MITSUBISHI ELECTRIC

GRAPHIC OPERATION TERMINAL

GOT SIMPLE

Graphic Operation Terminal

GOT SIMPLE Series
User's Manual

-GS21 model

SAFETY PRECAUTIONS

(Always read these precautions before using this equipment.)

Before using this product, please read this manual and the relevant manuals introduced in this manual carefully and pay full attention to safety to handle the product correctly.

The precautions given in this manual are concerned with this product.

In this manual, the safety precautions are ranked as "WARNING" and "CAUTION".

⚠ WARNING	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
⚠ CAUTION	Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage.

Note that the ⚠ caution level may lead to a serious accident according to the circumstances.

Always follow the instructions of both levels because they are important to personal safety.

Please save this manual to make it accessible when required and always forward it to the end user.

[DESIGN PRECAUTIONS]

⚠ WARNING

● Some failures of the GOT or cable may keep the outputs on or off. Some failures of a touch panel may cause malfunction of the input objects such as a touch switch. An external monitoring circuit should be provided to check for output signals which may lead to a serious accident. Not doing so can cause an accident due to false output or malfunction.

● Do not use the GOT as the warning device that may cause a serious accident. An independent and redundant hardware or mechanical interlock is required to configure the device that displays and outputs serious warning. Not doing so can cause an accident due to false output or malfunction.

● When the GOT detects its backlight failure, the GOT disables the input operation on the touch switch(s). Thus, operators cannot operate the GOT with touches. The GOT backlight failure can be checked with a system signal of the GOT.

● Even when the display section has dimmed due to a failure of the liquid crystal section or the backlight on the GOT, the input operation of the touch switches may still be enabled. This may cause an incorrect operation of the touch switches. For example, if an operator assumes that the display section has dimmed because of the screen save function and touches the display section to cancel the screen save, a touch switch may be activated.

[DESIGN PRECAUTIONS]

⚠WARNING

- The display section of the GOT is an analog-resistive type touch panel. Simultaneous pressing of two or more areas on the display section may activate the switch between those areas. Do not press two or more areas simultaneously on the display section. Doing so may cause an accident due to incorrect output or malfunction.
- When programs or parameters of the controller (such as a PLC) that is monitored by the GOT are changed, be sure to shut off the power of the GOT promptly and power on the GOT again. Not doing so can cause an accident due to false output or malfunction.
- If a communication fault (including cable disconnection) occurs during monitoring on the GOT, communication between the GOT and PLC CPU is suspended and the GOT becomes inoperative. A system where the GOT is used should be configured to perform any significant operation to the system by using the switches of a device other than the GOT on the assumption that a GOT communication fault will occur. Not doing so can cause an accident due to false output or malfunction.
- To maintain the security (confidentiality, integrity, and availability) of the GOT and the system against unauthorized access, DoS[*1] attacks, computer viruses, and other cyberattacks from unreliable networks and devices via network, take appropriate measures such as firewalls, virtual private networks (VPNs), and antivirus solutions.
  Mitsubishi Electric shall have no responsibility or liability for any problems involving GOT trouble and system trouble by unauthorized access, DoS attacks, computer viruses, and other cyberattacks.
  *1 DoS: A denial-of-service (DoS) attack disrupts services by overloading systems or exploiting vulnerabilities, resulting in a denial-of-service (DoS) state.

[DESIGN PRECAUTIONS]

⚠CAUTION

- Do not bundle the control and communication cables with main-circuit, power or other wiring. Run the above cables separately from such wiring and keep them a minimum of 100mm apart. Not doing so noise can cause a malfunction.
- Do not press the GOT display section with a pointed material as a pen or driver. Doing so can result in a damage or failure of the display section.
- When the GOT is connected to the Ethernet network, the available IP address is restricted according to the system configuration.
  Setting the IP address (192.168.3.18) in the following system configurations can cause IP address duplication at GOT startup, adversely affecting communications of the device whose IP address is 192.168.3.18.
  The operation at IP address duplication depends on the devices and the system.
  When multiple GOTs connect to the Ethernet network:
  Do not set the IP address (192.168.3.18) for the GOTs and the controllers in the network.
  When one GOT connects to the Ethernet network:
  Do not set the IP address (192.168.3.18) for the controllers other than the GOT in the network.
- Turn on the controllers and the network devices to be ready for communication before they communicate with the GOT. Failure to do so can cause a communication error on the GOT.
- When the GOT is subject to shock or vibration, or some colors appear on the screen of the GOT, the screen of the GOT might flicker.

[MOUNTING PRECAUTIONS]

⚠WARNING

● Be sure to shut off all phases of the external power supply used by the system before mounting or removing the GOT main unit to/from the panel. Not doing so can cause the unit to fail or malfunction.

[MOUNTING PRECAUTIONS]

⚠CAUTION

● Use the GOT in the environment that satisfies the general specifications described in this manual. Not doing so can cause an electric shock, fire, malfunction or product damage or deterioration.

● When mounting the GOT to the control panel, tighten the mounting screws in the specified torque range (0.36N·m to 0.48N·m) with a Phillips-head screwdriver No.2. Undertightening can cause the GOT to drop, short circuit or malfunction. Overtightening can cause a drop, short circuit or malfunction due to the damage of the screws or the GOT.

● Remove the protective film of the GOT. When the user continues using the GOT with the protective film, the film may not be removed.

● Operate and store the GOT in environments without direct sunlight, high temperature, dust, humidity, and vibrations.

● Do not use the GOT in an environment with oil or chemicals. Doing so may cause failure or malfunction due to the oil or chemical entering into the GOT.

[WIRING PRECAUTIONS]

⚠WARNING

● Be sure to shut off all phases of the external power supply used by the system before wiring. Failure to do so may result in an electric shock, product damage or malfunctions.

[WIRING PRECAUTIONS]

⚠CAUTION

● Please make sure to ground FG terminal of the GOT power supply section by applying 100Ω or less which is used exclusively for the GOT. Not doing so may cause an electric shock or malfunction.

● Correctly wire the GOT power supply section after confirming the rated voltage and terminal arrangement of the product. Not doing so can cause a fire or failure.

● Tighten the terminal screws of the GOT power supply section in the specified torque range (0.5N·m to 0.6N·m). Undertightening can cause a short circuit or malfunction. Overtightening can cause a short circuit or malfunction due to the damage of the screws or the GOT.

● Exercise care to avoid foreign matter such as chips and wire offcuts entering the GOT. Not doing so can cause a fire, failure or malfunction.

● Plug the communication cable into the GOT interface or the connector of the connected unit, and tighten the mounting screws and the terminal screws in the specified torque range. Undertightening can cause a short circuit or malfunction. Overtightening can cause a short circuit or malfunction due to the damage of the screws or unit.

[TEST OPERATION PRECAUTIONS]

⚠WARNING

● Before testing the operation of a user-created screen (such as turning on or off a bit device, changing the current value of a word device, changing the set value or current value of a timer or counter, and changing the current value of a buffer memory), thoroughly read the manual to fully understand the operating procedure.
During the test operation, never change the data of the devices which are used to perform significant operation for the system.
False output or malfunction can cause an accident.

[STARTUP/MAINTENANCE PRECAUTIONS]

⚠WARNING

● When power is on, do not touch the terminals. Doing so can cause an electric shock or malfunction.
● Before starting cleaning or terminal screw retightening, always switch off the power externally in all phases.
Not doing so can cause the unit to fail or malfunction.
Undertightening can cause a short circuit or malfunction.
Overtightening can cause a short circuit or malfunction due to the damage of the screws or unit.

[STARTUP/MAINTENANCE PRECAUTIONS]

⚠CAUTION

● Do not disassemble or modify the unit. Doing so can cause a failure, malfunction, injury or fire.
● Do not touch the conductive and electronic parts of the unit directly. Doing so can cause a unit malfunction or failure.
● The cables connected to the unit must be run in ducts or clamped. Not doing so can cause the unit or cable to be damaged due to the dangling, motion or accidental pulling of the cables or can cause a malfunction due to a cable connection fault.
● When unplugging the cable connected to the unit, do not hold and pull from the cable portion. Doing so can cause the unit or cable to be damaged or can cause a malfunction due to a cable connection fault.
● Do not drop the module or subject it to strong shock. A module damage may result.
● Before touching the unit, always touch grounded metals, etc. to discharge static electricity from human body, etc. Not doing so can cause the unit to fail or malfunction.

[TOUCH PANEL PRECAUTIONS]

⚠CAUTION

● For the analog-resistive film type touch panels, 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, execute the touch panel calibration.
● When any difference between a touched position and the object position occurs, other object may be activated. This may cause an unexpected operation due to incorrect output or malfunction.

[PRECAUTIONS WHEN THE DATA STORAGE IS IN USE]

⚠WARNING

● If the SD card mounted on drive A of the GOT is removed while the GOT is accessed, processing for the GOT might be interrupted about for 20 seconds. The GOT cannot be operated during this period. The functions that run in the background including a screen updating, alarm, logging, scripts, and others are also interrupted. Since this interruption makes an impact to the system operation, it might cause failure. After inhibiting access to the SD card on the GOT utility screen, check that the SD card access LED is off and remove the SD card.

[PRECAUTIONS WHEN THE DATA STORAGE IS IN USE]

⚠CAUTION

● If the data storage mounted on the GOT is removed while the GOT is accessed, the data storage and files are damaged. To remove the data storage from the GOT, check that the access to the data storage in SD card access LED, the system signal, and others is not performed.
● When removing the SD card from the GOT, make sure to support the SD card by hand as it may pop out. Failure to do so may cause the SD card to drop from the GOT, resulting in a failure or break.
● Before removing the USB device from the GOT, follow the procedure for removal on the utility screen of the GOT. After the successful completion dialog is displayed, remove the USB device by hand carefully. Failure to do so may cause the USB device to drop from the GOT, resulting in a failure or break.

[DISPOSAL PRECAUTIONS]

⚠CAUTION

● When disposing of this product, treat it as industrial waste.

[TRANSPORTATION PRECAUTIONS]

⚠ CAUTION

● Make sure to transport the GOT main unit and/or relevant unit(s) in the manner they will not be exposed to the impact exceeding the impact resistance described in the general specifications of this manual, as they are precision devices. Failure to do so may cause the unit to fail. Check if the unit operates correctly after transportation.

● When fumigants that contain halogen materials such as fluorine, chlorine, bromine, and iodine are used for disinfecting and protecting wooden packaging from insects, they cause malfunction when entering our products. Please take necessary precautions to ensure that remaining materials from fumigant do not enter our products, or treat packaging with methods other than fumigation (heat method). Additionally, disinfect and protect wood from insects before packing products.

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INTRODUCTION

Thank you for choosing Mitsubishi Electric Graphic Operation Terminal (GOT).

Before using the product, read this manual carefully and make sure you understand the functions and performance of the GOT for correct use.

About Manual

The following manuals related to this product are available.

Refer to each manual in accordance with the intended use.

> **Point** 🔑
>
> e-Manual refers to the Mitsubishi Electric FA electronic book manuals that can be browsed using a dedicated tool.
>
> e-Manual has the following features:
> - Required information can be cross-searched in multiple manuals.
> - Other manuals can be accessed from the links in the manual.
> - Hardware specifications of each part can be found from the product figures.
> - Pages that users often browse can be bookmarked.
> - Sample programs can be copied to the engineering tool.

Screen creation software manuals

Manual name	Manual number (Model code)	Format
GT Works3 Installation Instructions	-	PDF
GT Designer3 (GOT2000) Screen Design Manual	SH-081220ENG (1D7ML9)	PDF e-Manual
GT Converter2 Version3 Operating Manual for GT Works3	SH-080862ENG (1D7MB2)	PDF e-Manual

Connection manuals

Manual name	Manual number (Model code)	Format
GOT2000 Series Connection Manual (Mitsubishi Product) For GT Works3 Version1	SH-081197ENG (1D7MJ8)	PDF e-Manual
GOT2000 Series Connection Manual (Non Mitsubishi Product 1) For GT Works3 Version1	SH-081198ENG	PDF e-Manual
GOT2000 Series Connection Manual (Non Mitsubishi Connecting Non-Mitsubishi products to the GOT Product 2) For GT Works3 Version1	SH-081199ENG	PDF e-Manual
GOT2000 Series Connection Manual (Microcomputer, MODBUS Products, Peripherals) For GT Works3 Version1	SH-081200ENG	PDF e-Manual
GOT2000 Series Connection Manual (α2 Connection) for GT Works3 Version1	JY997D52301	PDF e-Manual

GOT SIMPLE series manuals

Manual name	Manual number	Format
GOT SIMPLE Series User's Manual	JY997D52901	PDF e-Manual

Quick Reference

Creating projects

- Obtaining the specifications and operation methods of GT Designer3
- Setting available functions on GT Designer3
- Creating a screen displayed on the GOT
- Obtaining useful functions to increase efficiency of drawing
- Setting details for figures and objects
- Setting functions for the data collection or trigger action
- Setting functions to use peripheral devices
- Simulating a created project on a personal computer

📖 GT Designer3 (GOT2000) Screen Design Manual

Connecting a controller to the GOT

- Obtaining information of Mitsubishi products applicable to the GOT
- Connecting Mitsubishi products to the GOT
- Connecting multiple controllers to one GOT (Multi-channel function)
- Establishing communication between a personal computer and a controller via the GOT (FA transparent function)

📖 GOT2000 Series Connection Manual (Mitsubishi Product) For GT Works3 Version1

- Obtaining information of Non-Mitsubishi products applicable to the GOT
- Connecting Non-Mitsubishi products to the GOT

📖 GOT2000 Series Connection Manual (Non Mitsubishi Product 1) For GT Works3 Version1

📖 GOT2000 Series Connection Manual (Non Mitsubishi Connecting Non-Mitsubishi products to the GOT Product 2) For GT Works3 Version1

- Obtaining information of peripheral devices applicable to the GOT
- Connecting peripheral devices including a bar code reader to the GOT

📖 GOT2000 Series Connection Manual (Microcomputer, MODBUS Products, Peripherals) For GT Works3 Version1

Transferring data to the GOT

- Writing data to the GOT
- Reading data from the GOT
- Verifying an editing project to a GOT project

📖 GT Designer3 (GOT2000) Screen Design Manual

Others

- Obtaining specifications (including part names, external dimensions, and options) of each GOT
- Installing the GOT

📖 GOT SIMPLE Series User's Manual

- Operating the utility

📖 GOT SIMPLE Series User's Manual

- Configuring the gateway function

📖 GT Designer3 (GOT2000) Screen Design Manual

Abbreviations and Generic Terms

GOT

Abbreviations and generic terms			Description
GOT SIMPLE Series	GS21	GS21-W-N	GS2110-WTBD-N
			GS2107-WTBD-N
		GS21-W	GS2110-WTBD
			GS2107-WTBD

Communication interface

Abbreviations and generic terms	Description
Serial multi-drop connection unit	GT01-RS4-M

Option

Abbreviations and generic terms	Description
SD card	NZ1MEM-2GBSD, NZ1MEM-4GBSD, NZ1MEM-8GBSD, NZ1MEM-16GBSD, L1MEM-2GBSD, L1MEM-4GBSD

Software

■Software related to GOT

Abbreviations and generic terms	Description
GT Works3	SW1DNC-GTW3-J, SW1DND-GTW3-J, SW1DNC-GTW3-E, SW1DND-GTW3-E, SW1DND-GTW3-C
GT Designer3 Version1	Screen drawing software GT Designer3 for GOT2000/GOT1000 series
GT Designer3	Screen drawing software for GOT2000 series included in GT Works3
GT Designer3 (GOT2000)	
GT Designer3 (GOT1000)	Screen drawing software for GOT1000 series included in GT Works3
GT Simulator3	Screen simulator GT Simulator3 for GOT2000/GOT1000/GOT900 series

■Other software

Abbreviations and generic terms	Description
GX Works3	SW□DND-GXW3-E (-EA) type programmable controller engineering software (□ indicates a version.)
GX Works2	SW□DNC-GXW2-□ type programmable controller engineering software (□ indicates a version.)
GX Simulator3	Simulation function of GX Works3
GX Simulator2	Simulation function of GX Works2
GX Simulator	SW□D5C-LLT-E (-EV) type ladder logic test tool function software package (SW5D5C-LLT (-V) or later versions) (□ indicates a version.)
GX Developer	SW□D5C-GPPW-E (-EV)/SW□D5F-GPPW (-V) type software package (□ indicates a version.)
GX LogViewer	SW□DNN-VIEWER-E type software package (□ indicates a version.)
PX Developer	SW□D5C-FBDQ-E type FBD software package for process control (□ indicates a version.)
MT Works2	Motion controller engineering environment MELSOFT MT Works2 (SW□DNDMTW2-E) (□ indicates a version.)
MT Developer	SW□RNC-GSV type integrated start-up support software for motion controller Q series (□ indicates a version.)
CW Configurator	Setting/monitoring tools for the C Controller module and MELSECWinCPU (SW□DND-RCCPU-E) (□ indicates a version.)
MR Configurator2	SW□DNC-MRC2-E type servo configuration software (□ indicates a version.)
MR Configurator	MRZJW□-SETUP type servo configuration software (□ indicates a version.)
FR Configurator	Inverter setup software (FR-SW□-SETUP-WE) (□ indicates a version.)
NC Configurator2	CNC parameter setting support tool (FCSB1221)
NC Configurator	CNC parameter setting support tool
FX Configurator-FP	Parameter setting, monitoring, and testing software packages for FX3U-20SSC-H (SW□D5CFXSSCE) (□ indicates a version.)
FX Configurator-EN-L	FX3U-ENET-L type Ethernet module setting software (SW1D5-FXENETL-E)
FX Configurator-EN	FX3U-ENET type Ethernet module setting software (SW1D5C-FXENET-E)
RT ToolBox2	Robot program creation software (3D-11C-WINE)
MX Component	MX Component Version□ (SW□D5C-ACT-E, SW□D5C-ACT-EA) (□ indicates a version.)
MX Sheet	MX Sheet Version□ (SW□D5C-SHEET-E, SW□D5C-SHEET-EA) (□ indicates a version.)
CPU Module Logging Configuration Tool	CPU module logging configuration tool (SW1DNN-LLUTL-E)

Others

Abbreviations and generic terms	Description
SIEMENS	Siemens AG
PLC	Programmable controller manufactured by each corporation

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1 OVERVIEW

About GOT

A GOT is installed on the panel surface of a control panel or operating panel and connects to the PLC within the control panel. The GOT carries out switch operation, lamp display, data display, message display, etc.
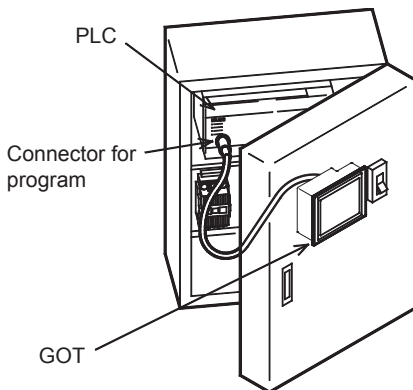
For the display screen, two kinds of screens are available: user screen and utility screen.

■User screen

The user screen refers to a screen created using the screen design software.

The objects "Touch switch", "Lamp display", "Comment display", and "Numeric display" can be arbitrarily arranged on the display.

Moreover, multiple screens created within drawing software can be individually selected or overlapped for the display.

For details, refer to the following.

⊞GT Designer3 (GOT2000) Screen Design Manual

■Utility Screen

The utility screen is a factory drawn horizontal screen that cannot be edited.

The utility screen can be displayed on the GOT by installing the standard monitor OS from drawing software or an SD card to the GOT.

Such as [Brightness] and [Time setting] can be set from the utility screen.

For details, refer to the following.

1.1 Features

Monitoring for turning on or off bit devices of a PLC, forcibly turning on or off the bit devices of a PLC, monitoring the word device set value/current value and changing that numeric values are easily made.

General-purpose properties of the display unit

The display unit is used for engineers' stage replacement, setting change and troubleshooting or for operation guidance to an operator.

- Monitor
- Forcibly turning on or off
- Set value change
- Trouble check

Improved monitoring performance and connectivity to FA devices

- Multiple languages are displayed using the Unicode2.1-compatible fonts and beautiful characters are drawn using the TrueType, high quality fonts, and outline fonts [1]
- Two types of display modes are available: 65536-color display and monochrome

A fine and beautiful full-color display which shows even small characters clearly, is enabled in the 65536-color display by adopting the high intensity, wide viewing angle and high definition TFT color liquid crystal display.

(Also compatible with digital screen displays with 65536 colors, BMP, etc.)

High speed monitoring through high speed communication at maximum of 115.2kbps

- High speed display and high speed touch switch response
- The operation performance is improved by the analog touch panel.

[1] Outline fonts are compatible only with GS21-W-N.

More efficient GOT operations including screen design, startup, adjustment, management and maintenance works

- The 9MB/15MB built-in flash memory is included as standard. [1]
- SD card interface is included as standard.
- RS-232 interface is included as standard.
- RS-422 interface and RS-422/485 interface are included as standard. [2]
- USB interface (device) is included as standard.
- Ethernet interface is included as standard.
- System font types are increased by the adoption of the font installation system.
- Three types of alarms (user alarm, alarm history, and alarm popup display) are integrated, and realizing an efficient alarm notification.
- "When, what, and how" the operation was performed can be checked with the GOT by using the operation log function (GS21-W-N only).

[1] The memory capacity vary by model.
[2] The available interfaces vary by model.

Enhanced support of FA setup tools

Connecting the GOT and the personal computer enables programming, rising, and adjustment of Mitsubishi Electric FA devices from the personal computer via the GOT.

Rough procedure

The following shows the procedures before operating a GOT and the descriptions of each item.

| Install GT Designer3 in a personal computer. | 📖 GT Works3 Installation Instructions
📖 GS21 General Description |

⬇

| Create project data. | 📖 GT Designer3 (GOT2000) Screen Design Manual |

⬇

| Wire for the GOT power supply and the controller. | ☞ 7. WIRING
📖 GOT2000 Series Connection Manual for GT Works3 Version1 |

⬇

| Wire for the controller power supply and I/O. | 📖 Controller manuals |

⬇

| Turn on the power of the GOT and controller. | |

⬇

| Install the OS to the GOT. | 📖 GT Designer3 (GOT2000) Screen Design Manual |

⬇

| Check that the OS is installed to the GOT. | |

⬇

| Download project data. | 📖 GT Designer3 (GOT2000) Screen Design Manual |

⬇

| Turn on the controller power and check that the GOT recognizes the controller. | |

⬇

| Check that the monitoring is normal. | |

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2 SYSTEM CONFIGURATION

2.1 Overall Configuration

The overall configuration of GOT is as follows.

For the connection methods applicable to GS series and cable, refer to the following.

📖 GOT2000 Series Connection Manual For GT Works3 Version1

		Bar code reader (Commercially available)
		SD card
		Personal computer (Commercially available)
		Printer[1] (Commercially available)
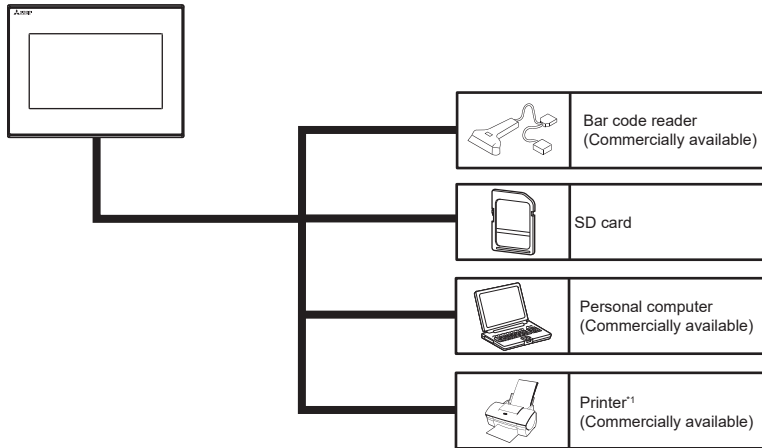
*1 Only hard copy of the screen can be printed.

2.2 Component List

Explanation of the GOT model name

Specially supported specification	N: Function enhanced version None: Standard
Power type	D: 24 V DC
Panel color	B: Black
Display section	T: TFT color
Resolution	W: 800×480
Screen size	10: 10" wide screen 07: 7" wide screen
GS21 series	
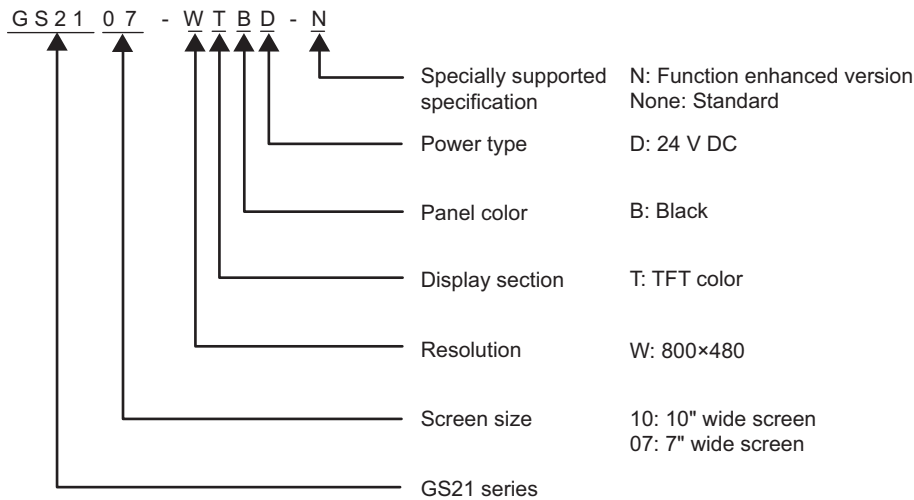
GOT

Product name	Model	Specifications
GOT	GS2110-WTBD-N	10" [800 × 480 dots], TFT color liquid crystal, 65536 colors 24VDC, Memory capacity: 15MB, built-in Ethernet interface, built in RS-232 interface, built in RS-422/485 interface
	GS2107-WTBD-N	7" [800 × 480 dots], TFT color liquid crystal, 65536 colors 24VDC, Memory capacity: 15MB, built-in Ethernet interface, built in RS-232 interface, built in RS-422/485 interface
	GS2110-WTBD	10" [800 × 480 dots], TFT color liquid crystal, 65536 colors 24VDC, Memory capacity: 9MB, built-in Ethernet interface, built in RS-232 interface, built in RS-422 interface
	GS2107-WTBD	7" [800 × 480 dots], TFT color liquid crystal, 65536 colors 24VDC, Memory capacity: 9MB, built-in Ethernet interface, built in RS-232 interface, built in RS-422 interface

Extension unit

Only available to GS21-W-N.

Communication unit

Product name	Model	Specifications
Serial multi-drop connection unit	GT01-RS4-M	For the GOT multi-drop connection

Software

Product name	Model	Description		
HMI/GOT Screen Design Software MELSOFT GT Works3	SW1DND-GTWK3-E	English version	Standard license product	DVD-ROM
	SW1DND-GTWK3-EC		Site license product [7]	
	SW1DND-GTWK3-EA		Volume license product [1]	
	SW1DND-GTWK3-EAZ		Additional license product [1][4]	
	SW1DND-GTWK3-C	Simplified Chinese version	Standard license product	DVD-ROM
FA Integrated Engineering Software MELSOFT iQ Works [2][3]	SW2DND-IQWK-E	English version	Standard license product	DVD-ROM
VNC server function license [5][6]	GT25-VNCSKEY-1	1 license		
	GT25-VNCSKEY-5	5 licenses		
	GT25-VNCSKEY-10	10 licenses		
	GT25-VNCSKEY-20	20 licenses		

*1   The desired number of licenses (2 or more) can be purchased. For details, please contact your local sales office.
*2   Volume license product and additional license product are also available. For more details, please refer to the MELSOFT iQ Works catalog (L(NA)08232ENG).
*3   The product includes the following software.
    System Management Software [MELSOFT Navigator]
    Programmable Controller Engineering Software [MELSOFT GX Works3, GX Works2, GX Developer]
    Motion Controller Engineering Software [MELSOFT MT Works2]
    GOT Screen Design Software [MELSOFT GT Works3]
    Robot Engineering Software [MELSOFT RT ToolBox3 mini]
    Inverter Setup Software [MELSOFT FR Configurator2]
    Setting/monitoring tools for the C Controller module and MELSECWinCPU [MELSOFT CW Configurator]
    Servo Setup Software [MELSOFT MR Configurator2]
    MITSUBISHI ELECTRIC FA Library
*4   This product does not include a DVD-ROM. The license certificate indicating the product ID number is issued only.
*5   Each GOT requires one license.
*6   Only available to GS21-W-N.
*7   Anyone can use the product as long as that person belongs to the business office (including overseas offices) of the corporation that purchased the product, or to the same public vocational training facility or other educational institution as the corporation.

Option

Connection cables for MITSUBISHI PLCs (Sold separately)

Product name		Model	Cable length	Description
RS-422 conversion cable		FA-CNV2402CBL	0.2 m	For connecting the QCPU/L02SCPU(-P) and the RS-422 cable (GT01-C□R4-25P, GT10-C□R4-25P, GT21-C□R4-25P5)
		FA-CNV2405CBL	0.5 m	For connecting the L6ADP-R2 and the RS-422 cable (GT01-C□R4-25P, GT10-C□R4-25P, GT21-C□R4-25P5) [MINI-DIN 6-pin ←→ D-sub 25-pin]
RS-422 cable	FXCPU direct connection cable, FX expansion board connection cable	GT01-C10R4-8P	1m	For connecting FXCPU (MINI DIN 8 pins connector) and GOT For connecting FXCPU expansion board (MINI DIN 8 pins connector) and GOT
		GT01-C30R4-8P	3m	
		GT01-C100R4-8P	10m	
		GT01-C200R4-8P	20m	
		GT01-C300R4-8P	30m	
	QnA/A/FXCPU direct connection cable, computer link connection cable	GT01-C30R4-25P	3m	QnA/A motion controller (A series) For connecting FXCPU (D-Sub 25 pins connector) and GOT For connecting FA-CNV□CBL and GOT For connecting serial communication unit (AJ71QC24(N)-R4) and GOT
		GT01-C100R4-25P	10m	
		GT01-C200R4-25P	20m	
		GT01-C300R4-25P	30m	
	Computer link connection cable	GT09-C30R4-6C	3m	For connecting computer link unit/serial communication unit and GOT
		GT09-C100R4-6C	10m	
		GT09-C200R4-6C	20m	
		GT09-C300R4-6C	30m	
RS-232 cable	QCPU direct connection cable	GT01-C30R2-6P	3m	For connecting QCPU and GOT
	FX expansion board connection cable, FX special adaptor connection cable	GT01-C30R2-9S	3m	For connecting FXCPU expansion board (D-Sub 9 pins connector) and GOT For connecting FXCPU special adaptor (D-sub 9 pins connector) and GOT
	FX special adaptor connection	GT01-C30R2-25P	3m	For connecting FXCPU special adaptor (D-sub 25 pins connector) and GOT
	Computer link connection cable	GT09-C30R2-9P	3m	For connecting computer link unit/serial communication unit and GOT
		GT09-C30R2-25P	3m	

Connection cables for SIEMENS PLCs (Sold separately)

Product name	Model	Cable length	Description
RS-232 cable	GT09-C30R20801-9S	3m	For connecting SIEMENS HMI Adapter and GOT

SD card (Sold separately)

Product name	Model	Description
SD card	NZ1MEM-2GBSD	SD memory card 2GB
	NZ1MEM-4GBSD	SDHC memory card 4GB
	NZ1MEM-8GBSD	SDHC memory card 8GB
	NZ1MEM-16GBSD	SDHC memory card 16GB
	L1MEM-2GBSD	SD memory card 2GB
	L1MEM-4GBSD	SDHC memory card 4GB

PC connection cable (Sold separately)

Product name	Model	Cable length	Description
Project data transfer cable	GT09-C30USB-5P	3m	For connecting GOT (USB Mini-B) and personal computer (USB)

Bar code reader (Sold separately)

Product name	Model	Description
Bar code	-	Commercially-available bar code reader[1]

*1   Some models with the operations checked by our company are usable. For the operation-checked models, contact your local distributor.

3 SPECIFICATIONS

3.1 General Specifications

Item	Specifications					
Operating ambient temperature[*1]	0 to 50°C					
Storage ambient temperature	-20 to 60°C					
Operating/Storage ambient humidity	10% RH to 90% RH, non-condensing[*2]					
Vibration resistance	Conforms to IEC 61131-2		Frequency	Acceleration	Half amplitude	Sweep Count
		Under intermittent vibration	5 to 8.4Hz	-	3.5mm	10times each in X, Y and Z directions
			8.4 to 150Hz	$9.8 m/s^2$	-	
		Under continuous vibration	5 to 8.4Hz	-	1.75mm	-
			8.4 to 150Hz	$4.9 m/s^2$	-	
Shock resistance	Conforms to IEC 61131-2 ($147 m/s^2$, 3 times each in the X, Y, and Z directions)					
Operating atmosphere	No greasy fumes, corrosive gas, flammable gas, excessive conductive dust, and direct sunlight (as well as at storage)					
Operating altitude[*3]	2000m (6562ft) max.					
Installation location	Inside control panel					
Overvoltage category[*4]	II or less					
Pollution degree[*5]	2 or less					
Cooling method	Self-cooling					
Grounding	Grounding with a ground resistance of 100 Ω or less by using a ground cable that has a cross-sectional area of 2 mm^2 or more. If impossible, connect the ground cable to the control panel.					

*1   Includes the temperature inside the enclosure of the control panel on which the GOT is installed.
*2   If the ambient temperature exceeds 40°C, the absolute humidity must not exceed 90% RH at 40°C.
*3   Do not use or store the GOT under pressures higher than the atmospheric pressure of altitude 0m (0ft.). Failure to observe this instruction may cause a malfunction. When the air inside the control panel is purged by pressurization, the surface sheet may be lifted by high pressure. As a result, the touch panel may be difficult to press, and the sheet may be peeled off.
*4   This indicates the section of the power supply to which the equipment is assumed to be connected between the public electrical power distribution network and the machinery within the premises. Category II applies to equipment for which electrical power is supplied from fixed facilities. The surge voltage withstand level for up to the raged voltage of 300V is 2500V.
*5   This index indicates the degree to which conductive pollution is generated in the environment where the equipment is used. In pollution degree 2, only non-conductive pollution occurs but temporary conductivity may be produced due to condensation.

3.2 Performance Specifications

The following shows the performance specifications.

Item		Specifications			
		GS2110-WTBD-N	GS2107-WTBD-N	GS2110-WTBD	GS2107-WTBD
Display section[*1][*2]	Type	TFT color liquid crystal			
	Screen size	10"	7"	10"	7"
	Resolution	WVGA: 800 × 480 dots			
	Display size	W222(8.74) × H132.5(5.22) [mm] (inch)	W154(6.06) × H85.9(3.38) [mm] (inch)	W222(8.74) × H132.5(5.22) [mm] (inch)	W154(6.06) × H85.9(3.38) [mm] (inch)
	Display character	16-dot standard font: 50 characters × 30 rows (two-byte characters) 12-dot standard font: 66 characters × 40 rows (two-byte characters)			
	Display color	65536 colors			
	Brightness	32-level adjustment			
	Backlight[*3]	LED-type (no replacement required)			
Touch panel[*4]	Type	Analog-resistive film type			
	Key size	Minimum 2 × 2 dots [*7] (per key)			
	Number of points touched simultaneously	Simultaneous 2-point presses prohibited (Only one point can be touched.)[*5]			
	Life	1 million times (operating force 0.98N max.)			
Memory	C drive	Flash memory (Internal) (15MB), for storing project data, OS		Flash memory (Internal) (9MB), for storing project data, OS	
		Life (Number of write times) 100,000times			
Built-in interface	RS-422/485	RS-422/485, 1ch Transmission speed: 115200/57600/38400/19200/9600/4800bps Connector shape: D-sub 9 pins (Female) Application: For communicating with a controller Terminating resistor: 330 Ω, 110 Ω, OPEN (Selectable by the terminating resistor setting switch.)[*9]		-	
	RS-422	-		RS-422, 1ch Transmission speed: 115200/57600/38400/19200/9600/4800bps Connector shape: D-sub 9 pins (Female) Application: For communicating with controllers Terminating resistor: 330Ω fixed	
	RS-232	RS-232, 1ch Transmission speed: 115200/57600/38400/19200/9600/4800bps Connector shape: D-sub 9 pins (Male) Application: For communication with a controller or barcode reader For PC connection (Project data read/write, FA transparent function)			
	Ethernet	Data Transfer method: 100BASE-TX, 10BASE-T, 1ch Connector shape: RJ45 (modular jack) AUTO MDI/MDI-X Application: For communication with a controller For PC connection (Project data read/write, FA transparent function)			
	USB (Device)	1 channel (rear face) USB version: USB1.1 (Full-Speed 12 Mbps) Connector shape: Mini-B Application: For PC connection (Project data read/write, FA transparent function)			
	SD card	Conforms to the SD standard, 1ch Supported memory card: SDHC memory card, SD memory card Application: Project data read/write, logging data save			
Buzzer output		Single tone (LONG/SHORT/OFF adjustable)			
Protective structure		IP65F (only the front part of the panel)[*6][*8]			
External dimensions		W272(10.71) × H214(8.43) × D56(2.21) [mm] (inch)	W206(8.11) × H155(6.11) × D50(1.97) [mm] (inch)	W272(10.71) × H214(8.43) × D56(2.21) [mm] (inch)	W206(8.11) × H155(6.11) × D50(1.97) [mm] (inch)
Panel cutting dimensions		W258(10.16) × H200(7.88) [mm] (inch)	W191(7.52) × H137(5.40) [mm] (inch)	W258(10.16) × H200(7.88) [mm] (inch)	W191(7.52) × H137(5.40) [mm] (inch)
Weight (excluding a fitting)		Approx. 1.3 (2.9) [kg] (lb)	Approx. 0.9 (2.0) [kg] (lb)	Approx. 1.3 (2.9) [kg] (lb)	Approx. 0.9 (2.0) [kg] (lb)

Item	Specifications			
	GS2110-WTBD-N	**GS2107-WTBD-N**	**GS2110-WTBD**	**GS2107-WTBD**
Compatible software package (Version of GT Designer3)	Version 1.250L or later		Version 1.105K or later	

*1   Bright dots (always lit) and dark dots (unlit) may appear on a liquid crystal display panel. It is impossible to completely avoid this symptom, as the liquid crystal display comprises of a great number of display elements. Flickers and partial discoloration may be generated on the liquid crystal display panel due to individual differences of panels. Please note that these phenomena appear due to its characteristic and are not caused by product defect.

*2   Flickering may occur due to vibration, shock, or the display colors.

*3   To prevent the display section from burning in and lengthen the backlight life, enable the screen save function and turn off the backlight.

*4   When a stylus is used, the touch panel has a life of 100 thousand touches.
       The stylus must satisfy the following specifications.
       Material: Polyacetal resin
       Tip radius: 0.8mm or more

*5   If you touch two points or more simultaneously on the touch panel, a switch in an unintended location may operate. Do not press two or more areas simultaneously on the touch panel.

*6   Note that this does not guarantee all users' operation environment.
       The GOT may not be used in an environment where the GOT is exposed to oil or chemicals for a long time, or where oil mist fills the air.

*7   Minimum size of a key that can be arranged.
       To ensure safe use of the product, the following settings are recommended.
       Key size: 16 × 16 dots or larger
       Distance between keys: 16 dots or more

*8   The suffix "F" of IP65F is a symbol that indicates protection rate against oil. It is described in the Appendix of JIS C 0920 of the Japanese Industrial Standards.

*9   For the GOT multi-drop connection, set the terminating resistor setting switch of the GOT according to the connection type.
       For details on the GOT multi-drop connection, refer to the following.
       📖GOT2000 Series Connection Manual (Mitsubishi Electric Products) For GT Works3 Version1

3

3.3   Power Supply Specifications

Item	Specifications			
	GS2110-WTBD-N	**GS2107-WTBD-N**	**GS2110-WTBD**	**GS2107-WTBD**
Input power supply voltage	24VDC (+10% -15%), ripple voltage 200mV or less			
Power consumption	7.6W (317mA/24V) or less	6.5W (271mA/24V) or less	7.6W (317mA/24V) or less	6.5W (271mA/24V) or less
Power consumption (At backlight off)	3.8W (158mA/24V) or less	3.8W (158mA/24V) or less	3.8W (158mA/24V) or less	3.8W (158mA/24V) or less
Inrush current	17A or less (6ms, 25°C, at the maximum load)			
Permissible instantaneous power failure time	Within 5ms			
Noise immunity	Conforms to IEC61000-4-4, 2kV (power supply line)			
Dielectric withstand voltage	350VAC for 1 minute (across power supply terminals and earth)			
Insulation resistance	500VDC across power terminals and earth, 10 MΩ or more by an insulation resistance tester			

Point

Operation at momentary power failure

The GOT continues to operate even upon 5ms or shorter instantaneous power failure.

The GOT stops operating if there is extended power failure or voltage drop, while it automatically resumes operation as soon as the power is restored.

3.4　GOT Connector Specifications

The following shows the specifications of connectors for the GOT.

Refer to this section for creating a connection cable by the user.

RS-232 interface

The following shows the connector for the RS-232 interface of the GOT.

For the connection cable connector of the GOT side, use a connector and a connector cover which can be connected to the GOT connector.

Connector specifications

GOT	Connector type	Connector model	Manufacturer
GS series	D-sub 9 pins (Male) #4-40UNC inch screw thread	17LE-23090-27(D3CC)	DDK Ltd.

Connector pin arrangement

GOT main part connector
see from the front
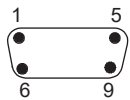
D-Sub 9 pin male

RS-422 interface and RS-422/485 interface

The following shows the connector for the RS-422 interface and RS-422/485 interface of the GOT.

For the connection cable connector of the GOT side, use a connector and a connector cover which can be connected to the GOT connector.

Connector specifications

GOT	Connector type	Connector model	Manufacturer
GS series	D-sub 9 pins (Female) M2.6 metric screw thread	17LE-13090-27(D3AC)	DDK Ltd.

Connector pin arrangement

GOT main part connector
see from the front

D-Sub 9 pin female

MEMO
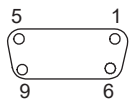
4 PART NAME

4.1 Front Panel
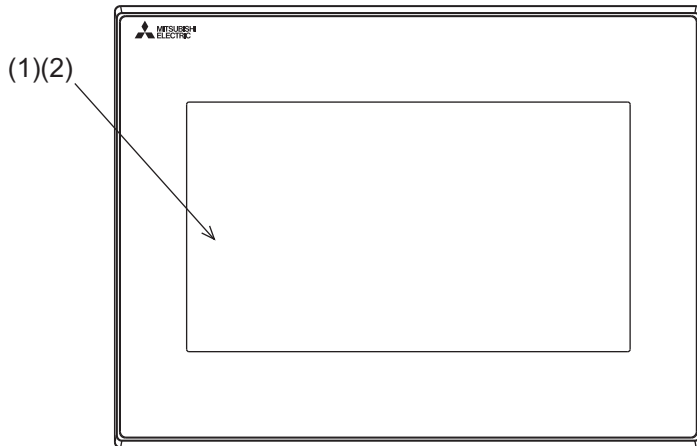
No.	Name	Specifications
(1)	Display section	Displays the utility screen and the user creation screen.
(2)	Touch panel	For operating the touch switches in the utility screen and the user creation screen

4.2 Back Panel

- GS2110-WTBD-N
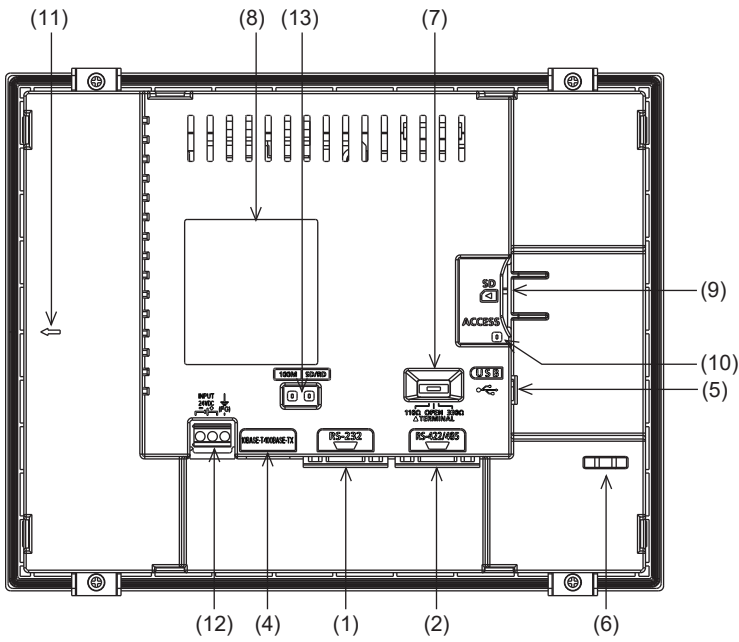
- GS2107-WTBD-N

For the names of parts, refer to the following.

☞ Page 36 Parts names of the back panel

GS21-W

- GS2110-WTBD

- GS2107-WTBD

For the names of parts, refer to the following.

☞ Page 36 Parts names of the back panel

Parts names of the back panel

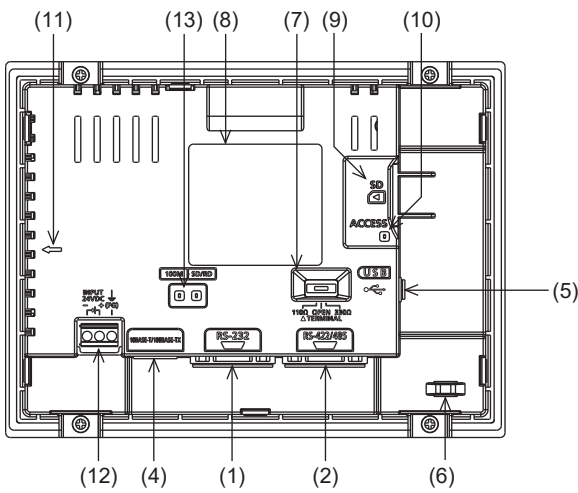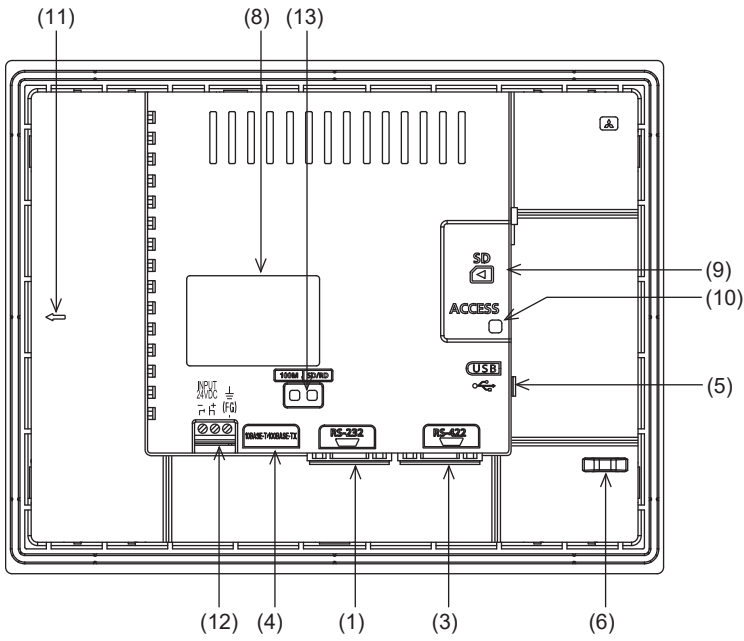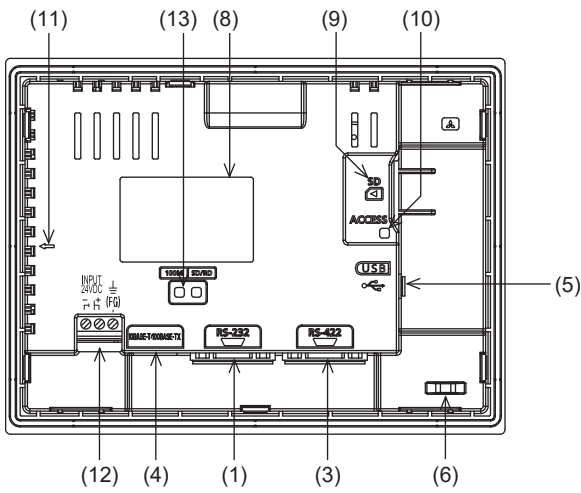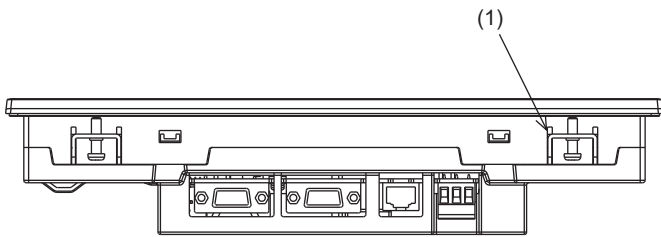| No.	Name	Specifications
(1)	RS-232 interface	For communicating with a controller (connector shape: D-sub 9-pin (male), #4-40UNC inch screw thread) For the connecter specifications (such as pin layout and screw type) of the RS-232 interface, refer to the following. ☞ Page 31 RS-232 interface
(2)	RS-422/485 interface	For communicating with a controller (connector shape: D-sub 9-pin (female), M2.6 metric screw thread) For the connecter specifications (such as pin layout and screw type) of the RS-422/485 interface, refer to the following. ☞ Page 31 RS-422 interface and RS-422/485 interface
(3)	RS-422 interface	For communicating with a controller (connector shape: D-sub 9-pin (female), M2.6 metric screw thread) For the connecter specifications (such as pin layout and screw type) of the RS-422 interface, refer to the following. ☞ Page 31 RS-422 interface and RS-422/485 interface
(4)	Ethernet interface	For communicating with a controller or connecting a personal computer (Connector shape: RJ45 (modular jack))
(5)	USB interface (Device)	USB interface for data transfer and saving
(6)	Hole for preventing the USB cable from unplugging	Hole for preventing the USB cable from unplugging with a banding band
(7)	Terminating resistor setting switch	For switching the terminating resistor setting of the RS-422/485 communication port to 330 Ω, 110 Ω, or OPEN
(8)	Rating plate	Model name, current consumption, production number, hardware version, and Boot OS version are described.
(9)	SD card interface	Interface for mounting an SD card to the GOT
(10)	SD card access LED	ON: SD card is accessed, OFF: SD card is not accessed
(11)	Vertical installation arrow mark	For the vertical installation, install the GOT so that the arrow points upward.
(12)	Power terminal	Power terminal and FG terminal (for power supply (24VDC) to GOT and grounding)
(13)	Ethernet communication status LED	SD RD: Green light while data are being sent or received, 100M: Green light when the transmission speed is 100Mbps

4.3 Bottom

GS21-W-N

- GS2110-WTBD-N

(1)

- GS2107-WTBD-N

(1)
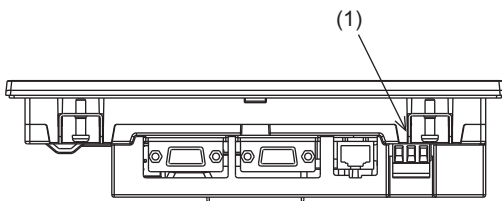
For the names of parts, refer to the following.
☞ Page 37 Parts names of the bottom

GS21-W

- GS2110-WTBD

(1)

- GS2107-WTBD

(1)
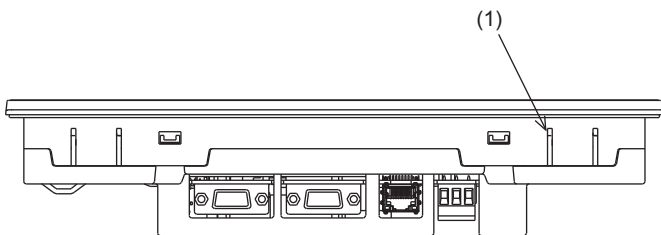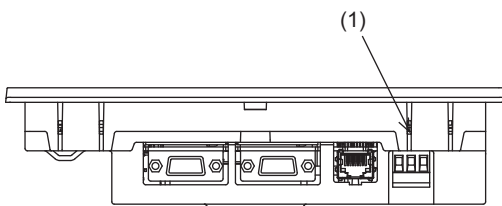
For the names of parts, refer to the following.
☞ Page 37 Parts names of the bottom

Parts names of the bottom

No.	Name	Specifications
(1)	Hole for unit installation fittings	Hole for the inserting installation fittings (accessory) during the GOT installation to the panel (4 holes at top and bottom)

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5 EMC DIRECTIVE

5.1 Overview

For electromagnetic compatibility (EMC) and electrical safety, regulatory standards are established in each country. Especially, for the products to be sold in European countries, conformance to the EMC Directive, which is one of the European Directives, has been mandatory as the EMC standards since 1996. In addition, conformance to the Low Voltage Directive, another European Directive, has also been mandatory as the electrical safety standards since 1997.

In European countries, if a product meets the requirements of the EMC Directive or the Low Voltage Directive, the product's manufacturer must declare conformity of the product and affix the CE mark to the product. In some countries or regions other than European countries, the product's manufacturer also must declare conformity of the product and affix a designated mark to the product (example: UKCA mark in the UK).

This section describes the EMC Directive and Low Voltage Directive as examples for conformance to EMC and electrical safety standards. EMC and electrical safety standards in each country are stipulated to be consistent with the corresponding international standards. When the requirements are consistent with the same standards, common measures are taken to conform to the standards in different countries. For the EMC Directive, regulatory compliance with equivalent EMC standards are required for example in the UK and Korea. For the Low Voltage Directive, regulatory compliance with equivalent electrical safety standards are required for example in the UK.

Authorized representative in the EU and the UK

The authorized representative in the EU and the UK is shown below.
Company name: Mitsubishi Electric Europe BV
Address: Mitsubishi-Electric-Platz 1, 40882 Ratingen, Germany

Conforming standards in the EMC Directive

The GOT complies with the following standards in the EMC Directive.

Applied standard	Test standard	Test details	Standard value
EN61131-2: 2007	CISPR16-2-3 Radiated noise[1]	Test for measuring electromagnetic emissions from the product	• 30 MHz to 230 MHz QP: 30 dBμV/m (measured at 30m)[2][3] • · 230MHz to 1000MHz QP: 37 dBμV/m (measured at 30m)[2][3]
	IEC61000-4-2 Electrostatic immunity[1]	Immunity test in which static electricity is applied to the cabinet of the equipment	• Contact discharge: ±4 kV • Aerial discharge: ±8kV
	IEC61000-4-3 Radiated electromagnetic field, amplitude modulation[1]	Immunity test in which an electric field is applied to the product	80 MHz to 1000 MHz: 10 V/m 1.4GHz to 2GHz: 3V/m 2.0GHz to 2.7GHz: 1V/m (80% amplitude modulation at 1 kHz)
	IEC61000-4-4 Fast transient burst noise[1]	Immunity test in which burst noise is applied to the power cables and the signal lines	Power cable: 2 kV Digital I/O: 1 kV Analog I/O: 1 kV Signal cable: 1 kV
	IEC61000-4-5 Surge immunity[1]	Immunity test in which lightening surge is applied to the product	• DC power type Power cable (between cable and ground): ±0.5 kV Power cable (between cables): ±0.5 kV Data communication port: ±1kV
	IEC61000-4-6 Conducted RF immunity[1]	Immunity test in which a noise inducted on the power cable and the signal lines is applied	Power cable: 10V Data communication port: 10V
	IEC61000-4-8 Power supply frequency magnetic field immunity	Test for checking normal operations under the circumstance exposed to the ferromagnetic field noise of the power supply frequency (50/60 Hz)	30 A/m

*1 The GOT is an open type device (designed to be integrated in equipment).
Make sure to install the GOT on a control panel.
This test item is conducted in the condition where the GOT is installed on a control panel and combined with the MITSUBISHI PLC.
*2 QP: Quasi-peak value, Mean: Average value
*3 This test item is conducted in the following conditions.
· 30 MHz to 230 MHz
QP: 40 dBμV/m (measured at 10 m)
· 230MHz to 1000MHz
QP: 47 dBμV/m (measured at 10 m)

5.2 EMC Directive Requirements

The EMC Directive requires the following.
- Strong electromagnetic waves are not emitted to the outside.: Emission (Electromagnetic interference)
- The product is not affected by the electromagnetic waves from the outside.: Immunity (Electromagnetic sensitivity)

To comply with the EMC Directive, this section explains the precautions for configuring equipment integrating the GOT.

The data described herein are produced with our best, based on the regulation requirements and standards obtained by Mitsubishi. However, the data do not guarantee that the whole equipment produced according to the data comply with the above directive.

The manufacturer of the equipment must determine the method to comply with the EMC Directive and conformance to the directive.

Installing the GOT on the control panel

The GOT is an open type device (designed to be integrated in equipment).

Make sure to install the GOT in a control panel.

This restriction ensures safety and also has a large effect of suppressing noise generated from the GOT by using the control panel.

Control panel

- The control panel must be conductive.
- When fixing a top or bottom plate of the control panel with bolts, do not coat the plate and bolt surfaces so that they contact each other. Connect the door and the box using a thick grounding cable to ensure the low impedance under high frequency.
- To ensure electric conductivity in the large area as much as possible between an inner plate and the control panel, do not coat the fixing bolt area of the inner plate and the control panel.
- Ground the control panel using a thick grounding cable to ensure the low impedance under high frequency.
- The diameter of cable holes on the control panel must be 10 cm or less. If the diameter of the hole is 10 cm or more, radio waves may leak. To reduce the chance of radio waves leaking out, ensure that the space between the control panel and its door is as small as possible. Pasting the following EMI gasket directly on the painted surface seals the space, reducing the leak of electric waves.

Manufacturer	Series name	Contact
KITAGAWA INDUSTRIES CO., LTD.	RFSG series (Recommended Product)	+81-587-34-3561

Our test has been carried out on a panel having the damping characteristics of 37 dB max. and 30 dB mean (measured by 3m method with 30 to 300 MHz).

Connection of power and ground cables

Ground the GOT and connect power supply cables as shown below.

■Wiring the ground cable

Provide a ground point near the GOT.

Ground the frame ground terminal (FG terminal) of the GOT with the thickest and shortest cable as possible.

■Ground cable length

The ground cable length must be 30 cm or shorter.

The FG terminals pass the noise generated in the PLC system to the ground.

Therefore, ensure an impedance as low as possible.

Since the ground cables relieve the noise, the cables themselves carry a large noise.

Thus, short wiring prevents the cable from acting as an antenna.

(A long conductor is an antenna radiating noise more efficiently.)

■Treatment of the power cable and the ground cable

Twist the ground cable led from the ground point with the power cable.

Twisting with the ground cable relieves more noise from the power cable to the ground.

When a noise filter is installed to the power cable, twisting the power cable and the ground cable may not be required.

Installing a noise filter (power supply line filter)

A noise filter is a part to effectively reduce conducted noise.

Except some models, installation of a noise filter to the power supply lines is not necessary. However, installing the noise filter can reduce conducted noise.

The noise filter is effective to reduce conducted noise in the band of 10 MHz or less.

Use a noise filter equivalent to the following noise filters (double π-type filters).

Model	Manufacturer	Rated current	Rated voltage
FN343-3/05	SCHAFFNER	3A	250V
FN660-6/06	SCHAFFNER	6A	
RSHN-2003	TDK	3A	

Precautions

The following shows the precautions for installing a noise filter.

■Prohibition of bundling cables

Do not bundle the input and output cables of the noise filter.

Bundling the cables inducts the noise from the output-side cable into the input-side cable where noise has been eliminated by the noise filter.

Wire the input and output cables separately.   Bundling the input and output cables inducts noise.
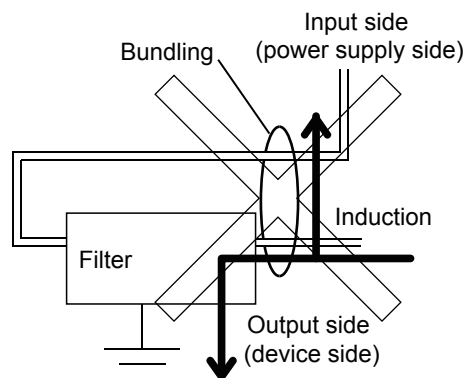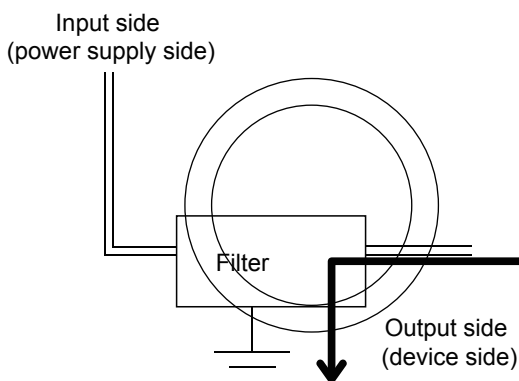
■Grounding the noise filter

Connect the ground terminal of the noise filter to the control panel with a short cable as much as possible (approximately 10 cm).

System configuration

Use the following GOTs having a CE mark on the rating plate.

The following models are compliant with the EMC Directive at factory shipment.

When any GOT other than the following does not comply with the EMC Directive.

Product name	Model
GS2110	GS2110-WTBD-N
	GS2110-WTBD
GS2107	GS2107-WTBD-N
	GS2107-WTBD

Connection type

The following table lists the connection types compliant with the EMC Directive.

○: Compliant with EMC Directive, ×: Not compliant with EMC Directive

Connection type[1]	GS21
Ethernet connection	○
Direct CPU connection (serial)	○
Serial communication connection	○
Other connections (Connection with non-Mitsubishi PLC, inverter, servo amplifier)	○[2]

[1] For the details of each connection type, refer to the following manual.
　　GOT2000 Series Connection Manual (GT Works3 Version1) for the controller used
[2] When connecting the GOT to other controllers such as a non-Mitsubishi PLC, fabricate connection cables and configure the system following the EMC Directive specifications.
　　☞ Page 45 Non-Mitsubishi PLC, inverter, and servo amplifier connections

Point

Connected devices

When connecting the GOT to a non-Mitsubishi PLC, refer to the manual about the EMC Directive compliance of the connected device (such as a PLC and a microcomputer).

Connection of power cables and ground cables

Carry out wiring and connect the power and ground cables according to the following instruction.

By the different wiring or connection method, the system may not comply with EMC Directive.

Wiring method

For connection of power cables and ground cables, refer to the following.

Ground the frame ground terminal (FG terminal) of the GOT with the thickest and shortest cable as possible.

☞ Page 60 Wiring Inside and Outside the Panel

Fabricating a connection cable

Fabricate the cables used for the GOT by the methods as shown in this section.

The fabrication requires a ferrite core, cable clamp, and cable shielding materials.

The following products have passed the Mitsubishi EMC Directive compliance test.

 • ZCAT3035-1330 ferrite core (TDK Corporation)
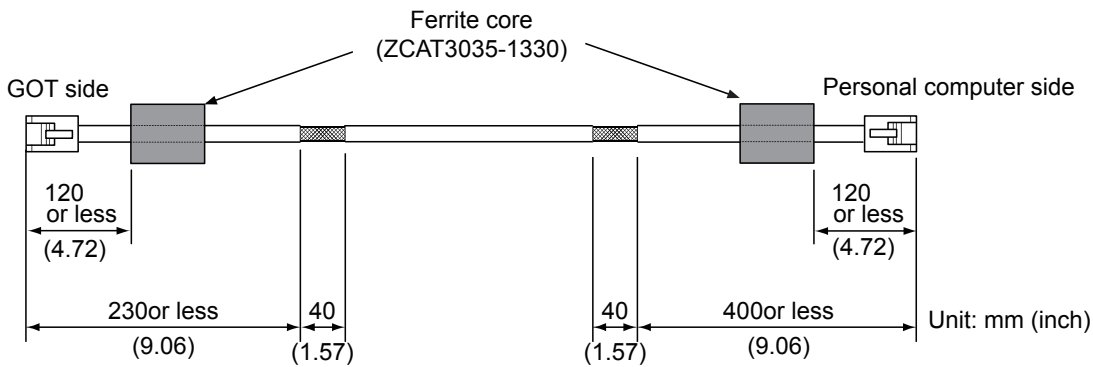 • AD75CK-type cable clamp (Mitsubishi Electric Corporation)

Ethernet connection

■Ethernet cable

Strip off the sheath at both ends of the cable as shown in the figure below to expose braided shield for grounding. The braided shield sections are used for grounding with a cable clamp.

☞Page 47 Grounding a cable

 • Connecting to the Ethernet interface of the GOT

Ferrite core
(ZCAT3035-1330)

GOT side

Personal computer side

120 or less
(4.72)

120 or less
(4.72)

230 or less
(9.06)

40
(1.57)

40
(1.57)

400 or less
(9.06)

Unit: mm (inch)

Direct CPU connection (serial)

■RS-232 cable and RS-422 cable

Install a ferrite core to the cable in the positions as shown in the figure below.

GOT s ide

Ferrite core
(ZCAT3035-1330)

Finishing of wearing

PLC side

120 or less
(4.72)

120 or less
(4.72)

230 or less
(9.06)

40
(1.57)

40
(1.57)

400 or less
(9.06)

Unit: mm (inch)

Serial communication connection

■RS-232 cable and RS-422 cable

Strip off the sheath at both ends of the cable as shown in the figure below to expose braided shield for grounding.

The braided shield sections are used for grounding with a cable clamp.
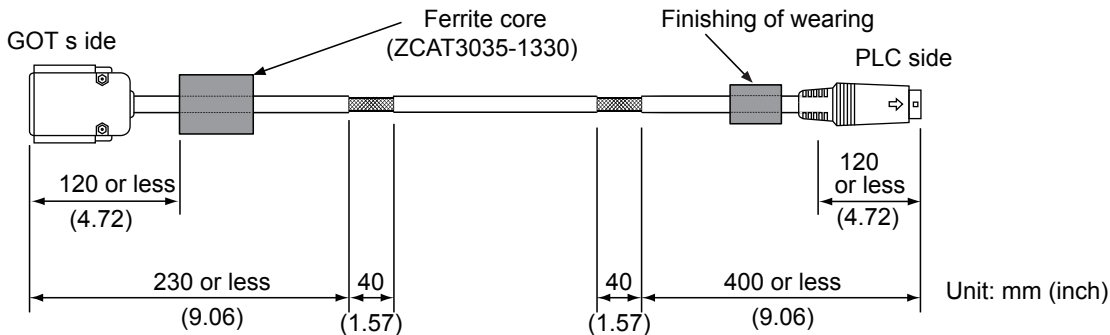
☞ Page 47 Grounding a cable
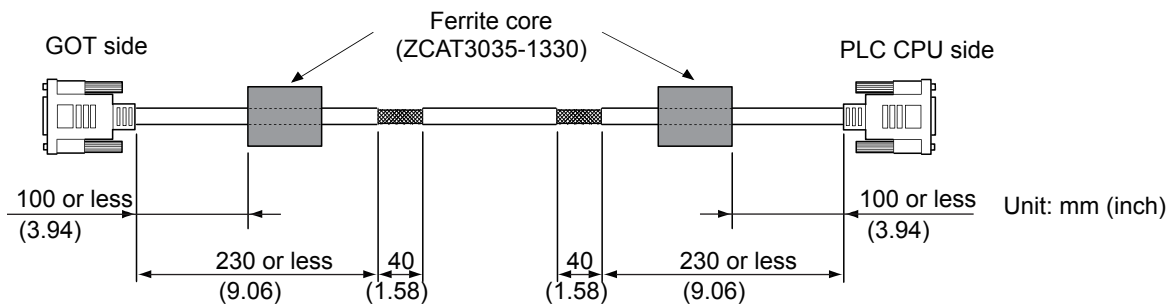
Non-Mitsubishi PLC, inverter, and servo amplifier connections

Create the cables (RS-232 cable, RS-422/485 cable) for connecting the GOT and a controller by yourself.

For how to create a cable, refer to the following.

📖 GOT2000 Series Connection Manual For GT Works3 Version1

Point

Treatment of the RS-232 cable and RS-422/485 cable

When the GOT is connected to a controller, configure the system according to the EMC Directive specifications for the controller.

The following shows the recommended instructions to comply with the EMC Directive.

However, the manufacturer of the equipment must determine the method to comply with the EMC Directive and conformance to the directive.

• RS-422/485 cable

When connecting each signal wire (except SG and FG wires), twist two signal wires as shown below.

Connect two or more SG wires.

• RS-232 cable

Twist each signal wire (except SG and FG wires) with the SG wire.
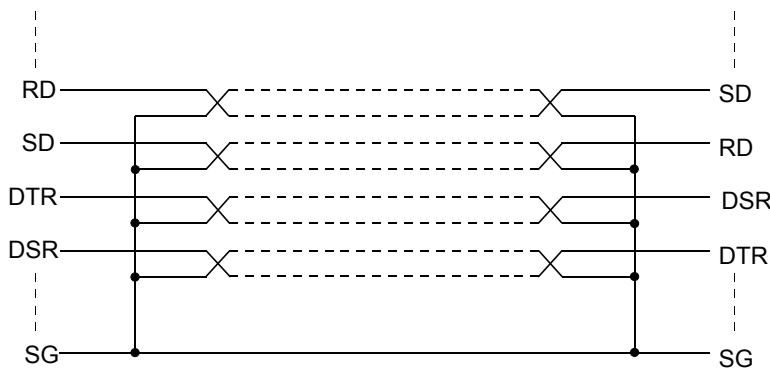
Install a ferrite core to the cable in the positions as shown in the figure below.

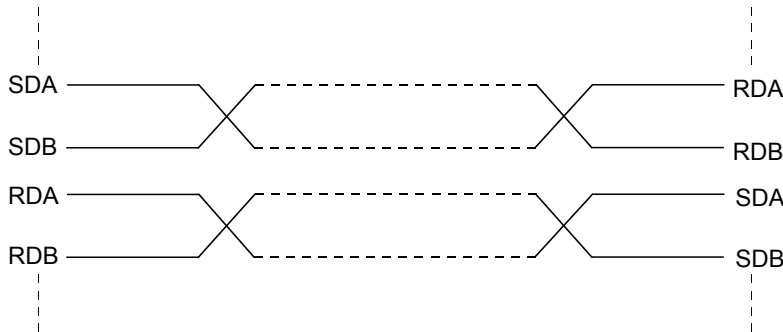Strip off the sheath at the both ends of the cable as shown in the figure below to expose braided shield for grounding. The braided shield sections are used for grounding with a cable clamp.
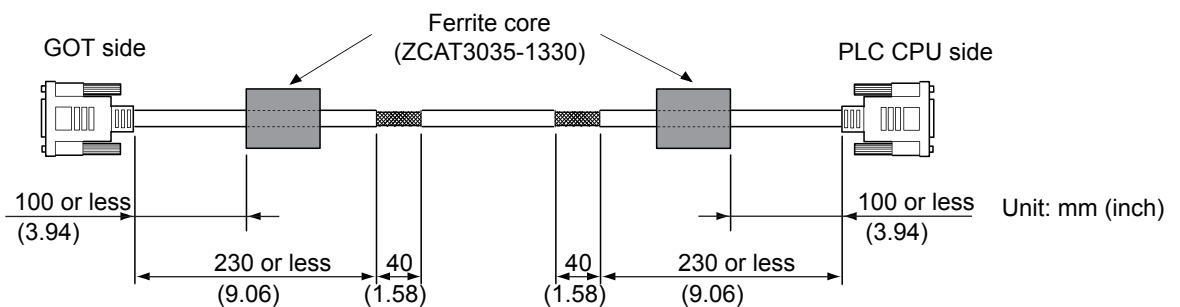
Grounding a cable

Grounding method

Ground the cable and ground cable to the control panel where the GOT and the PLC are installed.

Ground the braided shield section of the cable to the control panel with the cable clamp (AD75CK).

Braided shield

Cable clamps
For the attachment details of
cable clamps, refer to
AD75CK-type Cable Clamping
Instruction Manual
<IB-68682>.
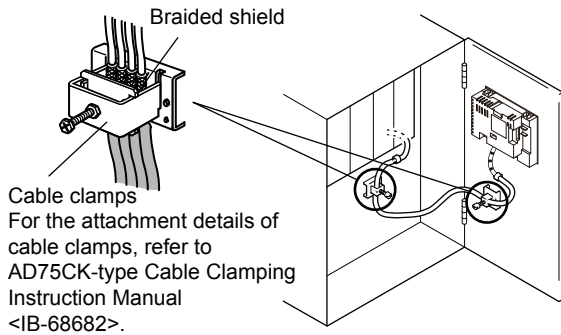
Precautions

Do not arrange the cable clamp close to the other cables that are not clamped.

The noise from the control panel may enter the cable clamp and adversely affect the GOT.

MEMO

6 INSTALLATION

<table>
<tr><td>MOUNTING PRECAUTIONS</td><td>⚠ WARNING</td></tr>
</table>

- Be sure to shut off all phases of the external power supply used by the system before mounting or removing the GOT main unit to/from the controller.
  Not doing so can cause the unit to fail or malfunction.

<table>
<tr><td>MOUNTING PRECAUTIONS</td><td>⚠ CAUTION</td></tr>
</table>

- Use the GOT in the environment that satisfies the general specifications described in this manual.
  Not doing so can cause an electric shock, fire, malfunction or product damage or deterioration.
- Never drop cutting chips and electric wire chips into the ventilation window of the GOT when you drill screw holes or perform wiring.
  Otherwise, fire, failure or malfunction may be caused.
- Connect connection cables securely to the specified connectors while the power is turned OFF.
  Imperfect connection may cause malfunction or failure.
- Operate and store the GOT in environments without direct sunlight, dust, lamp black, conductive dust, corrosive gas, combustible gas, high temperature, condensation, wind, rain, vibrations and impacts.
  Electric shock, fire, malfunction, product damage or deterioration can be caused.
- Tighten the mounting screws within the specified torque range.
  Undertightening can cause the GOT to drop, short circuit or malfunction. In addition, undertightening can disable waterproof or oil proof effect.
  Overtightening can cause a drop, short circuit or malfunction due to the damage of the screws or the GOT. In addition, the waterproof effect and oilproof effect may not be available due to the "distortion" of GOT or panel.

6.1 Control Panel Inside Dimensions for Mounting GOT

Mount the GOT onto the control panel while considering the following control panel inside dimensions.
For the vertical installation, install the GOT so that the vertical installation arrow printed on the GOT rear face points upward.

Point

Applicable cable

Depending on the types of cables connected to the product, the distance more than the described dimensions may be required. Install the GOT considering the connector dimensions and cable bend radius.

Unit: mm (inch)
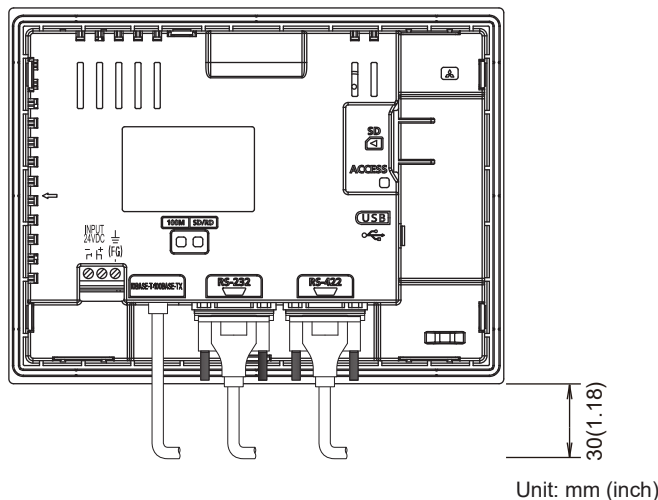
6.2 Panel Cutting Dimensions

Cut holes in the following dimensions on the panel.

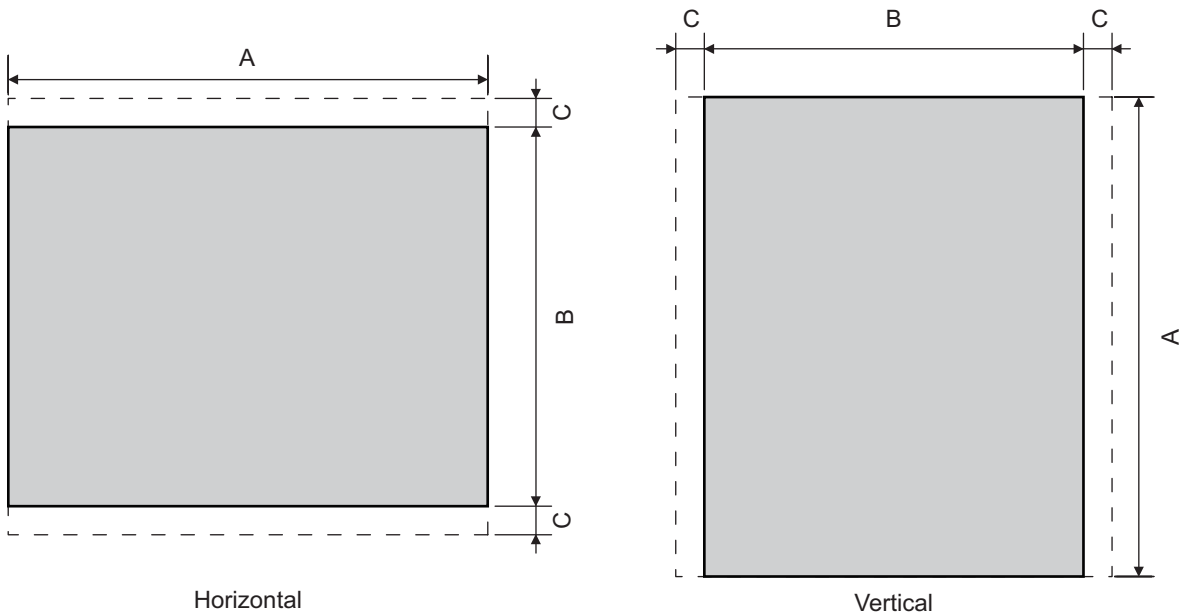Ensure 10mm of space in upper and lower parts of the panel for mounting fixtures.

For the vertical installation, install the GOT so that the vertical installation arrow printed on the GOT rear face points upward.

Horizontal

Vertical

Unit: mm (inch)

Model	A	B	C	Panel thickness
GS2110-WTBD-N GS2110-WTBD	258(10.16") (+2(0.08), 0(0))	200(7.88") (+2(0.08), 0(0))	10(0.39") or more	1.6(0.06") to 4(0.16")
GS2107-WTBD-N GS2107-WTBD	191(7.52") (+2(0.08), 0(0))	137(5.40") (+2(0.08), 0(0))	10(0.39") or more	1.6(0.06") to 4(0.16")

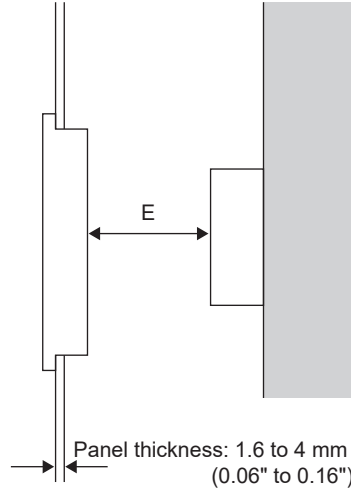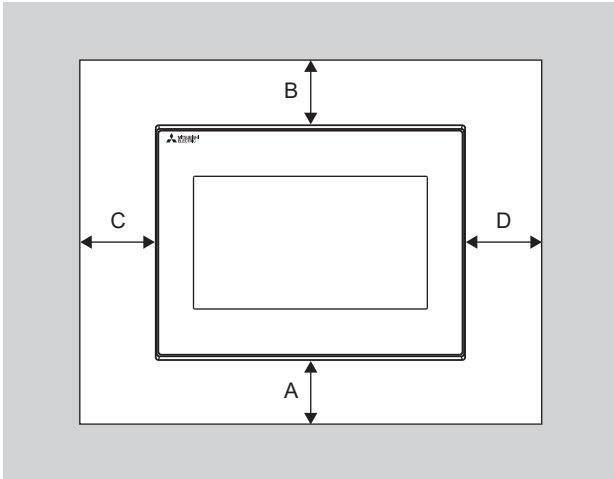Dimension C is required for installing fittings on the control panel.

6.3 Mounting Position

When mounting the GOT, the following clearances must be maintained from other structures and devices.

For the vertical installation, install the GOT so that the vertical installation arrow printed on the GOT rear face points upward.

Installation Environment	A, D [mm] (inch)	B [mm] (inch)	C [mm] (inch)	E [mm] (inch)
In the presence of radiated-noise or heat-generating equipment nearby	50mm (1.97") or more	Horizontal: 80mm (3.14") or more Vertical: 50mm (1.97") or more	Horizontal: 50mm (3.14") or more Vertical: 80mm (3.14") or more	100mm (3.94") or more
In the absence of radiated-noise or heat-generating equipment nearby	20mm (0.79") or more	20mm (0.79") or more	20mm (0.79") or more	20mm (0.79") or more

Horizontal installation

Panel thickness: 1.6 to 4 mm
(0.06" to 0.16")

Vertical installation

Panel thickness: 1.6 to 4 mm
(0.06" to 0.16")
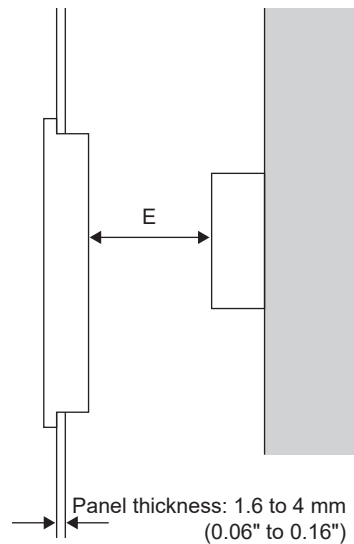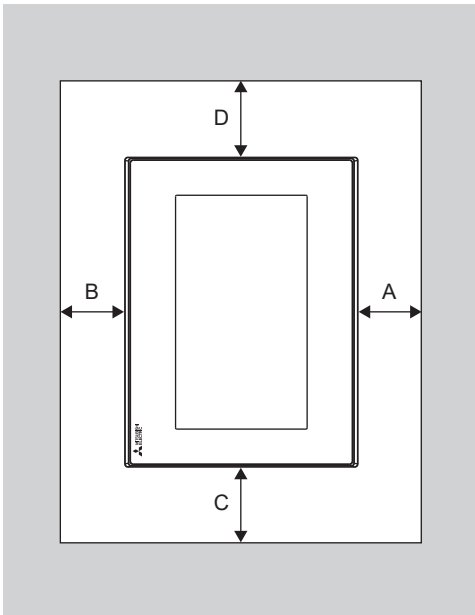
6.4   Control Panel Temperature and Mounting Angle

When mounting the main unit to a control panel or similar fixture, set the GOT display section as shown below.

Horizontal installation

When the temperature inside the control panel is 40 to 50°C, the mounting angle should be in the range from 60 to 105 degrees.
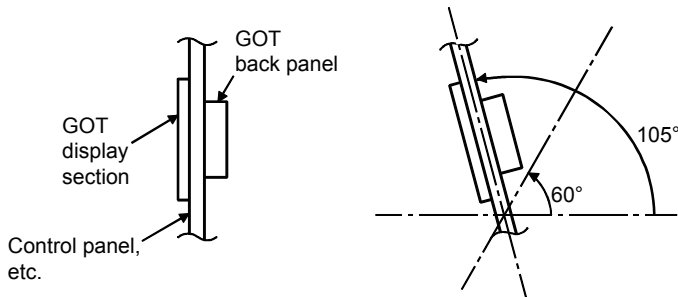
The GOT will have a longer lifetime if used within the mounting angles shown above.

Ideally, the temperature inside the control panel should not exceed 0 to 40°C.

Vertical installation

When the temperature inside the control panel is 40 to 50°C, the mounting angle should be in the range from 60 to 105 degrees.

The GOT will have a longer lifetime if used within the mounting angles shown above.

Ideally, the temperature inside the control panel should not exceed 0 to 40°C.

6.5 Installation Procedure

The GOT is designed to be embedded into a panel. Mount the GOT by following the procedure below.

Refer to Page 50 Panel Cutting Dimensions for the panel cutting dimensions.
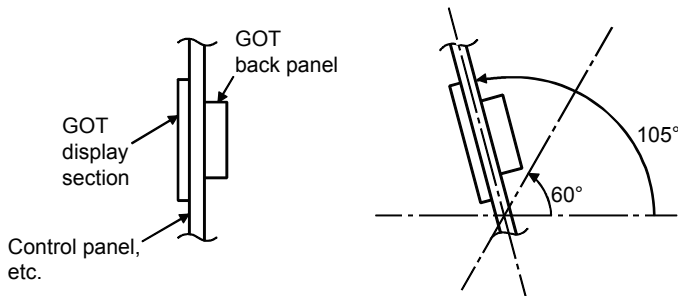
In addition, the thickness of the installation panel face must be 1.6 to 4mm.

1. Inserting into the panel face

Insert the GOT from the front side of the panel.
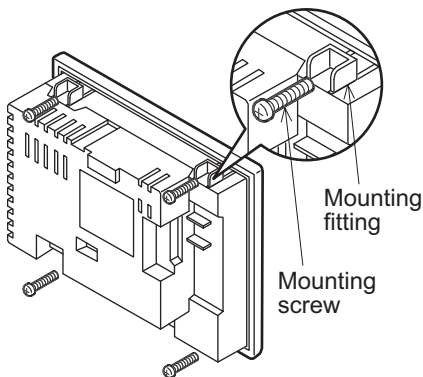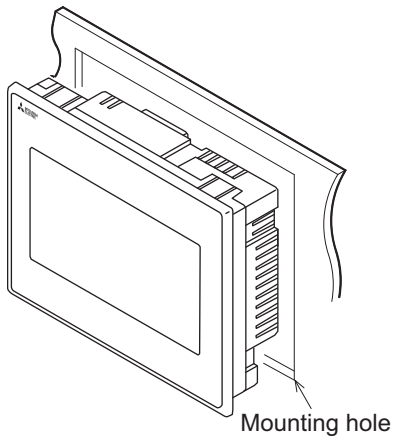
Mounting hole

2. Fixing the GOT

Engage the hook of the mounting fixture (accessory) to the unit fixing hole of the GOT and fix them by tightening the mounting screws (accessory) in the torque range of 0.36 to 0.48N·m.

Mounting fitting

Mounting screw

3. A protection film is attached on the display section of GOT prior to shipment. Remove the film when the installation is completed.

Point

Check that the packing is firmly attached with the GOT.

If the packing is loose, attach the packing to the GOT securely.

Point

Cautions on installation

• Tightening torque of the mounting screws

Tighten mounting screws within the specified torque range.

Undertightening can cause the GOT to drop.

In addition, waterproof effect or oilproof effect may not be obtained.

Overtightening may damage the GOT or distort the panel, causing wrinkles on the surface of the display section. The wrinkles may lower visibility and lead to an incorrect input to the touch panel. Waterproof effect or oilproof effect may not be obtained because of distortion of the GOT or panel.

Specified torque range: 0.36 to 0.48N·m
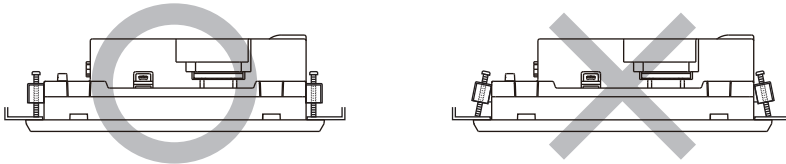
• Installation panel surface

Make sure that the panel surface is free from warpage, flaws and irregularities. Warpage, flaws and irregularities may disable the waterproof effect.

Select proper panel thickness under consideration of the panel strength.

(For example, the panel strength may be insufficient depending on the panel material and dimensions even if the panel thickness is acceptable.

Insufficient panel strength may cause warpage depending on the installation positions of the GOT and other equipment.)

7 WIRING

<table>
<tr><td>WIRING PRECAUTIONS</td><td>⚠ WARNING</td></tr>
</table>

- Be sure to shut off all phases of the external power supply used by the system before wiring.
  Failure to do so may result in an electric shock, product damage or malfunctions.

- Please make sure to ground FG terminal of the GOT power supply section by applying 100Ω or less which is used exclusively for the GOT.
  Not doing so may cause an electric shock or malfunction.

- Correctly wire the GOT power supply section after confirming the rated voltage and terminal arrangement of the product.
  Not doing so can cause a fire or failure.

- Tighten the terminal screws of the GOT power supply section in the specified torque range.
  Undertightening can cause a short circuit or malfunction.
  Overtightening can cause a short circuit or malfunction due to the damage of the screws or the GOT.

- Exercise care to avoid foreign matter such as chips and wire offcuts entering the GOT.
  Not doing so can cause a fire, failure or malfunction.

<table>
<tr><td>WIRING PRECAUTIONS</td><td>⚠ CAUTION</td></tr>
</table>

- Plug the communication cable into the connector to be connected, and tighten the mounting screws and the terminal screws in the specified torque range.
  Undertightening can cause a short circuit or malfunction.
  Overtightening can cause a short circuit or malfunction due to the damage of the screws or unit.

This chapter describes the wiring to the GOT power supply section.

For the connection with a PLC, refer to the following.

📖 GOT2000 Series Connection Manual For GT Works3 Version1

For the dimensional drawing of connection cables, refer to the following.

☞ Page 299 External Dimensions

Point

General preventive measures against noise

There are two kinds of noises: Radiated noise that is transmitted into the air and Conductive noise that is directly transmitted along connected lines. Countermeasures must be taken considering both kinds of noises and referring to the following 3 points.

• Protecting against noise

Keep signal lines away from noise sources such as a power cable or a high-power drive circuit.

Shield the signal lines.

• Reducing generated noise

Use a noise filter, etc. to reduce the level of the noise generated due to a source such as a high-power motor drive circuit.

Attach surge killers to the terminals on the no fuse breakers (NFB), electromagnetic contactors, relays, solenoid valves, and generators to suppress noise interference.

• Releasing noise to the ground

Make sure to connect the ground cable to the ground.

Use a short and thick cable to lower its ground resistance.

Ground the power system and the control system separately.

7.1 Power Supply Wiring

Connect the power supply to the power terminals on the back panel of the GOT.

Use a specified size power supply wire to prevent voltage drop, and tighten the terminal screws firmly to a specified torque.

Do not exceed the number of wires that are allowed to be connected.

Secure the wires to prevent stress from being directly applied to the terminal block or wire connections.

Cable types and wire end processing

Process the end of the electrical wire (solid or stranded), or attach a ferrules with plastic sleeve to the wire end.

Terminal screws should be tightened to between 0.3 to 0.5N·m. Terminal screws must be secured to prevent a loose connection thus avoiding a malfunction.

Do not tighten the terminal screws with a torque outside the specified range. Failure to do so may cause the product to fail or malfunction.
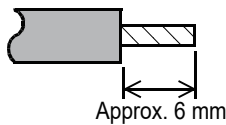
Electrical wire size

Electrical wire size		
Solid wire	**Stranded wire**	**Ferrules with plastic sleeve**
0.5 to 2.5mm^2 AWG20 to AWG14	0.5 to 2.5mm^2 AWG20 to AWG14	0.5 to 2.5mm^2 AWG20 to AWG14

Wire end processing

■Connecting the wire directly

Twist the end of the stranded wire. Make sure there are no wire whiskers.

Do not solder the wire end.

Approx. 6 mm

■Using a ferrules with plastic sleeve to connect the wire

A wire with a too thick of a wire sheath may not fit the insulation sleeve. Refer to the outline drawing for how to select the proper size wire.
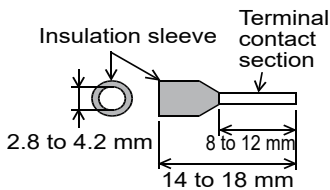
Manufacturer	Model	Crimper type
Phoenix Contact Inc.	AI 0.75-8BU (0.5 to 0.75mm^2)	CRIMPFOX UD6
	AI 1.0-8RD (0.75 to 1.0mm^2)	
	AI 1.5-8BK (1.0 to 1.5mm^2)	
	AI 2.5-8BU (1.5 to 2.5mm^2)	

Tools

Use a small driver with a straight, untapered blade as shown below to tighten the power terminals.

Use a driver
with a flat end

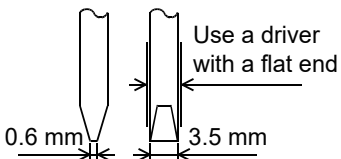0.6 mm   3.5 mm

Manufacturer	Model
Phoenix Contact Inc.	SZS 0.6 × 3.5

Wiring example

Connect the power supply to the power terminals on the back panel of the GOT.

INPUT
24VDC

(FG)

Class D
grounding

DC24V $^{+10\%}_{-15\%}$
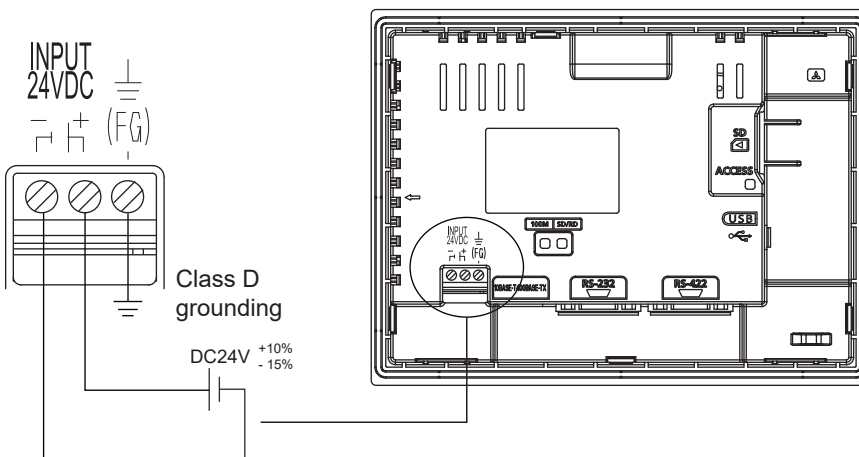
Tightening torque for the power terminals: 0.5 to 0.6N·m

GOT's ground

Grounding the GOT and other devices

Make sure to carry out the followings for grounding.

- Carry out the independent grounding if possible. Provide class D (class 3) grounding. (Ground resistance must be 100Ω or less.)
- If the independent grounding is impossible, carry out the shared grounding as shown in fig.2) below.

(1) Independent ground
...... Best condition

(2) Shared grounding
...... Good condition

(3) Common grounding
...... Not allowed
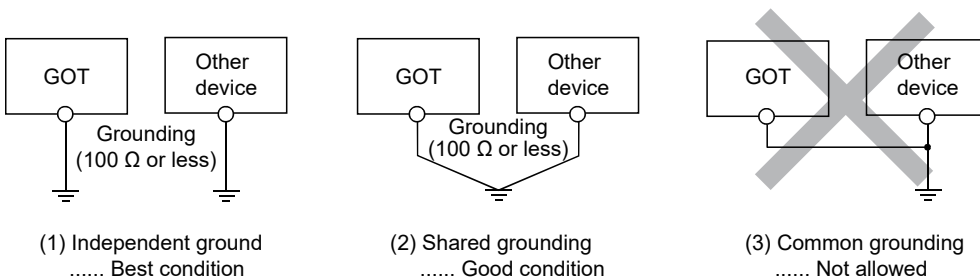
- Use the cable of $2mm^2$ or longer for grounding. Make a ground point near the GOT as much as possible to shorten the ground cable.

The cause of malfunctions related wiring/Remedy

Grounding of the GOT may cause electric potential difference and noise interference, which may result in GOT malfunctions. These problems may be resolved by taking the following measures.
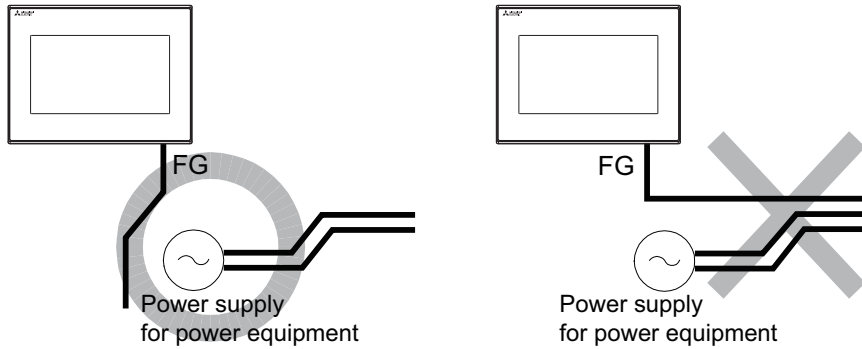
Wiring path of the GOT's ground cable and power line

Bundling the GOT's ground cable and power line together can cause interference noise, which may result in malfunctions. Keeping the GOT's ground cable and power line away from each other will help minimize noise interference.

Good: Wiring the ground cable away from the power cable

Bad: Bundling the ground cable and the power cable

Connecting the ground cable from the panel that houses control equipment to the panel to which the GOT is grounded

When running a single ground cable from the panel that houses such piece of control equipment as a sequencer to the panel to which the GOT is grounded, the ground cable may have to be directly connected to the terminal on the GOT.
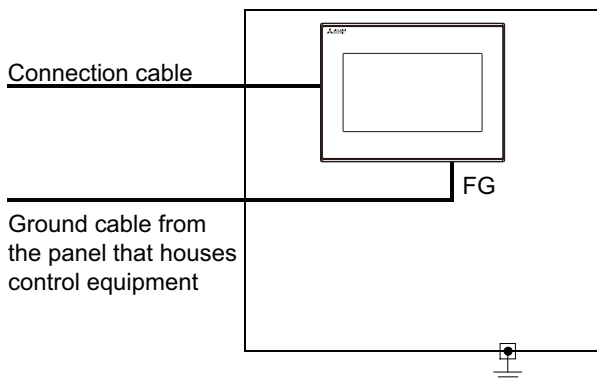
If electric potential difference between the ground points created by it causes malfunctions, lowering the voltage as shown in Remedy 1 below may solve the problem.

• Remedy 1 (Refer to the figures Remedy 1-1 and 1-2 below.)

If the electric potential difference between the ground cable and the panel that houses the GOT is creating problems, connect the ground cable to the panel also. If the wiring method as shown in Remedy 1-1 is not feasible, follow Remedy 1-2.
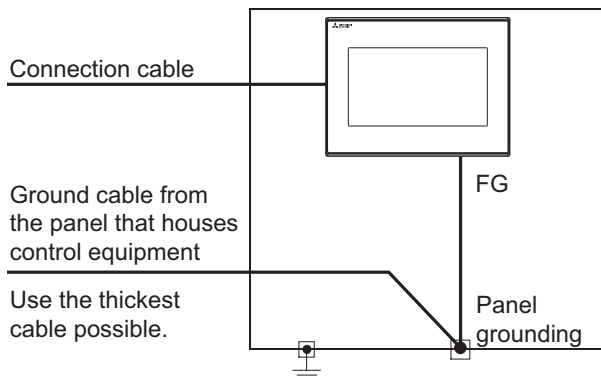

Remedy1-1
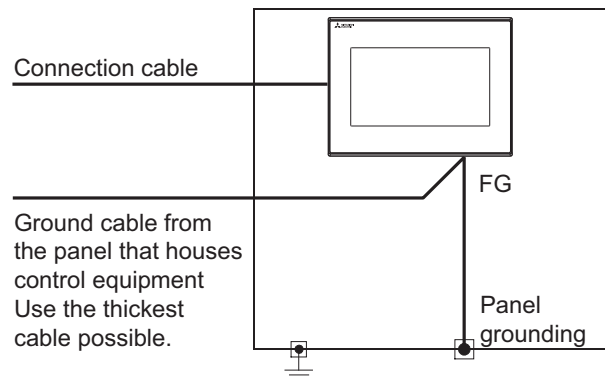
Remedy1-2

If taking Remedy 1 worsens noise interference, taking Remedy 2 may alleviate it.

• Remedy 2 (Refer to the figures Remedy 2-1 and 2-2 below.)

Attach a ferrite core to the cable if noise from the GOT panel has adverse effects on the GOT when Remedy 1 is taken. Wind the wire around the ferrite core several times (approx. 3times), if a ferrite core is used. If the wiring method as shown in Remedy 2-1 is not feasible, follow Remedy 2-2.
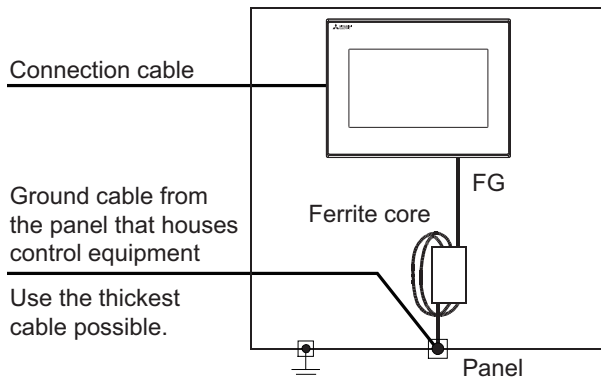
Remedy2-1

Remedy2-2

7
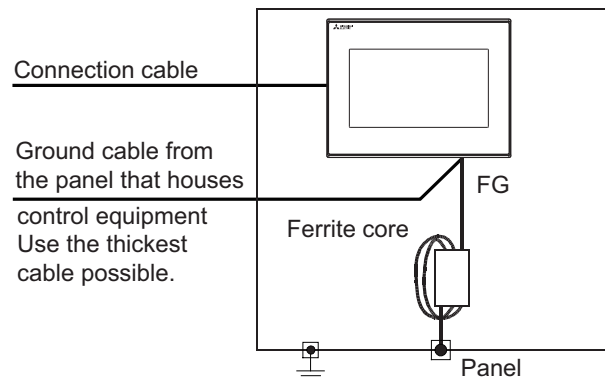
7.2 Wiring Inside and Outside the Panel

Wiring inside

Run power lines, servo amplifier drive wires, and communication cables so that they do not cross each other.

Noise interference that is generated by cables that cross each other may cause malfunctions.

Surge suppressors are an effective way to filter out surge noise that is generated from no fuse breakers (NFB), electromagnetic contactors (MC), relays (RA), solenoid valves, and induction motors.

Refer to the section to follow for surge killers.

☞Page 61 Attaching surge killers to control equipment
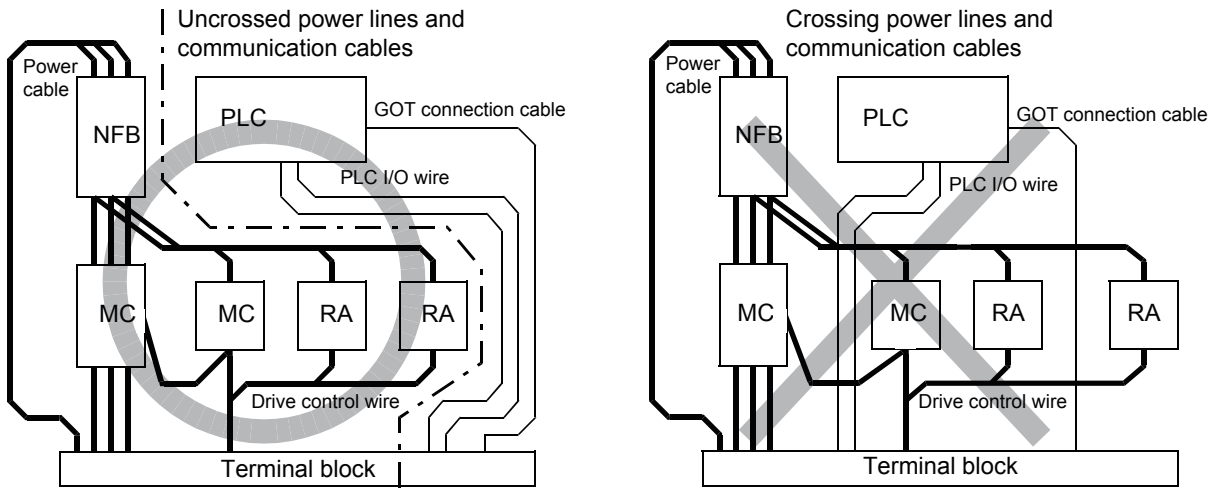
Outside the panel

To pull the power line and communication cable out of the panel, make two pullout holes away from each other and pull the cables through.

Putting both cables through the same pullout hole will increase noise interference.
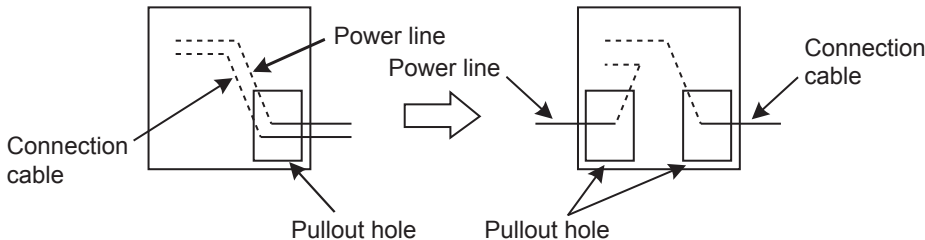
Keep the power line and communication cable inside the duct at least 100mm away from each other.

If that is not possible, the use of a metal separator inside the duct can reduce noise interference.
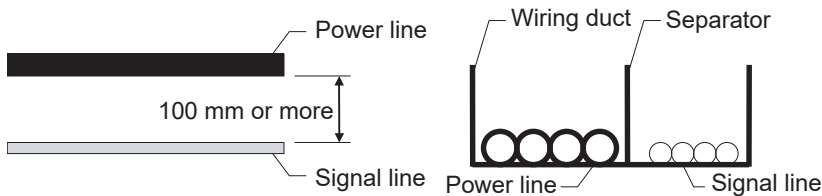
Attaching surge killers to control equipment

If communication errors happen in synch with the on/off signals from certain control equipment (referred to as "load" hereafter) such as no fuse breakers, electromagnetic contactors, relays, solenoid valves, and induction motors, surge noise interference is suspected.

If this problem happens, keep the ground cable and communication cable away from the load.

If that is not possible, an installation of a surge killer will help reduce noise interference.

Place the surge killer as close to the load as possible.

Remedy for AC inductive load

Output equipment
such as PLC output unit
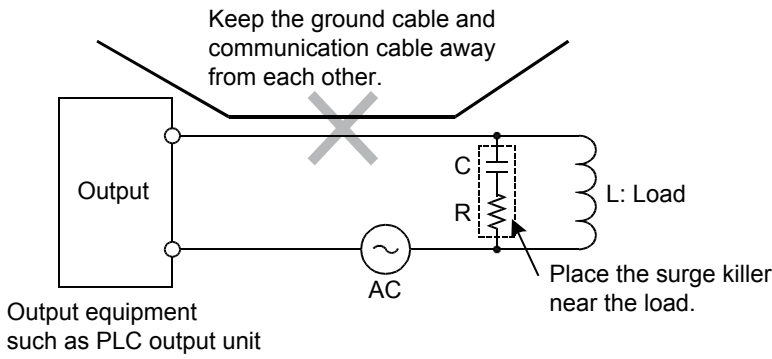
Remedy for DC inductive load

Output equipment
such as PLC output unit

MEMO
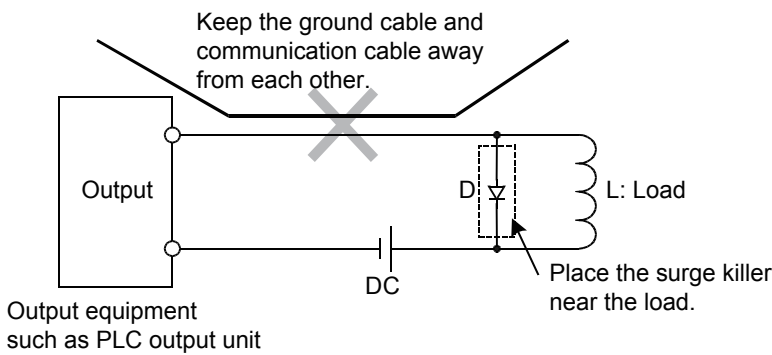
8 OPTION

8.1 SD Card

The SD card is used to transfer the OS or project data and to save the data of the alarm history function.

For details, refer to the following.

☞Page 161 CONTROL OF VARIOUS DATA (DATA CONTROL)

Applicable SD card

The following SD cards are applicable for GOT.

Model	Specifications
L1MEM-2GBSD	SD memory card 2GB
L1MEM-4GBSD	SDHC memory card 4GB
NZ1MEM-2GBSD	SD memory card 2GB
NZ1MEM-4GBSD	SDHC memory card 4GB
NZ1MEM-8GBSD	SDHC memory card 8GB
NZ1MEM-16GBSD	SDHC memory card 16GB

Installation/removal procedure of SD card

Install/remove the SD card when the power supply of the GOT is OFF or [Access inhibit] is set in the [SD card access] setting of the GOT.

Installation
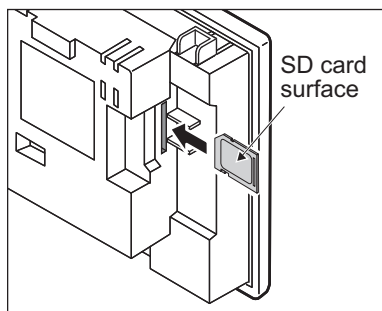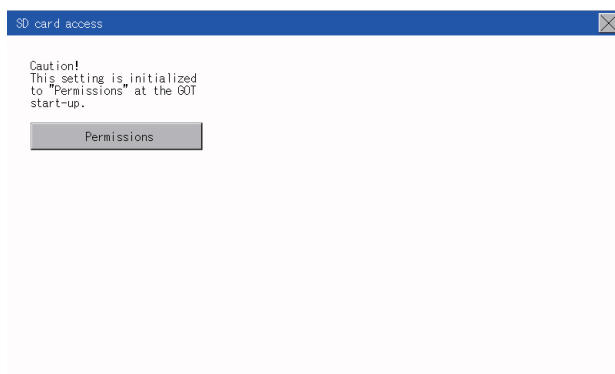
1. Touch [Main Menu] → [Data] → [SD card access] → [Permissions] to set [Access inhibit].

☞Page 192 SD Card Access

Check that the SD card access LED turns off.

When the SD card access LED is off, the SD card can be installed or removed even when the GOT is on.

2. Insert a SD card into the SD card interface with its front side (nameplate side) outside.

3. Touch [SD card access] → [Access inhibit] to set [Permissions]. Check that the SD card access LED turns on.

Removal
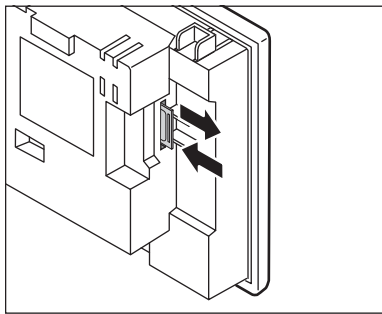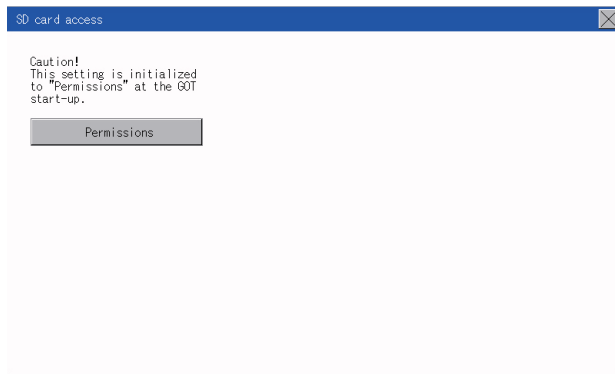
1. Touch [Main Menu] → [Data] → [SD card access] → [Permissions] to set [Access inhibit].
☞ Page 192 SD Card Access
Check that the SD card access LED turns off.
When the SD card access LED is off, the SD card can be installed or removed even when the GOT is on.

2. Push the SD card all the way inside and leave your finger once, then remove the SD card.

Point *

Precautions when removing the SD card
- Do not pull out the SD card or power OFF the GOT while the SD card access LED is lit. To do so may cause data corruption or malfunction.
- When removing the SD card from the GOT, make sure to support the SD card by hand as it may pop out. Failure to do so may cause the SD card to drop from the GOT, resulting in a failure or break.

9 UTILITY FUNCTION

Utility is a function, which carries out connection of GOT and controller, screen display and operation method settings, program/data control and self-check etc.

9.1 Utility Execution

For utility execution, utility has to be displayed by installing Boot OS and package data in the C drive (built in flash memory). There are following two methods for installing Boot OS and package data.

1) GT Designer3→GOT
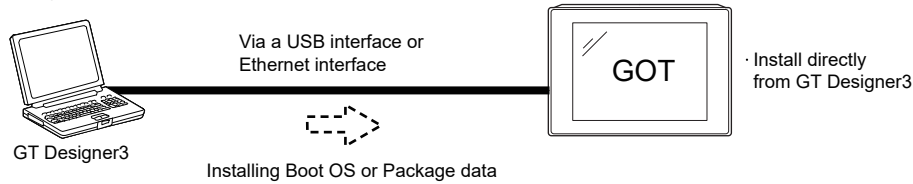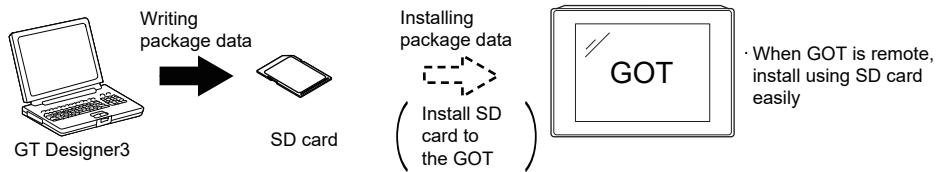
Via a USB interface or
Ethernet interface

GOT

· Install directly
from GT Designer3

GT Designer3

Installing Boot OS or Package data

2) GT Designer3→SD card→GOT

Writing
package data

Installing
package data

GOT

· When GOT is remote,
install using SD card
easily

GT Designer3

SD card

Install SD
card to
the GOT

Refer to the following for the installation which uses GT Designer3.

📖 GT Designer3 (GOT2000) Screen Design Manual

For the installation methods of package data with an SD card, refer to the following.

☞ Page 275 BootOS and System Application Installation Using Data Storage

9.2 Utility Function List

The items in the following list can be set/operated on the utility screens.

| Item		Functions overview	Reference
Language		Switching message languages	☞ Page 75 LANGUAGE SETTING (LANGUAGE)
Comm. Setting	Standard I/F	Assigning channel number and communication driver to communication interface	☞ Page 77 Standard I/F Setting
	GOT IP Address	Configuring GOT Ethernet setting	☞ Page 86 GOT IP Address Setting
	Ethernet communication	Displaying the contents of Ethernet setting, changing the host	☞ Page 88 Ethernet Communication
	Comm. Monitor	Checking the serial communication port communication	☞ Page 92 Communication Monitor
	Ethernet check	Checking the Ethernet communication port communication	☞ Page 95 Ethernet Check
	Transparent mode	Setting the channel No. to be used for the communication for the FA transparent function	☞ Page 97 Setting the Transparent Mode
	Keyword	Setting or deleting sequence program protection key words and canceling sequence program protection status for the FXCPU connection	☞ Page 98 Keyword
GOT setup	Display	Setting the title display period	☞ Page 107 Display Settings
		Setting the screen save time	
		Adjusting brightness	
	Operation	Setting the buzzer sound	☞ Page 110 Operation Setting (Settings for Operation)
		Setting the window move buzzer	
		Setting the key reaction speed	
		Touch panel calibration	
		Setting the utility call keys	
	Unique info	Setting the GOT ID No.	☞ Page 117 Inherent Information
	GOT internal device monitor	Setting the Use/Disuse the GOT internal device monitor of GOT diagnostics	☞ Page 118 GOT internal device monitor
	VNC server function	VNC server function setting (GS21-W-N)	☞ Page 120 VNC Server Function
	License management	Displaying the screen for registering and canceling a license (GS21-W-N)	☞ Page 122 License Management
	IP filter setting	Setting the IP filter usage, filtering method, target IP address, and exception IP address	☞ Page 124 IP Filter Setting
Security Setting	Security level	Changing the security level	☞ Page 131 Security Level Authentication
	Operator	Operator management	☞ Page 133 Operator Authentication
		Password change	
		Function setting	
	Login/Logout	-	☞ Page 147 Login/Logout
Time setting	Time setting		☞ Page 149 Time Setting and Display

Item			Functions overview	Reference
Data	OS information		OS information	☞ Page 165 OS information
	Resource Data	Alarm info.	Converting alarm log files in G2A format → CSV/TXT format Deleting or copying alarm log files	☞ Page 167 Alarm information
		Recipe info.	Converting recipe files in G2P format → CSV/TXT format Converting CSV/TXT format → Recipe files in G2P format Deleting or copying recipe files	☞ Page 172 Recipe information
		Logging info.	Deleting or copying logging files	☞ Page 178 Logging information
		Image file	Deleting or copying hard copy files	☞ Page 182 Image file management
		Operation log information	Converting operation log files in G2O format → CSV/TXT format Deleting or copying operation log files	☞ Page 186 Operation log information
	SD card access		Setting the access permission of the SD card	☞ Page 192 SD Card Access
	SD card format		Formatting the SD card	☞ Page 193 SD Card Format
	Clear data		Clearing the project data and resource data on the GOT	☞ Page 195 Clear data
	Data copy		Transferring the project data or OS to the SD card	☞ Page 196 Data Copy
	Backup/restore		Setting the backup and restoration	☞ Page 199 BACKUP/ RESTORE
Debug	Device monitor		Device monitor of PLC, test function, current value change of the buffer memory and the buffer memory monitor of intelligent module	☞ Page 221 Device Monitor Function
	FX list editor		Changing parameters and sequence program of FX PLC	☞ Page 234 FX List Editor
	FX3U-ENET-ADP		Configuring the communication setting for FX3U-ENET-ADP stored in the FXCPU	☞ Page 263 FX3U-ENET-ADP Communication Setting Function
Maintenance	Touch panel calibration		Calibrating the touch panel reading error	☞ Page 269 Touch Panel Calibration
	Touch panel check		Checking the touch panel operation	☞ Page 271 Touch Panel Check
	Clean		Displaying the screen for cleaning the display	☞ Page 273 Clean

9.3 Utility Display

To display setting screens for each utility, the main menu has to be displayed first.
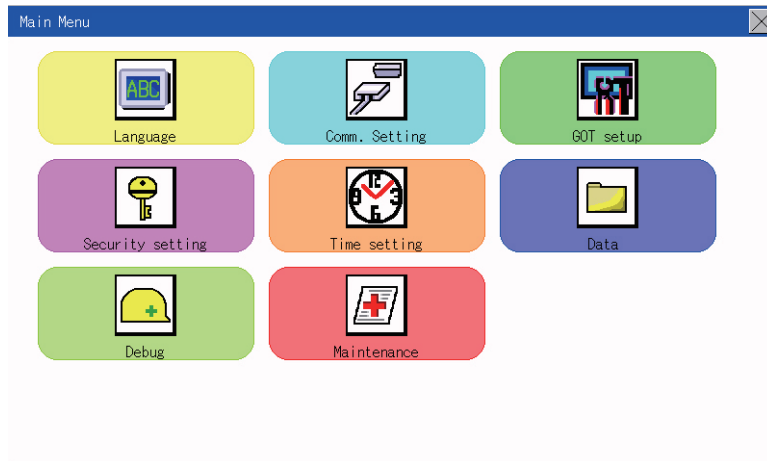
Main menu

The menu items that can be set at the GOT utility are displayed.

Touching a menu item in the main menu will display the setting screen or following selection screen for the item.

System message switch button

This button switches the language used for the utility.

When touching the [Language] button, the Select Language screen is displayed.

1. Touch the language button of a desired language and touch the [OK] button to select the language.

2. Touching the [×] button switches the language on the utility to the selected one.

Point

- When starting the GOT without selecting any language or the selected language and the installed fonts are not matched

The following screen will be displayed.

Touching the button of a desired language restarts the GOT and the language is switched to the selected one.

```
SELECT LANGUAGE

日本語
English
中文(简体)
```

- Selectable languages

The system message switch button is displayed only for the selectable languages.

The selectable languages differ depending on the fonts installed in the GOT.

For the relation between the selectable languages and the fonts, refer to the following.

📖 GT Designer3 (GOT2000) Screen Design Manual

- System language switching using the device

The system language can be switched using the system language switching device set with GT Designer3.

For the setting method of the system language switching device, refer to the following.

📖 GT Designer3 (GOT2000) Screen Design Manual

Display operation of main menu

The following four types of operation can display the main menu.

(Display the main menu after installing the standard monitor OS from GT Designer3 to the GOT built in flash memory.)

When project data is undownloaded

After the GOT is turned on, a dialog box for notifying of absence of project data is displayed. After the dialog box is displayed, touch the [OK] button to display the main menu.

Turning on the power
supply of the GOT

Touch [OK] button
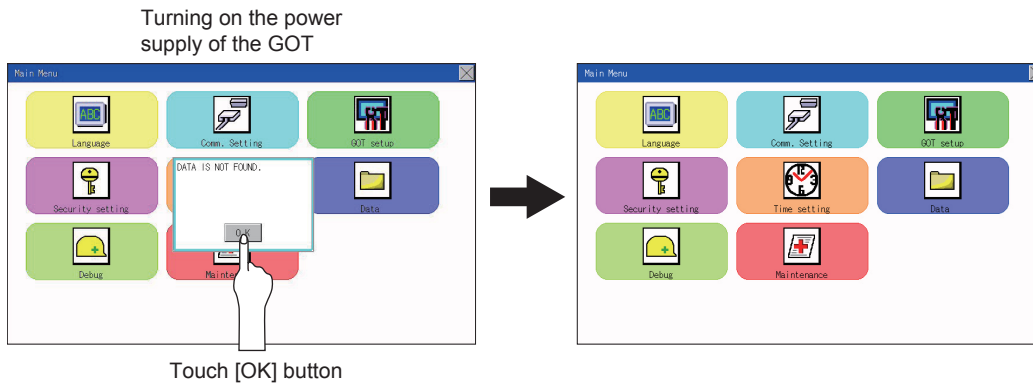
When touching utility call key

If you touch the utility call key while user-created screen is displayed, the main menu is displayed.

The utility call key is set in the position on the GOT screen upper left corner at factory shipment.

Horizontal format   Vertical format
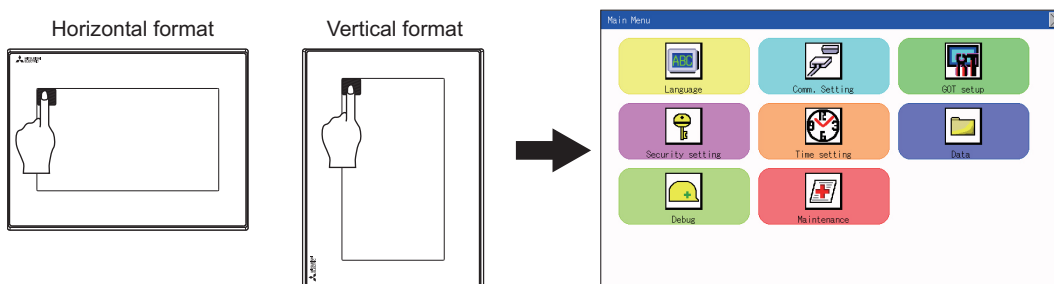
The utility function windows appear in the horizontal format, and this format cannot be changed.

The utility call key can be set by the GOT utility or GT Designer3.

For the setting method of the utility call key, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

Point

• Prohibited simultaneous 2-point presses

Do not touch 2 points or more on the GOT screen simultaneously. Touching 2 points or more simultaneously may activate a part other than the touched point.

• Press time of the utility call key

When having set [Press time] of the utility call key setting screen to other than "0 (s)", keep pressing the touch panel for the period set to [Press time] or more before leaving the finger from the touch panel.

For utility call key setting, refer to the following.

• When the utility call key is not set

Even when the utility call key is not set (set to the zero point), you can display the main menu by performing the following operation.
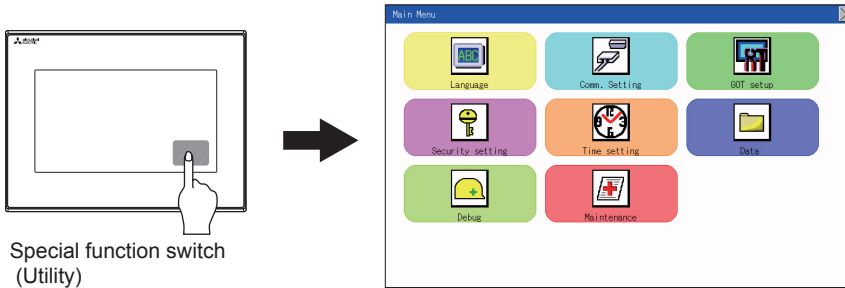
Pressing the special function switch set on the user-created screen

When touching special function switch (utility)

If you touch the special function switch (utility) while user-created screen is displayed, the main menu is displayed.

The special function switch (utility) can be set as a touch switch that is displayed on a user-created screen by GT Designer3.

Special function switch
(Utility)

For the details of the special function switch, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

Point

When limiting the display and operation of the utility

When limiting the display and operating users, set a password to the GOT using GT Designer3.
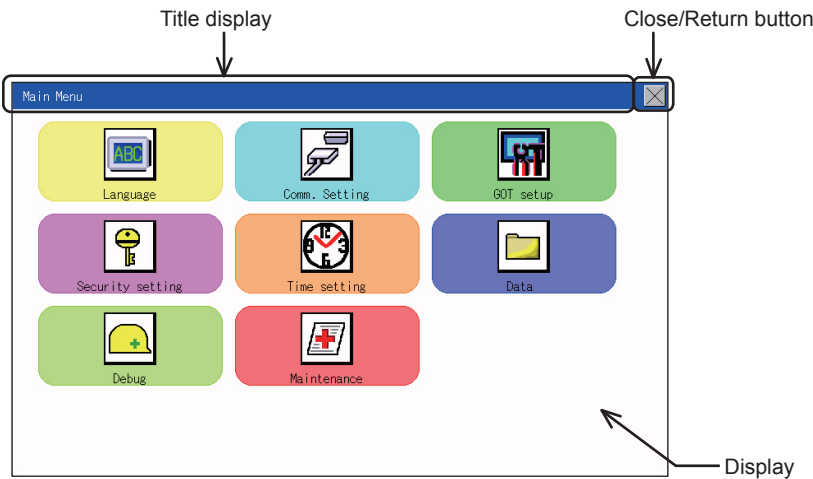
If a user tries to display the main menu of the utility, the password is displayed.

Refer to the following for the details related to the password setting.

📖GT Designer3 (GOT2000) Screen Design Manual

Utility basic configuration

The basic configuration of utility is as follows.

Title display   Close/Return button

Display

Title display

The screen title name is displayed in title display part.

Title display

Title display
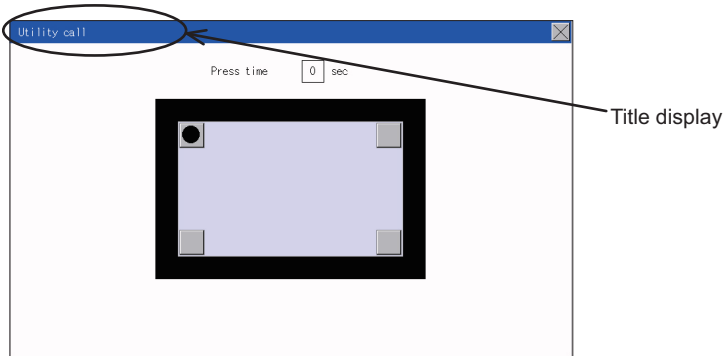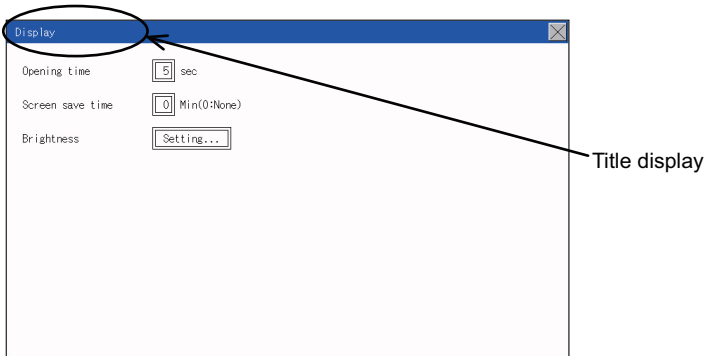
Close/Return button

When a middle screen of the layers is displayed, if the [×] (Close/return) button in the right corner of screen is touched, returns to the previous screen.

If this button is touched when directly displayed from monitor screen, the screen is closed and returns to monitor screen.

Scroll button

For screens in which the content does not fit on one screen page, there is a right or down scroll button on the screen.

▲ ▼ ◀ ▶ Scroll one line/column.

⯅ ⯆ ◀◀ ▶▶ Scroll window.

Basic operation of settings change

Change of setting value

Operation

Buzzer volume	OFF
Window move buzzer	ON
Key reaction	Standard
Calibration	Setting...
Utility call	Setting...

Detail Setting

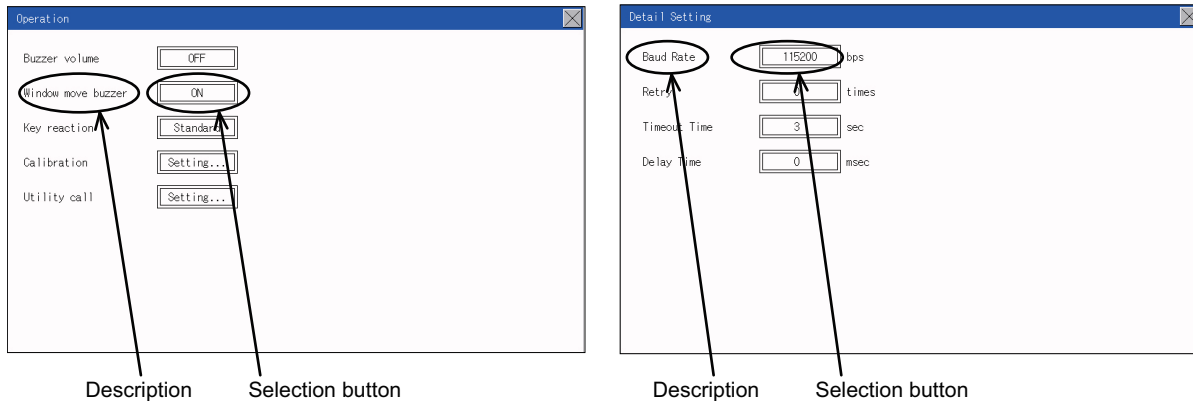|	
Baud Rate	115200 bps
Retry	1 times
Timeout Time	3 sec
Delay Time	0 msec

Description   Selection button   Description   Selection button

■Setting item, select button

Touch the select button to change the settings.

The setting methods differ depending on the setting items.

The following types of setting method are available.

Switching the setting value

The button repeats SHORT LONG OFF every time it is pressed.

Enter the setting value with a keyboard.

Use these keys to enter numerical values. Touch the button to display a keyboard on the GOT screen.

For the keyboard operations, refer to the next page.

Move to another setting screen.

Touch the button to move to each setting screen.

For the setting method of each setting item, refer to the setting operation of each setting screen.

■[×] (Close/Return) button

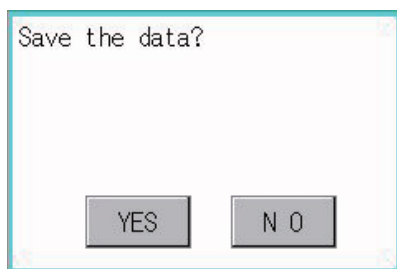Reflect or cancel the changed settings.

[×] (Close/Return) button

Touching this button closes the screen. Depending on the setting item, the GOT restarts.

Touch the [×] button, and then the dialog box shown below is displayed.

(If no setting is changed, the dialog is not displayed.)

Operate following the message of the dialog box.

Save the data?

YES	N O

Keyboard operations

1. Touch the numerical value to be changed.

2. The keyboard for entering numerical values and a cursor are displayed. The display position of the keyboard differs depending on the position of the touched numerical value. (The keyboard is displayed at a position that does not disturb users to input numerical values.)
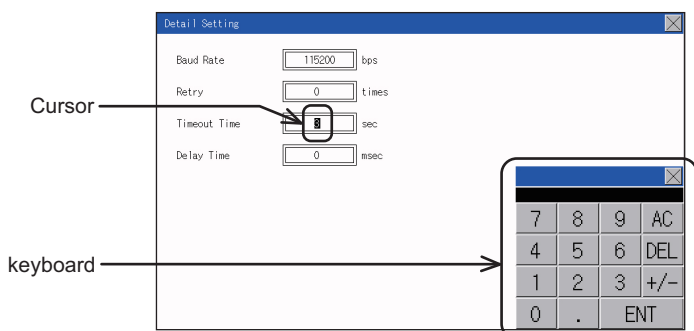
3. Input numerical value by the keyboard.
- [0] to [9] Key: Enter numerical values.
- [Enter] Key: Completes the numerical value input and closes the keyboard.
- [Cancel] Key: Cancels the numerical value input and closes the keyboard.
- [Del] Key: Deletes one character.
- [AC] Key: Deletes all characters.
- [*] key and the keys which are not mentioned do not function.

4. Touching the [Enter] key completes the numerical value input and closes the keyboard.

10 LANGUAGE SETTING (LANGUAGE)

10.1 Display language setting

Display language setting function

This function allows display language selection.

The items which can be set are shown below.

Item	Description	Setting range
Language	Display language in which the utility functions and dialog windows are displayed can be selected or confirmed in this menu	Japanese/English/Chinese <At factory shipment: Chinese>

Language setting operation

Language

Main Menu

Touch [Language]

Touch a language to be displayed.
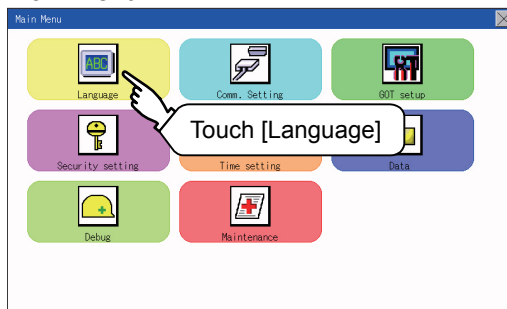
Touch

1. Touch [Language] to bring up the set up screen.
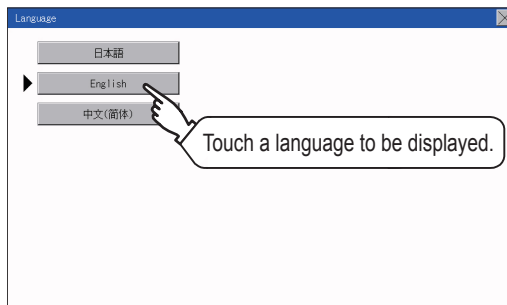
2. Select a display language by touching the corresponding button.

3. After changing the setting, touch the [×] button. The setting is saved and the setting screen is closed.

Point

Switching the display language of the utility by devices

Any device can be used for switching the display language of the utility. For details, refer to the following.

📖 GT Designer3 (GOT2000) Screen Design Manual

When using devices to switch the display language of the utility, it does not change even if the display language is switched from the GOT utility screen.

MEMO

10 LANGUAGE SETTING (LANGUAGE)
10.1 Display language setting

11 COMMUNICATION INTERFACE SETTING (COMMUNICATION SETTING)

The following communication interfaces can be set.

| Item		Functions overview	Reference
Comm. Setting	Standard I/F	Assigning channel number and communication driver to communication interface	☞ Page 77 Standard I/F Setting
	GOT IP Address	Configuring GOT Ethernet setting	☞ Page 86 GOT IP Address Setting
	Ethernet communication	Displaying the contents of Ethernet setting, changing the host	☞ Page 88 Ethernet Communication
	Comm. Monitor	Checking the serial communication port communication	☞ Page 92 Communication Monitor
	Ethernet check	Checking the Ethernet communication port communication	☞ Page 95 Ethernet Check
	Transparent mode	Setting the channel No. to be used for the communication for the FA transparent function	☞ Page 97 Setting the Transparent Mode
	Keyword	Setting or deleting sequence program protection key words and canceling sequence program protection status for the FXCPU connection	☞ Page 98 Keyword

11.1 Standard I/F Setting

Standard I/F functions

| Function	Description
Channel no. display	Displays the channel number (CH No) that has been assigned by drawing
Communication driver display	Displays the communication driver that has been assigned by drawing software
Communication parameters display	Displays the communication parameters of the controllers that has been assigned by drawing software

Standard I/F display operation
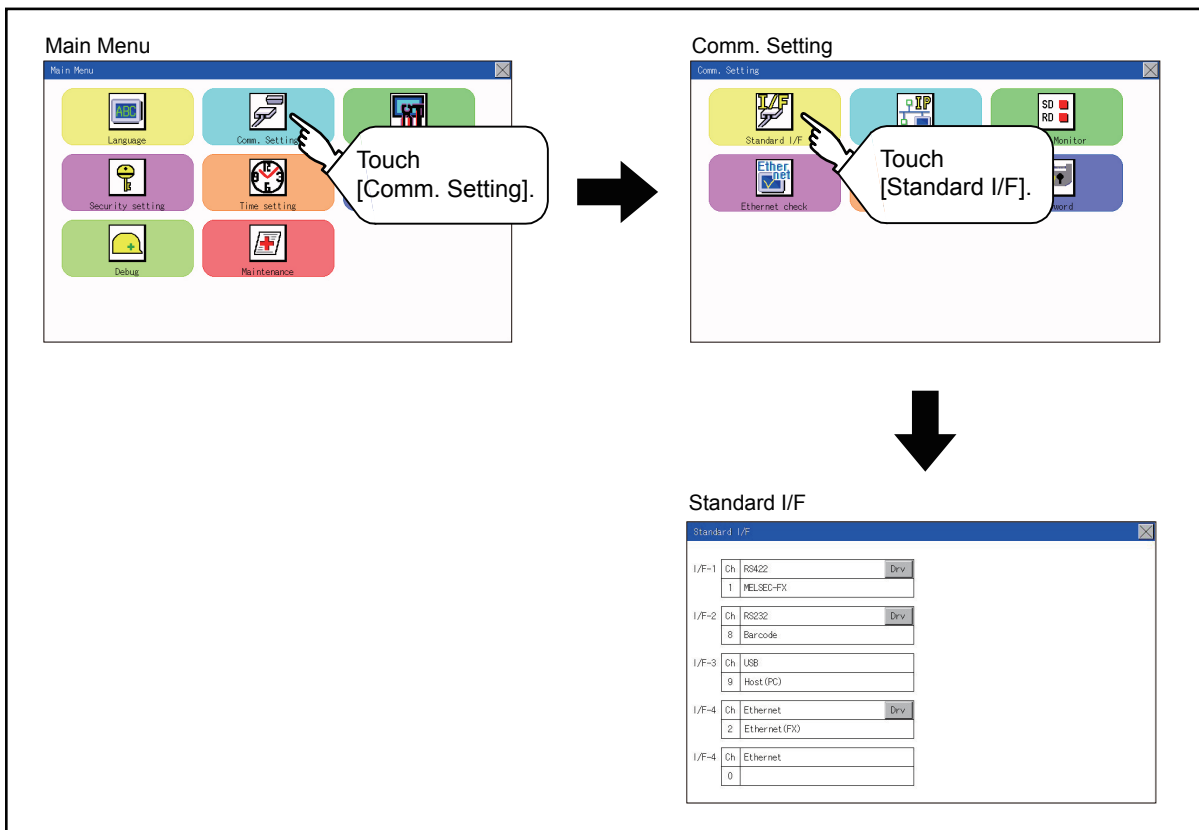
Display contents of standard I/F

Described below are the display items on the standard I/F setting menu and their functions.

Display item

Standard interface display BOX

Driver display BOX

Channel No. specification menu BOX

Drv button
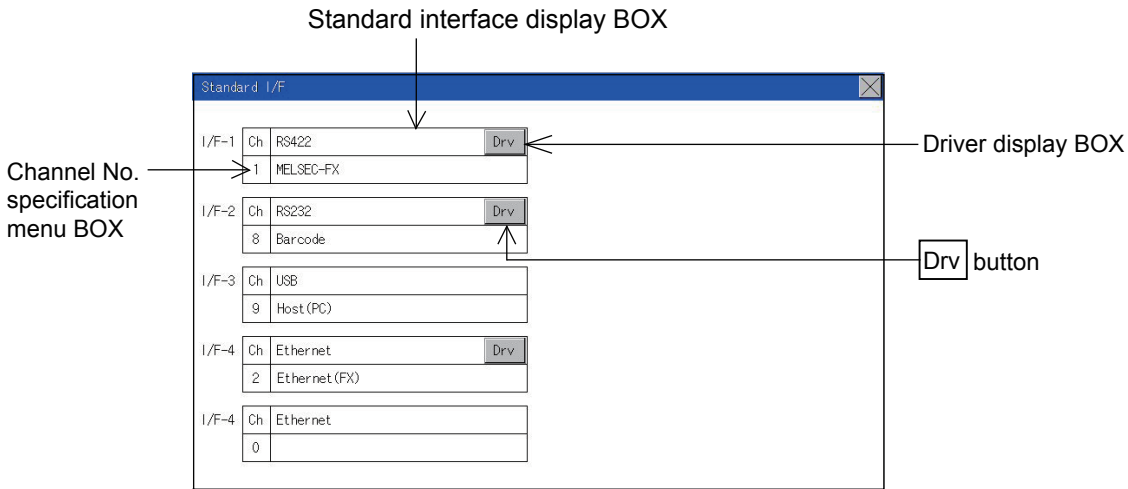
■Standard interface display BOX

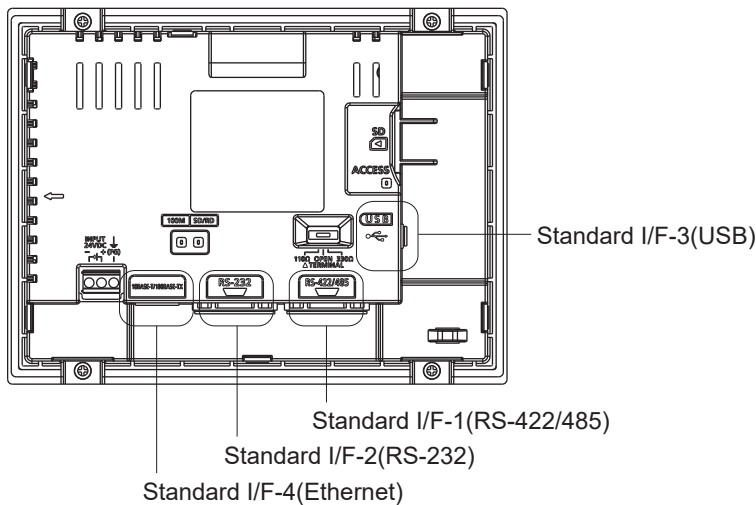The standard interface includes the following four types.

- Standard I/F-1(RS-422/485 or RS-422): For communication with a controller
- Standard I/F-2(RS232): For communication with PLC, PC (drawing software), modem, other equipment, bar code reader and transparent
- Standard I/F-3(USB): For communication with PC (drawing software) and transparent
- Standard I/F-4(Ethermet): For communication with PC (drawing software) and other equipment

Available standard interfaces differ depending on the GOT model used.

○: Available, ×: Not available

GOT	Standard I/F-1		Standard I/F-2	Standard I/F-3	Standard I/F-4
	RS-422/485	RS-422	RS-232	USB	Ethernet
GS2110-WTBD-N GS2107-WTBD-N	○	×	○	○	○
GS2110-WTBD GS2107-WTBD	×	○	○	○	○

- For GS2110-WTBD-N, GS2107-WTBD-N

Standard I/F-3(USB)

Standard I/F-1(RS-422/485)

Standard I/F-2(RS-232)

Standard I/F-4(Ethernet)

• For GS2110-WTBD, GS2107-WTBD

Standard I/F-3(USB)

Standard I/F-1(RS-422)

Standard I/F-2(RS-232)

Standard I/F-4(Ethernet)
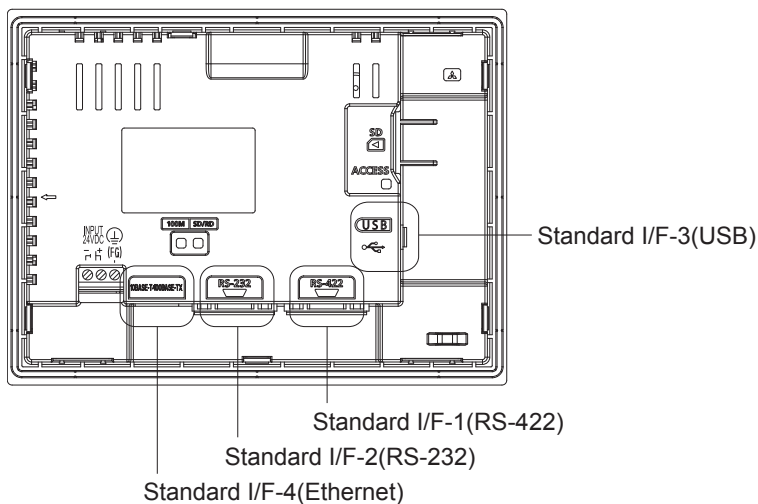
■Channel No. specification menu BOX

Set a channel number to be used by the standard interface.

☞Page 84 Channel setting operation

For the detail of the drivers which can be assigned to each channel, refer to the following.

☞Page 79 Driver display BOX

0:	Set when the communication interface is not used.
1, 2:	Set when connecting to a controller.
8:	Set when connecting to a bar code reader or RFID.
9: [*1]	Set when connecting to a PC (drawing software).
*:	Set this channel when the gateway function (except when the connection with controllers is the Ethernet connection) or the Ethernet download function is used.

*1 "9" is automatically set to the standard I/F-3(USB).

■Driver display BOX

The driver display box displays the names of communication drivers assigned to channels or the communication drivers set in the communication settings of drawing software.

For details of the communication drivers to be displayed, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

"Disuse" is displayed in the driver display box in the following cases:

• The communication driver is not installed.

☞Page 85 Driver setting operation

• "0" is set in the channel number specification menu box.

The channel number of the standard I/F-3(USB) is fixed to "9".

■[Drv] button

Displays the driver setting screen.

Select the driver to use on the driver setting screen.

☞Page 85 Driver setting operation

The [Drv] button is displayed in the following case.

• When a channel number other than channel 0 or 9 is set to the standard I/F-1, standard I/F-2, and standard I/F-4

Point

Precautions for communication between GOT and connected devices

 • Installing [Communication driver] and downloading [Communication Settings]

To perform communication with the connected device, the following actions are necessary.

1) Installing communication drivers (Up to 2 drivers)

2) Assigning channel numbers and communication drivers to communication interfaces

3) Downloading contents (project data) assigned in step 2)

Perform 1), 2) and 3) with drawing software.

| Standard I/F Setting				
	CH No.	Driver		
I/F-1: RS422/485	1	MELSEC-FX		Detail Setting...
I/F-2: RS232	8	Barcode		Detail Setting...
I/F-3: USB	9	Host (PC)		
I/F-4: Ethernet	0	None		Detail Setting...

For details, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

 • When the communication settings have not been downloaded

If the communication settings have not been downloaded with drawing software, set the communication settings on the drawing software or in the GOT utility screen.

Detail information setting operation

For Standard I/F-1(RS422) and Standard I/F-2(RS232)

Touch [Driver display BOX].
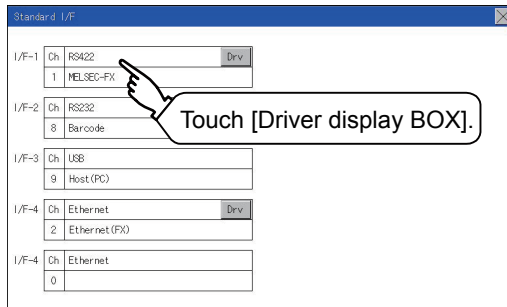
1. Touch each driver display box of the standard I/F-1 and standard I/F-2.
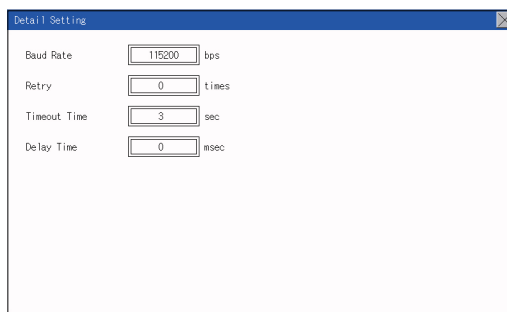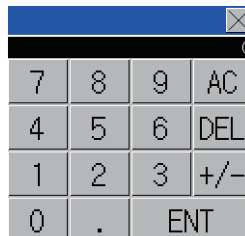

2. The screen jumps to the detailed information screen and the communication parameter will appear.

3. Touch the numerical values of baud rate to switch them repeatedly.

Ex. 4800bps ⟶ 9600bps ⟶ 19200bps

The numerical values are set using the ten-key depending on the setting.

"0" to "9":
Use these keys to enter numerical values. Enter "0" to disable the screen saver function.
"ESC":
Closes the ten-key window without saving any value entered
"AC":
Deletes the entire string of numerical characters that are being entered
"DEL":
Deletes a digit from a string of numerical characters that are being entered
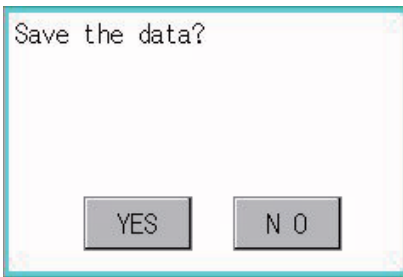"ENT":
Enters the value for the clock that has been entered and closes the ten-key pad window
"+/-":
Switches between positive and negative values. (Only positive values are valid for the clock setting.)
"." :
Invalid key (not used)

Save the data?

YES   N O

4. Touch the [×] button to display the window confirming whether to save the settings.

Now rebooting.

5. Touch the [YES] button to save the settings and restart. Touch the [NO] button to discard the changes.

Point

Communication parameters

The types of items that are in the communication parameter setting menu depend on the type of communication driver that is installed on the GOT in use.

Refer to the section below for the setting contents of various drivers.

📖GT Designer3 (GOT2000) Screen Design Manual

For Standard I/F-4(Ethernet)

_1._ Touch the driver display box of a communication parameter to be set.

_2._ The screen is switched to the communication detail setting. Set the communication parameter on this screen.

GOT IP address setting

☞ Page 86 GOT IP Address Setting

_3._ When the [×] button is touched, it returns to the previous screen.

_4._ Touch the [×] button to display the window confirming whether to save the settings.

_5._ Touch the [YES] button to save the settings and restart. Touch the [NO] button to discard the changes.
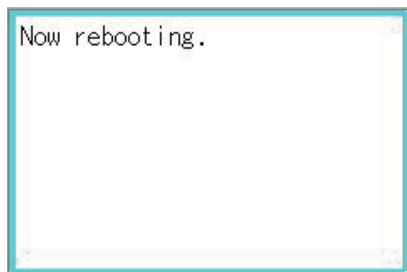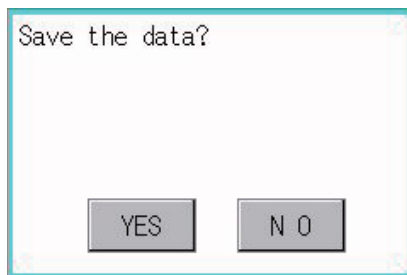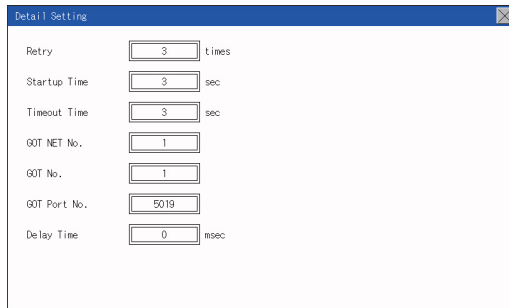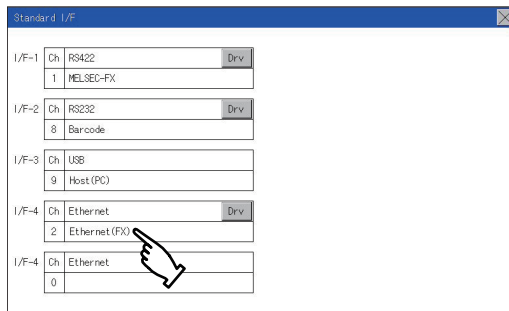

Point 🔎

Communication parameter setting by drawing software

Set the communication parameter for each communication driver by selecting [Common] → [Controller Setting].

📖GT Designer3 (GOT2000) Screen Design Manual

Channel setting operation

Channel number setting operation
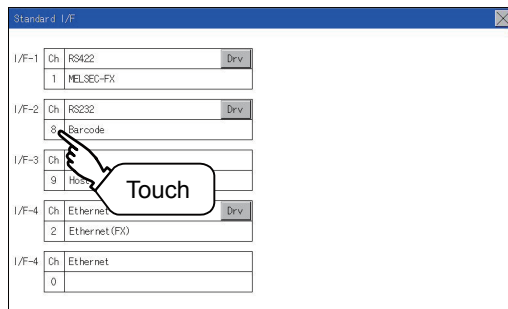
1. Touch the channel No. specification menu box to be set.
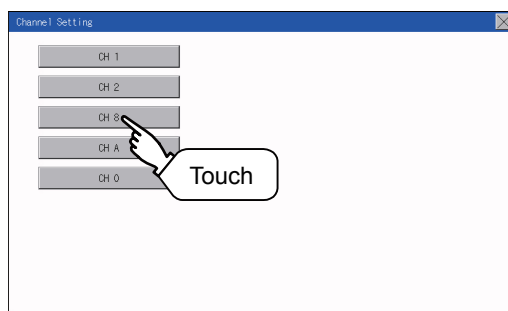
2. When the channel setting window appears, select the channel number.
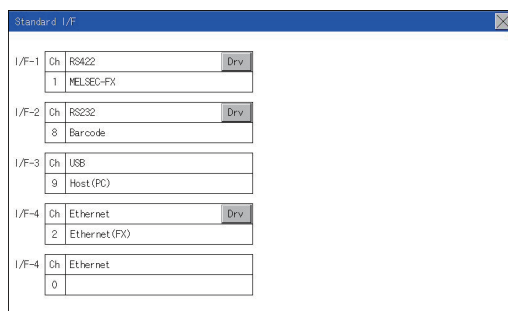
3. When the channel number is selected, the settings are fixed and the window returns to the previous one. Therefore, touch the [×] button.
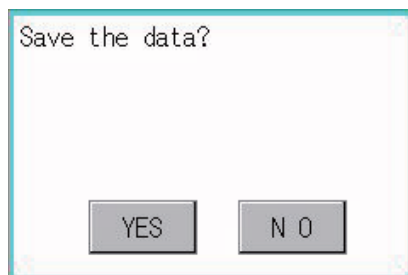
4. Touch the [×] button to display the window confirming whether to save the settings.

5. Touch the [YES] button to save the settings and restart. Touch the [NO] button to discard the changes.

Driver setting operation

Driver setting operation
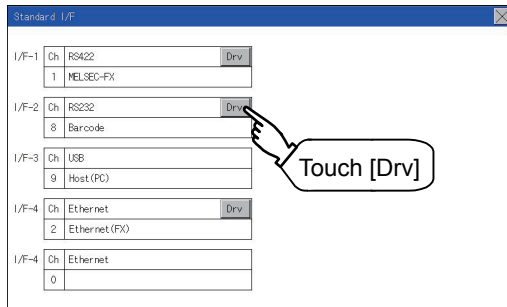
1. Touch [Drv] button to bring up the driver setting window.
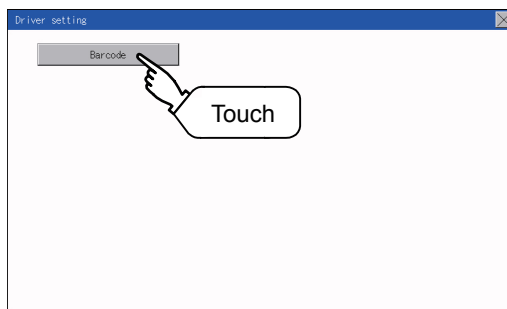
2. The available driver names are displayed on the driver setting screen. Select the driver to use.
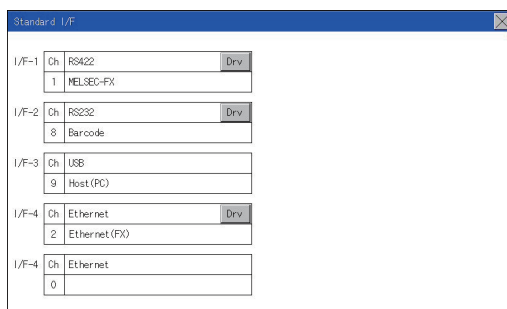
3. When the channel number is selected, the settings are fixed and the window returns to the previous one. Therefore, touch the [×] button.
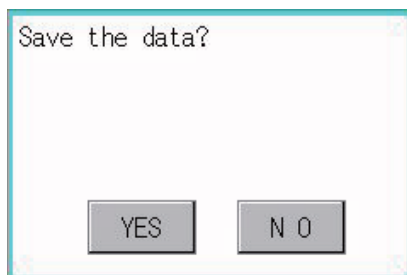
4. Touch the [×] button to display the window confirming whether to save the settings.

5. Touch the [YES] button to save the settings and restart. Touch the [NO] button to discard the changes.

# 11.2 GOT IP Address Setting

This section describes the GOT Ethernet setting.

The GOT Ethernet setting can also be set with the screen design software. For details, refer to the following.

📖 GT Designer3 (GOT2000) Screen Design Manual

Standard

The table below shows the communication setting items and setting range.

Communication setting items	Setting range	Remark
IP Address	0.0.0.1 to 223.255.255.254	If a value outside the setting range is entered, the error message "SET NUMBER IS INCORRECT." appears.
Subnet Mask[1]	192.0.0.0 to 255.255.255.252	
Default gateway[1]	0.0.0.1 to 223.255.255.254	
Per. S/W port No.	1024 to 5010, 5014 to 49152, 49171 to 65534	Set the port number for the GOT download.
Transparent port No.	1024 to 5010, 5014 to 49152, 49171 to 65534	Set the port number for the transparent of the GOT.

[1] Set the value "0.0.0.0" when not using the subnet mask and default gateway.

Display operation of GOT IP address
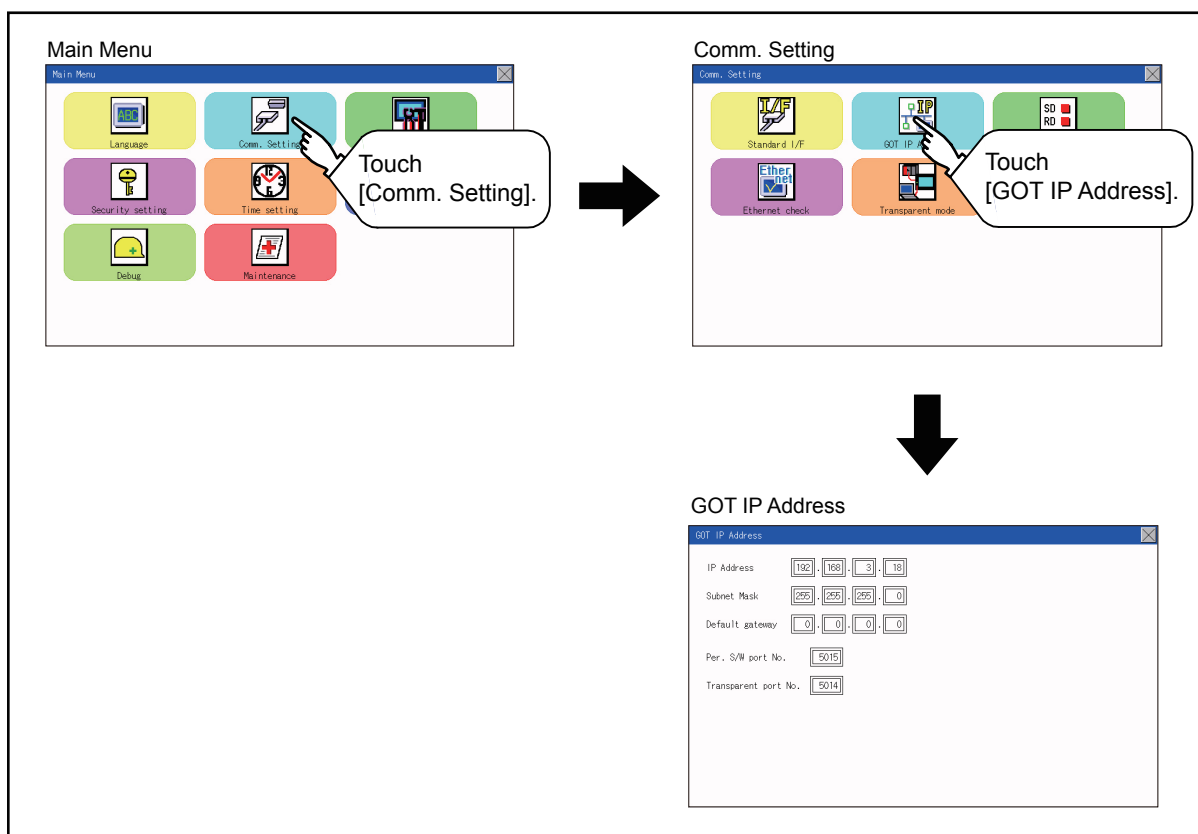
Setting operation
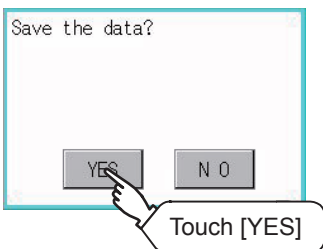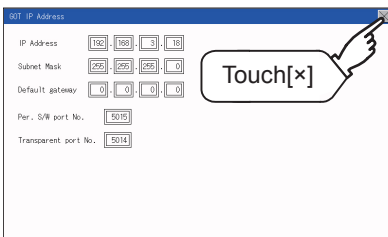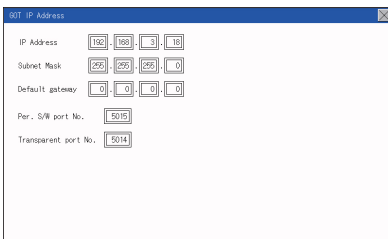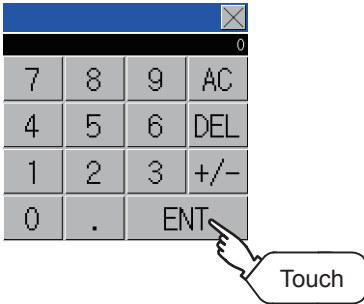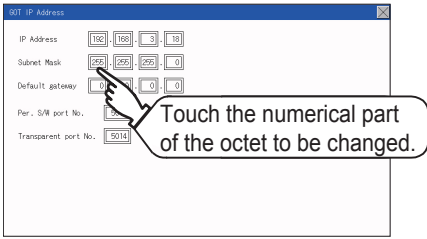
1. Touch the numerical part of the octet to be changed among the 1st to 4th octets.

Touch the numerical part of the octet to be changed.

2. When the ten-key pad appears, enter a numerical value in up to 3 digits, and touch the ENT key. If a numerical value outside the setting range is entered, the following error message appears. Enter a numerical value again.

Touch

Setup value is illegal.

O K
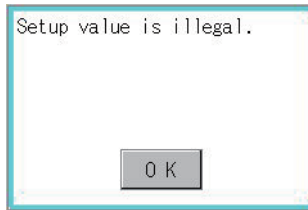
For the details of the setting range, refer to the following.

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3. If necessary, change the setting of [Per. S/W port No.] and [Transparent port No.].

4. After the setting change, touch the [×] key.

Touch[×]

5. When the screen shown on the left appears, touch the [YES] key.

Save the data?

YES   N O

Touch [YES]

11.3 Ethernet Communication

Setting function for Ethernet communication

The contents of the Ethernet set in GT Designer3 can be checked.

The setting of the host station can be changed.

For the Ethernet setting, refer to the following.

📖GOT2000 Series Connection Manual for the controller used

Display operation of Ethernet communication

Main menu

Touch [Comm. Setting].

Comm. Setting

Touch [Ethernet setting].

Channel Setting
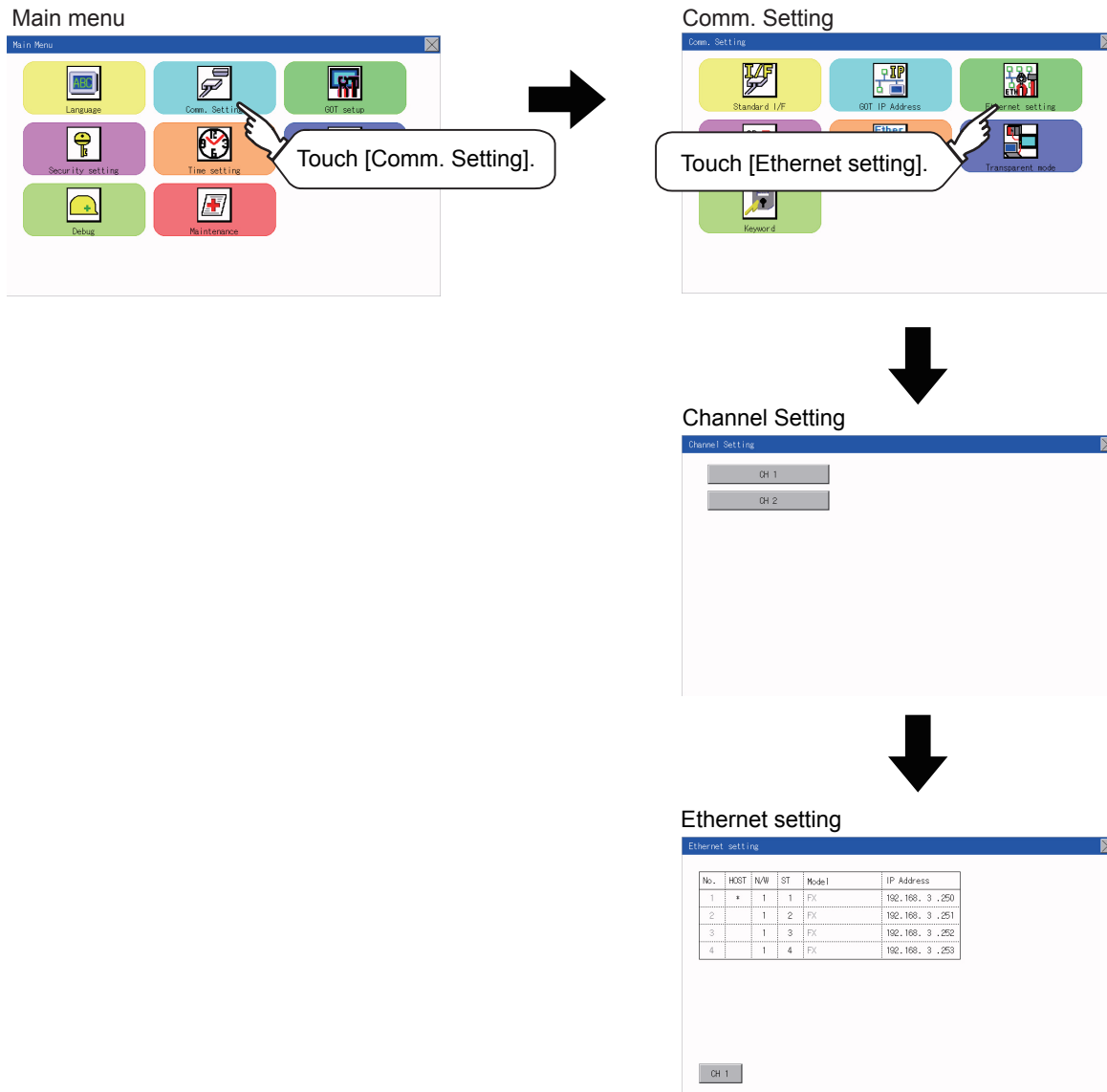
Ethernet setting

Display contents of Ethernet setting

The following describes the setting items and the display contents of the Ethernet setting.

Ethernet setting items ────

Ethernet setting					☒
No.	HOST	N/W	ST	Model	IP Address
1	*	1	1	FX	192.168. 3 .250
2		1	2	FX	192.168. 3 .251
3		1	3	FX	192.168. 3 .252
4		1	4	FX	192.168. 3 .253

Channel select tab ──── CH 1
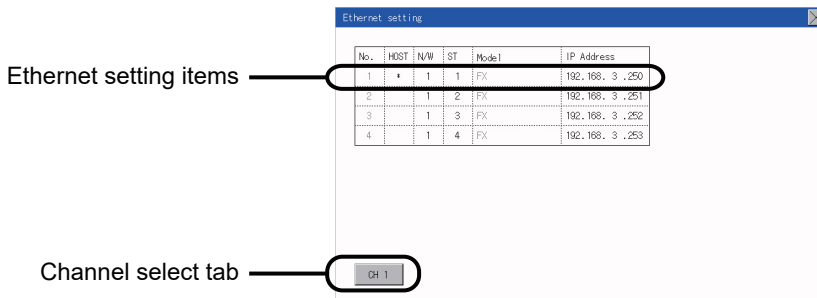
Channel select tab

Channels can be switched.

Switching to the channel which does not have the Ethernet setting is not available.

Ethernet setting items

The contents of the Ethernet setting configured in GT Designer3 are displayed.

Changing [Host], [Net No.], [Station No.] and [IP Address] are available.

Point

How to cancel the change of the setting in the [Ethernet setting] screen.

Cancel the settings changed in the [Ethernet setting] screen with the [Restore default settings] button.

The changed settings remain until they are canceled with the [Restore default settings] button.

The changed settings are not canceled even if writing the project data or system application to the GOT.

When the project data is written to the GOT without canceling the changed settings, those changed settings are reflected to the Ethernet setting of the written project data.

(If the written project data does not have a channel with same Ethernet settings as that of the channel changed in [Ethernet setting] screen, the changed settings are not reflected.)

11
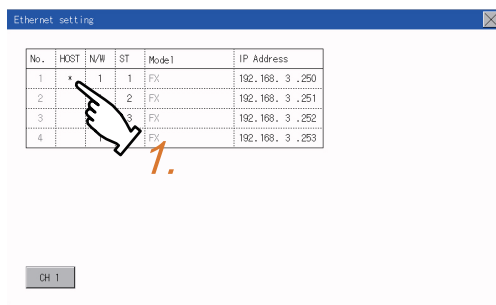
■Change of host

1. Touch the device to be set as the host.
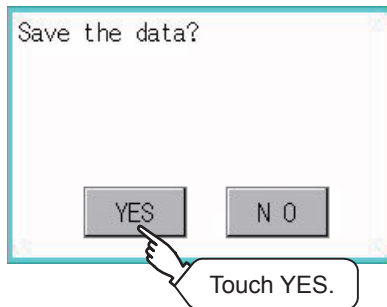
Touch YES.

2. After the setting change, touch the [×] key. When the screen shown on the left appears, touch the [YES] key.

■Change of Net No.
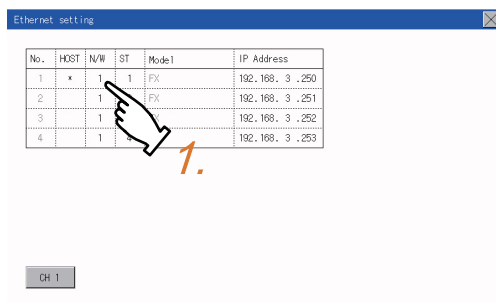
1. Touch the Net No. to be changed, and input the network No. to be changed by the numeric keypad displayed.
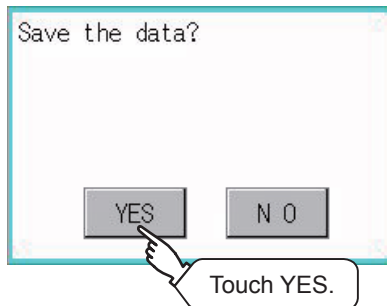
Touch YES.

2. After the setting change, touch the [×] key. When the screen shown on the left appears, touch the [YES] key.

■Change of station No.
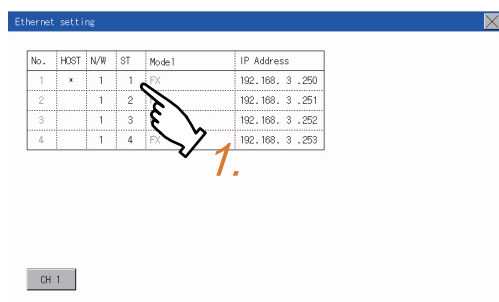
1. Touch the station No. to be changed, and input the station No. of the destination Ethernet module to be changed by the numeric keypad displayed.
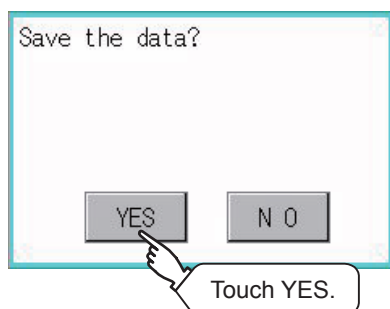
Touch YES.

2. After the setting change, touch the [×] key. When the screen shown on the left appears, touch the [YES] key.

■Change of IP address
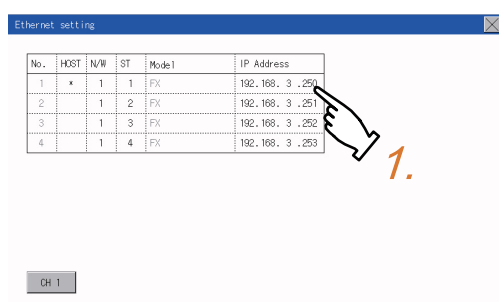
1. Touch the IP address to be changed, input the destination IP address to be changed by the numeric keypad displayed.
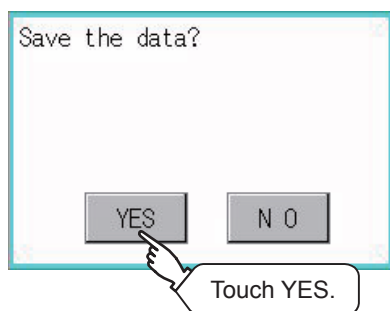
Touch YES.

2. After the setting change, touch the [×] key. When the screen shown on the left appears, touch the [YES] key.

11

11.4 Communication Monitor

Communication monitor functions

Function	Description
Communication port-selection status display	Indicates the connection status of Standard I/F-1 and I/F-2.
Communication status display	Displays the communication status (SD: send, RD: receive)
Communication error status display	Displays an error message when a communication error occurs

Communication monitor display operation

Screen display content

Connection status of
the communication ports   Communication error status

I/F-1   PLC

[NO ERROR]

MELSEC-FX

SD ←— Communication status

RD
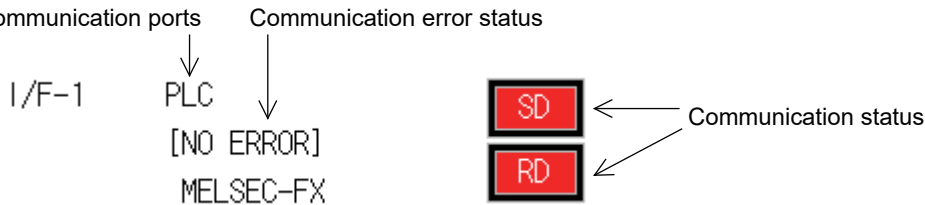
Connection status of the communication ports

Indicates the connection status of Standard I/F-1 and I/F-2.

Listed in the table below are display items and the connection status (channel number).

Display item	Channel number	Remark
PLC	Ch1	"PLC" appears when connected to a controller (PLC or microcomputer)
Barcode	Ch8	"BCR" appears when connected to a bar code reader
TRANS.	Ch9	"TRANS." appears when the controller that is allocated to one of the communication ports supports the transparent mode "TRANS." automatically changes to "PC" when communicating with drawing software
Host(PC)	Ch9	"PC" appears when the controller that is allocated to one of the communication ports does not support the transparent mode
Printer	ChA	Appears when connected to a printer.

Communication status

Displays the communication status of each communication port.

The SD and RD symbols appear in white on red (SD , RD) while data are being sent or received, and in black on gray (SD , RD) at other times. They may appear lit depending on the communication status.

The SD and RD symbols on the screen indicate normal communication or cable disconnection.

Setting example

Port	Channel number	Controller type
I/F-1	Ch1	MELSEC-FX
I/F-2	Ch8, Ch9	-

■[During normal communication (with connection to a device that supports the transparent mode)]

I/F-1   PLC

[NO ERROR]

MELSEC-FX

SD

RD
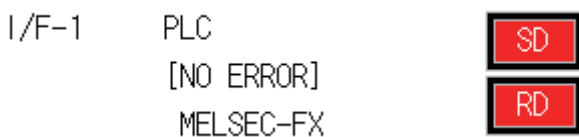
The SD and RD symbols for I/F-1

■[When the connecting cable with the controller is disconnected]

I/F-1   PLC

[TIME OUT]

MELSEC-FX

SD

RD
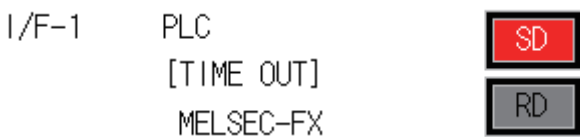
Only the SD symbol next to I/F-1 blinks.

Communication error status

Communication error status of each port is displayed on this screen.

The following table describes the communication status that each display item shows.

Display item	Status	Action
NO ERROR	No error	Communication is executed normally.
ERR Ovr.	Overrun error	The receive data is sent continuously with a short interval. Let the baud rate (communication speed) be equivalent between the GOT and counterpart equipment.
ERR Frm.	Framing error	The communication frames of GOT and PLC are inconsistent. Confirm the communication settings of GOT and PLC, such as data length, stop bit and baud rate.
ERR Prt.	Parity error	The parity check conditions of GOT and PLC are inconsistent. Let the parity check condition (odd or even) of GOT and PLC be consistent.
ERR Text	Text error	The sum data is inconsistent. Or the contents of the receive data are not consistent with the send command from the GOT. Let the communication settings and contents of data be consistent between the GOT and counterpart equipment. (If NAK is received while the GOT is connected to the microcomputer board, a text error occurs.)
TIME OUT	Communication timeout	Though receiving is started, receive data is not sent. Check the wiring between the GOT and its communication target. (When the GOT is connected to the microcomputer board, confirm the terminator, CR, wiring, etc.)
ERR Line	Control line error	The control line is not operating correctly. Confirm the wiring of the control line.
ERR Cmd.	Command error	A command contained in the receive data is not consistent with the send command from the GOT.

11.5 Ethernet Check

Ethernet check function

The Ethernet status check function sends a ping to check the connection status of Ethernet.

Display operation of Ethernet check

Main Menu

Debug

Ethernet check

Touch
[Debug].

Touch
[Ethernet check].
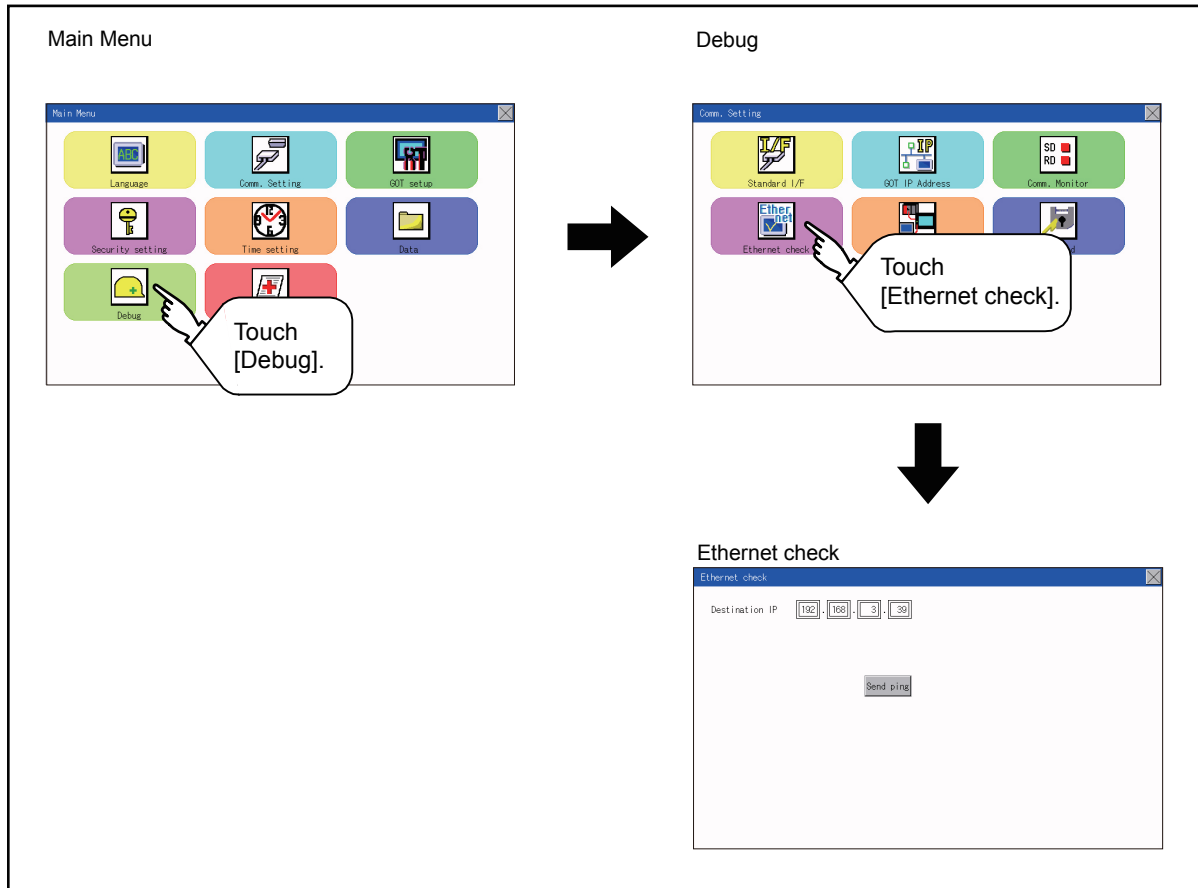
Operation of Ethernet status check
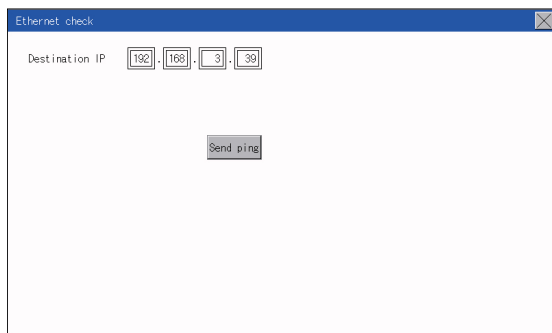
1. If the select button of [Destination IP] is touched, a keyboard is displayed. Enter the IP address of the other terminal with the keyboard. <Default: 192.168.3.39>
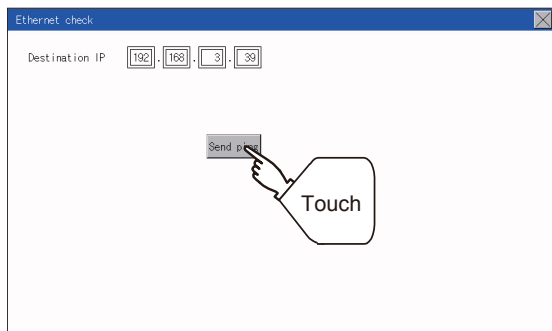
Touch

2. If the [Send ping] button is touched, a ping is sent to the IP address entered in [Destination IP]. The timeout time is 5sec.

When the communication is completed

The [Response received.] dialog box is displayed.

When a communication error occurs

The [Timeout occurred.] dialog box is displayed.

11.6 Setting the Transparent Mode

Function of the transparent mode

When using the multi-channel function, the channel No. of a controller to which the FA transparent function is executed can be set. For the multi-channel function and the FA transparent function, refer to the following.

📖 GOT2000 Series Connection Manual (Mitsubishi Product) For GT Works3 Version1

Function	Description	Setting range
ChNo.	The channel No. of a controller to which the FA transparent function is executed can be set.	1/2 (Default: 1)

Display operation the transparent mode setting

Main Menu

Comm. Setting

Touch [Comm Setting]

Touch [Transparent mode]

Transparent mode

CH 1

CH 2
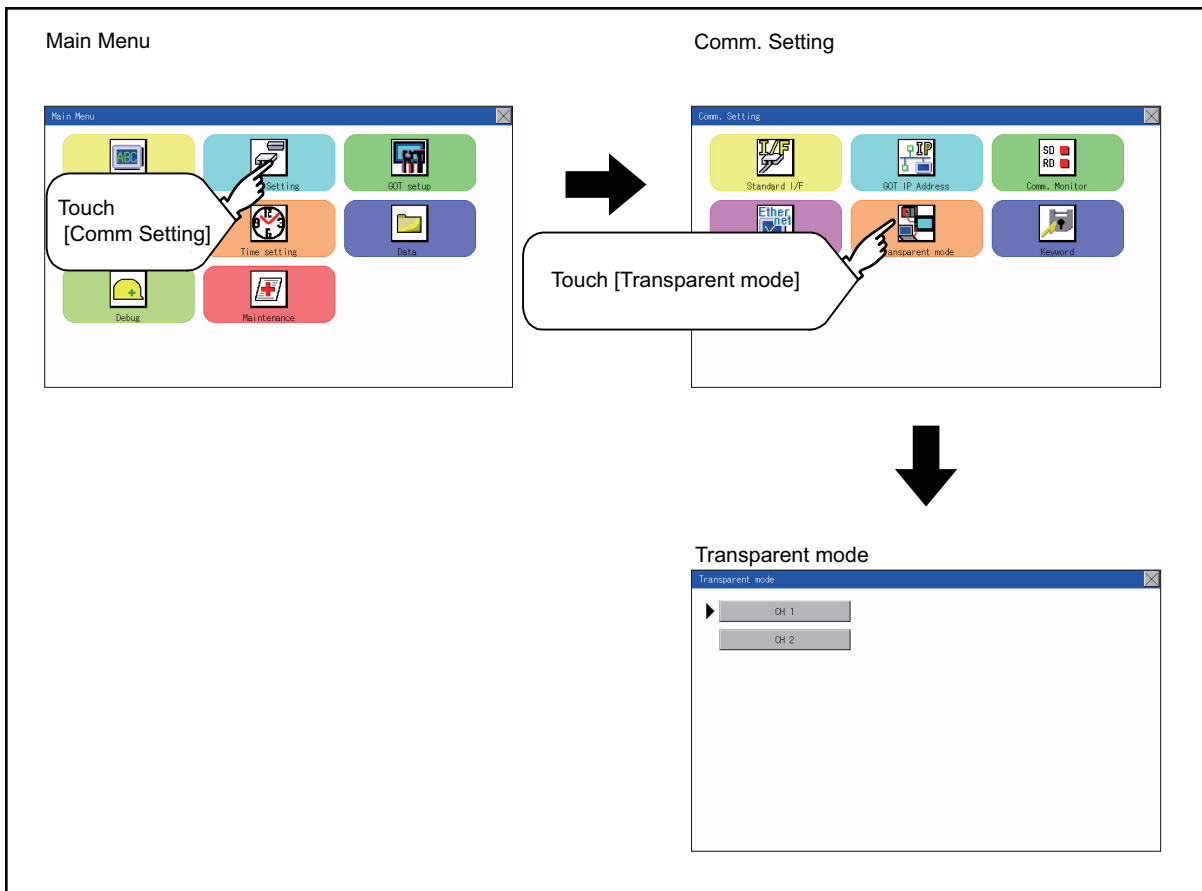
Operation the transparent mode

1.

2.

CH 1

CH 2
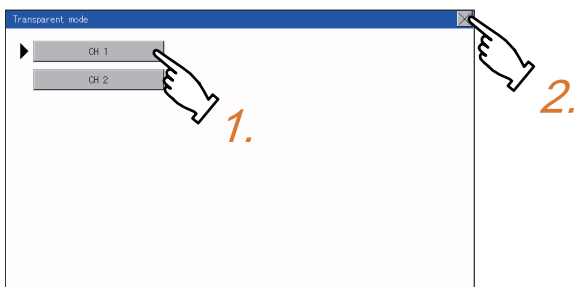
1. When the transparent ChNo. (numerical part) on the left is touched, the screen for selecting a communication driver is displayed. Select the channel to execute the FA transparent function.

2. If the [×] button is touched, it returns to the GOT setup screen.

11.7   Keyword

Keyword functions

The operation related to a keyword of the FX series PLC can be performed.

Function	Description
Regist	Keyword is registered.
Delete	Registered keyword is deleted.
Clear	Keyword protection is cleared.
Protect	A keyword with cleared protection is reactivated for protection.

Keyword display operation
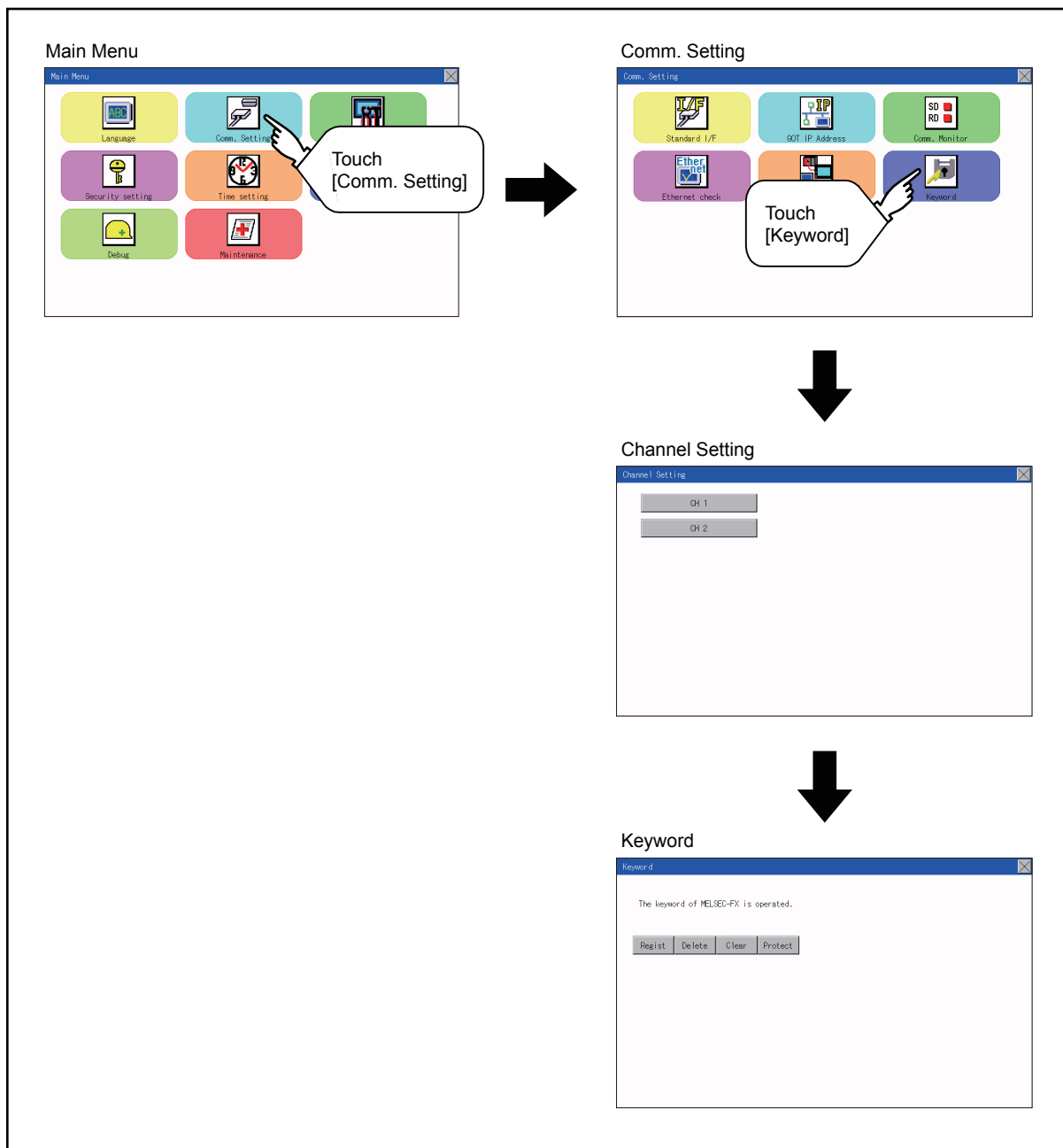
Regist

Keyword is registered.
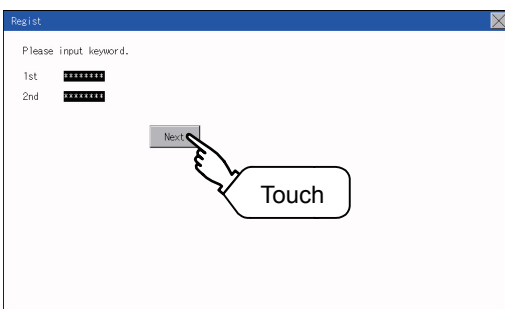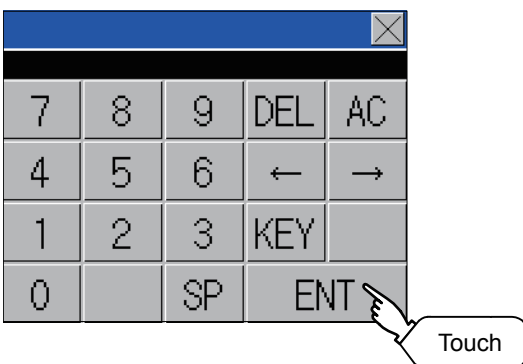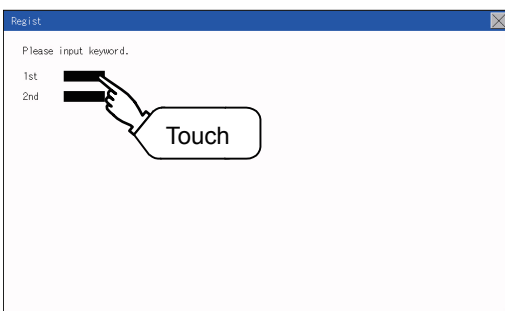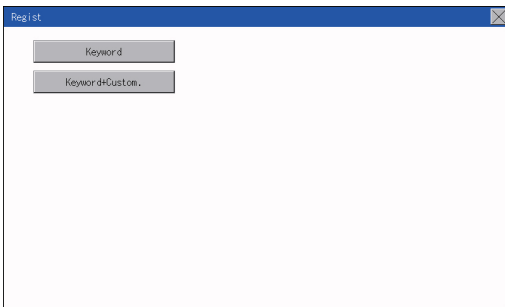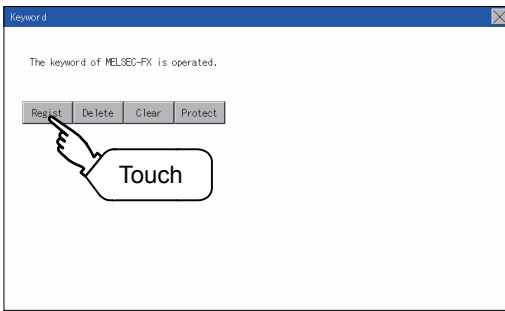
1. Touch "Regist" to display the selection screen for the registration. For the FX series PLC, which is not compatible with Customer Keyword, the keyword entry screen of [Step3] is displayed. Start the operation from [Step3]. For the Customer Keyword compatible models, refer to the manual of the PLC to be used.

2. Select [Keyword] or [Keyword+Custom]. To register only Keyword and 2nd keyword, touch [Keyword]. To register Customer Keyword, touch [Keyword+Custom].

3. Input a keyword. Touch the display part of the keyword to be registered.

4. The keyboard for entering a keyword is displayed. Character types to be input can be changed by touching the [KEY] button. Enter a keyword and touch the [ENT] key. For the keyword, 8 digits from 0 to 9 or A to F must be set.

5. After completing the keyword entry, touch [Next]. When [Keyword+Custom] is selected on the selection screen for the registration, the Customer Keyword entry screen is displayed. Enter it in the same way as for Keyword and 2nd keyword.
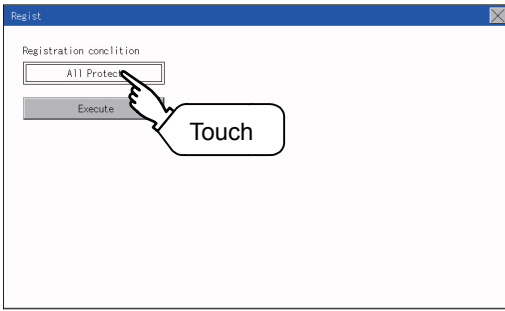
6. Set the registration condition. Touch the condition to change the selection.

All Protect → Write Protect → R/W Protect
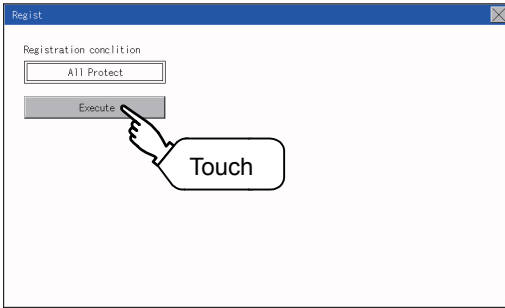
7. After setting the registration condition, touch the [Execute] key. The registration of the keyword is completed.
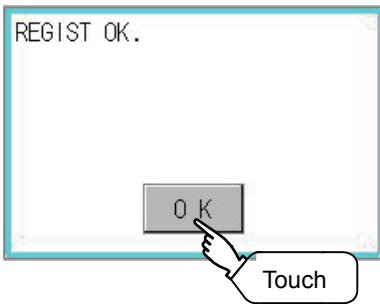
8. The registration of the keyword is completed. Touch [OK].

Selection availability of Registration condition

The following table lists the PLCs for which selection of a registration condition is available.

Target PLC	Setting	
	When keyword and 2nd keyword are registered	When only keyword is registered
FX PLC compatible with 2nd keyword[*1]	Registration options can be selected.[*2]	Registration options cannot be selected.
FX PLC not compatible with 2nd keyword[*1]	-	

*1 Refer to the manual for the PLC in use for the models that are compatible with the 2nd keyword.
*2 Registration options can be selected among "R/W Protect", "Write Protect", or "All online operation protection". For access restrictions of each setting, refer to the manual of the PLC to be used.

Selection of keyword protection level

For the devices which can perform the online operation of FX PLC, 3 levels of protection can be set.

When the monitoring or setting change by online devices is needed, set the keyword taking the following into consideration.

■When only keyword is registered

Protection level is selected by the head character of keyword.

All Protect: Set the keyword starting with one of A, D to F, or 0 to 9.

Read/incorrect write protection: Set the keyword starting with B.

Erroneous write prohibition: Set the keyword starting with C.

■When keyword and 2nd keyword are registered

Applicability of monitoring for each keyword protection level

The applicability of monitoring for each protection level is as follows.

Item		When only keyword is registered			When keyword and 2nd keyword are registered			Keyword unregistered/ protection canceled
		All operation protect	Read/ Incorrect write protection	Erroneous write prohibition	All online operation prohibited	R/W Protect	Write Protect	
Device monitoring		○	○	○	×	○	○	○
Device change	T, C setting values and file register (from D1000)	×[*1]	×[*1]	×[*1]	×	○	○	○
	Other than the above	○	○	○	×	○	○	○

*1 When the T, C set values are specified indirectly, changing devices is available.

Difference between "All online operation protection" and "All Protect"

When "All online operation protection" is selected, both device display and input by the programming tool or GOT are prohibited.

When "All Protect" is selected, device display and input are possible although operations by the programming tool are all prohibited.

Delete

Registered keyword is deleted.
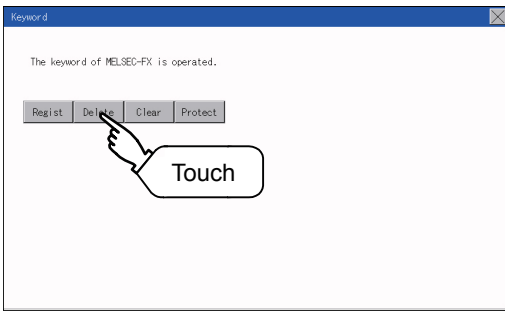
Touch

1. Touch [Delete] to display the keyword entry screen.
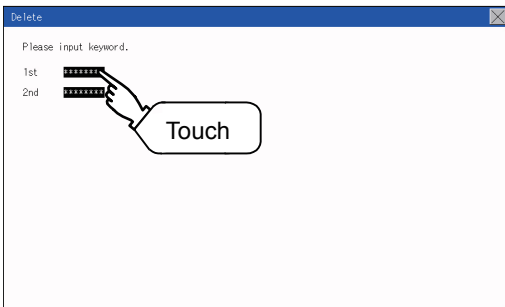
Touch

2. Input a keyword. Touch the display part of the registered keyword.

Target PLC	Setting
FX PLC compatible with 2nd keyword	Input a keyword to be deleted.
FX PLC not compatible with 2nd keyword	Input a keyword to be deleted only into "keyword". "2nd keyword" is ignored.

Touch

3. The keyboard for entering a keyword is displayed. Enter a keyword and touch the [ENT] key. Character types to be input can be changed by touching the [KEY] button.

Touch

4. After completing the keyword entry, touch [Next].

5. Touch the [Execute] key.

6. The keyword is deleted. Touch [OK].

Clear

To access an FX PLC where a keyword has been registered, keyword protection is cleared.

1. Touch [Clear] to display the keyword entry screen.
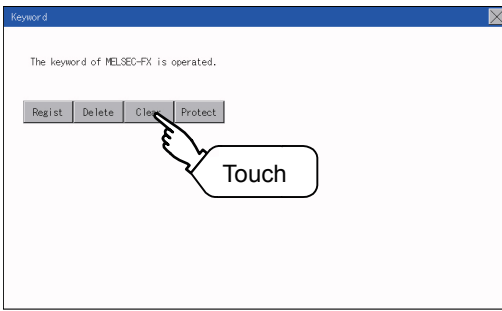
2. Input a keyword. Touch the display part of the registered keyword.
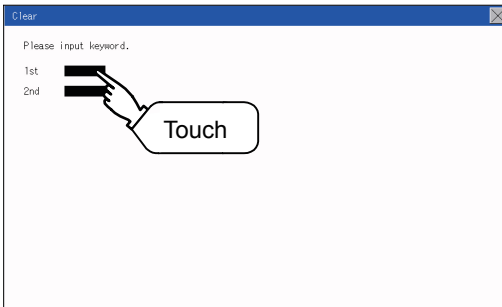
Target PLC	Setting
FX PLC compatible with customer keyword	Input a keyword or customer keyword to clear the protection.
FX PLC compatible with 2nd keyword	Input a keyword to clear the protection.
FX PLC not compatible with 2nd keyword	Input a keyword into "keyword" to clear the protection. "2nd keyword" is ignored.

3. The keyboard for entering a keyword is displayed. Enter a keyword and touch the [ENT] key. Character types to be input can be changed by touching the [KEY] button.
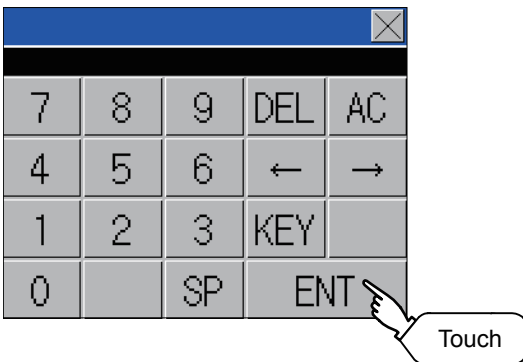
4. After completing the keyword entry, touch [Next].
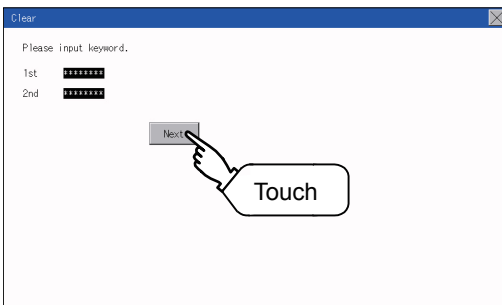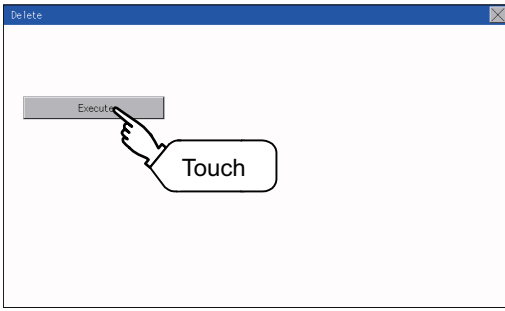
5. Touch the [Execute] key.
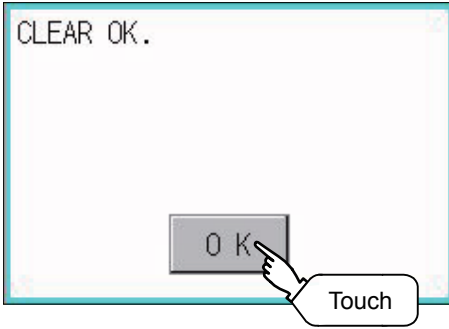
6. The protection is cleared. Touch [OK].

Protect

A keyword with cleared protection is reactivated for protection. Keyword protection function is valid when the 2nd keyword is registered.
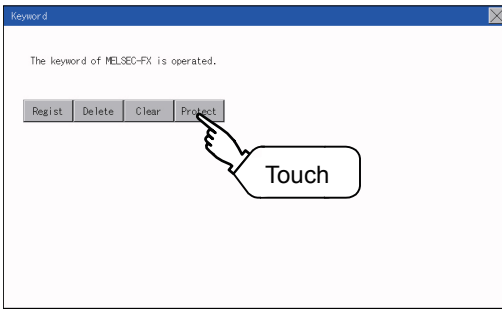
1. Touch [Protect] to switch to the keyword protection status.
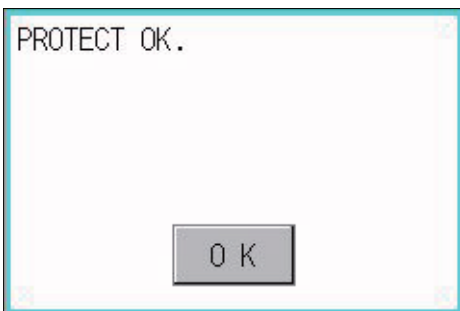
2. The keyword is protected. Touch [OK].

12 DISPLAY AND OPERATION SETTINGS (GOT SET UP)

The setting screens related to the display or operation can be displayed from the utility screen.

In the setting screen for display and the setting screen for operation, the following settings can be set.

Item	Description	Reference
Display settings	Setting the title display period and screen saving time	☞ Page 107 Display setting functions
	Brightness	
Operation settings	Setting buzzer volume, window move buzzer, and key reaction speed	☞ Page 112 Setting operation of operation
	Touch panel calibration	☞ Page 113 Position correction of the touch panel (touch panel calibration setting)
	Utility call key	☞ Page 115 Setting the utility call keys

12.1 Display Settings

Display setting functions

Setting regarding display is possible.

The items which can be set are described below. If touch the each item part, the respective setting becomes possible.

Item	Description	Setting range
Opening time	The title display period at the main unit boot can be set.	0 to 60 seconds[1] (At factory shipment: 5 seconds)
Screen save time	The period from the user stops the touch panel operation till the screen save function starts can be set.	0 to 60 minutes (At factory shipment: 0 minute)
Brightness	Brightness can be adjusted. ☞ Page 109 Brightness	-

*1 Even if 0 is set, the title screen is still displayed. The title screen is always displayed for 4 seconds or more (depending on the project data).

Point℘

• Display setting by GT Designer3

Set title display period, screen save time and screen save backlight by selecting [Common] → [GOT Environmental Setting] → [GOT Setup] on GT Designer3.

When change a part of the setting, change the setting by the GOT display setting after downloading the project data.

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• Screen save time

By using the system information function, the screen save function can forcibly enabled from a controller (Forced Screen Saver Disable Signal) or the screen saving time set in the utility can be disabled (Automatic Screen Saver Disable Signal).

📖GT Designer3 (GOT2000) Screen Design Manual

Display operation of display setting

Main Menu

GOT setup

Touch
[GOT setup].

Touch
[Display].

Display

Opening time   5 sec
Screen save time   0 Min(0:None)
Brightness   Setting...
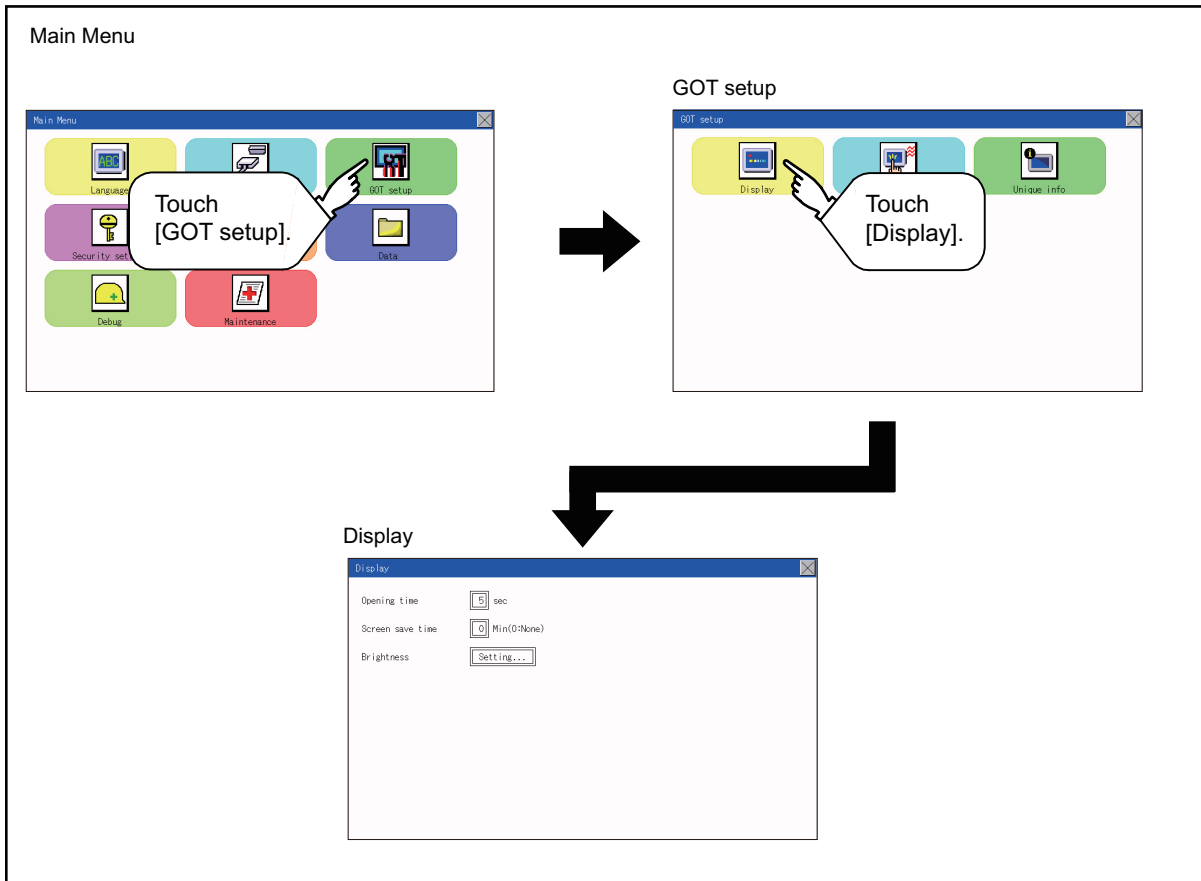
Display setting operations

The title display period and screen saving time

1. If the setting items (numbers) are touched, a keyboard is displayed. Input numeric with the keyboard.
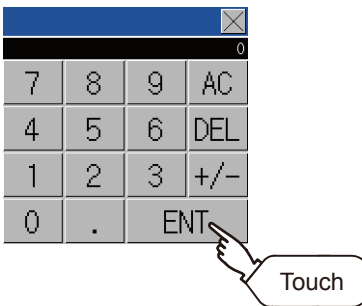
Touch

2. Set the title display period with the ten-key pad window and touch "ENT".

Brightness
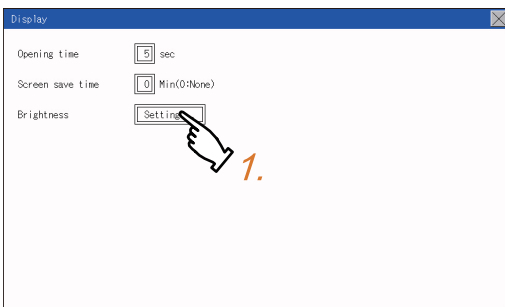
1. Touch [Brightness] to bring up the Brightness setting window.

Adjust brightness with the [−] and [+] buttons.
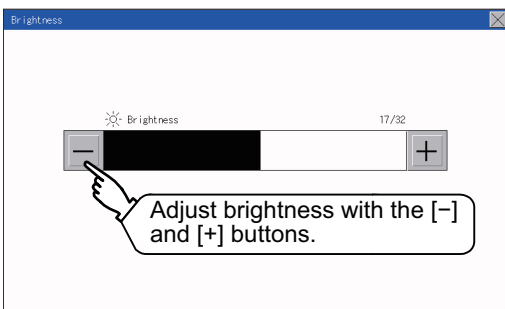
2. Touch the [+] and [-] buttons to adjust the brightness of the screen.
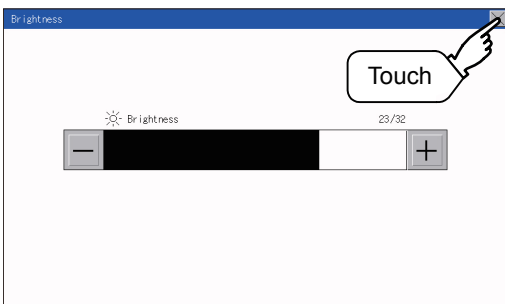
Touch

3. Touch the [×] button to reflect the setting.

12.2 Operation Setting (Settings for Operation)

Operation setting functions

Setting regarding GOT operation can be set.

The items which can be set are described below. If touch the each item part, the respective setting becomes possible.

Function	Description	Setting range
Buzzer volume	Buzzer volume setting can be changed.	OFF/SHORT/LONG (At factory shipment: SHORT)
Window move buzzer	Whether turn ON/OFF buzzer when move window can be selected.	ON/OFF (At factory shipment: ON)
Key reaction	The touch panel sensitivity when touching the GOT screen can be set. (For preventing chattering)	±0 to +120[*1]
Calibration	Calibrates the touch panel sensitivity ☞ Page 113 Position correction of the touch panel (touch panel calibration setting)	-
Utility call	Utility call key setting screen can be displayed ☞ Page 115 Setting the utility call keys	-

*1 At higher value set for [Key reaction], the slower the key responds.

"Key reaction" [ms]	Standard (±0)	+10	+20	+40	+80	+120

For example, when the GOT recognizes touching the GOT screen once as touching the screen twice, set a higher value for [Key reaction].

Point℘

Operation setting by GT Designer3

Set buzzer volume and window move buzzer volume by selecting [Common] → [GOT Environmental Setting] → [GOT Setup] of GT Designer3.

When change a part of the setting, change the setting by the GOT display setting after downloading the project data.

📖 GT Designer3 (GOT2000) Screen Design Manual

Display operation of operation setting

Main Menu

Main Menu

Touch [GOT setup].

GOT setup

GOT setup

Touch [Operation].

Operation

Operation

Buzzer volume	OFF
Window move buzzer	ON
Key reaction	Standard
Calibration	Setting...
Utility call	Setting...

Touch the item to be changed.
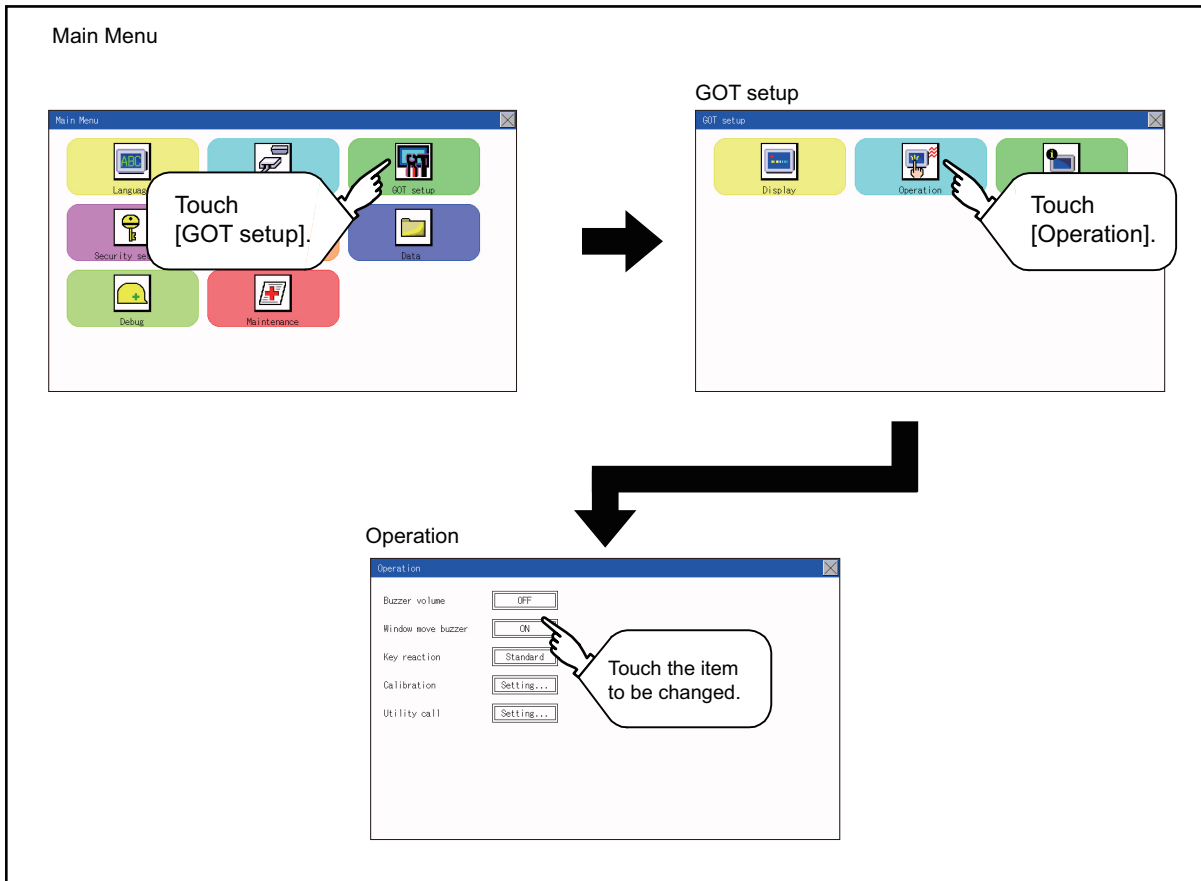
Setting operation of operation

Buzzer volume

1. Touch a setting item to change the setting.
(Buzzer volume: SHORT LONG OFF)

2. Touch the [×] button to save the changes.

Window move buzzer
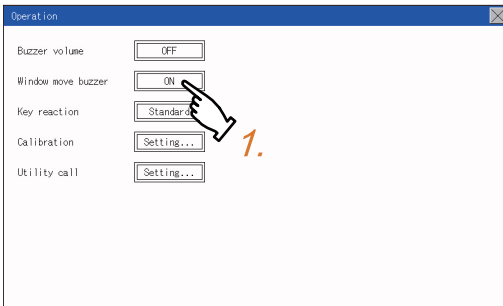
1. Touch a setting item to change the setting.
(Window move buzzer: ON OFF)

2. Touch the [×] button to save the changes.

Key reaction setting
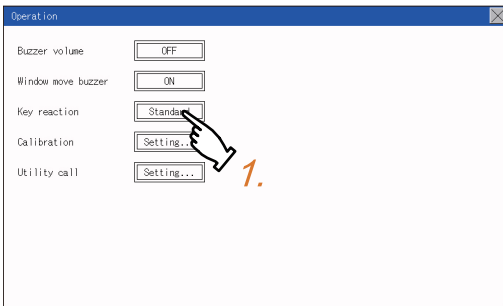
1. If touch the setup item, the setup contents[1] are changed.

2. After changing the setting, touch the [×] button. The setting is saved and the setting screen is closed.

*1 At higher value set for [Key reaction], the slower the key responds.

"Key reaction" [ms]	Standard (±0)	+10	+20	+40	+80	+120

For example, when the GOT recognizes touching the GOT screen once as touching the screen twice, set a higher value for [Key reaction].

Position correction of the touch panel (touch panel calibration setting)

Touch panel calibration setting function

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.

Before adjustment

After adjustment

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

The [Stop] button can be touched without fail.

Touch panel calibration setting display operation

Main menu

Touch [GOT setup].

GOT setup

Touch [Operation].

Calibration

+←PUSH

Calibration

Press on the center of mark, exactly.

Operation

Buzzer volume	OFF
Window move buzzer	ON
Key reaction	Standard
Calibration	Setting...
Utility call	Setting...

Touch [Calibration].

12

Touch panel calibration operation

Touch [+] displayed on the screen with the finger one by one to make the setting.

```
+←PUSH




         Calibration

  Press on the center of mark, exactly.
```

1. Touch the center of [+] displayed on the upper left precisely.

```



         Calibration

  Press on the center of mark, exactly.


+←PUSH
```

2. Touch [+] displayed on the lower left.

```
                    PUSH→+



         Calibration

  Press on the center of mark, exactly.
```

3. Touch [+] displayed on the upper right.

```



         Calibration

  Press on the center of mark, exactly.

                    PUSH→+
```

4. Touch [+] displayed on the lower right.

```
Setting Error.
Retry?




    YES        N O
```

5. When the precise touch could not be made, touch the [YES] button to make the setting from Step1 again.

Setting the utility call keys

Utility call key setting function

The key position for calling the main menu of the utility can be specified.

For the key position, the specification of 1 point from 4 corners on the screen, or no specification (0 point), can be set.

By keeping pressing the screen, a setting to switch the screen to the utility is available.

This prevents a switching to the utility by an unintentional operation.

> **Point**
>
> Operation setting by GT Designer3
>
> Set the utility call key by selecting [Common] → [GOT Environmental Setting] → [GOT Setup] from GT Designer3.
>
> When change a part of the setting, change the setting by the GOT display setting after downloading the project data.
>
> 📖GT Designer3 (GOT2000) Screen Design Manual

Utility call key display operation
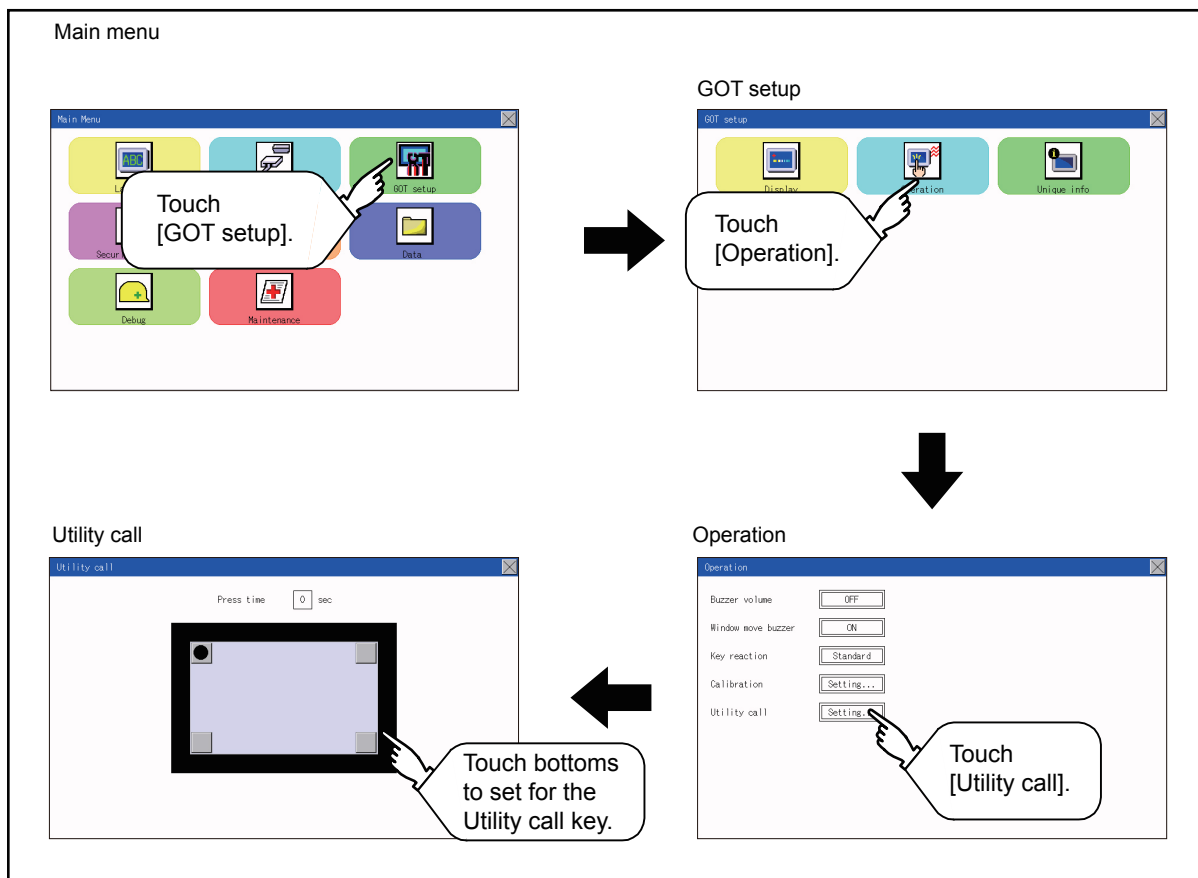
Utility call key setting operation
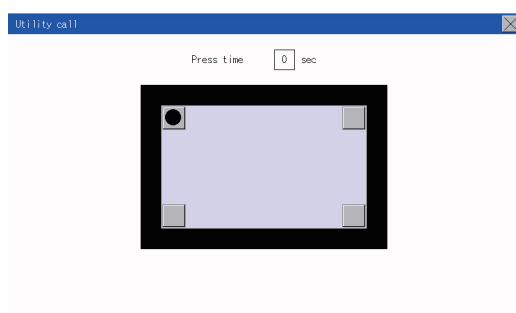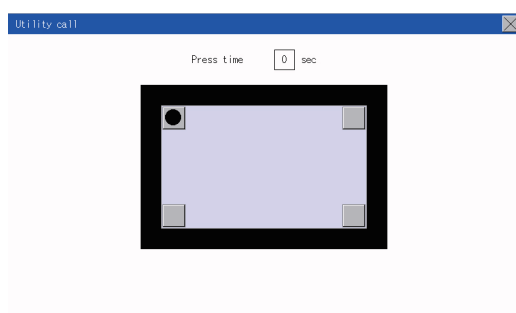
1. Touch ● or ☐ displayed at the four corners of the setting screen. The button repeats ● ↻ ☐ every time it is pressed. Change the part to be set as a key position to ● . For the key position, 0 or 1 point can be specified.

2. When setting 1 point, specify the time to switch to the utility in case of keeping pressing the key position. Touch the time input area.

3. Touching the input area displays a keyboard. Input numeric with the keyboard.

4. Touch the [×] button to save the changes.

Point

• When the utility call key is not set (set to 0-point)

Even when the utility call key is not set (set to the zero point), you can display the main menu by performing the following operation.

Pressing the special function switch set on the user-created screen

☞ Page 70 Display operation of main menu

• Precautions on using the alarm popup display

When [Display Position Switching] is set to [Yes] in the alarm popup display setting, set either of the following for the utility call key.

Setting the position of the utility call key to the upper-right or lower-left corner

Setting [Press Time] of the utility call key to 1 or more seconds

When [Press Time] is set to 0 and the key position is set to the lower-left corner, the operation is as described below. If the positions of the key and the alarm popup display overlap, the utility screen appears by switching the display position of the alarm popup display.

For the alarm popup display, refer to the following.

📖 GT Designer3 (GOT2000) Screen Design Manual

• When limiting the display and operation of the utility

When limiting the display and operating users, set a password to the GOT using GT Designer3. If a user tries to display the main menu of the utility, the password is displayed.

Refer to the following for the details related to the password setting.

📖 GT Designer3 (GOT2000) Screen Design Manual

12.3 Inherent Information

Setting function for inherent information

Configure inherent information settings.

Item	Description	Setting range
GOT ID No.	Set the ID No. as the inherent information for the GOT.	0 to 32767 <Default: 0>

Display operation of inherent information

Main menu

Touch
[GOT setup].

GOT setup

Touch
[Unique info].

Unique info

GOT ID No.   0
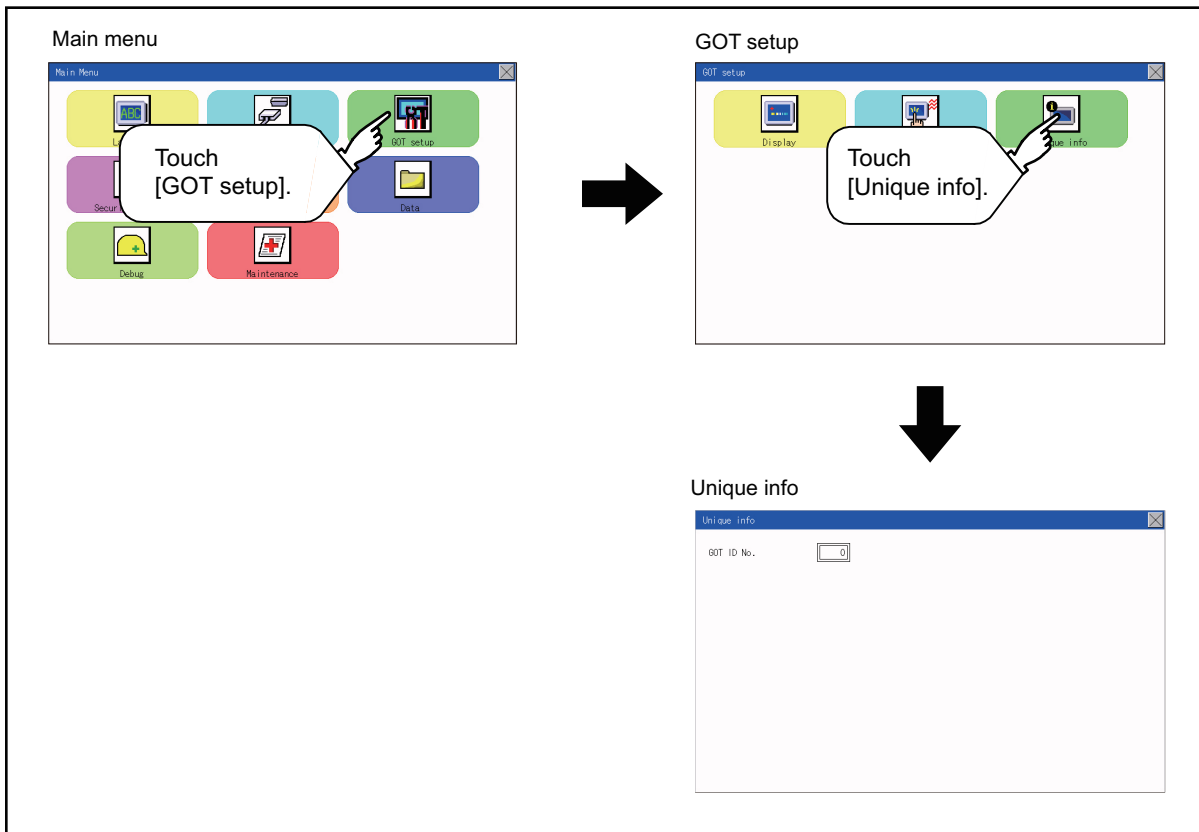
Setting operation for inherent information

Unique info

GOT ID No.   0
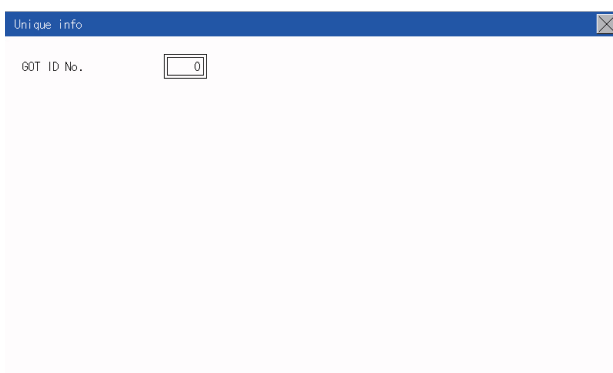
1. If touching the setting items, keyboard is displayed. Input numeric with the keyboard.

2. If touch the [×] button, the GOT restarts and operates with the changed settings.

12.4 GOT internal device monitor

Setting the GOT internal device monitor

Set whether to Use/Disuse the GOT internal device monitor of GOT diagnostics.

Item	Description	Setting range
GOT dev. monitor	Set whether to Use/Disuse the GOT internal device monitor of GOT diagnostics.	Disuse/Use <Default: Disuse>
GOT device change	Set whether to Allow/Forbid the GOT internal devices to be changed.	Forbid/Allow <Default: Forbid>

GOT internal device monitor display operation
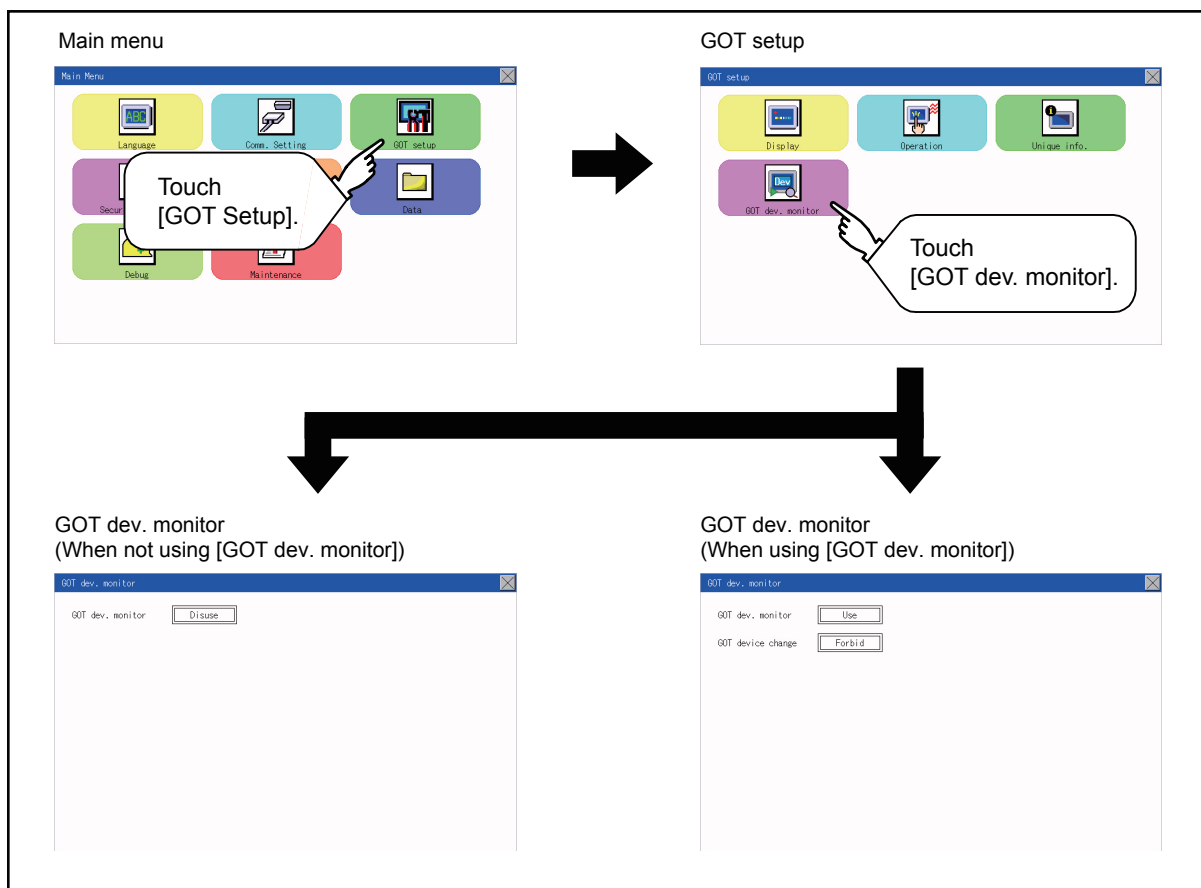
GOT internal device monitor setting operation

1. When using the GOT internal device monitor of GOT diagnostics, touch the setting item and set [Use].
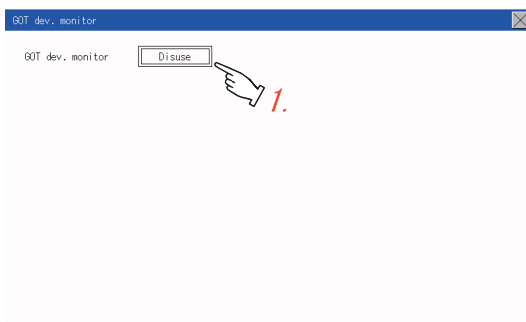
2. When allowing the GOT internal devices to be changed, touch the setting item of [GOT device change] and set [Allow].
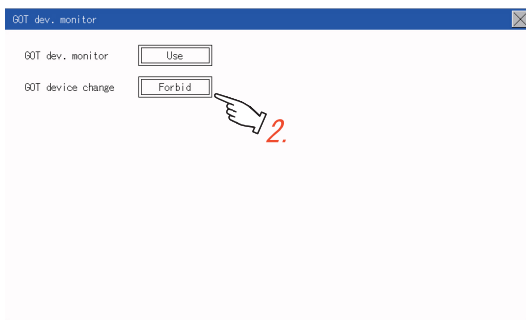
3. After changing the settings, touch the [×] button to save the changes and close the setting window.

12.5 VNC Server Function

Only available to GS21-W-N.

VNC server function setting

In the VNC server function setting, the authorization guarantee time for the VNC server function can be set.

For the details of the VNC server function, refer to the following.

📖 GT Designer3 (GOT2000) Screen Design Manual

Item	Description	Setting range
Authorization guarantee time	The time that the authorized equipment holds the authorization after you operate the authorized equipment can be set. (The unauthorized equipment cannot obtain the authorization until the set time elapses.)	0 to 3600 seconds <At factory shipment: 0 seconds>

Point

• Authorization guarantee time cancel signal (GS1792.b8)

When the Authorization guarantee time cancel signal (GS1792.b8) turns on, the authorization guarantee time setting is disabled.

• Relationship with the GOT network interaction function setting

The VNC server function setting is independent of the GOT network interaction function setting.

Both of the settings are enabled.

Display operation of the VNC server function setting
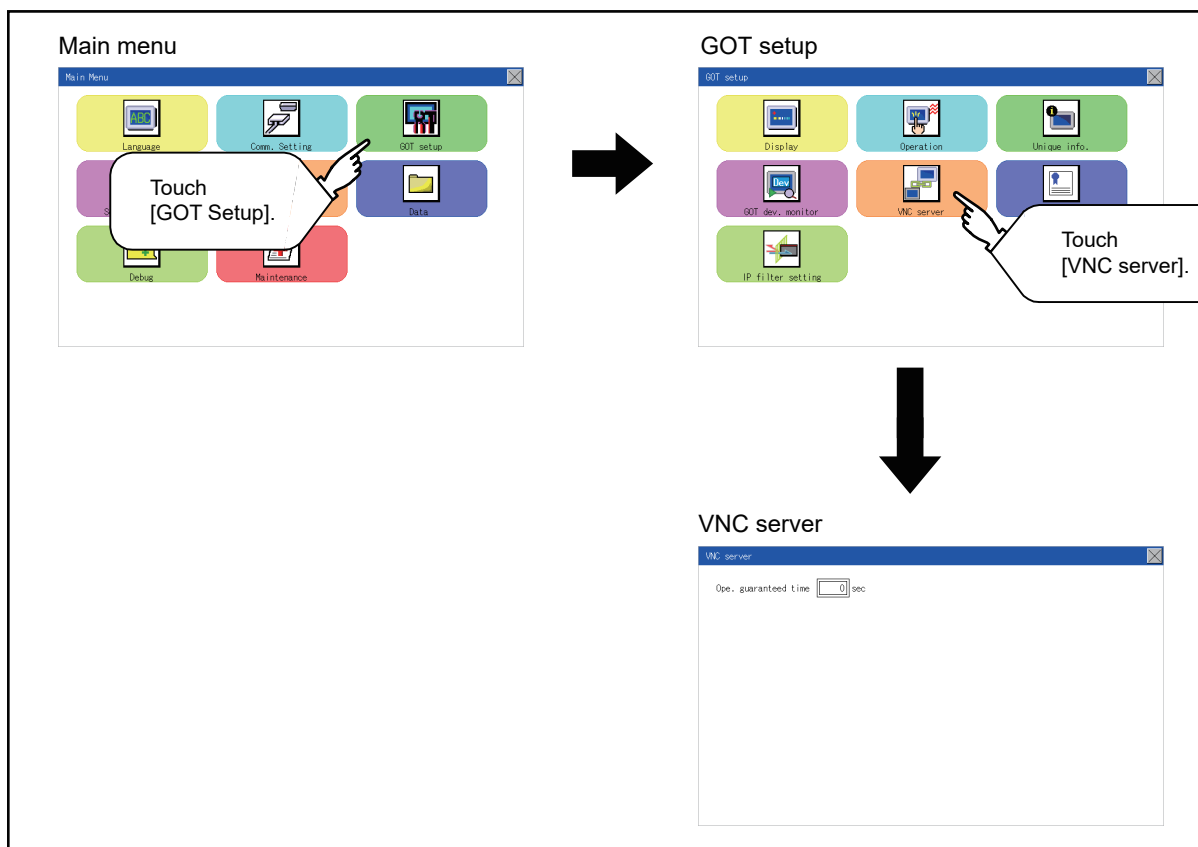
VNC server function setting operation

Authorization guarantee time

1. Touch the input field for [Ope. guaranteed time] to display a keyboard.

Input the authorization guarantee time with the keyboard.
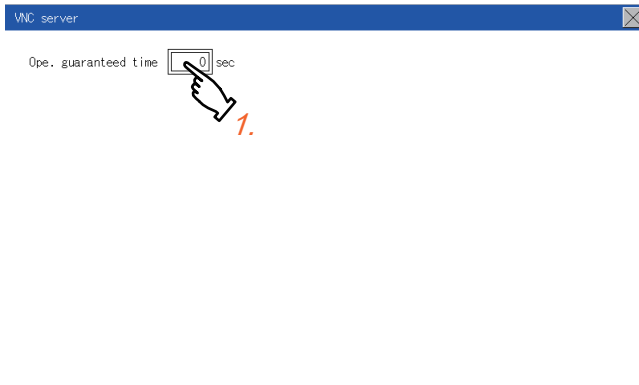
2. Touch the [×] button to apply the new setting and close the setting screen.

12.6 License Management

Only available to GS21-W-N.

License management setting

To use functions which require a license, register the license to the GOT.

To delete the license registered to the GOT, perform the operation also on the license management screen.

Item	Description	Setting range
VNC server function	Register or delete the license for the VNC server function.	-

You can register or delete licenses for the VNC server function.

For details on the VNC server function, refer to the following.

☞Page 120 VNC Server Function

Display operation of the license management setting
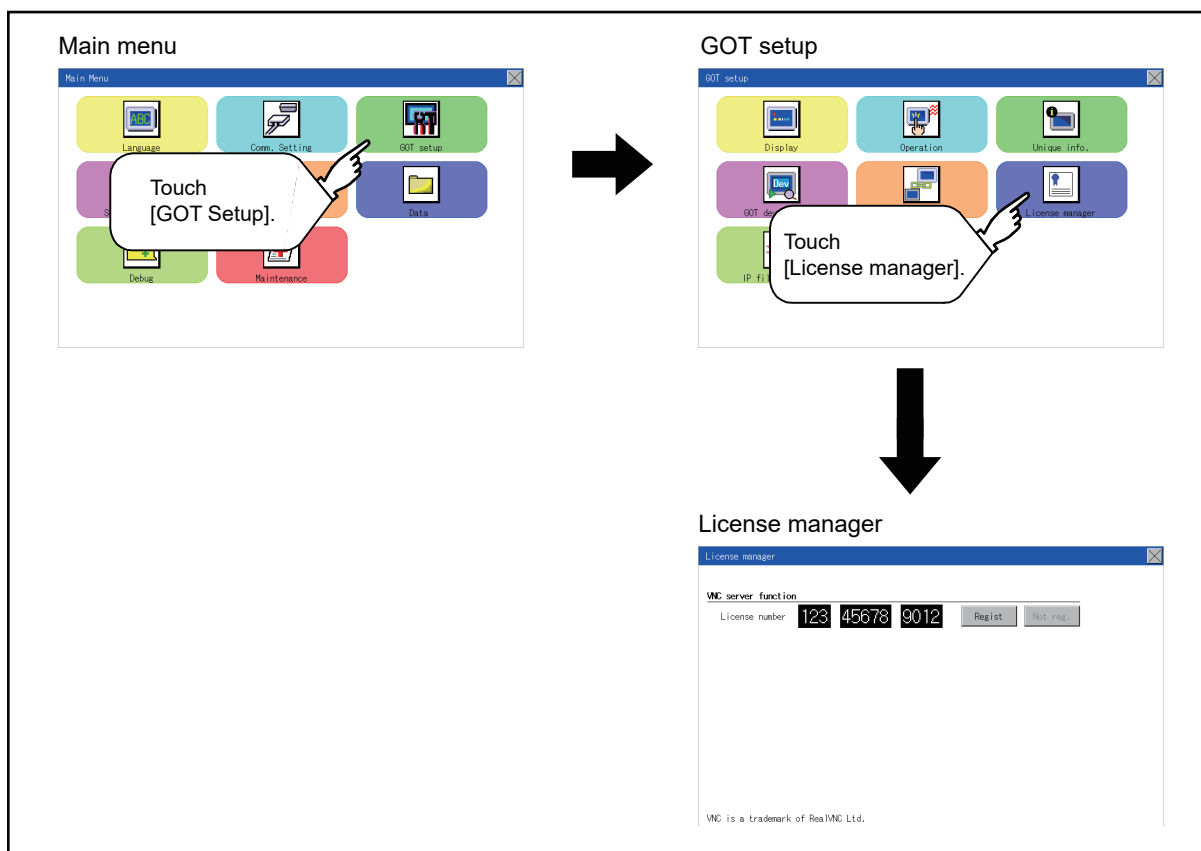
Setting operation of license management

When registering a license number for the GOT

1. Touch the license number input area on the license management screen, and then the keyboard appears on the bottom of the screen.
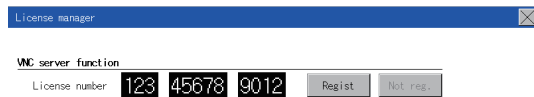
2. Touch the [Regist] button to register the input license number.

If the [×] button is touched without touching the [Regist] button, the license number is not registered.

3. After a license number is registered, touch the [×] button to close the license management screen.

When releasing a license number for the GOT

1. Touch the [Cancel reg.] button to release the registered license number.

2. Touch the [×] button to close the license management screen.

Point
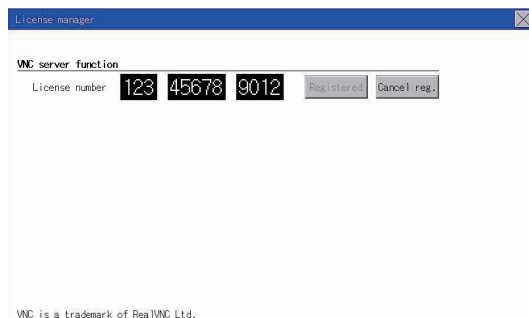
How to acquire a license number

For how to obtain a license number, consult your local sales office.

12.7 IP Filter Setting

IP filter setting

IP addresses from which access to the GOT is allowed or blocked can be set.

For the details of the IP filter setting, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

Item		Description	Setting range
IP filter usage		You can set whether to use or not the IP filter function.	Yes/No <Default: No>
Transmit/Block		You can set whether to allow or block access from the IP addresses specified in [IP address setting]. • If [Transmit] is selected Access from the IP addresses that are set for [Target IP address] is allowed. Access from the IP addresses that are set for [Exception IP address] is blocked. • If [Block] is selected Access from the IP addresses that are set for [Target IP address] is blocked. Access from the IP addresses that are set for [Exception IP address] is allowed.	Transmit/Block <Default: Transmit>
IP address setting	Range	You can set whether to register IP addresses by specifying a range. To specify a range, set the start IP address and the end IP address for [Target IP address].	Selected/Not selected <Default: Not selected>
	Target IP address	You can set IP addresses or IP address ranges to be filtered. Up to 4 ranges can be set.	0.0.0.0 to 255.255.255.255[*1] <Default: Blank>
	Exception IP address	This item can be set only when [Range] is selected. For an IP address range specified in [Target IP address], set IP addresses excluded from being filtered. Up to 16 addresses can be set for one range specified in [Target IP address].	0.0.0.0 to 255.255.255.255[*1] <Default: Blank>

*1　Leave the boxes blank if you do not set any IP addresses.

Display operation of the IP filter setting
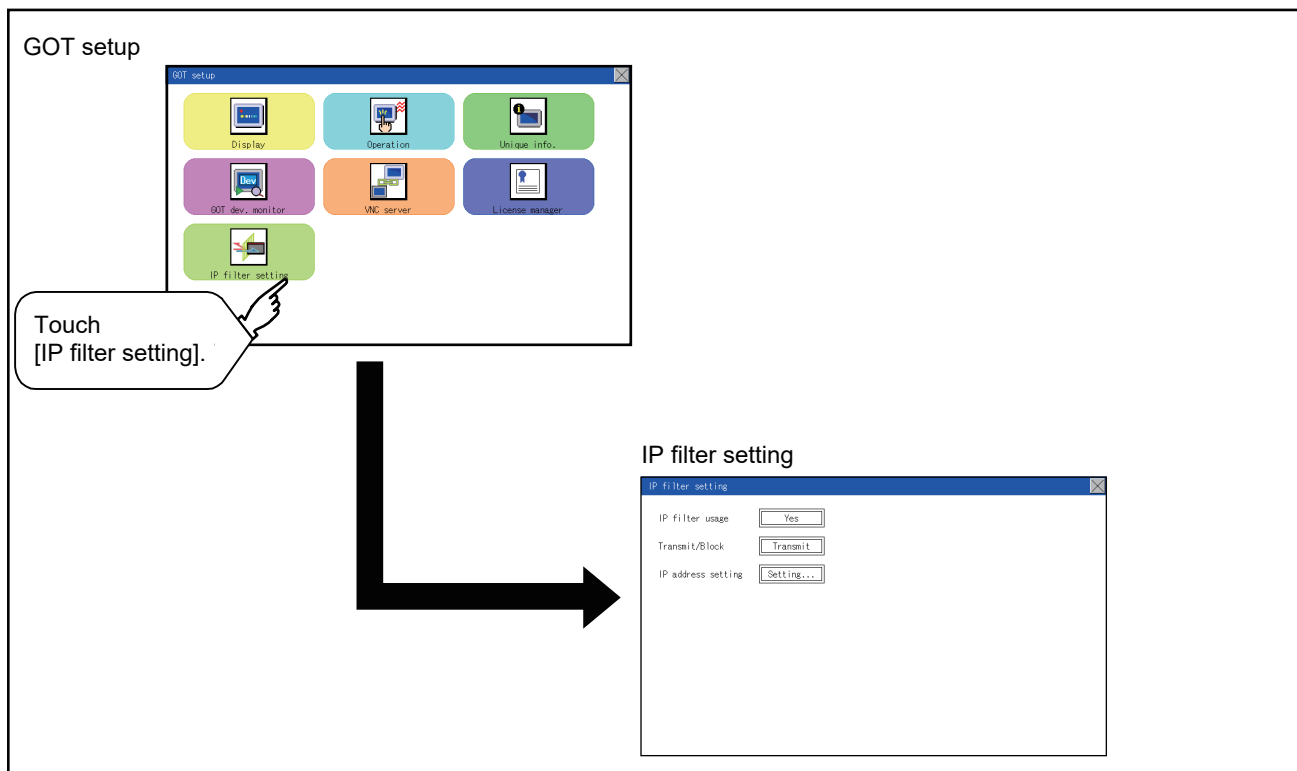
Setting procedure for the IP filter

Setting the IP filter

1. Select [Yes] for [IP filter usage] by touching the current selection.
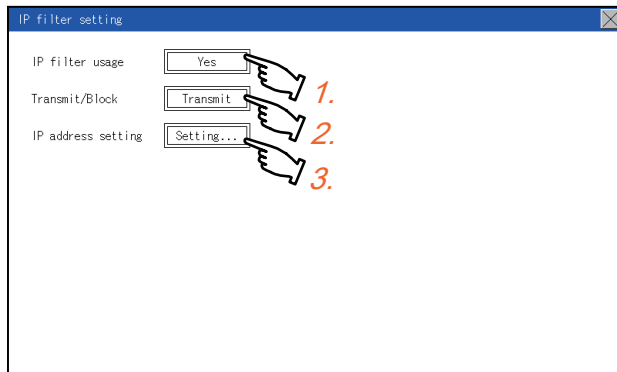
2. Select [Transmit] or [Block] for [Transmit/Block] by touching the current selection.

3. Touch the [Setting] button of [IP address setting] to display the [IP address setting] screen.
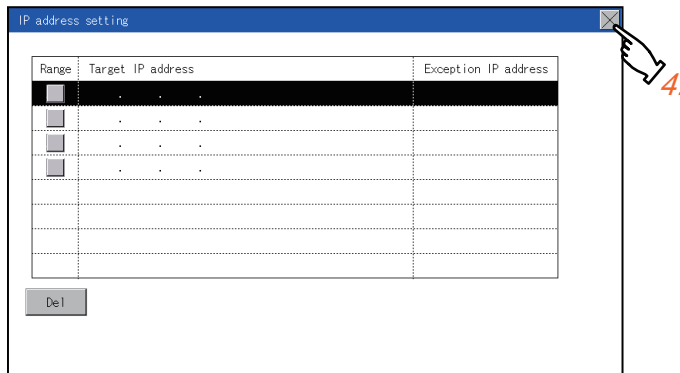
Refer to the following, and set an IP address.

4. After configuring the settings, touch the [×] button to display the [IP filter setting] screen.

5. Touch the [×] button to display the following screen.
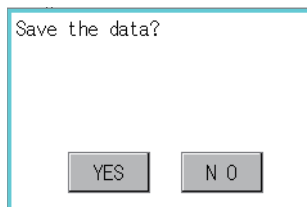
6. Touch the [YES] button to restart the GOT and reflect the setting.

To cancel the new settings, touch the [NO] button to return to the [GOT setup] screen.

■Adding a target IP address

1. Touch a target row to select it.
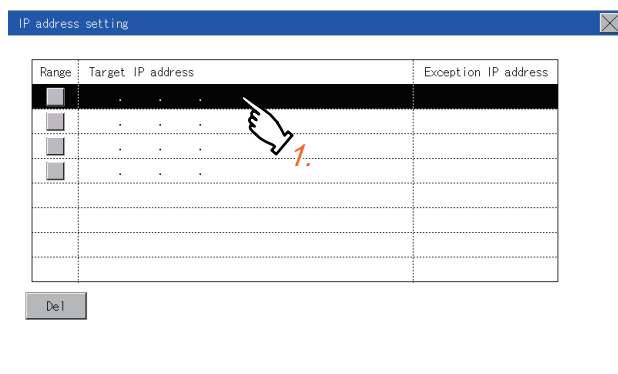
2. Touch the same row again to display the following screen.
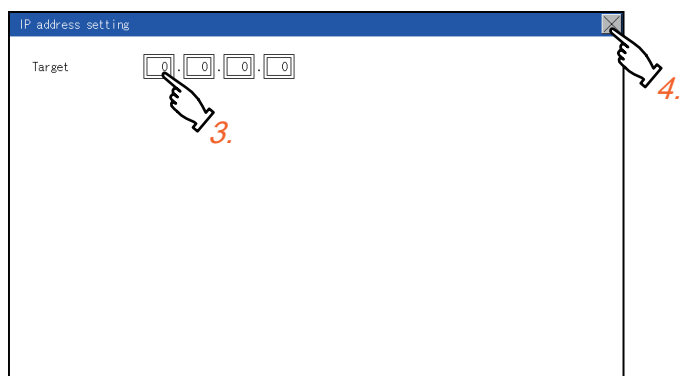
3. Touch a number to display a software keyboard.

Input an IP address to be added.

4. Touch the [×] button to display the previous screen.

■Deleting a target IP address

1. Touch a target row to select it.
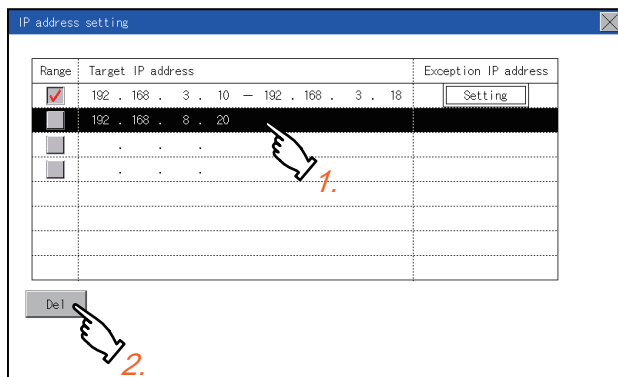
2. Touch the [Del] button to display the following screen.
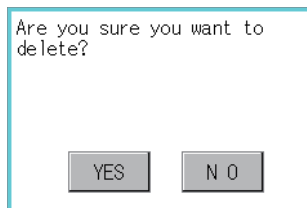
3. Touch the [YES] button to delete the selected IP address.

To cancel the deletion and return to the previous screen, touch the [NO] button.

■Specifying IP address ranges

1. Touch a checkbox in [Range] to select the row.
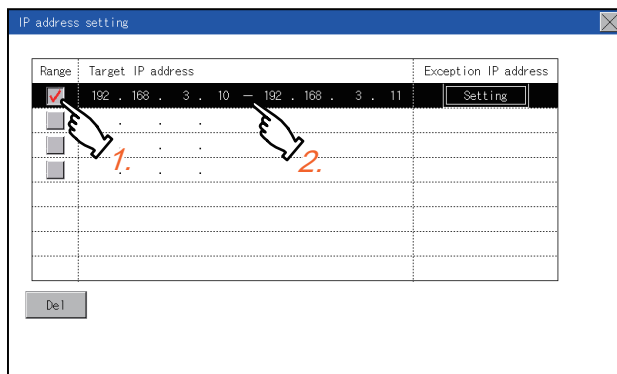
2. Touch the same row again to display the screen shown below.
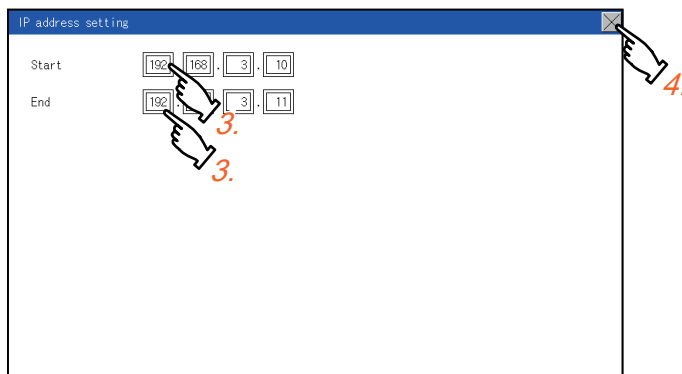
3. Touch a number to display a software keyboard. Input the start IP address and end IP address of the range to be filtered.

4. Touch the [×] button to display the previous screen.

■Setting exception IP addresses

[Exception IP address] can be set only when [Range] is selected.

1. Select a target row, and touch the [Setting] button.
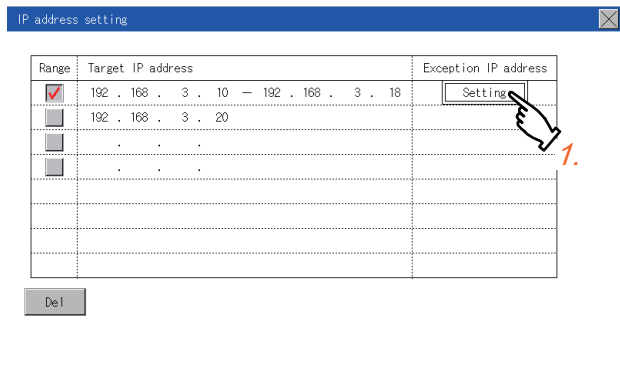
2. Touch a target row to select it.
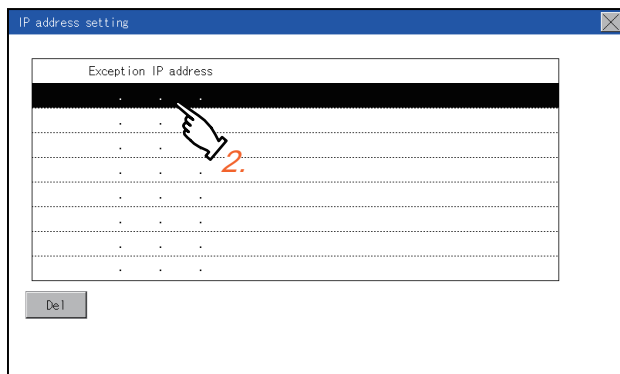
3. Touch the same row again to display the screen shown below.
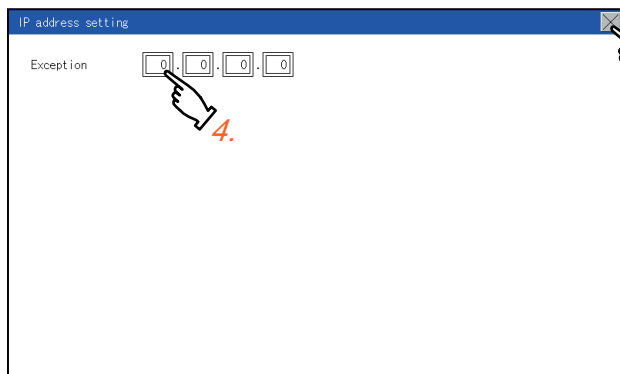
4. Touch a number to display a software keyboard. Input an exception IP address.

5. After completing the entry, touch the [×] button.

6. On the displayed screen, touch the [×] button to display the previous screen.

MEMO
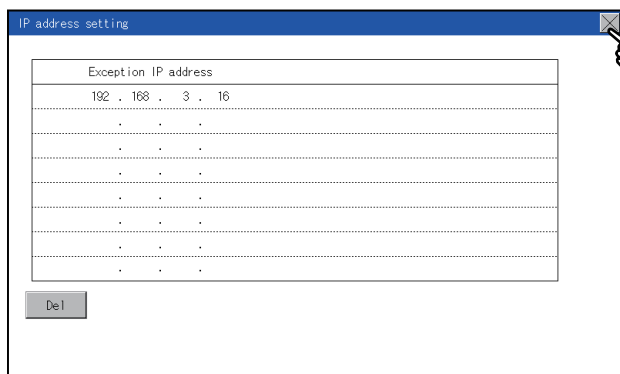
13 SECURITY LEVEL AND OPERATOR SETTINGS (SECURITY SETTING)

13.1　Security Level Authentication

Security level change functions

Changes the security level to the same security level set by each object or screen switch.

To change the security level, enter the password for the security level set with GT Designer3.

📖 GT Designer3 (GOT2000) Screen Design Manual

Point

Restrictions on screen display

The security level change screen cannot be displayed when project data do not exist in GOT.

Change the security level after downloading the project data to GOT.

Display operation of security level change
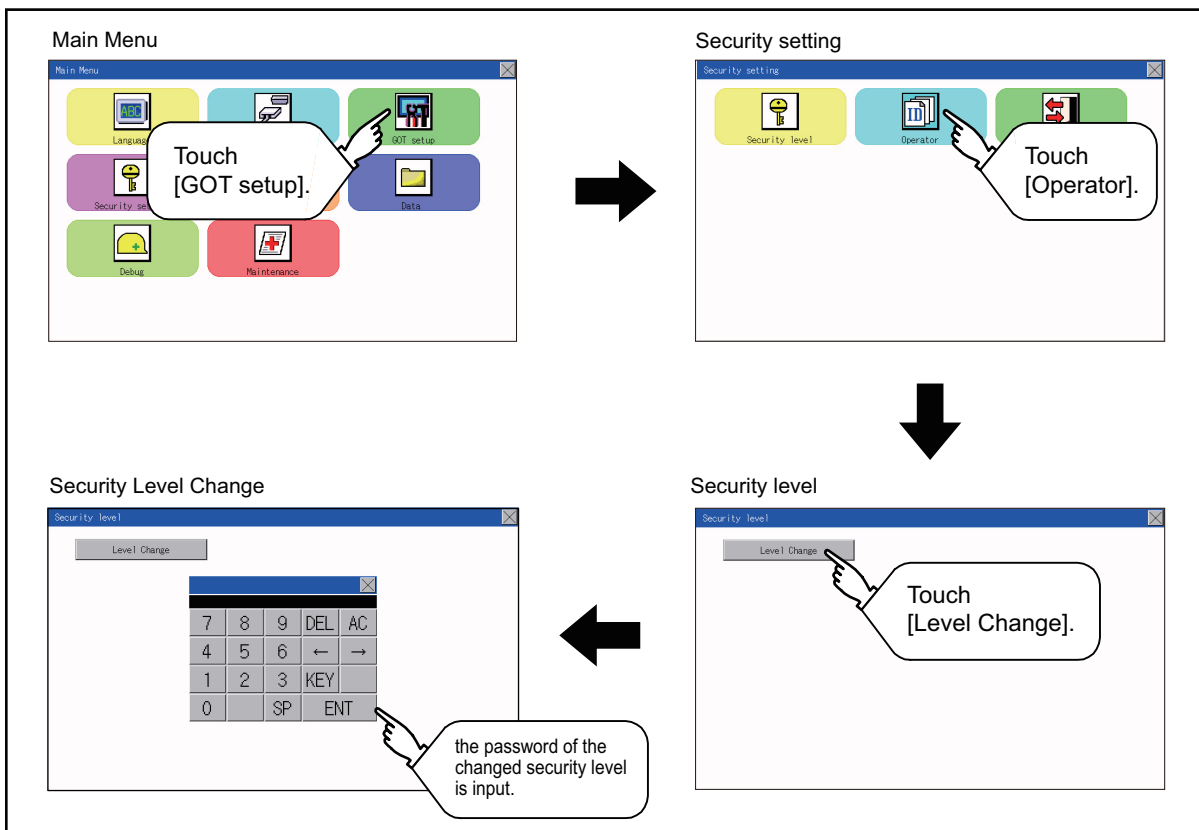
Security level change operation

■Input operation of password
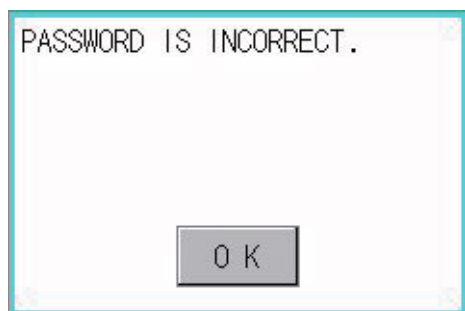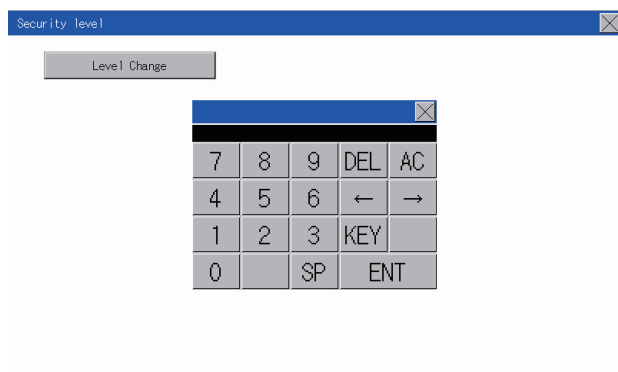
1. By touching [0] to [9], [A] to [F] key, the password of the changed security level is input. Character types to be input can be changed by touching the [KEY] button.

2. When correcting the input character, touch [Del] key to delete the correcting character and input the password again.

3. After inputting password, touch the [Enter] key. When the password is not matched, displays the error message.

4. If [OK] button is touched it returns to the password input screen again.

5. If the [×] button is touched, it returns to the security setting screen.

Point

About forgetting to return to the original level after changing security level temporarily

When use GOT after temporarily changing the security level, do not forget to return the security level to the original level.

13.2 Operator Authentication

Operator information management

Operator management

■Operator management function

The function enables displaying a list of the operator information and adding, changing, or deleting the operator information to be used.

A password for operator authentication can be changed when the password is out of date.

Functions for the operator authentication (automatic logout time, authentication method, password expiration date, etc.) can be set.

For details of the operator authentication functions, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

Function	Description	Reference
Operator info.	Enables adding, editing, deleting, importing, and exporting the operator information.	☞ Page 133 Operator management ☞ Page 136 Operator management
Add	Add operator information to the GOT.	☞ Page 137 Add operation
Edit	Edit the operator information stored in the GOT.	☞ Page 139 Edit operation
Delete	Delete the operator information stored in the GOT.	☞ Page 140 Deletion operation
Restore	Restore the current operator information to the previous saved one.	☞ Page 141 Import operation
Import	Import the operator information that is already exported to an SD card to the GOT.	☞ Page 141 Import operation
Export	Export the operator information stored in the GOT to an SD card.	☞ Page 142 Export operation
Password change	Enables changing passwords to be used for login and logout in/out of the GOT.	☞ Page 143 Password change
Function	Enables setting the automatic logout time and password expiration date.	☞ Page 145 Function setting

■Display operation of operator management
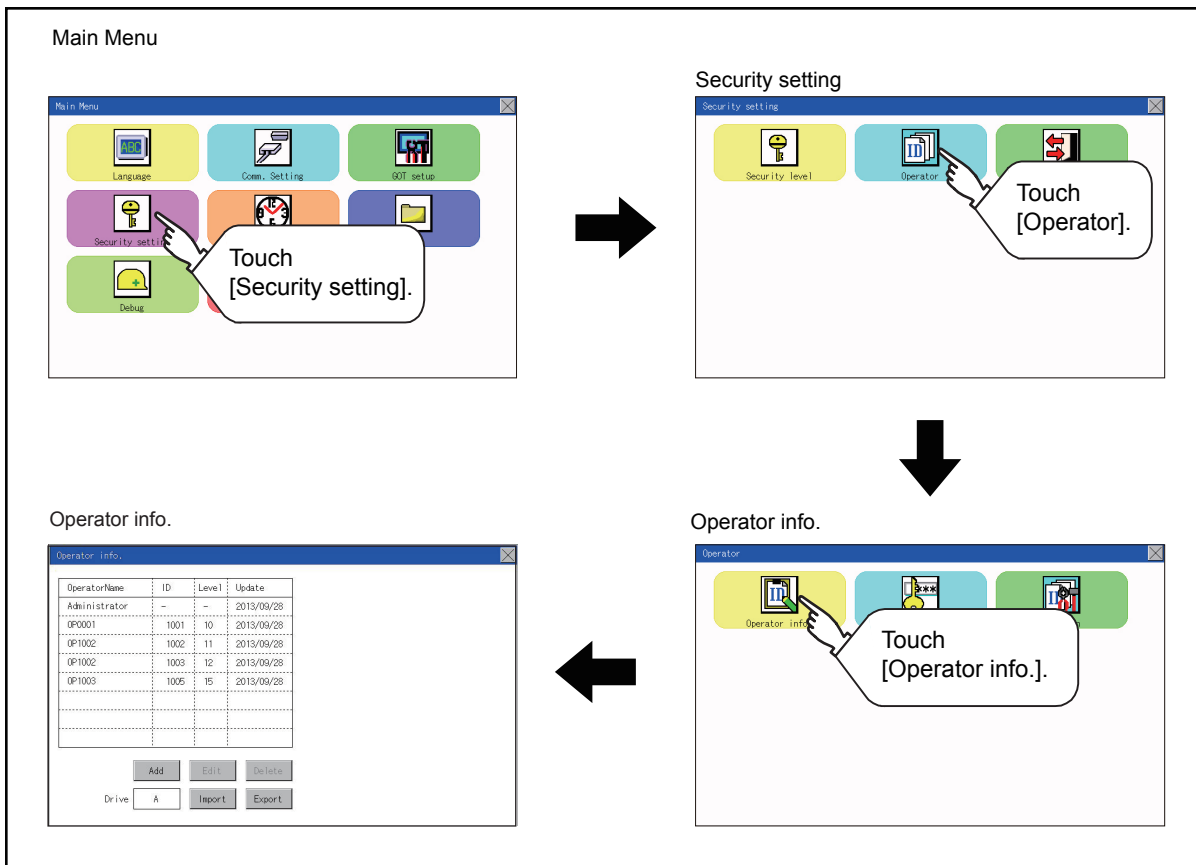
■Display example of operator management

Operator information management screen
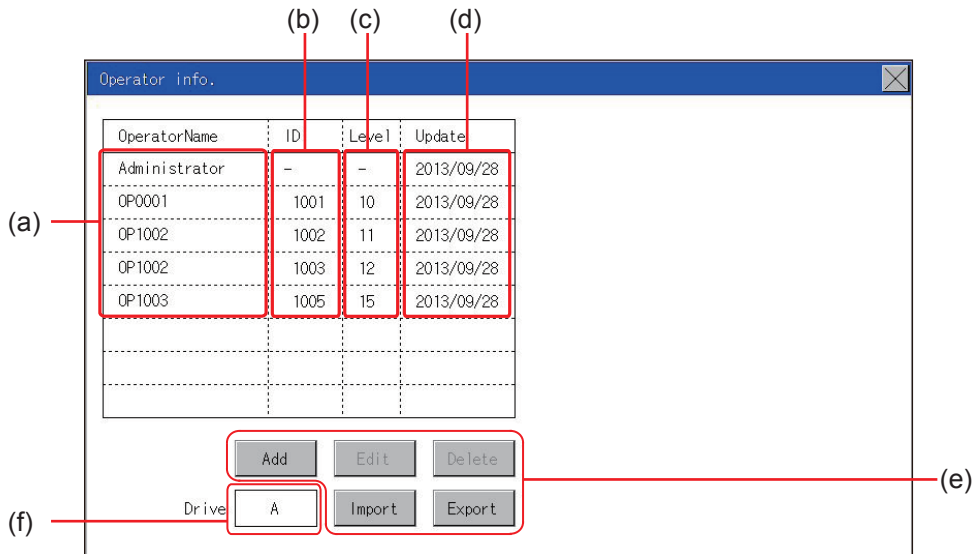
No.	Item	Description
(a)	Operator Name	Displays operator names.
(b)	ID	Displays operator IDs.
(c)	Level	Displays security levels for operators.
(d)	Update	Displays the last updated dates of the operator information.
(e)	Operation keys	Execution keys for each function
(f)	Drive in use	Displays and sets the storage location for imported and exported operator information. To switch the drive, touch the key. (A: Standard SD card) Only when the drive E is installed on the GOT, the user can switch the drive in use.

■Operator information edit screen

Touch the [Add] button or touch the [Edit] button with the operator information selected on the Operator information management screen, and then the Operator information edit screen is displayed.

The operator information can be edited.

No.	Item	Description
(a)	Operator Name	The operator name to be edited is displayed or input an operator name to be added. (Up to 16 alphanumeric characters)
(b)	Operator ID	The operator ID to be edited is displayed or input an operator name to be added. (Setting range: 1 to 32766, Maximum number of registrations: 255)
(c)	Level	Displays the security level for the operator or input the security level for an operator to be added. (0 to 15)
(d)	Password	Input a password. (Up to 16 alphanumeric characters)
(e)	Expiration	Switches the setting of the item disabled and enabled.
(f)	External auth	Switches the setting of the item [Disuse] and [Use].
(g)	Ext.auth. ID	The external authentication ID is displayed or input an external authentication ID. (External authentication ID setting range: alphanumerics [1] 4 to 32 digits)
(h)	Save	Saves the settings.

*1   Since the key window is for hexadecimal format, the setting range can be input in the range of A to F or 0 to 9.

■Operator management operation
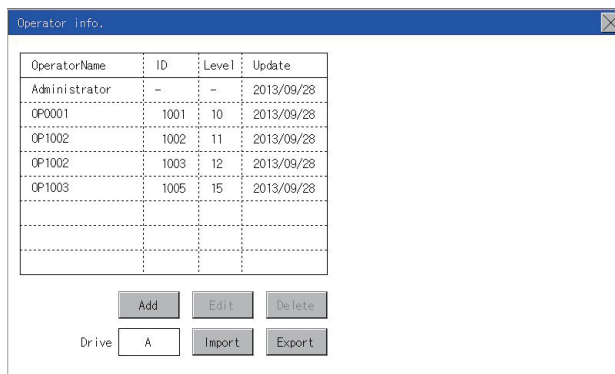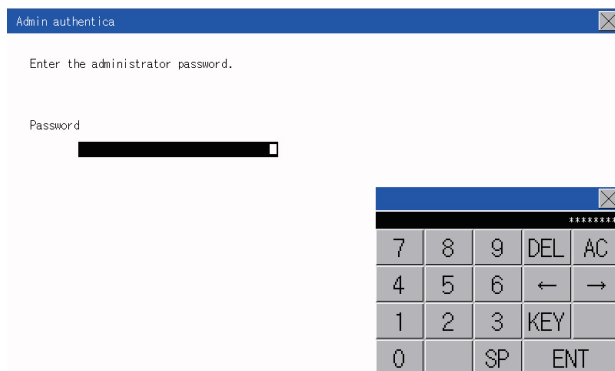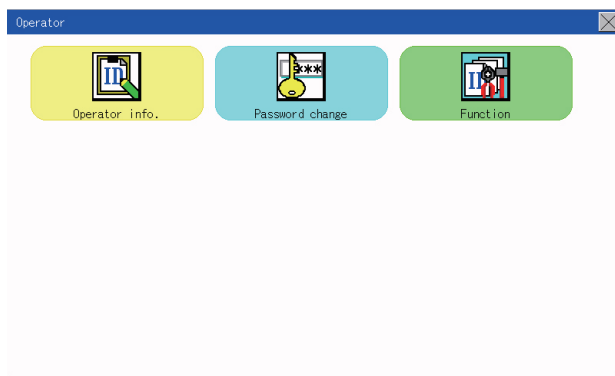
1. Touch [Operator] → [Operator info.].

2. The Admin password authentication screen is displayed, and then input the administrator password. Character types to be input can be changed by touching the [KEY] button.
When the input is completed, touch the [Enter] key.

3. When the administrator password is correctly input, the Operator information management screen is displayed. For operation of operating switches, refer to the following.

[Add]
☞ Page 137 Add operation
[Edit]
☞ Page 139 Edit operation
[Delete]
☞ Page 140 Deletion operation
[Import]
☞ Page 141 Import operation
[Export]
☞ Page 142 Export operation

4. Touching the [×] button displayed on the upper right returns to the previous screen.

■Add operation

Add operator information to the GOT.

1. Touch the [Add] button.

2. The Operator information edit screen is displayed, and then touch an item to be edited.

(a) OperatorName

(b) OperatorID

(c) Level

(d) Password

(e) Expiration

(f) External auth

(g) Ext.auth. ID

(a) If the operator name is touched, a keyboard is displayed. Input an operator name with the keyboard.
Character types to be input can be changed by touching the [KEY] button.
When the input is completed, touch the [ENT] key.

(b) If the operator ID is touched, a keyboard is displayed. Input an operator ID.
Character types to be input can be changed by touching the [KEY] button.
When the input is completed, touch the [ENT] key.

(c) If the level is touched, a keyboard is displayed. Input an operator level.
Character types to be input can be changed by touching the [KEY] button.
When the input is completed, touch the [ENT] key.
When the level of the logged-in operator is changed during editing of the operator information, a new level is not reflected until you log out of the GOT once and log in the GOT again.
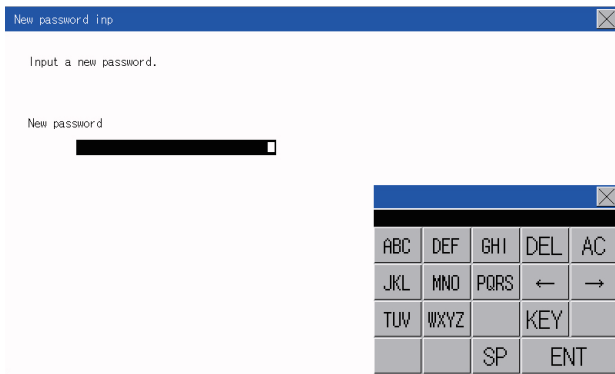
(d) For changing passwords during editing, touch the password. A keyboard is displayed, and then input a password.
When the input is completed, touch the [ENT] key.
When the password input is completed, the New password input confirmation dialog box is displayed. Input the same password.
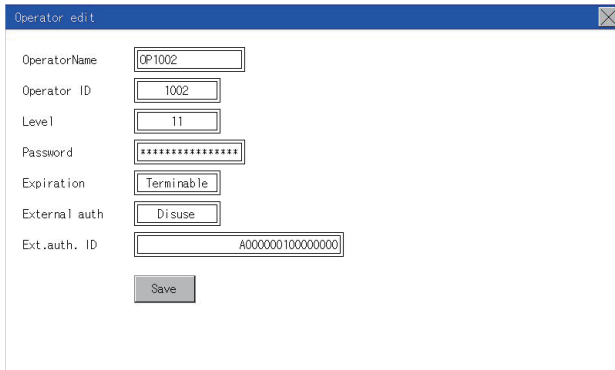
(e) For switching the setting of [Make a permanent password], touch the [Expiration] dialog box to switch the setting.
[Terminable] ⮂ [Permanent]

(f) For using the external authentication, touch the [External auth] dialog box to switch the setting.
[Disuse] ⮂ [Use]

(g) Touch Ext.auth ID to display the external authentication ID input dialog, and enter the external recognition ID.
When the input is completed, touch the [Enter] key.
When the authentication method is set to "External auth", the external authentication ID can be input with the external authentication device.

3. When the [Save] button is touched after all items are input, the input operator information is saved. Touching the [×] button displayed on the upper right returns to the previous screen.

■Edit operation

Edit the operator information stored in the GOT.

1. Select the operator information to be edited with touching the operator information.

2. Touch the [Edit] button.

3. The Operator information edit screen is displayed, and then touch an item to be edited.

(a) Level

(b) Password

(c) Expiration

(f) External auth

(g) Ext.auth. ID
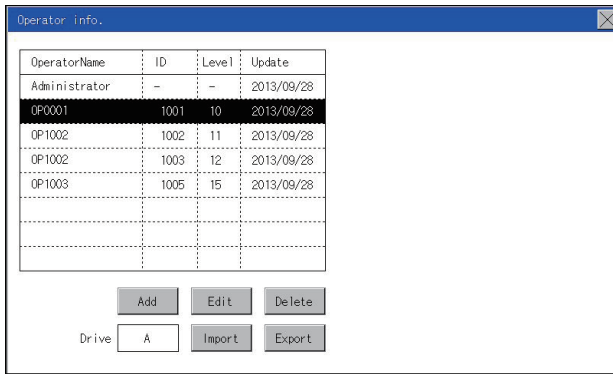
For how to edit operator information, refer to the following.

☞ Page 136 Operator management operation

4. When the [Save] button is touched after all items are input, the input operator information is saved. Touching the [×] button displayed on the upper right returns to the previous screen.

■Deletion operation

Delete the operator information stored in the GOT.
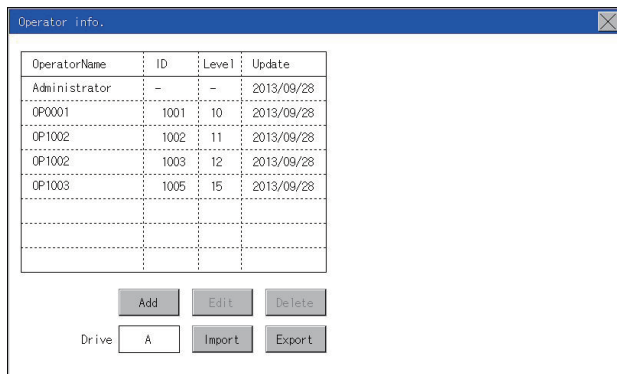
OperatorName	ID	Level	Update
Administrator	–	–	2013/09/28
OP0001	1001	10	2013/09/28
OP1002	1002	11	2013/09/28
OP1002	1003	12	2013/09/28
OP1003	1005	15	2013/09/28

Operator info.

Add   Edit   Delete

Drive   A   Import   Export

1. Select the operator information to be deleted with touching the operator information.

2. Touching the [Delete] button deletes the selected operator information. Touching the [×] button displayed on the upper right returns to the previous screen.

■Import operation

Import the operator information that is already exported to an SD card to the GOT.

OperatorName	ID	Level	Update
Administrator	–	–	2013/09/28
0P0001	1001	10	2013/09/28
0P1002	1002	11	2013/09/28
0P1002	1003	12	2013/09/28
0P1003	1005	15	2013/09/28

Add   Edit   Delete

Drive   A   Import   Export
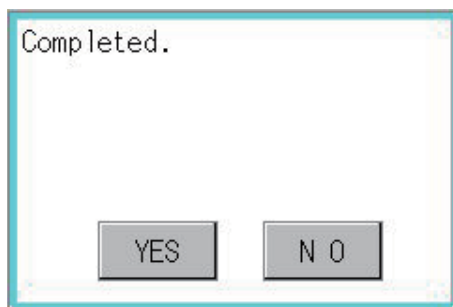
1. Touch the [Import] button.

Are you sure you want to import?

YES   N O

2. The dialog box shown left is displayed. When the [YES] button is touched, the Admin password authentication screen is displayed. Input the administrator password. Character types to be input can be changed by touching the [KEY] button. When the input is completed, touch the [Enter] key.

Completed.

YES   N O

3. When the administrator password is correctly input, the dialog box shown left is displayed and the operator information stored in an SD card is imported to the GOT.

■Export operation

Export the operator information stored in the GOT to an SD card.
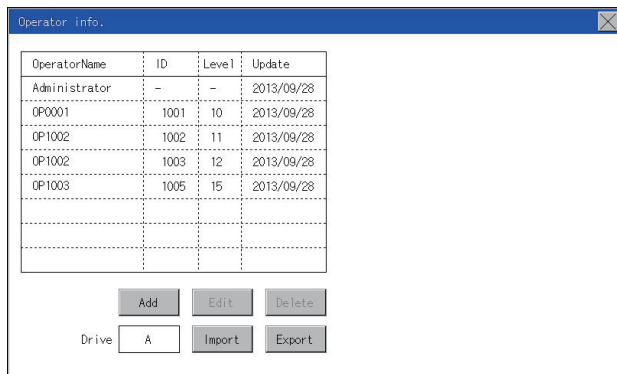
1. Touch the [Export] button.
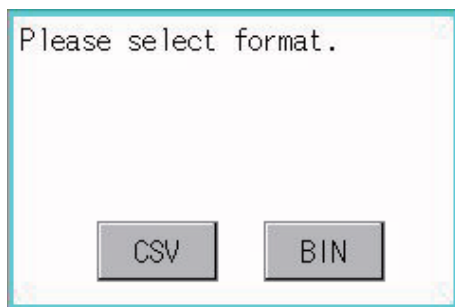
2. The dialog box shown left is displayed.

3. Touch the following buttons according to the output format for the file.
Binary file:
[BINARY] button
CSV file:
[CSV] button
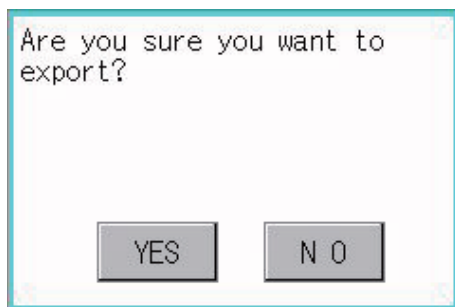
4. The dialog box shown left is displayed. When the [YES] button is touched, the Admin password authentication screen is displayed. Input the administrator password. Character types to be input can be changed by touching the [KEY] button.
When the input is completed, touch the [Enter] key.
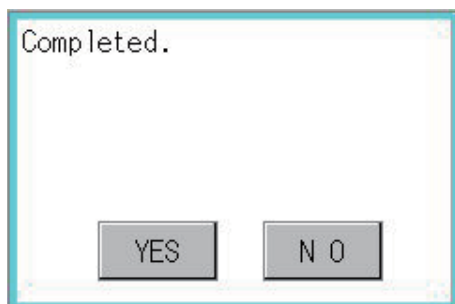
5. When the administrator password is correctly input, the dialog box shown left is displayed and the operator information stored in the GOT is exported to an SD card. (file name: AUTHINF.G2U)

Password change

Password change function

The passwords to be used for the operator authentication can be changed.

For the password change, log into the GOT in advance with the operator name corresponding to the password to be changed.

Display operation of password change
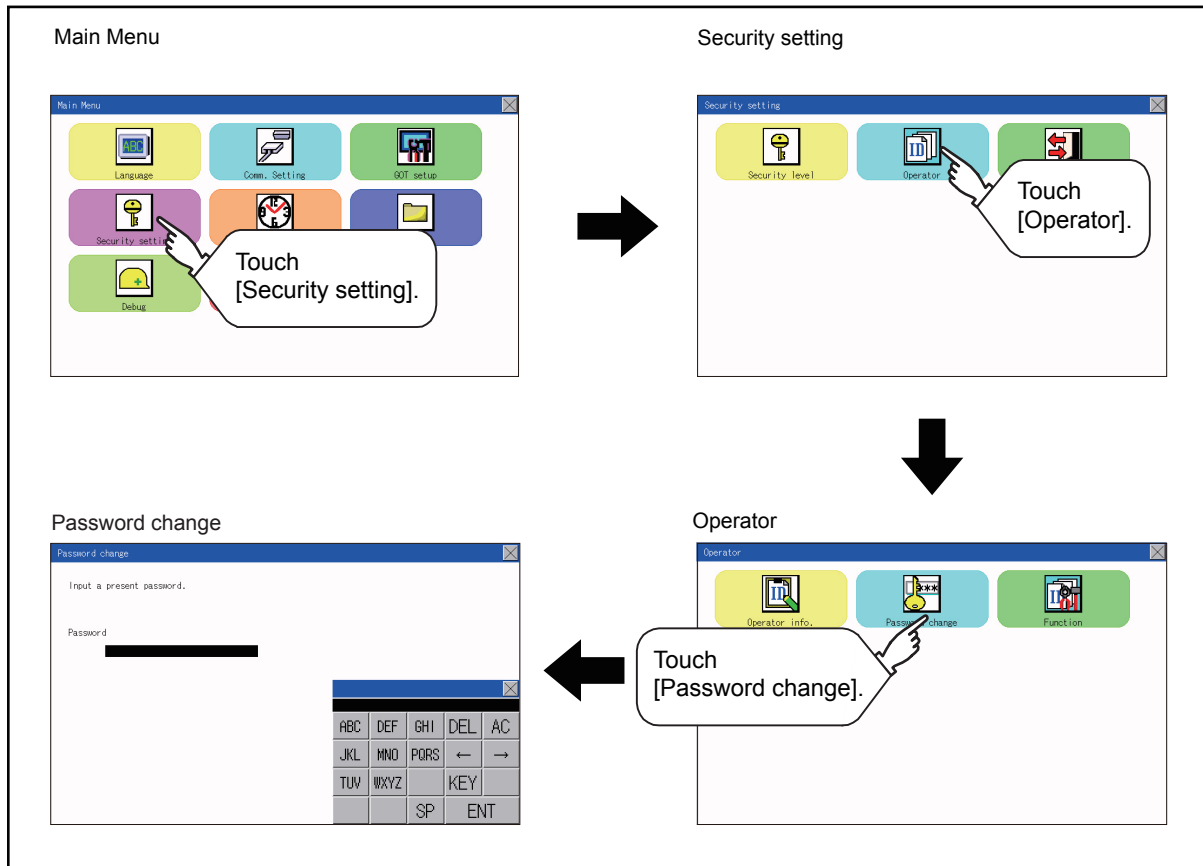
Password change operation
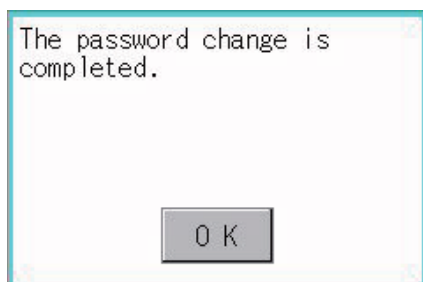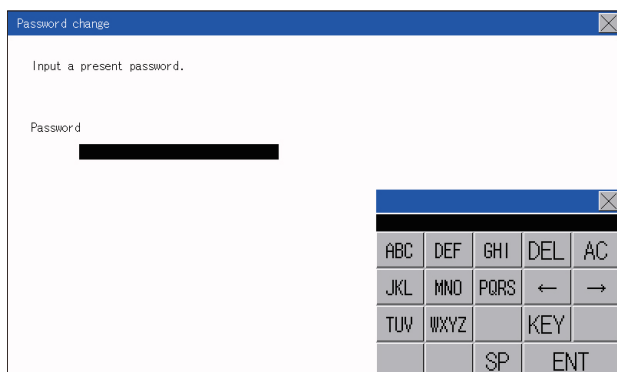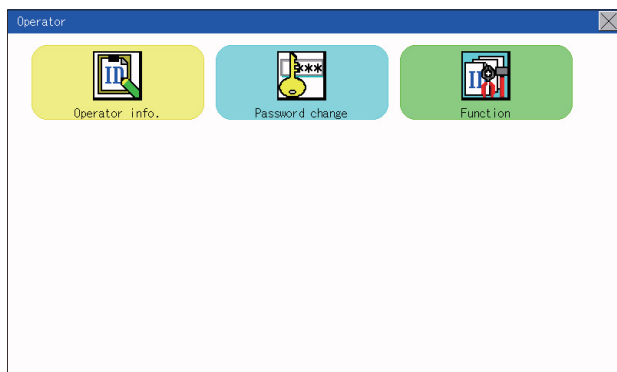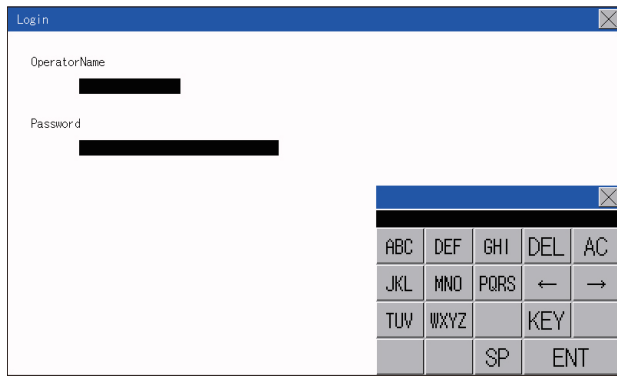
1. Touch [Security setting] → [Login/Logout] to log into the GOT with the operator ID whose password is to be changed.

2. Touch [Password change] in the operator setting menu, and then the Password change dialog box is displayed.

3. Input the current password on the Password change dialog box. Character types to be input can be changed by touching the [KEY] button.
When the input is completed, touch the [Enter] key.

4. Input a new password.

5. After inputting a new password, input the new password again.

The password change is completed.

O K

6. When the new password is correctly input, the dialog box shown left is displayed and the password is changed.

Function setting

Function setting function

The functions for the operator information can be set. The following items can be set.

Item	Description	Reference
Auth method	The authentication method is fixed to the password authentication.	☞ Page 147 Login/Logout
Auto logout time	The time from when the last time the GOT is operated until when you automatically log out of the GOT can be set. (1 to 60 minutes, 0 is invalid.)	☞ Page 146 Function setting operation
Expiration date	Set the item for regularly changing the password to be used for the operator authentication. (1 to 1000 days, 0 is invalid.) When the password is out of date after setting the password, the GOT requests the password change.	☞ Page 146 Function setting operation

Display operation of function setting
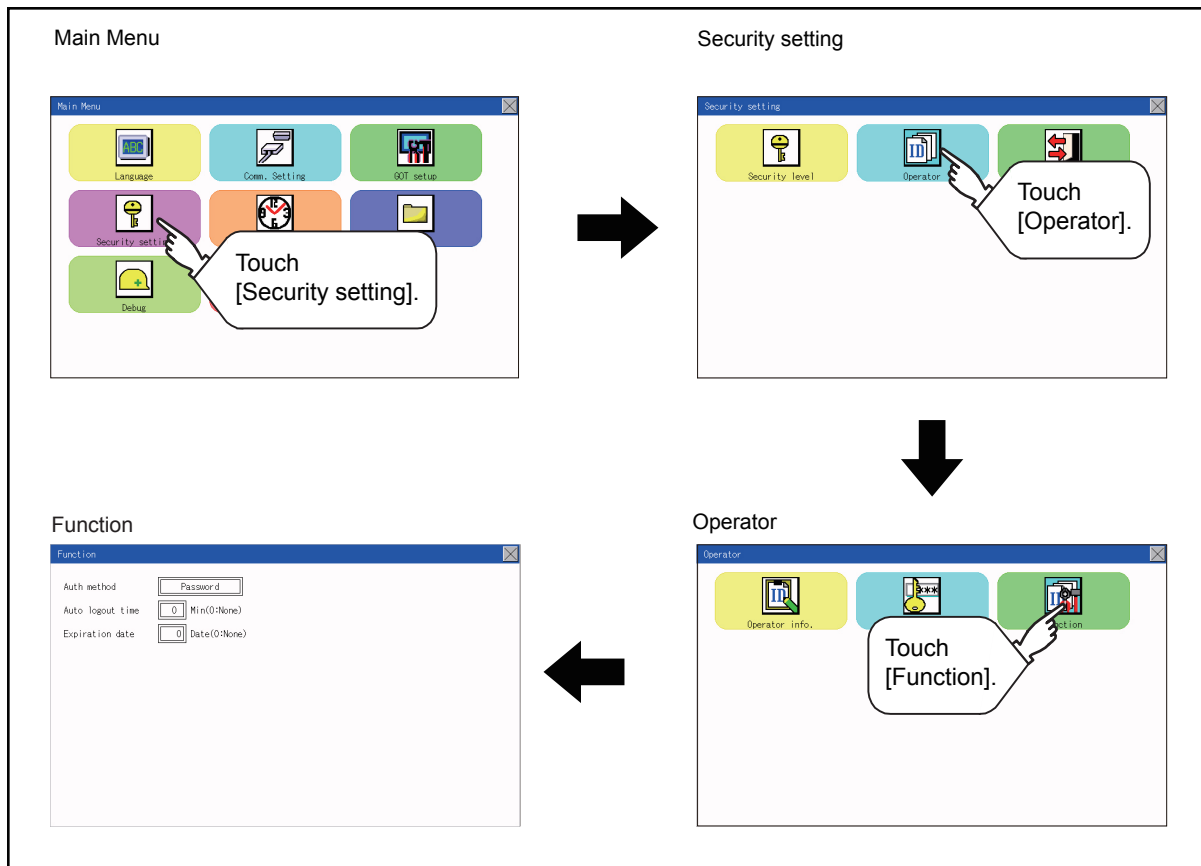
Function setting operation
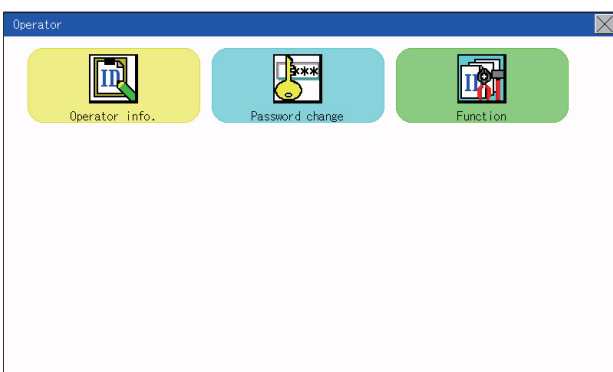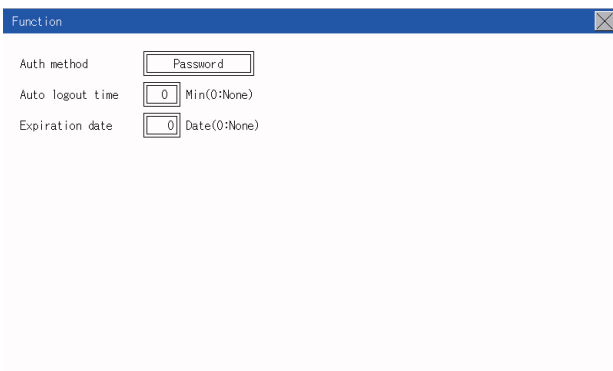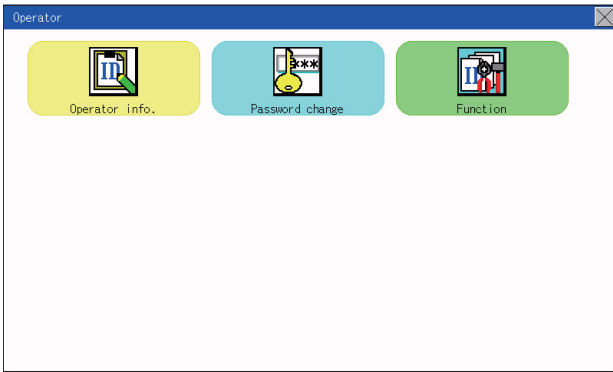
1. Touch [Operator] → [Function], and then the Admin password authentication dialog box is displayed.

2. When the administrator password is correctly input, the Function setting screen in displayed. Touch an item to be set.

(a) Auto logout time

(b) Expiration date

(a) Touch [Auto logout time], and then the Auto logout time edit dialog box is displayed. Input the time.
When the input is completed, touch the [ENT] key.

(b) Valid byte count
Set the valid byte count for external authentication ID.
(Only available when [External auth] is set as the authentication method.)

3. Touching the [×] button displayed on the upper right returns to the previous screen.

13.3 Login/Logout
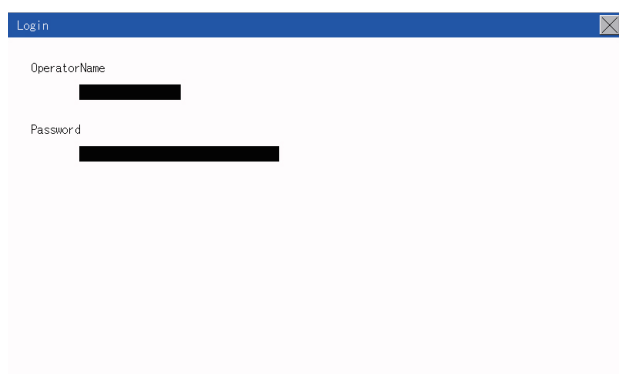
To manage the operator or change the password, log into the GOT.

Display operation of login/logout
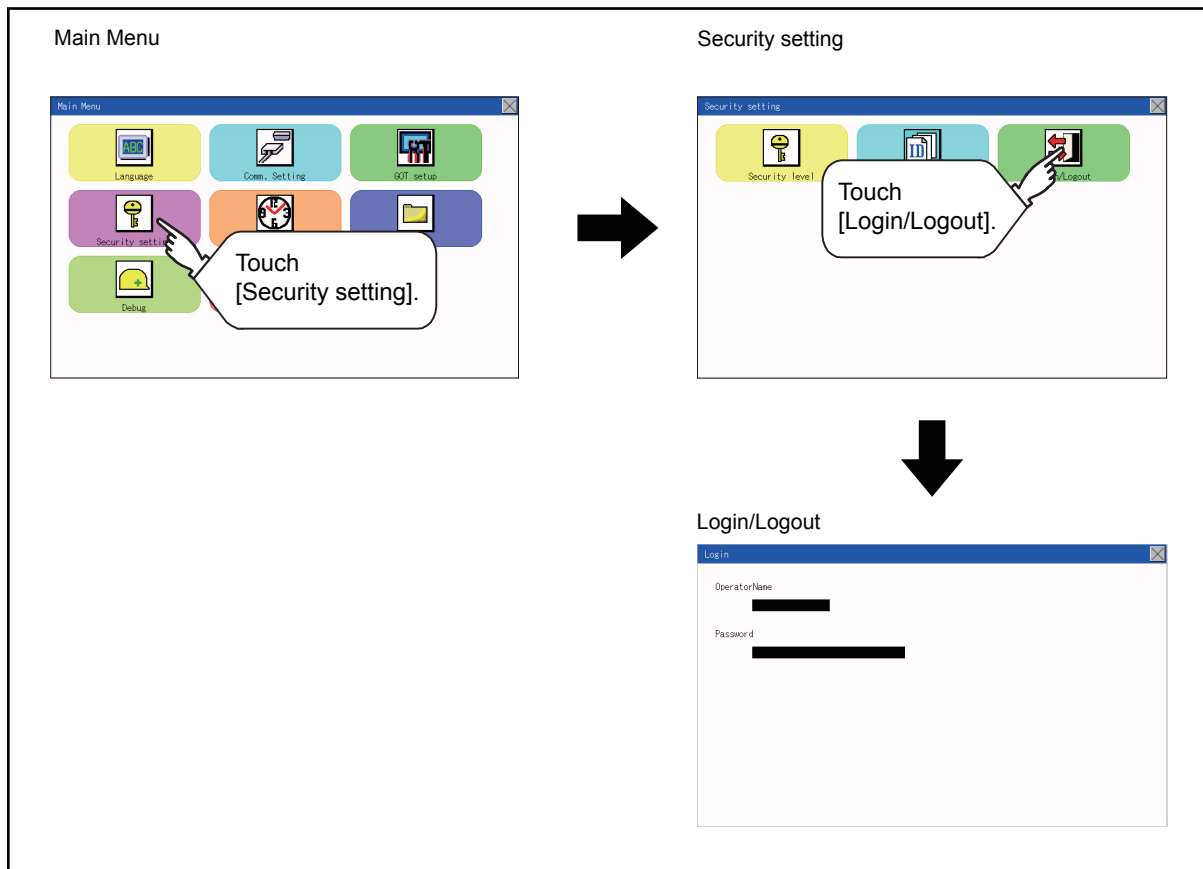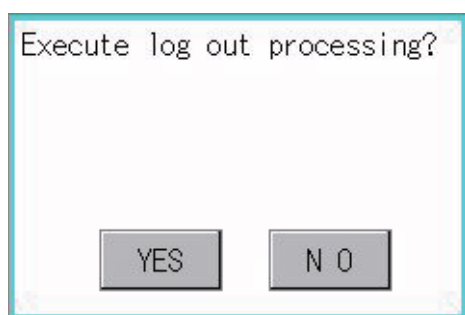
Main Menu

Security setting

Touch
[Security setting].

Touch
[Login/Logout].

Login/Logout

OperatorName

Password

Operation of login/logout

■Login

1. Log into the GOT by inputting an operator name and its password.

■Logout

1. Touch [Security setting] → [Login/Logout], and then the screen shown left is displayed. Touch the [YES] button.

14 CLOCK SETTINGS (TIME SETTING AND DISPLAY)

The clock data (date and time) are displayed and set in the clock setting menu.

14.1 Time Setting and Display

Time setting and display functions

Configure the time related settings.

Function	Description	Reference
Time setting	Set the current time.	☞ Page 151 Time setting
Adjust	Synchronize the clock data of the GOT with the clock data of the controller.	☞ Page 153 Adjusting the clock
Local time	Set the time zone of the local time in the clock data of the GOT.	☞ Page 157 Local time

> **Point**
>
> Changing times
>
> When the time is changed on the Time setting & display screen, the changed time is written in a programmable controller.
>
> As a result, the time of the programmable controller can be changed on the GOT even though [Adjust] is set for [Time setting].
>
> (The clock data of the controller set as [Adjust CH No.] of [Adjust the clock] in [GOT Setup] ([Clock Setting]) of GT Designer3 is changed.)
>
> For details of [Adjust], refer to the following.
>
> 📖GT Designer3 (GOT2000) Screen Design Manual
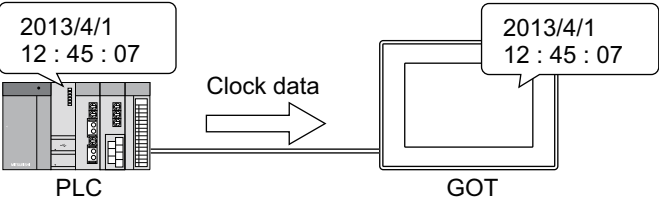
Clock synchronization method

The following shows the clock synchronization method on the GOT

Clock synchronization method	Description
Adjust	Acquire the clock data of the controller and change the clock data of the GOT. When the GOT is powered on, set the clock data of the GOT to that of the controller. Since the GOT does not have to hold the clock data while the GOT is powered off, no battery is required. To set the controller clock data of the controller, refer to the manual of the controller you use.

Point

Details of the clock synchronization method

For the details of the clock synchronization method, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

Time setting

Set the current time.

Time setting

Function	Description	Reference
Current time	Carry out the display and setup of GOT clock data.	☞ Page 152 Current time

Display operation of the time setting

Main menu

Time setting

Main Menu

Language	Comm. Setting	GOT setup
Security setting	Time setting	Data
Debug	Maintenance	

Touch
[Time setting].

Time setting

02/21/2000 MON 12:05:20

Adjust   Disuse
Local time   Unspecified
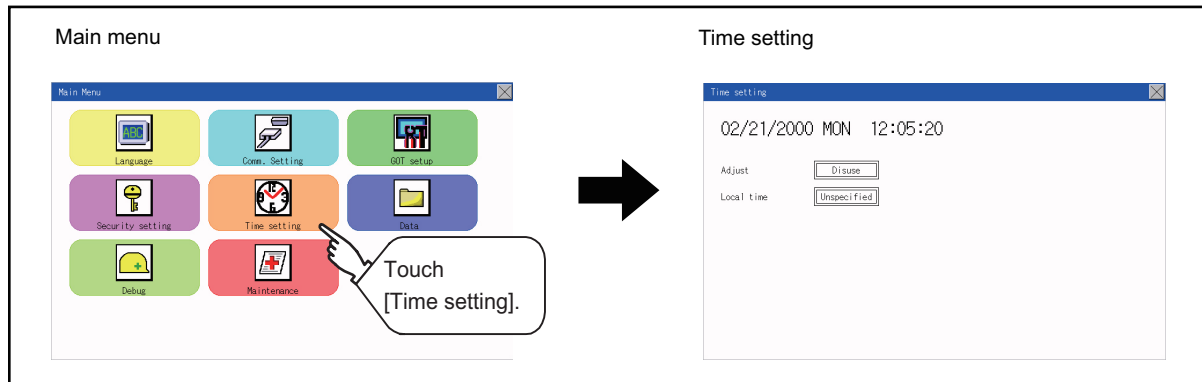
Setting procedure for the time setting

■Current time

Carry out the display and setting of GOT clock data.

The setup methods of clock data are shown below.

1. Touch either the date or time to be changed.
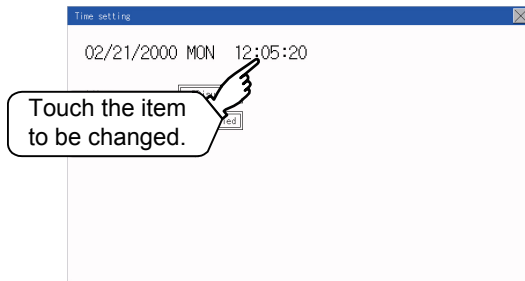
2. Enter date or time on the ten-key pad.

The day of the week is displayed automatically according to the input date.

The following shows the setting range of the date.

Jan. 1, 2000 to Dec. 31, 2037

"0" to "9":

Use these keys to enter numerical values

"ESC":

Closes the ten-key window without saving any value entered for the date or time

"AC":

Deletes the entire string of numerical characters that are being entered

"DEL":

Deletes a digit from a string of numerical characters that are being entered

"ENT":

Enters the value for the date or clock that has been entered and closes the ten-key pad window

"+/-":

Switches between positive and negative values. (Only positive values are valid for the date or clock setting.)

"." :

Invalid key (not used)
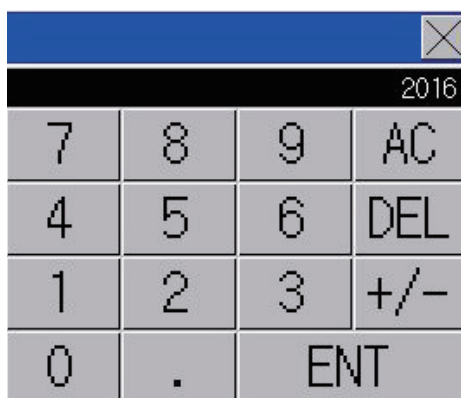
3. After setting either the date or time, touch the [×] button to save the changes and close the setting window.

Adjusting the clock

Synchronize the clock data of the GOT with the clock data of the controller.

Clock adjustment setting

Function	Description	Setting range
Time setting	Switch the Use/Disuse of Adjust.	Disuse/Use <Default: Disuse>
Reference CH No.	Set a reference channel of the external controller.	1 to 2 <Default: 1>
Trigger type	Set the trigger type for the clock adjustment.[1] • When selecting [Sampling] for [Trigger type], set the sampling interval for the clock adjustment. • When selecting [Rise] or [Fall] for [Trigger type], information on the device set as a trigger is displayed.[2]	Trigger type: Rise/Fall/Sampling <Default: Sampling> Sampling interval: 1 to 1440 <Default: 60>
Time zone of target unit	Switch Specified/Unspecified of the time zone of target.	Unspecified/Specified <Default: Unspecified>
Time zone	When selecting [Specify the time zone of target unit], set the time zone.	GMT-12:00 to GMT+13:00 <Default: GMT+9:00>
Time difference from GMT	Time zone of target is set by specifying the time difference from GMT.	Hour: -12 to 13 Minute: 0, 15, 30, or 45 <Default: 0 hour 0 minute>

*1 If [Adjust the clock] is deselected or [Trigger Type] is set to [Sampling] in [GOT Setup] in the project data, only [Sampling] is selectable as the trigger type for the clock adjustment in the utility.

*2 If [Adjust the clock] is deselected or [Trigger Type] is set to [Sampling] in [GOT Setup] in the project data, [No setting] is displayed in [Device].

Point

Settings of [Adjust] in the utility

Configure the settings in the utility and in [GOT Setup] on GT Designer3 by the same method.

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14

Display operation of the clock adjustment

Main menu
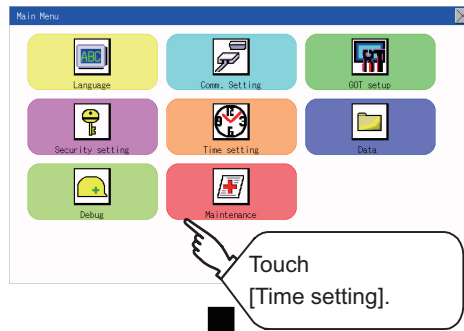
Touch [Time setting].

Time setting
(When not using "Adjust")

Touch [Disuse].
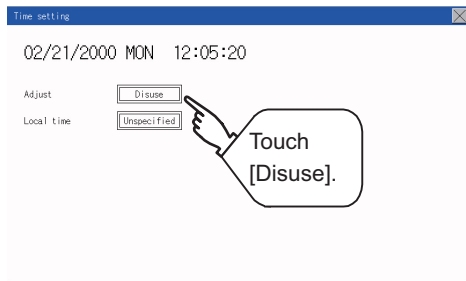
Time setting
(When using "Adjust")

Touch [Use].

Touch [Disuse].
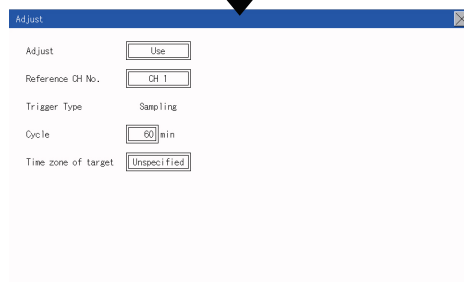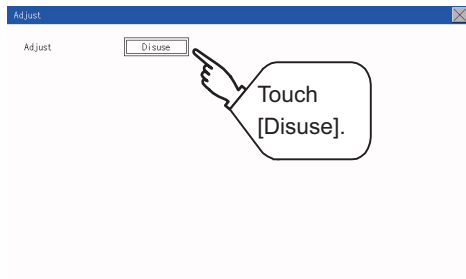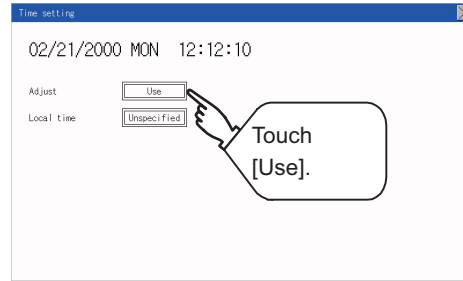
Display operation of the clock adjustment

■Reference CH No.

1. Touch the setting item to change the selection.
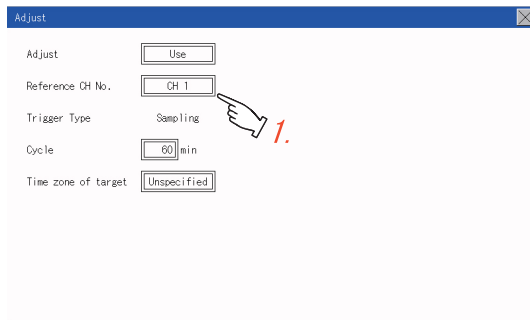
2. After changing the settings, touch the [×] button to save the changes and close the setting window.

■Trigger Type

1. Touch the setting item to change the selection.
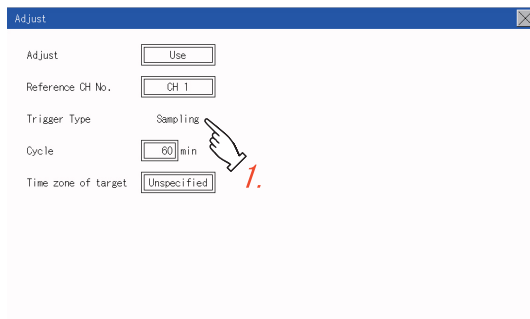
2. If you select [Sampling], set the sampling interval for the clock adjustment.

Touch the entry box on the left side of [Min.] to display a software keyboard.

Input a value with the keyboard.

3. After changing the settings, touch the [×] button to save the changes and close the setting window.

■Set the time zone of target.

1. When specifying the time zone of target, touch the setting item of [Time zone of target].
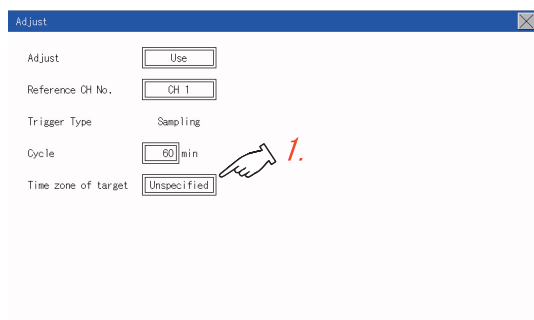
2. Touch the setting item of [Time zone of target].
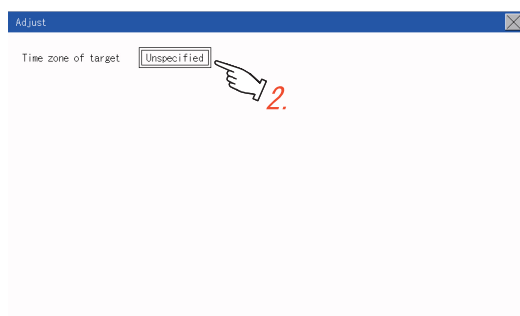
3. Touch the setting item to set the time difference from GMT.
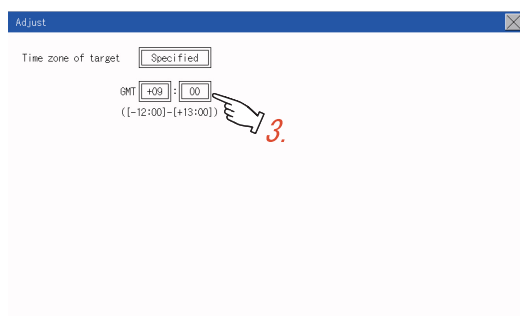
4. After changing the settings, touch the [×] button to save the changes and close the setting window.

Local time

Set the time zone of the local time in the clock data of the GOT.

Local time setting

Function	Description	Setting range
Local time	Switch Spcified/Unspecified the time zone in the clock data of the GOT.	Unspecified/Specified <Default: Unspecified>
Time zone of GOT	Set the time zone in the clock data of the GOT.	GMT-12:00 to GMT+13:00/Custom <Default: GMT+9:00>
Time difference from GMT	[Time zone of GOT] is set by specifying the time difference from GMT.	Hour: -12 to 13 Minute: 0, 15, 30, or 45 <Default: 0 hour 0 minute>

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Display operation of the local time

Main menu
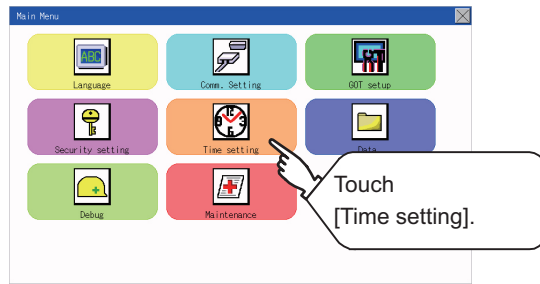
Touch
[Time setting].

Time setting
(When not using "Local time")

02/21/2000 MON 12:05:20

Adjust   Disuse
Local time Unspecified
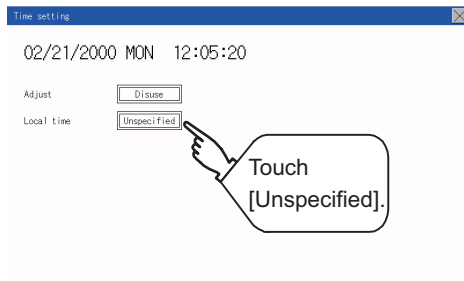
Touch
[Unspecified].

Time setting
(When using "Local time")

02/21/2000 MON 13:34:34

Adjust   Disuse
Local time GMT+09:00

Touch the
setting item.

Local time

Time zone of GOT   Unspecified

Touch
[Unspecified].

Local time

Time zone of GOT   Specified

GMT +09 : 00
([-12:00]-[+13:00])
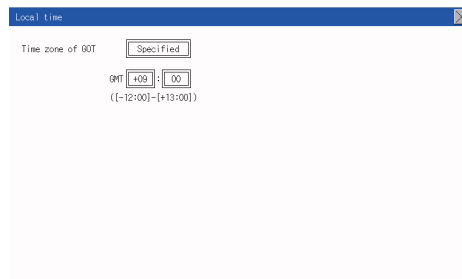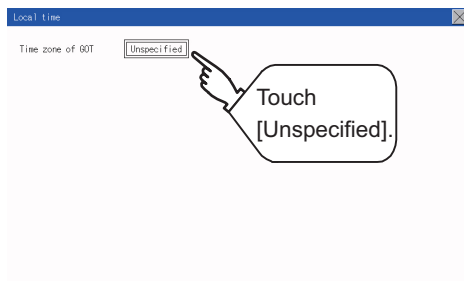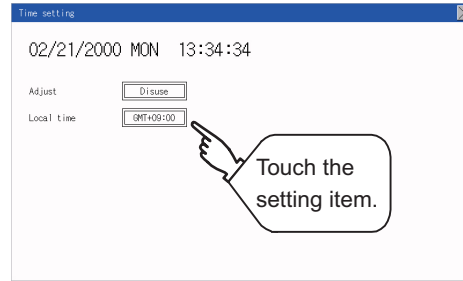
Set the local time.

1. Touch the setting item to set the time difference from GMT.
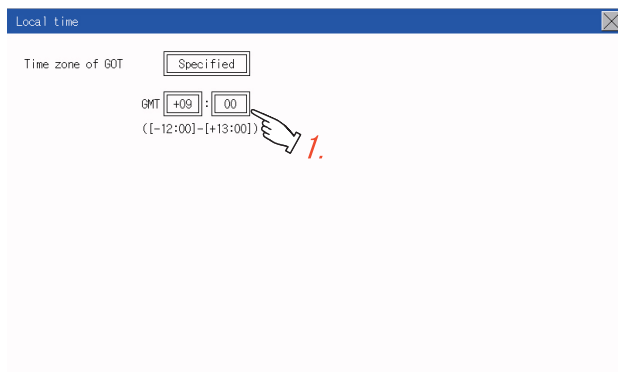
2. After changing the settings, touch the [×] button to save the changes and close the setting window.

Point

• When connecting to an external device which does not have clock function

If the GOT is connected to an external device (such as a PLC or microcomputer) that has no clock function, setting [Adjust] does not synchronize the clock data between the GOT and external device.

For the list of the PLCs having the clock function, refer to the following.

📖GOT2000 Series Connection Manual for the controller used

For details of [Adjust], refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

• Time display

The GOT displays the current time to which the local time setting is reflected.

For the local time setting, refer to the following.

• Changing times

If you have changed the present time of the GOT where the time setting function was being used, the new time setting will be written to the PLC.

Thus, you can change the time of the PLC from the GOT even when the time setting function is being used.

For details of [Adjust], refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

MEMO

15 CONTROL OF VARIOUS DATA (DATA CONTROL)

A system application, project data (screen data), or alarm data which is written in the GOT or SD card can be displayed, and the data can be transferred between the GOT and SD card.

The format of the SD card is also possible.

15.1 Data Storage Location

Data type and storage location

System

The data storage location and transferring (write/read) route for each data type are shown below.

Also, the data storage locations are shown below.
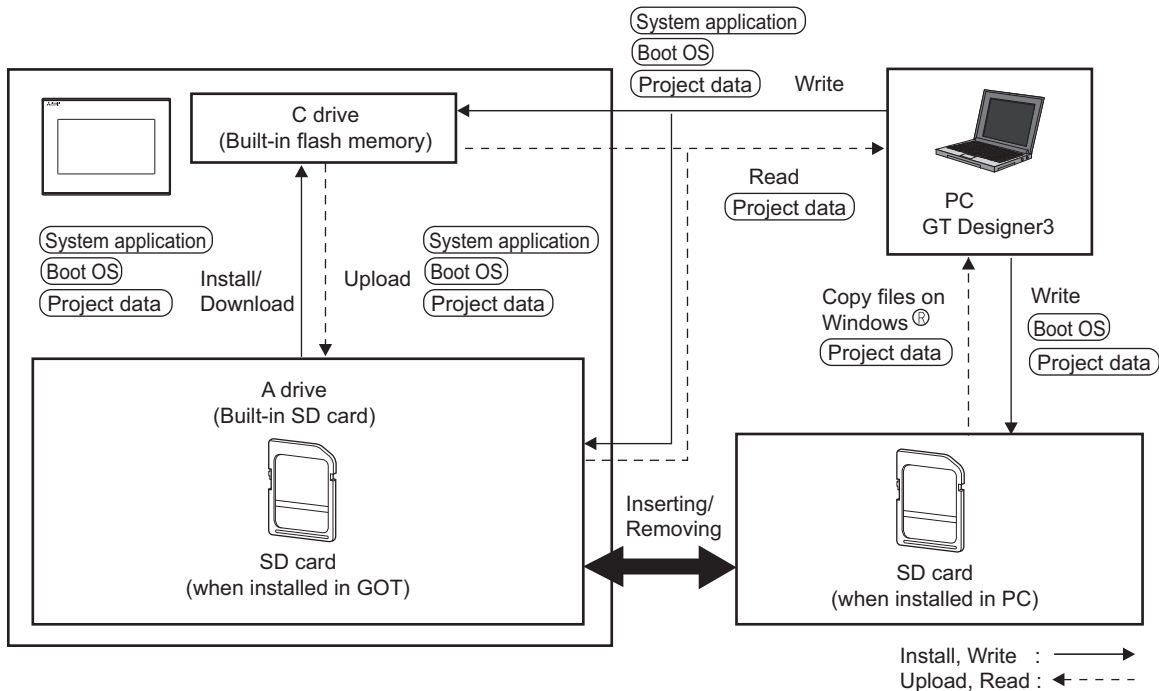
The data of the build in flash memory (Project data, etc.) can be saved.

Item	Data type	Storage location
Boot OS	Boot OS	Built in flash memory (C drive)
System application [*1]	Basic system application	Standard SD card (A drive)
	Communication driver	Built in flash memory (C drive)[*2]
	Advanced system application	
Project data [*1]	Project data (Including recipe setting, alarm conditions, time action, and GOT setup.)	Standard SD card (A drive) Built in flash memory (C drive)[*2]

*1 The SD card can be used from Utility.
  ☞ Page 165 OS information
*2 When using the project data stored in the Standard SD Card (A drive) with the GOT, hold the SD card installed to the GOT.

At maintenance
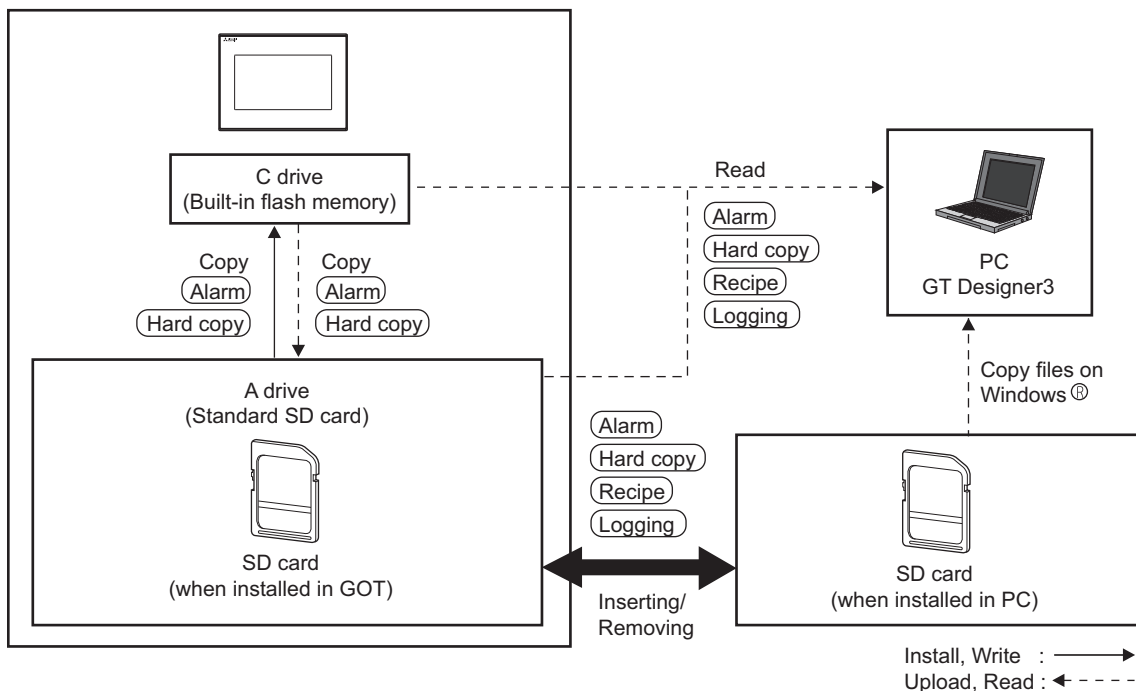
Item	Data type	Storage location
Alarm	Alarm data (Advanced alarm log file, alarm log file)	Standard SD card (A drive) C drive (Built-in flash memory)
Recipe	Recipe data (Advanced recipe file, Recipe file)	
Logging	Logging (Logging file)	
Hard copy	Image file (Hard copy function)	

Point

Checking available space of the storage memory

To save resource data, check available space of the storage memory.

Checking version of basic system application

Confirm the basic system application version carefully when installing the Boot OS and basic system application.
When the basic system application is installed, the GOT checks and compares the basic system application version automatically.

When install Boot OS

When the Boot OS to be installed has the older major version, GOT displays the installation disapproving message to cancel the installation so that the older version may not be written.
(Even when the version of the Boot OS to be installed has the same or later version, the version information and the dialog box for selecting continue/not continue will be displayed.)

When install basic system application or communication driver

When a basic system application or communication driver has already been installed, the version information of the basic system application which has been installed and the dialog box for selecting whether to continue the installation or not will be displayed.
Moreover, when the different versions will coexist among all applications (basic system application and communication driver) by installing the basic system application, the installation disapproving dialog box will be displayed and the installation process is canceled.
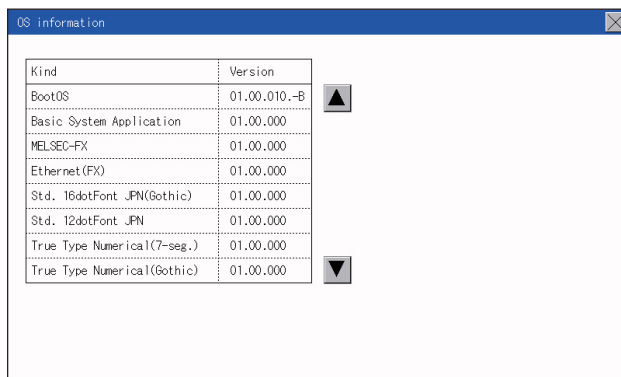
When download project data

The GOT automatically compares the version between the project data to be downloaded and the installed basic system application.
When the versions are different, the dialog box confirming whether to install the basic system application together is displayed.
When downloading the project data from an SD card, storing the project data and basic system application beforehand is recommended.
The version of each system application installed in the GOT can be checked by displaying the property of the system application information screen.

For the display operation of the screen, refer to the following.

Point

Version confirmation of Boot OS by rating plate

Confirm the version of Boot OS installed in the GOT at product shipment by rating plate of GOT rear face.

MITSUBISHI ELECTRIC (PASSED)
GRAPHIC OPERATION TERMINAL
MODEL GS2107-WTBD
IN 24VDC
POWER MAX 6.50W
MAC ADD. 002692412C1C
SERIAL 83013913AA00029-A
DATE 2013-09

G

MITSUBISHI ELECTRIC COPORATION
MADE IN JAPAN

AA
└ Boot OS version
└─ Hardware Version
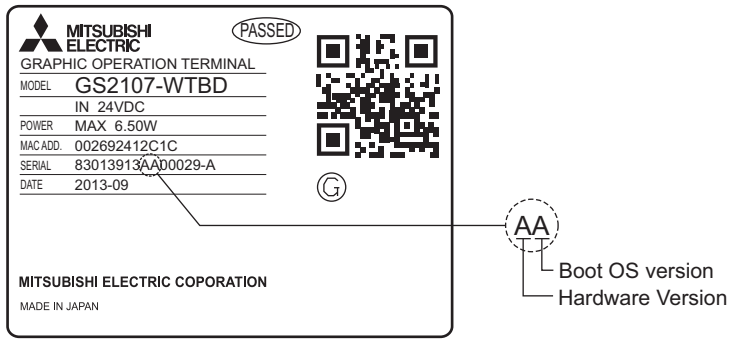
15.2 OS information

OS information

Each file name or folder name of Boot OS and package data stored in each drive (A: Standard SD card or C: Built-in flash memory) can be displayed in a list.

Also, each file can be installed and updated.

Function	Description	Reference page
Information display of files and folders	Displays the kind, name, data size, creation date and time of the file or folder.	☞ Page 166 Display example of system application information

> **Point**
>
> Precautions when basic system application file is used
>
> When the boot drive of the basic system application is set to "A: Standard SD card", a basic system application file cannot be installed or updated.

OS information
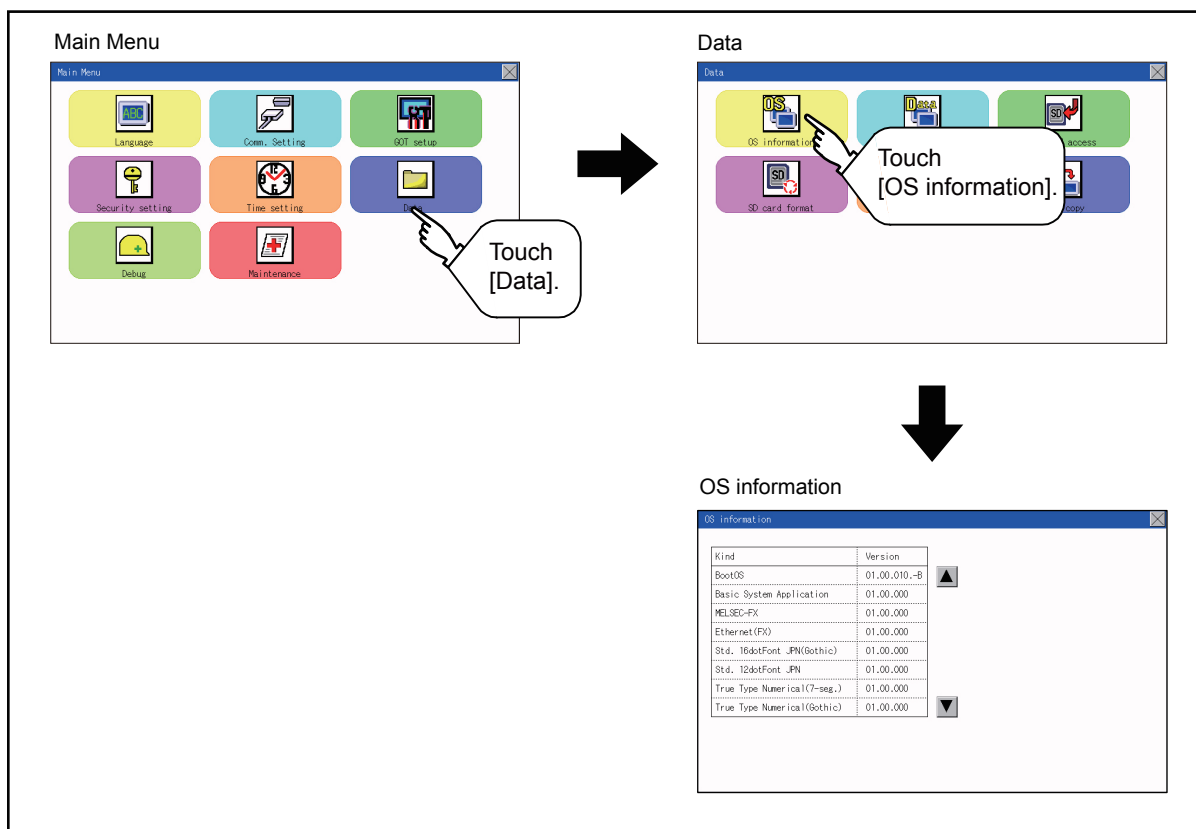
Display example of system application information

OS information Storage file/folder display screen
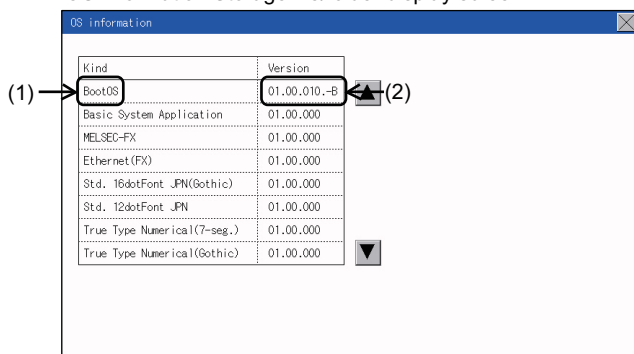
No.	Item	Description
(1)	Name	Displays the file name or folder name in the selected drive or folder. When the number of the characters of the file name or folder name exceeds 20, the 21th character and later are not displayed.
(2)	Version information	Displays the software version.

15.3 Resource Data Information

Alarm information

Function of alarm information

Advanced alarm log files and alarm log files stored in each drive (A: Standard SD card or C: Built-in flash memory) is displayed.

The functions below can be carried out for files.

For details of the advanced alarms, refer to the following manual.

📖GT Designer3 (GOT2000) Screen Design Manual

Function	Description	Reference page
Information display of files and folders	Displays name, data size, creation date and time of file or folder.	☞ Page 168 The display example of alarm information ☞ Page 169 The display operation of alarm information
G2A → CSV conversion	Converts the G2A file of an alarm log file to a CSV file.	☞ Page 170 G2A → CSV conversion operation, G2A → TXT conversion operation
G2A → TXT conversion	Converts the G2A file of an alarm log file to a Unicode text file.	☞ Page 170 G2A → CSV conversion operation, G2A → TXT conversion operation
Del	Deletes the file.	☞ Page 170 Deletion operation
Copy	Copies the file.	☞ Page 171 Copy operation

The display operation of alarm information

The display example of alarm information

Alarm information screen

Alarm information: Storage file/folder display screen

No.	Item	Description
(1)	Select drive	The drive which displays file or folder can be selected. When an SD card is not installed, the following drives are not displayed. • SD card: [A: Standard SD card]
(2)	Kind	Indicates whether the displayed name is file or folder. Displays the extension for a file and "DIR" for a folder.
(3)	Name	Displays the file name or folder name. For the long file/folder name, entire part may not be displayed. Confirm the non-displayed part with the [Copy] button, etc. ☞ Page 169 Alarm information operation After confirmation, touch the [Cancel] button to cancel the operation.
(4)	Size	Displays the size of the file displayed in Name.
(5)	Date, Time	Displays the creation date and time of each file.
(6)	Operation switch	Execution switch of each function.

Point

Display of creation date and time

The creation date and time display is not updated even if a file is created or updated while displaying the alarm information display screen.

If the screen currently displayed is closed (by moving the screen to the folder of the upper hierarchy, etc.) and the same screen is displayed again, the updated contents are displayed.

Alarm information operation

■The display operation of alarm information

Alarm information screen
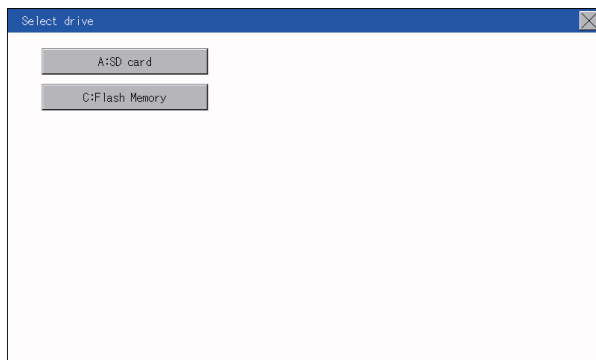
Alarm information: Storage file/folder display screen

1. If touch a drive of [Select drive], the information of the touched drive is displayed.

2. If touch a folder name, the information of the touched folder is displayed.

3. If touch a folder of ". .", the information of the folder of the one upper hierarchy is displayed.

4. If touch the ▲ ▼ button of the scrollbar, the screen scrolls up/down by one line. If touch the ⏫ ⏬ button, the screen scrolls up/down by one screen.

5. If a file name is touched, the file is selected.

6. For operations of G2A → CSV conversion, G2A → TXT conversion, deletion, copy, and graph, refer to the following.

G2A → CSV, G2A → TXT

☞ Page 170 G2A → CSV conversion operation, G2A → TXT conversion operation

Delete

☞ Page 170 Deletion operation

Copy

☞ Page 171 Copy operation

7. If touch the [×] button, the screen is closed.

■G2A → CSV conversion operation, G2A → TXT conversion operation

The selected G2A file is converted to a CSV file or Unicode text file.

Kind	Name	Size	Date	Time
DIR	..		2013/10/09	00:10
G2A	AAM00001	5K	2013/10/09	00:10
CSV	AAM00001	5K	2013/10/09	00:10

Alarm info.

[Del] [Convert] [Copy]

Please select format.
[CSV] [TXT]

Change file format?
[YES] [NO]
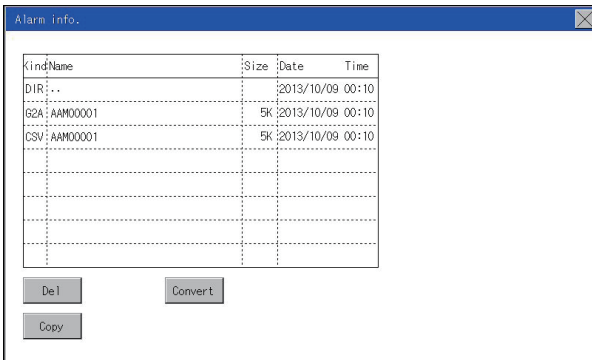
1. Touch the G2A file to be converted.
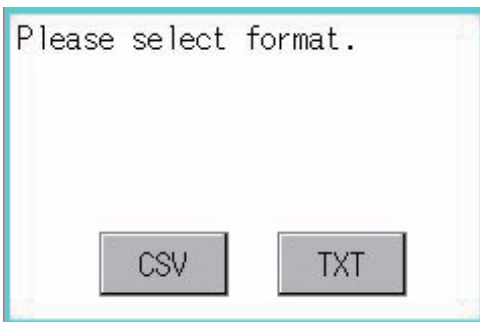
2. Touch [Convert].

3. The following dialog box is displayed when touching the following button according to the file type to convert to.
CSV file:
[CSV] button
Unicode text file:
[TXT] button

4. Touch the [OK] button. The file is overwritten with the converted file.

■Deletion operation

Deletes the selected file.

Are you sure you want to delete?
[YES] [NO]
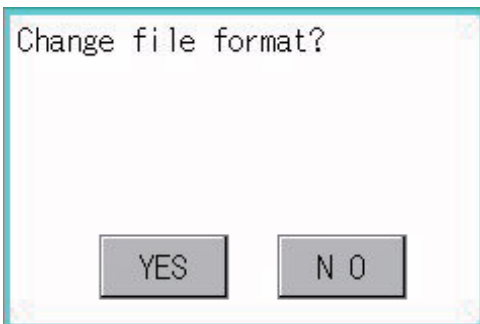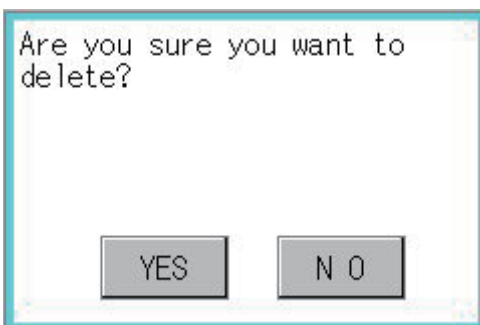
1. Touch the file to be deleted.

2. If touch the [Delete] button, the dialog box mentioned left is displayed. If the [YES] button is touched, the file is deleted. If the [NO] button is touched, the deletion is canceled.

■Copy operation

Copies the selected file.

1. Touch the file to be copied.

2. If the [Copy] button is touched, the Select drive screen is displayed.

3. Select a drive.

4. Select the copy destination folder and touch [Execute]. The file is copied.

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Recipe information

Function of recipe information

The recipe file used in the recipe function can be copied, deleted, and output in a file.
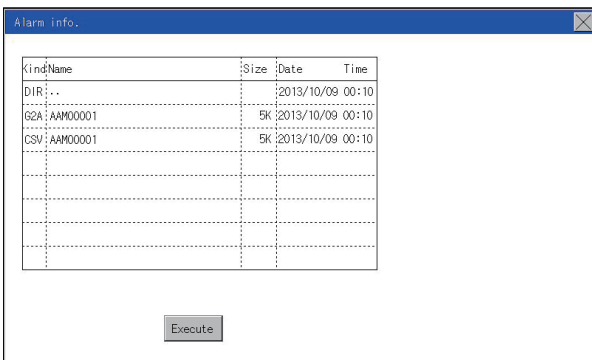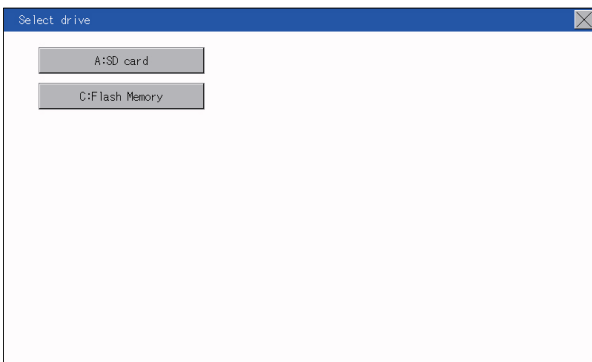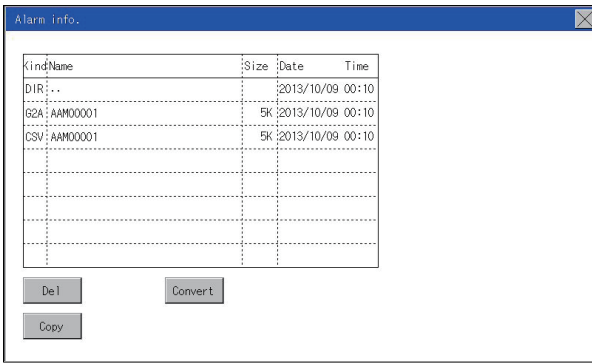
In addition, it is possible to writing/reading into/from a controller by using this function, without creating the screen to operate the recipe. (Recipe setting of GT Designer3 is required.)

Function		Description	Reference page
Recipe information screen	Information display of files and folders	Displays name, data size, creation date and time of file or folder.	☞ Page 173 Example of advanced recipe information display ☞ Page 174 Recipe information operation
	G2P → CSV conversion	Converts a G2P file of a recipe file to a CSV file.	☞ Page 175 G2P → CSV conversion operation, G2P → TXT conversion operation
	G2P → TXT conversion	Converts a G2P file of a recipe file to a Unicode text file.	☞ Page 175 G2P → CSV conversion operation, G2P → TXT conversion operation
	CSV/TXT → G2P conversion	Converts a CSV file or Unicode text file to a G2P recipe file.	☞ Page 176 CSV/TXT → G2P conversion operation
	Delete	Deletes the file or folder.	☞ Page 176 Deletion operation
	Copy	Copies the file.	☞ Page 177 Copy operation

Display operation of recipe information
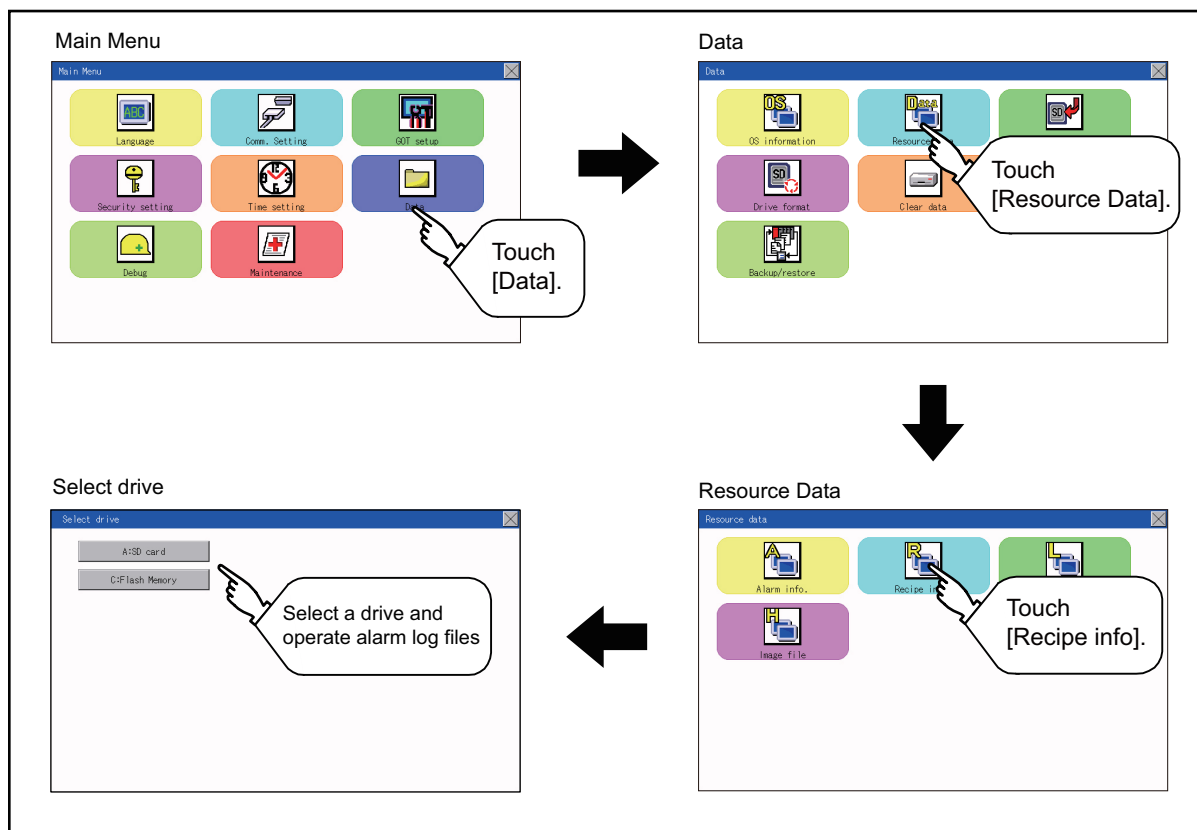
Example of advanced recipe information display

■Recipe information screen

Recipe Information screen

```
Select drive                            ☒
┌─────────────────────────────────┐
│   ┌─────────────────────┐       │
│   │      A:SD card       │       │
│   ├─────────────────────┤       │
│   │   C:Flash Memory     │       │
│   └─────────────────────┘       │
│              ↑                   │
│             (1)                  │
```

Recipe Information
Storage file/folder display screen

```
Recipe Info.                              ☒
┌────┬──────────────┬─────┬──────────────┐
│Kind│Name          │Size │Date    Time  │
│DIR │.             │     │2013/10/09 00:10│
│G2P │RECIPE2       │ 5K  │2013/10/09 00:10│
│CSV │ARP00003_002  │ 1K  │2013/10/09 00:10│
│TXT │ARP00001234   │ 5K  │2013/10/09 00:10│
│    └──┬──┘        └──┬─┘└──┬──┘         │
│      (2)   (3)      (4)   (5)           │
│                                         │
│    ┌────┐        ┌───────┐              │
│    │Del │        │Convert│   ←(6)       │
│    ├────┤        └───────┘              │
│    │Copy│                               │
│    └────┘                               │
```

No.	Item	Description
(1)	Select drive	The target drive can be selected. (Even if an SD card is not installed, this message appears.)
(2)	Kind	Indicates whether the displayed name is file or folder. Displays the extension for a file and "DIR" for a folder.
(3)	Name	Displays the file name or folder name. For the long file/folder name, entire part may not be displayed.
(4)	Size	Displays the size of the file displayed in Name.
(5)	Date, Time	Displays the creation date and time of each file.
(6)	Operation switch	Execution switch of each function.

> **Point**
>
> About the displayed file
>
> The files other than that for recipe are not displayed on the recipe information screen.

15

Recipe information operation

■Display operation of recipe information

Kind	Name	Size	Date	Time
DIR	..		2013/10/09	00:10
G2P	RECIPE2	5K	2013/10/09	00:10
CSV	ARP00003_002	1K	2013/10/09	00:10
TXT	ARP00001234	5K	2013/10/09	00:10

Recipe info.

[Del] [Convert] [Copy]

1. If touch a drive of [Select drive], the information of the touched drive is displayed.

2. If touch a folder name, the information of the touched folder is displayed.

3. If touch a folder of ". .", the information of the folder of the one upper hierarchy is displayed.

4. If touch the ▲ ▼ button of the scrollbar, the screen scrolls up/down by one line. If touch the ⏫ ⏬ button, the screen scrolls up/down by one screen.

5. If a file name is touched, the file is selected.

6. For operation of operating switches, refer to the following.
G2P → CSV, G2P → TXT
☞ Page 175 G2P → CSV conversion operation, G2P → TXT conversion operation
CSV/TXT → G2P
☞ Page 176 CSV/TXT → G2P conversion operation
Delete
☞ Page 176 Deletion operation
Copy
☞ Page 177 Copy operation

7. If touch the [×] button, the screen is closed.

■G2P → CSV conversion operation, G2P → TXT conversion operation

A recipe file (G2P file) is converted to a CSV file or Unicode text file that can be displayed/edited on a personal computer.
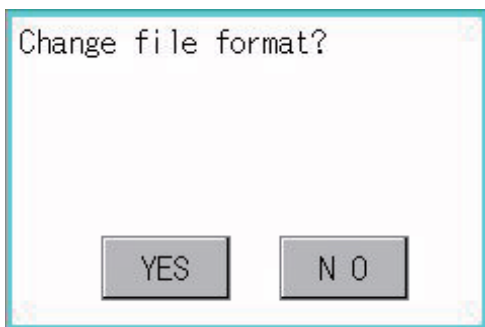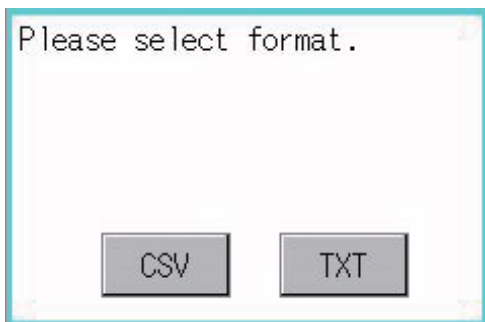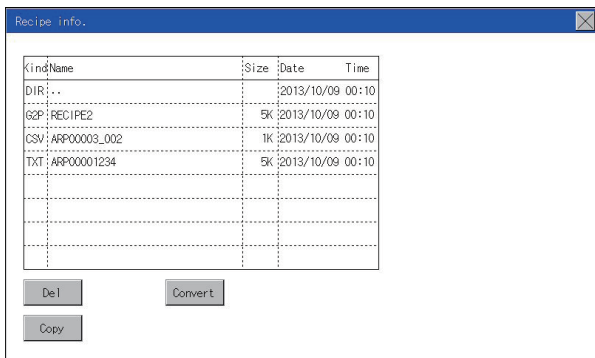
1. Touch the G2P file to be converted.

2. Touch [Convert].

3. Touch the following button in accordance with destination file type.
CSV file:
[CSV] button
Unicode text file:
[TXT] button

4. Touch the [OK] button. The file is overwritten with the converted file.

15

■CSV/TXT → G2P conversion operation

A CSV file or Unicode text file is converted to a recipe file (G2P file).

Kind	Name	Size	Date	Time
DIR	..		2013/10/09	00:10
G2P	RECIPE2	5K	2013/10/09	00:10
CSV	ARP00003_002	1K	2013/10/09	00:10
TXT	ARP00001234	5K	2013/10/09	00:10

Recipe info.

[Del]   [Convert]
[Copy]
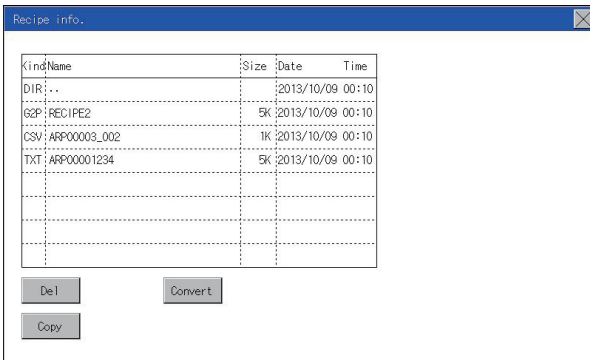
1. Touch the CSV file or Unicode text file to be converted.

2. Touch the [Convert] button.

Change file format?

[YES]   [NO]
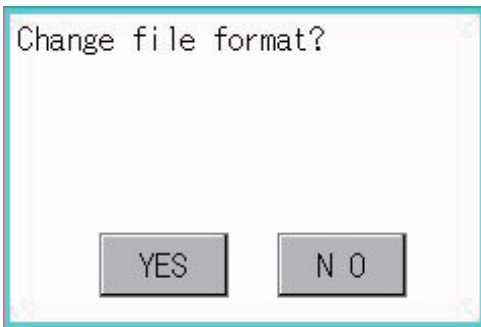
3. If the [OK] button is touched, the file is overwritten with the converted file.

■Deletion operation

Folders and files to be used on recipe are deleted.
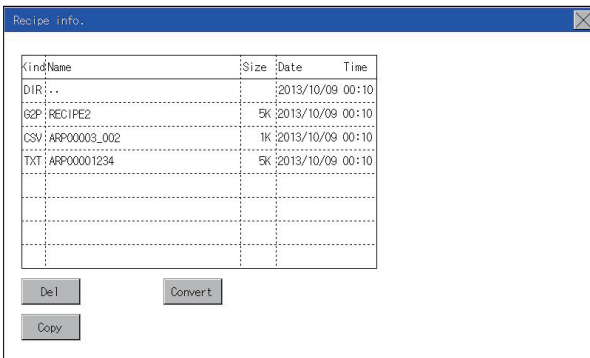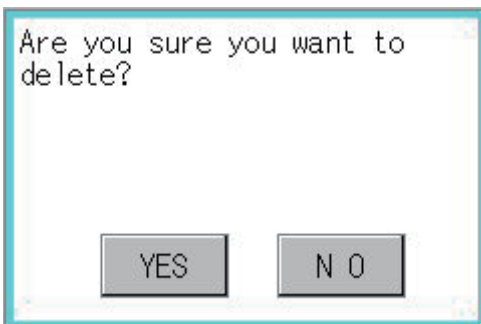
Kind	Name	Size	Date	Time
DIR	..		2013/10/09	00:10
G2P	RECIPE2	5K	2013/10/09	00:10
CSV	ARP00003_002	1K	2013/10/09	00:10
TXT	ARP00001234	5K	2013/10/09	00:10

Recipe info.

[Del]   [Convert]
[Copy]

1. Touch the folder or file to be deleted.

Are you sure you want to delete?

[YES]   [NO]

2. If touch the [Delete] button, the dialog box mentioned left is displayed. If the [YES] button is touched, the file or folder is deleted. (While executing, [Processing...] message appears on the screen.) If the [NO] button is touched, the deletion is canceled.

■Copy operation

Files to be used in recipe are copied.

Kind	Name	Size	Date	Time
DIR	..		2013/10/09	00:10
G2P	RECIPE2	5K	2013/10/09	00:10
CSV	ARP00003_002	1K	2013/10/09	00:10
TXT	ARP00001234	5K	2013/10/09	00:10

Recipe info.

[Del] [Convert]
[Copy]

1. Touch the file to be copied.

2. If the [Copy] button is touched, the Select drive screen is displayed.

Select drive

[A:SD card]
[C:Flash Memory]

3. Select a drive.

Recipe info.

Kind	Name	Size	Date	Time
DIR	..		2013/10/09	00:10
G2P	RECIPE2	5K	2013/10/09	00:10
CSV	ARP00003_002	1K	2013/10/09	00:10
TXT	ARP00001234	5K	2013/10/09	00:10

[Execute]

4. Select the copy destination folder and touch [Execute]. The file is copied.

Precautions

■Precautions for operation

Precautions during folder/file operation (Create/Delete/Copy/File output, etc.)

Even if the access to the SD card is inhibited while the GOT is processing folders and files, the processing continues.

(Example: Even if the access to the SD card is inhibited while the GOT is creating a folder, the folder is created.)

Therefore, do not pull out the SD card while the "Processing..." message is on the screen after the access to the SD card is inhibited.

While the GOT is accessing another file (such as alarm data)

When folder/file processing for the recipe is executed while the GOT is in access to other file (SD card access LED ON), the GOT executes folder/file processing for the recipe after the processing for other file has completed.

Therefore, it may take some time to finish the process of the recipe folder/file. (The "Processing..." message is displayed on the screen.)

Point

Estimation of processing time

The process may take time depending on the setting of advanced recipe file to be operated. (The more number of blocks increases, the longer it takes to process recipe folder/file.)

The process for creating the first file may take time depending on the setting of advanced recipe file.

Logging information

Function of logging information

Logging files created with the logging function can be copied, deleted or renamed, etc.

Without using a personal computer, you can manage logging files on the GOT.

For details of the logging function, refer to the following.

📖 GT Designer3 (GOT2000) Screen Design Manual
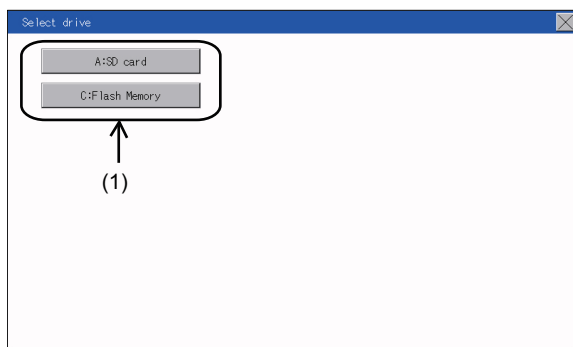
Function	Description	Reference page
Information display of files and folders	Displays name, data size, creation date and time of file or folder.	☞ Page 179 Example of logging information display ☞ Page 179 Logging information operation
Delete	Deletes the file or folder.	☞ Page 180 Deletion operation
Copy	Copies the file.	☞ Page 181 Copy operation

Display operation of logging information

Main Menu

Touch [Data].

Data

Touch [Resource Data].

Select drive

Select a drive and operate logging data files

Logging info.
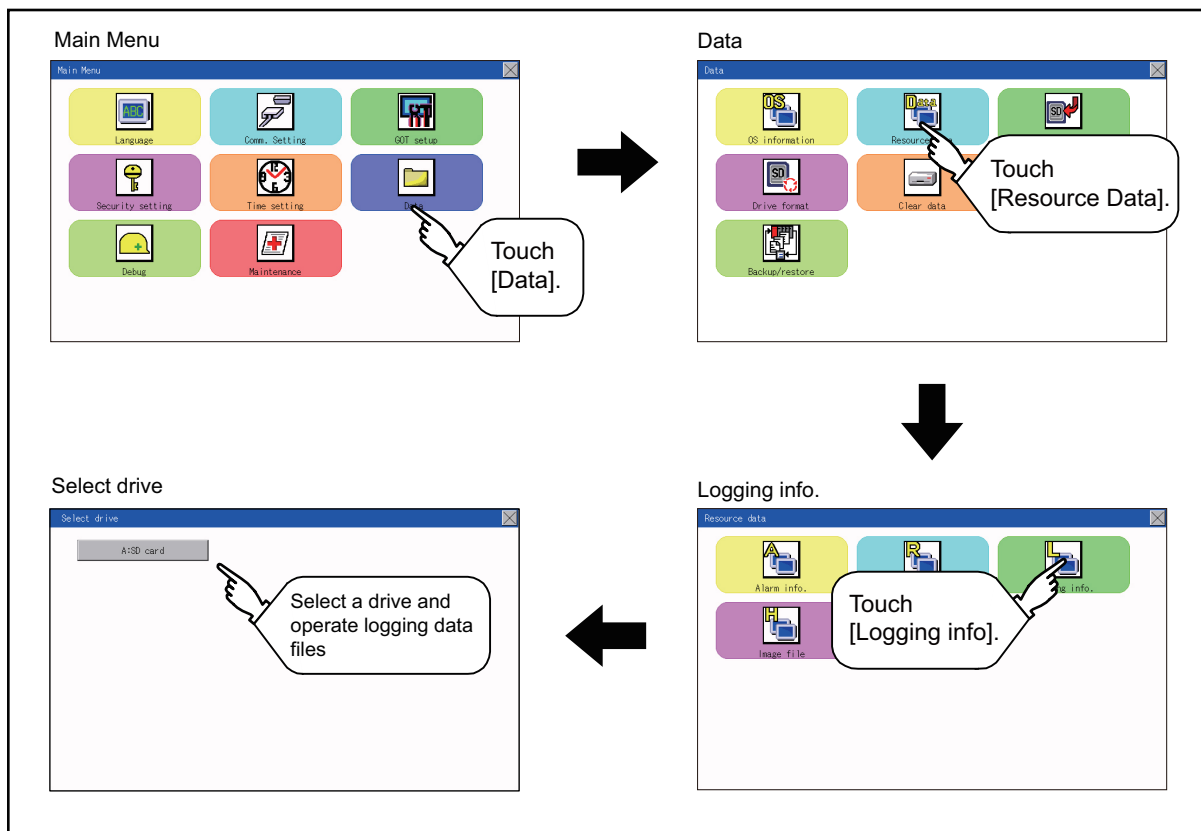
Touch [Logging info].

Example of logging information display

Logging Information

Logging Information
Storage file/folder display screen

No.	Item	Description
(1)	Select drive	The target drive can be selected. (Even if an SD card is not installed, this message appears.)
(2)	Kind	Indicates whether the displayed name is file or folder. Displays the extension for a file and "DIR" for a folder.
(3)	Name	Displays the file name or folder name. For the long file/folder name, entire part may not be displayed.
(4)	Size	Displays the size of the file displayed in Name.
(5)	Date, Time	Displays the creation date and time of each file.
(6)	Operation switch	Execution switch of each function.

Point

About the displayed file

The files other than that for logging are not displayed on the logging information screen.

Logging information operation
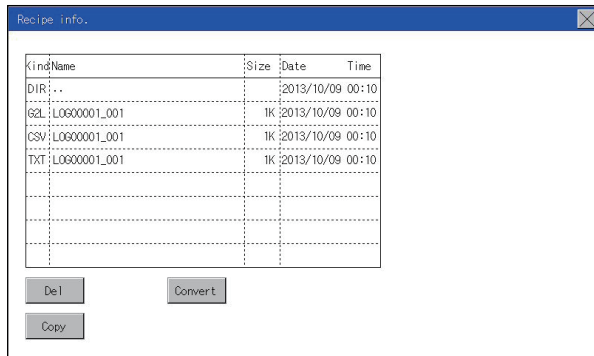
■Display operation of logging information

1. If touch a drive of [Select drive], the information of the touched drive is displayed.

2. If touch a folder name, the information of the touched folder is displayed.

3. If touch a folder of ". .", the information of the folder of the one upper hierarchy is displayed.

4. If touch the ▲ ▼ button of the scrollbar, the screen scrolls up/down by one line. If touch the ⏫ ⏬ button, the screen scrolls up/down by one screen.

5. If a file name is touched, the file is selected.

6. For operation of operating switches, refer to the following.

   Delete
   ☞ Page 180 Deletion operation

   Copy
   ☞ Page 181 Copy operation

7. If touch the [×] button, the screen is closed.

■Deletion operation

Folder and file to be used on logging are deleted.
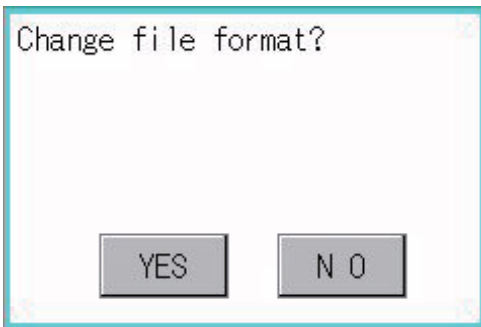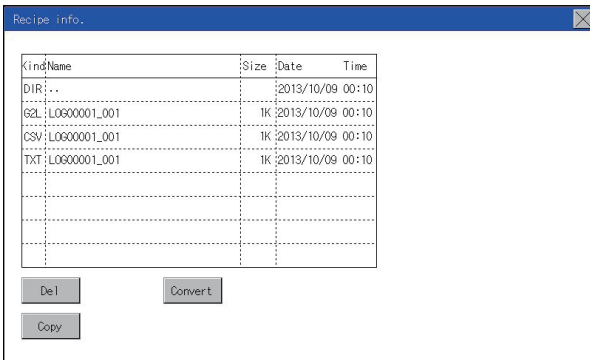
Kind	Name	Size	Date	Time
DIR	..		2013/10/09	00:10
G2L	LOG00001_001	1K	2013/10/09	00:10
CSV	LOG00001_001	1K	2013/10/09	00:10
TXT	LOG00001_001	1K	2013/10/09	00:10

Recipe info.

Del   Convert
Copy

1. Touch the folder or file to be deleted.

Change file format?

YES   N O

2. If touch the [Delete] button, the dialog box mentioned left is displayed. If the [YES] button is touched, the file or folder is deleted. (While executing, [Processing...] message appears on the screen.) If the [NO] button is touched, the deletion is canceled.

■Copy operation

Folder to be used in logging is copied.

1. Touch the file to be copied.

2. If the [Copy] button is touched, the Select drive screen is displayed.

3. Select a drive.

4. Select the copy destination folder and touch [Execute]. The file is copied.

Precautions

■Precautions for operation

Precautions during folder/file operation (Create/Delete/Copy/File output, etc.)

Even if the access to the SD card is inhibited while the GOT is processing folders and files, the processing continues.

(Example: Even if the access to the SD card is inhibited while the GOT is creating a folder, the folder is created.)

Therefore, do not pull out the SD card while the "Processing..." message is on the screen after the access to the SD card is inhibited.

While the GOT is accessing another file (such as alarm data)

When folder/file processing for the logging is executed while the GOT is in access to other files (SD card access LED ON), the GOT executes folder/file processing for the logging after the processing for other files is completed.

Therefore, it may take some time to finish the process of the logging folder/file.

(The "Processing..." message is displayed on the screen.)

Image file management

Function of image file management

Deletes, copies, and moves the file created by the hard copy function. For details of the hard copy function, refer to the following.

📖 GT Designer3 (GOT2000) Screen Design Manual

Function	Description	Reference page
Information display of files and folders	Displays the kind, name, data size, creation date and time of the file or folder.	☞ Page 183 Display example of image file management ☞ Page 184 Operation of image file management
Delete	Deletes the file.	☞ Page 184 Deletion operation
Copy	Copies the file.	☞ Page 185 Copy operation

Display operation of image file management
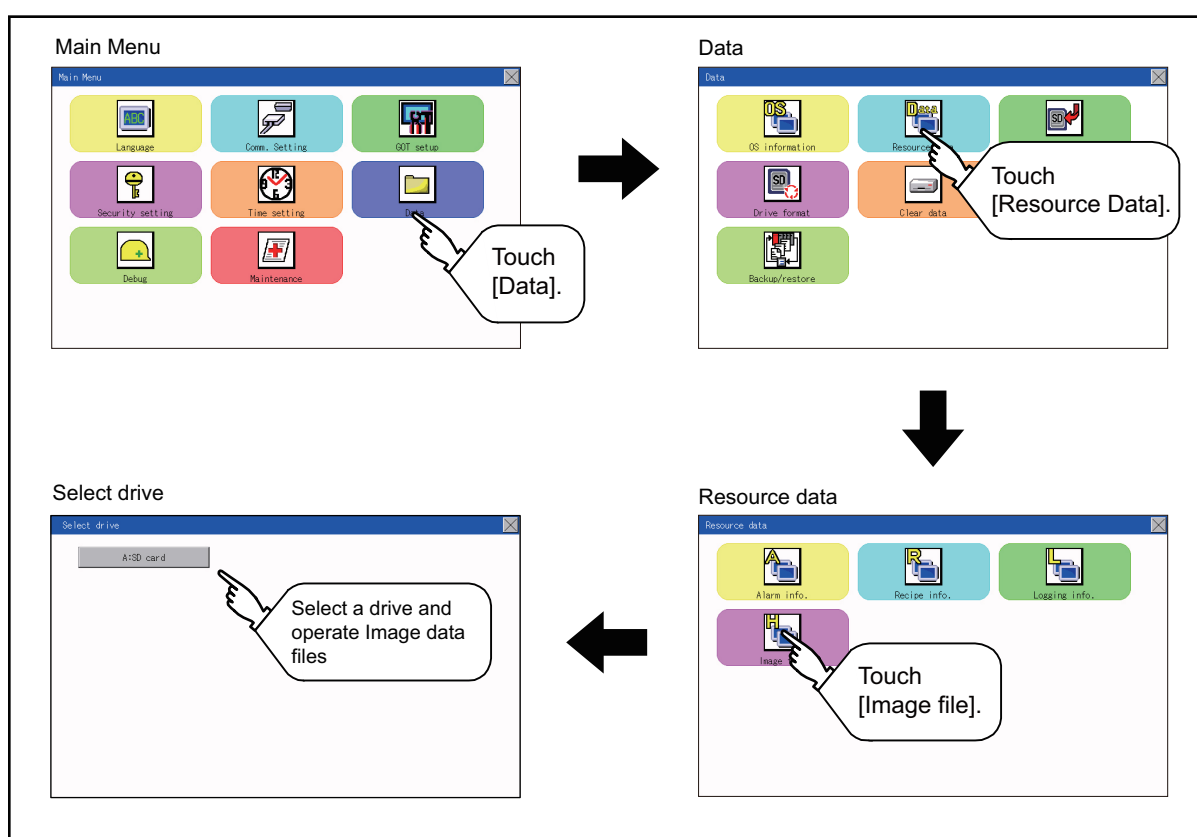
Display example of image file management

Image file Information

Image file Information
Storage file/folder display screen

(1)

(6)

No.	Item	Description
(1)	Select drive	The drive which displays file or folder can be selected. When an SD card is not installed, the following drives are not displayed. • SD card: [A: Standard SD card]
(2)	Kind	Indicates whether the displayed name is file or folder. Displays the extension for a file and "DIR" for a folder.
(3)	Name	Displays the file name or folder name. For the long file/folder name, entire part may not be displayed. Confirm the non-displayed part with the [Copy] button, etc. ☞ Page 185 Copy operation After confirmation, touch the [Cancel] button to cancel the operation.
(4)	Size	Displays the size of the file displayed in Name.
(5)	Date, Time	Displays the creation date and time of each file.
(6)	Operation switch	Execution switch of each function.

Point

Display of creation date and time

The creation date and time display is not updated even if a file is created or updated while the image file management screen is displayed. To display the updated creation date and time, close the screen currently displayed (by moving to the upper hierarchy folder, etc.) and display the screen again.

15

Operation of image file management

■Display operation of image file management
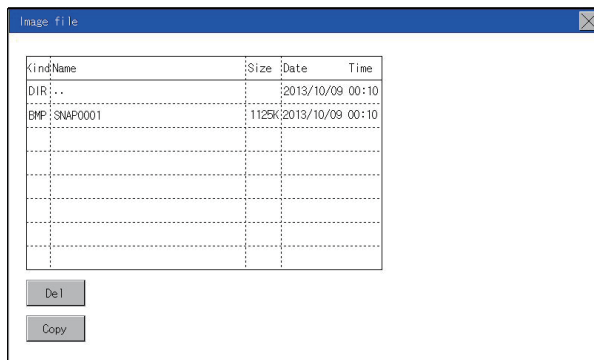
1. If touch a drive of [Select drive], the information of the touched drive is displayed.

2. If touch a folder name, the information of the touched folder is displayed.

3. If touch a folder of ". .", the information of the folder of the one upper hierarchy is displayed.

4. If touch the ▲ ▼ button of the scrollbar, the screen scrolls up/down by one line. If touch the ⬆ ⬇ button, the screen scrolls up/down by one screen.

5. If a file name is touched, the file is selected.

6. For the operations of the delete, copy, and rename, refer to the following.
Delete
☞ Page 184 Deletion operation
Copy
☞ Page 185 Copy operation

7. If touch the [×] button, the screen is closed.

■Deletion operation
Deletes the selected file.
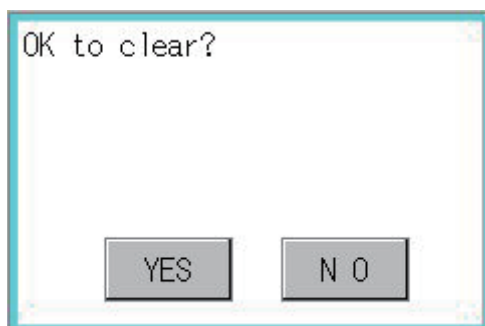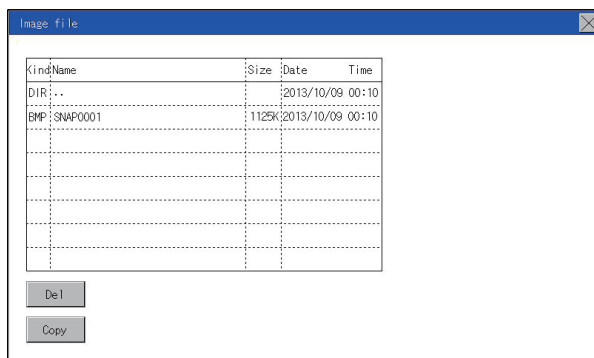
1. Touch the file to be deleted.

2. If touch [Delete] button, the screen mentioned left is displayed. If the [YES] button is touched, the file is deleted. If the [NO] button is touched, the deletion is canceled.

■Copy operation

Copies the selected file.

Image file
Kind	Name	Size	Date	Time
DIR	..		2013/10/09	00:10
BMP	SNAP0001	1125K	2013/10/09	00:10

Del

Copy

1. Touch the file to be copied.

Select drive

A:SD card
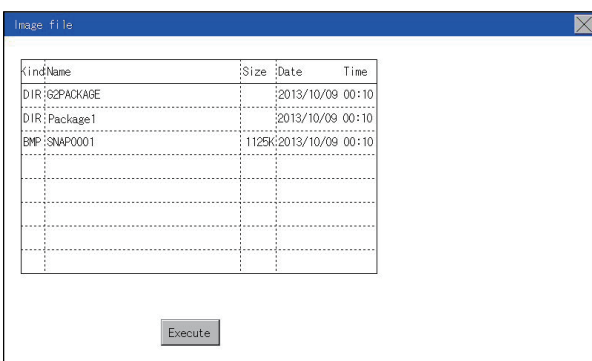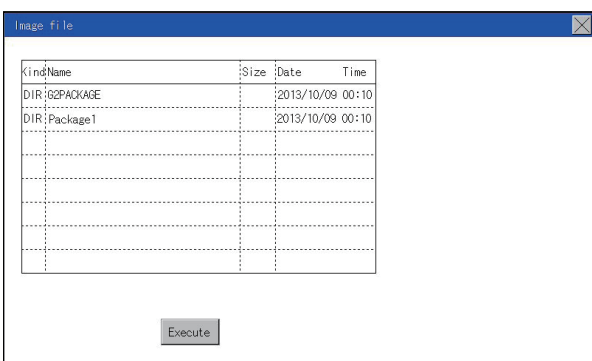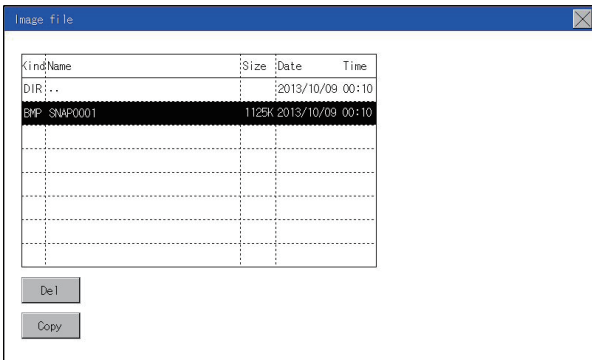
2. If the [Copy] button is touched, the Select drive screen is displayed. Select a drive.

Image file
Kind	Name	Size	Date	Time
DIR	G2PACKAGE		2013/10/09	00:10
DIR	Package1		2013/10/09	00:10

Execute

3. If the copy destination folder is touched, the screen display is changed to the folder of copy destination. At this time, it cannot be copied into the same folder where the file exists. Select other folders.

Image file
Kind	Name	Size	Date	Time
DIR	G2PACKAGE		2013/10/09	00:10
DIR	Package1		2013/10/09	00:10
BMP	SNAP0001	1125K	2013/10/09	00:10

Execute

4. If touch the [Execute] button, the file is copied.

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Operation log information

Function of operation log information

This function displays the operation log files.

The functions below can be carried out for files.

Only GS21-W-N supports this function.

For details on operation logs, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

Item	Description	Reference page
Information display of files and folders	Displays name, data size, creation date and time of file or folder.	☞ Page 187 Display example of operation log information ☞ Page 188 Operation of operation log information
G2O → CSV conversion	Converts an operation log file (G2O file) to a CSV file.	☞ Page 189 G2O → CSV conversion operation, G2O → TXT conversion operation
G2O → TXT conversion	Converts an operation log file (G2O file) to a Unicode text file.	☞ Page 189 G2O → CSV conversion operation, G2O → TXT conversion operation
Delete	Deletes the file.	☞ Page 190 Deletion operation
Copy	Copies the file.	☞ Page 191 Copy operation

Display operation of operation log information
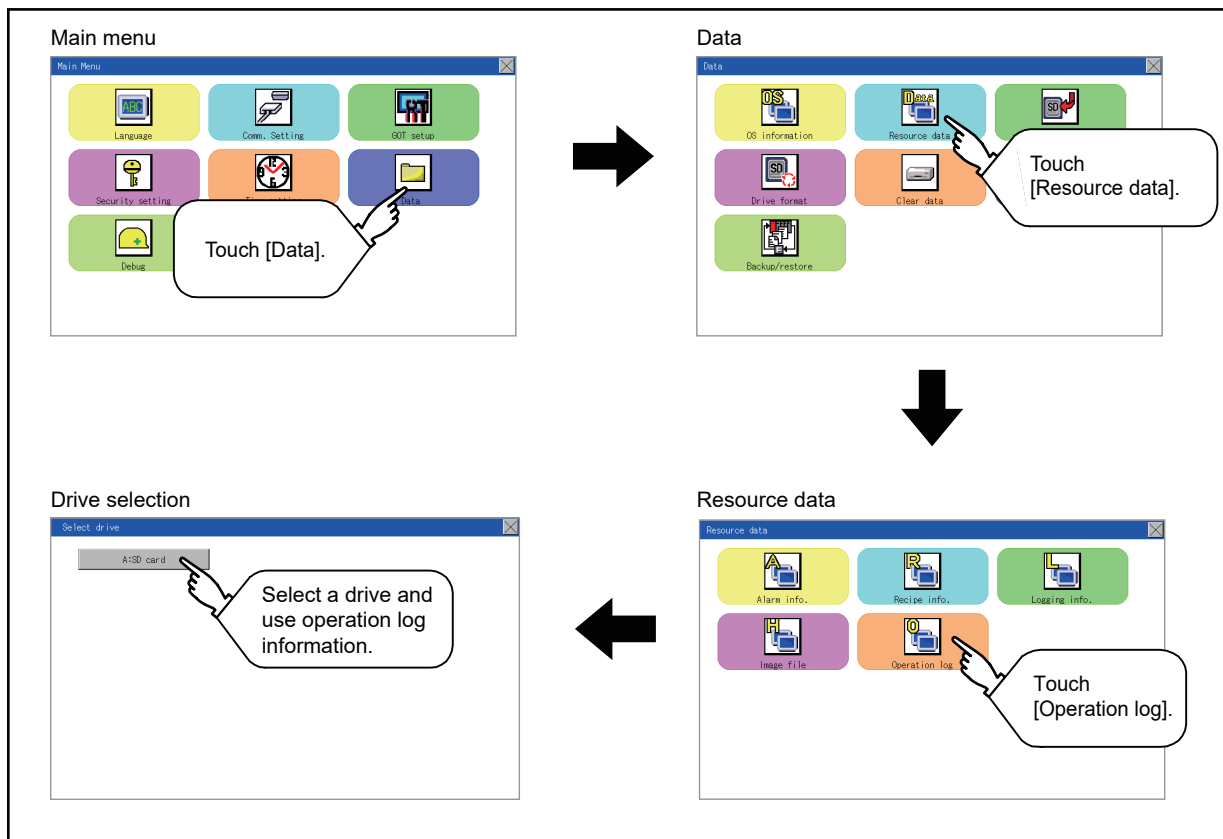
Display example of operation log information
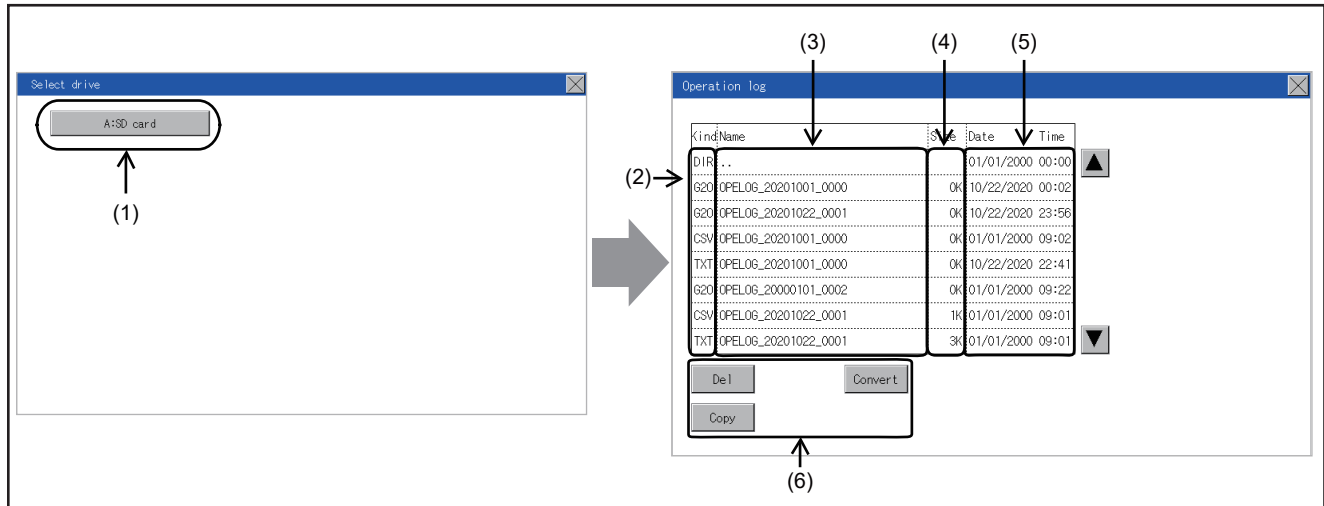
No.	Item	Description
(1)	Select drive	The drive which displays file or folder can be selected. (Data storage drives are displayed even no data storage is installed.)
(2)	Kind	Indicates whether the displayed name is file or folder. Displays the extension for a file and "DIR" for a folder.
(3)	Name	Displays the file name or folder name. For the long file/folder name, entire part may not be displayed.
(4)	Size	Displays the size of the file displayed in Name.
(5)	Date, Time	Displays the creation date and time of each file.
(6)	Operation switch	Execution switch of each function.

15

Operation of operation log information

■Display operation of operation log information

1. If a drive of [Select drive] is touched, the information of the touched drive is displayed.

2. If a folder name is touched, the information of the touched folder is displayed.

3. If a folder of ". ." is touched, the information of the folder in one upper hierarchy is displayed.

4. If the ▲ ▼ button of the scrollbar is touched, the screen scrolls up/down by one line.

5. If a file name is touched, the file is selected.

6. For G2O → CSV conversion, G2O → TXT conversion, deleting, copying, and renaming, refer to the following.

   G2O → CSV or G2O → TXT conversion
   ☞ Page 189 G2O → CSV conversion operation, G2O → TXT conversion operation
   Delete
   ☞ Page 190 Deletion operation
   Copy
   ☞ Page 191 Copy operation

7. If the [×] button is touched, the screen is closed.

Point

When the Prohibit Operation Log Information Operation signal (GS522.b3) is turned on, the [Del], [Copy], and [Convert] buttons are not displayed.
For the details, refer to the following.
📖GT Designer3 (GOT2000) Screen Design Manual

■G2O → CSV conversion operation, G2O → TXT conversion operation

A selected G2O file is converted to a CSV file or Unicode text file.
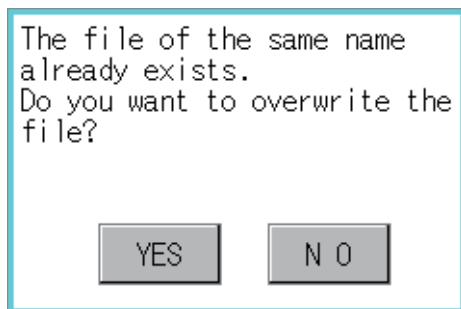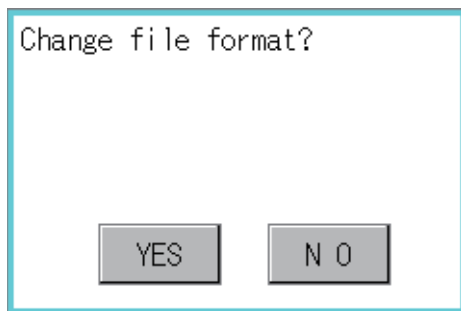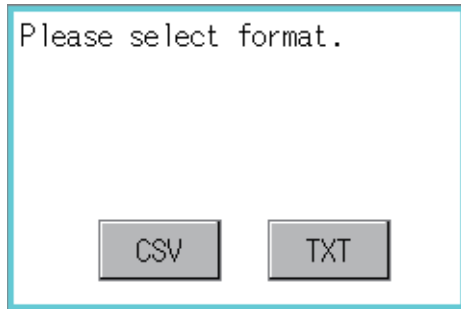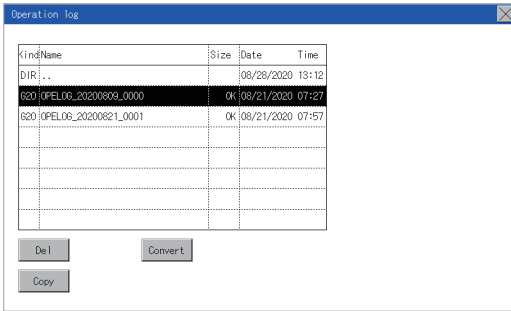
1. Touch the G2O file to be converted.

2. Touch [Convert].

3. The destination selection screen appears.
Select the destination.

4. The following dialog box is displayed when touching the following button according to the file type to convert to.
   • CSV file: [CSV] button
   • Unicode text file: [TXT] button

5. Touch the [YES] button. The converted file is created.

6. If a file with the same name exists, the overwrite confirmation dialog appears.
Touch the [YES] button to overwrite the file.
Touch the [NO] button to cancel the conversion.

15

■Deletion operation

Deletes the selected file.
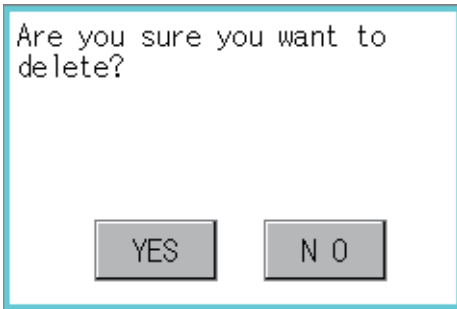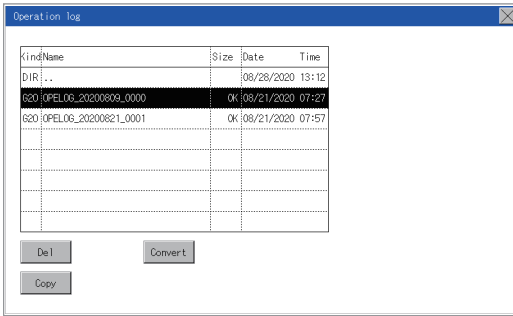
1. Touch the file to be deleted.

2. If the [Delete] button is touched, the dialog box mentioned below is displayed.

If the [YES] button is touched, the file is deleted.

If the [NO] button is touched, the deletion is canceled.

■Copy operation

Copies the selected file.
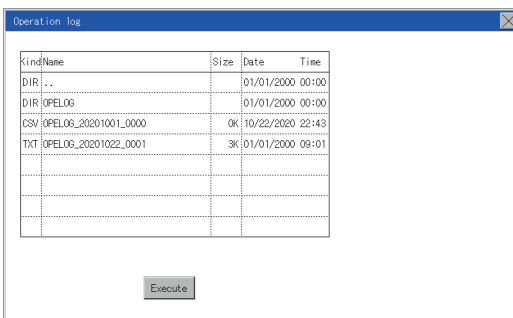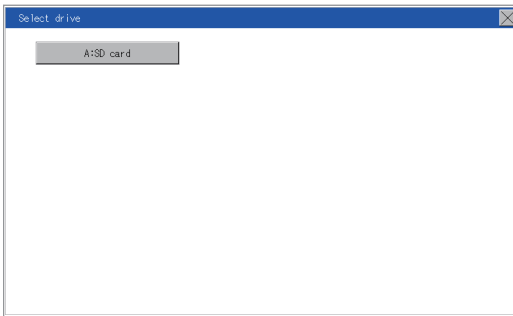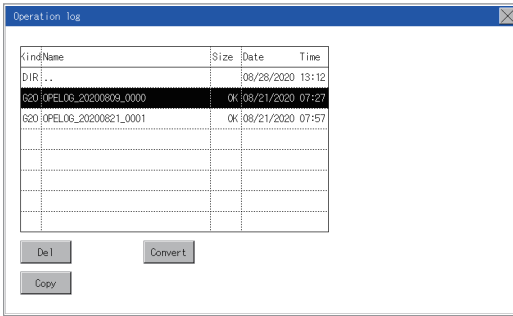
1. Touch the file to be copied.

2. If the [Copy] button is touched, the Select drive screen is displayed.

3. Select a drive.

4. Select the copy destination folder and touch [Execute]. The file is copied.

15.4 SD Card Access

Functions of SD card access

When the GOT is turned on, an SD card can be installed or removed to/from the GOT without damage to the data in the SD card.

Display operation of SD card access
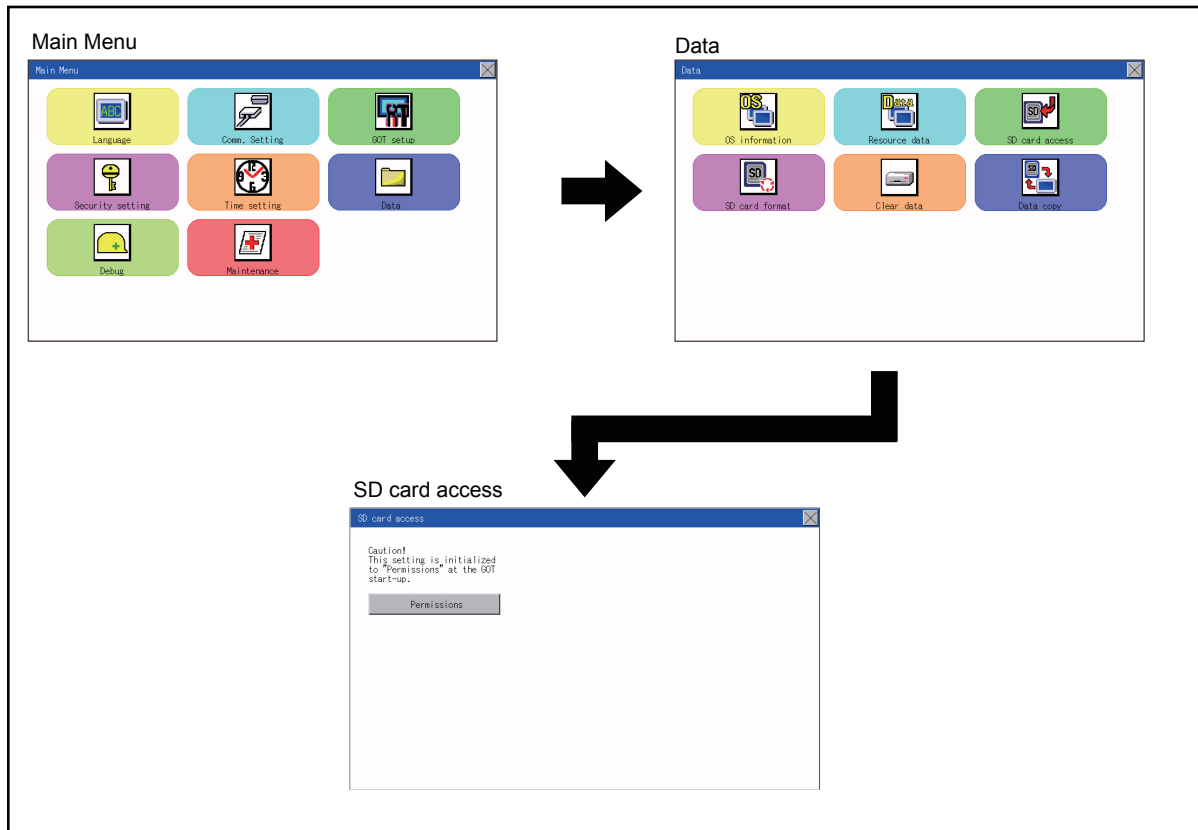
Operation of SD card access
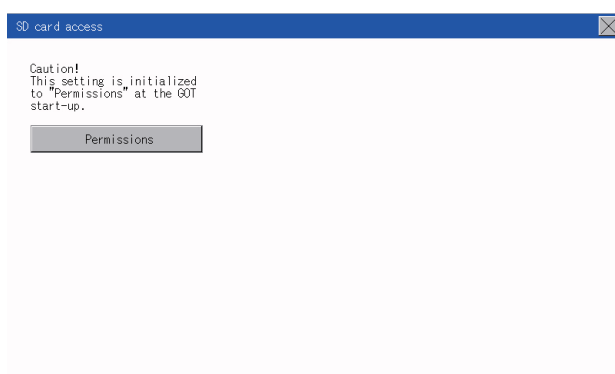
1. Touch a setting item to change the setting.

[Permissions] ⟲ [Access inhibit]

When installing or removing an SD card, always set [Access inhibit].

15.5 SD Card Format

Function of SD card format

An SD card is formatted.

Display operation of SD card format

Main Menu

Touch [Data].

Data

Touch [SD card format].
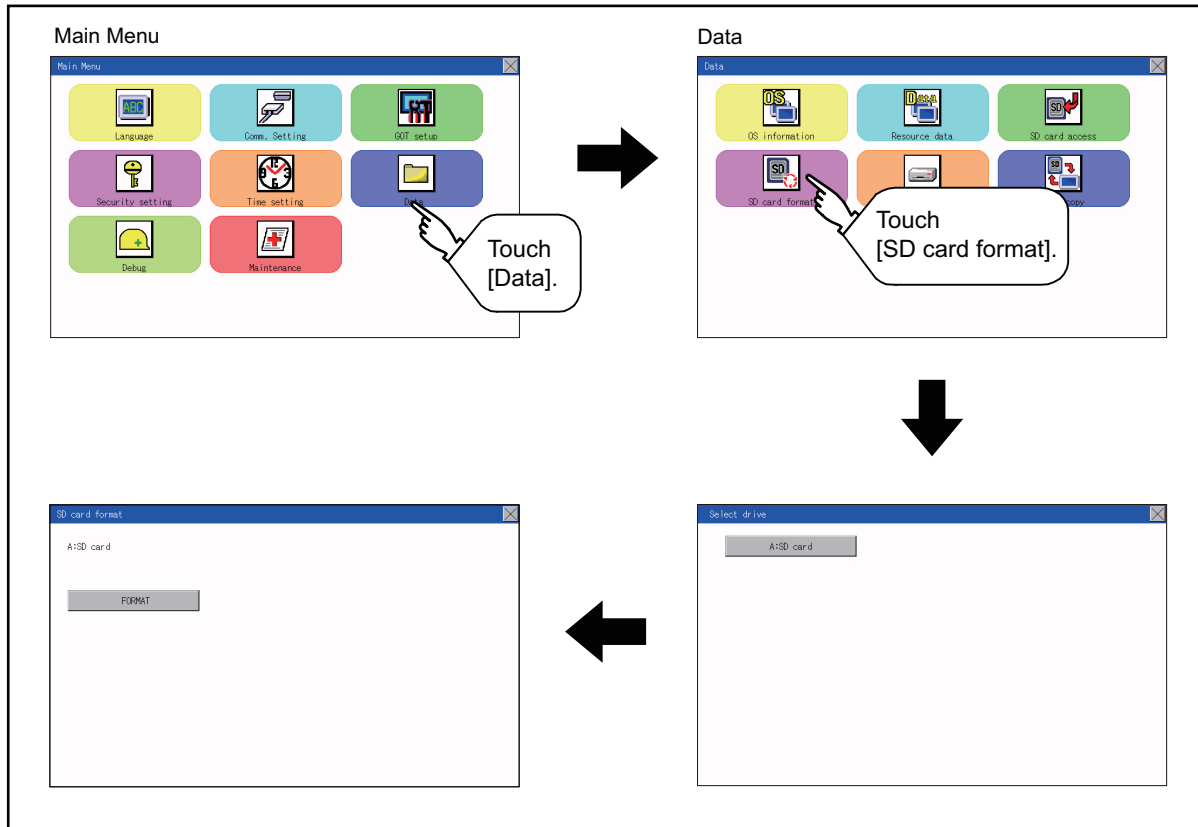
Operation of SD card format
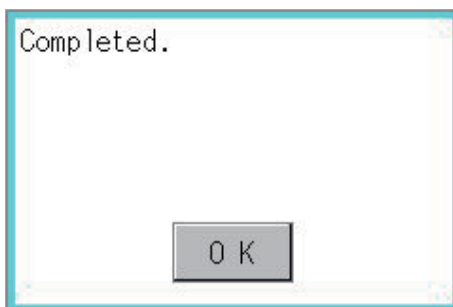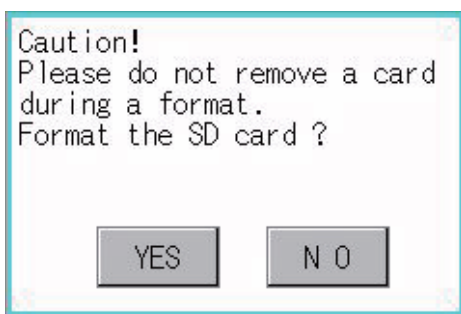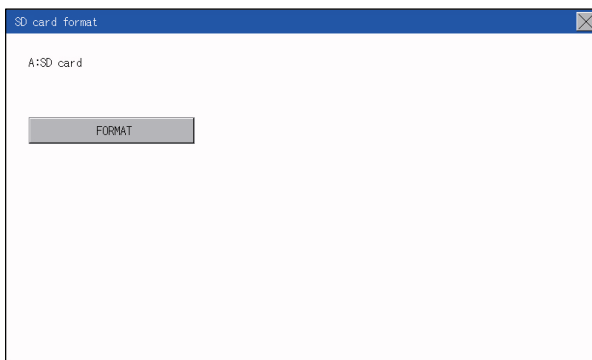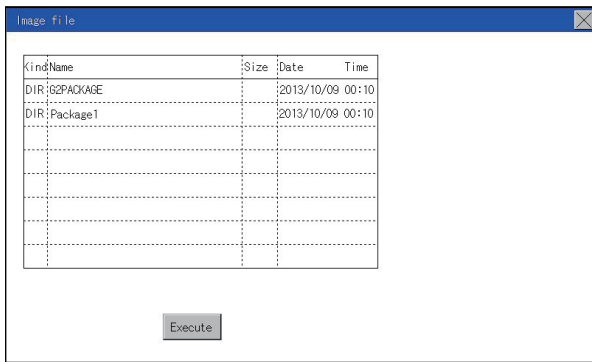
1. Install an SD card to the GOT. For installation/removal procedure of an SD card, refer to the following.

☞ Page 63 Installation/removal procedure of SD card

2. Touch and select the drive to format by drive selection.

3. If touch the [FORMAT] button, the password input screen is displayed.

4. Type ☐1☐ ☐1☐ ☐1☐ ☐1☐ and touch the [Enter] key. The dialog box shown on the left will appear. (The password is fixed to 1111.) Confirm the contents of the dialog box, and touch the [YES] button to format the SD card. To cancel the format, touch the [NO] button.

5. When the formatting is completed, the completion dialog mentioned left is displayed.

6. To close the dialog box, touch the [OK] button.

Point

Restrictions on formatting
- When using an unformatted SD card in the GOT, format it by a personal computer. The GOT cannot format the unformatted SD card.
- The format of the GOT does not change the file system (Example: FAT16) of the SD card and inherits the file system before the format.

15.6 Clear data

Clear data functions

This function deletes the project data and resource data that are written to the GOT.

Clear data display

Main Menu

Clear data

Touch [Data].

Touch [Clear data].

Clear data

Clear data operation

Touch [Project data] or [Resource data].
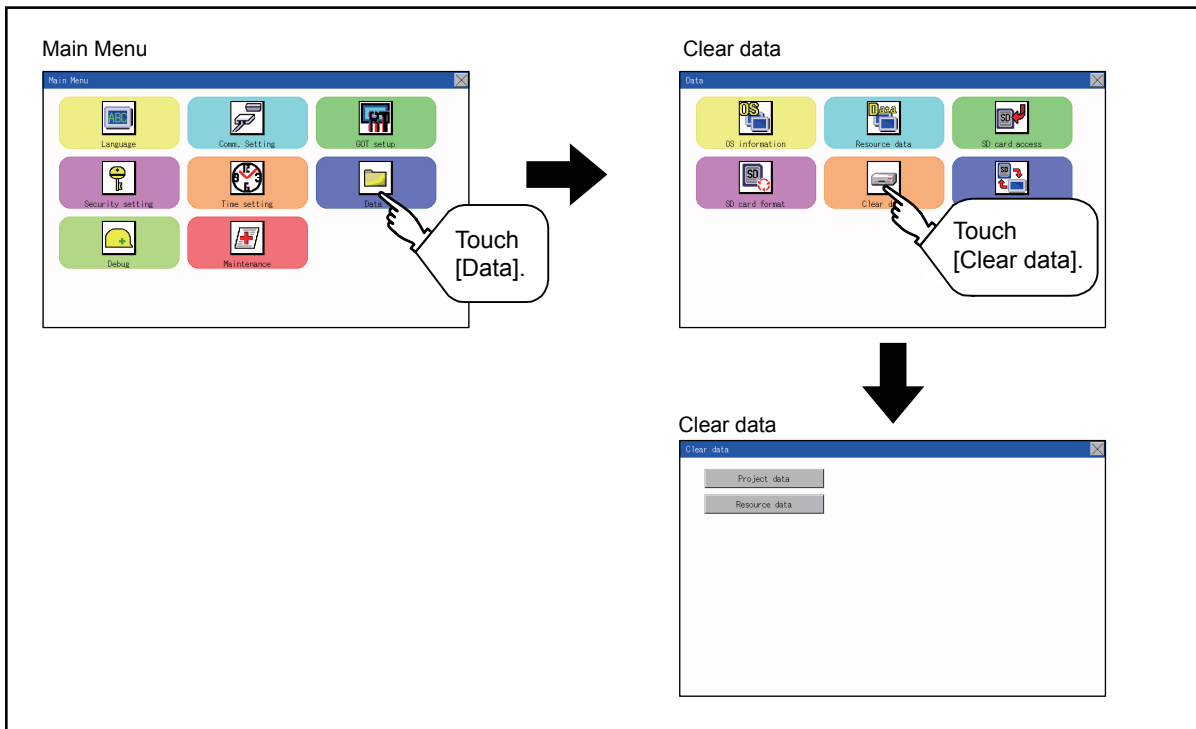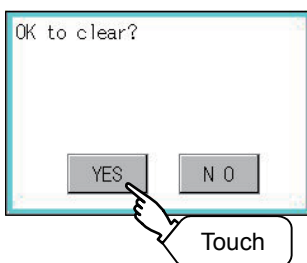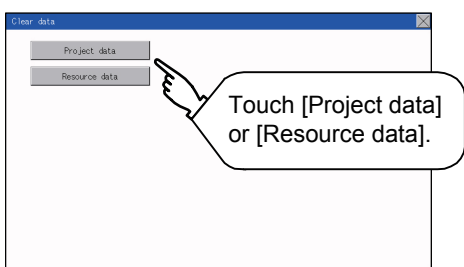
1. Touch the type of data on the screen to be deleted.

OK to clear?

YES   N O

Touch

2. The dialog box on the left is displayed for confirmation. Touch the [YES] button to delete the data, or the [NO] button to cancel.

Point

Canceling deletion

Data deletion cannot be canceled once the [YES] button is pressed at the confirm deletion prompt.

Double check before touching the [YES] button.

15.7 Data Copy

The project data and basic system application are transferred by using an SD card.

Point

Copy from the memory board to the GOT

Copying from the memory board to the GOT when turning on the power to the GOT.

Refer to the following.

☞ Page 276 Installing using the data control function (Utility)

Display operation of data copy

Main Menu

Main Menu

Language　Comm. Setting　GOT setup
Security setting　Time setting　Data
Debug　Maintenance

Touch [Data].

Data

Data

OS information　Resource data　SD card access
SD card format　　　Data copy

Touch [Data copy].

Data copy

Data copy

Select direction.

▶　GOT → SD car
　　SD card → GOT

O K　　　ABORT
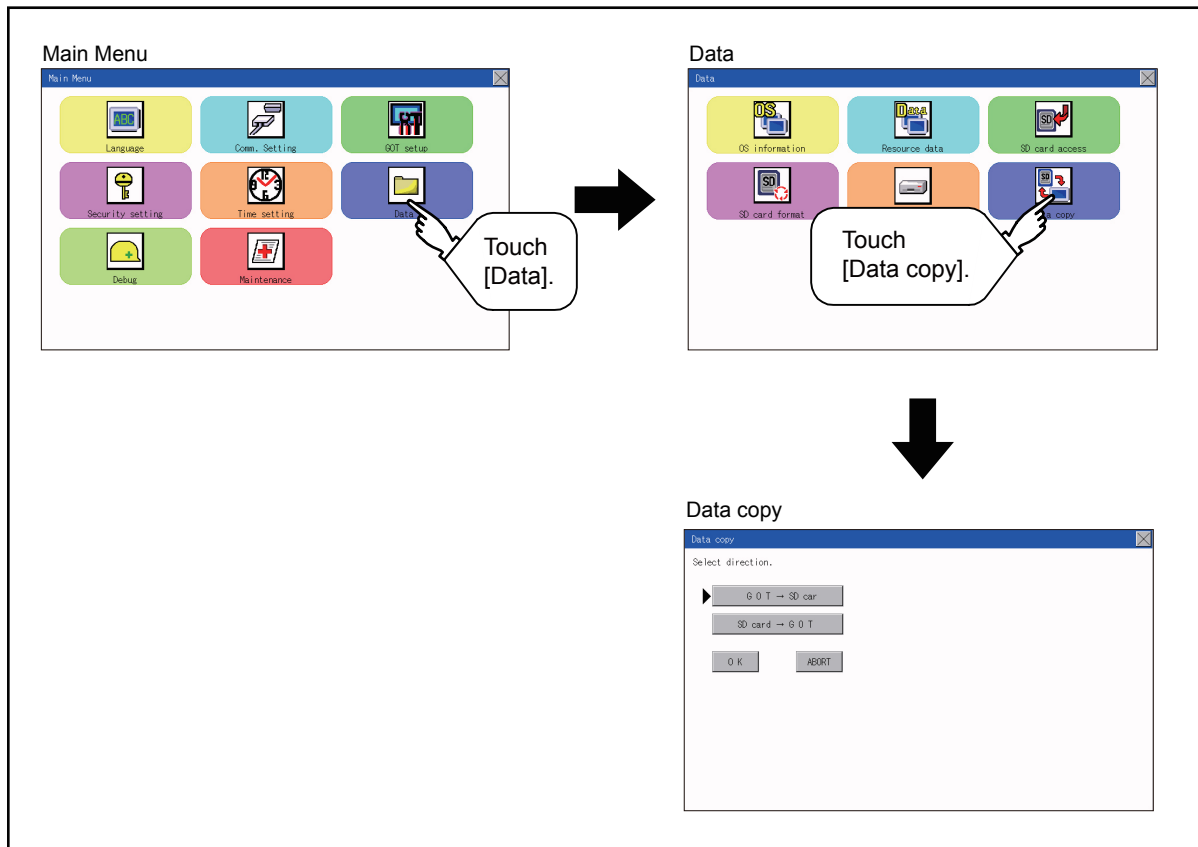
Operation of data copy
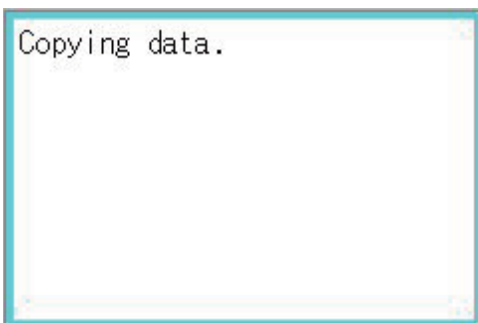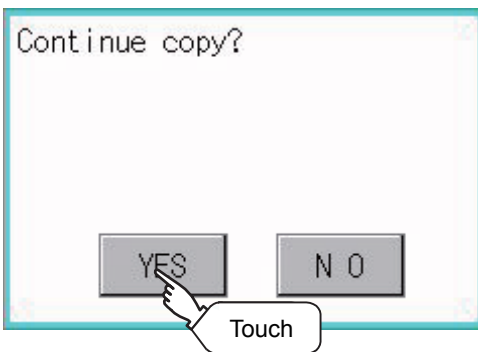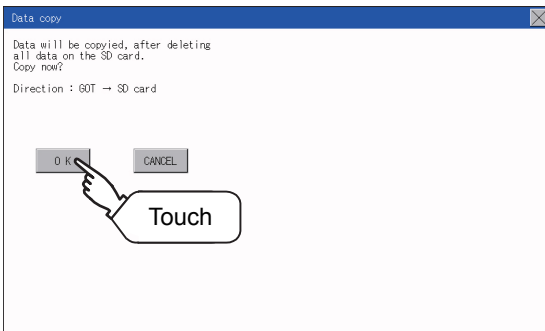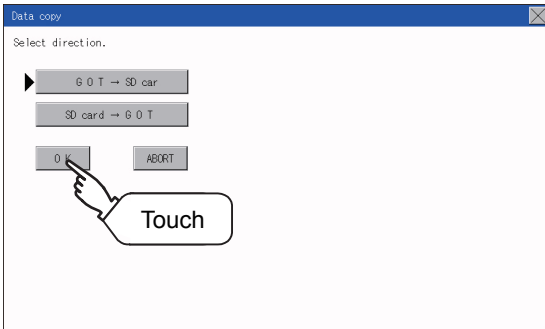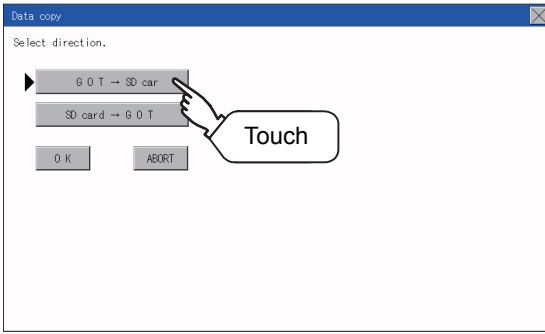
1. Select the copy direction. The selection mark is displayed on the side of the selected key.

GOT → SD card:

Copy the data from the GOT to the SD card.

SD card → GOT:

Copy from the SD card to the GOT

2. After selecting the direction, touch the [OK] button. To abort copy, touch the [ABORT] button.

3. Confirm the copy direction and copy target. When they are set correctly, touch the [OK] button. To change the setting, touch the [CANCEL] button.

4. The dialog box on the left is displayed for confirmation. Touch the [YES] button to start copying and [NO] button to abord.

5. While the copy is executed, the dialog box on the left is displayed.

6. Copy is completed. If the [×] button is touched, the screen is closed. If an error occurs during copy, an error message appears. For details of error messages, refer to the following.

☞ Page 198 Error display

When only the project data was copied to the GOT, touch the [ESC] button to restart the GOT and display the user-created screen.

When the basic system application was copied, the GOT will automatically start up and display the user-created screen. (If the project data does not exist, a message appears to notify that the project data does not exist.)

Point

When installing or removing an SD card

Always set [Permissions] on the GOT. For details, refer to the following.

☞ Page 192 SD Card Access

Error display

When copying is not available between the GOT and the SD card, check the following contents according to the GOT error display.

Error message	Remedy
SD card is not attached.	Install an SD card to the GOT.
GOT type is unmatch.	The model set for the data in the SD card does not match with that of the copy target GOT. Use the same model data as that of the copy target GOT.
Write protection switch ON.	The write protection switch of the SD card is ON. Turn off the write protection switch.
Available package data is notexisted.	There is no data to be a copy target in the copy source. Store the data to be copied in the copy source and copy it again.

15.8 BACKUP/RESTORE

BACKUP/RESTORE

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.
The following shows features of the backup/restore function.

Backing up or restoring system without personal computer for reducing downtime

Setting data for a controller connected to the GOT can be backed up, and the data can be restored to the controller.
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.

Backing up setting data to a SD card

Restore the backup data
to the controller.
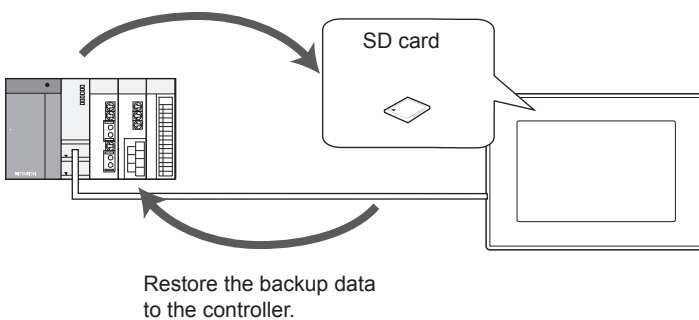
Enabling creating the same system without personal computer

With restoring the backed up setting data to controllers in other systems, the same system can be created without a personal computer.

Improving security

When the backup/restore function is used, browsing and changing setting data is limited with a password and the security is improved.
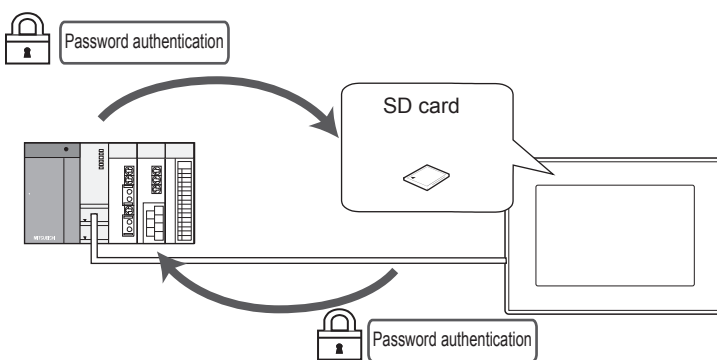
System configuration

This section describes the system configuration for the backup/restore function.

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

Target controller

Controller		Model
MELSEC iQ-F		FX5U, FX5UC, FX5UJ
QCPU(Q mode)	Basic model[*1]	Q00JCPU, Q00CPU, Q01CPU
	High performance model[*1]	Q02CPU, Q02HCPU, Q06HCPU, Q12HCPU, Q25HCPU
	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
LCPU		L02CPU, L06CPU, L26CPU, L26CPU-BT, L26CPU-PBT, L02CPU-P, L06CPU-P, L26CPU-P, L02SCPU, L02SCPU-P
FX CPU[*2]		FX0, FX0S, FX0N, FX1, FX2, FX2C, FX1S, FX1N, FX1NC, FX2N, FX2NC, FX3U, FX3UC, FX3G, FX3GC, FX3S

*1 Use a PLC CPU with the function version of B or later.
*2 To restore the backup data containing a special parameter, use the following version of CPU.
  · FX3U(C) version: 3.10 or later· FX3G(C) version: 2.00 or later

Connection type

This function can be used in the following connection types.

(○: Applicable, △: Partly restricted, ×: Inapplicable)

Function		Connection type between GOT and controller		
Name	Description	Direct CPU connection (serial)	Serial communication connection	Ethernet connection
Backup/restore	Backs up setting data for a controller connected to the GOT and restores the data to the controller.	△ *1	△ *3	△ *2*3

*1 When the GOT is connected to LCPU, use L6ADP-R2.
*2 Backup/Restore cannot be used when using CC-Link IE field network Ethernet adapter.
*3 The restoration cannot be performed to a QCPU with the factory-settings or whose memory is formatted.

Required hardware

The backup / restore, SD card is required.

Data to be backed up and restored

The following shows data to be backed up and restored.

Data other than the the following data cannot be backed up and restored.

■Basic model QCPU

Item	Description	File name
Parameter	Parameter for operating a programmable controller	PARAM.QPA
Intelligent function module parameter	Parameter for intelligent function modules	IPARAM.QPA
Sequence program	Program that the CPU operates	MAIN.QPG
SFC program	Sequence program with the SFC programming format	MAIN-SFC.QPG
File register[*1]	Data stored in file registers	MAIN.QDR
Device comment	Device comment to be stored in a programmable controller	MAIN.QCD
Device initial value	Setting the device initial value	MAIN.QDI

*1   The file register in the Flash card installed in the CPU is always restored without confirming saving.
        Select whether restoring or not the file register stored in the SRAM card or standard RAM in the dialog box displayed when restoration is
        executed.
        When the file register is not restored, the existing file register is deleted.
        Therefore, programs of the controller may not work normally.
        If a problem occurs in the operation of the controller after restoration, perform the restoration again, including to the file register.

■High Performance model QCPU

Item	Description	File name
Parameter	Parameter for operating a programmable controller	PARAM.QPA
Intelligent function module parameter	Parameter for intelligent function modules	IPARAM.QPA
Program	Program that the CPU operates (Including SFC program)	***.QPG
Device comment	Device comment to be stored in a programmable controller	***.QCD
Boot operation specification file	Batch file for starting programs stored in ROM and others	AUTOEXEC.QBT
Device initial value	Setting the device initial value	***.QDI
File register[*1]	Data stored in file registers	***.QDR
Sampling trace file[*2]	Sampling trace data that the specified device data is continuously collected with the specified timing	***.QTD
Failure history data[*2]	Failure history data that are recorded self-diagnostic results	***.QFD
Programmable controller user data	Any user-created data stored in a memory card	***.*** (Optional)

*1   The file register in the Flash card installed in the CPU is always restored without confirming saving.
        Select whether restoring or not the file register stored in the SRAM card or standard RAM in the dialog box displayed when restoration is
        executed.
        When the file register is not restored, the existing file register is deleted.
        Therefore, programs of the controller may not work normally.
        If a problem occurs in the operation of the controller after restoration, perform the restoration again, including to the file register.
*2   The item can be backed up only.

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■Universal model QCPU

Item	Description	File name
Parameter	Parameter for operating a programmable controller	PARAM.QPA
Intelligent function module parameter	Parameter for intelligent function modules	IPARAM.QPA
Program	Program that the CPU operates (Including SFC program)	***.QPG
Device comment	Device comment to be stored in a programmable controller	***.QCD
Boot operation specification file	Batch file for starting programs stored in ROM and others	AUTOEXEC.QBT
Device initial value	Setting the device initial value	***.QDI
File register[*1]	Data stored in file registers	***.QDR
Sampling trace file[*2]	Sampling trace data that the specified device data is continuously collected with the specified timing	***.QTD
Programmable controller user data	Any user-created data stored in a memory card	***.*** (Optional)
File for storing device data	Device data used for the SP.DEVST and S.DEVLD instructions	DEVSTORE.QST
Drive heading	The heading of the drive	QN.DAT
Remote password	Remote password settings	00000000.QTM
Monitor sequence extension	Data to increase the speed of monitors from other stations.	MONITOR.Q0*
Latch data backup file	Stores the backup data for the latch data backup function to the standard ROM.	LCHDAT00.QBK

*1 The file register in the Flash card installed in the CPU is always restored without confirming saving.
  Select whether restoring or not the file register stored in the SRAM card or standard RAM in the dialog box displayed when restoration is executed.
  When the file register is not restored, the existing file register is deleted.
  Therefore, programs of the controller may not work normally.
  If a problem occurs in the operation of the controller after restoration, perform the restoration again, including to the file register.

*2 The item can be backed up only.

■LCPU

Item	Description	File name
Parameter	Parameter for operating a programmable controller	PARAM.QPA
Intelligent function module parameter	Parameter for intelligent function modules	IPARAM.QPA
Program	Program that the CPU operates (Including SFC program)	***.QPG
Device comment	Device comment to be stored in a programmable controller	***.QCD
Boot operation specification file	Batch file for starting programs stored in ROM and others	AUTOEXEC.QBT
Device initial value	Setting the device initial value	***.QDI
File register[*1]	Data stored in file registers	***.QDR
Sampling trace file[*2]	Sampling trace data that the specified device data is continuously collected with the specified timing	***.QTD
Programmable controller user data	Any user-created data stored in a memory card	***.*** (Optional)
File for storing device data	Device data used for the SP.DEVST and S.DEVLD instructions	DEVSTORE.QST
Drive heading	The heading of the drive	QN.DAT
Remote password	Remote password settings	00000000.QTM
Monitor sequence extension	Data to increase the speed of monitors from other stations.	MONITOR.Q0*
Latch data backup file	Stores the backup data for the latch data backup function to the standard ROM.	LCHDAT00.QBK
Data logging setting file	Setting the data logging	LOGCOM.QLG LOG01.QLG to LOG10.QLG
Menu definition file	Menu defining files	MENUDEF.QDF

*1 The file register in the Flash card installed in the CPU is always restored without confirming saving.
  Select whether restoring or not the file register stored in the SRAM card or standard RAM in the dialog box displayed when restoration is executed.
  When the file register is not restored, the existing file register is deleted.
  Therefore, programs of the controller may not work normally.
  If a problem occurs in the operation of the controller after restoration, perform the restoration again, including to the file register.

*2 The item can be backed up only.

■FX CPU

Item	Description	File name
Parameter	Parameter for operating a programmable controller	INFO.FPG
Device comment	Device comment to be stored in a programmable controller	
Sequence program	Program that the CPU operates	
Special program[*1]	Positioning setting/Initial value parameter	
File register	Data stored in file registers	
Extension file register[*2]	Data stored in extension file registers	
Built-in CC-Link/LT setting[*3]	CC-Link/LT parameter	
Special parameter[*1]	Special adapter/special block parameter saved in the main unit	

*1   The data can be backed up or restored with the FX3U(C) series and FX3G(C) series only.
*2   The data can be backed up or restored with the FX3U(C) series only.
*3   The data are stored in the FX3U-32MT-LT-2 only.

■Data for software

Item		Description	File name
Label program		Data for GX Developer	PROJINFO.CAB
Symbolic data		Symbolic data for PX Developer	#FBDQINF.BIN
Source information	Simple project (with label)	GX Works2 data	SRCINFOM.CAB SRCINFOM.C32
	Structured project	GX Works2 data	SRCINFOI.CAB SRCINFOI.C32
New source information	Simple project (with label)	GX Works2 data	SRCINF1M.CAB SRCINF2M.CAB SRCINF1M.C32 SRCINF2M.C32
	Structured project	GX Works2 data	SRCINF1I.CAB SRCINF2I.CAB SRCINF1I.C32 SRCINF2I.C32

Backup data

■Storing backup data
When backups for the same channel are executed several times, the backup data is overwritten by SD card.

■Storage location for backup
Backup data are stored in a SD card with the following folder structure.

SD card   ································· SD card in the drive set as the storage location for backup data

  ├─ BACKUP

      ├─ SYS1BKUP

         └─ YYMMDDXX ········ Folder for storing backup data

      └─ SYS2BKUP
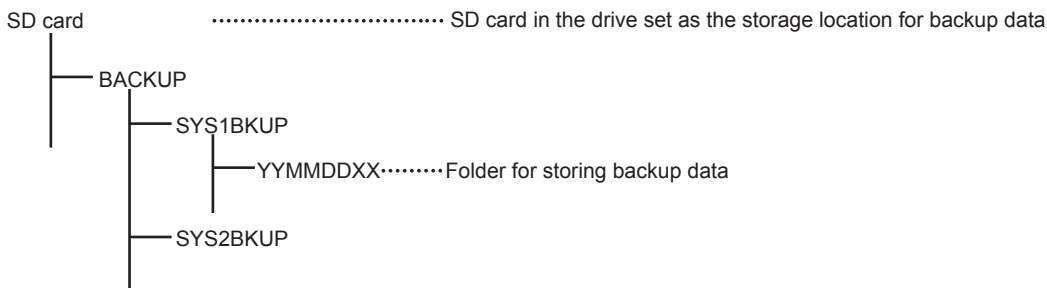
■Folders for backup data
Backup data are stored by the folder, and a folder name (YYMMDDXX) is set as follows.

YYMMDDXX

      └─ 00 (fixed)

    └─ Backup date (01 to 31)

  └─ Backup month (01 to 12)

└─ Backup year (the last two digits of the year)
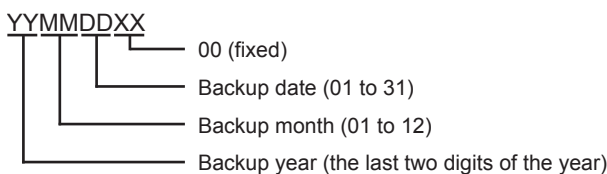
Access range

Access range with connection types

The following shows a target controller of the backup/restore execution with each connection type.

Connection type	Target controller
Serial communication connection	Host station
Ethernet connection	Host station

With multi-channel function

With the multi-channel function, the backup and restoration is executed per channel.

Backing up/restoring data for multiple CPU system

Only batch backup of all controllers is executed.

Backup of only specified ones among the controllers Nos. 1 to 4 is not supported.

Precautions

Precautions for backup

■Data that cannot be backed up

The GOT cannot back up device current values and data stored in device memories.

For collecting device current values, use the recipe function.

For how to use the recipe function, refer to the following manual.

📖GT Designer3 (GOT2000) Screen Design Manual

For collecting data stored in device memories, use GX Developer.

■Names of files to be backed up

When characters other than the characters defined in the shift JIS code and ASCII code are used for file names, the file names may not be correctly displayed with the data backed up on the GOT.

For using the backup/restore function, use characters in the JIS code and ASCII code for file names.

■Backing up intelligent function module parameters

For backing up an intelligent function module parameter (IPARAM.QPA), only the parameters that can be stored in the PLC CPU are the target parameters.

To store other intelligent function module parameters than those, GX Configurator applied to GX Works2 and the intelligent function module is required.

For the intelligent function module parameters that can be stored in the PLC CPU, refer to the following.

📖GX Works2 Version 1 Operating Manual (Intelligent Function Module)

■Compatibility of backup data

The backup data used in GS21 cannot be used in GT27, GT25, and GT23.

The backup data used in GT27, GT25, and GT23 cannot be used in GS21.

Precautions for restore

■Communication status between GOT and target controllers

For restoring data, enable the target controllers of the restoration to communicate with the GOT.

When the target controllers of the restoration cannot communicate with the GOT, the restoration cannot be executed.

■STOP status during restoration

CPUs for the programmable controller is in the STOP status with the remote STOP before the restoration.

For the CNC C70, the CNC ladder is in the STOP status.

The CPUs and CNC ladder remain in the STOP status after the restoration is completed.

Restart the controllers.

■When restoration is canceled

When the restoration is canceled, all the data are not restored to the controllers and the controllers may not correctly operate.

When the restoration is canceled, be sure to execute the restoration again.

The CPUs and CNC ladder remain in the STOP status after the restoration is canceled.

Restart the controllers.

■System configuration with controllers for restoration

Set the same system configuration with the controllers for the restoration as those for the backup.

Failure to do so disables the GOT to restore data to the controllers.

When the system configuration with the controllers for the restoration is the same as those for the backup, the GOT can restore data to the controllers even if the connection type and CH No. for the restoration differ from those for the backup.

■Controller operations

Controllers may malfunction by changing set values, device values, and others during the restoration.

Check that data to be restored is the appropriate data, and then execute the restoration with paying attention to the controller operations.

Common precautions for backup and restore

■Password for backup/restore

When a password for a controller is changed after setting the password for the backup/restore, set a new password for the backup/restore.

For setting the password for the backup/restore, refer to the following.

☞Page 207 Security and password

■Precautions for GT Designer3 (GOT2000)

Do not execute the following operations with GT Designer3 (GOT2000) during the backup/restore.

Boot OS installation, package data, the communication driver, the standard monitor OS, and the extended function system application download

When the above operations are executed, the backup/restore is stopped.

■Precautions for GX Developer

Do not access the target controller of the backup/restore with GX Developer during the backup/restore.

Doing so stops the backup/restore.

Do not execute the backup/restore on the GOT while the target controller of the backup/restore is accessed by GX Developer.

Doing so causes a communication error on GX Developer. (The backup/restore is executed.)

■CPU with a security key

The backup/restore cannot be executed on the CPU on which the security key is set.

To execute the backup/restore, check the setting of the CPU.

When the target controllers of the backup/restore include both the CPU with the security key and the CPU without the security key, the backup/restore is executed only for the CPU without the security key.

Precautions for QCPU

The restoration to QCPU with the factory-settings or whose memory is formatted is available only in the following cases.

- For a single CPU system: When the connection type is the bus connection or direct CPU connection (serial)
- For a multiple CPU system: When the connection type is the direct CPU connection (serial)

However, in a multiple CPU system which includes a QCPU with the factory-settings or whose memory is formatted, batch restoration to multiple controllers cannot be performed.

Restore each controller with the following procedure.

Restoring data to controller No.1 → Restoring data to controller No.2 ----
Resetting controller No.1   Resetting controller No.2
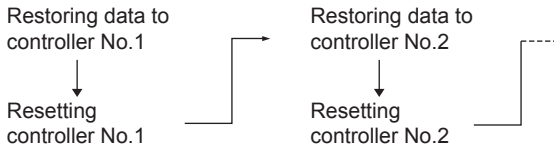
Precautions for FXCPU

■Attaching a memory cassette

When a memory cassette is attached to a FXCPU, data in the memory cassette is backed up.

When a memory cassette is not attached to the FXCPU, data in the built-in memory is backed up.

■Keyword setting

The following table shows whether the backup/restore function is executed or not by each keyword setting.

(Executed:○ Not executed: ×)

Function	Protection that cannot be disabled by keyword			With keyword						Without keyword
	Write protection	Read/ Write protection	All operation protection	Write protection		Read/Write protection		All operation protection		
	Enabled	Enabled	Enabled	Enabled	Disabled	Enabled	Disabled	Enabled	Disabled	
(Trigger) Backup	○	×	×	○	○	×	○	×	○	○
Restore	×	×	×	×	○	×	○	×	○	○

■Keyword for restoring data

When data are restored to a target FXCPU, a keyword in the FXCPU is held.

For setting or disabling a keyword for the FXCPU, refer to the following manual.

📖GOT2000 Series User's Manual (Utility)

📖Programming manual for the FXCPU used

■Backup data which contains source information

When the target FXCPU of the restoration does not support source information, the backup data which contains source information cannot be restored.

Security and password

By setting the passwords, the password authentication is available when the backup/restore is executed.

The password authentication uses the password for the backup/restore and passwords for controllers.
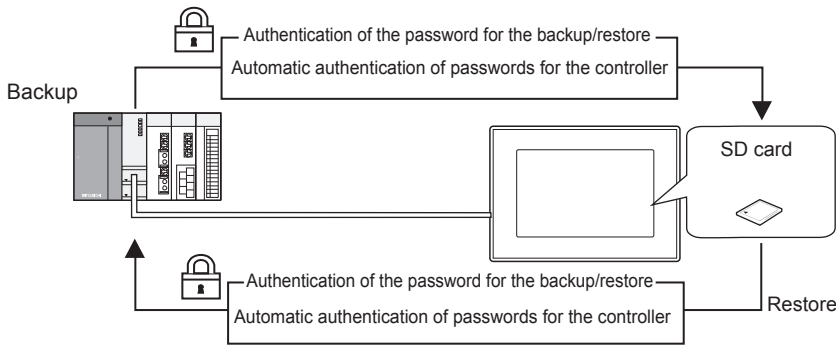
The following shows the passwords used for the backup/restore.

Password	Description
Password for backup/restore	Password for the backup/restore function Set the password on the GOT at the first backup. Before setting the password, set passwords for controllers in advance.
Passwords for controllers	Passwords set for the files for the target controllers of the backup/restore Set this password using the setting software of the controller when the file is written to the controller.

After the first backup (after setting the password for the backup/restore), the user has no need to input the passwords for the controllers. (The passwords for the controllers are automatically verified.)

The following shows the security advantages.

User	Advantage
Administrator	No need to disclose the passwords for the controllers to the operator (Preventing anyone other than the administrator to browse or edit setting data for the controllers.)
Operator	The backup/restore is executed by using the password for the backup/restore only. (No need to input passwords for the controllers)

Point

Before setting password for backup/restore

When the user forgets the password for the backup/restore, the backup/restore cannot be executed.

In that case, execute the backup again by using a formatted or new SD card.

For how to set the password for the backup/restore, refer to the following.

How to use the password for the backup/restore, refer to the following.

Setting password for backup/restore

The password for the backup/restore can be set only when the following condition is satisfied at the first backup.

 • When passwords are set for the files for the backup target controller

At the first backup, the password authentication for the controller is required.

The following shows the operating procedure at the first backup.

For details, refer to the following.

```
                    ( Start )
                        │
        ┌───────────────────────────────────┐
        │ Touch [Backup] in the main menu     │
        │ on the GOT. (The first backup)*1    │────────── FXCPU ──────────┐
        └───────────────────────────────────┘                            │
  Other than the FXCPU │                                                  │
                        ▼                               No                 ▼
              ◇ Is a password set for the ◇ ───────────────►  ◇ When a keyword is set, ◇
                file to be backed up?                            disable the keyword.
                        │ Yes                                              │
                        ▼                                                  │
        ┌───────────────────────────────────┐                            │
        │ Input the password for the          │                            │
        │ controller.                         │                            │
        │ (When the password for the first    │                            │
        │ file is verified, the other files   │                            │
        │ are automatically verified using    │                            │
        │ the password for the first file.    │                            │
        │ When the automatic verification     │                            │
        │ fails, input the corresponding      │                            │
        │ password.)                          │                            │
        └───────────────────────────────────┘                            │
     No                 │                                                  │
        ◇ Is the password correct? ◇                                       │
                        │ Yes                                              │
                        ▼                                                  │
        ┌───────────────────────────────────┐ ◄─────────────────────────┘
        │ The file is backed up.              │
        └───────────────────────────────────┘
                        │
   Yes                  ▼
        ◇ Is there another file? ◇
                        │ No
   Yes                  ▼
        ◇ Is there another unit? ◇
          (In the multiple CPU system)
                        │ No
   Yes                  ▼
        ◇ Is there another controller to ◇
          be backed up?
          (when with controller list file)
                        │ No
                        ▼
        ┌───────────────────────────────────┐
        │ Set the password for the            │
        │ backup/restore.                     │
        │ (Set 32 or less alphanumeric        │
        │ characters for the password.)       │
        │   [keypad display]                  │
        └───────────────────────────────────┘
                        │
              ( Backup completed )
```

Point

• Setting password

For ensuring the security, setting a password of 8 or more characters that cannot be easily guessed is recommended.

When the password is leaked, the same system can be created. Pay enough attention to managing the password.

• FXCPU keyword

To back up or restore data in the FXCPU, disable a keyword in advance.

15

How to use password for backup/restore

■Backup

The following shows the operating procedure for the backup after setting the password for the backup/restore.

```
                    ┌─────────────┐
                    │    Start    │
                    └─────────────┘
                           │
                           ▼
        ┌──────────────────────────────────────┐
        │ Touch [Backup] in the main menu on    │
        │ the GOT.                              │
        │ (The second or later backup)*1        │
        └──────────────────────────────────────┘
                           │
                           ▼
        ┌──────────────────────────────────────┐
   ┌───▶│ Input the password for the            │
   │    │ backup/restore.                       │
   │    └──────────────────────────────────────┘
   │                       │
   │  No                   ▼          Yes(FXCPU)
   │◀─────────< Is the password correct? >──────────▶< When a keyword is set,
   │                       │                           disable the keyword. >
   │                       │ Yes(Other than the FXCPU)           │
   │                       ▼                                     │
   │              No                                             │
   │   ┌─────< Is a password set for the >───────────────────────│
   │   │         file to be backed up?                           │
   │   │                   │ Yes                                 │
   │   │                   ▼                                     │
   │   │    ┌──────────────────────────────────────┐            │
   │   │    │ The passwords for the controller      │            │
   │   │    │ stored as the backup setting data are │            │
   │   │    │ automatically verified for each file. │            │
   │   │    └──────────────────────────────────────┘            │
   │   │                   │                                     │
   │   │                   ▼       No    ┌──────────────────────┐│
   │   │       < Is the password correct? >──▶│ Input the correct   ││
   │   │                   │                  │ password for the    ││
   │   │                   │ Yes              │ controller.         ││
   │   │                   │                  └──────────────────────┘
   │   │                   ▼                          │
   │   │    ┌──────────────────────────────────┐◀─────┘
   │   └───▶│ The file is backed up.            │◀─────────────────┘
   │        └──────────────────────────────────┘
   │  Yes              │
   │◀────< Is there another file? >
   │                   │ No
   │  Yes              ▼
   │◀────< Is there another unit?
   │         (In the multiple CPU system) >
   │                   │ No
   │  Yes              ▼
   │◀────< Is there another controller to
   │         be backed up?
   │         (when with controller list file) >
   │                   │ No
   │                   ▼
   │       < Have the passwords for the >──Yes──▶ [ keypad ]
   │         controllers ever been changed?
   │                   │ No
   │                   ▼
   │        ┌──────────────────┐
   │        │ Backup completed │
   │        └──────────────────┘
```

Set the password for the backup/restore.
(Set 32 or less alphanumeric characters for the password.)

			**********	ESC
7	8	9	0	AC
4	5	6	→	DEL
1	2	3	KEY	ENT

*1 For details, refer to the following.

Point

When passwords for controllers are changed

When the password input is cancelled and the backup is stopped, the backed up files until the backup is stopped are all deleted.

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■Restoration

The following shows the operating procedure for the restoration after setting the password for the backup/restore.

```
                    ┌──────────────┐
                    │    Start     │
                    └──────┬───────┘
                           ▼
            ┌──────────────────────────────────┐
            │ Touch [Restore] in the main menu.*1│
            └──────────────┬───────────────────┘
                           ▼
     ┌───────────────────────────────────────────┐
     │ Input the password for the backup/restore. │◄─┐
     └──────────────────┬──────────────────────────┘  │
                        ▼                               │
   No  ◇──────────────────────────────◇  Yes(FXCPU)    │
   ┌───│   Is the password correct?    │──────────►  ◇ When a keyword is set,
   │   ◇──────────────────────────────◇              disable the keyword.
   └───────────────────┘                             When a programmable controller is
                        │ Yes(Other than the FXCPU)   the RUN status, change the
                        ▼                             status to the STOP status. ◇
          ◇──────────────────────────◇   No
    ┌─────│  Is a password set for the │──────────────────┐
    │     │  file to be restored?       │                  │
    │     ◇──────────────────────────◇                    │
    │                   │ Yes                               │
    │                   ▼                                   │
    │   ┌─────────────────────────────────────────┐         │
    │   │ The passwords for the controller contained│        │
    │   │ in the backup data are automatically      │        │
    │   │ verified.                                  │        │
    │   └──────────────────┬────────────────────────┘        │
    │                      ▼◄──────────────────────┐          │
    │        ◇──────────────────────◇   No  ┌──────────────┐ │
    │        │ Is the password correct?│─────►│Input the correct│ │
    │        ◇──────────────────────◇       │password for the │ │
    │                   │ Yes                │controller.      │ │
    │                   ▼                    └─────────────────┘ │
    │   ┌────────────────────────────┐                          │
    │   │     The file is restored.   │◄─────────────────────────┘
    │   └──────────────┬─────────────┘
    │ Yes              ▼
    ├───────◇──────────────────────◇
    │       │   Is there another file? │
    │       ◇──────────────────────◇
    │                  │ No
    │ Yes              ▼
    ├───────◇──────────────────────◇
    │       │ Is there another unit?   │
    │       │ (In the multiple CPU system)│
    │       ◇──────────────────────◇
    │                  │ No
    │ Yes              ▼
    ├───────◇──────────────────────◇
    │       │ Is there another controller to│
    │       │ be backed up?                 │
    │       │ (when with controller list file)│
    │       ◇──────────────────────◇
    │                  │ No
    │                  ▼
    │         ┌──────────────────────┐
    │         │ Restoration completed │
    │         └──────────────────────┘
```

*1 For details, refer to the following.
☞ Page 213 Operation of backup/restore

When passwords for controllers are changed

When the password input is cancelled and the restoration is stopped, the restored files until the restoration is stopped remain in the controller.

When only any of the files are restored, the data can be inconsistent in the entire system.
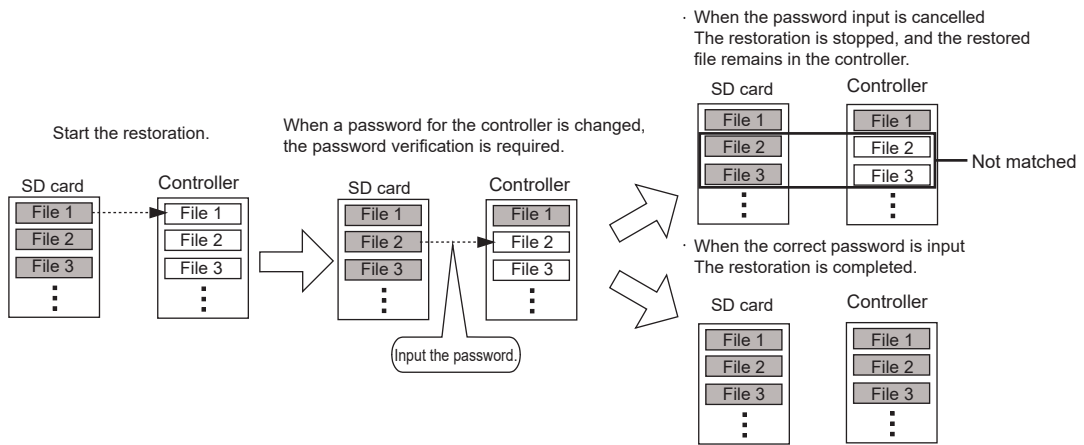
Operation of backup/restore
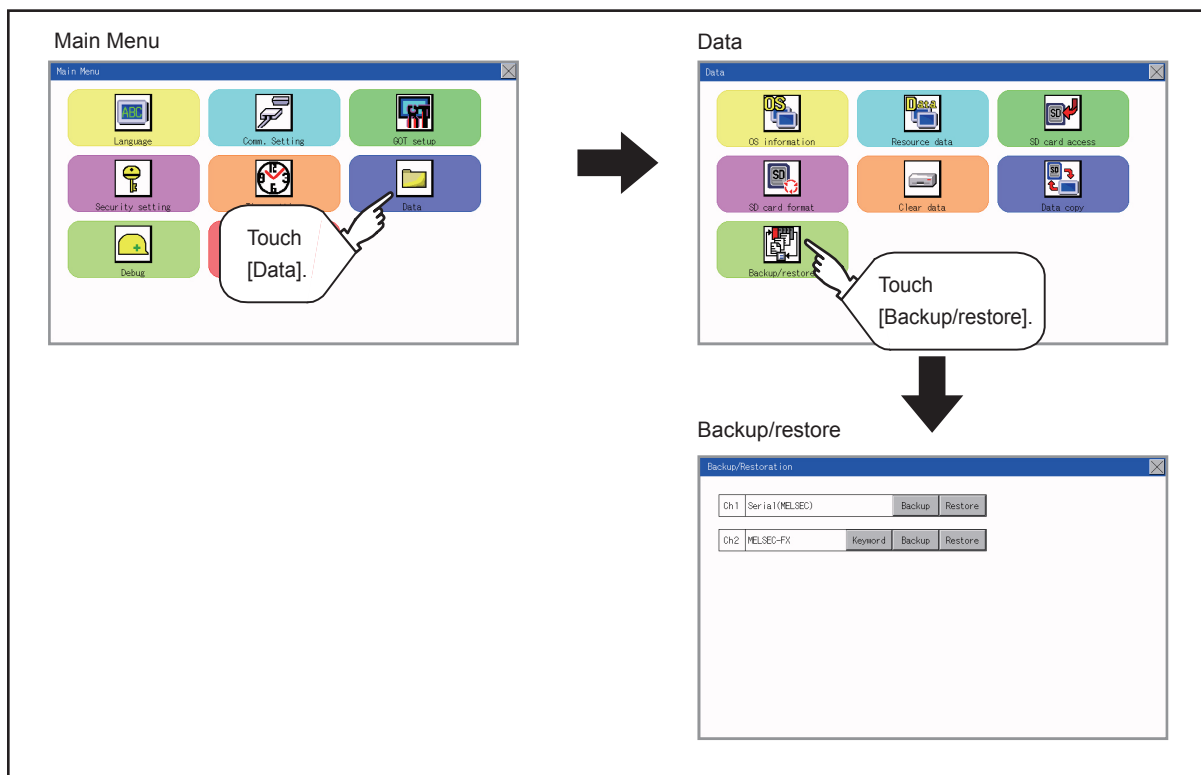
When the connected equipment is not an FX CPU, the [Keyword] switch is not displayed.

Operation of backup

This section describes the backup operation screen.

The screen operation procedure varies depending on the PLC CPU type and password status. For the details of the operation procedure, refer to the following.

☞ Page 207 Security and password
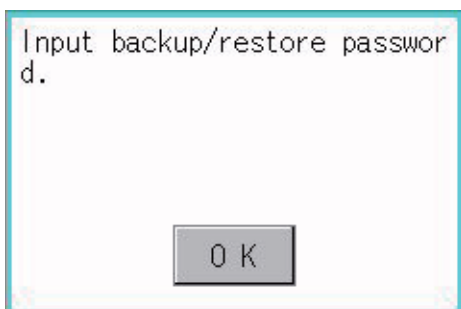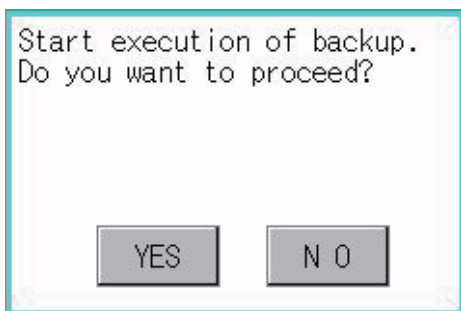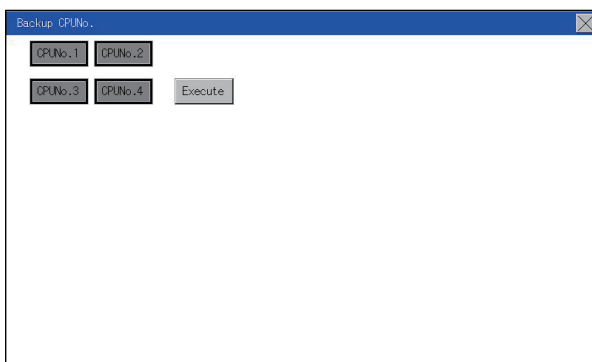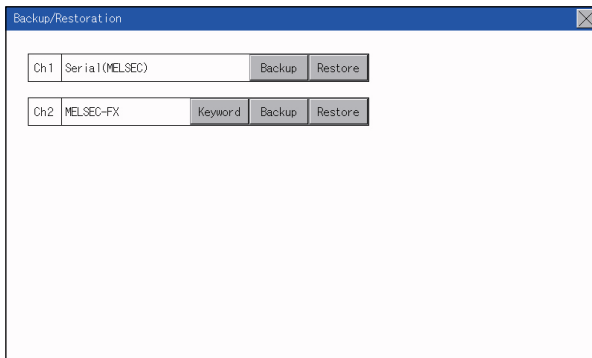
1. Touch [Backup].

2. Touch [Execute]. Touching any switch (among [CPU No. 1], [CPU No. 2], [CPU No. 3] and [CPU No. 4]) is invalid.

Start execution of backup.
Do you want to proceed?

YES   N O

3. When the left screen appears, touch [YES].

Input backup/restore password.

O K

4. When the left screen appears, touch [OK], and input the password on the key window.

Input a password.
No.1 : Initial.QPG

O K
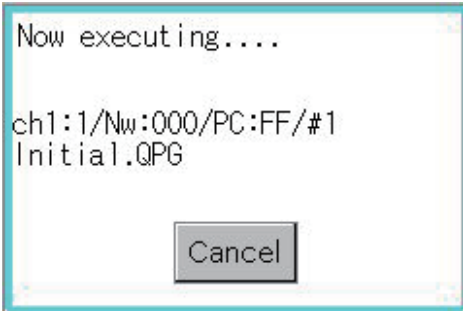
5. When the password is set in a program in the PLC CPU, the left screen appears. Touch [OK], and input the password on the key window. When the input of the password is completed, the backup processing is executed.

Now executing....

ch1:1/Nw:000/PC:FF/#1
Initial.QPG

Cancel

6. The left screen is displayed while the backup processing is executed.

Backup is completed.

O K

7. When the backup processing is finished, the left screen appears. Touch [OK]. In the case of FX CPU, the following screen appears. Touch [OK], and input the password.

Input backup/restore password.

O K

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Operation of restore

This section describes the restoration operation screen.

The screen operation procedure varies depending on the PLC CPU type and password status. For the details of the operation procedure, refer to the following.

☞ Page 207 Security and password
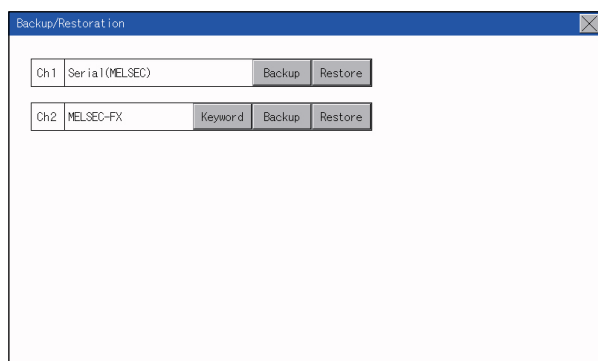
1. Touch [Restore].
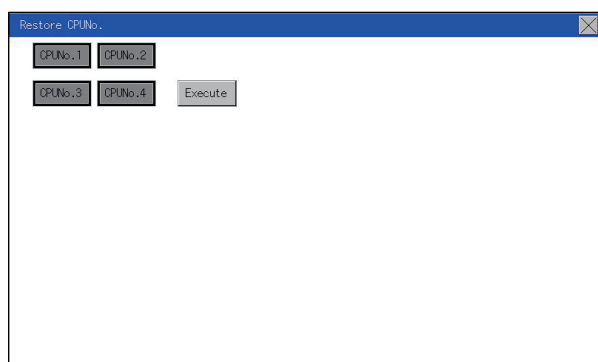
2. Select the CPU unit to be restored by pressing a switch (among [CPU No. 1], [CPU No. 2], [CPU No. 3] and [CPU No. 4]). When the connected equipment is an FX CPU, touching any switch (among [CPU No. 1], [CPU No. 2], [CPU No. 3] and [CPU No. 4]) is invalid.
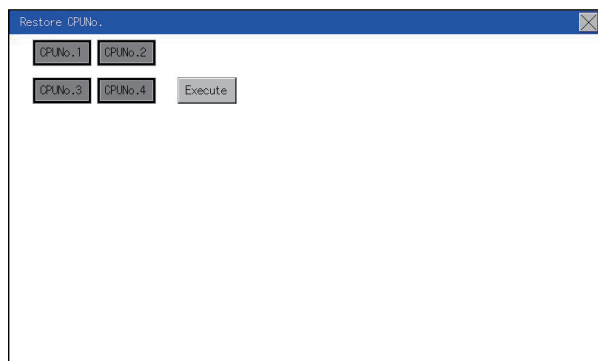
3. Touch [Execute].
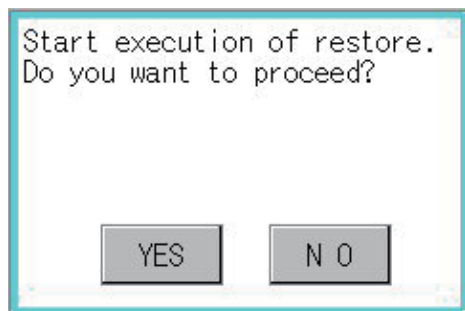
4. When the left screen appears, touch [YES].
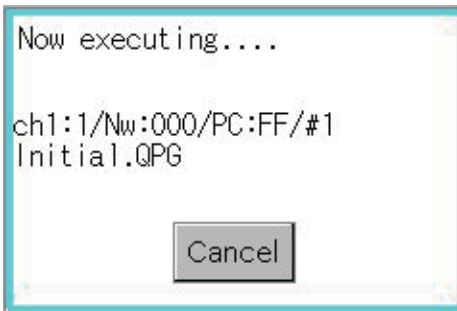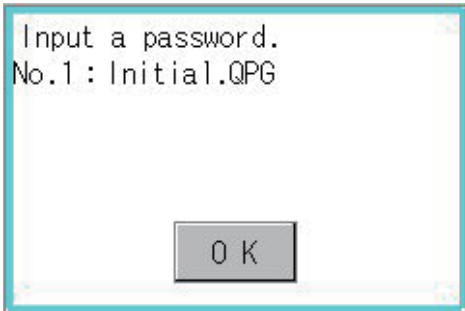
Input backup/restore password.

OK

5. When the left screen appears, touch [OK], and input the password on the key window.

Input a password.
No.1 : Initial.QPG

OK

6. When the password is set in a program in the PLC CPU, the left screen appears. Touch [OK], and input the password on the key window. When the input of the password is completed, the restoration processing is executed.

Now executing....

ch1:1/Nw:000/PC:FF/#1
Initial.QPG

Cancel

7. The left screen is displayed while the restoration processing is executed.

Restore is completed.

OK

8. When the restoration processing is finished, the left screen appears. Touch [OK].

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Operation of keyword

When the connected FX Series PLC is protected by the keyword, the protection disabling operation is available.
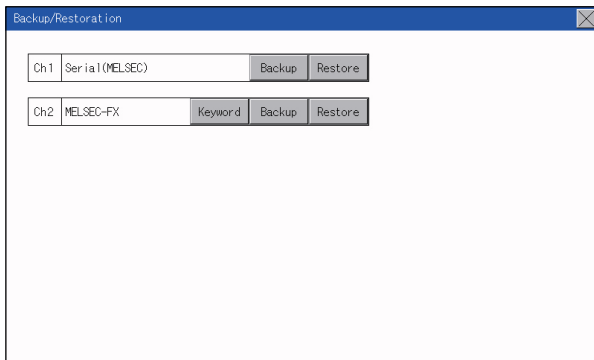
1. Touch [Keyword].
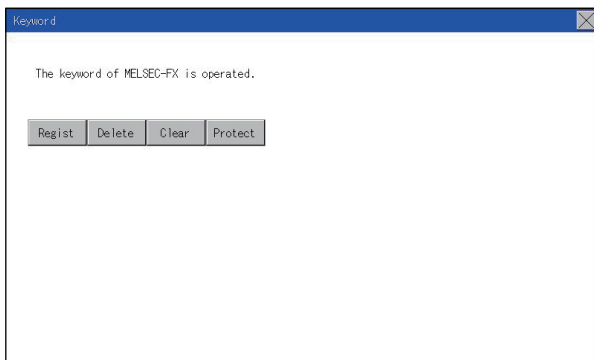
2. The left screen appears. Disable the protection of the FX Series PLC.

☞ Page 98 Keyword

15.9 Errors and Corrective Actions

Common to backup and restoration

Error	Cause	Corrective action
The backup data are not found.	The backup data are not stored in the SD card in the GOT. No SD card is installed to the drive specified for storing the backup data.	• Install SD card with the backup data stored. • Check the storage location for the backup data with the utility.
The backup/restore cannot be executed because the user does not know the password for the backup/restore.	The user does not remember the password. The password is incorrect.	• Check with the administrator of the system regarding the password for the backup/restore. • Execute the backup again by using a formatted or new SD card.
The backup/restore cannot be completed because a communication error occurs between the GOT and a controller during the backup/restore.	The communication settings and communication driver for the GOT are incorrectly set.	Check if the communication settings and communication driver for the GOT are correctly set.
	Because parameters for the controller are incorrectly set, the controller dose not recognize the GOT.	Check if the parameters for the controller is correctly set with tools, including GX Developer, for the controller.
	The controller is turned off.	Turn on the controller.
	The cable is not correctly connected.	Check the cable.

Backup

Error	Cause	Corrective action
The backup data cannot be written into SD card.	No SD card is installed to the GOT.	Install a SD card to the drive specified for storing the backup setting or backup data.
	The SD card does not have free space.	Install a SD card with enough free space. Delete unnecessary files in the SD card.
	The SD card is set to write-protect.	Set the SD card to writable. The attributes of backup data files stored in the SD card cannot be changed with the GOT. Set the files to writable with a personal computer.
	The drive does not exist.	Check if the drive specified for storing the backup setting or backup data exists. (Check if the SD card is connected on the GOT.)
Setting data (files and data) cannot be obtained from the controller.	The GOT cannot communicate with the controller.	Check the following. GOT • Check if the cable is correctly connected to the GOT. • Check if the correct communication driver is installed on the GOT. • Check if the communication settings are correctly set. Controller • Check if the parameters are set. • Check if the cable is correctly connected to the controller. • Check if the controller is turned on.
The backup cannot be executed because passwords for files of the controller are set.	The user does not remember the password. The password is incorrect. (The first backup) Passwords for files of the controller are changed.	Check with the administrator of the system regarding the passwords for files of the controller.

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Restoration

Error	Cause	Corrective action
Setting data (files and data) cannot be written into the controller.	The GOT cannot communicate with the controller.	Check the following. GOT • Check if the cable is correctly connected to the GOT. • Check if the correct communication driver is installed on the GOT. • Check if the communication settings are correctly set. Controller • Check if the parameters are set. • Check if the cable is correctly connected to the controller. • Check if the controller is turned on.
	The target controller of the restoration is a different kind of controller from the target controller of the backup.	• Check if the system configuration for the restoration is the same as that for the backup. • Check if the target controller of the restoration is the same as that of the backup or the same kind of controller.
The restoration cannot be executed because passwords for files of the controller are set.	• The passwords for files written in the controller are changed.	Check with the administrator of the system regarding the passwords for files of the controller.

16 GOT SELF CHECK (DEBUG)

The debug includes functions to check the PLC system status and to improve troubleshooting efficiency.

The following is available as the debug.

Item	Description	Reference
Device monitor	For a controller connected to the GOT, forcibly turning on or off devices of the controller and changing the set value or present value are available.	☞ Page 221 Device Monitor Function
FX list editor	The sequence program of FX PLC can be edited.	☞ Page 234 FX List Editor
FX3U-ENET-ADP communication setting function	The communication set value of the FX3U-ENET-ADP stored in the CPU can be changed.	☞ Page 263 FX3U-ENET-ADP Communication Setting Function

16.1 Device Monitor Function

For a controller connected to the GOT, forcibly turning on or off devices of the controller and changing the set value or present value are available.

System configuration

This section describes the controller names and connection types between the GOT and a controller that are applicable to the device monitor function.

For details of communication units and cables for each connection type, refer to the following manual.

📖 GOT2000 Series Connection Manual For GT Works3 Version1

Target controller

Controller	Connection type
QCPU (Q mode)	Direct CPU connection (serial), Serial communication connection, CC-Link connection (Via G4)
QnACPU	Direct CPU connection (serial), Serial communication connection
FX CPU	Direct CPU connection (serial)

Required system application

System application			Version
Basic system application			-
	Communication driver	MELSEC-Q/L/QnA	-
		MELSEC-FX	-
		CC-Link(G4)	-

Point

Checking method of the version of basic system application and communication driver

Check the version of the basic system application and communication driver installed in the GOT at [System Application Information] of the utility.

Refer to the following for details.

☞ Page 165 OS information

Devices that can be monitored

For further information about the monitor device names that can be monitored and the scope, see the following:

📖GT Designer3 (GOT2000) Screen Design Manual

Precautions

Monitoring and testing real number data

Real number data cannot be monitored and tested.

All word devices containing real number data are monitored in integer data (binary data).

Monitoring devices in 32-bit (two-word) module

When monitoring word devices (T, C, D, W, etc.) in 32-bit (two-word) module, those with 32 bits of data remaining are monitored.

Devices with 16 bits (one-word) of data remaining are not monitored.

If an odd number is specified for the first monitor device number, the last device number of the specified controller will not be displayed.

(Example) When the data entry of the QnACPU is monitored in units of 32 bits from odd numbers (D1, D3...)
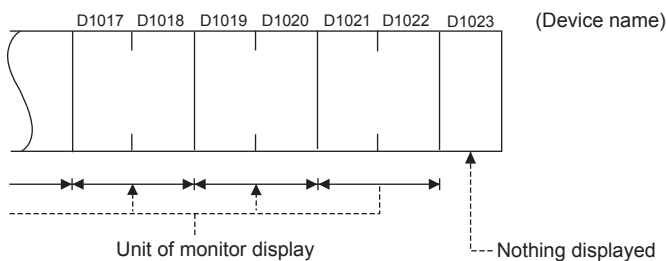
Changing the timer/counter set values of QnACPU

The timer/counter set values of QnACPUs whose date on the CPU rating plate is after [9707B] can be changed.
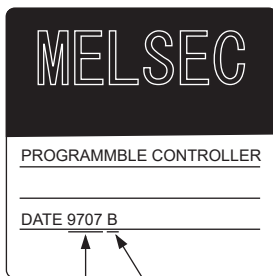
<Information on the rating plate>

Display operation of device monitor

Main Menu

Touch [Debug].

Debug

Touch [Device monitor].

Device monitor

Channel Setting
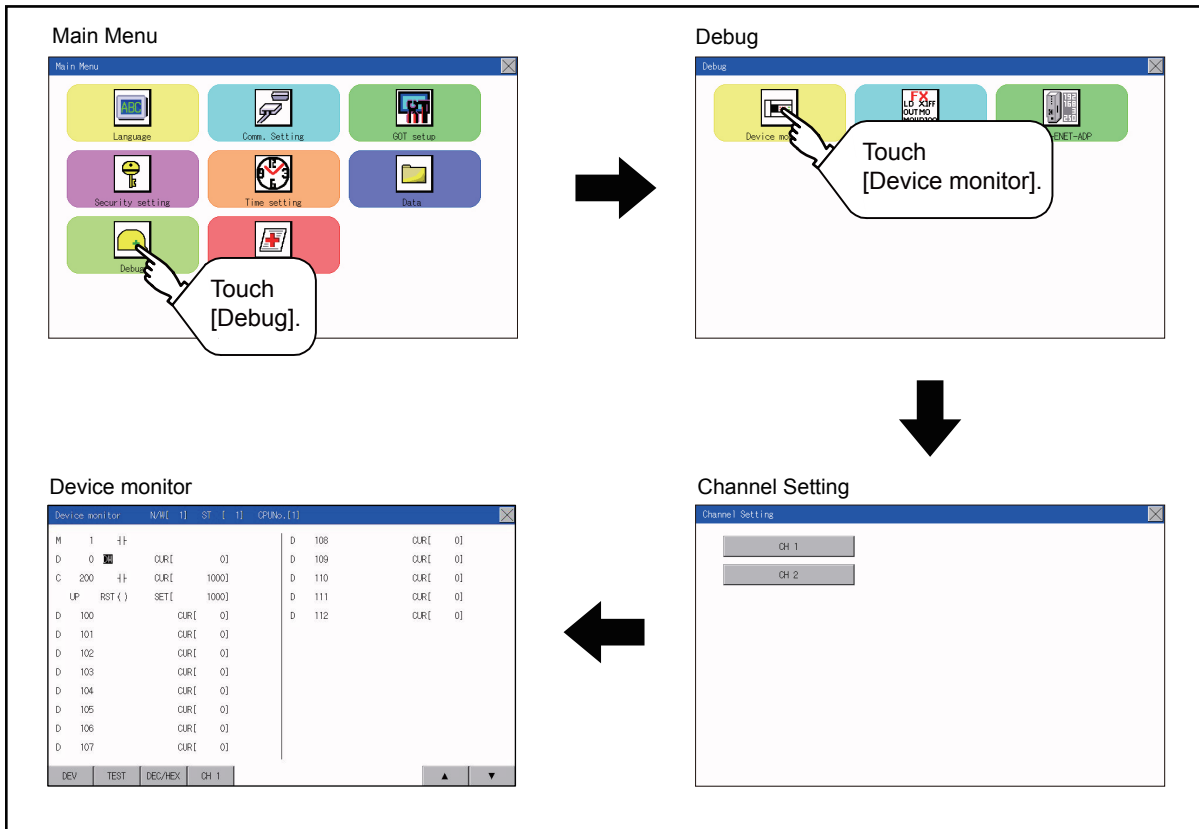
Information displayed on the device monitor screen and key functions

Device monitor screen

The information displayed on the device monitor screen is described below.

No.	Item	Settings
1)	Device name	Displays the device name.
2)	Device No.	Displays the device number.
3)	Bit device ON/OFF Timer/Counter contact ON/OFF	Displays ON/OFF information of bit devices and timer/counter contacts ⊣█⊢: ON ⊣ ⊢: OFF
4)	Data type	DW : Indicates that the device value is a 32-bit (two-word) module. Nothing displayed: Indicates that the device value is a 16-bit (one-word) module.
5)	Present value of word device Present value and set value of timer/counter[*1]	[Decimal number] 16-bit (one-word) module: Six digits (including a digit for a sign) are displayed. (Display example: -12345) 32-bit (two-word) module: Ten digits (including a digit for a sign) are displayed. (Display example: -123456789) [Hexadecimal number] 16-bit (one-word) module: Four digits are displayed. (Display example: H AB12) 32-bit (two-word) module: Eight digits are displayed. (Display example: H ABCDE123)
6)	Counting method	Displays the counting method when registering the counters from C200 to C255. UP: Up count mode DOWN: Down count mode
7)	Reset coil ON/OFF	Displays the reset coil state when registering the timer/counter for the FXCPU. -(●): ON ⟨ ⟩: OFF
8)	N/W	Sets or displays the network No. when the PLC is on the network.
9)	ST	Sets or displays the station No. when the station No. is assigned to the PLC.
10)	CPU No.	0 to 4: This item must be set only when the GOT is connected to the Q series CPU in the multiple CPU system or QnUCPU. Changing the CPU No. cancels the registration for all the devices. ☞ Page 227 Device registration

Key functions

The following table describes the key functions displayed on the device monitor screen.

Key switch	Function
DEV	Switches the screen to the device registration key window for registering devices to be monitored. ☞ Page 227 Device registration
TEST	Switches the quick test mode between enabled and disabled states. ☞ Page 230 Quick test
DEC/HEX	Switches the numerical notation of word device values between decimal and hexadecimal numbers.
▲▼	Scrolls the data list up and down by one line and displays the devices before or after the device which is currently registered and placed in the top or bottom line. ▲: Scrolls the list up by one line to display the device number right before the device number displayed in the top line. ▼: Scrolls the list down by one line to display the device number right after the device number displayed in the bottom line.
×	Exits the device monitor, and then the screen returns to the debug screen.

16

Basic operation of device monitor

The following explains basic operations of the device monitor.

Debug

Touch [Device monitor].

With no registered device

With registered devices

DEV

Touch

TEST

Touch

DEC/HEX

Touch

Register devices if necessary.[*1]	Execute the quick test if necessary.[*2]	Switch the numerical notation of word device values between decimal and hexadecimal numbers if necessary.
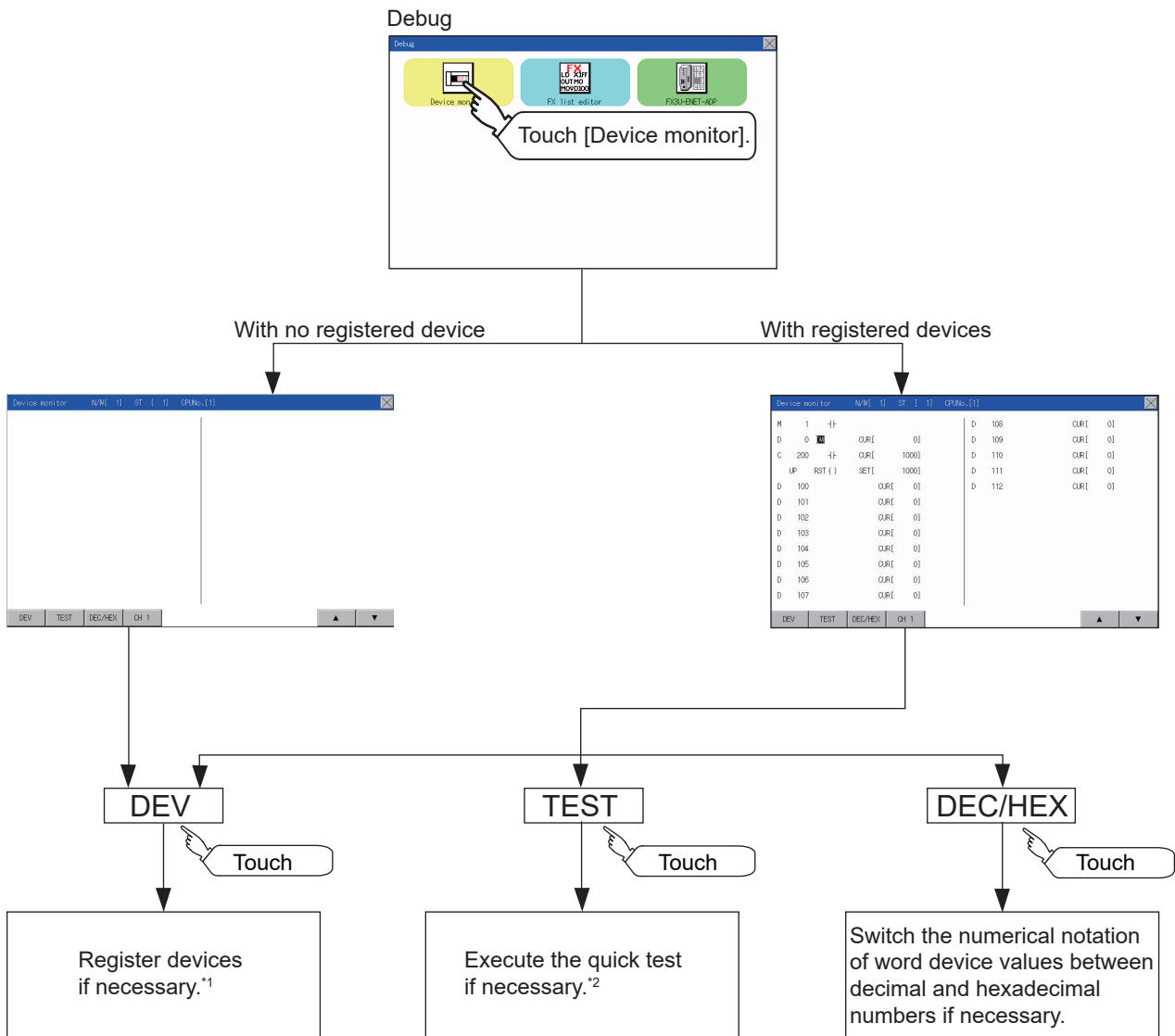
*1 For the details, refer to the following.
    ☞Page 227 Device registration
*2 For the details, refer to the following.
    ☞Page 230 Quick test

Device registration

The following explains the procedures for device registration.

Device monitor

Connecting to a Q series CPU
in the multiple CPU system or QnUCPU

Touch

Specify the CPU No. of the device
to be registered when connecting
the GOT to a Q series CPU in the
multiple CPU system or QnUCPU.

Connecting to a CPU
other than the Q series
CPU in the multiple CPU
system and QnUCPU

Input the CPU No. with the
ten-key, and then touch the
ENT key.

Touch the DEV key.

Touch

When registering multiple
devices, repeat the
procedures.

1)   2) 3)

Set 1) to 3) by using the keyboard,
and then touch the ENT key.
The device registration is
completed.

Keyboard

For the keyboard operations, refer to the next page.

No.	Item	Settings
1)	Data type	32 : Indicates that the device value is a 32-bit (two-word) module. Nothing displayed: Indicates that the device value is a 16-bit (one-word) module.
2)	Device name	Set the device name and device number to be monitored.
3)	Device No.	

Point

Keyboard operations
 • Keyboard functions

Ends the device registration.

Device name keyboard

Select a data type.
[32]: Sets to the two-word.
[16]: Sets to the one-word.

Device number keyboard

Deletes all input numbers.

Ends the device registration.

Registers the input device.
(The device registration is completed.)

 • Input procedures

Select a data type. (ex:16 bit)

Touch [16] key.

Touch [32] key.

Input a device number. (ex:12)

Input a device name. (ex:D)
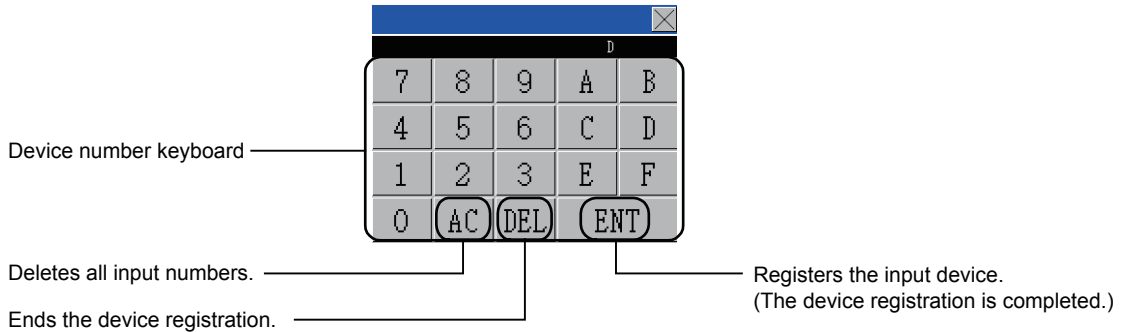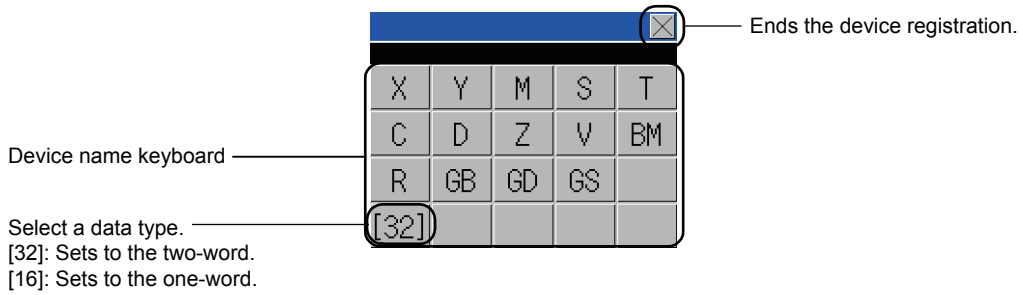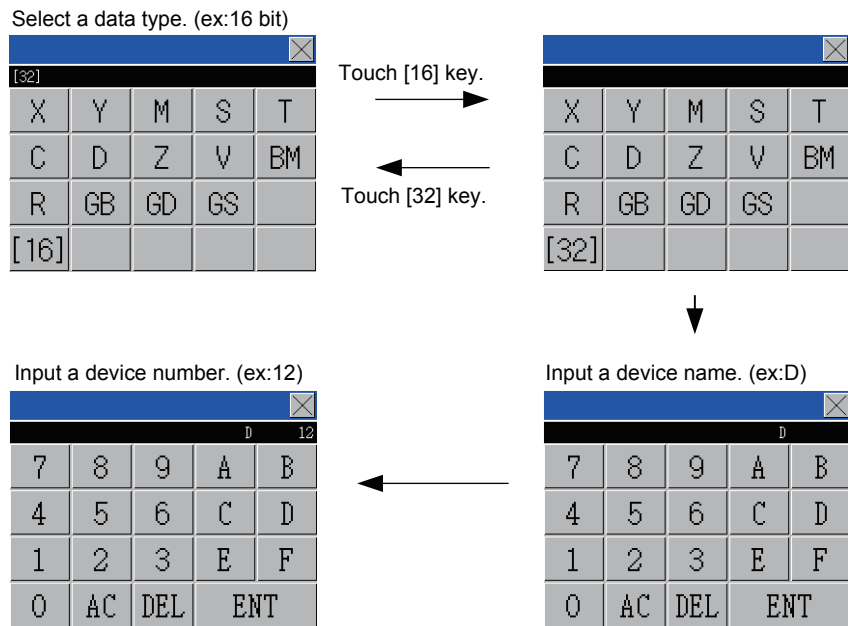
The device registration is completed by touching the [ENT] key.

Point

Precautions for device registration

• Data type

Device monitor screens display the data type as shown below.

DW : 32-bit (two-word) module

Nothing displayed : 16-bit (one-word) module

• CPU No. specification

Changing the CPU No. after registering devices cancels the registration for all the devices.

Check the CPU No. before registering the devices.

• Station No. specification

Changing the station No. after registering devices cancels the registration for all the devices.

Check the station No. before registering the devices.

• Holding registered devices

The registration for the devices is not canceled after exiting the device monitor.

Restarting the GOT cancels the registration for all the devices.

• The number of registered devices

The number of registered devices must be within the maximum number of devices that can be displayed on the GOT.

For registering an additional device, the registration for the device in the top line is canceled and the additional device is displayed in the bottom.

16

Quick test

⚠ WARNING
● Before performing the quick test operations of device monitor (such as turning ON or OFF bit device, changing the word device current value, changing the settings or current values of the timer or counter), read through the manual carefully and make yourself familiar with the operation method. During quick test operation, never change the data of the devices which are used to perform significant operation for the system. False output or malfunction can cause an accident.

The quick test operation procedure for monitor devices is described below.

Device monitor
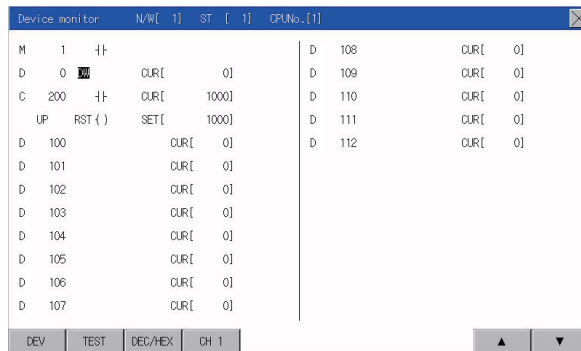
Enable the quick test mode.

Touch

Check that the quick test operation is enabled.
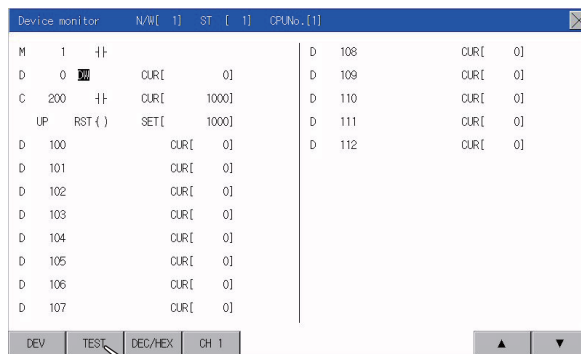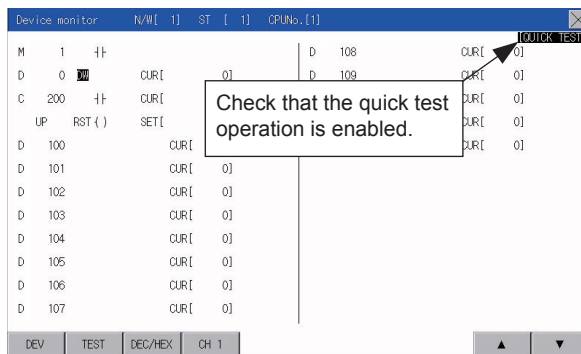
(1) Quick test of bit devices

(2) Quick test of word devices

Quick test of bit devices

(Operation example)

Change the status of bit device M12 from OFF ⊣⊢ to ON ⊣█⊢ .

```
┌────────────────────────────────────────────┐
│ Device monitor    N/W[ 1]  ST [ 1]  CPUNo.[1]  ☒ │
│                                    [QUICK TEST] │
│ M   10   ⊣⊢   M   11   ⊣⊢                      │
│ M   12   ⊣⊢   M   13   ⊣⊢                      │
│ M   14   ⊣⊢   M   15   ⊣⊢                      │
│    ☞                                           │
│      ╭─────────────────────╮                   │
│      │ Touch the bit device to │               │
│      │ be switched between   │                 │
│      │ ON and OFF states.    │                 │
│      ╰─────────────────────╯                   │
│                                                │
│ DEV   TEST   DEC/HEX   CH 1          ▲    ▼     │
└────────────────────────────────────────────┘
```
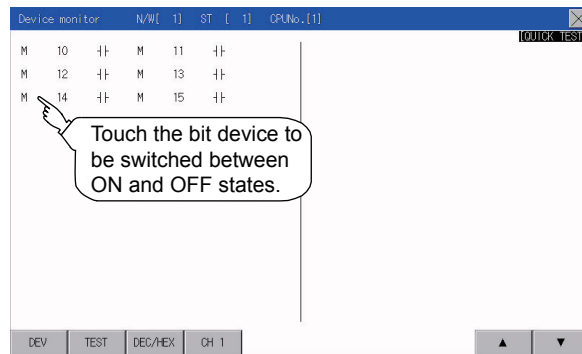
The device name and device number of the selected bit device are highlighted.

```
┌────────────────────────────────────────────┐
│ Device monitor    N/W[ 1]  ST [ 1]  CPUNo.[1]  ☒ │
│                                    [QUICK TEST] │
│ M   10   ⊣⊢   M   11   ⊣⊢                      │
│ M   12   ⊣⊢   M   13   ⊣⊢                      │
│ M   14   ⊣█⊢  M   15   ⊣⊢                      │
│                                                │
│ DEV   TEST   DEC/HEX   CH 1          ▲    ▼     │
└────────────────────────────────────────────┘
```

```
┌────────────────────────────────────────────┐
│ Device monitor    N/W[ 1]  ST [ 1]  CPUNo.[1]  ☒ │
│                                    [QUICK TEST] │
│ M   10   ⊣⊢   M   11   ⊣⊢                      │
│ M   12   ⊣⊢   M   13   ⊣⊢                      │
│ M   14   ⊣█⊢  M   15   ⊣                       │
│        ☞                                       │
│         ╭──────────────╮                       │
│         │ Touch ⊣⊢      │                       │
│         ╰──────────────╯                       │
│                                                │
│ DEV   TEST   DEC/HEX   CH 1          ▲    ▼     │
└────────────────────────────────────────────┘
```

```
┌────────────────────────────────────────────┐
│ Device monitor    N/W[ 1]  ST [ 1]  CPUNo.[1]  ☒ │
│                                    [QUICK TEST] │
│ M   10   ⊣⊢   M   11   ⊣⊢                      │
│ M   12   ⊣█⊢  M   13   ⊣⊢                      │
│ M   14   ⊣█⊢  M   15   ⊣⊢                      │
│       ╭──────────────────────────────────╮     │
│       │ The selected bit device is switched from │ │
│       │ ⊣⊢ (OFF) to ⊣█⊢ (ON).            │     │
│       ╰──────────────────────────────────╯     │
│                                                │
│ DEV   TEST   DEC/HEX   CH 1          ▲    ▼     │
└────────────────────────────────────────────┘
```

16
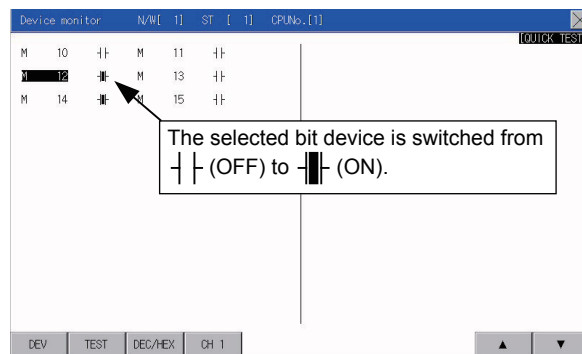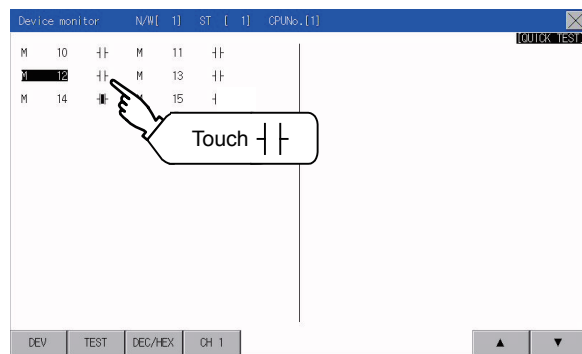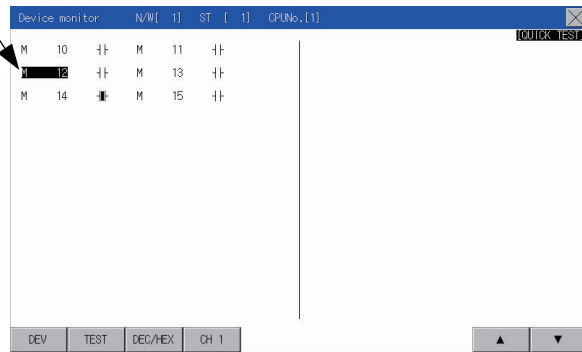
Quick test of word devices

(Operation example)

Change the device value of word device D200 from 43 to 100.

Conditions: Data range: 16 bits, device value display format: decimal number

Touch the device value to be changed.
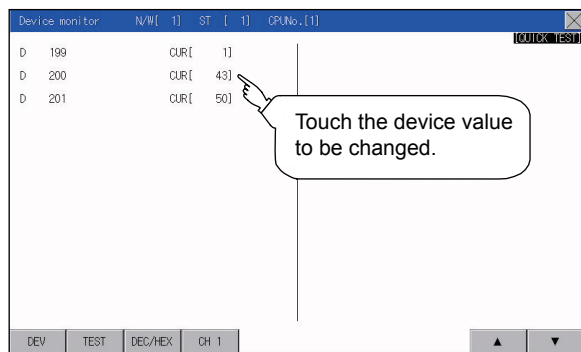
Input a device value by using the keyboard.
Input "100" for the operation example.
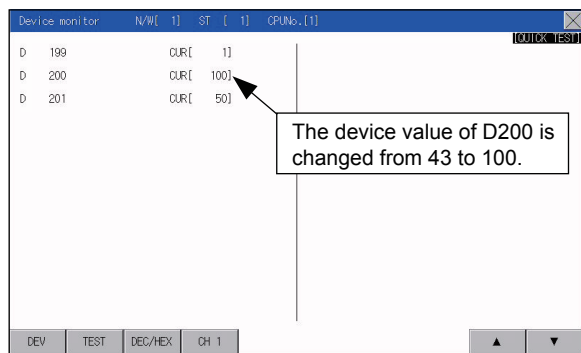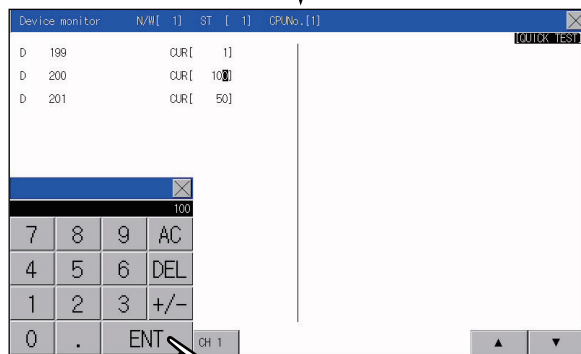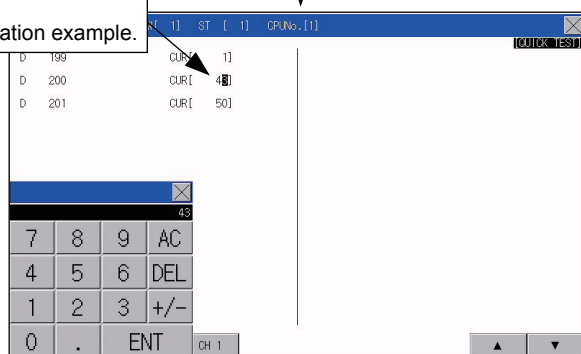
Touch [ENT] key.

The device value of D200 is changed from 43 to 100.
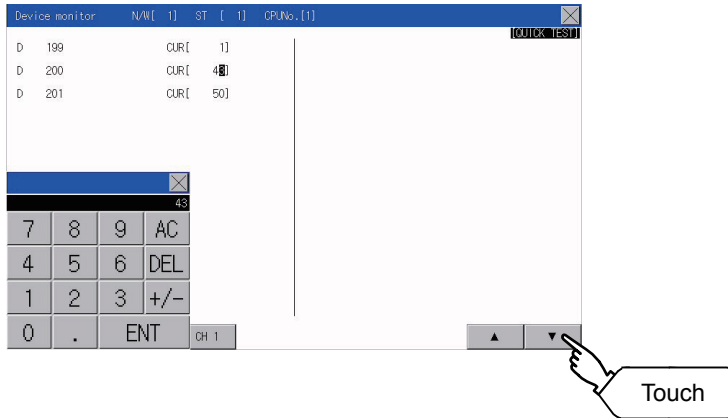
16.2 FX List Editor

The MELSEC-FX list editor can change the sequence programs on the FX PLC.

Display operation of FX list editor
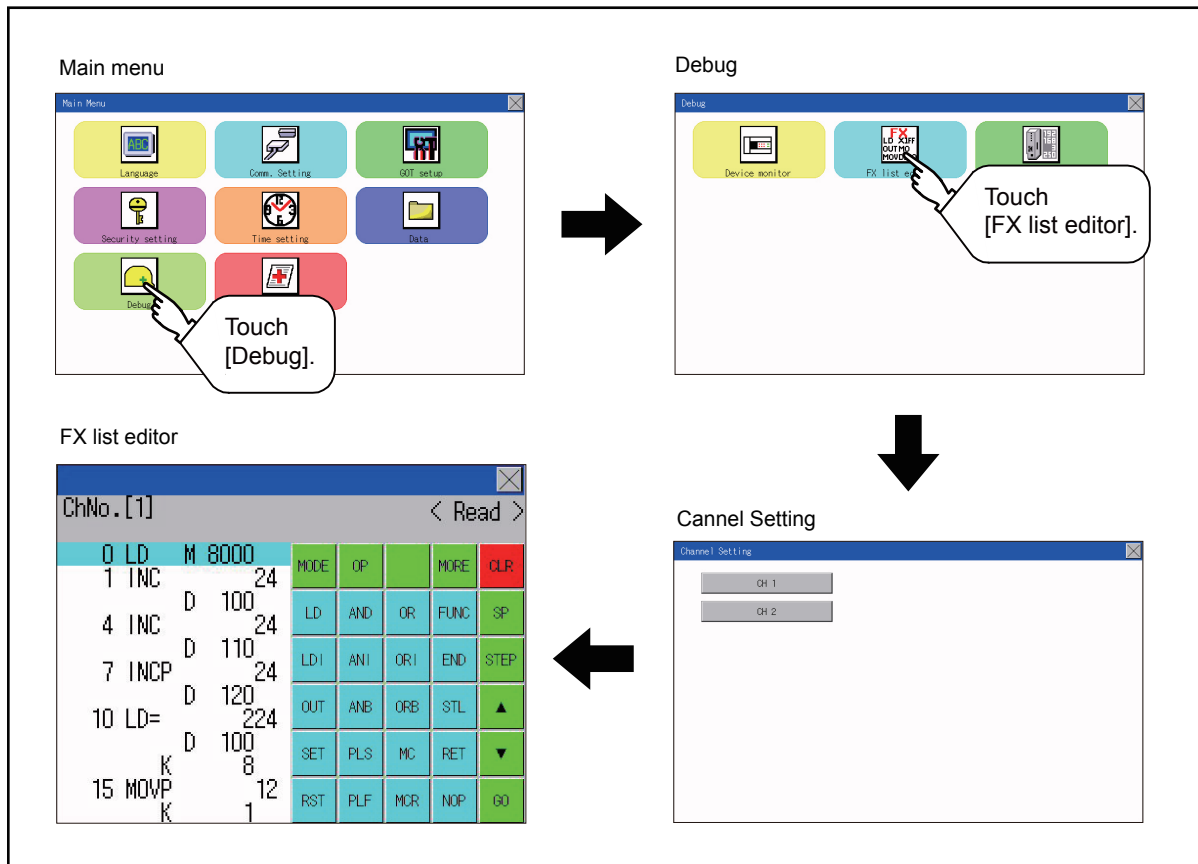
Parameters and sequence programs are easy to maintain.

You can check or partly correct, change or add FX PLC parameters and sequence programs simply by operating keys.

You can easily edit sequence programs without preparing any peripheral unit other than the GOT.

(Example of changing sequence program commands)

```
LD    X000        Changed        LD    X000
OUT   Y020        ────────▶      OUT   Y030
LD    X001                       LD    X001
```

Errors that occur during list editing can be checked easily.

Error messages, error codes, and number of steps for errors that occur in the FX PLC can be checked.

Details can be checked immediately even for errors that occur during list editing.

```
Error message            Detail  Step
I/O configuration error    1010
PC/HPP communication error 6201
```

Commands and devices can be searched and displayed.

Commands and devices used in sequence programs can be searched.

The correction position can be searched for cases such as when you want to correct a specific device.

Searched device M800

Displays the searched device.

```
LD          M 800
OUT         T    10
            K   100
LD          X   002
```

Specifications

System configuration

This section describes the system configuration of the MELSEC-FX list editor.

For the setting method in each connection form, used communication unit/cable and cautions on connection form, refer to the following manual.

📕GOT2000 Series Connection Manual For GT Works3 Version1

Controllers that can be edited with the MELSEC-FX list editor

Target controller[*1]:FXCPU

*1   FX list editor is not applicable to for MELSEC iQ-F series.

Connection forms

This function can be used in the following connection types.

(○: Available, △: Unavailable)

Function name		Connection form between GOT and PLC		
Name	Description	Direct CPU connection (serial)	Ethernet connection[*1]	
MELSEC-FX list editor	Sequence program writing, parameter setting, PLC diagnostics and keyword registration, etc.	○	○ *2	△

*1   MELSEC-FX list editor cannot be used when using CC-Link IE field network Ethernet adapter.

*2   Available only when using FX3 series.

Functions list and monitor conditions

The following shows the memory that can be monitored by the MELSEC-FX list editor and the FX PLC status conditions.

(○: Can be monitored △: Can be monitored under certain conditions ×: Cannot be monitored)

Function		Memory that can be monitored[*2]				FX PLC status	Reference
		Built-in memory	RAM memory cassette	EEPROM memory cassette, flash memory cassette	EPROM memory cassette		
Reading sequence programs	Displaying sequence programs	○	○	○	○	RUN/STOP	☞ Page 243 Displaying sequence programs
	Searching commands/devices						☞ Page 245 Searching commands/devices
Writing sequence programs	Writing commands	○	○	△ *1	×	For Stop only	☞ Page 247 Writing commands
	Changing operands/set values						☞ Page 252 Deleting commands
Inserting commands							☞ Page 247 Writing commands
Deleting commands							☞ Page 252 Deleting commands
Sequence program all clear							☞ Page 253 Sequence program all clear
PLC diagnostics		○	○	○	○	RUN/STOP	☞ Page 254 PLC diagnostics
Parameter setting	Display						☞ Page 256 Parameter setting
	Setting	○	○	△ *1	×	For Stop only	
Keyword		○	○	○	○	RUN/STOP	☞ Page 258 Keyword

*1   The operation is available only when the protect switch is OFF.

*2   The available memory differs depending on the FX PLC being used.

    For details, refer to the following.

    📕The hardware manual of the FX PLC being used

Access range

For the FXCPU in Ethernet connection, the GOT can monitor only the host station.

The access range other than the above is the same as the access range when the GOT is connected to a controller.

For details of the access range, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

📖GOT2000 Series Connection Manual (Mitsubishi Product) For GT Works3 Version1

Precautions

Using other peripheral equipment for sequence program/parameter change

When using the MELSEC-FX list editor, do not change programs or parameters in the PLC CPU from other peripheral equipment.

If programs or parameters are changed, exit the MELSEC-FX list editor once and start the MELSEC-FX list editor again.

If the program on one PLC is changed carelessly from multiple units of peripheral equipment (including GOT), the contents of the program in the PLC CPU and the peripheral equipment may not be the same, resulting in an unintended operation of the PLC CPU.

Sequence program change

Stop the FX PLC before changing (writing, inserting, deleting) a sequence program or changing parameters.

Operation is not possible with the FX PLC running.

If you press the [GO] key but the system does not proceed to the next operation (for example, a search)

Check the input contents (applied instruction number, device value, etc.).

When using list monitor

Only devices to be used for basic instructions can be monitored.

The status of devices (word, bit) to be used for application instructions cannot be monitored.

Display operation

Operation to display

The following describes the outline for displaying the operation screen of the MELSEC-FX list editor.
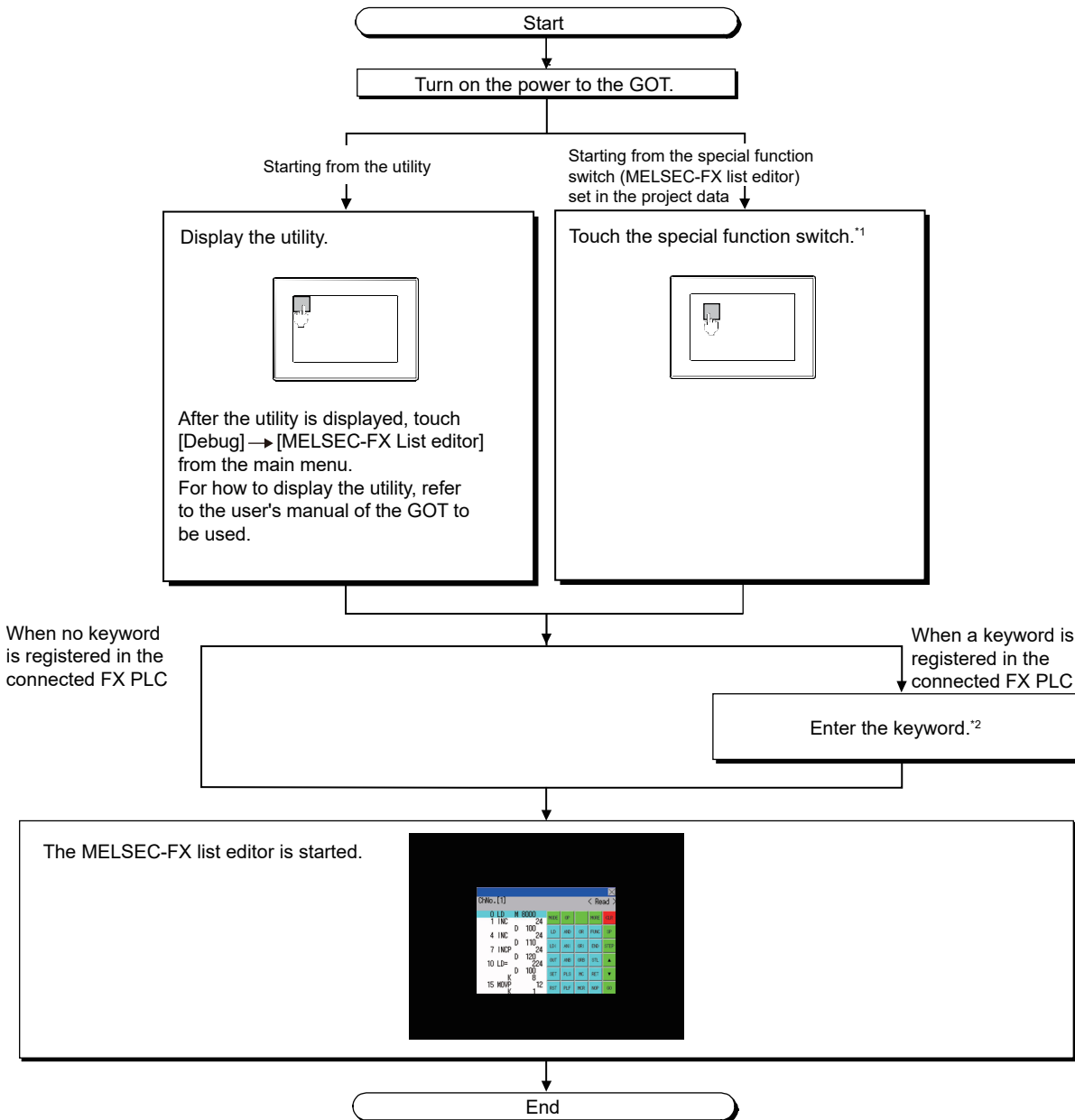
*1 For information on how to set a special function switch, refer to the following.
📖GT Designer3 (GOT2000) Screen Design Manual
*2 For details on the operation method, refer to the following.

Point

• How to display the utility

For how to display the utility, refer to the following.

• If the project data has not been downloaded

The MELSEC-FX list editor can be started from the utility even if the project data has not been downloaded to the GOT.

Changing screens

This section describes how to change the screen.
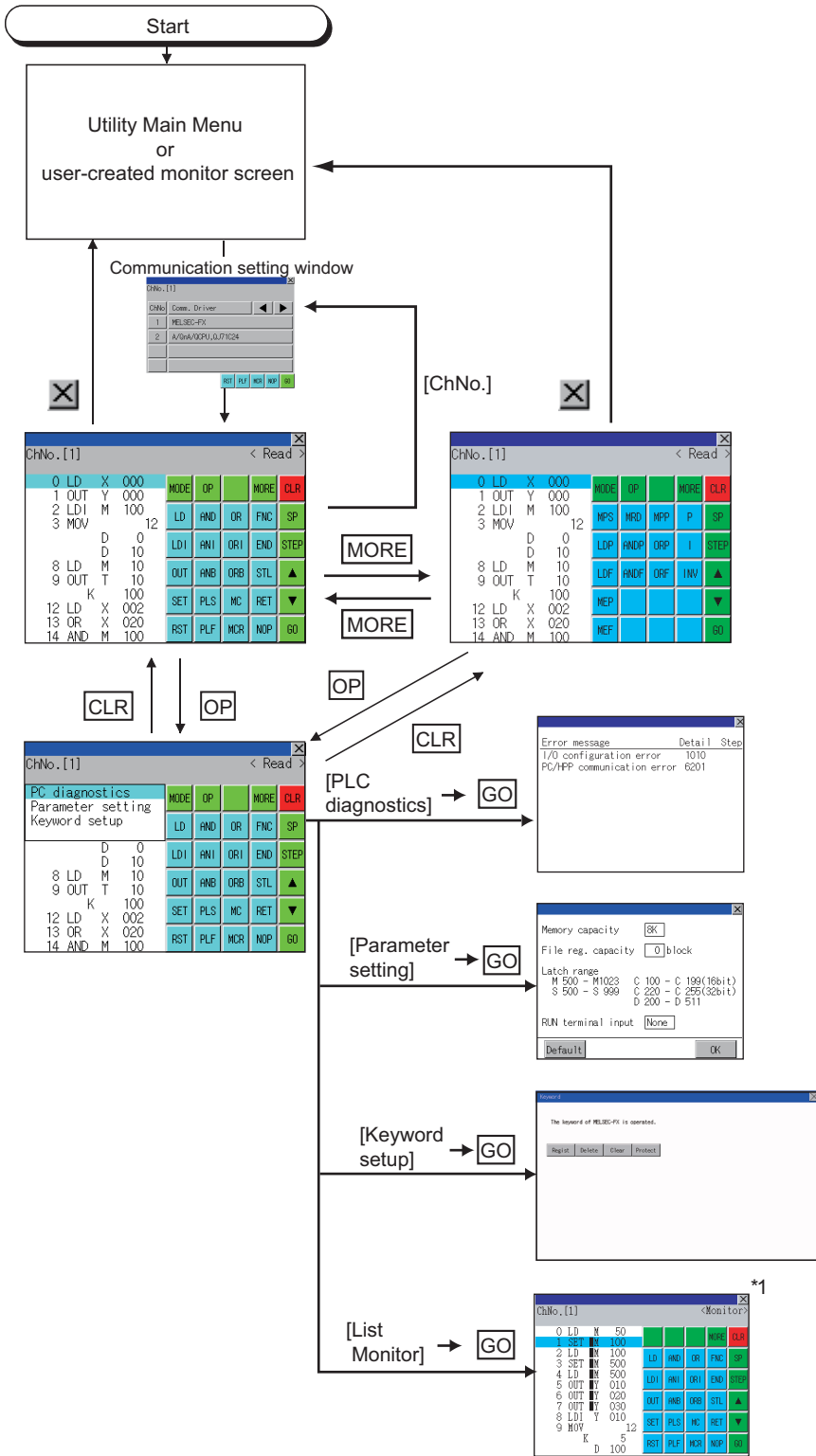
*1 With setting special function switches (FX list monitor), the list monitor can be started on the monitor screen.
When the list monitor is started on the monitor screen, the list editor cannot be used.
For how to set special function switches, refer to the following.
☐GT Designer3 (GOT2000) Screen Design Manual

Operation procedures

This section describes the contents of the MELSEC-FX list editor and the key functions displayed on the screen.

Key arrangement and a list of key functions

The arrangement and functions of the keys displayed on the MELSEC-FX List Editor window are described below.

Displayed contents
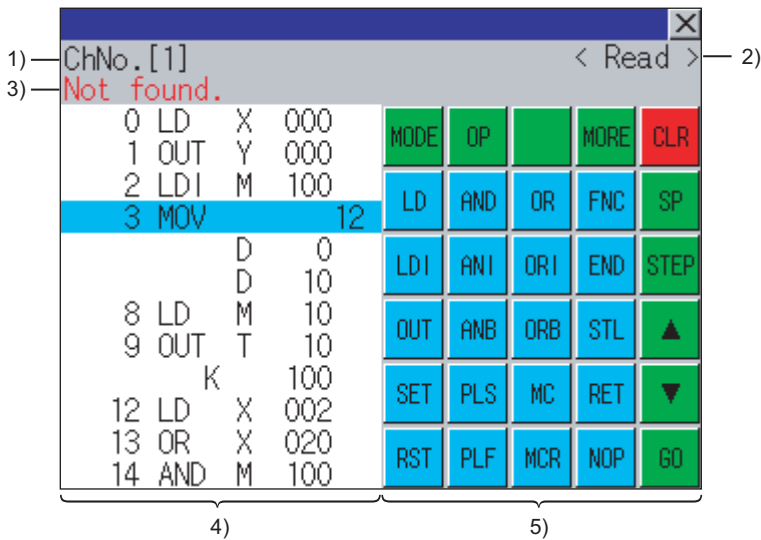
No.	Item	Display contents
1)	Channel No	Displays the currently selected channel number. Touching "ChNo." displays the communication setting window. The communication setting window is not displayed if the MELSEC-FX list editor is started from the FX ladder monitor.
2)	Mode	Displays a mode for MELSEC-FX list editor. ☞ Page 242 Selection and operation of modes [Monitor] is displayed when the list monitor is executed. ☞ Page 260 List monitor
3)	Error message	Displays the contents of errors that occur with the MELSEC-FX list editor. ☞ Page 262 Error messages and corrective actions
4)	List display area	Displays the sequence program in list format (12 digits). The position (line) that can be edited is displayed with a bar.
5)	Key area	Displays the keys that can be used with the MELSEC-FX list editor.

Key functions

The table below shows the functions of the keys that are used for the operation on the MELSEC-FX list editor screen.

Key	Function
ChNo.[1]	Displays the currently selected channel number. The communication setting window is not displayed if the MELSEC-FX list editor is started from the FX ladder monitor.
MODE	Selects a mode for MELSEC-FX list editor. ☞ Page 242 Selection and operation of modes
OP	Displays the PLC diagnostics, parameter setting, and keyword selection menu.
MORE	Switches between command keyboard 1 and command keyboard 2. ☞ Page 241 Keyboard switching
CLR	When inputting commands: Cancels the key input when only part of the command has been input. ☞ Page 261 Action for an incorrect key input When option menu is displayed: Closes the option menu. Commands cannot be deleted with this key. ☞ Page 252 Deleting commands
SP	Space key. This key is used when setting timers and counters, writing applied commands, etc.
STEP	Displays the list from a specified step number when the step number is input.
▲ ▼	Moves the list display area bar up and down and switches the line being edited.
GO	Determines the key operation.
LD to INV , 0 to 9 , etc.	Inputs commands, device names, etc. The key contents depend on the input contents. The commands that can be used differ depending on the target FX PLC. Refer to the manual for the FX PLC to be used.
✕	Exits the MELSEC-FX list editor.

Keyboard switching

Touching the MORE button switches the command keyboard 1 and command keyboard 2.

When you touch the button for a keyboard function, the optimum keyboard for input for that function is displayed automatically.

Command keyboard 1 / Command keyboard 2
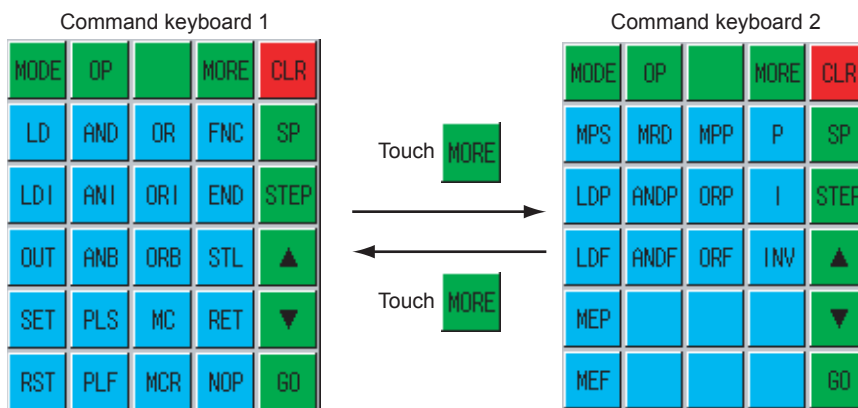
Selection and operation of modes

The MELSEC-FX list editor has four modes: READ, WRITE, INSERT, and DELETE.
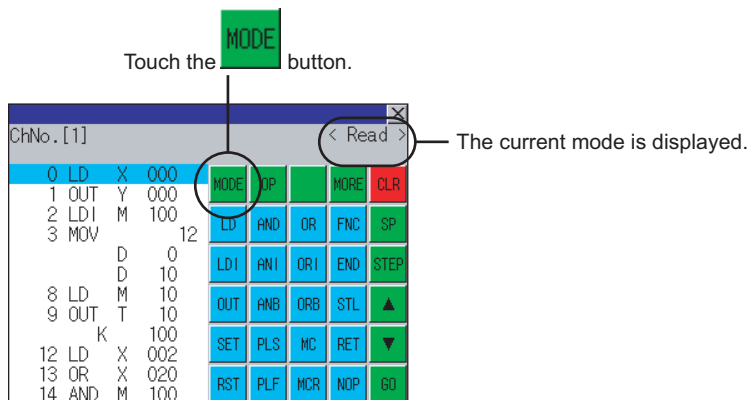
Select an appropriate mode for the intended operation.

For more information on the mode to select, refer to the function operations from subsection 15.3.8.

How to change modes

Touch the MODE button.

Each time you touch this button, the mode changes.

Touch the MODE button.

The current mode is displayed.

In the case the mode cannot be changed

In the following cases, the mode can be changed to the READ mode only.

If you try to change to other than READ mode, an error message is displayed.

To change to other than READ mode, take the action below.

Error message	Cause	Corrective action
PLC is running	The FX PLC is in the RUN status.	Stop the FX PLC.
Can not write.	The protect switch of the EEPROM memory cassette is on.	Switch off the protect switch of the EEPROM memory cassette.
	The EPROM memory cassette is enabled.	Set a memory other than EPROM as the memory to write to.

Displaying sequence programs

Sequence programs are read from the FX PLC to the GOT and displayed.

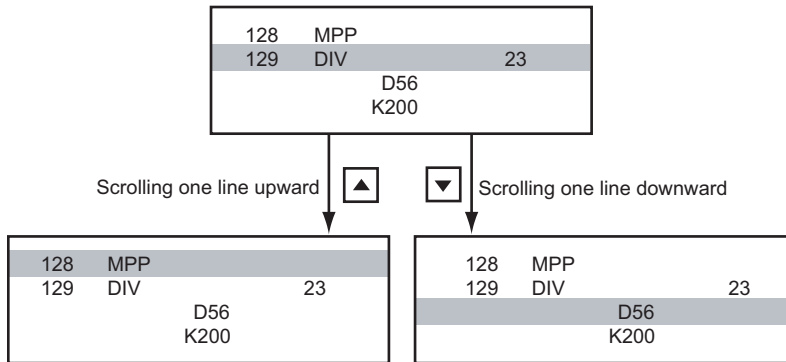There are two displaying methods: specifying the step number, and scrolling one screen at a time.

Display using cursor keys

■Operation

Scroll with ▲ OR ▼

■Example

Scroll one line upward or downward.

```
128    MPP
129    DIV            23
               D56
               K200
```

Scrolling one line upward ▲   ▼ Scrolling one line downward

```
128    MPP
129    DIV            23
               D56
               K200
```

```
128    MPP
129    DIV            23
               D56
               K200
```

Display specifying the step number

■Operation

STEP → ⌐ Input the step number. ⌐ → GO

■Example

Displaying step number 123.

```
0    LD      X 000
1    OUT     Y 000
2    LDI     M 100
3    MOV            12
```

STEP

```
Step number
                      123

3    MOV            12
```

⌐ Input the step number ⌐

GO

```
123    MOV            12
                K 200
                D 58
128    MPP
```
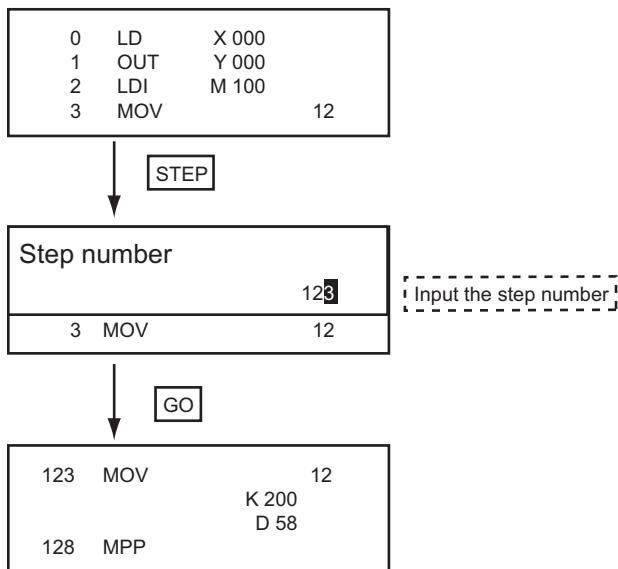
Point

When the specified step number is the operand of an applied instruction

If the specified step number is a timer (T) or counter (C) set value or the operand of an applied instruction, that command section is displayed at the head.

Display scrolling one screen at a time

■Operation

MODE ——► GO
(Read mode)

■Example

Displaying with scrolling one screen at a time.

```
┌─────────────────────────── 回 ┐
│                          < WRITE >
│
```

↓ MODE

```
┌─────────────────────────── 回 ┐
│                          < READ >     Set the READ mode.
│
```

↓ GO

```
┌───────────────────────────────┐
│  123   MOV              12      │    Displaying with scrolling
│                  K 200          │    one screen at a time.
│                  D 58           │
│  128   MPP                      │
└───────────────────────────────┘
```
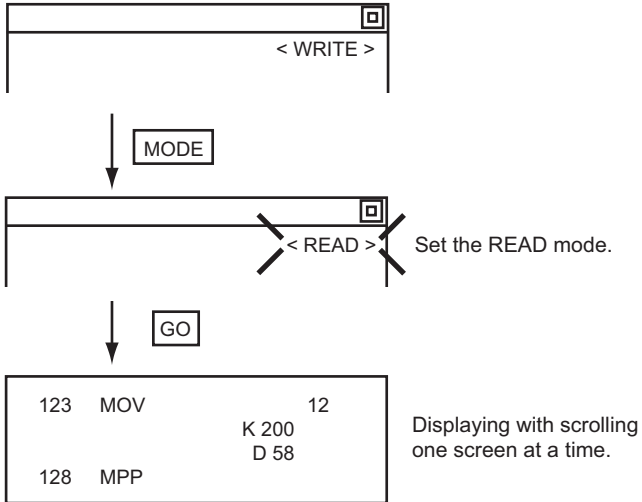
Searching commands/devices

Displays a command or device by searching it in sequence program from Step 0.

Command search

■Operation

*1   If the command you want to search for is not on the keyboard, touch the [MORE] key to switch to the other keyboard.
    When searching for an applied instruction, touch the [FNC] key and input the applied instruction number.
    When searching for a label, touch [P] or [I] and input the pointer number.
    ☞ Page 247 Writing commands
*2   Input only when searching for commands requiring a device name and device number.
*3   After the search results are displayed, you can continue searching with the same conditions by touching the [GO] key. Touching any key other than the [GO] key ends the search.

■Example

Searching for LD M8000
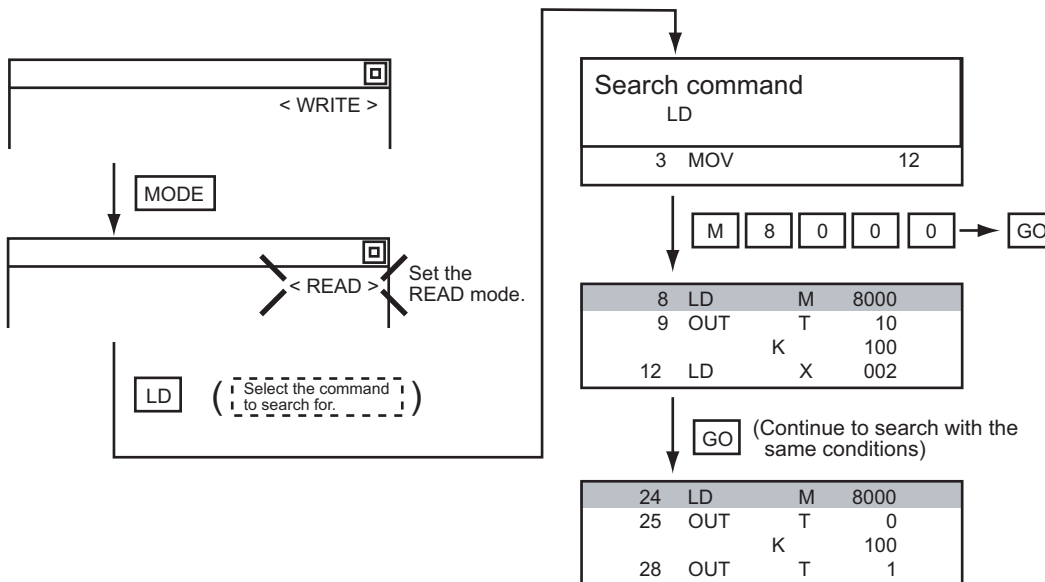
> **Point**
>
> Pointer (P, I) searches
>
> For pointer searches, only labels are searched.
>
> Pointers specified as operands in applied instructions are not searched.

Device search

■Operation

| MODE | → | SP | → | ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
Input the device name and
device number.
└ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘ | → | GO | → | GO | *1

(Read mode)

*1   After the search results are displayed, you can continue searching with the same conditions by touching the GO key. Touching any key other than the GO key ends the search.

■Example

Searching for LD M8000

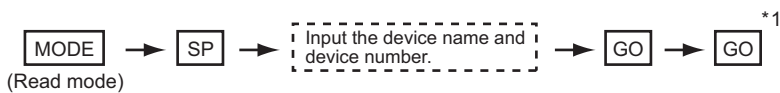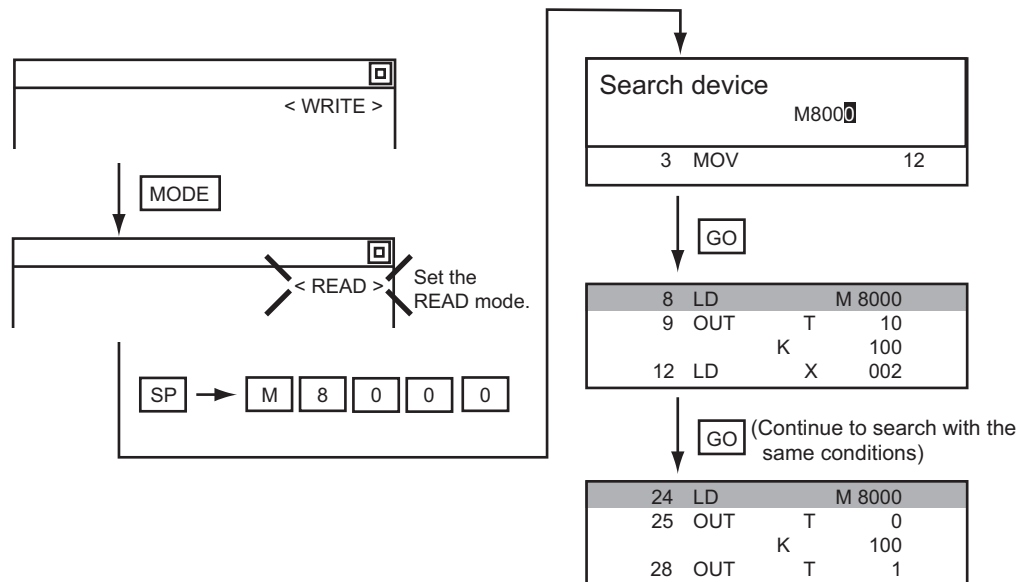**Point**

Devices that cannot be searched

The following devices cannot be searched.
 • Pointers, interrupt pointers
 • Constant K, constant H, constant E
 • Digit specification of bit device
 • Special function unit/block buffer memory
 • Devices specified with the operand of an applied instruction

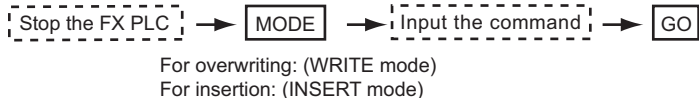Pointers and interrupt pointers can be searched for with command searches.

Writing commands

Writes a sequence program to the FX PLC. (Overwrite/Insert)

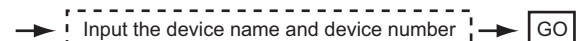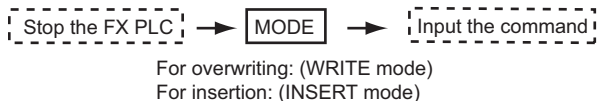## Writing basic commands

■Operations

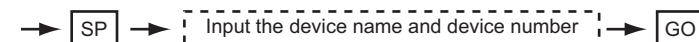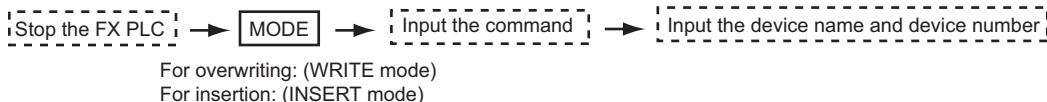Inputting command only (Ex.: ANB, ORB command etc.)

Stop the FX PLC → MODE → Input the command → GO

For overwriting: (WRITE mode)
For insertion: (INSERT mode)

Inputting command and device (LD, AND commands etc.)

Stop the FX PLC → MODE → Input the command

For overwriting: (WRITE mode)
For insertion: (INSERT mode)

→ Input the device name and device number → GO

Inputting command, No. 1 device, No. 2 device (MC, OUT (T, C) commands, etc.)

Stop the FX PLC → MODE → Input the command → Input the device name and device number

For overwriting: (WRITE mode)
For insertion: (INSERT mode)

→ SP → Input the device name and device number → GO

Point

Moving the cursor to the position to write the command

When starting to write a command, place the cursor on the command line (the line on which the step number is displayed).

You cannot write a command with the cursor on an operand or set value line.

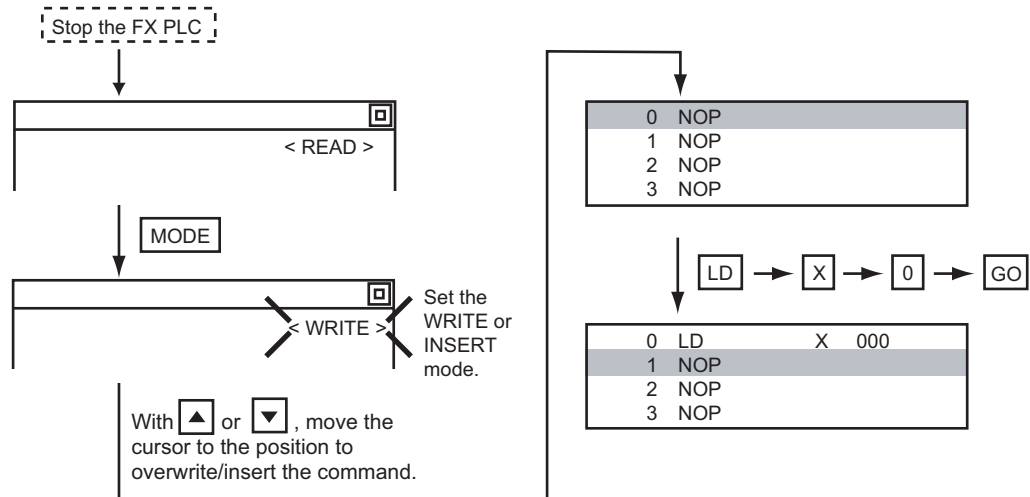|			
2	LDI	M	100
3	MOV		12
		D	0
		D	10

} Command line (Place the cursor on this line.)

} Operand, set value line (Cannot operate on this line.)

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■Example

Writing ORB command
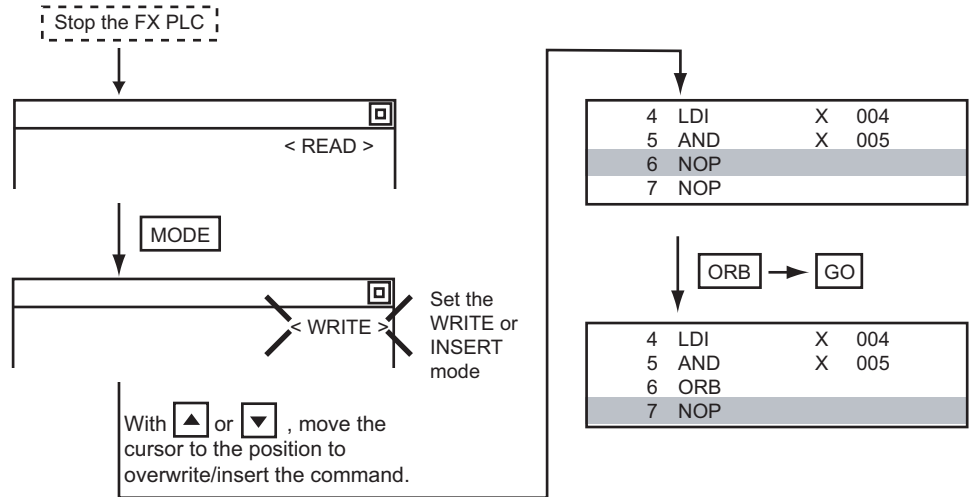
Inputting LD X000

Inputting OUT T100 K19

Stop the FX PLC

< READ >

MODE

< WRITE >

Set the WRITE or INSERT mode.

With ▲ or ▼ , move the cursor to the position to overwrite/insert the command.

100	OUT		M	100
101	NOP			
102	NOP			
103	NOP			

OUT → T → 100

100	OUT		M	100
101	OUT		T	100
103	NOP			

SP → K → 19 → GO

100	OUT		M	100
101	OUT		T	100
			K	19
104	NOP			

16

Writing applied instructions

■Operation

Stop the FX PLC → MODE → FNC → [D] ^{*1} → Applied instruction number

For overwriting: (WRITE mode)
For insertion: (INSERT mode)

→ [P] ^{*1} → [SP] → Input the device name and device number. → [GO]

^{*2}
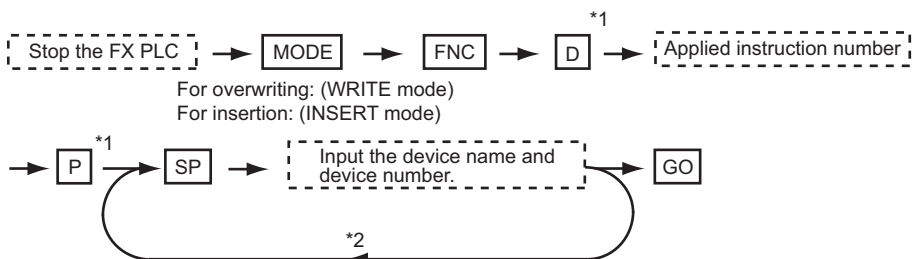
*1   [D] (double word command) and [P] (pulse execution format command) can also be input after the applied instruction number is input.
*2   Inputting in the order [P] → [D] is also possible.
*3   When a command specifies multiple devices for operations, input the [SP] key followed by the device name and device number.

Point

• Moving the cursor to the position to write the command

When starting to write a command, place the cursor on the command line (the line on which the step number is displayed).

You cannot write a command with the cursor on any other line.

```
2  LDI        M    100
3  MOV                 12     }  Command line (Place the cursor on this line.)
           D     0
           D    10            }  Operand, set value line (Cannot operate on this line.)
```
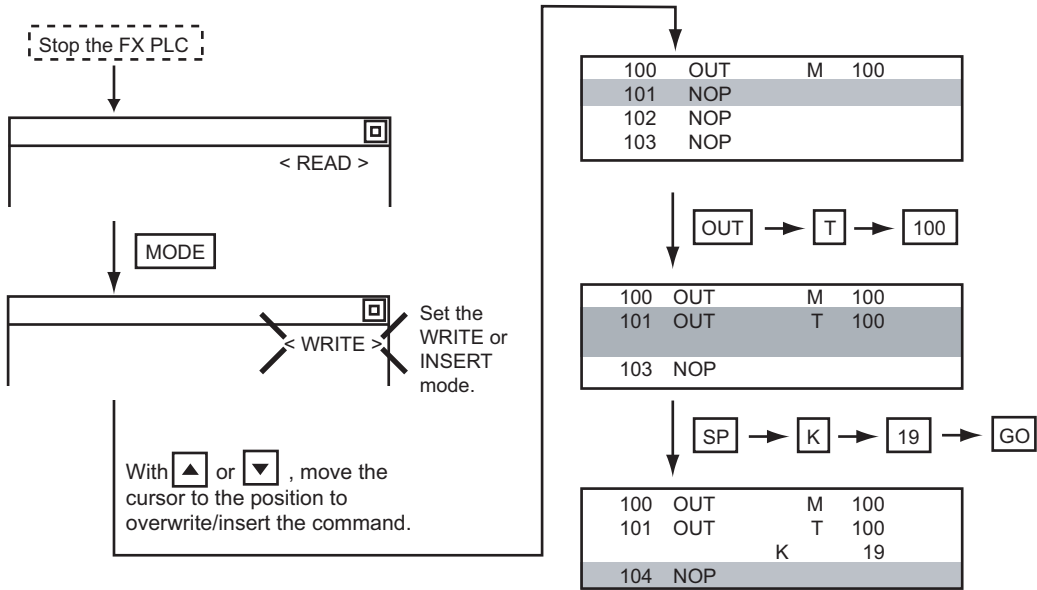
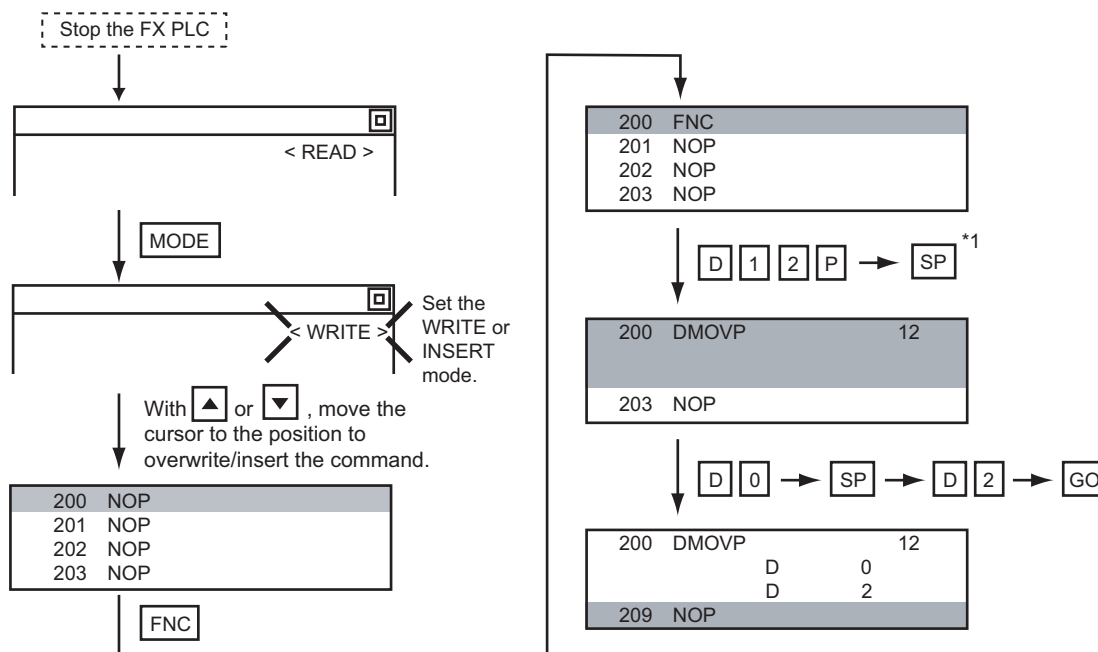• Commands using a text string constant for a command operand (such as ASC command)

With the MELSEC-FX list editor, text string constants cannot be written as operands. (such as ASC commands)

Use GX Developer for writing such commands.

■Example

Input "DMOVP D0 D2".

Stop the FX PLC

↓

< READ >

↓ MODE

< WRITE >   Set the WRITE or INSERT mode.

↓ With [▲] or [▼], move the cursor to the position to overwrite/insert the command.

```
200  NOP
201  NOP
202  NOP
203  NOP
```

↓ FNC

```
200  FNC
201  NOP
202  NOP
203  NOP
```

↓ [D] [1] [2] [P] → [SP] ^{*1}

```
200  DMOVP            12

203  NOP
```

↓ [D] [0] → [SP] → [D] [2] → [GO]

```
200  DMOVP            12
           D     0
           D     2
209  NOP
```

Changing operands, set values

Changes the operand section of an applied instruction and OUT (T, C) command set value.

Operation

Stop the FX PLC → MODE → SP → Input the device name and device number → GO
(Read mode)
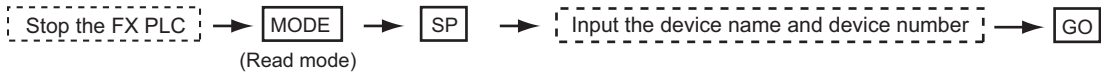
*1 For decimal numbers, input K, then the number.
For hexadecimal numbers, input H, then the number.

Point

Moving the cursor to the line on which the operand or set value is to be changed

When starting to change an operand or a set value, place the cursor on the line of the operand or set value to be changed (the line on which the step number is not displayed).

If you place the cursor on the command line, the input operation is not possible.
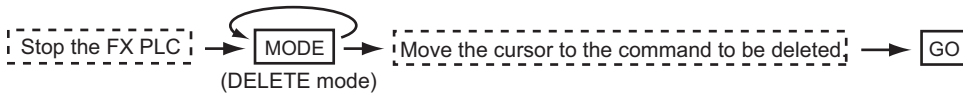
Example

Changing "MOV D0 D10" to "MOV D0 D123"
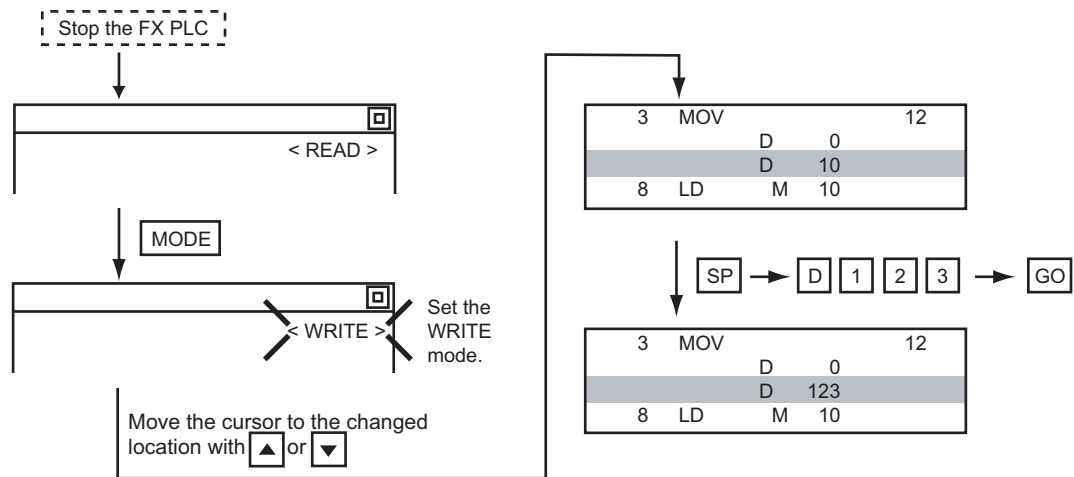
Deleting commands

Deletes one command at a time from a sequence program.
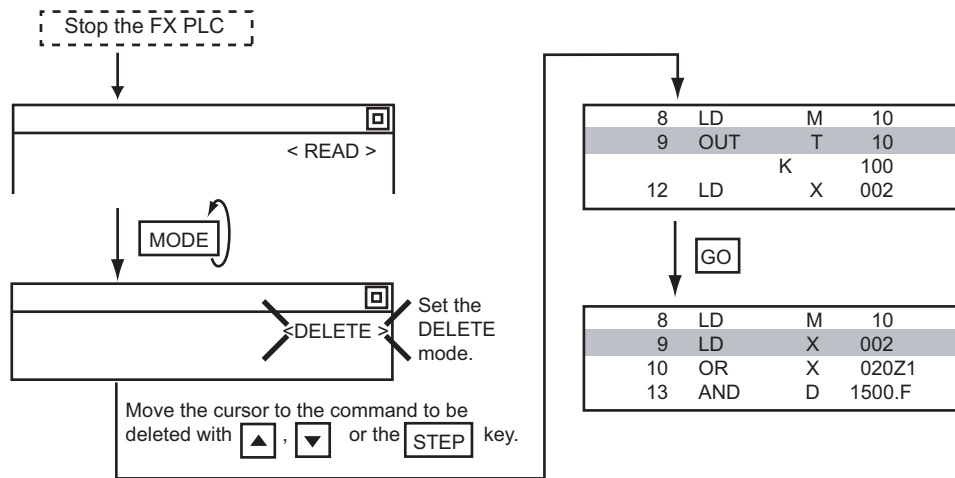
Operation

Stop the FX PLC → MODE → Move the cursor to the command to be deleted → GO

(DELETE mode)

Point

When moving the cursor to the position where the command is to be deleted.

Place the cursor on the command line (the line on which the step number is displayed).

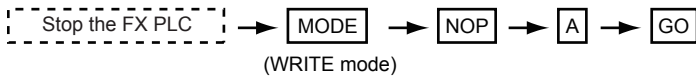You cannot delete the command if the cursor is placed on the line of an operand or set value.

Example

Deleting "OUT T10 K100"

Stop the FX PLC

< READ >

MODE

<DELETE >   Set the DELETE mode.

Move the cursor to the command to be deleted with ▲ , ▼ or the STEP key.

8	LD	M	10
9	OUT	T	10
		K	100
12	LD	X	002

GO

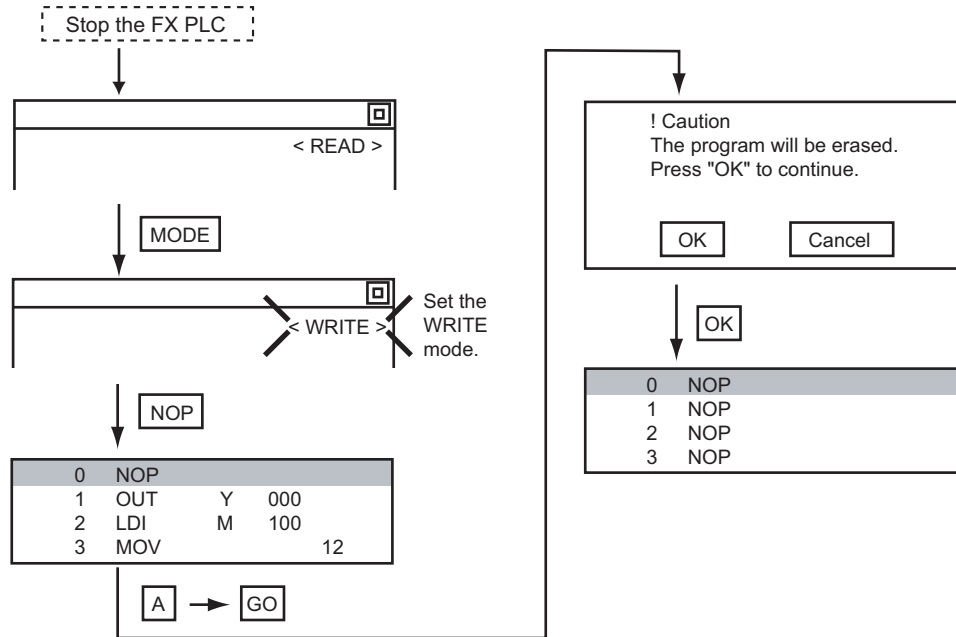| 8	LD	M	10
9	LD	X	002
10	OR	X	020Z1
13	AND	D	1500.F

Sequence program all clear

Clears all the sequence programs.

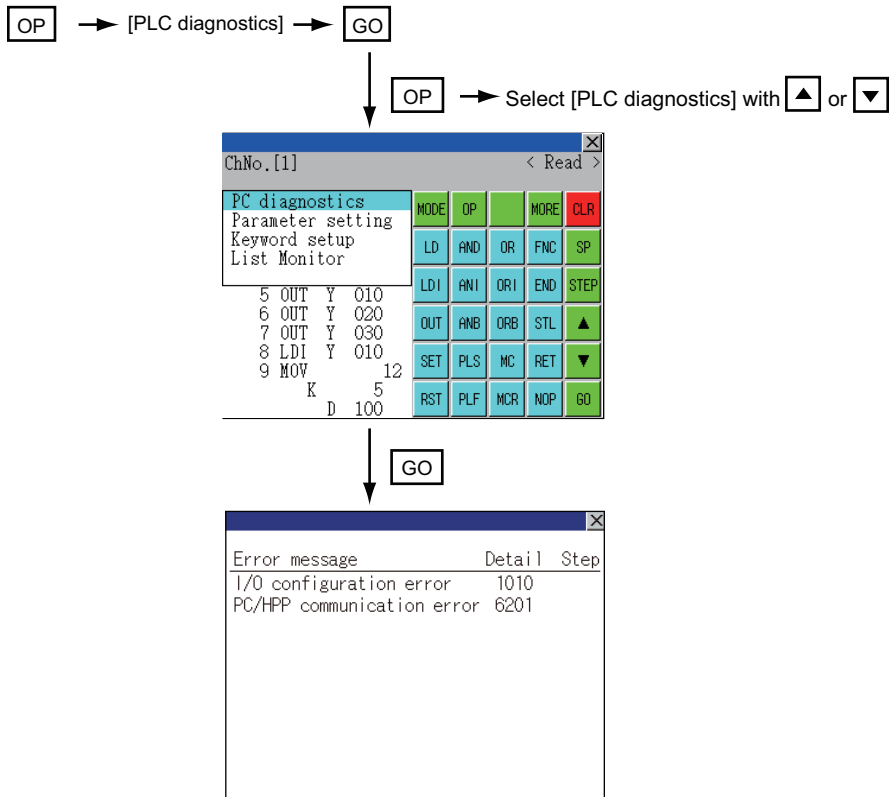## Operation

Example

Clears all the sequence programs.

Point

Items cleared when All Clear for a sequence program is performed

When All Clear is executed, the parameters before program execution are initialized and Latch Clear is executed.

The memory space becomes the default value, the comment area a 0 block, the file register space a 0 block, and keywords unregistered.

After All Clear, set the above parameters etc. again.

PLC diagnostics

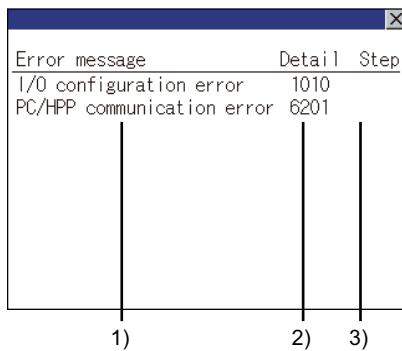Displays the FX PLC error message, error code, and step at which the error occurred.

Operation

OP ➔ [PLC diagnostics] ➔ GO

OP ➔ Select [PLC diagnostics] with ▲ or ▼

```
ChNo.[1]                              < Read >
PC diagnostics      MODE  OP        MORE  CLR
Parameter setting
Keyword setup       LD   AND   OR   FNC   SP
List Monitor
                    LDI  ANI   ORI  END   STEP
5 OUT   Y    010
6 OUT   Y    020    OUT  ANB   ORB  STL    ▲
7 OUT   Y    030
8 LDI   Y    010    SET  PLS   MC   RET    ▼
9 MOV            12
       K          5 RST  PLF   MCR  NOP    GO
       D    100
```

GO

```
                                      ✕
Error message           Detail   Step
I/O configuration error    1010
PC/HPP communication error 6201


```

PLC diagnostics screen

The following describes the contents displayed on the PLC diagnostics screen and the function of on-screen key.

■Displayed contents

```
                                      ✕
Error message           Detail   Step
I/O configuration error    1010
PC/HPP communication error 6201




        1)              2)    3)
```

No.	Item	Display contents
1)	Error message	Displays the error message. (I/O configuration error/PLC hardware error/PC/HPP communication error/Serial communication error/Parameter error/Syntax error/Circuit error/Operation error)
2)	Detail	Displays the error code.
3)	Step	Displays the step number in the sequence program at which the error occurred. (This is displayed only for a syntax error, circuit error, or operation error.)

Point

Error details

For details of the FX PLC errors, refer to the following.

📖Programming manual for the FXCPU used

■Key function

The table below shows the functions of the keys that are used for the operation on the PLC diagnostics screen.

Key	Function
☒	Exits the PLC diagnostics.

Parameter setting

Sets FX PLC parameters.

Parameters that can be changed and change targets

■Parameters that can be changed

The parameters that can be changed with the MELSEC-FX list editor and the target FX PLCs are as follows.

○: Can be set/changed ×: Cannot be set/changed

Item	Target CPU								
	FX0(S)/FX0N	FX1	FX2(C)	FX1S	FX1N(C)	FX2N(C)	FX3S	FX3G(C)	FX3U(C)
Memory space setting	×	○	○	×	×	○	○	○	○
File register space setting	○ *1	×	○	○	○	○	○	○	○
Latch range setting	× *2	○	○	× *2	× *2	○	×	×	○
RUN terminal setting	×	×	×	○	○	○	○	○	○
Initialization of parameters	○	○	○	○	○	○	○	○	○

*1 When connecting an FX0(S), set "0". Setting other than "0" causes a parameter error.

*2 When the parameters are initialized, the display on the MELSEC-FX list editor is different from the FX PLC default values, but do not change the latch range. Changing the latch range causes an error.

■Change targets

When a memory cassette is mounted, the parameters in the memory cassette are targeted for changes.

Operation
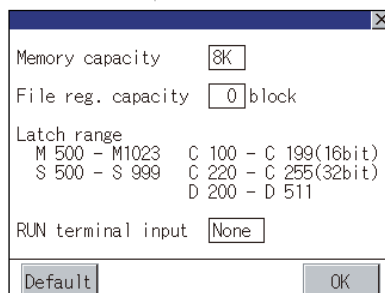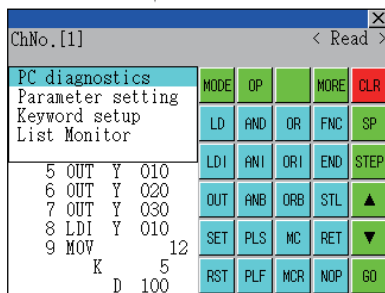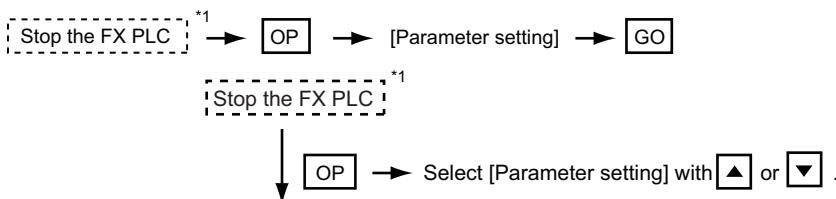
*1 When checking parameters (not changing), it is not necessary to stop the PLC.

Parameter setting screen

The following describes the contents displayed on the PLC diagnostics screen and the function of on-screen key.

■Displayed contents

```
                          ┌──────────────────────────[X]┐
1) ──── Memory capacity      │ 8K │
                          │                              │
2) ──── File reg. capacity   │ 0 │ block
                          │                              │
3) ──── Latch range          │                              │
            M 500 - M1023   C 100 - C 199(16bit)
            S 500 - S 999   C 220 - C 255(32bit)
                            D 200 - D 511
                          │                              │
4) ──── RUN terminal input  │ None │
                          │                              │
5) ──── │Default│                        │ OK │
                          └──────────────────────────────┘
```

No.	Item	Display contents
1)	Memory capacity	Sets the memory space (number of steps). If you touch the ⌐*K⌐ section, you can change the memory space.
2)	File reg. capacity	Sets the memory space (number of blocks) allocated to the file register. Touch the ☐ section and input the number of blocks.
3)	Latch range	Sets the latch range (power failure hold area). Touch the number display section and input the value.
4)	RUN terminal input	Sets whether or not to use one of the FX PLC input terminals for RUN input. Touch the ☐ section and set the device to be set for the RUN terminal.
5)	Default	Initializes the parameters

Point

• Memory space for kana comments after changing memory space, file register space

If the memory space is set smaller than the total of the file register space and kana comment space, the kana comment space is automatically reduced.

(With the MELSEC-FX list editor, the kana comment space is not displayed.)

Note that if any setting as described below is made, the kana comment space is reduced.

(Settings that reduce kana comment space and the kana comment space after setting change)

Settings resulting in Nm < Nf × 500 + Nk × 500 + 500

$$\text{Kana comment space (steps) after setting change} = \frac{Nm - Nf \times 500 - 500}{500}$$

Nm: Memory space after change (steps)

Nf: File register space after change (blocks)

Nk: Comment space before change (blocks)

• Settable range and default value

The settable range and the default value depend on the FX PLC type.

For details of the settable range and the default value, refer to the following.

📖Programming manual for the FX PLC used

■Key functions

The table below shows the functions of the keys that are used for the operation on the parameter setting screen.

Key	Function
Default	Initializes the parameters
OK	Completes the changed setting contents.
⊠	Ends parameter setting.

Keyword

Registers, deletes, releases protection for, and sets protection for the FX PLC keywords.

Function usability of the MELSEC-FX list editor for keyword protection levels

The functions that can be used with the MELSEC-FX list editor depend on the keyword protection level.

○: Available, ×: Unavailable

Function		Keyword protection level				Reference
		All operation protect (All on-line operation protect)[*2]	Read/Incorrect write protection (Read/Write protection)[*2]	Erroneous write prohibition (Write protection)[*2]	Keyword not registered/ keyword protection canceled	
Reading sequence programs	Displaying sequence programs	×	×	○	○	☞ Page 243 Displaying sequence programs
	Searching commands/devices	×	×	○	○	☞ Page 245 Searching commands/ devices
Writing sequence programs	Writing commands	×	×	×	○	☞ Page 247 Writing commands
	Changing operands/ set values	×	×	×	○	☞ Page 252 Deleting commands
Inserting commands		×	×	×	○	☞ Page 247 Writing commands
Deleting commands		×	×	×	○	☞ Page 252 Deleting commands
Sequence program all clear		×	×	×	○	☞ Page 253 Sequence program all clear
PLC diagnostics		○ [*1]	○	○	○	☞ Page 254 PLC diagnostics
Parameter setting		×	×	×	○	☞ Page 256 Parameter setting

*1 When the 2nd keyword is set to an FX PLC that supports 2nd keyword, it becomes "×" (cannot be used).
*2 The names within the parentheses ( ) are for when a keyword + 2nd keyword is set.

Operation

OP ⟶ [Keyword setup] ⟶ GO

OP ⟶ Select [Keyword setup] with ▲ or ▼.

GO
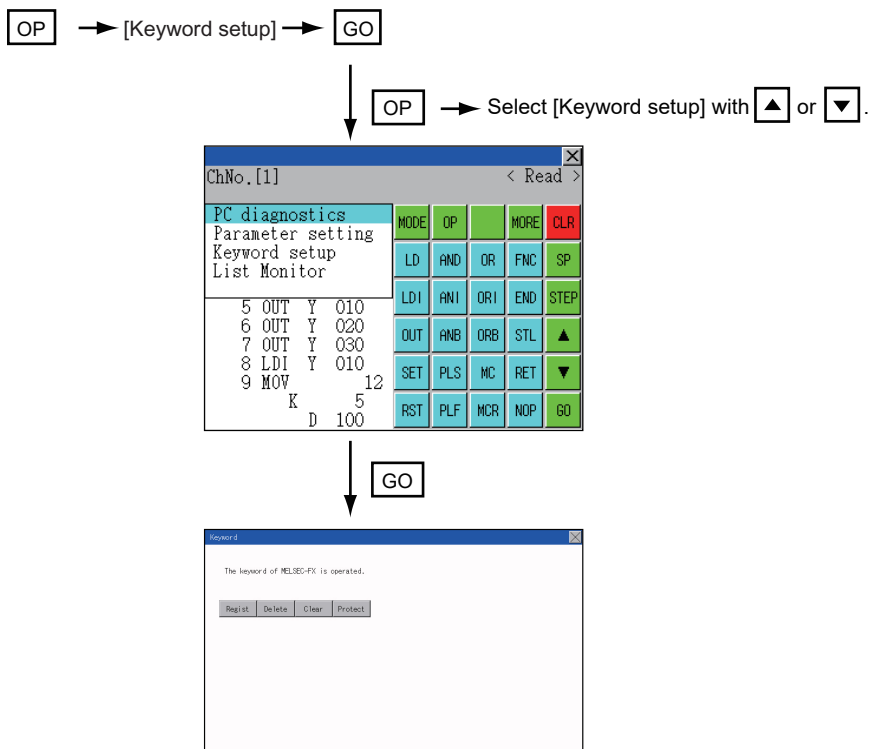
Keyword screen and protection level

When [Keyword setup] is selected with the MELSEC-FX list editor, the keyword screen is displayed.

For the keyword operation, refer to the following.

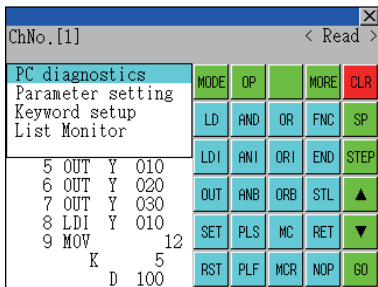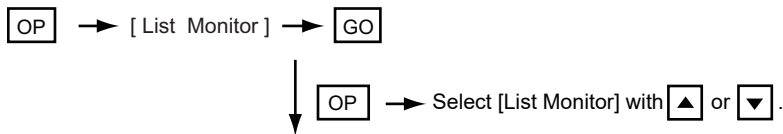☞ Page 98 Keyword

Point

Keywords

For details of the keyword, refer to the following.

📖 Programming manual for the FX PLC used

List monitor

The status of contacts and coils in a sequence program is displayed.

Operation

OP → [List Monitor] → GO

OP → Select [List Monitor] with ▲ or ▼ .

GO
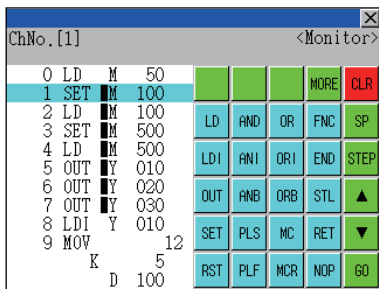
When the list monitor is started on the FX list editor screen, the step numbers displayed on the FX list editor screen is displayed on the list monitor screen.

Point

Starting list monitor with special function switches (FX list monitor)

With setting special function switches (FX list monitor), the list monitor can be started on the monitor screen.

When the list monitor is started on the monitor screen, the list editor cannot be used.

For how to set special function switches, refer to the following.

📖 GT Designer3 (GOT2000) Screen Design Manual

Displays and key functions

The following describes the displays for the list monitor.
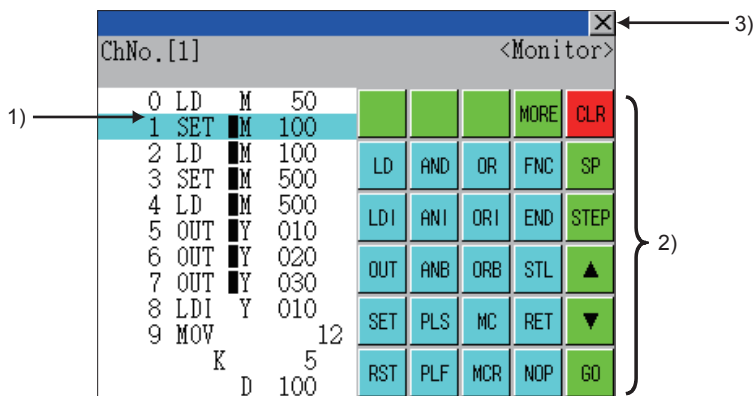
No.	Item	Display contents
1)	List display area[*1]	The status of contacts and coils is displayed on the left of device displays.
2)	Keys	The same operations as in the READ mode of the FX list editor can be executed. ☞ Page 243 Displaying sequence programs
3)	[×]	Ends the list monitor. (When the list monitor is executed on the FX list editor screen, the screen is switched to the FX list editor screen.)

*1   The status of contacts and coils is displayed as below.

Type of instruction	Description	Status	
		■ Displayed	■ Not displayed
LD, AND, OR (Contact instruction (Normal open))	Contact	ON	OFF
LDI, ANI, ORI (Contact instruction (Normal close))	Contact	OFF	ON
OUT, SET	TC: Coil	ON	OFF
	Except TC: Contact	ON	OFF
RST	TC: Reset	ON	OFF
	Word device	Value: 0	Value: Except 0
	Except TC and word device: Contact	OFF	ON
MC, STL	Contact	ON	OFF
LDP, ANDP, ORP, LDF, ANDF, ORF (Rise or fall contact instruction)	Not monitored	Always ■ not displayed	

Action for an incorrect key input

If an incorrect key is input, cancel the input contents.

Operations

■Before touching the GO key (before reading/writing the input contents)

Before touching the GO key, touch the CLR key.

■After touching the GO key (after reading/writing the input contents)

Write the command again.

☞ Page 247 Writing commands

Commands finalized by writing and inserting operations are revised (overwritten) with the program writing.

Error messages and corrective actions

This section describes the error messages displayed when the MELSEC-FX list editor is executed, and corrective action.

Error message	Description	Corrective action
Can not display while protected. Can not operate while protected.	The all-operation protect, anti-plagiarism, or incorrect write protect keyword is set.	• Check the protected operation. • Clear the keyword protection or delete the keyword. ☞ Page 258 Keyword
PLC parameter error.	An FX PLC parameter is defective.	Set correct parameters in the FX PLC.
PLC communications error.	The communication with the FX PLC is defective.	• Check the FX PLC, cable, and GOT for abnormality. • Check whether the communication settings are correct or not.
PLC is running.	A writing operation etc. has been made while the FX PLC is running.	Stop the FX PLC.
Can not write.	• The memory to write to is EPROM. • The protect switch of the EEPROM is on.	• Set other than EPROM for the memory to write to. • Switch off the protect switch of the EEPROM.
Step number is out of a range.	The specified step number exceeded the maximum number.	Specify a step number below the maximum value.
Not found.	The specified command cannot be found.	Proceed to the next operation.
Not found.	The specified device cannot be found.	Proceed to the next operation.
Step overflow.	The program may exceed the available space. (Writing is not executed.)	Check the program memory space and delete commands to keep it within the space. ☞ Page 252 Deleting commands
Command error.	An invalid command (non-existent command) was specified.	Input the correct command.

Point

How to erase an error message

An error message is not erased even if the cause of the error is eliminated.

To erase an error message, touch a key on the MELSEC-FX list editor screen.

16.3 FX3U-ENET-ADP Communication Setting Function

In GX Works2, the communication set value of the FX3U-ENET-ADP stored in the CPU can be changed.

This function is not available when the communication set value of the FX3U-ENET-ADP is not set in advance in the CPU.
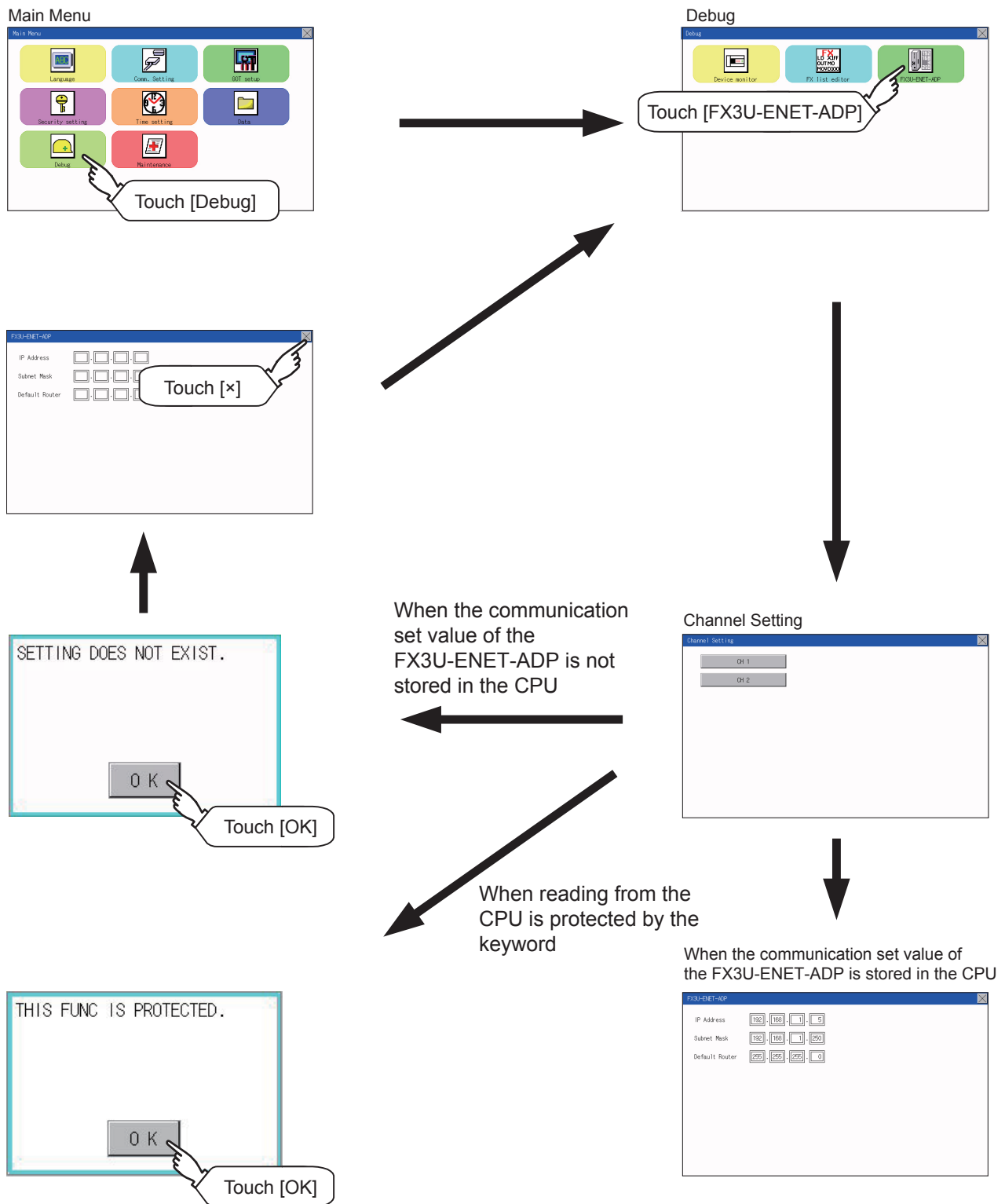
> **Point**
>
> Communication setting in the CPU
>
> In GX Works2, set in advance the communication set value of the FX3U-ENET-ADP to the CPU.
>
> For the details of the communication setting, refer to the following.
>
> 📖 FX3U-ENET-ADP User's manual

Specifications

System configuration

This section describes the system configuration of the FX3U-ENET-ADP communication setting function.

For the setting method in each connection form, used communication unit/cable and cautions on connection form, refer to the following manual.

📖 GOT2000 Series Connection Manual For GT Works3 Version1

■Required basic system application

Operating system		Version
Basic system application		-
Communication driver	MELSEC-FX	-

■Connection type

(○: Applicable, △: Partly restricted, ×: Inapplicable)

Function		Connection type between GOT and controller	
Name	Description	Direct CPU connection (serial)	GOT multi-drop connection
FX3U-ENET-ADP communication setting function	The communication set value of the FX3U-ENET-ADP stored in the CPU can be changed.	○	×

■Communication setting items

The table below shows the communication setting items and setting range.
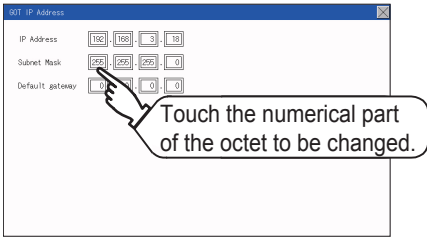
Communication setting items	Setting range	Remark
IP address	0.0.0.1 to 223.255.255.254	If a value outside the setting range is entered, the error message "SET NUMBER IS INCORRECT." appears.
Subnet mask pattern[1]	192.0.0.0 to 255.255.255.252	
Default router IP address[1]	0.0.0.1 to 223.255.255.254	

*1 Set the value "0.0.0.0" when not using the subnet mask pattern and default router IP address.

16

# Display operation of FX3U-ENET-ADP communication setting function

Main Menu

Touch [Debug]

Debug

Touch [FX3U-ENET-ADP]

Touch [×]

When the communication set value of the FX3U-ENET-ADP is not stored in the CPU

Channel Setting

CH 1
CH 2

SETTING DOES NOT EXIST.

OK

Touch [OK]

When reading from the CPU is protected by the keyword

When the communication set value of the FX3U-ENET-ADP is stored in the CPU

THIS FUNC IS PROTECTED.

OK

Touch [OK]

IP Address   192 . 168 .   . 5
Subnet Mask   192 . 168 .   . 250
Default Router   255 . 255 . 255 . 0

Setting operation

Touch the numerical part of the octet to be changed.

Touch

Touch[×]

Save the data?

YES   N O

Touch [YES]

1. Touch the numerical part of the octet to be changed among the 1st to 4th octets.

2. When the ten-key pad appears, enter a numerical value in up to 3 digits, and touch the ENT key. If a numerical value outside the setting range is entered, the following error message appears. Enter a numerical value again.

Set number is incorrect.

O K
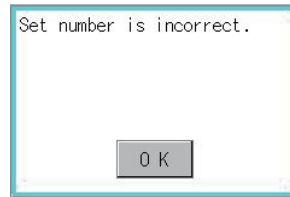
For the details of the setting range, refer to the following.
☞Page 263 Specifications

3. The changed IP address is displayed. At this time, the changed communication set value of the FX3U-ENET-ADP is not written to the CPU. Touch the [×] key.

4. When the screen shown on the left appears, touch the [YES] key.

FX3U-ENET-ADP

IP Address   192 . 168 . 1 . 5
Subnet Mask   192 . 168 . 1 . 250
Default Router   255 . 255 . 255 . 0
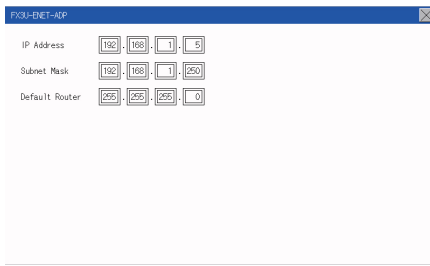
5. When the screen shown on the left appears, the changed communication set value of the FX3U-ENET-ADP is written normally to the CPU. For making valid the contents of setting, turn OFF the power of the CPU, and then turn it ON again. Change the setting of the subnet mask pattern and default router IP address using the same procedure if necessary. An error message appears in the following cases. Touch the $\boxed{OK}$ key to return to the step 1., and perform the setting procedure again.

When the CPU is running
The following error message appears. Stop the running status of the CPU.

PLC IS RUNNING.

O K
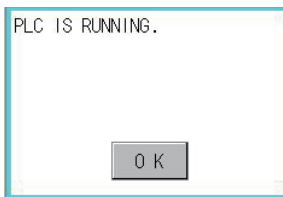
When a communication error occurs
Set the communication between the GOT and the CPU to the normal status.

PLC communication error.

O K
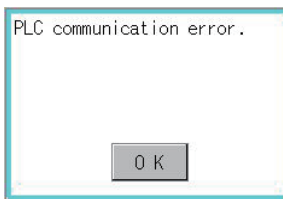
When the memory cassette is write-protected
Set to OFF the write-protect switch of the memory cassette.

Can not write.

O K
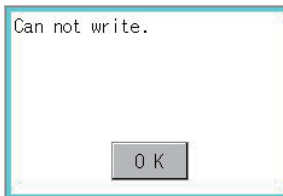
When writing to the CPU is protected by the keyword
Clear the protection by the keyword against writing.

THIS FUNC IS PROTECTED.

O K

Point

When the CPU stores the symbolic information
When the setting such as IP address is changed using this function and then the program is read by the programming tool from the CPU that stores the symbolic information, the following warning appears. However, the changed value is read correctly. Convert and compile the project again.

```
MELSOFT Application                                              [X]

 (i)   Completed.

       Caution
       The project contains uncompiled code.
       Because the symbolic information file and program file do not match, only the symbolic information will be read.
       Please execute Verify with PLC or Write to PLC after converting/compiling the project.

                              [      OK      ]
```

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MEMO
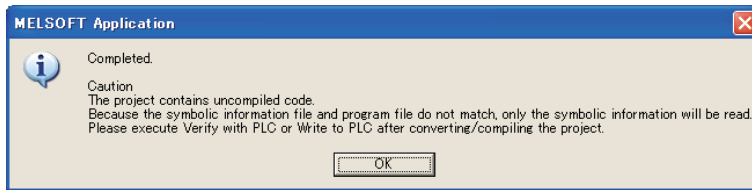
17 MAINTENANCE

17.1 Touch Panel Calibration

Touch panel calibration setting function

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.

Before adjustment

After adjustment

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

The [Stop] button can be touched without fail.

Touch panel calibration setting display operation

Main Menu

Touch [Maintenance].

Maintenance

Touch [Calibration].

Calibration

—|—←PUSH

Calibration

Press on the center of mark, exactly.

Touch panel calibration operation

Touch [+] displayed on the screen with the finger one by one to make the setting.

┼←PUSH

Calibration

Press on the center of mark, exactly.

1. Touch the center of [+] displayed on the upper left precisely.

Calibration

Press on the center of mark, exactly.

┼←PUSH

2. Touch [+] displayed on the lower left.

PUSH→┼

Calibration

Press on the center of mark, exactly.

3. Touch [+] displayed on the upper right.

Calibration

Press on the center of mark, exactly.

PUSH→┼

4. Touch [+] displayed on the lower right.

Setting Error.
Retry?

YES   NO

5. When the precise touch could not be made, touch the [YES] button to make the setting from Step1 again.

17.2 Touch Panel Check

Touch panel check function

Touch panel check function checks whether there is no dead zone area of 2 dots × 2 dots.

Display operation of Touch panel check
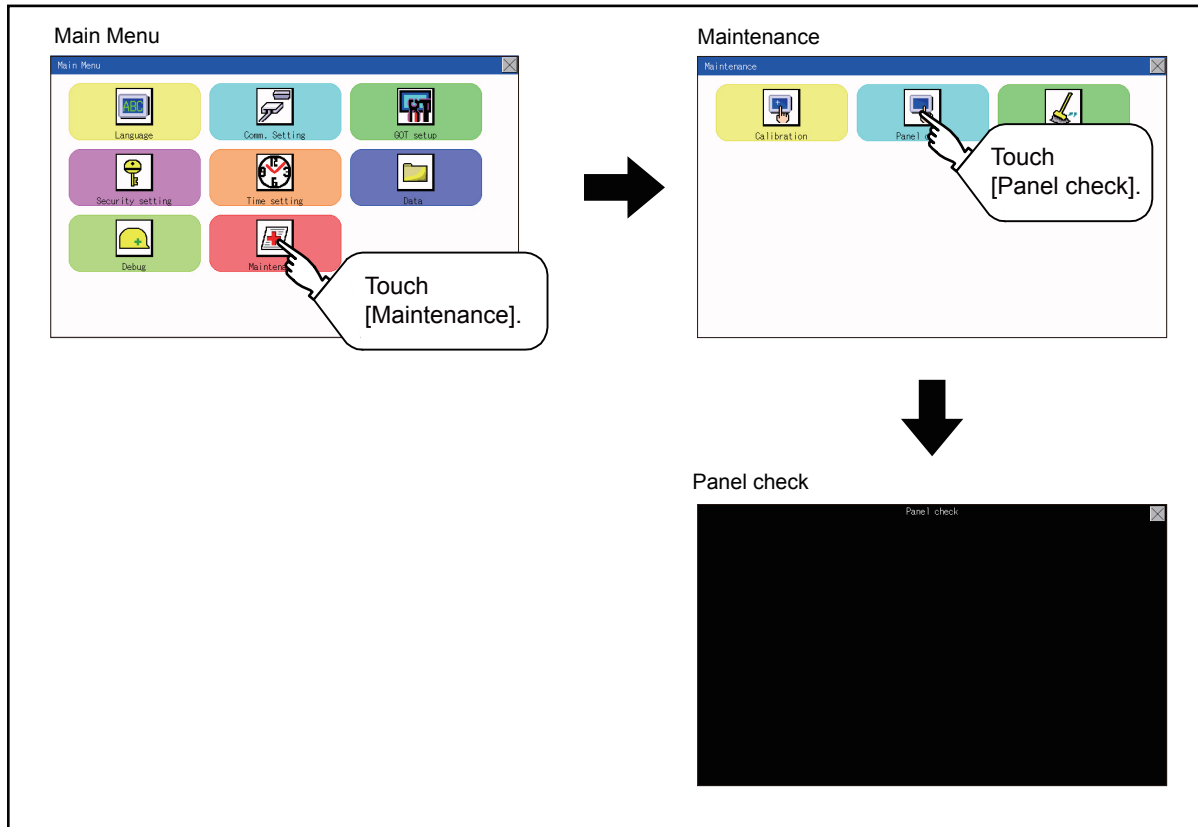
Point

Notes on Touch panel check

If the touched part is not filled with yellow color, there are the following two possible causes.

1. Display part failure
2. Touch panel failure

In that case, contact your local Mitsubishi (Electric System) Service.

Touch panel check operations

If touch [Panel check] of self-check, a black-filled screen is displayed over the entire screen area.

Black-filled screen
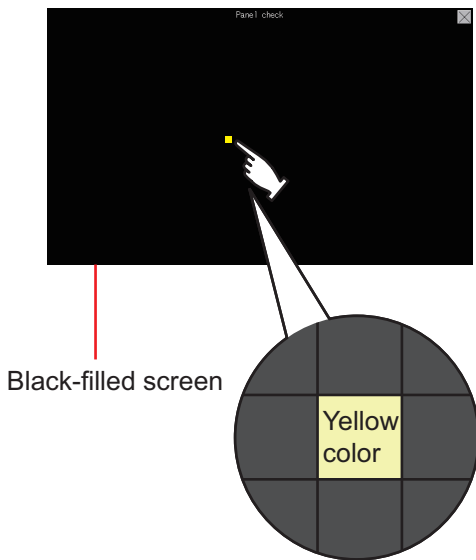
1. Touch a part of the screen. The touched part becomes a yellow-filled display. Up to 40 parts becomes yellow-filled displays.
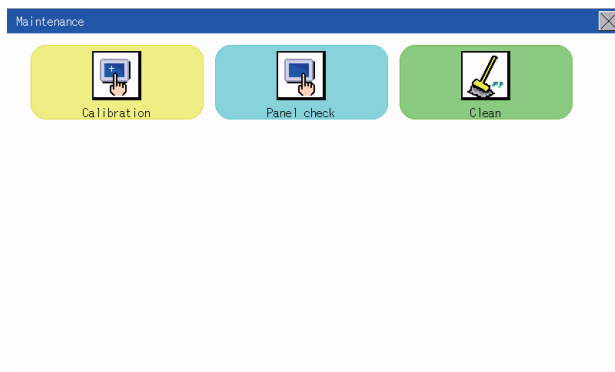
2. If [×] on the upper right is touched, the screen returns to the self-check.

Point

Checking the upper left part of the screen

Only the upper left part of the screen cannot be filled with yellow.

If the screen returns to the self-check by touching the upper left part, judge that the upper left area operates normally.

17.3 Clean

In utility, the screen can be set as not to be effected by touching the screen when clean with clothes.

For cleaning method, refer to the following.

☞ Page 283 Cleaning Method

Display operation of clean

Display operation of clean

For details of cleaning method, refer to the following.
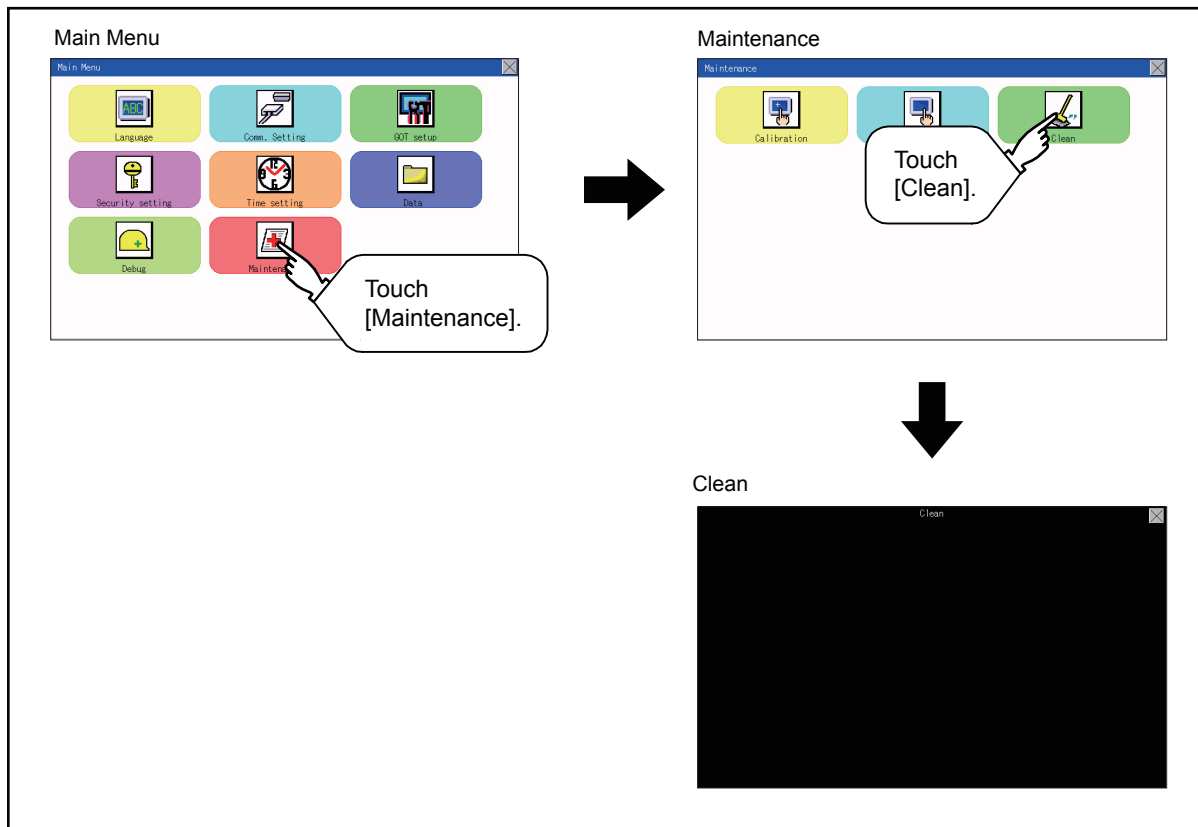
☞ Page 283 Cleaning Method
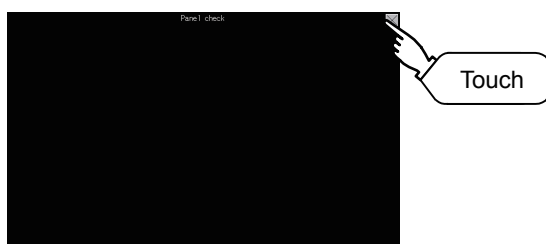
1. Touching the [×] key closes the screen. Even if touch points other than the upper left corner and upper right corner of the screen, the GOT does not operates.

MEMO

18 BootOS and System Application Installation Using Data Storage

There are the following two types for the installation of BootOS and system applications using a data storage.

Installing when starting the GOT

☞ Page 276 Installing when starting the GOT

All the system applications and project data stored in the data storage are transferred to the GOT when powering on the GOT.

This installing method is effective in the following cases.

- The GOT utility cannot be displayed.
- The system application is not installed.

Installing using the data control function (Utility)

☞ Page 276 Installing when starting the GOT

By operating the utility, select the system application or project data stored in the data storage and transfer them to the GOT.

Point

Precautions on installing BootOS, system applications

- Installing both BootOS and system applications

After completing BootOS installation, install system applications. When installing BootOS, the built-in flash memory in the GOT is initialized and goes to the status at factory shipment. (All system applications and project data are erased.)

BootOS is installed in the GOT at factory shipment. It is not necessary to install BootOS when not upgrading it.

- Installation cannot be interrupted.

Do not perform any of the following during a BootOS or system application installation.

Failure to do so may result in installation failure, causing the GOT malfunction.

Powering off the GOT

Pressing the reset button of the GOT

Removing the data storage

If the installation failure and the GOT malfunction occur, take the following action.

If BootOS installation failed:

Please consult your local Mitsubishi (Electric System) Service center or representative.

If the basic system application installation failed:

☞ Page 276 Installing when starting the GOT

18.1 Installing when starting the GOT

When installing with an SD card

1. Power OFF the GOT, and install the SD card where the BootOS, system application or project data is stored in the SD card interface of the GOT.

2. Power on the GOT. While touching the lower right side of the GOT screen, power on the GOT. (1-point press installation function)

3. The BootOS or system application is installed in the built-in flash memory. Do not pull out the SD card or power OFF the GOT.

```
パッケージデータをインストール中です。
Now installing the package data.
正在安装软件包数据。
```

4. The GOT restarts automatically after the installation is completed.

```
完了しました。再起動します。
Finished. Now rebooting.
安装已结束。再启动GOT。
```

5. 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.

18.2 Installing using the data control function (Utility)

Operation procedure


Touch [Data copy].
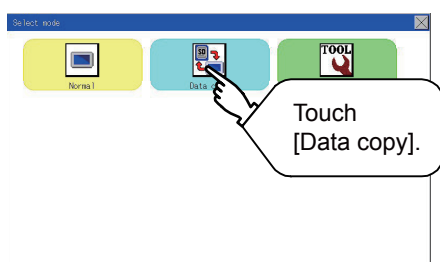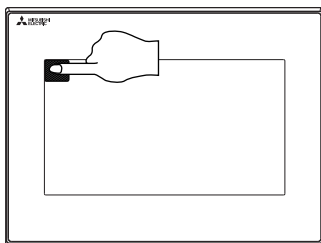
1. Power OFF the GOT, and attach the SD card which stores the basic system application and communication driver to the GOT.

2. While touching the upper left corner of the GOT screen, power ON the GOT.

3. When the screen shown on the left appears, select the [Data copy].

For details of install, refer to the following.

☞ Page 196 Data Copy

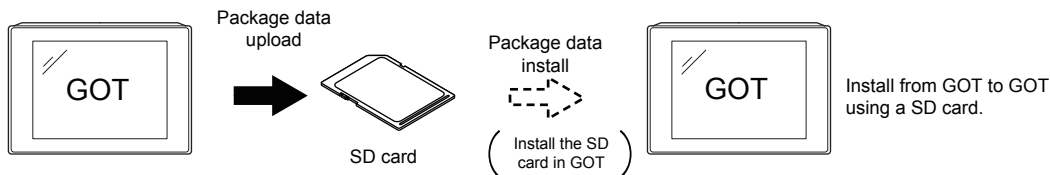# 19 INSTALLATION OF Boot OS AND BASIC SYSTEM APPLICATION

To execute the GOT utility, install the Boot OS and system applications on the C drive (built-in flash memory) of the GOT, or set the boot drive of the package data to [A: Standard SD card] and insert an SD card with the package data into the GOT. (Boot OS is installed in the GOT at factory shipment. It is not necessary to install Boot OS when upgrading of it is unnecessary.)

This chapter explains the installation using GOT.
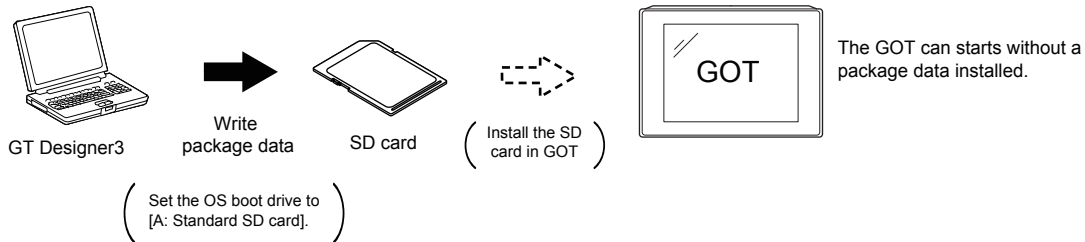
GT Designer3 → SD card → GOT

Refer to the following for the installation which uses GT Designer3.

📖 GT Designer3 (GOT2000) Screen Design Manual

19.1 Boot OS and Basic System Application to be Installed

Under-mentioned Boot OS and basic system application are necessary to execute utility.

System application name	Function overview
Boot OS	Required for the control of GOT and the communication between PC and GOT. Installed at factory shipment. (Boot OS can also be installed from GT Designer3. When Boot OS is installed, the GOT is initialized and goes to the status at factory shipment. When Boot OS needs to be reinstalled, the basic system application has to be installed in the GOT.)
System application	Required for the GOT operation as the monitoring function of GOT, installation and deletion of the system application or project data, touch key control or display function of the screen and guidance. Required for display and operation of the user-created screen and utility screen. Not installed in GOT at factory shipment. Install it from GT Designer3 or an SD card.

19.2 Prior Preparations for Installing Boot OS and System Application

For the installation using GOT, the data storage that is storing Boot OS or the system application is required.

There are the following three methods for the installation of Boot OS and system application.

[To Memory Card] from GT Designer3

📖GT Designer3 (GOT2000) Screen Design Manual

Uploading from another GOT (the package data has been installed)

Using an SD card that stores data with OS boot drive set to A drive

📖GT Designer3 (GOT2000) Screen Design Manual

> **Point**
>
> Precautions when installing Boot OS and the package data into an SD card
> When installing Boot OS and the package data into the SD card, be sure to execute by the utility of another GOT or GT Designer3.
> The installation is not executed properly with the SD card to which data is uploaded from the utility of GOT or copied by software other than GT Designer3.
> Note the available capacity of the SD card.
> The available capacity of Boot OS and system applications can be confirmed by [To Memory Card] or [Write Option] of GT Designer3.

Available space of the data

Write Option
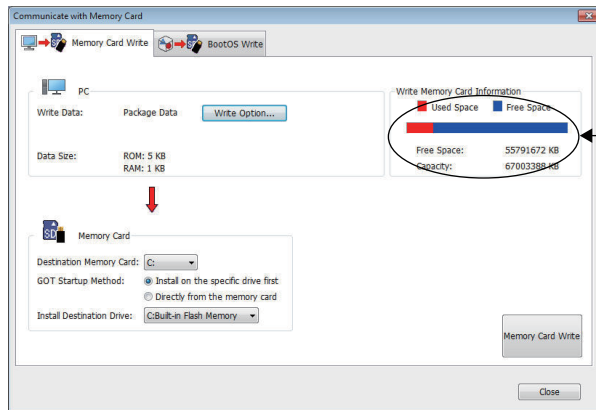
Available space of the system application
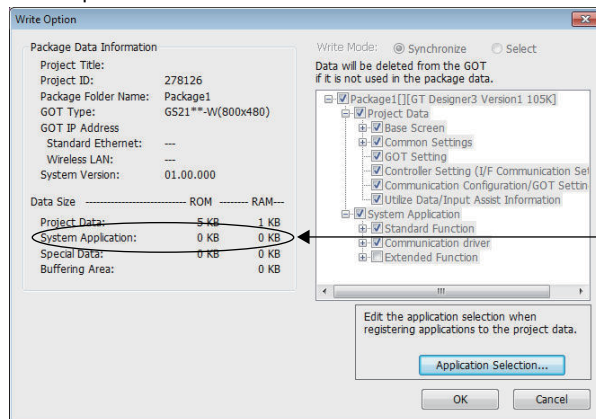
20 ERROR MESSAGE LIST

This chapter describes the error message and the corrective actions displayed on the GOT.

Error message	Action
SCREEN DOES NOT EXIST.	• Specified base screen does not exist in the project data. • Specified base screen is out of the permissible area. Specify the existing base screen.
SCREEN ERROR	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.
COMM. ERROR	Error occurred while writing in the device. • Check the cable omission and the status of the PLC.
DEVICE ERROR.	Error occurred while writing in the device Correct the device.
SET NUMBER IS INCORRECT.	The input value was illegal when writing to the device. Check the input value.
PLC IS RUNNING.	The operation, which could not be performed during RUN of PLC CPU, was performed. Stop the PLC CPU.
CAN NOT WRITE.	The memory cassette installed in the PLC CPU is EPROM or E^{2}PROM, and it is in a protected status. Confirm the memory cassette installed in PLC CPU.
THIS FUNC IS PROTECTED.	The key word is set in PLC CPU. Cancel the key word.
CAN NOT USE THE FUNCTION.	The function cannot be used with the package data configuration written in the GOT. • Review the package data configuration. • Install the latest version of GT Designer3 and write the package data again to the GOT.
DATA IS NOT FOUND.	The package data is not downloaded or the package data is not sufficient. Download the package data.
PASSWORD IS INCORRECT.	The input password does not match the security level password or the utility start-up password. Check the target password.
Password cannot be changed because you are not logged in.	When authenticating the operator, the password cannot be changed before logging in. Log in.
The password does not match, the GOT cannot be booted.	The passwords for transmitting the data from package data on Drive C and package data directly started from memory card do not match, so the GOT cannot be started. Match the data transmission passwords.

MEMO

20 ERROR MESSAGE LIST

21 MAINTENANCE AND INSPECTION

STARTUP AND MAINTENANCE PRECAUTIONS   ⚠ WARNING

- When power is on, do not touch the terminals.
  Doing so can cause an electric shock or malfunction.
- Before starting cleaning or terminal screw retightening, always switch off the power externally in all phases.
  Not doing so can cause the unit to fail or malfunction.
  Undertightening can cause a short circuit or malfunction.
  Overtightening can cause a short circuit or malfunction due to the damage of the screws or unit.

STARTUP AND MAINTENANCE PRECAUTIONS   ⚠ CAUTION

- Do not disassemble or modify the unit.
  Doing so can cause a failure, malfunction, injury or fire.
- Do not touch the conductive and electronic parts of the unit directly.
  Doing so can cause a unit malfunction or failure.
- The cables connected to the unit must be run in ducts or clamped.
  Not doing so can cause the unit or cable to be damaged due to the dangling, motion or accidental
  pulling of the cables or can cause a malfunction due to a cable connection fault.
- When unplugging the cable connected to the unit, do not hold and pull from the cable portion.
  Doing so can cause the unit or cable to be damaged or can cause a malfunction due to a cable connection fault.
- Before touching the unit, always touch grounded metals, etc. to discharge static electricity from human body, etc.
  Not doing so can cause the unit to fail or malfunction.

DISPOSAL PRECAUTIONS   ⚠ CAUTION

- When disposing of this product, treat it as industrial waste.

The GOT does not include consumable components that will cause the shorten life.

However, the liquid crystal screen and backlight have life length.

For the life of the LCD screen or backlight, refer to the following.

☞ Page 28 Performance Specifications

21.1 Daily Inspection

Daily inspection items

Item	Inspection Item		Inspection Method	Criterion	Corrective action
1	GOT mounting status		Check for loose mounting screws.	Securely mounted	Retighten screws within the specified torque range
2	Connection status	Loose terminal screws	Retighten screws with screwdriver	Not loose	Retighten terminal screws
		Proximate solderless terminals	Visual check	Proper space	Correction
		Loose connectors	Visual check	Not loose	Retighten connector fixing screws
3	Usage status	Foreign material attachment	Visual check	No foreign matter sticking	Remove, clean

21.2 Periodic Inspection

Yearly or half-yearly inspection items

The following inspection should also be performed when equipment has been moved or modified or the wiring changed.

Item	Inspection Item		Inspection Method	Criterion	Action
1	Surrounding environment	Ambient temperature	Make measurement with thermometer or hygrometer. Measure corrosive gas.	0 to 50°C	For use in control panel, temperature inside control panel is ambient temperature
		Ambient humidity		10 to 90%RH	
		Atmosphere		No corrosive gas	
2	Power supply voltage check		24VDC Measure voltage across terminals.	20.4 to 26.4VDC	Change supply power
3	Mounting status	Looseness	Move module	Should be mounted firmly	Retighten screws
		Foreign material attachment	Visual check	No foreign matter sticking	Remove, clean
4	Connection status	Loose terminal screws	Retighten screws with screwdriver	Not loose	Retighten terminal screws
		Proximate solderless terminals	Visual check	Proper space	Correction
		Loose connectors	Visual check	Not loose	Retighten connector fixing screws

21.3 Cleaning Method

Use the GOT always in a clean condition.

Cleaning and disinfecting the GOT

- For your safety, be sure to turn off the GOT before cleaning and disinfecting the surface.
- Carefully wipe the GOT screen with a soft cloth moistened with neutral detergent or ethanol.

Do not apply too much disinfectant to the cloth.

If you use alcohol for disinfection, the main component of the alcohol must be ethanol or isopropyl alcohol.

- Do not spray disinfectant directly to the GOT because doing so may cause electrical failure of the GOT and peripheral devices.
- After wiping the surface, dry the GOT completely before turning it on.

For the display operation of the [Clean] screen, refer to the following.
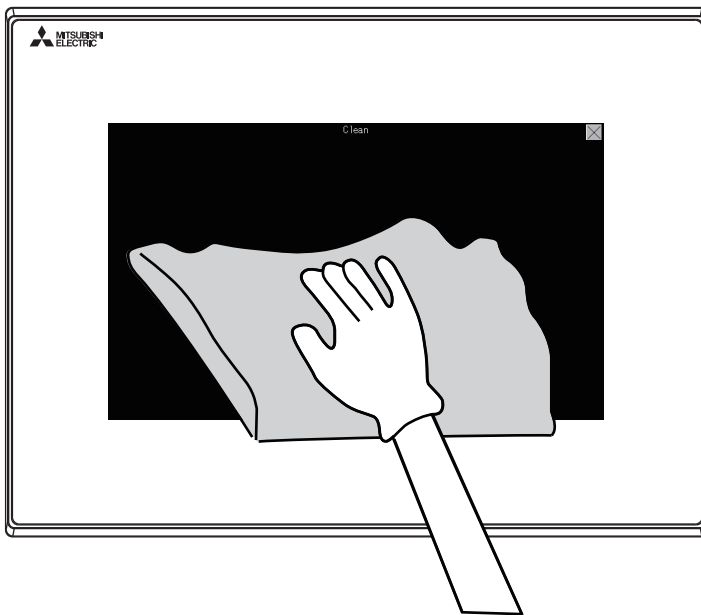
Clean

Precautions

Do not use the following solvents.

Solvents may deform the protective sheet, dissolve the surface, or peel the paint on the surface.

- Chlorine-based cleaners (bleach or other solvents)
- Peroxides (including hydrogen peroxide)
- Acetone, ammonia, paint thinner, benzene, methylene chloride, toluene, or other solvents

21.4 Backlight Shutoff Detection

A GOT has a built-in backlight for the liquid crystal display.

When a GOT detects the backlight shutoff, the POWER LED alternately flashes with orange/green color.

The brightness of the backlight degrades as the usage period passes. Replace the backlight when it is shut off or the display gets blurry.

For the replacement of the backlight, contact your local distributor.

Backlight life

The usage period of the backlight can be extended by setting [Screen saving backlight off] in the GOT utility function (GOT setup). For details, refer to the following.

☞ Page 107 DISPLAY AND OPERATION SETTINGS (GOT SET UP)

Backlight shutoff detection and external alarm

When the GOT has detected that the backlight is shut off, the system information set by using drawing software is turned on. The information of the backlight shutoff can be output from a PLC to an external device (such as lamp and buzzer) by using the system information.

An alarm for prevention of touch operation should be set and the external interlock should also be set for the dangerous load. For system information details, refer the following.

📖 GT Designer3 (GOT2000) Screen Design Manual

Point

• Example of alarm for external devices (such as lamp and buzzer)

System information is used to output the backlight shutoff detection signal from a FX series PLC to an external device.

Condition: The write device is D20 and all data is used (the [Select All] button on the setting screen of drawing software is clicked) for the system information assignment.

D36 b14: Backlight shutoff detection (System number 2-2)

This signal turns on when the backlight shutoff is detected.

This signal is used in a sequence programs shown below.

```
RUN monitor
 M8000
  ─┤├──────────────[ MOV │ D36 │ K4M20 ]─

Backlight shutoff detection
  M34
  ─┤├──────────( Y*** )─
```

Output to external device of PLC
Activated the output upon backlight shutoff detection.
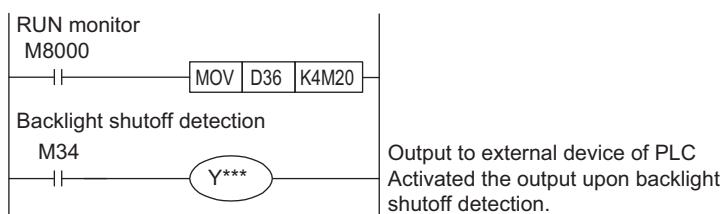
*indicates the output number at which the external device is connected.

• Caution when the backlight is shut off

Even when the backlight is shut off, the touch keys are available.

Replace the dead backlight as soon as possible.

---

22 TROUBLESHOOTING

The following shows the GOT restoration sheets.

22.1 GOT Restoration Sheets

This section describes how to restore the GOT that operates improperly in the check sheet format.
The following describes how to use each sheet.

When the GOT does not operate or operates improperly (GOT status check sheet)

When the GOT does not operate or operates improperly, check the cause of a malfunction by following the GOT status check sheet and take corrective actions.
After the GOT is restored, see how the GOT works.

When wiring needs to be modified (GOT installation status check sheet)

As a result of the GOT status check, if the cause of the malfunction or others is due to the noise generated by the GOT wiring status, take a corrective action for wiring by using the GOT installation status check sheet.
After the GOT is restored, see how the GOT works.

When a corrective action other than the above is required (System configuration check sheet)

If a malfunction or others still occurs even after the above checks, fill out the system configuration check sheet with details about your system, and consult your local sales office.
When sending the actual product, attach the GOT restoration sheets (GOT status check sheet, GOT installation status check sheet, and System configuration check sheet) which are checked in this section.
Keep a copy of each sheet.

22

GOT status check sheet

Check the GOT starting from the GOT status.

Mark checkboxes that apply to the symptom of your GOT.

Follow the instructions in the corrective action column.

GOT status

■Frequency of a case where the GOT does not operate or the screen is not displayed properly

Check	Symptom	Cause/Status	Corrective action
□	Always	Frequency: • Example: Once a month	Proceed to the following. ☞ Display of error message
□	Sometimes		

■Display of error message

Check	Symptom	Cause/Status	Corrective action
□	Can be confirmed	Error message:	Take the corrective action for the confirmed error message. If the status does not change with the corrective action, proceed to the following. ☞ Screen display
□	Cannot be confirmed	• Example: Communication error	Proceed to the following. ☞ Screen display

■Screen display

Check	Symptom	Cause/Status	Corrective action
□	The screen is entirely black.	The possible cause is a failure of the liquid crystal or an error of the Boot OS.	Take corrective actions in the following order. 1) Re-install the Boot OS. 2) Re-install the standard monitor OS. If the GOT is not restored by the above operations, proceed to the following. ☞ Actual product investigation
□	The screen is entirely white.	The possible cause is a hardware failure of the GOT.	Proceed to the following. ☞ Actual product investigation
□	A line appears on the screen.	The possible cause is a hardware failure of the GOT. Example: A vertical line appears on the screen.	Proceed to the following. ☞ Actual product investigation
□	Other display errors		
□	The screen is frozen.	The screen display is not updated and operation is unavailable.	Proceed to the following. ☞ Buzzer sound
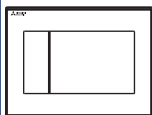
■Buzzer sound

Check	Symptom	Cause/Status	Corrective action
□	No buzzer sound	Buzzer sound:	Proceed to the following.
□	Beeps randomly		☞ Status where the GOT screen is frozen (When the screen operation stops)
□	Beeps in a pattern	• Example: The buzzer repeats in the rhythm of "beep-beep-beep, beep, beep-beep".	
□	Beeps without a pause	The possible cause is the activated Buzzer Output signal. When the reading device of the system information is set, the device may be turned on and the Buzzer Output signal may be activated.	Check the setting of the reading device. If the Buzzer Output signal has no error, proceed to the following. ☞ Status where the GOT screen is frozen (When the screen operation stops)

Status where the GOT screen is frozen (When the screen operation stops)

■Objects that are not displayed on the monitor screen

Check	Symptom	Cause/Status	Corrective action
□	Exists	Detail:	Proceed to the following.
□	None	• Example: The numerical display is not displayed.	☞ PLC CPU status

PLC CPU status

■PLC error

Check	Symptom	Cause/Status	Corrective action
□	Always	The possible cause is CONTROL-BUS. ERROR, SP. UNIT LAY. ERROR, or other errors.	Proceed to the following. ☞ GOT Restoration Sheets
□	Sometimes	The possible cause is noise or a hardware failure. Frequency: • Example: Once a month	Proceed to the following. ☞ GOT restoration procedure
□	Normal operation	-	

22

GOT restoration procedure

Follow the procedure below starting from 1), and check if the GOT is restored.

Perform the action in each check item and mark the corresponding checkbox.

If the GOT is restored, take the action after restoration.

If the GOT is not restored, proceed to the next check item.

No.	Check item	Check	Cause	Action after restoration
1)	The GOT is restored by using the reset switch on the GOT.	□ Restored □ Not restored	It may be a temporary malfunction due to noise.	Perform the following. ☞ Page 289 GOT installation status check sheet
2)	The GOT is restored by powering on and off the GOT.[*1]	□ Restored □ Not restored		
3)	The GOT is restored by resetting or powering on and off the PLC CPU.	□ Restored □ Not restored		
4)	The GOT is restored by powering on and off the GOT and the PLC CPU simultaneously.	□ Restored □ Not restored		
5)	The GOT is restored by reconnecting cables.	□ Restored □ Not restored	The possible cause is a cable connection fault.	Connect cables securely. If an error occurs again, proceed to the following. ☞ Actual product investigation
6)	The GOT is restored by reinstalling project data.	□ Restored □ Not restored	In such a case where the GOT is powered off during installation of project data or OS, the data may be corrupted.	Do not power off the GOT during data transmission. If an error occurs again, proceed to the following. ☞ Actual product investigation
7)	The GOT is restored by reinstalling OS.	□ Restored □ Not restored		
8)	Take the preventive measures against noise, which is described in the following. ☞ Page 289 GOT installation status check sheet	□ Restored □ Not restored	It may be a temporary malfunction due to noise.	Perform the following. ☞ Page 289 GOT installation status check sheet
9)	The GOT is not restored even after the corrective actions in 1) to 8) are taken.	-		Proceed to the following. ☞ Actual product investigation

*1 Make sure to turn off the PLC first, and turn off and then on the GOT.

Actual product investigation

When the GOT still operates improperly even after the corrective actions described above are taken, contact your local distributor.

Depending on the error status, the actual product may need to be returned to us.

In that case, attach the GOT status check sheet, GOT installation status check sheet, and system configuration check sheet (Write down your system configuration used on the sheet).

GOT installation status check sheet

Check the installation status of your GOT regarding the following items.
☞ Wiring inside
☞ Outside the panel
☞ Wiring of the GOT's FG cables and power lines
☞ Countermeasures to prevent surges
☞ Installation status
☞ Grounding status of the control panel where the GOT is installed
☞ Power supply system

Mark the checkboxes that apply to the current status, and take the measures if necessary.

Only when the corrective actions are taken, put a check mark in the check box of "Effective" or "Ineffective" depending on the results of the actions.

Wiring inside

■Actual status

Power lines such as power supply cables or servo amplifier drive cables and communication cables are crossed each other in the wiring duct in the control panel.
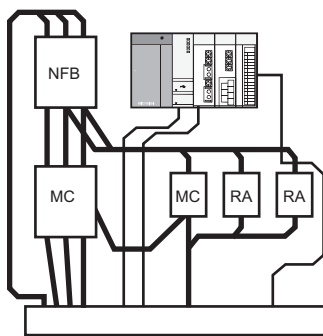
Check result
□ Crossed
□ Not crossed

■Corrective action for when the cables are crossed each other

Wiring the power lines and the communication cables to keep them away from each other in the control panel will help minimize noise interference.
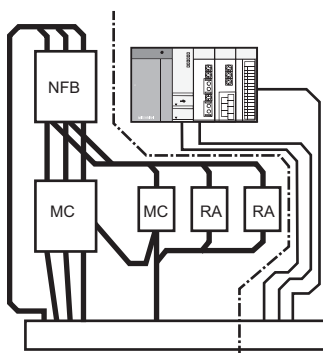
Result
□ Effective
□ Ineffective

Outside the panel

■Actual status

Power lines and communication cables are bundled together.
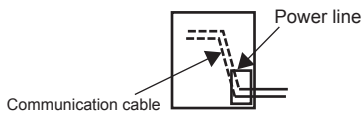
Check result
□ Bundled
□ Not bundled

■Corrective action for when they are bundled

As shown in the figure below, leading the power line and communication cable separately from different places to the outside of the control panel reduces the influence of noise from the power line.
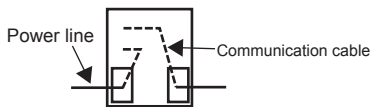
Result
□ Effective
□ Ineffective

Separating the communication cable from the power line or using a separator (made of metal) in the duct, as shown below, reduces the influence of noise.
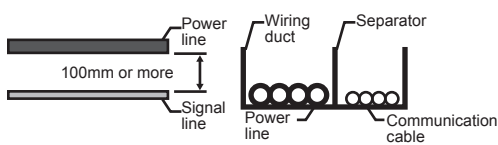
Result
□ Effective
□ Ineffective

Wiring of the GOT's FG cables and power lines

■Actual status

The GOT's FG cables and power lines are bundled together.
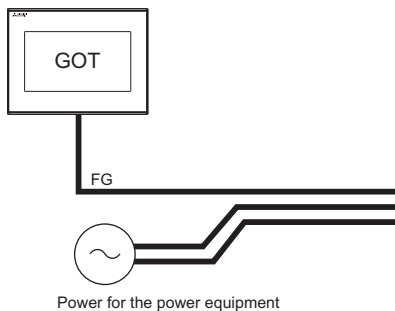
Check result
□ Bundled
□ Not bundled

■Corrective action for when they are bundled

Keeping the GOT's FG cables and power lines away from each other will help minimize noise interference.
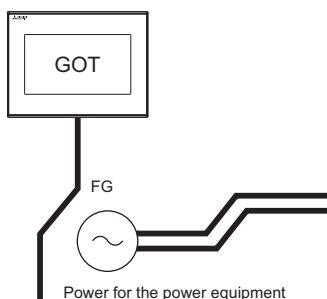
Result
□ Effective
□ Ineffective

Countermeasures to prevent surges

■Actual status

Surge suppressors are used for wiring equipment (loads) such as no fuse breakers, electromagnetic contactors, relays, solenoid valves, and induction motors.

(When surge suppressors are used, write their models and the names of devices for which the surge suppressors are used in the following table.)
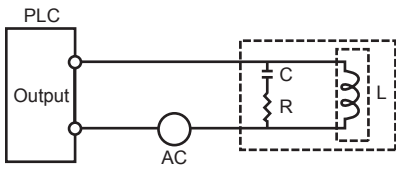
Check result
□ Used
□ Not used

• Entry column for surge suppressors

Model of surge suppressor	Device for which the surge suppressor is used

■Corrective action for when surge suppressors are not used

Using surge suppressors on the wiring near loads can reduce interference of the GOT surge.
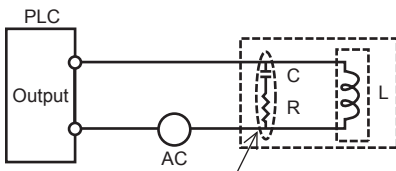
The surge suppressor must be attached close to the load

Result
□ Effective
□ Ineffective

Installation status

■Actual status

The FG cables of control equipment (such as a PLC) and power equipment (such as a servo amplifier) are connected each other as shown in a.

Servo PLC
FG
LG
FG
a
Panel grounding

Connection cable

GOT

FG

Panel grounding
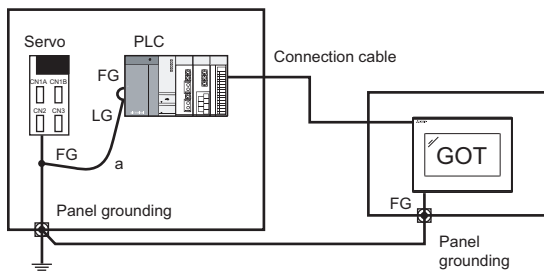
Check result
☐ True
☐ False

■Corrective action for when it is true

Carry out the independent grounding at two points as shown in Figure A.

Independent grounding will help minimize noise interference.

If the independent grounding is impossible, carry out the shared grounding as shown in Figure B.

Figure A

Servo PLC
FG
LG
FG
Panel grounding   Terminal block
Grounding for power system
Grounding for control system

Connection cable

GOT

FG   Terminal block
Grounding for power system

Figure B

Servo PLC
FG
LG
FG
Panel grounding

Connection cable

GOT

FG
Panel grounding

Result
☐ Effective
☐ Ineffective

Grounding status of the control panel where the GOT is installed

■Actual status

A ground cable is led from the control panel where control equipment such as a PLC is installed to the control panel where the GOT is installed.
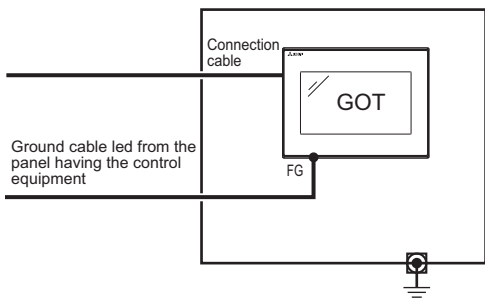
Check result
□ True
□ False

■Corrective action for when it is true

• Measure 1

Connecting a ground cable to the panel where the GOT in installed as shown in Figure A reduces electric potential difference between the ground points, which may avoid malfunction of the GOT.

If the wiring shown in Figure A cannot be carried out, perform the wiring as shown in Figure B.
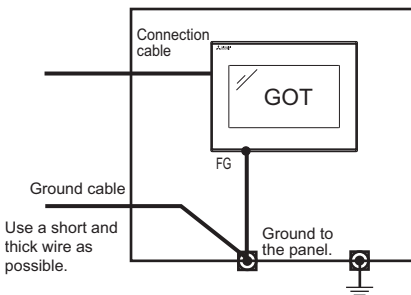
Figure A

Figure B
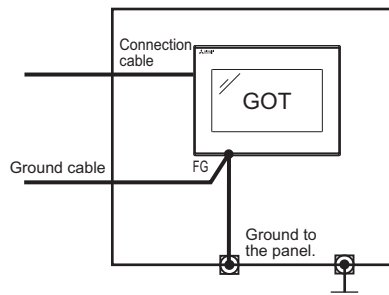
Result
□ Effective
□ Ineffective

• Measure 2

Attaching a ferrite core to the ground cable connected to the control panel where the GOT is installed, as shown in Figure C, will help minimize noise interference.

If the wiring shown in Figure C cannot be carried out, perform the wiring as shown in Figure D.

Figure C
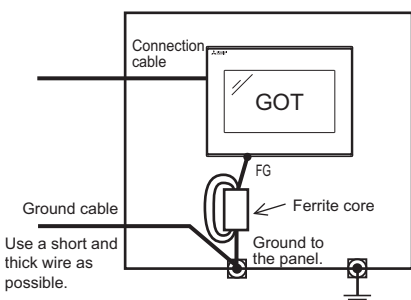
Figure D
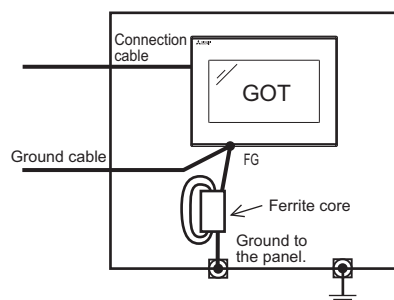
Result
□ Effective
□ Ineffective

Power supply system

■Actual status

I/O equipment (such as a relay) and power equipment (such as a servo amplifier) use the power supply in the same system as the one of the GOT.

Check result
□ True
□ False
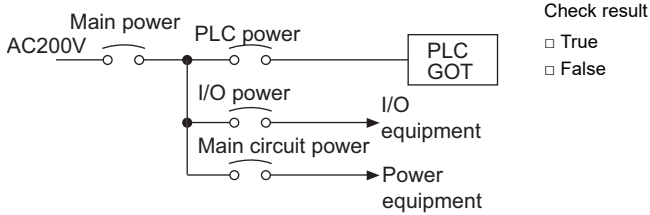
■Corrective action for when it is true

Carry out the wiring with the power supply of the GOT separated from the one of the I/O equipment and power equipment and connect an isolation transformer. This will help minimize noise interference.

Result
□ Effective
□ Ineffective
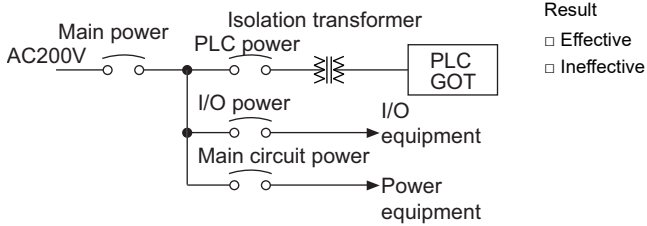
System configuration check sheet

Fill in the following table with the details of the system configuration, such as the GOT type and unit model.

System configuration for the GOT

Item	System configuration	
	Usage	Model
GOT	-	
Communication interface	Used, Not used	
Cable between the PLC and GOT	-	
Cable length	-	m

System configuration of the PLC

Item	System configuration	
	Usage	Model
Power supply unit	-	
CPU module	-	
Serial communication unit /computer link unit	Used, Not used	
Network unit	Used, Not used	
Interrupt module	Used, Not used	
Positioning module	Used, Not used	
Number of extended PLC stages	-	stages
When other units or devices are used, write their names.	-	

Entry column for writing the status of the phenomenon (when the GOT still operates improperly after corrective actions are taken)

Write the details of the error operations. (Such as when the GOT screen is frozen or the screen is displayed improperly)

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23 CONNECTION

This chapter describes connection types which are supported by GOT SIMPLE series.

Refer to the following manuals.

GOT2000 Series Connection Manual (Mitsubishi Product) For GT Works3 Version1 [*1]

GOT2000 Series Connection Manual (Non Mitsubishi Product 1) For GT Works3 Version1 [*1]

GOT2000 Series Connection Manual (Non Mitsubishi Product 2) For GT Works3 Version1 [*1]

GOT2000 Series Connection Manual(Microcomputer, MODBUS, Products, Peripherals) For GT Works3 Version1 [*1]

*1 An icon, GS , is given in these manuals.
The icon indicates the following.

The presence of GS refers to the connection type supported by the GOT SIMPLE series.

The absence of GS refers to the connection type unsupported by the GOT SIMPLE series.
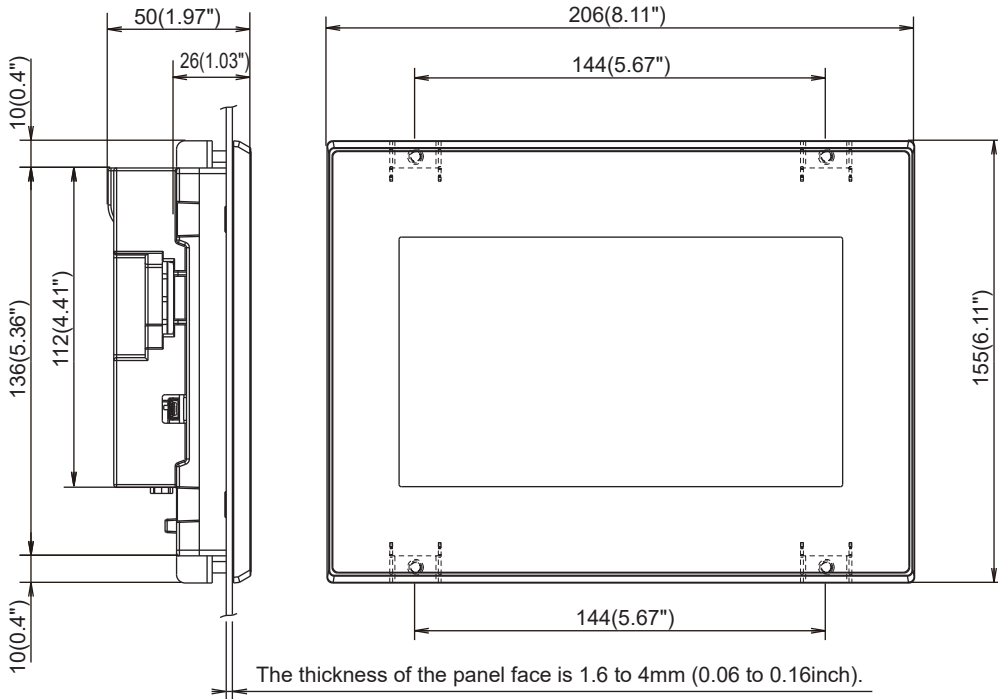
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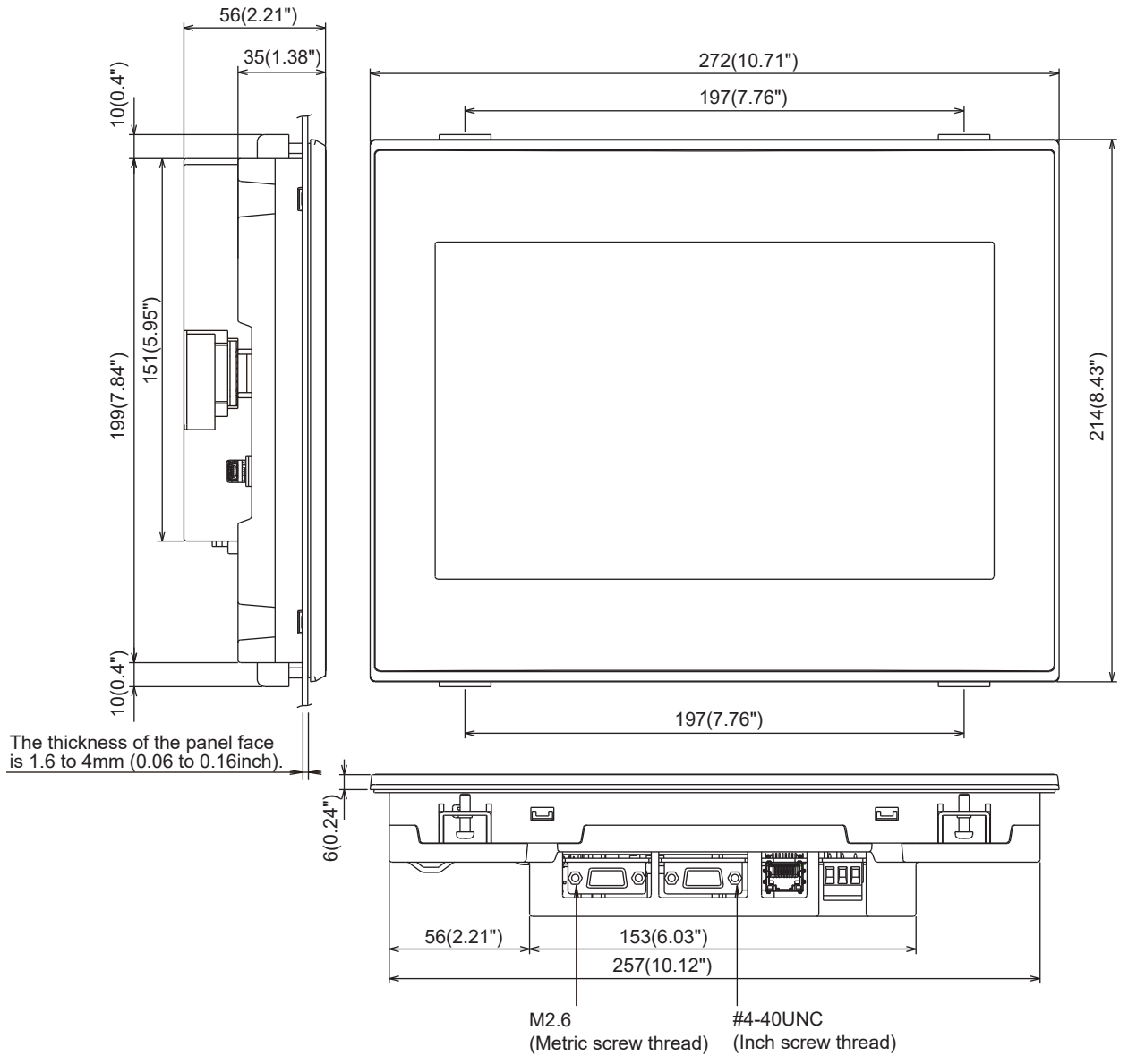# 24 APPENDIX

24.1 External Dimensions

GS2110-WTBD-N

56(2.21")
35(1.38")
10(0.4")
151(5.95")
199(7.84")
10(0.4")

272(10.71")
197(7.76")
214(8.43")
197(7.76")

The thickness of the panel face is 1.6 to 4mm (0.06 to 0.16inch).

6(0.24")

56(2.21")
153(6.03")
257(10.12")

M2.6
(Metric screw thread)

#4-40UNC
(Inch screw thread)

Unit: mm (inch)

GS2107-WTBD-N

The thickness of the panel face is 1.6 to 4mm (0.06 to 0.16inch).

M2.6
(Metric screw thread)

#4-40UNC
(Inch screw thread)

Unit: mm (inch)

GS2110-WTBD

The thickness of the panel face is 1.6 to 4mm (0.06 to 0.16inch).

56(2.21")

35(1.38")

10(0.4")

151(5.95")

199(7.84")

10(0.4")

272(10.71")

197(7.76")

214(8.43")

197(7.76")

6(0.24")

56(2.21")

153(6.03")

257(10.12")

M2.6
(Metric screw thread)

#4-40UNC
(Inch screw thread)

Unit: mm (inch)

GS2107-WTBD

50(1.97")

26(1.03")

10(0.4")

136(5.36")

112(4.41")

10(0.4")

206(8.11")

144(5.67")

155(6.11")

144(5.67")

The thickness of the panel face is 1.6 to 4mm (0.06 to 0.16inch).

6(0.24")

35.8(1.41")

154.2(6.08")

190(7.49")

M2.6
(Metric screw thread)

#4-40UNC
(Inch screw thread)

Unit: mm (inch)

Communication cable

GT01-C30R4-25P

Unit: mm (inch)
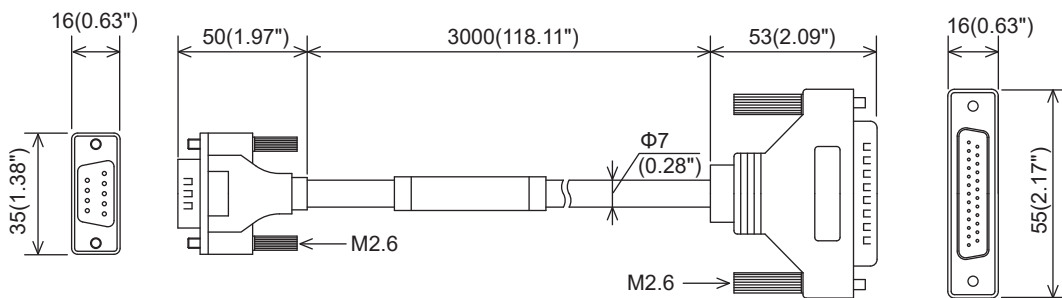
GT01-C□□□R4-25P

Unit: mm (inch)
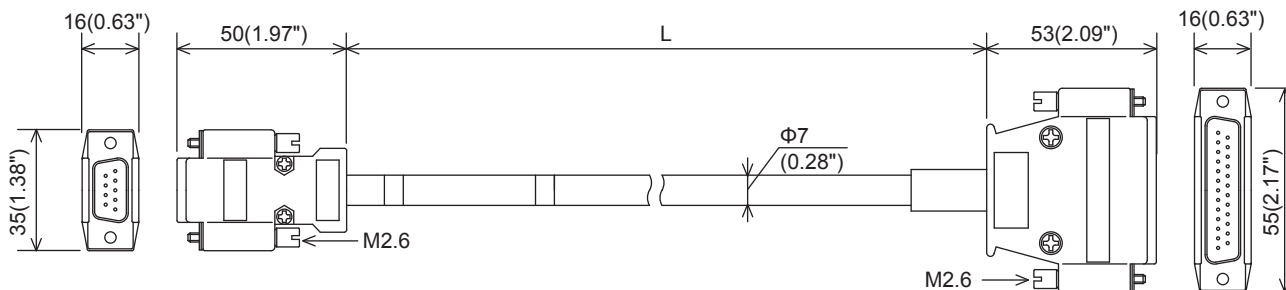
□□□ value	L length (mm (inch))
100	10000 (393.7")
200	20000 (787.4")
300	30000 (1181.1")

GT01-C□□□R4-8P

Unit: mm (inch)
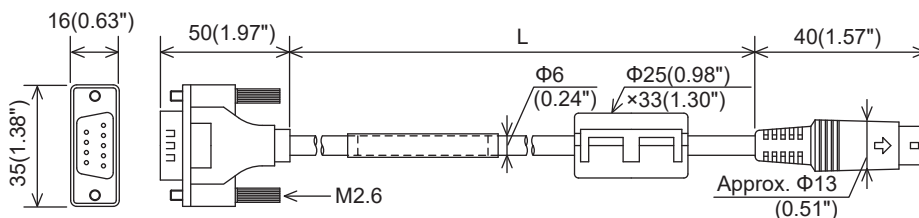
□□□ value	L length (mm (inch))
10	1000 (39.37")
30	3000 (118.11")
100	10000 (393.7")
200	20000 (787.4")
300	30000 (1181.1")

GT01-C30R2-25P

Unit: mm (inch)
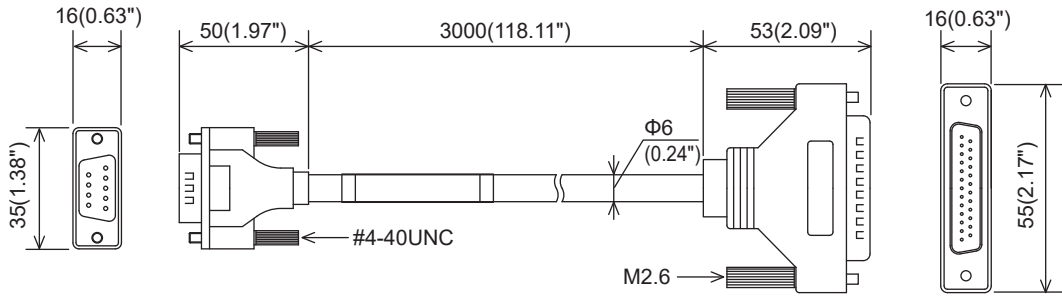
GT01-C30R2-9S

Unit: mm (inch)
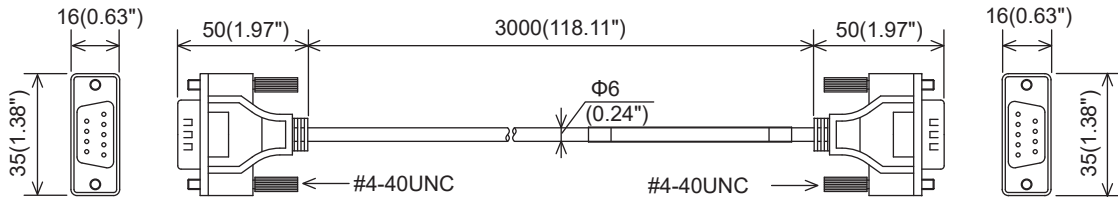
GT01-C30R2-6P

Unit: mm (inch)

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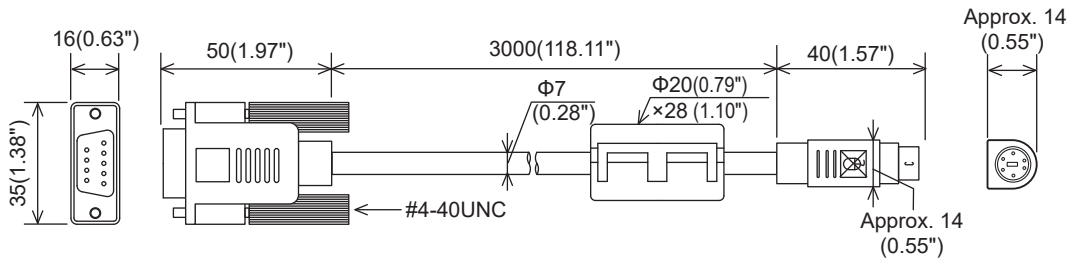
REVISIONS

* The manual number is given on the bottom left of the back cover.

Revision date	* Manual Number	Revision
Jan., 2014	JY997D52901A	First printing
Jul., 2014	JY997D52901B	Compatible with GT Works3 Version1.118Y • BACKUP/RESTORE function compatible
Oct., 2014	JY997D52901C	WARRANTY is changed.
Jan., 2015	JY997D52901D	Clerical error correction
Dec., 2015	JY997D52901E	Some correction
May, 2016	JY997D52901F	Some correction
Jan., 2017	JY997D52901G	Some correction
Apr., 2017	JY997D52901H	Compatible with GT Works3 Version1.175H • GOT internal device monitor is supported. • Clock synchronization is supported.
Jan., 2019	JY997D52901I	Some correction
Jan., 2020	JY997D52901J	Compatible with GT Works3 Version1.230Q • The backup/restoration function supports FX5UJ.
Oct., 2020	JY997D52901K	Some correction
Jan., 2021	JY997D52901L	Compatible with GT Works3 Version1.250L • Abbreviations and generic terms used in this manual are changed. • The models (GS2110-WTBD-N, GS2107-WTBD-N) are added. • GS21-W-N supports the RS-485 communication, VNC server function, license management, and operation log information.
Feb., 2021	JY997D52901M	Some correction
Jul., 2021	JY997D52901N	• Changed the name of the direct CPU connection to the direct CPU connection (serial). • Some correction
Oct., 2021	JY997D52901P	Some correction
Apr., 2022	JY997D52901Q	Compatible with GT Works3 Version1.275M • Some correction
Jul., 2022	JY997D52901R	• The MELSOFT GT Works3 site license product (SW1DND-GTWK3-EC) has been added.

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WARRANTY

Please confirm the following product warranty details before using this product.

■1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be replaced at no cost via the sales representative.

(1) Gratis Warranty Term

The gratis warranty term of the product shall be for twelve (12) months after the date of purchase or delivery to a designated place. Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months.

(2) Gratis Warranty Range

(a) The customer shall be responsible for the primary failure diagnosis unless otherwise specified.

(b) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.

(c) Even within the gratis warranty term, the following cases are not guaranteed.
- Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
- Failure caused by unapproved modifications, etc., to the product by the user.
- When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
- Failure that could have been avoided if consumable parts designated in the instruction manual had been correctly serviced or replaced.
- Replacing consumable parts such as the battery, backlight and fuses.
- Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
- Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
- Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

■2. Repair and Analysis

The repair and the failure analysis are not executed to the product.

■3. Discontinuation of production

(1) Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.

(2) Product supply (including spare parts) is not available after production is discontinued.

■4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation to:

(1) Damages caused by any cause found not to be the responsibility of Mitsubishi.

(2) Loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products.

(3) Special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products.

(4) Replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

■5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.

■6. Product application

(1) In using the Mitsubishi graphic operation terminal, the usage conditions shall be that the application will not lead to a major accident even if any problem or fault should occur in the graphic operation terminal device, and that backup and fail-safe functions are systematically provided outside of the device for any problem or fault.

(2) The Mitsubishi graphic operation terminal has been designed and manufactured for applications in general industries, etc. Thus, applications in which the public could be affected such as in nuclear power plants and other power plants operated by respective power companies, and applications in which a special quality assurance system is required, such as for Railway companies or Public service purposes shall be excluded from the graphic operation terminal applications.
In addition, applications in which human life or property that could be greatly affected, such as in aircraft, medical applications, incineration and fuel devices, manned transportation equipment for recreation and amusement, and safety devices, shall also be excluded from the graphic operation terminal range of applications.
However, in certain cases, some applications may be possible, providing the user consults the local Mitsubishi representative outlining the special requirements of the project, and providing that all parties concerned agree to the special circumstances, solely at our discretion.
In some of three cases, however, Mitsubishi Electric Corporation may consider the possibility of an application, provided that the customer notifies Mitsubishi Electric Corporation of the intention, the application is clearly defined and any special quality is not required.

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