MITSUBISHI ELECTRIC

Changes for the Better

Satellite Training Series PART 3

Your First GOT

Satellite Training Series

●SAFETY PRECAUTIONS●

(Always read these instructions before using this product.)

Before designing a system, make sure to read the relevant manuals carefully and handle the product properly with full attention to safety.

[PRECAUTIONS ON THE PRACTICAL TRAINING IN THIS DOCUMENT]

⚠WARNING

- When power is on, do not touch the terminals so as not to cause any electric shock accident.
- Before opening the safety cover, power off the system or secure a safe environment.

⚠CAUTION

- When installing or removing a module or unit, power off it in advance.
  Doing so while power is on can cause the module or unit to fail or an electric shock.
- When any error or malfunction occurs, stop using the module or unit immediately.

[GOT2000-RELEVANT MANUALS]

For detailed information, refer to each manual of GOT2000.

If you need a printed manual, consult your local Mitsubishi representative or branch office.

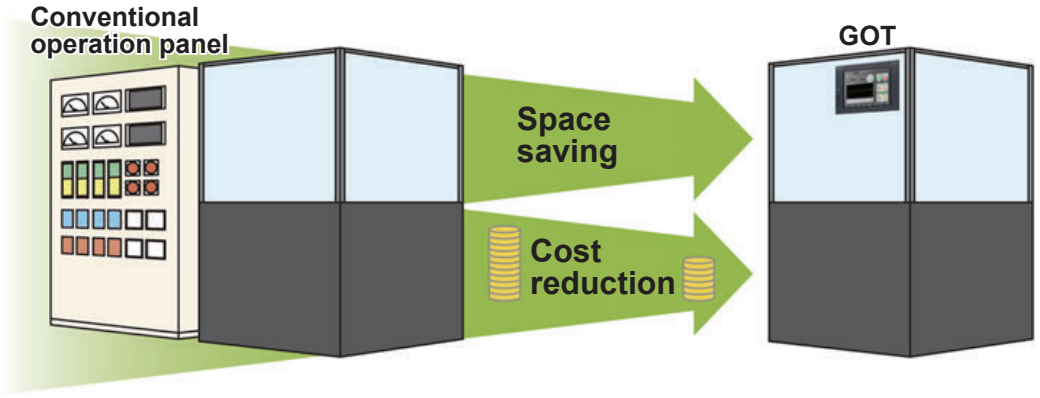
* This document uses GT Designer3(GOT2000) Version1.153K for explanation.
  Depending on the version used, the display of the menu and screens may differ.

CONTENTS

FEATURES OF THE GOT

GOT is the abbreviation of "Graphic Operation Terminal".

Switches and lamps had been conventionally attached to an operation panel as hardware. However, by using the screen design software, those can be created, displayed, and operated on the monitor screen of the GOT, the touch-panel HMI.



Advantages of the GOT

(1) Downsizing the operation panel

Since switches and lamps are created using software, the number of components attached to the operation panel as hardware can be reduced and the panel itself can be downsized.

(2) Cutting costs for wiring

Wiring between components inside the operation panel is replaced with screen design by software, eliminating the need for the wiring, which requires a large amount of time and cost.

(3) Standardizing operation panels

Even though required specifications changes, you just need to change settings using software.
Therefore, operation panels can be standardized.

(4) Adding extra values as an HMI (Human Machine Interface)

The GOT can easily display graphics, text, and alarms in addition to switches and lamps.
Therefore, the extra value of your entire equipment can be improved.

GOT's appearance and enhanced interface

The following shows the GOT2000's appearance and its enhanced interface.

[Front face]

Proximity sensor

The GOT detects an operator and displays its screen automatically. When no one is around, the backlight turns off to save energy.

* GT27 (15" and 12.1" only)

USB device

Data can be transferred without opening the cabinet.

* The USB device is on the rear face for the white model and GT21.

USB host

Screen data can be transferred and data in the GOT can be retrieved using a USB memory. A USB mouse and keyboard can be connected.

* GT27 and GT25 only. The USB host is on the rear face for the white model.

Simple design

The stylish and simple design with a linear motif is sleek and complements any machine design.

iF Design Award 2014

product design award 2014

LED backlight

The long life cycle minimizes maintenance and replacement costs.

[Rear face]

Extension interface

Communication and option units can be mounted.

* GT27 and GT25 only

Ethernet

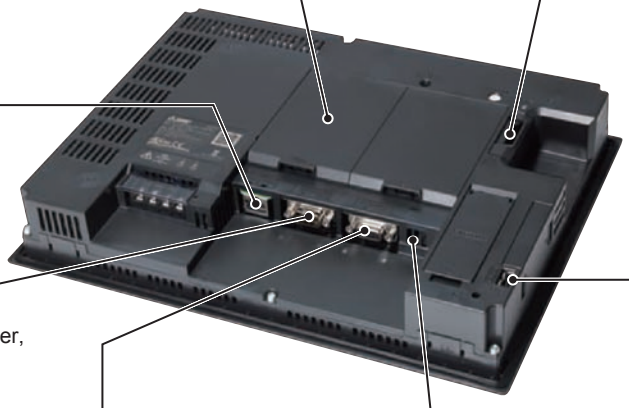
Up to four types of PLCs from different manufacturers* can be connected simultaneously by Ethernet.

* Up to two types of PLCs for GT21

RS-232

Various FA devices, barcode reader, serial printer can be connected.

* This image is GT2712.



RS-422/485

Various FA devices can be connected.

USB device

The GOT can be connected to a personal computer to transfer data.

* White model only

SD card slot

A large amount of data including alarms and logging data can be saved.

USB host

A USB memory device can be mounted to save alarms and logging data.
A USB mouse and keyboard can be connected.

* GT27 and GT25 only

PREPARING REQUIRED DEVICES

DEVICES REQUIRED TO OPERATE THE GOT

To operate the GOT, the GOT (1), cables (2), a personal computer and software (3), and a controller (4) are required.

1 GOT

GOT2000 (GT27)

2 Cable

USB cable
(GT09-C30USB-5P)

Ethernet cable

3 Personal computer and software

GX Works3

Personal computer

GT Designer3 (GOT2000)
GT Designer3 (GOT2000) Help

4 Controller

PLC

Reference

For how to install the screen design software, refer to the following.

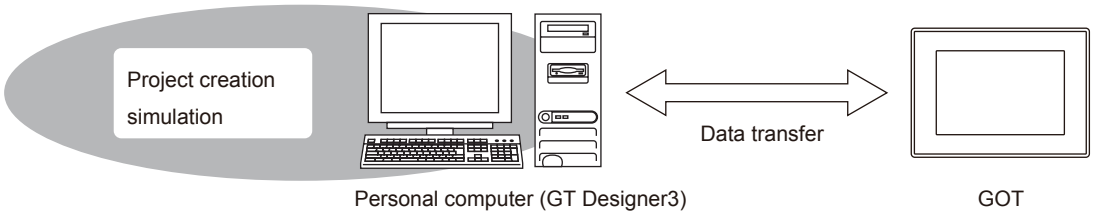
- GT Works3 Installation Instructions BCN-P5999-0066/0071

For the connecting method of the GOT and a controller, refer to the following.

- GOT2000 Series Connection Manual (Mitsubishi Products) For GT Works3 Version1 SH-081197ENG

FEATURES OF GT Designer3

GT Designer3 is the software used to create screens for the GOT2000 series and the GOT1000 series.
This software enables you to create and simulate a project, and transfer data between the GOT and a personal computer.

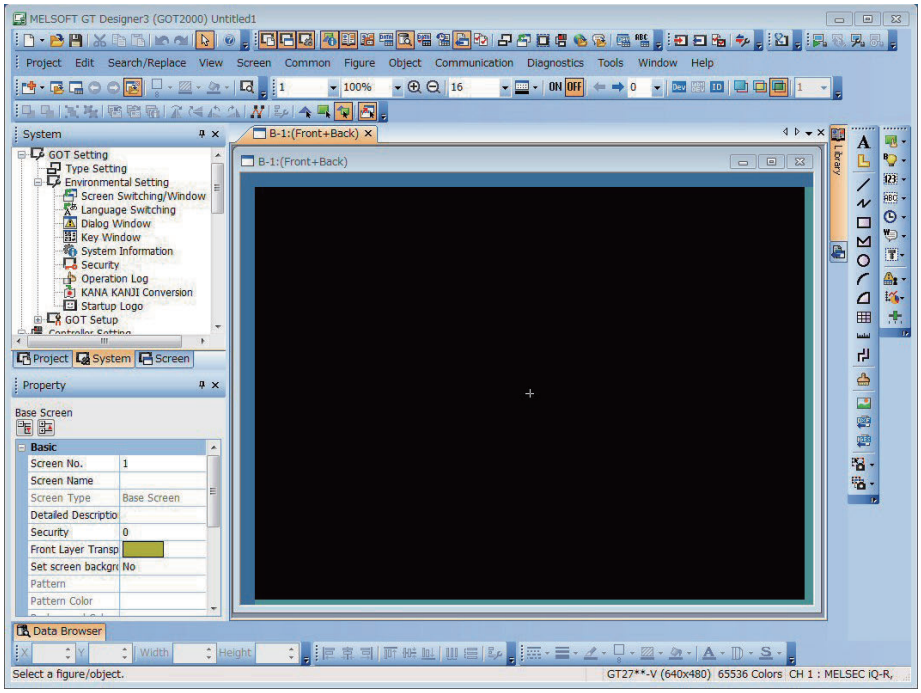


GT Designer3 consists of the following screen design software.

- GT Designer3(GOT2000): Screen design software for GOT2000 series
- GT Designer3(GOT1000): Screen design software for GOT1000 series

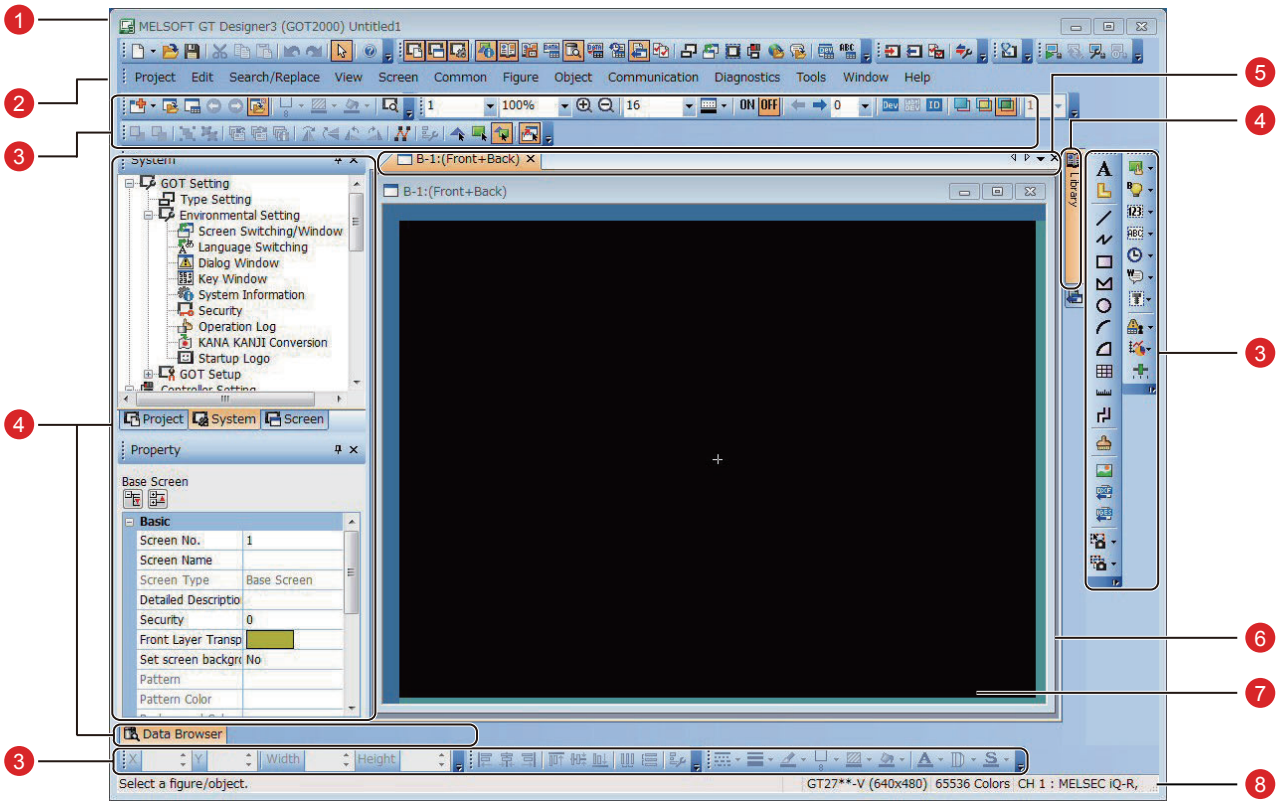
This document describes creating a screen for GOT2000 with GT Designer3(GOT2000).

Screen image of GT Designer3(GOT2000)



SCREEN LAYOUT OF GT Designer3

The following shows the screen layout of GT Designer3.



1 Title bar

Displays the software name, a project name, and a file name.

2 Menu bar

GT Designer3 can be operated from pull-down menus.

3 Toolbar

GT Designer3 can be operated by buttons. You can place the toolbar on the left, right, top, or bottom.

4 Docking window

Windows that can be docked with the screen of GT Designer3.

5 Editor tab

Displays the tabs of the windows and screen editors which are displayed on the work window.

6 Work window

Displays screen editors, the [Environmental Setting] window, the [GOT Setup] window, and other windows.

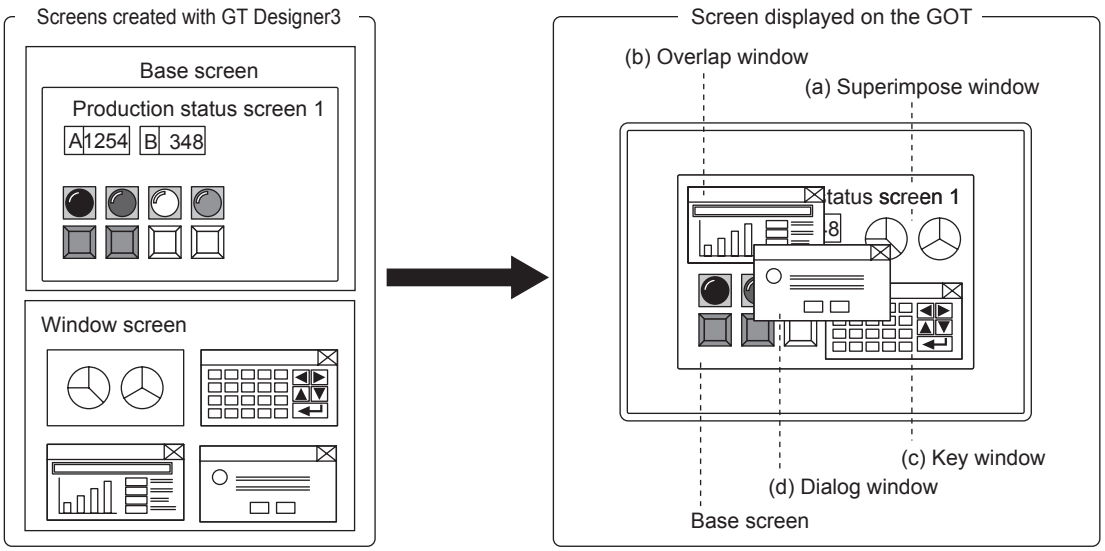
7 Screen editor

Creates a screen to be displayed on the GOT by placing figures and objects on the screen editor.

8 Status bar

Displays information according to the position of the mouse cursor, the status of a selected figure or object.

SCREENS THAT CAN BE CREATED WITH GT Designer3



(1) Base screen

A screen that is displayed as a base screen of the GOT.
The screen switching device controls the display of a base screen.

(2) Window screen

A screen displayed as an overlap window, superimpose window, key window, and dialog window on the GOT.

(a) Superimpose window

A window superimposed on a base screen and displayed as a part of the base screen.
Up to two superimpose windows (superimpose window 1 and 2) can be displayed simultaneously.
A screen switching device controls the display of a window screen.

(b) Overlap window

A pop-up window displayed over a base screen.
Up to five overlap windows (overlap window 1 to 5) can be displayed simultaneously.
The display position of an overlap window can be moved with a touch operation or a display position specification device.
A screen switching device controls the display of a window screen.
(GT21 can display up to two overlap windows (overlap window 1 and 2) simultaneously.)

(c) Key window

A pop-up window displayed on a base screen for the numerical input and others.
The display position of the key window can be moved with a touch operation.
Two types of key windows are provided: GOT standard key window and user-created key window.

(d) Dialog window

A window displaying error messages, warning messages, and GOT system messages in the foreground.
While a dialog window is displayed, other screens cannot be operated.
A screen switching device controls the display of a window screen.

(3) Report screen

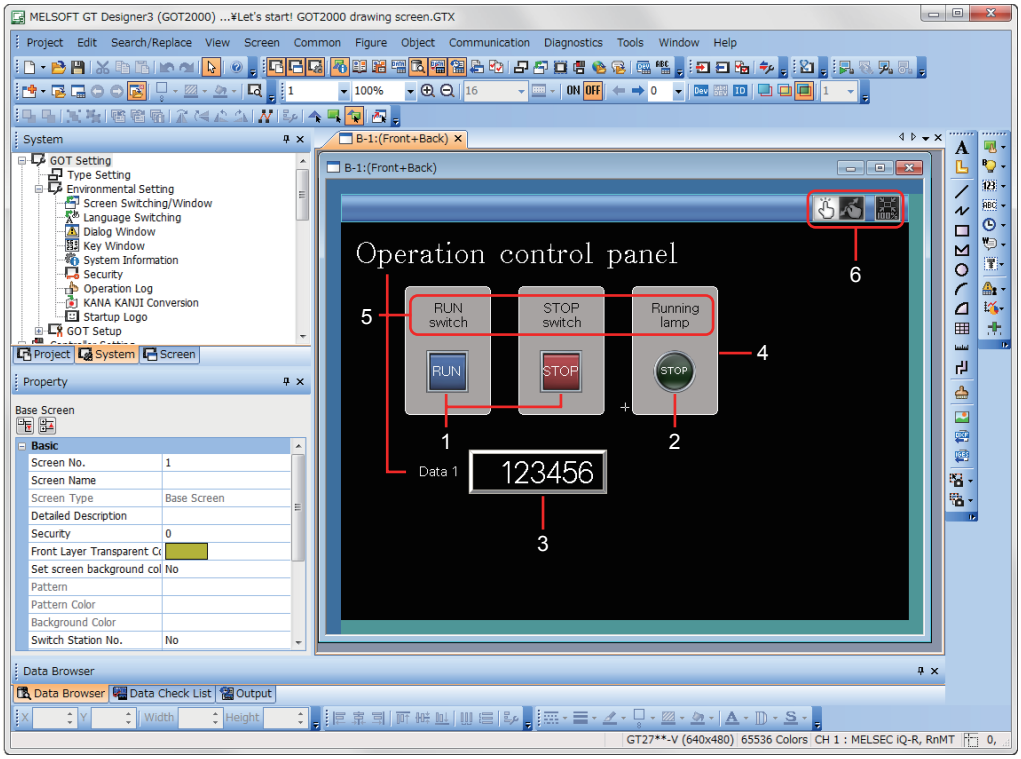
A window for outputting the data by the report function.
This screen is not displayed on the GOT.

MEMO

STEP 1
CREATING A PROJECT

1.1 CREATING A NEW PROJECT

The following screen will be created in this section.



1 RUN switch, STOP switch

Touch each switch to turn on or off a bit device of the PLC.

→ 1.2.1 Creating a RUN Switch

→ 1.2.2 Creating a STOP Switch

2 Running lamp

Turns on or off according to the status of the bit device of the PLC.

→ 1.2.3 Creating a Running Lamp

3 Numerical display

Displays the value stored in the PLC.

→ 1.2.4 Creating a Numerical Display

4 Figure (Rectangle)

Place rectangles to make switches and lamps more visible.

→ 1.3.1 Creating a Figure (Rectangle)

5 Figure (Text) 1 to 5

Characters that describe screens, switches, and lamps are displayed.

→ 1.3.2 Creating Figures (Text) 1 to 3

→ 1.3.3 Creating Figures (Text) 4 and 5

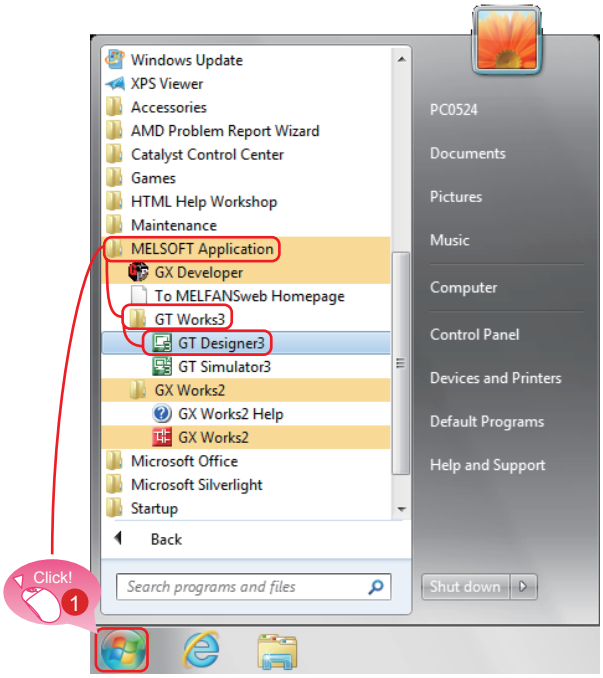
6 Screen gesture switch

Pinch in the screen to zoom out the screen and pinch out the screen to zoom in the screen with this switch.

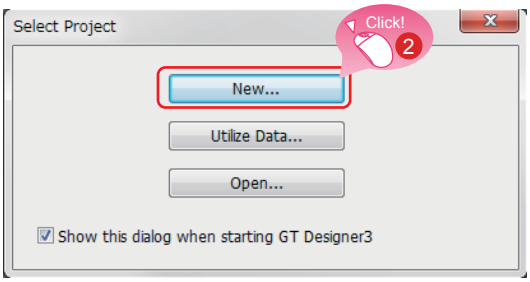
→ 1.4 SETTING THE SCREEN GESTURE FUNCTION

(1) Creating a new project

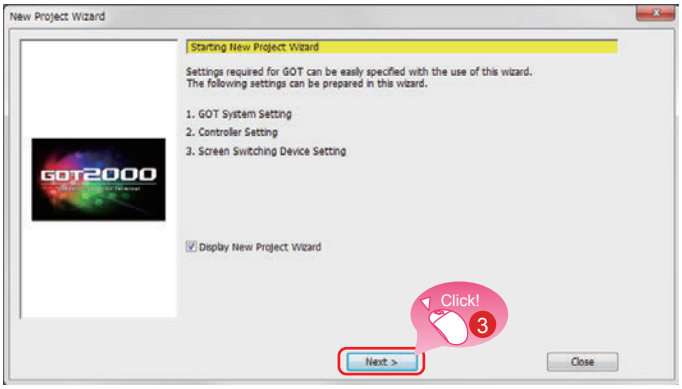
Start GT Designer3(GOT2000) and follow the wizard to configure the settings.



1 Select [MELSOFT Application] → [GT Works3] → [GT Designer3] from the start menu of Windows.



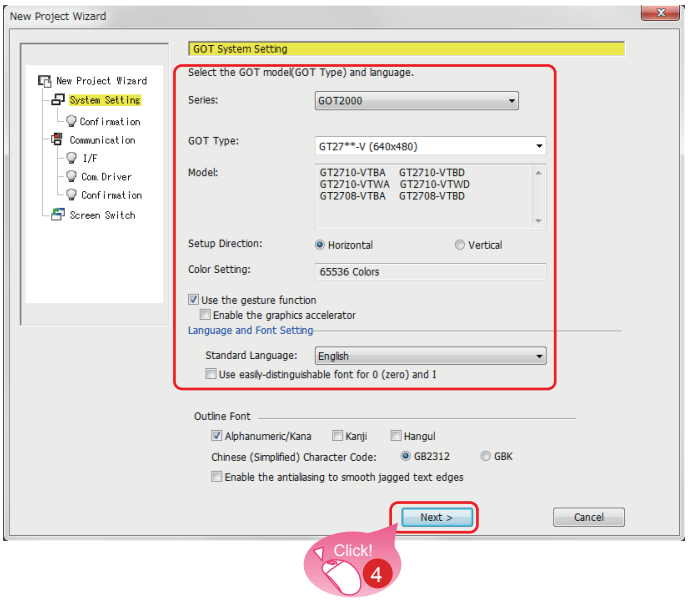
2 Click the [New] button in the Select Project dialog.



3 Click the [Next] button on the start screen of New Project Wizard.

Hint

GT Designer3 can be started from the desktop when a shortcut icon was created during installation.



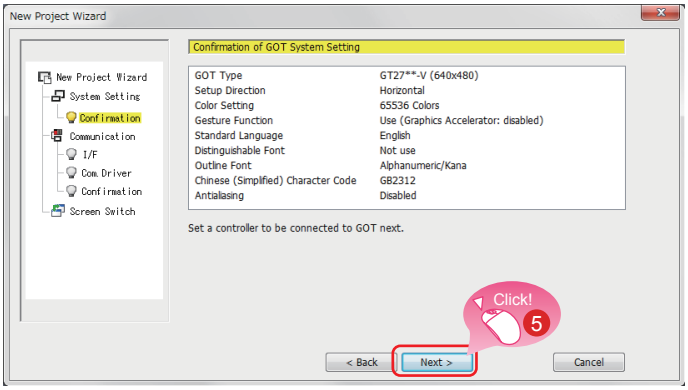
4 Check the settings on the system setting window and click the [Next] button.

- Series: GOT2000
- GOT Type: GT27**-V (640×480)
- Use the gesture function: Selected
- Standard Language: English
- Outline Font

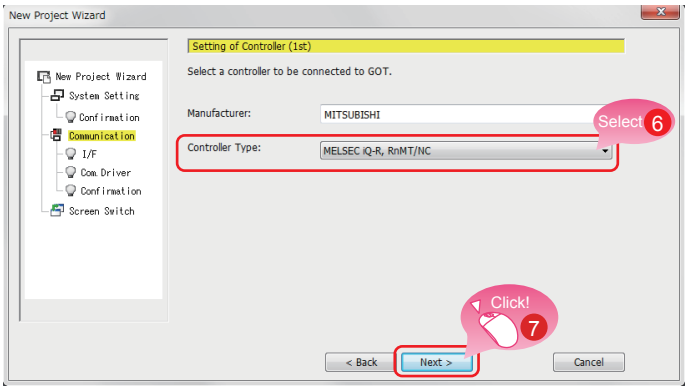
  Alphanumeric/Kana: Selected

  Kanji: Cleared

  Hangul: Cleared

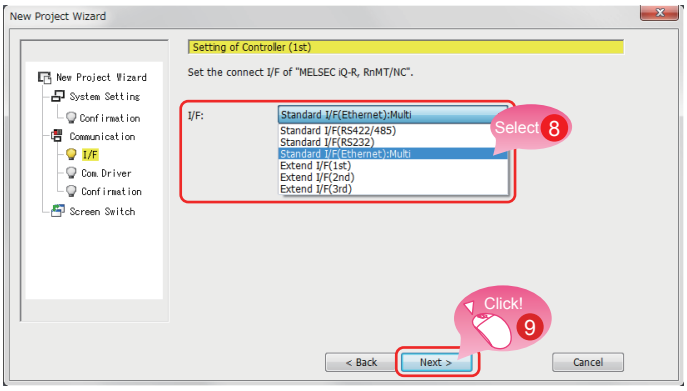


5 Check the displayed settings and click the [Next] button.



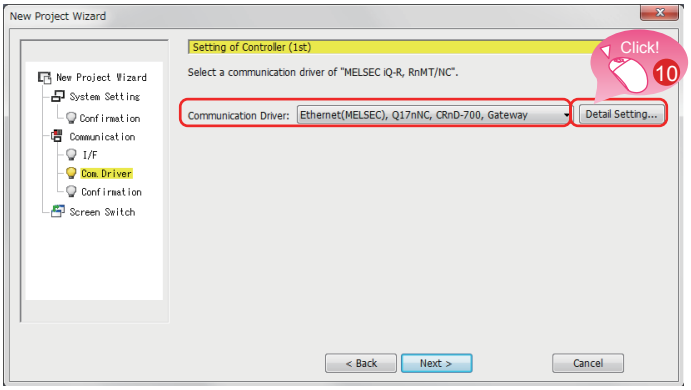
6 Select [MELSEC iQ-R, RnMT/NC] in a drop-down list of [Controller Type] on the communication settings window.

7 Click the [Next] button.

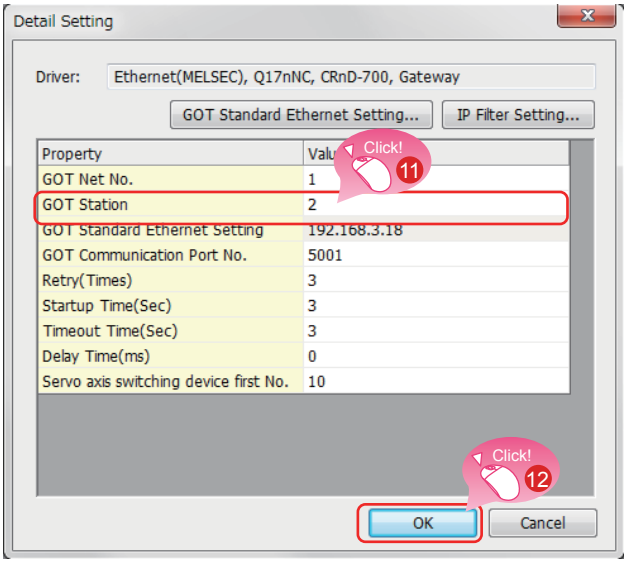


8 Select [Standard(Ethernet):Multi] in a dropdown list of [I/F].

9 Click the [Next] button.



10 Check the communication driver setting and click the [Detail Setting] button.
Communication Driver: Ethernet(MELSEC), Q17nNC, CRnD-700, Gateway

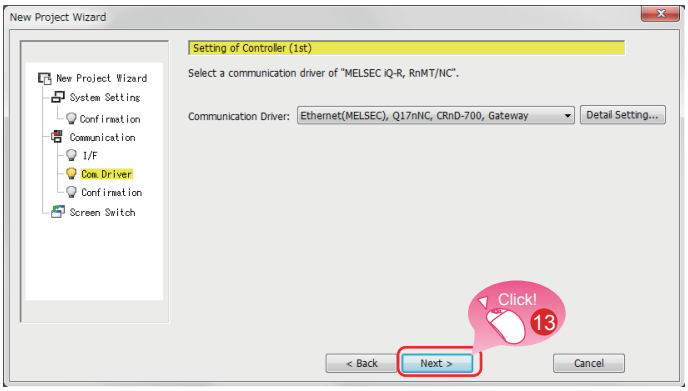


11 The window shown left appears. Change the value of [GOT Station].
GOT Station: 2

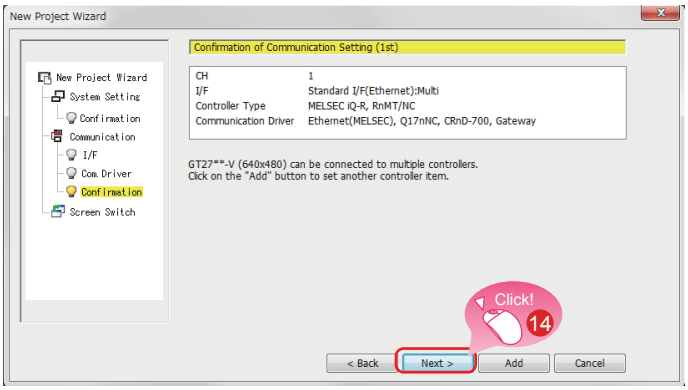
12 Click the [OK] button.

Hint

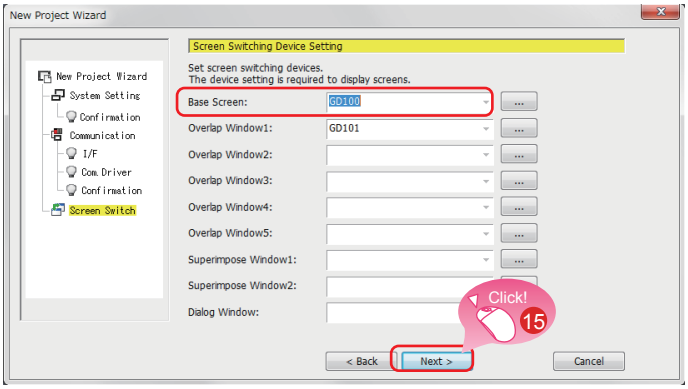
Click the [GOT Standard Ethernet Setting] button to change the IP address of the GOT.



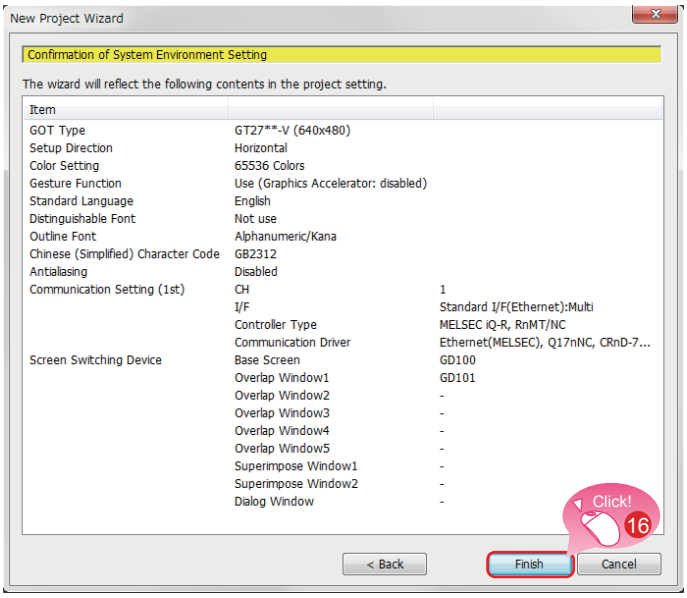
13 Click the [Next] button.



14 Check the displayed settings and click the [Next] button.

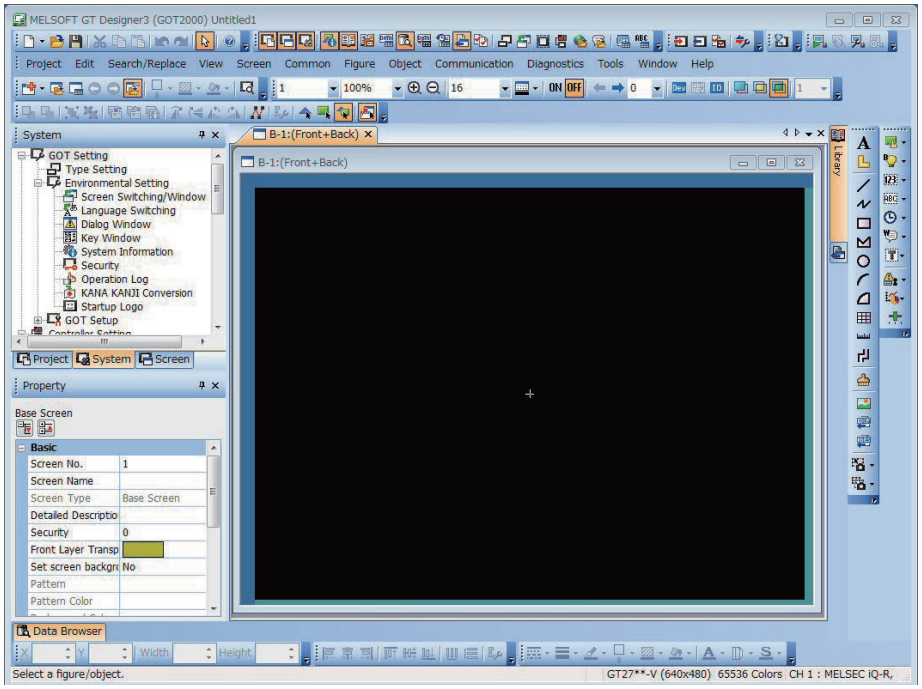


15 Check the screen switching devices of the base screen and click the [Next] button.
Base Screen: GD100 (Default)



16 Check the settings with the wizard then click the [Finish] button.

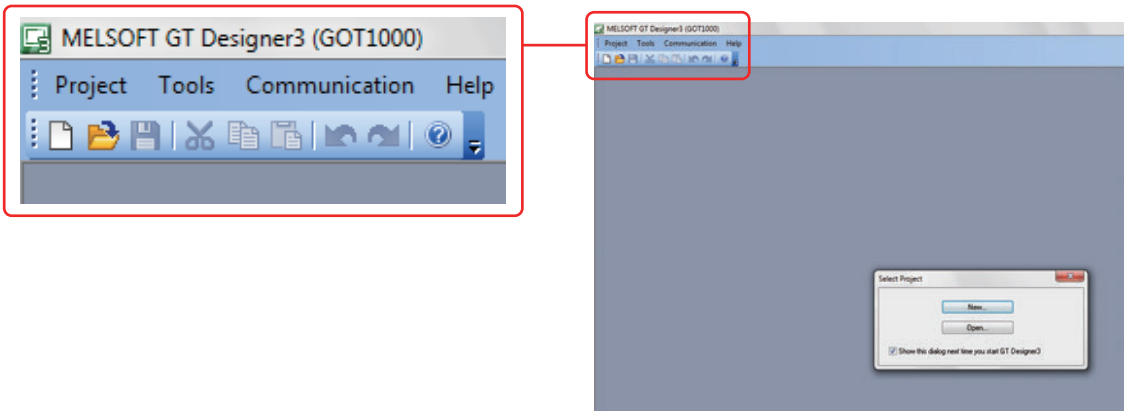
The editing screen of GT Designer3(GOT2000) appears, and the base screen 1 is created.



■ When GT Designer3(GOT1000) is started

GT Designer3 starts the screen design software that was used to save a project last time.

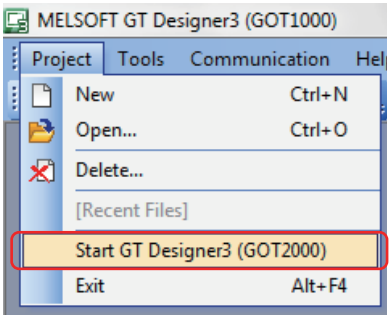
When the screen design software for GOT1000 is started



When GT Designer3(GOT1000) is started, start the screen design software for GOT2000 by either of the following methods.

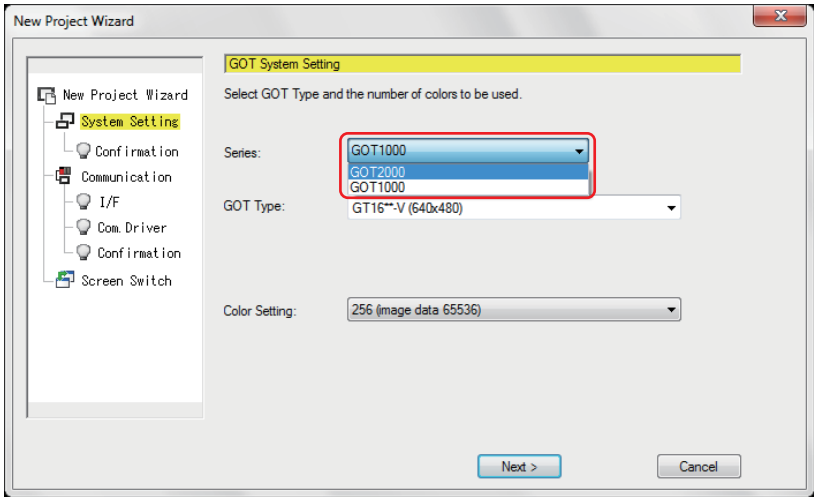
(1) Starting GT Designer3(GOT2000) from the menu

Select [Project] → [Start GT Designer3(GOT2000)] from the menu bar to start GT Designer3(GOT2000).



(2) Starting GT Designer3(GOT2000) from the wizard

Select [GOT2000] for [Series] on the [New Project Wizard] dialog to start GT Designer3(GOT2000).



1.2 CREATING AN OBJECT

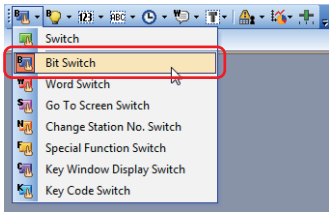
1.2.1 Creating a RUN Switch

(1) Placing a switch

Select [Object] → [Switch] → [Bit Switch] from the menu bar to place a switch.

Hint

You can select the item from the toolbar as well.

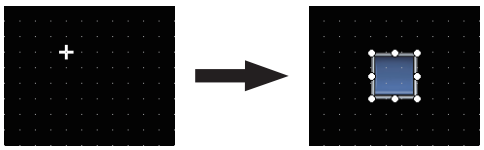


Hint

Placing an object

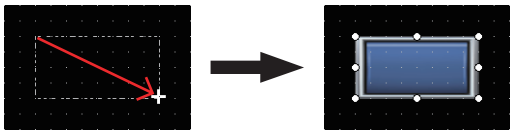
When an object is selected from the menu or the toolbar, the shape of the cursor changes to "+".

Click any area where the object is to be placed on a screen editor.



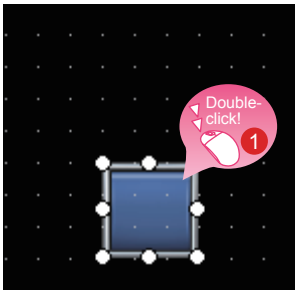
Click Place

The object can be placed in any size when placing it by dragging the cursor.

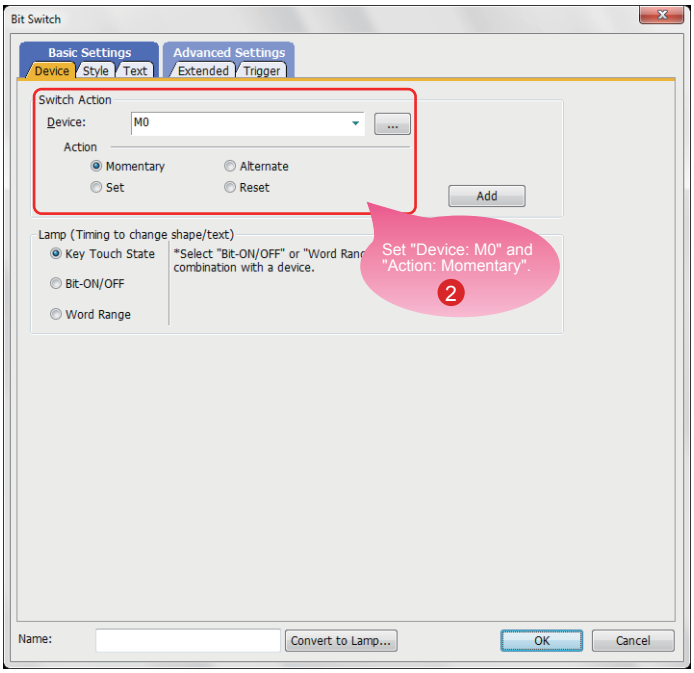


Drag Place

(2) Setting a device and action



1 Double-click the placed switch.



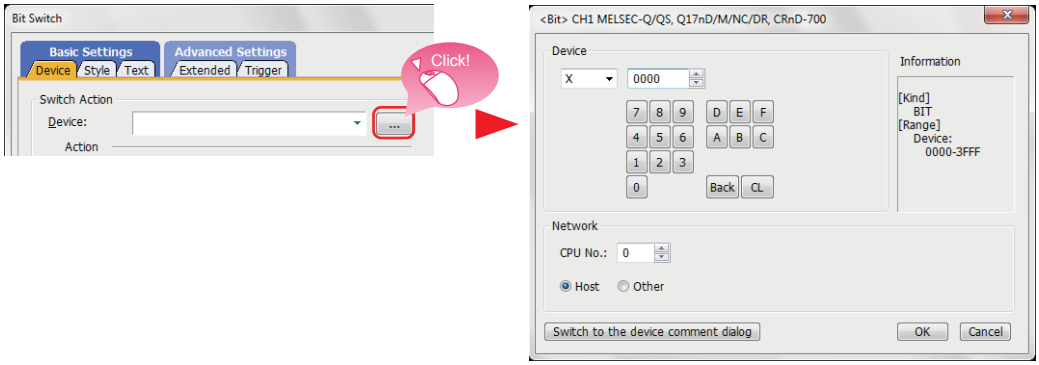
When the dialog shown left appears, set the following items.

2 Device: M0
Action: Momentary

Point

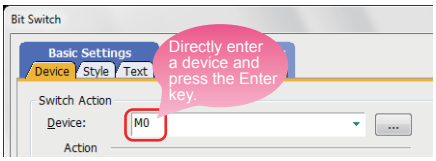
Setting a device

Click the [...] to set a device.

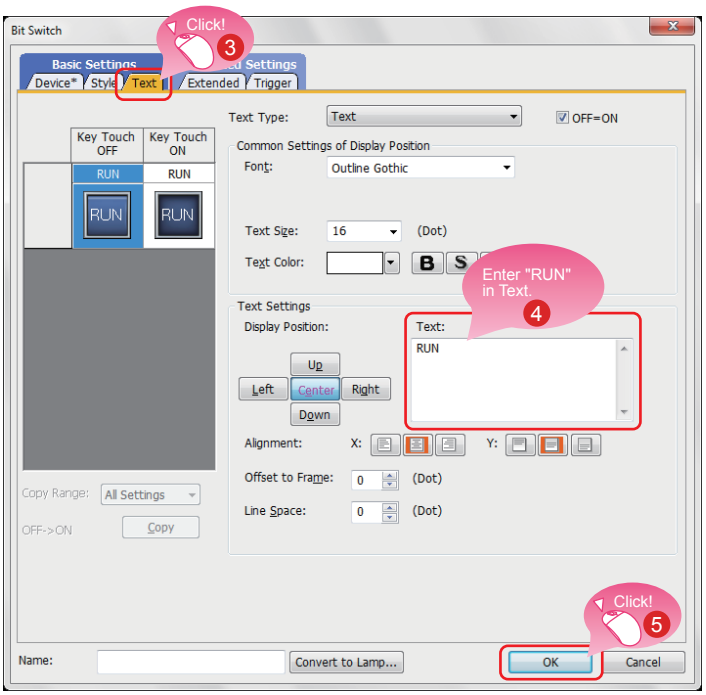


Point

The device can also be set by entering it directly using a keyboard.



(3) Setting text



3 Select the Text tab.

4 Enter "RUN" in Text.

5 Click the [OK] button.

Creating the RUN switch is completed.

Reference

When you have any question, press the F1 key to start the GT Designer3(GOT2000) help.

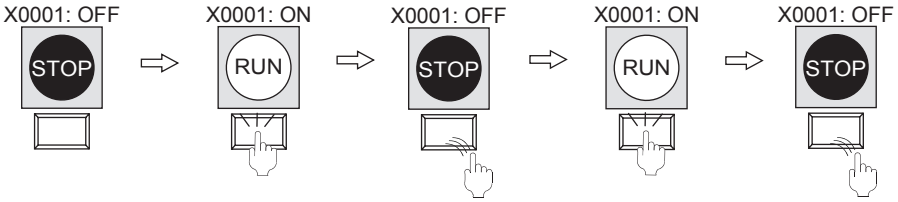
The help page appropriate for the operation that you are doing is displayed.

■ Bit switch actions

A bit switch turns on and off the bit device specified by the switch.
The following shows the actions that can be set with bit switches.

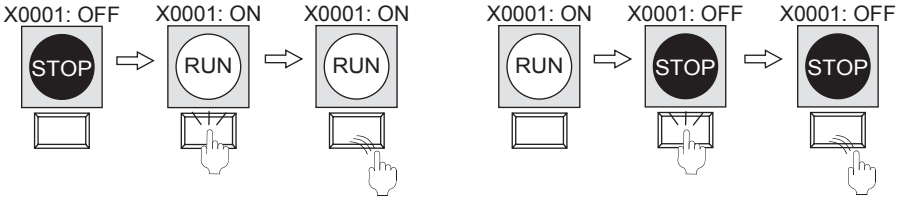
(1) Bit momentary

Keeps a specified bit device on only while you touch the switch.



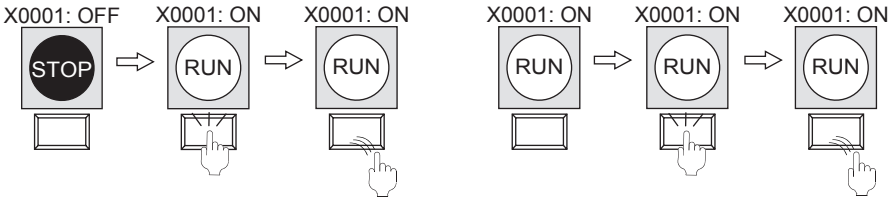
(2) Bit alternate

Alternates the status of a specified bit device (ON←→OFF) when you touch the switch.



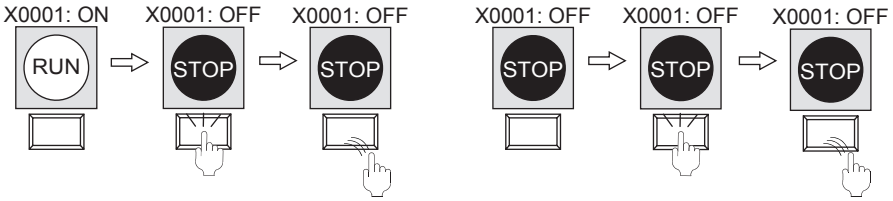
(3) Bit set

Turns on a specified bit device when you touch the switch.



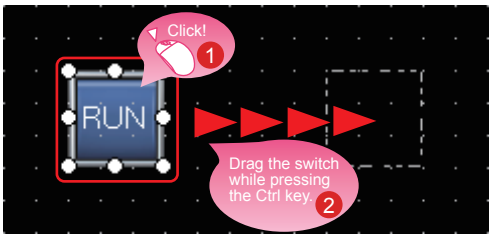
(4) Bit reset

Turns off a specified bit device when you touch the switch.



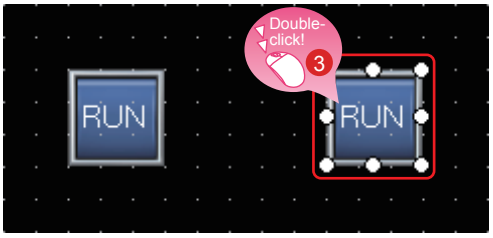
1.2.2 Creating a STOP Switch

(1) Copying the RUN switch

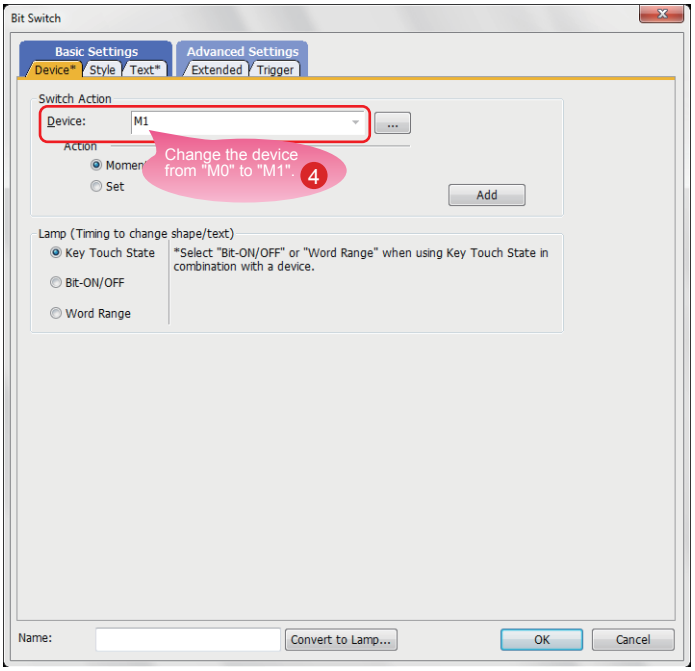


1. Select the RUN switch.
2. Drag the switch while pressing the Ctrl key.

(2) Changing the device of the copy of the RUN switch

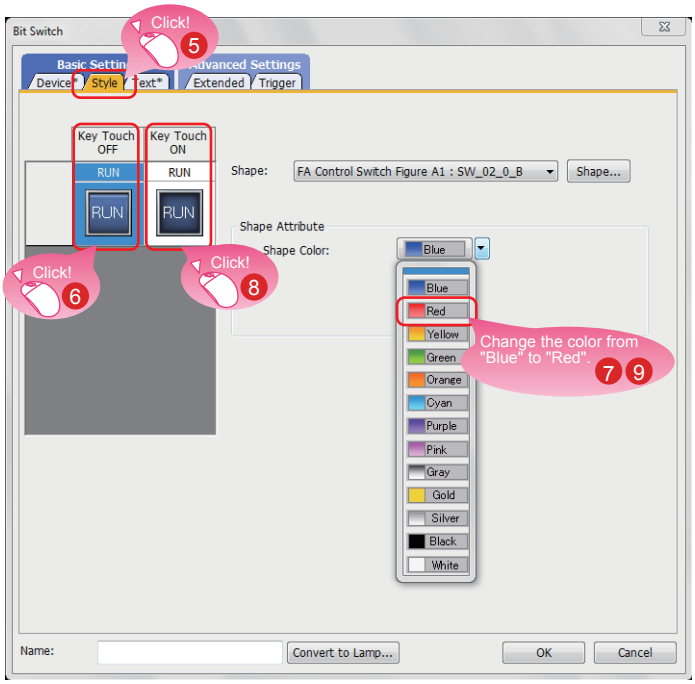


3. Double-click the copied RUN switch.



4. When the dialog shown left appears, change the device as follows.
   Device: M0 → M1

(3) Changing the shape color of the switch



5 Select the Style tab.

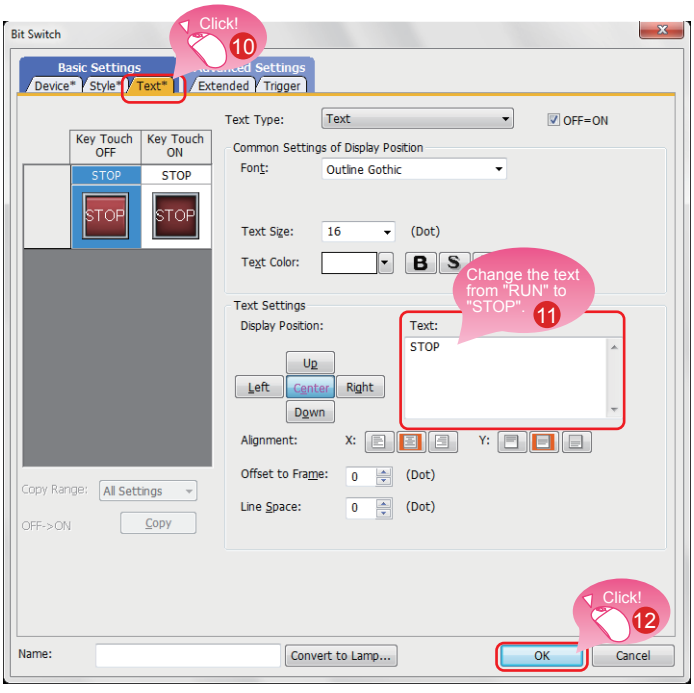
6 Select the shape of the off status.

7 Select a shape color.
Blue → Red

8 Select the shape of the on status.

9 Select a shape color.
Blue → Red

(4) Changing the text of the switch



10 Select the Text tab.

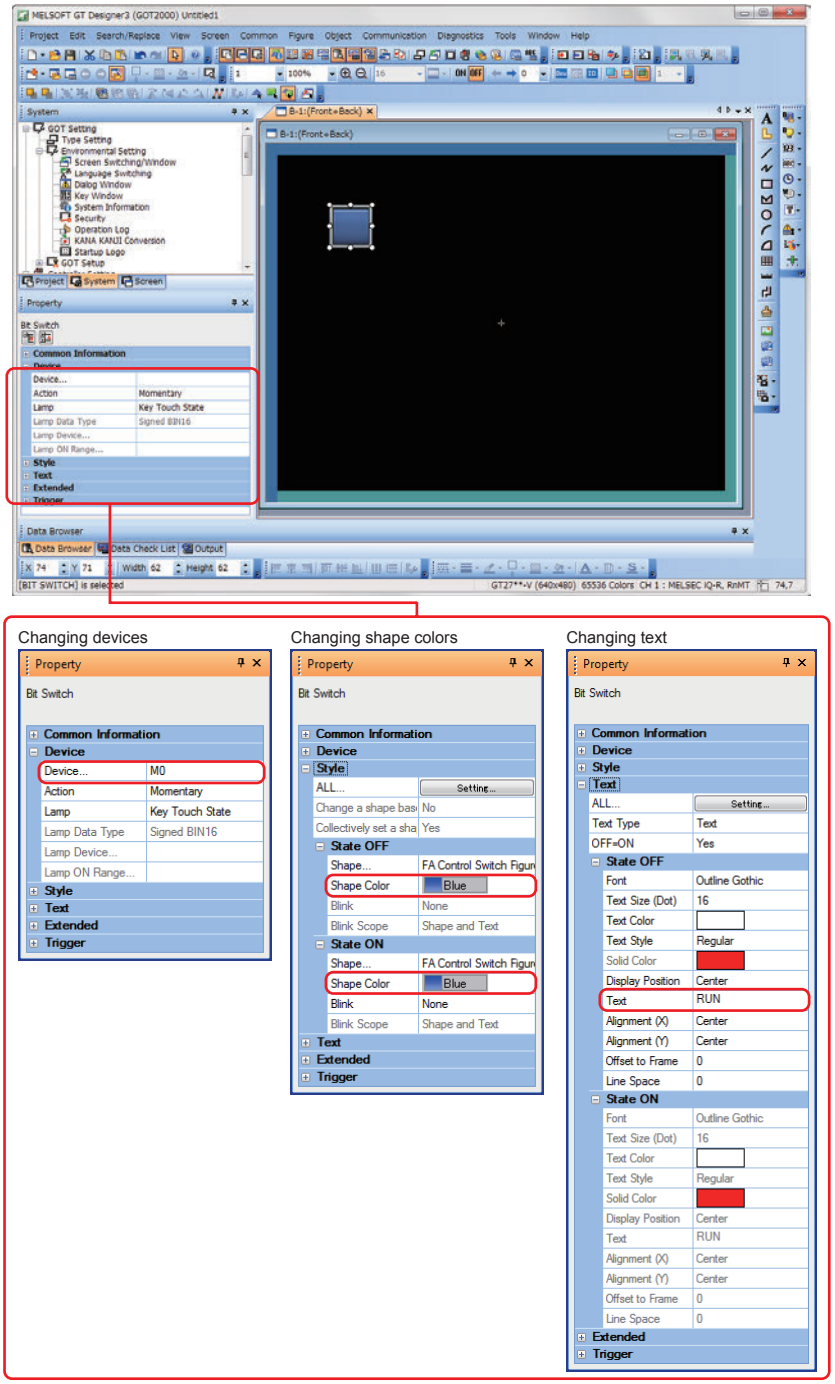
11 Enter "STOP" in Text.

12 Click the [OK] button.

Creating the STOP switch is completed.

■ Property sheet

The property sheet displays the list of attributes and set values of a selected screen, figure, or object.
Settings can be checked or changed without opening the setting dialog.
Set values can be changed collectively by selecting multiple figures or objects on the same screen.



Reference

For how to display the property sheet and how to set each item, refer to the help or the GT Designer3(GOT2000) Screen Design Manual.

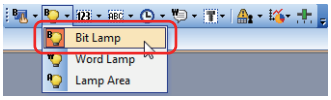
1.2.3 Creating a Running Lamp

(1) Placing a lamp

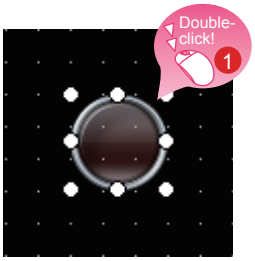
Select [Object] → [Lamp] → [Bit Lamp] from the menu bar to place a lamp.

Hint

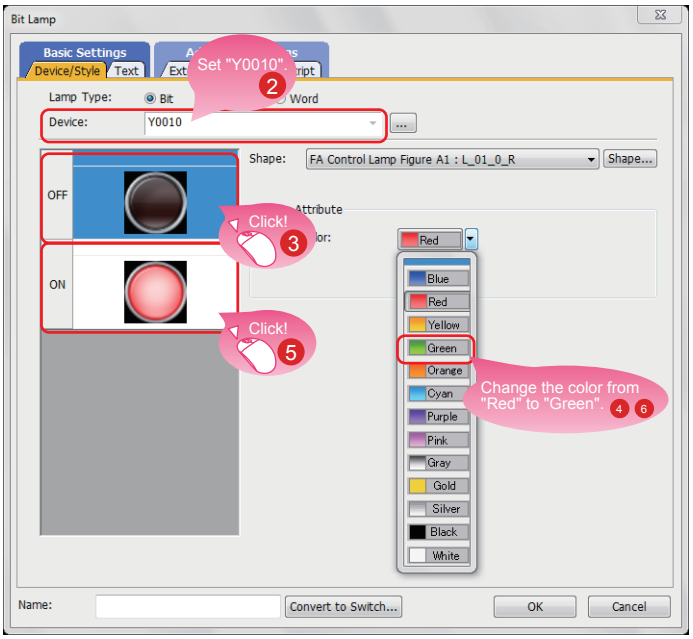
You can select the item from the toolbar as well.



(2) Setting a device, shape, and color for the lamp



1 Double-click the placed lamp.



When the dialog shown left appears, set the following items.

2 Device: Y0010

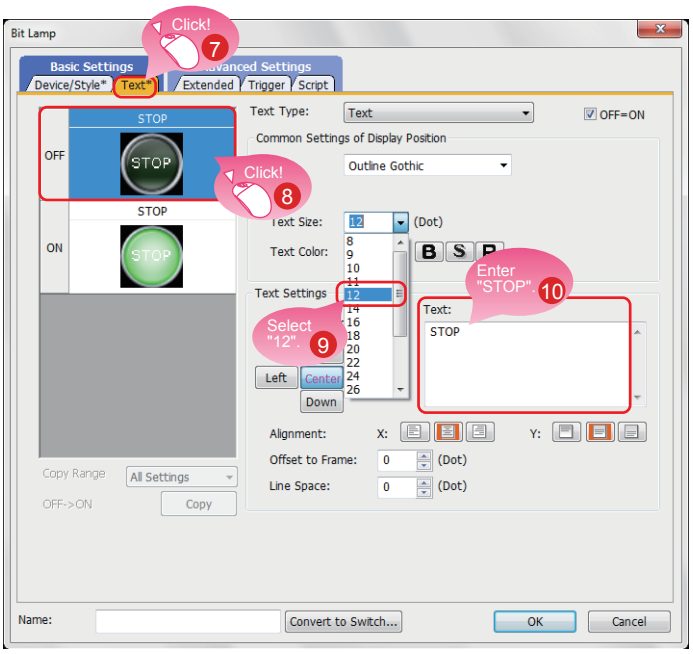
3 Select the shape of the off status.

4 Select a shape color.
Red → Green

5 Select the shape of the on status.

6 Select a shape color.
Red → Green

(3) Setting text for the lamp

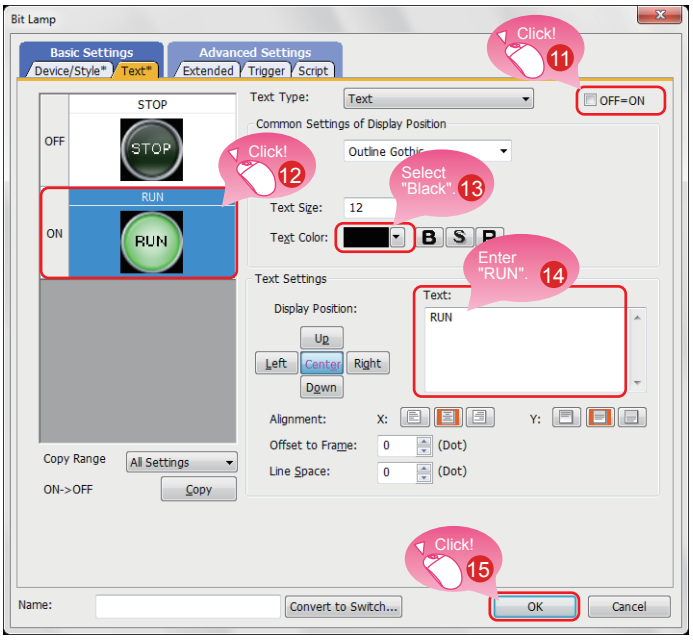


7 Select the Text tab.

8 Select the shape of the off status.

9 Text Size: Select 12 dots.

10 Enter "STOP" in Text.



11 Clear the check box for "OFF=ON".

12 Select the shape of the on status.

13 Select black for Text Color.

14 Enter "RUN" in Text.

15 Click the [OK] button.

Creating the running lamp is completed.

■ Display of objects on the screen editor

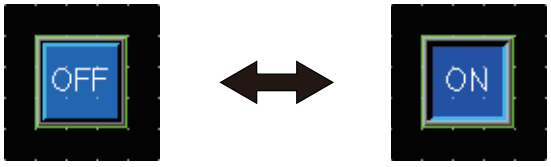
The status of objects to be displayed on the screen editor and the display or non-display of set information can be switched.

(1) Switching the status of objects to be displayed on the screen editor

(a) Switching the status between ON and OFF

Select [View] → [Switch ON/OFF Display] from the menu to switch between the on status image and off status image of each object on the screen editor.

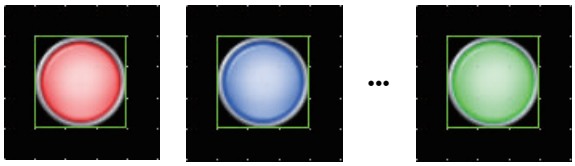
If a state is set to an object, the display of the object switches between OFF with state No.0 and ON with state No.1.



(b) Switching the status by specifying a state No.

Select [View] → [State No.] → [Previous State] or [Next State] from the menu to change display of the objects on the screen editor according to the state No.

If the status of an object is switched between ON and OFF, the display of the object switches between OFF with state No.0 and ON with state No.1 or more.

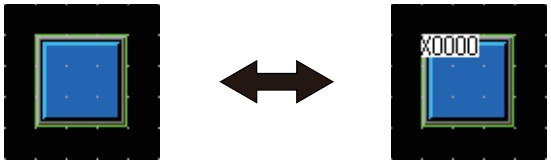


State No.0 State No.1 State No.63

(2) Setting information to be displayed on the screen editor

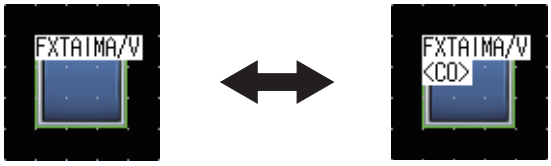
(a) Device

Select [View] → [Display Items] → [Device] from the menu to switch between displaying and hiding devices on the screen editor.



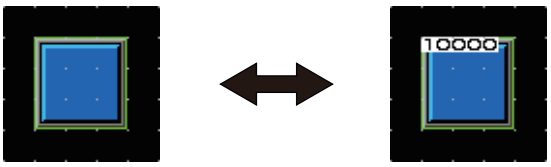
(b) System label device

Select [View] → [Display Items] → [Device of System Label] from the menu to switch between displaying and hiding devices assigned to system labels on the screen editor.



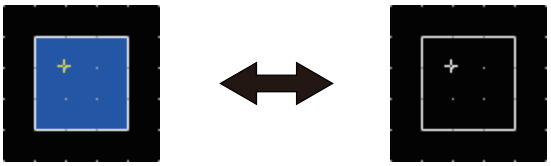
(c) Object ID

Select [View] → [Display Items] → [Object ID] from the menu to switch between displaying and hiding object IDs on the screen editor.



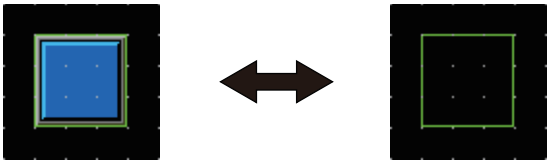
(d) Paint

Select [View] → [Display Items] → [Paint] from the menu to switch between displaying and hiding paints on the screen editor.



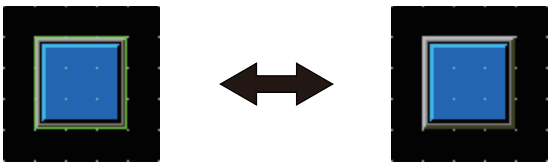
(e) Object

Select [View] → [Display Items] → [Object] from the menu to switch between displaying and hiding objects on the screen editor.



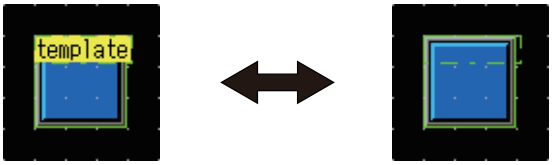
(f) Object frame

Select [View] → [Display Items] → [Object Frame] from the menu to switch between displaying and hiding object frames on the screen editor.



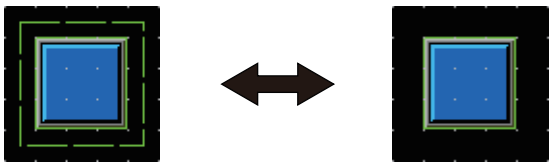
(g) Template information

Select [View] → [Display Items] → [Template Information] from the menu to switch between displaying and hiding template information on the screen editor.



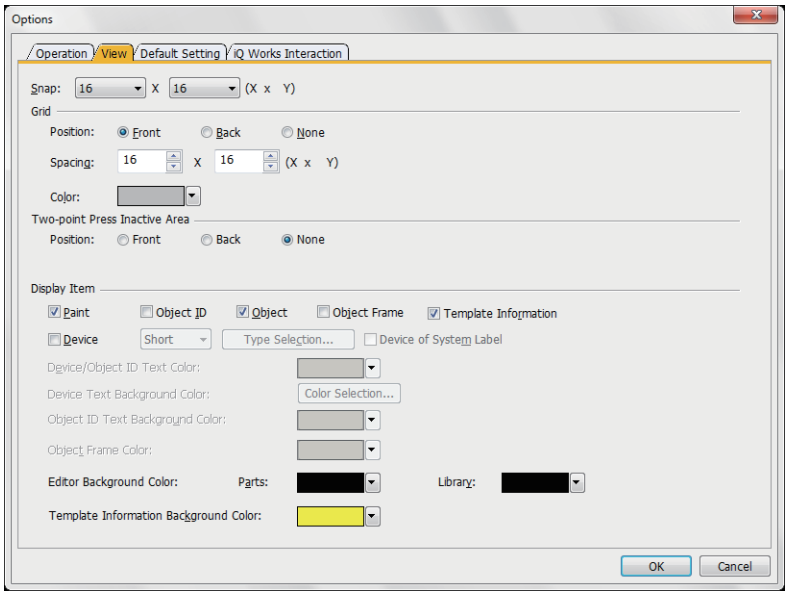
(h) Touch area

Select [View] → [Display Items] → [Touch Area] from the menu to switch between displaying and hiding touch areas on the screen editor.



(i) Option

Select [View] → [Display Items] → [Option] from the menu to display the [Option] dialog.
In this dialog, you can configure the settings displayed on the screen editor.

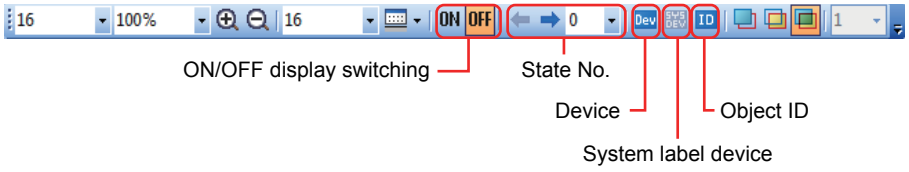


Reference

For the details of the option, refer to the help or the GT Designer3(GOT2000) Screen Design Manual.

■ Operations using the toolbar

The display of objects can be switched using the [View] toolbar as well.



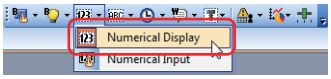
1.2.4 Creating a Numerical Display

(1) Placing a numerical display

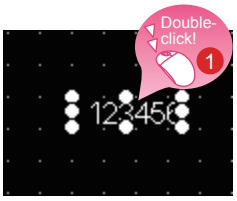
Select [Object] → [Numerical Display/Input] → [Numerical Display] from the menu bar to place a numerical display.

Hint

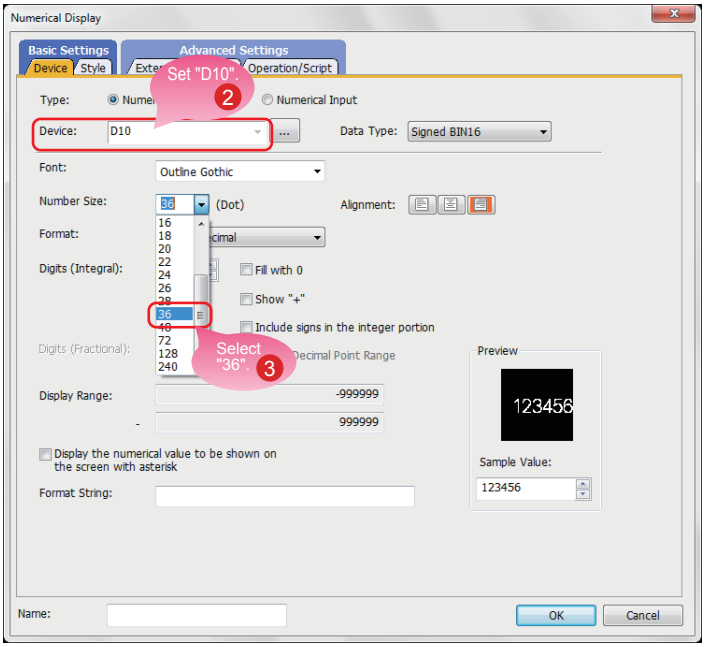
You can select the item from the toolbar as well.



(2) Setting a device and number size for the numerical display



1 Double-click the placed numerical display.

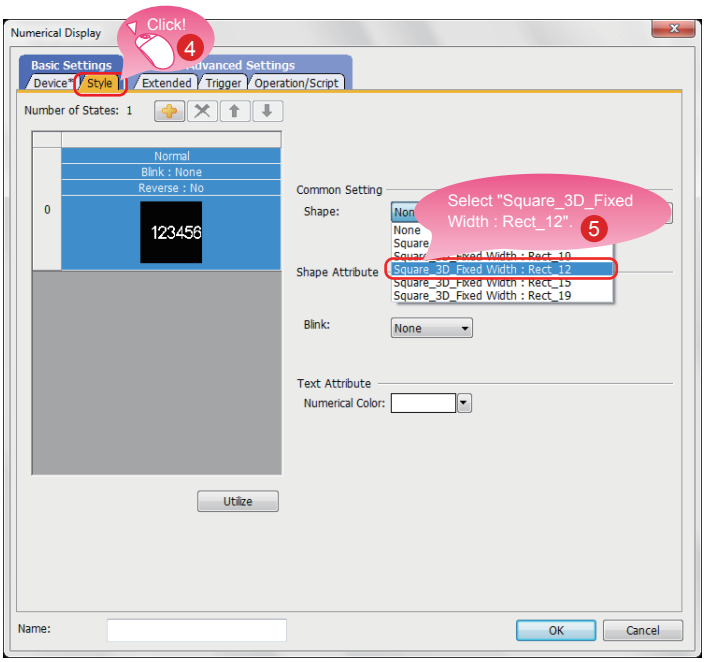


When the dialog shown left appears, set the following items.

2 Device: D10

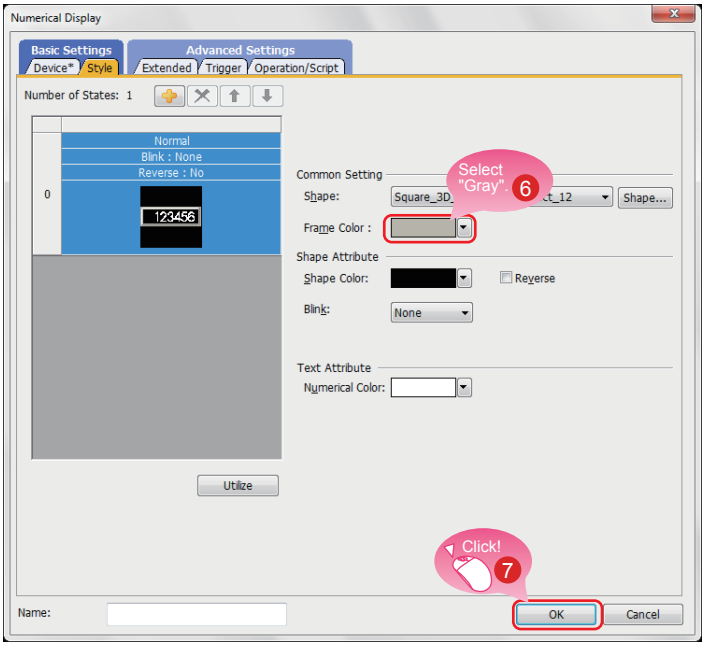
3 Number Size: Select 36 dots.

(3) Setting a shape and frame color for the numerical display



4 Select the Style tab.

5 Select "Square_3D_Fixed Width : Rect_12" for Shape.



6 Select gray for Frame Color.

7 Click the [OK] button.

Creating the numerical display is completed.

1.3 CREATING A FIGURE

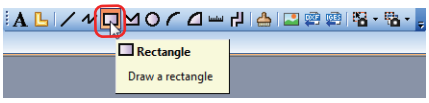
1.3.1 Creating a Figure (Rectangle)

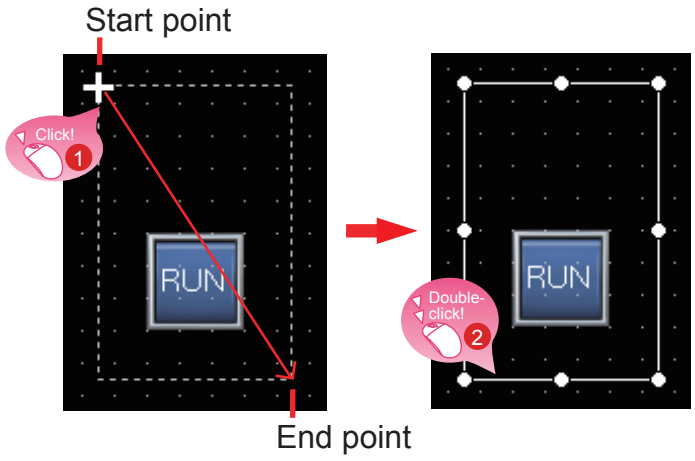
(1) Placing a rectangle

Select [Figure] → [Rectangle] from the menu bar to place a rectangle.

Hint

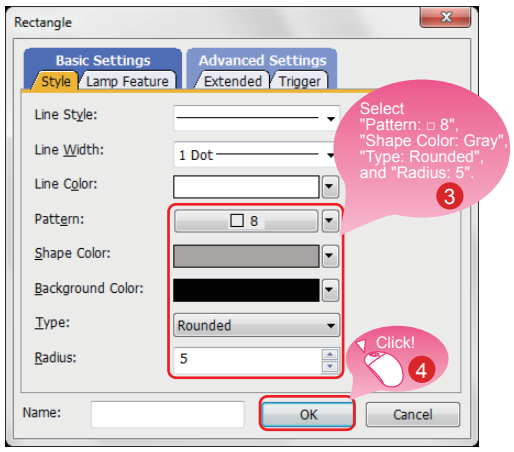
You can select the item from the toolbar as well.





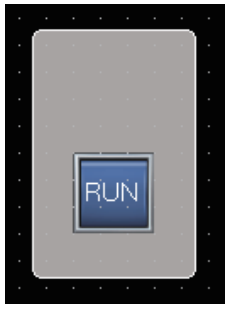
1. Drag the mouse from the start point to the end point while clicking the mouse.
2. Double-click the rectangle.

(2) Changing the setting of the rectangle



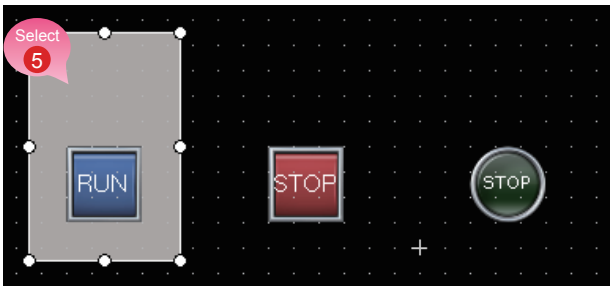
When the dialog shown left appears, set the following items.

3. Pattern: □ 8
   Shape Color: Gray
   Type: Rounded
   Radius: 5 dots
4. Click the [OK] button.

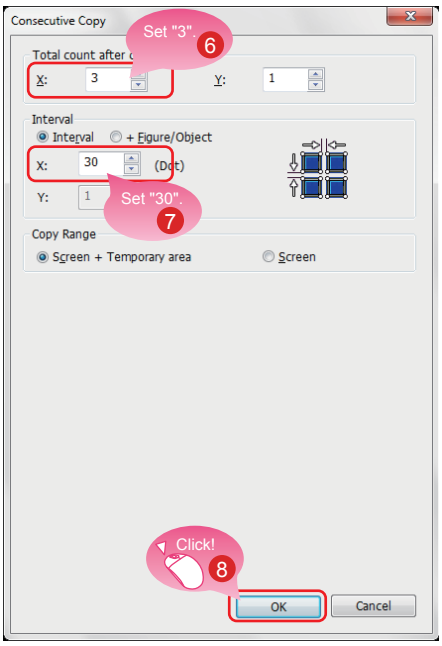


Creating the rectangle is completed.

(3) Consecutively copying the rectangle



5 Select the rectangle and select [Edit] → [Consecutive Copy] from the menu bar.

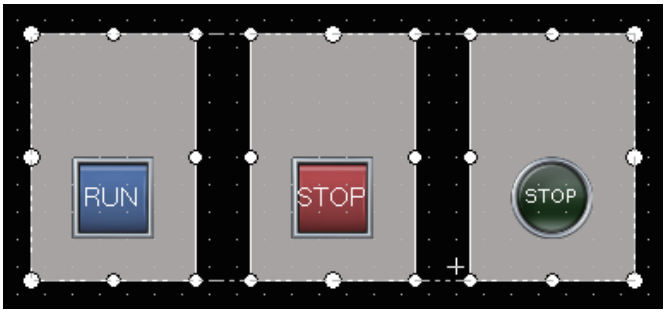


When the dialog shown left appears, set the following items.

6 Total count after copy: X 3

7 Interval: X 30

8 Click the [OK] button to consecutively copy the rectangle.



Point

The figures are placed on the back layer of the objects.

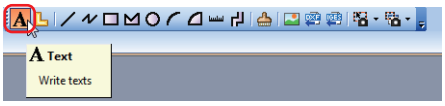
1.3.2 Creating Figures (Text) 1 to 3

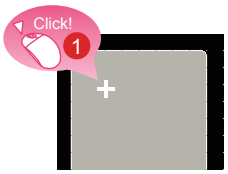
(1) Placing a figure (Text) 1

Select [Figure] → [Text] from the menu bar to place a figure (Text).

Hint

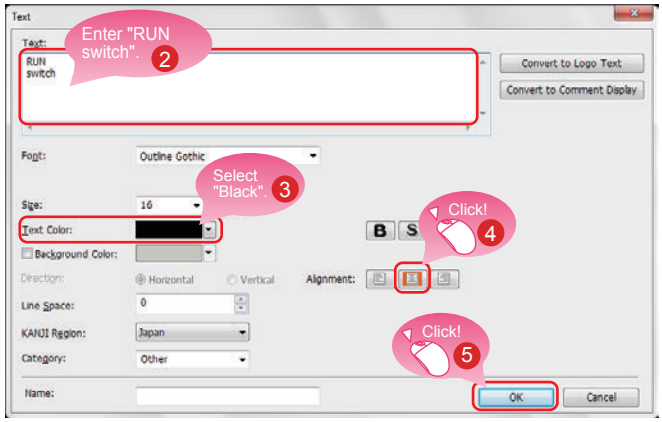
You can select the item from the toolbar as well.





1 Click the mouse on the area where the text is to be entered.

(2) Setting the figure (Text) 1



When the dialog shown left appears, set the following items.

2 Text: RUN switch
(A line feed can be inserted after the text "RUN" by pressing the Enter key.)

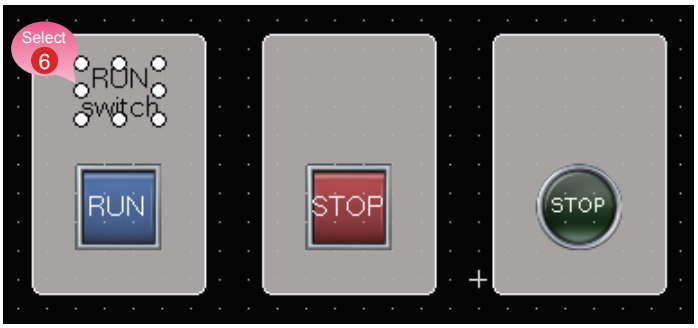
3 Text Color: Black

4 Alignment: Center

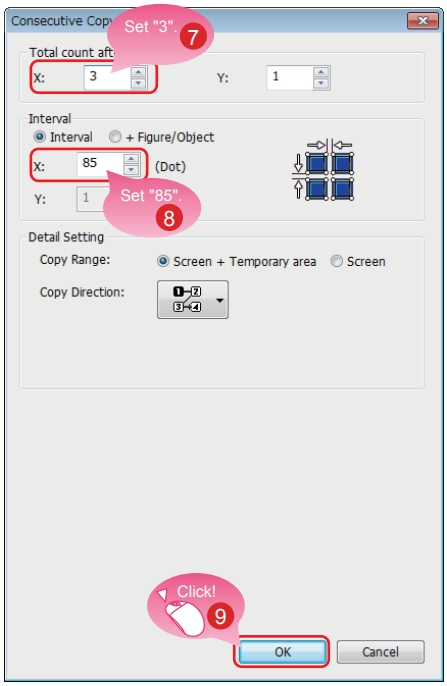
5 Click the [OK] button.

Creating the figure (Text) 1 is completed.

(3) Consecutively copying the figure (Text) 1 to create figures (Text) 2 and 3



6 Select the figure (Text) 1 and select [Edit] → [Consecutive Copy] from the menu bar.

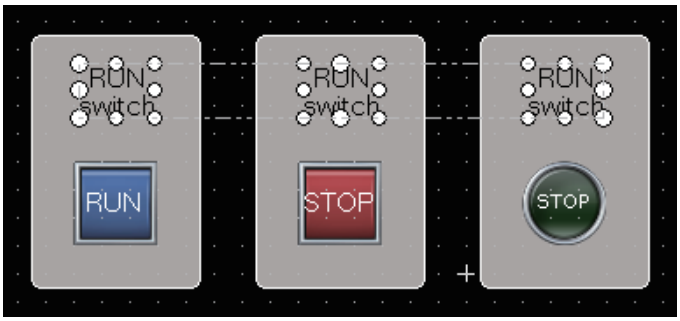


When the dialog shown left appears, set the following items.

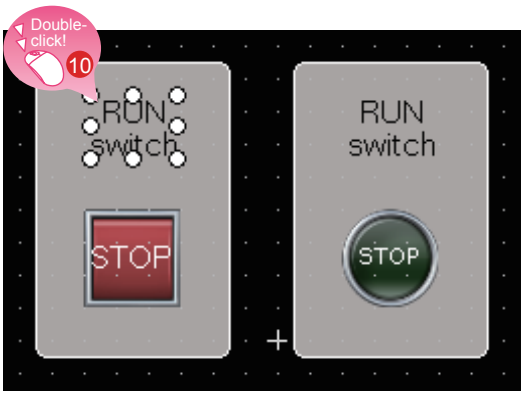
7 Total count after copy: X 3

8 Interval: X 85

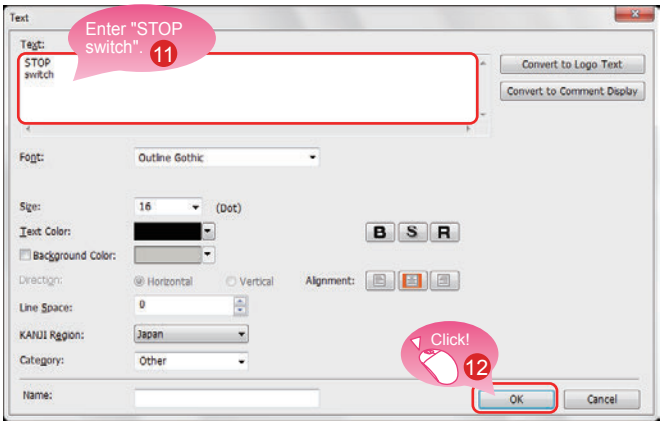
9 Click the [OK] button to consecutively copy the figure (Text).



(4) Modifying the text of the copies



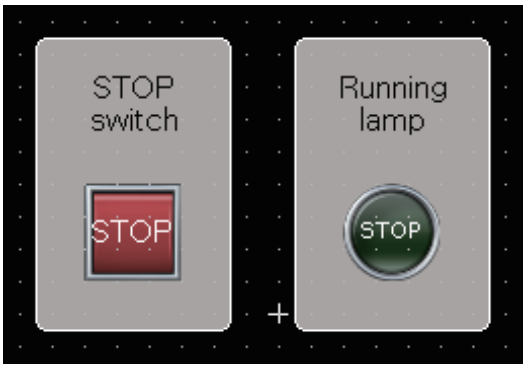
10 Double-click the copied figure (Text) 2.



When the dialog shown left appears, set the following item.

11 Text: STOP switch
(A line feed can be inserted after the text "STOP" by pressing the Enter key.)

12 Click the [OK] button.



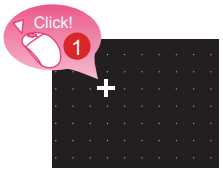
Modify the figure (Text) 3 with the same procedure.
Text: Running lamp
(A line feed can be inserted after the text "Running" by pressing the Enter key.)

Creating the figures (Text) 2 and 3 is completed.

1.3.3 Creating Figures (Text) 4 and 5

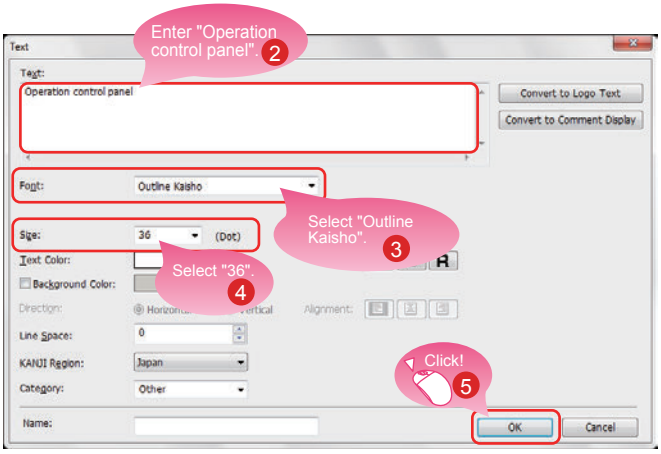
(1) Placing a figure (Text) 4

Select [Figure] → [Text] from the menu bar to place a figure (Text).
You can select the figure (Text) from the toolbar as well.



1 Click the mouse on the area where the text is to be entered.

(2) Setting the figure (Text) 4



When the dialog shown left appears, set the following items.

2 Text: Operation control panel

3 Font: Outline Kaisho

4 Size: 36 dots

5 Click the [OK] button.

Creating the figure (Text) 4 is completed.

(3) Placing and setting a figure (Text) 5 with the same procedure

Set the following items.
Text: Data 1
Font: Outline Gothic
Size: 16 dots

Creating the figure (Text) 5 is completed.

1.4 SETTING THE SCREEN GESTURE FUNCTION

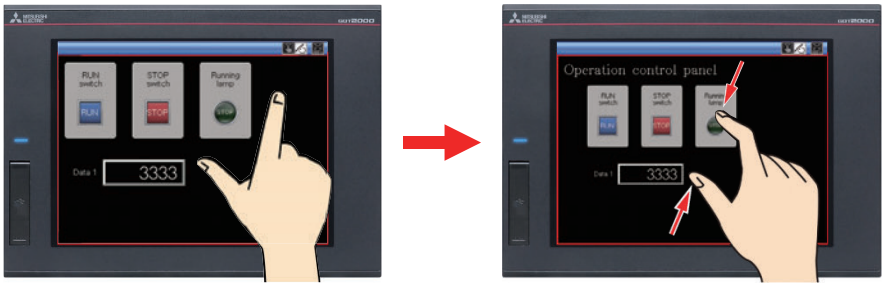
(1) Screen gesture function

This function enables zooming and scrolling the monitor screen of the GOT.

The displayed contents of the objects can be scrolled or zoomed in and out touching directly the GOT screen by gestures such as pinching out and in.

Example: Pinching out the screen to zoom in the displayed contents

Example: Pinching in the screen to zoom out the displayed contents



Point

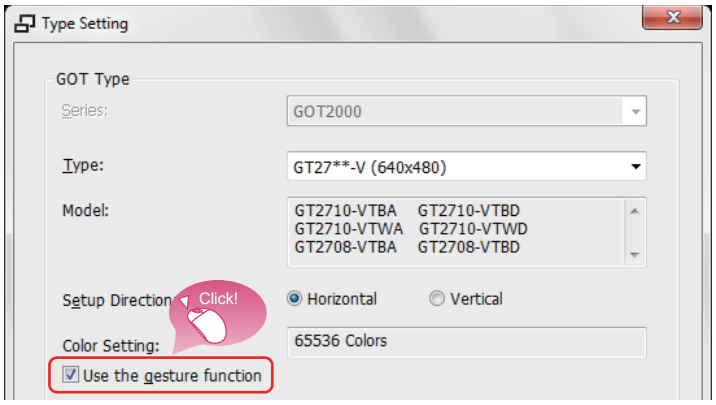
The screen gesture function is enabled by default.

If the screen gesture function is disabled, configure the setting according to the following procedure.

Select [Common] → [GOT Type Setting] from the menu bar to display the Type Setting dialog.

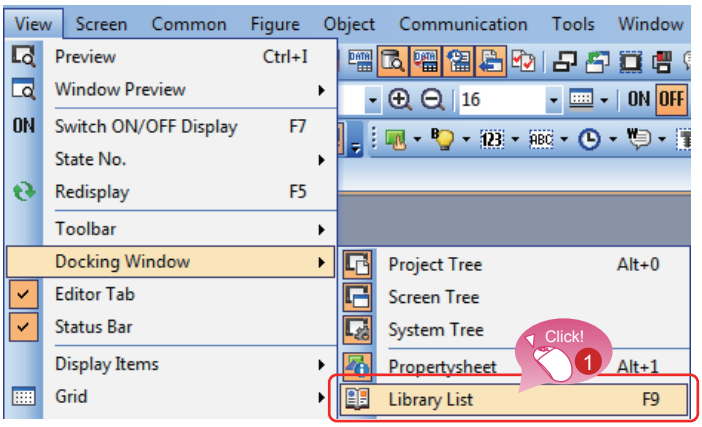
Select [Use the gesture function] and click the [OK] button.

The screen gesture function is enabled.

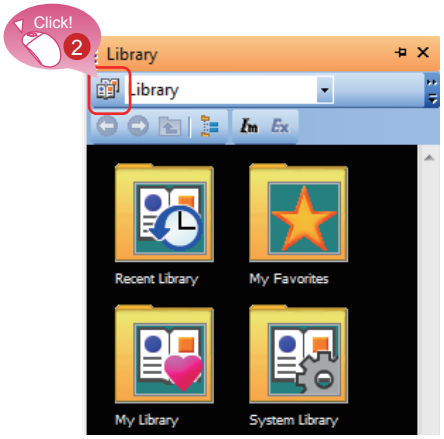


(2) Creating an object for the screen gesture

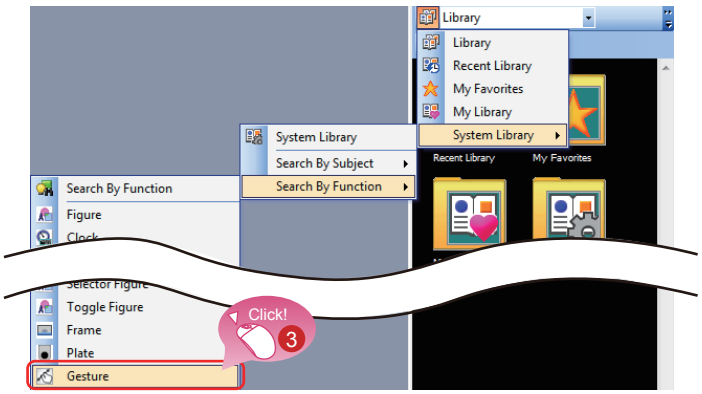
Place the switch for switching to the screen gesture mode.



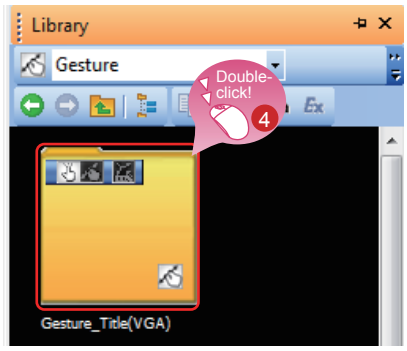
1 Select [View] → [Docking Window] → [Library List] from the menu bar.



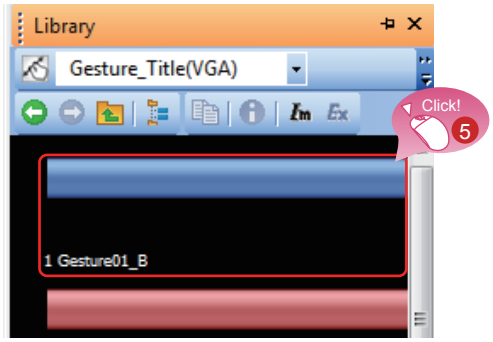
2 Click the icon on the [Library List] window.



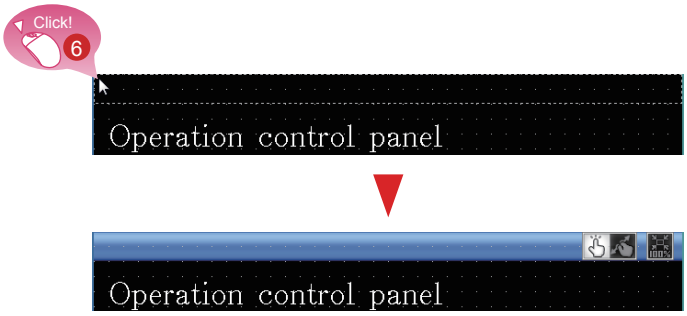
3 Select [System Library] → [Search By Function] → [Gesture] from the displayed pulldown menu.



4 Double-click [Gesture_Title(VGA)].



5 The registered styles are displayed in a list. Click [1 Gesture01_B].



6 Move the cursor to the screen editor, and click the top left of the screen.
(The broken line that indicates the size of the object appears.)

The object for the screen gesture is placed.

Point

Functions of the object for the screen gesture

- **Switching to the screen gesture mode**

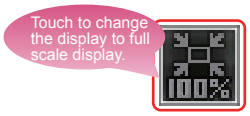
  Touching the following icon switches to the screen gesture mode.

- **Canceling the screen gesture mode**

  Touching the following icon during the screen gesture mode cancels the screen gesture mode.

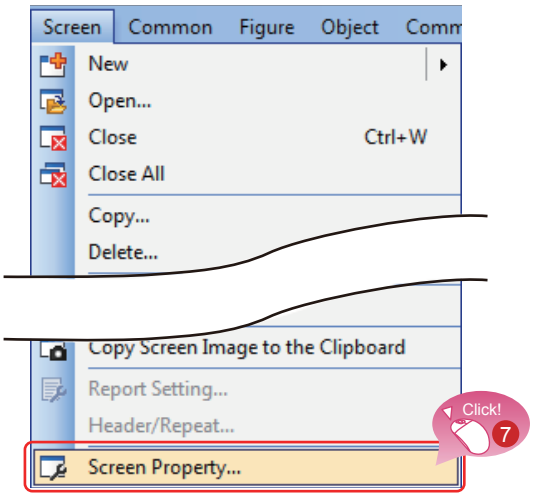
- **Full scale display (100%)**

  Touching the following icon resizes the screen enlarged using the gesture function to the actual size (100%).

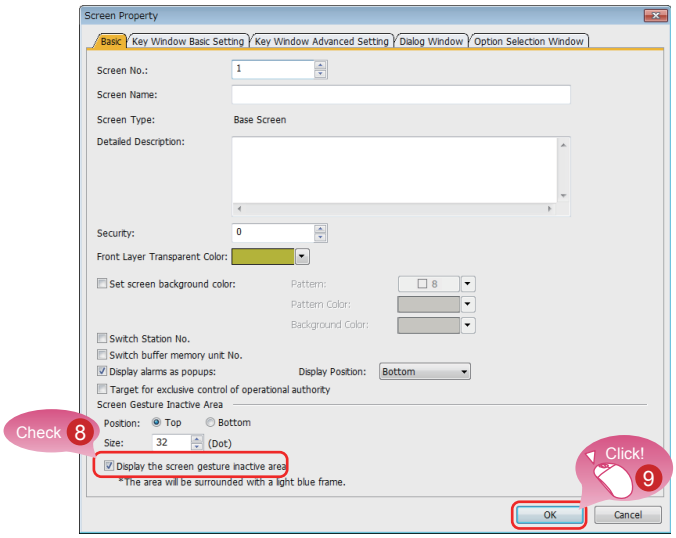


(3) Displaying the screen gesture inactive area

The “screen gesture inactive area”, the area for 16 to 100 dots from the top of the screen or the bottom of the screen, is not the target to be zoomed in and out and scrolled during the use of the gesture function.

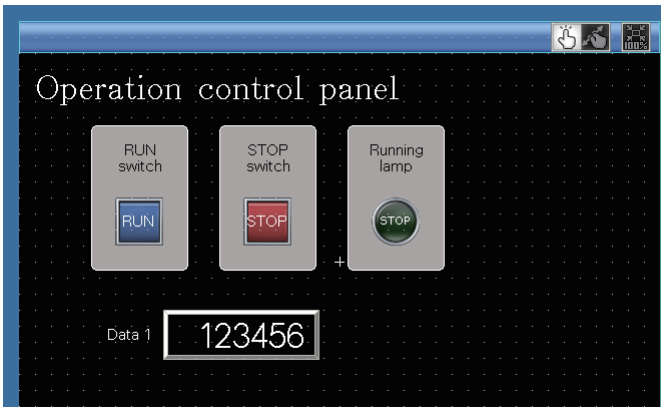


7 Select [Screen] → [Screen Property] from the menu bar.



8 Select [Display the screen gesture inactive area].

9 Click the [OK] button.



Setting the screen gesture function is completed.

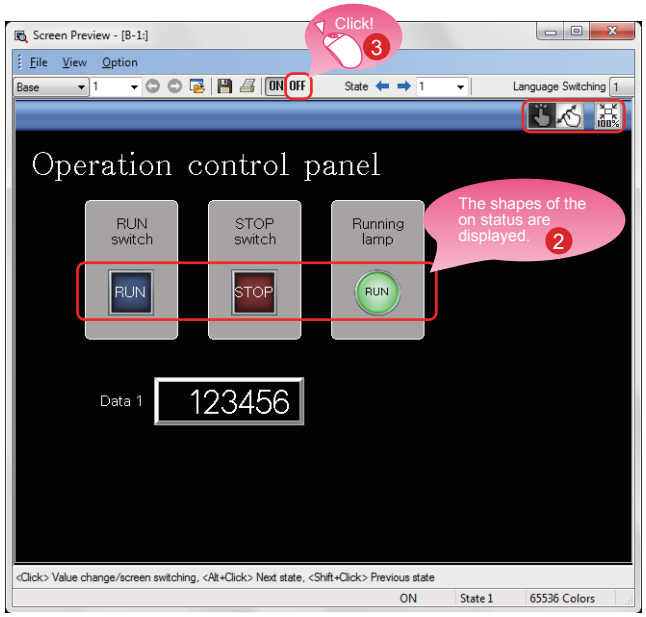
1.5 CHECKING THE CREATED SCREEN

1.5.1 Checking the Display (Screen Preview)

(1) Checking the display state of on and off of the created screen and objects

Select [View] → [Preview] from the menu bar.

1 The Screen Preview window appears. Click the [ON] button.



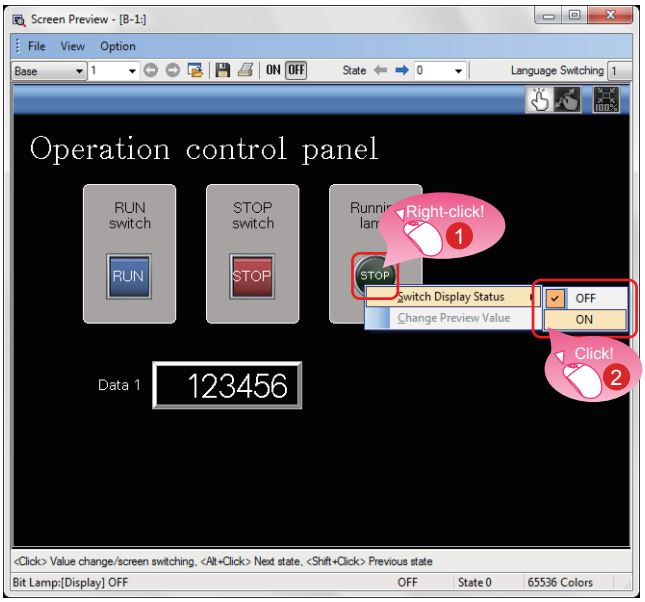
2 The shapes of the objects are switched to the shapes of the on status.

3 Clicking the [OFF] button displays the shapes of the off status.

■ Checking the display of lamps and switches by each object

On the Screen Preview window, the display of lamps and switches can be switched to check each display.

(1) Switching the ON/OFF status



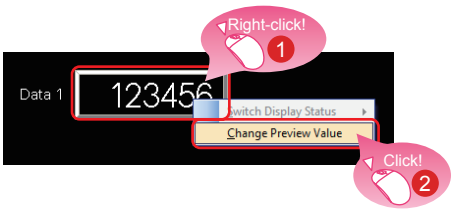
1. Right-click an object.
2. Select [ON] or [OFF].

Shape of on status

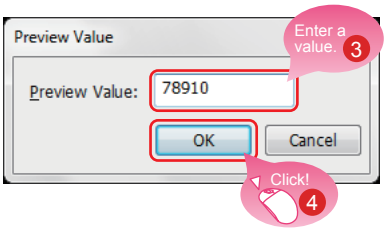
Shape of off status

The shape of the on status or the one of the off status is displayed.

(2) Changing the preview value of a numerical display or numerical input



1. Right-click the numerical display.
2. Select [Change Preview Value].



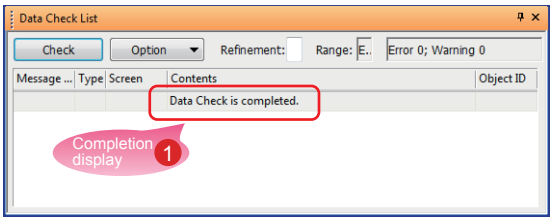
3. Enter a value.
4. Click the [OK] button.

The preview value is changed.

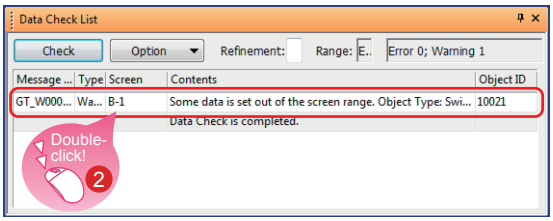
1.5.2 Checking Data Errors (Data Check)

(1) Checking that no error exists in the project

Select [Tool] → [Data Check] → [Check] from the menu bar.



1 Check that the message [Data Check is completed.] is displayed on the Data Check List widow and no error exists.

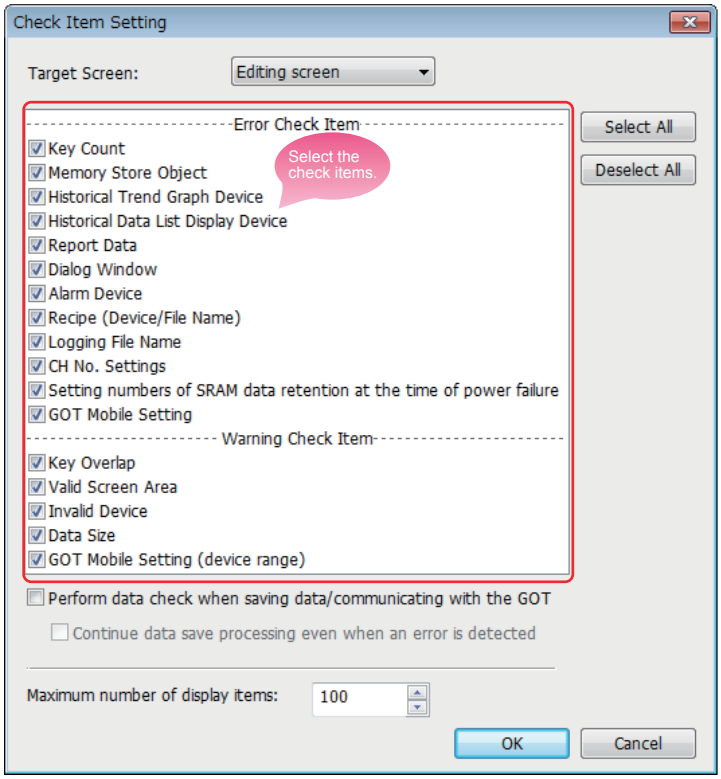


2 If any error exists, double-click the result to jump to the position which causes an error or warning.
Check the error and change the setting.

Hint

The items to be checked with the data check can be set.

Select [Tool] → [Data Check] → [Item Setting] from the menu bar.

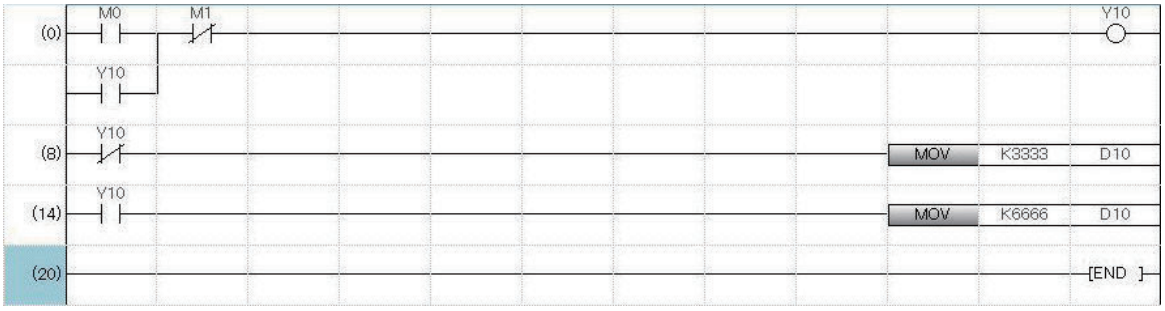


1.5.3 Checking Operations (Simulator)

(1) Preparing a sequence program

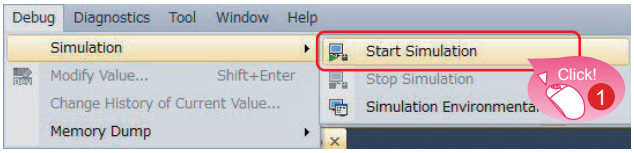
Prepare a sequence program for the simulation using simulators.
To proceed to the next step, create a sequence program using GX Works3.

<Sample program>

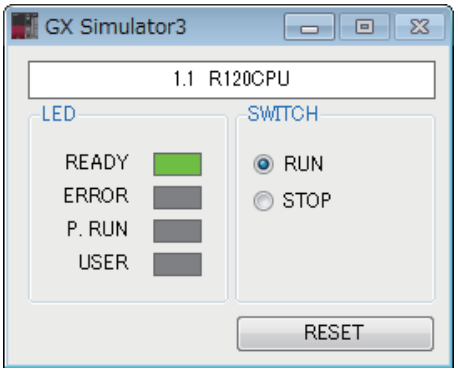


(2) Starting the simulator for the PLC

Start GX Simulator3 from GX Works3.



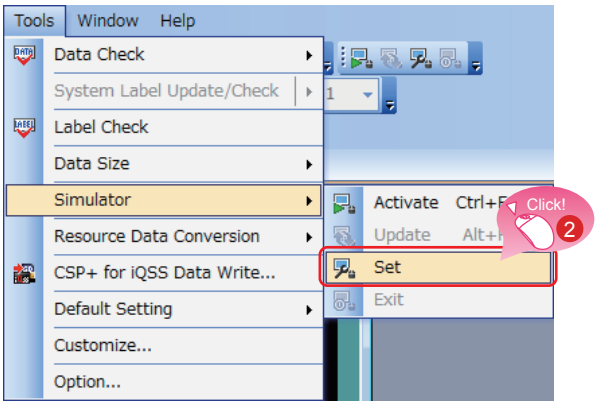
1 Select [Debug] → [Simulation] → [Start Simulation] from the menu bar of GX Works3.



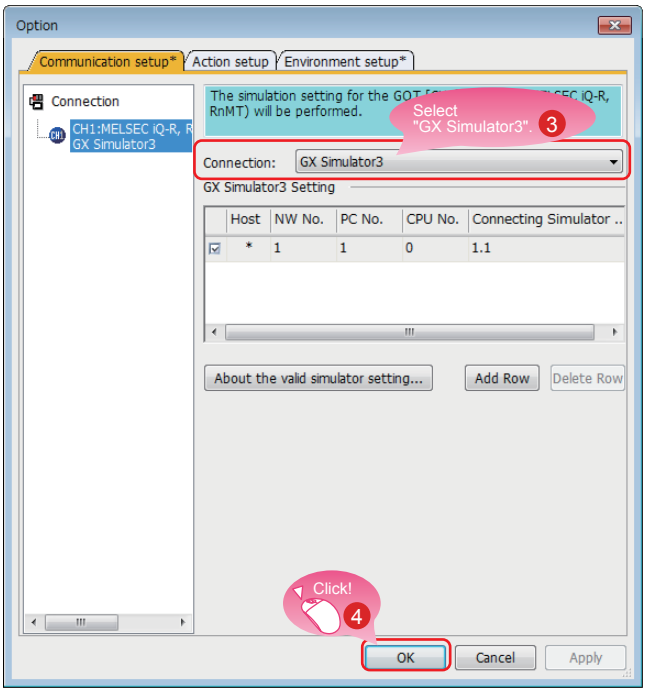
GX Simulator3 starts.

(3) Starting the simulator for the GOT to check the created screen

Start GT Simulator3 from GT Designer3(GOT2000) to check the created screen.

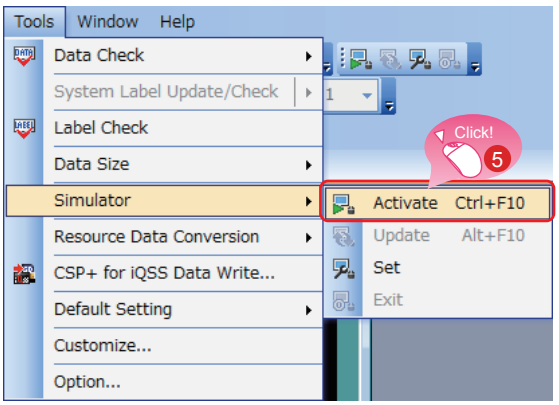


2 Select [Tools] → [Simulator] → [Set] from the menu bar of GT Designer3(GOT2000).

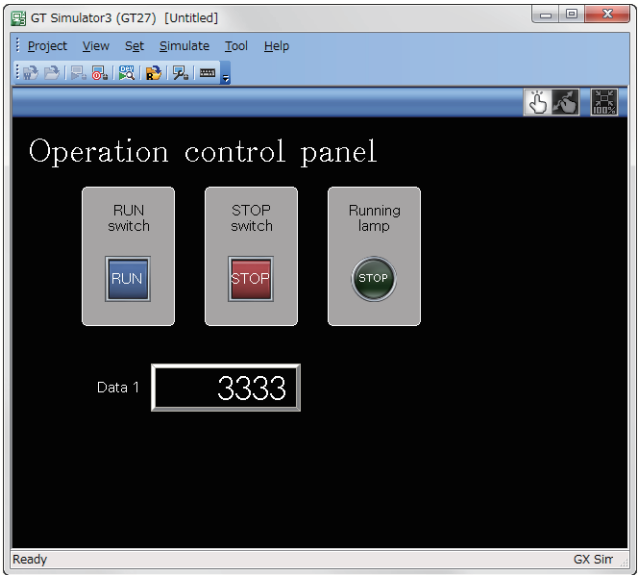


3 When the dialog shown left appears, select GX Simulator3 for Connection.

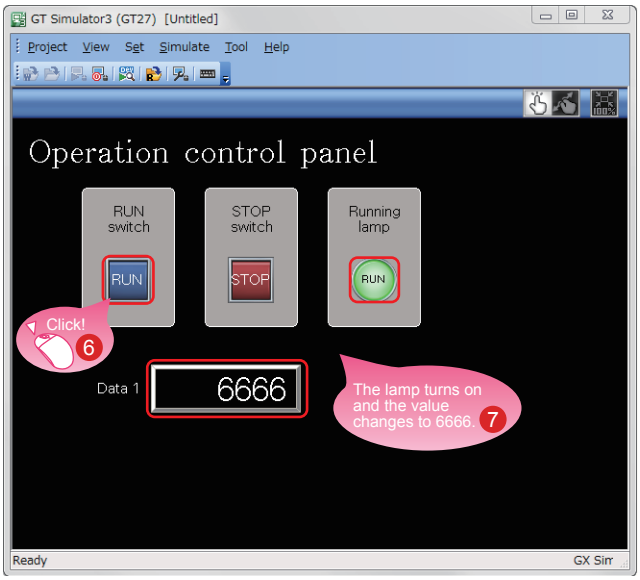
4 Click the [OK] button to complete the settings.



5 Select [Tools] → [Simulator] → [Activate] from the menu bar of GT Designer3(GOT2000).



The simulator starts, and the created screen can be simulated.

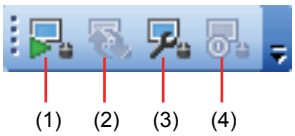


6 Click the RUN button.

7 The Running lamp turns on and the value of Data 1 changes to 6666.

Hint

The simulator can be started, updated, and exited from the toolbar of GT Designer3(GOT2000).

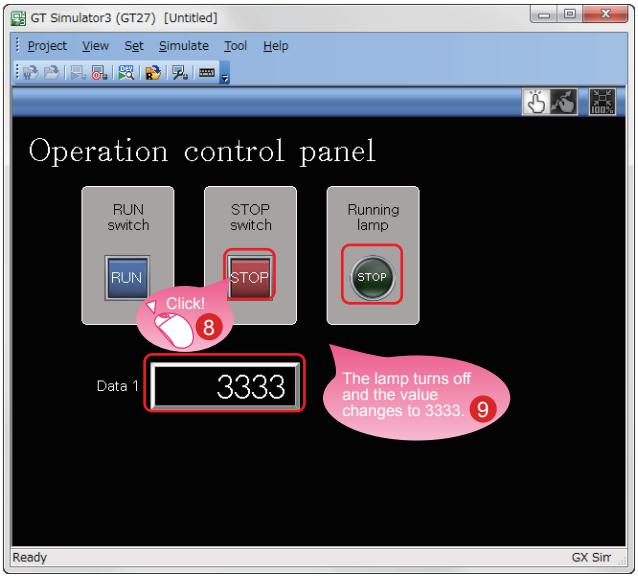


(1) [Simulator: Activate] Activates GT Simulator3 to start the simulation.

(2) [Simulator: Update] Updates the project in simulation with the project being edited. The changes made by using GT Designer3(GOT2000) can be reflected to the project in simulation.

(3) [Simulator: Set] Opens the setting window of the simulator.

(4) [Simulator: End] Exits GT Simulator3.

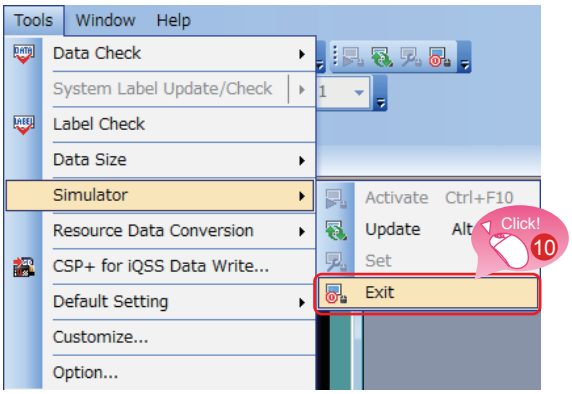


8 Click the STOP button.

9 The Running lamp turns off and the value of Data 1 changes to 3333.

(4) Exiting the simulator for the GOT

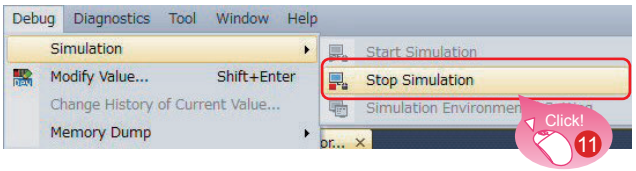
Exit GT Simulator3 after the simulation.



10 Select [Tools] → [Simulator] → [Exit] from the menu bar of GT Designer3(GOT2000).

(5) Exiting the simulator for the PLC

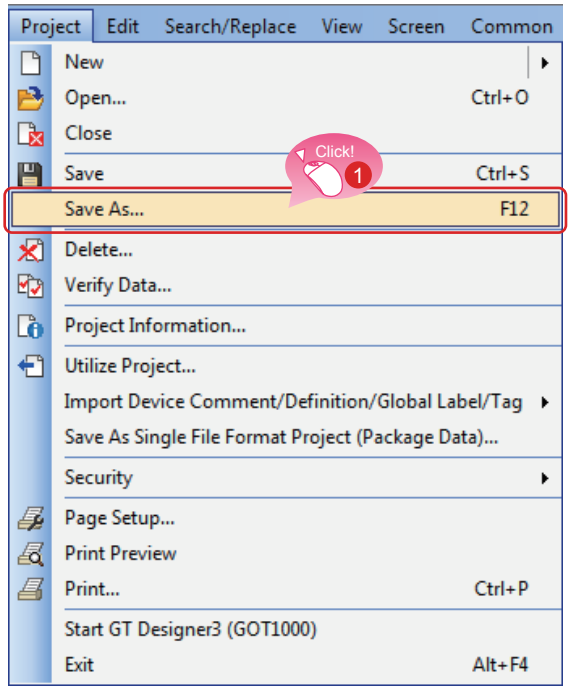
Exit GX Simulator3 of GX Works3.



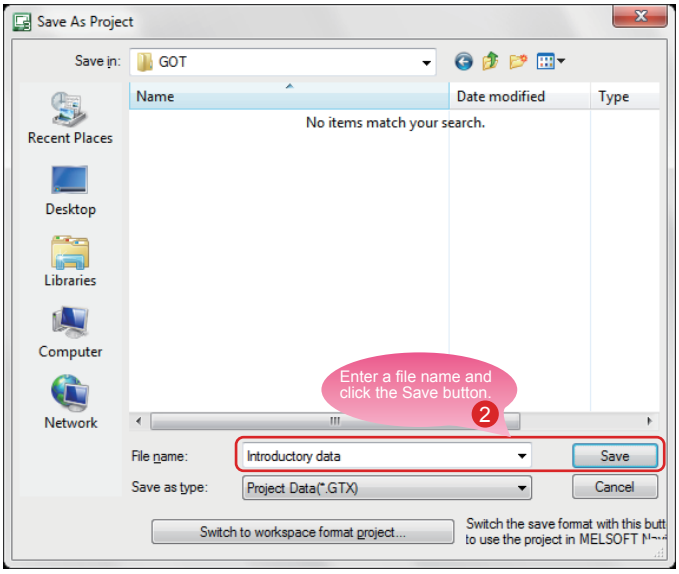
11 Select [Debug] → [Simulation] → [Stop Simulation] from the menu bar of GX Works3.

1.6 SAVING THE PROJECT

(1) Saving the created screen



1 Select [Project] → [Save As] from the menu bar.



2 Enter a file name and click the [Save] button to save the screen.

(2) Type of files

A project can be saved in the following formats.

- Workspace format
- Single file format (*.GTX)
- Single file format (*.GTXS) with system applications

Reference

This document explains a single file format (*.GTX) project.

For the details of each format, refer to the help or the GT Designer3(GOT2000) Screen Design Manual.

MEMO

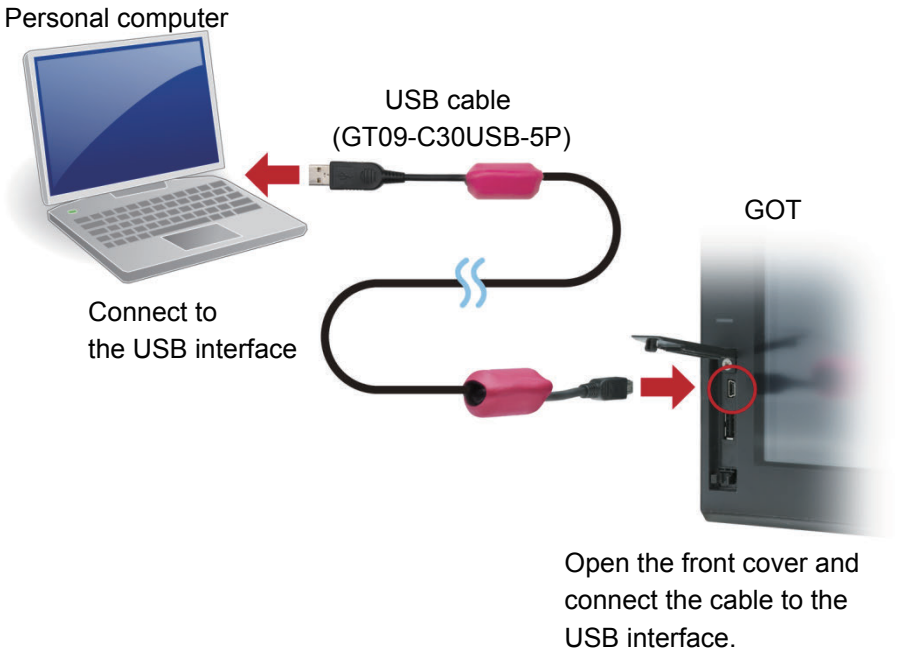
STEP 2

TRANSFERRING THE PROJECT DATA

2.1 TRANSFERRING THE PROJECT DATA

2.1.1 Connecting the personal computer to the GOT

Use a USB cable to connect the personal computer to the GOT.



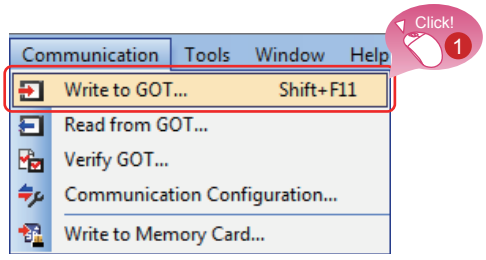
* For the USB communication with the GOT, install a USB driver.
  The USB driver is installed to the personal computer at the first connection.
  Data can also be transferred using an SD card or connection methods other than USB cable.

Reference

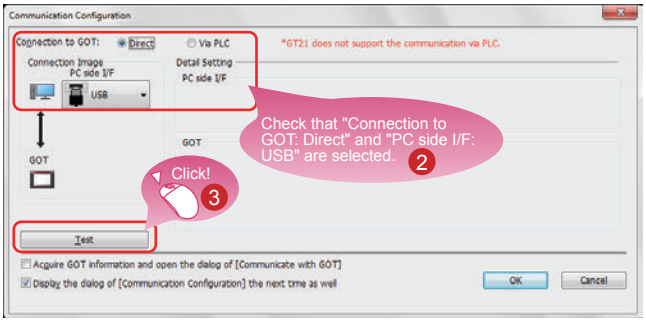
For how to transfer data using an SD card or connection methods other than USB cable, refer to the help or the GT Designer3(GOT2000) Screen Design Manual.

2.1.2 Communication setting

Configure the communication setting of the personal computer and the GOT.
Power on the GOT before the configuration.



1 Select [Communication] → [Write to GOT] from the menu bar.

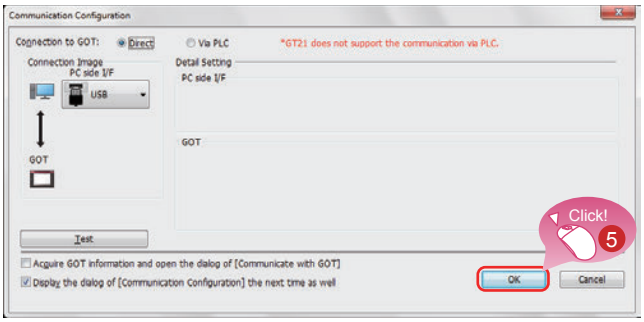


2 Check that the following settings are configured.
Connection to GOT: Direct
PC side I/F: USB

Perform the communication test to check the communication.

3 Click the [Test] button.

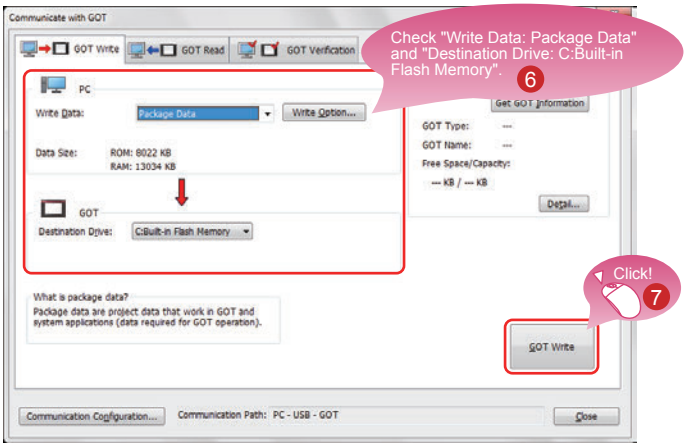
4 When the message [Successfully connected.] appears, click the [OK] button.



5 Click the [OK] button.

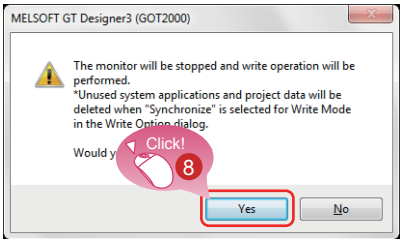
2.1.3 Transferring the project data

Transfer the project data from the personal computer to the GOT.



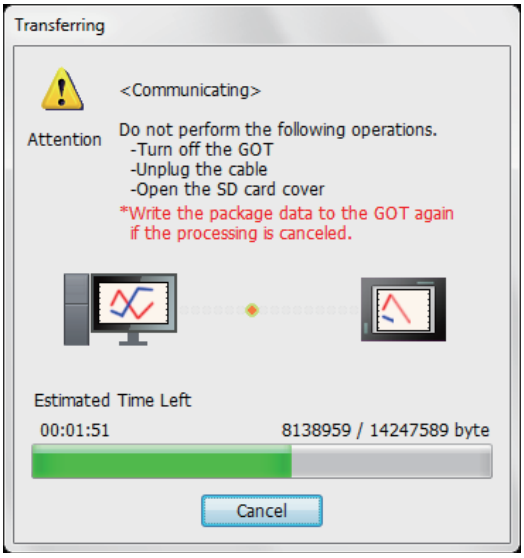
6 Check that the following settings are configured.
Write Data: Package Data
Destination Drive: C:Built-in Flash Memory

7 Click the [GOT Write] button.



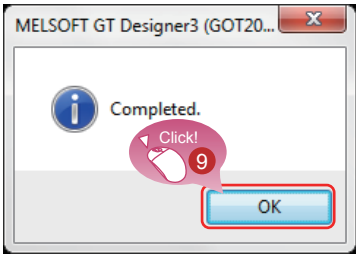
The dialog box for confirming writing to the GOT appears.

8 Click the [Yes] button to start writing.



The dialog box shown on the left is displayed while the data is being written.
Do not perform the following operations.

- Turning off the GOT
- Unplugging the cable
- Opening the SD card cover



9 When writing to the GOT is completed, the dialog box shown on the left appears. Click the [OK] button.

The GOT will be rebooted automatically.

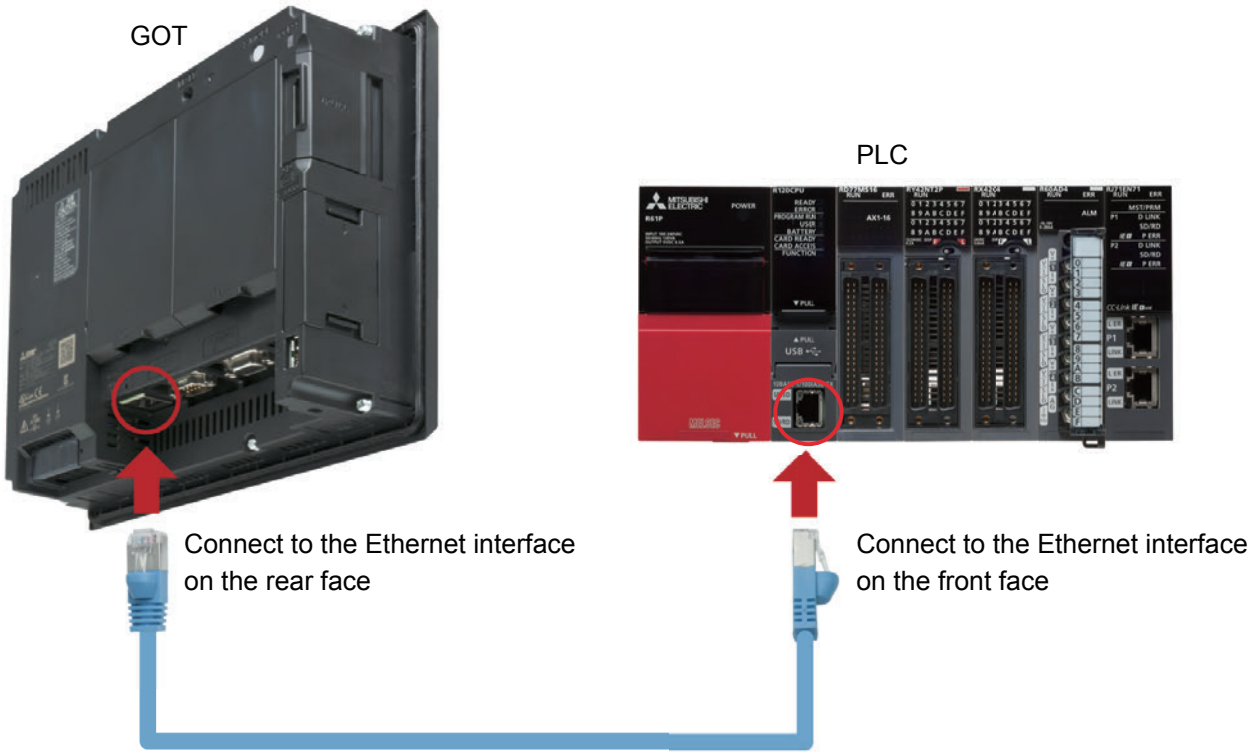
10 The language selection screen appears. Select [English].

2.2 CONNECTING THE GOT AND THE PLC

2.2.1 Connecting the GOT and the PLC

Connect the GOT and the PLC.
Before connecting the GOT and the PLC, check that the GOT and the PLC are powered off.

After that, connect the GOT and the PLC using an Ethernet cable, and power on the GOT and the PLC.



2.2.2 Checking the connection status

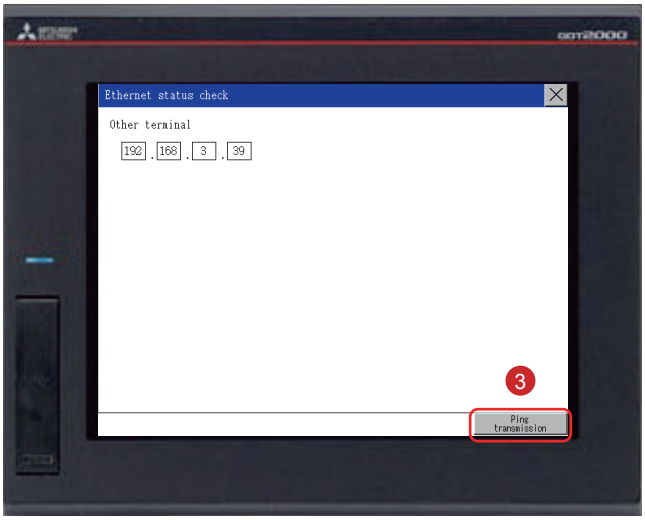
Perform the Ethernet status check of the GOT to check that the GOT can communicate with the PLC.
The Ethernet status check function checks the connection status between the GOT and a device on the Ethernet network by sending a ping request.
Before performing the Ethernet status check, check that the GOT and the PLC are powered on.

1 Touch the utility call key on the GOT to display the utility main menu.

The utility call key is set to the top left corner of the GOT screen (press the key for 2 seconds).
The settings can be changed with GT Designer3(GOT2000).

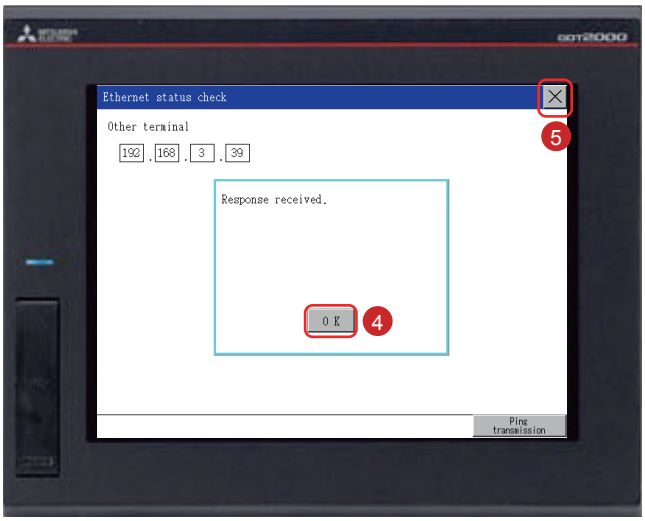
The utility main menu is displayed.

2 Touch [Maintenance] → [Ethernet status check] on the utility main menu.



3 Set the IP address of the target controller and touch the [Ping transmission] button.

In this document, the IP address of the target controller is 192.168.3.39 (default). The IP address of the target controller can be checked and changed in [Ethernet Setting] by selecting [Common] → [Controller Setting] from the menu bar of GT Designer3(GOT2000).



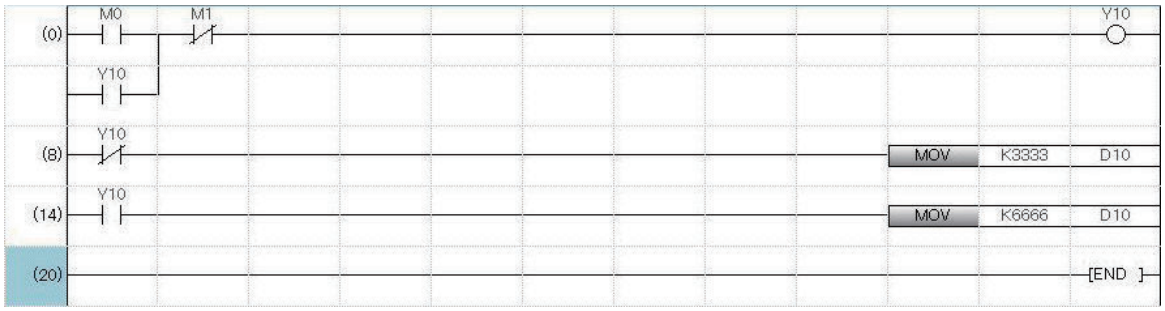
When no communication error exists, the message [Response received.] appears.

4 Touch the [OK] button.

5 Touch the [×] button to display the created screen.

2.2.3 Writing the sequence program to the PLC

Write the sequence program , which was created for simulation, from GX Works3 to the PLC.

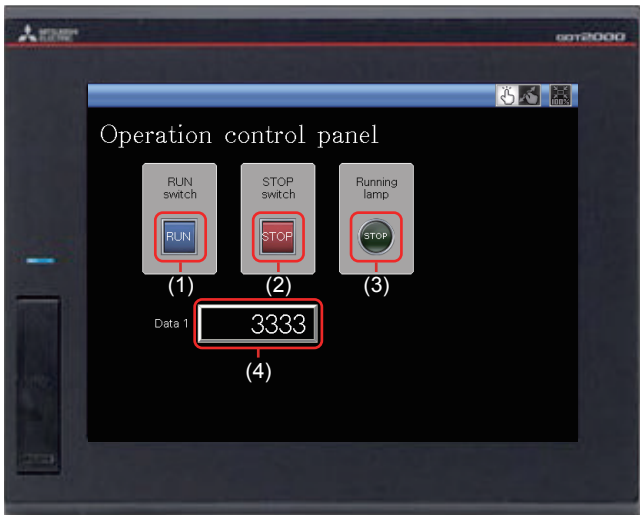


MEMO

STEP 3
USING THE GOT

3.1 CHECKING THE ON/OFF ACTION OF SWITCHES

Touch each switch to check the switch action.



Display the created screen.
The following shows the action set for each object.

(1) RUN switch

Touching this switch starts operation (M0 is turned on).

(2) STOP switch

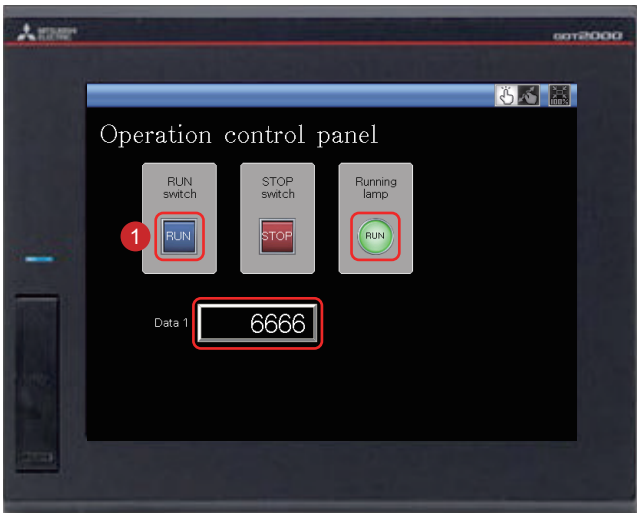
Touching this switch stops operation (M1 is turned on).

(3) Running lamp

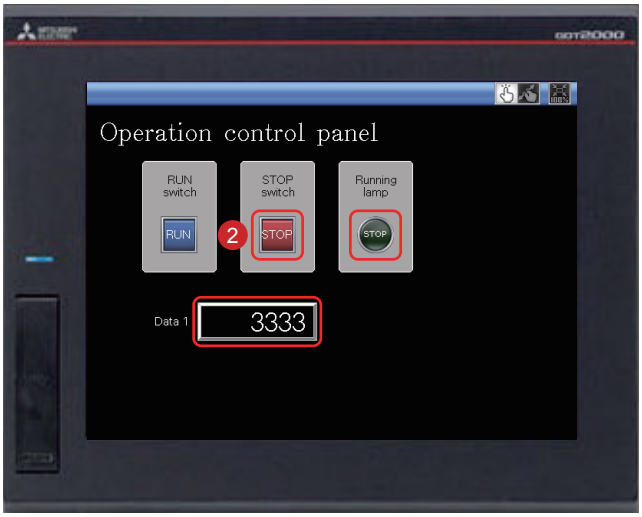
RUN: The lamp turns on with the text "RUN". (While M0 is on, Y10 is on.)
(Y10 turns on by the sequence program.)
STOP: The lamp turns off with the text "STOP". (While M1 is on, Y10 is off.)
(Y10 turns off by the sequence program.)

(4) Data 1 (Numerical display)

RUN: The numerical value 6666 is shown. (While M0 is on.)
(The value 6666 is stored in D10 by the sequence program.)
STOP: The numerical value 3333 is shown. (While M1 is on.)
(The value 3333 is stored in D10 by the sequence program.)



1 Touching the RUN switch turns on the Running lamp and displays 6666 in Data 1.



2 Touching the STOP switch turns off the Running lamp and displays 3333 in Data 1.

3.2 USING THE SCREEN GESTURE FUNCTION

The monitor screen can be zoomed in and out by using the screen gesture function.

1 Touch the switch for switching the screen gesture mode.

2 A red line indicating the area that can be zoomed in and out appears.

3 The screen can be zoomed in and out by pinching out and in inside this area.

4 To cancel the screen gesture mode, touch the switch for switching the screen gesture mode.
The screen gesture mode is canceled and the screen display remains enlarged.

5 To change the display to the full scale, touch the full scale display (100%) switch.
When the screen display is changed to the full scale during the screen gesture mode, the screen gesture mode is canceled and the screen is displayed in the full scale.

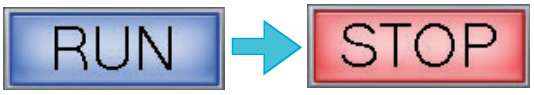
3.3 LIST OF GOT FUNCTIONS

The GOT has various useful functions. This section introduces some of the functions.

Lamp, switch

Lamp display

Changes the color of a lamp.



Bit switch

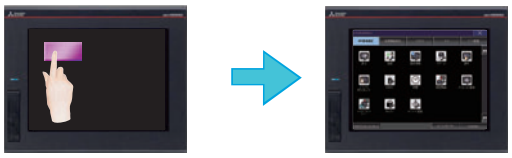
Touch the switch to turn on or off a bit device.

Word switch

Touch the switch to change the value of a word device.

Special function switch

Touch the switch to switch the screen to the utility screen or other screens.



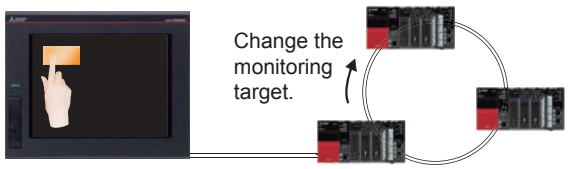
Go to screen switch

Touch the switch to switch the base and window screens.

Base screen 1 Base screen 2

Change station No. switch

Touch the switch to switch the station number of the controller to be monitored.



Key code switch

This switch can be used as a key for entering numerical values or text.

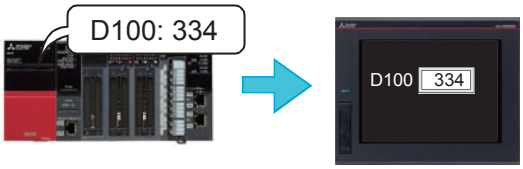
Key window display switch

A specified key window is displayed at a specified position, and a cursor is displayed on a specified object.

Numerical, text display

Numerical display

A device value is displayed with a numerical value.

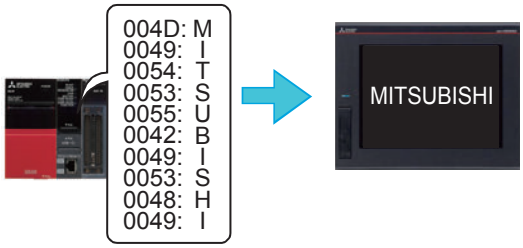


Numerical input

Values are written into devices.

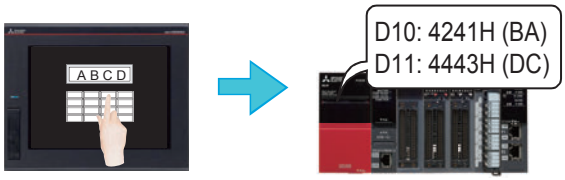
Text display

A device value is displayed with a character.



Text input

Character codes are entered to a device.



Clock display

The date and time are displayed.

Comment display

A comment is displayed.

Parts

Parts display

Displays registered parts.

Parts movement

Displays movements of parts.

Graph, meter

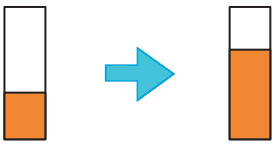
* Only some functions are introduced here.

Panel meter display

A device value is displayed with a meter.

Level display

A device value is displayed with the percentage of total.



Statistics graph display

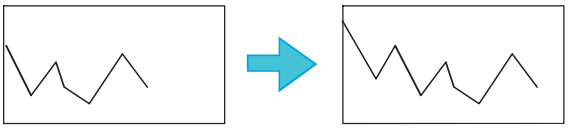
Multiple device values are displayed in a graph with the percentages of total.

Pie graph

Bar graph

Historical trend graph display

Data including past and present data collected using the logging function is displayed with a trend graph.



Slider

Slider

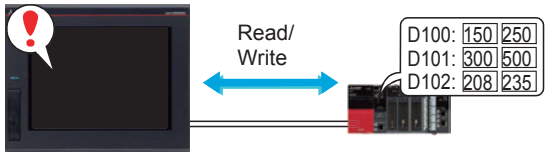
Use the slider to set continuous values to the device within any setting range.
The value of the destination where you stop the knob is input to the device.

Changing the set output with the slider

Recipe

Recipe function

The status of devices is monitored, and the device values are read or written when conditions are satisfied.
Multiple values can be set for one device.
Device values can be read and written using the utility.

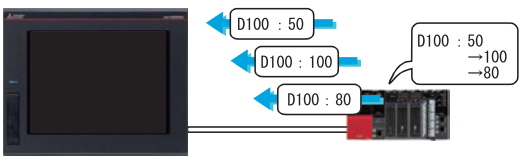


Condition → Operation

* Only some functions are introduced here.

Logging function

Device values are collected and stored.



Time action function

Devices can be written on a specified date and time.

External I/O

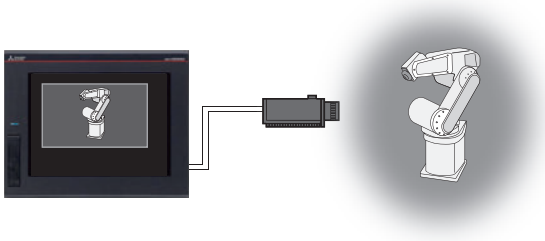
* Only some functions are introduced here.

Report

Collects data such as production management and production status and prints the collected data.

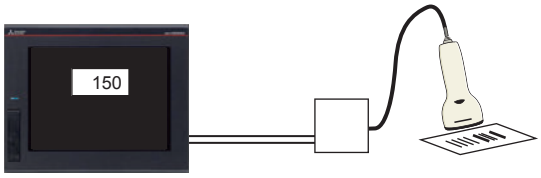
Video display

Displays video images.



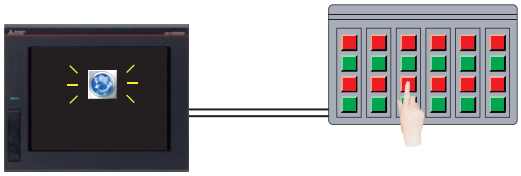
Barcode

Data read with the barcode reader is written to devices.



Operation panel

Devices are written by operating the operation panel.

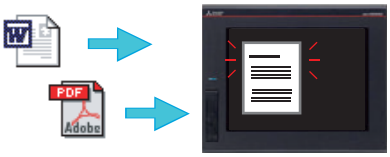


Others

* Only some functions are introduced here.

Document display

Document data can be displayed on the GOT.



Language switching

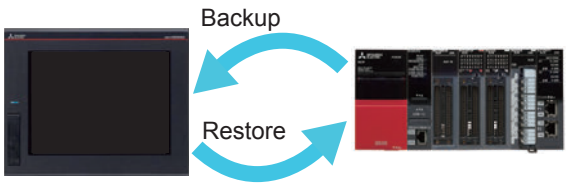
Multiple languages can be switched to display an appropriate one.

Device monitor

Monitors the status of the PLC devices.

Backup/Restore

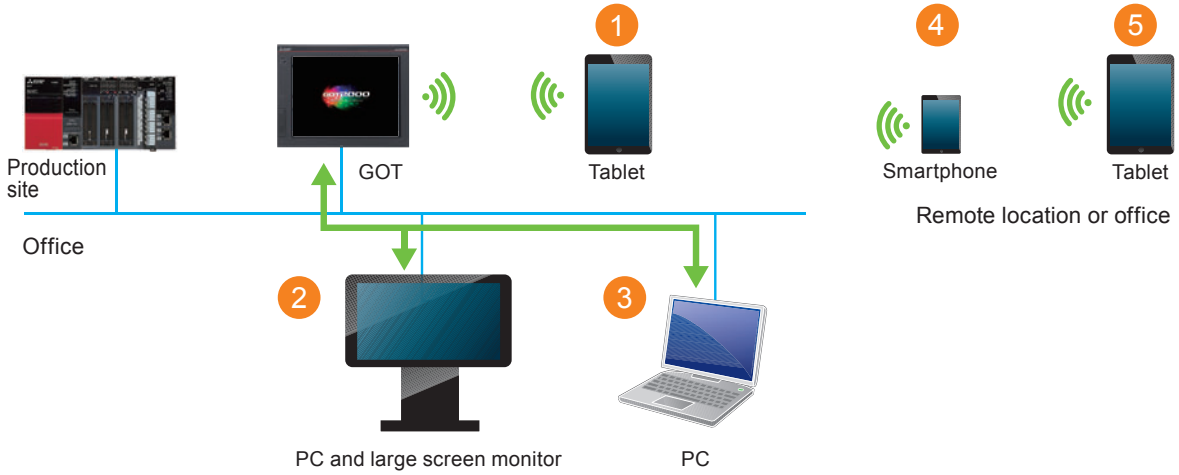
The settings of the controller can be backed up or restored from the GOT.



3.4 Functions Convenient for Maintenance

GOT Mobile function

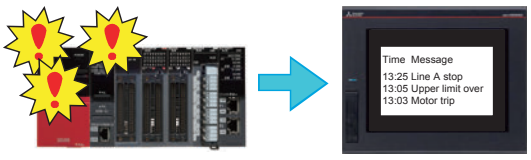
This function monitors connected equipment through the GOT from information devices such as personal computers, tablets and smartphones.
The user can easily grasp the status of equipment on the local site from a distance place.
Five information devices can access one GOT unit at the same time.



Alarm

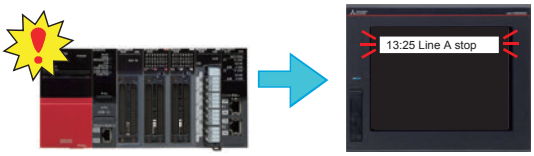
Alarm display

Displays GOT errors, communication errors, the message created by users as history when an alarm occurs.
Alarms are displayed hierarchically.



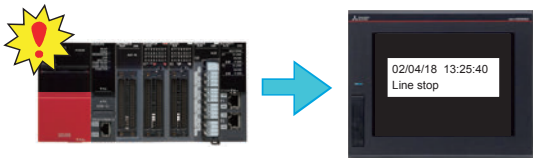
Alarm popup display

Displays GOT errors, communication errors, messages created by users with pop-up windows when an alarm occurs.



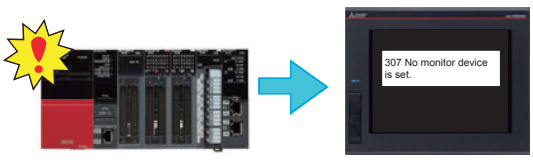
Simple alarm display

Displays a message created by users when an alarm occurs.



System alarm display

Displays GOT errors and communication errors when an alarm occurs.



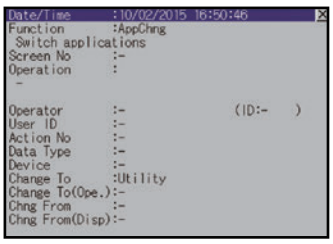
Function of operation log information

This function saves operations performed by the user to the GOT in the data storage as the operation log. Operations saved in the log can be used in the cause investigation performed if an issue occurs on the manufacturing site.

Operation Log Data List

Confirming the log outline

Detail Information

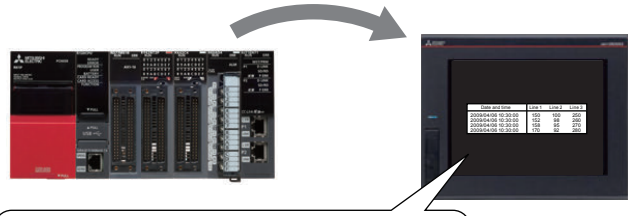


Confirming the log details

Log viewer function

Even if a personal computer is not installed on the local site, the GOT can acquire (logging) and display the data in connected equipment such as programmable controllers using this function so that quick action can be taken against problems occuring at the local site.

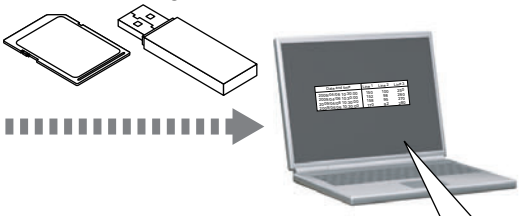
Logging data acquisition



Logging data

Date and time	Line 1	Line 2	Line 3
2009/04/06 10:30:00	150	100	250
2009/04/06 10:30:00	152	98	260
2009/04/06 10:30:00	158	95	270
2009/04/06 10:30:00	170	92	280

Data storage



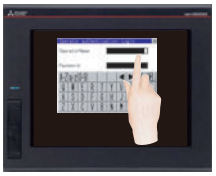
Logging data

Date and time	Line 1	Line 2	Line 3
2009/04/06 10:30:00	150	100	250
2009/04/06 10:30:00	152	98	260
2009/04/06 10:30:00	158	95	270
2009/04/06 10:30:00	170	92	280

Password

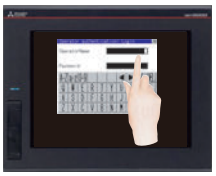
The authority for operating and browsing the GOT can be set by setting the operator name and password for each user.
Setting the password realizes “security enhancement” and “access control for each user”.
By combining the password and operation log information function, it is possible to check “who (person), when (date and time), what (target data) and how (method)” of each operation performed.

Operator A
having the operation
authority



Login
permitted

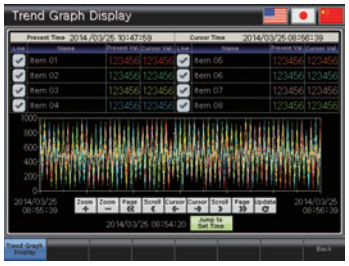
Operator B
not having the
operation authority



Login
not permitted

Screen samples

Various screens are lined up to show functions often used on the local site.
By referring to screen samples, the user does not have to create similar screens from the beginning.
If you need screen samples, consult your local Mitsubishi representative or branch office.



Trend Graph Display

Counter Display

Parameter Setting

Manual_Operation

Current_Alarm_Display

STEP 4
MAINTAINING THE GOT

4.1 NECESSITY OF MAINTENANCE

FA equipment can cope with various environments including temperature changes and vibrations, and serve as the major driving force on the production site.
However, FA equipment are precision electronic devices, and may fail suddenly. Particularly, the GOT installed on the control panel surface can be easily affected by external pressure.
If failures of FA equipment continue for a long time, productivity may be considerably deteriorated. It is necessary to restore failed FA equipment as soon as possible.
The period of time during which equipment are stopped due to failures is called “down time”.
Chapter 4 explains the following three basics of maintenance required to maintain the normal status of the GOT:

1. Backup
2. Alarm
3. Battery

4.2 BACKUP

It is possible to back up the GOT data and the connected device data.
To back up the data, use the utility function of the GOT.
The utility function is designed to connect the GOT and devices, set the data on the screens, set the operation procedures, manage the programs/data and perform self-diagnosis.

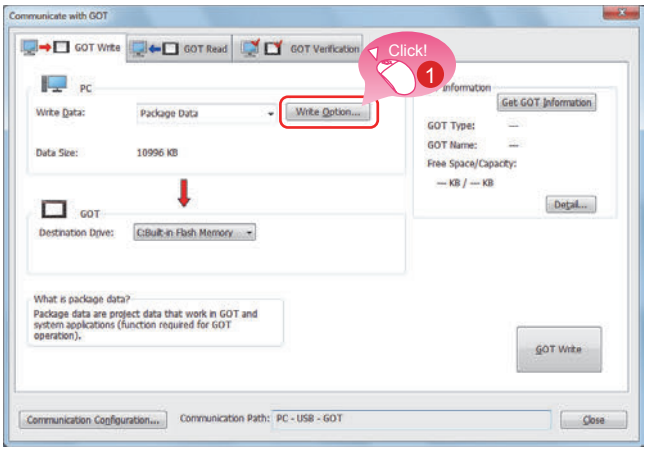
Before backing up

To back up the data, it is necessary to install the system application (extended functions) on the C drive of the GOT (built-in flash memory).

(1) Installing the system application (extended functions)

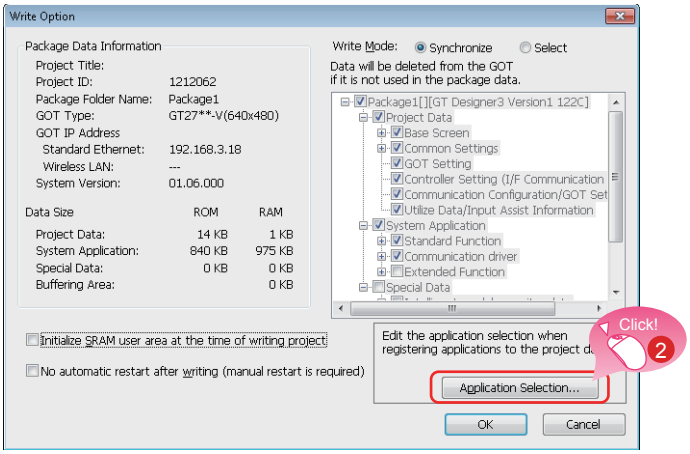
Before installing the system application (extended functions), perform the following setting.

→ 2.1.1 Connecting the personal computer to the GOT
→ 2.1.2 Communication setting



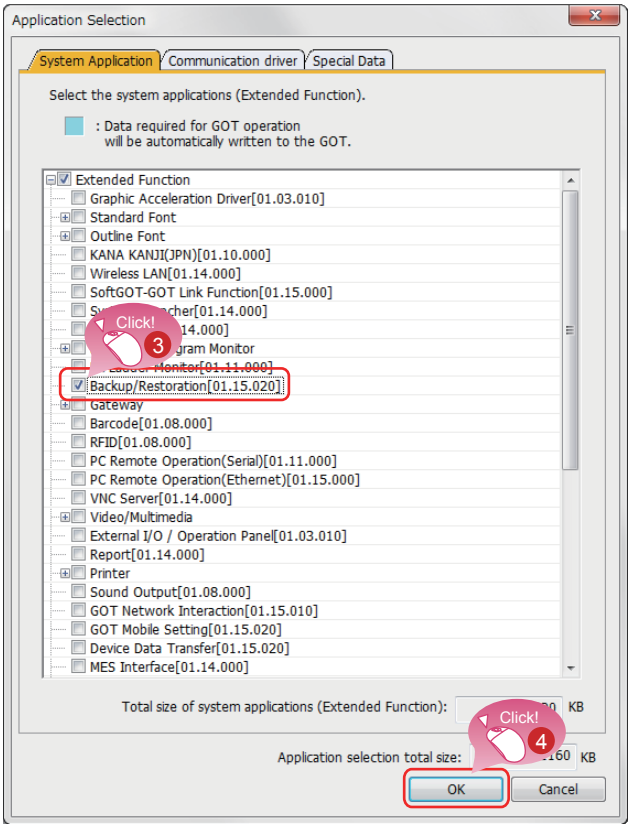
1 Click the [Write Option] button.

The [Write Option] dialog will be displayed.



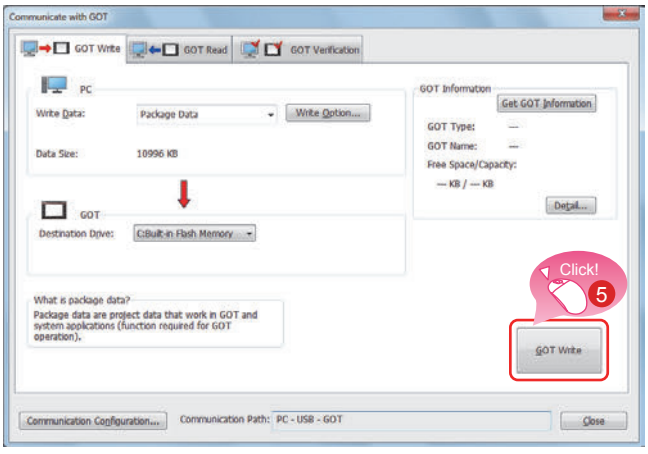
2 Click the [Application Selection] button.

The [Application Selection] dialog will be displayed.



3 Check [Backup/Restoration].

4 Click the [OK] button.



5 Click the [GOT Write] button, and writing will start.

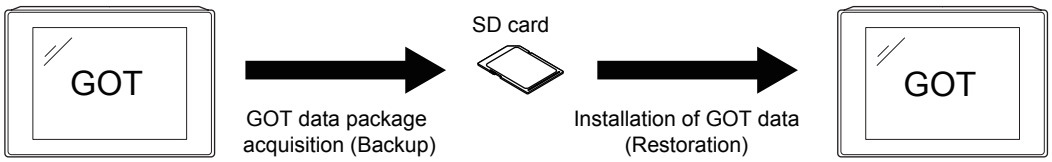
4.2.1 Backing up the GOT data

To back up is to make copies of data.
If any device breaks down or must be replaced with new one, the data in the device can be restored from the backup copy.
For the GOT, there are two methods of backing up, one by connecting with a personal computer, and the other by using an SD card.
This time, on the assumption that personal computers are not available or cannot be brought into the site, the procedures for backup on an SD card are explained.

GOT data package acquisition (backup) function

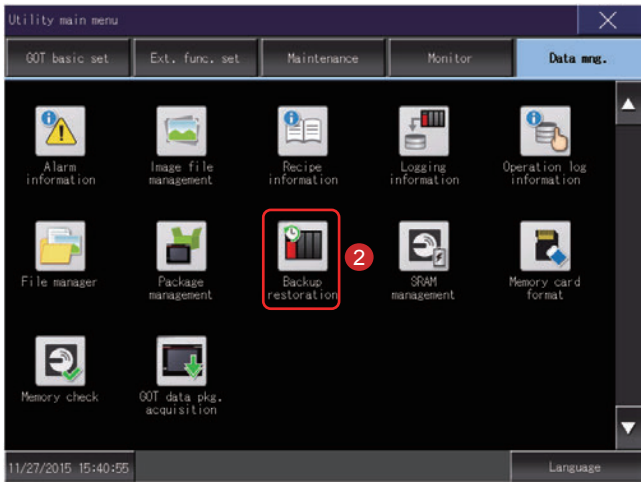
To back up the data installed in the GOT main unit, use the GOT data package acquisition function.
The GOT data package acquisition function is designed to copy all data installed in the GOT main unit onto an SD card.(GOT data package acquisition)
The copied data can be installed on another GOT to create the same system of GOT. (Installation of GOT data)

Workflow

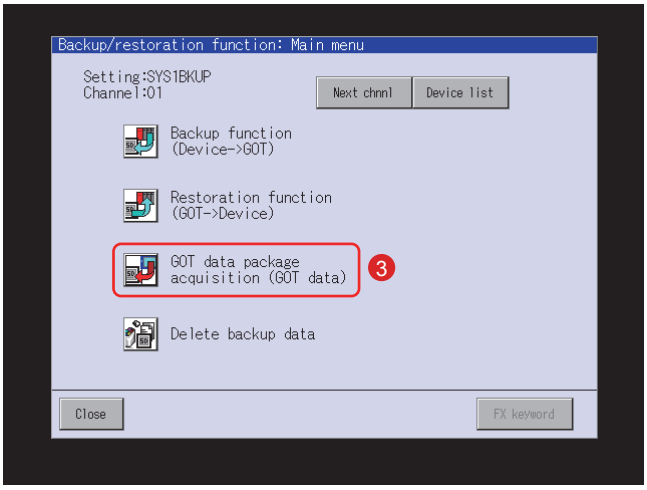


(1) GOT data package acquisition (backup) procedures

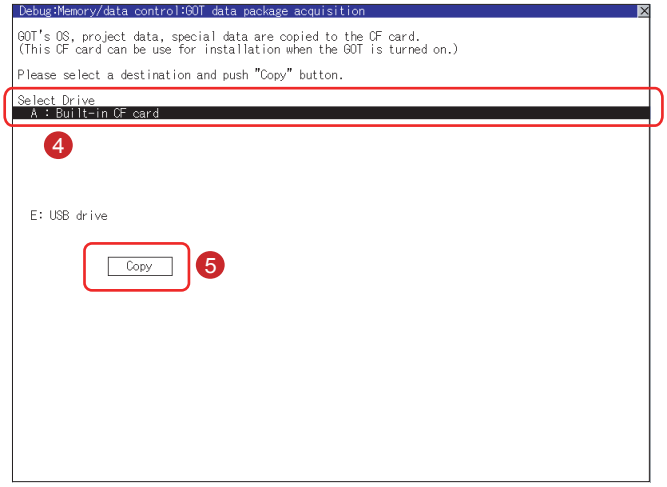
1 Touch [Utility call key].



2 Touch [Backup Restoration] on the [Data mng.] screen in [Utility main menu].



3 Touch [GOT data package acquisition (GOT data)].



4 Touching the drive name below [Select Drive] inverts the touched drive name.

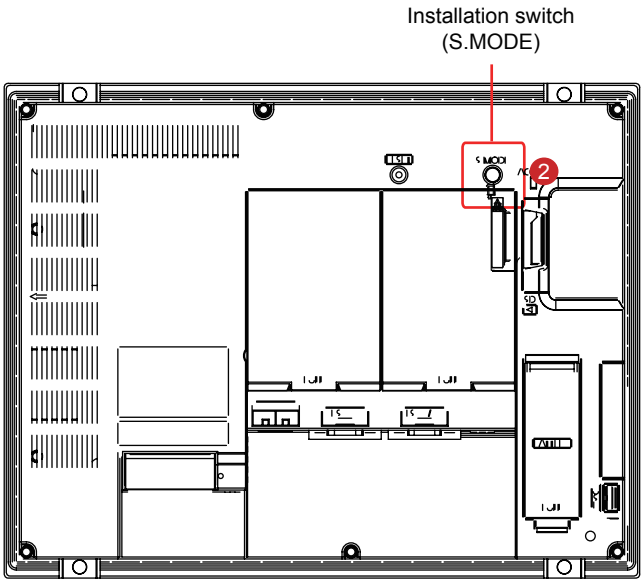
5 Touching the [Copy] button starts copying.

After copying the system application and data, the dialog box for notifying completion appears.

6 Touching the [OK] button closes the dialog box.

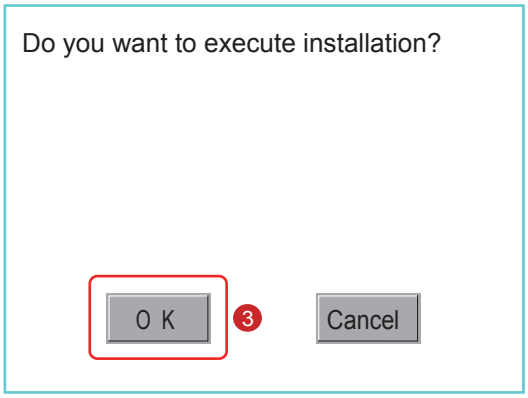
Then, the GOT data package acquisition (back-up) is completed.

(2) Procedures for installing (restoring) the GOT data

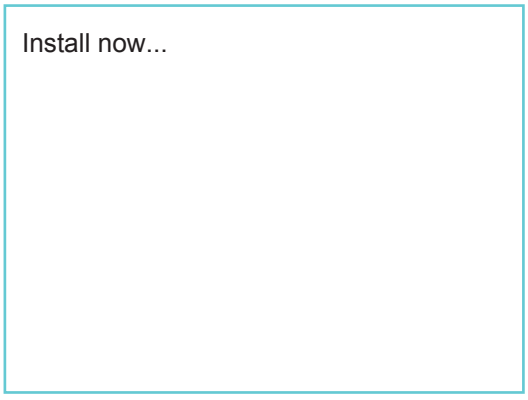


1 Turn off the power to the GOT, and insert the SD card containing the data into the SD card interface of the GOT.
For the procedures for inserting the SD card, see the following section. (Page APP2-9 in this text)
→ Appendix 2-7 Inserting/Removing an SD Card

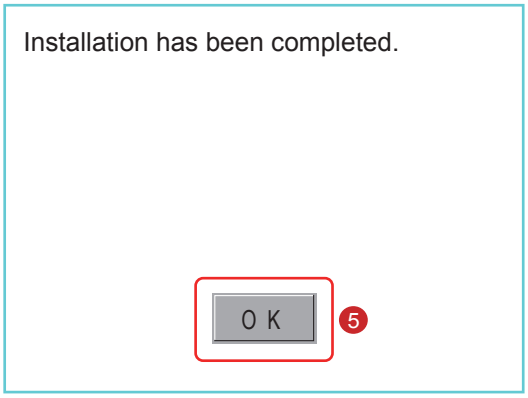
2 Power on the GOT while pressing the install switch (S.MODE switch) on the back of the GOT.



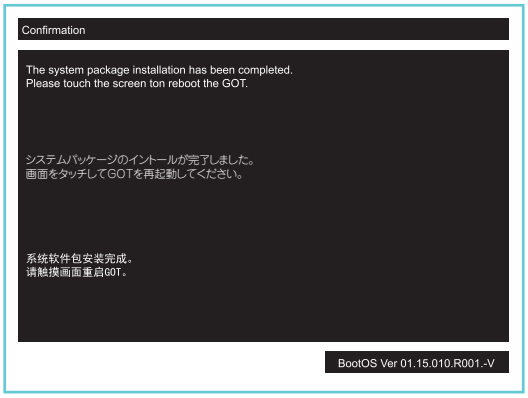
3 Touch [OK]. The data will be installed into the built-in flash memory.



4 The SD card access LED is lit during the install execution.
Do not pull out the SD card or power OFF the GOT while the SD card access LED is lit.



5 Touch [OK]. The GOT will be rebooted automatically.



6 After confirming normal restart, confirm that the SD card access LED is not lit, and remove the SD card from the SD card interface of the GOT. For the procedures for removing the SD card, see the following section. (Page APP2-9 in this text)
→ Appendix 2-7 Inserting/Removing an SD Card

Then, the GOT data installation (restoration) is completed.

4.2.2 Backing up the data in connected devices

Setting data, including a sequence program, parameters, and setting values, for a controller connected to the GOT can be saved (backed up) in a memory card or USB memory in the GOT.
With backing up setting data for a controller, the data can be restored to the controller with the GOT connected to the controller even though the controller has to be replaced because of problems, including failures. As a result, the system can be easily restored.

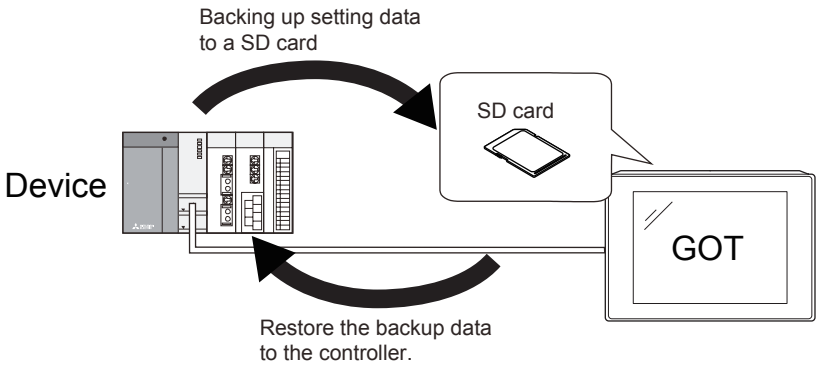
Backup function (Device→GOT)

The backup function is used to copy the data in a device connected to the GOT onto an SD card.

Restoration function (GOT→Device)

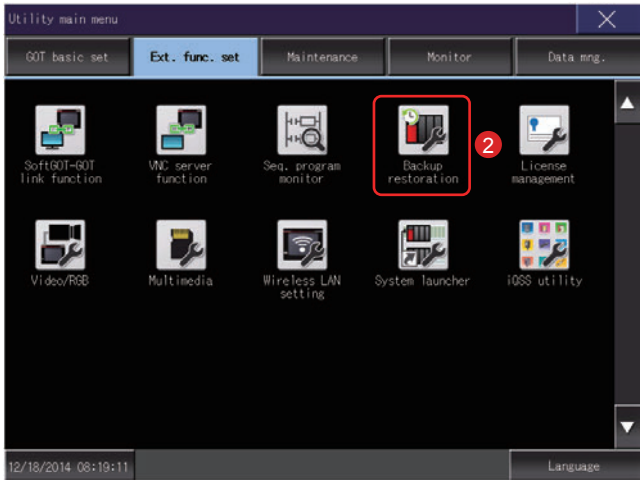
The restoration function is used to return the device data saved in the SD card to the device.

Workflow

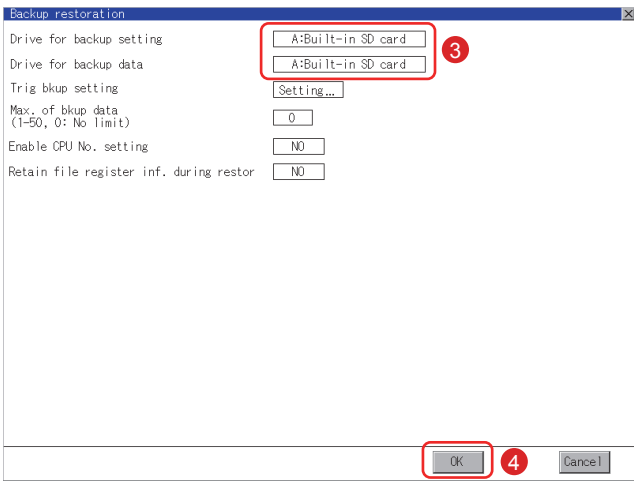


(1) Setting the destination to save the backup data

1 Touch [Utility call key].



2 Touch [Backup Restoration] on the [Ext. func. set] screen in [Utility main menu].

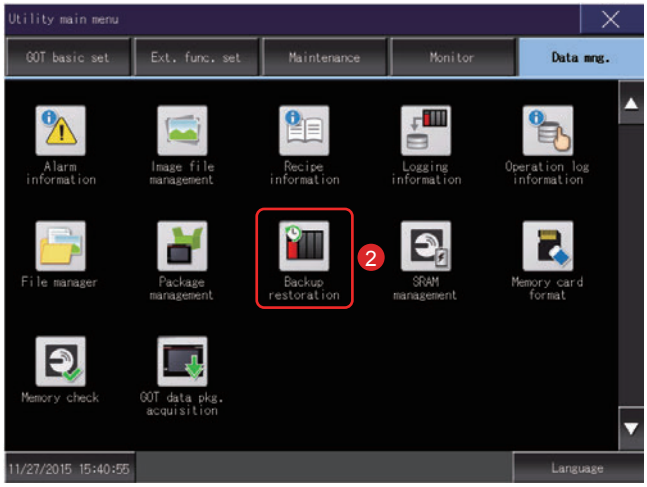


3 If touch the setup item, the setup contents are changed.
Set “Drive for backup data” to [A: Built-in SD card].

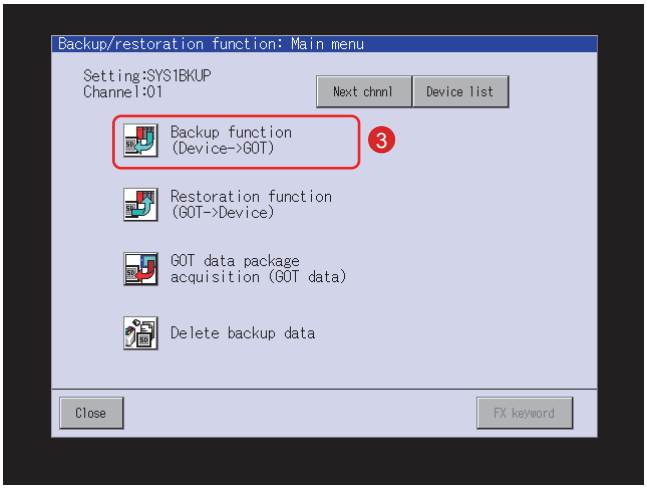
4 If touch this should be on previous page the [OK] button, the changed settings are reflected and the screen returns to the [Ext. func. set] screen.

(2) Operating the backup function (Device→GOT)

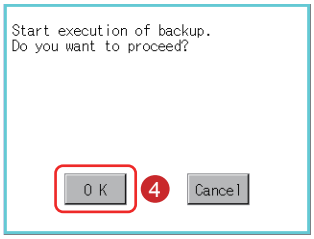
1 Touch [Utility call key].



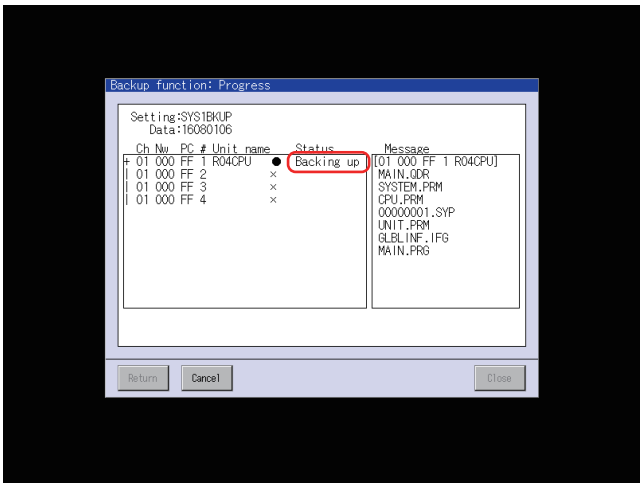
2 Touch [Backup restration] on the [Data mng.] screen in [Utility main menu].



3 Touch [Backup function (Device→GOT)].

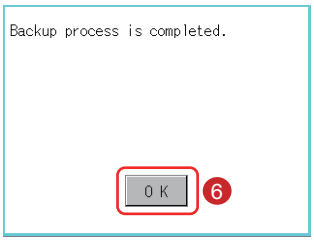


4 The window shown on the left will be displayed. Touch the [OK] button.



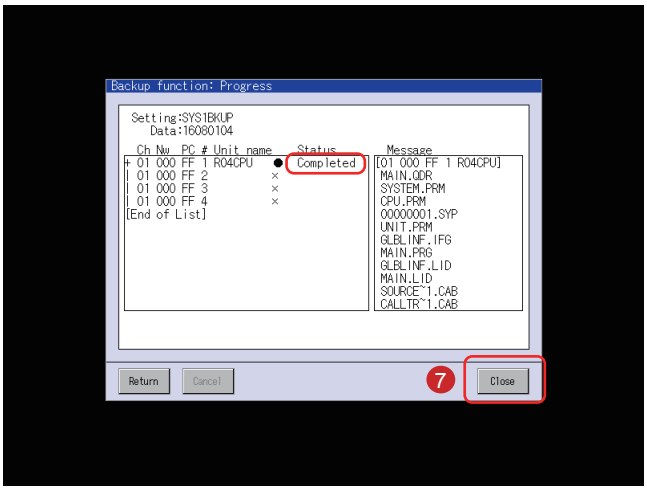
"Backing up" flashes in the Status column.

5 Backup of the data in the connected device will start.



After the completion of backup of the data in the connected device, the completion dialog box will be displayed.

6 Touch the [OK] button.



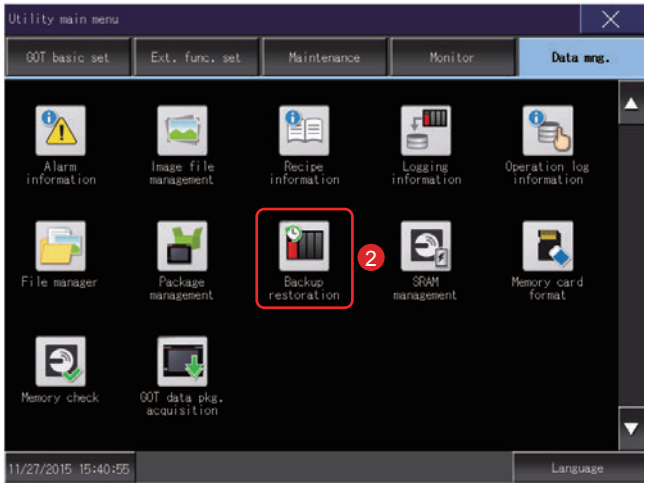
"Completed" will be displayed in the Status column.

7 Touch the [Close] button.

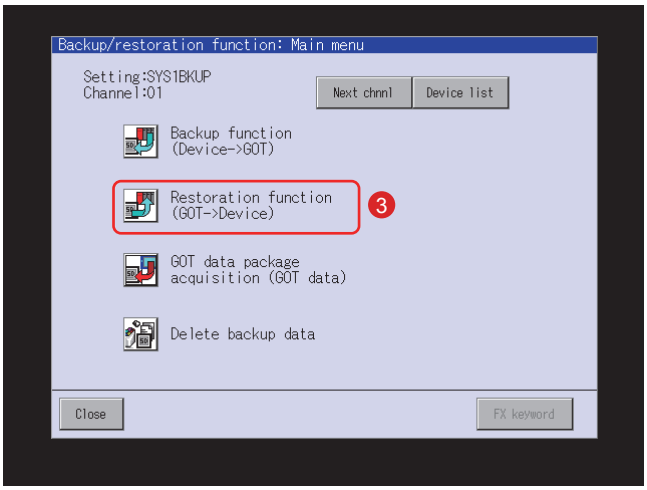
Then, the backup (Device→GOT) is completed.

(3) Operating the restoration function (GOT→Device)

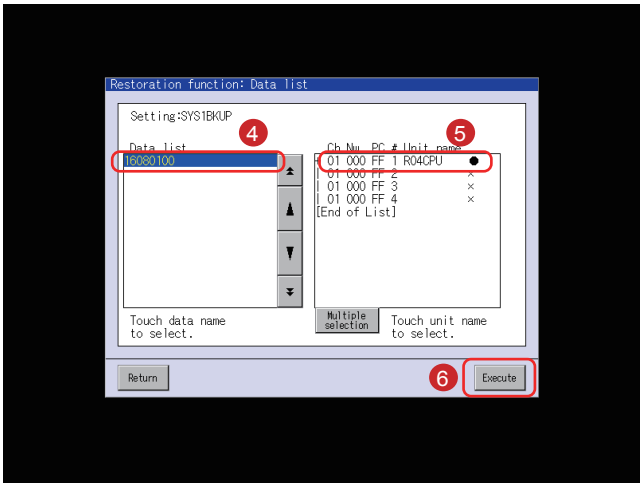
1 Touch [Utility call key].



2 Touch [Backup restration] on the [Data mng.] screen in [Utility main menu].



3 Touch [Restoration function (GOT→Device)].

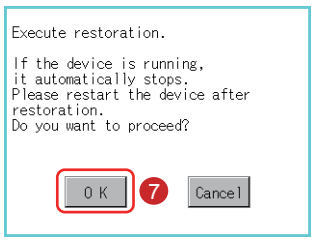


The backup data stored in the SD card will be displayed in a list form.

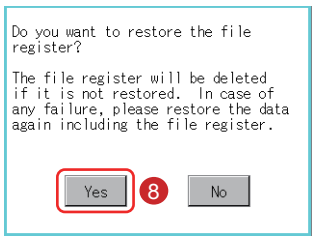
4 Select a backup data to be restored with touching the data.

5 Touch the unit name (connected device to which the data will be returned).

6 Touch the [Execute] button.

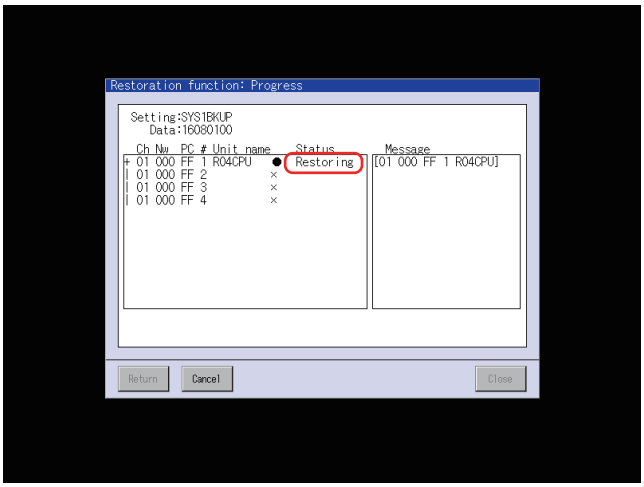


7 The window shown left will be displayed. Touch the [OK] button.



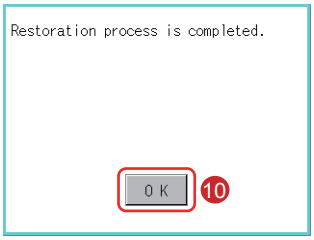
Then, the window shown left will be displayed.It is possible to select whether or not to retain the information in the file register on the PLC side. For the details of the file register, see the manual for the PLC to be used.

8 Touch the [Yes] button.



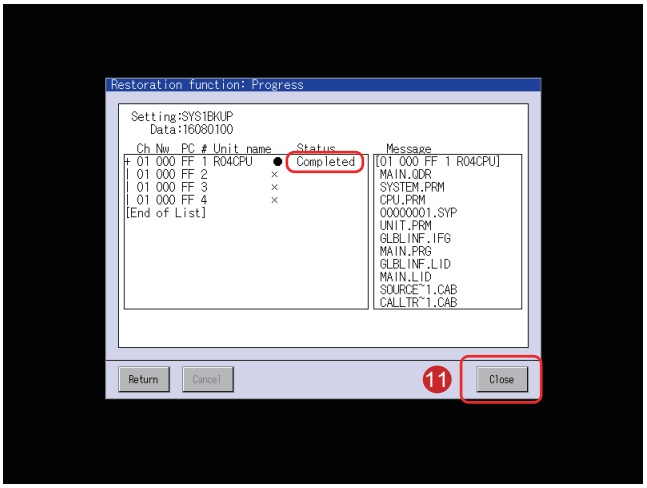
“Restoring” will flash in the Status column.

9 Restoration of the data in the connected device will start.



After the completion of restoration of the data in the connected device, the completion dialog box will be displayed.

10 Touch the [OK] button.



"Completed" will be displayed in the Status column.

11 Touch the [Close] button.

Then, the restoration (GOT→Device) is completed.

Connected devices from/to which data will be backed up/ restored

For connection type settings and precautions regarding the communication unit/cable and connection type, refer to the following.
→GOT2000 Series Connection Manual (Mitsubishi Products) For GT Works3 Version1
→GOT2000 Series User's Manual (Monitor)

Controller		Model
RCPU		R04CPU, R08CPU, R16CPU, R32CPU, R120CPU
Motion controller CPU (MELSEC iQ-R Series)		R16MTCPU, R32MTCPU
QCPU (Q mode)	Basic model	Q00JCPU, Q00CPU, Q01CPU
	High Performance model	Q02CPU, Q02HCPU, Q06HCPU, Q12HCPU, Q25HCPU, Q02PHCPU, Q06PHCPU, Q12PHCPU, Q25PHCPU
	Universal model	Q00UJCPU, Q00UCPU, Q01UCPU, Q02UCPU, Q03UDCPU, Q04UDHCPU, Q06UDHCPU, Q10UDHCPU, Q13UDHCPU, Q20UDHCPU, Q26UDHCPU, Q03UDECPU, Q04UDEHCPU, Q06UDEHCPU, Q10UDEHCPU, Q13UDEHCPU, Q20UDEHCPU, Q26UDEHCPU, Q50UDEHCPU, Q100UDEHCPU, Q03UDVCPU, Q04UDVCPU, Q06UDVCPU, Q13UDVCPU, Q26UDVCPU
Motion controller CPU (Q series)		Q172CPU, Q173CPU, Q172HCPU, Q173HCPU, Q172DCPU, Q172DCPU-S1, Q173DCPU, Q173DCPU-S1, Q172DSCPU, Q173DSCPU, Q170MCPU, Q170MCPU-S1, Q170MSCPU, Q170MSCPU-S1
LCPU		L02CPU, L06CPU, L26CPU, L26CPU-BT, L26CPU-PBT, L02CPU-P, L02SCPU
FXCPU		FX_0, FX_{0S}, FX_{0N}, FX_1, FX_2, FX_{2C}, FX_{1S}, FX_{1N}, FX_{1NC}, FX_{2N}, FX_{2NC}, FX_{3U}, FX_{3UC}, FX_{3G}
CNC C80		R16NCCPU
CNC C70		Q173NCCPU
MELSERVO-J4 series		MR-J4-GF
FREQROL-A series		FREQROL-A800 series, FREQROL-A800 Plus series
Robot controller		CRnQ-700, CR750-Q, CR751-Q, CRnD-700, CR750-D, CR751-D

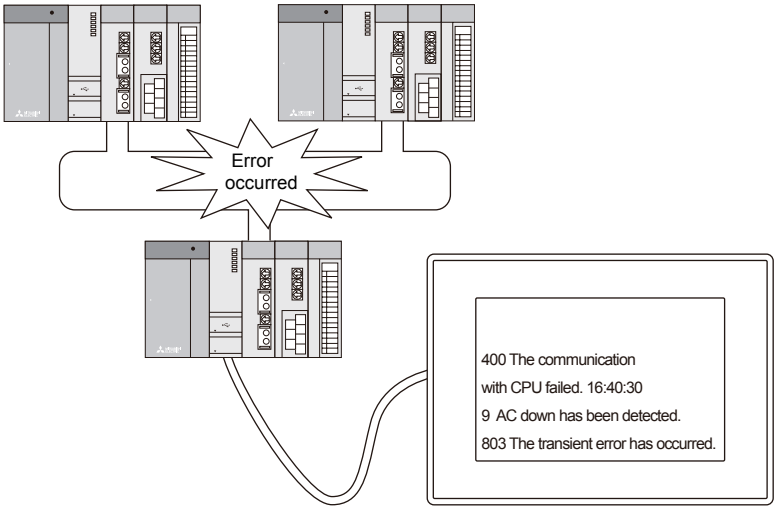
4.3 ALARM

(1) Alarm type

The GOT has two kinds of alarm functions.

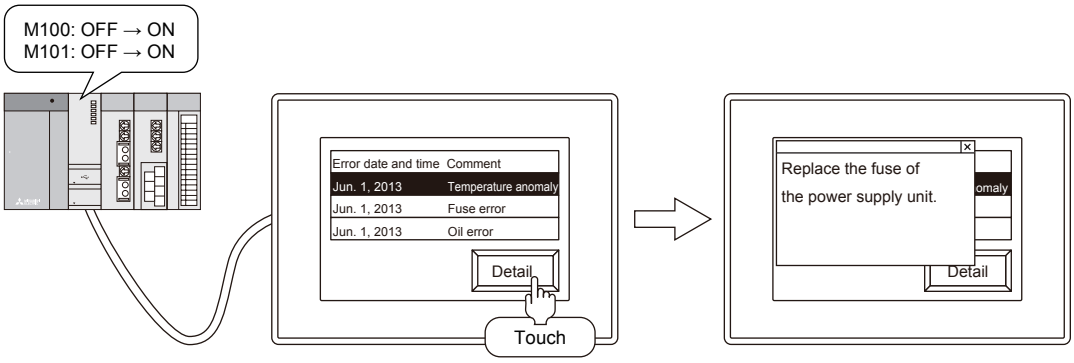
(a) System alarm

This function displays an error code and an error message when an error occurs in the GOT, any connected device or network.



(b) User alarm

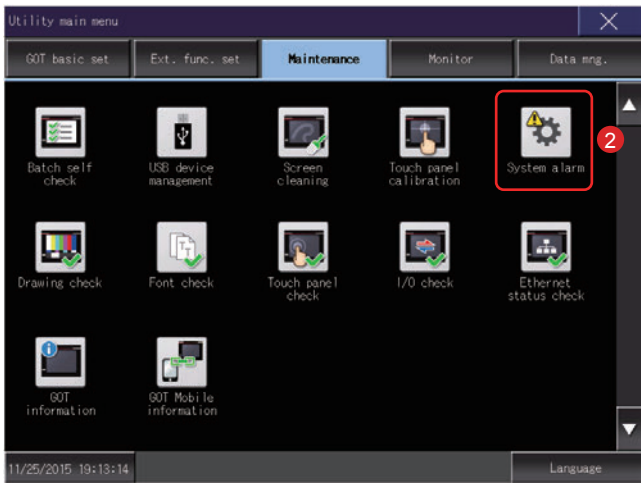
This function displays a comment created by user as an alarm massage when an alarm occurs.
Use this function when displaying an alarm created by a user.
For the details of user alarms, see the following manual.
→GT Designer3(GOT2000) Screen Design Manual



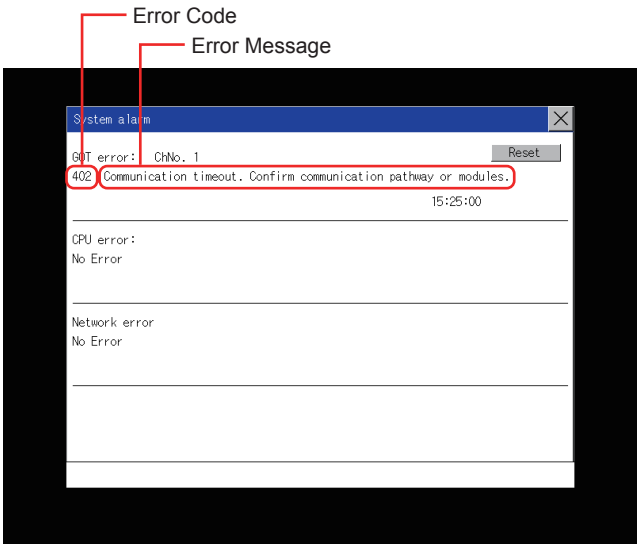
4.3.1 Checking the system alarm

(1) Procedures for checking system alarms

1 Touch [Utility call key].

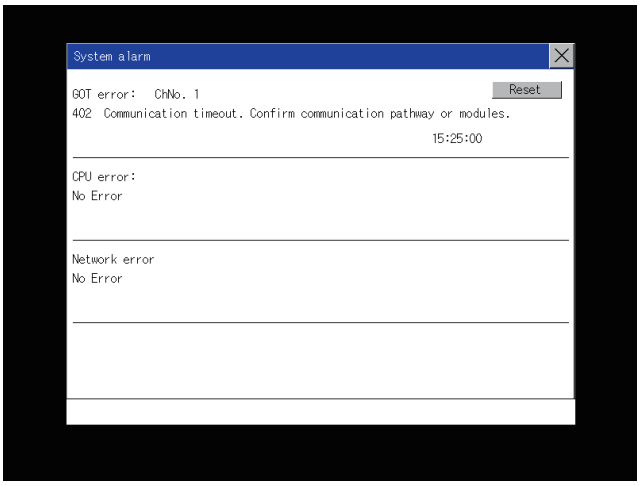


2 Touch [System alarm] on the [Maintenance] screen in [Utility main menu].

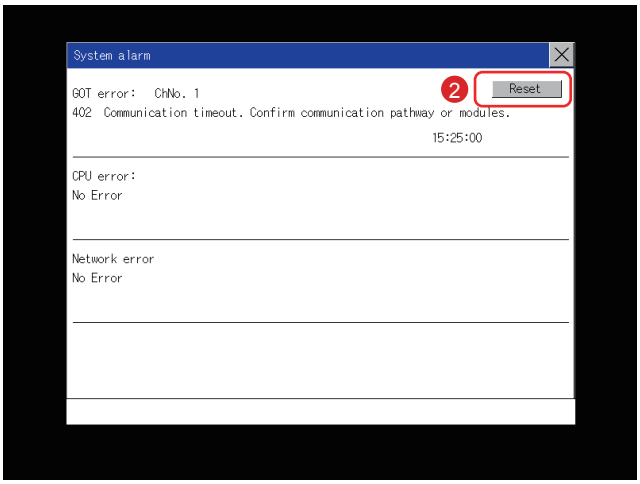


The system alarm window will be displayed.
For the system alarm, refer to the following:
(Page APP1-1 in this text)
→ APPENDIX 1 ERROR CODES AND SYSTEM ALARM LIST

(2) System alarm display resetting



1 Eliminate each cause of the system alarm having occurred.
Error causes can be identified by the error code, error message and channel No. displayed on the System alarm screen.
→ APPENDIX 1 ERROR CODES AND SYSTEM ALARM LIST



2 Touch the [Reset] button to reset system alarms.
However, if the cause of any system alarm has not been removed, the system alarm display will not be reset even if the reset operation is performed. Re-check the system.

4.4 BATTERY

4.4.1 Installing the Battery

The battery is used to hold the SRAM data, clock data, and backup data of the system status log data.
The periodical replacement of the battery is recommended.
For the details of the battery status display, see the following section. (Page 4-28 in this text)
→ 4.4.3 Checking the battery voltage

Install a battery to the GOT before the first startup.
The procedures for mounting and removing the battery as an example on GT27 are shown below. (The back side of the GOT is faced upward in the illustration.)

Point

(1) Battery

GT27 come with a battery in the battery holder. Before using GT27, connect the battery connector to the GOT connector.

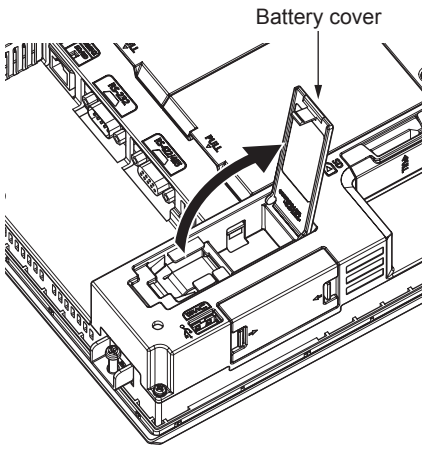
(2) battery replacement time

To replace the battery, leave the GOT on for more than 10 minutes before replacing the battery.Replace the battery within 5 minutes.

The battery installation procedure differs depending on the GOT models.

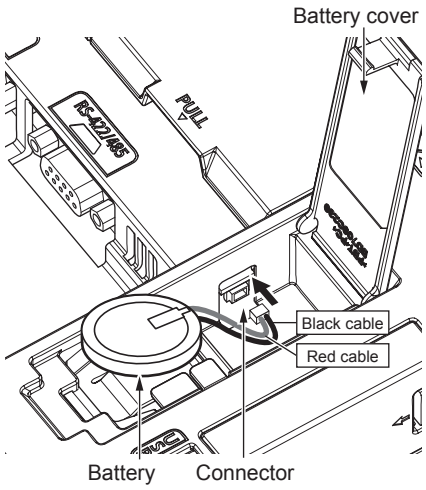
- GT2715, GT2712, GT2710

  The following shows the battery installation procedure, taking GT2712 as an example.



1. Make sure that the GOT power is off.
2. Install the battery to the GOT rear face. Open the battery cover as shown left.
3. To replace the battery, remove the old battery, and then disconnect the connector.

- Without a battery extension cable

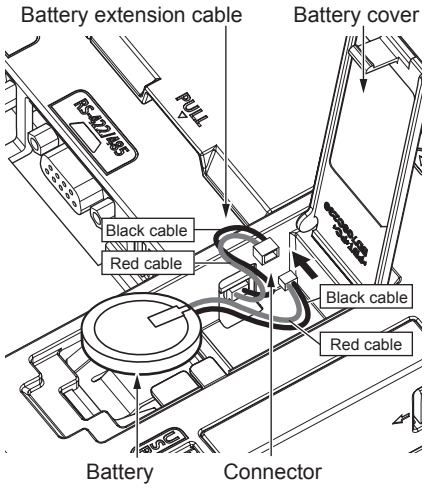


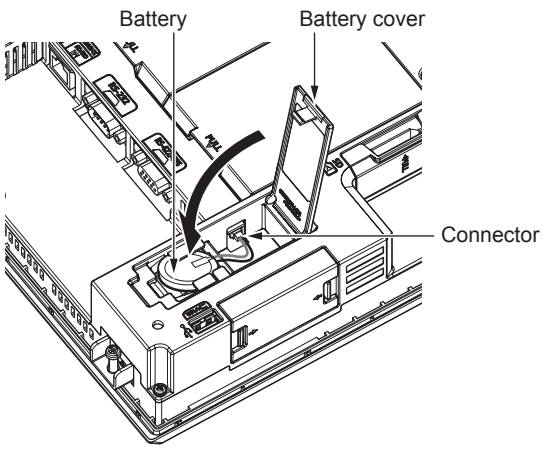
Without a battery extension cable

4 The GOT-side connector depends on whether the GOT has a battery extension cable.
- Without a battery extension cable
  Insert the battery connector to the GOT connector.
- With a battery extension cable
  Insert the battery connector to the battery extension cable connector of the GOT.

The GT27 models with the following hardware versions have no battery extension cable.
- GT2715: Version G or later (manufactured in September 2014)
- GT2712: Version M or later (manufactured in September 2014)
- GT2710: Version N or later (manufactured in September 2014)

- With a battery extension cable





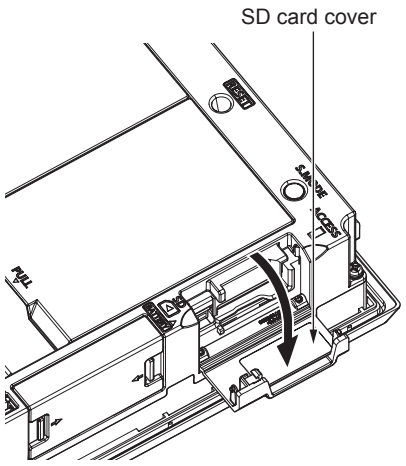
5 After installing the battery to the battery holder of the GOT, close the battery cover until it clicks.

6 Turn on the GOT.

7 Check that the battery condition is normal with the utility.
For the details of the battery condition display, refer to the following. (Page 4-28 in this text)
→ 4.4.3 Checking the battery voltage

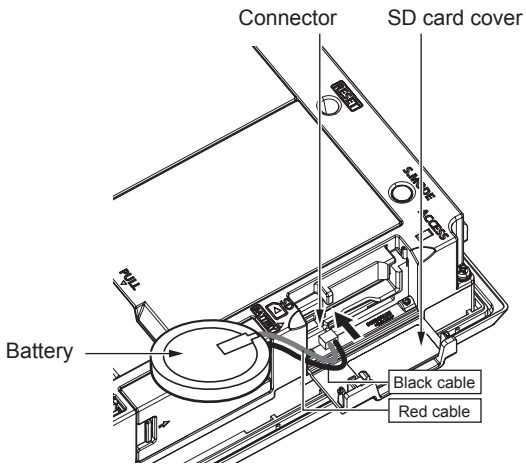
- GT2708, GT2705

The following shows the battery installation procedure, taking GT2708 as an example.



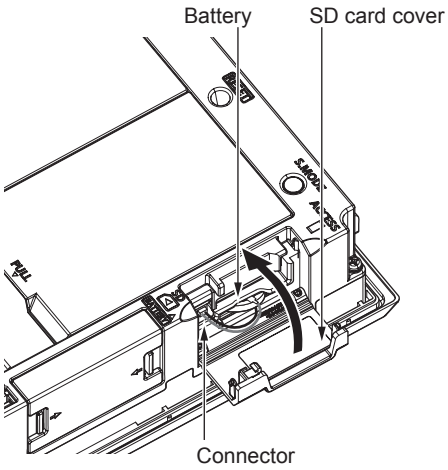
1 Make sure that the GOT power is off.

2 Install the battery inside the SD card cover on the side of the GOT.
Open the SD card cover as shown left.



3 Remove the old battery, and then disconnect the connector.
For information on how to remove the battery, refer to the following.

4 Insert the battery connector to the GOT connector.



5 After installing the battery to the battery holder of the GOT, close the SD card cover until it clicks.

6 Turn on the GOT.

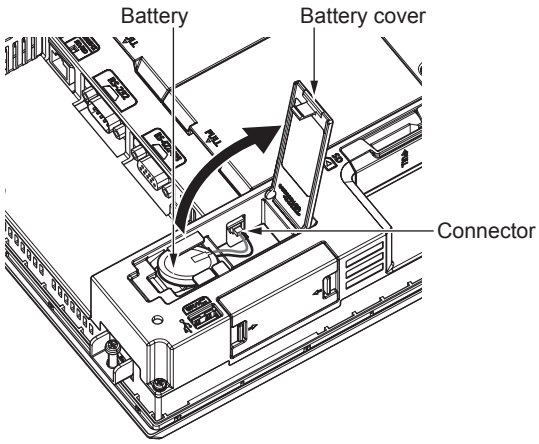
7 Check that the battery condition is normal with the utility.
For the details of the battery condition display, refer to the following. (Page 4-28 in this text)
→ 4.4.3 Checking the battery voltage

4.4.2 Removing the Battery

The battery removal procedure differs depending on the GOT models.

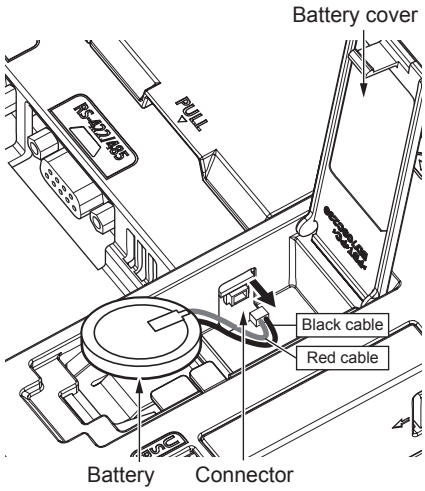
- GT2715, GT2712, GT2710

  The following shows the battery removal procedure, taking GT2712 as an example.



1. Make sure that the GOT power is off.
2. The battery is stored in the GOT rear face. Open the battery cover as shown left.

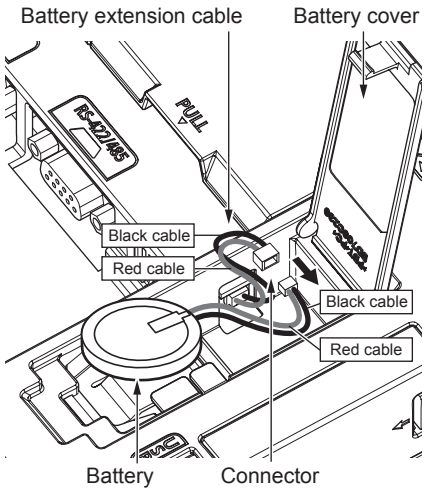
- Without a battery extension cable

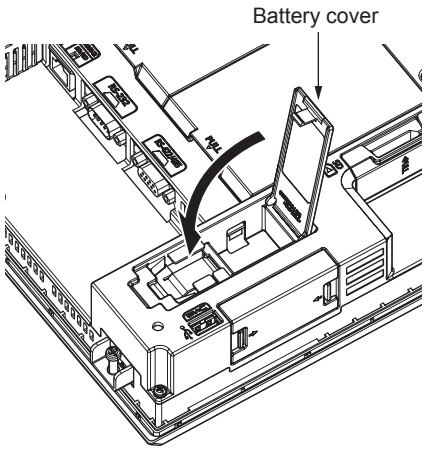


3. After removing the battery from the battery holder of the GOT, unplug the connector. The GOT-side connector depends on whether the GOT has a battery extension cable.
   - Without a battery extension cable
     Unplug the battery connector from the GOT connector.
   - With a battery extension cable
     Unplug the battery connector from the battery extension cable connector of the GOT.

   The GT27 models with the following hardware versions have no battery extension cable.
   - GT2715: Version G or later (manufactured in September 2014)
   - GT2712: Version M or later (manufactured in September 2014)
   - GT2710: Version N or later (manufactured in September 2014)

- With a battery extension cable

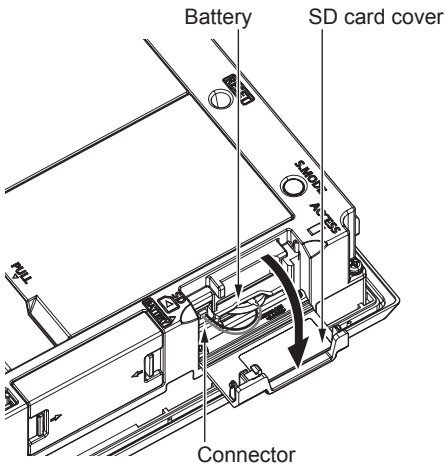




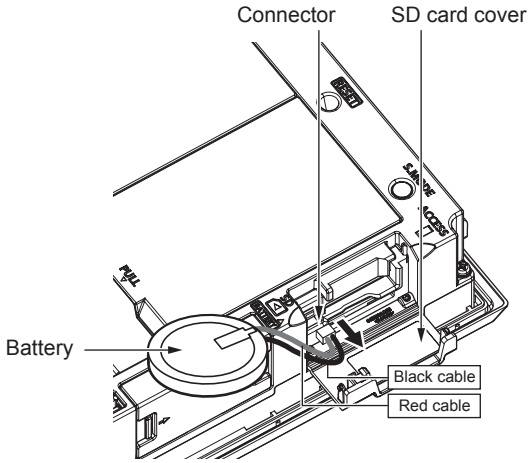
4 Push and close the battery cover until it clicks.

- GT2708, GT2705

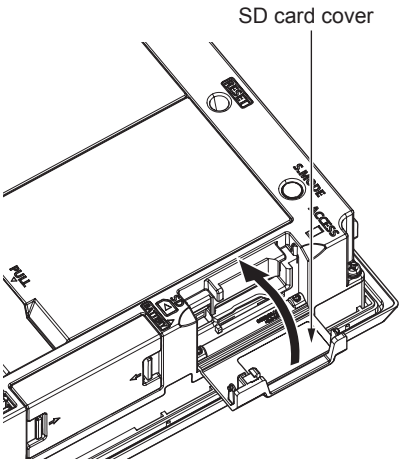
The following shows the battery removal procedure, taking GT2708 as an example.



1. Make sure that the GOT power is off.
2. The battery is stored inside the SD card cover on the side of the GOT.
   Open the SD card cover as shown left.



3. After removing the battery from the battery holder of the GOT, unplug the battery connector from the GOT connector.



4. Close the SD card cover until it clicks.

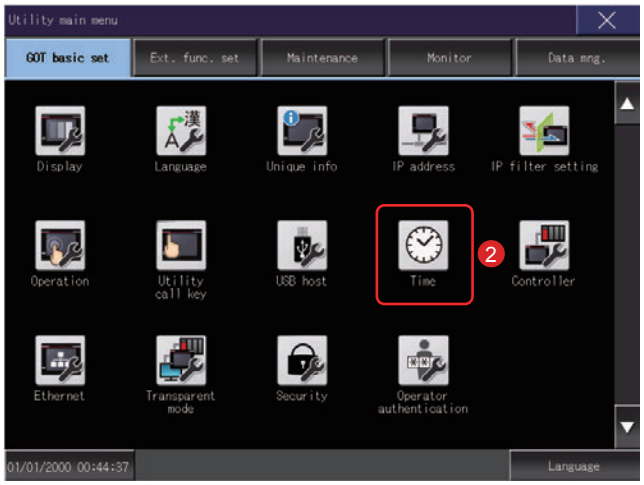
4.4.3 Checking the battery voltage

The battery voltage can be checked by two methods.

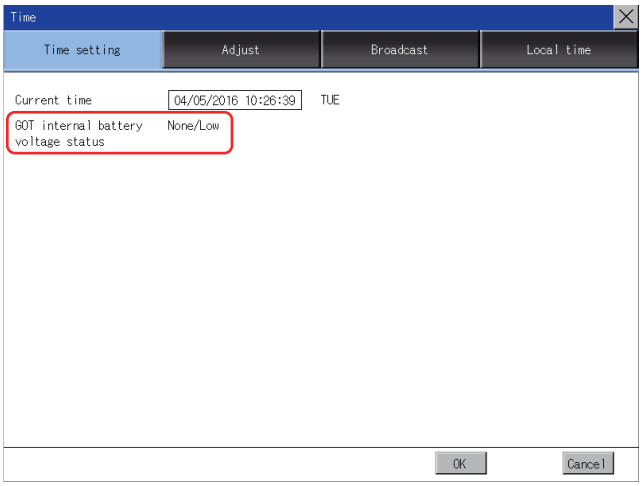
- Checking on the utility menu
- Checking on the system alarm screen

(1) Method for checking on the utility menu

1 Touch [Utility call key].



2 Touch [Time] on the [GOT basic set] screen in [Utility main menu].



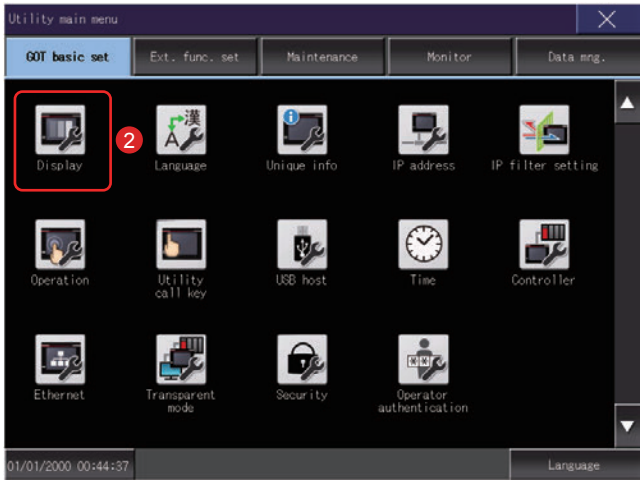
Displays battery voltage status.

Display	Status
Normal	Normal
Low/None	Voltage drop or no battery installed

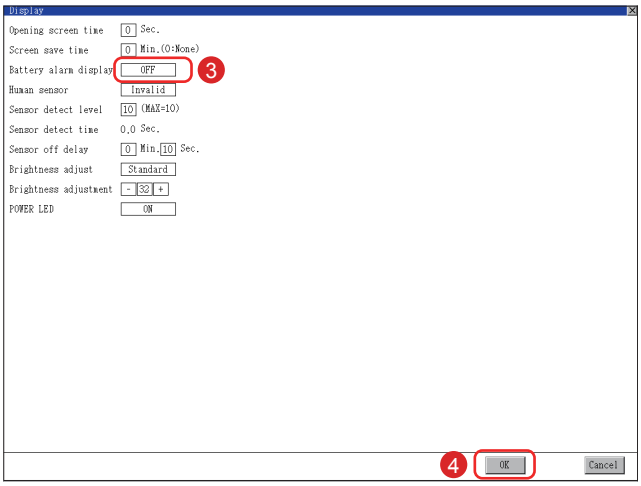
When the battery voltage is low, replace the battery immediately.
The GOT retains the data for 14 days after the low-voltage battery detection. However, after the period, the GOT cannot retain the data.

(2) Setting method for displaying on the system alarm screen

1 Touch [Utility call key].



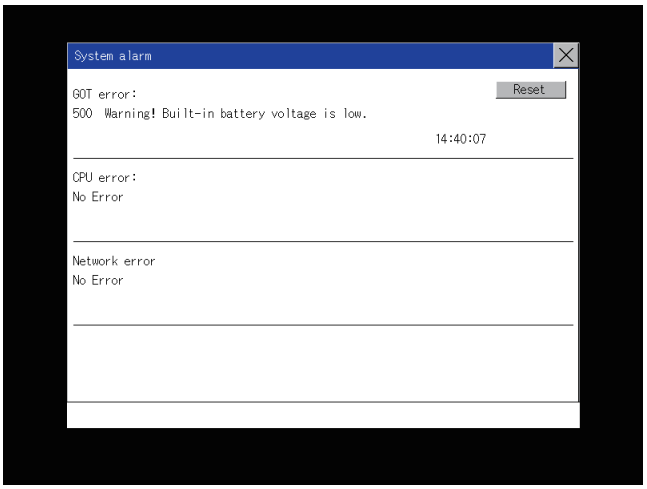
2 Touch [Display] on the [GOT basic set] screen in [Utility main menu].



3 Touch [Battery alarm display], and the setting will change. (ON ⇔ OFF)
Set to [ON].

4 Touch the [OK] button to restart the GOT and reflect the setting change.
To cancel the setting change and return to the main menu, touch the [Cancel] button.

- Checking on the system alarm screen



When a battery voltage drop is detected, the window shown left will be displayed. Immediately replace the battery.
The GOT retains the data for 14 days after the low-voltage battery detection. However, after the period, the GOT cannot retain the data.

APPENDIX 1 ERROR CODES AND SYSTEM ALARM LIST

(1) Error codes displayed on the GOT

Error code	Error source	Description
300 to 399	GOT	Error code of the GOT main unit function
400 to 499		Error code of the GOT communication function
500 to 699		Error code of the GOT main unit function
800 to 999	Network	Error code of network

(2) System alarm list

Error code	Error message	Action
300	Project data contains unsupported objects.	Install the latest version of GT Designer3 and write the package data again to the GOT.
301	Project data contains unsupported functions.	Install the latest version of GT Designer3 and write the package data again to the GOT.
302	Project data contains unsupported settings.	Install the latest version of GT Designer3 and write the package data again to the GOT.
303	Set monitor points too large. Decrease setting points.	Decrease the number of objects from the displayed screen. For the number of maximum objects for 1 screen, refer to the following. → GT Designer3(GOT2000) Screen Design Manual
305	Background loading of the system package failed.	Check that the data storage, which stores the package data and GOT project data, is installed and the data is not damaged.
306	No project data. Download screen data.	The project data is not downloaded or the screen data is not sufficient. Download the project data or screen data.
307	Monitor device not set	The monitor device of the object is not set. Set the monitor device of the object.
308	No comment data. Download comment.	The comment file does not exist. Create the comment file and download to GOT.
309	Device reading error. Correct device.	The error occurred when reading a continuous device. Correct the device.
310	Project data does not exist or out of range.	Specified base screen/window screen does not exist in the project data. Specified base screen/window screen is out of the permissible area. Specify the existing base screen / window screen.
311	No. of alarm has exceeded upper limit. Delete restored alarm.	The number of alarm histories that can be observed by the alarm history display function has exceeded the maximum points. Delete the restored history to decrease the number of alarm histories.

Error code	Error message	Action
312	No. of sampling has exceeded upper limit. Delete collected data.	The collection frequency exceeded the upper limit when "Store Memory" and "Accumulate/Average" were set in the scatter graph. • Approve "Clear trigger" setup in the scatter graph. • Set the "Operation at frequency over time" to "Initialize and Continue" in scatter graph.
315	Device writing error. Correct device.	Error occurred while writing in the device.;Correct the device.
316	Cannot display or input operation value. Review expression.	In indirect specification of comment/parts number, the data operation result exceeded the range in which device type can be expressed. Review the data operational expression, in order not exceeding the range in which the device type can be expressed.
317	Too high frequency of data collection. Review conditions.	Data of an object, to which [Collect data only when trigger conditions are satisfied] is set, are collected too frequently, or the number of objects has exceeded the number of objects collectable simultaneously. • Set a longer cycle for trigger occurrence to each object. • Make the settings so that 257 or more display triggers of objects, to which [Collect data only when trigger conditions are satisfied] is set, do not occur simultaneously.
320	Specified object does not exist or out of range.	The part file does not exist. Create the part file and download to GOT.
322	Dedicated device is out of range. Confirm device range.	The monitored device No. is out of the permissible area of the targeted PLC CPU. Set the device within the range that can be monitored by the monitored PLC CPU and parameter settings.
326	Label data types do not match. Confirm the label setting.	• The data type of the device assigned to the label is incorrect. For the available data type of global labels, refer to the following. → GT Designer3(GOT2000) Screen Design Manual • The data type of object devices or others and that of labels set on the PLC side are inconsistent. Correct the data type of the objects or others according to that of the labels set on the PLC side. • A constant value is set for the label.;In the object setting, do not use the label in which a constant value is set. • A 64-bit type device is assigned to the label. Do not use a 64-bit type label in the device setting.
327	Label names have not been resolved. Resolve label names again.	Check the connection status of the PLC and execute the label name resolution again. → GT Designer3(GOT2000) Screen Design Manual

Error code	Error message	Action
328	Label setting error. Confirm the label setting.	• The label is set for the PLC which does not support labels. Correct the network No. and station number. • The label name specified in the project data does not exist on the PLC side. Check if the label name specified in the project data exists on the PLC side. • The GOT access the label inaccessible from external devices. Enable the access from external devices in the label setting on the PLC side. • When a global label of structure has members to which devices are manually assigned, the GOT fails to perform the label name resolution. Perform operations so that the devices are automatically assigned to the members, or directly set the manually assigned devices as monitor devices.
329	Station No. switching does not support labels.	Do not perform the station No. switching to the station using labels.
330	Insufficient memory media capacity. Confirm M-card capacity.	The available space of the memory card is insufficient. Check the available space of the memory card.;For the checking method, refer to the following. → GT Designer3(GOT2000) Screen Design Manual
331	Memory card not installed or MCARD switched OFF.	The memory card is not installed in the drive, or the SD card cover is opened. • Install the memory card in the specified drive. • Close the SD card cover to make the SD card accessable.
332	Memory media is not formatted.	Memory card (build-in SD card) is not formatted or formatted incorrectly. Format the memory card.
333	Unable to overwrite. Memory card is write-protected.	Memory card (build-in SD card) is write-protected. Cancel the write-protection of memory card.
334	Memory media error. Replace memory media.	Memory card (build-in SD card) is faulty. Replace the memory card.
336	The target file size is too large to be accessed.	• Check if the size of the file that the GOT attempts to access is larger than 2 GB. • Check that the size of the image file is 300 KB or smaller.
337	File output failed. Confirm output file path.	Either of the following folder or file with the name same as the file to be created exists in the storage destination SD card or USB memory. • Folder storing data • Write-protect file Delete the above folder or file, or change the name of the file to be created.

Error code	Error message	Action
338	Modem is not connected correctly or the power is not turned on.	There is no response to the initializing command because the modem is not connected correctly or the power is not turned on. • Confirm the modem connection. • Turn on the power of the modem.
339	Failed to initialize the modem. Check initialization command.	An error is returned from the modem because the initializing command is invalid. • Confirm the initializing command of the modem.
340	Printer error or power failure	Printer is faulty or the printer power supply has not been turned on. • Confirm the printer. • Turn on the power supply of the printer.
342	External power is not supplied to external I/O unit.	Error occurred at the external I/O interface unit. • If an external power supply (24VDC) is not supplied, supply the external power supply. • If an external power supply is supplied, replace the external I/O interface unit.
343	External I/O unit installation error. Check if firmly installed.	The external I/O interface unit is not installed correctly. Install the external I/O interface unit correctly.
345	BCD/BIN conversion error Correct data	Any value that cannot be converted to a BCD/BIN value is being displayed/input. • Change the device data to be displayed to the BCD value. • Correct the input value to the 4 digits integer.
360	0 divisor division error. Confirm operation expression.	Zero division occurred by the data operational expression. Review the data operational expression so that the divisor should not become 0.
361	Specified device No. is out of range.	The entered file number is out of range. Check the entered file number, and enter a valid value (1 to 9999).
362	Invalid device value in time action setting	When controllers are controlled with the GOT's time action function, the set No. is our of range, or the set device values regarding the operation settings are out of range or invalid. Set valid values.
363	The file number exceeds the limitation. File output failed.	Delete the file that has the largest file No. and unnecessary files.
370	Upper and lower limit value error. Confirm value setting.	The setting of lower/upper limit value is [Upper limit < Lower limit]. Correct the setting so as to be "Upper limit Lower limit".
380	Insufficient USB drive capacity. Confirm the drive capacity.	Available memory of the extention drive is insufficient. Confirm the available memory of the extention drive, and increase the memory if it is low.

Error code	Error message	Action
381	USB drive is not installed or in a removable state.	Install the extention drive if it is not installed. Reinstall the extention drive if it is in the removable status.
382	USB drive is not formatted.	Extention drive is not formatted or formatted incompatible with GOT. Reformat the extention drive.
383	Unable to overwrite. USB drive is write-protected	Extention driver is write-protected. Cancel the write-protection of extention drive.
384	USB drive error. Replace USB drive.	Extention drive is faulty. Replace the extention drive.
401	An error response has been received from the connected device.	• Eliminate the cause of the CPU error. • Review the operating conditions of the CPU, parameters, and others.
402	Communication timeout. Confirm communication pathway or modules.	The time-out error occurred during communicating. • Confirm the cable disconnected, the communication unit mounting status and status of the PLC. Channel No. is not displayed in error code or error message in the case an error occurs when using the multi-channel function. Refer to the following manual to identify the channel No. in error. → GOT2000 Series Connection Manual for GT Works3 and a controller used (1.6 Checking for Normal Monitoring) • This error may occur when the load of PLC CPU becomes heavier while accessing other stations. In such case, transfer the data of the other station to the host station PLC CPU and monitor them at the host. • Put the COM instruction when the PLC scanning is long. • Check if the version of the communication driver supports the controller. For how to check the version of the communication driver, refer to the following. → GT Designer3(GOT2000) Screen Design Manual
403	SIO status error. Confirm communication pathway or modules.	Either of the overrun error, parity bit error or flaming error was generated when the RS-422/RS-232 communication was received. Confirm the cable disconnected, the communication unit mounting status, status of the PLC, and the transmission speed of the computer link. Channel No. is not displayed in error code or error message in the case an error occurs when using the multi-channel function. Refer to the following manual to identify the channel No. in error. → GOT2000 Series Connection Manual for GT Works3 and a controller used (1.6 Checking for Normal Monitoring)
404	Response does not match communication request.	• Resolve crosstalk on the line. • Lengthen the communication timeout time.

Error code	Error message	Action
406	Specified station access is out of range. Confirm station no.	• Station numbers other than master/local station are specified at the CC-Link connection (via G4). • A PLC CPU other than QCPU is accessed.;Confirm the station number of the project data.
407	Accessed other network. Change network setting.	• When monitoring the same network as the GOT;The GOT accesses the other networks with the MELSECNET/H, MELSECNET/10 (PLC to PLC network), or CC-Link IE Controller Network connection. Confirm the network number of the project data so as not to access to other networks. • When monitoring other networks;Reconfigure the [Routing Information Setting] of GT Designer3 or the [Routing Information Setting] of GX Developer. • When using GT15-75J71LP23-Z/GT15-75J71BR13-Z; Other networks cannot be monitored.;Confirm the network number of the project data so as not to access to other networks.
410	Cannot perform operation because of PLC run mode. Stop the PLC.	The operation, which could not be performed during RUN of PLC CPU, was performed. Stop the PLC CPU.
411	Memory cassette is write-protected. Check the memory cassette.	The memory cassette installed in the PLC CPU is EPROM or E2PROM, and it is in a protected status. Confirm the memory cassette installed in PLC CPU.
412	Cannot read/write device protected by keyword. Remove keyword.	The key word is set in PLC CPU. Cancel the key word.
413	Unsupported CPU has been accessed.	• Check the latest manual to see if the CPU is supported. • Write package data created with the latest version of GT Designer3.
420	E71 specification is ASCII.	[ASCII code] is selected in [Ethernet operations] of the PLC side setting. Select [Binary code].
421	E71 is set as read-only. Clear setting.	The Ethernet unit on the PLC side is set in read-only. Set the Ethernet unit on the PLC side to write-enabled.
422	Not communicating between CPU and E71. Confirm CPU error.	PLC CPU error. Communication between PLC CPU and the PLC side Ethernet unit impossible. Confirm whether there is error in PLC CPU by GX Developer etc. (Confirm buffer memory)

Error code	Error message	Action
423	Insufficient network table information. Add station no.	The station number set in the project data and the station number set in the switching station No. device do not exist in the Ethernet setting of GT Designer3. • Add the station number set in the project data to the Ethernet setting of GT Designer3. • When using the station No. switching function, check the data of the switching station No. device. When the station number specified in the switching station No. device is not set in the Ethernet setting, add the station number to the Ethernet setting. When the station number does not exist in the system, change the data of the switching station No. device. (Set the station number so that it becomes the same as the station number of the PLC side Ethernet unit set in the parameter setting of GX Developer.)
424	Same sta. on GOT & project data. Review communication parameter.	The station number set in the GOT's utility is the same as the station number set in the Ethernet setting of GT Designer3 (the station number of the PLC side Ethernet unit) or in the project data. Check the following contents so that the multiple station numbers should not be the same. • Check the GOT's station number in the GOT's utility. • Check the station number set in the project data. • Check the station number set in the Ethernet setting. (Set the station number so that it becomes the same as the station number of the PLC side Ethernet unit set in the parameter setting of GX Developer.) • When using the station No. switching function, check the data of the switching station No. device.
425	A duplicate IP address has been detected. Confirm the setting.	The GOT has the same IP address as another device. Change the IP address of the GOT or the device.
430	Wireless LAN unit is not mounted or a hardware error occurred.	The wireless LAN communication unit is not installed on the side interface. Check that the unit is installed properly.
431	Connectable access point is not found.	Check the setting for an accessible access point, and the wireless LAN connection setting.
432	Wireless LAN connection settings are not specified.	After configuring the wireless LAN connection setting, enable the wireless LAN connection function. → GT Designer3(GOT2000) Screen Design Manual
433	Failed to authenticate the access point.	Check if the authentication method specified in the wireless LAN connection setting is the same as that on the access point side.

Error code	Error message	Action
434	GOT hardware version not supported by wireless LAN connection	Use a GOT with hardware version B or later. For how to check the hardware version, refer to the following. → GOT2000 Series User's Manual (Hardware)
440	The label information has been updated.	The label name resolution will be executed automatically. Wait for the completion.
441	The specified CPU is updating the label information.	The global label information of the specified CPU will be updated. Wait for the completion.
442	Resolving the label information. Do not turn off the power during the process.	The label name resolution is being executed. Wait for the completion.
448	PLC cannot handle as requested. Correct devices.	A device outside the range of PLC CPU file registers and the buffer memory was specified. Correct the monitor device by setting file register of the PLC CPU.
449	Dedicated device is out of range. Confirm device range.	Set the address for the special function unit in the GOT monitor available range.
450	Path has changed or timeout occurred in redundant system.	The path has been switched or timeout occurred in the redundant system. • Check the PLC CPU to know if the path has been switched. • Check the cable connection status, the communication unit installation status, and the PLC CPU status. • This error may occur when the load of the PLC CPU becomes heavier when accessing other stations. In such a case, transfer the data of the other stations to the host station PLC CPU and monitor them at the host. • Perform one of the following operations if the PLC scanning time is long: COM instruction/Extension of END processing/Setting of the number of processing times for general data/Data update batch processing.
451	Q redundant system settings and current config. Do not match.	Change the Q redundant setting in accordance with the actual Q redundant CPU system.
460	Communication unit error	• Reset the power of the GOT. • Replace the unit.
461	Communication error occurred between option units and the GOT.	Check the following manual for the vibration resistance specifications and the method of mounting the option units. After that, reset the GOT power supply. → GOT2000 Series User's Manual (Hardware)

Error code	Error message	Action
470	No routing params. Communication not established with specified sta.	Set routing parameters.
471	No IP address info. (Ethernet table) of connection destination.	Set the network information about the destination for [Ethernet setting].
480	Communication channel not set. Set channel number on Utility.	Channel (CH.No.1 to 4) to communicate with a controller is not set. • After setting the Communication Settings on the GT Designer3, download it to the GOT. • Change the channel assignment in the Communication Setting on the utility.
481	Communication unit not mounted to the slot of active channel.	The interface where the channel (CH No.1 to 4) is set does not have a communication unit installed. • Install a communication unit to the interface where the channel (CH No.1 to 4) is set. • Change assignment of the channel (CH No.1 to 4) in the Communication Setting.
482	Too many same units are mounted. Confirm the no of units.	Units are mounted on the GOT exceeding the maximum number of mountable units. Check the number of units, and remove unnecessary units.
483	Simultaneous mounting of the units are not allowed.	Two or more units which cannot be mounted on the GOT simultaneously are mounted. Check the mounted units, and remove unnecessary units.
484	Unit mounted incorrectly. Move the unit to correct position.	The unit is not mounted on the GOT in the correct position. Confirm the mounting position of the unit.
485	Too many units mounted on GOT. Reduce units.	Units are mounted on the GOT exceeding the maximum number of mountable units. Check the number of units, and remove unnecessary units.
486	Communication unit not corresponded to set communication driver.	The communication driver set in the Communication Setting and the communication unit installed on the GOT do not match. • Check whether the communication driver set in the Communication Setting is correct. • Check whether any incorrect communication unit has been installed on the GOT.
487	Please turn on the PLC and the GOT again.	Turn the power of the PLC and GOT on again.
488	Too many units mounted on GOT. Reduce units.	Units are mounted on the GOT exceeding the maximum number of mountable units. Check the number of units, and remove unnecessary units.

Error code	Error message	Action
489	Inactive channel has been selected at Communication Settings.	Inactive channel No. has been set in the project data. • Check whether any unnecessary channel No. has been set in the project data. • Check whether channel Nos. set in the project data are set in the Communication Settings.
492	Unusable communication units are mounted.	Unit unusable for GOT is installed. Remove the unusable unit.
493	Installation of extension units may be inappropriate.	Check if the extension units are securely mounted on the GOT.
497	Failed to start communication driver(s).	Install the communication driver(s) again.
500	Warning! Built-in battery voltage is low.	The voltage of the GOT built-in battery is decreased. Replace the GOT built-in battery.
506	Warning! Backlight needs replacement.	The dedicated GS is notifying that the backlight power on addition time has reached the set time or more. Please consult your local Mitsubishi service center or representative. The GOT can be restored by executing the addition times reset function. The GOT can also be restored by turning off the notification signal manually. In such a case, turn it OFF after setting a value greater than the addition time.
510	Clock data input out of range	The value that is input as clock data is out of the input enabled range. In this case, the input value is not accepted. Confirm the input range of the value to be input as clock data, and input the proper value again.
522	Unnecessary file deleted to create new file.	The old file of different contents has been deleted and a new file has been created. Note that the old file is deleted and the new file is created if the file of the same name with different contents exists when creating files.
523	The read alarm log file has a different number of alarm points.	When the alarm settings (including the number of monitored alarms and the hierarchy) are changed, the alarm log file before the change is read, but alarms are collected according to the new settings. An alarm displayed after the change may differ from one before the change. Delete the alarm log file as necessary.
525	Unable to read/write alarm log files under different projects.	Unable to read the alarm log file saved by the different project. Confirm the alarm log file and where to store the alarm log file.
526	File conversion failed.	The file specified for the file conversion does not exist. Check the settings for specifying a file to be converted.

Error code	Error message	Action
527	Insufficient SRAM capacity.	The capacity for the SRAM user area is insufficient. Confirm the available memory in the SRAM user area.
528	Error in SRAM. Failed to write data.	The error may be caused by a failure in the GOT main unit. Contact your local Mitsubishi representative.
529	Data error in SRAM. Check the battery life.	Error in SRAM data due to battery voltage low, etc. Confirm the battery status.
532	Cannot access the files. Check the memory card.	Check if the file name is appropriate. The file name contains invalid characters. For the character type and the number of characters available for file names, refer to the following. → GT Designer3(GOT2000) Screen Design Manual
533	Cannot access Files. Check the memory card.	• Insert a SD card or USB memory. • Close the SD card cover to make the SD card accessable. • If the SD card or USB memory have unnecessary files, delete the files.
535	Cannot open image file.	Check if the target file is stored in the SD card or USB memory.
536	Image file error or invalid file format.	• Confirm whether image files in the SD card or USB memory are normal. • Confirm whether any image file of invalid format is stored.
562	Install the font appropriate for the specified system language.	No font appropriate for the system language specified at the system language switching is installed. Install the appropriate font.
565	Files for the extended system application are missing.	Install again system application (extended function) that you failed to execute.
571	Capacity shortage of user memory (RAM)	There is no empty area/space in D drive. Format the D drive in the memory to secure free area.
577	Newly readable records do not exist.	The space for reading records is insufficient. Delete unnecessary records.
578	The specified record name is invalid. Check the record name.	A blank record with no name and device value does not exist. Set such a blank record in advance.
579	Recipe is in process. Cannot operate the recipe file.	Another recipe processing is in progress. After the processing is complete, perform the recipe file operation again.
580	Selected recipe setting is not the recipe file operation target.	The specified recipe setting has no G2P recipe file. Specify a G2P file.
581	Abnormal Advanced recipe file	Recipe cannot be executed for recipe file with incorrect contents. Delete the recipe file from the SD card or USB memory.

Error code	Error message	Action
582	Cannot generate Advanced recipe file.	Cannot generate recipe file. Confirm the following and execute recipe processing again. • Confirm whether the SD card or USB memory is installed. • Close the SD card cover to make the SD card accessable. • Confirm the available memory of the SD card or USB memory.
583	Unable to save device value to Advanced recipe file.	Unable to save device value to recipe file. • Confirm the write-protection of the SD card or USB memory. • Confirm whether the attribute of saving file is for reading only.
584	Advance recipe file save error	An error has occurred during the recipe file writing. Do not pull out the SD card or USB memory while the Recipe is operating.
585	Advanced recipe file upload error	An error has occurred during the recipe file reading. Do not pull the SD card or USB memory out while the Recipe is operating.
586	Specified Advanced recipe number does not exist.	The recipe of non-existing number is about to be executed. Execute recipe of existing number.
587	Specified record number does not exist.	The advanced record of non-existing number is about to be executed. Execute record of existing number.
588	Cannot save recipe data to read only record.	Saving recipe is about to be executed to the record of which recipe device value cannot be edited. Make the recipe device value of the record editable with Recipe Setting of GT Designer3 or specify the record of which recipe device value can be edited.
589	Recipe device save error. Recipe file does not exist.	Saving recipe is about to be executed to the recipe setting that is set for not using file. Specify the recipe setting that uses file.
590	Recipe device upload error. Recipe device value does not exist.	Loading recipe is about to be executed to the record of which recipe device value is not set. Specify the record of which recipe device value is set.
591	Advanced Recipe error. Check recipe data.	The recipe setting is not correct. Confirm the recipe setting of the project data and download it to the GOT again.
592	The extension specified to the recipe file is invalid.	Check if the file name is appropriate. The file name contains invalid characters. For the details, refer to the following. → GT Designer3(GOT2000) Screen Design Manual
593	The setting of G1P file of the original diversion is different from the project data.	The settings of the sourcMatch the settings of the advanced recipe file and those of the GOT2000 recipe file, or delete an unnecessary advanced recipe file from the memory card.e advanced recipe file are not matched with those of the GOT2000 recipe file, or incorrect.

Error code	Error message	Action
595	Logging file error.	Logging file error. When collecting data again, delete logging files and management files.
596	Logging setting does not exist or setting value error.	Logging setting does not exist or setting value error. Specify an existing logging setting in the historical trend graph setting and the historical data list setting.
597	The specified logging ID does not exist.	• Specify an existing logging ID in the Logging ID External Control device. • Select the graph offset function to specify an existing logging ID in the logging setting
598	The specified logging setting is incompatible.	• Configure the setting so that the number of logging devices set for the logging ID exceeds that of data lines on the historical trend graph. • Configure the setting so that the data type of the logging device set for the logging ID is the same as that of the device specified in the historical trend graph.
601	Printer unit error.	The printer unit is installed incorrectly. The built-in flash memory of the printer unit is broken or the guaranteed life has been elapsed. Check that the printer unit is installed correctly. When the printer unit has been installed correctly, the built-in flash memory is broken or the guaranteed life has been elapsed. Replace the printer unit with new one.
602	Video/RGB unit not mounted	• Check if the video/RGB input unit is installed. • Check if the GOT used supports video/RGB input.
603	External I/O unit error	Check if the external I/O unit is correctly installed.
604	Sound output unit error	Check if the sound output unit is correctly installed.
605	USB device I/F error	The error may be caused by a failure in the GOT. Contact your local Mitsubishi representative.
606	Multimedia processing unit is not mounted.	Multimedia unit is installed incorrectly. Check that the multimedia unit is installed correctly.
607	Video · RGB input object has too many. Please reduce the number of settings.	Reduce the number of the video/RGB display objects to be displayed simultaneously.
608	Hierarchical relationship of video · RGB input object can not be represented correctly.	Make sure that multiple video/RGB display objects do not overlap each other.
610	Insufficient memory capacity.	The memory capacity for the MES interface function is insufficient. Delete unnecessary files, and reserve memory.

Error code	Error message	Action
611	Improper job files. Confirm job setting.	The contents for job files are unmatched with the settings for job files. Check if there are mistakes in the settings on the setting screen.
612	Cannot access Logging Files. Check the memory card.	• Insert a SD card or USB memory. • Close the SD card cover to make the SD card accessable. • If the SD card or USB memory have unnecessary files, delete the files.
613	Error in writing logfile	• Insert a SD card or USB memory. • Close the SD card cover to make the SD card accessable. • Check if the SD card or USB memory is writable.
614	Error in reading logfile	• Insert a SD card or USB memory. • Close the SD card cover to make the SD card accessable. • Check if the SD card or USB memory is readable.
615	Cannot connect to MES Server. Check the Server.	• The server does not work normally or the connection path to the server is made up incorrectly. • Check the operating conditions of the server. • Check the network to the server.
616	Cannot connect to SNTP Server. Check the Server.	• The settings for the SNTP server are wrong or the network to the SNTP server is made up incorrectly. • Check the operating conditions of the STNP server. • Check the network to the SNTP server.
620	Trial connection has started.	While the license number of the GOT Mobile function is unregistered, the GOT is accessed by information devices. To use the GOT Mobile function in the full version, register the license number on the GOT.
630	Failed to save a video file.	Check the CF card available area, installation status, cancellation of write-protect, format status and number of saved files.
631	Failed to save a video file on network.	Check the activation status of personal computer linkage software in file server, the setting of Ethernet FTP function of GOT, the network setting of GOT and file server and the available area of SD card installed in the GOT main unit.
632	Error detected during multimedia processing.	Switch off the GOT and check the installation status of multimedia unit, or change the multimedia unit.
633	The version of the unit software is not the latest.	Install the latest compatible multimedia unit software using the utility of the GOT.
634	No space remaining in the multimedia CF card. Terminating long time recording.	Change the CF card installed on the multimedia unit, or delete unnecessary files.

Error code	Error message	Action
640	An error occurred in a FTP client process.	Reconfigure the GOT (FTP client) setting. Check the operating status and network line of the FTP server. For the error details, check the GOT special register GS989 (FTP communication error notification). → GT Designer3(GOT2000) Screen Design Manual
641	The license key has not been registered. Confirm your license.	On the GOT, register the license number for the VNC server function, the remote personal computer operation function (Ethernet), the MES interface function, or the GOT Mobile function.
650	The operator management information file is invalid.	Prepare a normal operator management information file and import it, or store the operator management information file in a specified location.
651	Cannot access the operator management information file.	Check if the destination drive that stores the specified operator management information file is accessible by the GOT.
660	Failed to obtain op. authority. Server does not respond.	Make sure that the master GOT has been connected and started. Make sure that the GOT network interaction function is enabled in the master GOT.
670	Current alarms exceeded the max no. that can be procd. at a time.	A hundred or more system alarms have occurred simultaneously. Eliminate the cause of the output system alarms and check system alarms again.
697	Package writing of the old version is not allowed.	Install the latest version of GT Designer3, and then perform the operation again.
698	Insufficient CoreOS version.	Install the latest version of CoreOS.
699	Insufficient BootOS version.	Install the latest version of BootOS.
800	Abnormal module status	Refer to explanations of SB0020 on the applicable network manual. For the CC-Link IE Field Network, refer to the manual of MELSEC-Q CC-Link IE Field Network master/local unit.
801	Abnormal baton passing status	Refer to explanations of SB0047 on the applicable network manual.
802	Abnormal cyclic transmission status	Refer to explanations of SB0049 on the applicable network manual.
803	Transient error	Refer to explanations of SB00EE on the applicable network manual.
804	The cable on the IN side is disconnected or is not connected.	Refer to explanations of SB0067 on the applicable network manual.
805	The cable on the OUT side is disconnected or is not connected.	Refer to explanations of SB0068 on the applicable network manual.
840	PROFIBUS master is not started.	Turn on the PROFIBUS master.

Error code	Error message	Action
841	I/O setting of the PROFIBUS master and slaves do not match.	• Use the GSD file, a configuration file provided by MITSUBISHI. (Edit prohibited) • Correct relevant settings, and turn off and then on the GOT.
850	CC-Link switch setting error	• Check if the switch settings have no error. • Check error codes stored in SW006A. • Refer to explanations of SB006A on the applicable network manual.
851	Abnormal cyclic transmission status	• Check if terminating resistors are connected. • Check error codes for the PLC CPU. • Check the parameter for the PLC CPU on the master station. • Check the error status of the master station. • Refer to explanations of SB006E on the applicable network manual.
852	Abnormal host line status	• Check if the cable is unplugged or not. • Refer to explanations of SB0090 on the applicable network manual.
853	Transient error	• Check the transient error occurrence status for each station stored in SW0094 to SW0097. • Refer to explanations of SB0094.
860	Off line or the network power is off.	• Check the module status LED indicator. • Turn on the network. • Check that cables are connected properly. • Match the communication speed of the GOT to that of the master equipment.
861	No connections are established.	• Check the settings of the master equipment. • Turn on the master equipment.
862	Critical link error	The controller has failed, or has an error disabling network communication. (MAC IDs are duplicated, or Bus-off is detected.) Check the controller.
863	Incomplete configuration	The controller setting is not configured, or the setting is inadequate or incorrect. Review the controller setting.
864	Unrecoverable fault(s)	The controller has an uncorrectable error.
865	Recoverable fault(s)	The error is automatically corrected. If the module status LED indicator does not turn green, the controller may have a failure.

APPENDIX 2 INSTALLATION AND REMOVEMENT

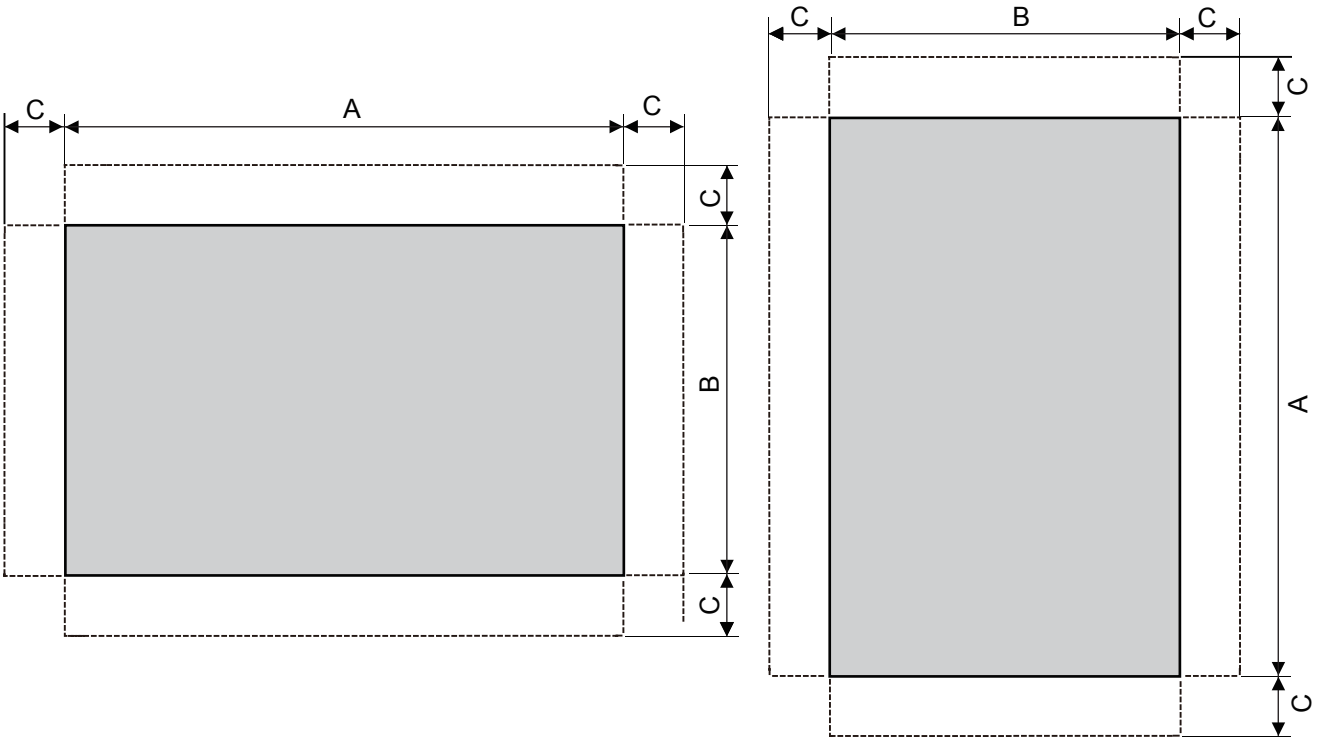
1 Installation Precautions

Install the GOT with consideration of the control panel inside dimensions and the installation prohibited area.
Depending on the types of connection cables connected to the GOT, the distance more than the described dimensions may be required.
Install the GOT with consideration of the connector dimensions and the cable bend radius.

2 Cutting a panel

- GT2715-X

  Open an installation hole on the control panel with the dimensions as shown below.



Horizontal Vertical

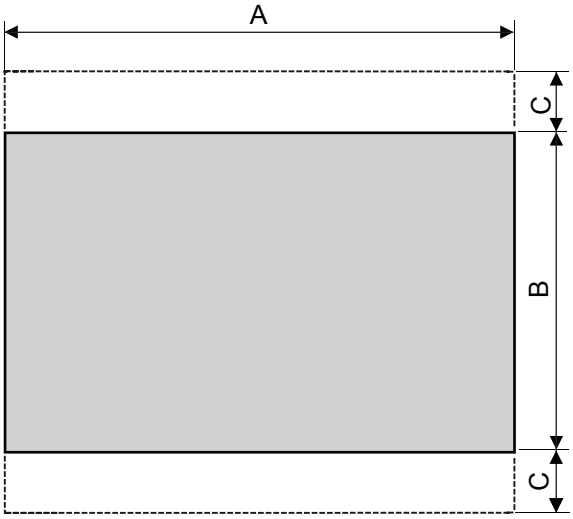
Unit: mm (inch)

Model	A	B	C	Panel thickness
GT2715-X	383.5(15.10) (+2(0.08), 0(0))	282.5(11.12) (+2(0.08), 0(0))	10(0.39) or More	1.6(0.06) to 4(0.16)

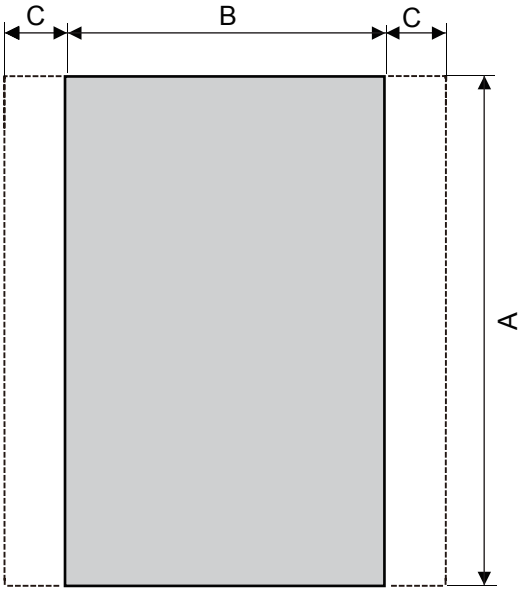
The C dimension shows the measurements for installing fittings on the control panel.

- GT2712-S, GT2710-S, GT2710-V, GT2708-S, GT2708-V, GT2705-V

  Open an installation hole on the control panel with the dimensions as shown below.



Horizontal



Vertical

Unit: mm (inch)

Model	A	B	C	Panel thickness
GT2712-S	302(11.89) (+2(0.08), 0(0))	228(8.98) (+2(0.08), 0(0))	10(0.39) or More	1.6(0.06) to 4(0.16)
GT2710-S, GT2710-V	289(11.38) (+2(0.08), 0(0))	200(7.87) (+2(0.08), 0(0))		
GT2708-S, GT2708-V	227(8.94) (+2(0.08), 0(0))	176(6.93) (+2(0.08), 0(0))		
GT2705-V	153(6.02) (+2(0.08), 0(0))	121(4.76) (+2(0.08), 0(0))		

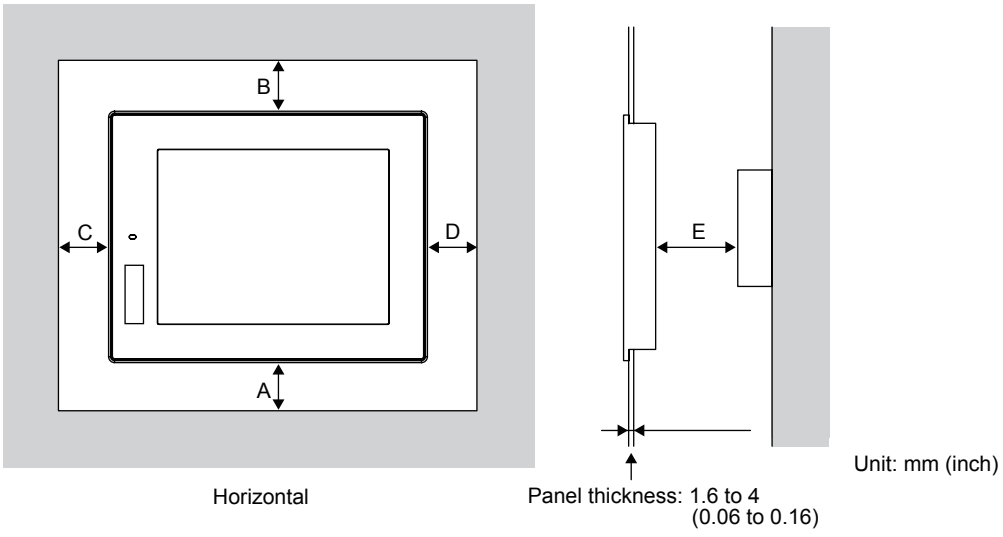
The C dimension shows the measurements for installing fittings on the control panel.

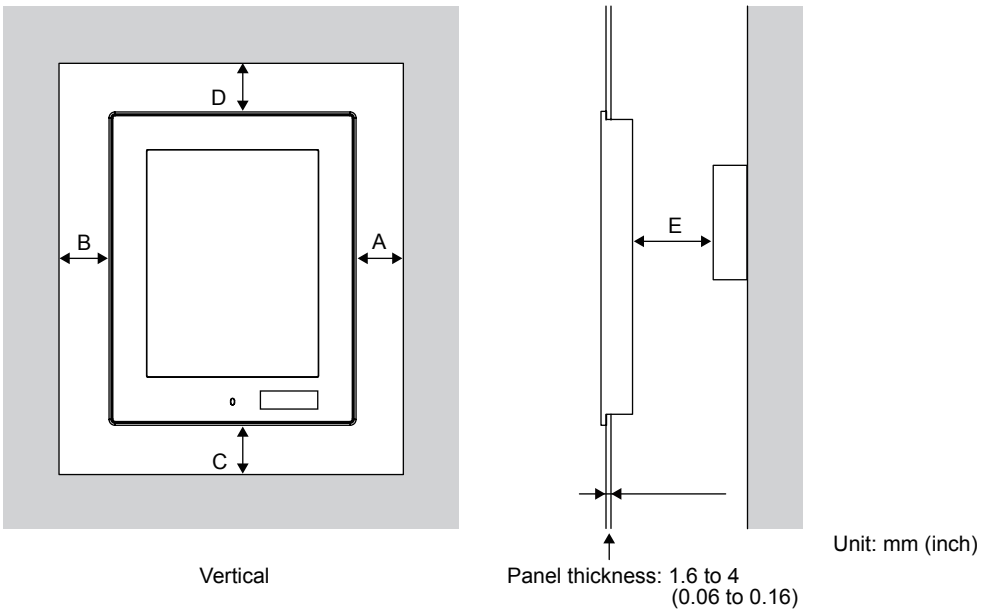
3 Installation Position

To install the GOT, some distance is required between the GOT and the other devices.

- GT27

  Depending on the units and cables used for the GOT, the distance more than the described dimensions may be required.
  Install the GOT with consideration of the connector dimensions and the cable bend radius.
  For the cable pull-out distance from the bottom of the GOT, refer to the following.
  → GOT2000 Series User's Manual (Hardware)
  For the vertical installation, install the GOT so that the vertical installation arrow printed on the GOT rear face points upward.
  → GOT2000 Series User's Manual (Hardware)





The following tables list the distance required between the GOT and the other devices.
The dimensions within the parentheses apply when no equipment generating radiated noise (such as a contactor) or heat is installed near the GOT.
However, always keep the ambient temperature of the GOT to 55°C or lower.

Unit: mm (inch)

Item		GT27				
		GT2715-X	GT2712-S	GT2710-S, GT2710-V	GT2708-S, GT2708-V	GT2705-V
A	GOT only	48(1.89) or more [18(0.71) or more]			48(1.89) or more [29(1.14) or more]	59(2.33) or more
	Bus connection unit is fitted	48(1.89) or more [18(0.71) or more]			23(0.91) or more [29(1.14) or more]	48(1.89) or more
	Serial connection unit is fitted	48(1.89) or more [18(0.71) or more]				47(1.85) or more
	CC-Link communication unit (GT15-J61BT13) fitted	48(1.89) or more [18(0.71) or more]				50(1.97) or more [22(0.87) or more]
	MELSECNET/H communication unit (coaxial) fitted*1	48(1.89) or more [18(0.71)or more]	48(1.89) or more [38(1.50) ormore]	48(1.89) or more [45(1.77) ormore]	67(2.64) or more	81(3.19) or more
	MELSECNET/H communication unit(optical) fitted*2	48(1.89) or more [18(0.71) or more]				77(3.04) or more
	CC-Link IE Controller Network communication unit fitted	48(1.89) or more [18(0.71) or more]				55(2.17) or more
	CC-Link IE Field Network communication unit fitted	48(1.89) or more [18(0.71) or more]				55(2.17) or more
	Video input unit fitted*1	48(1.89) or more [18(0.71)or more]	48(1.89) or more [38(1.50) or more]	48(1.89) or more [45(1.77) or more]	67(2.64) or more	-
	RGB input unit fitted*3	48(1.89) or more [18(0.71) or more]				-
	Video/RGB input unit fitted*1*3	48(1.89) or more [18(0.71)or more]	48(1.89) or more [38(1.50) or more]	48(1.89) or more [45(1.77) or more]	67(2.64) or more	-
	RGB output unit fitted*3	48(1.89) or more [18(0.71) or more]				-
	Multimedia unit fitted*1	48(1.89) or more [18(0.71)or more]	48(1.89) or more [38(1.50) or more]	48(1.89) or more [45(1.77) or more]	67(2.64) or more	-
	Printer unit fitted	48(1.89) or more [18(0.71) or more]				

Unit: mm (inch)

Item		GT27				
		GT2715-X	GT2712-S	GT2710-S, GT2710-V	GT2708-S, GT2708-V	GT2705-V
A	External I/O unit fitted	48(1.89) or more [18(0.71) or more]				
	Sound output unit fitted	48(1.89) or more [18(0.71) or more]				
B		Horizontal: 78(3.07) or more [18(0.71) or more] Vertical: 48(1.89) or more [18(0.71) or more]				
C	When the SD card is used	50(1.97)or more [20(0.79) or more]			50(1.97) or more	100(3.94) or more
	When the SD card is not used	50(1.97) or more [20(0.79) or more]				
D		Horizontal: 50(1.97) or more [20(0.79) or more] Vertical: 80(3.15) or more [20(0.79) or more]				
E*4		100(3.94) or more [20(0.79) or more]				

*1 This value is for use of the coaxial cable 3C-2V (JIS C 3501).
For specifications of the cable, refer to the GOT2000 Series Connection Manual for a controller used.

*2 This value differs depending on the cable used.

*3 This value differs depending on the cable used.
If the bending radius of the cable used is greater than the value specified above, apply the value of the cable used.

*4 When opening or closing the battery cover: 72(2.83) or more.

4 Control Panel Inside Temperature and GOT Installation Angle

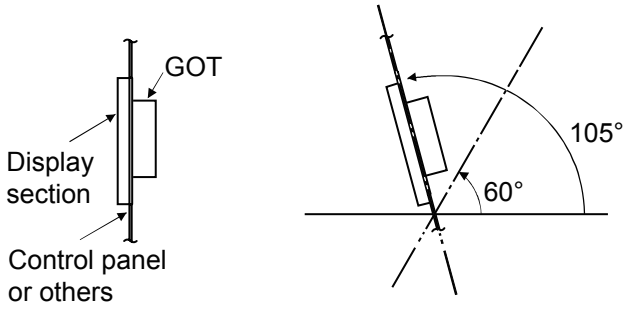
- GT27

  Install the GOT with its display section positioned as shown below.
  Using the GOT with the installation angle other than the following accelerates the deterioration of the GOT.

  When a multimedia unit (GT27-MMR-Z), MELSECNET/H communication unit (GT15-J71LP23-25, GT15-J71BR13), or CC-Link communication unit (GT15-J61BT13) is mounted, the operating ambient temperature must be lower by 5°C than the maximum temperature 55°C specified in the general specifications.

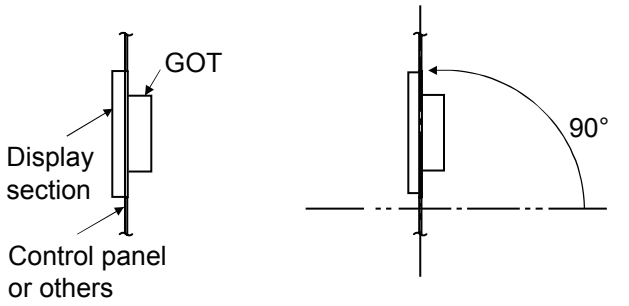
(1) Installing the GOT horizontally

When the GOT is installed at any angle from 60° to 105°, the control panel inside temperature must be within 55°C.
When the GOT is installed at any angle outside the range from 60° to 105°, the control panel inside temperature must be within 40°C.



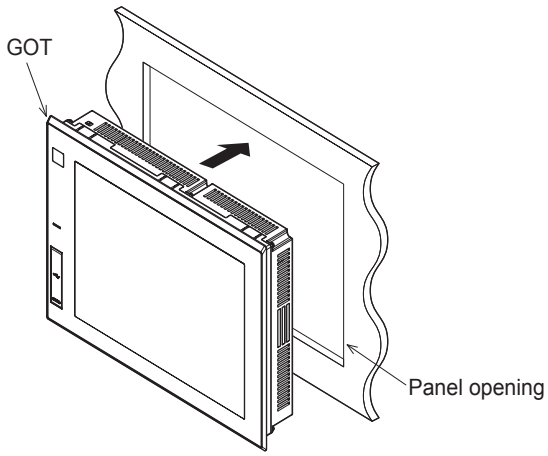
(2) Installing the GOT vertically

When the GOT is installed a 90° angle, , the control panel inside temperature must be within 55°C.
When the GOT is installed at any angle other than 90°, the control panel inside temperature must be within 40°C.



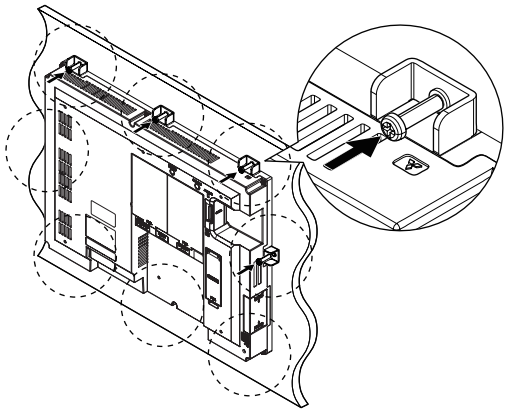
5 Installing the GOT

- GT27



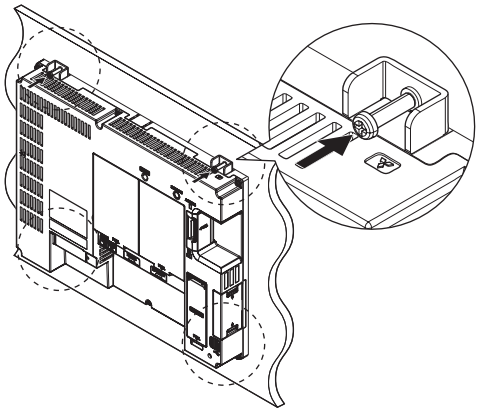
1 Insert the GOT rear face into the panel opening.

- For GT2715-X (8 fittings)



2 While positioning a fitting on the mounting hole of the GOT, tighten a screw within the specified torque range (0.36 N·m to 0.48 N·m).
Tightening the screw with a torque exceeding the specified torque range may deform the GOT front panel, causing the protective sheet to become crinkled.

- For GT27 except GT2715 -X (4 fittings)

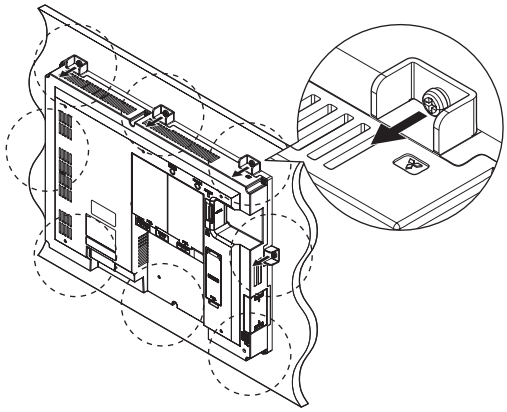


3 Remove the protective film from the GOT.

APPENDIX

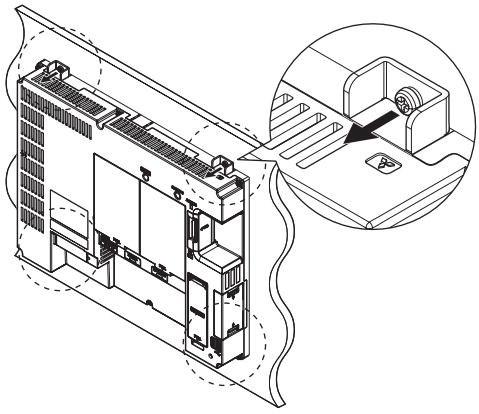
6 Removing the GOT

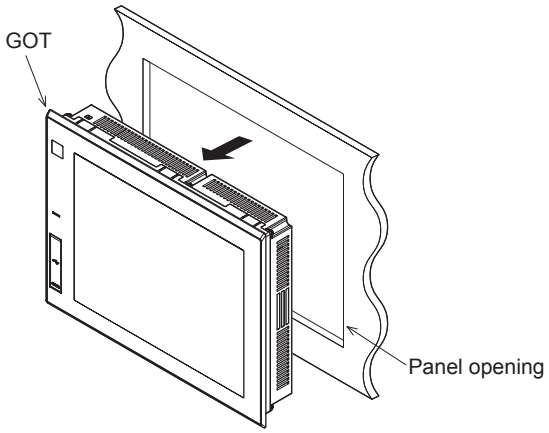
- GT27
- For GT2715-X (8 fittings)



1 Remove the screws from the GOT.
Remove the fittings from the GOT.

- For GT27 except GT2715-X (4 fittings)



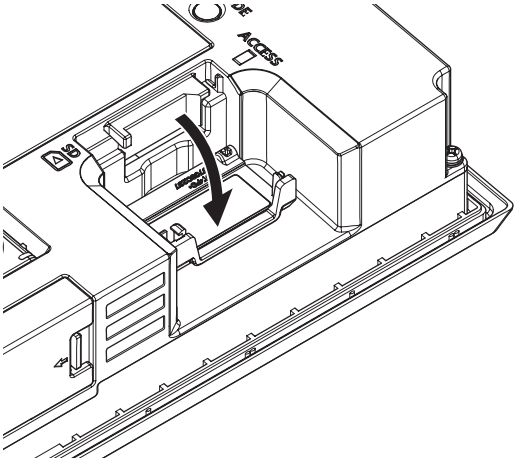


2 Remove the GOT from the panel opening.

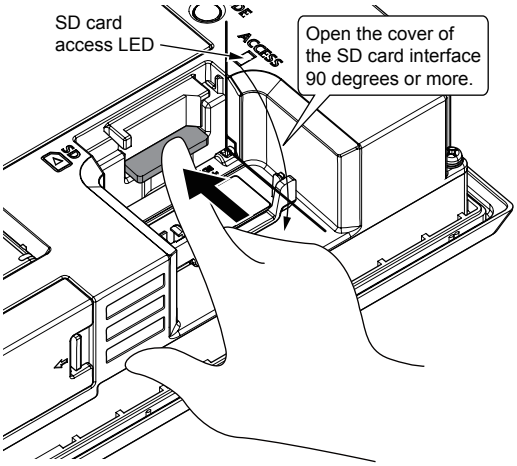
7 Inserting/Removing an SD Card

The procedures for inserting an SD card are shown below.

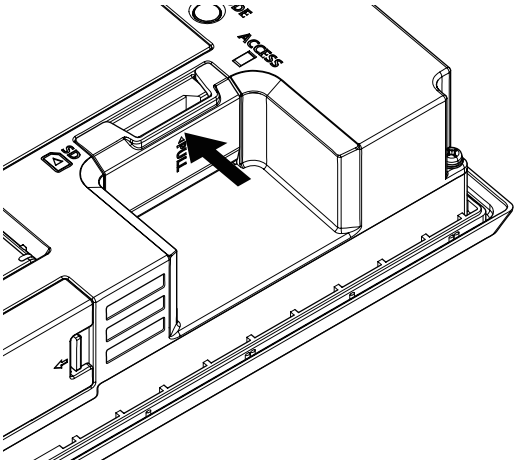
- GT27



1 Open the SD card cover as shown left. (The back side of the GOT is faced upward in the illustration.)



2 After making sure that SD card access LED is off with SD card cover 90 degrees or more open, insert an SD card with its front side facing up.

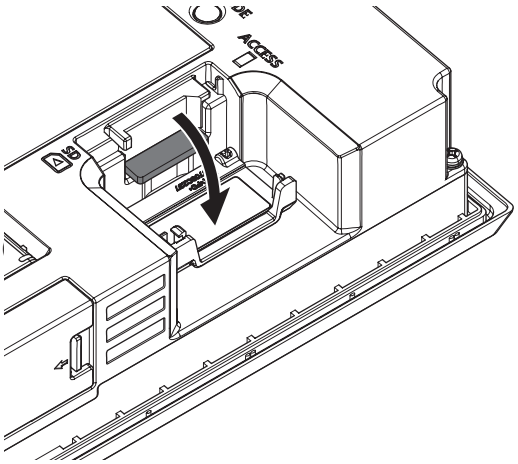


3 Push and close the SD card cover until it clicks.

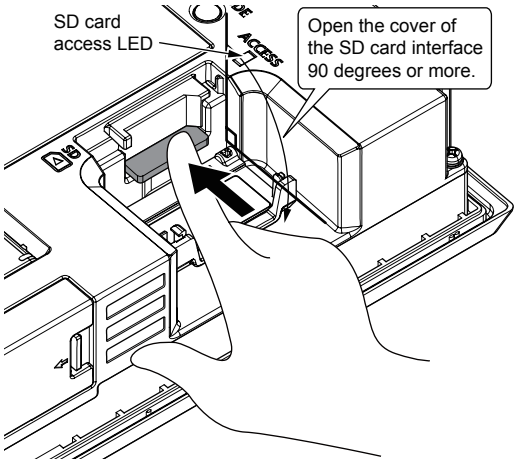
4 When the SD card cover is closed, the access to the SD card is allowed.

The procedures for removing an SD card are shown below.

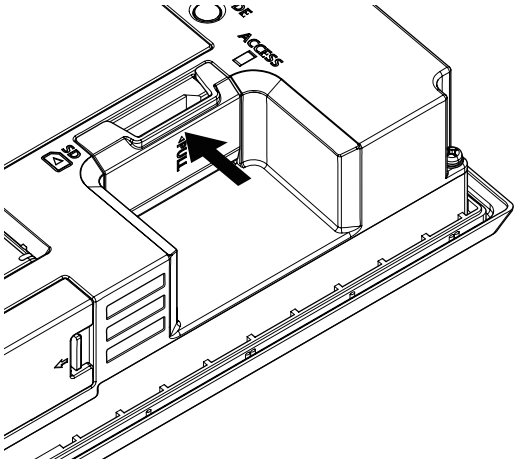
- GT27



1 Open the SD card cover as shown left.



2 After making sure that SD card access LED is off with SD card cover 90 degrees or more open, push in the SD card to remove it

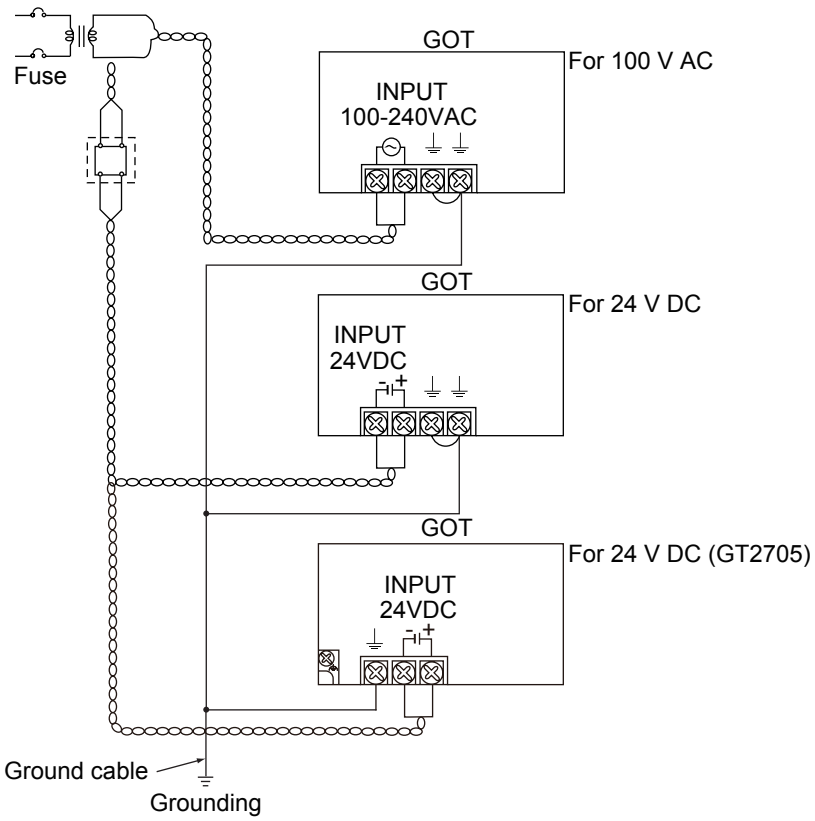


3 Close the cover of the SD card interface.

8 Power Supply Wiring to the GOT

The following shows the examples of wiring the power cable, ground cable and other cables to the GOT power supply terminal.

- GT27



⊙ Precautions (GT27)

(1) Treatment on power cables

For 100 V AC, 200 V AC, and 24 V DC cables, use thick wires as much as possible (Cable cross section: 0.75 to 2 mm^2), and make sure to twist them to the terminals.

To prevent a short circuit due to loose screws, use a solderless terminal with an insulation sleeve.

(2) Grounding

After connecting the LG terminal and the FG terminal, make sure to connect them to the ground.

Otherwise, the system is susceptible to noise.

The LG terminal has a potential equal to a half of the input voltage.

Therefore, touching the terminal may lead to an electric shock.

For GT2705-V connect only the FG terminal because the model does not have the LG terminal.

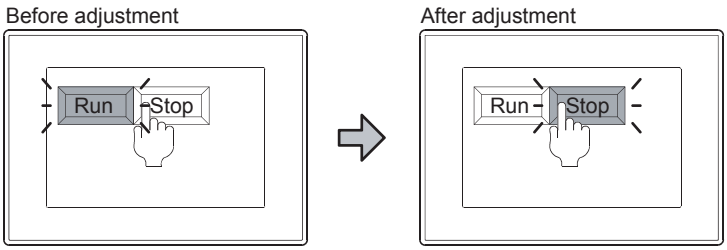
For the details of treatment of power cables and grounding, see the following manual.

→GOT2000 Series User's Manual (Hardware)

APPENDIX

APPENDIX 3 TOUCH PANEL CALIBRATION

Touch panel reading error can be corrected.
Normally the adjustment is not required, however, the difference between a touched position and the object position may occur as the period of use elapses.
When any difference between a touched position and the object position occurs, correct the position with this function.

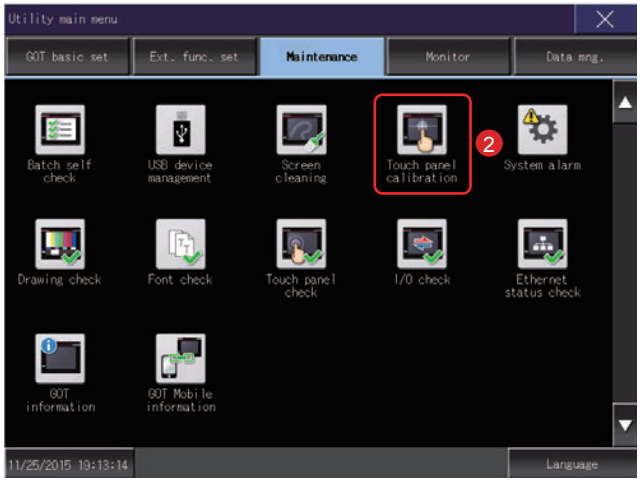


The [Run] will operate though you intended to touch the [Stop] button.

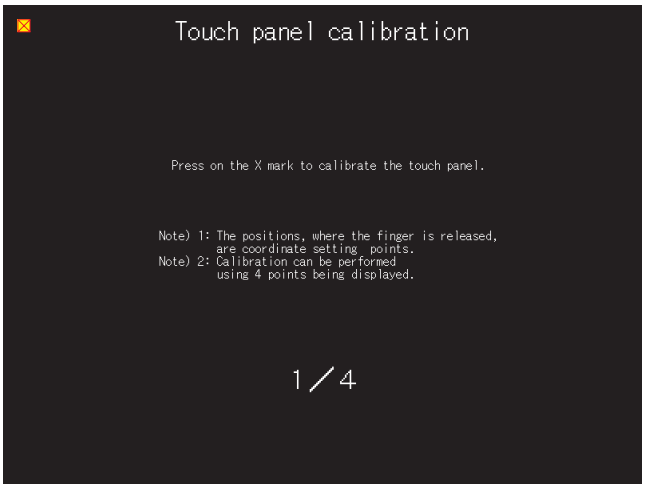
The [Stop] button can be touched without fail.

(1) Procedures for adjusting touch panel coordinates

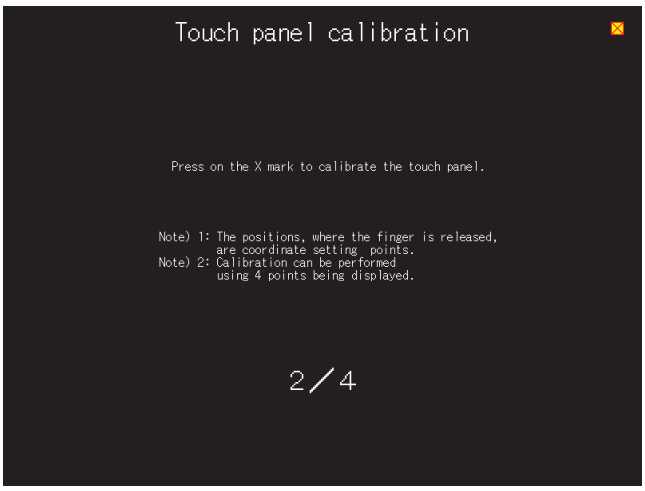
1 Touch [Utility call key].



2 Touch [Touch panel calibration] on the [Maintenance] screen in [Utility main menu].

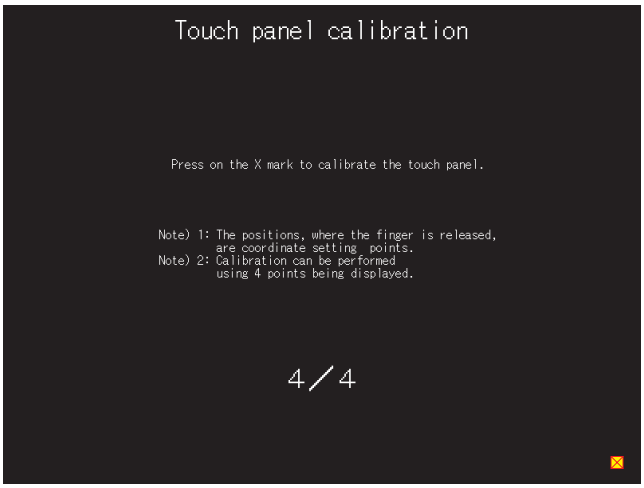


3 Touch the center of the ☒ displayed on the upper left precisely.

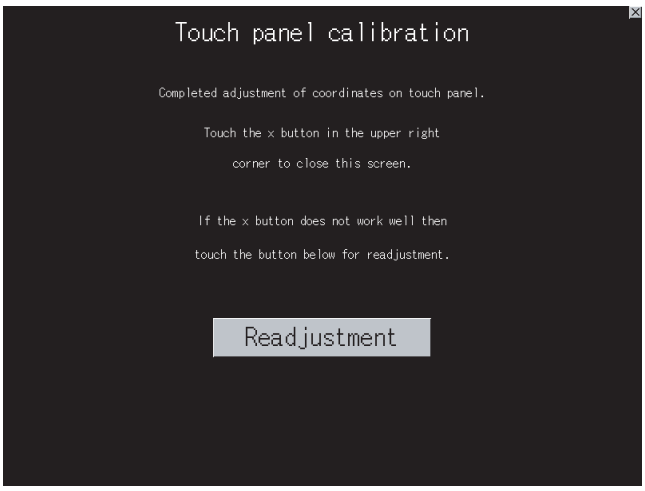


4 Touch the ☒ point displayed on the upper right.

5 Touch the ☒ point displayed on the lower left.



6 Touch the ☒ point displayed on the lower right.



7 Touching the ☒ button displayed on the upper right returns to the previous screen. When the precise touch could not be made, touch the [Readjustment] button to make the setting from 3 again.

APPENDIX 4 RELEVANT CATALOGS AND MANUALS

GOT2000 series catalogs

Catalog name	Catalog number
Graphic Operation Terminal GOT2000 Series	L(NA)08270ENG
Graphic Operation Terminal Screen Design Software MELSOFT GT Works3	L(NA)08170ENG

GOT2000 series relevant manuals

Manual name	Manual number
GOT2000 Series User's Manual (Hardware)	SH-081194ENG
GOT2000 Series User's Manual (Utility)	SH-081195ENG
GOT2000 Series User's Manual (Monitor)	SH-081196ENG
GOT2000 Series Connection Manual (Mitsubishi Products) For GT Works3 Version1	SH-081197ENG
GT Designer3(GOT2000) Screen Design Manual	SH-081220ENG

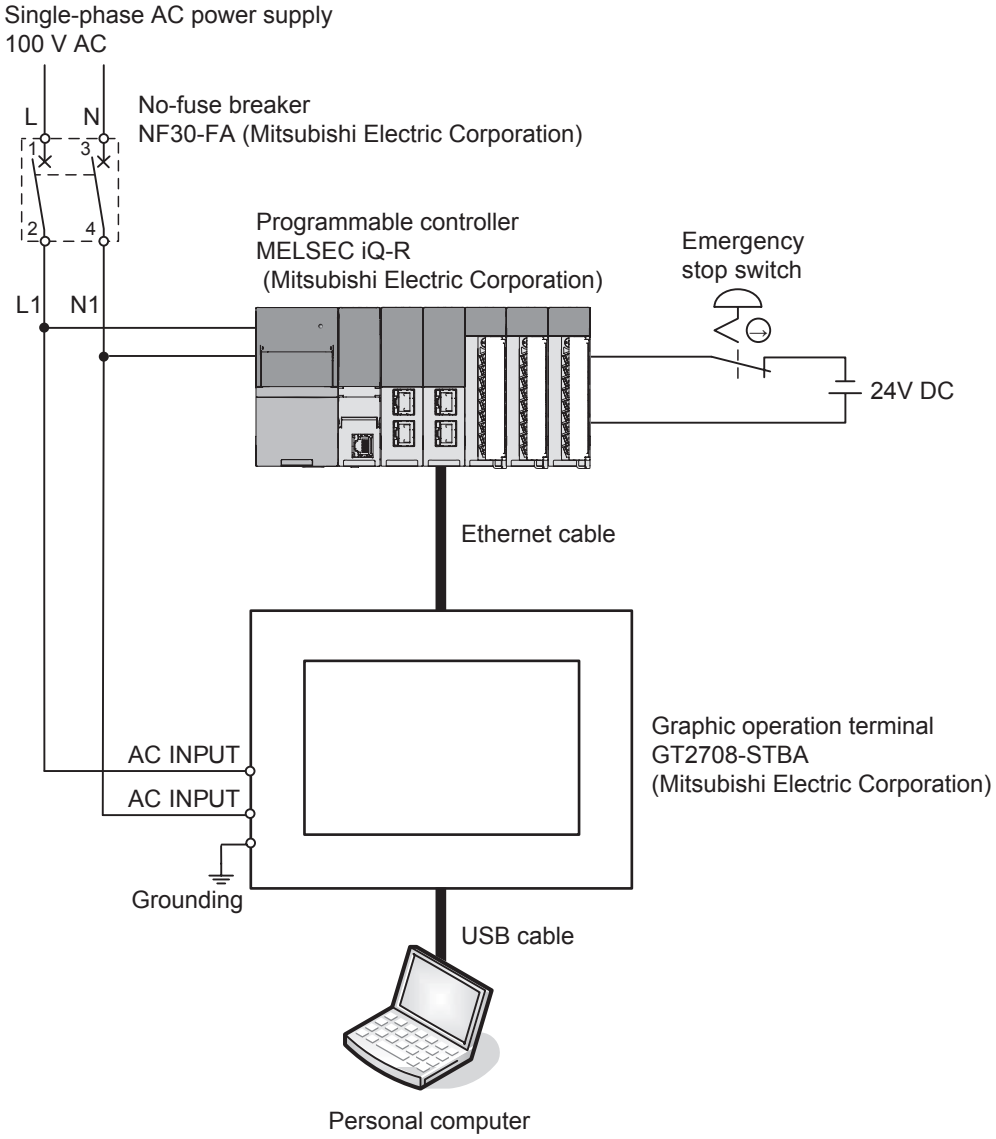
APPENDIX 5 ASSEMBLY OF PRACTICAL TRAINING EQUIPMENT

This appendix describes the specifications and connection method of the practical training equipment used in “Satellite Training System Part 3: GOT”.

Equipment configuration

- No-fuse breaker: NF30-FA (2 P, 10 A) by Mitsubishi Electric Corporation
- Programmable controller: MELSEC iQ-R by Mitsubishi Electric Corporation
- Graphic operation terminal: GT2708-STBA by Mitsubishi Electric Corporation
- Emergency stop switch

Practical training equipment connection diagram



Practical training equipment connection procedure

1. Wire the power cable (100 V AC) on the primary side of the no-fuse breaker.
2. Wire the power input terminal of the PLC and GOT on the secondary side of the no-fuse breaker.
3. Wire the emergency stop switch.
4. Connect the personal computer and GOT with a USB cable.
5. Connect the GOT and PLC with an Ethernet cable.

For the communication setting between the personal computer and the GOT, refer to “2.1.1 Connecting the personal computer to the GOT” in this text.
For the communication setting between the GOT and the PLC, refer to “2.2.1 Connecting the GOT and the PLC” in this text.

The actual color may differ slightly from the pictures in this catalog.
The actual display may differ from what are shown on GOT screen images.

Graphic Operation Terminal

MITSUBISHI ELECTRIC CORPORATION

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