Chapter 9 Data Sampling Screen

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9.1 Data Sampling Screen



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)	Date 95/12/16	Tise 17:48:58	Lineň 54	Line8 124	LineC 86	Line0 255	
	85/12/16	17:48:59	55	129	.91	265	
	85/12/16 85/12/16	17:41:00 17:41:01	56 57	134	181	275 284	
					-		
		_		_	_		
	Line	L L	ineB	Lin	eC	LineD	
\sim	57		100			285	
2)	Collect Trigger		Bata	line		rend Disp.	1 (4



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
Ø 5/12/16	17:41:00	56	134	96	275
05/12/16	17:41:01	57	139	101	284

Touch the [Collect Trigger] button to collect data.



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



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

Trend Disp.

Display all collected data in trend graphs.



9.2 Data Sampling Display

💜 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.



(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.

easily edited from a PC.

(5) Save CSV: Save the sampling data stored in the GP's SRAM to the CF Card as a CSV file.
Hint
CF-Card
Since the data from SRAM is backed up to the CF Card as a CSV format file, it can be

Data Collection Setup

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



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

	💑 New Sampling Group 🛛 🔀	ci Sanping Lin ci Sampling 1 Address Settings Action Settings Unplay/Save in CSV Print Wate Data
<u>Create</u>	Number 1 🔆 🌆 Comment Group OK (0) Cancel	Addressing C Sequential C Random Sampling Top Address (PLC1)000000 C (B Bit Length C 16 Bit C 32 Bit No. of Sampling Words (1
V V		No. Address 1 (PLC1)200000

(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:

Time Specification	-
Time Specification	
Constant Cycle	
Constant Cycle while Bit is ON	
Bit ON	
Bit Change	

ddress Settings Action Settings	Display/Save in CSV Print Write Data
Condition Settings	
Execution Condition	Time Specification
Sampling Permit Bit Address	PLC19:00000
Start Time	이 그 📓 hour - 이 그 📓 min
Sampling Cycle	0 곳 ▦ hou: 0 곳 ▦ min 0 곳 ▦ sec
No. of Times	Times
End Time	0 hour 0 min 0 sec
🗐 Data Full Bit Address	× =
Data Clear Bit Address	(PLC1)/00000
Backup to SRAM	Extended Settings

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.

😹 Historical Trend Grade	
Part ID PC-2004 Concerned Deget Targe Deget Targe De	



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]



(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 Gro	up
Click [Create].	Sampling List
	Sampling Group List
	Language Settings ASCI 💌 Font Type Standard Font 💌
(1	Create Edit Copy Paste Delete Change Attribute
_	No Comment No. of Words Execution Cond No. of Times No. of Blocks Backup
	9 - 8

[Completed Version]



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

💑 New Sampling Group	
Number 1 🛨 🏙 Comment Group	
2 0K (<u>0</u>) Cancel	

(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.

(Address Settings	Action Set	ttings Display/S	ave in CSV Print	Write Data
ĺ	Addressing		Sequential	C Random	
I	Sampling Top	Address	[PLC1]D00300) 🗨 🧰	
I	Bit Length		16 Bit	32 Bit	
I	No. of Samplin	ng Words	4 🕂 🏢		
I	No.	Address			
I	1	[PLC1]D003	300		
I	2	[PLC1]D003	301		
I	3	[PLC1]D003	302		
ļ	4	[PLC1]D003	303		

(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.

Address Setting Action Settings	splay/Save in CSV Print Write Data
Condition Settings	
Execution Condition	Constant Cycle while Bit is ON 📃
Sampling Permit Bit Address	[PLC1]M0220 🔽 🧰
Sampling Cycle	1 📑 🏢 🕫 sec 🕜 millisecond(s)
No. of Times	10 📑 🎬 Times
Data Full Bit Address	
Data Full Bit Address	
Data Clear Bit Address	[PLC1]M0223
Backup to SRAM	Extended Settings

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.



(5) Display/Save in CSV

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.

Z Display/Sav		₩ CSV C			m m Print Fr	[PLC1]D	0016	0		•			
Row					Column								
No. of	Item Name (Horizontal) Rov	MS	1	군물	E	item Name (Vertix	:al)		No.	of Charact	ers 14	
E Us	e Sampling Address as Item	Name			No.	of Data Dis	play	Colum	15			4	
			: 8										
	No. of Display 6	Deta	il Settings		d this Col			ste this)
	No. of Display 6 Columns	Deta	il Settinas	Ad		0000		ste this iete th			_		
ച	No. of Display 6	1		Ad Co 3	d this Col by this Co 4		ľ						
2	1 Item Name (Horizontal)	1 Date Date	il Settings 2 Time Time	Ad Co 3 Data1	d this Col by this Col 4 Data2 D LineB L	5 6 lata3 Data4 ineC LineD							
2 1 Heir Room		1 Date	il Settings 2 Time Time	Ad Co 3 Data1	d this Col by this Co 4 Data2 D	5 6 Ma3 Data4							,
2 I this Row y this Row	1 Item Name (Horizontal)	1 Date Date	il Settings 2 Time Time	Ad Co 3 Data1	d this Col by this Col 4 Data2 D LineB L	5 6 lata3 Data4 ineC LineD							
_	1 Item Name (Horizontal)	1 Date Date	il Settings 2 Time Time	Ad Co 3 Data1	d this Col by this Col 4 Data2 D LineB L	5 6 lata3 Data4 ineC LineD							

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.

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.

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

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.

	🕺 Date Settings 🛛 🔀
No. of Display 6 Detail Settings Columns Display Row 2 No. of Display Row 2 No. of Display Row 2 No. of Display Row 2 No. of Display Row 2 Show Data	Style Column No. 1 Date Display Style Date Format <u>yylemn/dd v</u> Text Color 7 V Blink None V Background Color 0 V Blink None V
No. of Display Columns 6 Detail Settings Add this Column Copy this Column No. of Display Row 2 1 2 3 4 5 6 1 1 2 3 4 5 6 1 1 2 3 4 5 6 1 1 1 2 3 4 5 6 1 1 1 2 3 4 5 6 1 1 1 1 1 1 1 1 1 1 2 1	Style Column No. 2 Time Format Humans V Test Color 7 V Bink None V Background Color 0 V Bink None V OK (0) Cancel
(6) Select/Place Sampling Data Display	
Open base screen "9".	Lines Lines Lines Lines Lines Lines Tradition Tradition Lines Tradition
Click the [Sampling Data Display] icon from the Toolbar.	
	ect Data
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.

< (Basic Settings Display 9 Sampling Group No.		ings Specification Address
	No. of Display 11		
I	No. of Display 6 Columns	E Interloc	k Address
	Display 0 Spacing		Enable Condition
	Show Ruled Line	C C	en ON C When OFF
I	Without Border	With Border	Border with Item Name Field
		Blink None 💌 🗖	Calculation Part Scroll

(8) Display Settings

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

Basic Setting	Display Settings	Swite	h Settin	qs	
Font Settings]
Font Type	Standard Font	•	Size	8 x 16 dot	-

(9) Switch Settings

Set up Scroll Switches.

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

Basic Settings Disp	lay Settings Switch Settings	\triangleright
Switch Layout	No. of Samples to Scroll No. of Samples to Scroll No. of Samples to Scroll No. of Samples to Scroll	
	Switch Layout Scroll Up Scroll Down Scroll Left	Switch Layout Scroll Up No. of Samples to Scroll Scroll Down No. of Samples to Scroll Scroll Left No. of Samples to Scroll

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.

5/11/11 14:26:22 67 143 224 34 5/11/11 14:26:23 88 148 229 35 5/11/11 14:26:24 89 152 233 36
E111111111111100-0041 000 1000 1000
5/11/11 14:26:25 98 158 239 37
5/11/11 14:26:26 91 163 244 381
5/11/11 14:28:27 92 168 249 39
5/11/11 14:28:28 93 173 254 (
5/11/11 14:26:29 94 178 259 18
5/11/11 14:26:38 95 182 263 26
5/11/11 14:26:31 96 187 268 3
STOR STOR STOR STOR
96 189 276 39
データ収集 データル法 折れ線表



Open the window screen "2".

[Practice Version]

[Completed Version]



(1) Placing Historical Trend Graph



(2) Selecting Shape

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

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

Select the shape and then click [OK].

S ^{SE} Hosterer of Trend Parts ID (HT_0000) Concert	Graph Settings Display Area Color Alam Settings Display Historical Date	23
2 Select Shape	Part Paleter Stard Batter State I	~
Help [2]	Part No. New Puerter Clearer Destar (3)	

(3) Graph Settings

Select [Pen Recorder] from the [Graph Type

Sampling Group No.: Set the sampling group number of the graph to display.

* Sampling data settings should be configured in the [Sampling Settings] beforehand.

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

💑 Ghannel D	ata Settings	
No. of Channels	4	÷ 🔳
Line	Chart Display Buffer I	_ist
Channel No.1	1 :[PLC1]D00300	•
Channel No.2	2 :[PLC1]D00301	
Channel No.3	3 :[PLC1]D00302	
Channel No.4	4 :[PLC1]D00303	
Ľ	OK (<u>D</u>)	Cancel

1	Graph Settings Display Area Color Alarm Settings Display Historical Data
	Graph Type Normal Pen Recorder
١	Sampling Group No. No. of Channels <u>>>Detail</u> 1 <u>Channel Settings</u> 4
	Channel No. 1
	Input Range Display Range Input Sign None Min Value 0 Max Value 400

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.

1

3

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

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

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

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

	Graph Settings Display Are Color Alarm Settings Display Historical Data
	Channel No. 1
\sim	Channel Color
(1	Line Type 🛛 — Solid Line 💽 Line Thickness 🛛 🕂 🧮
Ŭ	Display Color Blink
	Border Color Blink Scale Color Blink
(2)	□ 7 💌 None 💌 🖬 5 💌 None 💌
E	Graph Area Color Blink
	■1 None ▼

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

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

0K(<u>O</u>)



Graph Settings Disp	olay Area Color Alarm Settings Display Historical Data
Display Direction	☑ Bottom Left Corner -> Rightward
Data Samples 🦻	No. of Samples to Scroll 9 🛨 🏢
⊂Scale Divisions − Vertical Major Scale	4 Vertical Minor 3
Horizontal Major Scale	9 Horizontal Minor 🗆 3 🗮



