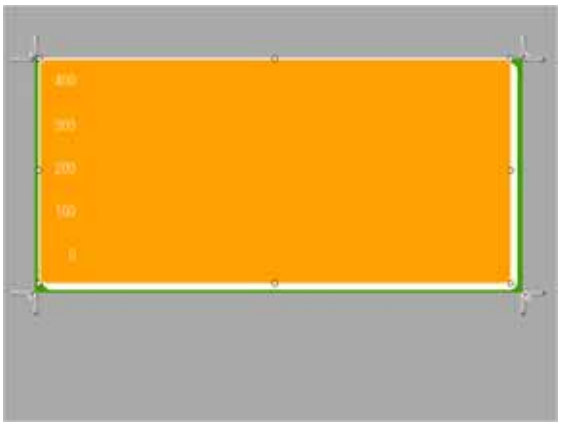
Let's display sample data in a trend graph.

[Setup Flow]

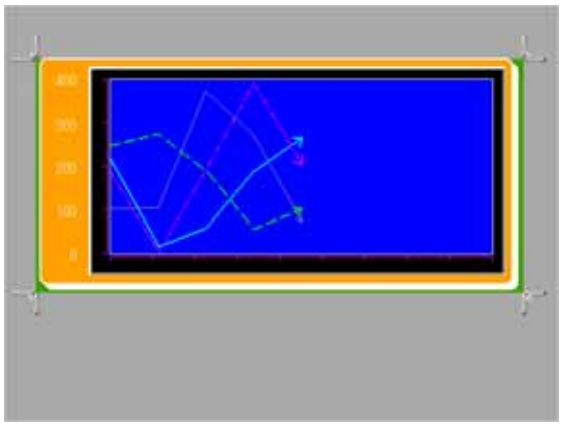
1.Place [Historical Trend Graph] in the window screen "2".

Open the window screen "2".

【Practice Version】



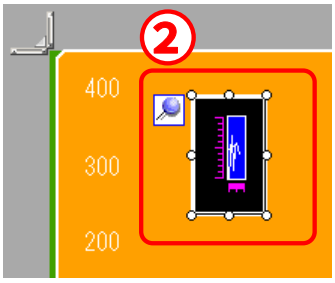
【Completed Version】



(1) Placing Historical Trend Graph

① Click the [Historical Trend Graph] icon from the toolbar.

② Click where you want to place the graph.

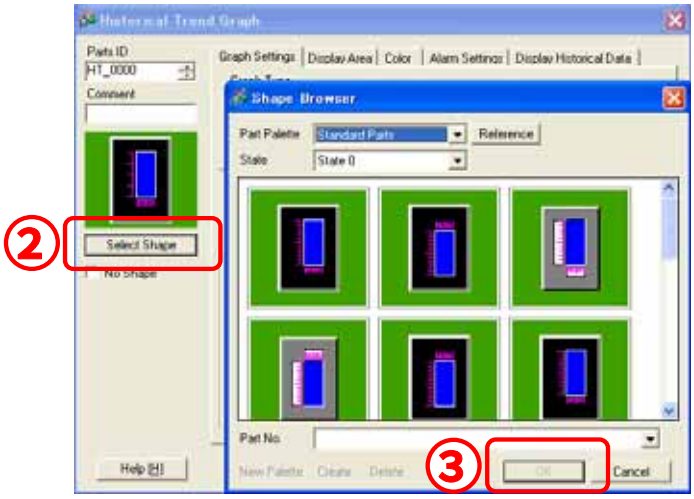


(2) Selecting Shape

① Double click on the [Historical Trend Graph] you placed.

② Click [Selected Shape] and choose a shape for the display.

③ Select the shape and then click [OK].

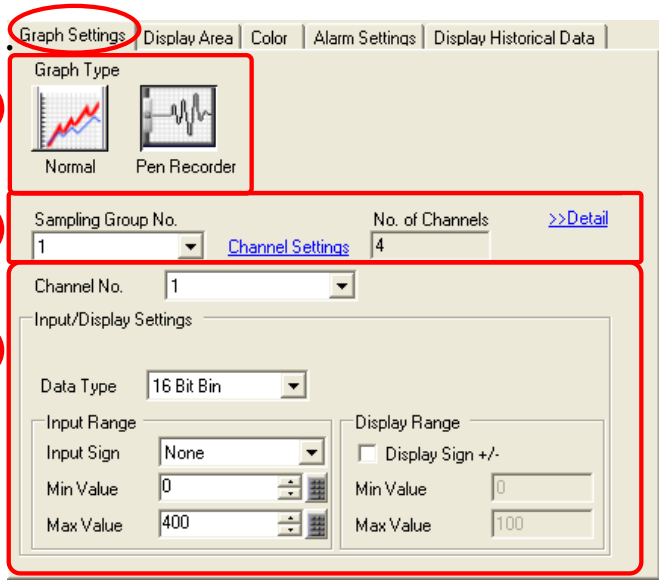


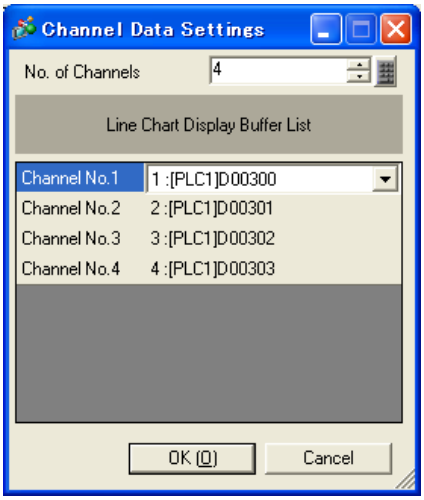
(3) Graph Settings

① Select [Pen Recorder] from the [Graph Type].

② **Sampling Group No.:** Set the sampling group number of the graph to display.
* Sampling data settings should be configured in the [Sampling Settings] beforehand.

③ **Channel Settings:** Set the addresses and number of addresses to be displayed in the graph from the specified sampling group.





Here, set [Sampling Group No.] to "1". Then click [Channel Settings] and set [No. of Channels] to "4", enter [Channel No.1 to No.4] as below.

- Channel No.1: [PLC1]D00300
- Channel No.2: [PLC1]D00301
- Channel No.3: [PLC1]D00302
- Channel No.4: [PLC1]D00303

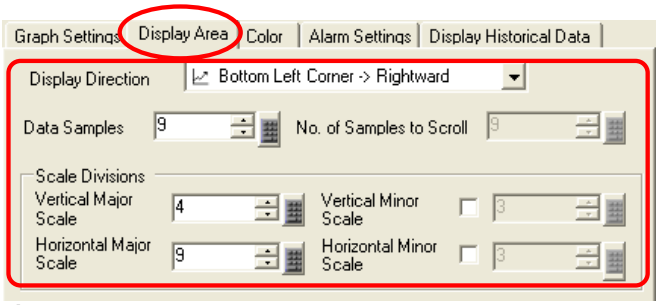
③ **Channel No.:** Designate the channel number to set up the Input Range and Display Range settings for.

Input Range: Set the data input range displayed on the trend graph.

Here, for each channel no. 1 – 4, set [Data Type] to "16 Bit BIN", [Input Sign] to "None", [Min Value] to "0", [Max Value] to "400".

(4) Display Area

Display Direction: Select the direction of the graph display.



Data Samples: set the number of data samples that will be displayed in a single line.

* The setting range of no. of data differs depending on the set model's display number of dots.

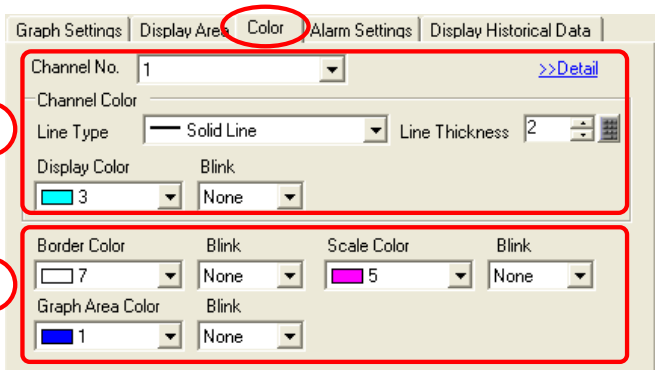
Scale Divisions: Set scale display.

Here, set [Display Direction] to Bottom Left Corner -> Rightward, [Data Samples] to "9", and [Scale Division] as desired.

(5) Color

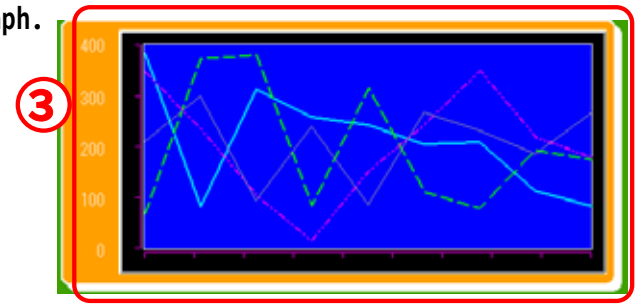
① Select each channel No. 1 through 4 and set each trend graph's [Line Type], [Line Thickness], [Display Color] as desired.

② Set [Border Color], [Scale Color], [Graph Area Color] as desired.



* In this practice, the [Alarm Settings] tab and [Display Historical Data] tab will not be set up.

③ Click [OK] to adjust the location of the graph.



Hint

About Trend Graph's Window Display

In the practice screen, the window screen and the switch layout are already set up on base screen "9" so that the operation can be checked right after the data is transferred by simply placing the historical trend on the window screen "2".

Base Screen "9"

Window Screen "2"