

# MONITOUCH TS series Training Manual



#### **Record of Revisions**

Creation Date	Reference No.	Revised Contents	
April, 2013	1203NE0	First edition	

Reference numbers are shown at the bottom left corner on the back cover of each manual.

## Preface

Thank you for purchasing the Techno Shot Series monitor (hereafter referred to as "TS Series"). Thoroughly read and understand the contents of this manual to ensure correct usage of the TS Series unit. The following manuals relate to the TS Series unit. Reference these manuals as required.

Manual Name	Description	Reference No.
TS Series Training Manual (this manual)	This manual provides detailed explanations of the screen creation process with examples using V-SFT version 5.	1203NE
TS Series Connection Manual	This manual provides detailed explanations of the connections between the TS Series unit and each type of controller as well as communication settings.	2203NE
TS Series Hardware Specifications	This manual explains the hardware specifications and operating methods of the TS Series unit.	2022NE
V8 Series Reference Manual	This manual explains the functions and operating methods of the V8 Series.	1055NE
V8 Series Reference: Additional Functions	This manual explains the V8 Series functions and operating methods added to V-SFT version 5.1.0.0 and later.	1060NE
V Series Macro Reference	This reference provides an overview of the macros available in V-SFT version 5 as well as detailed explanations of macro editor operations and macro commands.	1056NE
V8 Series Operation Manual	This manual provides detailed explanations of information related to operating V-SFT version 5, such as software composition, editing procedures, and limitations.	1058NE

For more information on each type of controller (PLC, temperature control, etc.), refer to the manufacturer's instruction manual for the corresponding controller.

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# **Notes on Safety**

In this manual, you will find various notes categorized under the following levels with the signal words "DANGER," and "CAUTION."

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury and could cause property damage.

Note that there is a possibility that items listed with ACAUTION may have serious ramifications.



- Never use the input and output signals of the TS Series unit for operations that may threaten human life, cause damage to the system, or as emergency switches. Please design the system so that it can withstand touch switch malfunctions. Touch switch malfunctions may result in machine accidents or damage.
- Turn off the power supply when you set up the unit, connect new cables, or perform maintenance or inspections. Failure to do so could cause electric shock or damage to the unit.
- Never touch any terminals while the power is on. Otherwise, electric shock may occur.
- The liquid crystal in the LCD panel is a hazardous substance. If the LCD panel is damaged, avoid ingesting any leaking liquid crystal. If any liquid crystal spills onto your skin or clothing, use soap to wash it off thoroughly.
- Never disassemble, recharge, deform by pressure, short-circuit, or reverse the polarity of lithium batteries, and never dispose of lithium batteries in fire. Failure to follow these conditions may lead to explosion or ignition.
- Never use lithium batteries that are deformed, leaking, or exhibit any other abnormalities. Failure to follow these conditions may lead to explosion or ignition.



- Check the appearance of the TS Series unit after unpacking. Do not use the unit if any damage or deformation is found. Using the unit in such a state may lead to fire, damage, or malfunction.
- Please consult your local distributor before using this product in facilities or systems related to nuclear energy, aerospace, medical, traffic equipment, or mobile installations.
- Operate (and store) the TS Series unit under the environmental conditions indicated in the general specifications of this manual and related manuals. Failure to do so could cause fire, malfunction, physical damage or deterioration.
- Understand the following environmental limits for use and storage of TS Series units. Failure to follow these conditions may result in fire or damage to the unit.
  - Avoid locations where there is a possibility that water, corrosive gas, flammable gas, solvents, grinding fluids, or cutting oil may come into contact with the unit.
  - Avoid high temperature, high humidity, and outside weather conditions, such as wind, rain, or direct sunlight.
  - Avoid locations where excessive dust, salt, or metallic particles are present.
  - Avoid installing the unit in a location where vibrations or physical shocks may be transmitted.
- Equipment must be correctly mounted so that the main terminal of the TS Series unit cannot be touched inadvertently. Failure to do so may result in electric shock or accidents.
- Periodically check that the terminal screws on the power supply terminal block and mounting nuts are firmly tightened. Using the unit with loose screws may result in fire or malfunction.
- Tighten the terminal screws on the TS Series power supply terminal block to an equal torque of 0.5 to 0.6 N•m (5 to 6 kgf•cm). Failure to tighten these screws properly may result in fire, malfunction, or damage to the system.
- Tighten the mounting nuts on the TS Series unit to equal torque within the specified range. Note that excessive tightening may distort the panel surface. Failure to tighten these nuts properly may cause the TS Series unit to fall, malfunction, or short-circuit.
- The TS Series features a glass screen. Do not drop or impart physical shocks to the unit. Such handling will damage the unit.
- Connect the cables correctly to the terminals of the TS Series unit in accordance with the specified voltage and wattage. Failure to supply the correct voltage or wattage, or improper cable connection may cause fire, malfunction, or damage to the unit.
- Always ground the TS Series unit. Ground the FG terminal of the TS Series unit with an independent D class grounding (ground resistance of 100 Ω or less). Failure to do so may result in electric shock or fire.
- Prevent any conductive particles from entering into the TS Series unit. Failure to do so may lead to fire, damage, or malfunction.
- Do not attempt to repair the TS Series unit at your site. Contact Hakko Electronics Co., Ltd. or the designated contractor for repairs.
- Do not attempt to repair, disassemble, or modify the TS Series unit. Hakko Electronics Co., Ltd. is not responsible for any damages resulting from repairs, disassembly, or modification of TS Series units performed by unauthorized personnel.
- Do not use sharp-pointed tools to press touch switches. Doing so may damage the screen.
- Only personnel who possess the required knowledge and technical skills are authorized to set up the unit, connect the cables, and perform maintenance and inspections.
- Lithium batteries contain combustible material such as lithium and organic solvents. Mishandling may cause heat, explosion, or ignition resulting in fire or injury. Read the related manuals carefully and handle lithium batteries correctly as instructed.
- Do not press two or more positions on the screen at the same time. If two or more positions are pressed at the same time, the switch located between the pressed positions will be activated.
- Take sufficient safety precautions during operations such as changing settings during running, forced output, start, and stop. Operating errors may cause unexpected machine motions, resulting in machine accidents or damage.
- In facilities where TS Series unit failure could lead to accidents that threaten human life or result in other serious damage, make sure that such facilities are equipped with adequate safeguards.
- TS Series units must be disposed of as industrial waste.
- Before touching the TS Series unit, discharge any static electricity from your body by touching grounded metal. Excessive static electricity may cause malfunction or damage to the unit.

[General Notes]

- Never bundle control cables and communication cables with high-voltage and large-current carrying cables such as power supply cables. Keep these cables at least 200 mm away from high-voltage and large-current carrying cables. Otherwise, malfunction may occur due to noise.
- When using the TS Series unit in an environment where a source of high-frequency noise is present, it is recommended that the FG shielded cable (communication cable) be grounded at both ends. However, the cable may be grounded only at one end if necessary due to unstable communication conditions or for other reasons.
- Plug connectors and sockets of the TS Series unit in the correct orientation. Otherwise, malfunction or damage may occur.
- Do not use thinners for cleaning because it may discolor the surface of the TS Series unit. Use a commercially available alcohol-based cleaner instead.
- If a "data receive error" occurs when the TS Series unit and the counterpart unit (PLC, temperature controller, etc.) are started at the same time, read the instruction manual for the counterpart unit and handle the error accordingly.
- Avoid discharging static electricity on the mounting panel of the TS Series unit. Static charge can cause malfunctions due to noise.
- Avoid prolonged display of any fixed pattern. An afterimage may remain due to the characteristics of the liquid crystal display. If a prolonged display of a fixed pattern is expected, use the backlight's auto OFF function.

#### [Notes on the LCD Screen]

Note that the following conditions may occur under normal circumstances.

- The response time, brightness, and colors of the TS Series unit may be affected by the ambient temperature.
- Tiny spots (dark or luminescent) may appear on the display due to liquid crystal characteristics.
- Each unit varies slightly with respect to brightness and colors.

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#### Notes on Safety

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# 1. Creating New Files

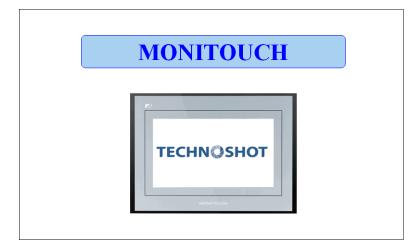
This chapter explains how to create new files and the initial screen displayed when the unit first starts up after turning on the power.

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#### Screen Example

The drawing tools are used to draw graphics, place text, and paste image files (JPEG, bitmap).



#### Screen Creation

#### 1. Creating a New File

- 1. Start V-SFT-5.
- 2. Click [File]  $\rightarrow$  [New] or click the [New File] icon.

e Language	Help	
<u>N</u> ew	Ctrl+N	New file icc
🗳 Open	Ctrl+O	New life icc
Transfer		or 📑
Component P	arts Editing 🕨	
CF Card Man	ager	
Eile Managerr	ent 🕨	
<u>N</u> ewest File		
<u>Q</u> uit Applicati	on	

3. Configure the following settings in the [Edit Model Selection] dialog box and click [OK]. Create the example screen in this manual with the following settings.

Edit Model
i Series
Color

: TS1100 : Selected : 32K-Color

● V/S/TS Series 🔵 UG Serie:	
Edit Model	
TS1100	~
V i Series	
Portrait	
Size	
800 × 480	~
Color	
32K-Color	~
Memory Expansion	
None	~
Option Unit	
	~
Touch switch	
Analog Switch	~

4. Configure the PLC type and TS connection port in the [PLC1 Connection Device Selection] dialog box and click [OK].

Create the example screen in this manual with the following settings.

Device connected	: PLC
Maker	: MITSUBISHI ELECTRIC
Series	: QnH (Q) series link
Connect to	: COM2

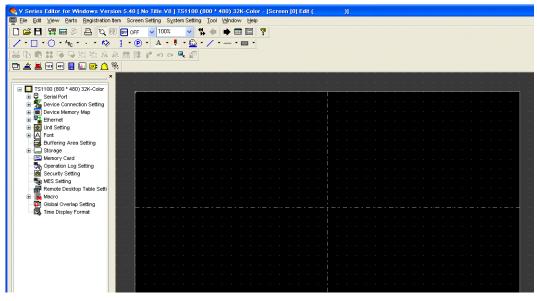
PLC1 Connection	n Device Selection	X
Device	PLC 💌	
Maker	MITSUBISHI ELECTRIC	~
Series	QnH(Q) series link	~
Connect to:	СОм2 🗸	
	ОК	Cancel

 Configure the communication parameters in the [Device Connection Setting] window. For more information on settings in the [Device Connection Setting] window, refer to the "TS Series Connection Manual."

Device Connection Setting			
■ TS1100 (800 * 480) 32K-Color ■ Read/With Area ■ PLC2: No connection → PLC2: No connection → PLC3: No connection → PLC3: No connection → PLC3: No connection → PLC3: No connection → PLC2: No connection → PLC2: No connection → PLC2: No connection → PLC3: No connec	PLC1 Device Maker Series Connect to: Default Communication Set Communication Set Communication Set Communication Set Signal Level Baud Rate Data Length Stop Bit Parity Target Port No. Transmission Mode	Ladder Monitor Setting Retrials Time-out Time Send Delay Time Start Time Code Text Process	Annge Thange
କଙ୍କି Connection Settings			

6. Click the [Close] button to close the [Device Connection Setting] window. The [Screen [0] Edit] window is displayed.





1

7. Click [System Setting]  $\rightarrow$  [Font Setting]. The [Font Setting] dialog box is displayed.

System Setting	Tool Window	Help	
Edit Model Se	election		
😤 Device <u>C</u> onn	ection Setting		
Device Memo	огу Мар		۲
PLC Commun	nication		۲
Temperature Controller/PLC2VVay Communication			
Ethernet Corr	nmunication		۲
Extended Communication			
Unit Setting			۲
Eont Setting			
Global Functi	ion Switch Settin	g	
🔯 Global Overla	ap Setting		

 Set the font using the [Setting] button. Click the [OK] button to close the dialog box. For more information on settings in the [Font Setting] dialog box, refer to the "V8 Series Reference Manual."

Font S	etting			
Font Ma For	Transfer Fort Setting In Menu Engleh  Language 1 : Engleh/Western Europe	Setting	Longuage 1 Ditmap font English/Western Europe Japanese 2 English/Western Europe Chinese (Traditional) Chinese (Simplified) Korean Cernia Europe Cynic Cernia Europe Cynic Turkish Baltic	۲ ۲
In	guage Selection effece Language 1 😴 iial Interface Language 1 🕃	ImportExpont Expont		

# 1 Screen Creation

#### 2. Changing the Background Color

This section explains how to change the background color.

 Click [Screen Setting] → [Screen Setting]. The [Screen Setting] dialog box is displayed.

Screen Setting System Setting Tool	Screen Setting	
Screen Setting  OPEN Macro Edit  CLOSE Macro Edit  CLOSE Macro Edit  CYCLE Macro Edit  Local Eunction Switch Setting	Main Entry Others PLC Memory Transfer Show/Hide Item	
	Back Color Back Color Apply to all screens.  Receive Size Level  Size Level  Apply to all screens.	

 Click the [Back Color] button on the [Main] tab. A drop-down list for color selection is displayed.

Select the desired background color.

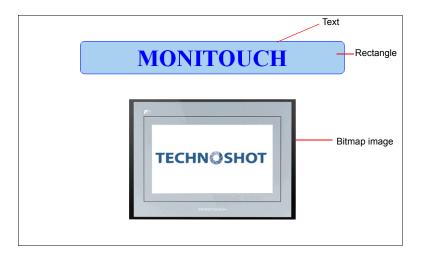
Screen Setting	Screen Setting
Main Entry Others PLC Memory Transfer Show/Hide Item	Main Entry Others PLC Memory Transfer Show/Hide Item
C Screen No.	Screen No.
0	
Comment	Comment
Bask color	Back Color
Back Color	Apply to all screens.
Receive Slice Level	F Color Selected Last
0 * *100msec Apply to all screens.	Apply to all screens.
Switch Output	s s s s s s s s s s s s s s s s s s s
1-Output     2-Output	
Security Level	S Blink
0	Custom Color
	Special
ОК С.	OK Cancel

3. The selected color is displayed on the icon and the background changes to this color.

Screen	Setting				×
Main	Entry	Others	PLC Memory Transfe	r Show/Hide Item	
- Se	een No.				
0					
Cor	mment				
Ba	- Color	-			
	🚡 Back	Color		o all screens.	
Re	ceive Slid	e Level			
0	A V	*100mse	c 🗌 Apply t	o all screens.	
Sw	itch Outp	ut			
	) 1-Outpi	it C	) 2-Output		
Se	curity Lev	el			

Color Selected Last			
			Red 166 🗢
			Green 202 🗘
			Blue 240 🗢
			Cyan 89 🗢
		Ma	igenta 53 🗘
			rellow 15 🗘
Blink			Hue 149 🗢
Custom Color		Sah	ration 181 🗘
			Light 203 🗢
	Palette 1 Palette 2 Palette 3		
	Clear All Clear Select Color <<		anon
	Clear All Clear Select Color <<	Add Color	
	Palette 1 Palette 2 Palette 3		New

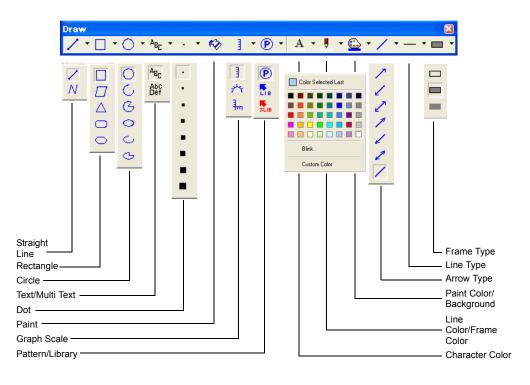
#### 3. Drawing Graphics



This section explains how to use the drawing tools to create text and draw graphics.

#### 3.1 Draw Toolbar

The icons on the [Draw] toolbar are shown below. Click the  $\rightarrow$  symbol on the right of each icon to change the properties of each icon's function.

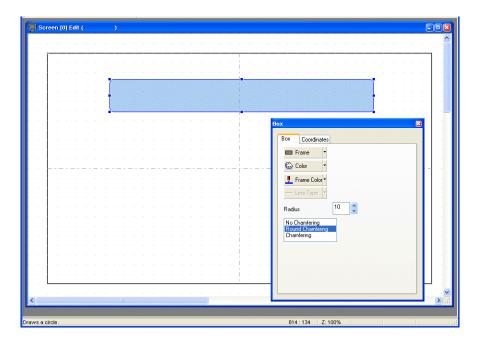


#### 3.2 Creating a Rectangle

1. Click the [Rectangle] icon on the [Draw] toolbar. The [Rectangle] icon becomes depressed and the mouse cursor changes to a cross-shaped cursor.



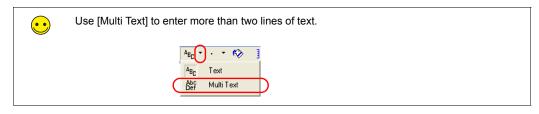
- 2. Drag from the start point to the end point on screen using the mouse. This draws a rectangle.
- 3. Set the color and frame type in the item dialog box.



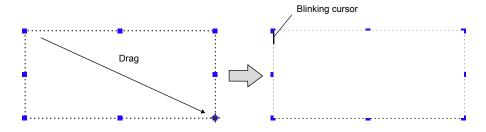
#### 3.3 Creating Text

1. Click the [Text] icon on the [Draw] toolbar. The [Text] icon becomes depressed.





2. Drag from the start point to the end point on screen using the mouse. The specified area and a blinking cursor are displayed on screen.

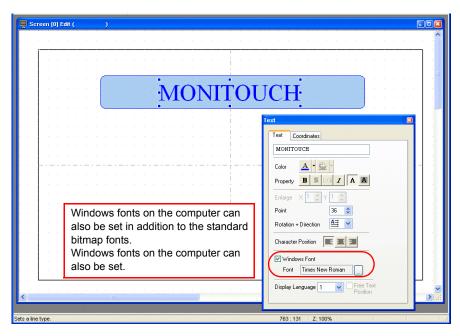


3. Enter text.

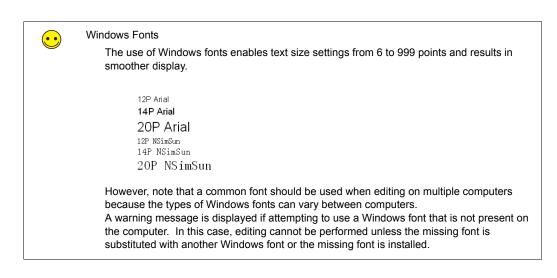


4. Click a location on the screen other than the text.

l Sc	ree	n (O	Ed	it (			)																						E	
	1		_	_	 			 				 					 	 		 	 		 				 	 		
						- 1	-		•	-	-		-	-	•		-		-		-			-	- 2	γ.				
													M	DNT	τοι	ICH														
						. 1											-			 						λ.				
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5. Click the text to display its item dialog box. Change the text color and text size properties.



#### 3.4 Pasting JPEG/Bitmap Files

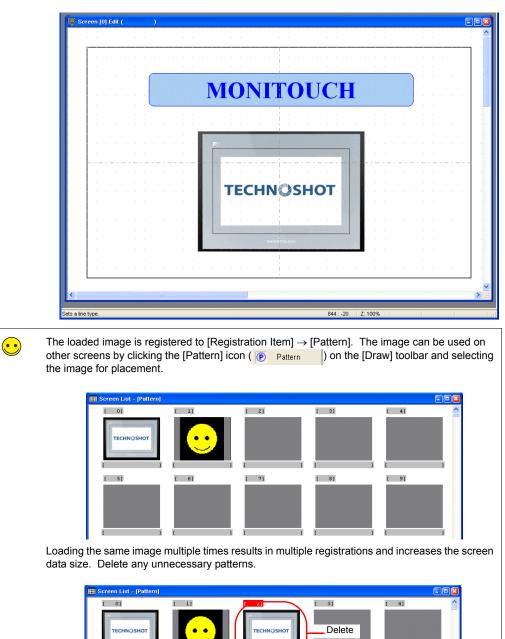
This section explains how to load JPEG or bitmap files of company logos or machine image data onto the screen as pattern data.

 Click [Tool] → [Paste Image File] → [Pattern]. The [Open Image File] dialog box is displayed.

ool Window Help Error Check ⊻ariable List ⊆ompile All		
List of Memory Lise Memory Address Use Tag Use Change Memory Change All Windows Forts Vindows Fort List Register Windows Fort Multi Language Batch Change Screen Library Batch Change		Open Image File   Cok in:  Desktop  Coputer  My Computer  My Network Faces  Tist Long  Tist Long
Change Order INC  Cross-reference Search and Replacement		File game: TS1.bmp Qpen Files of type: ":bmp V Cancel
Paste (mage File )	Patter <u>n</u> Part <u>s</u>	

2. Select the file to load and click [Open]. The loaded image is displayed.

E:\Documents and Settings\fukushima\Desktop\TS1.bmp	×
Charge	Place Cancel
TECHN@SHOT	Dither Pseudo Halitone Detail >> Conversion Redraw 347x 250 24 Bits
Monochrome Color Type of Conversion & Color () 16-Color () 128-Color () 256-Color () 32K-Color () 64	K-Color



[ [ 9]

[ 8]

3. Click the [Place] button to place the image on the screen.

[ 5]

[ 6]

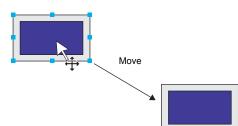
[ 7]

#### 4. Moving and Aligning Parts

This section explains how to move parts, change item size, and align multiple parts.

#### 4.1 Moving Parts

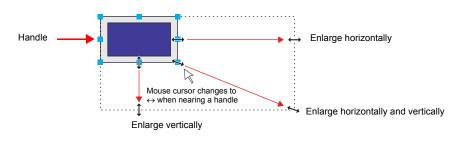
- 1. Click on the part. Handles are displayed around the part.
- 2. With the mouse cursor displaying a cross-shaped mark, drag the part to another position.

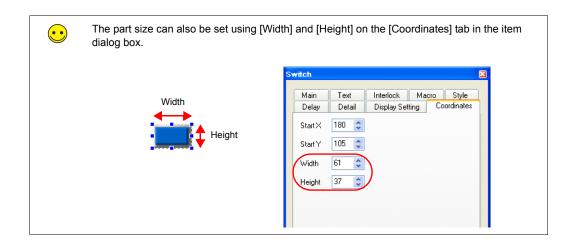


$\overline{\mathbf{\cdot}}$	The part position can also be set using [\$ dialog box.	Start X] and [Start Y] on the [Coordinates] tab in the item
	Start point	Main     Text     Interlock     Macro     Style       Delay     Detail     Display Setting     Coordinates       Start X     180        Start Y     105        Width     61        Height     37

#### 4.2 Enlarging and Reducing Part Size

- 1. Click on the part. Handles are displayed around the part.
- 2. Place the mouse cursor over a handle. The mouse cursor changes to a  $\leftrightarrow$  mark.
- 3. Drag the handle with the mouse cursor displayed as  $\leftrightarrow$ .

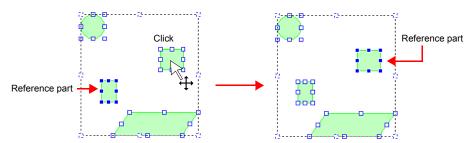




#### 4.3 Aligning Parts and Matching Size

This section explains how to align the positions and match the sizes of multiple parts at once.

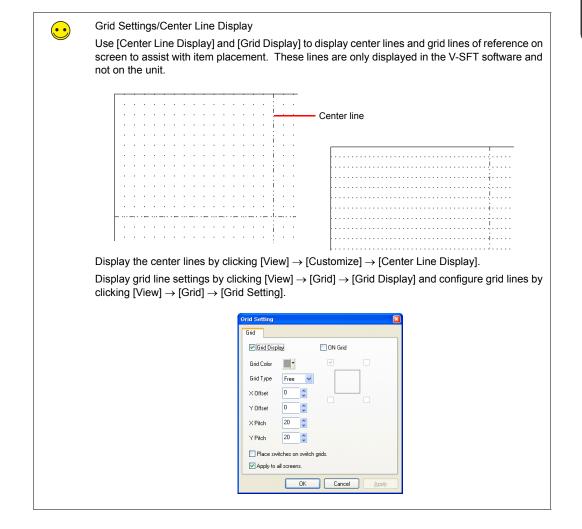
- 1. Select the parts for alignment. Handles are displayed around the parts.
- 2. Hold down the [Ctrl] key and click the reference part. The handle color of this part changes and the part is specified as the reference part.



 Use the [Layout] icons or the [Edit] menu → [Arrangement (Equal)] submenu or [Put All in Same Size] submenu to align the positions or match the sizes of parts.

 Layout
 Image: State of the state of the

Example: Left justification



#### 5. Saving Files

#### 5.1 Saving as a New File

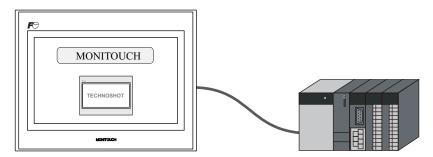
- 1. Click [File]  $\rightarrow$  [Save As]. The [Select the image data to be saved.] dialog box is displayed.
  - Eile Edit ⊻iew Parts Registration Item 🗋 <u>N</u>ew... Ctrl+N 🛱 Open... Ctrl+O Ctrl+S 💾 <u>S</u>ave Property ... Project • Transfer... Difference Program Transfer 岩 Execute Difference Program Transfer Brint... Ctrl+P Print Preview
- 2. Enter the desired filename and click [Save].

Select the im	age data to be saved.			2 🔀
Savejn: 🚞	Screen	💌 🔾 🏚	ø	<b></b> -
File <u>n</u> ame:	TS_sample		Ē	Save
r lie <u>ri</u> dine.	1.3_sample			<u>o</u> ave
Save as <u>t</u> ype:	*.V8	*		Cancel

File creation is complete. Screen data may now be transferred to the unit.

#### Unit Operation

Screen data is displayed when the TS Series unit and PLC are connected correctly. Check that the unit operates properly.



#### 1. Error Display

#### 1.1 Communication Error - Timeout

<u>munication</u> Time-Out	Error	
Screen No. : Received Code No. :		
	Retry	

Communication is not being performed correctly due to any of the following reasons.

- The model select for screen data in the [Device Connection Setting] window differs from the actual connected model.
- The communication parameters of the TS Series unit and the PLC do not match.
- The communication cable is not connected correctly or disconnected.

#### 1.2 Screen No. Error

Data Loading...

Screen No. Error

Check the value of the screen number command specified in the read area (n + 2).

 $\overline{\bullet}$ 

The TS Series unit displays screens by looking at the memory value of the screen number command when communication starts. The "Screen No. Error" message is displayed if this value is set to a screen number that does not exist.

For the screen data in this manual, the [Read Area] value is "D0000" so the screen number command memory is "D0002". For data where screen numbers 0 to 5 have been created:

D0002 = 0 to 5  $\rightarrow$  Display correctly

D0002 = 6 to 9999  $\rightarrow$  Screen No. Error

#### Read Area

The [Read Area] and [Write Area] settings can be accessed by clicking [System Setting]  $\rightarrow$  [Device Connection Setting].

The read area is the memory address where the PLC issues display or operation commands to the TS Series unit. Three words of consecutive memory addresses are secured for this purpose.

배를 Device Connection Setting		
■         ■         TS1100.800 - 400.338.40x           ■         ■         FLG1 - CDM2.1MITSUBSHEEEC           ×         PLC2 - No correction           ×         PLC3 - No correction <td< td=""><td>PrestAvite Area         CD -00 Compable           TRIC         Read Area         PLC1 v 0 c D v 00000 c           Write Area         PLC1 v 0 c D v 00050 c           Calendar         PLC1 v</td><td></td></td<>	PrestAvite Area         CD -00 Compable           TRIC         Read Area         PLC1 v 0 c D v 00000 c           Write Area         PLC1 v 0 c D v 00050 c           Calendar         PLC1 v	
Read Area	Description	Setting Example
n	Subcommand	D0
n + 1	Screen status command	D1
n + 2	Screen number command	D2

#### Write Area

This memory address is for outputting the screen status from the TS Series unit to the PLC. Three words of consecutive memory addresses are secured for this purpose.

Write Area	Description	Setting Example
n	Subcommand state	D50
n + 1	Screen status	D51
n + 2	Displayed screen number	D52

# 2. Creating Switches and Lamps

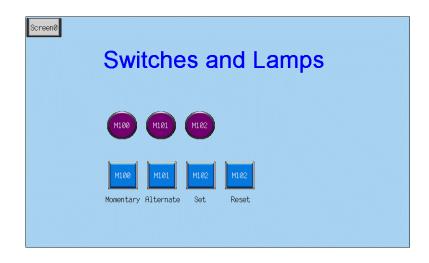
This chapter explains how to create screens that contain switches and lamps.

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2. Procedure for Changing Parts	page 2-13
Confirming Unit Operation	page 2-19
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2. Unit Operation	page 2-19

#### Screen Example

Create the following example screen that uses switch output to turn lamps on and off and switches to another screen using a switch.



#### Screen Creation

#### 1. Editing Screens

#### 1.1 Creating a New Screen

3. Click the [Next Screen] icon to display the [Screen [1] Edit] window.

cree	n (1)	Edit	¢		)																				E
 -						-		-	-	-		-			-	_						-	-		1
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													1												
				 		 	 _			 	 _		-	-	 		 	_	 	 	 	-		 	 -

#### 1.2 Changing the Background Color

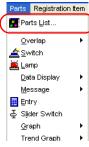
Change the background color of the screen by clicking [Screen Setting]  $\rightarrow$  [Screen Setting]. For more information, refer to "Changing the Background Color" on page 1-5.

reen	Setting					
Main	Entry	Others	PLC Memo	ry Transfer	Show/Hide I	tem
Sc 1	reen No.					
- Co	mment					
Г						
6	ck Color-				_	
/	Back	Color	•	Apply to	all screens.	)
Re	ceive Slid	e Level				
		*100mse	9C	Apply to	all screens.	
Sw	vitch Outp	ut				
0	) 1-Outpu	it C	) 2-Output			
	curity Lev		,pos			

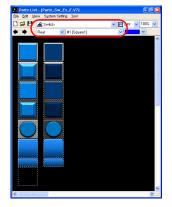
2-2

#### 1.3 Placing Switches

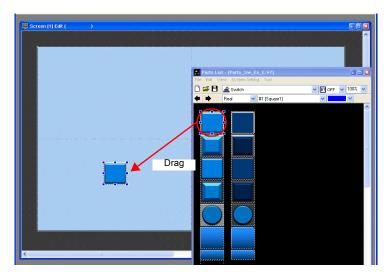
1. Click [Parts]  $\rightarrow$  [Parts List]. The [Parts List] window is displayed.

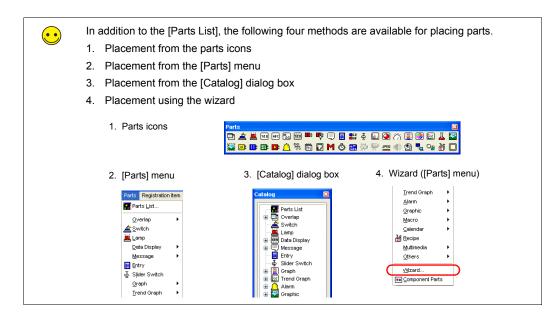


2. Select [Switch], [Real], and [#1 [Square1]].



3. Select a switch and drag it onto the screen. This places the switch on the screen.





5. Configure each setting in the switch's item dialog box.

#### • [Main] tab

Set the bit memory address for output and select a setting for [Function].

Delay	Detail	Display S	etting	Coordinates
Main	Text	Interlock	Macro	Style
🗹 Output M	temory	<b>N</b>	fulti-output	
PLC1	✔ 0	M ·	✓ 100	\$
Output.	Action Mo	mentary	*	
🗹 Lamp Me	emory			
PLC1	✓ 0	A M	✓ 00100	-
Memory	Designation	🖲 Bit	OW	/ord
Input T	уре	OBCD	• D	EC
Connect	Output Memo	ory and Lamp 1	Memory	
Function				—
Standard		•	~	
No Functi	on		~	
Screen	lioplau			
Ouerlan D				
Overlap D Multi-Ove Hard Cop				

Item	Details	Setting Value
Cutput Memory	Set the bit memory address to output when the switch is pressed.	Selected M100
Multi-output	Select this checkbox to perform a single output action with respect to multiple memory addresses.	Deselected

Item		Details	Setting Value
Output Action	Set the write opera memory address.	tion to perform with respect to the output	Momentary
	Switch Operation	Output Processing	
	Set	The specified bit memory address is set to "ON".	
	Reset	The specified bit memory address is reset to "OFF".	
	Momentary Momentary W	The specified bit memory address is set to "ON" while the switch is depressed.	
	Alternate	The specified bit memory address is alternately set (ON) and reset (OFF) each time the switch is pressed.	
Lamp Memory	Change the display	of the switch area.	-
		itch turns on the lamp in the switch. Releasing the switch turns the lamp off.	
	Selected: Set the memory Designation] and	address for the lamp display using [Memory d [Input Type].	
Connect Output Memory and Lamp Memory	Select this checkbo memory and lamp	ox to use the same memory address for output memory.	Selected
Function	should work when	the switch, or in order words, how the switch it is pressed. Functions that are frequently en", "Overlap Display", and "Multi-Overlap	No Function

\*1 For more information on functions, refer to the "V8 Series Reference Manual."

• Text

Set the text displayed on the switch.

Delay Detail Display Setting Coordinates	
Main Text Interlock Macro Style	
OFF - ON 1 🔅 /1	
OFF ON (>)	If the switch displays
M100	different text in the ON a OFF states, register the
	text to display in each st
	on the [ON] and [OFF] tabs.
	laus.
Color A · 🔛 ·	
Property B \$ 1/4 I A A	
Enlarge × 1 🗘 Y 1 🗘	
Point 12	
Rotation + Direction	
Windows Font	
Font	
Use the Same Property for All Patterns	
Size Automatic Adjustment 4-Line Display	
E E A Copy only characters	
Retain the coordinates when changing character string	
Pitch 0	
Display Language 1	

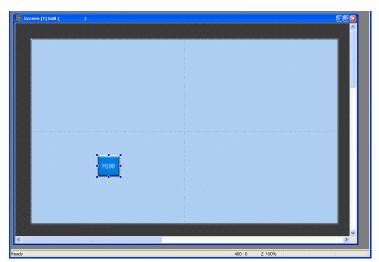
Item	Details	Setting Value
OFF, ON to P128 Pattern No.	Register the text to be displayed on the switch.	M100
Color Property Enlarge Point Rotation + Direction Windows Font	Set the text color, properties, and text size.	-

• Changes to the settings on the [Interlock], [Macro], [Style], [Delay], [Detail], and [Display Setting] tabs are not covered in this section.

#### 1.4 Creating Multiple Copies of Switches

This section explains how to copy a switch multiple times.

1. Select a switch. Handles are displayed around the switch.



 Click [Edit] → [Multi Copy] or click the [Multi-copy] icon. The [Multi Copy] dialog box is displayed.

Edit <u>V</u> iew <u>P</u> a	rts <u>R</u> egistration Item
🖍 Undo	Ctrl+Z
<b>cu</b> <u>R</u> edo	Ctrl+Y
💥 Cut	Ctrl+X
Съ⊆ору	Ctrl+C
Paste Paste	Ctrl+V
Paste to Sele	cted Screen
Undo Paste t	o Selected Screen
<u>D</u> elete	Del
器 Multi Copy	
Group	•

or



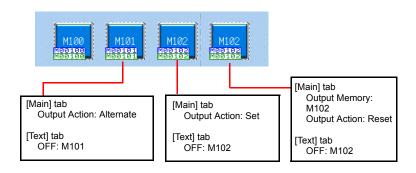
3. Set the options as shown below and click [OK]. This copies the switch multiple times.

Multi Copy		×
⊙ Dot O Line/Column	💿 Interval	O Pitch
Direction	×	20
000	Ŷ	0
040+0	Quantity $ imes$	4
Change Direction	Quantity Y	1
Display Order INC Stop 1		
Memory INC	o. +1 [	Record No. +1
Switch/Lamp Memory		Step
PLC1 🗸 0 😂 M 🔽 00100	*	1
Internal 🗸 0 💲 \$u 🔽 00100	\$	0
Internal 🔽 0 💲 \$u 🔽 00100		0
ОК	Cancel	

 Click [View] → [Customize] → [Memory Display]. Memory addresses are displayed at the lower left on each switch.

Screen [1] Edit ( )		
a la serie a serie a		
a state a second second		a da la composición de la composición d
a state a state a		1
a series a series a		
· · · · · · · · · · · · · ·		
	المستعر وسنسع وسنسع المستعر والمستعر	
a state a second		
a solution and a solution of	M100 M100 M100 M100 Septem Statemen Septem	
a construction of the		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
and the second second second	Momentary Alternate Set Reset	
and the second second second		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
		>

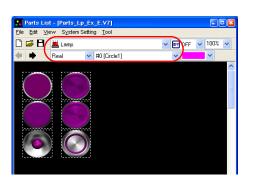
5. Change the switch text and output action to the following.



This completes the switch creation process.

#### 1.5 Placing Lamps

- 1. Click [Parts]  $\rightarrow$  [Parts List]. The [Parts List] window is displayed.
- 2. Select [Lamp], [Real], and [#0 [Circle1]].

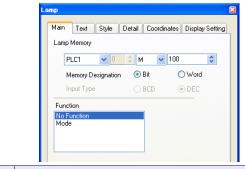


3. Select a lamp and drag it onto the screen. This places the lamp on the screen.

Screen [1] Edit ( )	
· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
	🖬 Parts List - (Parts Lp_Ex_E.V7)
	Elle Edit ⊻iew System Setting Iool
	🗋 🖼 📕 👗 Lamp 🔍 🖬 OFF 🔍 100% 🗸
	🐢 🗣 Real 🔽 #0 [Circle1] 🔍 🔽 👻
	^
Drag	
M102 M102 M102 M102	
M100 M101 M102 M102 Notation Notation Notation Notation	
Momentary Alternate Set Reset	
	< · · · · · · · · · · · · · · · · · · ·

- 4. Configure each setting in the lamp's item dialog box.
  - · [Main] tab

Set the memory address for the lamp.



Item	Details	Setting Value
Lamp Memory	The display of the lamp area can be changed. Set the memory address for the lamp display using [Memory Designation] and [Input Type].	M100
Function	Set the lamp's function. Normally select [No Function].	No Function

[Text] tab

Set the text displayed on the lamp.

	<ul> <li>If the lamp displays different text in the ON and OFF states, register the</li> </ul>	Amp     Call       Main     Text     Style     Detail     Coordinates     Display Setting       OFF     ON     1     /1
Property B S 1/4 Z A A Enlarge X 1 2 7 Point 12 7 Rotation + Direction A Vindows Font Font	text to display in each state on the [ON] and [OFF] tabs.	NIDO
Image       Image       Image       Image         Point       Image       Image       Image         Rotation + Direction       Image       Image       Image         Image       Image       Image       Image       Image         Image       Image       Image       Image       Image       Image         Image		Color A • 🔛 •
Point       12         Rotation + Direction       A         Windows Font          Font          Use the Same Property for All Patterns         Size Automatic Adjustment       4-Line Display         T       Topy only characters         Betain the coordinates when changing character string         Dist		Property B S 1/4 Z A A
Font		Point 12 🗢
Size Automatic Adjustment       4-Line Display		
王 王 王 注 Copy only characters		
Retain the coordinates when changing character string		
Display Language 1		Display Language 1 🗸

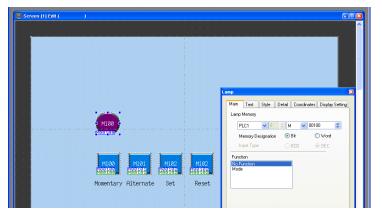
Item	Details	Setting Value
OFF, ON to P128 Pattern No.	Register the text to be displayed on the lamp.	M100
Color Property Enlarge Point Rotation + Direction Windows Font	Set the text color, properties, and text size.	-

• Changes to the settings on the [Style], [Detail], and [Display Setting] tabs are not covered in this section.

#### 1.6 Creating Multiple Copies of Lamps

Create multiple copies of lamps using the same procedure for multiple copies of switches.

1. Select the lamp. Handles are displayed around the lamp.



 Click [Edit] → [Multi Copy] or click the [Multi-copy] icon. The [Multi Copy] dialog box is displayed.



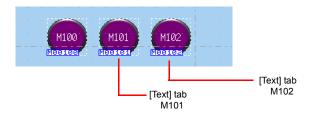




3. Set the options as shown below and click [OK]. This copies the lamp multiple times.

lli Copy		X
⊙ Dot OLine/Column	<ol> <li>Interval</li> </ol>	O Pitch
Direction	X Y Quantity X Quantity Y	20 ÷ 0 ÷ 3 ÷
Order INC Step 1 Display Order INC Step 1	A V	
Memory INC	No. +1	Record No. +1
✓ Lamp Memory     PLC1		Step
Internal ♥ 0 \$ \$u ♥ 00100		
OK	Cancel	
		<

4. Change the text displayed on each lamp.



This completes the lamp creation process.

# 2. Procedure for Changing Parts

Perform the following procedure to change the design or color of parts placed on the screen.

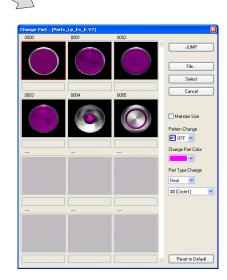
# 2.1 Changing Parts

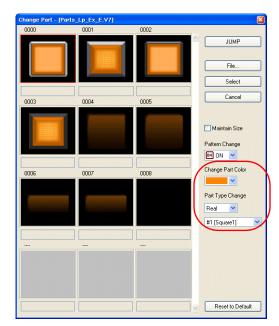
1. Select the part for changing to display its item dialog box.

💭 Screen (1) Edit ( )	
	^
lanp 19	
Main Text Style Detail Coordinates Display Setting	
Lamp Memory	
M100     PLC1 ♥ 0 0 M ♥ 00100 0      Menoy Designation ● BR ○ Word	
Input Type O BCD @ DEC	
M102 M102 M102 M102 M102 M102 M102 M102	
MEELEE MEELEE, MEELEE, MEELEE	
Momentary Alternate Set Reset	
	~
	.d

2. Click [Style]  $\rightarrow$  [Change Part]. The [Change Part] window is displayed.

Main Text	Style	Detail	Coordinates	Display Setting
OFF · ON	1	/1		
OFF ON	1		< >	
Color			_	
OFF 🔮 🕇		ustomize.	· _	
Frame	F	lash		
	,			
Frame Type No		Y		
Draw Mode 🔿	KOR (	REP		
Transparent				
Change Part	D			
No. of Patterns	2	*		





3. Select the part using [Change Part Color] and [Part Type Change].

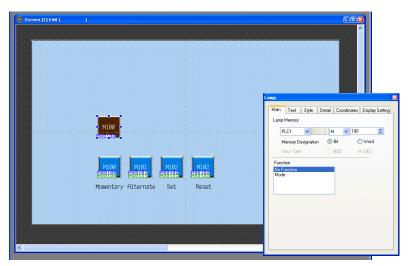
Item	Details
☐ Maintain Size	Deselected: Change to the default size. Selected: Maintain the size prior to changing.
Pattern Change	The pattern image of OFF, ON, and patterns up to P128 can be checked.
Change Part Color	Change the color.
Part Type Change	Change the part type. Real/Sign/3D Circle/Square/Plant/Icon etc.

4. Select the part properties for changing and click [Select] to change the lamp on the screen.

Screen [1] Edit (	
	400400
	,,,,,
	M100 M101 M102 M102
	Moelee Meeleik Meelek Meelek Momentary Alternate Set Reset
<	· · · · · · · · · · · · · · · · · · ·
<sup>1</sup>	

# 2.2 Changing the Color of Parts

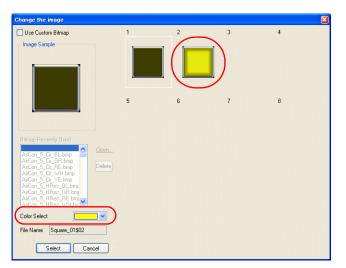
1. Select the part for changing to display its item dialog box.

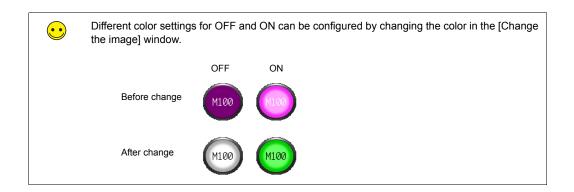


Select the pattern (OFF/ON/P3 or higher) whose color is to be changed on the [Style] tab and click [Customize].

Lamp	Lamp	Ð
Main Text Style Detai Coordinates Display Setting DFF - ON 1 1 DFF ON Customice Frame Type No Frame Draw Mode XOR © REP Transparent Change Part		Customize)

3. Select an image and color in the [Change the image] window.





## 2.3 Placing Text

Screen® Switches and Lamps	Text
M100 M101 M102 M102 Momentary Alternate Set Reset	Text

This section explains how to place the screen title and other text elements.

# Creating Text

1. Click the [Text] icon on the [Draw] toolbar. A cross-shaped cursor is displayed.



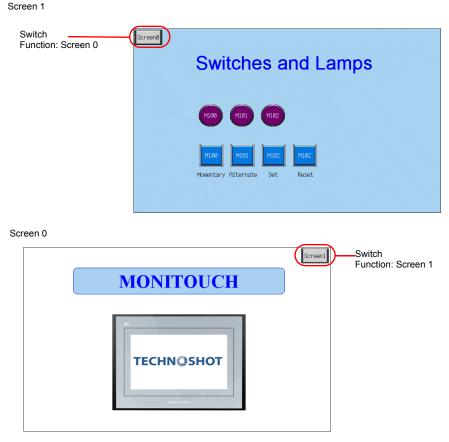
- 2. Click on the screen. A text frame is displayed.
- 3. Enter text.
- 4. Click a location on the screen other than the text.
- 5. Click the text to display its item dialog box. Change the text color and text size properties.

Switches and L	.amps:
H100 H101 H102 H100 H101 H102 H102 Momentary Alternate Set Reset	Text Coordinates
Draws a circle.	536 : 192 Z: 100%

#### 2.4 Creating a Switch for Changing to Another Screen

This section explains how to place a switch that changes between screen 0 and screen 1 when pressed.

- 1. Place a switch.
- 2. Set [Function] to "Screen" in the switch's item dialog box and set [Screen No.] to the number of the destination screen.



3. Adjust the switch color and position.

This completes the screen creation process. The next section covers confirming screen operation on the TS Series unit.

# **Confirming Unit Operation**

## 1. Memory Addresses

The memory addresses used in this example are listed below.

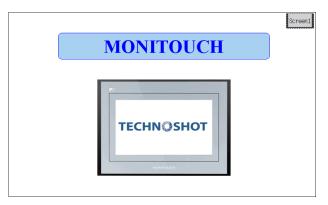
Memory Address	Memory Contents
M100	Switch output memory (momentary), lamp memory
M101	Switch output memory (alternate), lamp memory
M102	Switch output memory (set/reset), lamp memory

## 2. Unit Operation

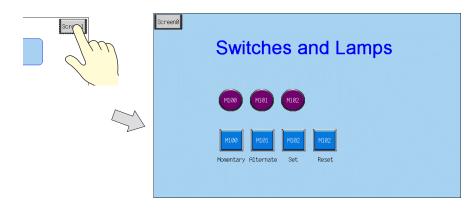
This section explains how to confirm screen operation after transferring screen data to the unit.

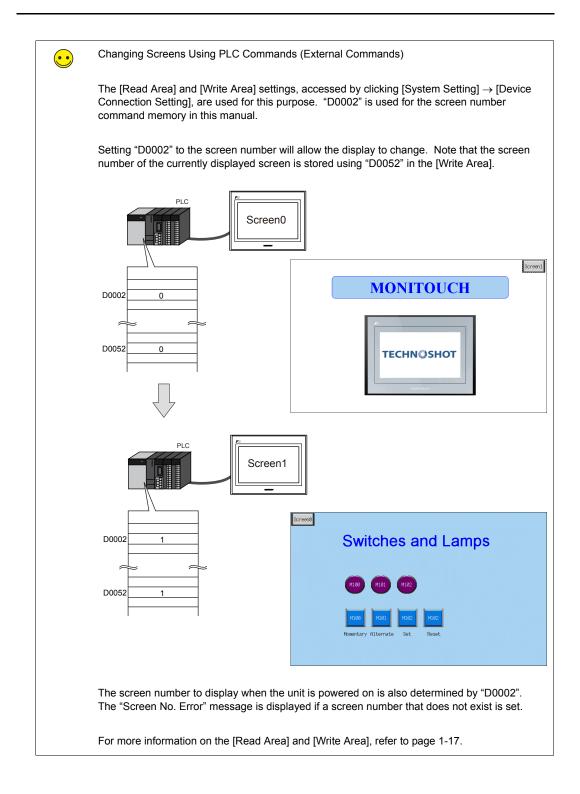
## 2.1 Switching Screens

- 1. Screen 0 is displayed initially.
  - (Refer to the next page if a different screen or "Screen No. Error" is displayed.)



2. Press [Screen1] at the upper right of the screen. The screen changes to display screen 1.





# 2.2 Switch Output and Lamp Display

#### Momentary Switch

The output memory address is set to "ON" while the switch is depressed.

1. Press the M100 (momentary) switch. The M100 lamp turns on.

Screen0	Switches and Lamps
	(III) (III2)
	Morenta evenate Set Reset

2. Releasing your finger from the switch turns the M100 lamp off.

Screen0	Switches and Lamps	
	MI00 MI01 MI02	
	HIQO HIQI HIQZ Momentary Alternate Set Reset	Sim

2

#### ♦ Alternate Switch

The specified bit memory address is alternately set (ON) and reset (OFF) each time the switch is pressed.

1. Press the M101 (alternate) switch. The M101 lamp turns on.

Screen0	Switches and Lamps
	M100 (M102)
	MIRE Momentary Alternal And Reset

2. The M101 lamp stays on even after releasing your finger from the switch.

ScreenØ	Switches and Lamps	
	M100 (M102	
	M100 M101 M102 M102 Momentary Alternate Set Reset	Sm

3. Press the M101 (alternate) switch again. The M101 lamp turns off.

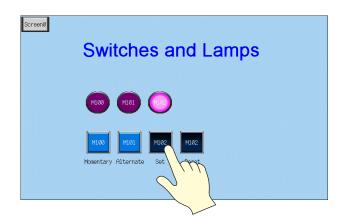
ScreenØ	Switches and Lamps	
	M100 M101 M102	
	MIQ0 MI01 MIQ2 MIQ2 Momentary Alternat Por Reset	

The ON/OFF state of the lamp changes each time the switch is pressed.

#### Set/Reset Switch

The specified bit is set to "ON" or "OFF".

1. Press the M102 (set) switch. The M102 lamp turns on.



2. The M102 lamp stays on even after releasing your finger from the switch.

Switches and Lamps	
M100 M101	
M100 M101 M102 M102 Momentary Alternate Set Reset	fm
	M100 M101 (100)

3. Press the M102 (reset) switch. The M102 lamp turns off.

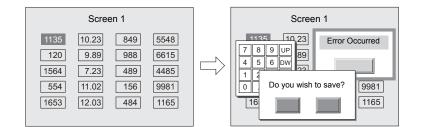
Screen0	Switches and Lamps
	M100 M101 H102
	MI00 MI02 Momentary Alternate Set Reset

МЕМО
Please use this page freely.

# 3. Creating Overlaps

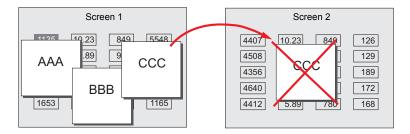
Windows can be temporarily overlaid on the displayed screen when necessary. These types of windows are referred to as "overlaps".

A maximum of four overlaps can be displayed at once on the screen.

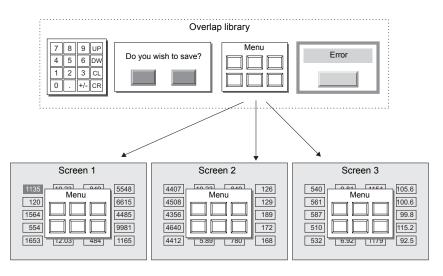


Overlaps that are frequently used include normal overlaps, which can only be displayed on the screen on which they are created, and multi-overlaps registered to the overlap library that can be used across several screens.

Normal Overlap



Multi-overlap

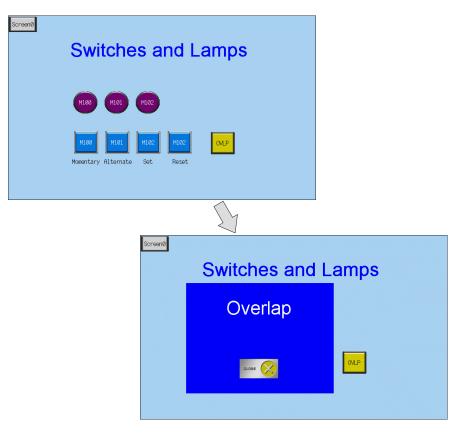


## Contents

Screen Example	page 3-2
Screen Creation	
1. Editing the Overlap Library	page 3-3
2. Editing Screens	page 3-8
Confirming Unit Operation	page 3-14
1. Unit Operation	page 3-14

## Screen Example

Add a multi-overlap to screen 1, which was created with switches and lamps.



### **Screen Creation**

## 1. Editing the Overlap Library

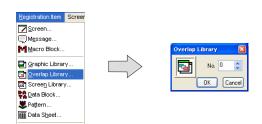
This section explains how to create overlaps.

Almost all items including switches, lamps, and alarms can be placed on overlaps.

#### 1.1 Placing Overlaps

 $\overline{\phantom{0}}$ 

1. Click [Registration Item] → [Overlap Library]. The [Overlap Library] dialog box is displayed.



2. Select a registration number and click the [OK] button. The [Overlap Library Edit] window is displayed.

Ove	erlap	Lib	rary	(0)	Edi	t (																			
1	_																								
																								•	
•																									
														- 1											
									-			-													

3. Click [Parts]  $\rightarrow$  [Overlap]  $\rightarrow$  [Normal Overlap] to place an overlap.

Parts List													
Overlap	▶ <mark>■ N</mark> ormal Overlap												
Switch	Call-Overlap												
<u>ii L</u> amp	Multi-Overlap												
Data Display	•					 					I		
Message	•											c	Verlap
Entry		I											
Slider Switch													Main Style D
<u>G</u> raph	$\cdot$ $\square$												Overlap ID 0
<u>T</u> rend Graph	•												
Alarm	•												System Button
<u>G</u> raphic	•												
<u>M</u> acro	•			7									
<u>C</u> alendar	•												
<b>j</b> <u>R</u> ecipe													
<u>M</u> ultimedia	•												
Others	•												
				-	1			- 11				•	
											1.1		
		· ·											

- 4. Configure settings in the item dialog box.
  - [Main] tab

	Overlap	
Item	Description	Setting Value
□System Button	Select this checkbox to add a switch function (move/dismiss) to the upper left corner of the overlap area. For more information on the operation of this switch, refer to "1.2 Overlap System Button Function" (page 3-15).	Selected

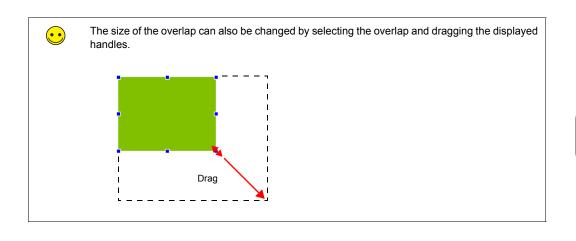
## • [Style] tab

Main	Style	Detail	Coordinates	3
Frame 1	уре	No Frame	•	
Color				
Frame	1	-		
Area				
Chang	e Part			

Item	Description	Setting Value
Color Frame, Area	Set the area color.	-
Change Part	Change the part used for the overlap.	-

- [Detail] tab Settings on this tab do not require configuration.
- [Coordinates] tab

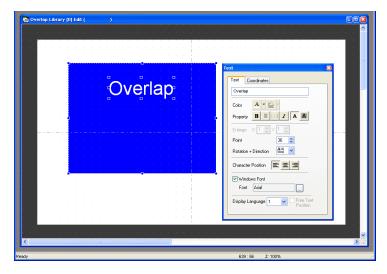
Set the placement position and size of the overlap.



# 1.2 Placing Text

This section explains how to place text on the overlap.

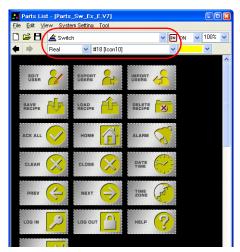
- 1. Click the [Text] icon ( ABC ). A cross-shaped cursor is displayed.
- 2. Click on the overlap. A text frame is displayed.
- 3. Enter text.
- 4. Click a location on the screen other than the text.
- 5. Click the text to display its item dialog box. Change the text color and text size properties.



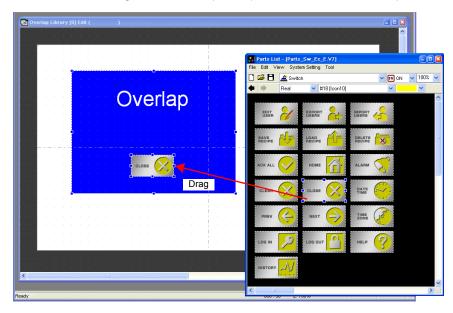
# 1.3 Placing Switches

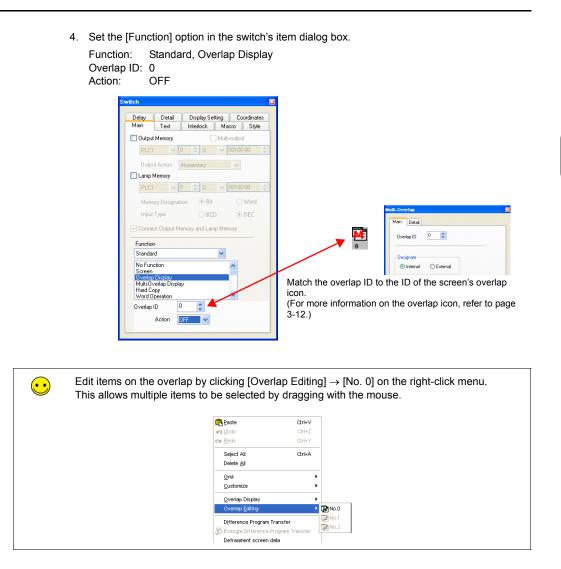
This section explains how to create a switch for hiding the overlap.

- 1. Click [Parts] [Parts List]. The [Parts List] window is displayed.
- 2. Select [Switch], [Real], and [#18 [Icon10]].



3. Select a switch and drag it onto the overlap. This places the switch on the overlap.

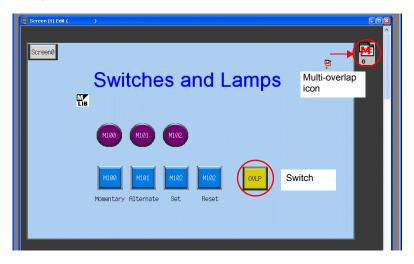




The completes the overlap editing process.

3-7

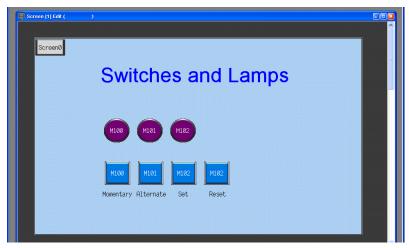
#### 2. Editing Screens



This section explains how to register a multi-overlap icon and a switch for displaying a multi-overlap.

#### 2.1 Placing the Switch

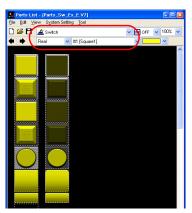
1. Display the [Screen [1] Edit] window.



2. Click [Parts] [Parts List]. The [Parts List] window is displayed.



3. Select [Switch], [Real], and [#1 [Square1]].



4. Select the switch and drag it onto the screen. This places the switch on the screen.

	Screen (1) Edit ( )	
		E Paris List - (Paris_Sw_Ex,E.V7) File Edit View System Setting Tool
	Switches and Lamps	Die gan yew System Strating [200] C C C C Switch ← → Real ♥ III[Square]]
	M100 M101 M102 M100 M101 M102 M102 Momentary Alternate Set Reset	Drag
	M. Constant of the second s	× ×
••	<ol> <li>In addition to the [Parts List], the following four method.</li> <li>Placement from the parts icons</li> <li>Placement from the [Parts] menu</li> <li>Placement from the [Catalog] dialog box</li> <li>Placement using the wizard</li> </ol>	ods are available for placing parts.
		⊠ ■ # ÷ … ● ∧ ≋ ® ≥ ↓ ■ & • ● ⇒ # @ ® = + ≪ ® ● ↓
	2. [Parts] menu       3. [Catalog] dialog but         Parts Registration tem       Parts List         Overlap       •         Switch       Eamp         Qata Display       •         Message       •         Sider Switch       •         Sider Switch       •         Graph       •         Trend Graph       •	A. Wizard ([Parts] menu) Irend Graph → Alarm → Graphic → Macro → Galendar → Mitmedia → Others → Others → Others → Others →

- 5. Set the [Function] option in the switch's item dialog box.
  - [Main] tab

Delay	Detai		Displ	ay Set	ting	Coord	dinate:
Main	Text	1	Interlo	ck 📗	Macro	1	Style
Output M	lemory			Mul	ti-output		
PLC1	~	0	≎ D	~			A.Y
Output /	Action	Mon	nentary		~		
Lamp Me	emory						
PLC1	~	0	\$ D	~	00100-00		A. Y
Memory	Designa	tion	) Bi		OW	ord	
Input T	ine		0.00		0.00		
		1emo	O BC		DE	:L _	
Connect Function Standard	Output M	temo				-	
Connect	Output M on isplay lap Displ	ay	ry and La			-	
Connect Function Standard No Functi Screen Overlap D Multi-Over Hard Cop	Output M on isplay lap Displ					-	
Connect Function Standard No Functi Screen Overlap D Multi-Dver Hard Copy Word Ope Overlap ID	Output M on isplay lap Displ y rration	ay O	ry and La			-	
Connect Function Standard No Functi Screen Overlap D Multi-Over Hard Copy Word Ope	Output M on isplay ration praty No. Position	ay O	ry and La		mory		
Connect Function Standard No Functi Screen Overlap D Multi-Dver Hard Copy Word Ope Overlap ID	Output M on isplay ration pration	ay O	ry and La		mory		

Item	Details	Setting Value
Cutput Memory	Set the bit memory address to output when the switch is pressed.	Deselected
Lamp Memory	Change the display of the switch area.	Deselected
	Deselected: Pressing the switch turns on the lamp in the switch. Releasing your finger from the switch turns the lamp off. Selected: Set the memory address for the lamp display using [Memory	
	Designation] and [Input Type].	
Function	Select the function of the switch, or in order words, how the switch should work when it is pressed. Functions that are frequently used include "Screen", "Overlap Display", and "Multi-Overlap Display". <sup>*1</sup>	Multi-Overlap Display
Overlap ID	Set the overlap ID. Setting value: 0 to 2	0
Overlap Library No.	Set the overlap library number. Setting value: 0 to 9999	0
Display Position	Set the [X Coordinate] and [Y Coordinate] values for the display position of the overlap. Specify with Mouse: Specify the coordinates by clicking with the mouse. *2	Selected X120 Y125

\*1 The settings for normal overlap display are: [Main] tab Function: Overlap Display Action: ON

Function				
Standard			~	
No Function				^
Overlap Display				
Multi-Overlap Dis Hard Copy Word Operation	piay			~
Overlap ID	0	*		
Action	ON	~	)	

\*2 Mouse specification method Click the [Specify with Mouse] button. A cross-shaped cursor and a rectangle the size of the overlap are displayed.

Gorsen (1) Edit ( )	
Screent	
Switches and Lamps	
ovμe Click	
M100 M101 M102	
M100 M101 M102 M182	
Momentary Alternate Set Reset	

Click on a position where the rectangle does not protrude outside the screen. The LIB mark that shows

the display position of the multi-overlap moves to the clicked position.

· [Text] tab

Register the text displayed on the switch.

tch					
Delay	Detail Text	Display Set			ordinates
Main	lext	Interlock	Mac	ro	Style
OFF · ON	1 🗘	/1			
OFF 0	N		< >		
OVLP					
Color	<u>A</u> • 🔛	-			
Property	B \$ 1/4	I A			
Enlarge >	(1 🛟 Y	1 🗘			
Point		12 🗘			
Rotation +	Direction	A= ~			
Windo	ws Font		-		

This completes the switch creation process.

# 2.2 Registering an Overlap Icon

1. Click [Parts]  $\rightarrow$  [Overlap]  $\rightarrow$  [Multi-Overlap].

Parts Registration	tem
🎆 Parts List	
<u>O</u> verlap	🕨 📑 Normal Overlap
<u> á</u> Switch	Call-Overlap
🚊 Lamp	Multi-Overlap
Data Display	•
Message	•
Entry	

2. Click on the screen to place the multi-overlap icon.

Screen (1) Edit (	)	
ScreenØ	Switches and Lamps	=
	M100 M101 M102	
	H100 H101 H102 H102 OVLP Momentary Alternate Set Reset	

- 3. Configure settings in the item dialog box.
  - [Main] tab

Overlap ID 🔹	
⊂Designate ⊙Internal ◯External	
Info Output Memory	
Internal 💙 🛛 😂 \$u	✓ 16340
Overlap Library No. \$u16341	1
Coordinate Designation	J
\$u16342	(X Coordinate)
	-

Item	Details	Setting Value
Overlap ID	A maximum of three overlaps can be displayed at once. Set the area of IDs 0 to 2 in which to display the overlap registered in the overlap library. Setting value: 0 to 2	0
Designate Internal, External	Internal Display the overlap using the switch function.	Internal
	External Specify the overlap library number in a memory address and show or hide the overlap according to the bit in the read area or command memory.	

Item	Details	Setting Value
Info Output Memory	Stores the currently displayed overlap library number. This memory address stores "-1" when the overlap display is hidden.	-
Overlap Library No.	This option is valid when [Designate] is set to "External". This memory address specifies the overlap library number.	-
Coordinate Designation	This option is valid when [Designate] is set to "External". Select this checkbox to set the display position of the overlap (X and Y coordinates).	-

· [Detail] tab

Settings on this tab do not require changing.

This completes the screen creation process. The next section covers confirming screen operation on the TS Series unit.

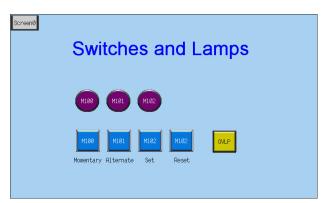
# **Confirming Unit Operation**

# 1. Unit Operation

This section explains how to confirm screen operation after transferring screen data to the unit.

## 1.1 Showing and Hiding Multi-overlaps

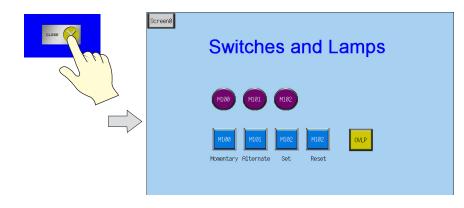
1. Display screen 1.



2. Press the [OVLP] switch. The overlap is shown.

ScreenØ	Switches and L	amps
	Overlap	
	close	OVE CON

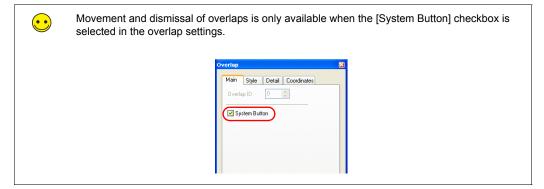
3. Press the [CLOSE] switch. The overlap is hidden.



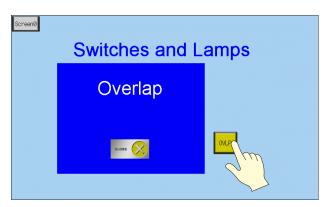
## 1.2 Overlap System Button Function

A system button function can be added to overlaps. This function can perform the following two operations.

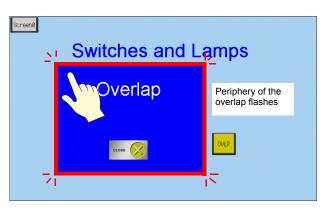
- · Overlap movement
- Overlap dismissal



1. Press the [OVLP] switch to display the multi-overlap.



2. Press the upper left corner of the overlap. The periphery of the overlap starts flashing.

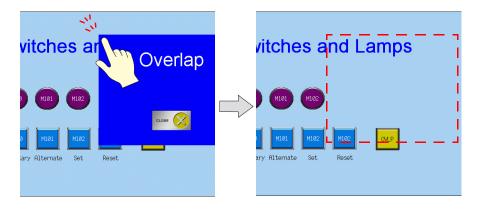


- Switches and mps

   Overlap

   Overlap
- 3. While the periphery of the overlap is flashing, press the position to move the overlap. The overlap moves to the specified position.

4. Double-tap the upper left corner of the overlap to dismiss it.



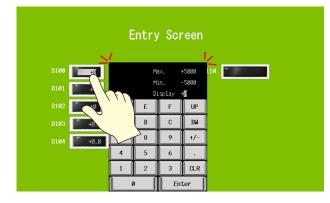
# 4. Entry Screens

This chapter explains how to create a keypad entry screen. As keypads are usually not permanently displayed on screens, here we will create a screen that displays a keypad only when entry is required.

• Normal: Keypad OFF

	Entry Screen					
D100 +0	D105 0000	D110				
D101 +0	D106 0000					
D102 +0	D107 0000					
D103 +0.0	D108 0000					
D104 +0.0	D109 0000					

Entry: Keypad displayed



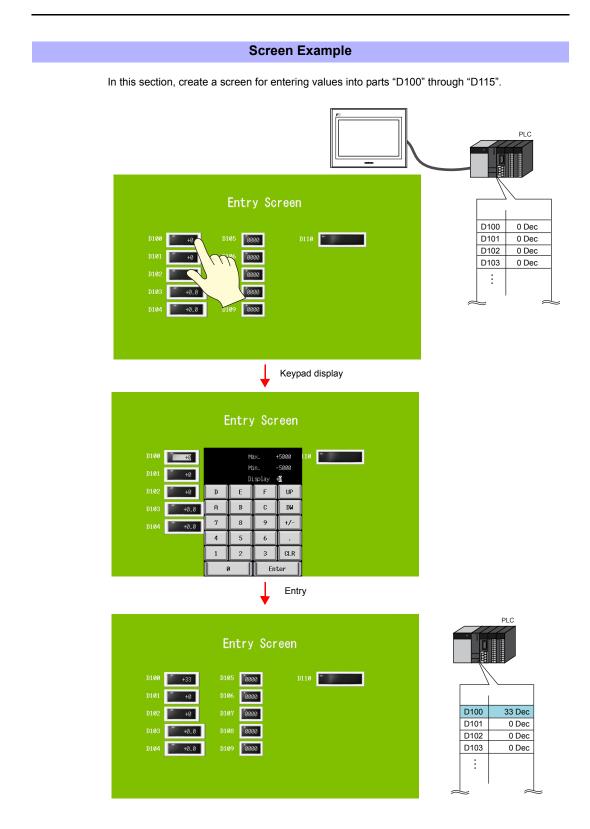
Tap the numerical data display to display the keypad.

Press the [Enter] key to hide the keypad.

#### Contents

Screen Example	page 4-2
Screen Creation	page 4-3
1. Editing Screens	page 4-3
2. Overlap Library	page 4-14
Confirming Unit Operation	page 4-19
1. Memory Addresses	page 4-19
2. Unit Operation	page 4-19

Contents



### **Screen Creation**

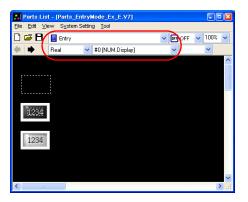
### 1. Editing Screens

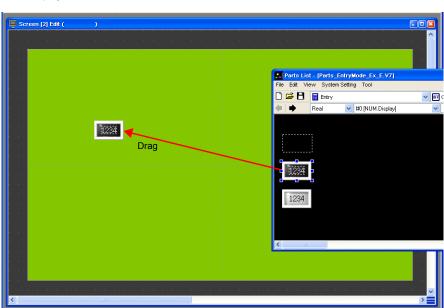
Screen editing involves registration of numerical data and character displays targeted for writing as well as multi-overlaps.



### 1.1 Placing Numerical Data Displays and Registering Keypads

- 1. Click [Parts]  $\rightarrow$  [Parts List]. The [Parts List] window is displayed.
- 2. Select [Entry], [Real #0 NUM.Display].





3. Select a numerical data display part and drag it onto the screen. This places the numerical data display on the screen.

- 4. Configure each setting in the numerical data display's item dialog box.
  - [Main] tab

Set the memory address for writing and select a setting for [Function].

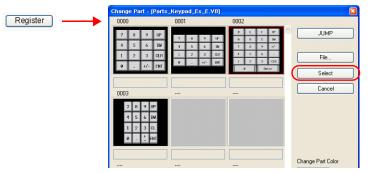
um. Displa	y .	
Main 9	Style Operation/Alarm Detail Coordinates Comment D	isplay Setting
Memory		
PLC1	💙 0 💠 D 💙 00100 🛟	
🔲 Off	set Value Designation Memory 💽 DEC 🔵 BCD <u>\$u00100</u>	
Data Ler	ngth 💿 1-Word i 🔘 2-Word	
Digits 5	5 🗢 Decimal Point 0 😂	
Display T	[ype DEC (with sign +·) ▼	
Input Typ	pe OBCD  ODEC OActual Number	
Zero	Suppress 🔘 Flush Left 💿 Flush Right	
Function		
Standar	d 🗸	
Max. Va	isplay Part alue Display Part	
Entry Ta	lue Display Part arget Graph % Display	
Order IN		
Overlap I		
Overlap I	Library No. 1 😂 Register	
🗹 Displa	ay Position	
X Coo	ordinate 240 🗢 Y Coordinate 145 🜲	

Item	Details	Setting Value
Memory	Set the memory address for writing.	D100
Offset Value Designation Memory	Select this checkbox to specify an offset. Not used in this section. For more information, refer to the "V8 Series Reference Manual."	Deselected
Data Length	Set the data length of the memory address for writing. Setting value: 1-Word/2-Word	1-Word

Item	Details	Setting Value
Digits	Set the number of digits used by the memory address for writing. Setting value: 1 to 32	5
Decimal Point	Select whether to include a decimal point. Setting value: 0: No decimal point 1 to 10: Insert decimal point (at corresponding 1st to 10th decimal place)	0
Display Type	Set the format of numbers to be displayed on the screen.	DEC (with sign +-)
Input Type	Set the format for reading values from memory.	DEC
Zero Suppress	Select this checkbox to enable zero suppression. Selected (Flush Right) Deselected LILL12 00012	Selected Flush Right
Function	Set the numerical data display function.	Entry Target
Order INC	Set the order in which the cursor moves when multiple entry targets are placed on the screen.	0
U With Entry Key	Function: Entry Target (enabled when selected) Select this checkbox to add the entry key call function.	Selected
Overlap ID	Set the overlap ID to be used for showing the entry keys. Setting value: 0 to 2	0
Overlap Library No. Register button <sup>*1</sup>	Set the overlap library number for registering the entry keys. Select the desired keypad by pressing the [Register] button and register the keypad to the overlap library. If the keypad is already registered to the overlap library, simply specify the overlap library number. Setting value: 0 to 9999	1
□ Display Position X Coordinate Y Coordinate Specify with Mouse button <sup>*2</sup>	Set the [X Coordinate] and [Y Coordinate] values for the display position of the overlap. [Specify with Mouse] button: Specify the coordinates by clicking with the mouse.	Selected X Coordinate: 240 Y Coordinate: 145

\*1 Registration method

Setting [Overlap Library No.] to "1" and clicking the [Register] button displays the [Change Part] window. Select the design and color and then click the [Select] button.



A keypad is registered to the specified overlap library number. For more information on the registered details, refer to page 4-14.

If the specified overlap library number is already registered, the following confirmation message is displayed.

Select [Yes] to overwrite the overlap library number or select [No] to register the keypad to another overlap library number.



Screen Creation

\*2 Mouse specification method

Click the [Specify with Mouse] button. A cross-shaped cursor and a rectangle the size of the overlap are displayed.

Screen [2] Edit (	)	
		· · · · ·
		- ·
LIB		
a se a se a se a se a se		•
(1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,	Click	· · 💷
(1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,	512245 ot-	
a ser a ser a ser a ser a		
a a statistica a second	a second	
	na ana amin'ny tanàna dia mampikambana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny Ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'	
a a sharar a sa a	a a ser a	
	$\mathbf{F}_{\mathbf{r}}$ , $\mathbf{F}_{\mathbf{r}}$	

Click on a position where the rectangle does not protrude outside the screen. The LB mark that shows the display position of the multi-overlap moves to the clicked position.

· [Style] tab

Set text properties of the entry target. Use the [Change Part] button to change parts.

 Operation/Alarm Set the alarm options.

	Main       Style       Operation/Alarm       Detail       Coordinates       Comment       Display Setting         Win       Constant       DEC       Stole       Bool       Color       Text       Bool       Bool       Bool       Bool       Bool       Color       Color       Text       Bool       Bool       Bool       Bool       Color       Color       Text       Bool       Bool       Bool       Bool       Color       Color       Text       Stale       Bool       Stale       Stal	
Item	Details	Setting Value
Alarm	Select this checkbox to use the alarm function.	Selected
Min.	Set the minimum and maximum entry values. Values outside this range cannot be entered.	–5000 Red
Max.		5000 Blue
Word Operation	Not used in this section.	Deselected
Scaling	For more information, refer to Chapter 5 in the "V8 Series Reference Manual."	

· Changes to the settings on the [Detail], [Comment], and [Display Setting] tabs are not covered in this section.

## 1.2 Creating Multiple Copies of Numerical Data Displays

1. Select the numerical data display on the screen. Handles are shown around the numerical data display.

Screen [2] Edit ( )		
	Num, Display	<u>^</u>
	Mm     Syle     Operation/Alam     Detail     Coordinates     Comment     Display Setting)       Memory     FLC1     Image: Control of the control of	
	Standard Standard Standard Mo Franciso Mo Franciso Mo Franciso Mo Franciso Mo Standard Mo Franciso Mo X Valao Diplop Pat Mo X X Valao Diplop Pat Mo X X X Valao Diplop Pat Mo X X X X X X X X X X X X X X X X X X X	
Selects a drawing method for elipse.	Overlap ID 0 0 Dverlap Lbray Na. 1 0 Dirajap Poston X Coordinate 240 Y Coordinate 145 0 Specify with Mouse	

 Click [Edit] → [Multi Copy] or click the [Multi-copy] icon. The [Multi Copy] dialog box is displayed.

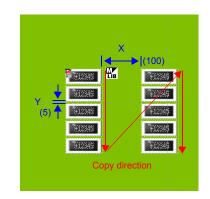
or



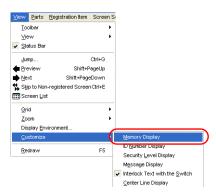


3. Set the options as shown below and click [OK]. This copies the numerical data display.

💿 Dot 🛛 🔘 Line/Column	<ol> <li>Interval</li> </ol>	O Pitch
Direction		100
066	×	v
	Y	J v
000	Quantity X	2
Change Direction	Quantity Y	5 🗘
Memory INC     Numerical Data Memory	File No. +1	Record No. +1 Step
PLC1 🗸 🛛 🗘 D 🔹	00100	1
Internal 🗸 0 🗘 \$u 🗸	00100 🔤	0
	00100	0 4



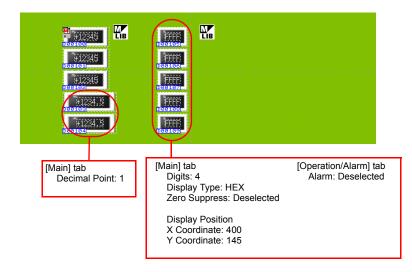
4. Select [View]  $\rightarrow$  [Customize]  $\rightarrow$  [Memory Display].

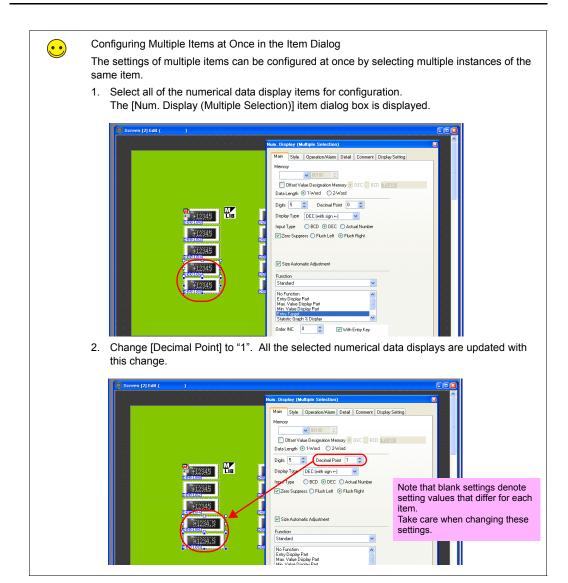


Memory addresses are displayed at the lower left on each numerical data display. The memory addresses are set from "D100" to "D109".

912245         912245           edstat         edstat           912245         edstat           912245         edstat           912245         edstat
12345 W12245
+12345 +12345
eedy 665:273 Z:100%

5. Change the settings of each numerical data display. In this section, change the settings to the following.





This completes the numerical data display and entry key registration process.

#### 1.3 Placing Character Displays and Registering Character Keys

- 1. Click [Parts]  $\rightarrow$  [Parts List]. The [Parts List] window is displayed.
- 2. Select [Entry], [Real #1 CHRA.Display].

🔚 Parts Lis	st - [Parts_En	tryMode_Ex_E.V7]		
Eile Edit ⊻	iew System S	etting <u>T</u> ool		
🗋 🖼 🖪	Entry		V III OFF	✓ 100% ✓
* *	Real	🖌 #1 [CHRA.Display]	~	~
				^
<b>B</b>				
ABCIE	FGH			
ABCDE	FGH			
TUPOPE	1.540			
				~
< 10	and a second second			> .:

3. Select a character display part and drag it onto the screen. This places the character display on the screen.



4. Configure each setting in the character display's item dialog box.

#### • [Main] tab

Set the memory address for writing and select a setting for [Function].

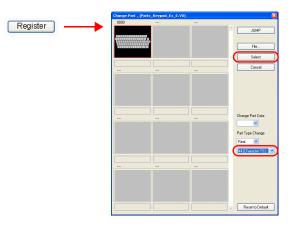
ir. Display
Main Style Detail Coordinates Comment Display Setting
Memory
PLC1 V 0 C D V 00110 C
Offset Value Designation Memory  DEC DEC Su00100
No. of Bytes 12
Character Position ③ Flush Left ③ Flush Right
Size Automatic Adjustment
No Function Entry Display Pat Tatio Taroet Sampling Status Display Memory Card Name Display Memory Card Name Display
Order INC 0 📚 🕑 With Entry Key Overlap ID 0 📚
Overlap Library No. 2 🗧 Register
Display Position
X Coordinate 280 🗢 Y Coordinate 220 🗢
Specify with Mouse

Item	Details	Setting Value
Memory	Set the memory address for writing.	D110
Offset Value Designation Memory	Select this checkbox to specify an offset. Not used in this section. For more information, refer to the "V8 Series Reference Manual."	Deselected
No. of Bytes	Set the number of bytes for the character array. Setting value: 1 to 127	12
Character Position	Select either flush-left or flush-right for the character display. Flush Left $\rightarrow$ <u>ABC</u> Flush Right $\rightarrow$ <u>ABC</u>	Flush Left
Text Process	Set the order of the 1st byte and 2nd byte in 1 word.[LSB $\rightarrow$ MSB] $15  0$ [MSB $\rightarrow$ LSB] $15  0$ [MSB $\rightarrow$ LSB] $15  0$ 15 $15  0$ $15  0$ 1st byte $1st byte$	LSB→MSB
Function	Set the character display function.	Entry Target
Order INC	Set the order in which the cursor moves when multiple entry targets are placed on the screen.	0
With Entry Key	Function: Entry Target (enabled when selected) Select this checkbox to add the entry key call function.	Selected
Overlap ID	Set the overlap ID to be used for showing the character entry keys. Setting value: 0 to 2	0
Overlap Library No. Register button <sup>*1</sup>	Set the overlap library number for registering the character entry keys. Select the desired keyboard by pressing the [Register] button and register the keyboard to the overlap library. If the keyboard is already registered to the overlap library, simply specify the overlap library number. Setting value: 0 to 9999	2

Item	Details	Setting Value
Display Position X Coordinate Y Coordinate Specify with Mouse button <sup>*2</sup>	Set the [X Coordinate] and [Y Coordinate] values for the display position of the overlap. [Specify with Mouse] button: Specify the coordinates by clicking with the mouse.	Selected X Coordinate: 100 Y Coordinate: 182

#### \*1 Registration method

Setting [Overlap Library No.] to "2" and clicking the [Register] button displays the [Change Part] window. Select [Real #4 [Character TS]] and click the [Select] button.



The character keys are registered to the specified overlap library number. For more information on the registered details, refer to page 4-14. If the specified overlap library number is already registered, the following confirmation message is

displayed.

Select [Yes] to overwrite the overlap library number or select [No] to register the character keys to another overlap library number.

V-SFT V	ersion 5.0
?	Overlap Library No.1 is already registered. Overwrite?
	Yes No

\*2 Mouse specification methodRefer to page 4-6.

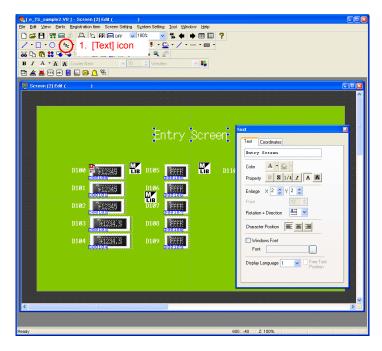
This completes the character display and entry key registration process.

#### 1.4 Placing Text

Entry Screen

This section explains how to place the screen title and text that indicates memory address numbers.

- 1. Click the [Text] icon ( $^{A_{B_{C}}}$ ). A cross-shaped cursor is displayed.
- 2. Click on the screen. A text frame is displayed.
- 3. Enter text.
- 4. Click a location on the screen other than the text.
- 5. Click the text to display its item dialog box. Change the text color and text size properties.

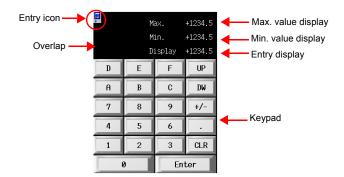


The completes the screen editing process.

#### 2. Overlap Library

The following items are registered to the overlap library contain the entry keys registered using the [Register] button. These can be used without changing any settings. If size adjustment or color changes are required, change these settings in the [Overlap Library Edit] window.

Overlap library number 1 (keypad)

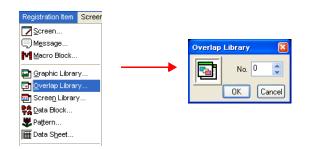


· Overlap library number 2 (character keys)



#### 2.1 Editing the Overlap Library

1. Click [Registration Item] → [Overlap Library]. The [Overlap Library] dialog box is displayed.



 Specify number "1" for the overlap library to which the entry key is registered. The [Overlap Library Edit] dialog box is displayed.

Overlap Librar	y [1] Edit																	DE
																		ľ
		lax.	+1234.5															l
			+1234.5															l
	· · E	isplay ·	+1234.5															
D	E	F	UP															
A	В	С	D₩															
		Ľ	104															ı
. 7	8	9	. +/															l
4.	5	6		1	 	 -	 	 -	-	 		 -				 		l
1	2	3	CLR															l
e		Б	nter															
				· .														

#### Overlap Settings

- 1. Click the overlap to display its item dialog box. Properties such as area color and size can be changed in this dialog box.
  - · [Main] tab

	Overlap       Main       Style       Detail       Coordinates       Overlap ID       System Button
Item	Description
System Button	Select this checkbox to add a switch function (move/dismiss)

the upper left corner of the overlap area.

For more information on the operation of this switch, refer to page 3-14 in "Showing and Hiding Multi-overlaps."

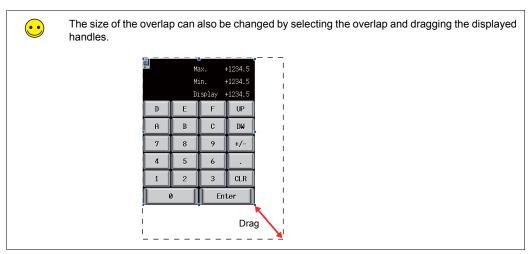
· [Style] tab

Main Style Detail Coordinates	
Frame Type 🛛 No Frame 🛛 👻	
Color	
Frame 📕 🗸	
Area	
Change Part	

Item	Description	Setting Value
Color Area	Set the area color.	-
Change Part	Change the part used for the overlap.	-

Setting Value Deselected

- [Detail] tab Settings on this tab do not require changing.
- [Coordinates] tab Set the placement position and size of the overlap. Settings on this tab do not require changing.



#### Settings of Items Placed on the Overlap

Edit items on the overlap by clicking [Overlap Editing]  $\rightarrow$  [No. 0] on the right-click menu.



#### 2.2 Entry Icon

An entry icon for configuring keypad settings is displayed at the upper left of the keypad placed on the screen. If this entry icon is not displayed or settings are incorrect, the keypad will not function correctly.

In this section, use the keypad without changing any settings.

For more information on the entry icon, refer to Chapter 7 in the "V8 Series Reference Manual."

En	try icon									
(		Ma	ax. +	1234.5						
		Min. +1234.5								
		Di	splay +	1234.5						
	D	E	F	UP						
	A	В	С	D₩						
	7	8	9	+/-						
	4	5	6							
	1	2	3	CLR						
		,	Enter							



#### 2.3 Entry Display Part/Max. Value Display Part/Min. Value Display Part

The entry display part function temporarily displays values entered using the entry keys. The max. value display part and min. value display part functions display the range of values that can be entered using the entry keys.

The maximum and minimum values set for [Alarm] when [Function] is set to "Entry Target" are displayed automatically.

This section only explains the essential settings for each function.

#### Overlap Library No. 1

1. Click on the overlap. The numerical data display's item dialog box is displayed.

- 2. Configure the numerical data display settings.
  - [Main] tab

Num. Displ	ay		
Co	ordinates	Comment	Display Setting
Mair		Operation/Alarm	
	fset Value Designation M		\$u00100
Digits [ Display	Type DEC (with sign	+-)	
Input Ty Zero	pe () BCD () DE Suppress () Flush Left	C OActual Number t 💿 Flush Right	
Function Standar No Func Entry D	d	~	
Min. Va	lue Displaý Part	Description	
3	For entry display	parts on the TS Se	ries unit, the system
mal Point		ers to the properties e these settings for t	
ау Туре	layout. Set the p	part by referring to the antry	ne greatest value or
Suppress			
tion	Set the function	to use.	

• [Style] tab

Set text properties of the entry target. Use the [Change Part] button to change parts.

[Detail] tab

Item	Description	Setting Value
ID	Set the ID. Always set the same ID as that shown on the entry icon.	0

[Coordinates] tab

Adjust the placement position.

Min. Value Display Part

#### • Overlap Library No. 2

- 1. Click on the overlap. The character display's item dialog box is displayed.
- 2. Configure the character display settings.
- [Main] tab

n Style	Detail Coordinates Comment Display Setting
ory	
nternal	🗸 0 🗘 \$u 🗸 00100 <
Offset \	Value Designation Memory 💿 DEC 🚫 BCD <u>\$u00100</u>
of Bytes	12 🗘
⊙ LSB->M	38
Text Proces LSB->M\$ Size Autor Size Autor	SB MSB->LSB
⊙ LSB->M Size Autor Junction No Function	SB MSB->LSB matic Adjustment
<ul> <li>LSB-&gt;M%</li> <li>Size Autor</li> <li>unction</li> <li>o Function</li> <li>ntry Display</li> <li>ntry Target</li> </ul>	SS MSB->LSB matic Adjustment
LSB->M ize Autor stion Function y Display y Target ipling Sta	SB MSB->LSB matic Adjustment

Item	Description	Setting Value
No. of Bytes	For entry display parts on the TS Series unit, the system automatically refers to the properties set for the entry target. Configure these settings for the purpose of layout. Set the part by referring to the greatest value or the longest display among the entry targets.	12
Character Position	Select either flush-left or flush-right for the character display. Flush Left $\rightarrow$ <u>ABC</u> Flush Right $\rightarrow$ <u>ABC</u>	Flush Right
Function	Set the function to use.	Entry Display Part

• [Style] tab

Set text properties of the entry target.

Use the [Change Part] button to change parts.

[Detail] tab

Item	Description	Setting Value
ID	Set the ID. Always set the same ID as that shown on the entry icon.	0

· [Coordinates] tab

Adjust the placement position.

The completes the overlap library editing process. The next section covers screen operation after transferring screen data to the TS Series unit.

#### **Confirming Unit Operation**

#### 1. Memory Addresses

The memory addresses used in this example are listed below.

Memory Contents
Numerical data display (Entry Target)
Character display (Entry Target)
Entry mode (Command Memory)
Entry mode (Info Output Memory)/Multi-overlap (Info Output Memory)

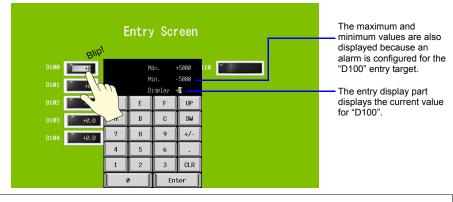
Change to a different memory address to control the entry mode and use information output memory.

#### 2. Unit Operation

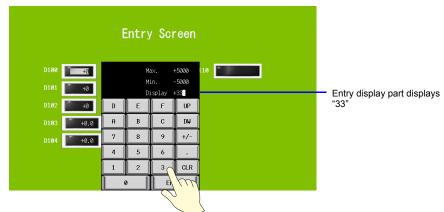
#### 2.1 Entering Values

 $\overline{\mathbf{\cdot}}$ 

1. Press the numerical data display for "D100". This displays the keypad overlap and highlights the value for "D100".

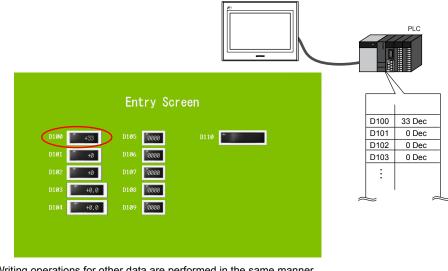


If an alarm is configured for the entry target, [Max.] and [Min.] are displayed on the overlap. The [Enter] key cannot be pressed if the entered value is outside the displayed range.

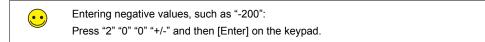


2. Press "3" twice on the keypad. "33" is displayed on the entry display part.

3. Press the [Enter] key. The keypad overlap disappears and the value of "D100" displays "33". Checking the "D100" address on the PLC should show that "33" is written.



Writing operations for other data are performed in the same manner.



#### 2.2 Entering Text

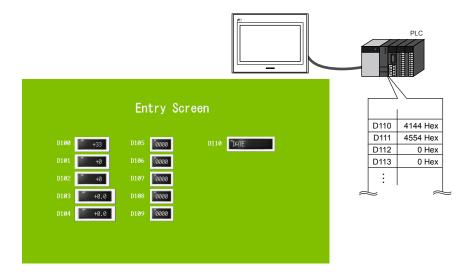
1. Press the character display for "D110". This displays the character overlap and highlights the value for "D110".

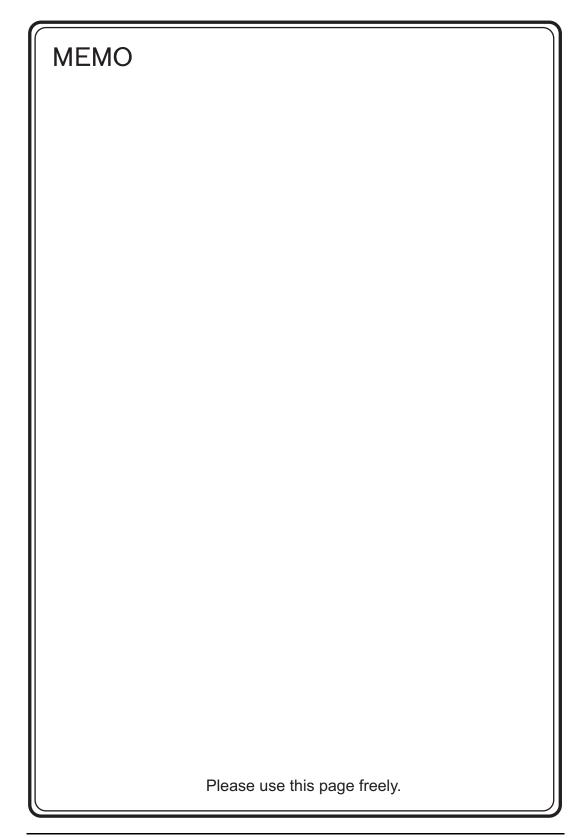


 Press "D" "A" "T" "E" using the character entry keys. "DATE" is displayed on the entry display part.



3. Press the [Enter] key. The character entry overlap disappears and "DATE" is displayed. Checking the "D110" and "D111" addresses on the PLC should show that "4144Hex" and "4554Hex" are written.

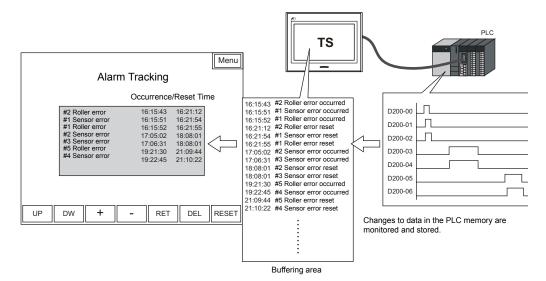




# 5. Alarm Screens

#### • Alarm tracking (historical)

Depending on the ON/OFF state of the relevant bit, the corresponding error message and time information (occurrence/reset) are displayed on a single line. This information is stored in the buffering area as alarm history.



Configure the following settings for [Alarm Tracking] that stores the alarm history.

- Store the alarm history  $\rightarrow$  Buffering area
- Display the stored alarm history  $\rightarrow$  Alarm tracking parts
- Register error messages  $\rightarrow$  Message editing



#### **Buffering Area**

This area is used to store sampling data. Select either the internal memory (DRAM/SRAM) of the TS Series unit or the external storage device for the storage target.

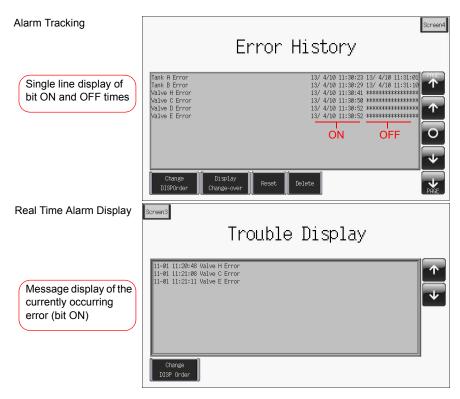
 Real time alarm display History information from alarm tracking can be used to just display the currently occurring error.

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#### **Screen Example**

Create the following screens in this section.



### **Screen Creation (1)**

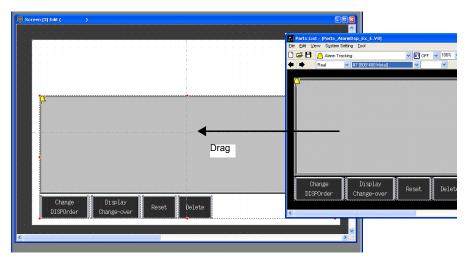
#### 1. Placing Parts

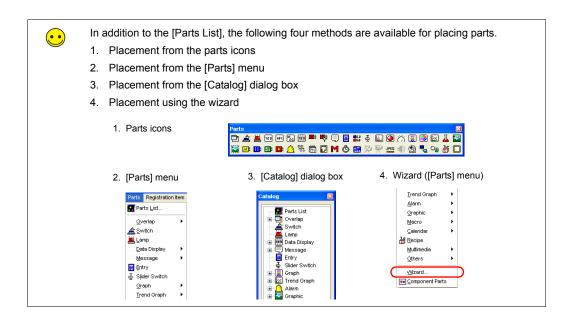
This section explains how to place alarm tracking parts.

- 1. Click [Parts]  $\rightarrow$  [Parts List]. The [Parts List] window is displayed.
- 2. Select [Alarm Tracking].

Parts List - [Parts AtarmDop_Ex_E,V8]
🗅 🖙 🗄 🛕 Alarm Tracking 💦 👽 🖬 OFF 🔍 100% 🔍
Change Display Reset Delete PAGE
ب المراجع المراجع

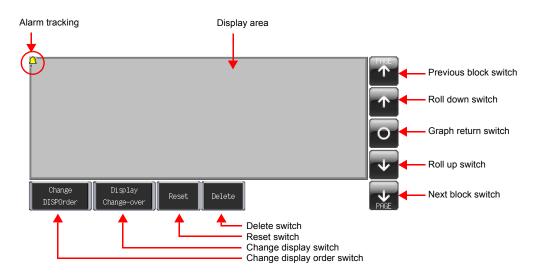
- 3. Select the desired part using the [ $\leftarrow$ ] and [ $\rightarrow$ ] icons or from the drop-down list.
- 4. Drag the selected part onto the screen. This places the alarm tracking part on the screen.





#### 2. Alarm Tracking Parts

The parts that comprise alarm tracking are shown below. Configure detailed settings via the alarm tracking icon. For more information on the operational specifications of other switches, refer to page 5-34.



### 3. Alarm Tracking Settings

This section explains how to configure the settings for alarm tracking.

1. Click on the alarm tracking part. Red handles and a [Link] item dialog box are displayed.

Screen [3] Edit (	
	Red handle
	Link
	Display Setting
********	• Show
	Оные
	Memory Designation  Bt Designation
	Memory
	PLC1 V 0 0 00000 0
	O Word Designation Display Condition
	Display Type   DEC+- DEC  BCD
	Condition 2 D00100 None 100
· · Change	Display Reset Delete
DISPOrder	Change-over
<	
ets a line type.	415:184 Z:100%

2. Click the alarm tracking icon at the upper left corner of the area. The [Alarm Tracking] item dialog box is displayed.

Screen [3] Edit ( )	
Alarm tracking icon	ter to Buffering Status
DISFOrder Change-over	×
Ready 311:187 Z:100%	

3. Configure the settings for alarm tracking.

### 3.1 [Main] Tab

Configure the following settings.

Main Style D	) etail
Buffering Area No	0 😂 Refer to Buffering Status
Start Message G	No. 0 🛟 Open
History Display	Occurrence/Cancellation Time
🗹 Date Display	06/04/01
	<ul> <li>☐ Year 4-digit Display</li> <li>☐ Zero Suppress for Year</li> <li>✓ Zero Suppress for Month-Day</li> </ul>
🗹 Time Display	13:30:20
Display Order	Ascending Order ODescending Order

Item	Description	Setting
Duffering Area No		Value
Buffering Area No.	Set the desired buffering area number for storing the alarm history. Setting range: 0 to 11 Set or check the buffering area numbers by clicking the [Refer to Buffering Status] button. For more information, refer to "4. Buffering Area Settings."	0
Start Message G No.	Set the G No. to which alarm messages are registered. Setting range: 0 to 127 Register or edit messages by clicking [Open]. For more information, refer to "5. Editing Messages."	0
History Display	Set the information to display in the alarm tracking area.	Occurrence/ Cancellation Time
Date Display	This setting is valid when [History Display] is set to "Time of Occurrence" or "Occurrence/Cancellation Time". Select the format for displaying the date when this checkbox is selected.	06/04/01
Year 4-digit Display	This setting becomes active when the [Date Display] checkbox and a Common Era calendar are selected. Select this checkbox to use four digits for displaying the year.	Deselected
Zero Suppress for Year	This setting becomes active when the [Date Display] checkbox and a Common Era calendar are selected. Set whether to enable zero suppression when displaying the year.	Deselected
Zero Suppress for Month-Day	This setting becomes active when the [Date Display] checkbox and a Common Era calendar are selected. Set whether to enable zero suppression when displaying the month and day.	Deselected
Time Display	Select the format for displaying the time when this checkbox is selected.	13:30:20
Display Order Ascending Order Descending Order	<ul> <li>Select a display order.</li> <li>Ascending Order Errors are displayed with the oldest one at the top.</li> <li>Descending Order Errors are displayed with the newest one at the top.</li> </ul>	Ascending Order
Acknowledge function	Select this checkbox to use the acknowledge function.	Deselected

#### 3.2 [Style] Tab

	Iain Style   Detail   Color   A   Property   B   S   Z   A	
Item	Description	Setting Value
Color	Set the message color.	Black
Property Bold/Shadow/Italic Transparent/Not Transparent	Set the properties and transparency of messages.	Transparent
Windows Font	Select this checkbox to use a Windows font.	Deselected

Set the text color and properties of error messages.

#### 3.3 [Detail] Tab

The settings on this tab do not require changing in this section.

Main Style [	Detail	
Primary Cause		
🔲 Screen Displa	y Screen No. 0	
Display switch	ing button(date/time format)	
ID 0 🛟		

Item	Description	Setting Value
Only Primary Cause Display	Select this checkbox to only display primary cause messages.	Deselected
Primary Cause Mark Display	Select this checkbox to display a mark (*) to the left of primary cause messages.	Deselected
Screen Display Screen No.	Select this checkbox to change to the details screen by tapping an alarm message on the unit.	Deselected
ID	Set the ID.	0

This completes the configuration of the alarm tracking settings. The next section covers buffering area configuration.

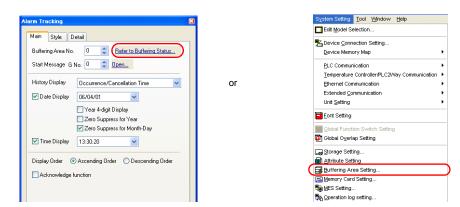
#### 4. Buffering Area Settings

Set the buffering area for storing the alarm history.

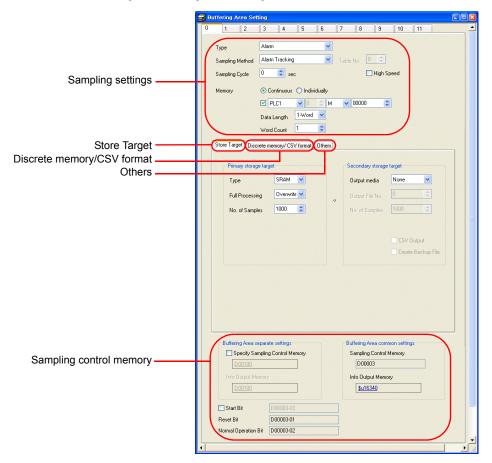
 $\overline{\cdot}$ 

The buffering area can be partitioned into a maximum of 12 sections (buffers), numbering 0 to 11.

 Click [Refer to Buffering Status] on the [Main] tab in the [Alarm Tracking] dialog box or click [System Setting] → [Buffering Area Setting].



2. Configure the settings for buffering area number 0.



## ♦ Sampling Settings

	🕞 Buffering Area Set	ting	
Buffering area —— number 0	0 1 2	3 4 5 6 7 8 9 10 11	<u> </u>
	Туре	Alarm	
	Sampling Method	Alarm Tracking Table No. 0	
	Sampling Cycle	0 📚 sec 🗌 High Speed	
	Memory	O Continuous ○ Individually	
		🗹 PLC1 🔍 🛛 💠 M 💌 00000 😂	
		1)u/ord V	

Item	Details	Setting Value
Type Sampling Method	Set the sampling method. The type and method are set automatically when an alarm item is placed on the screen.	Alarm Alarm Tracking
Sampling Cycle	Set the interval for monitoring sampling memory. Setting range: 0 to 65535 sec	0
Memory Continuous, Individually Memory address specification ON/OFF Data Length Word Count	Set the error memory address and total number of words. Continuous, memory address specification ON: The sampling memory comprises the consecutive addresses starting from the specified memory address. Set the data length of the specified memory address. Continuous, memory address specification OFF: The sampling memory comprises the consecutive addresses starting from the read area and sampling control memory. Individually: The sampling memory comprises the specified memory address. A bit memory address can be specified for each error. Set these addresses on the [Discrete memory/CSV format]	Continuous M00000 Data Length 1-Word Word Count 1

• Store Target Set the storage target for sampling data.

Primary storage ta	rget		Secondary storage	e target	
Туре	SRAM 💌		Output media	None	
Full Processing	Overwrite 🐱	->	Output File No.	0	
No. of Samples	1000 😂		No. of Samples	1000	

Item	Details	Setting Value
Primary storage target Type	DRAM: Store sampled data in the DRAM area of the unit. This area is cleared when the unit changes to STOP mode (when the power is turned off or the [Main Menu] screen is displayed). SRAM: Store sampled data in the SRAM area of the unit. Data in this area is retained even when the unit changes to STOP mode (when the power is turned off or the [Main Menu] screen is displayed).	SRAM

Item	Details	Setting Value
Primary storage target Full Processing	Set what happens when the specified number of sampling times ([No. of Samples]) is exceeded. Overwrite: Sampling continues even when the number specified for [No. of Samples] is exceeded. Old data is discarded automatically. Stop: Sampling stops when the number specified for [No. of Samples] is exceeded.	Overwrite
Primary storage target No. of Samples	Set the number of history samples to store in the primary storage target. An error occurrence (bit ON) is counted as one sample and error reset (bit OFF) is counted as one sample as well. If the number of samples is less than the display area size, the roll up and roll down switches do not operate.	1000
Secondary storage target Output media	Select "Storage" to store history data in the external storage device. History data is stored in BIN file format.	None
Secondary storage target No. of Samples	Set the number of history samples to store in the external storage device. If the number of samples is less than the display area size, the roll up and roll down switches do not operate.	None
Secondary storage target CSV Output	Select this checkbox to convert the secondary storage target BIN file to a CSV file and save it to the external storage device.	Deselected
Secondary storage target Create Backup File	Save the secondary storage target data in a backup folder.	Deselected

Discrete Memory/CSV Format Configure the sampling memory settings and data format settings for CSV file output to the external storage device when [Memory] is set to "Individually".

	Message G of Lines per Relay		0 🗢		CSV form	nat	Add	Delete	Up Down
No.	Memory	Message	Memorize	Snd	WAV File	Sound	E-Mail	Parameter	<b>^</b>
0	PLC1 M00000	Tark & Error	F		0	0	R	None	
1	PLC1 M00001	Tark B Error	1 Pr		0	0	2	None	
2	PLC1 M00002	Tank C Error			0	0	A	None	
3	PLC1 M00003	Tank D Error	1		0	0	R	None	
4	PLC1 M00004	Tank E Error	1 📝		0	0	R	None	
5	PLC1 M00005	Tark F Error	1 P	1	0	0	R	None	
6	PLC1 M00006	Tank 5 Error	F		0	0	R	None	
7	PLC1 M00007	Tark H Error		1	0	0	R	None	
8	PLC1 M00008	Valve A Error	1		0	0		None	
9	PLC1 M00009	Valve B Error	F		0	0		None	
10	PLC1 M00010	Valve C Error	1	1	0	0	R	None	
11	PLC1 M00011	Valve D Error	1	1	0	0	R	None	
12	PLC1 M00012	Valve E Error	f		0	0	R	None	~
<	DLC4 MODDED		7	n,	•	0			

Item	Details	Setting Value
Start Message G No., No.	Set the message group number to which alarm messages are registered.	GNo. 0 No. 0
CSV Format	Set the alarm format and date and time format when outputting to CSV file.	-
Memory	Valid when [Memory] is set to "Individually". Set the error bit corresponding to each message.	-

Item	Details	Setting Value
Message Memorize E-Mail	Displays the message corresponding to each error bit. The configuration can be checked when using the e-mail sending function. Double-click on a cell to display the [Message - Edit] window.	-
Parameter	Configure the parameter function settings.	None

#### Others

Configure settings on this tab when using time order alarming, e-mail sending or parameter functions.

Since the time order alarming screen is added to page 5-21 "Screen Creation (2)" in this chapter, perform the following settings.

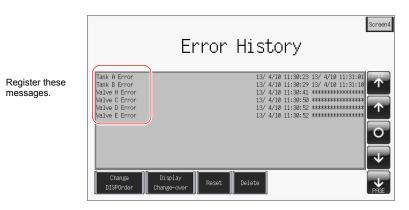
Function Use Mem VAdd Rec Wor	Dry/ CSV format       Others         Calculation Operation       Put msec information on logging time         orize initial value       U se WAV         Time Order Alarming       Continuous Replay         acknowledge function       U se E-Mail         ord Parameters       Send to         d Count       Read sampling memories per cycle         n Acknowledge function       U	
Item	Details	Setting Value
Add Time Order Alarming	Choose this setting when using the time order alarming function.	Selected
Acknowledge function	Choose this setting when using the acknowledge function for time order alarming.	Deselected

#### Sampling Control Memory/Information Output Memory

The sampling control memory is used to control the buffering area and the information output memory is used for outputting the state of the buffering memory.

This completes the configuration of the buffering area settings.

#### 5. Editing Messages



This section explains how to register error messages.

- 1. Click the alarm tracking icon to display its item dialog box.
- 2. Click [Main] tab  $\rightarrow$  [Open]. The message editing window for the corresponding group number is displayed.

	Group No.
	Image: Search     Image: Search       Image: Search     Image: Search
	Cursor Memorize/e-mail sending settings Line number
о с	he [Message - Edit] window can also be displayed with the following method. lick [Registration Item] $\rightarrow$ [Message]. The [Message] dialog box is displayed. Set [Group] to " and click [OK].
	Registration tem       Screen         Screen       Screen         Message       Screen         Screen Likrary       Screen Likrary         Screen Likrary       Screen Likrary         Screen Likrary       Screen Likrary         Pattern       Deta Stpet

$\overline{\bullet}$	The line number display can b number (0 to 255).	e changed between th	ne actual addr	ess (0 to 32767) and the group
		Display		
		Tool Bar	•	
		Jump	Ctrl+G	
		Previous Page	Ctrl+PageUp	
		Next Page	Ctrl+PageDown	
		Skip to Non-registered Screen		
		✓ Display Absolute Address as Line Nu	mber	
		Bold		
		✓ Underline		
		Mark	•	
		Display Setting		
		Text		
		✓ Alarm		

3. Enter the error message. Sixteen lines of messages can be registered because [Word Count] is set to "1" in the [Buffering Area Setting] dialog box.

Line No.	Message	Memory Address
00000	Tank A Error	M00000
00001	Tank B Error	M00001
00002	Tank C Error	M00002
00003	Tank D Error	M00003
00004	Tank E Error	M00004
00005	Tank F Error	M00005
00006	Tank G Error	M00006
00007	Tank H Error	M00007
80000	Valve A Error	M00008
00009	Valve B Error	M00009
00010	Valve C Error	M00010
00011	Valve D Error	M00011
00012	Valve E Error	M00012
00013	Valve F Error	M00013
00014	Valve G Error	M00014
00015	Valve H Error	M00015

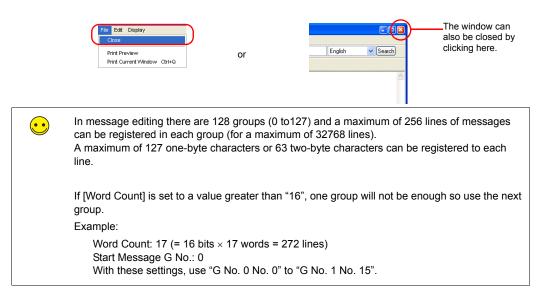
 $\overline{\mathbf{\cdot}}$ 

Eile Ed	sage [0] [e_TS it Display	_sample2.	V8] - Edit
<b>36</b>		8 4	Font
Languag	e 1 💌		
00000	M00000	<b>₽</b> ₽	Tank A Error
00001	M00001	<b>₽</b> ₽	Tank B Error
00002	M00002	E a	Tank C Error
00003	M00003	E a	Tank D Error
00004	M00004	<b>₽</b> ₽	Tank E Error
00005	M00005	<b>₽</b> ₽	Tank F Error
00006	M00006		Tank G Error
00007	M00007	<b>F</b>	Tank H Error
80000	M00008	<b>R</b>	Valve A Error
00009	M00009	<b>F</b>	Valve B Error
00010	M00010		Valve C Error
00011	M00011	<b>F</b>	Valve D Error
00012	M00012	<b>R</b>	Valve E Error
00013	M00013	<b>F</b>	Valve F Error
00014	M00014	<b>F</b> A	Valve G Error
00015	M00015	<b>R</b> A	Valve H Error
<			
Ready			

The underline in messages is used to indicate the line feed position. If an underline is present where there are no characters, it indicates that there is a space character present. The underline can be hidden by clicking [Display]  $\rightarrow$  [Underline] to remove the checkmark.

isplay			sage [0] [e_TS	_sample2.v	vol - Eau	
Tool Bar	•	Eile Ec	lit Display		1 1 1	
Jump	Ctrl+G	00 E		8 4	Font Font	
Previous Page	Ctrl+PageUp	Languag	je 1 💌			
Next Page	Ctrl+PageDown	00000	M00000	<b>F</b> A	Tank A Error	
Skip to Non-registered Screer	1	00001	M00001		Tank B Error	
Display Absolute Address as	Line Number	00002	M00002	LE CONTRACTOR DE LA CONTRACTÓR DE LA CONTRA La CONTRACTÓR DE LA CONT	Tank C Error	
		00003	M00003	<b>₽</b> ₽	Tank D Error	No underlin
Bold		00004	M00004	<b>F</b>	Tank E Error	No underin
<ul> <li>Underline</li> </ul>		00005	M00005		Tank F Error	
Mark	•	00006	M00006	<b>₽</b> ₽	Tank G Error	
Display Setting		00007	M00007		Tank H Error	
Text		80000	M00008	<b>R</b>	Valve A Erro	r
Alarm		00009	M00009	RA	Valve B Erro	r
/ Alarhi		00010	M00010		Valve C Erro	r

4. When registration is complete, click [File] menu  $\rightarrow$  [Close].

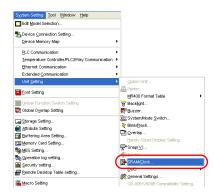


This completes the message registration process.

#### 6. SRAM/Clock Settings

SRAM format settings must be configured because [Primary storage target] - [Type] was set to "SRAM" for data retention after the power is turned off. Clock settings must also be configured because the clock display is set to use the internal clock of the TS Series unit.

1. Click [System Setting]  $\rightarrow$  [Unit Setting]  $\rightarrow$  [SRAM/Clock].



Configure the following settings in the [SRAM/Clock Setting] dialog box. Do not change any of the other settings.

Use Built-in Clock SRAM Auto Format	Total No	Words Available [654	408 Word]	
SRAM Mapping	Header		Set Word	Word Cour
Memory Card Emulation Area	[0]	+	0	[0 Word]
Storage Area for Memo Pad	[0]	+	0	
Non-volatile Memory (Word) (\$L)	[0]	+	0	
Non-volatile Memory (Double-word) (S	(LD) [0]	+	0	
Japanese Conversion Function			[0 Word]	
Primary Storage of Sampling			[5192 Word]	
Operation log storage point			[0 Word]	
			No. of Total W	ords (5192\
			No. of Words F	ree [60216

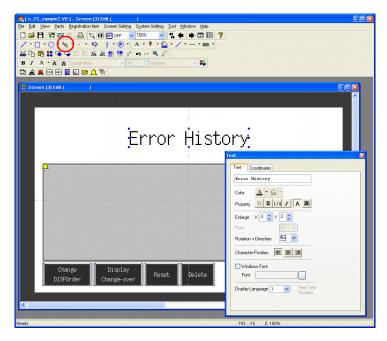
Item	Details	Setting Value
Use Built-in Clock	Selected: Use the clock built into the TS Series unit. Deselected: Use the clock in the PLC.	Selected
SRAM Auto Format	Selected: Automatically format the SRAM area. Deselected: The message "Error:161 (24:) The SRAM area is not formatted." or "The SRAM/clock setting does not match the SRAM area format." is displayed when transferring screen data. In this case, execute [Format of SRAM] on the [Main Menu] screen. For more information on the format procedure, refer to page 5-28.	Selected
Primary Storage of Sampling	Check the amount of SRAM used for the primary storage target.	-

3. Click [OK]. This completes the configuration of the SRAM and clock settings.

#### 7. Placing Text

This section explains how to place the screen title.

- 1. Click the [Text] icon. A cross-shaped cursor is displayed.
- 2. Click on the screen. A text frame is displayed.
- 3. Enter text.
- 4. Click a location on the screen other than the text.
- 5. Click the text again to display its item dialog box. Change the text color and text size properties.



The completes the screen editing process.

#### 8. Checking the Display Area Size

Check how registered messages will be displayed on the unit in V-SFT.

1. Click [View]  $\rightarrow$  [Display Environment]. The [Display Environment] dialog box is displayed.

	on Item Screen S	Display Environment
<u>T</u> oolbar	•	Display Others
<u>V</u> iew	•	Guiois
✓ Status Bar		Switch/Lamp Display 📴 OFF 👻
Jump	Ctrl+G	
Preview	Shift+PageUp	Display Language 🛛 👻
<mark>∳</mark> Next Sh	nift+PageDown	Overlap Display Vo.0 Vo.1 Vo.2
🕵 Skip to Non-registered	d Screen Ctrl+E	erende ended
📰 Screen List		Detail
Grid		✓Display Area
Zoom		✓ Display Paint
Display Environment	· · ·	Display Message     Display Data Block
Customize		✓ Display MLIB/GLIB/SLIB Mark
Outomize		✓Interlock Text with the Switch
<u>R</u> edraw	F5	Limit of Edit Model Area
		Display Animation Path
		☑ Display Center Line
		<u>×</u>
		Restore Defaults
		Apply to all screens.
		 OK Cancel Appl

2. Select the [ Display Message] checkbox in the [Detail] list and click [OK]. This displays the messages in the display area.

Screen [3] Edit ( )	Error History
Ank A Error Tank B Error Tank C Error Tank D Error Tank E Error Tank F Error Tank G Error Tank H Error Valve B Error Valve B Error Valve D Error Valve D Error	YY/MY/DD hh:mm:ss YY/MY/DD hh:mm:ss YY/MY/DD hh:mm:ss Y/MY/DD hh:mm:ss YY/MY/DD hh:mm:ss Y/MY/DD hh:mm:ss
	Display Reset Delete

3. Adjust the size of each part as necessary. For more information on the adjustment method, refer to "8.1 Changing Parts and Adjusting Size."

 $\overline{\mathbf{\cdot}}$ 

#### 8.1 Changing Parts and Adjusting Size

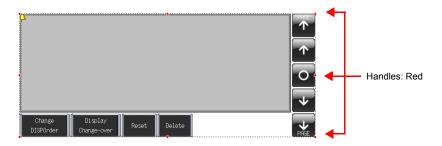
The part placed in this example links together multiple parts into a single part. In this linked state, all individual parts are moved, enlarged, and reduced together. The link between these individual parts must be canceled in order to move, enlarge, and reduce them separately. When editing is complete, the individual parts can be linked again.

#### Distinguishing Linked Parts

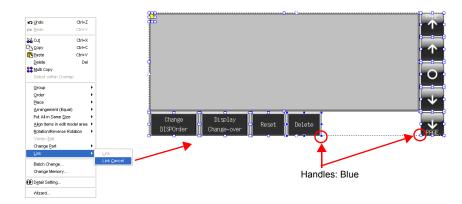
If multiple parts are selected at the same time and surrounded with red handles when clicking on a part grouping, these parts are linked together. Linked parts all share the same ID.

#### Canceling Links

1. Click on the placed part. The entire part that includes the display area and switches is selected and surrounding with red handles.



2. Click [Link] → [Link Cancel] on the right-click menu. The handle color changes from red to blue and each individual part becomes surrounded by handles.



3. Move, enlarge, or reduce each part as necessary.

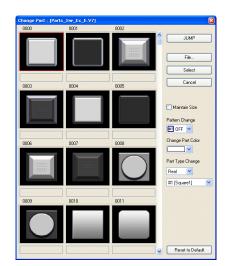
#### Changing Parts

Perform the following procedure to change the part design and color.

- 1. Select the part for changing to display its item dialog box.
- 2. Click [Style]  $\rightarrow$  [Change Part]. The [Change Part] window is displayed.

Delay	Detail	Display Set		Coordinates
Main	Text	Interlock	Macro	Style
OFF · ON	1 🗘	/1		
OFF n	N	4 >		
Color				
OFF 🧯		stomize		
Frame				
Frame	Fla	isn		
-				
	No Frame	~		
raw Mode	O XOR (	REP		
Transpar	ent			
Change Pa	_			
	art			

3. Select the desired part from the list.

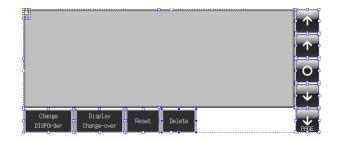


Item	Description
☐ Maintain Size	Deselected: Change to the default size. Selected: Maintain the size prior to changing.
Pattern Change	The pattern image of OFF, ON, and patterns up to P128 can be checked.
Change Part Color	Change the color.
Part Type Change	Change the part type. Real/Sign/3D Circle/Square/Plant/Icon etc.

4. Select the part properties for changing and click [Select] to change the part on the screen.

 $\overline{\mathbf{\cdot}}$ 

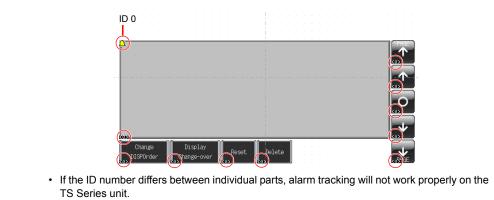
- Linking Parts
  - 1. Select all the individual parts used in alarm tracking.



 Click [Link] → [Link] on the right-click menu. The handle color changes to red and the individual parts are linked together.

undo cur Redo	Ctrl+Z Ctrl+Y		<u>0</u>				•••••		PHGE
<b>‰</b> ⊂ut	Ctrl+X								
C_b <u>C</u> opy	Ctrl+C								
Paste	Ctrl+V								
Delete	Del								
🚼 Multi Copy			1						
Select within C	Dverlap								$\sim$
Group	•								
Qrder	•								
Place	•								V V
Arrangement (	Equal)				<u> </u>		10	1	-
Put All in Same	Size 🕨		CH	nange	Display				
Align items in e	edit model area 🕨		DIS	POrder	Change-over	Reset	Delete		$\mathbf{v}$
<u>R</u> otation/Rever	rse Rotation 🔹 🕨					<u> </u>			 PAGE
Vertex Edit			_						
Change Part	•								
Link	•	Link							
Batch Change.		Link <u>C</u> ancel							
Change Memor	ry								
Detail Setting									
Wzard									

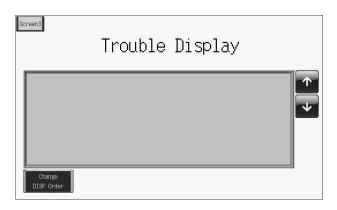
- Linking cannot be performed if any parts unrelated to alarm tracking are selected.
- Linking individual parts together changes their IDs to the same ID as the alarm tracking icon. This ID can be displayed by clicking [Detail] → [ID] on the right-click menu.



#### **Screen Creation (2)**

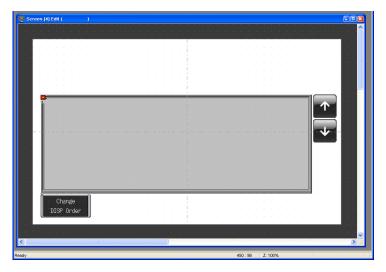
This section explains how to create a real time alarm display using the buffering area configured for screen number 3.

This screen will only display errors that are currently occurring.



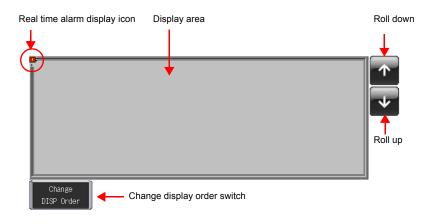
#### 1. Placing Parts

- Click [Parts] → [Parts List] or double-click [Parts List] in the [Catalog] dialog box. The [Parts List] window is displayed.
- 2. Select [Time Order Alarming].
- 3. Place the linked real time alarm display parts on the screen.



# 2. Real Time Alarm Display Parts

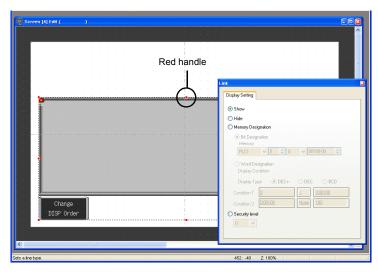
The parts that comprise the real time alarm display are shown below. Configure detailed settings via the real time alarm display icon. For more information on the operational specifications of other switches, refer to page 5-34.



### 3. Real Time Alarm Display Settings

This section explains how to configure the settings for the real time alarm display.

1. Click on the real time alarm display part. Red handles and a [Link] item dialog box are displayed.



2. Click the real time alarm display icon at the upper left corner of the area. The [Time Order Alarming] dialog box is displayed.

🖵 Screen [4] Edit ( )	
Real time alarm display icon	Time Order Alaming
Change DISP Order	Main     Sub-action     Style     Derival       Main     Sub-action     Style     Derival       Stat     Main     Sub-action     Status       Stat     Main     Sub-action     No     Status       Stat     Main     Sub-action     No     Status       Stat     Main     Sub-action     No     Status       No. of Lines per Refery     Status     Action Area     Display Area       V     Time Display     Display Order     Newest Order       Use the settings in Bulleting Area for the message settings
ts a line type.	485:210 Z:100%

3. Configure the settings for the real time alarm display.

# ♦ [Main] Tab

Configure the following settings.

ain	Sub-action Style Detail
uffei	ing Area No. 0 🛟 <u>Refer to Buffering Status</u>
art I	Message G No. 0 🌒 No. 0 🎒 <u>Open</u>
. ol	Lines per Relay 1
otio	n Area Display Area 🗸
- T	me Display

Item	Description	Setting Value
Buffering Area No.	Set the desired buffering area number for storing the alarm history. Use the setting from "Screen Creation (1)".	0
Action Area	Set the position to display error messages on the screen.	Display Area
Time Display	Deselected: Only display error messages. Selected: Display the time that errors occur and the corresponding messages. Max. 15 one-byte characters for time display 04/01 13:30:20	Selected
Display Order Chronological Order Newest Order	<ul> <li>Select a display order.</li> <li>Chronological Order Errors are displayed with the oldest one at the top.</li> <li>Newest Order Errors are displayed with the newest one at the top.</li> </ul>	Chronological Order

Item	Description	Setting Value
Use the settings in Buffering Area for the message settings	Deselected: Set the destination for registering error messages using the start message. Selected: Use the message specified with the buffering area number.	Selected

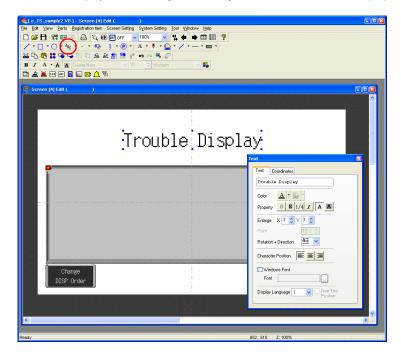
#### Do not change the settings on the [Sub-action], [Style], and [Detail] tabs in this section.

This completes the configuration of the real time alarm display settings.

#### 4. Placing Text

This section explains how to place the screen title.

- 1. Click the [Text] icon. A cross-shaped cursor is displayed.
- 2. Click on the screen. A text frame is displayed.
- 3. Enter text.
- 4. Click a location on the screen other than the text.
- 5. Click the text to display its item dialog box. Change the text color and text size properties.

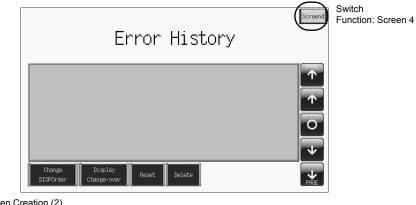


# 5. Creating a Switch for Changing to Another Screen

This section explains how to place a switch that changes between screen 3 (created in "Screen Creation (1)") and screen 4 (created in "Screen Creation (2)") when pressed.

- 1. Place a switch.
- 2. Set [Function] to "Screen" in the switch's item dialog box and set [Screen No.] to the number of the destination screen.

Screen Creation (1)



Screen Creation (2)

Switch Function: Screen 3

Screen3	Trouble Display	
		*
Change DISP Order		

3. Adjust the switch color and position.

This completes the screen creation process. The next section covers confirming screen operation on the TS Series unit.

\_

# Confirming Unit Operation

# 1. Memory Addresses and Registered Messages

The memory addresses used in this example are listed below.

Memory Address	Memory Contents	1	Message
D00000			-
D00001	Read area		
D00002			
D00003-00			-
D00003-01	Sampling control memory		
D00003-02	(Buffer No. 0)		
D00003-03			
M00000		GNo. 0 No. 0	Tank A Error
M00001		GNo. 0 No. 1	Tank B Error
M00002		GNo. 0 No. 2	Tank C Error
M00003		GNo. 0 No. 3	Tank D Error
M00004		GNo. 0 No. 4	Tank E Error
M00005		GNo. 0 No. 5	Tank F Error
M00006		GNo. 0 No. 6	Tank G Error
M00007	Sampling memory	GNo. 0 No. 7	Tank H Error
M00008	Sampling memory	GNo. 0 No. 8	Valve A Error
M00009		GNo. 0 No. 9	Valve B Error
M00010		GNo. 0 No. 10	Valve C Error
M00011		GNo. 0 No. 11	Valve D Error
M00012		GNo. 0 No. 12	Valve E Error
M00013		GNo. 0 No. 13	Valve F Error
M00014		GNo. 0 No. 14	Valve G Error
M00015		GNo. 0 No. 15	Valve H Error
\$u16340-00			-
\$u16340-01	Info output memory (Buffer No. 0)		
\$u16340-02			
\$u16340-03			

#### 1.1 Sampling Control Memory

The sampling control memory is used to control the operation and state of the buffering area function. The allocation and contents of sampling control memory differ in the following manner according to the buffering area settings.

In this example, [Buffering Area separate settings] are not set, so memory from the [Read Area] is allocated consecutively in 3 word blocks from "D0". In addition, the sampling control memory becomes bit numbers "00" through "03" of "D00003" because buffer number 0 is being used.

 Buffering Area separate settings: Not set Memory from the [Read Area] is allocated consecutively in 3 word blocks from "D0".

	MSB															LSB
Sampling control memory	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
	U	S	R	Т	U	S	R	Т	U	S	R	Т	U	S	R	Т
Where "n" is the read area: n + 3 n + 4 n + 5	Buffer No. 3 Buffer No. 7 Buffer No. 11				Buffer No. 2 Buffer No. 6 Buffer No. 10			Buffer No. 1 Buffer No. 5 Buffer No. 9				Buffer No. 0 Buffer No. 4 Buffer No. 8				
Buffering Area separate settings: Set The four least significant bits in the specified memory are used for control.																

	MSB													LSB		
Sampling control memory Specified memory	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
	0	0	0	0	0	0	0	0	0	0	0	0	U	S	R	Т
													Bu	uffer N	lo. n	

The details of each bit are described below.

T: Trigger

(

This bit is not used when [Type] is set to "Alarm".

R: Reset

When this bit is set to "ON", data in the specified buffer is cleared and sampling stops. When this bit is set to "OFF", sampling is started.

S: Normal operation bit

This bit is only valid when [Type] is set to "Alarm" and [Sampling Method] is set to "Alarm Tracking". This bit is used to obtain more detailed alarm information by performing control in conjunction with the state of the sampling bit.

U: Sampling bit

This bit is only valid when [Type] is set to "Alarm" and [Sampling Method] is set to "Alarm Tracking". This bit is used to obtain more detailed alarm information by performing control in conjunction with the state of the normal operation bit.

#### 1.2 Sampling Memory

This error memory is used for monitoring in order to store alarm history. The memory used differs depending on the setting of the [Memory] checkbox ( $\Box$ ) in the [Buffering Area Settings] dialog box.

In this example, the sampling memory is "M00000" to "M00015" because the [Memory] checkbox is selected, the memory address is set to "M00000", and [Data Length] is set to "1-Word".

# 2. Unit Operation

This section explains how to confirm screen operation after transferring screen data to the unit.

# 2.1 SRAM Format/Clock Settings

The message "Error:161 (24:)" is displayed immediately after transferring screen data to a new unit. In this case, execute [Format of SRAM] on the [Main Menu] screen. Also configure the settings for the built-in clock on the same screen.

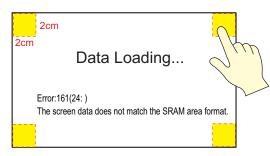
Subsequent screen data transfers to units that have been formatted will not result in this error.\*1  $\overline{\mathbf{\cdot}}$ SRAM data is retained until the battery in the unit runs out. If the unit is turned off when the battery has run out, the SRAM data is erased. In this case, reformat the SRAM area. Unit SRAM Area Error occurs Normal SRAM SRAM 0 **\$**I Perform formatting \$LD (Main Menu) Unformatted (new unit/dead Sampling battery) primary storage target Not used 128kbyte

\*1 The case when the [ SRAM Auto Format] checkbox is selected in the [SRAM/Clock Setting] dialog box.

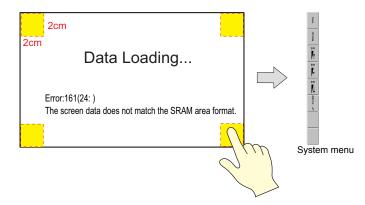
1. The message "Error:161 (24:) The screen data does not match the SRAM area format." is displayed after transferring screen data to the unit.

Data Loading...

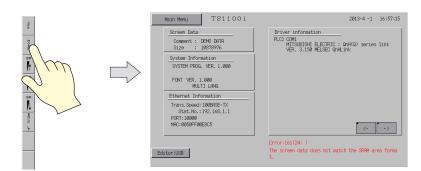
Error:161(24: ) The screen data does not match the SRAM area format. 2. Press and hold your finger on any of the four screen corners (2 cm squares) for more than two seconds and then release your finger.



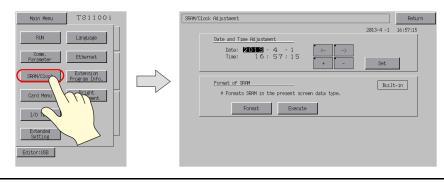
3. Next, press any of the remaining corners for more than two seconds within one second of releasing the first corner to display a system menu on the right side of the screen.



4. Press the [MODE] switch. The [Main Menu] screen is displayed.



5. Press the [Main Menu] switch and then press [SRAM/Clock]. The [SRAM/Clock Adjustment] screen is displayed.



6. Press the [Format] switch and then press the [Execute] switch. A "\*\* Format Completed \*\*" message is displayed.

SRAM/Clock Adjustment		Return		
Date and Time Adjustment         2           Date:         2010 - 4 - 1           Time:         16:57:15	2013-4 -1 Set	16:57:15		
Format of 399M Format Streen data type. Format Excert	Built	in		
			$\sum$	
	SRAM/Cloc	k Adjustment		Return
		<u>Date and Time</u> Date: <b>2</b> Time:	Adjustaant 016 - 4 - 1 16 : 57 : 15 + -	2013-4 -1 16:57:15
			RPM in the present screen data type.	Built-in mat Completed **

7. Under [Date and Time Adjustment] on the same screen, set the correct date and time and press [Set].

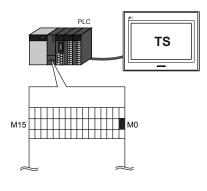
The date and time at the upper right of the screen are updated.

SRAM/Clock	Adjustment Return	
	Date and Time Adjustment         2013-4 -1         17:0 :0           Date:         2013 - 4 - 1         ->         ->           Time:         17:0 : •         +         -         Set	)
	Format of SNPM	
	Format Execute ** Format Completed **	

- 8. Press the [Return] switch to return to the [Main Menu] screen. The error message disappears.
- 9. Press the [Main Menu] switch and then press the [RUN] switch. The screen is displayed.

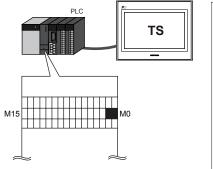
# 2.2 Executing Sampling

1. An error occurred on tank A ("M00000" error bit turned ON). The message "Tank A Error" and the time of occurrence are displayed.





 An error occurred on tank B ("M00001" error bit turned ON). The message "Tank B Error" and the time of occurrence are displayed.



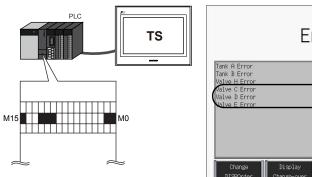
	Error History
Tank A Error Tank B Error	13/ 4/10 11:30:23 ####################################
	<u>↑</u>
	↓ ↓
Change DISPOrder	Display Change-over Reset Delete

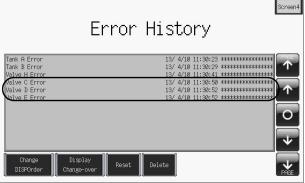
 An error occurred on valve H ("M00015" error bit turned ON). The message "Valve H Error" and the time of occurrence are displayed.

PLC TS	Brren4 Error History
	Tank A Error         13/ 4/10 11:30:23 ************************************
M15 M0	
	Change Display Delete DisPOrder Change-over Delete

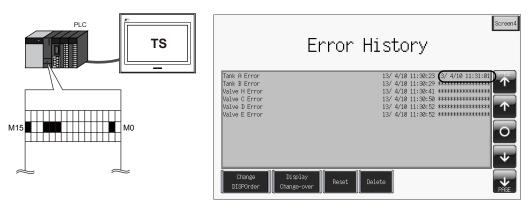
 Errors occurred on valves C, D, and E ("M00010", "M00011", and "M00012" error bits turned ON).

The messages "Valve C Error", "Valve D Error" and "Valve E Error" and the times of occurrence are displayed.

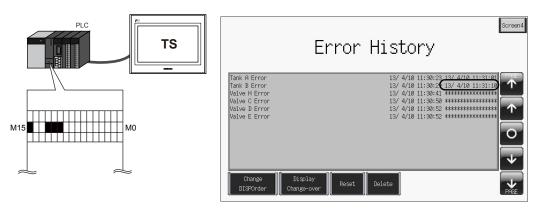




5. The error on tank A was reset ("M00000" turned OFF). The reset time of the "Tank A Error" is displayed.

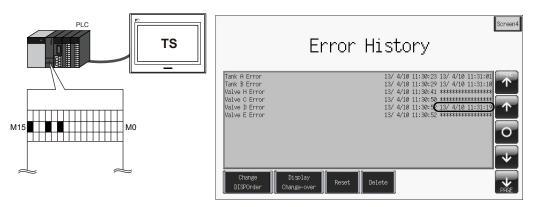


6. The error on tank B was reset ("M00001" turned OFF). The reset time of the "Tank B Error" is displayed.

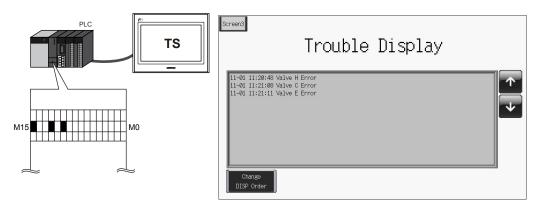


The error on valve D was reset ("M00011" turned OFF). The reset time of the "Valve D Error" is displayed.

The messages of errors that have not been reset are for valves C, E, and H.



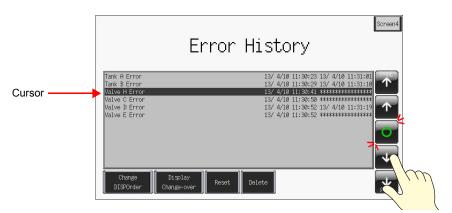
8. Change the screen using the [Screen3] switch. Only the error messages for the errors that have not been reset are displayed.



#### 2.3 Operating Switches

Use switches to check the error history.

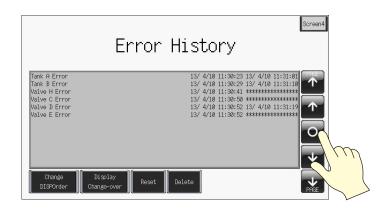
1. Press the switches on the right side of the area. A cursor is displayed. The graph return switch flashes.



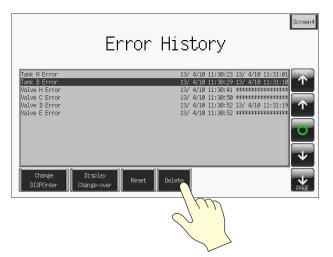
2. The roll up and roll down switches can move the cursor and next block and previous block switches can change between pages.

	Error History	
Cursor ———	Tank A Error       13/4/10 11:30:23 13/4/10 11:31:01         Tank B Error       13/4/10 11:30:29 13/4/10 11:31:01         Valve H Error       13/4/10 11:30:41         Valve C Error       13/4/10 11:30:41         Valve D Error       13/4/10 11:30:50         Valve D Error       13/4/10 11:30:52         Valve E Error       13/4/10 11:30:52	
	Change Display Reset Delete PHT	m.
	Reset Delete	M.

3. Pressing the graph return switch causes the cursor to disappear and returns to the latest display.



4. Press the [Delete] switch with the cursor on screen.

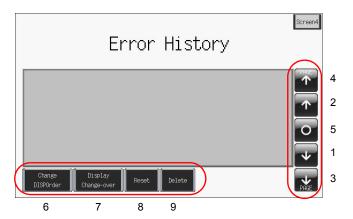


5. The selected history entry is deleted.

	Screen4 Error History
Tank A Error Valve H Error Valve C Error Valve D Error Valve E Error	13/ 4/10 11:30:23 13/ 4/10 11:31:01 13/ 4/10 11:30:41 ####################################
Change DISPOrder	Display Change-over Reset Delete PAGE

#### • Switch Functions

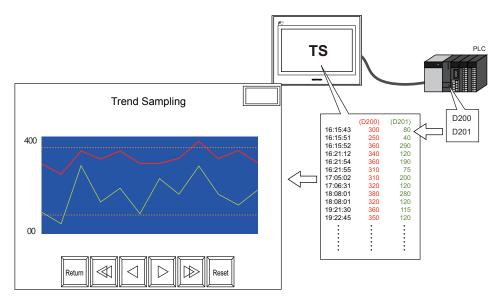
The following switch functions are used in alarm tracking and real time alarm display.



No	Function	Description	Alarm	Relay
1	Roll up	Scroll one line toward the newest history entry. If all entries cannot be displayed at once, one entry scrolls into view at a time.		•
2	Roll down	Scroll one line toward the oldest history entry. If all entries cannot be displayed at once, one entry scrolls into view at a time.		0
3	Next block	Scroll one page toward the newest history entry.		
4	Previous block	Scroll one page toward the oldest history entry.		
5	Graph return	This button flashes in conjunction with the cursor when any of the roll up, roll down, next block, or previous block switches are pressed. Pressing this switch when it is flashing returns to the latest display where the switch stops flashing and the cursor disappears.		×
6	Change DISPOrder	Change the display order between ascending order and descending order.		0
7	Display Change-over	This switch is only available when the [ Date Display] checkbox or the [ Time Display] checkbox is selected in the [Alarm Tracking] dialog box (page 5-5). Pressing this switch changes between date display and time display.	0	
8	Reset	Press this switch once to turn on its lamp and then press it again within two seconds to clear the contents of the buffering area. Sampling starts again immediately after the buffering area is cleared. If the switch is not pressed again within two seconds, the switch's lamp turns off and resetting is nullified.		×
9	DELETE	Delete the history entry selected with the cursor. This operation only removes the entry from the display area and does not affect the total frequency of occurrence display or total time of occurrence display.		

# 6. Trend Screen (Trend Sampling)

This section explains how to use trend sampling to display line graphs of data that changes over time. Trend sampling accumulates changing data in the buffering area so that previous data can be checked for trends.



Trend sampling can display a maximum of 16 graph lines in a single area.

Configure the following two settings in order to use trend sampling.

- Accumulate changing data → Buffering area settings
- Display accumulated data  $\rightarrow$  Trend sampling settings

#### Buffering Area

Keyword

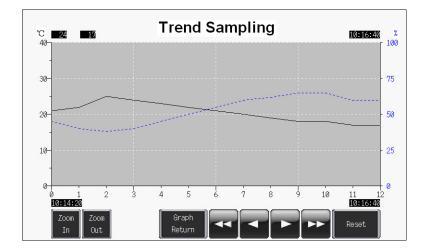
This area is used to store sampling data. Select either the internal memory (DRAM/SRAM) of the TS Series unit or the external storage device for the storage target.

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3. Trend Sampling Settings	page 6-5
4. Adjusting the Display Area Size	page 6-15
5. Buffering Area Settings	page 6-15
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Checking Operation on the Unit	page 6-25
1. Memory Addresses	page 6-25
2. Unit Operation	page 6-27

# Screen Example

#### Create the following screen in this section.



# Screen Configuration

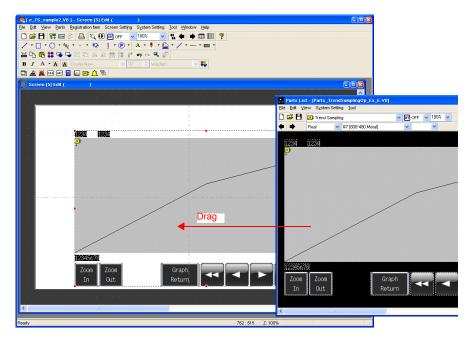
# 1. Placing Parts

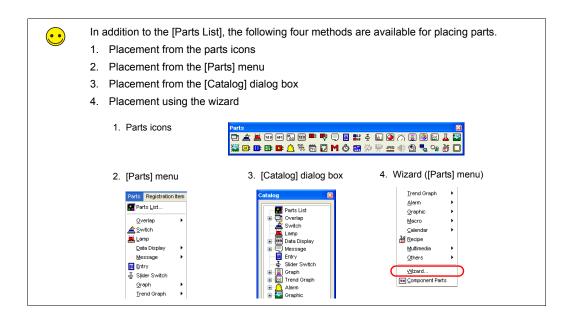
Place the trend sampling part on the screen.

- 1. Click [Parts]  $\rightarrow$  [Parts List].
- 2. Select [Trend Sampling].

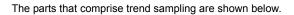
🔚 Parts L	ist - [Parts_Tre	ndSamplingGp_Ex_E.V8				
	√jew S <u>v</u> stem Se					
🗋 🖼 🗄	Trend Sam	ping	V OFF OFF	✓ 100% ✓		
<b>* *</b>	Real	¥7 [800*480 Metal]	× )	~		
1234 <mark>2</mark> 1	802934				12345378	~

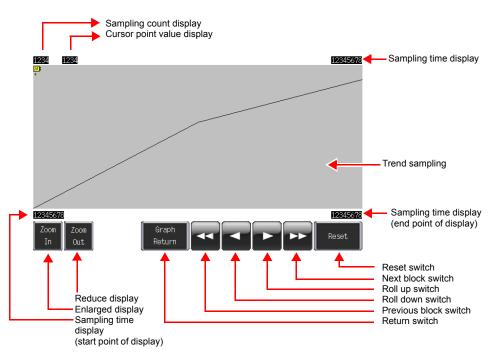
- 3. Select the part using the [ $\leftarrow$ ] and [ $\rightarrow$ ] icons or from the drop-down list.
- 4. Drag the selected part onto the screen. This places the trend sampling part on the screen.





# 2. Trend Sampling Parts

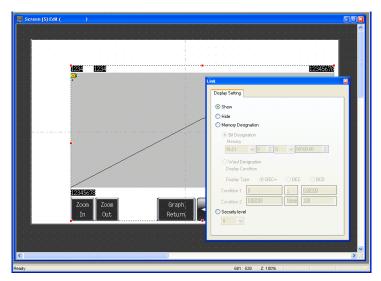




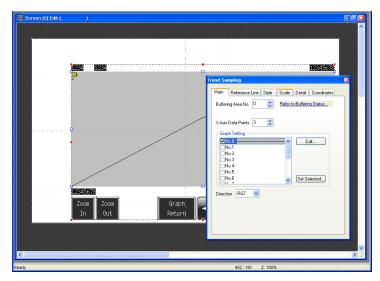
# 3. Trend Sampling Settings

Configure the settings for trend sampling.

1. Click the trend sampling area on the screen. The [Link] item dialog box is displayed.



2. Click on display area again. The [Trend Sampling] item dialog box is displayed.



3. Configure the settings for trend sampling.

# 3.1 [Main] Tab

Set the number of graph lines and the number of plot points.

Trend Sa	mpling					E
Main	Reference Line	Style	Scale	Detail	Coordinates	
Bufferi	ng Area No. 1	*	Refer t	o Bufferir	ng Status	
XAxis	Data Points 13	\$				
	h Setting					
			_^	E	dit	
	o.2 o.3					
	o.4 o.5					
	0.6		<u>~</u>	Set Se	elected	
Directi	on RGT 💌					

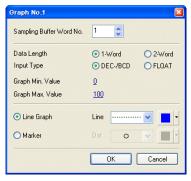
Item	Details	Setting Value
Buffering Area No.	Set the buffering area number for storing data. Setting range: 0 to 11 Set or check the buffering area numbers by clicking the [Refer to Buffering Status] button. For more information, refer to "Buffering Area Settings" on page 6-19.	1
X Axis Data Points	Set the number of points used to display data. Setting range: 3 to 800 Point Point 1 2 3 ···	13
Graph Setting	Set the number of graph lines. Setting range: 0 to 15 Configure the settings for each graph using the [Edit] button. For more information, refer to "Graph Settings" (page 6-7).	No.0 No.1 Selected
Direction	Set the direction to draw graph lines. $\begin{array}{c c} \downarrow & & & \downarrow \\ \downarrow & & & \downarrow \\ \hline \\ Coordinate & & & & & & \\ \hline \\ rigin & & & & & & \\ \hline \\ X & & & & & & \\ \hline \\ Y & & & & & & \\ \hline \\ Y & & & & & & \\ \hline \\ Y & & & & & & \\ \hline \\ Y & & & & & & \\ \hline \\ Y & & & & & & \\ \hline \\ Y & & & & & & \\ \hline \\ Y & & & & & & \\ \hline \\ Y & & & & & & \\ \hline \\ Y & & & & & & \\ \hline \\ Y & & & & & \\ \hline \end{array}$	→

#### Graph Settings

Set the properties of each graph line.

· Graph No. 0 Graph No.0 0 Sampling Buffer Word No. \* Data Length ⊙ 1-Word O 2-Word Input Type ● DEC-/BCD ○ FLOAT Graph Min. Value 0 Graph Max. Value <u>40</u> 💿 Line Graph Line O Marker 0 ΟK Cancel

#### · Graph No. 1



Item	Details		Graph No. 0 Setting Value	Graph No. 1 Setting Value
Sampling Buffer Word No.	Set which word of data to displa stored in the buffering area. Setting range: 0 to 128	ay as a trend from the data	0	1
	Buffering Area Settings Word Count*	Sampling Buffer Word No.		
	2-Word	0		
		1		
	* For more information on buff 6-19.	ering area settings, refer to page		
Data Length	Set the data length of the sampling data. Setting range: 1-Word/2-Word		1	1
Graph Min. Value	Set the minimum and maximun Select constants for a fixed ran range.	0	0	
Graph Max. Value	Setting range: 1-Word: -32768 to 32767 2-Word: -2147483648 to 2147483647		40	100
Line Graph Marker	Set the line type or point type ir	addition to color.	Solid line Black	Dotted line Blue

#### [Set Selected] Button

 $\overline{}$ 

The [Set Selected] button is convenient to use when the settings required for data length, graph minimum value, and graph maximum value are all the same.

- 1. Select the number checkboxes of all the trends for use.
- 2. Click the [Set Selected] button. The [Set Selected] dialog box is displayed.
- Set values for [Data Length], [Graph Min. Value], and [Graph Max. Value] and click [OK]. This configures the [Data Length], [Graph Min. Value], and [Graph Max. Value] settings for the selected trend numbers all at once.

Set Selected		×
Data Length	O 1-Word	O 2-Word
Input	⊙ DEC-/BCD	🔵 FLOAT
Graph Min. Val	ue <u>O</u>	
Graph Max. Va	lue <u>100</u>	
	DK Car	ncel

# 3.2 [Reference Line] Tab

Lines of reference can be displayed on the graph area. A maximum of four lines can be displayed at once. This function is not used in this example.

#### 3.3 [Style] Tab

Settings such as area color can be configured. These settings are not changed in this example.

# 3.4 [Scale] Tab

Graphs can display a scale along the right, left, top, or bottom side. In this example, scales are displayed along the right, left, and bottom sides.

T	end Sampling 🛛 🛛 🕅
	Main Reference Line Style Scale Detail Coordinates
	Set scale display  Color  Back Color  Length of small scale  Left Right Bottom Top  Small scale alignment Equal divide No. of divisions  8
	Make small scales larger every      Scales.     Gid Line     Color     Display only large scale     Num. Display
	Style Display only large scale

Item	Details	Setting Value
Set scale display	Select this checkbox to display scales.	Selected
Color Back Color	Set the color of the major and minor tick marks and axis lines of the scale. This setting is common to all left, right, bottom, and top sides.	Color: Black Back Color: White
Length of small scale	Set the length of the minor tick marks of the scale. This setting is common to all left, right, bottom, and top sides. Range: 1 to 16 The thickness of the markings is fixed.	Deselected
Left Right Bottom Top	Select the corresponding checkboxes on these tabs to display a scale, grid lines, and numbers. For more information, refer to the next page.	Left Right Bottom Selected

# ♦ [Left] Tab

ain Reference Line Style Scale	Detail Coordinates
	Detail Coordinates
Set scale display	Length of small scale 5
	r TLength of small scale 5
Left Right Bottom Top	
Scale	
Small scale alignmen	t Equal divide 🔽
No. of divisions	8
Make small scale:	s larger every 2 🚖 scales.
Grid Line	s larger every - scales.
	····· Line Type
Display only large	
Display only large	scale
Num. Display	
8 Style	
Display only large	
• Display only large	scale
Range Setting	
<ul> <li>Match with the specified graph</li> </ul>	No. 0
○ Set values	
Data Length 💿 1-Word	O 2-Word
Input Type (  DEC-/BCD	⊖ FLOAT
0 . 40	

Item	Details Setting Value	
□ Scale	Set whether to display a scale.	Selected

6-9

		0 - #
Item	Details	Setting Value
Small scale alignment	Equal divide (unit based on [No. of divisions]) Minor tick marks are equally spaced according to the set number of divisions along the axis line. No. of Divisions: 4	Equal divide 8
	<ul> <li>Equal interval (unit based on [No. of intervals]) Minor tick marks are spaced at the specified interval based on the range (maximum and minimum values of the specified graph or an arbitrary setting value) set under [Range Setting].<sup>*1</sup></li> </ul>	
	$\begin{bmatrix} \text{Interval: } 25 & 25 \\ \text{Graph No. 0} & 25 \\ \text{Graph Min. Value: 0} & 25 \\ \text{Graph Max. Value: 100} & 25 \\ 25 \\ 25 \\ 25 \\ 25 \\ 0 \end{bmatrix}$	
	Interval: 1 Scale value: 0 to 4 1 $\begin{pmatrix} 4\\ 3\\ 1\\ 2\\ 1\\ 1\\ 1\\ 0 \end{bmatrix}$	
Make small scales larger every n scales.	Select this checkbox to display major tick marks. The major tick mark is twice the length of the minor. The thickness of the markings is fixed.	Selected Every 2 marks
	Major tick marks	
Grid Line Color Line Type Display only large scale	Select this checkbox to display grid lines at the positions of major and minor tick marks of the scale. Set the color and line type of grid lines. It is possible to only display grid lines at the positions of major tick marks.	Selected Color: White
	Major tick marks only     Major/minor tick marks	Display only large scale Selected
		UCIECIEU

Item		Details	Setting Value
☐ Num. Display		ay reference values based on the m values of the specified graph or an der [Range Setting].*1	Selected Black Display only large scale Selected
		0	
Range Setting	•	when [Small scale alignment] is set   Num. Display] checkbox is selected. ption.	Match with the specified graph No. 0

1 When the graph direction is [↑/↓], numbers are displayed based on the setting of [X Axis Data Points] on the [Main] tab or [Set values] under [Range Setting].

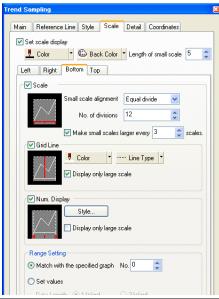
# ♦ [Right] Tab

These settings are the same as for the [Left] tab. In this example, configure the following settings.

Small scale alignmen	t Equal divide	~
No. of divisions	: 4	*
Make small scale	s larger every 5	🗘 scales.
Grid Line		
Color	scale	
Num. Display		
Style		
Display only large	scale	
Range Setting		
<ul> <li>Match with the specified graph</li> </ul>	No. 1 🛟	

Item	Setting Value
□Scale	Selected
Small scale alignment	Equal divide 4
Make small scales larger every n scales.	Deselected
□Grid Line Color Line Type □Display only large scale	Deselected
□Num. Display	Selected Blue
Range Setting	Match with the specified graph No. 1

# ♦ [Bottom] Tab



Item	Details	Setting Value
☐ Scale	Set whether to display a scale.	Selected
Small scale alignment	<ul> <li>Equal divide (unit based on [No. of divisions]) Minor tick marks are equally spaced according to the set number of divisions along the axis line.</li> <li>No. of Divisions: 4</li> <li>Equal interval (unit based on [No. of intervals]) Minor tick marks are spaced at the specified interval based on the setting of [X Axis Data Points] on the [Main] tab or the range of [Set values] under [Range Setting].<sup>*1</sup></li> <li>Interval: 2 X Axis Data Points: 11</li> <li>Interval: 5 Range: 0 to 20</li> <li>0 2 4 6 8 10 0 5 10 15 20 5 5 5 5 5</li> </ul>	Equal divide 12

Item	Details	Setting Value
Make small scales larger every n scales.	Select this checkbox to display major tick marks. The major tick mark is twice the length of the minor. The thickness of the markings is fixed.	Selected Every 3 marks
☐ Grid Line Color Line Type ☐ Display only large scale	Select this checkbox to display grid lines at the positions of major and minor tick marks of the scale.         Set the color and line type of grid lines.         It is possible to only display grid lines at the positions of major tick marks.         • Display only large scale       • Major/minor tick marks	Selected White Display only large scale Selected
☐ Num. Display	Select this checkbox to display reference values based on the setting of [X Axis Data Points] on the [Main] tab or the range of [Set values] under [Range Setting]. <sup>*1</sup> Interval: 2 X Axis Data Points: 11 Interval: 5 Range: 0 to 20 0 2 4 6 8 10 0 5 10 15 20	Selected Black
Range Setting	Settings in this area are valid when [Small scale alignment] is set to "Equal interval" and the [ Num. Display] checkbox is selected. Refer to the setting of each option.	Match with the specified graph No. 0

\*1 When the graph direction is  $[\uparrow/\downarrow]$ , numbers are displayed based on the range (maximum and minimum values of the specified graph or an arbitrary setting value) set for [Range Setting].

# [Top] Tab

These settings are the same as for the [Bottom] tab. These settings are not used in this example.

# 3.5 [Detail] Tab

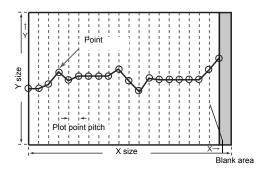
Configure the settings for displaying or hiding trend sampling as well as zooming in and out of the graph.

Main	Reference Line	Style	Scale	Detail	Coordinates
🔲 U:	se Control Memory				
	Internal 🔍	0 🗘	\$u 🗸	00100	* *
7000	ning in and out				
	ommand				
	Internal O	External			
Ľ		External			
Con	nmand Memory				
	Internal 🗸	0	\$u 🗸	00100	4
			ψυ		

Item	Details	Setting Value
Use Control Memory	This memory address is associated with displaying or hiding graph line numbers 0 to 15. Each graph line is displayed or hidden when the corresponding bit is set (ON) or reset (OFF). 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 00 Graph No. 1 Graph No. 1 Graph No. 0	Deselected
Zooming in and out Internal External/Command Memory	<ul> <li>These are the settings for zooming in and out of graphs.</li> <li>Internal Use switches for zooming in and out. Zooming in: actual size → 2 times → 4 times → 8 times Zooming out: 8 times → 4 times → 2 times → actual size</li> <li>External The graph is zoomed in or out according to the value specified in the command memory.</li> <li>C: Actual size</li> <li>1: 2 times</li> <li>2: 4 times</li> <li>3: 8 times</li> </ul>	Internal
Process Cycle High Speed, Low Speed, Refresh	<ul> <li>Set the read cycle for the command memory. Redrawing is performed at the following timings.</li> <li>High Speed Every cycle</li> <li>Low Speed Once in several cycles One cycle when the screen is opened At the leading edge (0 → 1) of bit 15 (data read refresh) in read area "n + 1"</li> <li>Refresh At the leading edge (0 → 1) of bit 15 (data read refresh) in read area "n + 1" Macro command TREND_REFRESH</li> </ul>	-
ID	<ul> <li>Set the ID. All the parts used in trend sampling must be set to the same ID.</li> <li>Switches Roll Up/Roll Down/Next Block/Previous Block/Reset/Graph Return/Zoom In/Zoom Out</li> <li>Number display Sample count display/sample time display/cursor value display</li> <li>Display area</li> </ul>	0

# 4. Adjusting the Display Area Size

The size of the required display area in trend sampling changes depending on the setting for [X Axis Data Points]. For this reason, size adjustment must be performed after settings are configured.

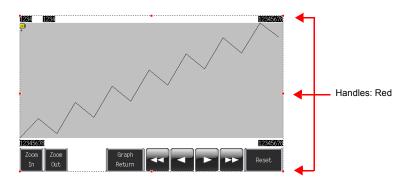


The part placed in this example links together multiple parts into a single part. In this linked state, all individual parts are moved, enlarged, and reduced together. The link between these individual parts must be canceled in order to select them separately. When editing is complete, the individual parts can be linked again.

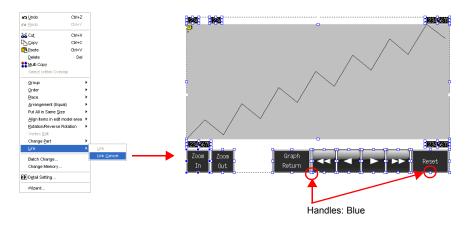
Distinguishing Linked Parts
 If multiple parts are selected at the same time with red handles when clicking on a part, these parts are linked together.
 Linked parts all share the same ID.

# Canceling Links

1. Click on the placed part. The entire part that includes the display area and switches is selected and surrounded with red handles.

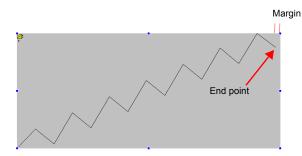


 Click [Link] → [Link Cancel] on the right-click menu. The handle color changes from red to blue and each individual part becomes surrounded by handles. Adjust the size, change parts, and move parts as required.

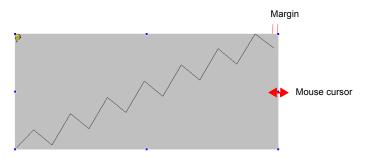


# Size Adjustment

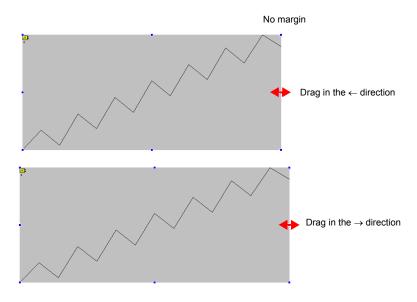
1. Click the trend sampling display area.



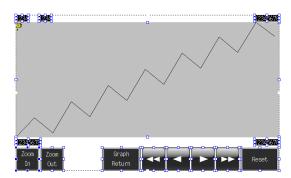
 Place the mouse cursor over a handle located on a margin. The mouse cursor changes to a ↔ mark.



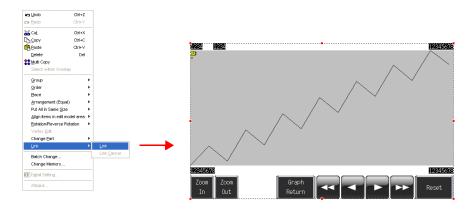
3. Drag the handle with the mouse cursor displayed as  $\leftrightarrow$ . The size is adjusted automatically.



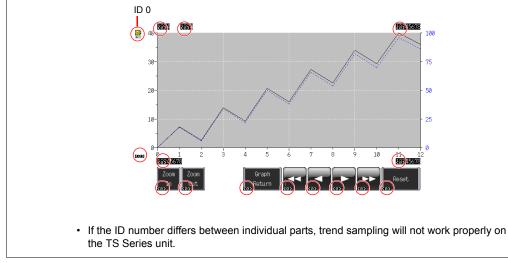
- Linking Parts
  - 1. Select all the individual parts used in trend sampling.



 Click [Link] → [Link] on the right-click menu. The handle color changes to red and the individual parts are linked together.



Linking cannot be performed if any parts unrelated to trend sampling are selected.
Linking individual parts together changes their IDs to the same ID as the trend sampling icon. This ID can be displayed by clicking [Detail] → [ID] on the right-click menu.



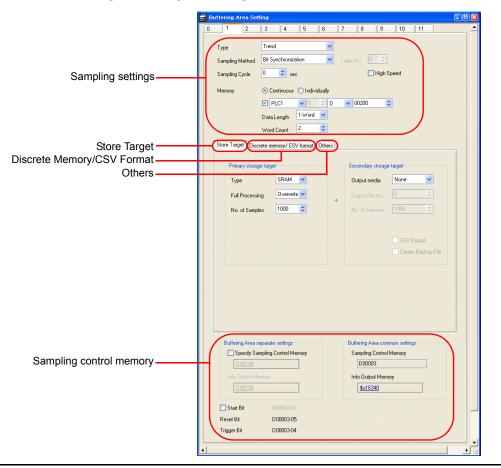
#### 5. Buffering Area Settings

Set the buffering area for storing the trend sampling history. Use buffering area number 1 in this example because buffering area number 0 is used for alarms.

 $\overline{\bullet}$ The buffering area can be partitioned into 12 sections, numbering 0 to 11. 1. Click [Refer to Buffering Status] on the [Main] tab in the [Trend Sampling] dialog box or click

- System Setting Tool Window Help Edit Model Selection. Main Reference Line Style Scale Detail Coordinates Revice Connection Setting... Buffering Area No. 1 \_\_\_\_\_ Device Memory Map PLC Communication X Axis Data Points 13 💲 Ethernet Communication Graph Setting ✓No.0 ✓No.1 ···· Extended Communication E dit... or Unit Setting Eont Setting ∏No.3 No.4 Global Function Switch Setting ⊡No.5 🔯 Global Overlap Setting □No.6 Set Selected... 🚙 Storage Setting. Direction RGT 💌 Attribute Setting 📑 Buffering Area Se Memory Card Setting. MES Setting..
- 2. Configure the settings for buffering area number 1.

[System Setting] → [Buffering Area Setting].



6

# Sampling Settings

	📑 Buffering Area Se	fting	
Buffering area —— number 1		3 4 5 6 7 8 9 10 11	<b>^</b>
	Туре	Trend	
	Sampling Method	Bit Synchronization 💽 Table No. 0 😂	
	Sampling Cycle	0 🔹 sec 🗌 High Speed	
	Memory	Continuous O Individually	
		🗹 PLC1 🔍 0 🔅 D 🔍 00200 🗳	
		Data Length 1-Word 💌	
		Word Count 2	

Item	Details	Setting Value
Type Sampling Method	Set the sampling method. Bit Synchronization: Data is stored at the edge of the OFF → ON trigger bit. Constant Sampling: Data is stored at the specified interval (= [Sampling Cycle]).	Trend Bit Synchroniz ation
Sampling Cycle	Set the interval for monitoring sampling memory and the trigger bit. Setting range: 0 to 65535 sec	0
Memory Continuous, Individually Memory address specification ON/OFF Data Length Word Count	Set the sampling memory address and total number of words. Continuous, memory address specification ON: The sampling memory comprises the consecutive addresses starting from the specified memory address. Set the data length of the specified memory address. Continuous, memory address specification OFF: The sampling memory comprises the consecutive addresses starting from the read area and sampling control memory. Individually: The sampling memory comprises the specified memory address.	Continuous D200 Data Length 1-Word Word Count 2

• Store Target Set the storage target for sampling data.

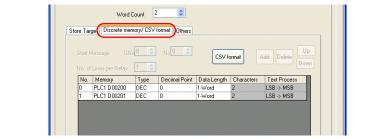
Primary storage tar	get		Secondary storage	e target
Туре	SRAM 🔽		Output media	None
Full Processing	Overwrite 🔽	.>	Output File No.	0
No. of Samples	1000 🗘		No. of Samples	1000
				CSV Output

Item	Details	Setting Value
Primary storage target Type	DRAM: Store sampled data in the DRAM area of the unit. This area is cleared when the unit changes to STOP mode (when the power is turned off or the [Main Menu] screen is displayed). SRAM: Store sampled data in the SRAM area of the unit. Data in this area is retained even when the unit changes to STOP mode (when the power is turned off or the [Main Menu] screen is displayed).	SRAM

Item	Details	Setting Value
Primary storage target Full Processing	Set the action to take when the specified number of sampling times ([No. of Samples]) is exceeded.	Overwrite
	Overwrite: Sampling continues even when the number specified for [No. of Samples] is exceeded. Old data is discarded automatically. Stop: Sampling stops when the number specified for [No. of	
	Samples] is exceeded.	
Primary storage target No. of Samples	Set the number of history samples to store in the primary storage target.	1000
	If the number of samples is less than the display area size, the roll up and roll down switches do not operate.	
Secondary storage target Output media	Select "Storage" to store history data in the external storage device. History data is stored in BIN file format.	None
Secondary storage target No. of Samples	Set the number of history samples to store in the external storage device.	None
	If the number of samples is less than the display area size, the roll up and roll down switches do not operate.	
Secondary storage target CSV Output	Select this checkbox to convert the secondary storage target BIN file to a CSV file and save it to the external storage device.	Deselected
Secondary storage target Create Backup File	Save the secondary storage target data in a backup folder.	Deselected

# Discrete Memory/CSV Format

Configure the sampling memory settings and data format settings for CSV file output to the external storage device when [Memory] is set to "Individually".



Item	Details	Setting Value
CSV Format	Set the date and time format when outputting CSV files to the external storage device.	-
Memory	Valid when [Memory] is set to "Individually". Set the sampling memory address.	-
Type/Decimal Point Data Length/Characters Text Process	Set the data type of the specified memory address.	-

#### Others

Configure settings on this tab to use calculation functions (mean values, total values, etc.) on the sampling data.

The settings on this tab do not need to be changed in this section.

6

◆ Sampling Control Memory/Information Output Memory The sampling control memory is used to control the buffering area and the information output memory is used for outputting the state of the buffering memory.

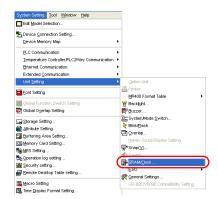
This completes the configuration of the buffering area settings.

#### 6. SRAM/Clock Settings

SRAM format settings must be configured because [Primary storage target] - [Type] was set to "SRAM" for data retention after the power is turned off. Clock settings must also be configured because the clock display is set to use the internal clock of the TS Series unit.

1. Click [System Setting]  $\rightarrow$  [Unit Setting]  $\rightarrow$  [SRAM/Clock].

1



2. Configure the following settings in the [SRAM/Clock Setting] dialog box. Do not change any of the other settings.

♥ Use Built-in Clock ♥ SRAM Auto Format	Total No.	of \	Words Available [654]	08 Word]
SRAM Mapping	Header		Set Word	Word Count
Memory Card Emulation Area	[0]	+	0	[0 Word]
Storage Area for Memo Pad	[0]	+	0	
Non-volatile Memory (Word) (\$L)	[0]	+	0	
Non-volatile Memory (Double-word) (\$LD	) [0]	+	0	
Japanese Conversion Function			[0 Word]	
Primary Storage of Sampling			[9248 Word]	)
Operation log storage point			[0 Word]	

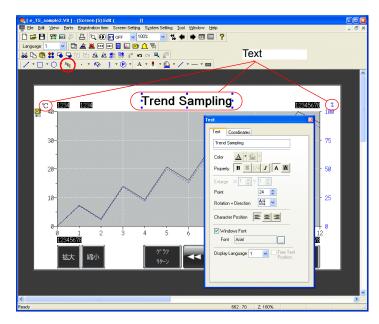
Item	Details	Setting Value				
Use Built-in Clock	Selected: Use the clock built into the TS Series unit. Deselected: Use the clock in the PLC.	Selected				
SRAM Auto Format	Selected: Automatically format the SRAM area. Deselected: The message "Error:161 (24:) The SRAM area is not formatted." or "The SRAM/clock setting does not match the SRAM area format." is displayed when transferring screen data. In this case, execute [Format of SRAM] on the [Main Menu] screen. For more information on the format procedure, refer to "SRAM Format/Clock Settings" on page 5-28.	Selected				
Primary Storage of Sampling	Check the amount of SRAM used for the primary storage target.	-				

3. Click [OK]. This completes the configuration of the SRAM and clock settings.

# 7. Placing Text

Place text on the trend sampling screen.

- 1. Click the [Text] icon. A cross-shaped cursor is displayed.
- 2. Click on the screen. A text frame is displayed.
- 3. Enter text.
- 4. Click a location on the screen other than the text.
- 5. Click the text again to display its item dialog box. Change the text color and text size properties.



This completes the screen editing process.

# Checking Operation on the Unit

# 1. Memory Addresses

The memory addresses used in this example are listed below.

Memory Address	Memory Contents				
D00000					
D00001	Read area				
D00002					
D00003-04		T: Trigger			
D00003-05	Sampling control memory	R: Reset			
D00003-06	(Buffer No. 1)	Not used			
D00003-07		U: Start bit			
D00200	Sampling memory (Buffer Word No. 0)				
D00201	Sampling memory (Buffer Word No. 1)				
\$u16340-04					
\$u16340-05	Info output momony (Puffor No. 1)				
\$u16340-06	Info output memory (Buffer No. 1)				
\$u16340-07					

#### 1.1 Sampling Control Memory

The sampling control memory is used to control the operation and state of the buffering area function. Allocation and the contents of sample control memory differ depending on settings.

In this example, [Buffering Area separate settings] are not set, so memory from the [Read Area] is allocated consecutively in 3 word blocks from "D0". In addition, the sampling control memory becomes bit numbers "04" to "07" of "D00003" because buffer number 1 is being used.

<b>.</b>	MSB											LSB				
Sampling control memory	15	14	13	12	11	10	09	80	07	06	05	04	03	02	01	00
	U	S	R	Т	U	S	R	Т	U	S	R	Т	U	S	R	Т
Where "n" is the read area: n + 3 n + 4 n + 5	Buff	er No er No er No	o. 7		Buff	er No er No er No	. 6		But	fer N fer N fer N	o. 5		Buffe	er No er No er No	. 4	

Buffering Area separate settings: Set  $(\bullet \bullet)$ The four least significant bits in the specified memory are used for control. MSB LSB Sampling control memory 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 00 Specified memory 0 0 0 0 0 0 0 0 0 0 0 0 U S Т R Buffer No. n

The details of each bit are described below.

T: Trigger

This bit is only valid when [Type] is set to "Trend" and [Sampling Method] is set to "Bit Synchronization". History is stored when this bit is "ON".

R: Reset

When this bit is set to "ON", data in the specified buffer is cleared and sampling stops. When this bit is set to "OFF", sampling is started.

S: Normal operation bit

This bit is not used when [Type] is set to "Trend".

U: Start bit

This bit is only valid when [Type] is set to "Trend" and [Sampling Method] is set to "Constant Sampling".

Sampling is performed while this bit is set to "ON".

#### 1.2 Sampling Memory

This memory stores the sampling data. The memory used differs depending on the setting of the [Memory] checkbox ( $\Box$ ) in the [Buffering Area Settings] dialog box.

In this example, the sampling memory is "D00200" to "D00201" because the [Memory] checkbox is selected, the memory address is set to "D200", and [Data Length] is set to "2-Word".

# 2. Unit Operation

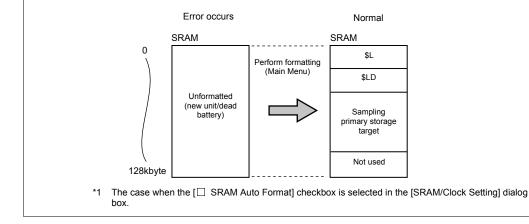
 $\overline{\bullet}$ 

This section explains how to check screen operation after transferring screen data to the unit.

# 2.1 SRAM Format/Clock Settings

The message "Error:161 (24:)" is displayed immediately after transferring screen data to a new unit. In this case, execute [Format of SRAM] on the [Main Menu] screen. Also configure the settings for the built-in clock on the same screen.

Subsequent screen data transfers to units that have been formatted will not result in this error.<sup>\*1</sup> SRAM data is retained until the battery in the unit runs out. If the unit is turned off when the battery has run out, the SRAM data is erased. In this case, reformat the SRAM area. Unit SRAM Area



For more information on the formatting procedure, refer to "SRAM Format/Clock Settings" on page 5-28.

#### 2.2 Executing Sampling

Execute sampling according to the following procedure.

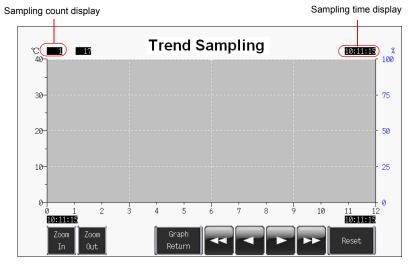
1. Enter the following constants for "D00200" and "D00201".

D00200 = 17 D00201 = 90

2. Set the "D00003-04" bit in sample control memory to "ON"  $(0 \rightarrow 1)$ .

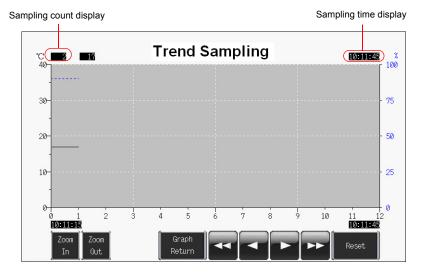
D00003 = H0010

The sample time display and sample count display appear as shown below.



- 3. Set the "D00003-04" bit to "OFF"  $(1 \rightarrow 0)$ . D00003 = H0000
- 4. Set the "D00003-04" bit to "ON" again (0  $\rightarrow$  1). D00003 = H0010

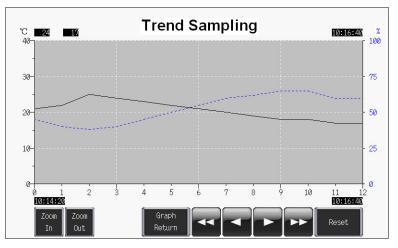
The trends are displayed. The sample time is updated and the sample count display indicates "2", as shown below.



	Sampling D	ata Memory
Sample Count	D00200	D00201
3	16	65
4	16	70
5	15	75
6	15	80
7	16	70
8	17	65
9	18	60
10	19	55
11	20	50
12	21	45
13	22	40
14	25	38
15	24	40
16	23	45
17	22	50
18	21	55
19	20	60
20	19	62
21	18	65
22	18	65
23	17	60
24	17	60

5. Proceed to sample the following data.

Display example where count is "24"

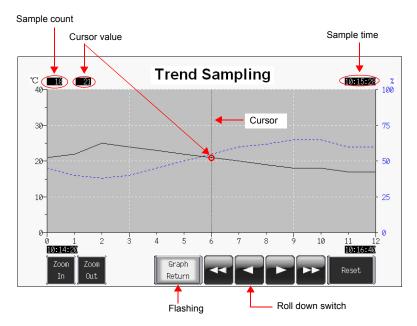


#### 2.3 Operating Switches

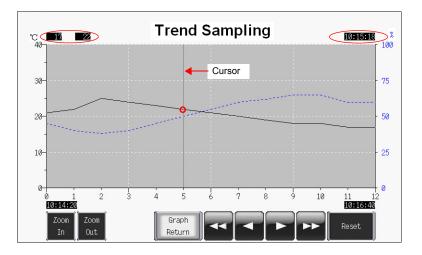
Use the switches on screen to check history data.

#### Roll Up and Roll Down

1. Press the roll down switch. A cursor is displayed in the center of the graph and the [Graph Return] switch starts to flash. The sample count, cursor value, and sample time of the data selected at the cursor is displayed.



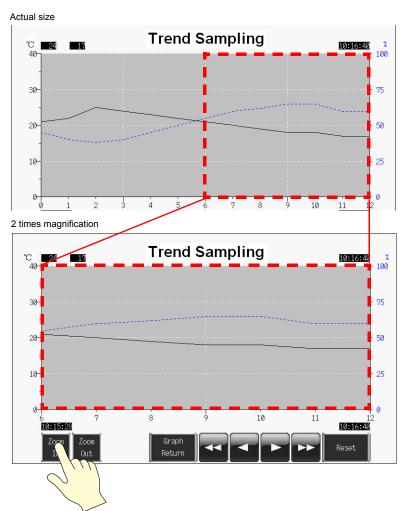
2. Pressing the roll down switch again moves the selection cursor to the left. The sample count, cursor value, and sample time are updated.



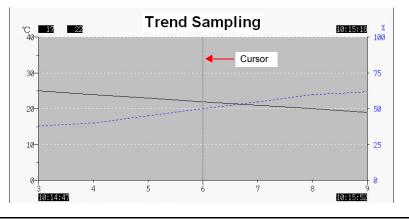
3. Pressing the [Graph Return] switch causes the cursor to disappear and returns to the latest display.

# • Zoom In and Zoom Out

Press the [Zoom In] switch to enlarge the display of the latest data (end point) by 2 times. Each time the switch is pressed, magnification increases to 4 times and then 8 times (maximum). Press the [Zoom Out] switch to reduce the display magnification in the order of 8 times  $\rightarrow$  4 times  $\rightarrow$  2 times  $\rightarrow$  actual size.

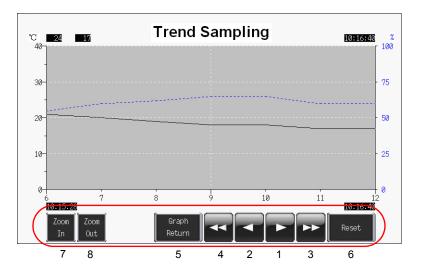


If the cursor is displayed, magnification centers on the cursor.



#### Switch Functions

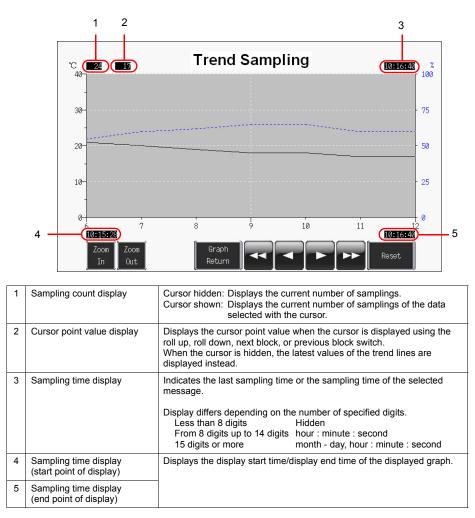
The following switch functions are used in trend sampling.



1	Roll up	Scroll one point toward the newest data. If all data points cannot be displayed in the area, one data point scrolls into view at a time.
2	Roll down	Scroll one point toward the oldest data. If all data points cannot be displayed in the area, one data point scrolls into view at a time.
3	Next block	Scroll one page toward the newest data.
4	Previous block	Scroll one page toward the oldest data.
5	Graph Return	This button flashes in conjunction with the cursor when any of the roll up, roll down, next block, or previous block switches are pressed. Pressing this switch when it is flashing returns to the latest trend sampling display. At this point, the switch stops flashing and the cursor disappears.
6	Reset	Press this switch once to turn on its lamp and then press it again within two seconds to clear the contents of the buffering area. Sampling starts again immediately after the buffering area is cleared. If the switch is not pressed again within two seconds, the switch's lamp turns off and resetting is nullified.
7	Zoom In	Zoom in on the graph display by 2, 4, and 8 times. Each press doubles the magnification and halves the number of X-axis data points. Actual size $\rightarrow$ 2 times $\rightarrow$ 4 times $\rightarrow$ 8 times
8	Zoom Out	Zoom out of the magnified graph. Each press halves the magnification and doubles the number of X-axis data points. 8 times $\rightarrow$ 4 times $\rightarrow$ 2 times $\rightarrow$ actual size

# Numerical Displays

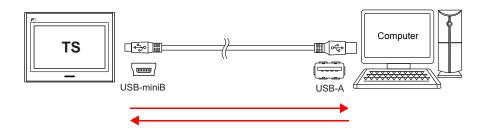
The numerical displays used in trend sampling are shown below.



МЕМО
Please use this page freely.

# 7. Screen Data Transfer

This chapter explains how to transfer screen data to the TS Series unit and export screen data from the TS Series unit.



Transfer methods include USB transfer by connecting the TS Series unit and computer with a USB cable, Ethernet transfer, and storage transfer using USB memory.

Transfer Method	TS1100i / TS1070i	TS1100 / TS1070
USB	0	0
Ethernet	0	×
External storage device	0	0

For more information on storage transfer, refer to the "TS Series Hardware Specifications" and "V8 Series Reference Manual."

Contents

Screen Data Transfer	
1. USB Transfer	page 7-2
2. Ethernet Transfer	page 7-9
Simulator	page 7-18
1. Overview	page 7-18
2. Operation	page 7-18
Emulator	page 7-22
1. Overview	page 7-22
2. Operation	page 7-23

# Screen Data Transfer

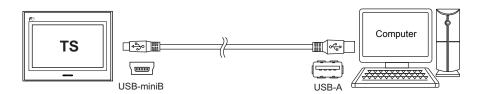
# 1. USB Transfer

#### 1.1 Installing the USB Driver

A USB driver must be installed to the computer in advance to perform USB transfer. Install the driver according to the following procedure.

#### ♦ For Windows Vista/7/8

1. Connect the USB-miniB port of the TS series (with power on) to the USB-A port of the computer using a USB cable.



2. The USB driver is automatically installed. During installation, the following message is displayed on the computer's taskbar.



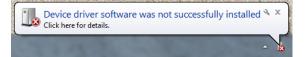
 The following message is displayed on the computer's taskbar when installation is finished. When successfully completed, transfer the screen data. Refer to page 7-6.

If installation has terminated due to an error, reinstall the USB driver. See page 7-4.

- When successfully completed

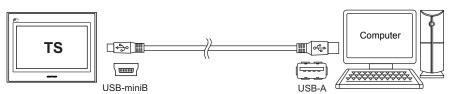


- When terminated due to error



#### For Windows XP

1. Connect the USB-miniB port of the TS series (with power on) to the USB-A port of the computer using a USB cable.

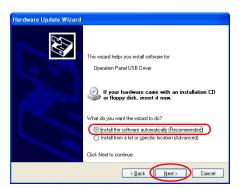


2. The message "Found New Hardware" and then the driver installation wizard appear on the computer.

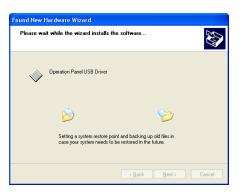
Select [No, not this time] and click the [Next] button.

Found New Hardware	Found New Hardware Wiz	ard
Operation Panel USB Driver		Welcome to the Found New Hardware Wizard
🤹 🔁 🐼 6:06 PM		Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission). <u>Read our privacy policy</u>
		Can Windows connect to Windows Update to search for software?
		∑Yes, this time only
		Yes, now and givery time I connect a device     No, not this time
		Click Next to continue.

 Select [Install the software automatically (Recommended)] on the [Hardware Update Wizard] and click [Next].



4. Installation of the USB driver starts.



5. Click the [Finish] button on the screen below.



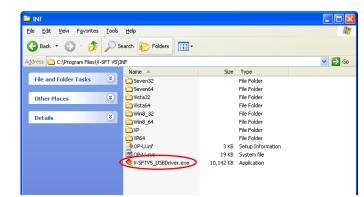
#### For OSs earlier than Windows XP

For more information, refer to the V8 Series Operation Manual.

#### • When USB driver installation fails

If automatic installation of the USB driver fails, perform installation by the following procedure.

- 1. Open the following folder from [My Computer] or [Windows Explorer].
  - For Windows Vista/7/8
  - C:\MONITOUCH\V-SFT V5\INF
  - For Windows XP C:\Program Files\V-SFT V5\INF
- 2. Double-click "V-SFTV5\_USBDriver.exe".



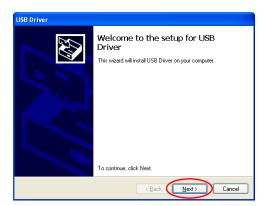
 $\overline{\mathbf{\cdot}}$ 

Depending on your computer, the following dialog may be displayed when using Windows Vista/7/8.

Click the [Yes] button.

		to allow the following program from an blisher to make changes to this computer?
	Program name: Publisher: File origin:	V-SFTV5_USBDriver.exe <b>Unknown</b> Hard drive on this computer
🕑 s	how details	Yes No

3. Click the [Next] button on the screen below. Installation of the USB driver starts.



4. Click the [Finish] button on the screen below.

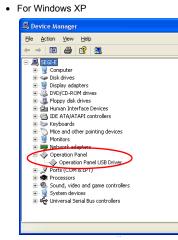
Install Complete	
The device driver installation wizard did not update software for your hardware devices because it was in the software you currently have installed.	any of your not better than
Driver Name Status	
✓ Hakko Electronics Co., Ready to use	
< Back Finish	Cancel

USB driver installation is complete. Transfer the screen data.

#### Recognition of USB Driver

When the driver has been installed successfully, the [Device Manager] window shows "Operation Panel - Operation Panel USB Driver".

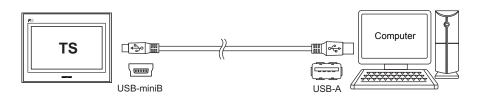
- For Windows Vista/7/8
  - 🚔 Device Manager File Action View Help 🦛 🧼 | 📰 | 🚺 🗊 | 👧 A HILI-NB-PC Batteries Bluetooth Radios Eliceto otri Kadios
     Eliceto otri Kadios Traging devices Keyboards
     We and other pointing devices
     We and other pointing devices Monitors Network a Operation Panel Operation Panel USB Drive
     Portable Devices Processors Sound, video and game controllers System devices Universal Serial Bus controllers



This will disappear when TS series and computer are disconnected. If [Other Device] or a mark other than shown above is displayed even while the USB is connected, the USB driver is not recognized. If this happens, uninstall the USB driver and reinstall it.

#### 1.2 Transfer

1. Connect the USB-miniB port of the TS series to the USB-A port of the computer using a USB cable.



2. Click [File]  $\rightarrow$  [Transfer] or click the [Transfer] icon.

3. Set [Transfer Device] to "Display" and [Transfer] to "Screen Data" in the [Transfer] dialog box. Select the [□ Use Simulator] checkbox to use the simulator.

	Cancel
Display     O Card Recorder	Communication Setting.
Transfer Data	
	Option
Screen Data 🛛 👻	
Transfer Method	Info.
Text comp	parison
Up-date of System	
Up-date of System	

(•	•	
6	ار	

#### Simulator

If a PLC is not available during debugging, use the simulator to confirm screen operation with only the TS Series unit. The simulator that runs on the computer acts as the PLC. For more information, refer to page 7-18.

#### Emulator

If a TS Series unit is unavailable, use the emulator to confirm screen operation. The TELLUS emulator that runs on the computer acts as the TS Series unit and the simulator acts as the PLC. Refer to page 7-22. 4. Check the [Communication Port] setting.

If the setting is "USB", proceed to step 6.

If the setting is a serial port or Ethernet IP address, click the [Communication Setting] button and select "USB" under [Communication Port].

5. Click the relevant transfer button to start transferring screen data.

Display     Card Recorder	Cancel Communication Settin
Transfer Data	Option
Screen Data 👻	
Transfer Method	
Up-date of System	

Transfer Method	Description
PC→	Transfer screen data from the computer to the TS Series unit.
PC←	Export screen data on the TS Series unit to the computer.
PC↔	Compare the data on the computer with the data on the TS Series unit. Select the [ Text comparison] checkbox to obtain a more detailed comparison result.

- 6. The following dialog box is displayed in the editor during transfer.
  - PC→

PC← / PC↔

	Cancel
Sending Data	Canoor



- The screen changes to the main screen and [Transferring Data] is displayed on the unit.
  - \* If the main screen is not displayed and the transfer does not start, manually display the main screen and execute the transfer.

Main Menu TS1100i Screen Data Comment : DEMO DATA Size : 10878976	2013-4 -1 16:57:15 Driver information PLCI COMI MITSUBISHI ELECTRIC : GnH(0) series link VER, 3.150 MELSEC GnHLink
System Information SySTEM FROG. VER. 1.000 FONT VER. 1.000 MULTI LENG	
Ethernet Information Trans.Speed:100EPGE-TX Stat.No.:192.168.1.1 PORT:10000 MRC:0050FF00EBC5	()
Editor:USB Transferring Data	

$\overline{\bullet}$	When transferring to new units, the lamp flashes at th	e lower left of the five languages screen.
	Transfer the screen data.	Storace IP Address (English) (English)
	画面データを転送して下さい。	ストレージ IP アドレス (Japanese) (Japanese)
	请输送画面数据	が存在 IP 地域 (Simplified) (Simplified)
	請傳送畫面程式	外部存留 IP 位せ (Traditional) (Traditional)
	화면데이터를 전송하여 주십시오.	전문소 P 0(드립스 (Korean)

- 7. The [Transferring Data] display disappears when the transfer is complete.
  - PC→ Start communication with the PLC. Check unit operation.
  - PC←
  - The exported data is displayed. Save the data to a new file.
  - PC↔
    - The comparison results are displayed.

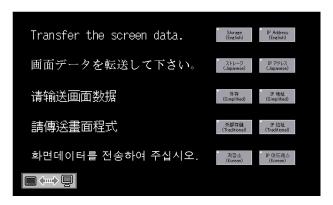
# 2. Ethernet Transfer

#### 2.1 IP Address Settings

The IP address of the unit must be configured in advance to allow Ethernet communication.

#### Configuring New Units

1. The following screen is displayed after the power is turned on.



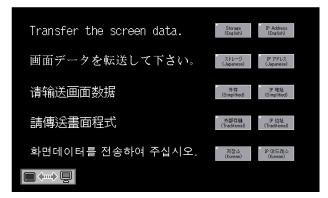
2. Press the [IP Address] switch. The [Ethernet] screen is displayed.

Ethernet	Return
Built-in LAN	
IP Address Setting	
It is not used when the gate way or the sub-mask is zero.	
IP Address: 192.168. 1. 1	
Gate Way : O. O. O. O	
Sub-mask : 255.255.255.0	
Port No. : 10000	
EDIT	
Connect	Setting Finished

3. Press the [EDIT] switch and configure each setting.

Ethernet				Datura
Built-in LAN	7	8	9	UP
	4	5	6	<>
	1	2	3	DW
IP Address Setting	•	0		CLR ENT
It is not used when the gate way or the sub-				
IP Address : 192.168. 1	. 1			
Gate Way : O.O.O	. 0			
Sub-mask : 255.255.255	. 0			
Port No. : 10000				
		EDIT		
Connect				Setting Finished

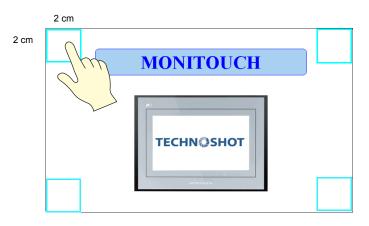
4. Press the [Setting Finished] switch to confirm the IP address. The screen returns to the five languages screen.



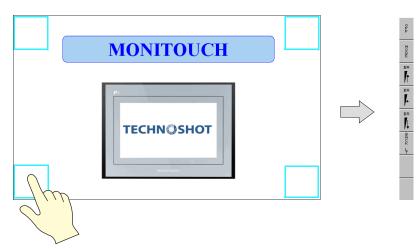
This completes IP address configuration. Next, perform screen data transfer.

# Configuring Existing Units

- 1. The PLC communication screen is displayed after the power is turned on. If a PLC is not connected, the [Communication Error Timeout] screen is displayed.
- 2. Press and hold your finger on any of the four screen corners (2 cm squares) for more than two seconds and then release your finger.

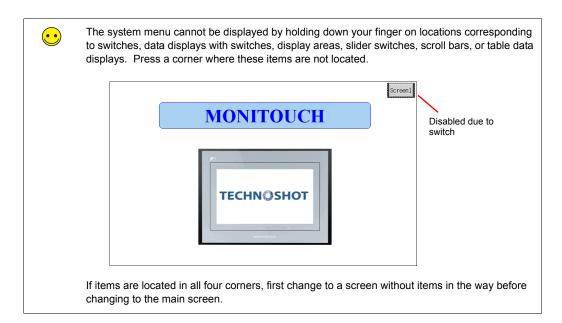


3. Next, press any of the remaining corners for more than two seconds within one second of releasing the first corner to display a system menu on the right side of the screen.



4. Press the [MODE] switch on the system menu. The [Main Menu] screen is displayed.

Screen Data         Comment : DEMO DATA         Size : 10878976         Size : 10878976         System Information         System Information         System VER. 1.000         FONT VER. 1.000         MITISUBSTIT ELECTRIC : OnH(Q) series link         VER. 3.150 MELSEC OnHLink         Ethernet Information         Trans.Speed: 1008965E-TX         Stat.No.:192.168.1.1         PORT:00000         MAC:0050FF00E805



5. Press the [Main Menu] switch to display the menu.

Main Menu	TS1100i	2013-4 -1	16:57:15
RUN	Language	Driver information PLC1 COM1 MITSUBISHI ELECTRIC : OnH(0) series 1 VER. 3.150 MELSEC GnHLink	link
Comm. Parameter	Ethernet		
SRAM/Clock	Extension Program Info.		
Card Menu	Bright Adjustment		
I/0 Test	Simulator		
Extended Setting	-	<u> </u>	->
Editor:USB			

6. Press the [Ethernet] switch to display the [Ethernet] screen.

	Ethernet	Return
Ethernet	Built-in LAN	
	IP Address Setting	
	It is not used when the gate way or the sub-mask is zero.	
	IP Address: 192.168. 1. 1	
	Gate Way : O. O. O. O	
	Sub-mask : 255.255.255.0	
	Port No. : 10000	
	EDIT	
	Connect	Setting Finished

7. Press the [EDIT] switch and configure each setting.

Ethernet	Doturn
Built-in LAN	7         8         9         UP           4         5         6         <-         ->
IP Address Setting	1 2 3 DW 0 CLR ENT
IP Address : <b>192</b> .168.1	
Gate Way : 0. 0. 0	
Sub-mask : 255.255.255	. 0
Port No. : 10000	EDIT
Connect	Setting

8. Press the [Setting Finished] switch to confirm the IP address and return to the [Main Menu] screen.

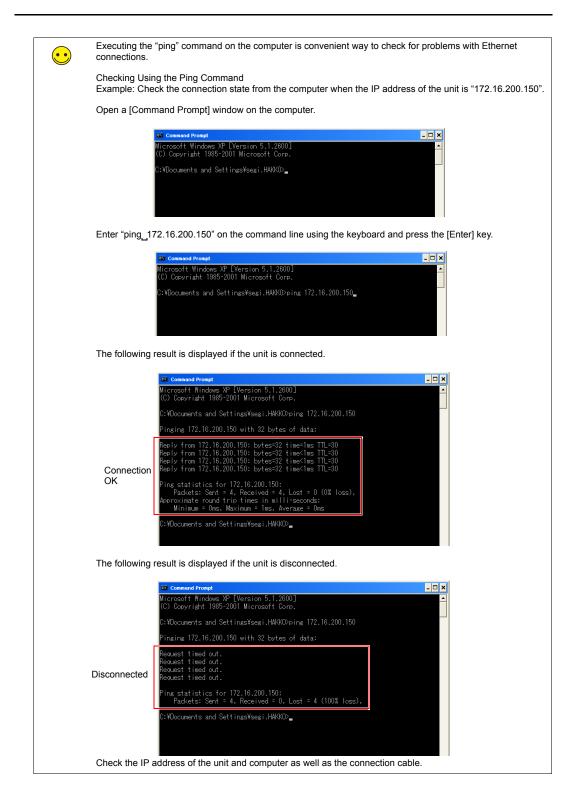
Check the IP address under [Ethernet Information]. If an error is displayed, recheck the cable and IP address.

Main Menu TS1100i	2013-4 -1 16:57:15
Screen Data Comment : DEMO DATA Size : 10878976	Driver information PLC1 COM1 MITSUBISHI ELECTRIC : OnH(Q) series link VER. 3.150 MELSEC OnHLink
System Information	
FONT VER. 1.000 MULTI LANG	
Ethernet Information Trans.Speed: 100BASE-TX Stat.No.: 192.168.1.1 PORT:10000	
MAC: 0050FF00E8C5	<>
Editor:USB	

The error is displayed next to the MAC address.

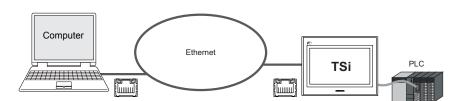
Example: ERR:801

This completes IP address configuration. Next, perform screen data transfer.



# 2.2 Transferring Screen Data

1. Connect the LAN port on the unit to the computer using a LAN cable.



2. Click [File]  $\rightarrow$  [Transfer] or click the [Transfer] icon.

Property Or Cr
--

3. Set [Transfer Device] to "Display" and [Transfer] to "Screen Data" in the [Transfer] dialog box. Select the [□ Use Simulator] checkbox to use the simulator.

Transfer				
Transfer Device Display Card Recorder Transfer Data Screen Data	Cancel Communication Setting Option			
Use Simulator Confirm when downloading All data transfer System Program Auto Update Transfer Method				
PC <>         PC <>         Into.           Test comparison         Up-date of System				
Communication Port Ethernet 192.168.1.1				

Simulator
 If a PLC is not available during debugging, use the simulator to confirm screen operation with only the TS Series unit. The simulator that runs on the computer acts as the PLC. Refer to page 7-18.
 Emulator
 If a TS Series unit is unavailable, use the emulator to confirm screen operation.

The TELLUS emulator that runs on the computer acts as the TS Series unit and the simulator acts as the PLC. Refer to page 7-22.

4. Check the [Communication Port] setting.

If the setting is Ethernet and the IP address is correct, proceed to step 6. If the setting is a serial port or USB, click the [Communication Setting] button and select "Ethernet" under [Communication Port].

Transfer 🛛	Communication Setting
Transfer Device       Cancel         O Display       Card Recorder         Transfer Data       Option         Screen Data       ✓         Use Simulator       Confirm when downloading         All data transfer       System Program Auto Update         Transfer Method       PC <>       PC <>         Update of System       Text comparison         Update of System       Communication Port	Communication Port Serial Port Communication Port Serial Port USS Modem DK Cancel
Communication Port Ethernet 192.168.1.1	

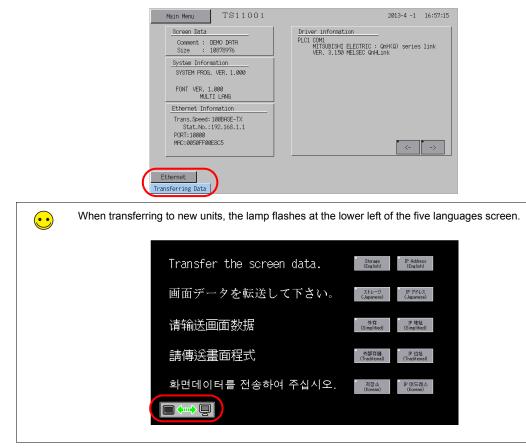
5. Click the relevant transfer button to start transferring screen data.

<ul> <li>Transfer Device</li> <li>Display</li> </ul>	Card Recorder	Cancel Communication Setting.
Transfer Data		Option
Screen Data	~	
Use Simulator		nen downloading ogram Auto Update
Transfer Method	PC <- PC <->	Info.
	📃 Text co	mparison

Transfer Method	Description
PC→	Transfer screen data from the computer to the TS Series unit.
PC←	Export screen data on the TS Series unit to the computer.
PC↔	Compare the data on the computer with the data on the TS Series unit. Select the [ Text comparison] checkbox to obtain a more detailed comparison result.

6. The following dialog box is displayed in the editor during transfer.

•	$PC \rightarrow$	•	$PC \leftarrow / PC \leftrightarrow$	
ĺ	Transferring data		Transferring data	
	Sending Data		Receiving Data	Cancel



The screen changes to the Main Menu screen and [Transferring Data] is displayed on the unit.

- 7. The [Transferring Data] display disappears when the transfer is complete.
  - PC $\rightarrow$ 
    - Start communication with the PLC. Check unit operation.
  - PC←

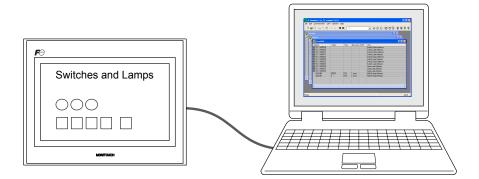
The exported data is displayed. Save the data to a new file.

• PC↔ The comparison results are displayed.

#### Simulator

#### 1. Overview

If a PLC is not available during debugging, use the simulator to confirm screen operation with only the TS Series unit. The simulator that runs on the computer acts as the PLC.



\* The simulator can be used for 1:1 connections between the TS Series unit and a connected device.

The simulator cannot be used for 1:n and n:1 connections.

\* The simulator cannot be used when the connection device is a barcode reader or slave communication device (V-Link, MODBUS slave).

#### 2. Operation

### 2.1 Configuring the TS Series Unit

When using the simulator, always configure the unit to [Simulator] instead of [Real machine] (other devices) on the unit itself.

1. Press the [Main Menu] switch to display the menu.

Main Menu	TS1100i	2013-	4 -1	16:57:15
RUC Comm. Parameter SRFM/Clock Card Menu	Ethernet Extension Program Info. Bright Adjustment	Driver information PLCI CDM MISJOITH ELECTRIC : GnH(g) MEX: 3.130 MELSED GnHLink	series	link
I/O Test Extended Setting	Simulator		<- <b>•</b>	->

2. Press the [Simulator] switch to display the [Simulator] screen.

•••	If the [Simulator] switch does not appear on the transferred to the unit. In this case, select the [□ Use Simulator] check screen data again.	e menu, the simulator program has not been kbox in the [Transfer] dialog box and transfer the
	TOLLOOT	Transfer 🛛
	Main Menu TS1100i	Transfer Device
	RUN Language	Display     Card Recorder     Cancel     Communication Setting
	Comm. Parameter Ethernet	Transfer Data Option
	SRHM/Clock Extension Program Info.	Confirm when downloading     All data transfer     System Program Auto Update
	Card Menu Bright Adjustment	Transfer Method
	I/O Test	PC -> PC -> Into.
	Extended	Text comparison
		Communication Port USB

3. Configure the settings for [Setting at connection destination] and [Simulation Driver Setting].

#### USB connection

Select [Simulation] under [Simulation Driver Setting] and press [Setting Finished].

Simulator Setting		Return
Setting at connection destination		
Simulation Driver Setting PLC1 MITSUBISHI ELECTRIC : GrH(Q) series link	Simulation Real mac	hine
<>		
		Setting Finished

Ethernet connection

Set the IP address of the computer under [Setting at connection destination]. Do not change the port number.

Select [Simulation] under [Simulation Driver Setting] and press [Setting Finished].

Simulator Setting	Return
Setting at connection destination EthenHet(UEP) Port No. : 8020	EDIT
Simulation Driver Setting PLC1 MITSUBISHI ELECTRIC : QnH(Q) series link Simulation Real man	chine
(>	
	Setting Finished

4. Press the [Main Menu] switch to display the menu.

Main Menu	TS1100i	2013-4 -1 16:57:15
RUN	Language	Driver information PLCI COMI MITSUBISHI ELECTRIC : GnH(Q) series link VER. 3.150 MELSEC GnHLink
Comm. Parameter	Ethernet	
SRAM/Clock	Extension Program Info.	
Card Menu	Bright Adjustment	
I/O Test	Simulator	
Extended Setting		<>
Editor:USB		

5. Press the [RUN] switch to display the [RUN] screen.

# 2.2 Simulator

1. Click [View]  $\rightarrow$  [View]  $\rightarrow$  [Simulate] or click the [Simulate] icon.

View Parts Registration Item Screen	Se		
Toolbar			
⊻iew	Project View		
🔽 <u>S</u> tatus Bar	Catalog View		
<u>J</u> ump Ctrl+G <b>♦</b> <u>P</u> review Shift+PageUp	- 100 Item ⊻iew III Item List		
➡ Next Shift+PageDown	sm Simulate	or	
	Mode Item	0	🗋 😅 💾 🍀 📾 🎉 📇 🏹
Skip to Non-registered Screen Ctrl+E			
🖽 Screen List	🔢 Component Memory Table		
Grid	Component <u>T</u> ext Table		
Zoom	•		
Display Environment			
Qustomize			
<u>R</u> edraw F5			

2. The simulator starts and the relevant screen is displayed on the TS Series unit.

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23 S	ystem						×
Ad [	123 But	ffer					
	Ad 123	Sern0001					
	Ac	Idress	Value	Туре	Data Len	ASCII	Item
		PLC1 M00100					Switch Output Memory
	•	PLC1 M00100					Switch Lamp Memory
		PLC1 M00101					Switch Output Memory
		PLC1 M00101					Switch Lamp Memory
		PLC1 M00102					Switch Output Memory
	6	PLC1 M00102					Switch Lamp Memory
		PLC1 M00102					Switch Output Memory
	6	PLC1 M00102					Switch Lamp Memory
		PLC1 M00100					Lamp Lamp Memory
		PLC1 M00101					Lamp Lamp Memory
		PLC1 M00102					Lamp Lamp Memory
		\$u16340	65535	DEC	1 word		Multi-Overlap Memory
		\$u16341	0	DEC	1 word		Multi-Overlap Memory
	<u> </u>						
	1			and a second product of the second		TII	

3. Confirm screen operation on the TS Series unit. In addition, changing values on the simulator updates the display on the unit.

For more information on simulator operation, refer to the "V8 Series Operation Manual."

### Emulator

# 1. Overview

-

If a TS Series unit is unavailable, use the emulator to confirm screen operation. The TELLUS emulator that runs on the computer acts as the TS Series unit and the simulator acts as the PLC.

Emulator Shows a representation of unit screen display on the computer

Emulator5 (RUN - Emulation) - (e_TS_sample2.V8Z) File View Help File ■ ● ● ▲ ↓ ▶ ■ ♥	
Switches and Lamps	
M100 M101 M102	
M100 M101 M102 M102 OVLP Momentary Alternate Set Reset	

Simulator

Implements memory operations instead of the PLC

B Sy	🛢 🗄   🍪 🔁 🥵					_ @ @ B ∰ ¥ 9 ¥ ¥ - ■ ×
-	Buffer					
	d 🖽 Sern0001					
	Address	Value	Туре	Data Len	ASCII	Item
	📴 PLC1 M00100					Switch Output Memory
	📴 PLC1 M00100					Switch Lamp Memory
	📑 🞯 PLC1 M00101					Switch Output Memory
	📴 PLC1 M00101					Switch Lamp Memory
	🞯 PLC1 M00102					Switch Output Memory
	🞯 PLC1 M00102					Switch Lamp Memory
- 10	🞯 PLC1 M00102					Switch Output Memory
	🞯 PLC1 M00102					Switch Lamp Memory
	🞯 PLC1 M00100					Lamp Lamp Memory
	@ PLC1 M00101					Lamp Lamp Memory
	PLC1 M00102					Lamp Lamp Memory
	\$u16340	65535	DEC	1 word		Multi-Overlap Memory
	\$u16341	0	DEC	1 word		Multi-Overlap Memory
<						
	2					

# 2. Operation

1. Click [File]  $\rightarrow$  [Start Emulator].



2. The simulator and TELLUS emulator start automatically.

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Buffer				Ŀ		
d Scrn0001 Address PLC1 M00100 PLC1 M00100 PLC1 M00101 PLC1 M00102 PLC1 M00102 PLC1 M00102 PLC1 M00102 PLC1 M00102	Value Type	Data Len ASCII	Item Switch Output Memory Switch Lamp Memory Switch Output Memory Switch Lamp Memory Switch Lamp Memory Switch Dutput Memory Switch Output Memory	γ V		
PLC1 M00100     PLC1 M00101     PLC1 M00101     PLC1 M00102     \$u16340     \$u16341	Emulator5 (RUN - Emula Elle View Help Elle ScreenD	lion] - [e_TS_sample:	.v8z]			
PLC1 M00101     PLC1 M00102     \$u16340	Ele ⊻lew Help			nd L	.amp:	S
PLC1 M00101     PLC1 M00102     \$u16340	Ele ⊻lew Help	E ?	hes a	nd L	.amp:	S

 The same operations of pressing switches on the unit can be performed by clicking switches on the emulator. In addition, changing values on the simulator updates the display on the emulator.

For more information on simulator operation, refer to the "V8 Series Operation Manual."

