MITSUBISHI

GRAPHIC OPERATION TERMINAL
GOT

GRAPHIC OPERATION TERMINAL

GOT1000

GT10 User's Manual

● 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 "DANGER" and "CAUTION".

DANGER	**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]

DANGER

- Some failures of the GOT or cable may keep the outputs on or off.
  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.
- 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.
- 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.
  Failure to observe this instruction may result in an accident due to incorrect output or malfunction.

[DESIGN PRECAUTIONS]

⚠DANGER

- Incorrect operation of the touch switch(es) may lead to a serious accident if the GOT backlight is gone out.
  When the GOT backlight goes out, the monitor screen turns black, while the input of the touch switch(s) remains active.
  This may confuse an operator in thinking that the GOT is in "screensaver" mode, who then tries to release the GOT from this mode by touching the display section, which may cause a touch switch to operate.
  For GT105□, the following phenomenon occurs when the backlight goes out.
  • The POWER LED flickers (green/orange) and the monitor screen appears blank

⚠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 (3.94in.) apart. Not doing so noise can cause a malfunction.

[MOUNTING PRECAUTIONS]

⚠DANGER

- Be sure to shut off all phases of the external power supply used by the system before mounting or removing the GOT to/from the panel.
  Not doing so can cause the unit to fail or malfunction.
- When installing the battery or memory board wear an earth band etc. to avoid the static electricity.
  The static electricity can cause the unit to fail or malfunction.
- Be sure to shut off all phases of the external power supply used by the system before mounting or removing the memory board on to/ from the GOT.
  Not doing so can cause the unit to fail or malfunction.

⚠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.
  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.
- Securely connect the memory board to the connector provided for the board.

[WIRING PRECAUTIONS]

DANGER

- 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.

CAUTION

- Plug the communication cable into the connector of the connected unit and tighten the mounting and 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]

DANGER

- Before performing the test operations of the user creation monitor screen (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 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]

DANGER

- When power is on, do not touch the terminals.
  Doing so can cause an electric shock or malfunction.
- Connect the battery correctly.
  Do not discharge, disassemble, heat, short, solder or throw the battery into the fire.
  Incorrect handling may cause the battery to generate heat, burst or take fire, resulting in injuries or fires.
- Before starting cleaning or terminal screw retightening, always switch off the power externally in all phases.
  Not switching the power off in all phases can cause a unit failure 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.

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 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 or apply any impact to the battery.
  If any impact has been applied, discard the battery and never use it.
  The battery may be damaged by the drop or impact.
- Before touching the unit, always touch grounded metal, 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 the product, handle it as industrial waste.

[TRANSPORTATION PRECAUTIONS]

⚠CAUTION

- When transporting lithium batteries, make sure to treat them based on the transport regulations.
  (Refer to Appendix 3 for details of the regulated units.)
- Before transporting the GOT, turn the GOT power on and check that the battery voltage status is normal on the Time setting & display screen (utilities screen). In addition, confirm that the adequate battery life remains on the rating plate.
  Transporting the GOT with the low battery voltage or the battery the reached battery life may unstabilize the backup data unstable during transportation.
- 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.

REVISIONS

The manual number is given on the bottom left of the back cover.

Print Date	Manual Number	Ver.	Revision
Nov., 2006	JY997D24701	A	First edition
Jun, 2007	JY997D24701	B	Partial correcting SAFETY PRECAUTIONS, ABBREVIATIONS AND GENERIC TERMS IN THIS MANUAL, HOW TO READ THIS MANUAL, Section 1.1, 2.2, 3.2, 3.3, Chapter 4, Section 6.2, 6.3, 7.1, 8.1, 8.2, Chapter 9, Section 11.1, Chapter 12, 13, Section 14.1, Chapter 15, Section 16.2, App - 1, App - 2, App - 4 Additions Section 8.3, 16.4, App - 3
Dec, 2007	JY997D24701	C	Partial correcting SAFETY PRECAUTIONS, ABBREVIATIONS AND GENERIC TERMS IN THIS MANUAL, HOW TO READ THIS MANUAL, Section 3.2, 9.1, 11.2.3, Chapter 12, App-4
Feb., 2008	JY997D24701	D	Partial correcting ABBREVIATIONS AND GENERIC TERMS IN THIS MANUAL, HOW TO READ THIS MANUAL, Chapter 2, Section 8.2, Chapter 11, Section 15.2, App-1, App-4, Index-1 Additions Section 8.4
Oct., 2008	JY997D24701	E	Partial correcting ABBREVIATIONS AND GENERIC TERMS IN THIS MANUAL, HOW TO READ THIS MANUAL, Chapter 1, Chapter 2, Chapter 3, Chapter 4, Chapter 5, Chapter 6, Chapter 7, Chapter 8, Chapter 9, Chapter 11, Chapter 12, Chapter 13, Chapter 14, Chapter 17, Chapter 18, App-1, App-2, Index Additions Chapter 15, 16

INTRODUCTION

Thank you for choosing the Mitsubishi Graphic Operation Terminal.
Before using the equipment, please read this manual carefully to use the equipment to its optimum.

OUTLINE PRECAUTIONS

- This manual provides information for the use of the graphic operation terminal. The manual has been written to be used by trained and competent personnel. The definition of such a person or persons is as follows;
  1) Any engineer who is responsible for the planning, design and construction of automatic equipment using the product associated with this manual should be of a competent nature, trained and qualified to the local and national standards required to fulfill that role. These engineers should be fully aware of all aspects of safety with regards to automated equipment.
  2) Any commissioning or service engineer must be of a competent nature, trained and qualified to the local and national standards required to fulfill that job. These engineers should also be trained in the use and maintenance of the completed product. This includes being completely familiar with all associated documentation for the said product. All maintenance should be carried out in accordance with established safety practices.
  3) All operators of the completed equipment should be trained to use that product in a safe and coordinated manner in compliance to established safety practices. The operators should also be familiar with documentation which is connected with the actual operation of the completed equipment.

  Note: the term 'completed equipment' refers to a third party constructed device which contains or uses the product associated with this manual.
- This product has been manufactured as a general-purpose part for general industries, and has not been designed or manufactured to be incorporated in a device or system used in purposes related to human life.
- Before using the product for special purposes such as nuclear power, electric power, aerospace, medicine or passenger movement vehicles, consult with Mitsubishi Electric.
- This product has been manufactured under strict quality control. However when installing the product where major accidents or losses could occur if the product fails, install appropriate backup or failsafe functions in the system.
- When using this product combining other products, please confirm the standard and the code, or regulation which a user should suit. Moreover, please confirm the compatibility of this product to the system, machine, and apparatus with which a user is used for user itself.
- If in doubt at any stage of the installation of the product always consult a professional electrical engineer who is qualified and trained to the local and national standards. If in doubt about the operation or use, please consult the nearest Mitsubishi Electric distributor.
- Since the example indicated by this manual, technical bulletin, the catalog, etc. is reference, please use it after confirming the function and safety of equipment and system when employing. Mitsubishi Electric will accept no responsibility for actual use of the product based on these illustrative examples.
- About this manual content, specification etc. may be changed without a notice for improvement.
- The information in this manual has been carefully checked and is believed to be accurate; however, you have noticed a doubtful point, a doubtful error, etc., please contact the nearest Mitsubishi Electric distributor.

CONTENTS

ABOUT MANUALS

The following manuals are also related to this product.
In necessary, order them by quoting the details in the tables below.

Related Manuals

Manual Name	Manual Number (Model Code)
GT Designer2 Version2 Basic Operation/Data Transfer Manual (For GOT1000 Series) Describes methods of the GT Designer2 installation operation, basic operation for drawing and transmitting data to GOT1000 series (Sold separately) *1	SH-080529ENG (1D7M24)
GT Designer2 Version2 Screen Design Manual (For GOT1000 Series) 1/3 GT Designer2 Version2 Screen Design Manual (For GOT1000 Series) 2/3 GT Designer2 Version2 Screen Design Manual (For GOT1000 Series) 3/3 Describes specifications and settings of the object functions used in GT Designer2 (Sold separately) *1	SH-080530ENG (1D7M25)
GOT1000 Series Connection Manual (1/3, 2/3, 3/3) Describes system configurations of the connection method applicable to GOT1000 series and cable creation method (Sold separately) *1	SH-080532ENG (1D7M26)

*1 The manual in PDF-format is included in the GT Works2 and GT Designer2 products.

ABBREVIATIONS AND GENERIC TERMS

Abbreviations and generic terms used in this manual are as follows:

■ GOT

Abbreviations and generic terms			Description
GOT1000 Series	GT SoftGOT1000		Abbreviation of GT SoftGOT1000
	GT1695	GT1695M-X	Abbreviation of GT1695M-XTBA, GT1695M-XTBD
	GT1685	GT1685M-S	Abbreviation of GT1685M-STBA, GT1685M-STBD
	GT16□□, GT16		Abbreviation of GT1695, GT1685
	GT1595	GT1595-X	Abbreviation of GT1595-XTBA, GT1595-XTBD
	GT1585	GT1585V-S	Abbreviation of GT1585V-STBA
		GT1585-S	Abbreviation of GT1585-STBA, GT1585-STBD
	GT157□	GT1575V-S	Abbreviation of GT1575V-STBA
		GT1575-S	Abbreviation of GT1575-STBA, GT1575-STBD
		GT1575-V	Abbreviation of GT1575-VTBA, GT1575-VTBD
		GT1575-VN	Abbreviation of GT1575-VNBA, GT1575-VNBD
		GT1572-VN	Abbreviation of GT1572-VNBA, GT1572-VNBD
	GT156□	GT1565-V	Abbreviation of GT1565-VTBA, GT1565-VTBD
		GT1562-VN	Abbreviation of GT1562-VNBA, GT1562-VNBD
	GT155□	GT1555-V	Abbreviation of GT1555-VTBD
		GT1555-Q	Abbreviation of GT1555-QTBD, GT1555-QSBD
		GT1550-Q	Abbreviation of GT1550-QLBD
	GT15□□, GT15		Abbreviation of GT1595, GT1585, GT157□, GT156□, GT155□
	GT115□	GT1155-Q	Abbreviation of GT1155-QTBDQ, GT1155-QSBDQ, GT1155-QTBDA, GT1155-QSBDA, GT1155-QTBD, GT1155-QSBD
		GT1150-Q	Abbreviation of GT1150-QLBDQ, GT1150-QLBDA, GT1150-QLBD
	Handy GOT	GT1155HS-Q	Abbreviation of GT1155HS-QSBD
		GT1150HS-Q	Abbreviation of GT1150HS-QLBD
	GT11□□, GT11		Abbreviation of GT1155-Q, GT1150-Q, GT11 Handy GOT
	GT105□	GT1055-Q	Abbreviation of GT1055-QSBD
		GT1050-Q	Abbreviation of GT1050-QBBD
	GT1030		Abbreviation of GT1030-LBD, GT1030-LBD2, GT1030-LBDW, GT1030-LBDW2
	GT1020		Abbreviation of GT1020-LBD, GT1020-LBD2, GT1020-LBL, GT1020-LBDW, GT1020-LBDW2, GT1020-LBLW
	GT10□□, GT10		Abbreviation of GT105□, GT1030, GT1020
GOT900 Series			Abbreviation of GOT-A900 series, GOT-F900 series
GOT800 Series			Abbreviation of GOT-800 series

■ Communication unit

Abbreviations and generic terms	Description			
Bus connection unit	GT15-QBUS, GT15-75QBUSL,	GT15-QBUS2, GT15-75QBUS2L,	GT15-ABUS, GT15-75ABUSL,	GT15-ABUS2, GT15-75ABUS2L
Serial communication unit	GT15-RS2-9P,	GT15-RS4-9S,	GT15-RS4-TE	
RS-422 conversion unit	GT15-RS2T4-9P,	GT15-RS2T4-25P		
Ethernet communication unit	GT15-J71E71-100			
MELSECNET/H communication unit	GT15-J71LP23-25,	GT15-J71BR13		
MELSECNET/10 communication unit	GT15-75J71LP23-Z*1,	GT15-75J71BR13-Z*2		
CC-Link communication unit	GT15-J61BT13,	GT15-75J61BT13-Z*3		
Interface converter unit	GT15-75IF900			

*1 A9GT-QJ71LP23 + GT15-75IF900 set
*2 A9GT-QJ71BR13 + GT15-75IF900 set
*3 A8GT-J61BT13 + GT15-75IF900 set

■ Option unit

Abbreviations and generic terms		Description	
Printer unit		GT15-PRN	
Video/RGB unit	Video input unit	GT16M-V4,	GT15V-75V4
	RGB input unit	GT16M-R2,	GT15V-75R1
	Video/RGB input unit	GT16M-V4R1,	GT15V-75V4R1
	RGB output unit	GT16M-ROUT,	GT15V-75ROUT
Multimedia unit		GT16M-MMR	
CF card unit		GT15-CFCD	
CF card extension unit*1		GT15-CFEX-C08SET	
External I/O unit		GT15-DIO,	GT15-DIOR
Sound output unit		GT15-SOUT	

*1 GT15-CFEX + GT15-CFEXIF + GT15-C08CF set.

■ Option

Abbreviations and generic terms		Description			
Memory card	CF card	GT05-MEM-16MC, GT05-MEM-256MC	GT05-MEM-32MC,	GT05-MEM-64MC,	GT05-MEM-128MC,
Memory card adaptor		GT05-MEM-ADPC			
Option function board		GT16-MESB, GT15-QFNB32M,	GT15-FNB, GT15-QFNB48M,	GT15-QFNB, GT15-MESB48M,	GT15-QFNB16M, GT11-50FNB
Battery		GT15-BAT,	GT11-50BAT		
Protective Sheet		GT16-90PSCB, GT16-80PSCB, GT15-90PSCB, GT15-80PSCB, GT15-70PSCB, GT15-60PSCB, GT15-50PSCB, GT11-50PSCB, GT11H-50PSC, GT10-50PSCB, GT10-30PSCB, GT10-20PSCB,	GT16-90PSGB, GT16-80PSGB, GT15-90PSGB, GT15-80PSGB, GT15-70PSGB, GT15-60PSGB, GT15-50PSGB, GT11-50PSGB, GT10-50PSGB, GT10-30PSGB, GT10-20PSGB,	GT16-90PSCW, GT16-80PSCW, GT15-90PSCW, GT15-80PSCW, GT15-70PSCW, GT15-60PSCW, GT15-50PSCW, GT11-50PSCW, GT10-50PSCW, GT10-30PSCW, GT10-20PSCW,	GT16-90PSGW, GT16-80PSGW, GT15-90PSGW, GT15-80PSGW, GT15-70PSGW, GT15-60PSGW, GT15-50PSGW, GT11-50PSGW, GT10-50PSGW, GT10-30PSGW, GT10-20PSGW
Protective cover for oil		GT05-90PCO, GT05-50PCO	GT05-80PCO,	GT05-70PCO,	GT05-60PCO,
USB environmental protection cover		GT16-UCOV,	GT15-UCOV,	GT11-50UCOV	
Stand		GT15-90STAND, GT05-50STAND	GT15-80STAND,	GT15-70STAND,	A9GT-50STAND,
Attachment		GT15-70ATT-98, GT15-60ATT-87,	GT15-70ATT-87, GT15-60ATT-77,	GT15-60ATT-97, GT15-50ATT-95W,	GT15-60ATT-96, GT15-50ATT-85
Backlight		GT16-90XLTT, GT15-70SLTT, GT15-60VLTN	GT16-80SLTT, GT15-70VLTT,	GT15-90XLTT, GT15-70VLTN,	GT15-80SLTT, GT15-60VLTT,
Multi-color display board		GT15-XHNB,	GT15-VHNB		
Connector conversion box		GT11H-CNB-37S			
Emergency stop sw guard cover		GT11H-50ESCOV			
Memory loader		GT10-LDR			
Memory board		GT10-50FMB			

■ Software

Abbreviations and generic terms	Description
GT Works2 Version□	SW□D5C-GTWK2-E,SW□D5C-GTWK2-EV
GT Designer2 Version□	SW□D5C-GTD2-E,SW□D5C-GTD2-EV
GT Designer2	Abbreviation of screen drawing software GT Designer2 for GOT1000/GOT900 series
GT Converter2	Abbreviation of data conversion software GT Converter2 for GOT1000/GOT900 series
GT Simulator2	Abbreviation of screen simulator GT Simulator 2 for GOT1000 / GOT900 series
GT SoftGOT1000	Abbreviation of monitoring software GT SoftGOT1000
GT SoftGOT2	Abbreviation of monitoring software GT SoftGOT2
GX Developer	Abbreviation of SW□D5C-GPPW-E(-EV)/SW□D5F-GPPW-E type software package
GX Simulator	Abbreviation of SW□D5C-LLT-E(-EV) type ladder logic test tool function software packages (SW5D5C-LLT (-EV) or later versions)
Document Converter	Abbreviation of document data conversion software Document Converter for GOT1000 series
PX Developer	Abbreviation of SW□D5C-FBDQ-E type FBD software package for process control

■ License key (for GT SoftGOT1000)

Abbreviations and generic terms	Description
License	GT15-SGTKEY-U, GT15-SGTKEY-P

■ License key (for GT SoftGOT2)

Abbreviations and generic terms	Description
License key	A9GTSOFT-LKEY-P (For DOS/V PC)
License key FD	SW5D5F-SGLKEY-J (For PC CPU module)

■ Others

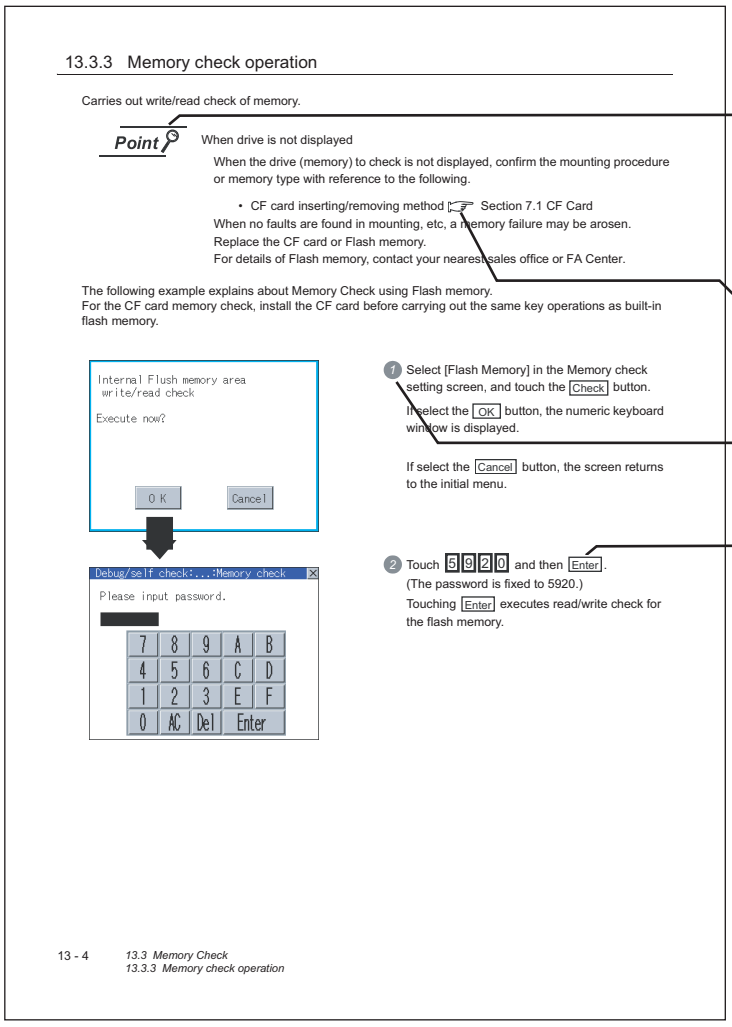
Abbreviations and generic terms		Description
Omron PLC		Abbreviation of PLC manufactured by OMRON Corporation
KEYENCE PLC		Abbreviation of PLC manufactured by KEYENCE
Sharp PLC		Abbreviation of PLC manufactured by SHARP Corporation
JTEKT PLC		Abbreviation of PLC manufactured by JTEKT Corporation
Toshiba PLC		Abbreviation of PLC manufactured by TOSHIBA CORPORATION
TOSHIBA MACHINE PLC		Abbreviation of PLC manufactured by TOSHIBA MACHINE CO., LTD.
HITACHI IES PLC		Abbreviation of PLC manufactured by Hitachi Industrial Equipment Systems Co., Ltd.
HITACHI PLC		Abbreviation of PLC manufactured by Hitachi, Ltd.
FUJI FA PLC		Abbreviation of PLC manufactured by Fuji Electric FA Components & Systems Co., Ltd.
Matsushita PLC		Abbreviation of PLC manufactured by Matsushita Electric Works, Ltd
Yaskawa PLC		Abbreviation of PLC manufactured by YASKAWA Electric Corporation
Yokogawa PLC		Abbreviation of PLC manufactured by Yokogawa Electric Corporation
ALLEN-BRADLEY PLC		Abbreviation of Allen-Bradley PLC manufactured by Rockwell Automation, Inc.
GE FANUC PLC		Abbreviation of PLC manufactured by GE Fanuc Automation Corporation
LS IS PLC		Abbreviation of PLC manufactured by LS Industrial Systems Co., Ltd.
SCHNEIDER PLC		Abbreviation of PLC manufactured by Schneider Electric SA
SIEMENS PLC		Abbreviation of PLC manufactured by Siemens AG
Temperature controller	OMRON temperature controller	Abbreviation of temperature controller manufactured by OMRON
	SHINKO indicating controller	Abbreviation of temperature controller manufactured by Shinko Technos Co., Ltd.
	CHINO controller	Abbreviation of temperature controller manufactured by CHINO CORPORATION
	FUJI SYS temperature controller	Abbreviation of temperature controller manufactured by Fuji Electric Systems Co., Ltd.
	YAMATAKE temperature controller	Abbreviation of temperature controller manufactured by YAMATAKE
	YOKOGAWA temperature controller	Abbreviation of temperature controller manufactured by Yokogawa Electric Corporation
	RKC temperature controller	Abbreviation of temperature controller manufactured by RKC
PC CPU module		Abbreviation of PC CPU Unit manufactured by CONTEC CO., LTD
GOT (server)		Abbreviation of GOTs that use the server function
GOT (client)		Abbreviation of GOTs that use the client function
Windows® font		Abbreviation of TrueType font and OpenType font available for Windows® (Differs from the True Type fonts settable with GT Designer2)
Intelligent function module		Indicates the modules other than the PLC CPU, power supply module and I/O module that are mounted to the base unit.
MODBUS® /TCP		Generic term for the protocol designed to use MODBUS® protocol messages on a TCP/IP network.

1 Functions

This manual describes functions available for the GT Designer2 Version2.90U.
For the added functions by the product version upgrade, refer to the list of functions added by GT Designer2 version upgrade in Appendices.

2 Symbols

Following symbols are used in this manual.



13.3.3 Memory check operation

Carries out write/read check of memory.

Point

When drive is not displayed

When the drive (memory) to check is not displayed, confirm the mounting procedure or memory type with reference to the following.

• CF card inserting/removing method ☞ Section 7.1 CF Card

When no faults are found in mounting, etc, a memory failure may be arosen.
Replace the CF card or Flash memory.
For details of Flash memory, contact your nearest sales office or FA Center.

The following example explains about Memory Check using Flash memory.
For the CF card memory check, install the CF card before carrying out the same key operations as built-in flash memory.

1 Select [Flash Memory] in the Memory check setting screen, and touch the [Check] button.

If select the [OK] button, the numeric keyboard window is displayed.

If select the [Cancel] button, the screen returns to the initial menu.

2 Touch [5][9][2][0] and then [Enter].
(The password is fixed to 5920.)
Touching [Enter] executes read/write check for the flash memory.

13 - 4 *13.3 Memory Check*
13.3.3 Memory check operation

Point Refers to the information required.

Remark Refers to the supplementary explanations for reference.

Indicates the items in which the detailed explanation is described (manual, chapter, section, item of the manual).

1 → 2 → 3 · · · ·
Indicates the operation steps.

Menu and items are differentiated with parentheses.

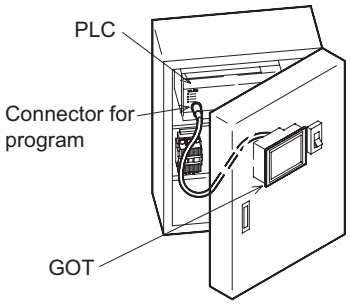
[ ] : refers to the menu of GOT utility.

[ ] : refers to the button in the dialog box of GOT utility.

1. OVERVIEW

1 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.

(1) User screen

The user screen is a screen drawn by GT Designer2.
The objects "Touch switch", "Lamp display", "Comment display", and "Numeric display" can be arditrarily arranged on the display.
A "horizontal format" or "vertical format" may be selected for displaying a user's project.
Moreover, multiple screens created within GT Designer2 can be individually selected or overlapped for the display.

For details, refer to the following.

☞ GT Designer2 Version□ Basic Operation/Data Transfer Manual
GT Designer2 Version□ Screen Design Manual

(2) Utility Screen

The utility screen is a factory drawn horizontal screen that cannot be edited.
The utility screen has options for "Contrast ", "Buzzer volume ", etc, and the format is horizontal only.

For details, refer to the following.

☞ Chapter 9 to Chapter 17

2 About Manual

The following manuals related to GOT 1000 series are available. Refer to each manual in accordance with the intended use.

(1) Installation of the software programs → Drawing → Data transfer
For operations from creating project data to transferring data to GOT, refer to the following manuals.

Purpose	 GT Designer2 Version □ Basic Operation/Data Transfer Manual*1	 GT Designer2 Version □ Screen Design Manual*1
Installing product on PC	Detailed	
Creating projects	Detailed	
Creating screens	Detailed	
Drawing figures	Detailed	
Making Common Settings	Overview	Detailed
Placing/Setting objects	Overview	Detailed
Transferring data to GOT	Detailed	

*1 Stored in the GT Works 2/GT Designer2 in PDF format.

(2) Installing a GOT → connection to a PLC
For the operations from installing a GOT to communicating with a PLC CPU, refer to the following manuals.

Purpose	(Included) GT15 General Description GT 11 General Description GT 10 General Description	GT15 User's Manual GT11 User's Manual GT10 User's Manual	GOT1000 Series Connection Manual*1
Confirming part names and specifications of the GOT	Overview	Detailed	
Confirming the GOT installation method	Overview	Detailed	
Confirming the mounting method for communication units or option devices		Detailed	Overview
Confirming the PLC connection method			Detailed
Confirming the utility operation method		Detailed	
Confirming error codes (system alarm) displayed on the GOT		Detailed	

*1 Stored in the GT Works2/GT Designer2 in PDF format.

(3) Other manuals
The following manuals are also available.
The following manuals are stored in the GT Works2/GT Designer2 in PDF format.

(a) GOT1000 Series Extended/Option Functions Manual
Describes how to use the ladder monitoring function, system monitor function and list editor for MELSEC-A.

(b) GOT1000 Series Gateway Functions Manual
Describes how to use the gateway function.

(c) GT Simulator 2 Version□ Operation Manual
Describes how to simulate the created project data with GT Simulator2.

(d) GT Converter2 Version□ Operating Manual
Describes how to use the GT Converter2.

1.1 Features

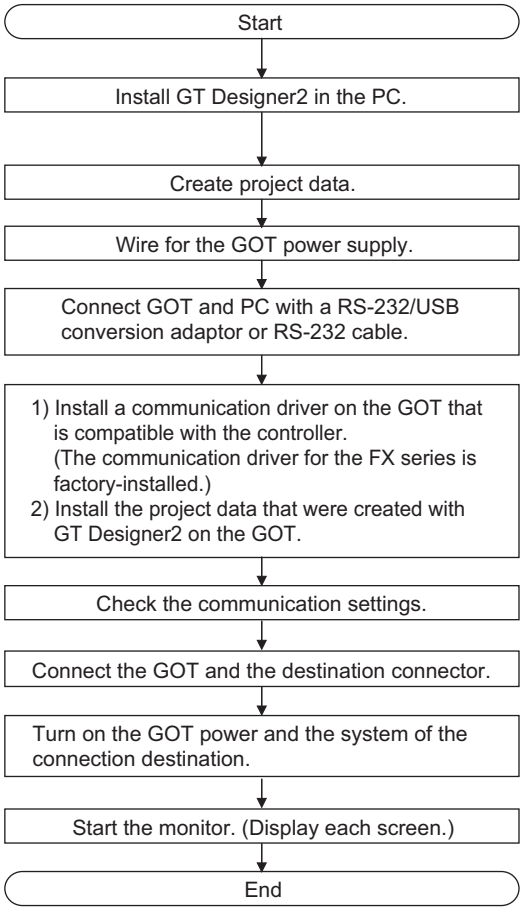
(1) Improved monitoring performance and connectivity to FA devices
- Multiple languages are displayed using the Unicode2.1-compatible fonts and beautiful characters are drawn using the TrueType and high quality fonts
- For GT1020 and GT1030, 3 backlight colors (green, red, orange or white, red, pink) are available for status displays
- For GT105□, two types of display modes are available: 256 colors display and monochrome In the monochrome display, 16 scales are used to improve the display
- Improved layout design flexibility with the analog touch panel on the GT1020
- High speed monitoring through high speed communication at maximum of 115.2kbps
- High speed display and high speed touch switch response

(2) More efficient GOT operations including screen design, startup, adjustment, management and maintenance works
- Recipe function, FX list editor function (for GT105□ only) and Device monitor (for GT105□ only)
- Factory-installed OS on the GOT
- For GT1020 and GT1030, LED-type backlight is adopted (no replacement required)

(3) Enhanced support of FA setup tools
- Transferring or monitoring the sequence programs using the personal computer connected to GOT, during connection to A, Q, QnA, or FX series PLC CPU (Transparent function)
- Allows the connection of multiple GOT units via the serial interface when connected to the CPU on the A, Q, QnA, or FX series of PLC

1.2 Rough Pre-operation Procedure

The outline procedure before operating GOT is shown.



· · · Refer to GT Designer2 Version ☐ Basic Operation/Data Transfer Manual.

· · · Refer to GT Designer2 Version ☐ Screen Design Manual.

· · · Refer to Chapter 7 WIRING.

· · · Refer to Chapter 8 OPTION.

· · · Refer to GT Designer2 Version ☐ Basic Operation/Data Transfer Manual.

· · · Refer to GOT1000 Series Connection Manual.

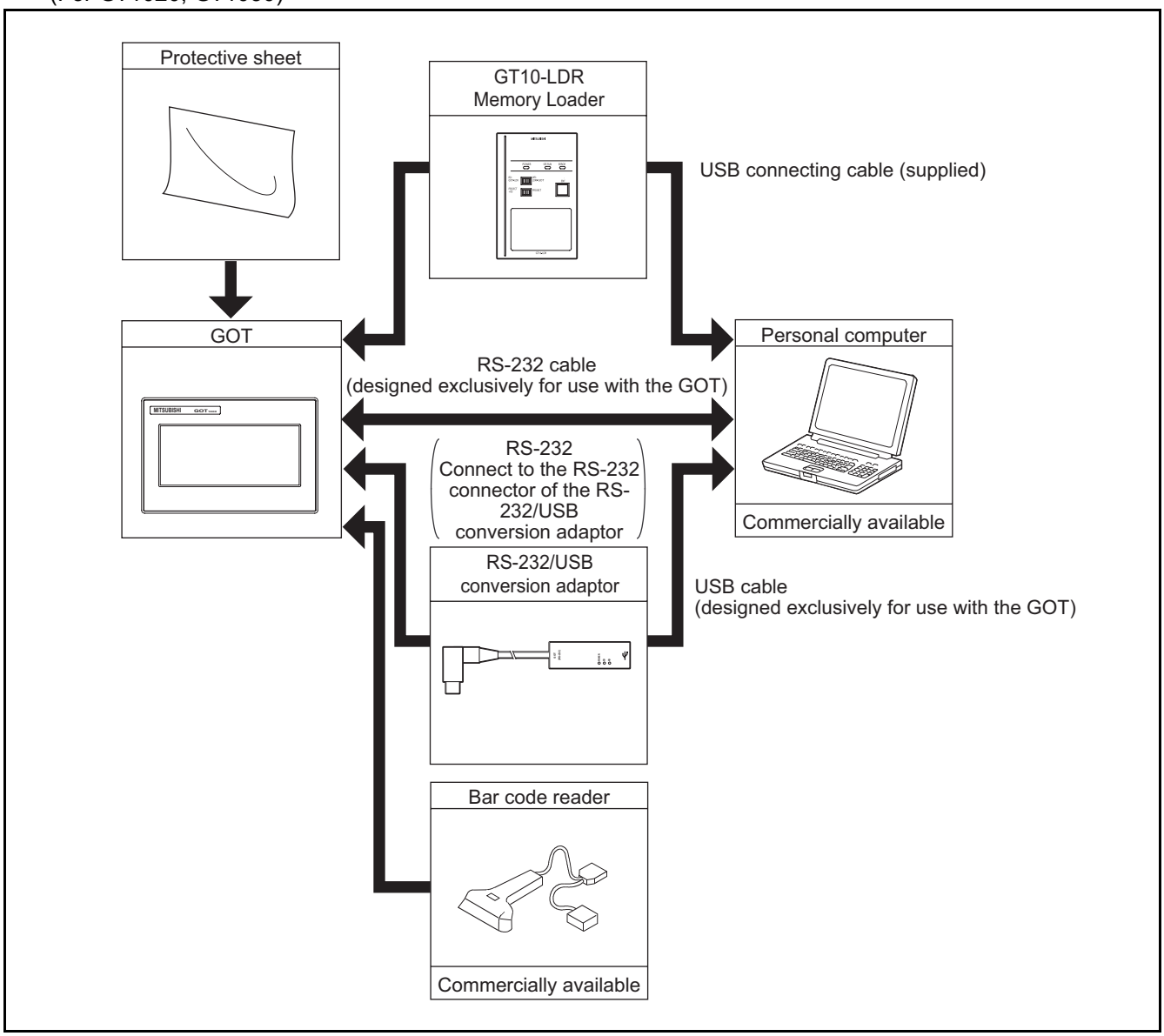
2. SYSTEM CONFIGURATION

2.1 Overall Configuration

The overall configuration of GOT is as follows.
For the connection methods applicable to GOT1000 series and cable, refer to the following.

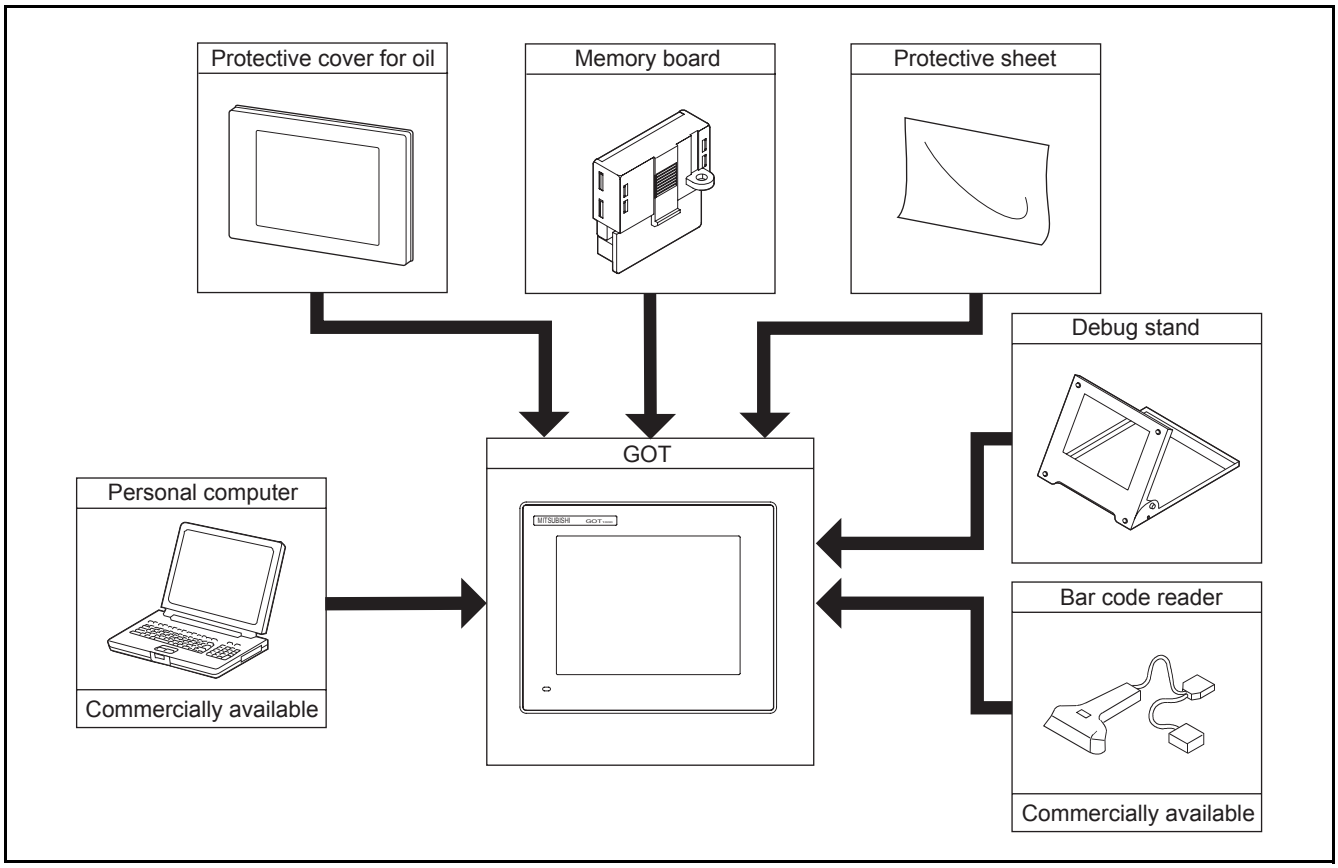
☞ GOT1000 Series Connection Manual

(For GT1020, GT1030)



• GT10☐☐ cannot be connected to printers.

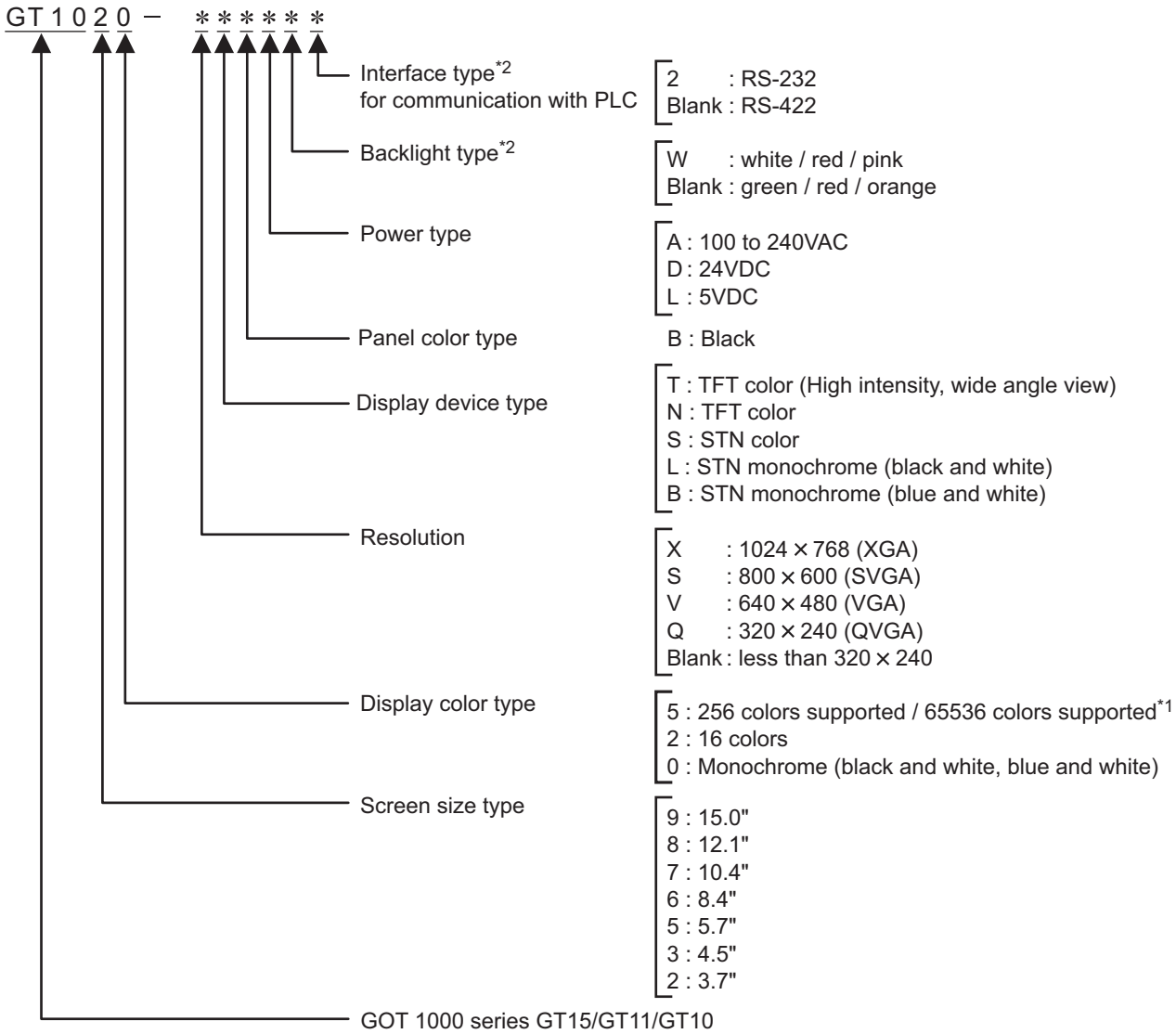
(For GT105□)



• GT10□□ cannot be connected to printers.

2.2 Component List

(1) Explanation of the GOT model name

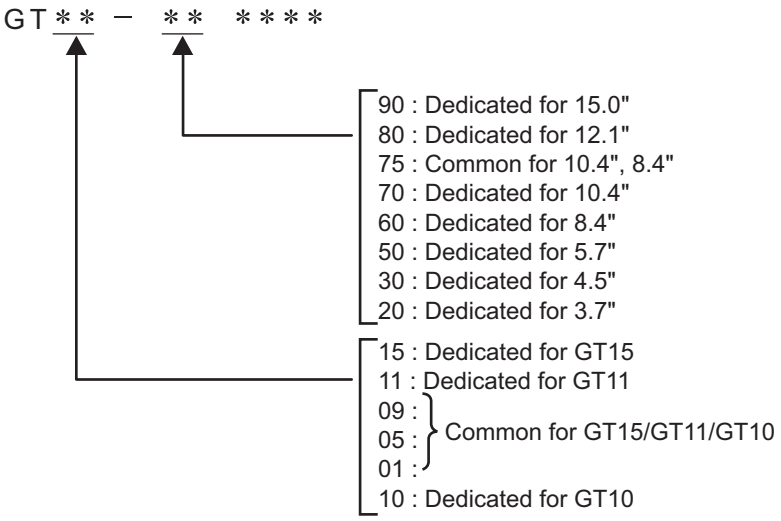


*1: For GT15 that can display 65536 colors, refer to following.

☞ GT15 User's Manual

*2: Dedicated for GT1020, GT1030

(2) Explanation of the option model name



2.2.1 GOT (GT10)

Product name	Model name	Specifications
GOT	GT1020-LBD	3.7" [160 × 64 dots], STN monochrome (black and white) liquid crystal, 3 colors (green/red/orange) LED backlight, 24VDC, PLC connection interface: RS-422
	GT1020-LBD2	3.7" [160 × 64 dots], STN monochrome (black and white) liquid crystal, 3 colors (green/red/orange) LED backlight, 24VDC, PLC connection interface: RS-232
	GT1020-LBL	3.7" [160 × 64 dots], STN monochrome (black and white) liquid crystal, 3 colors (green/red/orange) LED backlight, 5VDC, PLC connection interface: RS-422
	GT1020-LBDW	3.7" [160 × 64 dots], STN monochrome (black and white) liquid crystal, 3 colors (white/red/pink) LED backlight, 24VDC, PLC connection interface: RS-422
	GT1020-LBDW2	3.7" [160 × 64 dots], STN monochrome (black and white) liquid crystal, 3 colors (white/red/pink) LED backlight, 24VDC, PLC connection interface: RS-232
	GT1020-LBLW	3.7" [160 × 64 dots], STN monochrome (black and white) liquid crystal, 3 colors (white/red/pink) LED backlight, 5VDC, PLC connection interface: RS-422
	GT1030-LBD	4.5" [288 × 96 dots], STN monochrome (black and white) liquid crystal, 3 colors (green/red/orange) LED backlight, built-in battery 24VDC, PLC connection interface: RS-422
	GT1030-LBD2	4.5" [288 × 96 dots], STN monochrome (black and white) liquid crystal, 3 colors (green/red/orange) LED backlight, built-in battery 24VDC, PLC connection interface: RS-232
	GT1030-LBDW	4.5" [288 × 96 dots], STN monochrome (black and white) liquid crystal, 3 colors (white/red/pink) LED backlight, built-in battery 24VDC, PLC connection interface: RS-422
	GT1030-LBDW2	4.5" [288 × 96 dots], STN monochrome (black and white) liquid crystal, 3 colors (white/red/pink) LED backlight, built-in battery 24VDC, PLC connection interface: RS-232
	GT1055-QSBD	5.7" [320 × 240 dots], STN color liquid crystal, 256 colors, built-in battery 24VDC, PLC connection interface: RS-422, RS-232
	GT1050-QBBD	5.7" [320 × 240 dots], STN monochrome liquid crystal, monochrome (blue and white), 16 scales, built-in battery 24VDC, PLC connection interface: RS-422, RS-232

2.2.2 Option (Optional components for GT10)

PLC connection cable (Sold separately)

Product name		Model name	Cable length	Contents
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(For GT105☐)
		GT01-C30R4-8P	3m	
		GT01-C100R4-8P	10m	
		GT01-C200R4-8P	20m	
		GT01-C300R4-8P	30m	
		GT10-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(For GT1030, GT1020)
		GT10-C30R4-8P	3m	
		GT10-C100R4-8P	10m	
		GT10-C200R4-8P	20m	
		GT10-C300R4-8P	30m	
		GT10-C10R4-8PL*1	1m	
	QnA/A/FXCPU direct connection cable, computer link connection cable	GT01-C30R4-25P	3m	For connecting QnA/A/FXCPU (D-sub 25 pins connector) and GOT, For connecting serial communication unit (AJ71QC24(N)-R4) and GOT(For GT105☐)
		GT01-C100R4-25P	10m	
		GT01-C200R4-25P	20m	
		GT01-C300R4-25P	30m	
		GT10-C30R4-25P	3m	For connecting QnA/A/FXCPU (D-sub 25 pins connector) and GOT, For connecting serial communication unit (AJ71QC24(N)-R4) and GOT(For GT1030, GT1020)
		GT10-C100R4-25P	10m	
		GT10-C200R4-25P	20m	
		GT10-C300R4-25P	30m	
	Computer link connection cable	GT09-C30R4-6C	3m	For connecting computer link unit/serial communication unit and GOT(For GT105☐)
		GT09-C100R4-6C	10m	
		GT09-C200R4-6C	20m	
		GT09-C300R4-6C	30m	

*1: This cables are unusable for FX1NC, FX2NC and FX3UC(D/DSS).

Product name		Model name	Cable length	Contents
RS-232 Cable	QCPU direct connection cable	GT01-C30R2-6P	3m	For connecting QCPU (MINI DIN 6 pins) and GOT(For GT105☐)
		GT10-C30R2-6P	3m	For connecting QCPU (MINI DIN 6 pins) and GOT(For GT1030, GT1020)
	FX expansion board connection cable, FX special adaptor connection cable	GT01-C30R2-9S	3m	For connecting FXCPU expansion board (D-sub 9pins connector*2) and GOT(For GT105☐) For connecting FXCPU special adaptor (D-sub 9 pins connector*2) and GOT(For GT105☐)
	FX special adaptor connection	GT01-C30R2-25P	3m	For connecting FXCPU special adaptor (D-sub 25 pins connector*2) and GOT(For GT105☐)
	Computer link connection cable	GT09-C30R2-9P	3m	For connecting computer link unit/serial communication unit and GOT(For GT105☐)
		GT09-C30R2-25P	3m	

*2: Connector shape on the cable is shown in ( ).

Connection cables for OMRON PLCs (For GT105☐) (Sold separately)

Product name	Model name	Cable length	Description
RS-422 cable	GT09-C30R40101-9P	3m	For connecting GOT to OMRON PLC, serial communication module, serial communication board
	GT09-C100R40101-9P	10m	
	GT09-C200R40101-9P	20m	
	GT09-C300R40101-9P	30m	
	GT09-C30R40102-9P	3m	For connecting GOT to OMRON rack type host link unit, communication board
	GT09-C100R40102-9P	10m	
	GT09-C200R40102-9P	20m	
	GT09-C300R40102-9P	30m	
RS-232 cable	GT09-C30R20101-9P	3m	For connecting GOT to OMRON PLC, serial communication module, communication board, serial communication board
	GT09-C30R20102-25S	3m	For connecting GOT to OMRON connection cable
	GT09-C30R20103-25P	3m	For connecting GOT to OMRON rack type host link unit

Connection cables for KEYENCE PLCs (For GT105☐) (Sold separately)

Product name	Model name	Cable length	Description
RS-422 cable	GT09-C30R41101-5T	3m	For connecting GOT to KEYENCE multi-communication unit
	GT09-C100R41101-5T	10m	
	GT09-C200R41101-5T	20m	
	GT09-C300R41101-5T	30m	
RS-232 cable	GT09-C30R21101-6P	3m	For connecting GOT to KEYENCE PLC
	GT09-C30R21102-9S	3m	For connecting GOT to KEYENCE multi-communication unit
	GT09-C30R21103-3T	3m	For connecting GOT to KEYENCE multi-communication unit

Connection cables for MATSUSHITA PLCs (For GT105□) (Sold separately)

Product name	Model name	Cable length	Description
RS-232 cable	GT09-C30R20901-25P	3m	For connecting GOT to MATSUSHITA RS422/232C conversion adaptor
	GT09-C30R20902-9P	3m	For connecting GOT to the tool port or RS232C port of MATSUSHITA PLC, computer communication unit
	GT09-C30R20903-9P	3m	For connecting GOT to the RS232C port of MATSUSHITA PLC
	GT09-C30R20904-3C	3m	For connecting GOT to the RS232C port of MATSUSHITA PLC

Connection cables for YASKAWA PLCs (For GT105□) (Sold separately)

Product name	Model name	Cable length	Description
RS-422 cable	GT09-C30R40202-14P	3m	For connecting GOT to YASKAWA PLC
	GT09-C100R40202-14P	10m	
	GT09-C200R40202-14P	20m	
	GT09-C300R40202-14P	30m	
RS-232 cable	GT09-C30R20201-9P	3m	For connecting GOT to YASKAWA PLC
	GT09-C30R20204-14P	3m	
	GT09-C30R20205-25P	3m	For connecting GOT to YASKAWA MEMOBUS module

Connection cables for Allen-Bradley PLCs (For GT105□) (Sold separately)

Product name	Model name	Cable length	Description
RS-232 cable	GT09-C30R20701-9S	3m	For connecting GOT to Allen-Bradley PLC

Protective sheet (Sold separately)

Product name	Model name	Contents	
Protective sheet	GT10-20PSGB	3.7" protective sheet (For GT1020)	Display section antiglare (Frame: transparent) 5 sheets
	GT10-20PSCB		Display section clear (Frame: transparent) 5 sheets
	GT10-20PSGW		Display section antiglare (Frame: white), With a logo 5 sheets
	GT10-20PSCW		Display section clear (Frame: white), With a logo 5 sheets
	GT10-30PSGB	4.5" protective sheet (For GT1030)	Display section antiglare (Frame: transparent) 5 sheets
	GT10-30PSCB		Display section clear (Frame: transparent) 5 sheets
	GT10-30PSGW		Display section antiglare (Frame: white), With a logo 5 sheets
	GT10-30PSCW		Display section clear (Frame: white), With a logo 5 sheets
	GT10-50PSGB	5.7" protective sheet (For GT105□)	Display section antiglare (Frame: transparent) 5 sheets
	GT10-50PSCB		Display section clear (Frame: transparent) 5 sheets
	GT10-50PSGW		Display section antiglare (Frame: white), With a logo 5 sheets
	GT10-50PSCW		Display section clear (Frame: white), With a logo 5 sheets

Drawing software (Sold separately)

Product name	Model name	Contents
GT Designer2	SW □ D5C-GTD2-E (□ indicates the version)*1	Drawing software for GOT1000/GOT900 series

*1: The □ is assigned with an integer 2 or more.

Stand (Sold separately) (For GT105□)

Product name	Model name	Contents
Stand	GT05-50STAND	Stand for 5.7" (For GOT1000 Series)

Protective cover for oil (Sold separately) (For GT105□)

Product name	Model name	Contents
Protective cover for oil	GT05-50PCO	5.7" protective cover for oil

PC connection cable (Sold separately)

Product name		Model name	Cable length	Contents
For connection to the RS-232 port on the PC	Data transfer cable	GT01-C30R2-6P	3m	For connecting PC (drawing software) (D-sub 9 pins: female*2) and GOT(For GT1020, GT1030)
		GT01-C30R2-9S	3m	For connecting PC (drawing software) (D-sub 9 pins: female*2) and GOT(For GT105□)
For connection to the USB port on the PC	RS-232/USB conversion adaptor for data transfer	GT10-RS2TUSB-5S	–	RS-232/USB conversion adaptor for data transfer (RS-232/USB conversion adaptor and PC are connected with a GT09-C30USB-5P cable.)
	Data transfer cable	GT09-C30USB-5P*3	3m	For connecting PC (drawing software) (USB) and RS-232/USB conversion adaptor, GOT(For GT105□)

*2: Connector shape on the cable is shown in ( ).

*3: GT09-C30USB-5P is a product of Mitsubishi Electric System Service.

Cable for bar code connections (Sold separately)

Product name	Model name	Cable length	Contents
Cable for bar code connections	GT10-C02H-6PT9P	0.2m	For connecting GOT and bar code reader

Cable for multiple GOT connections (Sold separately)

Product name	Model name	Cable length	Contents
Cable for multiple GOT connections	GT10-C30R2-6P	3m	For connecting GOT(GT1020, GT1030) interface for connection to PC (RS-232) and GOT(GT1020, GT1030) interface for connection to PLC (RS-232)*4
	GT01-C30R2-9S	3m	For connecting GOT(GT105□) RS-232 interface and GOT(GT105□) RS-232 interface

*4: When multiple GT10 units are connected, use a GT1020-LBD2 or GT1030-LBD2 for the second GOT unit.

Battery (Sold separately)

Product name	Model name	Contents
Battery*5	GT11-50BAT	For storing clock data, alarm history and recipe data

*5 At GOT purchase, it is installed in the main unit. (For GT1030, GT105□)

Bar code reader (Sold separately)

Product name	Model name	Contents
Bar code reader	-	Commercially-available bar code reader *6

*6: Some models with the operations checked by our company are usable.
For the operation-checked models, refer to "List of valid devices applicable for GOT1000 series" separately available (T10-0039).
The Technical News above is available as a reference at the Information site for Mitsubishi industrial automation products MELFANSweb home page.
(MELFANSweb home page: http://wwwf2.mitsubishielectric.co.jp/melfansweb/english/index_e.htm)

Memory board (Sold separately) (For GT105□)

Product name	Model name	Contents
Memory board	GT10-50FMB	For copying project data or the OS

3. SPECIFICATIONS

3.1 General Specifications

<table>
<tr><th colspan="2">Item</th><th colspan="6">Specifications</th></tr>
<tr><td rowspan="2">Operating ambient temperature</td><td>Display section</td><td colspan="6">0 to 50℃</td></tr>
<tr><td>Other than display section</td><td colspan="6">0 to 55℃ (when horizontally installed), 0 to 50℃ (when vertically installed)</td></tr>
<tr><td colspan="2">Storage ambient temperature</td><td colspan="6">-20 to 60℃</td></tr>
<tr><td colspan="2">Operating ambient humidity*1</td><td colspan="6">10 to 90% RH, non-condensing</td></tr>
<tr><td colspan="2">Storage ambient humidity*1</td><td colspan="6">10 to 90% RH, non-condensing</td></tr>
<tr><td colspan="2" rowspan="5">Vibrationresistance</td><td rowspan="5">Conforms to JIS B3502 and IEC61131-2</td><td></td><td>Frequency</td><td>Acceleration</td><td>Half-amplitude</td><td>Sweep Count</td></tr>
<tr><td rowspan="2">Under intermittent vibration</td><td>5 to 9Hz</td><td>-</td><td>3.5mm</td><td rowspan="4">10 times each in X, Y and Z directions</td></tr>
<tr><td>9 to 150Hz</td><td>9.8m/s^2</td><td>-</td></tr>
<tr><td rowspan="2">Under continuous vibration</td><td>5 to 9Hz</td><td>-</td><td>1.75mm</td></tr>
<tr><td>9 to 150Hz</td><td>4.9m/s^2</td><td>-</td></tr>
<tr><td colspan="2">Shock resistance</td><td colspan="6">Conforms to JIS B3502, IEC 61131-2 (147 m/s^2, 11 ms, Sine half-wave pulse, 3 times each in the X, Y, and Z directions)</td></tr>
<tr><td colspan="2">Operating atmosphere</td><td colspan="6">Must be free of lamp black, corrosive gas, flammable gas, or excessive amount of electroconductive dust particles and must be no direct sunlight. (Same as for saving)</td></tr>
<tr><td colspan="2">Operating altitude*2</td><td colspan="6">2000 m (6562 ft) max.</td></tr>
<tr><td colspan="2">Installation location</td><td colspan="6">Inside control panel</td></tr>
<tr><td colspan="2">Overvoltage category*3</td><td colspan="6">II or less</td></tr>
<tr><td colspan="2">Pollution degree*4</td><td colspan="6">2 or less</td></tr>
<tr><td colspan="2">Cooling method</td><td colspan="6">Self-cooling</td></tr>
<tr><td colspan="2">Grounding*5</td><td colspan="6">Class D grounding (100Ω or less),
To be connected to the panel when grounding is not possible</td></tr>
</table>

*1 : The wet bulb temperature is 39℃ or less.

*2 : 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.

*3 : 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 300 V is 2500 V.

*4 : 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.

*5: Except 5V power supply type.

3.2 Performance Specifications

• GT1020

Item		Specifications		
		GT1020-LBD	GT1020-LBD2	GT1020-LBL
Display section*1	Type	STN monochrome (white/black) liquid crystal		
	Screen size	3.7"		
	Resolution	160 × 64 dots (Horizontal format)		
	Display size	W86.4(3.4) × H34.5(1.35) [mm](inch) (Horizontal format)		
	Display character	16-dot standard font: 20 characters × 4 lines (Horizontal format)		
	Display color	Monochrome (white/black)		
	Display angle	Left/Right: 30 degrees, Top: 20 degrees, Bottom: 30 degrees (Horizontal format)		
	Contrast adjustment	16-level adjustment		
	Intensity of LCD only	200 [cd/m^2] (in green)		
	Life	Approx. 50,000h. (Time for display intensity to become 1/5 at operating ambient temperature of 25°C)		
Backlight		LED with 3 available colors (green, red, orange) (no replacement required), Backlight status (colors, ON/BLINK/OFF) control, Adjustable screensaver activation time Setting the system information*2 enables PLC to control the backlight status.		
Touch panel	Number of touch keys	Maximum 50 keys/screen (Analog resistive film touch panel)		
	Key size	Minimum 2 × 2 dots (per key)		
	Simultaneous pressing of two (or more) areas (2-point press)	Not supported (Simultaneous pressing of two or more areas on the screen may activate the switch between those areas.)		
	Life	1 million times or more (operating force 0.98N max.)		
Memory	User memory*3	Flash memory (Internal), for storing project data (512 Kbytes or less), OS, Alarm history and Recipe data		
	Life (Number of write times)	100,000 times		
Built-in interface	PLC communication	RS-422 1ch Transmission speed: 115,200/57,600/38,400/ 19,200/9,600/4,800bps Connector shape: Connector terminal block 9 pins Application: PLC communication	RS-232 1ch Transmission speed: 115,200/57,600/38,400/ 19,200/9,600/4,800bps Connector shape: Connector terminal block 9 pins Application: PLC communication	RS-422 1ch Transmission speed: 115,200/57,600/38,400/ 19,200/9,600/4,800bps Connector shape: Connector terminal block 9 pins Application: PLC communication
	PC communication	RS-232 1ch Transmission speed : 115,200/57,600/38,400/19,200/9,600/4,800bps Connector shape : MINI DIN 6 pins (Female) Application : PC communication (Project data upload/download, OS installation, transparent function)		
Buzzer output (a buzzer that sounds when touch keys are pressed)		Single tone (LONG/SHORT/OFF adjustable)		
Environmental protective structure*4		Equivalent to IP67 (JEM1030) (front section) (Horizontal format)		
External dimensions		W113(4.44) × H74(2.91) × D27(1.06) [mm](inch) (Horizontal format)		
Panel cutting dimensions		W105(4.13) × H66(2.59) [mm](inch) (Horizontal format)		
Weight		0.2kg (Excluding mounting fixtures)		0.18kg (Excluding mounting fixtures)
Compatible software package		GT Designer2 Version2.43V 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 may be observed depending on the display color. Please note that these dots appear due to its characteristic and are not caused by product defect.
When the same screen is displayed for a long time, an incidental color or partial discoloration is generated on the screen due to heat damage, and it may not disappear. To prevent heat damage, the screen saver function is effective. For details on the screen saver function, refer to the following.
☞ Chapter 12 DISPLAY AND OPERATION SETTINGS (GOT SET UP)

*2: For the details of system information, refer to the following.
☞ GT Designer2 Version□ Screen Designer Manual

*3: ROM in which new data can be written without deleting the written data.

*4: Note that this does not guarantee all users' operation environment.

Item		Specifications		
		GT1020-LBDW	GT1020-LBDW2	GT1020-LBLW
Display section*1	Type	STN monochrome (white/black) liquid crystal		
	Screen size	3.7"		
	Resolution	160 × 64 dots (Horizontal format)		
	Display size	W86.4(3.4) × H34.5(1.35) [mm](inch) (Horizontal format)		
	Display character	16-dot standard font: 20 characters × 4 lines (Horizontal format)		
	Display color	Monochrome (white/black)		
	Display angle	Left/Right: 30 degrees, Top: 20 degrees, Bottom: 30 degrees (Horizontal format)		
	Contrast adjustment	16-level adjustment		
	Intensity of LCD only	300 [cd/m^2] (in white)		
	Life	Approx. 50,000h. (Time for display intensity to become 1/5 at operating ambient temperature of 25℃)		
Backlight		LED with 3 available colors (white, red, pink) (no replacement required), Backlight status (colors, ON/BLINK/OFF) control, Adjustable screensaver activation time Setting the system information*2 enables PLC to control the backlight status.		
Touch panel	Number of touch keys	Maximum 50 keys/screen (Analog resistive film touch panel)		
	Key size	Minimum 2 × 2 dots (per key)		
	Simultaneous pressing of two (or more) areas (2-point press)	Not supported (Simultaneous pressing of two or more areas on the screen may activate the switch between those areas.)		
	Life	1 million times or more (operating force 0.98N max.)		
Memory	User memory*3	Flash memory (Internal), for storing project data (512 Kbytes or less), OS, Alarm history and Recipe data		
	Life (Number of write times)	100,000 times		
Built-in interface	PLC communication	RS-422 1ch Transmission speed: 115,200/57,600/38,400/ 19,200/9,600/4,800bps Connector shape: Connector terminal block 9 pins Application: PLC communication	RS-232 1ch Transmission speed: 115,200/57,600/38,400/ 19,200/9,600/4,800bps Connector shape: Connector terminal block 9 pins Application: PLC communication	RS-422 1ch Transmission speed: 115,200/57,600/38,400/ 19,200/9,600/4,800bps Connector shape: Connector terminal block 9 pins Application: PLC communication
	PC communication	RS-232 1ch Transmission speed : 115,200/57,600/38,400/19,200/9,600/4,800bps Connector shape : MINI DIN 6 pins (Female) Application : PC communication (Project data upload/download, OS installation, transparent function)		
Buzzer output (a buzzer that sounds when touch keys are pressed)		Single tone (LONG/SHORT/OFF adjustable)		
Environmental protective structure*4		Equivalent to IP67 (JEM1030) (front section) (Horizontal format)		
External dimensions		W113(4.44) × H74(2.91) × D27(1.06) [mm](inch) (Horizontal format)		
Panel cutting dimensions		W105(4.13) × H66(2.59) [mm](inch) (Horizontal format)		
Weight		0.2kg (Excluding mounting fixtures)		0.18kg (Excluding mounting fixtures)
Compatible software package		GT Designer2 Version2.58L 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 may be observed depending on the display color.
Please note that these dots appear due to its characteristic and are not caused by product defect.
When the same screen is displayed for a long time, an incidental color or partial discoloration is generated on the screen due to heat damage, and it may not disappear.
To prevent heat damage, the screen saver function is effective.
For details on the screen saver function, refer to the following.
☞ Chapter 12 DISPLAY AND OPERATION SETTINGS (GOT SET UP)

*2: For the details of system information, refer to the following.
☞ GT Designer2 Version□ Screen Designer Manual

*3: ROM in which new data can be written without deleting the written data

*4: Note that this does not guarantee all users' operation environment.

• GT1030

Item			Specifications	
			GT1030-LBD	GT1030-LBD2
Display section*1	Type		STN monochrome (white/black) liquid crystal	
	Screen size		4.5"	
	Resolution		288 × 96 dots (Horizontal format)	
	Display size		W109.42(4.3) × H35.98(1.41) [mm](inch) (Horizontal format)	
	Display character		16-dot standard font: 36 characters × 6 lines (Horizontal format) 12-dot standard font: 48 characters × 8 lines (Horizontal format)	
	Display color		Monochrome (white/black)	
	Display angle		Left/Right: 30 degrees, Top: 20 degrees, Bottom: 30 degrees (Horizontal format)	
	Contrast adjustment		16-level adjustment	
	Intensity adjustment		8-level adjustment	
	Intensity of LCD only		200 [cd/m^2] (in green)	
	Life		Approx. 50,000h. (Time for display intensity to become 1/5 at operating ambient temperature of 25℃)	
Backlight			LED with 3 available colors (green, red, orange) (no replacement required), Backlight status (colors, ON/BLINK/OFF) control, Adjustable screensaver activation time Setting the system information*2 enables PLC to control the backlight status.	
Touch panel	Number of touch keys		Maximum 50 keys/screen (Matrix resistive film touch panel)	
	Key size		Minimum 16 × 16 dots (per key)	
	Simultaneous pressing of two (or more) areas (2-point press)		Enable	
	Life		1 million times or more (operating force 0.98N max.)	
Memory	User memory*3		Flash memory (Internal), for storing project data (1.5Mbytes or less), OS	
		Life (Number of write times)	100,000 times	
Battery			GT11-50BAT lithium battery	
	Backup target		Clock data, alarm history and recipe data	
	Life		Approx. 5 years (Operating ambient temperature of 25℃)	
Built-in interface	PLC communication		RS-422 1ch Transmission speed:115,200/57,600/38,400/19,200/9,600/4,800bps Connector shape: Connector terminal block 9 pins Application:PLC communication	RS-232 1ch Transmission speed:115,200/57,600/38,400/19,200/9,600/4,800bps Connector shape: Connector terminal block 9 pins Application:PLC communication
	PC communication		RS-232 1ch Transmission speed : 115,200/57,600/38,400/19,200/9,600/4,800bps Connector shape : MINI DIN 6 pins (Female) Application : PC communication (Project data upload/download, OS installation, transparent function)	
Buzzer output (a buzzer that sounds when touch keys are pressed)			Single tone (LONG/SHORT/OFF adjustable)	
Environmental protective structure*4			Equivalent to IP67 (JEM1030) (front section) (Horizontal format)	
External dimensions			W145(5.7) × H76(2.99) × D29.5(1.16) [mm](inch) (Horizontal format)	
Panel cutting dimensions			W137(5.39) × H66(2.59) [mm](inch) (Horizontal format)	
Weight			0.3kg (Excluding mounting fixtures)	
Compatible software package			GT Designer2 Version2.58L 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 may be observed depending on the display color.
Please note that these dots appear due to its characteristic and are not caused by product defect.
When the same screen is displayed for a long time, an incidental color or partial discoloration is generated on the screen due to heat damage, and it may not disappear.
To prevent heat damage, the screen saver function is effective.
For details on the screen saver function, refer to the following.
Chapter 12 DISPLAY AND OPERATION SETTINGS (GOT SET UP)

*2: For the details of system information, refer to the following.
GT Designer2 Version□ Screen Designer Manual

*3: ROM in which new data can be written without deleting the written data.

*4: Note that this does not guarantee all users' operation environment.

Item		Specifications	
		GT1030-LBDW	GT1030-LBDW2
Display section*1	Type	STN monochrome (white/black) liquid crystal	
	Screen size	4.5"	
	Resolution	288 × 96 dots (Horizontal format)	
	Display size	W109.42(4.3) H35.98(1.41) [mm](inch) (Horizontal format)	
	Display character	16-dot standard font: 36 characters × 6 lines (Horizontal format) 12-dot standard font: 48 characters × 8 lines (Horizontal format)	
	Display color	Monochrome (white/black)	
	Display angle	Left/Right: 30 degrees, Top: 20 degrees, Bottom: 30 degrees (Horizontal format)	
	Contrast adjustment	16-level adjustment	
	Intensity adjustment	8-level adjustment	
	Intensity of LCD only	300 [cd/m^2] (in white)	
	Life	Approx. 50,000h. (Time for display intensity to become 1/5 at operating ambient temperature of 25°C)	
Backlight		LED with 3 available colors (white, red, pink) (no replacement required), Backlight status (colors, ON/BLINK/OFF) control, Adjustable screensaver activation time Setting the system information*2 enables PLC to control the backlight status.	
Touch panel	Number of touch keys	Maximum 50 keys/screen (Matrix resistive film touch panel)	
	Key size	Minimum 16 × 16 dots (per key)	
	Simultaneous pressing of two (or more) areas (2-point press)	Enable	
	Life	1 million times or more (operating force 0.98N max.)	
Memory	User memory*3	Flash memory (Internal), for storing project data (1.5Mbytes or less), OS	
	Life (Number of write times)	100,000 times	
Battery		GT11-50BAT lithium battery	
	Backup target	Clock data, alarm history and recipe data	
	Life	Approx. 5 years (Operating ambient temperature of 25°C)	
Built-in interface	PLC communication	RS-422 1ch Transmission speed:115,200/57,600/38,400/19,200/9,600/4,800bps Connector shape: Connector terminal block 9 pins Application:PLC communication	RS-232 1ch Transmission speed:115,200/57,600/38,400/19,200/9,600/4,800bps Connector shape: Connector terminal block 9 pins Application:PLC communication
	PC communication	RS-232 1ch Transmission speed : 115,200/57,600/38,400/19,200/9,600/4,800bps Connector shape : MINI DIN 6 pins (Female) Application : PC communication (Project data upload/download, OS installation, transparent function)	
Buzzer output (a buzzer that sounds when touch keys are pressed)		Single tone (LONG/SHORT/OFF adjustable)	
Environmental protective structure*4		Equivalent to IP67 (JEM1030) (front section) (Horizontal format)	
External dimensions		W145(5.7) × H76(2.99) × D29.5(1.16) [mm](inch) (Horizontal format)	
Panel cutting dimensions		W137(5.39) × H66(2.59) [mm](inch) (Horizontal format)	
Weight		0.3kg (Excluding mounting fixtures)	
Compatible software package		GT Designer2 Version2.58L 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 may be observed depending on the display color.
Please note that these dots appear due to its characteristic and are not caused by product defect.
When the same screen is displayed for a long time, an incidental color or partial discoloration is generated on the screen due to heat damage, and it may not disappear.
To prevent heat damage, the screen saver function is effective.
For details on the screen saver function, refer to the following.
☞ Chapter 12 DISPLAY AND OPERATION SETTINGS (GOT SET UP)

*2: For the details of system information, refer to the following.
☞ GT Designer2 Version□ Screen Designer Manual

*3: ROM in which new data can be written without deleting the written data.

*4: Note that this does not guarantee all users' operation environment.

• GT105□

Item		Specifications	
		GT1055-QSBD	GT1050-QBBD
Display section*1	Type	STN color liquid crystal	STN monochrome (white/blue) liquid crystal
	Screen size	5.7"	
	Resolution	320 × 240 dots (Horizontal format)	
	Display size	W115(4.53) × H86(3.39) [mm](inch) (Horizontal format)	
	Display character	16-dot standard font: 40 characters × 15 lines (Horizontal format) 12-dot standard font: 53 characters × 20 lines (Horizontal format)	
	Display color	256 colors	Monochrome (white/blue), 16 scales
	Display angle	Left/Right: 55 degrees, Top: 65 degrees, Bottom: 70 degrees (Horizontal format)	Left/Right: 45 degrees, Top: 20 degrees, Bottom: 40 degrees (Horizontal format)
	Contrast adjustment	16-level adjustment	
	Intensity of LCD only	380 [cd/m^2]	260 [cd/m^2]
	Life	Approx. 50,000h. (Time for display intensity to become 1/5 at operating ambient temperature of 25℃)	
Backlight		Cold cathode fluorescent tube (irreplaceable by a user) backlight shutoff detection function is included. Backlight off/screen saving time can be set.	
	Life*2	Approx. 75,000h or longer (Time for display intensity reaches 50% at the operating ambient temperature of 25℃)	Approx. 54,000h or longer (Time for display intensity reaches 50% at the operating ambient temperature of 25℃)
Touch panel	Number of touch keys	Maximum 50 keys/screen (Matrix resistive film touch panel)	
	Key size	Minimum 16 × 16 dots (per key)	
	Number of points touched simultaneously	Maximun of 2 points	
	Life	1 million times or more (operating force 0.98N max.)	
Memory	User memory*3	Flash memory (Internal), for storing project data (3Mbytes or less), OS	
	Life (Number of write times)	100,000 times	
Battery		GT11-50BAT lithium battery	
	Backup target	Clock data, alarm history and recipe data	
	Life	Approx. 5 years (Operating ambient temperature of 25℃)	
Built-in interface	RS-422	RS-422 1ch Transmission speed :115,200/57,600/38,400/19,200/9,600/4,800bps Connector shape :D-sub 9 pins (Female) Application :PLC communication	
	RS-232	RS-232 1ch Transmission speed :115,200/57,600/38,400/19,200/9,600/4,800bps Connector shape :D-sub 9 pins (Male) Application :PLC communication, bar code reader connection, PC communication (Project data upload/download, OS installation, transparent function)	
	USB	USB (Full Speed 12Mbps) 1ch Connector shape :Mini-B (Receptacle) Application :PC communication (Project data upload/download, OS installation, transparent function)	
	Memory board	For connecting memory board (GT10-50FMB), 1ch	
Buzzer output (a buzzer that sounds when touch keys are pressed)		Single tone (LONG/SHORT/OFF adjustable)	
Environmental protective structure*4		Equivalent to IP67 (JEM1030) (front section) (Horizontal format)	
External dimensions		W164(6.46) × H135(5.32) × D56(2.21) (Excluding mounting fixtures) [mm](inch) (Horizontal format)	
Panel cutting dimensions		W153(6.03) × H121(4.77) [mm](inch) (Horizontal format)	
Weight		0.7kg (Excluding mounting fixtures)	
Compatible software package		GT Designer2 Version2.90U 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 may be observed depending on the display color.
Please note that these dots appear due to its characteristic and are not caused by product defect.
When the same screen is displayed for a long time, an incidental color or partial discoloration is generated on the screen due to heat damage, and it may not disappear.
To prevent heat damage, the screen saver function is effective.
For details on the screen saver function, refer to the following.
☞ Chapter 12 DISPLAY AND OPERATION SETTINGS (GOT SET UP)

*2: Using the GOT Backlight OFF function can prolong the life of the backlight.
For details on the Backlight OFF function, refer to the following.
☞ Chapter 12 DISPLAY AND OPERATION SETTINGS (GOT SET UP)
*3: ROM in which new data can be written without deleting the written data.
*4: Note that this does not guarantee all users' operation environment.

3.3 Power Supply Specifications

• GT1020, GT1030

Item		Specifications		
		GT1020-LBD GT1020-LBD2 GT1020-LBDW GT1020-LBDW2	GT1030-LBD GT1030-LBD2 GT1030-LBDW GT1030-LBDW2	GT1020-LBL GT1020-LBLW
Input power supply voltage		24VDC (+10% -15%), ripple voltage 200mV or less		5VDC (±5%), supplied from the PLC
Fuse (built-in, not exchangeable)		0.4A	0.5A	–
Power consumption		1.9W (80mA/24VDC) or less	2.2W (90mA/24VDC) or less	1.1W (220mA/5VDC) or less
	At backlight off	1.2W (50mA/24VDC) or less	1.7W (70mA/24VDC) or less	0.6W (120mA/5VDC) or less
Inrush current		13A or less (26.4VDC) 1ms	18A or less (26.4VDC) 1ms	–
Permissible instantaneous power failure time		Within 5ms		–
Noise immunity		Noise voltage : 1000Vp-p Noise width : 1 μs (by noise simulator of 30 to 100Hz noise frequency)		
Dielectric withstand voltage		500VAC for 1 minute (across power supply terminals and earth)		–
Insulation resistance		10MΩ or larger by insulation resistance tester (across power supply terminals and earth)		–

Remark

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.

• GT105□

Item		Specifications	
		GT1055-QSBD	GT1050-QBBD
Input power supply voltage		24VDC (+10% -15%), ripple voltage 200mV or less	
Fuse (built-in, not exchangeable)		1.0A	
Power consumption		9.84W (410mA/24VDC) or less	9.36W (390mA/24VDC) or less
	At backlight off	4.32W (180mA/24VDC) or less	
Inrush current		15A or less (26.4VDC) 2ms	
Permissible instantaneous power failure time		Within 5ms	
Noise immunity		Noise voltage : 1000Vp-p Noise width : 1 μs (by noise simulator of 30 to 100Hz noise frequency)	
Dielectric withstand voltage		500VAC for 1 minute (across power supply terminals and earth)	
Insulation resistance		10MΩ or larger by insulation resistance tester (across power supply terminals and earth)	

Remark

Operation at momentary power failure

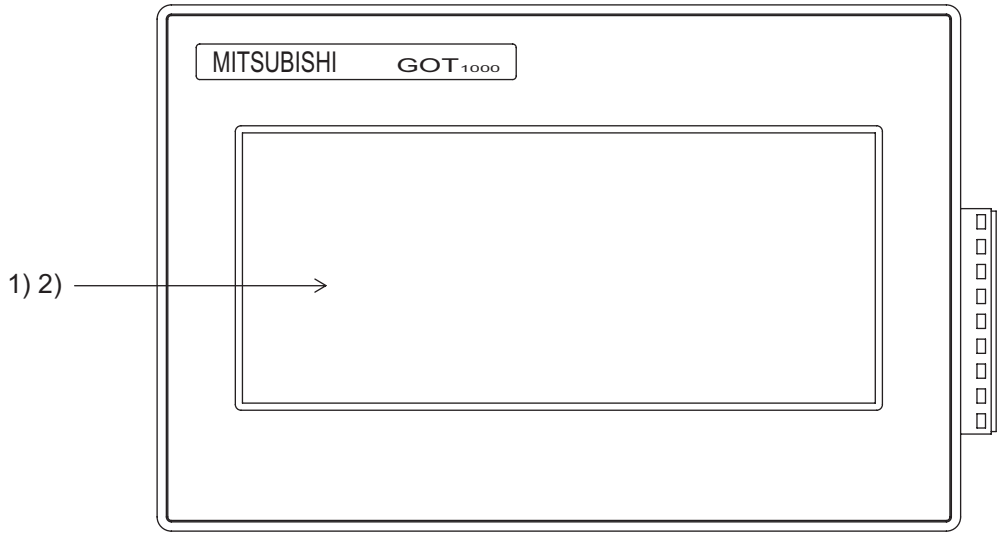
The GOT continues to operate even upon 5ms or shorter instantaneous power failure.

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.

4. PART NAME

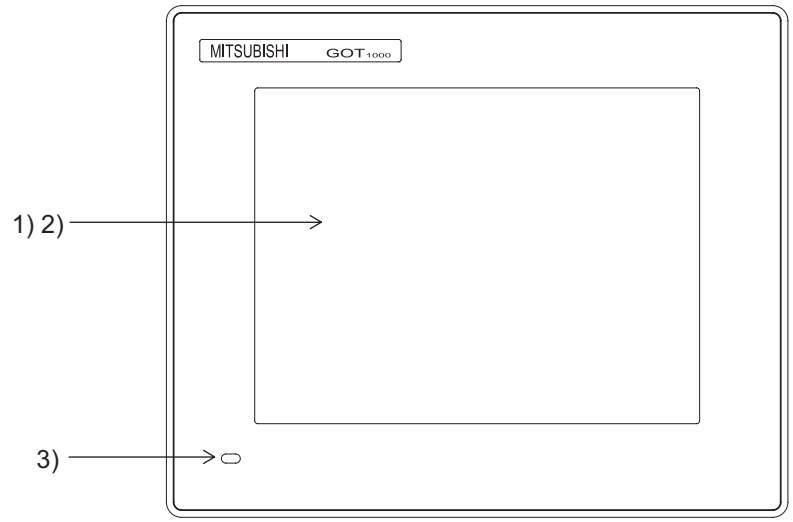
4.1 Front Panel

4.1.1 GT1020, GT1030



No.	Name	Specifications
1)	Display screen	Displays the utility screen and the user creation screen. GT1020 : 160 × 64 dots, STN monochrome (white/black) liquid crystal GT1030 : 288 × 96 dots, STN monochrome (white/black) liquid crystal
2)	Touch key	For operating the touch switches in the utility screen and the user creation screen

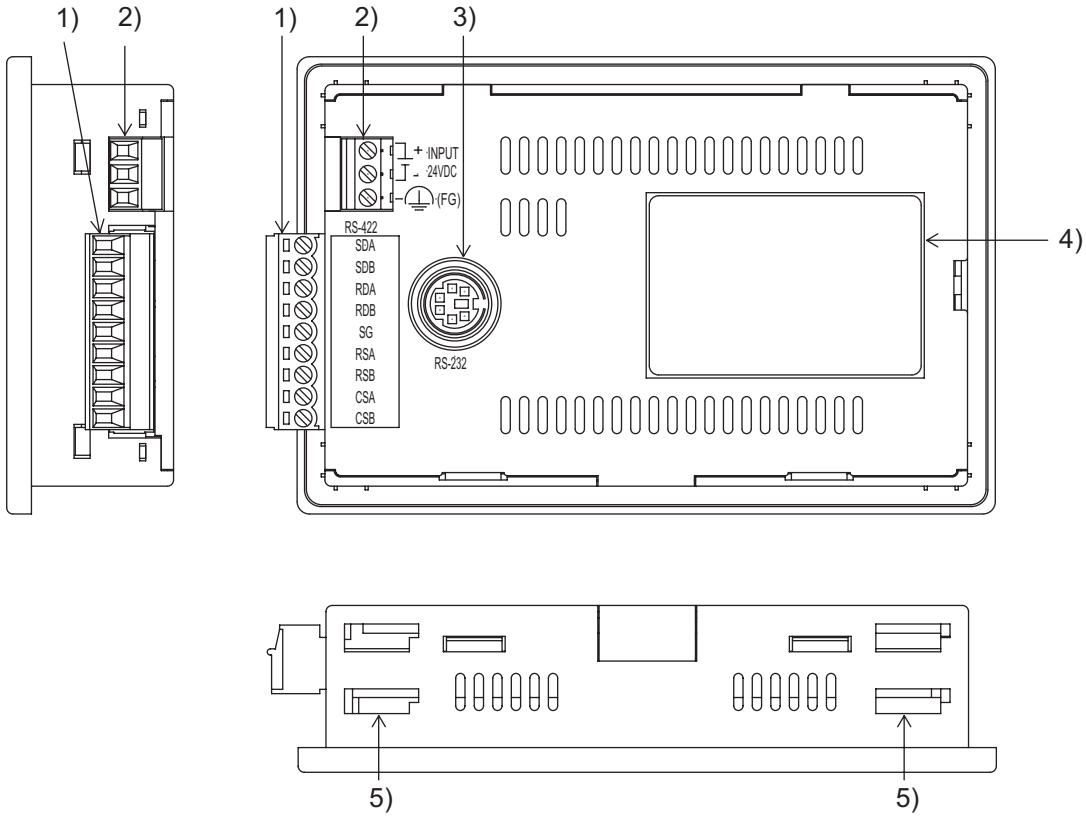
4.1.2 GT1055, GT1050



No.	Name	Specifications
1)	Display screen	Displays the utility screen and the user creation screen. GT1055-QSBD : 320 × 240 dots, STN color liquid crystal GT1050-QBBD : 320 × 240 dots, STN monochrome (white/blue) liquid crystal
2)	Touch key	For operating the touch switches in the utility screen and the user creation screen
3)	POWER LED	Green light : Power is supplied Orange light : Screeen saving (At backlight off) Green / Orange flashing : Blown backlight bulb POWER LED is not lit : Power is not supplied

4.2 Back Panel

4.2.1 GT1020-LBD/LBDW

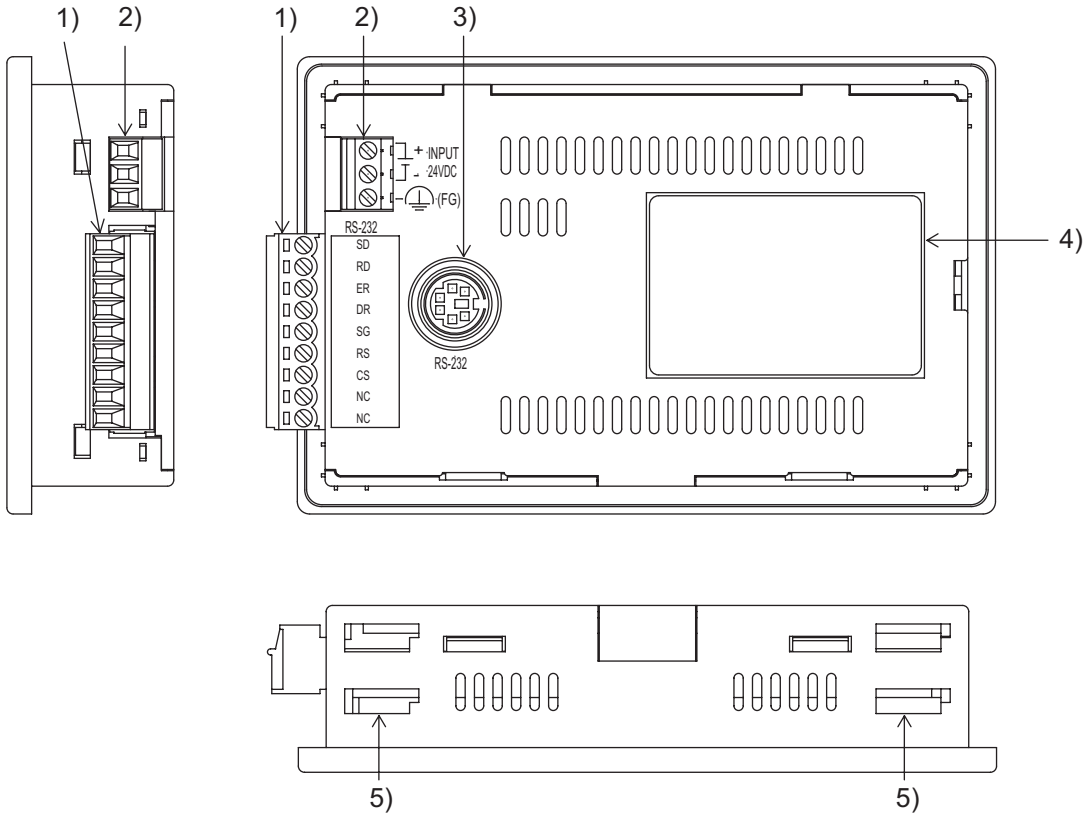


No.	Name	Specifications
1)	PLC connection interface (RS-422)	For connection to a controller (PLC) (9-pin connector terminal block)
2)	Power terminal	24VDC (+10% -15%)
3)	PC connection interface (RS-232)	For PC connection (OS installation, Project data, download, transparent) (MINI-DIN 6 pins, female)
4)	Rating plate (nameplate)	–
5)	Hole for unit installation fitting	Hole for mounting fitting (supplied) to mount the GOT on the panel (4 holes at the top and bottom)

For the connection to the controller (PLC) or PC, refer to the following.

☞ GOT 1000 Series Connection Manual

4.2.2 GT1020-LBD2/LBDW2

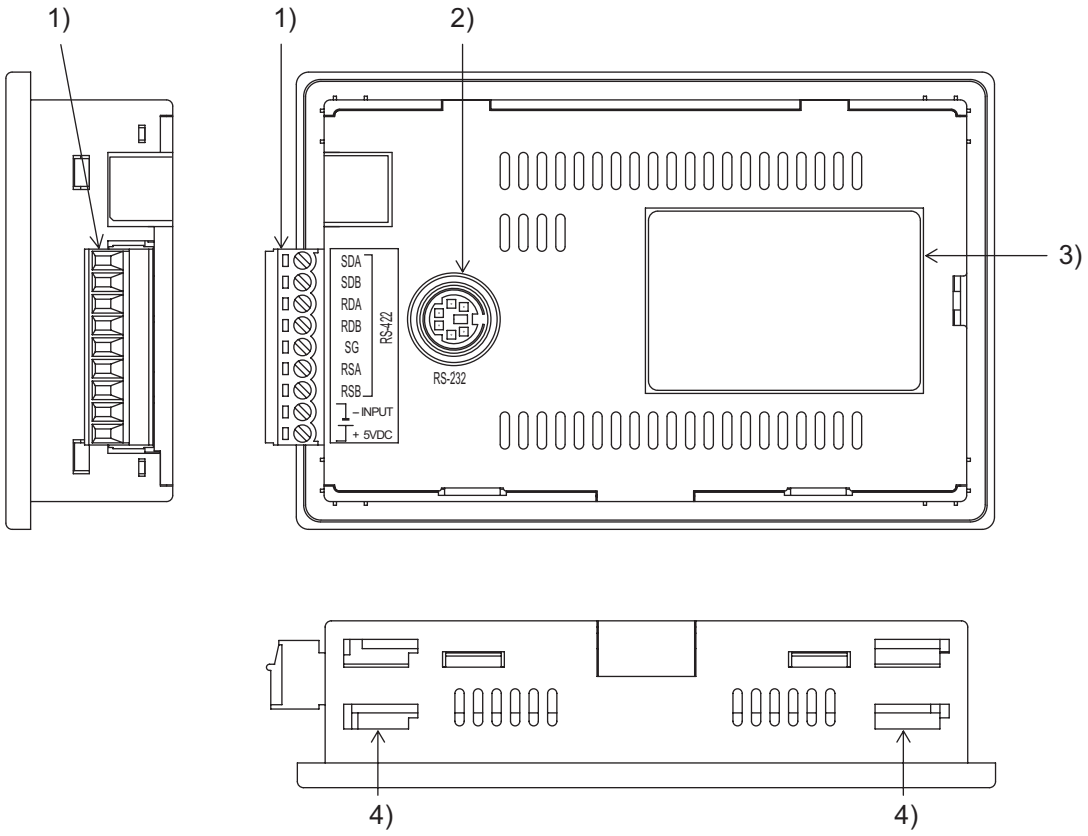


No.	Name	Specifications
1)	PLC connection interface (RS-232)	For connection to a controller (PLC) (9-pin connector terminal block)
2)	Power terminal	24VDC (+10% -15%)
3)	PC connection interface (RS-232)	For PC connection (OS installation, Project data, download, transparent) (MINI-DIN 6 pins, female)
4)	Rating plate (nameplate)	–
5)	Hole for unit installation fitting	Hole for mounting fitting (supplied) to mount the GOT on the panel (4 holes at the top and bottom)

For the connection to the controller (PLC) or PC, refer to the following.

☞ GOT 1000 Series Connection Manual

4.2.3 GT1020-LBL/LBLW

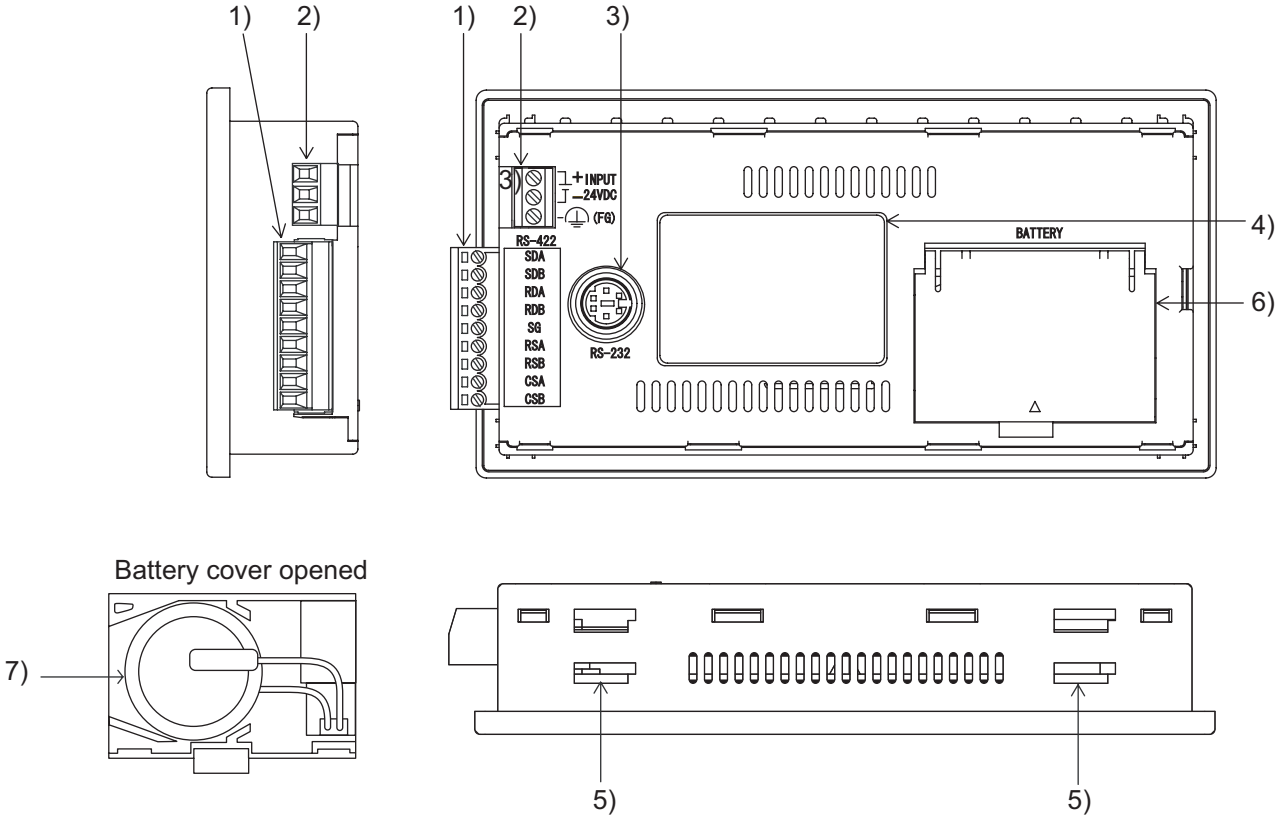


No.	Name	Specifications
1)	PLC connection interface (RS-422)	For connection to a controller (PLC) (9-pin connector terminal block)
2)	PC connection interface (RS-232)	For PC connection (OS installation, Project data download, transparent) (MINI-DIN 6 pins, female)
3)	Rating plate (nameplate)	–
4)	Hole for unit installation fitting	Hole for mounting fitting (supplied) to mount the GOT on the panel (4 holes at the top and bottom)

For the connection to the controller (PLC) or PC, refer to the following.

☞GOT 1000 Series Connection Manual

4.2.4 GT1030-LBD/LBDW

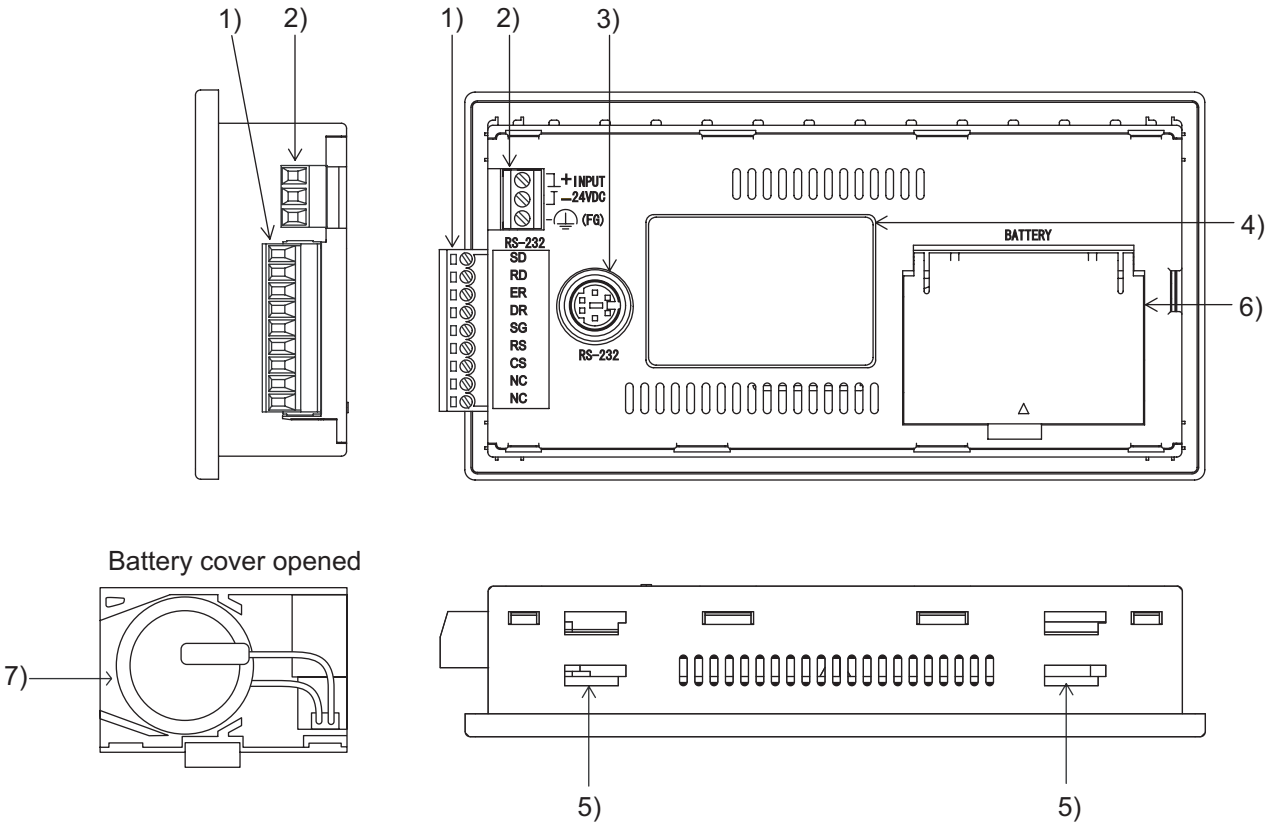


No.	Name	Specifications
1)	PLC connection interface (RS-422)	For connection to a controller (PLC) (9-pin connector terminal block)
2)	Power terminal	24VDC (+10% -15%)
3)	PC connection interface (RS-232)	For PC connection (OS installation, Project data, download, transparent) (MINI-DIN 6 pins, female)
4)	Rating plate (nameplate)	–
5)	Hole for unit installation fitting	Hole for mounting fitting (supplied) to mount the GOT on the panel (4 holes at the top and bottom)
6)	Battery cover	Open or close when replacing the battery.
7)	Battery	GT11-50BAT battery for storing clock data, alarm history and recipe data (The project data is stored in the built-in flash memory.)

For the connection to the controller (PLC) or PC, refer to the following.

☞ GOT 1000 Series Connection Manual

4.2.5 GT1030-LBD2/LBDW2

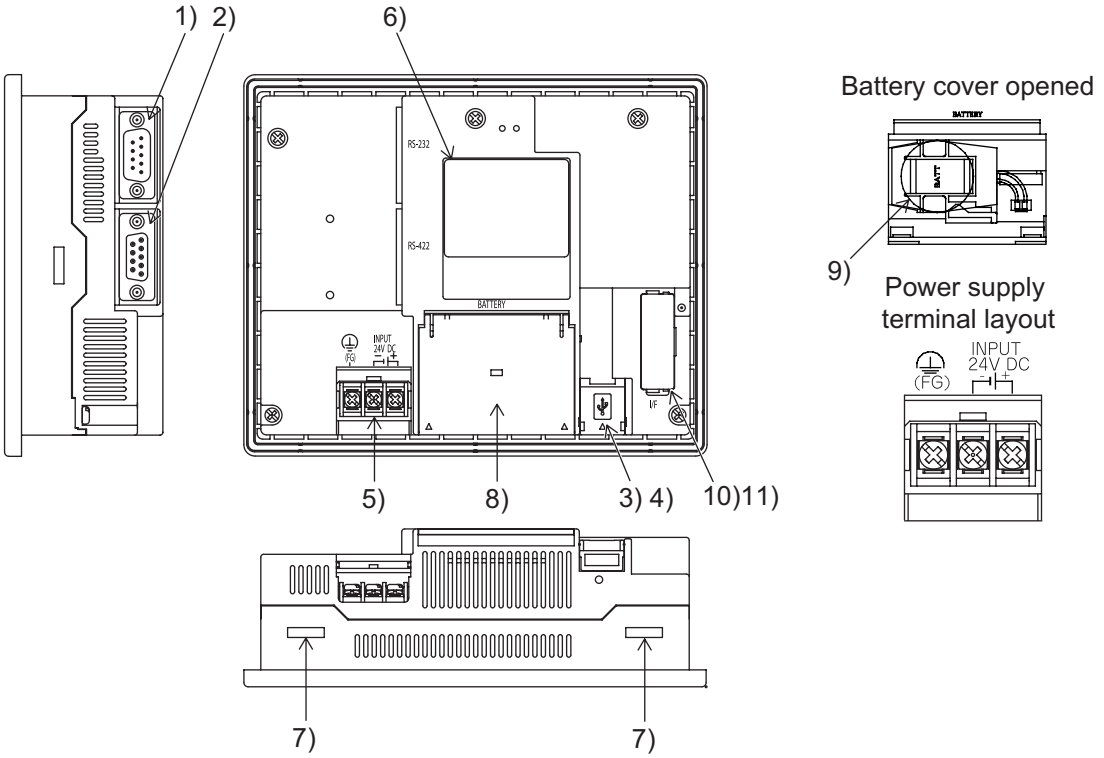


No.	Name	Specifications
1)	PLC connection interface (RS-232)	For connection to a controller (PLC) (9-pin connector terminal block)
2)	Power terminal	24VDC (+10% -15%)
3)	PC connection interface (RS-232)	For PC connection (OS installation, Project data, download, transparent) (MINI-DIN 6 pins, female)
4)	Rating plate (nameplate)	–
5)	Hole for unit installation fitting	Hole for mounting fitting (supplied) to mount the GOT on the panel (4 holes at the top and bottom)
6)	Battery cover	Open or close when replacing the battery.
7)	Battery	GT11-50BAT battery for storing clock data, alarm history and recipe data (The project data is stored in the built-in flash memory.)

For the connection to the controller (PLC) or PC, refer to the following.

☞ GOT 1000 Series Connection Manual

4.2.6 GT1055-QSBD/GT1050-QBBD



No.	Name	Specifications
1)	PLC connection interface (RS-232)	For communicating with controller (PLC, microcomputer board, bar code reader, etc) or personal computer (OS installation, project data download, transparent) (D-sub 9-pin male)
2)	PLC connection interface (RS-422)	For communicating with controller (PLC, microcomputer board, etc) (D-sub 9-pin female)
3)	USB interface	For PC connection (OS installation, project data download, transparent) (Mini-B Receptacle)
4)	USB cover	Open or close when using the USB interface
5)	Power terminal	Power terminal and FG terminal (for power supply (24VDC) to GOT and grounding)
6)	Rating plate (nameplate)	–
7)	Hole for unit installation fitting	Hole for the inserting installation fittings (accessory) during the GOT installation to the panel (4 holes at top and bottom)
8)	Battery cover	Open or close when replacing the battery.
9)	Battery	GT11-50BAT battery for storing clock data, alarm history and recipe data (The project data is stored in the built-in flash memory.)
10)	Memory board cover	Remove when using the memory board.
11)	Memory board interface	Interface for mounting the memory board to the GOT.

For the connection to the controller (PLC) or PC, refer to the following.

☞ GOT 1000 Series Connection Manual

5. EMC DIRECTIVE

For the products sold in European countries, the conformance to the EMC Directive, which is one of the European Directives, has been a legal obligation since 1996. Also, conformance to the Low Voltage Directive, another European Directives, has been a legal obligation since 1997.
Manufacturers who recognize their products must conform to the EMC required to declare that their products conform to these Directives and put a "CE mark" on their products.

Point Products that the EMC Directive applies to are marked with the CE mark logo.

5.1 Requirements for Conformance to EMC Directive

The EMC Directive specifies that products placed on the market must "be so constructed that they do not cause excessive electromagnetic interference (emissions) and are not unduly affected by electromagnetic interference (immunity)".
The applicable products are requested to meet these requirements.
The sections 5.1.1 through 5.1.3 summarize the precautions on conformance to the EMC Directive of the machinery constructed using the GOT.
The details of these precautions has been prepared based on the requirements and the applicable standards control. However, we will not assure that the overall machinery manufactured according to these details conforms to the above-mentioned directives. The method of conformance to the EMC Directive and the judgment on whether or not the machinery conforms to the EMC Directive must be determined finally by the manufacturer of the machinery.

5.1.1 Standards applicable to the EMC Directive

The following products have shown compliance through direct testing (to the identified standards) and design analysis (forming a technical construction file) to the European Directive for Electromagnetic Compatibility (89/336/EEC) when used as directed by the appropriate documentation.

Type : Programmable Controller (Open Type Equipment)

Standard		Remark
EN61131-2 : 2003 Programmable controllers - Equipment, requirement and tests	EMI	Compliance with all relevant aspects of the standard. (Radiated Emissions)
	EMS	Compliance with all relevant aspects of the standard. (ESD,RF electromagnetic field, EFTB, Surge, RF conducted disturbances and Power frequency magnetic field)

For more details please contact the local Mitsubishi Electric sales site.

5.1.2 About models applicable to the EMC Directive

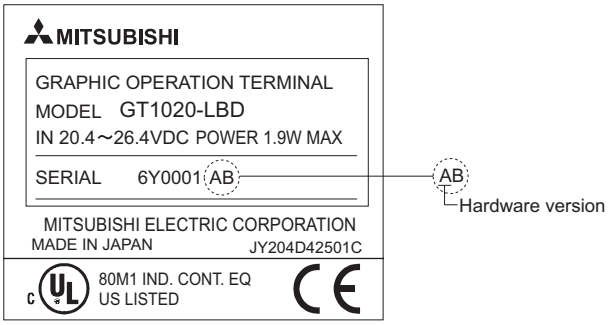
The following table lists the modules compliant with the EMC Directive.

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

Item	EMC Directive	Hardware version
GT1020-LBD/LBD2/LBL/LBDW/LBDW2/LBLW	○	A
GT1030-LBD/LBD2/LBDW/LBDW2	○	A
GT1055-QSBD, GT1050-QBBD	○	A

Point

Please use the GOT whose hardware version is later than that described.
Confirm the hardware version with the products rating plate.
(Products that the EMC Directive applies to are marked with the CE mark logo.)



5.1.3 About the cable used

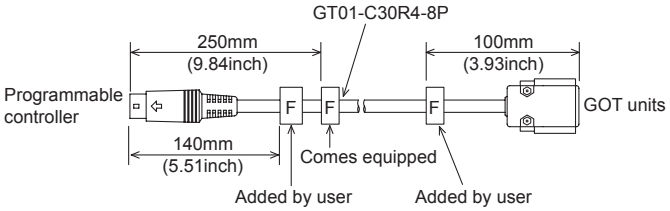
1 General notes on the use of communication cables

Any device which utilizes a data communication function is susceptible to the wider effects of local EMC noise. Therefore, when installing any communication cables care should always be taken with the routing and location of those cables. The GOT units identified on the previous page are compliant with the EMC requirement when the following communication cables are used.

GOT Unit	Existing Cables	User Made Cables
GT1020-LBD/LBL/LBDW/LBLW GT1030-LBD/LBDW	GT10-C30R4-8P (For Melsec FX series PLC)	-
GT1020-LBD2/LBDW2 GT1030-LBD2/LBDW2	GT10-C30R2-6P (For Melsec Q series PLC)	-
GT1055-QSBD GT1050-QBBD	GT01-C30R4-8P modified as shown in EX.1	Those cables need to be independently tested by the user to demonstrate EMC compatibility when they are used with Mitsubishi GOT unit and FX3U Programmable Controllers.

Ex.1

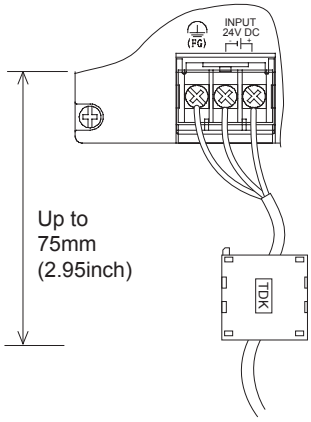
F = Ferrite core
Ex. NEC TOKIN - ESD-R-17S or similar



2 General notes on the use of the power cable

The GT1020-LBD/LBD2/LBDW/LBDW2 and GT1030-LBD/LBD2/LBDW/LBDW2 unit demand that the cable for the power supply is 10m or less.

The GT1055-QSBD and GT1050-QBBD unit requires an additional ferrite filter to be attached to the 24V DC power supply cables. The filter should be attached in a similar manner as shown in the figure opposite, i.e. the power cables are wrapped around the filter. However, as with all EMC situations the more correctly applied precautions the better the systems Electro-magnetic Compatibility. The ferrite recommended is a TDK ZCAT3035-1330 or similar. The ferrite should be placed as near to the 24V DC terminals of the GT1055-QSBD and GT1050-QBBD as possible (which should be within 75mm of the GOT terminal).



6. INSTALLATION

MOUNTING PRECAUTIONS **DANGER**

- Be sure to shut off all phases of the external power supply used by the system before mounting or removing the GOT to/from the panel.
  Not doing so can cause the unit to fail or malfunction.
- Be sure to shut off all phases of the external power supply used by the system before mounting or removing the memory board on to/ from the GOT.
  Not doing so can cause the unit to fail or malfunction.
- When installing the memory board and the battery wear an earth band etc. to avoid the static electricity.
  The static electricity can cause the unit to fail or malfunction.

MOUNTING PRECAUTIONS **CAUTION**

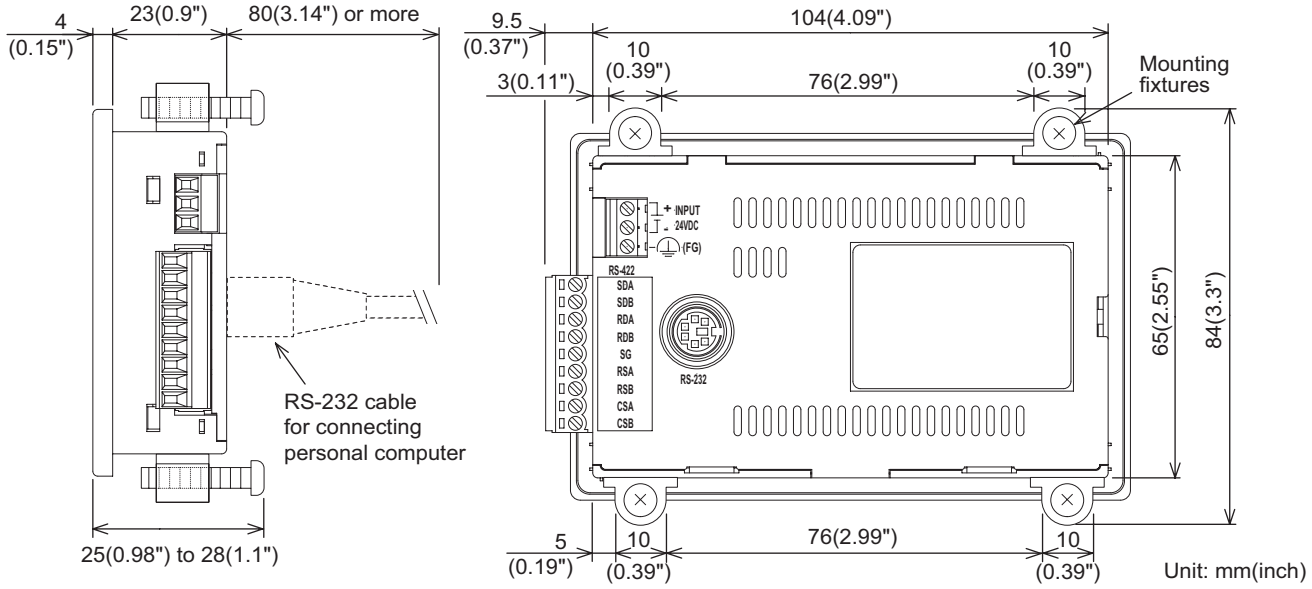
- Use the GOT in the environment that satisfies the general specifications described in this manual.
  Not doing so can cause an electric shock, fire, malfunction or product damage or deterioration.
- When mounting the GOT to the control panel, tighten the mounting screws in the specified torque range.
  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.
- Securely connect the memory board to the connector provided for the board.

6.1 Control Panel Inside Dimensions for Mounting GOT

6.1.1 GT1020

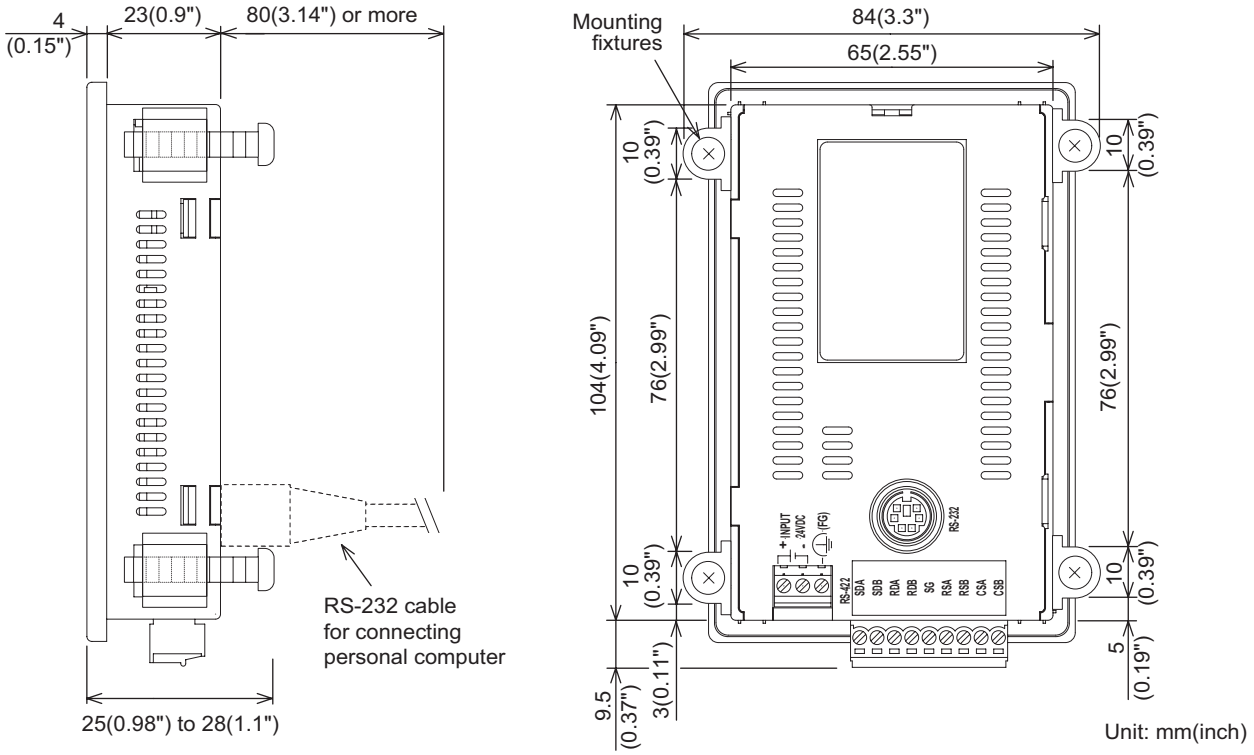
Mount the GOT onto the control panel while considering the following control panel inside dimensions.

Horizontal format



Vertical format

(If the vertical format is selected, the dimension, which is rotated 90 degrees clockwise looking from the display section side, is required.)



Point

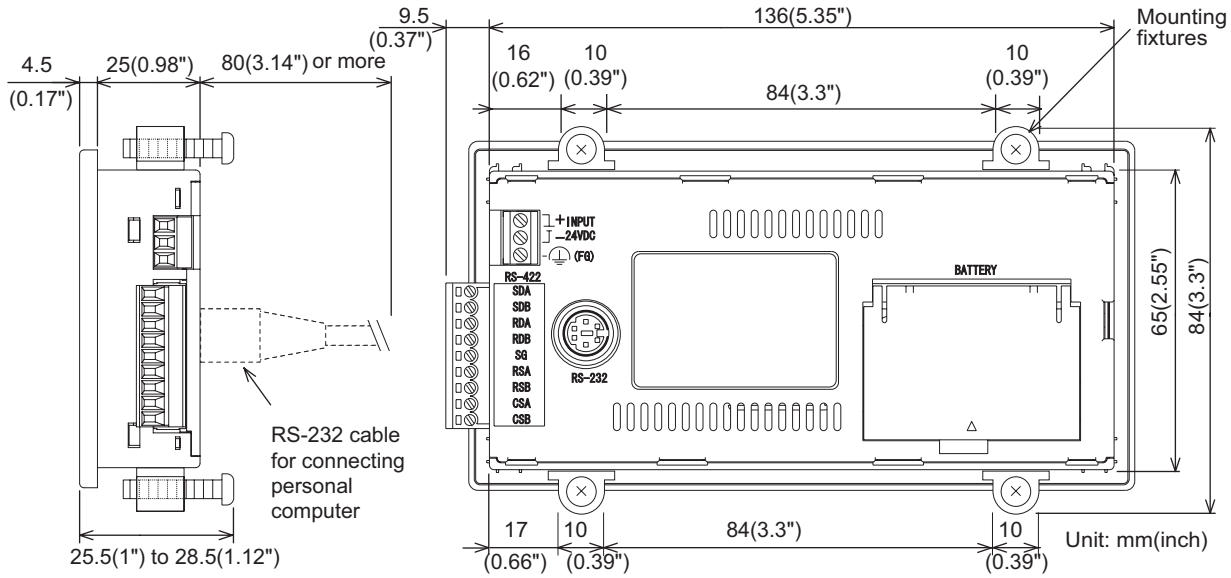
Applicable cable

Some cables may need to be longer than the specified dimensions when connecting to the GOT. Therefore, consider the connector dimensions and bending radius of the cable as well for installation.

6.1.2 GT1030

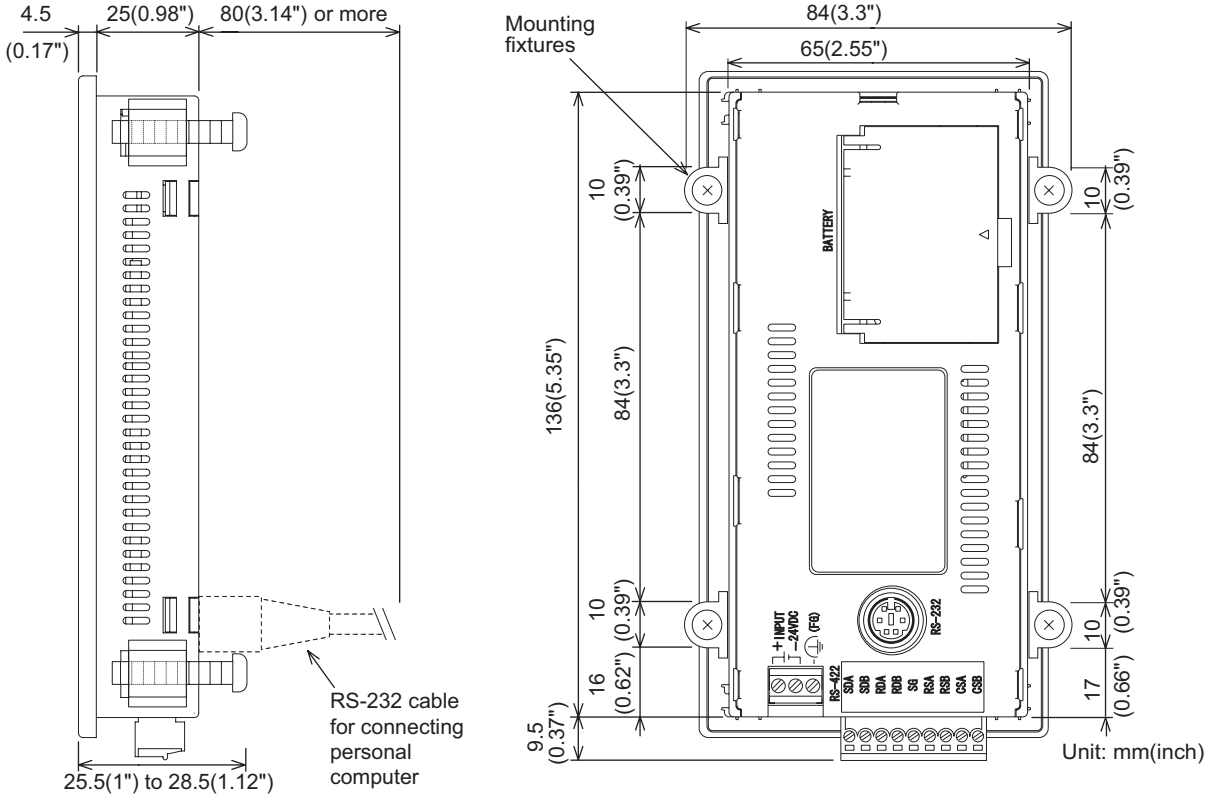
Mount the GOT onto the control panel while considering the following control panel inside dimensions.

Horizontal format



Vertical format

(If the vertical format is selected, the dimension, which is rotated 90 degrees clockwise looking from the display section side, is required.)



Point

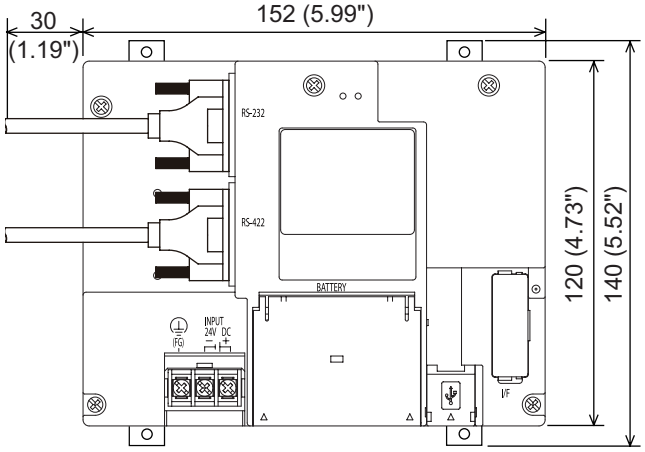
Applicable cable

Some cables may need to be longer than the specified dimensions when connecting to the GOT. Therefore, consider the connector dimensions and bending radius of the cable as well for installation.

6.1.3 GT1055, GT1050

Mount the GOT onto the control panel while considering the following control panel inside dimensions.

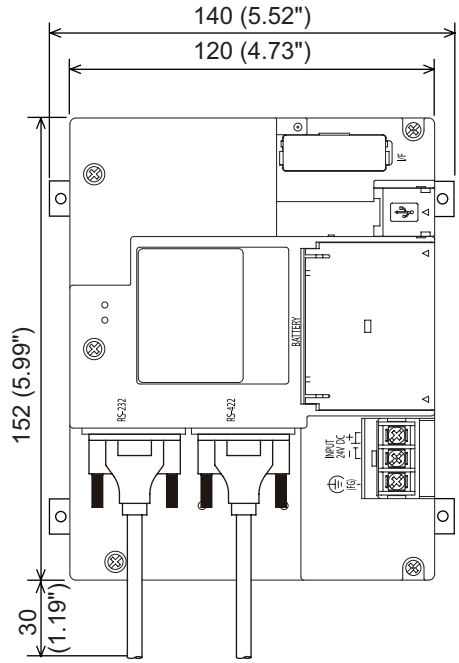
Horizontal format



Unit:mm(inch)

Vertical format

(If the vertical format is selected, the dimension, which is rotated 90 degrees clockwise looking from the display section side, is required.)



Unit:mm(inch)

Point

Applicable cable

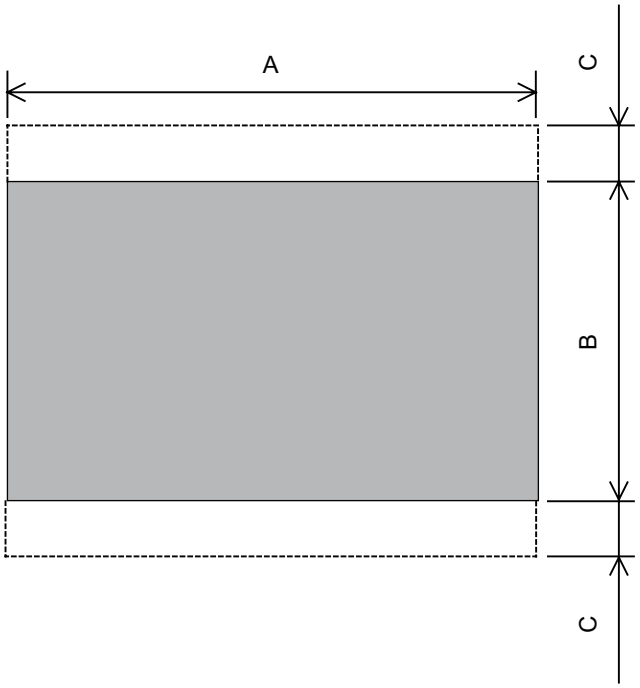
Some cables may need to be longer than the specified dimensions when connecting to the GOT. Therefore, consider the connector dimensions and bending radius of the cable as well for installation.

6.2 Panel Cutting Dimensions

6.2.1 Panel cutting dimensions

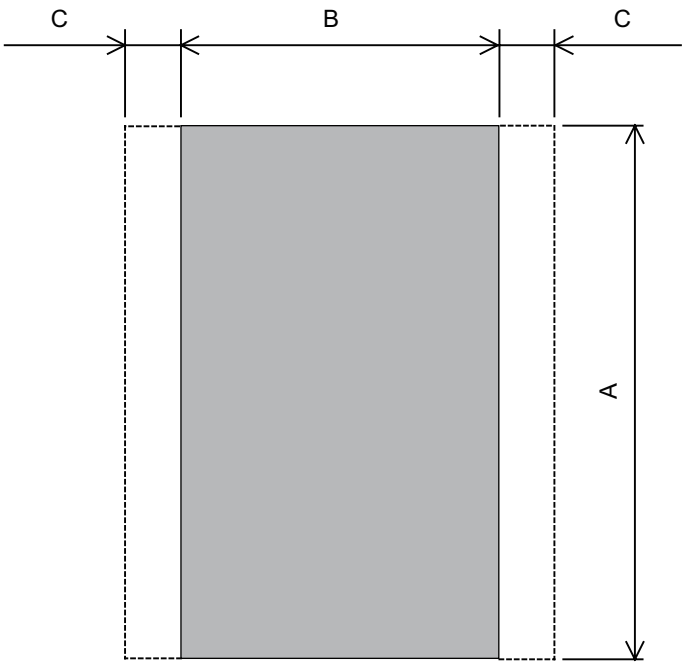
Cut holes in the following dimensions on the panel.
A space of top and bottom is required to allow for the attachment of mounting fixtures.

Horizontal format



Unit: mm(inch)

Vertical format



GOT	A [mm] (inch)	B [mm] (inch)	C [mm] (inch)
GT1020	105 (4.13) (+1(0.03), 0(0))	66 (2.59) (+1(0.03), 0(0))	13 (0.51”) or more
GT1030	137 (5.39) (+1(0.03), 0(0))	66(2.59) (+1(0.03), 0(0))	13 (0.51”) or more
GT105□	153 (6.03) (+2(0.07), 0(0))	121 (4.77) (+2(0.07), 0(0))	10 (0.39”) or more

Unit: mm(inch)

6.3 Mounting Position

6.3.1 Mounting position

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

Horizontal format (GT1020, GT1030)

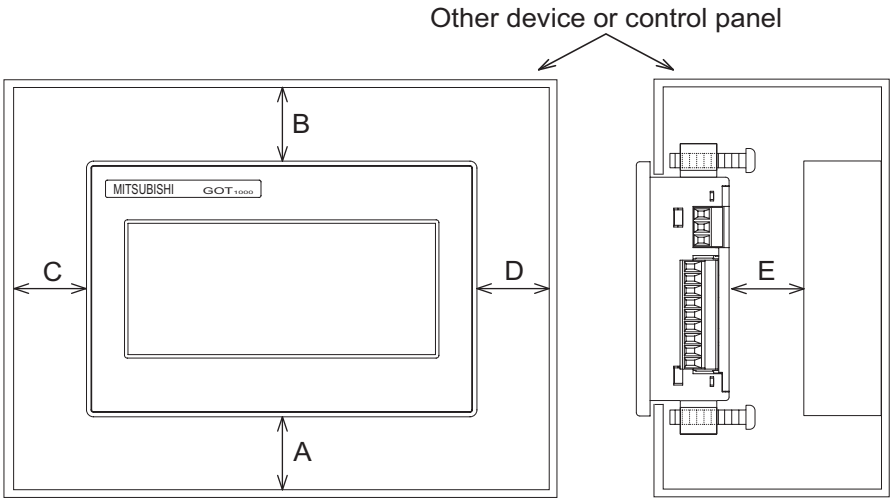
Installation Environment	A	B	C	D	E
In the presence of radiated-noise or heat-generating equipment nearby	50 mm (1.97") or more	50 mm (1.97") or more	50 mm (1.97") or more	50 mm (1.97") or more	80 mm (3.14") or more
In the absence of radiated-noise or heat-generating equipment nearby	20 mm (0.79") or more*1	20 mm (0.79") or more	20 mm (0.79") or more		20 mm (0.79") or more*2

*1 50 mm (1.97") or more if an RS-232/USB conversion adaptor is used.
*2 80 mm (3.14") or more if a PC connection cable is used or if an RS-232 interface for PC is used to connect multiple GOT units.
50 mm (1.97") or more if an RS-232/USB conversion adaptor is used and is connected to the RS-232 interface for PC.

Horizontal format (GT105□)

Installation Environment	A	B	C	D	E
In the presence of radiated-noise or heat-generating equipment nearby	50 mm (1.97") or more	80 mm (3.14") or more	50 mm (1.97") or more	50 mm (1.97") or more	100 mm (3.94") or more
In the absence of radiated-noise or heat-generating equipment nearby	20 mm (0.79") or more	20 mm (0.79") or more	20 mm (0.79") or more	20 mm (0.79") or more	20 mm (0.79") or more*1

*1 80 mm (3.14") or more if an USB cable, memory board is used.



Vertical format (GT1020, GT1030)

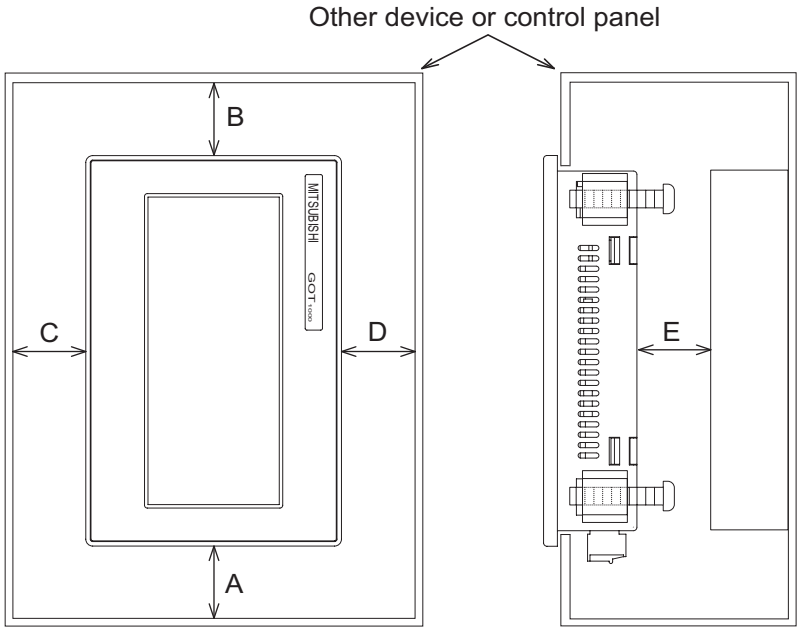
Installation Environment	A	B	C	D	E
In the presence of radiated-noise or heat-generating equipment nearby	50 mm (1.97") or more	50 mm (1.97") or more	50 mm (1.97") or more	50 mm (1.97") or more	80 mm (3.14") or more
In the absence of radiated-noise or heat-generating equipment nearby		20 mm (0.79") or more	20 mm (0.79") or more*1	20 mm (0.79") or more	20 mm (0.79") or more*2

*1 50 mm (1.97") or more if an RS-232/USB conversion adaptor is used.
*2 80 mm (3.14") or more if a PC connection cable is used or if an RS-232 interface for PC is used to connect multiple GOT units.
50 mm (1.97") or more if an RS-232/USB conversion adaptor is used and is connected to the RS-232 interface for PC.

Vertical format (GT105□)

Installation Environment	A	B	C	D	E
In the presence of radiated-noise or heat-generating equipment nearby	50 mm (1.97") or more	50 mm (1.97") or more	80 mm (3.14") or more	50 mm (1.97") or more	100 mm (3.94") or more
In the absence of radiated-noise or heat-generating equipment nearby	20 mm (0.79") or more	20 mm (0.79") or more	20 mm (0.79") or more	20 mm (0.79") or more	20 mm (0.79") or more*1

*1 80 mm (3.14") or more if an USB cable, memory board is used.



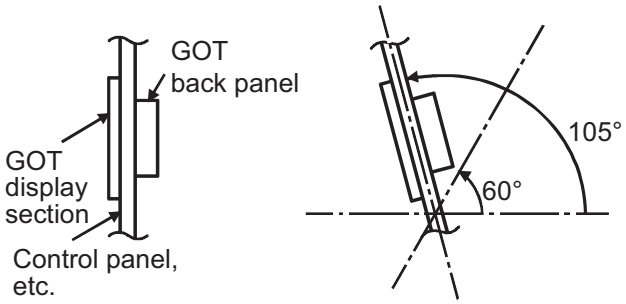
6.4 Control Panel Temperature and Mounting Angle

6.4.1 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.

1 Horizontal installation

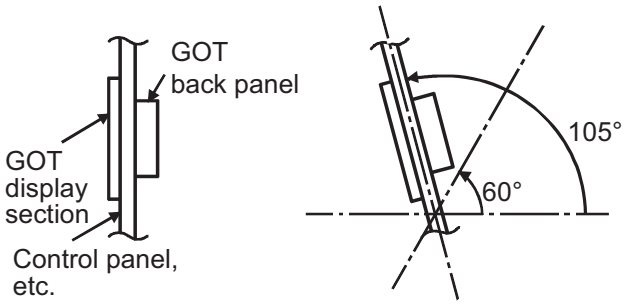
When the temperature inside the control panel is 40 to 55℃ , the mounting angle should be in the range from 60 to 105 degrees.



- 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℃

2 Vertical installation

When the temperature inside the control panel is 40 to 50℃, 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℃.

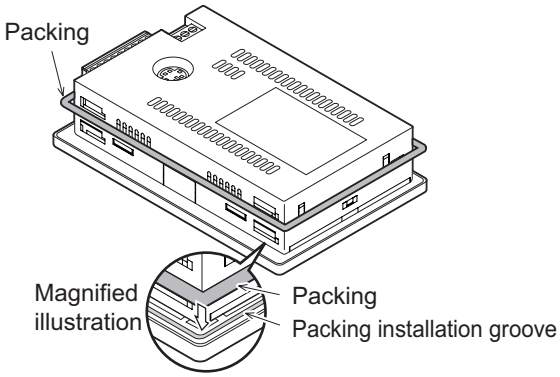
6.5 Installation Procedure

6.5.1 Installation procedure

The GOT is designed to be embedded into a panel.
Mount the GOT by following the procedure below.
For panel cutting dimensions, refer to Section 6.2.
Note that the panel thickness should be within 1 to 4mm for GT1020 and GT1030 and within 2 to 5mm for GT105□.

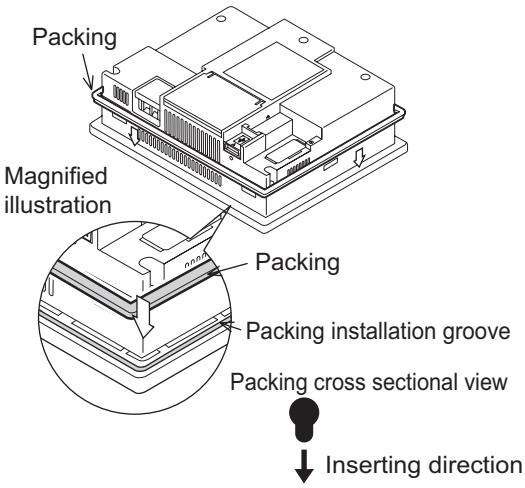
1 Installing the packing

Install packing to the packing installation groove on the back panel of the GOT.



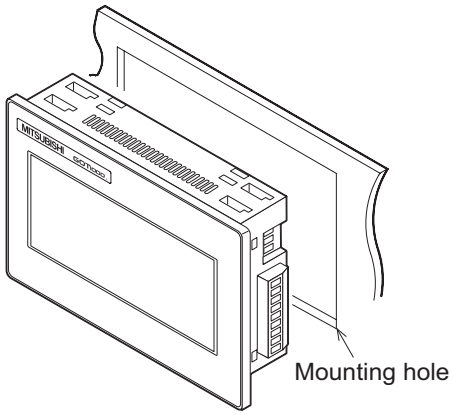
- For GT105 □

  While referring to the cross sectional view of the packing shown right, push the thinner side into the packing groove. (Right drawing is the example of lateral format.)



2 Inserting into the panel face

Insert the GOT from the front side of the panel.
(Right drawing is the example of lateral format.)

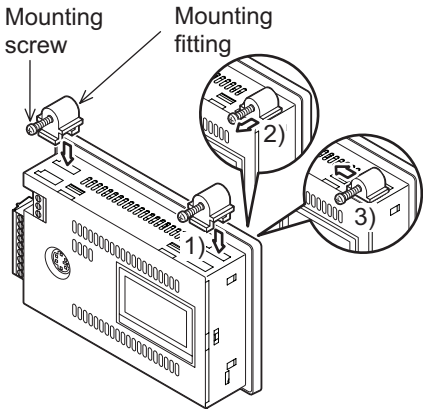


3 Fixing the GOT

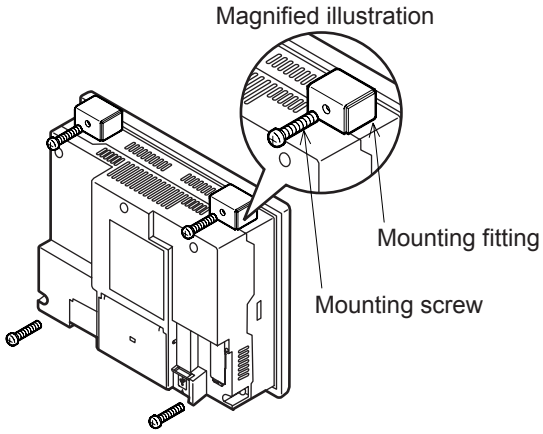
1) Insert the hooks on the mounting fittings (supplied) into the mounting holes on the GOT unit.
2) Slide the mounting fittings to the back end.
3) Slide them to the left to lock them in place, and then fix them with the mounting screws (supplied).

The GOT will be fixed in 4 upper/lower parts.
Tighten the mounting screw with the specified torque.
(Failure to do so may distort the panel and make a surface waviness on the protective sheet.)

GOT	GT1020, GT1030	GT105□
Tightening torque	0.20 to 0.25 N•m	0.3 to 0.5 N•m



For GT1020, GT1030



For GT105□

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

7. WIRING

WIRING PRECAUTIONS

DANGER

- 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.

WIRING PRECAUTIONS

CAUTION

- Plug the communication cable into the connector of the connected unit and tighten the mounting and 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.

(1) For the connection with a PLC, refer to the following.

☞GOT1000 Series Connection Manual

Remark

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.

(1) Protecting against noise
  (a) Keep signal lines away from noise sources such as a power cable or a high-power drive circuit.
  (b) Shield the signal lines.

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

(3) Releasing noise to the ground
  (a) Make sure to connect the ground cable to the ground.
  (b) Use a short and thick cable to lower its ground resistance.
  (c) 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.
In the case of GT1020-LBL/LBLW, GOT power is supplied via the communication cable.

7.1.1 Cable types and wire end processing (GT1020, GT1030)

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

1 Electrical wire size

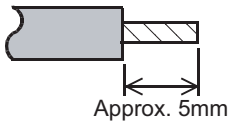
No. of wire per terminal	Electrical wire size		
	Solid wire	Stranded wire	Ferrules with plastic sleeve
1	0.14 to 1.5mm^2 AWG26 to AWG16	0.14 to 1.0mm^2 AWG26 to AWG16	0.25 to 0.5 mm^2 AWG24 to AWG20
2	0.14 to 0.5mm^2 AWG26 to AWG20	0.14 to 0.2mm^2 AWG26 to AWG24	–

2 Wire end processing

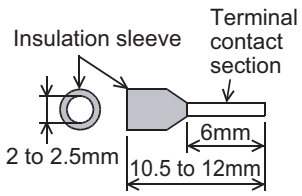
(1) Connecting the wire directly

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

(b) Do not solder the wire end.



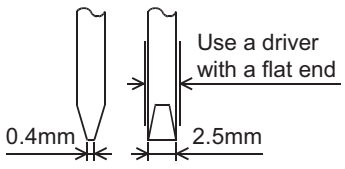
(2) Using a ferrules with plastic sleeve to connect the wire
A wire with a too thick of a wire sheath may not fit the insulation sleeve.
Refer to the outline drawing for how to select the proper size wire.



Manufacturer	Model name	Crimper type
Phoenix Contact Inc.	AI 0.25-6BU (AWG24)	CRIMPFOXZA3
	AI 0.34-6TQ (AWG22)	
	AI 0.5-6WH (AWG20)	

3 Tools

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

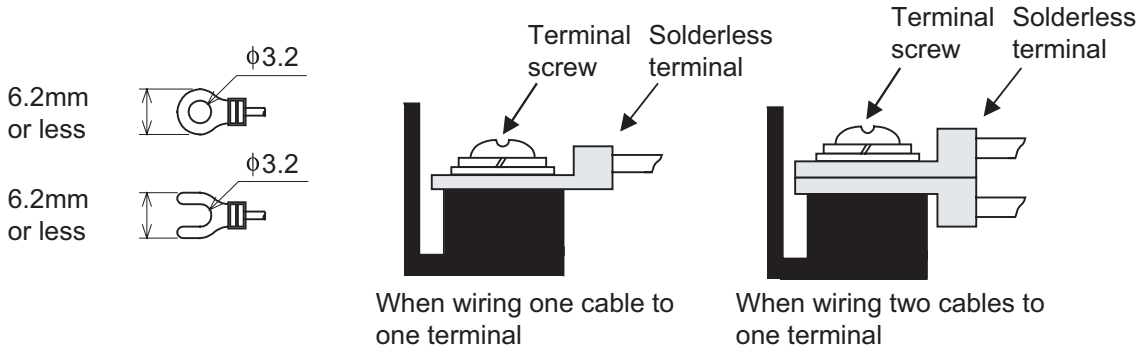


Manufacturer	Model name
Phoenix Contact Inc.	SZS 0.4 × 2.5

7.1.2 Cable types and wire end processing (GT1055, GT1050)

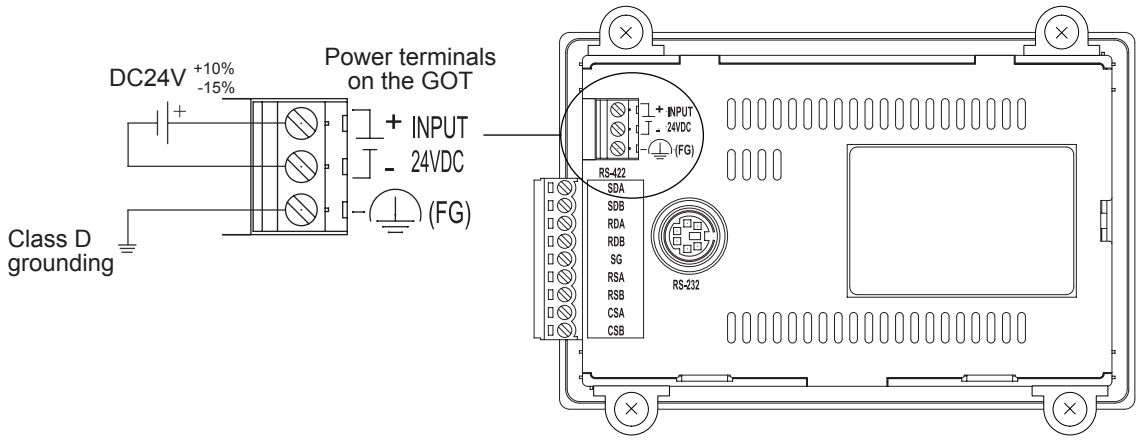
Use 0.75mm^2 or thicker cables to avoid voltage drop and tighten the terminal screw with the specified torque securely.

1 Electrical wire size, Recommended terminal shape



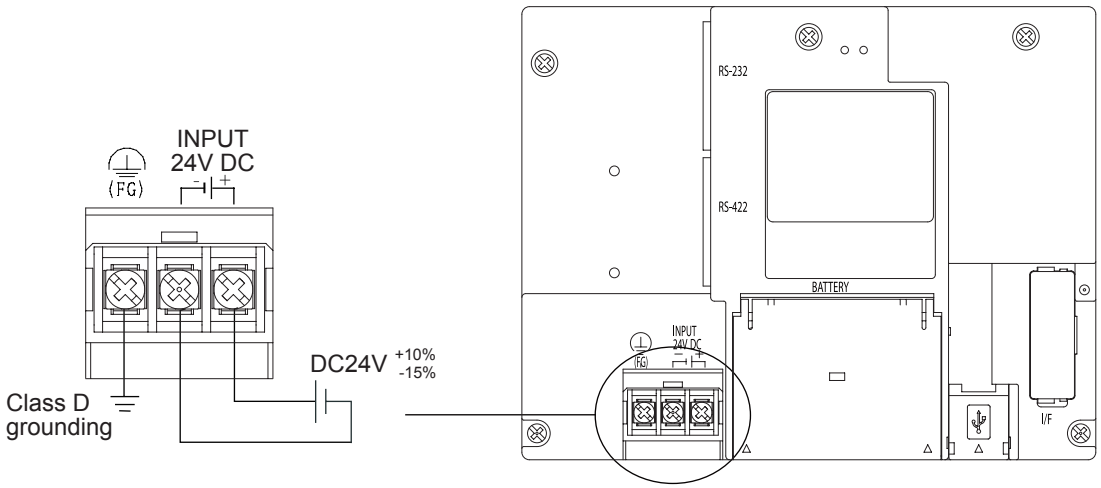
Cable size	For power supply: 0.75mm^2 min. For grounding: 2mm^2 min.
Solderless terminal	M3 solderless terminal (applicable solderless terminal: RAV 1.25-3, V2-N3A and FV2-N3A)

7.1.3 Wiring example (GT1020, GT1030)



Tightening torque for the power terminals	0.22 to 0.25 N•m

7.1.4 Wiring example (GT1055, GT1050)



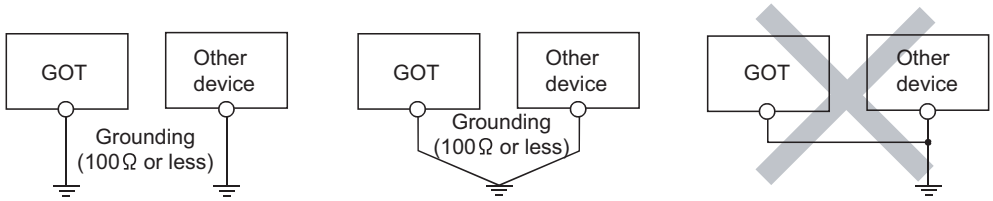
Tightening torque for the power terminals	0.5 to 0.8 N•m

7.1.5 GOT's ground

1 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

- Set the grounding point closer to the GOT to make the grounding cable short as possible.
  Provide grounding using a single grounding wire. Refer to the table below to select the proper size grounding wire.

(For GT1020, GT1030)*1

Ground wire size		
Solid wire	Stranded wire	Ferrules with plastic sleeve
1.5mm^2, AWG16	1.0mm^2, AWG16	0.5mm^2, AWG20

(For GT105□)

Ground wire size
2mm^2 or more

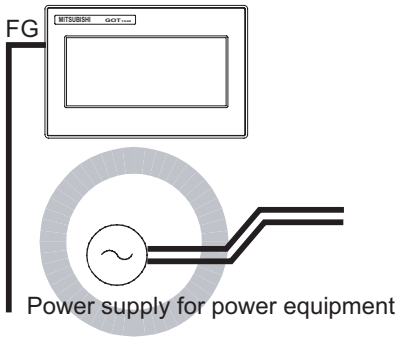
*1: Except 5V power supply type.

7.1.6 The cause of malfunctions related wiring/Remedy

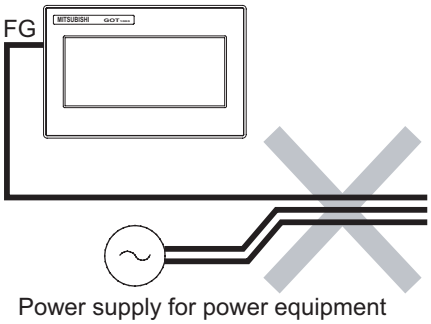
Grounding of the GOT may cause electric potential difference and noise interference, which may result in GOT malfunctions.
These problems may be resolved by taking the following measures.

1 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.



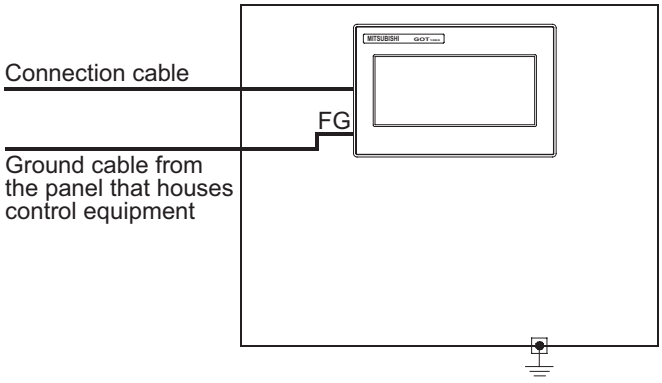
Good: Wiring the ground cable away from the power cable



Bad: Bundling the ground cable and the power cable

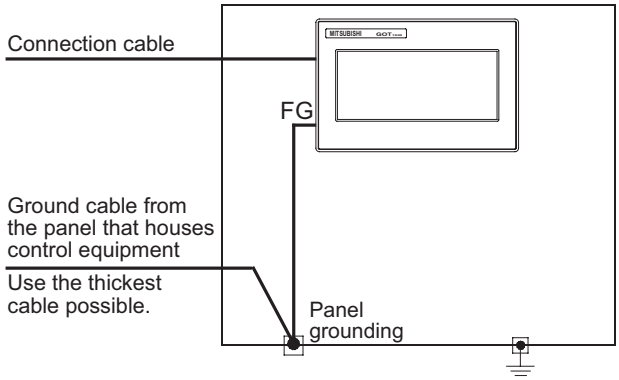
2 Connecting the ground cable from the panel that houses control equipment to the panel to which the GOT is grounded

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.

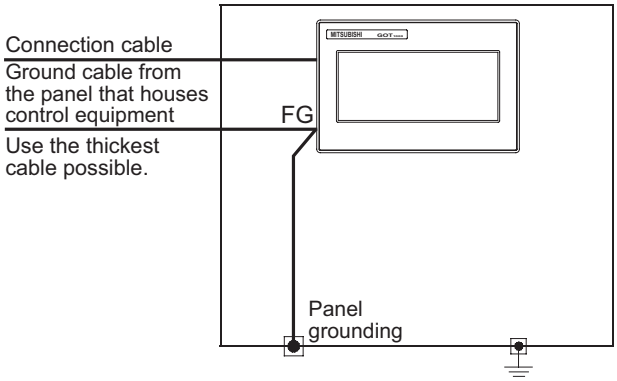


If electric potential difference between the ground points created by it causes malfunctions, lowering the voltage as shown in Remedy 1 below may solve the problem.

• 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.



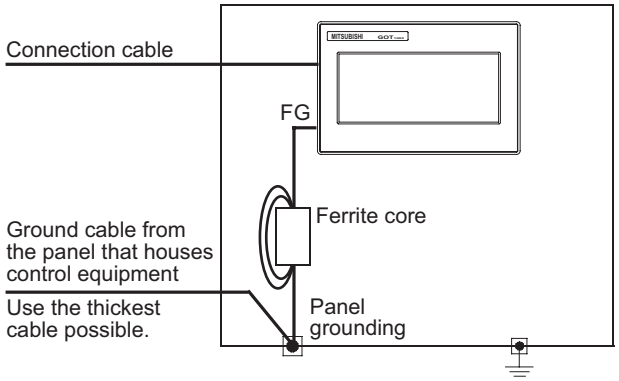
Remedy1-1



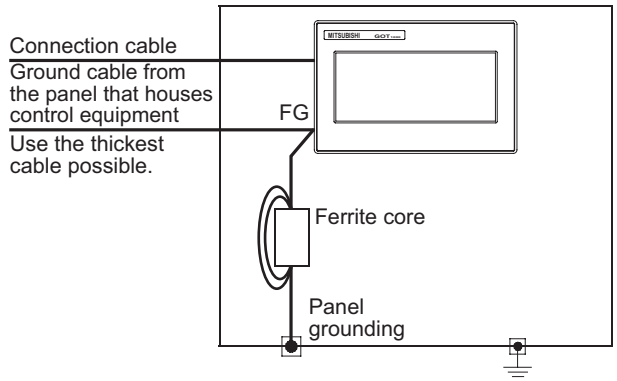
Remedy1-2

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. 3 times), 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



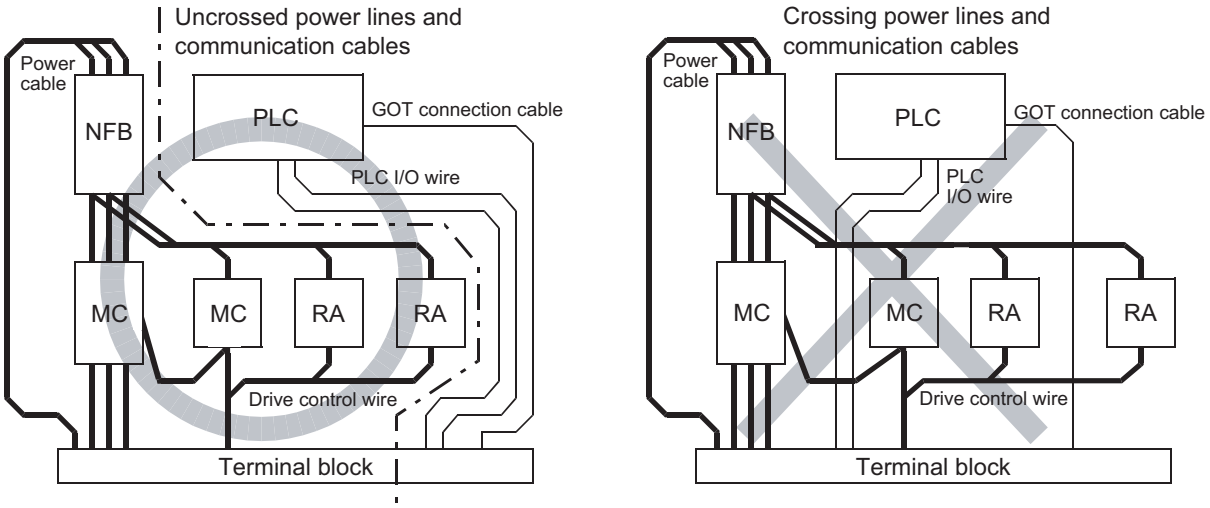
Remedy2-2

7.2 Wiring inside and outside the panel

7.2.1 Wiring inside

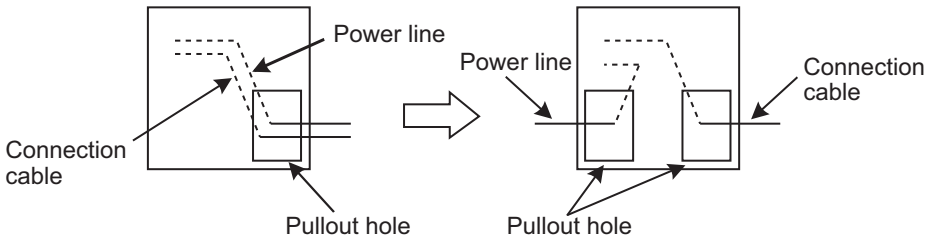
Run power lines, servo amplifier drive wires, and communication cables so that they do not cross each other. Noise interference that is generated by cables that cross each other may cause malfunctions.
Surge suppressors are an effective way to filter out surge noise that is generated from no fuse breakers (NFB), electromagnetic contactors (MC), relays (RA), solenoid valves, and induction motors.
Refer to the section to follow for surge killers.

☞ 7.2.3 Attaching surge killers to control equipment

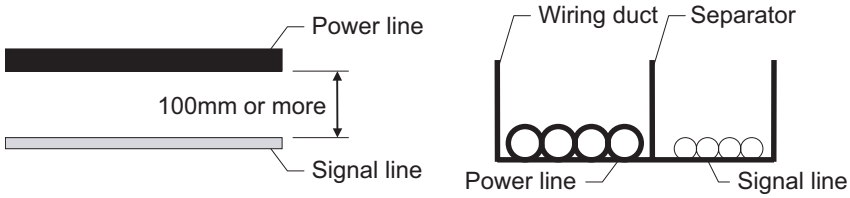


7.2.2 Outside the panel

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.



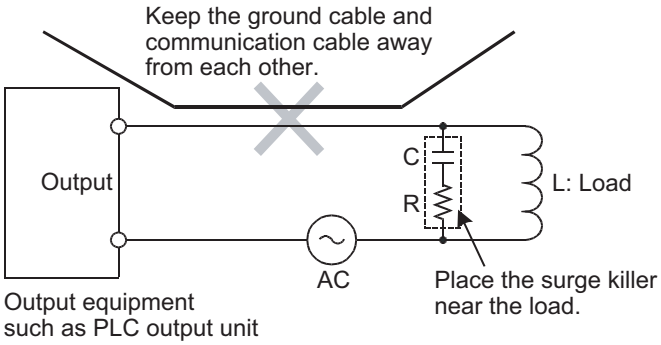
Keep the power line and communication cable inside the duct at least 100 mm away from each other.
If that is not possible, the use of a metal separator inside the duct can reduce noise interference.



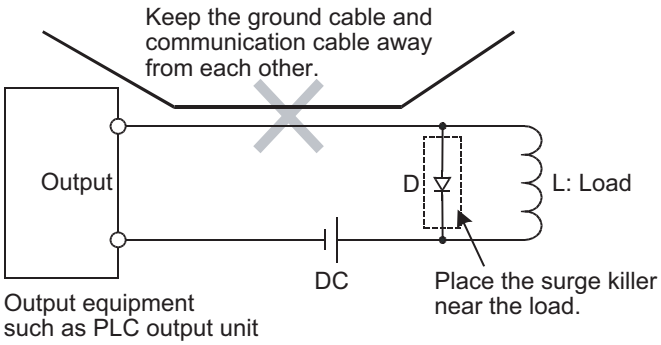
7.2.3 Attaching surge killers to control equipment

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



Remedy for DC inductive load



8. OPTION

8.1 Protective Sheet

The protective sheet is used to protect the operation surface from damage or dirt when the touch key of GOT display section is operated.

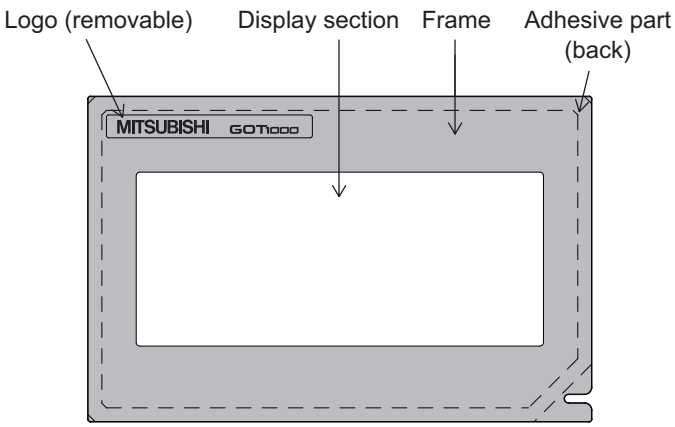
Point

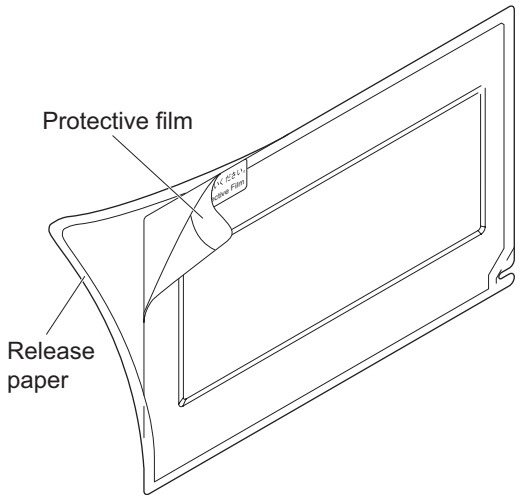
For the GOT, a protective film is pasted on the display at factory shipment. Remove the film when the installation of the GOT is completed.

8.1.1 Applicable protective sheet

The following protective sheets are applicable for GT10□□.

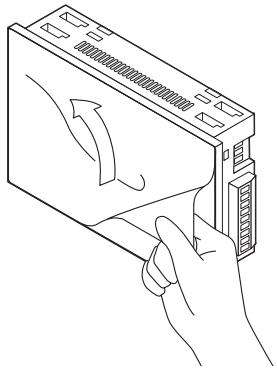
Product name	Model	Contents	
Protective sheet	GT10-20PSGB	3.7" protective sheet (For GT1020)	Display section antiglare (Frame: transparent) 5 sheets
	GT10-20PSCB		Display section clear (Frame: transparent) 5 sheets
	GT10-20PSGW		Display section antiglare (Frame: white), With a logo 5 sheets
	GT10-20PSCW		Display section clear (Frame: white), With a logo 5 sheets
	GT10-30PSGB	4.5" protective sheet (For GT1030)	Display section antiglare (Frame: transparent) 5 sheets
	GT10-30PSCB		Display section clear (Frame: transparent) 5 sheets
	GT10-30PSGW		Display section antiglare (Frame: white), With a logo 5 sheets
	GT10-30PSCW		Display section clear (Frame: white), With a logo 5 sheets
	GT10-50PSGB	5.7" protective sheet (For GT105□)	Display section antiglare (Frame: transparent) 5 sheets
	GT10-50PSCB		Display section clear (Frame: transparent) 5 sheets
	GT10-50PSGW		Display section antiglare (Frame: white), With a logo 5 sheets
	GT10-50PSCW		Display section clear (Frame: white), With a logo 5 sheets



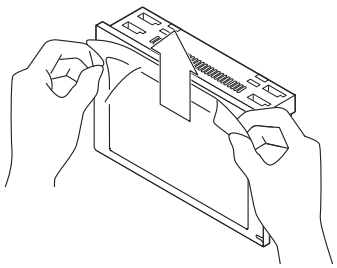


8.1.2 Installing procedure

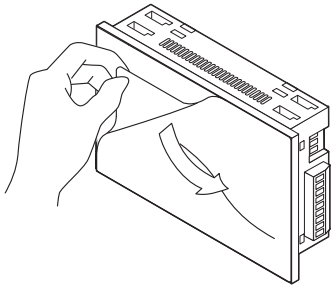
1 If a protective sheet is on the GOT, peel off the protective sheet from the bottom-right corner of the GOT display section, and clean the GOT surface.



2 Peel the release paper from the back of the new protective sheet, and attach its adhesive side to the GOT display section.
When attaching the protective sheet, make sure to fit it on the display section closely without leaving any clearance between them.



3 Peel off the protective film on the protective sheet.

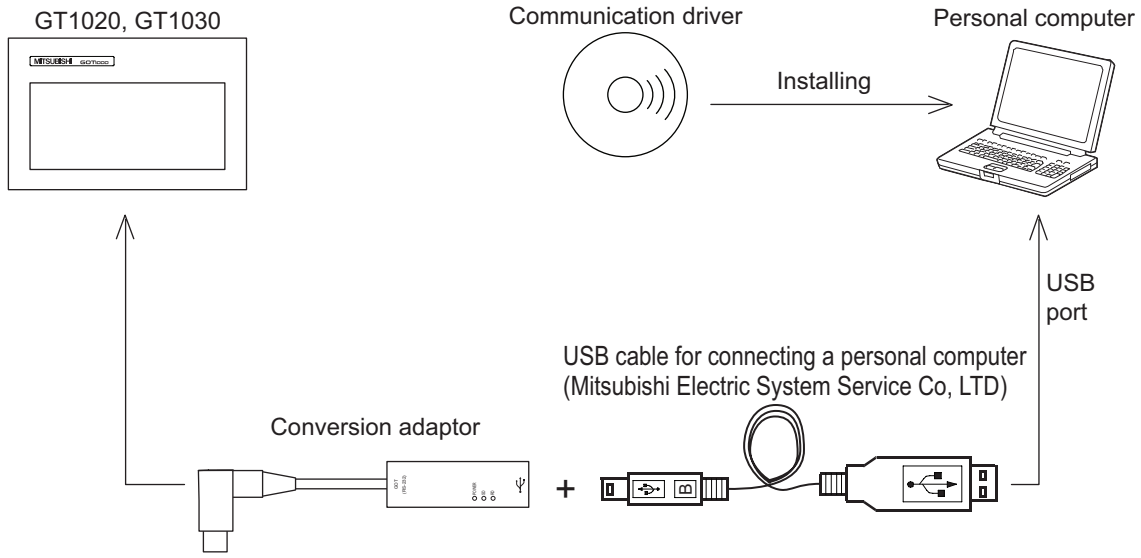


Remark Replacement time of protective sheet

Check the status of the protection sheet visually by to the daily inspection. The visibility becomes worse when there is too much dirt and cracks, causing malfunction. Proceeds replacement promptly.

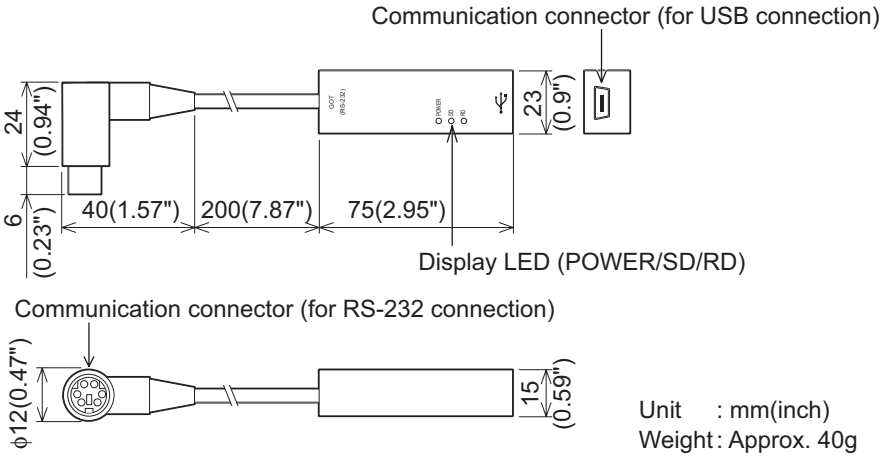
8.2 RS-232/USB conversion adaptor

GT10-RS2TUSB-5S RS-232/USB conversion adaptor is an adaptor that converts the RS-232 interface for communication with PC on the GOT(For GT1020, GT1030) to the USB interface.
It is used with a GT09-C30USB-5P USB cable.
The use of a GT10-RS2TUSB-5S RS-232/USB conversion adaptor requires an installation of the USB driver that is supplied with the package.



8.2.1 Shape, Dimensions, and Names of Adaptor Components

The shape, dimensions, and names of the RS-232/USB conversion adaptor are shown in the figures below.



Name	Specifications
Communication connector (for RS-232 connection)	MINI-DIN 6 pins (male): For connection to the interface for communication with PC on the GOT
Communication connector (for USB connection)	USB MINI: For connection to the GT09-C30USB-5P USB cable
Display LED (POWER)	Green : Lit when the power is properly supplied (Lit when connected to the PC with a USB cable)
Display LED (SD)	Red: Lit while sending data (GOT → PC)
Display LED (RD)	Red: Lit while receiving data (PC → GOT)

8.2.2 Installing procedure

1. Turn off the GOT power.
2. Connect the USB mini connector on the GT09-C30USB-5P USB cable to the RS-232/USB conversion adaptor.
3. Connect the RS-232 connector on the RS-232/USB conversion adaptor to the GOT.
4. Connect the USB connector on the GT09-C30USB-5P USB cable to the PC.
5. Turn on the GOT power.
6. Turn on the PC power.
7. Confirm that the POWER LED (POWER) on the RS-232/USB conversion adaptor is lit.
   (Lit POWER LED on the RS-232/USB conversion adaptor indicates that the power is properly supplied from the PC.)

8.2.3 Driver installation

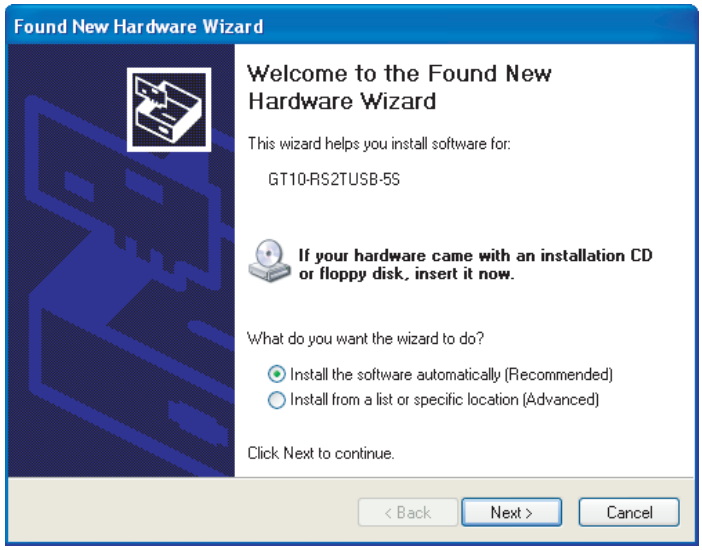
Procedure for installing the driver is explained below.
Windows® XP installation follows.

- Windows® 98SE, Windows® Millennium Edition, and Windows® 2000, the installation method will vary.

Installation of the driver is canceled during the following process, the installation is not carried out correctly.
If the installation is canceled, uninstall the driver and install again.
Please refer to Section 8.2.4 for instructions on uninstalling the driver.

Please install the driver with the following procedure.

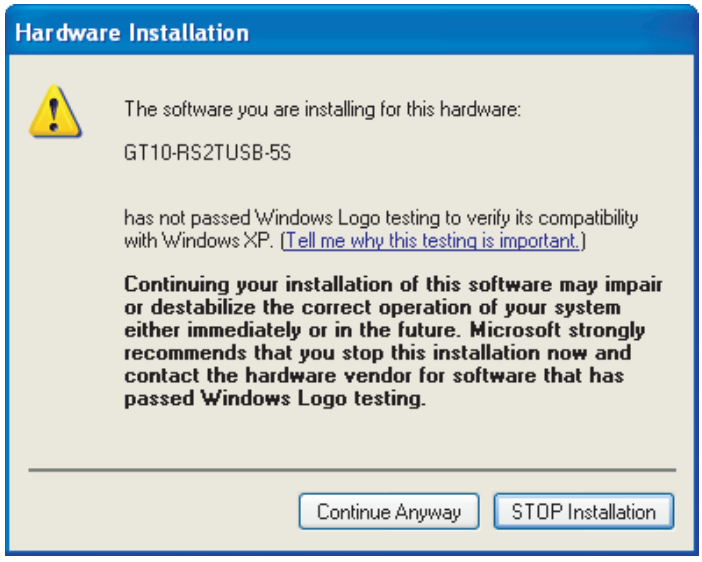
1 When the USB cable is connected to the personal computer, the following screen is displayed.
(Installation of the software for USB driver)



Insert the included CD-ROM into the personal computer's CD-ROM drive.
Click [Next >].
The installation of the USB driver software will begin.

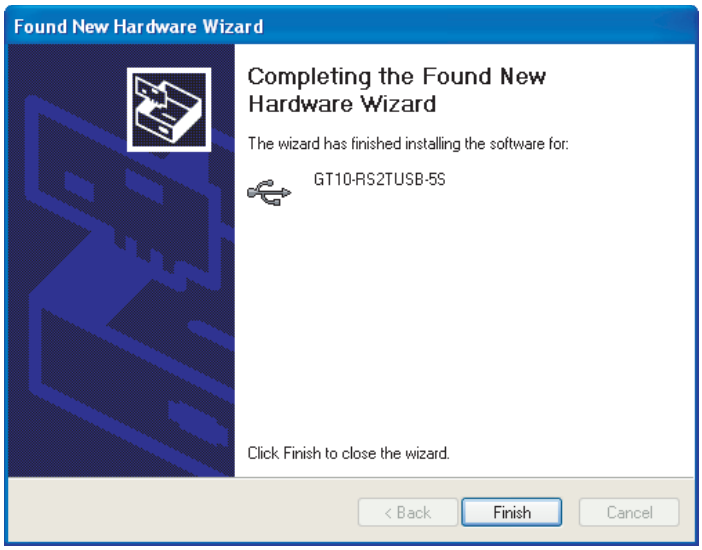
- If using Windows® 98SE, Windows® Millennium Edition, and Windows® 2000, a window to select the location of the installation files.
  Please select the CD-ROM drive.

2 The following screen is displayed. (Only in Windows® XP)



Click [Continue Anyway].

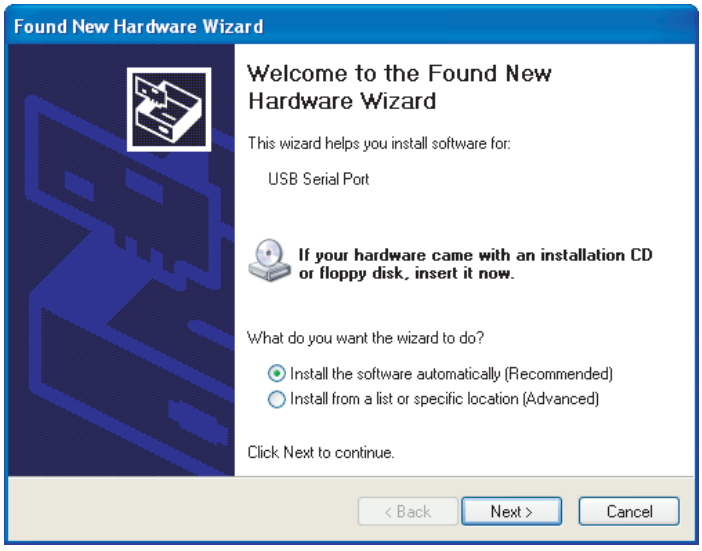
3 The following screen is displayed.



Click [Finish].
The installation of the USB driver software will finish.

- If Windows® 98SE or Windows® Millennium Edition is used, installation of the USB Serial Port software begins, and ends automatically.
  The CD-ROM can be removed from the personal computer at this time.
- If using Windows® 2000 or Windows® XP, proceed to step 4.

4 The following screen is displayed.

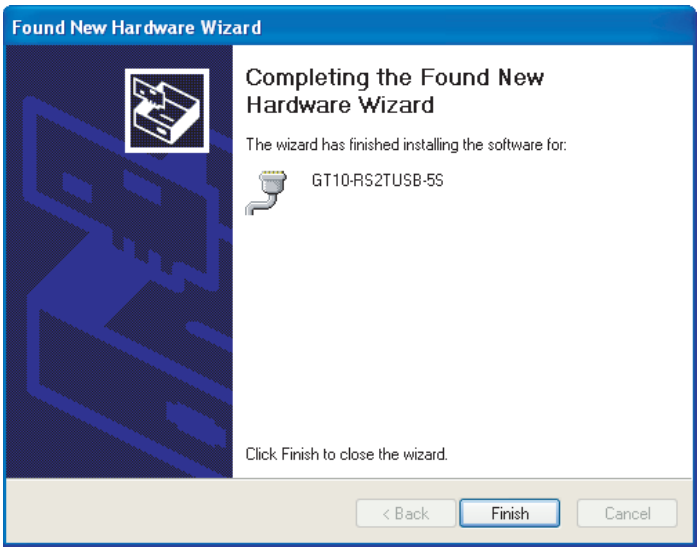


Click [Next >].
The installation of the USB Serial Port software will begin.

- If using Windows® 2000, a screen to select the location of the installation files is displayed.
  Please select the CD-ROM drive.

5 The screen of 2 is displayed. (Only in Windows® XP)
Click [Continue Anyway].

6 The following screen is displayed.



Click [Finish].
The installation of the USB Serial Port software will finish.
The CD-ROM (USB driver software) can be removed from the personal computer at this time.

8.2.4 Method for Uninstalling Driver

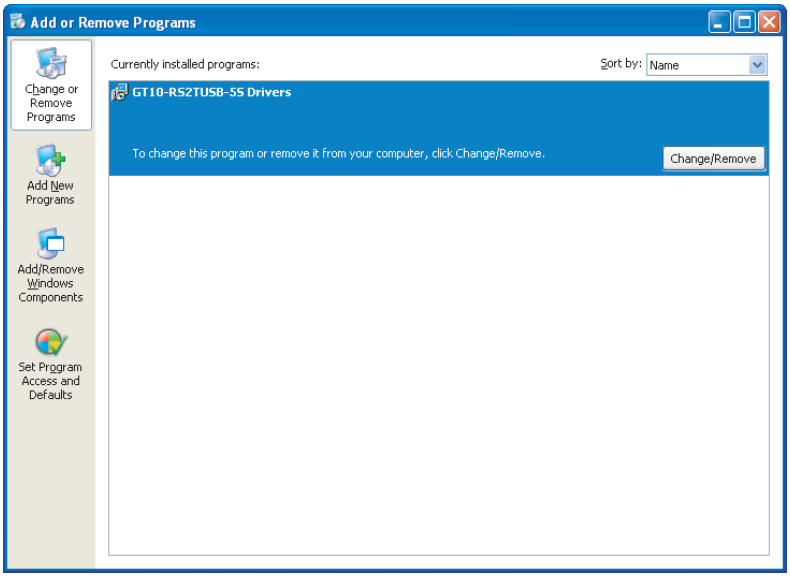
The procedure for uninstalling the driver is explained below.
A Windows® XP example follows.

Point

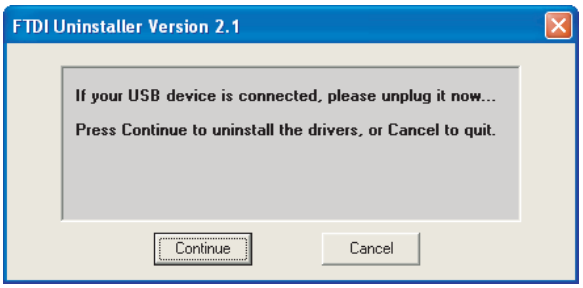
When the driver softwares for FX-USB-AW/FX3U-USB-BD and GT10-RS2TUSB-5S are installed, uninstalling one of these driver softwares may cause the other not to function properly.
When this happens, reinstall the driver software.

1 Detach the USB cable from the personal computer.
Click [Start] → [Control Panel] → [Add or Remove Programs] in the menu of the personal computer, the window below will be displayed.

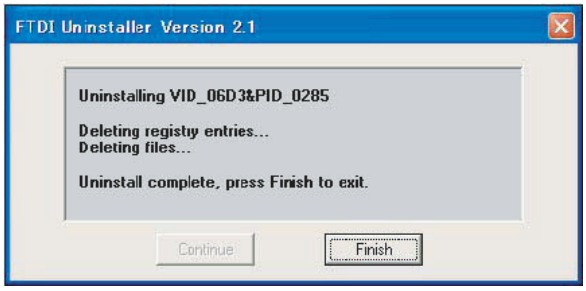
- In case of Windows® 98SE, Windows® Millennium Edition, and Windows® 2000
A screen that is equivalent to the one below is displayed by clicking [My Computer] → [Control Panel] → [Add/Remove Programs] in the menu of the personal computer.



Click [Change/Remove].



2 The following screen is displayed.
Click [Continue].



3 The following screen is displayed.
Click [Finish].

8.3 Battery

The battery backs up clock data, alarm history and recipe data.
At factory shipment, a battery is built in the GT1030, GT105□.
For GT1020, a battery cannot be used. (Data is saved by the internal flash ROM.)

8.3.1 Applicable battery

The following battery is applicable for GT1030,GT105□.

Model	Contents
GT11-50BAT	Battery for backup of clock data, alarm history and recipe data

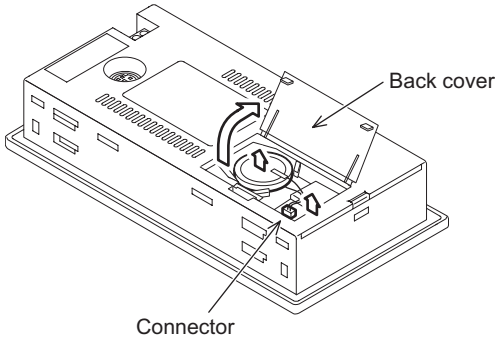
8.3.2 Battery specifications

Item	Specifications
Type	Magnesium manganese dioxide lithium primary battery
Initial voltage	3.0V
Storage life	Approx. 5 years (Operating ambient temperature of 25°C)
Application	For backup of clock data, alarm history and recipe data

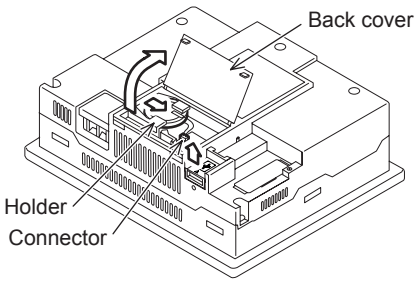
8.3.3 Battery replacement procedure

Replace battery periodically at intervals of 4 to 5 years as reference.

1. Turn the GOT power off.
2. Open the back cover of the GOT.
3. Remove the old battery from the holder.

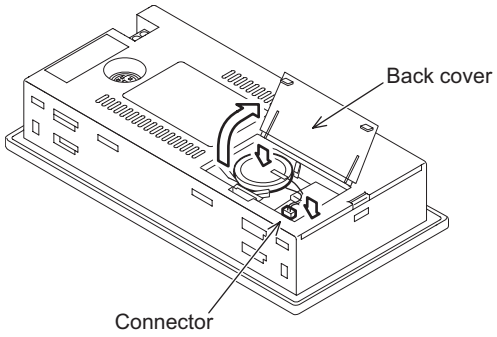


For GT1030

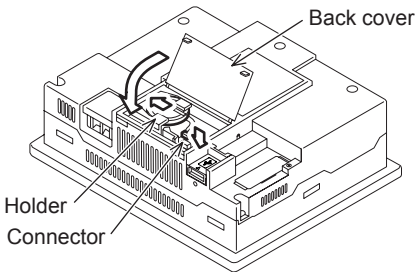


For GT105□

4. Disconnect the old battery connector and insert the new battery connector within 30s.
5. Insert the new battery into the holder and close the back cover.



For GT1030



For GT105□

6. Turn the GOT power on.
7. Check if the battery condition is normal with the utility.
   Refer to the following for the details of battery status display.

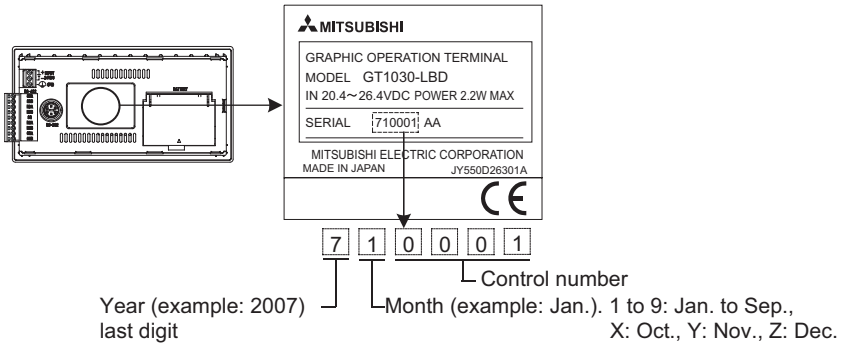
   ☞ Chapter 13 CLOCK SETTINGS AND BATTERY STATUS DISPLAY (TIME SETTING AND DISPLAY)

Point

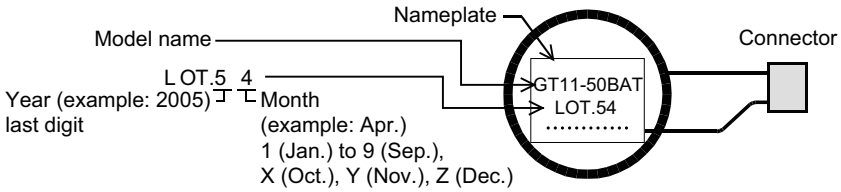
(1) Battery life

The battery life is approximately 5 years.

The production date of the battery built in the purchased GOT can be confirmed by the production No. (serial No.) marked on the GOT main unit.



The production date of the optional replacement battery can be confirmed by the lot No. marked on the nameplate (label) affixed on the battery.



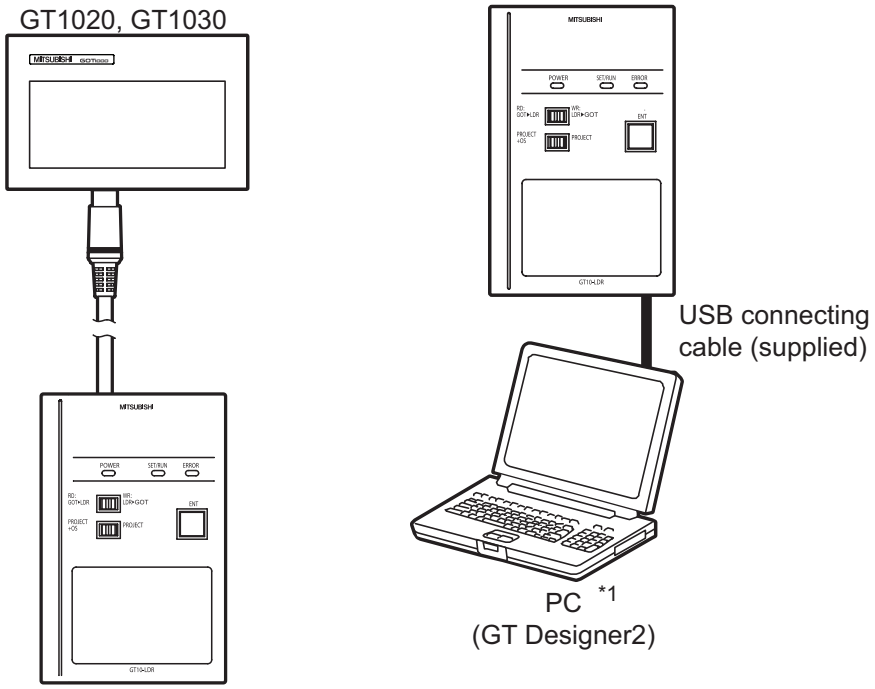
(2) Battery procurement

The battery is susceptible to natural discharge. Order one when necessary.

8.4 Memory loader

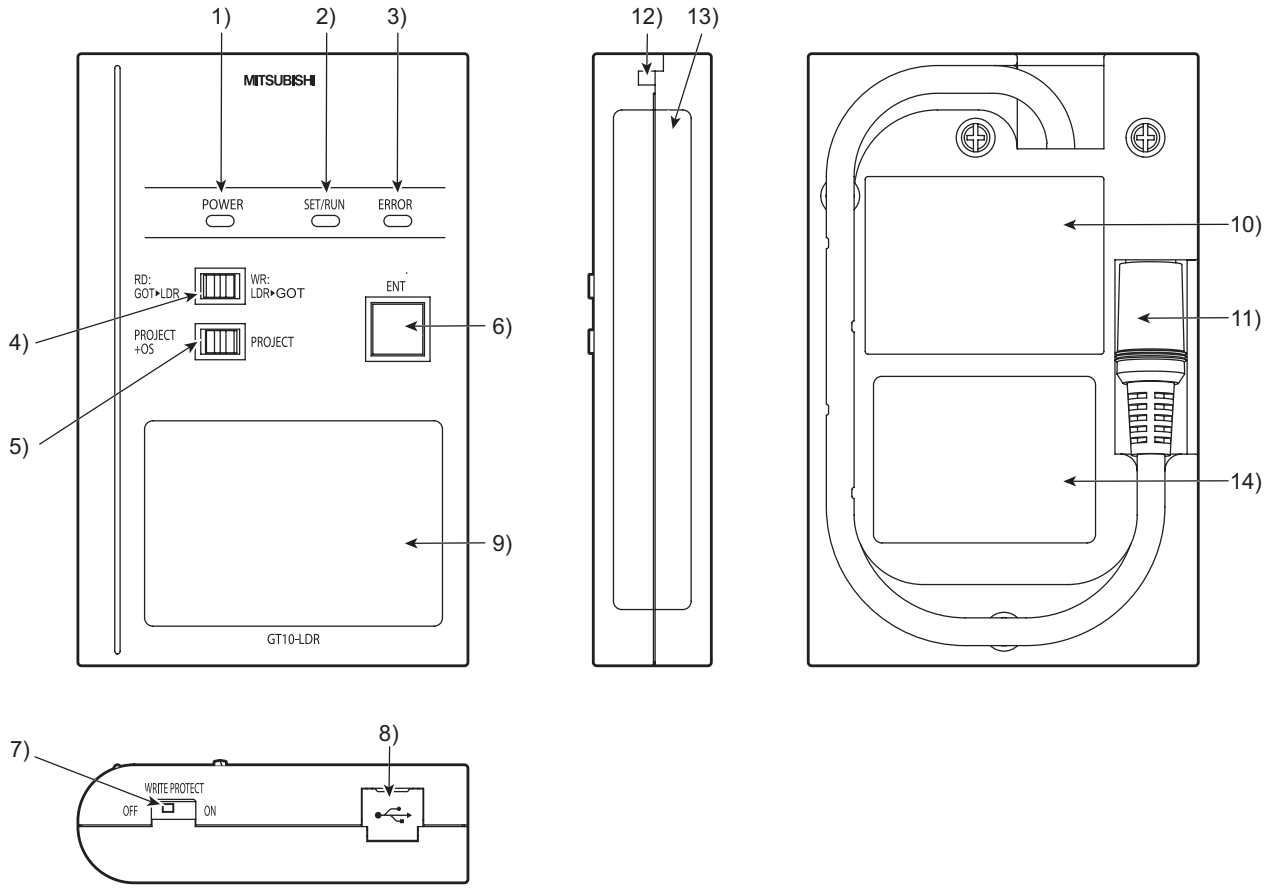
GT10-LDR memory loader is the memory transfer module that reads/writes the data to GT1020, GT1030 or between a PC (GT Designer2 Version2.77F or later) and GT10-LDR.
When using the memory loader, driver installation, communication port setting is required.
Refer to the following manual for details about driver installation.

☞ GT Designer2 Version □ Basic Operation/Data Transfer Manual



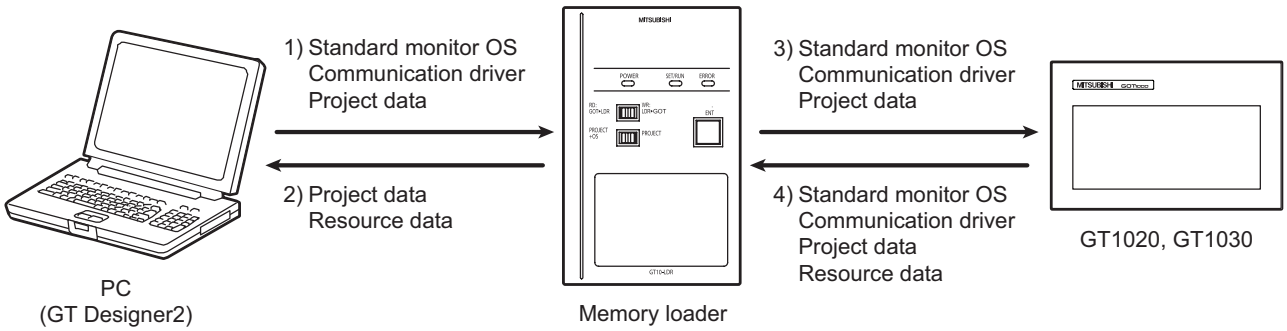
*1: When GT10-LDR is connected to a PC via the USB hub, the power supply of the USB hub must be supplied by the AC adopter of the USB hub.
GT10-LDR connected to the USB hub may not work properly depending on the PC environment. In the case, connect the GT10-LDR directly to the USB port on the PC.

8.4.1 Part Name



No.	Name	Specifications
1)	POWER LED	LED to show power status
2)	SET/RUN LED	LED to show that the settings are being checked/the transfer is running
3)	ERROR LED	LED to show error status
4)	RD/WR selection switch	Switch to select read/write direction
5)	Data selection switch	Switch to select the data to be transferred
6)	ENT key	Switch to determine the transfer direction and the data to be transferred, and to start the transfer
7)	Write protection switch	Switch to prevent the memory loader from being written to the data
8)	USB port	Connection port with a PC (with protection cap)
9)	Reference plate (operating instructions)	Described operating instructions of tne memory loader
10)	Reference plate (error contents)	Described lighting status of ERROR LED
11)	Transfer cable	Cable to be connected with the GOT
12)	Strap hole	A hole to attach a strap
13)	Part to be labeled	Space to be labeled (created by user)
14)	Rating plate (Nameplate)	--

8.4.2 Function specification



○ : Available to transfer × : Unavailable to transfer

Transfer direction	Data selection switch	Transfer data				Operation
		Project data	Resource data	Standard monitor OS	Communication driver	
1) PC (GT Designer2) → Memory loader	--	○	×	○	○	After all data in the memory loader is deleted, the data selected with GT Designer2 is written to the memory loader all at once.
2) Memory loader → PC (GT Designer2)	--	○	○	×	×	The project data or resource data is read out from the memory loader to a PC (GT Designer2).
3) Memory loader → GOT	PROJECT + OS	○	×	○	○	All data in the memory loader is written to the GOT.
	PROJECT	○	×	×	×	Only the project data in the memory loader is written to the GOT.
4) GOT → Memory loader	PROJECT + OS*	○	○	○	○	After all data in the memory loader is deleted, all data in the GOT is read out to the memory loader.
	PROJECT	○	○	×	×	After all data in the memory loader is deleted, only the project data and resource data in the GOT are read out to the memory loader.

* : Ver.01.08.00 or later of the standard monitor OS of the GT10 is applicable.

☞ GT10-LDR Memory loader USER'S MANUAL (Chapter 7 Function specification)

8.5 Memory board

GT10-50FMB type memory board is used for transferring the OS or project data to the GOT (for GT105□ only).

8.5.1 Applicable memory board

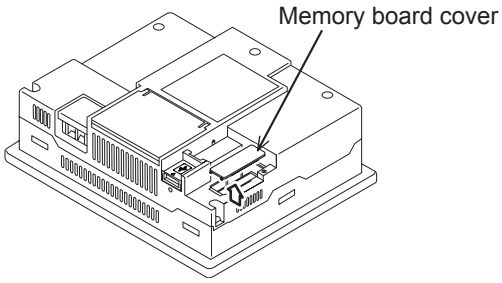
The following memory board is applicable for GT105□.

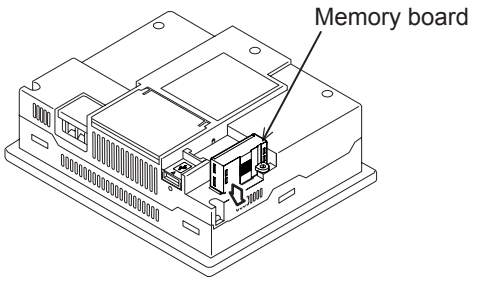
Model	Contents
GT10-50FMB	For transferring project data or the OS

8.5.2 Installing and removing procedures of the memory board

1 Inrtallation

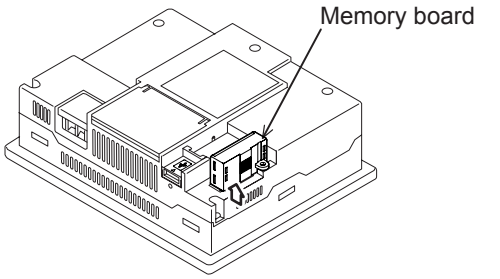
1. Turn the GOT power off.
2. Remove the memory board cover.
3. Set to OFF the protection switch in the memory board.
4. Mount the memory board to the memory board connector on the GOT rear face.
5. Turn the GOT power on.
6. Make the setting for transferring the data with the utility.
   Refer to the following for detailes.
   ☞ Section 14.4 GT10-50FMB





2 Removing

1. Turn the GOT power off.
2. Pull up the memory board vertically and remove it.



Point

Precautions for installing/removing the memory board

When installing or removing the memory board, be sure to power off the GOT main unit.

Install the memory board cover when not using the memory board.

8.6 Stand

Stand is used to fix the GOT (For GT105□) to standing status in order to debug the monitor screen data easily.

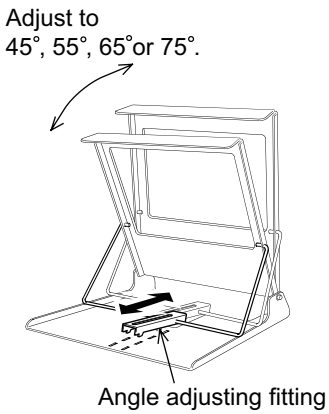
8.6.1 Applicable stand

The following stand is applicable for GT105□.

Product name	Model	Contents
Stand	GT05-50STAND	Stand for 5.7" (For GOT1000 Series)

8.6.2 Installing procedure

1 Adjust the mounting angle of GOT with the angle adjusting fitting of the stand.



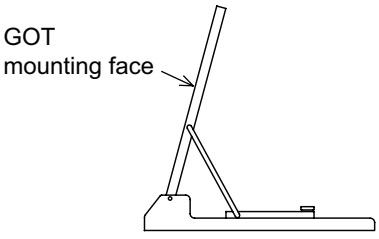
2 Put the GOT into the stand from the stand front side and fix it using the fixtures.

For how to mount the GOT, refer to the following.

☞ Section 6.5 Installation Procedure

For details of the stand, refer to the following.
GT05-50STAND

☞ GOT1000 Series Stand User's Manual



8.7 Protective cover for oil

Use of the protective cover for oil improves waterproof property, oil resistance, and chemical resistance of the GOT (For GT105□).

8.7.1 Applicable protective cover for oil

The following protective covers for oil are applicable to the GT105□.

Product name	Model	Description
Protective cover for oil	GT05-50PCO	For 5.7" GOT

8.7.2 Installing procedure

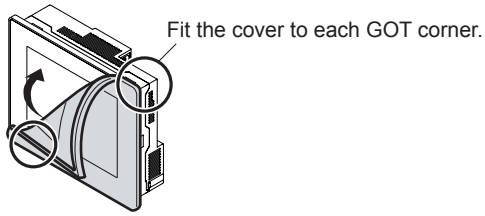
Point

Before attaching protective cover for oil

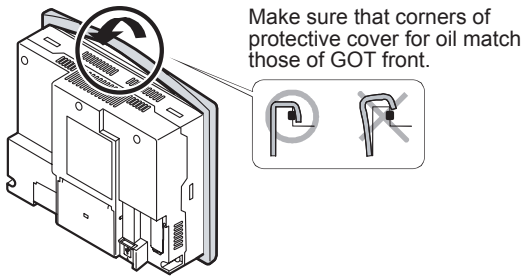
For attaching the protective cover for oil to the GOT already mounted on the control panel, follow the procedures as below.

- Remove the GOT from the control panel. Make sure to externally shut off all phases of the power supply and remove all cables from the GOT in advance.
- Clean dirt off surfaces of the GOT and control panel.

1 Check that the rubber packing is installed on the GOT rear face, and then fit the protective cover for oil to each corner of the GOT front face.
Position the POWER LED frame of the cover to the POWER LED on the GOT front face.

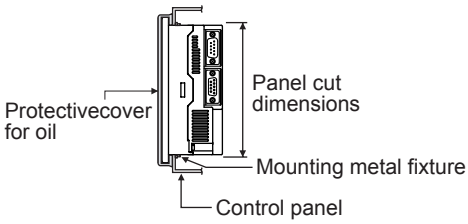


2 Spread the protective cover for oil so that it covers the rubber packing part on the GOT rear face.
For keeping liquids and others out of the control panel, make sure that the rubber packing part is completely covered.



3 Mount the GOT onto the control panel.

When the control panel is dirty, clean the control panel.
The panel cutting dimensions and mounting screw tightening torque with the protective cover for oil are the same as those without the cover.
Mount the GOT onto the control panel by referring to Chapter 6.



Point

Precautions for protective cover for oil

- The protective cover for oil is consumable product.
  Check the cover for scratch, damage or dirt at regular intervals, and replace with new one if necessary.
- Do not push the protective cover for oil with pointed tools, including mechanical pencils and screwdrivers.
  Doing so causes scraches and damages of the cover.
- Do not clean the protective cover for oil with bleaches, thinners, organic solvents, corrosive chemicals, and others. Doing so causes changes in shape and color of the cover.
- When the protective cover for oil is attached to the GOT, do not stretch and bend the cover too much.
  Doing so may cause a separation between the sheet and rubber.
- Do not place or use the protective cover for oil in direct sunshine.
- When the protective cover for oil gets dusts, wipe the dusts off with a damp cloth.

9. UTILITY FUNCTION

The utility functions allow the user to confirm the settings for communication interface, screen display, operation methods, and clock data as well as OS information.
GT10☐☐ is factory-installed with the Standard monitor OS and BootOS.
(An installation of the Standard monitor OS or BootOS is not required to use the utility functions.)

9.1 Utility Function List

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

Item		Functions overview		
		GT1020	GT1030	GT105☐
Language		Switches the display language for the utility functions (Japanese/English)		
Standard I/F		Displays the detailed information about the communication method and communication driver		
Data transfer		Displays the screen for transferring project data between the PC and GOT (If any device other than the PC is allocated to the interface for communication with PC, the GOT will not be able to communicate with the PC, except when the Data transfer window is on the screen.)		
Communication monitor		Displays the communication status of each communication port		
Keyword		Sets a keyword of the FX series PLC.		
Screen save	Time	Sets the screensaver activation time (from the last time the screen was touched) Setting range: 0 to 60 min. (Screensaver is disabled when it is set to 0 minute.) Default : 0 min.		
	Backlight	This setting is used to decide whether to turn the backlight on or off when the screensaver comes on Default : OFF		
Contrast		Adjusts the contrast on the liquid crystal display (16 level adjustment, 0 to 15)		
Brightness		-	Adjusts the intensity on the liquid crystal display (8 level adjustment, 0 to 7) Default : 7	-
Opening time		The title display period at the main unit boot can be set. (0 to 60 sec) Default : 5 sec		
Buzzer setting	Buzzer volume	Changes the buzzer settings (OFF/SHORT/LONG) Default : SHORT		
	Window move buzzer	Whether turn ON/OFF buzzer when move window can be selected Default : ON		
Calibration		Calibrates the touch panel sensitivity	-	
Security[*1]		Security level change (security password input of each object)		
Utility call		Setting of the menu call key		
Key reaction		Display of key reaction speed		
Clock setting		Setup the method to adjust the time between GOT clock data and clock data of PLC CPU connected with GOT		

(Continued to next page)

Item		Functions overview		
		GT1020	GT1030	GT105□
Time setting		Sets the clock (clock data) on the PLC Sets the clock (clock data) on the PLC, Display of battery status		
Data	OS information	Displays the OS (Standard monitor OS, BootOS) and communication driver versions		
	Clear data	Clears the project data and resource data on the GOT		
	GT10-50FMB	-		Datas are transferred between the memory boards.
Debug	Device monitor	Device monitor of PLC of intelligent module		
	FX list editor	-		The sequence program of FX PLC can be list edited
Clean		Display the screen to clean the display section		

*1: It is necessary to set the security level with GT Designer2.

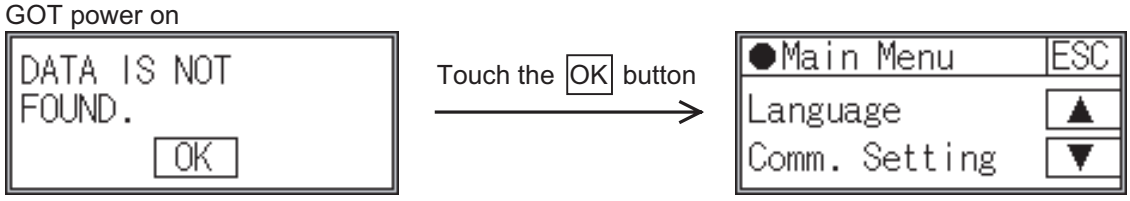
9.2 Utility Display

9.2.1 Display operation of main menu

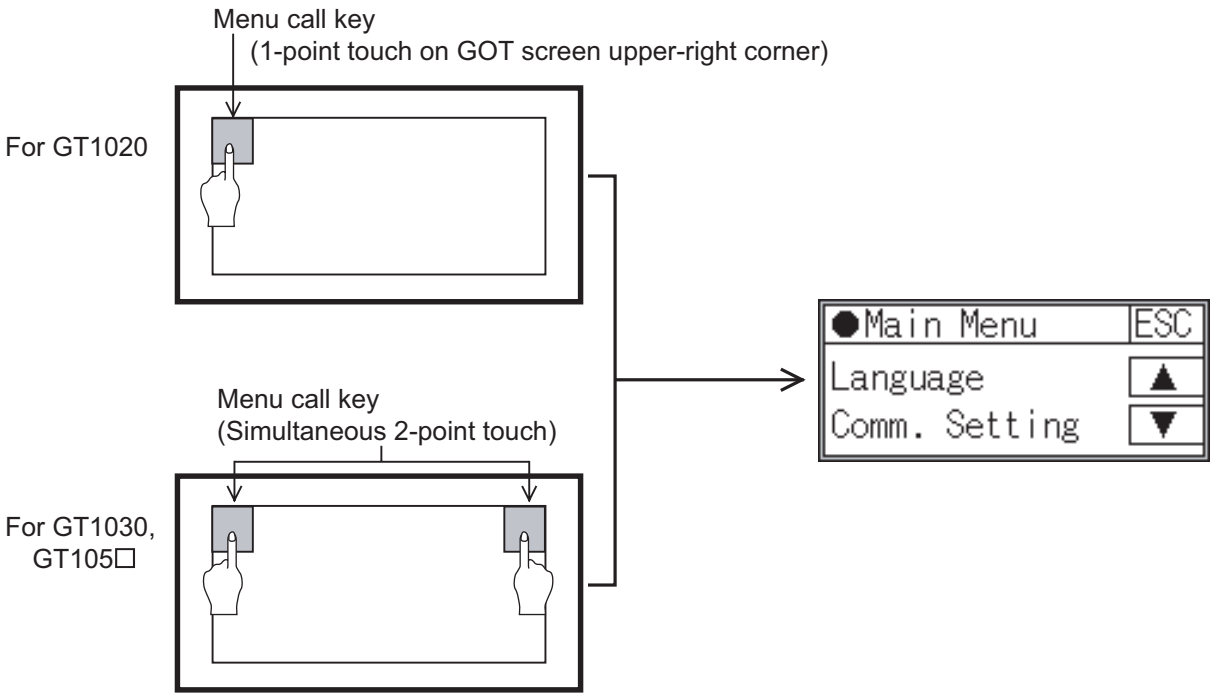
The following three types of operation can display the main menu.
(The utility function windows appear in the horizontal format, and this format cannot be changed.)

(1) 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.



(2) When touching menu call key
If you touch the menu call key while user-created screen is displayed, the main menu is displayed.
The menu call key can be set with the GOT utility screen or GT Designer2.
(At factory shipment, menu call key position it is set in the top left corner of the GOT screen on the GT1020.)
(At factory shipment, menu call key is set to “Simultaneous 2 - point presses on GOT screen upper - right and upper - left corners“ on the GT1030 or GT105□.)



(3) When touching special function switch

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 Designer2.

(When the utilities menu is assigned to the special function switch, the main menu appears when the switch is touched.)

Special function switch (Utility)

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

☞ GT Designer2 Version□ Screen Design Manual
Section 6.2 Touch Switch

Remark

Lock the utility display by password.

When a password is set on the GOT using GT Designer2, a password dialog box is displayed when trying to access the main menu of the utility display.
(The password setting option in GT Designer2 is located in the common menu.)
Enter the password that has been set.

(1) Input operation of password

1) Input the password after touching [0] to [9], [A] to [F] key.

2) Define the password by touching [Enter] key, after inputting password.

3) To correct the input character, touch [Del] key to delete the correcting character and then reinput/retype the new character.

(2) Password input cancel operation

When [ESC] button is touched, the screen returns to the monitor screen.
Refer to the following for details on setting passwords.

☞ GT Designer2 Version□ Screen Design Manual
Section 3.5 Password Setting

(3) If an invalid password is entered

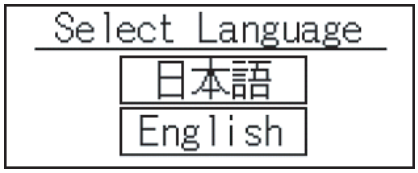
If an invalid password is entered, the error message will appear.

Touching the [OK] button will take the screen back to the monitor screen.

Point

When starting the GOT without selecting any language (At factory shipment)

The following screen will be displayed at the initial startup of GOT.
Touching the button of a desired language restarts the GOT and the language is switched to the selected one.



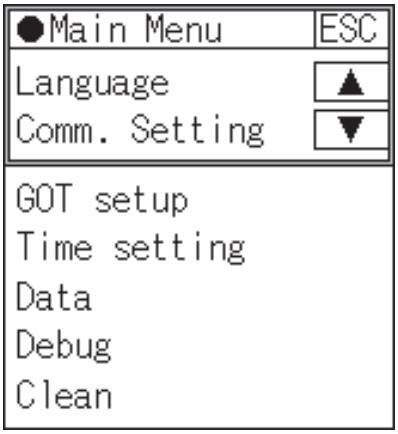
9.2.2 Utility basic configuration

The basic configuration of the screen is as follows.

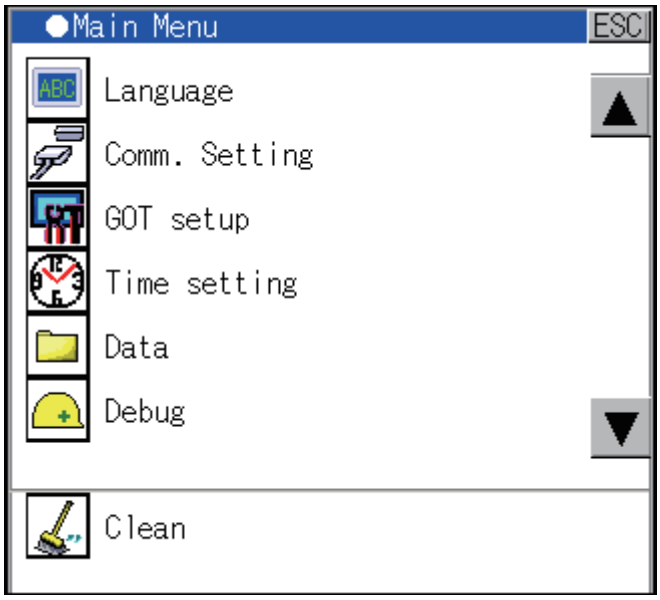
1 Main Menu

The menu items that can be selected from the GOT utility are displayed.

GT1020



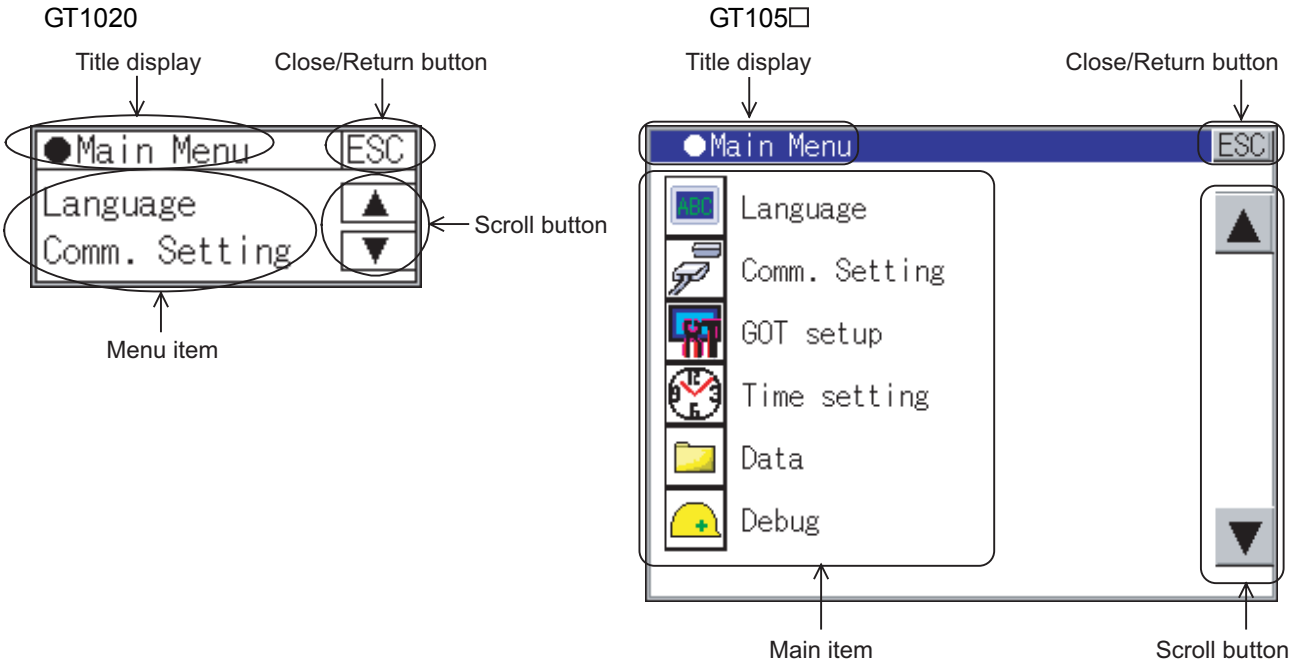
GT105□



1 Use the ▲, ▼ buttons to select an item from the menu.

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

3 Touching the ESC button will take the screen back to the user screen.



(1) Title display
The screen title name is displayed in title display part.

(2) Close/Return button

When a middle screen of the layers is displayed, if the ESC (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.

(3) 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/window

10. LANGUAGE SETTING (Language)

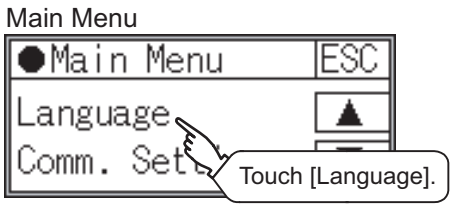
10.1 Display language setting

10.1.1 Display language setting function

This function allows display language selection.
The items which can be set are shown below.

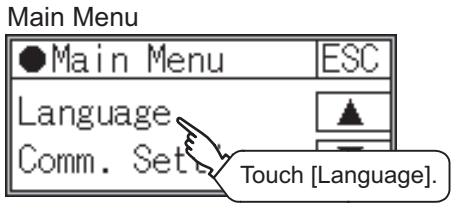
Item	Contents	Setting range
Language	Display language in which the utility functions and dialog windows are displayed can be selected or confirmed in this menu	Japanese/English <At factory shipment: Japanese>

10.1.2 Language display operation

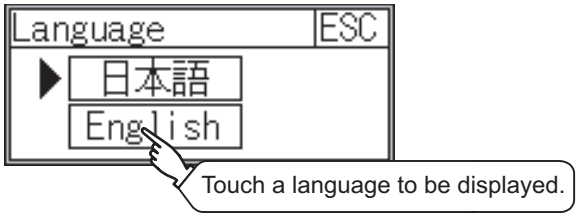


10.1.3 Language setting operation

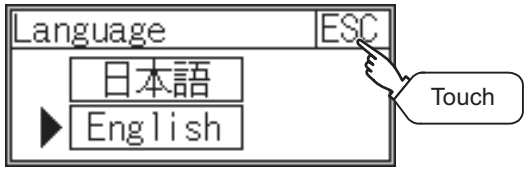
1 Language



1 Touch [Language] to bring up the set up screen.



2 Select a display language by touching the corresponding button.



3 Touch the ESC button to save the setting and close the window.

11. COMMUNICATION INTERFACE SETTING (COMMUNICATION SETTING)

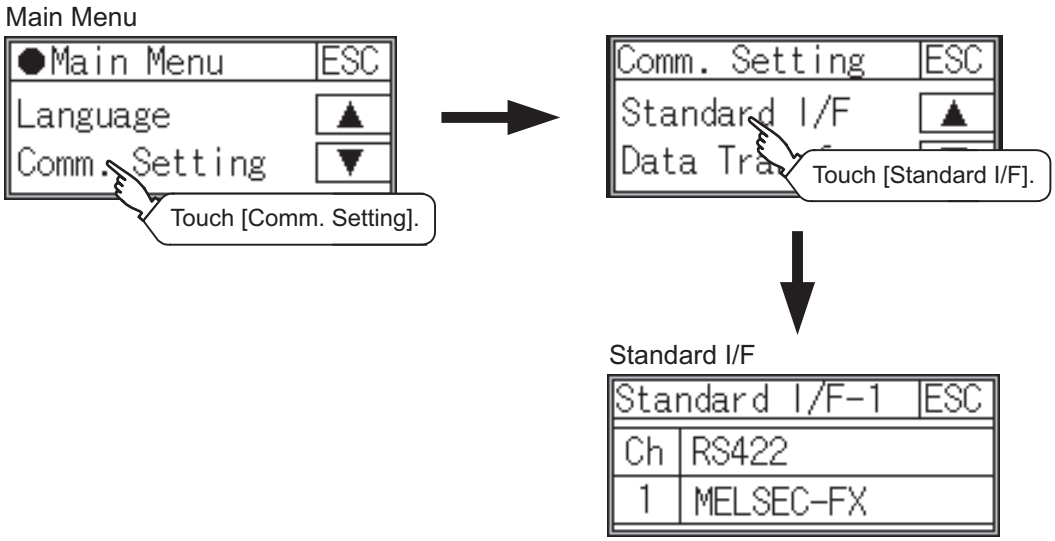
The [Communication Setting] menu has the [Standard I/F], [Data Transfer], [Communication Monitor], and [Keyword] menus.
The [Standard I/F] menu displays the information about the channel numbers, controller name, and detailed settings of the communication parameters that are allocated to the communication interfaces by GT Designer2.
The [Data Transfer] menu displays the screen for transferring project data between the PC and GOT.
The [Communication Monitor] menu displays the communication status of each communication port.
The [Keyword] menu registers, deletes, clears, and protects a keyword of the FX series PLC.

11.1 Standard I/F Setting

11.1.1 Standard I/F functions

Function	Contents
Channel no. display	Displays the channel number (CH No) that has been assigned by GT Designer2
Communication driver display	Displays the communication driver that has been assigned by GT Designer2
Communication parameters display	Displays the communication parameters of the controllers that has been assigned by GT Designer2

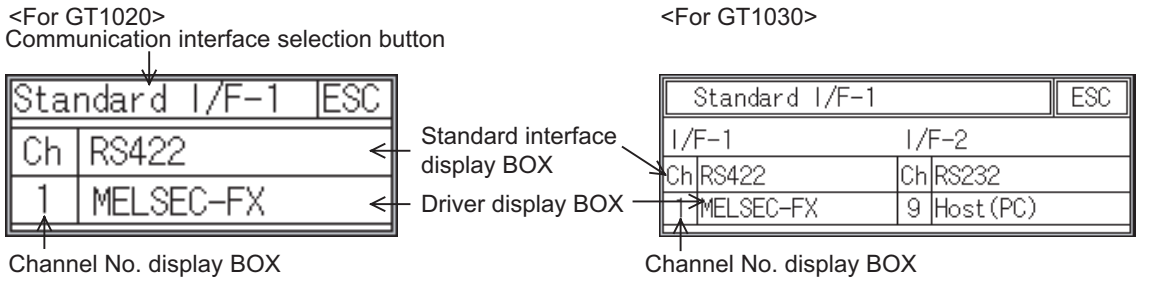
11.1.2 Standard I/F display operation

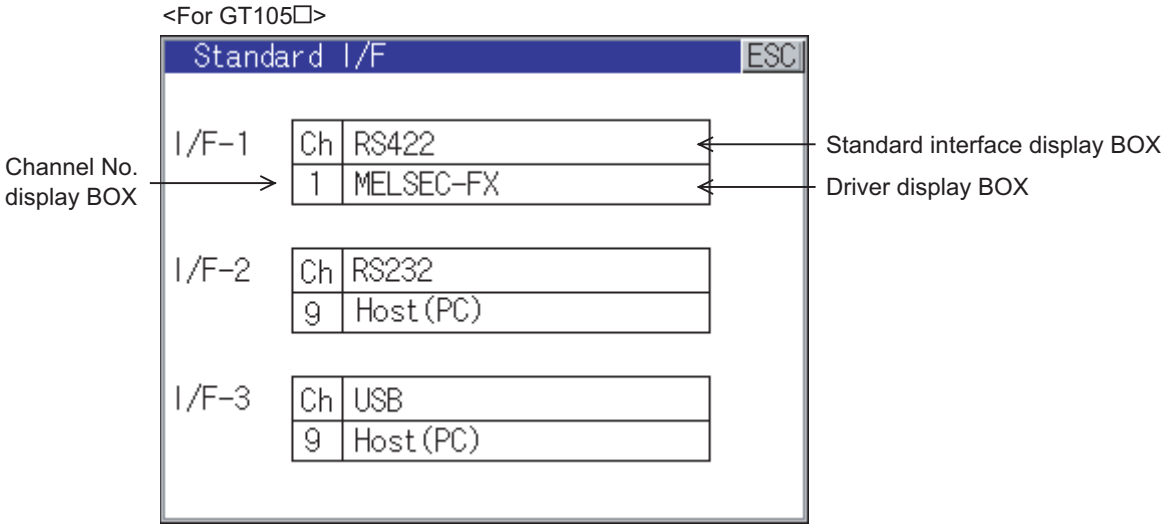


11.1.3 Display contents of standard I/F

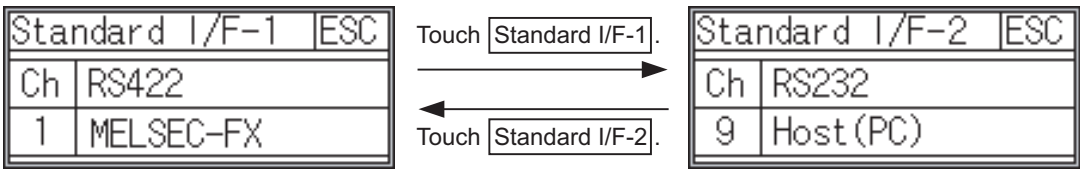
Described below are the display items on the standard I/F setting menu and their functions.

1 Display item column



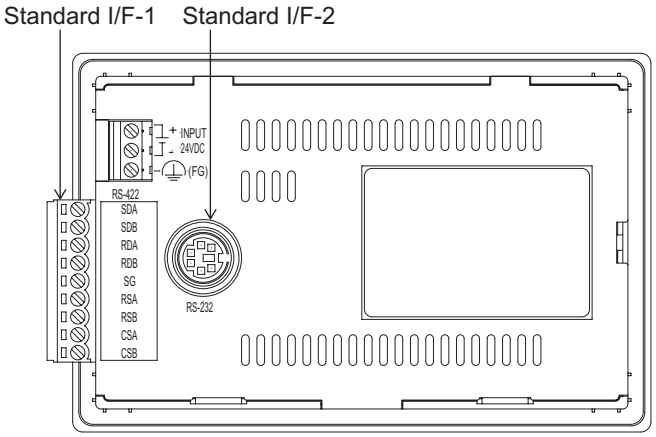


(1) Communication interface selection button <For GT1020>
Select the communication interface to be displayed.



(2) Standard interface display BOX
Displays communication interface.

(a) GT1020, GT1030
The standard interface includes the following two types.
Standard I/F-1: For communication with PLC, microcomputer and other equipment
Standard I/F-2: For communication with PC (GT Designer2), bar code reader and transparent

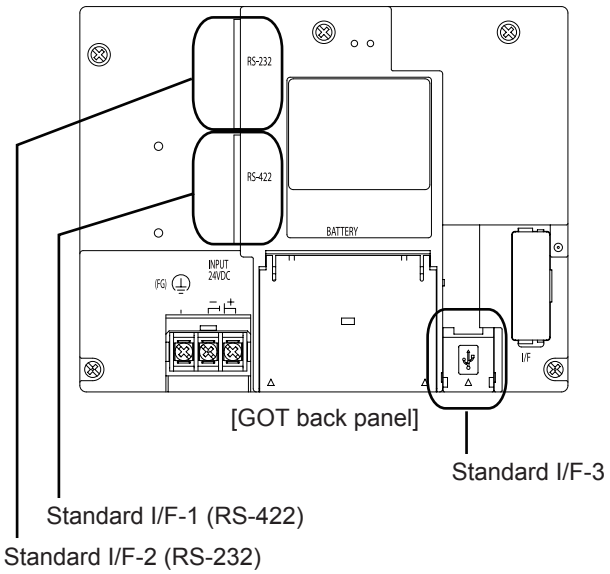


Whether an RS-422 or an RS-232 interface (Standard I/F-1) for communication with PLC is used depends on the GOT model.

- GT1020-LBD/LBL/LBDW/LBLW, GT1030-LBD/LBDW: RS-422 fixed
- GT1020-LBD2/LBDW2, GT1030-LBD2/LBDW2: RS-232 fixed

The type of the interface (Standard I/F-2) for connection to PC is always RS-232.

(b) GT105 □
The standard interface includes the following three types.
Standard I/F-1(RS-422): For communication with PLC, microcomputer and other equipment
Standard I/F-2(RS-232): For communication with PLC, PC (GT Designer2), other equipment, bar code reader and transparent
Standard I/F-3(USB): For communication with PC (GT Designer2) and transparent



(3) Channel No. display BOX

0: Set when the communication interface is not used.
1: Set when connecting to PLC or microcomputer.
(For GT1020 and GT1030, settable only for the interface (Standard I/F-1) for communication with PLC)
(For GOT105□, either of Standard I/F-1 or Standard I/F2 can be set.)
8: Set when connecting to bar code reader.
9: Set when connecting to PC (GT Designer2). (For standard I/F-2 and standard I/F-3, the simultaneous setting is possible. However, when either interface is communicating, the communication is not allowed for another interface.)

- Setting is not allowed for 2 to 7, *.
- Fixed to 9 for the USB interface.

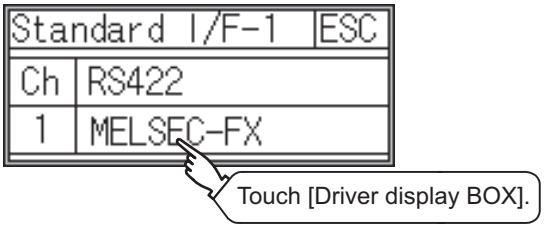
(4) Driver display BOX

The name of the communication driver for which a channel number is assigned is displayed.
"None" is displayed in the driver display box in the following cases :

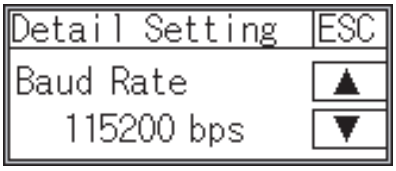
- The communication driver is not installed. (☞ Section 14.2 OS Information)
- "0" is set in the channel number specification menu box.

[*****] will appear when the communication driver that was installed on the GOT from GT Designer2 and the controller setting that was downloaded on to the GOT from Designer2 do not match.
When setting the channel number to "9", the communication driver "Host (PC)" is automatically assigned.
When the driver display box is touched, the screen jumps to the detail information screen and the communication parameter appears.

2 Detail information display operation



1 Touch Standard I/F-1 driver display box in the Standard I/F setting window.



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

Use the ▲, ▼ buttons to toggle through the items when there are multiple items to be set.

(The ▲, ▼ buttons will not work when no other items are available.)

3 Touch the ESC button to close the detail setting screen.

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.

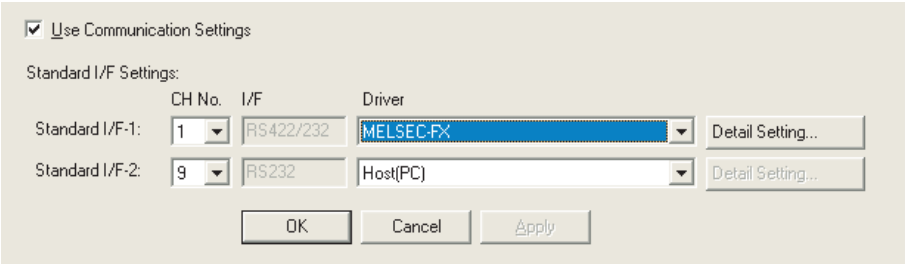
☞ GT Designer2 Version□ Screen Design Manual
Section 3.7 Communication Interface Setting (Communication Settings)

Point

Precautions for communication between GOT and connected devices

(1) Installing [Communication driver] and downloading [Communication Settings]
To perform communication with the connected device, the following actions are necessary.
1) Installing [Communication driver] (Up to 1, OS installation)
The driver for [MELSEC-FX] is factory-installed. Install the communication driver to connect a controller other than a MELSEC-FX.
2) Assigning channel number and communication driver to communication interface (Communication Setting)
3) Downloading [Communication Settings] (project data) assigned in step 2)

Perform 1), 2) and 3) with GT Designer2.



To change the communication parameter setting after downloading project data, change the setting at GT Designer2 again.

For [Communication Settings], refer to the following manual.

☞GT Designer 2 Version□ Screen Design Manual
Section 3.7 Communication Interface Setting (Communication settings).

For installation of [Communication driver] (OS) and download of project data, refer to the following manual.

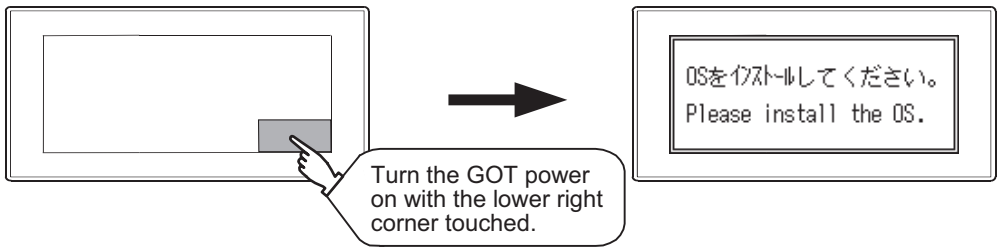
☞GT Designer 2 Version□ Basic Operation/Data Transfer Manual
Chapter 8 TRANSFERRING DATA

(2) When [Communication Settings] has not been downloaded using GT Designer2
When [Communication Settings] has not been downloaded, the GOT automatically assigns the installed communication driver as the standard I/F-1. When assigning the communication driver to Standard I/F-2 on GT105□, make the setting in the communication settings of GT Designer2.

11.1.4 Installing of communication driver

GT10□□ is factory-installed with the driver for MELSEC-FX.
An installation of the communication driver is required when connected to a controller other than a MELSEC-FX.
When installing the communication driver, first bring up the OS installation screen on the GOT, and then install the communication driver from GT Designer2.

Bringing up the OS installation screen



Refer to the chapter below for detailed information on the OS installation screen of the GOT.

☞ Chapter 17. OS INSTALLATION

Point

About the OS installation screen

The OS can be transferred from GT Designer2 Version2 without displaying the OS installation screen depending on the combination of the GOT and the standard monitor OS.

Model	BootOS version	Standard monitor OS	GT Designer2
GT1020	BootOS version F or later	Standard monitor OS [01.08.00]	Version2.77F or later
GT1030	BootOS version F or later		
GT105□	From the first version		Version2.90U or later

Refer to the chapter below for how to install the communication driver from GT Designer2.

☞ GT Designer 2 Version□ Basic Operation/Data Transfer Manual
Chapter 8. TRANSFERRING DATA

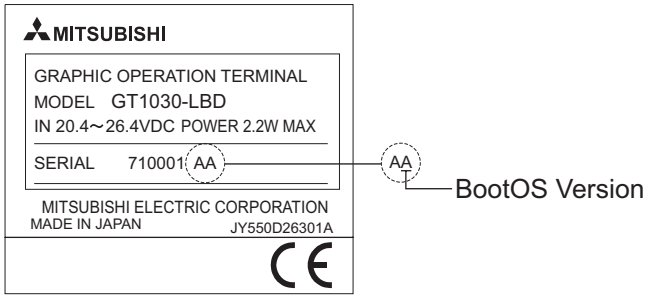
Point

Checking method of BootOS, Standard monitor OS version

1. Check the version of BootOS or Standard monitor OS installed in GOT at [OS information] of the utility.
   Refer to the following for details.

   ☞ Section 14.2 OS Information

2. Check the version of BootOS installed in GOT at product shipment on the rating plate on GOT rear face.



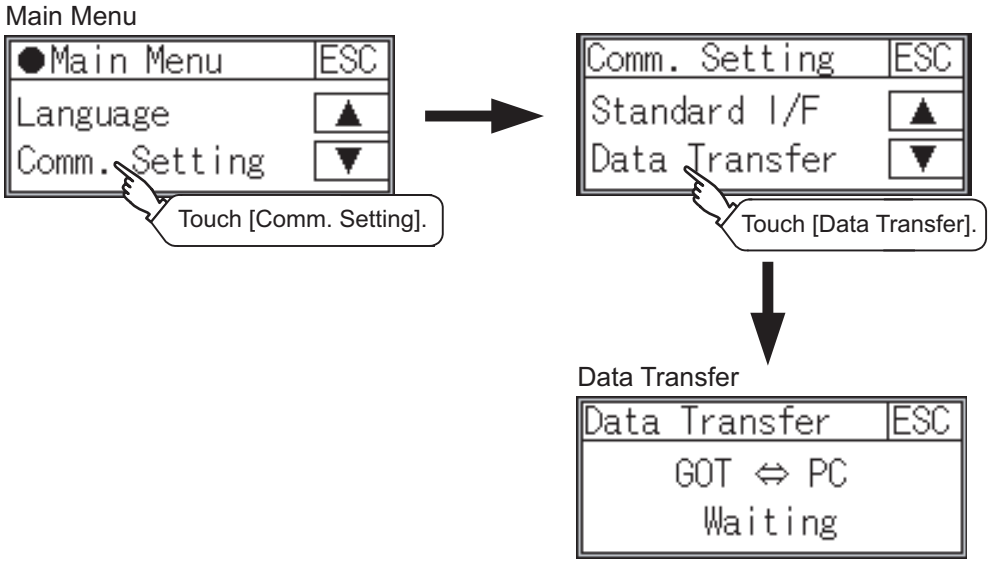
11.2 Data Transfer

11.2.1 Data transfer functions

Function	Contents
Data transfer screen display	Displays the screen for transferring project data between the PC and GOT. If any device other than the PC is allocated to the interface for communication with PC, the GOT will not be able to communicate with the PC, except when the Data transfer window is on the screen.

11.2.2 Data transfer operation

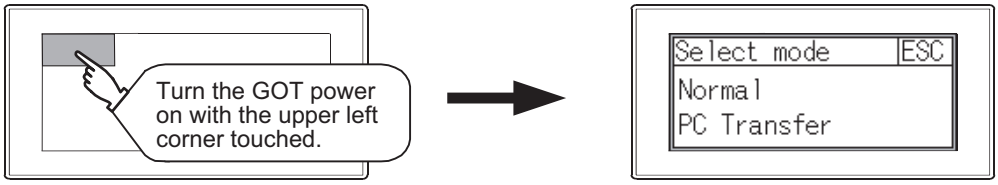
1 Display from the utility main menu



2 Display from the select mode

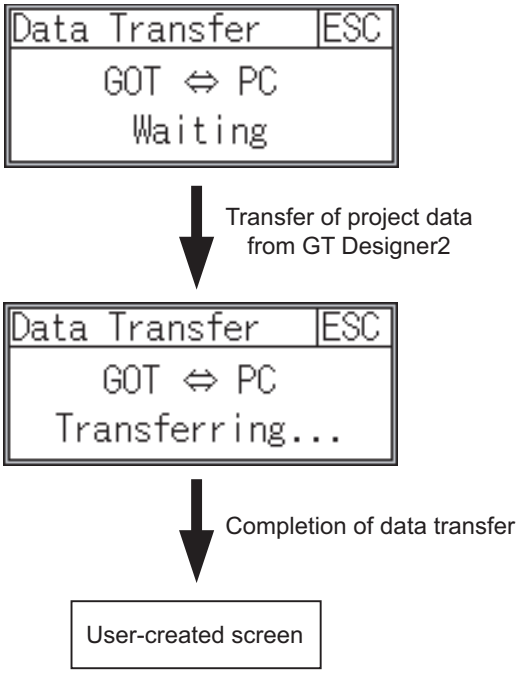
If data transfer screen cannot be displayed on the user-created screen, power ON to perform select mode while pressing and holding the upper left corner of the screen.
The selection screen of [Normal] or [PC Transfer] appears at the startup.
In the [Normal], an initial screen appears when the monitor screen has been created, and the utility main menu appears when the monitor screen has not been created.
[Data Transfer] screen appears in the [PC Transfer].
Standard I/F-2 is used in the communication mode to the PC.

Bringing up the select mode screen



11.2.3 Data transfer display

[Waiting] on the data transfer screen will change to [Transferring...] when project data are transferred from GT Designer2.
At the completion of data transfer, the user-created screen will appear.



Point

Transfer of project data

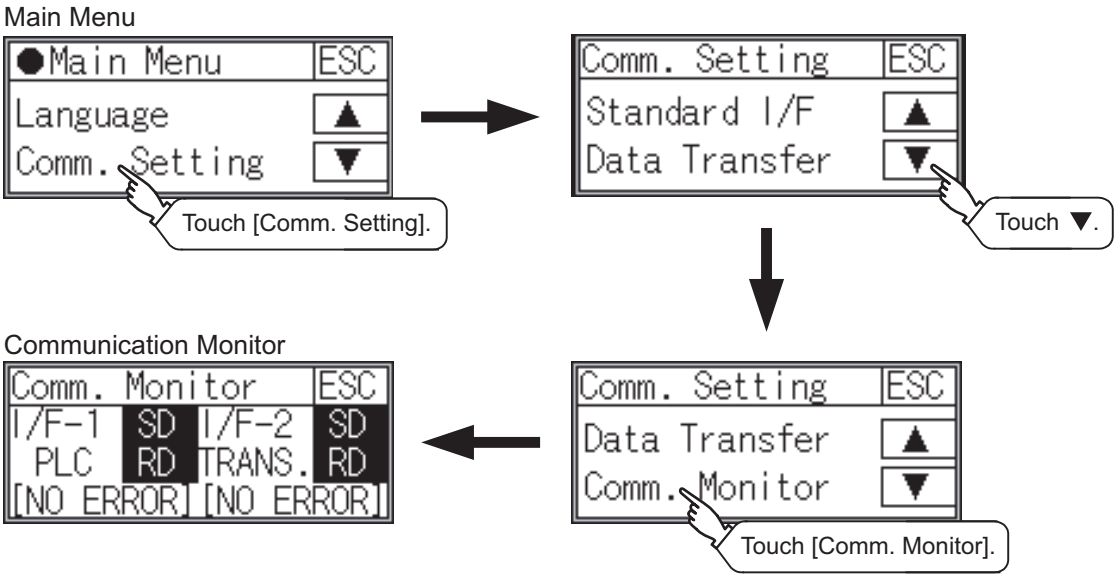
If [ESC] button on the display screen is pushed during transfer of project data, transmission of project data is stopped.
In that case, project data are transfered from GT Designer2 again.

11.3 Communication Monitor

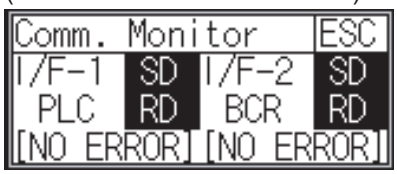
11.3.1 Communication Monitor functions

Function	Contents
Communication port-selection status display	Displays 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

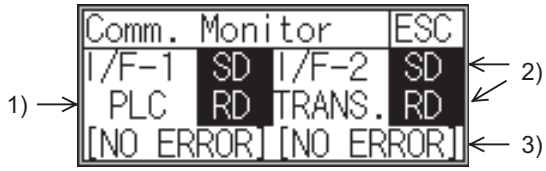
11.3.2 Communication Monitor display operation



Communication Monitor
(When bar code is connected)



11.3.3 Screen display content



1) 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).

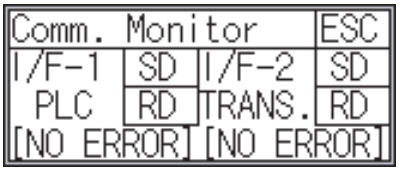
Display item	Channel number	Remarks
PLC	Ch1	"PLC" appears when connected to a controller (PLC or microcomputer)
BCR	Ch8	"BCR" appears when connected to a bar code reader
TRANS.	Ch9	"TRANS." appears when the controller that is allocated to one of the communication ports supports the transparent mode "TRANS." automatically changes to "PC" when communicating with GT Designer2
PC	Ch9	"PC" appears when the controller that is allocated to one of the communication ports does not support the transparent mode

2) Communication status
Communication status of each communication port is displayed on this screen.
The SD and RD symbols appear in black on white (SD, RD) while data are being sent or received, and in white on black (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.

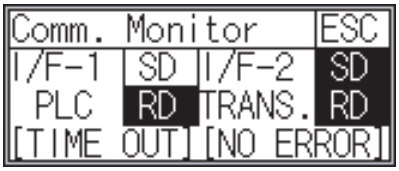
Port	Channel number	Controller type
I/F-1	Ch1	MELSEC-FX
IF-2	Ch8, Ch9	–

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



The SD and RD symbols for both I/F-1 and I/F-2 blink.

[When the connecting cable with the controller is disconnected]



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

3) Communication error status

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

The table below summarizes the types and nature of the errors.

Display item	Action
NO ERROR	Communication is executed normally.
ERR Ovr.	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.	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.	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	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 micro computer board, a text error occurs.)
TIME OUT	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 micro computer board, confirm the terminator, CR, wiring, etc.)
ERR Line	The control line is not operating correctly. Confirm the wiring of the control line.
ERR Cmd.	A command contained in the receive data is not consistent with the send command from the GOT.

11.4 Keyword

11.4.1 Keyword functions

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

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

Point

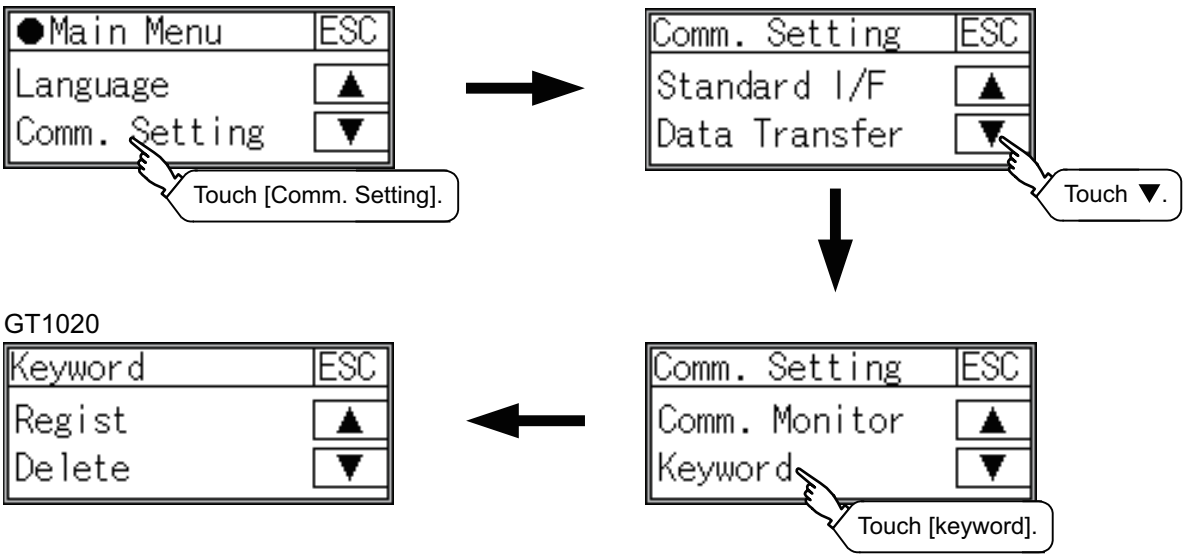
How to use the keyword function

To use a keyword, the standard monitor OS[01.10.**] or later and the communication driver MELSEC-FX[01.06.**] or later must be installed on the GOT.
For the details of OS installation, refer to the following images.

17. OS INSTALLATION

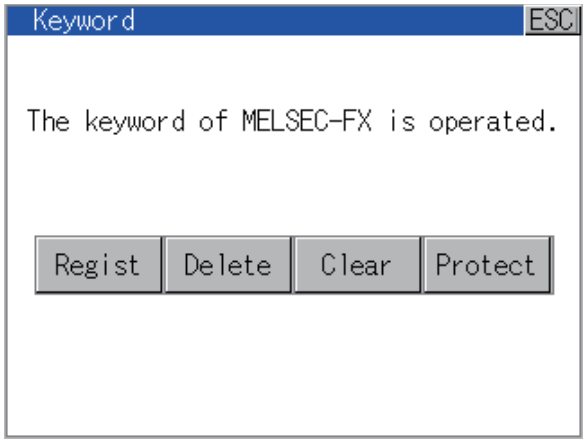
11.4.2 Keyword display operation

Main Menu



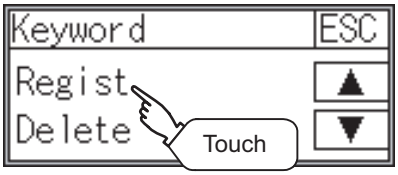
GT1020

GT105□

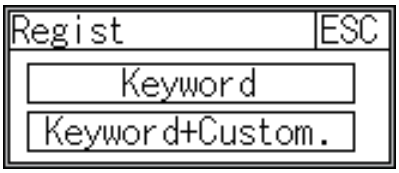


11.4.3 Regist

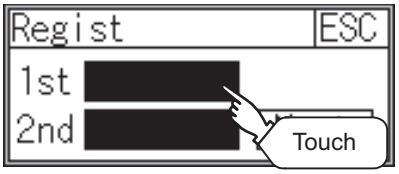
Keyword is registered.



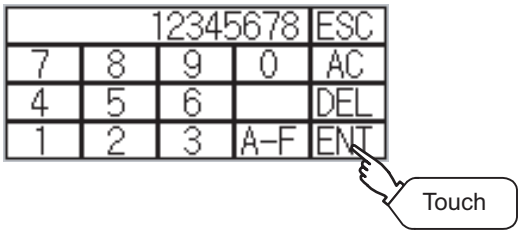
1 Touch "Regist" to display the selection screen for the registration.
For the FX series PLC, which is not compatible with Customer Keyword, the keyword entry screen of 3) is displayed.
Start the operation from 3).
For the Customer Keyword compatible models, refer to the manual of the PLC to be used.



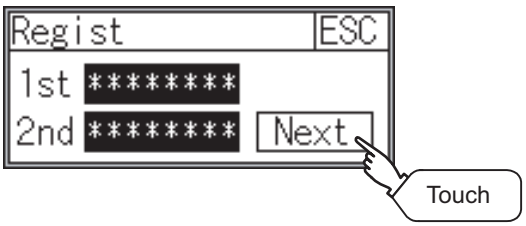
2 Select [Keyword] or [Keyword + Custom].
To register only Keyword and 2nd keyword, touch [Keyword].
To register Customer Keyword, touch [Keyword + Custom].



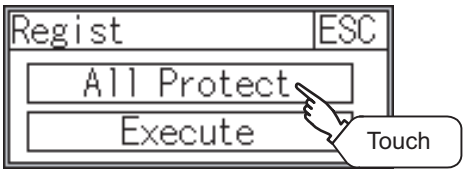
3 Touch the display part of the keyword to be registered.



4 The keyboard for entering a keyword is displayed. Enter a keyword and touch the ENT key.
For the keyword, 8 digits from 0 to 9 or A to F must be set.



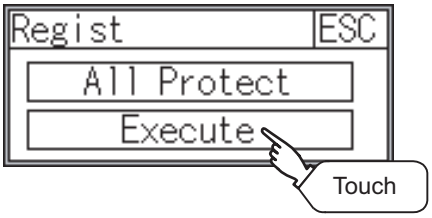
5 After completing the keyword entry, touch Next.
When [Keyword + Custom] is selected on the selection screen for the registration, the Customer Keyword entry screen is displayed.
Enter it in the same way as for Keyword and 2nd keyword.



6 Set Registration conclition.

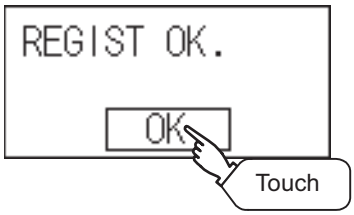
Touch Registration conclition to change the setting contents.

All Protect → Write Protect → R/W Protect



7 After setting Registration conclition, touch the [Execute] key.

The registration of the keyword is completed.



8 After the completion of the keyword registration, touch OK

Point

(1) Selection availability of Registration conclition

The following table lists the PLCs that can select Registration conclition.

Target PLC	Settings	
	When keyword and 2nd keyword are registered	When only keyword is registered
FX PLC compatible with 2nd keyword*1	Registration options can be selected.	Registration options*2 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

Options can be selected among "Read/Write Protect", "Write Protect", or "All Protect".

For access restrictions of each setting, refer to the manual of the PLC to be used.

(2) 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.

(a) When only keyword is registered

Protection level is selected by the head character of keyword.

All operation prohibition: 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.

(b) When keyword and 2nd keyword are registered

Protection level is selected by "Registration options".

(3) Applicability of monitoring for each keyword protection level

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

Setting items		When only keyword is registered			When keyword and 2nd keyword are registered			Keyword unregistered/ protection cancelled
		All operation prohibition	Read/ incorrect write protection	Erroneous write prohibition	All Protect	Read/ Write prohibition	Write Protect	
Device monitoring		○	○	○	×	○	○	○
Device change	T, C setting values and file register (from D1000)	×	×	×	×	○	○	○
	Other than the above	○	○	○	×	○	○	○

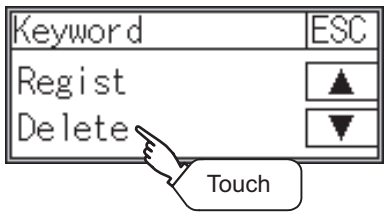
(4) Difference between "All Protect" and "All operation prohibition"

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

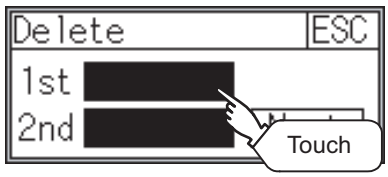
When "All operation prohibition" is selected, device display and input are possible although operations by the programming tool are all prohibited.

11.4.4 Delete

Registered keyword is deleted.



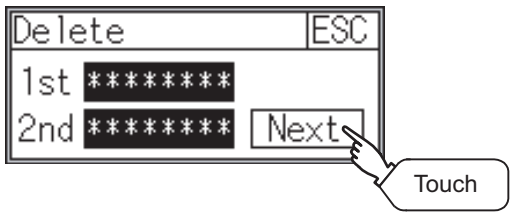
1 Touch [Delete] to display the keyword entry screen.



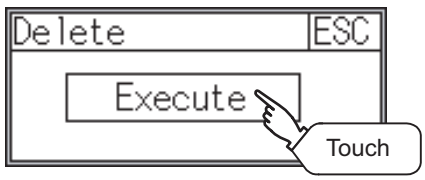
2 Touch the display part of the registered keyword.

Target PLC	Settings
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.

3 The keyboard for entering a keyword is displayed. Enter a keyword and touch the [ENT] key.



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

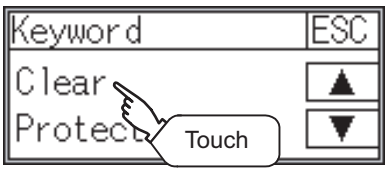


5 Touch the [Execute] key.

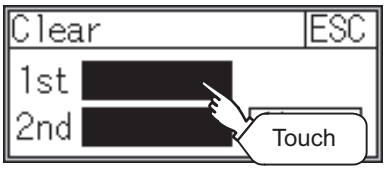
6 The keyword is deleted.
Touch [OK].

11.4.5 Clear

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

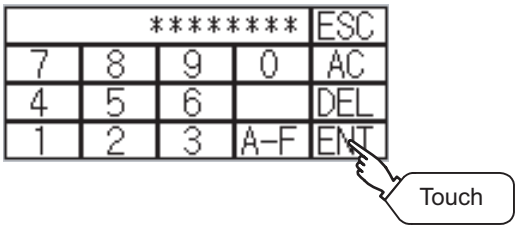


1 Touch [Clear] to display the keyword entry screen.

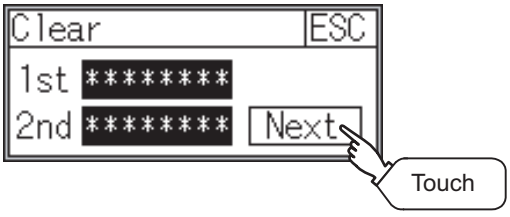


2 Touch the display part of the registered keyword.

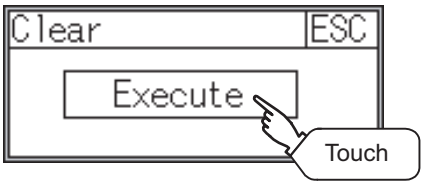
Target PLC	Settings
FX PLC compatible with customer keyword	Input a keyword or cutomer keyword to cancel the protection.
FX PLC compatible with 2nd keyword	Input a keyword to cancel the protection.
FX PLC not compatible with 2nd keyword	Input a keyword into "keyword" to cancel the protection. "2nd keyword" is ignored.



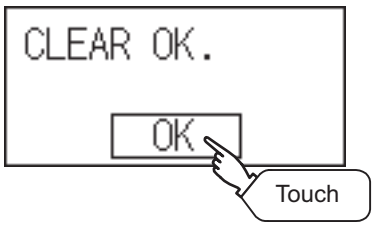
3 The keyboard for entering a keyword is displayed. Enter a keyword and touch the [ENT] key.



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



5 Touch the [Execute] key.

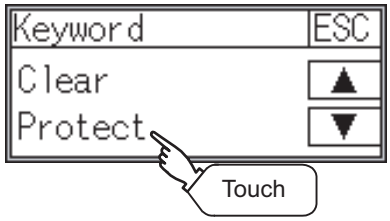


6 The protection is cancelled.

Touch [OK] .

11.4.6 Protect

A keyword with cancelled 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.

12. DISPLAY AND OPERATION SETTINGS (GOT SET UP)

Setting screen for display and setting screen for operation can be displayed from GOT setup.
In the setting screen for display and the setting screen for operation, the following settings can be set.

Screen	Description		
	GT1020	GT1030	GT105□
Setting screen for display	Screen save time		
	Screen save backlight		
	Contrast	Bright/Contrast	Contrast
	Opening time		
Setting screen for operation	Buzzer volume, Window move buzzer		
	Calibration	-	
	Key reaction		
	Clock setting		
	Security		
	Utility call		

12.1 Display Settings

12.1.1 Display setting functions

Setting regarding display is possible. The items which can be set are shown below.

Items	Contents			Setting range
	GT1020	GT1030	GT105□	
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 minutes> When set to 0, the function becomes invalid.
Screen save backlight	Whether turn ON or OFF the backlight simultaneously at the screen save function start can be specified.			ON/OFF <At factory shipment: OFF>
Brightness	-	The brightness can be adjusted.	-	8-level adjustment (0 to 7) <At factory shipment: 7>
Contrast	Contrast can be adjusted.			16-level adjustment (0 to 15) <At factory shipment: 10>
Opening time	The title display period at the main unit boot can be set.			0 to 60 seconds <At factory shipment: 5 seconds >

Point

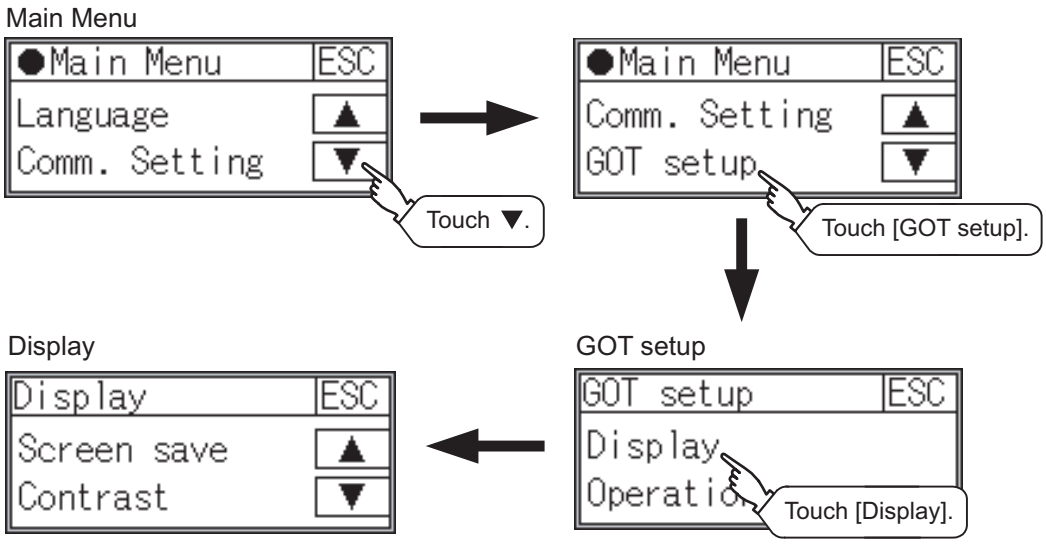
(1) Display setting by GT Designer2
Set title display period, opening time, screen save time and screen save backlight at [GOT set up] in [System Environment] of GT Designer2.
When change a part of the setting after downloading the project data, change the setting by [Display] screen of the GOT.

☞ GT Designer2 Version □ Screen Design Manual
(Section 3.8 Setting of the GOT display and operation (GOT setup))

(2) Screen save and screen save backlight OFF function
When using the screen save and screen save back light OFF function, select valid/invalid by the system information reading device in [System Environment] of GT Designer2.
For system information details, refer the following.

☞ GT Designer2 Version □ Screen Design Manual
(Section 3.6 Setting System Information)

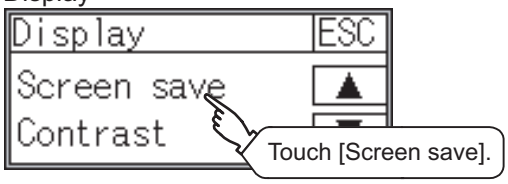
12.1.2 Display operation of display setting



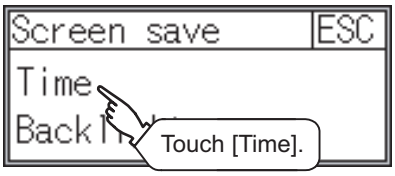
12.1.3 Display setting operations

1 Screen save time

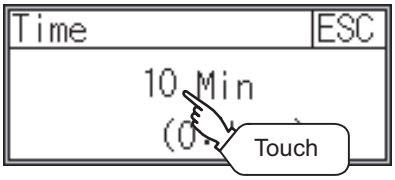
Display



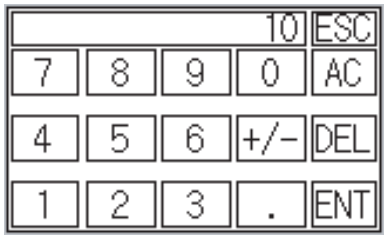
1 Touch [Screen Save] to bring up the screensaver setting window.



2 Touch [Time] to bring up the time setting window.



3 Touch the time that appears on the time setting window to bring up the ten-key pad.



4 Enter the time using the ten-key pad.

"0" to "9" : Use these keys to enter numerical values. Enter "0" to disable the screensaver function

"ESC" : Closes the ten-key window without saving any value entered

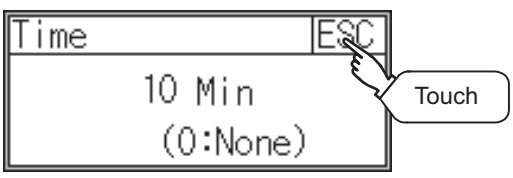
"AC" : Deletes the entire string of numerical characters that are being entered

"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.)

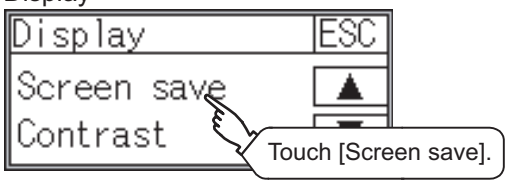
" . " : Invalid key (not used)



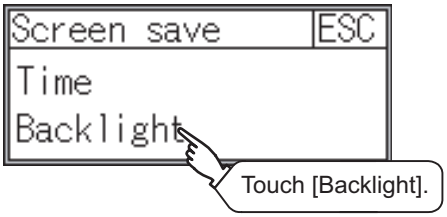
5 When all the settings have been made, touch the ESC button to close the setting window.

2 Screen save backlight

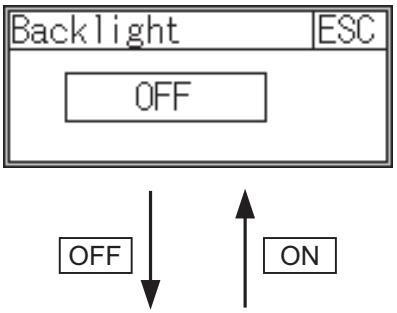
Display



1 Touch [Screen Save] to bring up the screensaver setting window.

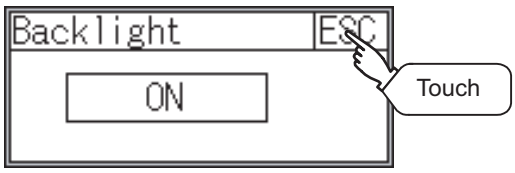


2 Touch [Backlight] to bring up the backlight setting window.



3 Touch the [OFF]/[ON] button to turn off/turn on the backlight.

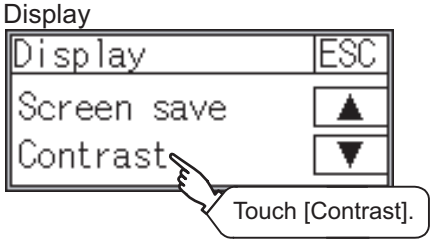
- [OFF] button: Screen save, Transferring..., Backlight, Unlit
- [ON] button: Screen save, Transferring..., Backlight, Lit



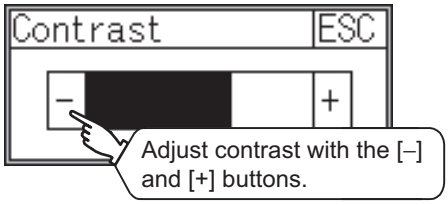
4 After changing the settings, touch the [ESC] button to save the changes and close the setting window.

3 Contrast

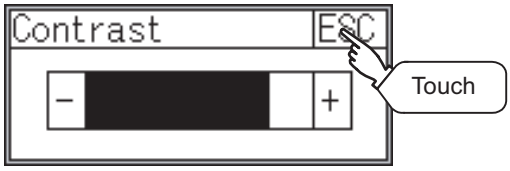
Display



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



2 Touch the [–] and [+] buttons to adjust the contrast of the screen.

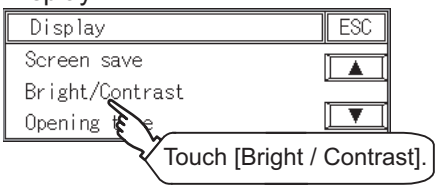


3 After changing the settings, touch the ESC button to save the changes and close the setting window.

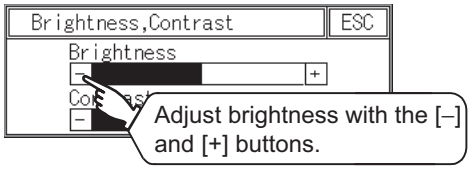
4 Brightness

<For GT1030>

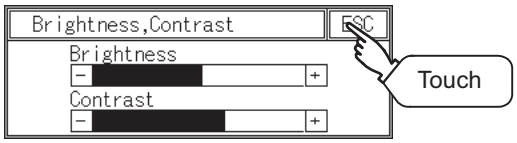
Display



1 Touch [Bright/Contrast] to bring up the setting window.



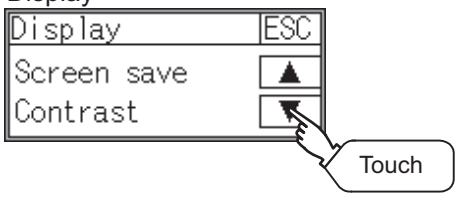
2 Touch the [–] and [+] buttons to adjust the brightness of the screen.



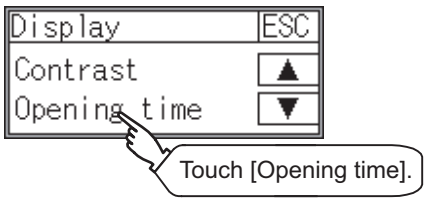
3 After changing the settings, touch the ESC button to save the changes and close the setting window.

5 Opening time

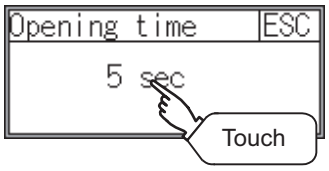
Display



1 Touch ▼ to bring up the [Opening time] setting window.



2 Touch [Opening time] to bring up the setting window.



3 Touching the set time (value) can change the setting.

4 After changing the settings, touch the ESC button to save the changes and close the setting window.

12.2 Operation Settings

12.2.1 Operation setting functions

Setting regarding GOT operation can be set.
The items which can be set are described below.

Function	Contents			Setting range
	GT1020	GT1030	GT105□	
Buzzer volume	Buzzer volume setting can be changed			OFF/SHORT/LONG <At factory shipment: SHORT>
Window move buzzer volume	Whether turn ON/OFF buzzer when move window can be selected			ON/OFF <At factory shipment: ON>
Calibration	Touch panel sensitivity can be adjusted using this function	–		– <At factory shipment: already adjusted>
Key reaction	The sensitivity of touch panel when GOT screen is touched can be set			±0 to +120 *1
Clock setting	Set the method to adjust the time between the GOT clock data and clock data of the connected controller.			For GT1020 : None, Adjust For GT1030, GT105□ : None, Adjust, Broadcast, Both <At factory shipment: Adjust>
Security	Security level screen can be displayed			–
Utility call	Utility call key setting screen can be displayed			–

*1 The more the value set for [Key reaction] is high, the more the key reaction speed slows.

"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].

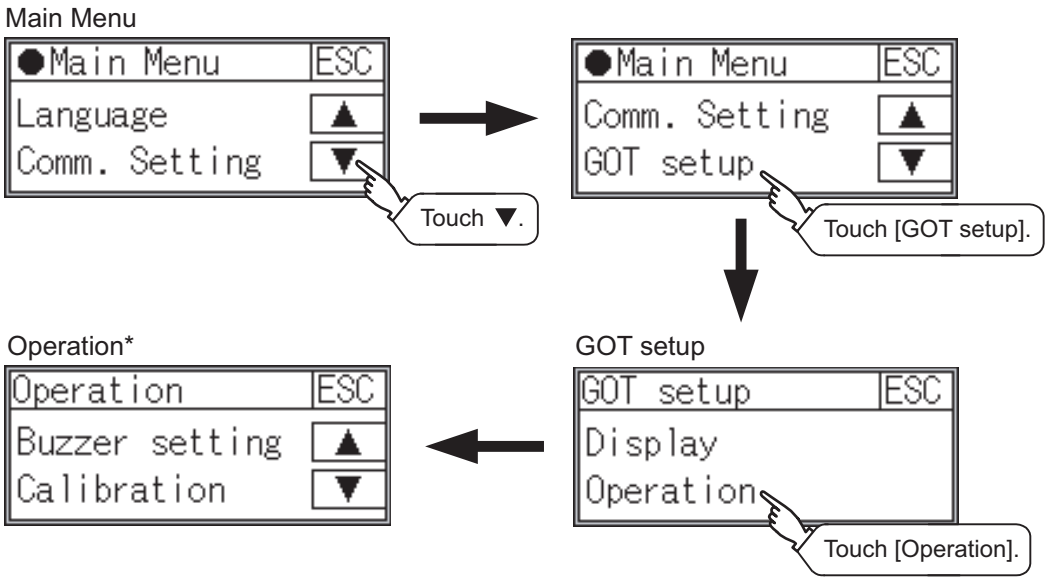
Point

Operation settings by GT Designer2

Set buzzer volume and window move buzzer volume by [GOT setup] in [System Environment] of GT Designer2.
When change a part of the setting, change the setting by the GOT display setting after downloading the project data.

☞ GT Designer2 Version □ Screen Design Manual
Section 3.8 Setting of the GOT display and operation (GOT setup)

12.2.2 Display operation of operation setting

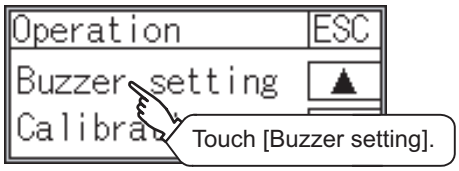


*: GT1030, GT105 □ does not have [Calibration] function.

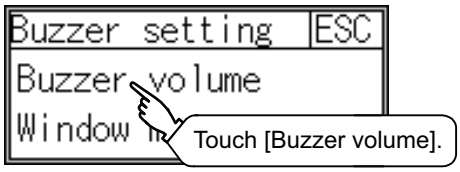
12.2.3 Setting operation of operation

1 Buzzer volume

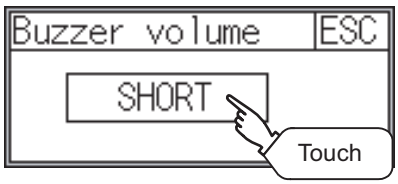
Operation



1 Touch [Buzzer setting] to bring up the buzzer volume setting window.

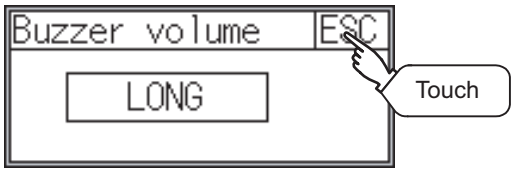


2 Touch [Buzzer volume] to bring up the setting window.



3 Touch a setting item to change the setting.

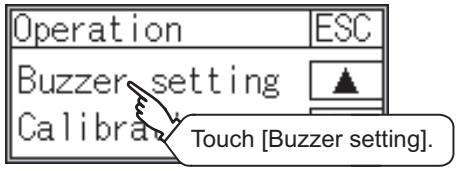
(Buzzer volume: SHORT → LONG → OFF)



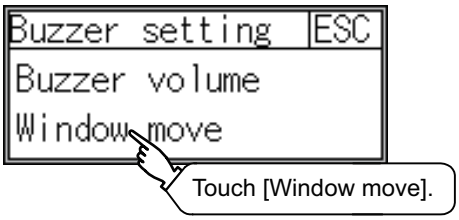
4 After changing the settings, touch the ESC button to save the changes and close the setting window.

2 Window move buzzer

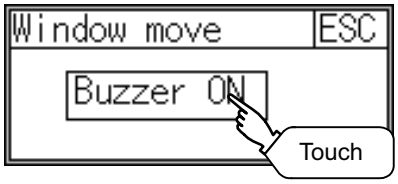
Operation



1 Touch [Buzzer setting] to bring up the buzzer volume setting window.

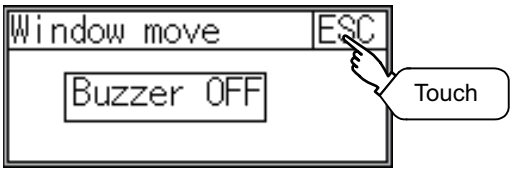


2 Touch [Window move] to bring up the setting window.



3 Touch a setting item to change the setting.

(Window move buzzer: ON ⇄ OFF)

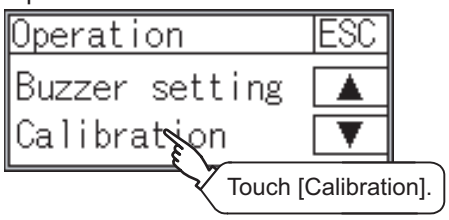


4 After changing the settings, touch the ESC button to save the changes and close the setting window.

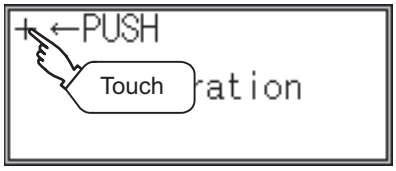
3 Calibration

<For GT1020>

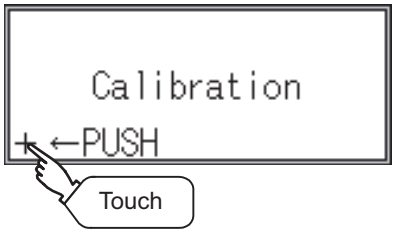
Operation



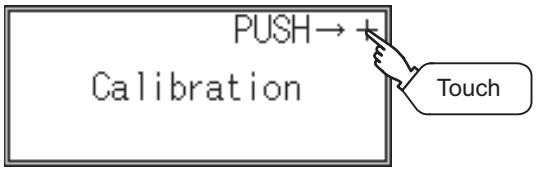
1 Touch [Calibration] to bring up the setting screen.



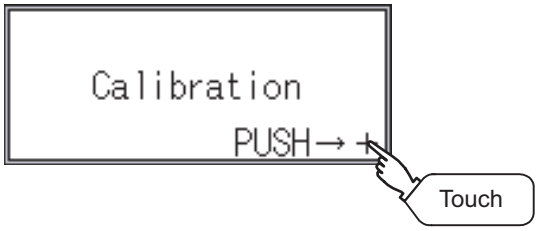
2 Touch the "+" symbol at the top left corner.



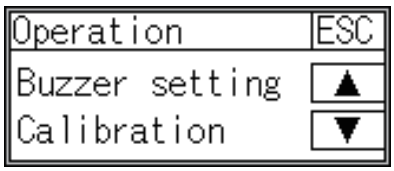
3 Touch the "+" symbol at the bottom left corner.



4 Touch the "+" symbol at the top right corner.



5 Touch the "+" symbol at the bottom right corner.

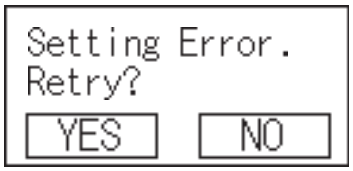


6 5 completes the calibration process, and the [Operation] window will reappear.

Point

Touch panel calibration error

If touch panel calibration results in inoperability of the panel, the following message will appear.

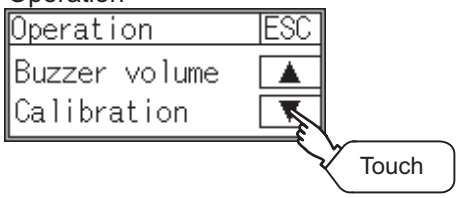


YES button: Returns to the touch panel calibration screen.

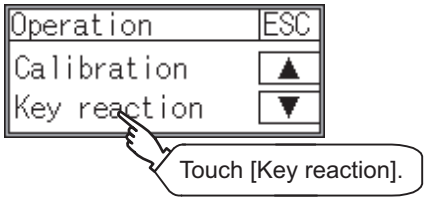
NO button: Aborts calibration without saving any changes to the touch panel setting.

4 Key reaction

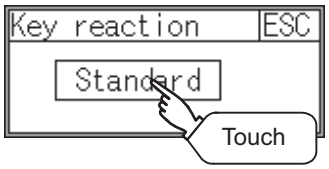
Operation



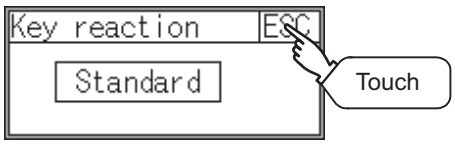
1 Touch ▼ to bring up the [Key reaction] setting window.



2 Touch [Key reaction] to bring up the setting window.



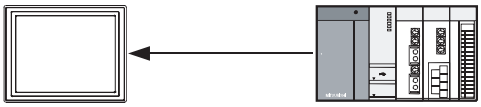
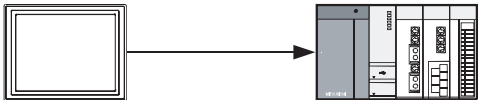
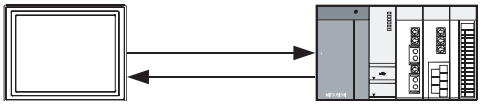
3 Touch a setting item to change the setting.



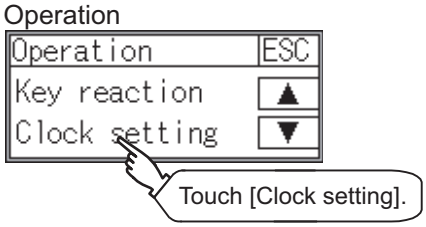
4 After changing the settings, touch the ESC button to save the changes and close the setting window.

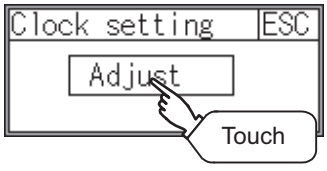
5 Clock setting

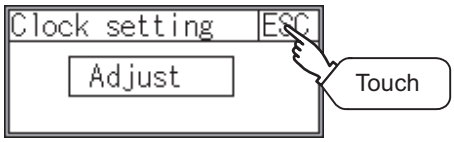
Setup the method to adjust the time between GOT data and the clock data of PLC CPU connected with GOT.

Setting	Contents
Adjust	Adjust the time of GOT clock data to the clock data of PLC CPU.  Same as setting in [GOT setup] in [System Environment] of GT Designer2. ☞ GT Designer2 Version ☐ Screen Design Manual (Section 2.5 Clock Function)
Broadcast	Adjust the time of PLC CPU clock data to the clock data of GOT.  Same as setting in [GOT setup] in [System Environment] of GT Designer2. ☞ GT Designer2 Version ☐ Screen Design Manual (Section 2.5 Clock Function)
Both	Adjust and Broadcast can be used appropriately.  Same as setting in [GOT setup] in [System Environment] of GT Designer2. ☞ GT Designer2 Version ☐ Screen Design Manual (Section 2.5 Clock Function)
None	No adjustment of clock data.

Operation







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

2 Touch a setting item to change the setting.

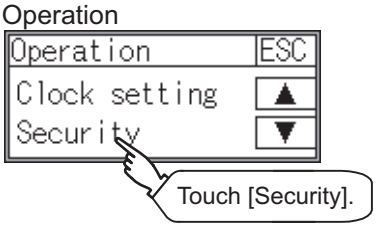
GT1020 : None ⇄ Adjust

GT1030, GT105□ : None → Adjust → Broadcast → Both → None

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

6 Security

Operation



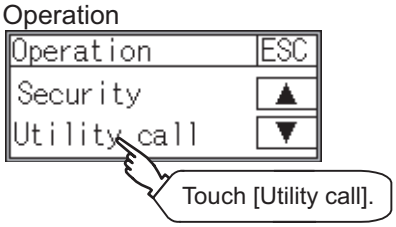
1 Touch [Security] to bring up the setting window.

2 Touching [Security level] displays the password input window.
Inputting the password set in the password input window can change the security level.

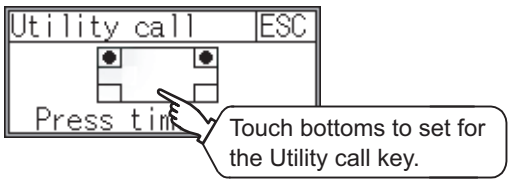
3 After changing the settings, touch the ESC button to save the changes and close the setting window.

7 Utility call

Operation

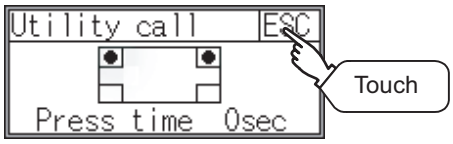


1 Touch [Utility call] to bring up the setting window.



2 Touch ● or □ displayed on 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 ●.

3 When the key position is specified by one point, the time to switch to the utility when the key position is kept pressing can be set.
Touch the time area.



4 After changing the settings, touch the ESC button to save the changes and close the setting window.

Point

When using GT1020

For the key position, 1 point only can be set.

13. CLOCK SETTINGS AND BATTERY STATUS DISPLAY (TIME SETTING AND DISPLAY)

The clock data (date and time) are displayed and set in the clock setting menu.
The voltage status of the built-in battery is also displayed.

13.1 Time Setting and Display

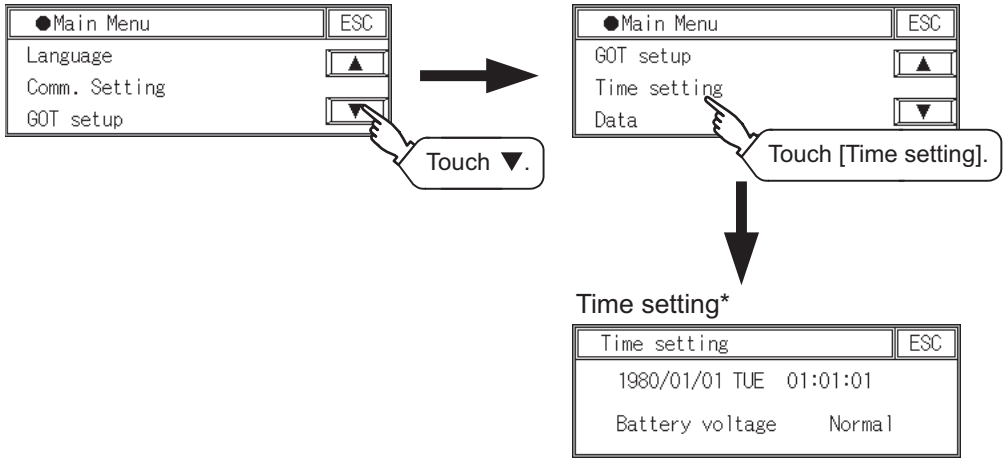
13.1.1 Time setting and display functions

Time settings and displaying of the status of GOT built-in battery are possible.

Function	Contents		
	GT1020	GT1030	GT105□
Clock display	Carry out the display and setup of PLC CPU clock data.	Carry out the display and setup of PLC CPU or GOT's clock data.	
GOT internal battery voltage status	–	Displays GOT internal battery voltage status.	

13.1.2 Clock display and setting operation

Main Menu(For GT1030)

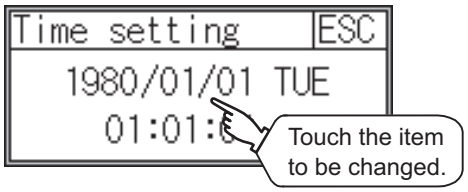


*: GT1020 does not have [Battery voltage].

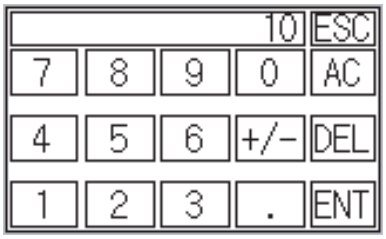
13.1.3 Clock setting operations

1 Clock display

Displays and sets up the clock data on the GOT.
When setting the clock data, change the clock data on the GOT and controller regardless of clock setting.
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.

"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

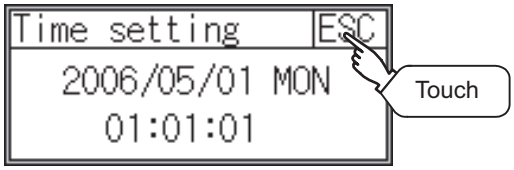
"AC" : Deletes the entire string of numerical characters that are being entered

"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 changing the settings, touch the ESC button to save the changes and close the setting window.

2 GOT internal battery voltage status

Displays battery voltage status. <For GT1030, GT105□>

Display	Status
Normal	Normal
Low/None	Low voltage

When the battery voltage is low, replace the battery immediately.
Refer to the following for battery replacement procedure.

☞ Section 8.3 Battery

14. FILE DISPLAY (DATA)

This function displays the version of the OS (Standard monitor OS, BootOS) and communication driver that are written to the GOT. Project data and resource data can be deleted with this function.

14.1 Data Storage Location

The following drive name (C or D drive) is assigned to the built-in Flash Memory or SRAM on the GOT.

GOT	Drive name	Allocation
GT1020	C drive	Flash Memory (Internal)
GT1030	C drive	Flash Memory (Internal)
	D drive	Internal SRAM
GT105□	C drive	Flash Memory (Internal)
	D drive	Internal SRAM

14.2 OS Information

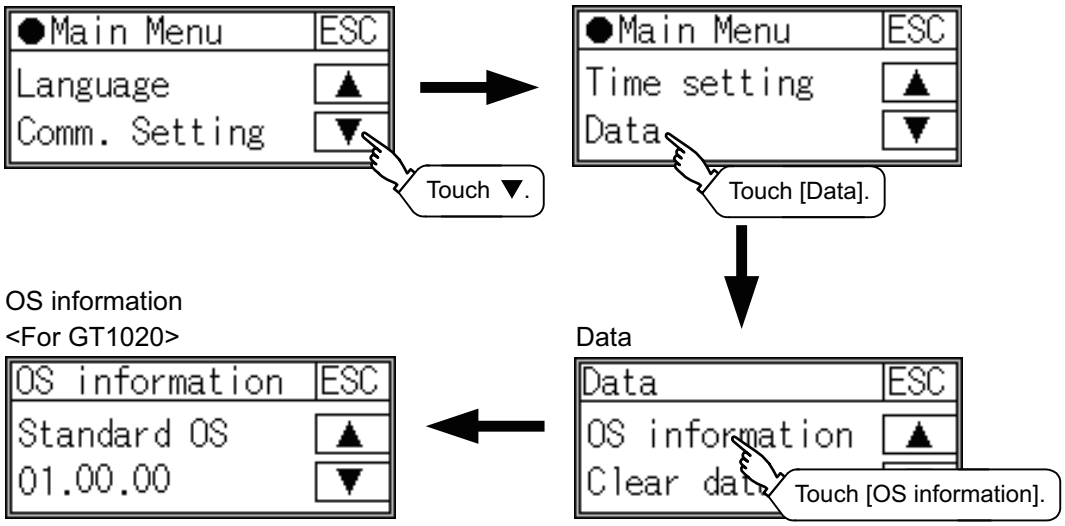
14.2.1 Function of OS information

This function displays the version of the OS (Standard monitor OS, BootOS) and communication driver on the built-in flash memory (C drive).

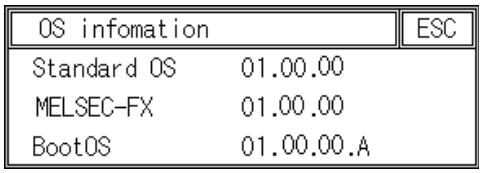
Function	Contents
OS information	Displays the version of the OS (Standard monitor OS, BootOS) and communication driver

14.2.2 Display operation of OS information screen

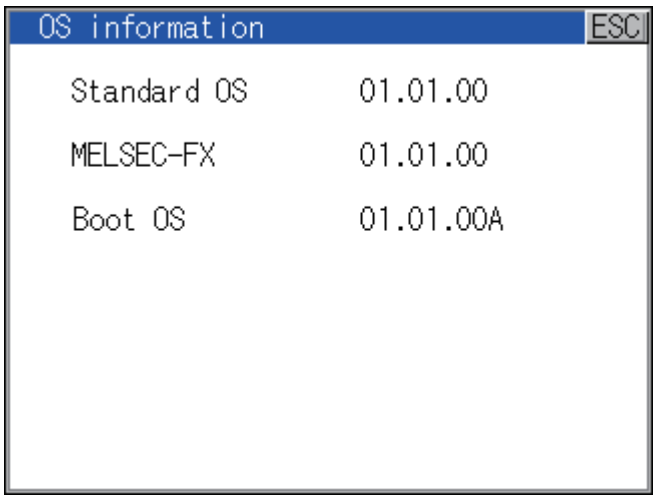
Main Menu



<For GT1030>

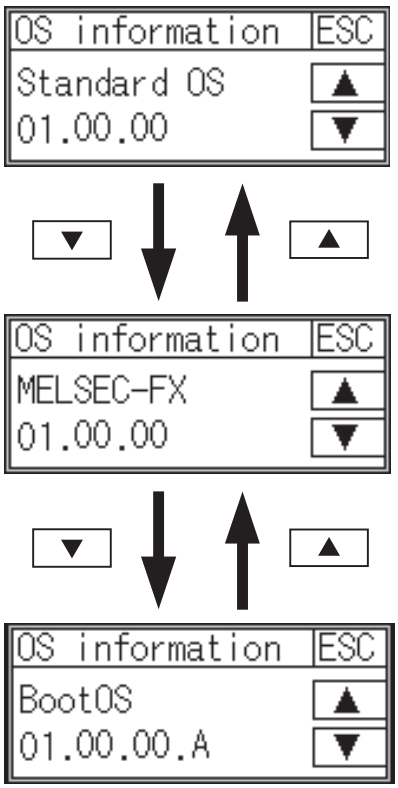


<For GT105□>



14.2.3 OS information operation

1 OS information display



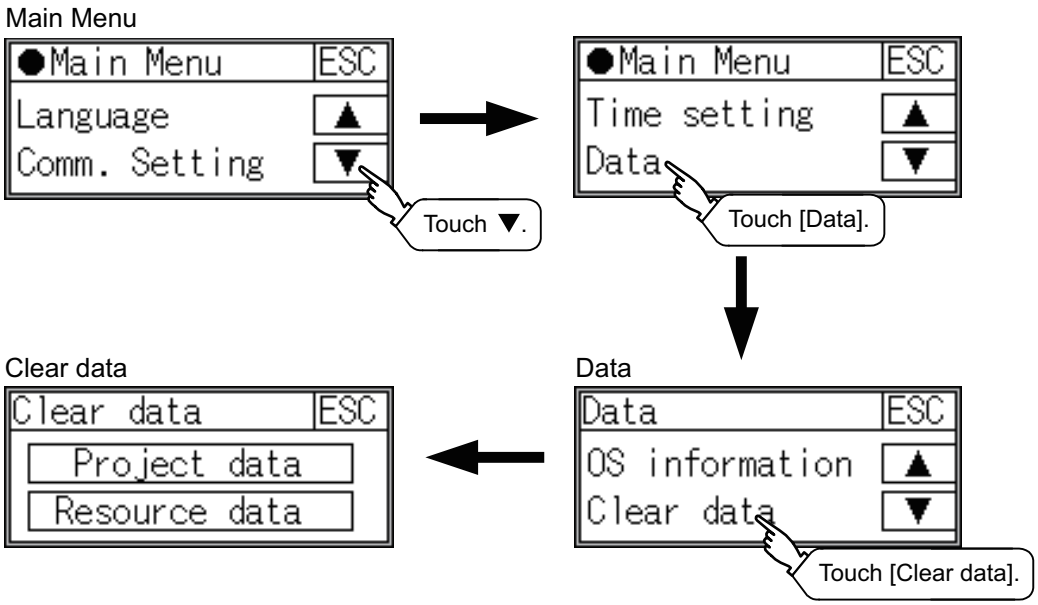
1. Touch the ▼ and ▲ buttons to toggle through the version of the [Standard monitor OS], [Communication driver], and [BootOS].
2. Touch the ESC button to close the screen.

14.3 Clear data

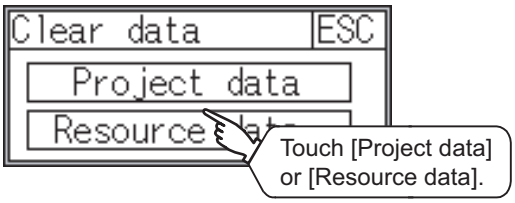
14.3.1 Clear data functions

This function deletes the project data and resource data that are written to the GOT.

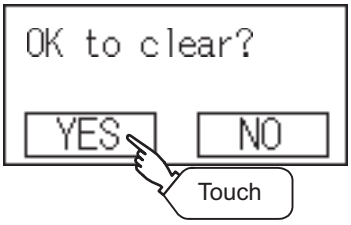
14.3.2 Clear data display



14.3.3 Clear data operation



1 Touch the type of data on the screen to be deleted.



2 The dialog mentioned left is displayed for confirmation.

Touch the [YES] button to delete the data, or the [NO] button to cancel.

Remark Canceling deletion

Data deletion cannot be cancelled once the [YES] button is pressed at the confirm deletion prompt. Double check before touching the [YES] button.

14.4 GT10-50FMB

14.4.1 GT10-50FMB functions (For GT1055, GT1050)

Use the GT10-50FMB type memory board to transfer the project data or OS.

Point

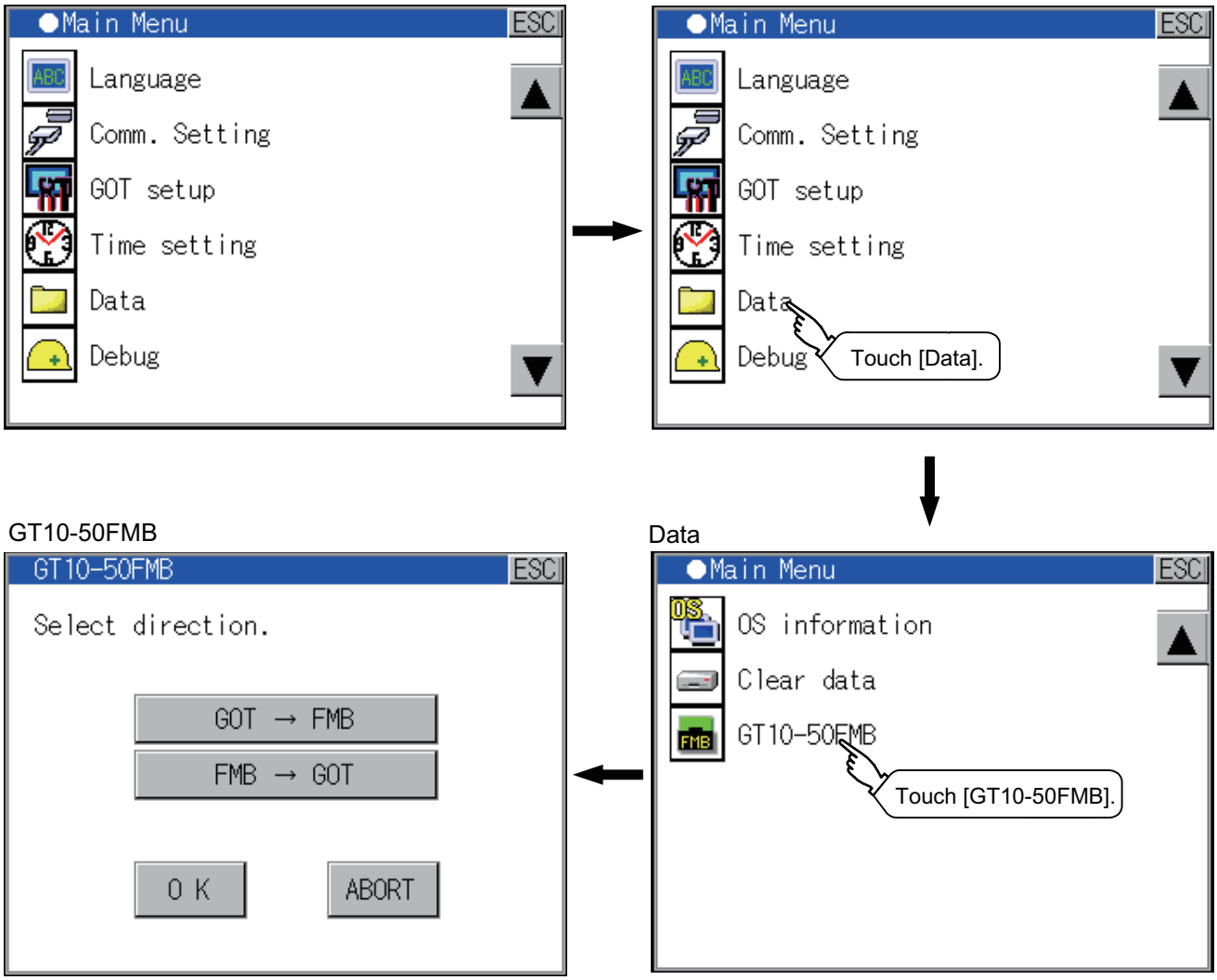
Copy from the memory board to the GOT

Copying from the memory board to the GOT when turning on the power to the GOT. Refer to the following.

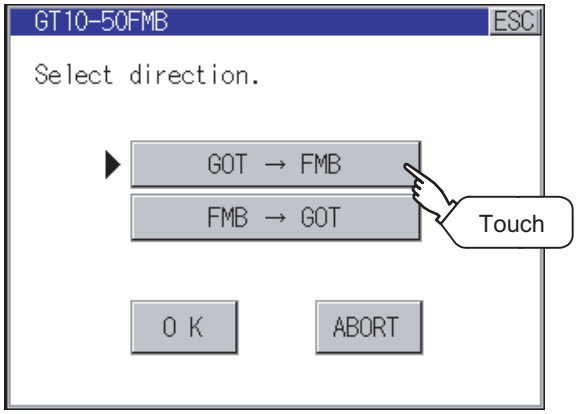
☞ Section 17.3 Standard Monitor OS/Communication Driver Installation Using Memory Board

14.4.2 GT10-50FMB display operation

Main menu



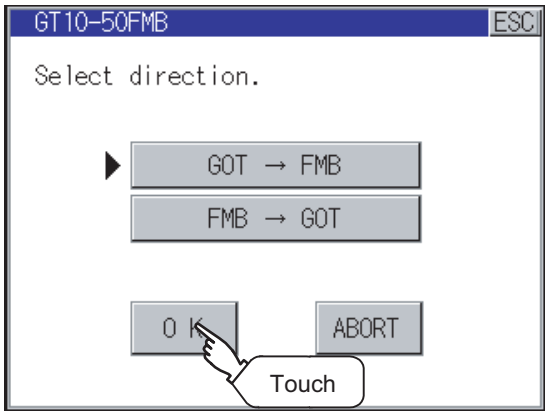
14.4.3 GT10-50FMB operation



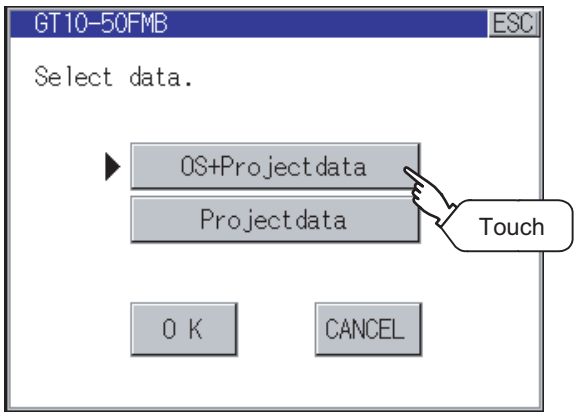
1 Select the copy direction.
The selection mark is displayed on the side of the selected key.

- GOT → FMB: Copy from the GOT to the memory board

- FMB → GOT: Copy from the memory board to the GOT



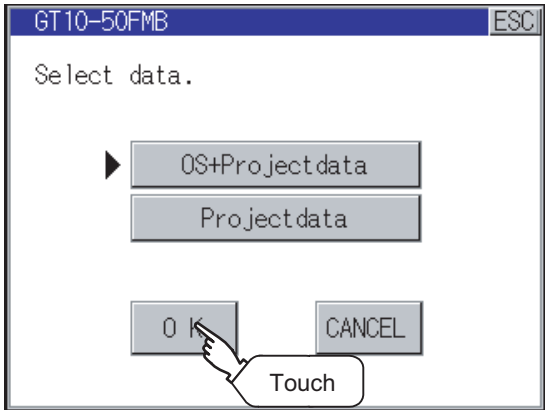
2 After selecting the direction, touch the [OK] button.
To abort copy touch the [ABORT] button.



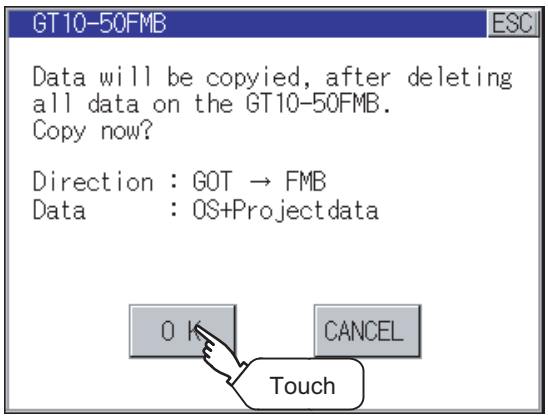
3 Select the copy target.
The selection mark is displayed on the side of the selected key.

- OS+Projectdata: Copies the standard OS, communication driver and projectdata

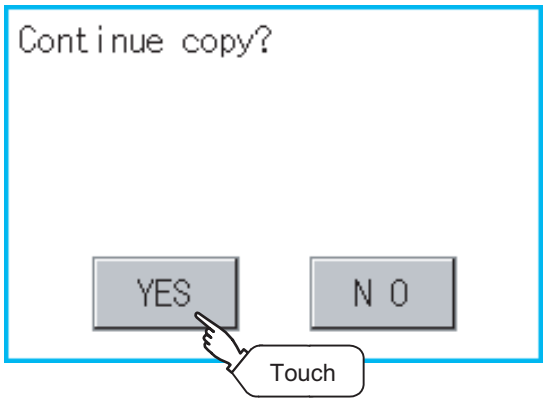
- Projectdata : Copies the projectdata



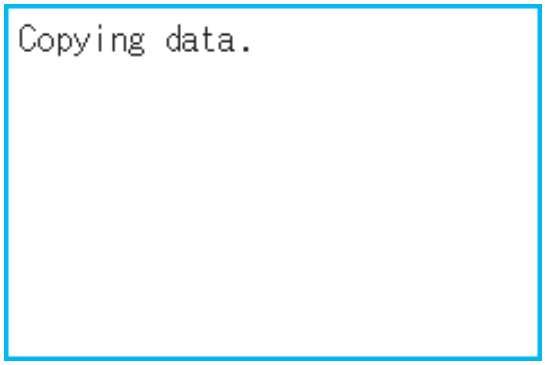
4 After selecting the copy target, touch the [OK] button.
To return to the copy direction setting screen, touch the [CANCEL] button.



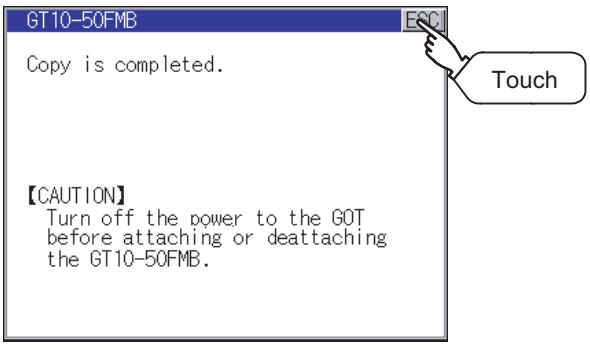
5 Confirm the copy direction and copy target.
When they are set correctly, touch the [OK] button.
To change the setting, touch the [CANCEL] button.



6 The dialog box on the left is displayed for confirmation.
Touch the [YES] button to start copying and [NO] button to abord.



7 While the copy is executed, the dialog box on the left is displayed.



8 Copy is completed.

Touch the ESC button to close the screen. If an error occurs during copy, an error message appears.
For details of error messages, refer to the following.

Section 14.4.4 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 standard OS 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

Precautions for installing/removing the memory board

When installing or removing the memory board, be sure to power off the GOT main unit.

14.4.4 Error display

When copying is not available between the GOT and the memory board, check the following contents according to the GOT error display.

Error message	Remedy
The version of the standard monitor OS of the GOT main unit does not match with that of the project data in GOT10-50FMB.	The major version of the standard monitor OS of the GOT main unit does not match with that of the project data in GOT10-50FMB. Match the version of the standard monitor OS of the GOT main unit to the major version of the project data in GOT10-50FMB. The data selected as a copy target is not stored in GT10-50FMB. Select the copy target correctly and copy it again.
The model information does not match.	The model set for the data in GOT10-50FMB does not match with that of the copy target GOT. Use the same model data as that of the copy target GOT.
The write protection switch of GT10-50FMB is ON.	The write protection switch of GT10-50FMB is ON. Turn off the write protection switch.
There is no valid copy target data in the copy source.	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. GOT DEBUG

15.1 Debug

The debug includes functions to check the PLC system status and to improve troubleshooting efficiency.
The following is available as the debug.

Items	Contents		
	GT1020	GT1030	GT105□
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.		
FX list editor	-		Sequence program and parameter change of FX PLC.

15.2 Device Monitor

For a controller connected to the GT10□□, forcibly turning on or off devices of the controller and changing the set value or present value are available.

15.2.1 System cofiguration

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.

☞ GOT1000 Series Connection Manual

1 Target controller

Controller*1	Connection type
QCPU (Q mode)	Direct CPU connection, Computer link connection, CC-Link(G4) connection
QnACPU	Direct CPU connection, Computer link connection
ACPU, QCPU (A mode)	Direct CPU connection, Computer link connection
FXCPU	Direct CPU connection

*1 : For details of controllers that can be monitored, refer to the following manual.

☞ GT Designer2 Version □ Screen Design Manual

2 Required OS

The OS shown in the table below is required.

OS			Version
Standard monitor OS			01.09.** or later
	Communication driver	MELSEC-FX	01.04.** or later
		QnA/Q	
		MELSEC-A	
		AJ71C24/UC24	
		CC-Link(G4)	

Point Checking method of OS, Communication driver version

Check the version of OS or communication driver installed in GOT at [OS information] of the utility.
Refer to the following for details.

☞ Section 14.2 OS Information

15.2.2 Devices that can be monitored

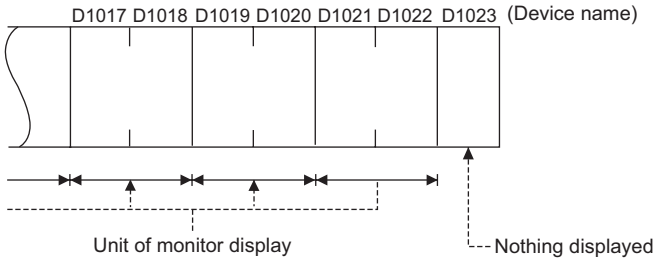
For further information about the monitor device names that can be monitored and the scope, see the following:

☞ GT Designer2 Version □ Screen Design Manual

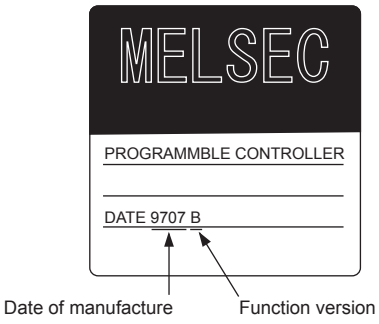
15.2.3 Precautions

(1) 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).

(2) 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 A2NCPU is monitored in units of 32 bits from odd numbers (D1, D3 ...)



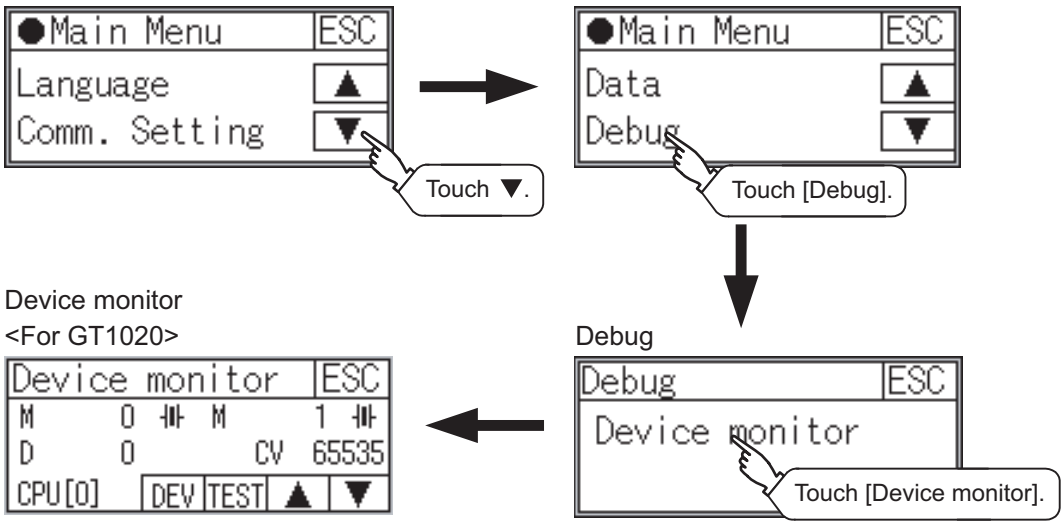
(3) Changing the timer/counter set values of QnACPU
The timer/counter set values of QnACPUs whose date on the CPU rating plate is after [9707B] can be changed.
<Information on the rating plate>



(4) Programs capable of changing timer/counter set values
Only the main program can change the timer/counter set values of AnNCPUs, AnACPUs, and AnUCPUS.

15.2.4 Display operation of device monitor

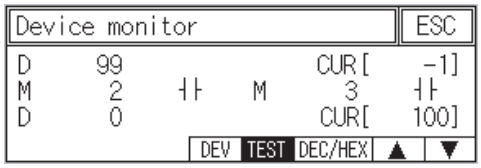
Main Menu



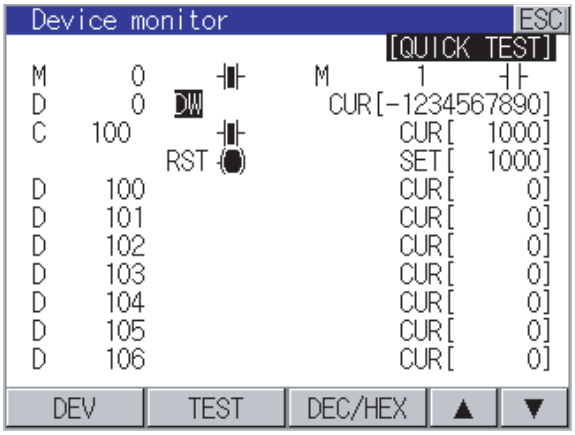
Device monitor

<For GT1020>

<For GT1030>



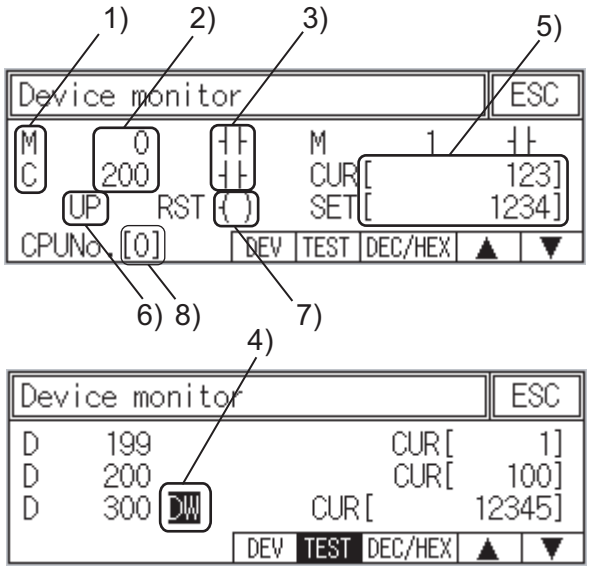
<For GT105□>



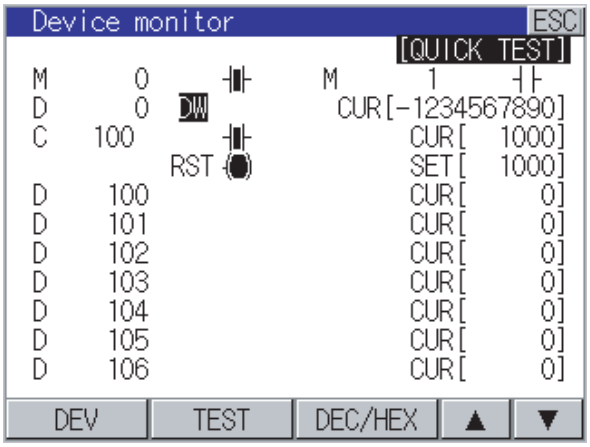
1 Device monitor screen

The information displayed on the device monitor screen is described below.

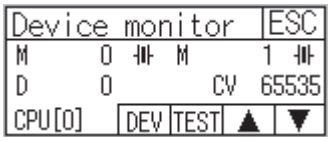
For GT1030



For GT105□



For GT1020



No.	Item	Description of setting
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 : FIndicates 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)

No.	Item	Description of setting
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)	CPU No. specification	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. ☞ Section 15.2.7 Device registration

*1 : Displays the values set for the timer/counter when registering the timer/counter for the ACPU, QnACPU, or FXCPU.

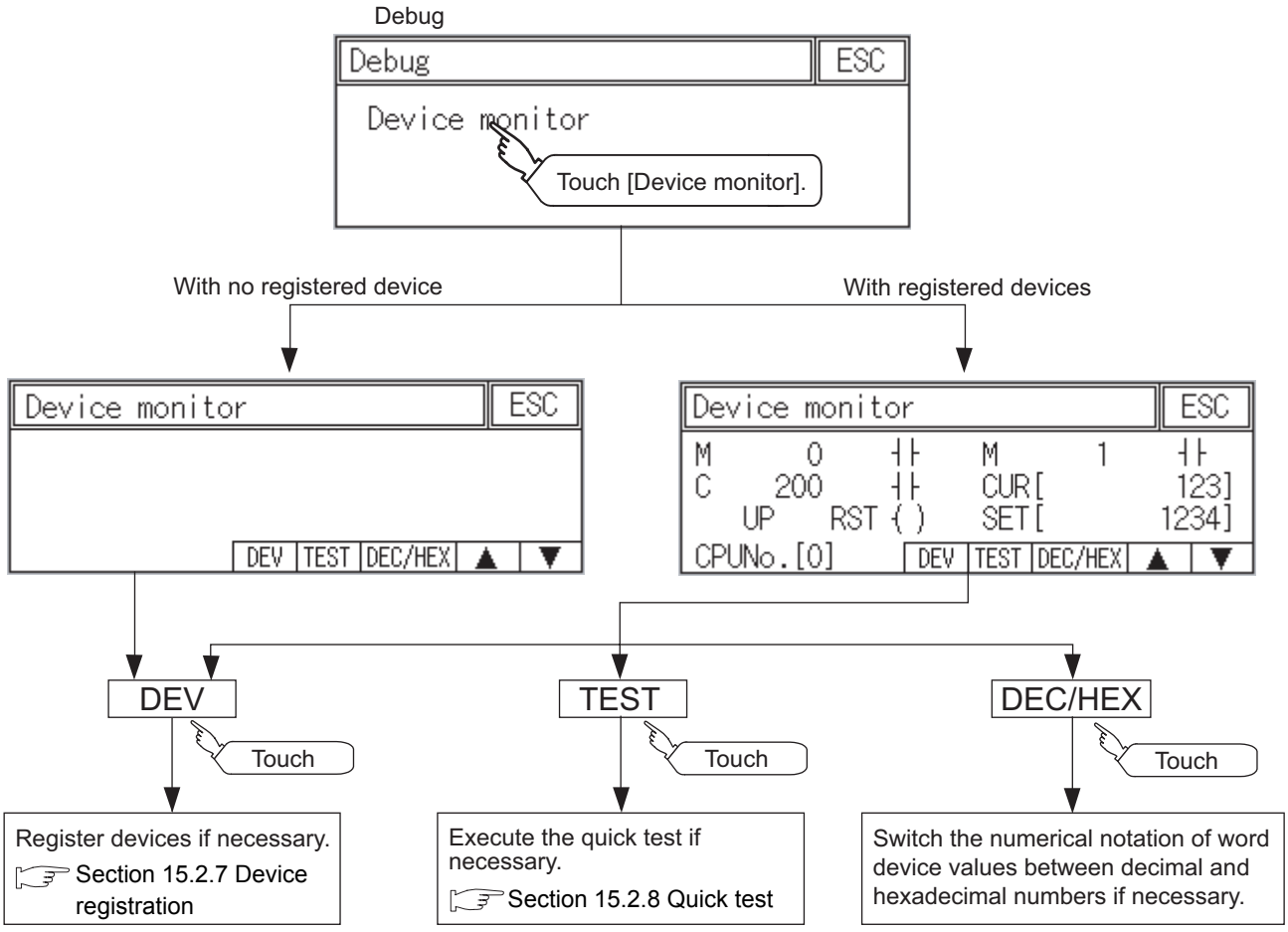
2 Key functions

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. ☞ Section 15.2.7 Device registration
TEST	Switches the quick test mode between enabled and disabled states. ☞ Section 15.2.8 Quick test
DEC/HEX	Switches the numerical notation of word device values between decimal and hexadecimal numbers. (GT1030 only)
▲ ▼	▲ : 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.
ESC	Exits the device monitor, and then the screen returns to the debug screen.

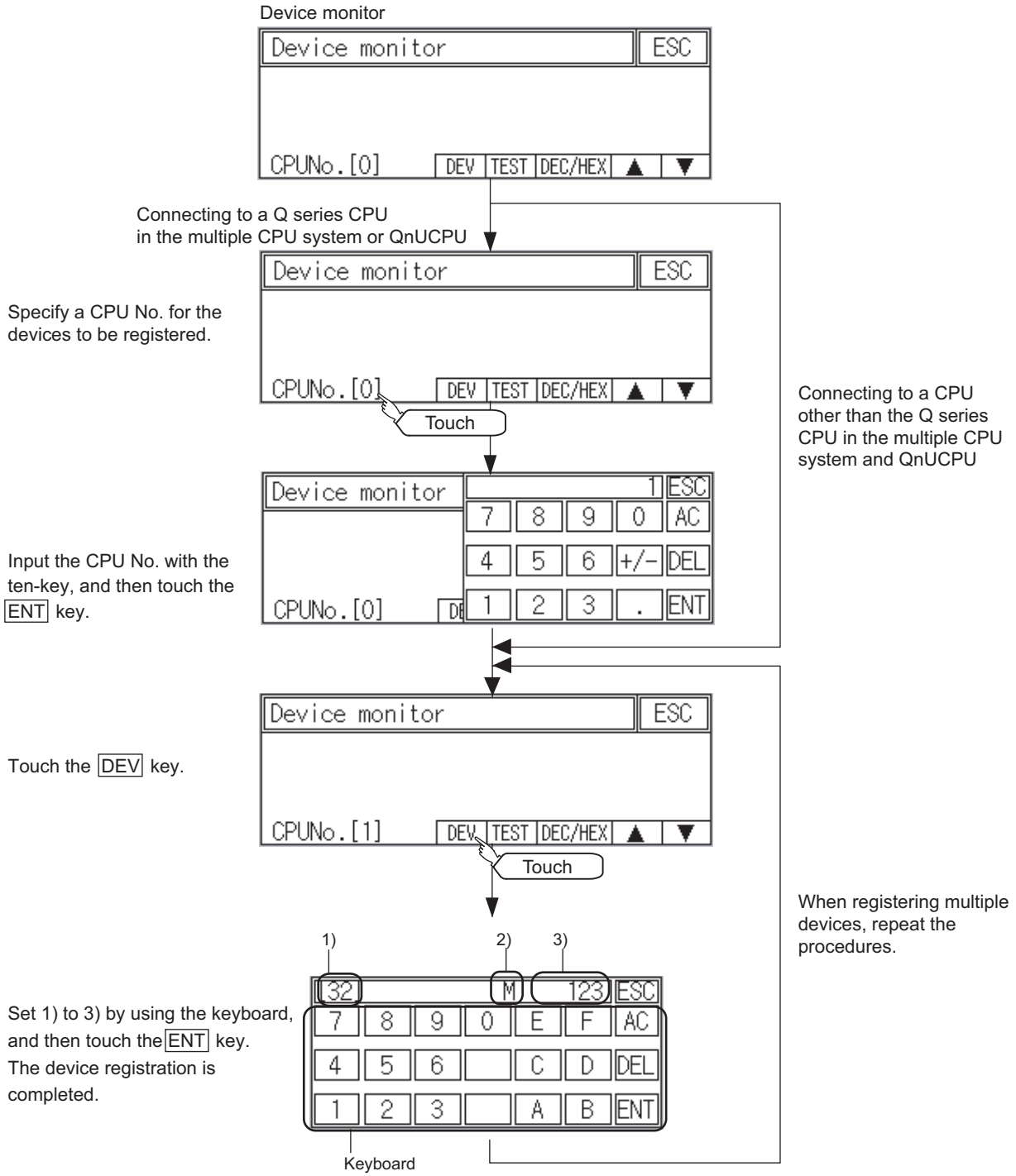
15.2.6 Basic operation of device monitor

The following explains basic operations of the device monitor.



15.2.7 Device registration

The following explains the procedures for device registration.



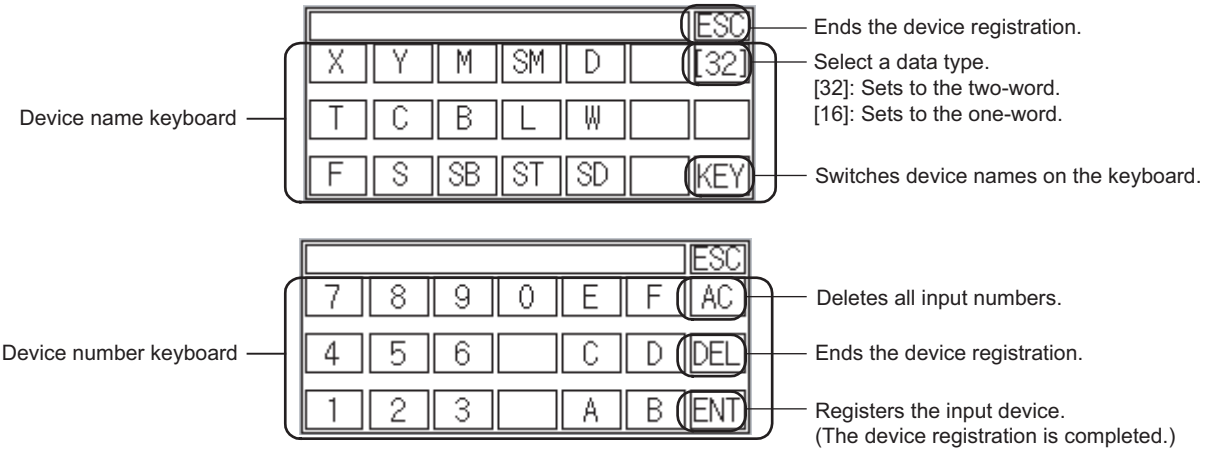
For the keyboard operations, refer to the next page.

No.	Item	Description of setting
1)	Data type	32 : FIndicates 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.	

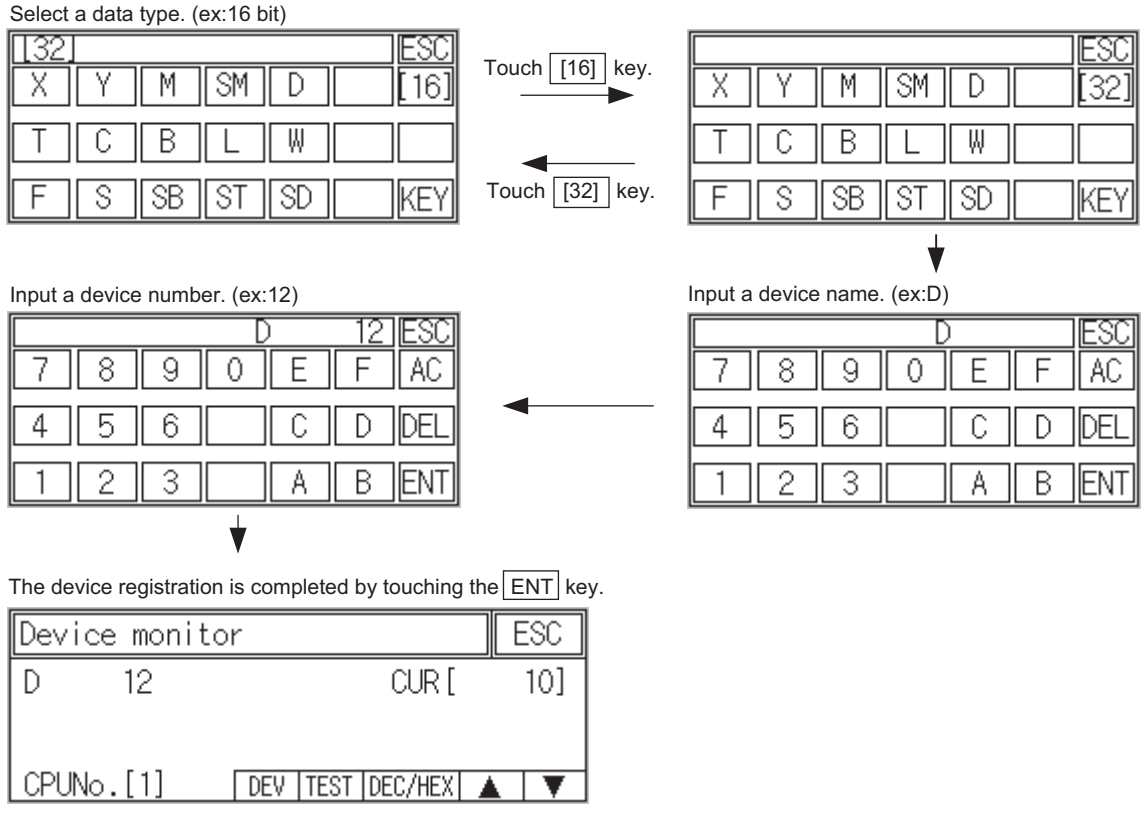
Point

Keyboard operations

(1) Keyboard functions



(2) Input procedures



The device registration is completed by touching the ENT key.

Point

Precautions for device registration

(1) 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

(2) 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.

(3) 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.

(4) 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.

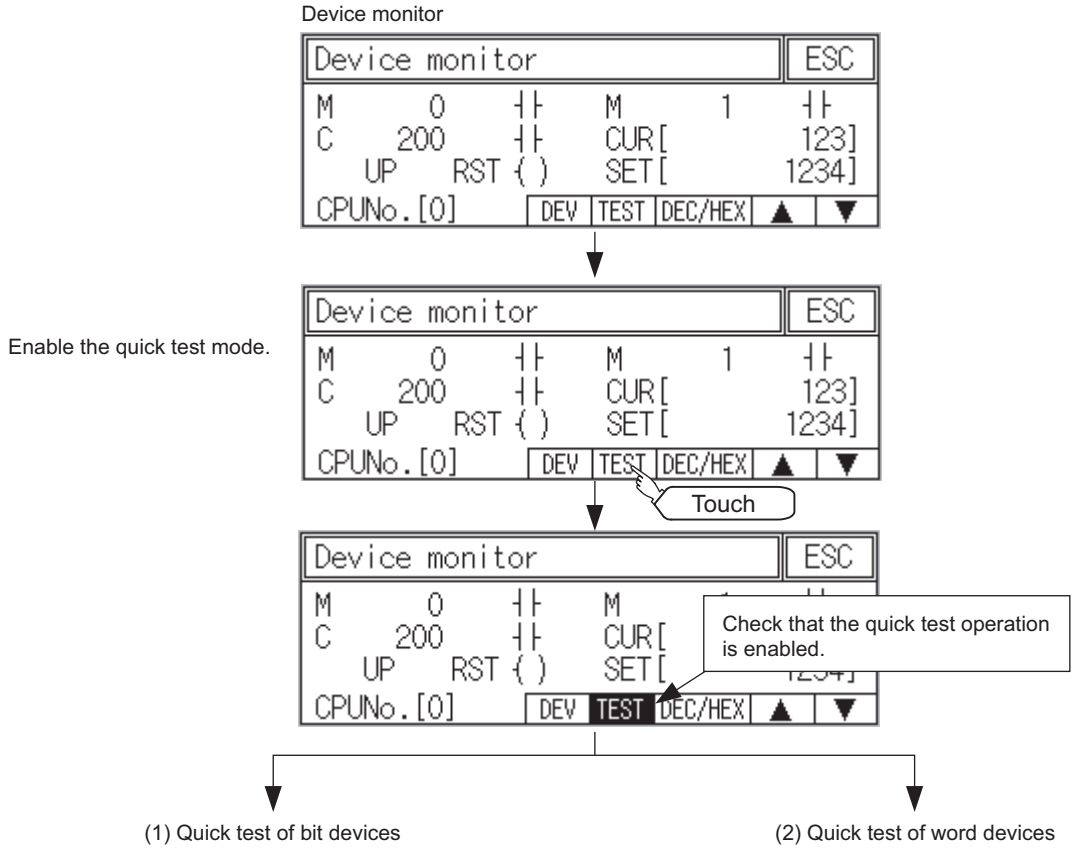
For registering an additional device, the registration for the device in the top line is canceled and the additional device is displayed in the bottom.

15.2.8 Quick test

DANGER

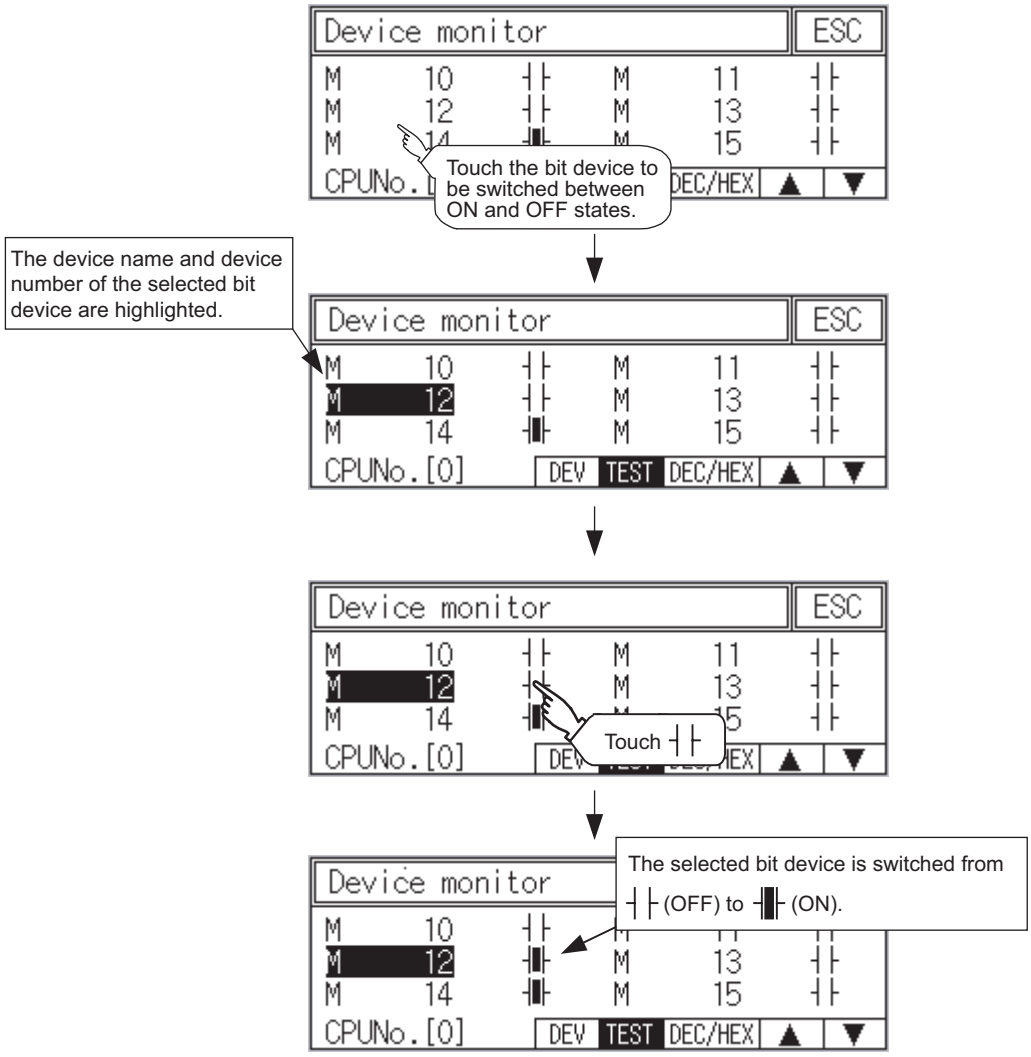
- Before performing the quick test operations of device monitor (such as turning ON or OFF bit device, changing the word device current value, changing the settings or current values of the timer or counter), read through the manual carefully and make yourself familiar with the operation method.
  During 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.



(1) Quick test of bit devices
(Operation example)

Change the status of bit device M12 from OFF ⊣⊢ to ON ⊣▮⊢

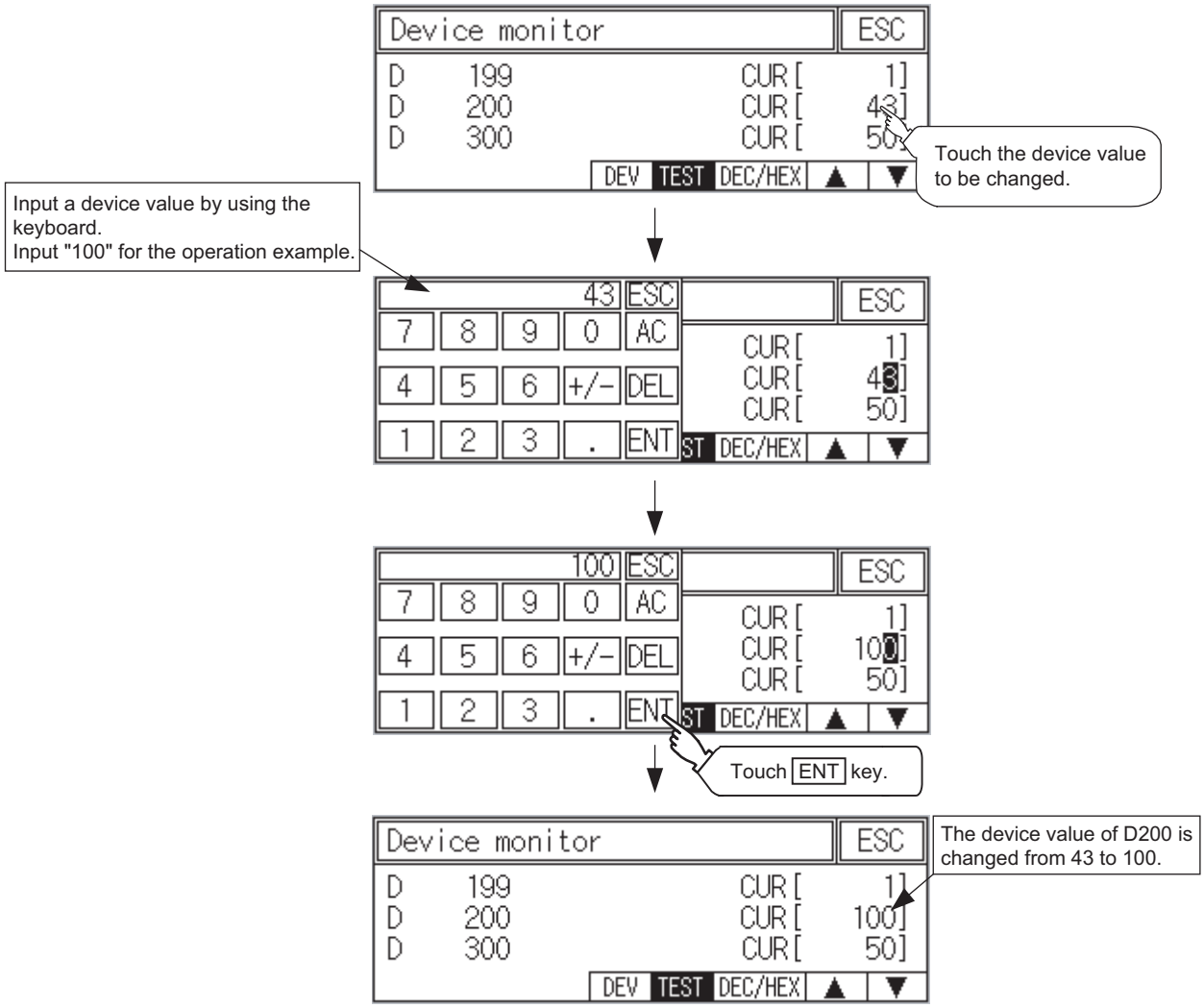


(2) Quick test of word devices

(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



15.3 FX List Editor (For GT1055, GT1050)

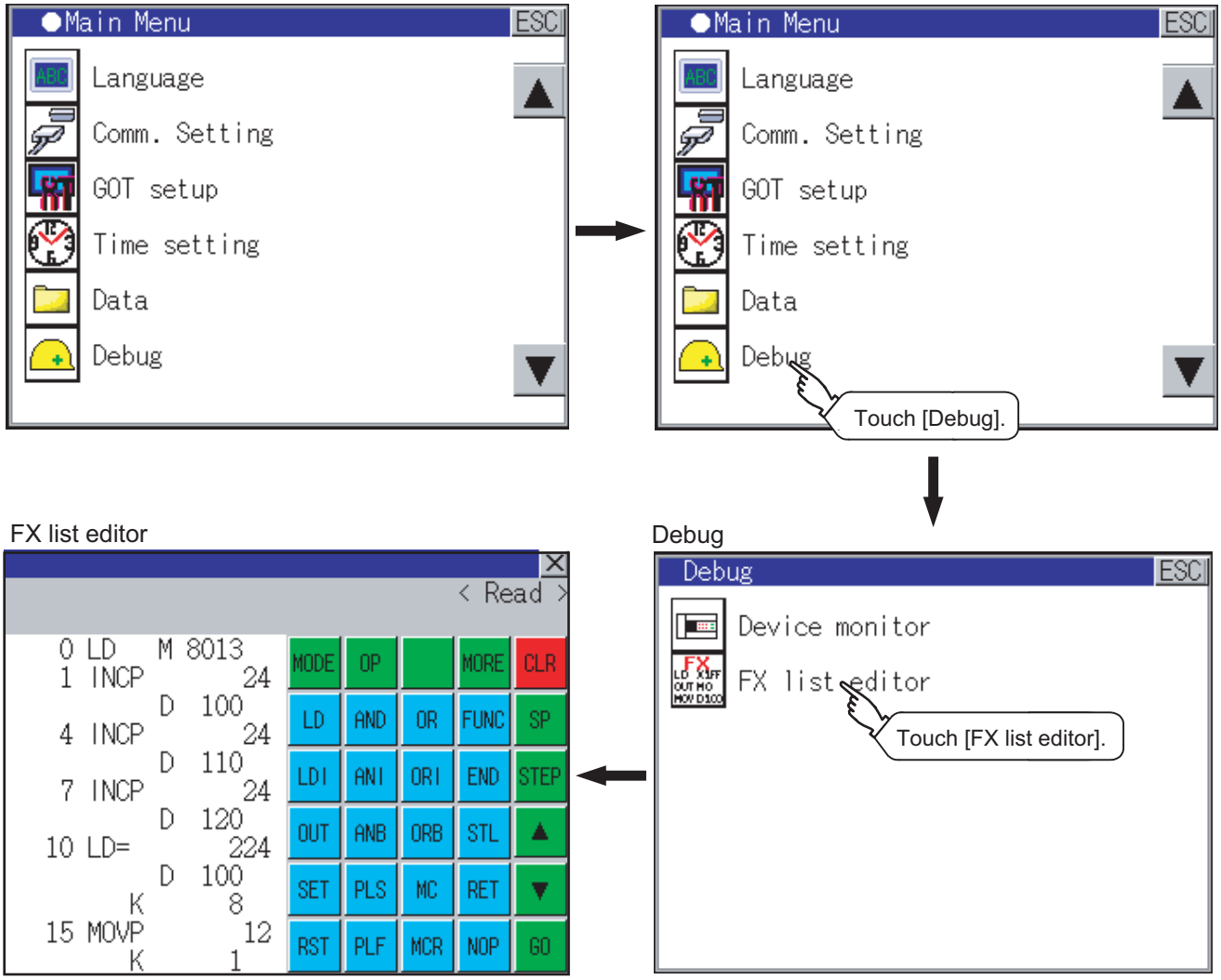
GT105□ can edit the sequence programs of the connected FXCPU using the list editor.

In this manual, it shows only the operation procedures until the FX list editor screen is displayed.
For display contents of FX list editor and operation method, refer to the following manual.

☞ GOT1000 Series Extended/Optipn Functions Manual

15.3.1 Display operation of FX list editor

Main menu



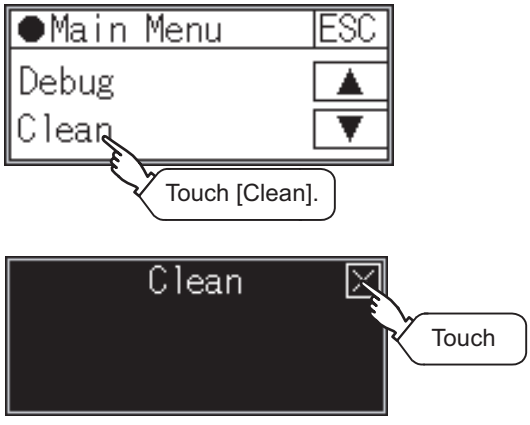
16. CLEANING OF DISPLAY SECTION (CLEAN)

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 "Section 18.3 Cleaning Method".

16.1 Clean

16.1.1 Display operation of clean

Main Menu



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

2 Touching ☒ 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.

For details of cleaning method, refer to the following.

☞ Section 18.3 Cleaning Method

17. OS INSTALLATION

17.1 About the OS

GT10☐☐ is factory-installed with the BootOS, Standard monitor OS, and communication driver ([MELSEC-FX]).
Standard monitor OS is upgradeable from GT Designer2.
An installation of the communication driver is required when connected to a controller other than a MELSEC-FX.
(BootOS cannot be installed from GT Designer2.)

17.2 Standard monitor OS/ Communication Driver Installation

When installing the Standard monitor OS or communication driver, first bring up the OS installation screen on the GOT, and then install the communication driver from GT Designer2.

Point

(1) About the OS installation screen

The OS can be transferred from GT Designer2 Version2 without displaying the OS installation screen depending on the combination of the GOT and the standard monitor OS

Model	BootOS version	Standard monitor OS	GT Designer2
GT1020	BootOS version F or later	Standard monitor OS [01.08.00]	Version2.77F or later
GT1030	BootOS version F or later		
GT105☐	From the first version		Version2.90U or later

For the installation using GT Designer2, refer to the following chapter.

☞GT Designer 2 Version☐ Basic Operation/Data Transfer Manual
Chapter 8 TRANSFERRING DATA

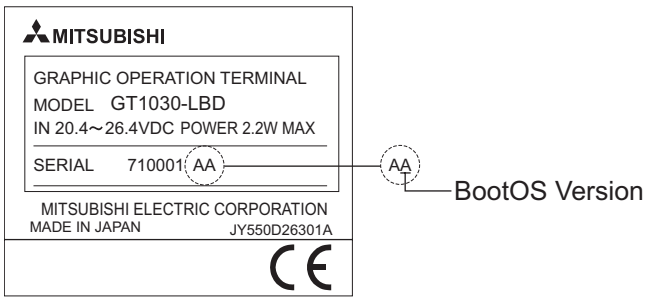
(2) Checking method of BootOS, Standard monitor OS version

(a) Check the version of BootOS or Standard monitor OS installed in GOT at [OS information] of the utility.

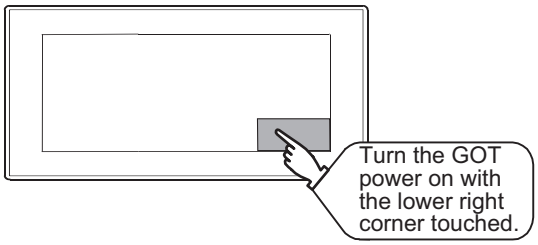
Refer to the following for details.

☞Section 14.2 OS Information

(b) Check the version of BootOS installed in GOT at product shipment on the rating plate on GOT rear face.

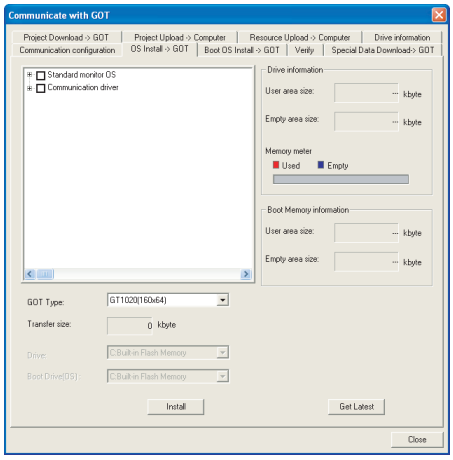


1 Operation on the OS installation screen



1 Turn on the power while pressing and holding the bottom right corner of the screen.

2 The OS installation screen will appear.



3 Install the Standard monitor OS and communication driver from GT Designer2.

Refer to the chapter below for how to install the Standard monitor OS and communication driver from GT Designer2.

☞ GT Designer2 Version☐ Basic Operation/Data Transfer Manual (Chapter 8 TRANSFERRING DATA)

4 At the completion of Standard monitor OS/ communication driver installation, the GOT reboots itself and the user-created screen will appear.

If no project data exist, a dialog will appear indicating that no project data exist.

Point Checking the communication driver version

Some versions of the Standard monitor OS and communication driver may not be compatible with each other, and the communication driver may not function properly. (e.g., The version of the Standard monitor OS is too old to recognize the newer version of the communication driver.)
The Standard monitor OS checks the version of the communication driver to see if it is compatible. If it is not compatible, a dialog that recommends Standard monitor OS update will appear.

Touching the OK button will take the screen back to the utility display screen. Normal operation of the unit will require an update of the Standard monitor OS.

17.3 Standard Monitor OS/Communication Driver Installation Using Memory Board

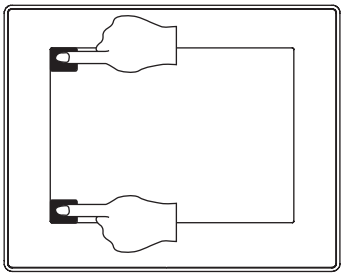
The memory board can be used only for GT105□.
There are the following two types for the standard monitor OS, communication driver installation using memory board.

(1) Installation method when the GOT is turned on
When the GOT is turned on, all the OS and project data stored in the memory board are transferred to the GOT.

(2) Installation using GT10-50FMB function (utility)
Select OS or project data stored in the memory board, and then transfer it to the GOT using the utility function.
For details of GT10-50FMB function, refer to the following.
☞ Section 14.4 GT10-50FMB

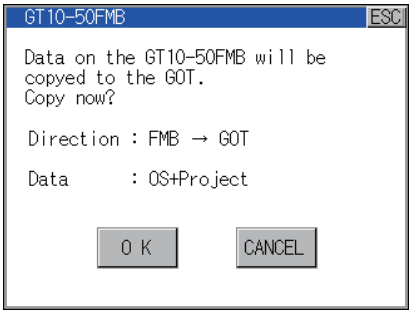
17.3.1 Installation method when the GOT is turned on

1 Operation procedure



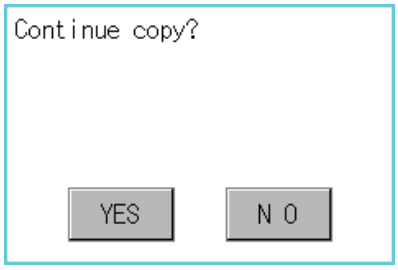
1 Power OFF the GOT, and attach the memory board which stores the standard OS and communication driver to the GOT.

2 While touching the upper left corner and lower left corner of the GOT screen, power ON the GOT.

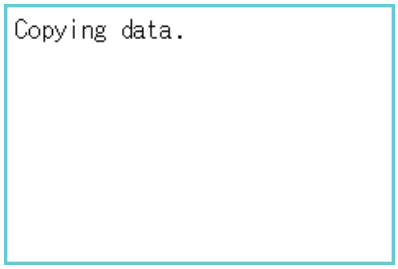


3 The screen on the left is displayed.

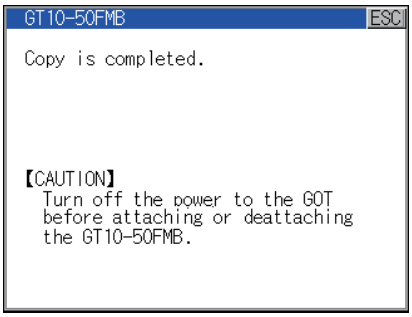
Touch the [OK] button to start the installation, and [CANCEL] for the cancellation.



4 The dialog box on the left is displayed for confirmation.
Touch [YES] button to start the installation, and [NO] to abord.



5 While the installation is executed, the dialog box on the left is displayed.



6 Installation is completed.
Touch the ESC button to restart the GOT and displays the user-created to screen.
(If the project data does not exist, a message appears to notify that the project data does not exist.)

If an error occurs during copy, an error message appears.
For details of error messages, refer to the following.

☞ Section 14.4.4 Error display

18. MAINTENANCE AND INSPECTION

STARTUP AND MAINTENANCE PRECAUTIONS

DANGER

- When power is on, do not touch the terminals.
  Doing so can cause an electric shock or malfunction.
- Connect the battery correctly.
  Do not discharge, disassemble, heat, short, solder or throw the battery into the fire.
  Incorrect handling may cause the battery to generate heat, burst or take fire, resulting in injuries or fires.
- Before starting cleaning or terminal screw retightening, always switch off the power externally in all phases.
  Not switching the power off in all phases can cause a unit failure 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 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 or apply any impact to the battery.
  If any impact has been applied, discard the battery and never use it.
  The battery may be damaged by the drop or impact.
- Before touching the unit, always touch grounded metal, 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 the product, handle it as industrial waste.

The GOT does not include consumable components that will cause the shorten life.
However, the battery(For GT1030, GT105□), liquid crystal screen and backlight(For GT105□) has life length.
(For the replacement of the liquid crystal screen, please consult your nearest sales office or FA center.)

For the battery, refer to the following.

☞ Section 3.2 Performance Specifications

For the life of the LCD screen or backlight, refer to the following.

☞ Section 3.2 Performance Specifications

18.1 Daily Inspection

Daily inspection items

No.	Inspection Item		Inspection Method	Criterion	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
		Loose connectors	Visual check	Not loose	Retighten connector fixing screws
3	Usage status	Dirt on protection sheet	Visual check	Not outstanding	Replace with new one
		Foreign material attachment	Visual check	No foreign matter sticking	Remove clean

Refer to the following for the model names of the protection sheet or the replacement procedure.

☞ Section 8.1 Protective Sheet

18.2 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.

No.	Inspection Item		Inspection Method	Criterion		Action
1	Surrounding environment	Ambient temperature	Make measurement with thermometer or hygrometer Measure corrosive gas	Display section	0 to 50°C	For use in control panel, temperature inside control panel is ambient temperature
				Other portions	0 to 55°C	
		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
		Dirt, foreign matter	Visual check	No dirt, foreign matter sticking		Remove, clean
4	Connection status	Loose terminal screws	Retighten screws with screwdriver	Not loose		Retighten terminal screws
		Loose connectors	Visual check	Not loose		Retighten connector fixing screws
5	Battery		Check the "Battery voltage" by using the "Time setting" function in the utility. ☞ Section 13.1 Time Setting and Display	(Preventive maintenance)		Replace with new battery when the current battery has reached the specified life span, even if battery voltage is not displayed.

18.3 Cleaning Method

Use the GOT always in a clean condition.
To clean the GOT, wipe the dirty part with a soft cloth using neutral detergent.
For the display operation of the [Clean] screen, refer to the following.

☞ Chapter 16 CLEANING OF DISPLAY SECTION (CLEAN)

Point

Precautions for cleaning

Do not use chemicals such as thinner, organic solvents and strong acids, since they may cause the protective sheet to be deformed or the dissolvable paint on the surface to peel off.
In addition, do not use spray solvents since they may cause the electrical failure of the GOT and peripheral devices.

18.4 Battery Voltage Low Detection and Battery Replacement

The battery (For GT1030, GT105□) is used for backing up the clock data, alarm history or recipe data.
It is recommended that you replace battery periodically.
Refer to the following for the replacement procedure.

☞ Section 8.3 Battery

The battery voltage low detection can be confirmed by the utility screen and system alarm.
Refer to the following for details of the battery status display by the utility screen.

☞ Chapter 13 CLOCK SETTINGS AND BATTERY STATUS DISPLAY (TIME SETTING AND DISPLAY)

Point

Battery replacement timing

When detecting voltage low, replace the battery immediately.
Data can be saved for approximately a month after the battery voltage low detection and cannot be saved after that.
If it exceeds a month from the voltage low detection to battery replacement, the clock data or D-drive* (Internal SRAM) data may become indefinite.
Adjust the clock and format the D drive (Internal SRAM).

* : GT1020 does not have D drive.

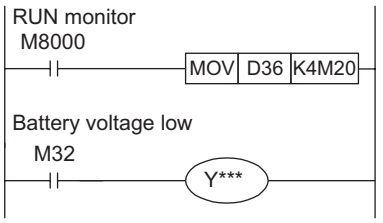
Point

Example of alarm output to external device (lamp, buzzer, etc.)[For GT1030, GT105□]

The following describes an example of outputting the battery voltage low signal from a FX series PLC to an external device with system information.

Condition: The Write Device is "D20" and all data is used (the Select All button is clicked on the setting screen of GT Designer2) for the system information assignment.

D36 b12: Battery voltage low (System Signal 2-2)
Turned on upon a battery voltage drop.
Used as shown below in the sequence program.



"*" indicates the output number at which the external device is connected.

For details of system information, refer to the following.

☞ GT Designer2 Version□ Screen Design Manual
Section 3.6 System Information Setting

18.5 Backlight Shutoff Detection

The backlight is built into GOT(For GT105 □) for the liquid crystal display.
When GOT(For GT105 □) detects backlight shutoff, the POWER LED blinks green/orange alternately.
The brightness of the backlight decreases with the lapse of usage period. When backlight shutoff is detected or the display becomes unclear, replace the backlight.
For replacement of the backlight, contact your nearest sales office or FA Center.

(1) Life of backlight
The usable duration of backlight can be extended by setting to "Screen saving backlight off" in the utility of GOT (GOT set up).
Refer to the following for details.

☞ Chapter 12 DISPLAY AND OPERATION SETTINGS (GOT SET UP)

18.5.1 Backlight shutoff detection and external alarm

When the GOT(For GT105 □) detects a backlight shutoff, the system information set with GT Designer2 is turned on.
You can issue a backlight shutoff of the GOT from the PLC to external devices (such as the lamp or buzzer), using system information.
To avoid any screen touch operation by the user who misunderstands it is in screen saving mode, install an external alarm and interlock the loads that would cause danger.
For details of the system information, refer to the following.

☞ GT Designer2 Version □ Screen Design Manual
Section 3.6 System Information Setting

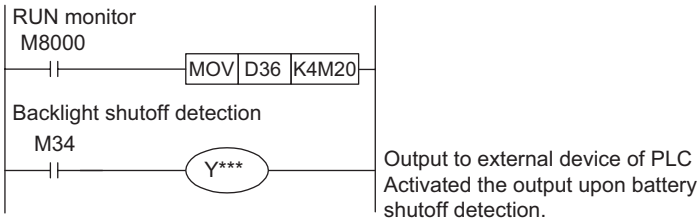
Hint!

Example of alarm output to external devices (such as lamp or buzzer)

The following provides an example of outputting the backlight shutoff detection signal from a FX Series PLC to an external device, using system information.

Condition: The Written Device is "D20" and all data is used (the Select All button is clicked on the setting screen of GT Designer2) for the system information assignment.

D36 b14: Backlight shutoff detection (System Signal 2-2)
Turned on upon a backlight shutoff.
Used as shown below in the sequence program.



"*" indicates the output number at which the external device is connected.

Point

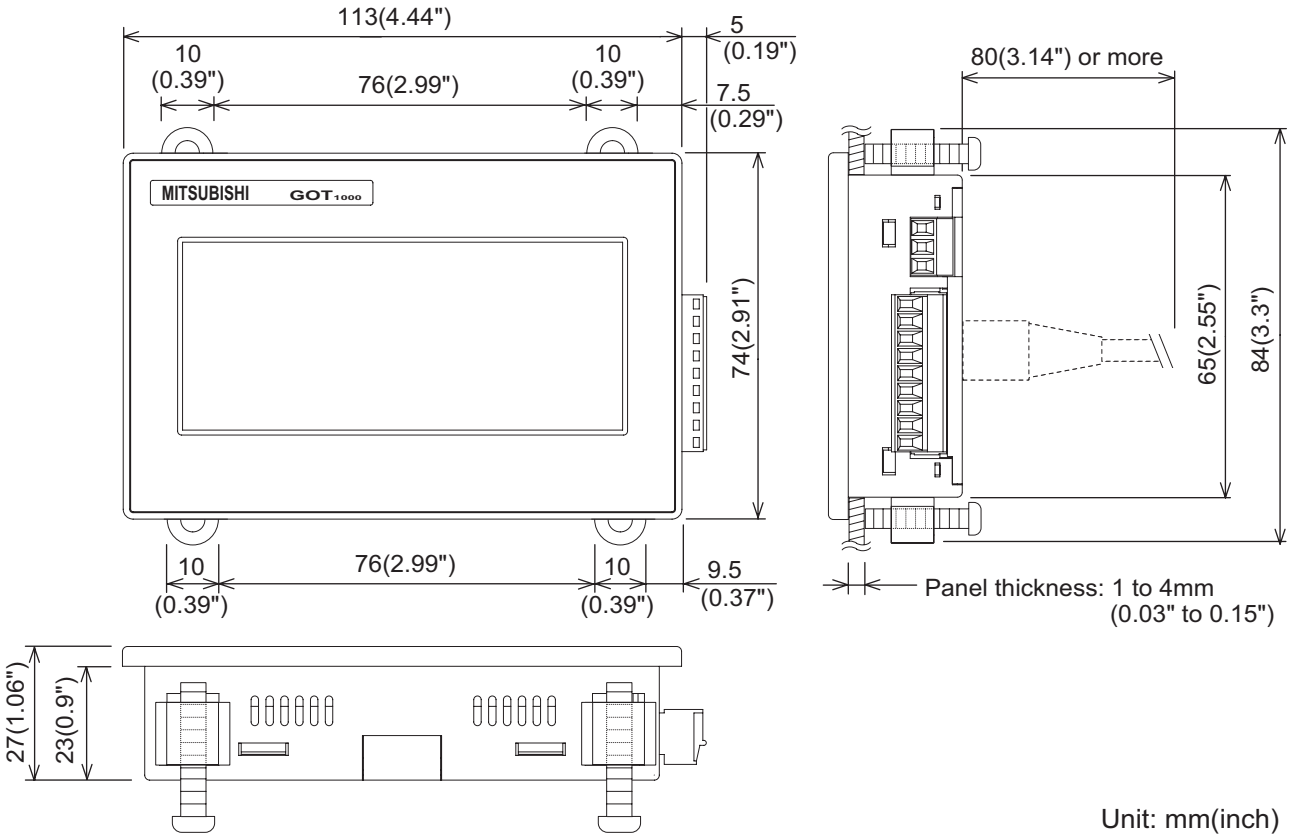
Precautions for the backlight shutoff status

In the backlight shutoff status, the touch key operates.

APPENDICES

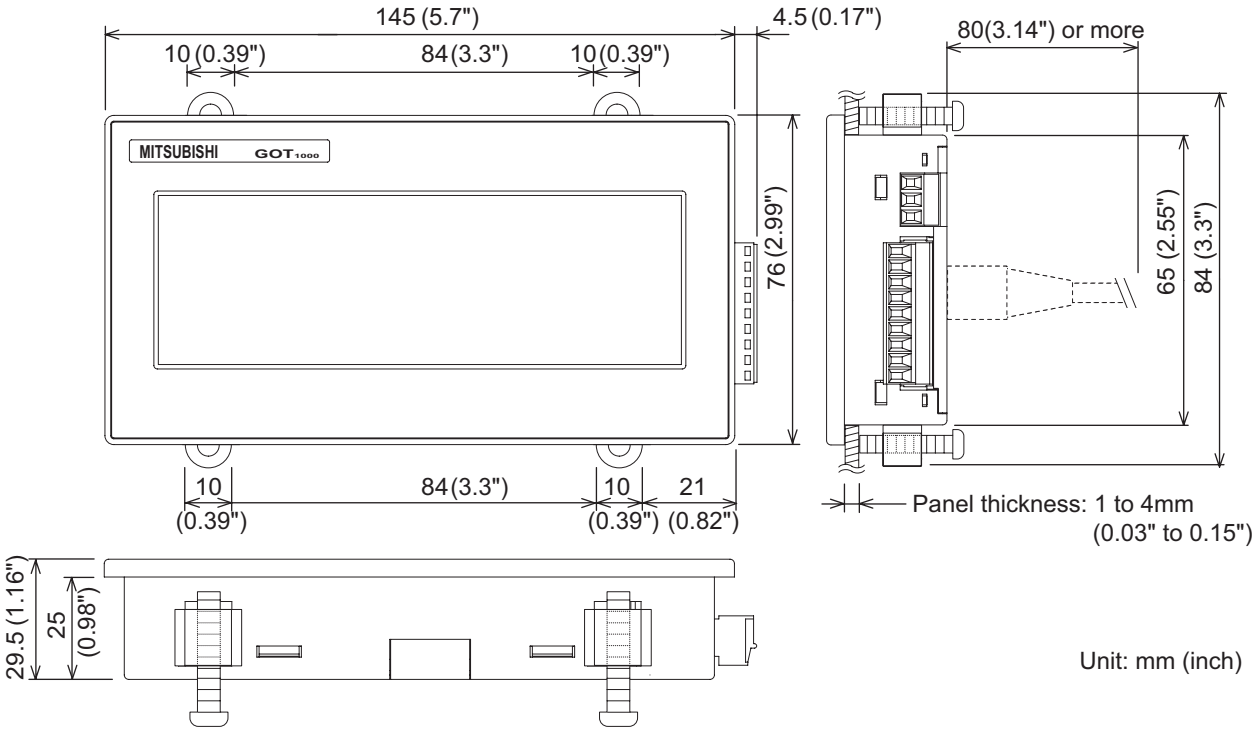
Appendix 1 External Dimensions

External dimensions of GT1020

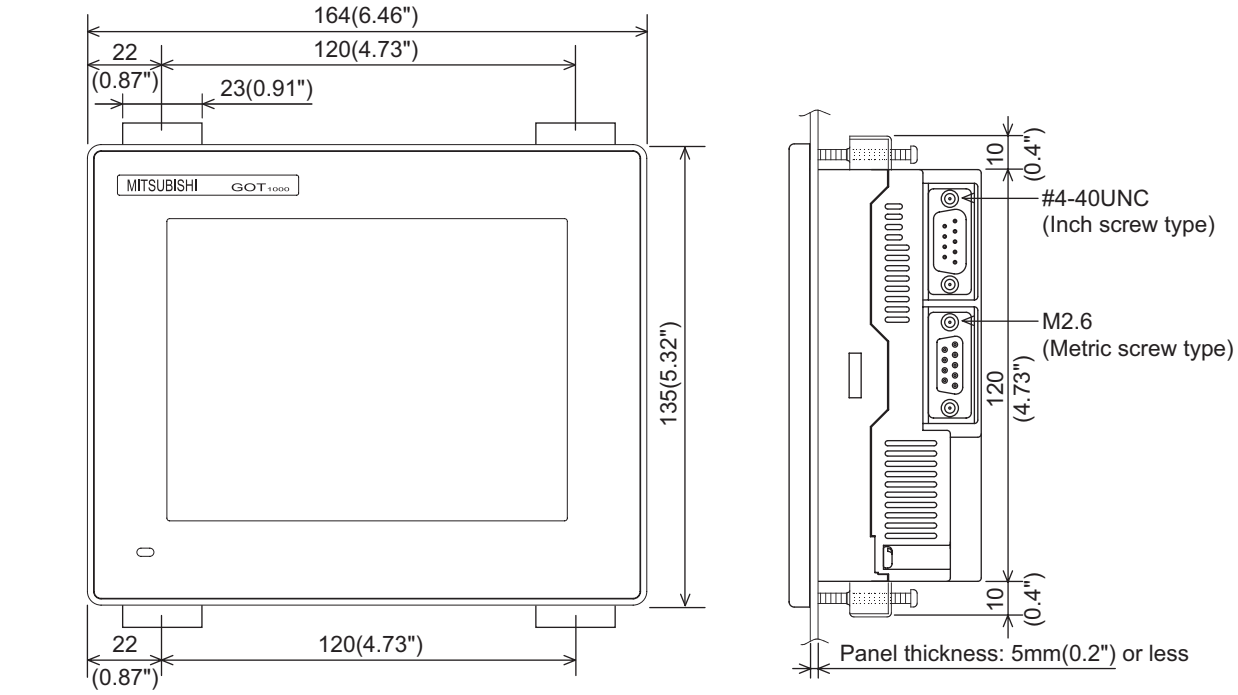


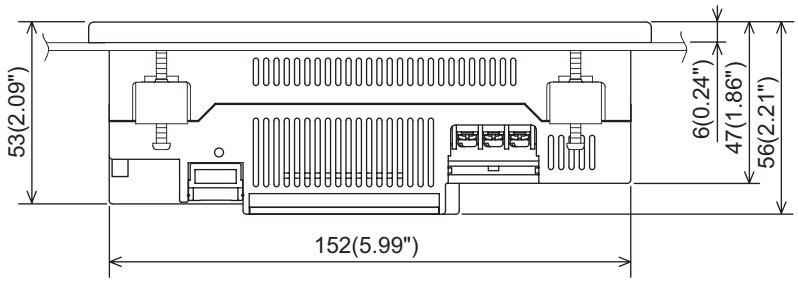
Unit: mm(inch)

External dimensions of GT1030

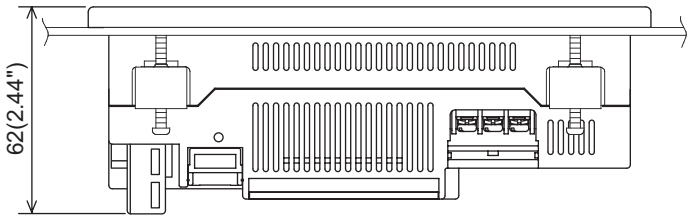


External dimensions of GT105□





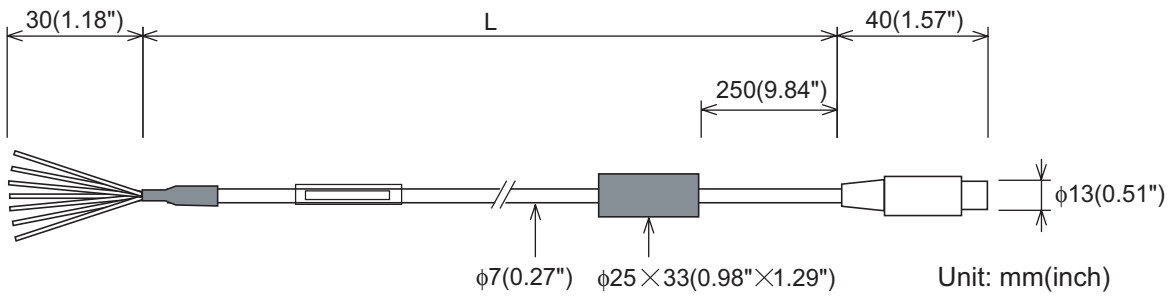
Memory board connected



Unit: mm(inch)

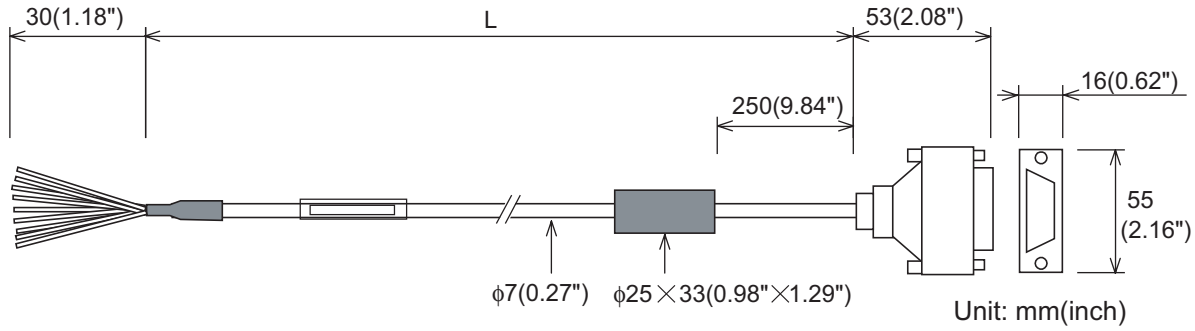
External dimensions of communication cable

GT10-C□□R4-8P



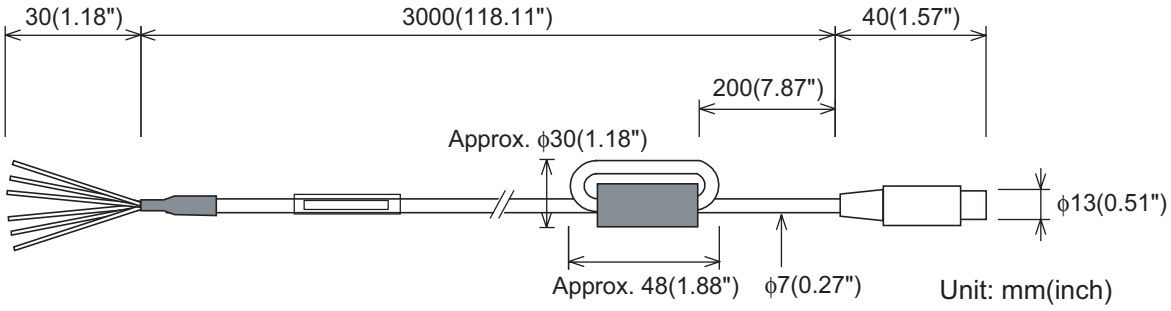
Model name	L (mm (inch))	Remarks
GT10-C10R4-8P	1,000 (39.37")	RS-422 cable for direct connection to FXCPU (8-pin MINI-DIN)
GT10-C30R4-8P	3,000 (118.11")	
GT10-C100R4-8P	10,000 (393.7")	
GT10-C200R4-8P	20,000 (787.4")	
GT10-C300R4-8P	30,000 (1181.1")	

GT10-C□□R4-25P



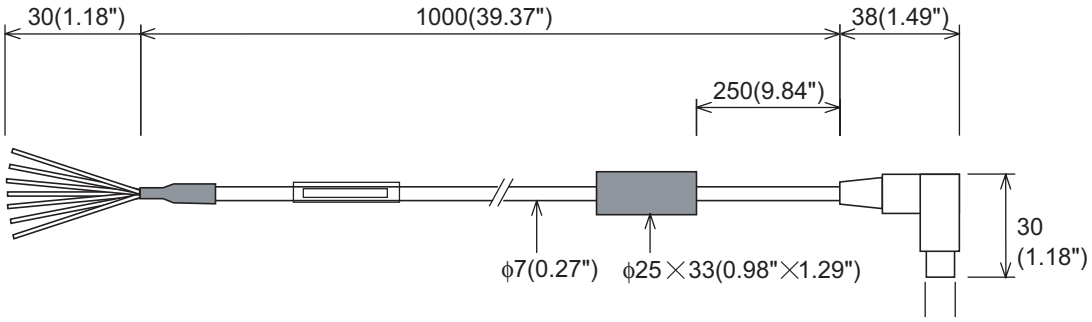
Model name	L (mm (inch))	Remarks
GT10-C30R4-25P	3,000 (118.11")	RS-422 cable for direct connection to FXCPU and A/QnACPU (25-pin D-sub)
GT10-C100R4-25P	10,000 (393.7")	
GT10-C200R4-25P	20,000 (787.4")	
GT10-C300R4-25P	30,000 (1181.1")	

GT10-C30R2-6P



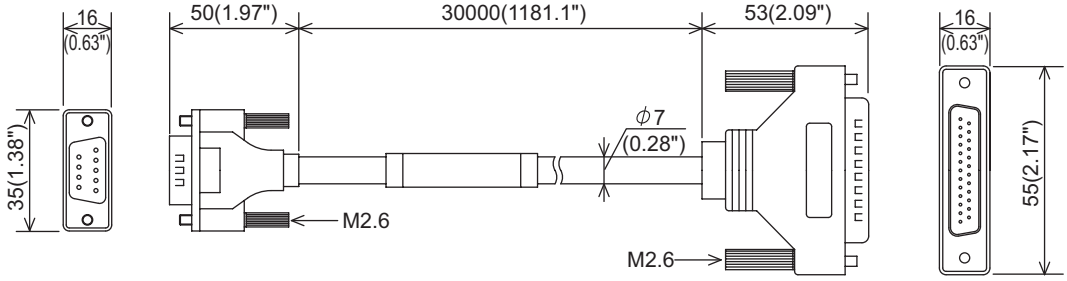
Model name	L (mm (inch))	Remarks
GT10-C30R2-6P	3,000 (118.11")	RS-232 cable for direct connection to QCPU (6-pin MINI-DIN)

GT10-C10R4-8PL



Model name	L (mm (inch))	Remarks
GT10-C10R4-8PL	1,000 (39.37")	RS-422 cable for direct connection to FXCPU (8-pin MINI-DIN)

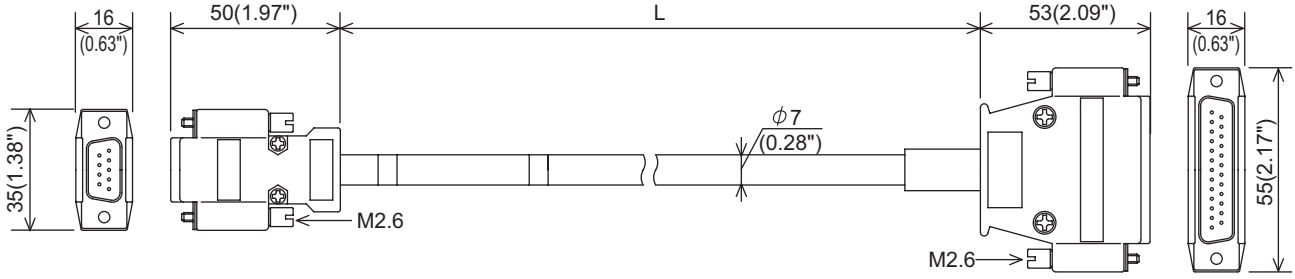
GT01-C30R2-25P



Unit: mm(inch)

Model name	L (mm (inch))	Remarks
GT01-C30R4-25P	3,000 (118.11")	RS-422 cable for direct connection to FXCPU and A/QnACPU (25-pin D-sub)

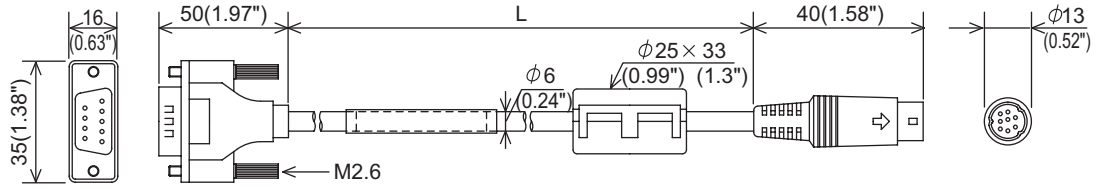
GT01-C□□□R4-25P



Unit: mm(inch)

Model name	L (mm (inch))	Remarks
GT01-C100R4-25P	10,000 (393.7")	RS-422 cable for direct connection to FXCPU and A/QnACPU (25-pin D-sub)
GT01-C200R4-25P	20,000 (787.4")	
GT01-C300R4-25P	30,000 (1181.1")	

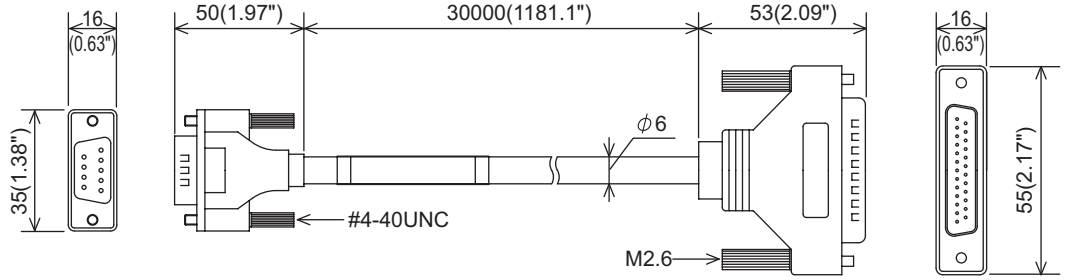
GT01-C□□□R4-8P



Unit: mm(inch)

Model name	L (mm (inch))	Remarks
GT01-C10R4-8P	1,000 (39.37")	RS-422 cable for direct connection to FXCPU (8-pin MINI-DIN)
GT01-C300R4-8P	3,000 (118.11")	
GT01-C100R4-8P	10,000 (393.7")	
GT01-C200R4-8P	20,000 (787.4")	
GT01-C300R4-8P	30,000 (1181.1")	

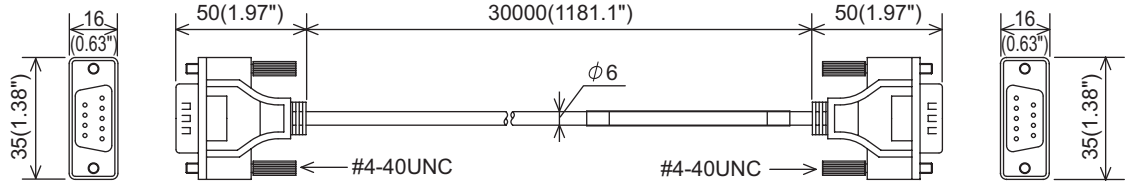
GT01-C30R2-25P



Unit: mm(inch)

Model name	L (mm (inch))	Remarks
GT01-C30R2-25P	3,000 (118.11")	RS-232 cable for direct connection to FXCPU special adaptor (25-pin D-sub)

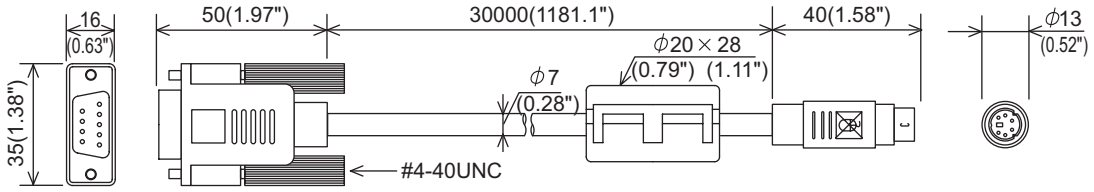
GT01-C30R2-9S



Unit: mm(inch)

Model name	L (mm (inch))	Remarks
GT01-C30R2-9	3,000 (118.11")	RS-232 cable for direct connection to FXCPU expansion board (9-pin D-sub)

GT01-C30R2-6P

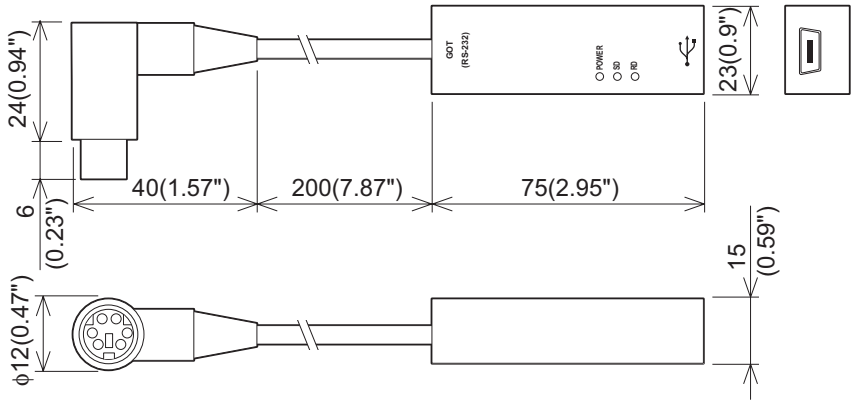


Unit: mm(inch)

Model name	L (mm (inch))	Remarks
GT01-C30R2-6P	3,000 (118.11")	RS-232 cable for direct connection to QCPU (6-pin MINI-DIN)

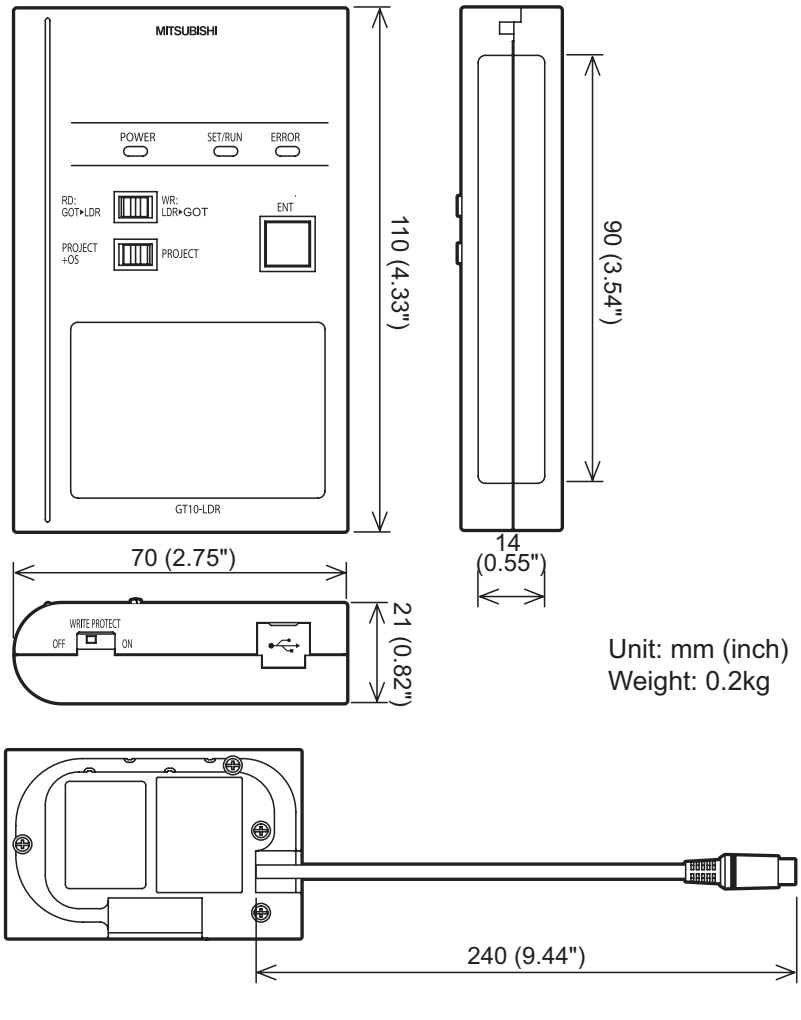
External dimensions of RS-232/USB conversion adaptor

GT10-RS2TUSB-5S



Unit : mm(inch)
Weight : Approx. 40g

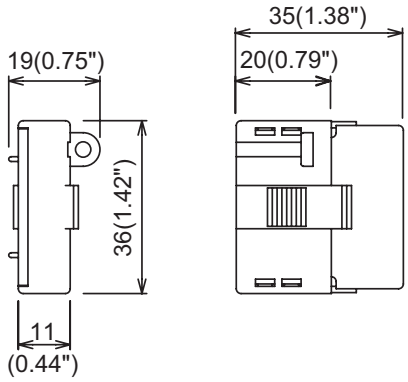
External dimensions of GT10-LDR memory loader



Unit: mm (inch)
Weight: 0.2kg

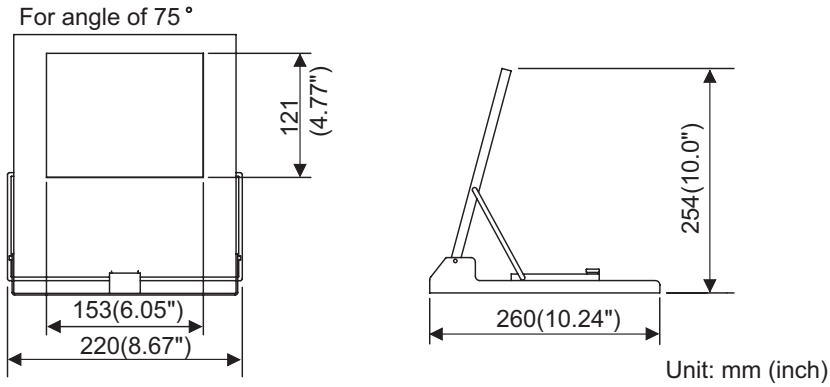
Unit: mm (inch)

External dimensions of memory board



Unit: mm (inch)

External dimensions of debug stand



Unit: mm (inch)

Appendix 2 Usage Condition of Utility Function

Different functions are available on the GOT and drawing software.

○ : Applicable × : N/A

Setting items			Function	GT1020	GT1030	GT105□	Drawing Setting (GT Designer2)
Language			Message language switching (Japanese/ English)	○	○	○	○
Connection settings	Standard I/F		Displays the channel number and communication driver that are allocated to the communication interface	×	×	×	○
			Communication parameter display	×	×	×	○
	Data Transfer		Displays the screen for transferring project data between the PC and GOT	○	○	○	×
	Communication Monitor		Displays the status of the communication ports	○	○	○	×
	Keyword		Setting related to a keyword of FX series PLC	○	○	○	×
GOT Setup	Display		Screen save time setting	○	○	○	○
			Screen save backlight ON/OFF setting	○	○	○	○
			Opening time setting	○	○	○	○
		bright/contrast	Liquid crystal brightness setting	×	○	×	×
			Liquid crystal contrast setting	○	○	○	×
	Operation		Buzzer volume setting	○	○	○	○
			Correcting touch position reading error	○	×	×	×
		Key reaction	Key reaction display	○	○	○	○
		Clock setting	Setup the method to adjust the time between GOT clock data and clock data of PLC CPU connected with GOT	○	○	○	○
		Security*1	Security level change (security password input of each object)	○	○	○	×
		Utility call	Setting of the menu call key	○	○	○	○
Time setting			Displaying the present time of the clock	○	○	○	×
			Setting the present time of the clock	○	○	○	×
			Displaying the battery status	×	○	○	×
Data	OS information		Displays the version of the OS (Standard monitor OS, BootOS) and communication driver versions	○	○	○	×
	Clear data		Deletes project data and resource data	○	○	○	×
	GT10-50FMB		Data transfer using a memory board	×	×	○	×
Debug	Device monitor		Device monitor of PLC of intelligent module	○	○	○	×
	FX list editor		List editing PLC program of FX PLC	×	×	○	×
Clean	Clean		Display the screen to clean the display section	○	○	○	×

*1: It is necessary to set the security level with GT Designer2.

Appendix 3 Transportation Precautions

When transporting lithium batteries, make sure to treat them based on the transport regulations.

Appendix 3.1 Relevant models

The battery for the GOT1000 Series is classified as shown in the table below.

Product name	Model	Description	Handled as
Battery for GOT1000 Series	GT11-50BAT	Lithium coin battery	Non-dangerous goods

Appendix 3.2 Transport guidelines

Products are packed properly in compliance with the transportation regulations prior to shipment. When repacking any of the unpacked products to transport it to another location, make sure to observe the IATA Dangerous Goods Regulations, IMDG Code and other local transportation regulations.
For details, please consult your transportation company.

Appendix 4 List of Functions Added by GT Designer2 Version Upgrade (For GOT1000 Series)

The following describes the functions added by version upgrade of the GT Designer2 Version2.90U.
For function comparisons among GOTs, refer to the following.

☞ GT Designer2 Version □ Basic Operation/Data Transfer Manual
(Appendix 3.2 List of Differences between the GOT1000 series and GOT-900 series functions)

For using the following functions, use GT Designer2 or OS of the corresponding version or later.

Point How to use this table

1 provides the versions of GT Designer2 and OS required for each GOT or communication unit.

2 and the following provides description for the functions added with the version upgrade, and the versions of GT Designer2 and OS with which the function is compatible.

Regarding 2 and the following, there may be a case where the function is not supported by a particular type of GOT even when the function is compatible with the version.
In such a case, check the version for the function and the version of the GOT, and use GT Designer2 or OS of the later version.

Appendix 4.1 For GT10

GT Designer2 Version 2.43V or later is applicable to GT1020.
GT Designer2 Version 2.58L or later is applicable to GT1030.
GT Designer2 Version 2.90U or later is applicable to GT105□.

1 Added GOT main unit

Target Models	Version of GT Designer2	Version of OS
GT1020-LBD, GT1020-LBD2, GT1020-LBL	2.43V	-
GT1020-LBDW, GT1020-LBDW2, GT1020-LBLW	2.58L	-
GT1030-LBD, GT1030-LBD2 , GT1030-LBDW, GT1030-LBDW2	2.58L	-
GT1055-QSBD, GT1050-QBBD	2.90U	-

2 Added connection types

○ : Applicable × : N/A - : Applicable (from the first version)

Item	Description	Version of GT Designer2	Version of OS	GT 105□	GT 1030	GT 1020
Direct connection to CPU	Supporting connection to FX3G series	2.90U	Standard monitor OS [01.10.**] Communication driver MELSEC-FX[01.06.**]	○	○	○

Item	Description	Version of GT Designer2	Version of OS	GT 105□	GT 1030	GT 1020
Computer link connection	Supporting connection to A series PLC	2.82L	Standard monitor OS [01.09.**] Communication driver AJ71C24/UC24[01.04.**]	-	○	○
CC-Link connection (Via G4)	Supporting connection to CC-Link (Via G4)	2.73B	Standard monitor OS [01.07.**] Communication driver CC-Link(G4)[01.00.**]	-	○	○
Microcomputer connection	Supporting the data formats of Format 1 and Format 2.	2.47Z	Standard monitor OS [01.02.**] Communication driver Computer[01.02.**]	-	-	○
OMRON PLC connection	Supporting connection to OMRON PLC	2.47Z	Standard monitor OS [01.02.**] Communication driver OMRON SYSMAC [01.02.**]	-	-	○
KEYENCE PLC connection	Supporting connection to KEYENCE PLC	2.73B	Standard monitor OS [01.07.**] Communication driver KEYENCE KV-700/1000[01.00.**]	-	○	○
	Supporting connection to KV-3000 and KV-5000	2.77F	Communication driver KEYENCE KV700/1000 [01.03.**]	-	○	○
TOSHIBA MACHINE PLC connection	Supporting connection to TOSHIBA MACHINE PLC	2.77F	Communication driver TOSHIBA MACHINE TCmini [01.03.**]	-	○	○
MATSUSHITA PLC connection	Supporting connection to MATSUSHITA PLC	2.73B	Standard monitor OS [01.07.**] Communication driver MATSUSHITA MEWNET-FP [01.00.**]	-	○	○
YASKAWA PLC connection	Supporting connection to CP9200SH/MP900 series	2.73B	Standard monitor OS [01.07.**] Communication driver YASKAWA MP [01.00.**]	-	○	○
	Supporting connection to MP2000/MP900 series	2.73B		-	○	○
LS IS PLC connection	Supporting connection to LS IS PLC	2.90U	Standard monitor OS [01.07.**] Communication driver LS Industrial Systems MASTER-K [01.05.**]	○	○	○
ALLEN-BRADLEY PLC connection	Supporting connection to MicroLogix 1000/1200/ 1500 series.	2.58L	Standard monitor OS [01.04.**] Communication driver AB MicroLogix [01.00.**]	-	○	○
	Supporting connection to SLC500 series.	2.58L	Standard monitor OS [01.04.**] Communication driver AB SLC 500 [01.00.**]	-	○	○
SIEMENS PLC connection	Supporting connection to SIEMENS S7-200 series.	2.58L	Standard monitor OS [01.04.**] Communication driver SIEMENS S7-200 [01.00.**]	-	○	○
	Supporting connection to SIEMENS S7-300/400 series	2.90U	Standard monitor OS [01.10.**] Communication driver SIEMENS S7-300/400 [01.05.**]	○	○	○
Inverter connection	Supporting connection to inverter	2.73B	Standard monitor OS [01.07.**] Communication driver FREQROL 500/700 [01.00.**]	-	○	○
Bar code reader connection	Supporting connection to barcode reader	2.77F	Standard monitor OS [01.08.**]	-	○	○

3 Added GT Designer2 functions

Item	Description	Version of GT Designer2	Version of OS	GT 105□	GT 1020	GT 1030
Library workspace	Enables setting the background color of the figures in the Library Editor screen.	2.47Z	-	-	-	○
Auxiliary setting	Enables setting [Specify the touch area.].	2.77F	-	-	○	×
Reading BMP or JPEG image data	Enables displaying BMP or JPEG image data reduced to a resolution of 2000 × 1600 or less on GT Designer2.	2.77F	-	-	○	○
Directly editing comment group	Enables editing the comment group directly in settings for the lamps and touch switches.	2.77F	-	-	○	○

4 Added common settings/object functions

Item	Description	Version of GT Designer2	Version of OS	GT 105□	GT 1030	GT 1020
Window screen	Corresponding to the overlap window display and the superimpose display.	2.73B	Standard monitor OS [01.07.**]	-	○	○
Figure	Supporting piping	2.73B	Standard monitor OS [01.00.**]	-	○	○
GOT Setup	The key reaction speed can be set.	2.82L	Standard monitor OS [01.09.**]	-	○	○
Clock function	The clock data storage to the GD device is possible.	2.73B	Standard monitor OS [01.07.**]	-	○	○
Numerical Display/ Numerical input	Format String setting is possible.	2.77F	Standard monitor OS [01.08.**]	-	○	○
ASCII input	The ASCII input can be set.	2.58L	Standard monitor OS [01.03.**]	-	-	○
Comment Display	The simple comment is added.	2.77F	Standard monitor OS [01.08.**]	-	○	○
Lamp Display	[Comment Group] can be used.	2.77F	Standard monitor OS [01.08.**]	-	○	○
Touch switch	Auto repeat can be used.	2.73B	Standard monitor OS [01.07.**]	-	○	○
	[Comment Group] can be used.	2.77F	Standard monitor OS [01.08.**]	-	○	○
	The device monitor and debug function can be set for the action setting of the special function switch and the multi action switch.	2.82L	Standard monitor OS [01.09.**]	-	○	○
Graph	The statistics bar graph can be set.	2.58L	Standard monitor OS [01.03.**]	-	-	○
	The statistics pie graph can be set.	2.58L	Standard monitor OS [01.03.**]	-	-	○
Alarm history display	Enables selecting whether to set the scrolling comment display suitable for the message display area.	2.63R	Standard monitor OS [01.06.**]	-	○	○
	Comment group can be used.	2.73B	Standard monitor OS [01.07.**]	-	○	○
Scrolling alarm display	The scrolling alarm display applicable	2.73B	Standard monitor OS [01.07.**]	-	○	○

5 Other functions added

Item	Description	Version of GT Designer2	Version of OS	GT 105□	GT 1030	GT 1020
Installing/ uploading with GT10-LDR	Enables installing or uploading the OS, communication drivers, project data, and others with the GT10-LDR.	2.77F	-	×	○	○
Installing OS	Enables installing the OS without the OS installation screen of the GOT.	2.77F	Standard monitor OS [01.08.**]	-	○	○
MELSEC-FX list editor function	Function to display or edit a sequence program read from the FXCPU in the list mode	2.90U	-	○	×	×

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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 repaired at no cost via the sales representative or Mitsubishi Service Company. However, if repairs are required onsite at domestic or overseas location, expenses to send an engineer will be solely at the customer's discretion. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.

[Gratis Warranty Term]

The gratis warranty term of the product shall be for one year 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. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

[Gratis Warranty Range]

(1) 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.

(2) Even within the gratis warranty term, repairs shall be charged for in the following cases.

1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
2. Failure caused by unapproved modifications, etc., to the product by the user.
3. 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.
4. Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
5. 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.
6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
7. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

(1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued. Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.

(2) Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

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 of damages caused by any cause found not to be the responsibility of Mitsubishi, loss in opportunity, lost profits incurred to the user or third person by Failures of Mitsubishi products, special damages and secondary damages whether foreseeable or not , compensation for accidents, and compensation for damages to products other than Mitsubishi products, 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 their local Mitsubishi representative outlining the special requirements of the project, and providing that all parties concerned agree to the special circumstances, solely at the users discretion.

GRAPHIC OPERATION TERMINAL

GOT1000

GT10 User's Manual

MODEL	GT10-U-E
MODEL CODE	09R819
JY997D24701E	

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE : TOKYO BUILDING, 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
HIMEJI WORKS : 840, CHIYODA CHO, HIMEJI, JAPAN