MITSUBISHI ELECTRIC

GRAPHIC OPERATION TERMINAL

GOT2000 Series

User's Manual (Hardware)

Thank you for choosing Mitsubishi Graphic Operation Terminal (Mitsubishi GOT).
Read this manual and make sure you understand the functions and performance of the GOT thoroughly in advance to ensure correct use.

● SAFETY PRECAUTIONS ●

(Always read these precautions before using this equipment.)

Before using this product, please read this manual and the relevant manuals introduced in this manual carefully and pay full attention to safety to handle the product correctly.
The precautions given in this manual are concerned with this product.
In this manual, the safety precautions are ranked as "WARNING" and "CAUTION".

⚠ WARNING	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
⚠ CAUTION	CAUTION Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage.

Note that the ⚠caution level may lead to a serious accident according to the circumstances. Always follow the instructions of both levels because they are important to personal safety.

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

[DESIGN PRECAUTIONS]

⚠WARNING

- Some failures of the GOT, communication unit or cable may keep the outputs on or off.
  Some failures of a touch panel may cause malfunction of the input objects such as a touch switch.
  An external monitoring circuit should be provided to check for output signals which may lead to a serious accident.Not doing so can cause an accident due to false output or malfunction.
- Do not use the GOT as the warning device that may cause a serious accident.
  An independent and redundant hardware or mechanical interlock is required to configure the device that displays and outputs serious warning.
  Failure to observe this instruction may result in an accident due to incorrect output or malfunction.

[DESIGN PRECAUTIONS]

⚠WARNING

- When the GOT backlight has a failure, the GOT status will be as follows.Failure to observe this instruction may result in an accident due to incorrect output or malfunction.
  - GT27,GT25,GT23
    When the GOT backlight has a failure, the POWER LED blinks (orange/blue) and the display section dims. In such a case, the input by the touch switch(s) is disabled.
  - GT21
    When the GOT backlight has a failure, the display section dims. In such a case, the input by the touch switches is disabled.

  Even if the display section dims on the liquid crystal of the GOT, the input by the touch switch(s) may remain enabled. This may cause a malfunction of the touch switch.

  For example, if an operator assumes that the display section has dimmed because of the screen save function and touches the display section to cancel the screen save, a touch switch may be activated.

  The GOT backlight failure can be checked with a system signal of the GOT.
- The display section of the GOT is an analog-resistive type touch panel.
  When multiple points of the display section are touched simultaneously, an accident may occur due to incorrect output or malfunction.
  - GT27
    Do not touch three points or more simultaneously on the display section. Doing so may cause an accident due to an incorrect output or malfunction.
  - GT25,GT23,GT21
    Do not touch two points or more simultaneously on the display section. Doing so may cause a touch switch near the touched points to operate unexpectedly, or may cause an accident due to an incorrect output or malfunction.
- When programs or parameters of the controller (such as a PLC) that is monitored by the GOT are changed, be sure to reset the GOT, or turn on the unit again after shutting off the power as soon as possible.
  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.
  For bus connection (GT27,GT25 Only) : The CPU becomes faulty and the GOT becomes inoperative.
  For other than bus connection : 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.

[DESIGN PRECAUTIONS]

⚠CAUTION

- Do not bundle the control and communication cables with main-circuit, power or other wiring. Run the above cables separately from such wiring and keep them a minimum of 100mm apart. Not doing so noise can cause a malfunction.
- Do not press the GOT display section with a pointed material as a pen or driver. Doing so can result in a damage or failure of the display section.
- When a GOT2000 series model and a GOT1000 series model are on an Ethernet network, do not set the IP address 192.168.0.18 for the GOTs and the controllers on this network. Doing so can cause IP address duplication at the GOT startup, adversely affecting the communication of the device with the IP address 192.168.0.18. The operation at the IP address duplication depends on the devices and the system.
- Turn on the controllers and the network devices to be ready for communication before they communicate with the GOT. Failure to do so can cause a communication error on the GOT.
- When the GOT is subject to shock or vibration, or some colors appear on the screen of the GOT, the screen of the GOT might flicker.

[MOUNTING PRECAUTIONS]

⚠WARNING

- Be sure to shut off all phases of the external power supply used by the system before mounting or removing the GOT main unit to/from the panel. Not doing so can cause the unit to fail or malfunction.
- Be sure to shut off all phases of the external power supply used by the system before mounting or removing the option unit onto/from the GOT. (GT27,GT25 Only)

[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 with a Phillips-head screwdriver No.2.
  - GT27,GT25,GT23
    Specified torque range (0.36 N•m to 0.48 N•m)
  - GT21
    Specified torque range (0.20 N•m to 0.25 N•m)

  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.
- When mounting a unit on the GOT, tighten the mounting screws in the following specified torque range.
  - GT27,GT25
    When loading the communication unit or option unit other than wireless LAN unit to the GOT, fit it to the connection interface of the GOT and tighten the mounting screws in the specified torque range (0.36 N•m to 0.48 N•m) with a Phillips-head screwdriver No.2.
    When loading the wireless LAN unit to the GOT, fit it to the side interface of GOT and tighten the mounting screws in the specified torque range (0.10 N•m to 0.14 N•m) with a Phillips-head screwdriver No.1.
    When the GOT is installed vertically, its side interface is positioned on the bottom.
    To prevent the falling of the wireless LAN communication unit from the side interface, install or remove the unit while holding it with hands.
  - GT2103-P
    When mounting the SD card unit on the GOT, fit it to the side of the GOT and tighten the tapping screws in the specified torque range (0.3 N•m to 0.6 N•m) with a Phillips-head screwdriver No.2.

  Under tightening can cause the GOT to drop, short circuit or malfunction.
  Overtightening can cause a drop, failure or malfunction due to the damage of the screws or unit.
- When closing the USB environmental protection cover, fix the cover to the GOT by pushing the [PUSH] mark on the latch firmly to comply with the protective structure.(GT27,GT25 Only)
- Remove the protective film of the GOT.
  When the user continues using the GOT with the protective film, the film may not be removed.
  In addition, for the models equipped with the human sensor function, using the GOT with the protective film may cause the human sensor not to function properly
- For GT2512F-S, GT2510F-V, and GT2508F-V, attach an environmental protection sheet dedicated to the open frame model (sold separately) to the display section.
  Or, attach a user-prepared environmental protection sheet.
  Not doing so may damage or soil the GOT or cause foreign matter to enter the GOT, resulting in a failure or malfunction.

⚠CAUTION

- When installing the supplied fittings on GT2512F-S, GT2510F-V, or GT2508F-V, tighten screws in the specified torque range (0.8 N•m to 1.0 N•m).
  Meld studs on the control panel to fasten the fittings.
  The studs must have strength adequate to withstand a tightening torque of 0.9 N•m or more.
  Make sure that no foreign matter such as welding waste is at and around the bases of the studs.
  Tighten nuts on the studs in the specified torque range (0.8 N•m to 0.9 N•m) with a wrench for M4 nuts.
  Undertightening a screw or nut may cause the GOT to drop, short-circuit, or malfunction.
  Overtightening a screw or nut may damage it or the GOT, causing the GOT to drop, short-circuit, or malfunction.
- Operate and store the GOT in environments without direct sunlight, high temperature, dust, humidity, and vibrations.
- When using the GOT in the environment of oil or chemicals, use the protective cover for oil.
  Failure to do so may cause failure or malfunction due to the oil or chemical entering into the GOT.

[WIRING PRECAUTIONS]

⚠WARNING

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

[WIRING PRECAUTIONS]

⚠CAUTION

- Make sure to ground the FG terminal and LG terminal of the GOT power supply section to the protective ground conductors dedicated to the GOT with a ground resistance of 100 Ω or less. (GT21 does not have the LG terminal.)
- When tightening the terminal screws, use a Phillips-head screwdriver No.2.
- Tighten the terminal screws of the GOT power supply section in the following specified torque range.
  - GT27,GT25,GT23
    Specified torque range (0.5 N•m to 0.8 N•m)
- For a terminal processing of a wire to the GOT power supply section, use the following terminal.
  - GT27,GT25,GT23
    Use applicable solderless terminals for terminal processing of a wire and tighten them with the specified torque.
    Not doing so can cause a fire, failure or malfunction.
  - GT21
    Connect a stranded wire or a single wire directly, or use a rod terminal with an insulation sleeve.
- 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 following specified torque range.
  - GT27,GT25,GT23
    Specified torque range (0.5 N•m to 0.8 N•m)
  - GT2104,GT2103
    Specified torque range (0.22 N•m to 0.25 N•m)
- 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.
- The module has an ingress prevention label on its top to prevent foreign matter, such as wire offcuts, from entering the module during wiring.
  Do not peel this label during wiring.Before starting system operation, be sure to peel this label because of heat dissipation. (GT27,GT25 Only)
- Plug the communication cable into the GOT interface or the connector of the connected unit, and tighten the mounting screws and the terminal screws in the specified torque range.
  Undertightening can cause a short circuit or malfunction.
  Overtightening can cause a short circuit or malfunction due to the damage of the screws or unit.
- Plug the QnA/ACPU/Motion controller(A series) bus connection cable by inserting it into the connector of the connected unit until it "clicks".
  After plugging, check that it has been inserted snugly.
  Not doing so can cause a malfunction due to a contact fault.(GT27,GT25 Only)

[TEST OPERATION PRECAUTIONS]

⚠WARNING

- 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, and changing the buffer memory current value), 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]

⚠WARNING

- When power is on, do not touch the terminals.
  Doing so can cause an electric shock or malfunction.
- Correctly connect the battery connector.
  Do not charge, disassemble, heat, short-circuit, solder, or throw the battery into the fire.
  Doing so will cause the battery to produce heat, explode, or ignite, resulting in injury and fire.
- 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/MAINTENANCE PRECAUTIONS]

⚠CAUTION

- Do not disassemble or modify the unit.
  Doing so can cause a failure, malfunction, injury or fire.
- Do not touch the conductive and electronic parts of the unit directly.
  Doing so can cause a unit malfunction or failure.
- The cables connected to the unit must be run in ducts or clamped.
  Not doing so can cause the unit or cable to be damaged due to the dangling, motion or accidental pulling of the cables or can cause a malfunction due to a cable connection fault.
- When unplugging the cable connected to the unit, do not hold and pull from the cable portion.
  Doing so can cause the unit or cable to be damaged or can cause a malfunction due to a cable connection fault.
- Do not drop the module or subject it to strong shock. A module damage may result.
- Do not drop or give an impact to the battery mounted to the unit.
  Doing so may damage the battery, causing the battery fluid to leak inside the battery.
  If the battery is dropped or given an impact, dispose of it without using.
- Before touching the unit, always touch grounded metals, etc. to discharge static electricity from human body, etc.
  Not doing so can cause the unit to fail or malfunction.
- Use the battery manufactured by Mitsubishi Electric Corporation.
  Use of other batteries may cause a risk of fire or explosion.
- Dispose of used battery promptly.
  Keep away from children.Do not disassemble and do not dispose of in fire.
- Be sure to shut off all phases of the external power supply before replacing the battery or using the dip switch of the terminating resistor.
  Not doing so can cause the unit to fail or malfunction by static electricity.

[TOUCH PANEL PRECAUTIONS]

⚠CAUTION

- For the analog-resistive film type touch panels, normally the adjustment is not required.
  However, the difference between a touched position and the object position may occur as the period of use elapses.
  When any difference between a touched position and the object position occurs, execute the touch panel calibration.
- When any difference between a touched position and the object position occurs, other object may be activated.
  This may cause an unexpected operation due to incorrect output or malfunction.

[PRECAUTIONS WHEN THE DATA STORAGE IS IN USE]

⚠WARNING

- If the SD card is removed from drive A of the GOT while being accessed by the GOT, the GOT may stop processing data for about 20 seconds.
  The GOT cannot be operated during this period.
  The functions that run in the background including a screen updating, alarm, logging, scripts, and others are also interrupted.
  Before removing the SD card, check the following items.
  - GT27,GT25,GT23
    Check that the SD card access LED is off before removing the SD card.
  - GT21
    Disable the SD card access in the GOT utility, and then check that the SD card access LED is off before removing the SD card.

⚠CAUTION

- If the data storage is removed from the GOT while being accessed by the GOT, the data storage and files may be damaged.
  Before removing the data storage from the GOT, check the SD card access LED, system signal, or others to make sure that the data storage is not accessed.
- Turning off the GOT while it accesses the SD card results in damage to the SD card and files.
- When using the GOT with an SD card inserted, check the following items.
  - GT27,GT25,GT23
    When inserting a SD card into the GOT, make sure to close the SD card cover.
    Not doing so causes the data not to be read or written.
  - GT21
    When inserting an SD card into the SD card unit, make sure to enable the SD card access in the GOT utility in advance.
    Not doing so causes the data not to be read or written.
- When removing the SD card from the GOT, make sure to support the SD card by hand as it may pop out.
  Not doing so may cause the SD card to drop from the GOT, resulting in a failure or break.
- When inserting a USB device into a USB interface of the GOT, make sure to insert the device into the interface firmly.
  Not doing so may cause the USB device to drop from the GOT, resulting in a failure or break.
- Before removing the USB device from the GOT, follow the procedure for removal on the utility screen of the GOT.
  After the successful completion dialog is displayed, remove the USB device by hand carefully.
  Not doing so may cause the USB device to drop from the GOT, resulting in a failure or break.

[PRECAUTIONS FOR REMOTE CONTROL]

⚠WARNING

- Remote control is available through a network by using GOT functions, including theSoftGOT-GOT link function, the remote personal computer operation function, the VNC server function, and the GOT Mobile function.
  If these functions are used to perform remote control of control equipment, the field operator may not notice the remote control, possibly leading to an accident.
  In addition, a communication delay or interruption may occur depending on the network environment, and remote control of control equipment cannot be performed normally in some cases.
  Before using the above functions to perform remote control, fully grasp the circumstances of the field site and ensure safety.

[Precautions for Exclusive Authorization Control]

⚠WARNING

- Make sure to fully understand the GOT network interaction function before using this function to control the authorization among pieces of equipment to prevent simultaneous operations.
  The exclusive authorization control of the GOT network interaction function can be enabled or disabled for each screen. (For all screens, the exclusive authorization control is disabled by default.)
  Properly determine the screens for which the exclusive authorization control is required, and set the control by screen.
  A screen for which the exclusive authorization control is disabled can be operated simultaneously from pieces of equipment. Make sure to determine the operation period for each operator, fully grasp the circumstances of the field site, and ensure safety to perform operations.

[DISPOSAL PRECAUTIONS]

⚠CAUTION

- When disposing of this product, treat it as industrial waste.
  When disposing of batteries, separate them from other wastes according to the local regulations.
  (Refer to 9.4 Low-voltage Battery Detection and Battery Replacement for details of the battery directive in the EU member states.)

[TRANSPORTATION PRECAUTIONS]

⚠CAUTION

- When transporting lithium batteries, make sure to treat them based on the transport regulations. (Refer to 11.7 Transportation Precautions for details of the regulated models.)
- Make sure to transport the GOT main unit and/or relevant unit(s) in the manner they will not be exposed to the impact exceeding the impact resistance described in the general specifications of this manual, as they are precision devices.
  Failure to do so may cause the unit to fail.
  Check if the unit operates correctly after transportation.
- When fumigants that contain halogen materials such as fluorine, chlorine, bromine, and iodine are used for disinfecting and protecting wooden packaging from insects, they cause malfunction when entering our products.
  Please take necessary precautions to ensure that remaining materials from fumigant do not enter our products, or treat packaging with methods other than fumigation (heat method).
  Additionally, disinfect and protect wood from insects before packing products.

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5. EMC DIRECTIVE AND LOW VOLTAGE DIRECTIVE

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REVISIONS

WARRANTY

List of Manuals for GT Works3

For the manuals related to this product, install the manuals with the drawing software.
If you need a printed manual, consult your local Mitsubishi representative or branch office.

■1. List of Manuals for GT Designer3(GOT2000)

(1) Screen drawing software manuals

Manual name	Manual number (Model code)
GT Works3 Version1 Installation Procedure Manual	-
GT Designer3 (GOT2000) Help	-
GT Converter2 Version3 Operating Manual for GT Works3	SH-080862ENG (1D7MB2)
GOT2000 Series MES Interface Function Manual for GT Works3 Version1	SH-081228ENG

(2) Connection manuals

Manual name	Manual number (Model code)
GOT2000 Series Connection Manual (Mitsubishi Products) For GT Works3 Version1	SH-081197ENG (1D7MJ8)
GOT2000 Series Connection Manual (Non-Mitsubishi Products 1) For GT Works3 Version1	SH-081198ENG
GOT2000 Series Connection Manual (Non-Mitsubishi Products 2) For GT Works3 Version1	SH-081199ENG
GOT2000 Series Connection Manual (Microcomputers, MODBUS/Fieldbus Products, Peripherals) For GT Works3 Version1	SH-081200ENG

(3) GT SoftGOT2000 manuals

Manual name	Manual number (Model code)
GT SoftGOT2000 Version1 Operating Manual	SH-081201ENG

(4) GOT2000 manuals

Manual name	Manual number (Model code)
GOT2000 Series User's Manual (Hardware)	SH-081194ENG (1D7MJ5)
GOT2000 Series User's Manual (Utility)	SH-081195ENG (1D7MJ6)
GOT2000 Series User's Manual (Monitor)	SH-081196ENG (1D7MJ7)

Abbreviations, Generic Terms, the meaning of the icon

The following shows the abbreviations and generic terms used in Help.

■1. GOT

Abbreviations and generic terms				Description	Meaning of icon	
					Support	Not support
GOT2000 Series	GT27	GT27-X	GT2715-X	GT2715-XTBA, GT2715-XTBD		
		GT27-S	GT2712-S	GT2712-STBA, GT2712-STWA, GT2712-STBD, GT2712-STWD		
			GT2710-S	GT2710-STBA, GT2710-STBD		
		GT27-V	GT2710-V	GT2710-VTBA, GT2710-VTWA, GT2710-VTBD, GT2710-VTWD		
		GT27-S	GT2708-S	GT2708-STBA, GT2708-STBD		
		GT27-V	GT2708-V	GT2708-VTBA, GT2708-VTBD		
			GT2705-V	GT2705-VTBD		
	GT25	GT25-S	GT2512-S	GT2512-STBA, GT2512-STBD		
			GT2512F-S	GT2512F-STNA, GT2512F-STND		
		GT25-V	GT2510-V	GT2510-VTBA, GT2510-VTWA, GT2510-VTBD, GT2510-VTWD		
			GT2510F-V	GT2510F-VTNA, GT2510F-VTND		
			GT2508-V	GT2508-VTBA, GT2508-VTWA, GT2508-VTBD, GT2508-VTWD		
			GT2508F-V	GT2508F-VTNA, GT2508F-VTND		
	GT23	GT23-V	GT2310-V	GT2310-VTBA, GT2310-VTBD		
			GT2308-V	GT2308-VTBA, GT2308-VTBD		
	GT21			All GT21 models		
		GT21-R	GT2104-R	GT2104-RTBD		
		GT21-P	GT2104-P	GT2104-PMBD		
				GT2104-PMBDS		
			GT2103-P	GT2103-PMBD		
				GT2103-PMBDS		
				GT2103-PMBDS2		
				GT2103-PMBLS		
	GT SoftGOT2000			GT SoftGOT2000 Version1		
GOT1000 Series				GOT1000 Series	-	
GOT900 Series				GOT-A900 Series, GOT-F900 Series	-	
GOT800 Series				GOT-800 Series	-	

■2. Communication unit

Abbreviations and generic terms	Description
Bus connection unit	GT15-QBUS, GT15-QBUS2, GT15-ABUS, GT15-ABUS2, GT15-75QBUSL, GT15-75QBUS2L, GT15-75ABUSL, GT15-75ABUS2L
Serial communication unit	GT15-RS2-9P, GT15-RS4-9S, GT15-RS4-TE
MELSECNET/H communication unit	GT15-J71LP23-25, GT15-J71BR13
CC-Link IE Controller Network communication unit	GT15-J71GP23-SX
CC-Link IE Field Network communication unit	GT15-J71GF13-T2
CC-Link communication unit	GT15-J61BT13
Wireless LAN communication unit	GT25-WLAN
Serial multi-drop connection unit	GT01-RS4-M
Connection conversion adapter	GT10-9PT5S
Field network adapter unit	GT25-FNADP

■3. Option unit

Abbreviations and generic terms		Description
Printer unit		GT15-PRN
Video/RGB unit	Video input unit	GT27-V4-Z (A set of GT16M-V4-Z and GT27-IF1000)
	RGB input unit	GT27-R2, GT27-R2-Z (A set of GT16M-R2-Z and GT27-IF1000)
	Video/RGB input unit	GT27-V4R1-Z (A set of GT16M-V4R1-Z and GT27-IF1000)
	RGB output unit	GT27-ROUT, GT27-ROUT-Z (A set of GT16M-ROUT-Z and GT27-IF1000)
Multimedia unit		GT27-MMR-Z (A set of GT16M-MMR-Z and GT27-IF1000)
Video signal conversion unit		GT27-IF1000
External I/O unit		GT15-DIO, GT15-DIOR
Sound output unit		GT15-SOUT
SD card unit		GT21-03SDCD

■4. Option

Abbreviations and generic terms	Description
SD card	NZ1MEM-2GBSD, NZ1MEM-4GBSD, NZ1MEM-8GBSD, NZ1MEM-16GBSD, L1MEM-2GBSD, L1MEM-4GBSD
Battery	GT11-50BAT
Protective sheet	GT27-15PSGC, GT25-12PSGC, GT25-10PSGC, GT25-08PSGC, GT25-05PSGC, GT21-04RPSGC-UC, GT21-04PSGC-UC, GT21-03PSGC-UC, GT27-15PSCC, GT25-12PSCC, GT25-10PSCC, GT25-08PSCC, GT25-12PSCC-UC, GT25-10PSCC-UC, GT25-08PSCC-UC, GT25-05PSCC, GT21-04RPSCC-UC, GT21-04PSCC-UC, GT21-03PSCC-UC
Environmental protection sheet	GT25F-12ESGS, GT25F-10ESGS, GT25F-08ESGS
Protective cover for oil	GT20-15PCO, GT20-12PCO, GT20-10PCO, GT20-08PCO, GT25-05PCO, GT21-04RPCO, GT10-30PCO, GT10-20PCO
USB environmental protection cover	GT25-UCOV, GT25-05UCOV
Stand	GT15-90STAND, GT15-80STAND, GT15-70STAND, GT15-60STAND, GT05-50STAND
Attachment	GT15-70ATT-98, GT15-70ATT-87, GT15-60ATT-97, GT15-60ATT-96, GT15-60ATT-87, GT15-60ATT-77

■5. Software

(1) Software related to GOT

Abbreviations and generic terms	Description
GT Works3	SW1DND-GTWK3-J, SW1DND-GTWK3-E, SW1DND-GTWK3-C
GT Designer3 Version1	Screen drawing software GT Designer3 for GOT2000/GOT1000 series
GT Designer3	Screen drawing software for GOT2000 series included in GT Works3
GT Designer3 (GOT2000)	
GT Designer3 (GOT1000)	Screen drawing software for GOT1000 series included in GT Works3
GT Simulator3	Screen simulator GT Simulator3 for GOT2000/GOT1000/GOT900 series
GT SoftGOT2000	Monitoring software GT SoftGOT2000 series
GT Converter2	Data conversion software GT Converter2 for GOT1000/GOT900 series
GT Designer2 Classic	Screen drawing software GT Designer2 Classic for GOT900 series
GT Designer2	Screen drawing software GT Designer2 for GOT1000/GOT900 series
DU/WIN	Screen drawing software FX-PCS-DU/WIN for GOT-F900 series

(2) Software related to iQ Works

Abbreviations and generic terms	Description
iQ Works	Abbreviation of iQ Platform compatible engineering environment MELSOFT iQ Works
MELSOFT Navigator	Generic term for integrated development environment software included in the SW DNC-IQWK (iQ Platform compatible engineering environment MELSOFT iQ Works) (□ indicates a version.)

(3) Other software

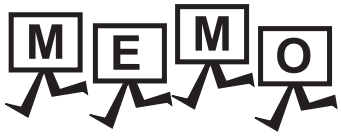
Abbreviations and generic terms		Description
GX Works3		SW□DND-GXW3-E (-EA) type programmable controller engineering software (□ indicates a version.)
GX Works2		SW□DNC-GXW2-□ type programmable controller engineering software (□ indicates a version.)
Controller simulator	GX Simulator3	Simulation function of GX Works3
	GX Simulator2	Simulation function of GX Works2
	GX Simulator	SW□D5C-LLT-E (-EV) type ladder logic test tool function software package (SW5D5C-LLT (-V) or later versions) (□ indicates a version.)
GX Developer		SW□D5C-GPPW-E (-EV)/SW□D5F-GPPW (-V) type software package (□ indicates a version.)
GX LogViewer		SW□DNN-VIEWER-E type software package (□ indicates a version.)
PX Developer		SW□D5C-FBDQ-E type FBD software package for process control (□ indicates a version.)
MT Works2		Motion controller engineering environment MELSOFT MT Works2(SW□DND-MTW2-E) (□ indicates a version.)
MT Developer		SW□RNC-GSV type integrated start-up support software for motion controller Q series (□ indicates a version.)
CW Configurator		C Controller module configuration and monitor tool (SW1DND-RCCPU-E) (□ indicates a version.)
MR Configurator2		SW□DNC-MRC2-E type servo configuration software (□ indicates a version.)
MR Configurator		MRZJW□-SETUP type servo configuration software (□ indicates a version.)
FR Configurator		Inverter setup software (FR-SW□-SETUP-WE) (□ indicates a version.)
NC Configurator2		CNC parameter setting support tool (FCSB1221)
NC Configurator		CNC parameter setting support tool
FX Configurator-FP		Parameter setting, monitoring, and testing software packages for FX3U-20SSC-H (SW□D5CFXSSCE) (□ indicates a version.)
FX3U-ENET-L Configuration tool		FX3U-ENET-L type Ethernet module setting software (SW1D5-FXENETL-E)
RT ToolBox2		Robot program creation software (3D-11C-WINE)
MX Component		MX Component Version□(SW□D5C-ACT-E, SW□D5C-ACT-EA) (□ indicates a version.)
MX Sheet		MX Sheet Version□(SW□D5C-SHEET-E, SW□D5C-SHEET-EA) (□ indicates a version.)
CPU Module Logging Configuration Tool		CPU module logging configuration tool (SW1DNN-LLUTL-E)

■6. License key (for GT SoftGOT2000)

Abbreviations and generic terms	Description
License key	GT27-SGTKEY-U

■7. Others

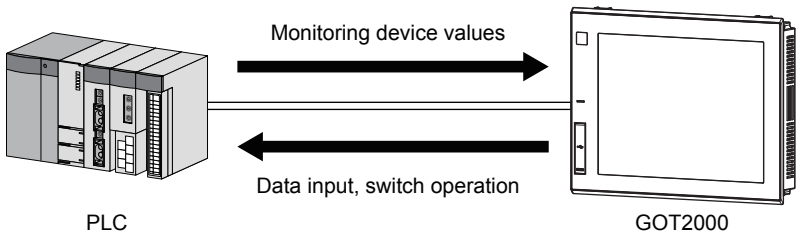
Abbreviations and generic terms	Description
IAI	IAI Corporation
AZBIL	Azbil Corporation
OMRON	OMRON Corporation
KEYENCE	KEYENCE CORPORATION
KOYO EI	KOYO ELECTRONICS INDUSTRIES CO., LTD.
JTEKT	JTEKT Corporation
SHARP	Sharp Manufacturing Systems Corporation
SHINKO	Shinko Technos Co., Ltd.
CHINO	CHINO CORPORATION
TOSHIBA	TOSHIBA CORPORATION
TOSHIBA MACHINE	TOSHIBA MACHINE CO., LTD.
PANASONIC	Panasonic Corporation
PANASONIC IDS	Panasonic Industrial Devices SUNX Co., Ltd.
HITACHI IES	Hitachi Industrial Equipment Systems Co., Ltd.
HITACHI	Hitachi, Ltd.
FUJI	FUJI ELECTRIC CO., LTD.
YASKAWA	YASKAWA Electric Corporation
YOKOGAWA	Yokogawa Electric Corporation
RKC	RKC INSTRUMENT INC.
ALLEN-BRADLEY	Allen-Bradley products manufactured by Rockwell Automation, Inc.
CLPA	CC-Link Partner Association
GE	GE Intelligent Platforms, Inc.
HMS	HMS Industrial Networks
LS IS	LS Industrial Systems Co., Ltd.
MITSUBISHI INDIA	Mitsubishi Electric India Pvt. Ltd.
ODVA	Open DeviceNet Vendor Association, Inc.
SCHNEIDER	Schneider Electric SA
SICK	SICK AG
SIEMENS	Siemens AG
PLC	Programmable controller manufactured by each corporation
Control equipment	Control equipment manufactured by each corporation
Temperature controller	Temperature controller manufactured by each corporation
Indicating controller	Indicating controller manufactured by each corporation
Controller	Controller manufactured by each corporation


MEMO

1. OVERVIEW

1.1 GOT

The GOT is a device connected to a PLC and others to operate switches and to display lamps, data, and messages.
Install the GOT on the panel surface of a control panel or an operating panel.



1.2 Features

■1. Abundant standard equipment

(1) Variety of connections with FA devices

The GOT2000 series has interfaces with various FA devices.

- GT27,GT25 : Ethernet,RS-232,RS-422/485,Extension interface
- GT23,GT21 : Ethernet,RS-232,RS-422/485

(2) SD card interface compatible with a large-capacity SDHC card allowing high-speed communication

You can use a large-capacity SDHC card allowing high-speed communication as a data storage.

- GT27,GT25, GT23, GT2104-R : equipped with the SD card unit as standard
- GT2103-P : equipped with the SD card unit as an option

(3) Connection with various peripheral devices with the USB host(GT27,GT25 Only)

You can connect the GOT to various peripheral devices with the USB host (standard equipment).
Using a USB memory, USB mouse, USB keyboard, and others improves your convenience.

■2. Improved usability

(1) Abundant troubleshooting functions

Abundant diagnosis functions and guidance displays reduce the time required for startup or troubleshooting.

(2) Easy and simple screen creation

You can create screens easily and simply with the screen design software, GT Designer3 Version1.

➠ GT Designer3 (GOT2000) Help

(3) Personal computer-like operation screen

The personal computer-like operation screen enables intuitive operations.

(4) Multi-touch function, gesture function(GT27 Only)

Characters can be scaled by pinch-in/out with fingers. Also, screens can be scrolled with a flick operation.

(5) Support for the vertical installation

Since the vertical installation is supported, the GOT can be installed in even a vertically oriented space.

■3. Enhanced compatibility with Mitsubishi FA devices

The sequence program monitor function enables enhanced compatibility with Mitsubishi FA devices.
You can save programs and data of Mitsubishi FA devices (such as PLCs) to an SD card using the backup/restoration function.

■4. Easy replacement

Since the existing project data is compatible with the GOT2000 series, you can replace an existing model with the GOT2000 series model easily.
Additionally, since the panel cut dimensions for the GOT2000 series are the same as those for the GOT1000 series, the control panel is not required to be reworked.

■5. LED backlight

Since the GOT adopts a long-life LED backlight, you do not have to replace the backlight.

■6. Support for external controllers including those handling multimedia and video(GT27(except GT2705) Only)

Video signals can be input or output with the combination of the GOT and an extension unit for multimedia.

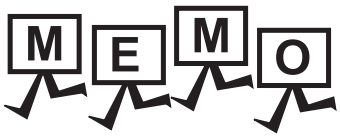
■7. Support for abundant functions

The GOT supports abundant functions such as the recipe function, the alarm function, operation logs, and operator authentication.

➠ GT Designer3 (GOT2000) Help

■8. Achieved coplanarity with the control panel (GT2512F-S, GT2510F-V, and GT2508F-V)

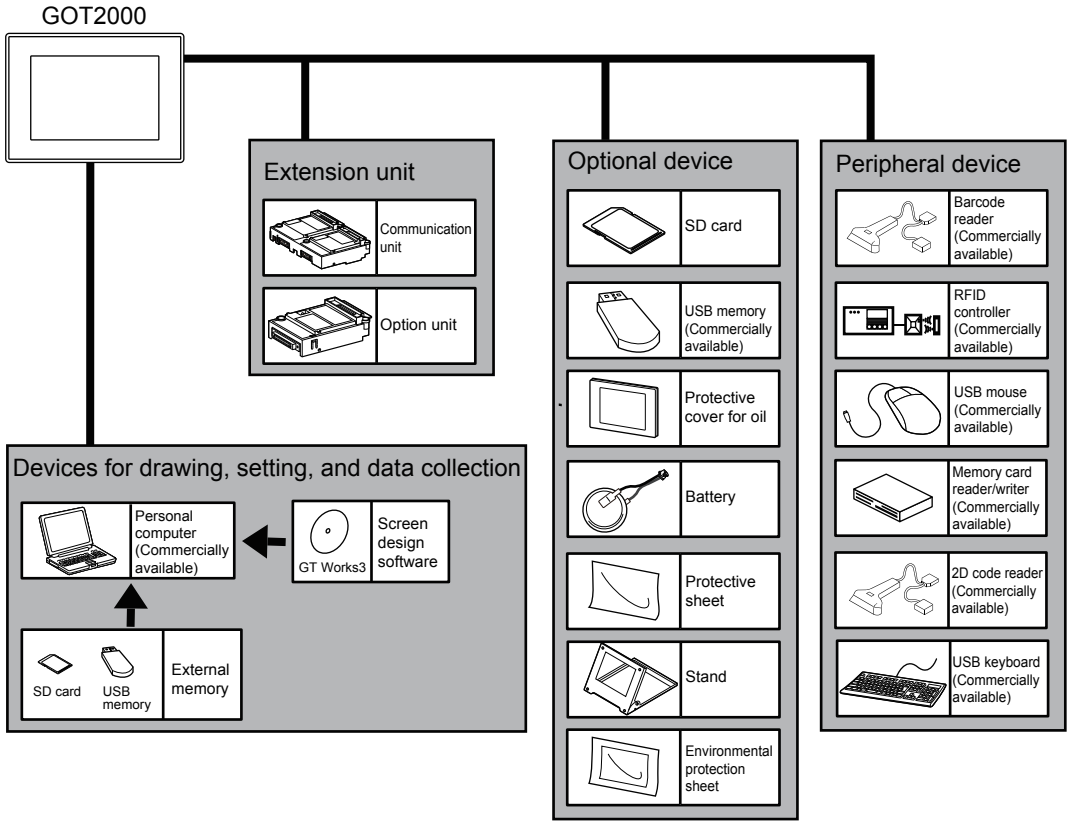
The GOT front face and the control panel surface are in the same plane by installing the GOT from the back of the panel.


MEMO

2. SYSTEM CONFIGURATION

2.1 Overall Configuration

The following shows the overall configuration of the GOT2000 series.



2.2 How to Read the Model Name

2.2.1 GOT model name

GT27 15 □ - X T B A □

Symbol	Model
GT27	GT27
GT25	GT25
GT23	GT23
GT21	GT21

Symbol	Resolution
X	XGA
S	SVGA
V	VGA
R	480 × 272 dots
P	320 × 128 dots or less

Symbol	Display section
T	TFT color
M	TFT monochrome

Symbol	Panel color
B	Black
W	White
N	No frame

Symbol	Power type
A	100 V AC to 240 V AC
D	24 V DC
L	5 V DC

Symbol	Others
None *1	With an Ethernet interface and an RS-422/485 interface
S *1	With an RS-232 interface and an RS-422/485 interface, or with an RS-422 interface only
S2 *1	With two RS-232 interfaces
-GF *2	CC-Link IE Field Network communication unit set

*1: For GT21 only
*2: For GT27 and GT25 only

Symbol	Screen size
15	15"
12	12.1"
10	10.4"
08	8.4"
05	5.7"
04	4.3" Wide or 4.5"
03	3.8"

Symbol	Structure
None	Standard
F	Open frame model

2.2.2 Option model name

■1. Extension unit and option dedicated to the GOT2000 series

GT** - ** ****

Symbol	Model
GT27	Dedicated for GT27
GT25	Dedicated for GT27,GT25
GT23	Dedicated for GT23
GT21	Dedicated for GT21
GT20	Common for all models
GT01	Common for all models

Symbol	Screen size
15	15"
12	12.1"
10	10.4"
08	8.4"
05	5.7"
04	4.3" Wide
03	3.8"
None	Common for all sizes

■2. Option unit for the GOT1000 series and GOT2000 series

GT** - ** ****

Symbol	Model
GT15	Common for GT27/GT25/GT23/GT16/GT15 (Partially dedicated for GT15)
GT05	Common for GT27/GT16/GT15

Symbol	Screen size
90	Dedicated for 15"
80	Dedicated for 12.1"
75	Dedicated for 15",12.1",10.4",8.4"
70	Dedicated for 10.4"
60	Dedicated for 8.4"
50	Dedicated for 5.7"
None	Common for all sizes

■3. Communication cable for the GOT1000 series and GOT2000 series

GT09 - C*** ** ** ** - n*

Symbol	Description
GT09	Non-Mitsubishi PLC connection cable (Commonly used for GT27, GT25, GT23, GT21, GT16, GT15, and GT11)

Symbol	Length
06	0.6 m
12	1.2 m
30	3 m
50	5 m
100	10 m
150	15 m
200	20 m
250	25 m
300	30 m
350	35 m

Symbol	Non-Mitsubishi manufacturer
01	OMRON
02	For YASKAWA products
03	For YOKOGAWA products
04	For HITACHI IES products
05	For TOSHIBA products
06	For SHARP products
07	For ALLEN-BRADLEY products
08	For SIEMENS PLC
09	For Panasonic IDS products
10	For FUJI FA products
11	For KEYENCE products
12	For JTEKT products
13	For HITACHI products

Symbol	No. of connector pins
4	4-pin
⋮	⋮
25	25-pin

(The number of terminals for solderless or preparatory-soldered terminals.)

Symbol	Connector pin type of connection target
P	Plug (male)
S	Socket (female)
T	Solderless terminal
C	Preparatory soldering

(Non-Mitsubishi PLC side)

Symbol	Description
R4	Dedicated for RS-422
R2	Dedicated for RS-232

Symbol	Non-Mitsubishi manufacturer No.

When cable distinction is required for one manufacturer's products
Example) • When wirings are different for each PLC type
• When connection targets are different, such as servo, inverter, and temperature controller

2.3 System Equipment

The following shows the system equipment of the GOT2000 series.

2.3.1 GOT

Classification		Model	Screen size	Display section, Display color	Panel color	Power	Remarks
GT27	GT2715	GT2715-XTBA	15" XGA	TFT color 65536 colors	Black	AC	Multimedia/Video/ RGB compatible Multi-touch compatible
		GT2715-XTBD				DC	
	GT2712	GT2712-STBA	12.1" SVGA		Black	AC	
		GT2712-STBD				DC	
		GT2712-STWA			White	AC	
		GT2712-STWD				DC	
	GT2710	GT2710-STBA	10.4" SVGA		Black	AC	
		GT2710-STBD				DC	
		GT2710-VTBA	10.4" VGA			AC	
		GT2710-VTBD				DC	
		GT2710-VTWA			White	AC	
		GT2710-VTWD				DC	
	GT2708	GT2708-STBA	8.4" SVGA		Black	AC	
		GT2708-STBD				DC	
		GT2708-VTBA	8.4" VGA			AC	
		GT2708-VTBD				DC	
	GT2705	GT2705-VTBD	5.7" VGA		Black	DC	Multi-touch compatible
GT25	GT2512	GT2512-STBA	12.1" SVGA	TFT color 65536 colors	Black	AC	-
		GT2512-STBD				DC	
		GT2512F-STNA			-	AC	Open frame model
		GT2512F-STND				DC	
	GT2510	GT2510-VTBA	10.4" VGA		Black	AC	-
		GT2510-VTBD				DC	
		GT2510-VTWA			White	AC	
		GT2510-VTWD				DC	
		GT2510F-VTNA			-	AC	Open frame model
		GT2510F-VTND				DC	
	GT2508	GT2508-VTBA	8.4" VGA		Black	AC	-
		GT2508-VTBD				DC	
		GT2508-VTWA			White	AC	
		GT2508-VTWD				DC	
		GT2508F-VTNA			-	AC	Open frame model
		GT2508F-VTND				DC	
GT23	GT2310	GT2310-VTBA	10.4" VGA	TFT color 65536 colors	Black	AC	-
		GT2310-VTBD				DC	
	GT2308	GT2308-VTBA	8.4" VGA			AC	
		GT2308-VTBD				DC	

Classification		Model	Screen size	Display section, Display color	Panel color	Power	Remarks
GT21	GT2104	GT2104-RTBD	4.3" Wide [480 × 272 dots]	TFT color 65536 colors	Black	DC	Ethernet, RS-422/485 RS232
		GT2104-PMBD	4.5" [384 × 128 dots]	TFT Monochrome (black/white) 32 levels	Black	DC	Ethernet, RS-422/485
		GT2104-PMBDS				DC	RS-232, RS-422/485
	GT2103	GT2103-PMBD	3.8" [320 × 128 dots]	TFT Monochrome (black/white) 32 levels	Black	DC	Ethernet, RS-422/485
		GT2103-PMBDS				DC	RS-232, RS-422/485
		GT2103-PMBDS2				DC	RS-232, RS-232
		GT2103-PMBLS				DC5V	RS-422 (FXCPU Connection Only)

2.3.2 CC-Link IE Field Network communication unit set

Classification		Model	Screen size	Display section, Display color	Panel color	Power	Remarks
GT27	GT2715	GT2715-XTBA-GF	15" XGA	TFT color 65536 colors	Black	AC	GOT + GT15-J71GF13-T2
		GT2715-XTBD-GF				DC	
	GT2712	GT2712-STBA-GF	12.1" SVGA		Black	AC	
		GT2712-STBD-GF				DC	
		GT2712-STWA-GF			White	AC	
		GT2712-STWD-GF				DC	
	GT2710	GT2710-STBA-GF	10.4" SVGA		Black	AC	
		GT2710-STBD-GF				DC	
		GT2710-VTBA-GF	10.4" VGA			AC	
		GT2710-VTBD-GF				DC	
		GT2710-VTWA-GF			White	AC	
		GT2710-VTWD-GF				DC	
	GT2708	GT2708-STBA-GF	8.4" SVGA		Black	AC	
		GT2708-STBD-GF				DC	
		GT2708-VTBA-GF	8.4" VGA			AC	
		GT2708-VTBD-GF				DC	
	GT2705	GT2705-VTBD-GF	5.7" VGA		Black	DC	
GT25	GT2512	GT2512-STBA-GF	12.1" SVGA	TFT color 65536 colors	Black	AC	GOT + GT15-J71GF13-T2
		GT2512-STBD-GF				DC	
	GT2510	GT2510-VTBA-GF	10.4" VGA		Black	AC	
		GT2510-VTBD-GF				DC	
		GT2510-VTWA-GF			White	AC	
		GT2510-VTWD-GF				DC	
	GT2508	GT2508-VTBA-GF	8.4" VGA		Black	AC	
		GT2508-VTBD-GF				DC	
		GT2508-VTWA-GF			White	AC	
		GT2508-VTWD-GF				DC	

2.3.3 Extension unit

■1. Communication unit

Product name	Model	Specifications	Supported model			
			GT 27	GT 25	GT 23	GT 21
Serial communication unit	GT15-RS2-9P	RS-232 serial communication unit (D-sub 9-pin: male)	○	○	-	-
	GT15-RS4-9S	RS-422/485 serial communication unit (D-sub 9-pin: female) *1*2	○	○	-	-
	GT15-RS4-TE	RS-422/485 serial communication unit (terminal block) *1 Can be used only when connected with temperature controllers/indicating controllers by RS-485 connection or at the GOT multi-drop connection	○	○	-	-
Bus connection unit	GT15-QBUS	QBUS connection (1ch) unit standard model	○	○	-	-
	GT15-QBUS2	QBUS connection (2ch) unit standard model	○	○	-	-
	GT15-ABUS	ABUS connection (1ch) unit standard model	○	○	-	-
	GT15-ABUS2	ABUS connection (2ch) unit standard model	○	○	-	-
	GT15-75QBUSL	QBUS connection (1ch) unit slim model *3	○	○	-	-
	GT15-75QBUS2L	QBUS connection (2ch) unit slim model *3	○	○	-	-
	GT15-75ABUSL	ABUS connection (1ch) unit slim model *3	○	○	-	-
	GT15-75ABUS2L	ABUS connection (2ch) unit slim model *3	○	○	-	-
MELSECNET/H communication unit	GT15-J71LP23-25	Normal station unit (optical loop)	○	○	-	-
	GT15-J71BR13	Normal station unit (coaxial bus)	○	○	-	-
CC-Link IE Controller Network communication unit	GT15-J71GP23-SX	Normal station unit (optical loop)	○	○	-	-
CC-Link IE Field Network communication unit	GT15-J71GF13-T2	Intelligent device station unit	○	○	-	-
CC-Link communication unit	GT15-J61BT13	Intelligent device station unit CC-Link Ver. 2 compliant	○	○	-	-
Field network adapter unit	GT25-FNADP	Adapter unit for field network communication *4	○	○	-	-
Wireless LAN communication unit*5	GT25-WLAN	IEEE802.11b/g/n compliant,built-in antenna, wireless LAN access point (base station)*6, station (client),connection to personal computer, tablet, smartphone Compliance with Japan Radio Law *7, FCC *8, R&TTE *8	○	○	-	-
Serial multi-drop connection unit	GT01-RS4-M	For GOT multi-drop connection	○	○	-	○

*1 May not be able to be used depending on the connection target. For details, refer to GOT2000 Series Connection Manual.
*2 Cannot be used when connected with temperature controllers or indicating controllers by RS-485 (2-wire type) connection.
*3 Cannot be used overlapping other units.
*4 The field network adapter unit can be used with the following field networks by using the Anybus CompactCom M40 network communication module manufactured by HMS.
Purchase a communication module by specifying its article number.

Communication module product name	Communication module article number	Supported network
ABCC-M40-DPV1	AB6910-B	PROFIBUS DP
ABCC-M40-DEV	AB6909-B	DeviceNet

*5 Data transfer in wireless LAN communication may not be as stable as that in cable communication.
A packet loss may occur depending on the surrounding environment and the installation location.
Be sure to perform a confirmation of operation before using this product.
*6 When a wireless LAN configuration of GT Designer3 the [Operation Mode] is set to [access point], the maximum connection number is a five (recommended).
*7 The product with hardware version A (manufactured in December 2013) complies with the regulation. The product with hardware version A can be used only in Japan.
*8 The product with hardware version B (manufactured in October 2014) complies with the regulation. The product with hardware version B or later can be used in Japan, the United States, the EU member states, Switzerland, Norway, Iceland, and Liechtenstein.

■2. Option unit

Product name	Model	Specifications	Supported model			
			GT 27	GT 25	GT 23	GT 21
Printer unit	GT15-PRN	USB slave (PictBridge) for printer connection, 1ch Cable for connection between printer unit and printer (3m) included	○	○	-	-
Multimedia unit	GT27-MMR-Z	For video input (NTSC/PAL), 1 channel, recording video/playing video files	○ *1	-	-	-
Video input unit	GT27-V4-Z	For video input (NTSC/PAL), 4 channels	○ *1	-	-	-
RGB input unit	GT27-R2	For analog RGB input, 2 channels	○ *1	-	-	-
	GT27-R2-Z	For analog RGB input, 2 channels (Assembled set of GT16M-R2-Z and GT27-IF1000)	○ *1	-	-	-
Video/RGB input unit	GT27-V4R1-Z	For video input (NTSC/PAL), 4 channels/analog RGB, 1 channel input	○ *1	-	-	-
RGB output unit	GT27-ROUT	For analog RGB output, 1 channel	○ *1	-	-	-
	GT27-ROUT-Z	For analog RGB output, 1 channel (Assembled set of GT16M-R2-Z and GT27-IF1000)	○ *1	-	-	-
Sound output unit	GT15-SOUT	For sound output (φ3.5 stereo pin jack)	○	○	-	-
External I/O unit	GT15-DIOR	For connecting an external I/O device and an operation panel (Negative common input, source type output)	○	○	-	-
	GT15-DIO	For connecting an external I/O device and an operation panel (Positive common input, sink type output)	○	○	-	-
SD card unit	GT21-03SDCD	For mounting an SD card	-	-	-	○ *2

*1 This unit is not usable for GT2705-V.
*2 Only available to GT2103-P.

2.3.4 Software

■1. Software

Product name	Model	Description		
HMI/GOT Screen Design Software MELSOFT GT Works3	SW1DND-GTWK3-E	English version	Standard license product	DVD product
	SW1DND-GTWK3-EA		Volume license product *1	
	SW1DND-GTWK3-EAZ		Additional license product *1*6	
FA Integrated Engineering Software MELSOFT iQ Works *2*3	SW1DND-IQWK-E	English version	Standard license product (Version1.77F or later)	DVD product
License key for GT SoftGOT2000 *4	GT27-SGTKEY-U	USB port licence key		
Remote Personal Computer Operation Function (Ethernet) License *5	GT25-PCRAKEY	1 license		
VNC Server Function License *5	GT25-VNCSKEY	1 license (License for GOT remote access function)		
MES I/F Function License *5	GT25-MESIFKEY	1 license		
GOT Mobile Function License *5	GT25-WEBSKEY	1 license		

*1 The desired number of licenses (2 or more) can be purchased. For details, please contact your local sales office.

*2 Volume license product and additional license product are also available. For more details, please refer to the MELSOFT iQ Works catalog (L(NA)08232).

*3 The product includes the following software.
- System Management Software [MELSOFT Navigator]
- Programmable Controller Engineering Software [MELSOFT GX Works2]
- Motion Controller Engineering Software [MELSOFT MT Works2]
- Servo Setup Software [MELSOFT MR Configurator2]
- Inverter Setup Software [FR Configurator2]
- Screen Design Software for Graphic Operation Terminal [MELSOFT GT Works3]
- Robot Engineering Software [MELSOFT RT ToolBox2 mini]

*4 To use GT SoftGOT2000, a license key for GT SoftGOT2000 is necessary for each personal computer.

*5 1 license is required for 1 GOT unit.

*6 This product does not include the DVD-ROM. Only the license certificate with the product ID No. is issued.

2.3.5 Option

Product name	Model	Description		Supported model			
				GT 27	GT 25	GT 23	GT 21
Protective sheet *1	GT27-15PSGC	For 15"	• Antiglare type • Transparent • With a hole for the USB environmental protection cover • A set of 5 sheets	○	-	-	-
	GT25-12PSGC	For 12.1"		○	-	-	-
	GT25-10PSGC	For 10.4"		○	○	-	-
	GT25-08PSGC	For 8.4"		○	○	-	-
	GT25-05PSGC	For 5.7"		○	-	-	-
	GT27-15PSCC	For 15"	• Clear type • Transparent • With a hole for the USB environmental protection cover • A set of 5 sheets	○	-	-	-
	GT25-12PSCC	For 12.1"		○	○	-	-
	GT25-10PSCC	For 10.4"		○	○	-	-
	GT25-08PSCC	For 8.4"		○	○	-	-
	GT25-05PSCC	For 5.7"		○	-	-	-
	GT25-12PSCC-UC	For 12.1"	• Clear type • Transparent • Without a hole for the USB environmental protection cover *2 • A set of 5 sheets	○	-	-	-
	GT25-10PSCC-UC	For 10.4"		○	-	-	-
	GT25-08PSCC-UC	For 8.4"		○	-	-	-
	GT21-04RPSGC-UC	For 4.3" Wide	• Antiglare type • Transparent • Without a hole for the USB environmental protection cover *2 • A set of 5 sheets	-	-	-	○
	GT21-04PSGC-UC	For 4.5"		-	-	-	○
	GT21-03PSGC-UC	For 3.8"		-	-	-	○
	GT21-04RPSCC-UC	For 4.3" Wide"	• Clear type • Transparent • A set of 5 sheets	-	-	-	○
	GT21-04PSCC-UC	For 4.5"		-	-	-	○
	GT21-03PSCC-UC	For 3.8"		-	-	-	○
Environmental protection sheet	GT25F-12ESGS	For 12.1"	• For conforming to IP67 • Antiglare type • Slivery • 1 sheet	-	○*5	-	-
	GT25F-10ESGS	For 10.4"		-	○*5	-	-
	GT25F-08ESGS	For 8.4"		-	○*5	-	-
USB environmental protection cover	GT25-UCOV	Environmental protection cover for the USB interface on the GOT front face (for replacement)		○	○	-	-
	GT25-05UCOV			○	-	-	-
Protective cover for oil *3	GT20-15PCO	For 15"		○	-	-	-
	GT20-12PCO	For 12.1"		○	-	-	-
	GT20-10PCO	For 10.4"		○	○	○	-
	GT20-08PCO	For 8.4"		○	○	○	-
	GT25-05PCO	For 5.7"		○	-	-	-
	GT21-04RPCO	For 4.3" Wide		-	-	-	○
	GT10-20PCO	For 3.8"		-	-	-	○
Stand	GT15-90STAND	For 15"		○	-	-	-
	GT15-80STAND	For 12.1"		○	-	-	-
	GT15-70STAND	For 10.4"/8.4"		○	○	○	-
	GT05-50STAND	For 5.7"		○	-	-	-

Product name		Model	Description		Supported model			
					GT 27	GT 25	GT 23	GT 21
Memory card	SD card	NZ1MEM-2GBSD	SD memory card for GOT, 2 GB		○	○	○	○
		NZ1MEM-4GBSD	SDHC memory card for GOT, 4 GB		○	○	○	○
		NZ1MEM-8GBSD	SDHC memory card for GOT, 8 GB		○	○	○	○
		NZ1MEM-16GBSD	SDHC memory card for GOT, 16 GB		○	○	○	○
		L1MEM-2GBSD	SD memory card for GOT, 2 GB		○	○	○	○
		L1MEM-4GBSD	SDHC memory card for GOT, 4 GB		○	○	○	○
	CF card	GT05-MEM-128MC	CF card for GT27-MMR-Z, 128 MB		○	-	-	-
		GT05-MEM-256MC	CF card for GT27-MMR-Z, 256 MB		○	-	-	-
		GT05-MEM-512MC	CF card for GT27-MMR-Z, 512 MB		○	-	-	-
		GT05-MEM-1GC	CF card for GT27-MMR-Z, 1 GB		○	-	-	-
		GT05-MEM-2GC	CF card for GT27-MMR-Z, 2 GB		○	-	-	-
		GT05-MEM-4GC	CF card for GT27-MMR-Z, 4 GB		○	-	-	-
		GT05-MEM-8GC	CF card for GT27-MMR-Z, 8 GB		○	-	-	-
		GT05-MEM-16GC	CF card for GT27-MMR-Z, 16 GB		○	-	-	-
Memory card adaptor		GT05-MEM-ADPC	Conversion adapter from CF card for GT27-MMR-Z to memory card (TYPE II)		○	-	-	-
Attachment		GT15-70ATT-98	For 10.4"	For replacing GT168□, GT158□, A985GOT *4	○	○	○	-
		GT15-70ATT-87		For replacing A870GOT-SWS/TWS or A8GT-70GOT-TB/TW/SB/SW	○	○	○	-
		GT15-60ATT-97	For 8.4"	For replacing GT167□, GT157□, A97□GOT	○	○	○	-
		GT15-60ATT-96		For replacing A960GOT	○	○	○	-
		GT15-60ATT-87		For replacing A870GOT-EWS, A8GT-70GOT-EB/EW, A77GOT-EL, A77GOT-EL-S5/S3	○	○	○	-
		GT15-60ATT-77		For replacing A77GOT-CL, A77GOT-CL-S5/S3, A77GOT-L, A77GOT-L-S5/S3	○	○	○	-
		GT15-50ATT-95W	For 5.7"	For replacing A956WGOT, F940WGOT	○	-	-	-
		GT15-50ATT-85		For replacing A85□GOT	○	-	-	-
Battery		GT11-50BAT	Battery for backup of SRAM data, clock data, and system status log data.		○ (For replacement)	○ (For replacement)	○ (Option)	-

*1 The while model does not have the front USB interface. It is recommended to use the products that the USB environmental protection cover area is closed.

*2 When using the product with the USB environmental protection cover area closed, the front USB interface cannot be used.

*3 Check if the protective cover for oil can be used in the actual environment before use. When using the cover, the front USB interface and human sensor cannot be used.

*4 Including the GP250□ and GP260□ manufactured by Digital Electronics Corporation.

*5 GT2512F-S, GT2510F-V, GT2508F-V Only.

2.3.6 Cable

■1. Cable for MITSUBISHI PLC

Product name		Model	Cable length	Recommended product *1	Specifications	Supported model			
						GT 27	GT 25	GT 23	GT 21
QCPU Bus connection cable	QCPU connection cable GOT-to-GOT connection cable	GT15-QC06B	0.6 m	○	QCPU ←→ GOT GOT ←→ GOT	○	○	-	-
		GT15-QC12B	1.2 m						
		GT15-QC30B	3 m						
		GT15-QC50B	5 m						
		GT15-QC100B	10 m						
	QCPU connection cable GOT-to-GOT connection cable (long distance)	GT15-QC150BS	15 m	○	For connecting the QCPU and GOT (long distance), A9GT-QCNB is required For connecting the GOT and GOT (long distance)	○	○	-	-
		GT15-QC200BS	20 m						
		GT15-QC250BS	25 m						
		GT15-QC300BS	30 m						
		GT15-QC350BS	35 m						
Bus extension connector box		A9GT-QCNB	-	-	Connect the connector box to the main base unit of PLC when connecting the QCPU and GOT (long distance).	○	○	-	-
Bus connection cable Ferrite core		GT15-QFC	-	-	Attach a ferrite core to the GOT-A900 bus connection cable when an existing GOT-A900 is replaced with a GOT2000. (two ferrite cores/set)	○	○	-	-
RS-485 terminal block conversion unit		FA-LTBGT2R4CBL05	0.5 m	○	RS-485 terminal block conversion unit With a cable for connecting RS-422/485 (connector) of GOT2000 and a RS-485 terminal block conversion unit	○	○	-	-
		FA-LTBGT2R4CBL10	1 m						
		FA-LTBGT2R4CBL20	2 m						
RS-422 conversion cable		FA-CNV2402CBL	0.2 m	○	For connecting the QCPU/ L02SCPU(-P) and the RS-422 cable (GT01-C□R4-25P, GT10-C□R4-25P, GT21-C□R4-25P5) For connecting the L6ADP-R2 and the RS-422 cable (GT01-C□R4-25P, GT10-C□R4-25P, GT21-C□R4-25P5) [MINI-DIN 6-pin ←→ D-sub 25-pin]	○	○	○	○
		FA-CNV2405CBL	0.5 m						

Product name		Model	Cable length	Recommended product *1	Specifications	Supported model			
						GT 27	GT 25	GT 23	GT 21
RS-422 Cable	QnA/A/FXCPU direct connection cable Computer link connection cable CC-Link (G4) connection cable	GT01-C30R4-25P	3 m	-	For connecting the QnA/ACPU/FXCPU/motion controller (A series) and the GOT For connecting the RS-422 connector conversion cable (FA-CNV□CBL) and the GOT For connecting the serial communication module and the GOT For connecting the peripheral connection module (AJ65BT-G4-S3) and the GOT [D-sub 25-pin ←→ separate wire (Connector terminal block 9-pin)]	○	○	○	○ *3*6
		GT01-C100R4-25P	10 m						
		GT01-C200R4-25P	20 m						
		GT01-C300R4-25P	30 m						
		GT10-C30R4-25P	3 m	-	For connecting the QnA/ACPU/FXCPU/motion controller (A series) and the GOT For connecting the RS-422 connector conversion cable (FA-CNV□CBL) and the GOT For connecting the serial communication module and the GOT For connecting the peripheral connection module (AJ65BT-G4-S3) and the GOT [D-sub 25-pin ←→ separate wire (Connector terminal block 9-pin)]	-	-	-	○ *3
		GT10-C100R4-25P	10 m						
		GT10-C200R4-25P	20 m						
		GT10-C300R4-25P	30 m						

Product name		Model	Cable length	Recommended product *1	Specifications	Supported model			
						GT 27	GT 25	GT 23	GT 21
RS-422 Cable	QnA/A/FXCPU direct connection cable Computer link connection cable CC-Link (G4) connection cable	GT21-C30R4-25P5	3 m	-	For connecting the QnACPU and GOT For connecting the RS-422 connector conversion cable (FA-CNV□CBL) and GOT For connecting the serial communication module and GOT For connecting the peripheral connection module (AJ65BT-G4-S3) and GOT [D-sub 25-pin ⟷ separate wire (Connector terminal block 5-pin)] *GT2103-PMBD cannot be connected to Q00JCPU, Q00CPU, or Q01CPU.	-	-	-	○ *2
		GT21-C100R4-25P5	10 m						
		GT21-C200R4-25P5	20 m						
		GT21-C300R4-25P5	30 m						
	Computer link connection cable	GT09-C30R4-6C	3 m	○	For connecting the serial communication module and GOT For connecting a Computer link module and GOT [Separate wire ⟷ D-sub 9-pin]	○	○	○	○ *3*7
		GT09-C100R4-6C	10 m						
		GT09-C200R4-6C	20 m						
		GT09-C300R4-6C	30 m						
	FXCPU direct connection cable FXCPU communication expansion board connection cable	GT01-C10R4-8P	1 m	-	For connecting the FXCPU and GOT For connecting the FXCPU communication function extension board and GOT [MINI-DIN 8-pin ⟷ D-sub 9 pin]	○	○	○	○ *3*7
		GT01-C30R4-8P	3 m						
		GT01-C100R4-8P	10 m						
		GT01-C200R4-8P	20 m						
		GT01-C300R4-8P	30 m						
		GT10-C10R4-8P	1 m	-	For connecting the FXCPU and GOT For connecting the FXCPU communication function extension board and GOT [MINI-DIN 8-pin ⟷ separate wire (Connector terminal block 9-pin)]	-	-	-	○ *4
		GT10-C30R4-8P	3 m						
		GT10-C100R4-8P	10 m						
		GT10-C200R4-8P	20 m						
		GT10-C300R4-8P	30 m						
		GT21-C10R4-8P5	1 m	-	For connecting the FXCPU and GOT For connecting the FXCPU communication function extension board and GOT [MINI-DIN 8-pin and separate wire (Connector terminal block 5-pin)]	-	-	○	○ *2
		GT21-C30R4-8P5	3 m						
		GT21-C100R4-8P5	10 m						
		GT21-C200R4-8P5	20 m						
		GT21-C300R4-8P5	30 m						

Product name		Model	Cable length	Recommended product *1	Specifications	Supported model			
						GT 27	GT 25	GT 23	GT 21
RS-422 Cable	FXCPU direct connection cable FXCPU communication expansion board connection cable	GT10-C10R4-8PL	1 m	-	For connecting the FXCPU and GOT For connecting the FXCPU communication function extension board and GOT [MINI-DIN 8-pin ←→ separate wire (Connector terminal block 9-pin)] *This cable cannot be used for FX1NC, FX2NC, FX3UC-D/DSS, or FX3G.	-	-	○	○*4
		GT10-C10R4-8PC	1 m	-	For connecting the FXCPU and GOT For connecting the FXCPU communication function extension board and GOT [MINI-DIN 8-pin ←→ Connector terminal block 9-pin]	-	-	○	○*4
		GT10-C30R4-8PC	3 m						
		GT10-C100R4-8PC	10 m						
		GT10-C200R4-8PC	20 m						
		GT10-C300R4-8PC	30 m						
	RS-422 connector conversion cable	GT10-C02H-9SC	0.2 m	-	For connecting a PLC and GOT [D-sub 9-pin ←→ separate wire (Connector terminal block 9-pin)]	-	-	○	○*3
RS-232 cable	Q/LCPU direct connection cable	GT01-C30R2-6P	3 m	-	For connecting the Q/LCPU and GOT For connecting L6ADP-R2 and GOT/personal computer (GT SoftGOT2000) [MINI-DIN 6-pin ←→ D-sub 9 pin]	○	○	○	○*5*8
	Q/LCPU direct connection cable	GT10-C30R2-6P	3 m	-	For connecting the Q/LCPU and GOT [MINI-DIN 6-pin ←→ separate wire (Connector terminal block 9-pin)]	-	-	○	○*6
					For connecting multiple GOTs [MINI-DIN 6-pin ←→ separate wire (Connector terminal block 9-pin)]	-	-	○	○*5
	FXCPU communication function extension board connection cable FXCPU communication special adapter connection cable	GT01-C30R2-9S	3m	-	For connecting the FXCPU communication function extension board and GOT/ personal computer (GT SoftGOT2000) For connecting an FXCPU communication special adapter and GOT/personal computer (GT SoftGOT2000) [D-sub 9-pin ←→ D-sub 9 pin]	○	○	○	○*5*8
	FXCPU communication special adapter connection cable	GT01-C30R2-25P	3 m	-	For connecting an FXCPU communication special adapter and GOT/personal computer (GT SoftGOT2000) [D-sub 25-pin ←→ D-sub 9 pin]	○	○	○	○*5*8

Product name		Model	Cable length	Recommended product *1	Specifications	Supported model			
						GT 27	GT 25	GT 23	GT 21
RS-232 cable	Computer link connection cable CC-Link (G4) connection cable	GT09-C30R2-9P	3 m	○	For connecting the serial communication module and GOT For connecting a Computer link module and GOT For connecting the peripheral connection module (AJ65BT-R2N) and GOT [D-sub 9-pin ←→ D-sub 9 pin]	○	○	○	○ *5*8
	Computer link connection cable	GT09-C30R2-25P	3 m	○	For connecting the serial communication module and GOT For connecting a Computer link module and GOT [D-sub 25-pin ←→ D-sub 9 pin]	○	○	○	○ *5*8
	RS-232 connector conversion cable	GT10-C02H-6PT9P	0.2 m	-	For connecting a PLC and GOT For connecting multiple GOTs For connecting a barcode reader, RFID, or serial printer and a GOT [D-sub 9-pin ←→ MINI-DIN 6-pin]	-	-	-	○ *5
	Data transfer cable	GT01-C30R2-6P	3 m	-	For connecting the GOT and the personal computer (This cable is used only for the FA transparent function. Do not use this cable to transfer screen or OS data.) [MINI-DIN 6-pin ←→ D-sub 9-pin]	-	-	-	○ *5
Conversion cable for connecting External I/O unit		GT15-C03HTB	0.3 m	○	For connecting an External I/O unit (GT15-DIO) and external I/O interface unit (A8GT-C05TK, A8GT-C30TB, user-fabricated cable) for GOT-A900	○	○	-	-
Analog RGB cable		GT15-C50VG	5 m	○	For connecting an external monitor/personal computer/ vision sensor and GOT	○	-	-	-
USB cable	Data transfer cable Printer connection cable	GT09-C30USB-5P	3 m	○	For connecting a personal computer (Screen creation software) and GOT For connecting a personal computer (GT SoftGOT2000) and QnU/L/FXCPU For connecting a PictBridge-compatible printer and printer unit (GT15-PRN) [USB-A ←→ USB Mini-B]	○	○	○	○ *9
Extended USB waterproof cable		GT10-C10EXUSB-5S	1 m	-	Use this cable for extracting the USB port of a GOT to the surface of a control panel	-	-	-	○

*1 FA-LTBGT2R4CBL□, FA-CNV240□CBL are developed by Mitsubishi Electric Engineering Company Limited and sold through your local sales office.
The other products listed are developed by Mitsubishi Electric Systems & Service Co., LTD. and sold through your local sales office.
*2 This cable is usable for GT2104-RMBD, GT2103-PMBD.
*3 This cable is usable for GT2104-RTBD, GT2104-PMBDS, GT2103-PMBDS.
*4 This cable is usable for GT2104-RTBD, GT2104-PMBDS, GT2103-PMBDS, GT2103-PMBLS.
For GT2103-PMBLS, use a 3 m or shorter cable.
*5 This cable is usable for GT2104-PMBDS, GT2103-PMBDS, GT2103-PMBDS2.
*6 This cable is usable for GT2104-RTBD,GT2103-PMBDS2.
*7 GT2104-RTBD, GT2104-PMBDS, GT2103-PMBDS is possible to correspond by combining the GT10-C02H-9SC type RS-422 connector conversion cable.
*8 GT2104-PMBDS, GT2103-PMBDS, GT2103-PMBDS2 is possible to correspond by combining the GT10-C02H-6PT9P type RS-232 connector conversion cable.
*9 This cable is not usable for the printer connection.
*10 This cable is usable for GT2104-RTBD, GT2104-PMBDS, GT2103-PMBDS.
*11 This cable is usable for GT2104-PMBDS, GT2103-PMBDS, GT2103-PMBDS2.

■2. Cable for OMRON PLC

Product name	Model	Cable length	Specifications	Supported model			
				GT 27	GT 25	GT 23	GT 21
RS-232 cable	GT09-C30R20101-9P	3 m	For connecting an OMRON PLC/serial communication module/communication board and GOT	○	○	○	○ *1
	GT09-C30R20102-25S	3 m	For connecting an OMRON connection cable and GOT				
	GT09-C30R20103-25P	3 m	For connecting an OMRON rack type host link unit and GOT				
RS-422 cable	GT09-C30R40101-9P	3 m	For connecting an OMRON PLC/serial communication module/serial communication board and GOT	○	○	○	○ *2
	GT09-C100R40101-9P	10 m					
	GT09-C200R40101-9P	20 m					
	GT09-C300R40101-9P	30 m					
	GT09-C30R40102-9P	3 m	For connecting an OMRON rack type host link unit and GOT	○	○	○	○ *2
	GT09-C100R40102-9P	10 m					
	GT09-C200R40102-9P	20 m					
	GT09-C300R40102-9P	30 m					
	GT09-C30R40103-5T	3 m	For connecting an OMRON communication board and GOT	○	○	○	○ *2
	GT09-C100R40103-5T	10 m					
	GT09-C200R40103-5T	20 m					
	GT09-C300R40103-5T	30 m					

*1 This cable can be used if connected with the RS-232 connector conversion cable GT10-C02H-6PT9P.
*2 This cable can be used if connected with the RS-422 connector conversion cable GT10-C02H-9SC.

■3. Cable for KEYENCE PLC

Product name	Model	Cable length	Specifications	Supported model			
				GT 27	GT 25	GT 23	GT 21
RS-232 cable	GT09-C30R21101-6P	3 m	For connecting a KEYENCE PLC and GOT	○	○	○	○ *1
	GT09-C30R21102-9S	3 m	For connecting a KEYENCE multi-communication unit and GOT				
	GT09-C30R21103-3T	3 m					
RS-422 cable	GT09-C30R41101-5T	3 m	For connecting a KEYENCE multi-communication unit and GOT	○	○	○	○ *2
	GT09-C100R41101-5T	10 m					
	GT09-C200R41101-5T	20 m					
	GT09-C300R41101-5T	30 m					

*1 This cable can be used if connected with the RS-232 connector conversion cable GT10-C02H-6PT9P.
*2 This cable can be used if connected with the RS-422 connector conversion cable GT10-C02H-9SC.

■4. Cable for SHARP PLC

Product name	Model	Cable length	Specifications	Supported model			
				GT 27	GT 25	GT 23	GT 21
RS-232 cable	GT09-C30R20601-15P	3 m	For connecting a SHARP PLC and GOT	○	○	○	-
	GT09-C30R20602-15P	3 m					
RS-422 cable	GT09-C30R40601-15P	3 m	For connecting a SHARP PLC and GOT	○	○	○	-
	GT09-C100R40601-15P	10 m					
	GT09-C200R40601-15P	20 m					
	GT09-C300R40601-15P	30 m					
	GT09-C30R40602-15P	3 m					
	GT09-C100R40602-15P	10 m					
	GT09-C200R40602-15P	20 m					
	GT09-C300R40602-15P	30 m					
	GT09-C30R40603-6T	3 m					
	GT09-C100R40603-6T	10 m					
	GT09-C200R40603-6T	20 m					
	GT09-C300R40603-6T	30 m					

■5. Cable for JTEKT PLC

Product name	Model	Cable length	Specifications	Supported model			
				GT 27	GT 25	GT 23	GT 21
RS-232 cable	GT09-C30R21201-25P	3 m	For connecting a JTEKT PLC and GOT	○	○	○	-
RS-422 cable	GT09-C30R41201-6C	3 m	For connecting a JTEKT PLC and GOT	○	○	○	-
	GT09-C100R41201-6C	10 m					
	GT09-C200R41201-6C	20 m					
	GT09-C300R41201-6C	30m					

■6. Cable for SHINKO indicating controller

Product name	Model	Cable length	Specifications	Supported model			
				GT 27	GT 25	GT 23	GT 21
RS-232 cable	GT09-C30R21401-4T	3 m	For connecting a SHINKO indicating controller and GOT	○	○	○	-

■7. Cable for TOSHIBA PLC

Product name	Model	Cable length	Specifications	Supported model			
				GT 27	GT 25	GT 23	GT 21
RS-232 cable	GT09-C30R20501-9P	3 m	For connecting a TOSHIBA PLC and GOT	○	○	○	-
	GT09-C30R20502-15P	3 m					

Product name	Model	Cable length	Specifications	Supported model			
				GT 27	GT 25	GT 23	GT 21
RS-422 cable	GT09-C30R40501-15P	3 m	For connecting a TOSHIBA PLC and GOT	○	○	○	-
	GT09-C100R40501-15P	10 m					
	GT09-C200R40501-15P	20 m					
	GT09-C300R40501-15P	30 m					
	GT09-C30R40502-6C	3 m					
	GT09-C100R40502-6C	10 m					
	GT09-C200R40502-6C	20 m					
	GT09-C300R40502-6C	30 m					
	GT09-C30R40503-15P	3 m					
	GT09-C100R40503-15P	10 m					
	GT09-C200R40503-15P	20 m					
	GT09-C300R40503-15P	30 m					

■8. Cable for HITACHI IES PLC

Product name	Model	Cable length	Specifications	Supported model			
				GT 27	GT 25	GT 23	GT 21
RS-232 cable	GT09-C30R20401-15P	3 m	For connecting a HITACHI IES PLC/intelligent serial port module and GOT	○	○	○	-
	GT09-C30R20402-15P	3 m	For connecting a HITACHI IES PLC and GOT	○	○	○	-
RS-422 cable	GT09-C30R40401-7T	3 m	For connecting a HITACHI IES intelligent serial port module and GOT	○	○	○	-
	GT09-C100R40401-7T	10 m					
	GT09-C200R40401-7T	20 m					
	GT09-C300R40401-7T	30 m					

■9. Cable for HITACHI PLC

Product name	Model	Cable length	Specifications	Supported model			
				GT 27	GT 25	GT 23	GT 21
RS-232 cable	GT09-C30R21301-9S	3 m	For connecting a HITACHI communication module and GOT	○	○	○	-
RS-422 cable	GT09-C30R41301-9S	3 m	For connecting a HITACHI PLC/ communication module and GOT	○	○	○	-
	GT09-C100R41301-9S	10 m					
	GT09-C200R41301-9S	20 m					
	GT09-C300R41301-9S	30 m					

■10. Cable for FUJI FA PLC

Product name	Model	Cable length	Specifications	Supported model			
				GT 27	GT 25	GT 23	GT 21
RS-232 cable	GT09-C30R21003-25P	3 m	For connecting a FUJI FA RS-232C interface card/RS-232C interface capsule/RS-485 interface capsule/general-purpose interface module and GOT	○	○	○	-
RS-422 cable	GT09-C30R41001-6T	3 m	For connecting a FUJI FA RS-232C interface capsule/485 interface capsule/general-purpose interface module and GOT	○	○	○	-
	GT09-C100R41001-6T	10 m					
	GT09-C200R41001-6T	20 m					
	GT09-C300R41001-6T	30 m					

■11. Cable for Panasonic IDS PLC

Product name	Model	Cable length	Specifications	Supported model			
				GT 27	GT 25	GT 23	GT 21
RS-232 cable	GT09-C30R20901-25P	3 m	For connecting a Panasonic IDS RS422/ RS232C conversion adapter and GOT	○	○	○	○ *1
	GT09-C30R20902-9P	3 m	For connecting a Panasonic IDS PLC/ computer communication unit and GOT	○	○	○	○ *1
	GT09-C30R20903-9P	3 m	For connecting a Panasonic IDS PLC and GOT	○	○	○	○ *1
	GT09-C30R20904-3C	3 m					

*1 This cable can be used if connected with the RS-232 connector conversion cable GT10-C02H-6PT9P.

■12. Cable for YASKAWA PLC

Product name	Model	Cable length	Specifications	Supported model			
				GT 27	GT 25	GT 23	GT 21
RS-232 cable	GT09-C30R20201-9P	3 m	For connecting a YASKAWA PLC and GOT	○	○	○	○ *1
	GT09-C30R20202-15P	3 m					
	GT09-C30R20203-9P	3 m					
	GT09-C30R20204-14P	3 m					
	GT09-C30R20205-25P	3 m	For connecting a YASKAWA MEMOBUS module and GOT	○	○	○	○ *1
RS-422 cable	GT09-C30R40201-9P	3 m	For connecting a YASKAWA MEMOBUS module and GOT	○	○	○	○ *2
	GT09-C100R40201-9P	10 m					
	GT09-C200R40201-9P	20 m					
	GT09-C300R40201-9P	30 m					
	GT09-C30R40202-14P	3 m	For connecting a YASKAWA PLC and GOT	○	○	○	○ *2
	GT09-C100R40202-14P	10 m					
	GT09-C200R40202-14P	20 m					
	GT09-C300R40202-14P	30 m					

*1 This cable is usable with the RS-232 connector conversion cable GT10-C02H-6PT9P
*2 This cable is usable with the RS-422 connector conversion cable GT10-C02H-9SC.

■13. Cable for YOKOGAWA PLC and temperature controller

Product name	Model	Cable length	Specifications	Supported model			
				GT 27	GT 25	GT 23	GT 21
RS-232 cable	GT09-C30R20301-9P	3 m	For connecting a YOKOGAWA CPU port/D-sub 9-pin conversion cable and GOT	○	○	○	-
	GT09-C30R20302-9P	3 m	For connecting a YOKOGAWA PC link module and GOT	○	○	○	-
	GT09-C30R20304-9S	3 m	For connection a YOKOGAWA converter (ML2-□) and GOT	○	○	○	-
	GT09-C30R20305-9S	3 m	For connecting a YOKOGAWA PLC and GOT	○	○	○	-
RS-422 cable	GT09-C30R40301-6T	3 m	For connecting a YOKOGAWA PC link module and GOT	○	○	○	-
	GT09-C100R40301-6T	10 m					
	GT09-C200R40301-6T	20 m					
	GT09-C300R40301-6T	30 m					
	GT09-C30R40302-6T	3 m					
	GT09-C100R40302-6T	10 m					
	GT09-C200R40302-6T	20 m					
	GT09-C300R40302-6T	30 m					
	GT09-C30R40303-6T	3 m	For connecting a YOKOGAWA temperature controller (GREEN series) and GOT	○	○	○	-
	GT09-C100R40303-6T	10 m					
	GT09-C200R40303-6T	20 m					
	GT09-C300R40303-6T	30 m					
	GT09-C30R40304-6T	3 m	For connecting a YOKOGAWA temperature controller (UT2000 series) and GOT	○	○	○	-
	GT09-C100R40304-6T	10 m					
	GT09-C200R40304-6T	20 m					
	GT09-C300R40304-6T	30 m					

■14. ALLEN-BRADLEY PLC cables

Product name	Model	Cable length	Specifications	Supported model			
				GT 27	GT 25	GT 23	GT 21
RS-232 cable	GT09-C30R20701-9S	3 m	For connecting an ALLEN-BRADLEY PLC and GOT	○	○	○	○ *1

*1 This cable is usable with the RS-232 connector conversion cable GT10-C02H-6PT9P

■15. Cable for SIEMENS PLC

Product name	Model	Cable length	Specifications	Supported model			
				GT 27	GT 25	GT 23	GT 21
RS-232 cable	GT09-C30R20801-9S	3 m	For connecting a SIEMENS HMI Adapter and GOT	○	○	○	○ *1

*1 This cable can be used if connected with the RS-232 connector conversion cable GT10-C02H-6PT9P.

2.3.7 Others

■1. Peripheral device

Of the following peripheral devices, you can use some models that we validated.
For the validated models expect the SD cards, refer to the following Technical News.

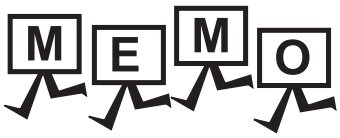
➠ List of valid devices applicable for GOT2000 series (GOT-A-0064)

For the validated models of the SD cards, refer to the following Technical News.

➠ Information of valid Non-Mitsubishi SD cards applicable for GOT2000 series(GOT-A-0065)

For Technical News, go to the MITSUBISHI ELECTRIC FA Global Website.
http://www.mitsubishielectric.co.jp/fa/

Product name		Overview
Barcode reader	RS-232 connection	Commercially available product
2D code reader	RS-232 connection	
RFID controller	RS-232 connection	
USB mouse		
USB keyboard		
Memory card reader/writer		
SD card		
USB memory		
Hub		
Wireless LAN access point		
Video camera		
Speaker		


MEMO

3. SPECIFICATIONS

3.1 General Specifications

The following shows the general specifications of the GOT.

3.1.1 GT27,GT25

<table>
<tr><th>Item</th><th colspan="6">Specifications</th></tr>
<tr><td>Operating ambient temperature *1</td><td colspan="6">0 °C to 55 °C *2</td></tr>
<tr><td>Storage ambient temperature</td><td colspan="6">-20°C to 60°C</td></tr>
<tr><td>Operating ambient humidity</td><td colspan="6">10% RH to 90% RH, non-condensing</td></tr>
<tr><td>Storage ambient humidity</td><td colspan="6">10% RH to 90% RH, non-condensing</td></tr>
<tr><td rowspan="5">Vibration resistance</td><td rowspan="5">Compliant with 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 8.4 Hz</td><td>-</td><td>3.5 mm</td><td rowspan="2">10 times in each X, Y, or Z direction</td></tr>
<tr><td>8.4 to 150 Hz</td><td>9.8 m/s2</td><td>-</td></tr>
<tr><td rowspan="2">Under continuous vibration</td><td>5 to 8.4 Hz</td><td>-</td><td>1.75 mm</td><td rowspan="2">-</td></tr>
<tr><td>8.4 to 150 Hz</td><td>4.9 m/s2</td><td></td></tr>
<tr><td>Shock resistant</td><td colspan="6">Compliant with JIS B3502 and IEC61131-2 (147 m/s2(15G),3 times in each X, Y, or Z direction)</td></tr>
<tr><td>Operating atmosphere *6</td><td colspan="6">No greasy fumes, corrosive gas, flammable gas, excessive conductive dust,
and direct sunlight (as well as at storage)</td></tr>
<tr><td>Operating altitude *3</td><td colspan="6">2000 m or less</td></tr>
<tr><td>Installation location</td><td colspan="6">Inside control panel</td></tr>
<tr><td>Overvoltage category *4</td><td colspan="6">II or less</td></tr>
<tr><td>Pollution degree *5</td><td colspan="6">2 or less</td></tr>
<tr><td>Cooling method</td><td colspan="6">Self-cooling</td></tr>
<tr><td>Grounding</td><td colspan="6">Grounding with a ground resistance of 100 Ω or less.
If impossible, connect the ground cable to the control panel.</td></tr>
</table>

*1 The operating ambient temperature indicates the temperature inside the enclosure of the control panel to which the GOT is installed.

*2 When any of the following units is mounted, the maximum operating ambient temperature must be 5°C lower than the one described in the general specifications.

*3 GT27 :
Multimedia unit (GT27-MMR-Z)
MELSECNET/H communication unit (GT15-J71LP23-25,GT15-J71BR13)
CC-Link communication unit (GT15-J61BT13)
GT25 :
MELSECNET/H communication unit (GT15-J71LP23-25,GT15-J71BR13)
CC-Link communication unit (GT15-J61BT13)

*4 Do not use or store the GOT under a pressure higher than the atmospheric pressure at altitude 0 m.
Doing so may cause a malfunction.
Air purging by applying pressure to the control panel may create clearance between the surface sheet and the touch panel. This may cause the touch panel to be not sensitive enough or the sheet to come off. the screen, making you difficult to use the touch panel, or the sheet may come off.

*5 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 withstand surge voltage for the equipment with the rated voltage up to 300 V is 2500 V.

*6 This indicates the occurrence rate of conductive material in an environment where a device is used. Pollution degree 2 indicates an environment where only non-conductive pollution occurs normally and a temporary conductivity caused by condensation shall be expected depending on the conditions.

*7 Some models have ANSI/ISA12.12.01 approval for use in Class I, Division 2 hazardous locations. For the details, go to the MITSUBISHI ELECTLIC FA Global Website (http://www.MitsubishiElectric.com/fa/).

3.1.2 GT23

<table>
<tr><th>Item</th><th colspan="6">Specifications</th></tr>
<tr><td>Operating ambient temperature *1</td><td colspan="6">0 °C to 55 °C</td></tr>
<tr><td>Storage ambient temperature</td><td colspan="6">-20 °C to 60 °C</td></tr>
<tr><td>Operating ambient humidity</td><td colspan="6">10% RH to 90% RH, non-condensing *2</td></tr>
<tr><td>Storage ambient humidity</td><td colspan="6">10% RH to 90% RH, non-condensing *2</td></tr>
<tr><td rowspan="5">Vibration resistance</td><td rowspan="5">Compliant with 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 8.4 Hz</td><td>-</td><td>3.5 mm</td><td rowspan="2">10 times in each X, Y, or Z direction</td></tr>
<tr><td>8.4 to 150 Hz</td><td>9.8 m/s^2</td><td>-</td></tr>
<tr><td rowspan="2">Under continuous vibration</td><td>5 to 8.4Hz</td><td>-</td><td>1.75 mm</td><td rowspan="2">-</td></tr>
<tr><td>8.4 to 150 Hz</td><td>4.9 m/s^2</td><td></td></tr>
<tr><td>Shock resistant</td><td colspan="6">Compliant with JIS B3502 and IEC61131-2 (147 m/s2(15G),3 times in each X, Y, or Z direction)</td></tr>
<tr><td>Operating atmosphere</td><td colspan="6">No greasy fumes, corrosive gas, flammable gas, excessive conductive dust,
and direct sunlight (as well as at storage)</td></tr>
<tr><td>Operating altitude *3</td><td colspan="6">2000 m or less</td></tr>
<tr><td>Installation location</td><td colspan="6">Inside control panel</td></tr>
<tr><td>Overvoltage category *4</td><td colspan="6">II or less</td></tr>
<tr><td>Pollution degree *5</td><td colspan="6">2 or less</td></tr>
<tr><td>Cooling method</td><td colspan="6">Self-cooling</td></tr>
<tr><td>Grounding</td><td colspan="6">Grounding with a ground resistance of 100 Ω or less.
If impossible, connect the ground cable to the control panel. *6</td></tr>
</table>

*1 The operating ambient temperature indicates the temperature inside the enclosure of the control panel to which the GOT is installed.

*2 If the ambient temperature exceeds 40 °C, the absolute humidity must not exceed 90% at 40 °C.

*3 Do not use or store the GOT under a pressure higher than the atmospheric pressure at altitude 0 m.
Doing so may cause a malfunction.
Air purging by applying pressure to the control panel may create clearance between the surface sheet and the touch panel. This may cause the touch panel to be not sensitive enough or the sheet to come off. the screen, making you difficult to use the touch panel, or the sheet may come off.

*4 This indicates the section of the power supply to which the equipment is assumed to be connected between the public electrical power distribution network and the machinery within the premises.
Category II applies to equipment for which electrical power is supplied from fixed facilities.
The withstand surge voltage for the equipment with the rated voltage up to 300 V is 2500 V.

*5 This indicates the occurrence rate of conductive material in an environment where a device is used. Pollution degree 2 indicates an environment where only non-conductive pollution occurs normally and a temporary conductivity caused by condensation shall be expected depending on the conditions.

*6 DC5V type is not required ground.

3.1.3 GT21

Item	Specifications					
Operating ambient temperature *1	0°C to 55°C (Horizontal installation), 0°C to 50°C (Vertical installation)					
Storage ambient temperature	-20°C to 60°C					
Operating ambient humidity	10% RH to 90% RH, non-condensing *2					
Storage ambient humidity	10% RH to 90% RH, non-condensing *2					
Vibration resistance	Compliant with JIS B3502 and IEC61131-2		Frequency	Acceleration	Half amplitude	Sweep count
		Under intermittent vibration	5 to 8.4 Hz	-	3.5 mm	10 times in each X, Y, or Z direction
			8.4 to 150 Hz	9.8 m/s2	-	
		Under continuous vibration	5 to 8.4 Hz	-	1.75 mm	-
			8.4 to 150 Hz	4.9 m/s2		
Shock resistant	Compliant with JIS B3502 and IEC61131-2 (147 m/s2 (15G), 3 times in each X, Y, or Z direction)					
Operating atmosphere	No greasy fumes, corrosive gas, flammable gas, excessive conductive dust, and direct sunlight (as well as at storage)					
Operating altitude *3	2000 m or less					
Installation location	Inside control panel					
Overvoltage category *4	II or less					
Pollution degree *5	2 or less					
Cooling method	Self-cooling					
Grounding	Grounding with a ground resistance of 100 Ω or less. If impossible, connect the ground cable to the control panel.					

*1 The operating ambient temperature indicates the temperature inside the enclosure of the control panel to which the GOT is installed.

*2 If the ambient temperature exceeds 40 °C, the absolute humidity must not exceed 90% at 40 °C.

*3 Do not use or store the GOT under a pressure higher than the atmospheric pressure at altitude 0 m.
Doing so may cause a malfunction.
Air purging by applying pressure to the control panel may create clearance between the surface sheet and the touch panel. This may cause the touch panel to be not sensitive enough or the sheet to come off.

*4 This indicates the section of the power supply to which the equipment is assumed to be connected between the public electrical power distribution network and the machinery within the premises.
Category II applies to equipment for which electrical power is supplied from fixed facilities.
The withstand surge voltage for the equipment with the rated voltage up to 300 V is 2500 V.

*5 This indicates the occurrence rate of conductive material in an environment where a device is used. Pollution degree 2 indicates an environment where only non-conductive pollution occurs normally and a temporary conductivity caused by condensation shall be expected depending on the conditions.

3.2 Performance Specifications

The following shows the performance specifications of the GOT.

3.2.1 GT27

■1. GT2715-X

Item		Specifications
		GT2715-XTBA,GT2715-XTBD
Display section[*1*2]	Display device	TFT color LCD
	Screen size	15"
	Resolution	XGA: 1024×768 dots
	Display size	304.1(12.0)(W)×228.1(8.98)(H) mm(inch)
	Number of displayed characters	16-dot standard font: 64 chars. × 48 lines (2-byte) 12-dot standard font: 85 chars. × 64 lines (2-byte)
	Display color	65536 colors
	Brightness Adjustment	32 levels
	Backlight	LED (Not replaceable)
	Backlight life [*4]	Approx. 60000 h (operating ambient temperature: 25°C, display intensity: 50%)
Touch panel [*3]	Type	Analog resistive film
	Key size	Minimum 2 × 2 dots (per key)
	Simultaneous press	Up to two points
	Life	1 million touches or more (Operating force: 0.98 N or less)
Human sensor	Detection length	1 m
	Detection temperature	Temperature difference between human body and ambient air: 4 °C or higher
User memory capacity	User memory capacity	Memory for storage (ROM): 57MB, Memory for operation (RAM): 128MB
	Life (number of write times)	100000 times
Built-in clock precision		±90 seconds/month (Ambient temperature: 25 °C)
Battery		GT11-50BAT lithium battery
	Life	Approx. 5 years (Ambient temperature: 25 °C)
Built-in interface	RS-232	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (male)
	RS-422/485	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (female)
	Ethernet	1 channel Data transfer method: 10BASE-T, 100BASE-TX Connector shape: RJ-45 (modular jack)
	USB (Host)	2 channel (front face, rear face)
		Maximum transfer rate: High-Speed 480 Mbps Connector shape: USB-A
	USB (Device)	1 channel (front face)
		Maximum transfer rate: High-Speed 480 Mbps Connector shape: USB Mini-B
	SD card	1 channel, SDHC compliant (maximum 32 GB)
	Extension interface	For installing a communication unit or an option unit
	Auxiliary extension interface	For installing an option unit
	Side interface	For installing a communication unit
Buzzer output		Single tone (tone and tone length adjustable)
POWER LED		2 colors (blue and orange)
Productive structure		Outside the enclosure: IP67 [*5] Inside the enclosure: IP2X
External dimensions		397(15.63)(W)×300(11.81)(H)×60(D) mm(inch)

Item	Specifications
	GT2715-XTBA,GT2715-XTBD
Panel cut dimensions	383.5(15.10)(W)×282.5(11.12)(H) mm(inch)
Weight (excluding a fitting)	4.5(9.9) kg(lb)
Compatible software package	GT Works3 Version1.112S or later

*1 As a characteristic of liquid crystal display panels, bright dots (always lit) and dark dots (never lit) may appear on the panel. Since liquid crystal display panels comprise a great number of display elements, the appearance of bright and back dots cannot be reduced to zero.
Individual differences in liquid crystal display panels may cause differences in color, uneven brightness and flickering.
Note that these phenomena are characteristics of liquid crystal display panels and it does not mean the products are defective or damaged.

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

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

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

*5 If you touch two points or more simultaneously on the touch panel, a touch switch near the touched points may operate unexpectedly.
Do not touch two points or more simultaneously on the touch panel.

■2. GT2712-S

Item		Specifications	
		GT2712-STBA, GT2712-STBD	GT2712-STWA, GT2712-STWD
Display section *1*2	Display device	TFT color LCD	
	Screen size	12.1"	
	Resolution	SVGA: 800 × 600 dots	
	Display size	246(9.685) (W) × 184.5(7.264) (H) mm(inch)	
	Number of displayed characters	16-dot standard font: 50 characters × 37 lines (two-byte characters) 12-dot standard font: 66 characters × 50 lines (two-byte characters)	
	Display color	65536 colors	
	Brightness Adjustment	32 levels	
	Backlight	LED (Not replaceable)	
	Backlight life *4	Approx. 60000 h (operating ambient temperature: 25°C, display intensity: 50%)	
Touch panel *3	Type	Analog resistive film	
	Key size	Minimum 2 × 2 dots (per key)	
	Simultaneous press	Up to two points	
	Life	1 million touches or more (Operating force: 0.98 N or less)	
Human sensor	Detection length	1 m	
	Detection temperature	Temperature difference between human body and ambient air: 4 °C or higher	
User memory capacity	User memory capacity	Memory for storage (ROM): 57MB, Memory for operation (RAM): 128MB	
	Life (number of write times)	100000 times	
Built-in clock precision		±90 seconds/month (Ambient temperature: 25 °C)	
Battery		GT11-50BAT lithium battery	
	Life	Approx. 5 years (Ambient temperature: 25 °C)	
Built-in interface	RS-232	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (male)	
	RS-422/485	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (female)	
	Ethernet	1 channel Data transfer method: 10BASE-T, 100BASE-TX Connector shape: RJ-45 (modular jack)	
	USB (Host)	2 channel (front face, rear face)	1 channel (rear face)
		Maximum transfer rate: High-Speed 480 Mbps Connector shape: USB-A	
	USB (Device)	1 channel (front face)	1 channel (rear face)
		Maximum transfer rate: High-Speed 480 Mbps Connector shape: USB Mini-B	
	SD card	1 channel, SDHC compliant (maximum 32 GB)	
	Extension interface	For installing a communication unit or an option unit	
	Auxiliary extension interface	For installing an option unit	
	Side interface	For installing a communication unit	
Buzzer output		Single tone (tone and tone length adjustable)	
POWER LED		2 colors (blue and orange)	
Productive structure		Outside the enclosure: IP67*5 Inside the enclosure: IP2X	
External dimensions		316 (12.44)(W) × 246(9.69) (H) × 52(2.05) (D) mm(inch)	
Panel cut dimensions		302(11.89) (W) × 228(8.98) (H) mm(inch)	
Weight (excluding a fitting)		2.4(5.3) kg(lb)	
Compatible software package		GT Works3 Version1.112S or later	

*1 As a characteristic of liquid crystal display panels, bright dots (always lit) and dark dots (never lit) may appear on the panel.

Since liquid crystal display panels comprise a great number of display elements, the appearance of bright and back dots cannot be reduced to zero.
Individual differences in liquid crystal display panels may cause differences in color, uneven brightness and flickering.
Note that these phenomena are characteristics of liquid crystal display panels and it does not mean the products are defective or damaged.

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

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

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

*5 To conform to IP67, close the USB environmental protection cover by pushing the [PUSH] mark firmly. (To conform to IP2X, open the USB environmental protection cover.)
Note that the structure does not guarantee protection in all users' environments.
The GOT may not be used in an environment where the GOT is exposed to oil or chemicals for a long time, or where oil mist fills the air.

■3. GT2710-S, GT2710-V

Item		Specifications		
		GT2710-STBA GT2710-STBD	GT2710-VTBA GT2710-VTBD	GT2710-VTWA GT2710-VTWD
Display section *1*2	Display device	TFT color LCD		
	Screen size	10.4"		
	Resolution	SVGA: 800 × 600 dots	VGA: 640 × 480 dots	
	Display size	211.2(8.315) (W) × 158.4(6.236) (H) mm(inch)		
	Number of displayed characters	16-dot standard font: 50 characters × 37 lines (two-byte characters) 12-dot standard font: 66 characters × 50 lines (two-byte characters)	16-dot standard font: 40 characters × 30 lines (two-byte characters) 12-dot standard font: 53 characters × 40 lines (two-byte characters)	
	Display color	65536 colors		
	Brightness Adjustment	32 levels		
	Backlight	LED (Not replaceable)		
	Backlight life *4	Approx. 60000 h (operating ambient temperature: 25 °C, display intensity: 50%)		
Touch panel *3	Type	Analog resistive film		
	Key size	Minimum 2 × 2 dots (per key)		
	Simultaneous press	Up to two points		
	Life	1 million touches or more (Operating force: 0.98 N or less)		
Human sensor	Detection length	-		
	Detection temperature	-		
User memory capacity	User memory capacity	Memory for storage (ROM): 57MB, Memory for operation (RAM): 128MB		
	Life (number of write times)	100000 times		
Built-in clock precision		±90 seconds/month (Ambient temperature: 25 °C)		
Battery		GT11-50BAT lithium battery		
	Life	Approx. 5 years (Ambient temperature: 25 °C)		
Built-in interface	RS-232	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (male)		
	RS-422/485	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (female)		
	Ethernet	1 channel Data transfer method: 10BASE-T, 100BASE-TX Connector shape: RJ-45 (modular jack)		
	USB (Host)	2 channel (front face, rear face)		1 channel (rear face)
		Maximum transfer rate: High-Speed 480 Mbps Connector shape: USB-A		
	USB (Device)	1 channel (front face)		1 channel (rear face)
		Maximum transfer rate: High-Speed 480 Mbps Connector shape: USB Mini-B		
	SD card	1 channel, SDHC compliant (maximum 32 GB)		
	Extension interface	For installing a communication unit or an option unit		
	Auxiliary extension interface	For installing an option unit		
	Side interface	For installing a communication unit		
Buzzer output		Single tone (tone and tone length adjustable)		
POWER LED		2 colors (blue and orange)		
Productive structure		Outside the enclosure: IP67 *5 Inside the enclosure: IP2X		
External dimensions		303 (11.93)(W) × 218(8.58) (H) × 52 (2.05)(D) mm(inch)		
Panel cut dimensions		289(11.38) (W) × 200 (7.87)(H) mm(inch)		
Weight (excluding a fitting)		2.1(4.6)kg(lb)		

Item	Specifications		
	GT2710-STBA GT2710-STBD	GT2710-VTBA GT2710-VTBD	GT2710-VTWA GT2710-VTWD
Compatible software package	GT Works3 Version1.112S or later		

*1 As a characteristic of liquid crystal display panels, bright dots (always lit) and dark dots (never lit) may appear on the panel. Since liquid crystal display panels comprise a great number of display elements, the appearance of bright and back dots cannot be reduced to zero.
Individual differences in liquid crystal display panels may cause differences in color, uneven brightness and flickering.
Note that these phenomena are characteristics of liquid crystal display panels and it does not mean the products are defective or damaged.

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

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

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

*5 To conform to IP67, close the USB environmental protection cover by pushing the [PUSH] mark firmly. (To conform to IP2X, open the USB environmental protection cover.)
Note that the structure does not guarantee protection in all users' environments.
The GOT may not be used in an environment where the GOT is exposed to oil or chemicals for a long time, or where oil mist fills the air.

■4. GT2708-S, GT2708-V

Item		Specifications	
		GT2708-STBA, GT2708-STBD	GT2708-VTBA, GT2708-VTBD
Display section *1*2	Display device	TFT color LCD	
	Screen size	8.4"	
	Resolution	SVGA: 800 × 600 dots	VGA: 640 × 480 dots
	Display size	170.9(6.728) (W) × 128.2(5.047) (H) mm(inch)	
	Number of displayed characters	16-dot standard font: 50 characters × 37 lines (two-byte characters) 12-dot standard font: 66 characters × 50 lines (two-byte characters)	16-dot standard font: 40 characters × 30 lines (two-byte characters) 12-dot standard font: 53 characters × 40 lines (two-byte characters)
	Display color	65536 colors	
	Brightness Adjustment	32 levels	
	Backlight	LED (Not replaceable)	
	Backlight life *4	Approx. 60000 h (operating ambient temperature: 25 °C, display intensity: 50%)	
Touch panel *3	Type	Analog resistive film	
	Key size	Minimum 2 × 2 dots (per key)	
	Simultaneous press	Up to two points	
	Life	1 million touches or more (Operating force: 0.98 N or less)	
Human sensor	Detection length	-	
	Detection temperature	-	
User memory capacity	User memory capacity	Memory for storage (ROM): 57MB, Memory for operation (RAM): 128MB	
	Life (number of write times)	100000 times	
Built-in clock precision		±90 seconds/month (Ambient temperature: 25 °C)	
Battery		GT11-50BAT lithium battery	
	Life	Approx. 5 years (Ambient temperature: 25 °C)	
Built-in interface	RS-232	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (male)	
	RS-422/485	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (female)	
	Ethernet	1 channel Data transfer method: 10BASE-T, 100BASE-TX 1Connector shape: RJ-45 (modular jack)	
	USB (Host)	2 channel (front face, rear face)	
		Maximum transfer rate: High-Speed 480 Mbps Connector shape: USB-A	
	USB (Device)	1 channel (front face)	
		Maximum transfer rate: High-Speed 480 Mbps Connector shape: USB Mini-B	
	SD card	1 channel, SDHC compliant (maximum 32 GB)	
	Extension interface	For installing a communication unit or an option unit	
	Auxiliary extension interface	For installing an option unit	
	Side interface	For installing a communication unit	
Buzzer output		Single tone (tone and tone length adjustable)	
POWER LED		2 colors (blue and orange)	
Productive structure		Outside the enclosure: IP67 *5 Inside the enclosure: IP2X	
External dimensions		241 (9.49)(W) × 194 (7.64)(H) × 52(2.05) (D) mm(inch)	
Panel cut dimensions		227(8.94)(W) × 176(6.93) (H) mm(inch)	
Weight (excluding a fitting)		1.5(3.3)kg(lb)	
Compatible software package		GT Works3 Version1.112S or later	

*1 As a characteristic of liquid crystal display panels, bright dots (always lit) and dark dots (never lit) may appear on the panel. Since liquid crystal display panels comprise a great number of display elements, the appearance of bright and back dots cannot be reduced to zero.
Individual differences in liquid crystal display panels may cause differences in color, uneven brightness and flickering.
Note that these phenomena are characteristics of liquid crystal display panels and it does not mean the products are defective or damaged.

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

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

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

*5 To conform to IP67, close the USB environmental protection cover by pushing the [PUSH] mark firmly. (To conform to IP2X, open the USB environmental protection cover.)
Note that the structure does not guarantee protection in all users' environments.
The GOT may not be used in an environment where the GOT is exposed to oil or chemicals for a long time, or where oil mist fills the air.

■5. GT2705-V

Item		Specifications
		GT2705-VTBD
Display section *1*2	Display device	TFT color LCD
	Screen size	5.7"
	Resolution	VGA: 640 × 480 dots
	Display size	115.2(4.535) (W) × 86.4(3.402) (H) mm(inch)
	Number of displayed characters	16-dot standard font: 40 characters × 30 lines (two-byte characters) 12-dot standard font: 53 characters × 40 lines (two-byte characters)
	Display color	65536 colors
	Brightness Adjustment	32 levels
	Backlight	LED (Not replaceable)
	Backlight life *4	Approx. 60000 h (operating ambient temperature: 25 °C, display intensity: 50%)
Touch panel *3	Type	Analog resistive film
	Key size	Minimum 2 × 2 dots (per key)
	Simultaneous press	Up to two points
	Life	1 million touches or more (Operating force: 0.98 N or less)
Human sensor	Detection length	-
	Detection temperature	-
User memory capacity	User memory capacity	Memory for storage (ROM): 32MB, Memory for operation (RAM): 80MB
	Life (number of write times)	100000 times
Built-in clock precision		±90 seconds/month (Ambient temperature: 25 °C)
Battery		GT11-50BAT lithium battery
	Life	Approx. 5 years (Ambient temperature: 25 °C)
Built-in interface	RS-232	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (male)
	RS-422/485	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (female)
	Ethernet	1 channel Data transfer method: 10BASE-T, 100BASE-TX Connector shape: RJ-45 (modular jack)
	USB (Host)	2 channel (front face, rear face)
		Maximum transfer rate: High-Speed 480 Mbps Connector shape: USB-A
	USB (Device)	1 channel (front face)
		Maximum transfer rate: High-Speed 480 Mbps Connector shape: USB Mini-B
	SD card	1 channel, SDHC compliant (maximum 32 GB)
	Extension interface	For installing a communication unit or an option unit
	Auxiliary extension interface	-
	Side interface	For installing a communication unit
Buzzer output		Single tone (tone and tone length adjustable)
POWER LED		2 colors (blue and orange)
Productive structure		Outside the enclosure: IP67 *5 Inside the enclosure: IP2X
External dimensions		167 (6.57)(W) × 139 (5.47)(H) × 60(2.36) (D) mm(inch)
Panel cut dimensions		153(6.02)(W) × 121(4.76) (H) mm(inch)
Weight (excluding a fitting)		1.0(2.2)kg(lb)
Compatible software package		GT Works3 Version1.130L or later

*1 As a characteristic of liquid crystal display panels, bright dots (always lit) and dark dots (never lit) may appear on the panel.

Since liquid crystal display panels comprise a great number of display elements, the appearance of bright and back dots cannot be reduced to zero.
Individual differences in liquid crystal display panels may cause differences in color, uneven brightness and flickering.
Note that these phenomena are characteristics of liquid crystal display panels and it does not mean the products are defective or damaged.

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

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

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

*5 To conform to IP67, close the USB environmental protection cover by pushing the [PUSH] mark firmly. (To conform to IP2X, open the USB environmental protection cover.)
Note that the structure does not guarantee protection in all users' environments.
The GOT may not be used in an environment where the GOT is exposed to oil or chemicals for a long time, or where oil mist fills the air.

*6 When multiple devices such as extension units, a barcode reader, and an RFID controller are connected, the total amount of current must be within the maximum amount of current supplied by the GOT.
For the amount of current required for an extension unit, a barcode reader, or an RFID controller, and the maximum amount of current supplied by the GOT, refer to the following.

➠ 11.8 Calculating consumed current of GT2705-V

3.2.2 GT25

■1. GT2512-S, GT2512F-S

Item		Specifications	
		GT2512-STBA, GT2512-STBD	GT2512F-STNA, GT2512F-STND
Display section *1*2	Display device	TFT color LCD	
	Screen size	12.1"	
	Resolution	SVGA: 800 × 600 dots	
	Display size	246(9.685) (W) × 184.5(7.264) (H) mm(inch)	
	Number of displayed characters	16-dot standard font: 50 characters × 37 lines (two-byte characters) 12-dot standard font: 66 characters × 50 lines (two-byte characters)	
	Display color	65536 colors	
	Brightness adjustment	32 levels	
	Backlight	LED (Not replaceable)	
	Backlight life *4	Approx. 60000 h (operating ambient temperature: 25 °C, display intensity: 50%)	
Touch panel *3	Type	Analog resistive film	
	Key size	Minimum 2 × 2 dots (per key)	
	Simultaneous press	Not available *5 (Only 1 point can be touched.)	
	Life	1 million touches or more (Operating force: 0.98 N or less)	
Human sensor	Detection length	-	
	Detection temperature	-	
User memory capacity	User memory capacity	Memory for storage (ROM): 32MB, Memory for operation (RAM): 80MB	
	Life (number of write times)	100000 times	
Built-in clock precision		±90 seconds/month (Ambient temperature: 25 °C)	
Battery		GT11-50BAT lithium battery	
	Life	Approx. 5 years (Ambient temperature: 25 °C)	
Built-in interface	RS-232	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (male)	
	RS-422/485	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (female)	
	Ethernet	1 channel Data transfer method: 10BASE-T, 100BASE-TX Connector shape: RJ-45 (modular jack)	
	USB (Host)	2 channels (Front face, rear face)	1 channels (rear face)
		Maximum transfer rate: High-Speed 480 Mbps Connector shape: USB-A	
	USB (Device)	1 channel (Front face)	1 channels (rear face)
		Maximum transfer rate: High-Speed 480 Mbps Connector shape: USB Mini-B	
	SD card	1 channel, SDHC compliant (maximum 32 GB)	
	Extension interface	For installing a communication unit or an option unit	
	Auxiliary extension interface	-	
	Side interface	For installing a communication unit	
Buzzer output		Single tone (tone and tone length adjustable)	
POWER LED		2 colors (blue and orange)	
Productive structure		Front: IP67 *6 In control panel: IP2X	Front: IP67 *7 In control panel: IP2X
External dimensions		316(12.44) (W) × 246(9.69) (H) × 52(2.05) (D) mm(inch)	311(12.24)(W)×237(9.33)H)×54(2.13)(D) mm(inch)
Panel cut dimensions		302(11.89) (W) × 228(8.98) (H) mm(inch)	269(10.59)(W)×214(8.43)(H) mm(inch)
Weight (Excluding installation fitting)		2.4(5.3) kg(lb)	
Compatible software package		GT Works3 Version1.112C or later	GT Works3 Version1.150G or later

*1 As a characteristic of liquid crystal display panels, bright dots (always lit) and dark dots (never lit) may appear on the panel.
Since liquid crystal display panels comprise a great number of display elements, the appearance of bright and back dots cannot be reduced to zero.
Individual differences in liquid crystal display panels may cause differences in color, uneven brightness and flickering.
Note that these phenomena are characteristics of liquid crystal display panels and it does not mean the products are defective or damaged.

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

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

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

*5 If you touch two points or more simultaneously on the touch panel, a touch switch near the touched points may operate unexpectedly.
Do not touch two points or more simultaneously on the touch panel.

*6 To conform to IP67, close the USB environmental protection cover by pushing the [PUSH] mark firmly. (To conform to IP2X, open the USB environmental protection cover.)
Note that the structure does not guarantee protection in all users' environments.
The GOT may not be used in an environment where the GOT is exposed to oil or chemicals for a long time, or where oil mist fills the air.

*7 To conform to IP67attach the environmental protection sheet.
Note that the structure does not guarantee protection in all users' environments.
The GOT may not be used in an environment where the GOT is exposed to oil or chemicals for a long time, or where oil mist fills the air.

■2. GT2510-V, GT2510F-V

Item		Specifications		
		GT2510-VTBA, GT2510-VTBD	GT2510-VTWA, GT2510-VTWD	GT2510F-VTNA, GT2510F-VTND
Display section *1*2	Display device	TFT color LCD		
	Screen size	10.4"		
	Resolution	VGA: 640 × 480 dots		
	Display size	211.2(8.315) (W) × 158.4(6.236) (H) mm(inch)		
	Number of displayed characters	16-dot standard font: 40 characters × 30 lines (two-byte characters) 12-dot standard font: 53 characters × 40 lines (two-byte characters)		
	Display color	65536 colors		
	Brightness Adjustment	32 levels		
	Backlight	LED (Not replaceable)		
	Backlight life *4	Approx. 60000 h (operating ambient temperature: 25 °C, display intensity: 50%)		
Touch panel *3	Type	Analog resistive film		
	Key size	Minimum 2 × 2 dots (per key)		
	Simultaneous press	Not available *5 (Only 1 point can be touched.)		
	Life	1 million touches or more (Operating force: 0.98 N or less)		
Human sensor	Detection length	-		
	Detection temperature	-		
User memory capacity	User memory capacity	Memory for storage (ROM): 32MB, Memory for operation (RAM): 80MB		
	Life (number of write times)	100000 times		
Built-in clock precision		±90 seconds/month (Ambient temperature: 25 °C)		
Battery		GT11-50BAT lithium battery		
	Life	Approx. 5 years (Ambient temperature: 25 °C)		
Built-in interface	RS-232	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (male)		
	RS-422/485	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (female)		
	Ethernet	1 channel Data transfer method: 10BASE-T, 100BASE-TX Connector shape: RJ-45 (modular jack)		
	USB (Host)	2 channel (front face, rear face)	1 channel (rear face)	
		Maximum transfer rate: High-Speed 480 Mbps Connector shape: USB-A		
	USB (Device)	1 channel (front face)	1 channel (rear face)	
		Maximum transfer rate: High-Speed 480 Mbps Connector shape: USB Mini-B		
	SD card	1 channel, SDHC compliant (maximum 32 GB)		
	Extension interface	For installing a communication unit or an option unit		
	Auxiliary extension interface	-		
	Side interface	For installing a communication unit		
Buzzer output		Single tone (tone and tone length adjustable)		
POWER LED		2 colors (blue and orange)		
Productive structure		Outside the enclosure: IP67 *6 Inside the enclosure: IP2X		Front: IP67 *7 In control panel: IP2X
External dimensions		303 (11.93)(W) × 218(8.58) (H) × 52 (2.05)(D) mm(inch)		298(11.73)(W)×209(8.23)(H)×54(2.13)(D) mm(inch)
Panel cut dimensions		289(11.38) (W) × 200 (7.87)(H) mm(inch)		234(9.21)(W)×187(7.36)(H) mm(inch)
Weight (excluding a fitting)		2.1(4.6)kg(lb)		
Compatible software package		GT Works3 Version1.112S or later		GT Works3 Version1.150G or later

*1 As a characteristic of liquid crystal display panels, bright dots (always lit) and dark dots (never lit) may appear on the panel.
Since liquid crystal display panels comprise a great number of display elements, the appearance of bright and back dots cannot be reduced to zero.
Individual differences in liquid crystal display panels may cause differences in color, uneven brightness and flickering.
Note that these phenomena are characteristics of liquid crystal display panels and it does not mean the products are defective or damaged.

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

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

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

*5 When 2 points on the touch panel are pressed simultaneously, if a switch is located the middle of the 2 points then the switch will be activated. Therefore, avoid pressing 2 points on the touch panel simultaneously.

*6 To conform to IP67, close the USB environmental protection cover by pushing the [PUSH] mark firmly. (To conform to IP2X, open the USB environmental protection cover.)
Note that the structure does not guarantee protection in all users' environments.
The GOT may not be used in an environment where the GOT is exposed to oil or chemicals for a long time, or where oil mist fills the air.

*7 To conform to IP67attach the environmental protection sheet.
Note that the structure does not guarantee protection in all users' environments.
The GOT may not be used in an environment where the GOT is exposed to oil or chemicals for a long time, or where oil mist fills the air.

■3. GT2508-V, GT2508F-V

Item		Specifications		
		GT2508-VTBA, GT2508-VTBD	GT2508-VTWA, GT2508-VTWD	GT2508F-VTNA, GT2508F-VTND
Display section *1*2	Display device	TFT color LCD		
	Screen size	8.4"		
	Resolution	VGA: 640 × 480 dots		
	Display size	170.9(6.728) (W) × 128.2(5.047) (H) mm(inch)		
	Number of displayed characters	16-dot standard font: 40 characters × 30 lines (two-byte characters) 12-dot standard font: 53 characters × 40 lines (two-byte characters)		
	Display color	65536 colors		
	Brightness Adjustment	32 levels		
	Backlight	LED (Not replaceable)		
	Backlight life *4	Approx. 60000 h (operating ambient temperature: 25 °C, display intensity: 50%)		
Touch panel *3	Type	Analog resistive film		
	Key size	Minimum 2 × 2 dots (per key)		
	Simultaneous press	Not available *5 (Only 1 point can be touched.)s		
	Life	1 million touches or more (Operating force: 0.98 N or less)		
Human sensor	Detection length	-		
	Detection temperature	-		
User memory capacity	User memory capacity	Memory for storage (ROM): 32MB, Memory for operation (RAM): 80MB		
	Life (number of write times)	100000 times		
Built-in clock precision		±90 seconds/month (Ambient temperature: 25 °C)		
Battery		GT11-50BAT lithium battery		
	Life	Approx. 5 years (Ambient temperature: 25 °C)		
Built-in interface	RS-232	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (male)		
	RS-422/485	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (female)		
	Ethernet	1 channel Data transfer method: 10BASE-T, 100BASE-TX Connector shape: RJ-45 (modular jack)		
	USB (Host)	2 channel (front face, rear face)	1 channel (rear face)	
		Maximum transfer rate: High-Speed 480 Mbps Connector shape: USB-A		
	USB (Device)	1 channel (front face)	1 channel (rear face)	
		Maximum transfer rate: High-Speed 480 Mbps Connector shape: USB Mini-B		
	SD card	1 channel, SDHC compliant (maximum 32 GB)		
	Extension interface	For installing a communication unit or an option unit		
	Auxiliary extension interface	-		
	Side interface	For installing a communication unit		
Buzzer output		Single tone (tone and tone length adjustable)		
POWER LED		2 colors (blue and orange)		
Productive structure		Outside the enclosure: IP67 *6 Inside the enclosure: IP2X		Front: IP67 *7 In control panel: IP2X
External dimensions		241 (9.49)(W) × 194 (7.64)(H) × 52(2.05) (D) mm(inch)		236(9.29)(W)×185(7.28)(H)×54(2.13)(D) mm(inch)
Panel cut dimensions		227(8.94)(W) × 176(6.93) (H) mm(inch)		194(7.64)(W)×158(6.22)(H) mm(inch)
Weight (excluding a fitting)		1.5(3.3)kg(lb)		
Compatible software package		GT Works3 Version1.112S or later		GT Works3 Version1.150G or later

*1 As a characteristic of liquid crystal display panels, bright dots (always lit) and dark dots (never lit) may appear on the panel.
Since liquid crystal display panels comprise a great number of display elements, the appearance of bright and back dots cannot be reduced to zero.
Individual differences in liquid crystal display panels may cause differences in color, uneven brightness and flickering.
Note that these phenomena are characteristics of liquid crystal display panels and it does not mean the products are defective or damaged.

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

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

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

*5 When 2 points on the touch panel are pressed simultaneously, if a switch is located the middle of the 2 points then the switch will be activated. Therefore, avoid pressing 2 points on the touch panel simultaneously.

*6 To conform to IP67, close the USB environmental protection cover by pushing the [PUSH] mark firmly. (To conform to IP2X, open the USB environmental protection cover.)
Note that the structure does not guarantee protection in all users' environments.
The GOT may not be used in an environment where the GOT is exposed to oil or chemicals for a long time, or where oil mist fills the air.

*7 To conform to IP67attach the environmental protection sheet.
Note that the structure does not guarantee protection in all users' environments.
The GOT may not be used in an environment where the GOT is exposed to oil or chemicals for a long time, or where oil mist fills the air.

3.2.3 GT23

■1. GT2310-V

Item		Specifications
		GT2310-VTBA,GT2310-VTBD
Display section *1*2	Display device	TFT color LCD
	Screen size	10.4"
	Resolution	VGA: 640 × 480 dots
	Display size	211.2(8.315) (W) × 158.4(6.236) (H) mm(inch)
	Number of displayed characters	16-dot standard font: 40 characters × 30 lines (two-byte characters) 12-dot standard font: 53 characters × 40 lines (two-byte characters)
	Display color	65536 colors
	Brightness Adjustment	16 levels
	Backlight	LED (Not replaceable)
	Backlight life *4	Approx. 50000 h (operating ambient temperature: 25 °C, display intensity: 50%)
Touch panel *3	Type	Analog resistive film
	Key size	Minimum 2 × 2 dots (per key)
	Simultaneous press	Simultaneous press is prohibited. *5 (Only one point can be touched.)
	Life	1 million touches or more (Operating force: 0.98 N or less)
User memory capacity	User memory capacity	Memory for storage (ROM): 9MB Memory for operation (RAM): 9MB
	Life (number of write times)	100000 times
Built-in clock precision		±90 seconds/month (Ambient temperature: 25 °C)
Battery		GT11-50BAT lithium battery
	Life	Approx. 5 years (Ambient temperature: 25 °C)
Built-in interface	RS-232	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (male)
	RS-422/485	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (female)
	Ethernet	1 channel Data transfer method: 10BASE-T, 100BASE-TX Connector shape: RJ-45 (modular jack)
	USB (Host)	1 channel
		Maximum transfer rate: Full-Speed 12 Mbps Connector shape: USB-A
	USB (Device)	1 channel
		Maximum transfer rate: Full-Speed 12 Mbps Connector shape: USB Mini-B
	SD card	1 channel, SDHC compliant (maximum 32 GB)
Buzzer output		Single tone (tone length adjustable)
POWER LED		2 colors (blue and orange)
Productive structure		Outside the enclosure: IP67 *6 Inside the enclosure: IP2X
External dimensions		303(11.93) (W) × 218(8.58) (H) × 56(2.20) (D) mm(inch)
Panel cut dimensions		289(11.38) (W) × 200(7.87) (H) mm(inch)
Weight (excluding a fitting)		1.9(4.2) kg(lb)
Compatible software package		GT Works3 Version1.112S or later

*1 As a characteristic of liquid crystal display panels, bright dots (always lit) and dark dots (never lit) may appear on the panel. Since liquid crystal display panels comprise a great number of display elements, the appearance of bright and back dots cannot be reduced to zero.
Individual differences in liquid crystal display panels may cause differences in color, uneven brightness and flickering.
Note that these phenomena are characteristics of liquid crystal display panels and it does not mean the products are defective or damaged.

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

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

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

*5 If you touch two or more points on the touch panel simultaneously and a switch is placed between the two points, the switch may be activated. Do not touch two or more points on the touch panel simultaneously.

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

■2. GT2308-V

Item		Specifications
		GT2308-VTBA, GT2308-VTBD
Display section *1*2	Display device	TFT color LCD
	Screen size	8.4"
	Resolution	VGA: 640 × 480 dots
	Display size	170.9(6.728) (W) × 128.2(5.047) (H) mm(inch)
	Number of displayed characters	16-dot standard font: 40 characters × 30 lines (two-byte characters) 12-dot standard font: 53 characters × 40 lines (two-byte characters)
	Display color	65536 colors
	Brightness Adjustment	16 levels
	Backlight	LED (Not replaceable)
	Backlight life *4	Approx. 50000 h (operating ambient temperature: 25 °C, display intensity: 50%)
Touch panel *3	Type	Analog resistive film
	Key size	Minimum 2 × 2 dots (per key)
	Simultaneous press	Simultaneous press is prohibited. *5 (Only one point can be touched.)
	Life	1 million touches or more (Operating force: 0.98 N or less)
User memory capacity	User memory capacity	Memory for storage (ROM): 9MB Memory for operation (RAM): 9MB
	Life (number of write times)	100000 times
Built-in clock precision		±90 seconds/month (Ambient temperature: 25 °C)
Battery		GT11-50BAT lithium battery
	Life	Approx. 5 years (Ambient temperature: 25 °C)
Built-in interface	RS-232	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (male)
	RS-422/485	1 channel Transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: D-sub 9-pin (female)
	Ethernet	1 channel Data transfer method: 10BASE-T, 100BASE-TX Connector shape: RJ-45 (modular jack)
	USB (Host)	1 channel
		Maximum transfer rate: Full-Speed 12 Mbps Connector shape: USB-A
	USB (Device)	1 channel
		Maximum transfer rate: Full-Speed 12 Mbps Connector shape: USB Mini-B
	SD card	1 channel, SDHC compliant (maximum 32 GB)
Buzzer output		Single tone (tone length adjustable)
POWER LED		2 colors (blue and orange)
Productive structure		Outside the enclosure: IP67 *6 Inside the enclosure: IP2X
External dimensions		241(9.49) (W) × 194(7.64) (H) × 56(2.20) (D) mm(inch)
Panel cut dimensions		227(8.94) (W) × 176(6.93) (H) mm(inch)
Weight (excluding a fitting)		1.5 (3.3)kg(lb)
Compatible software package		GT Works3 Version1.112S or later

*1 As a characteristic of liquid crystal display panels, bright dots (always lit) and dark dots (never lit) may appear on the panel. Since liquid crystal display panels comprise a great number of display elements, the appearance of bright and back dots cannot be reduced to zero.
Individual differences in liquid crystal display panels may cause differences in color, uneven brightness and flickering.
Note that these phenomena are characteristics of liquid crystal display panels and it does not mean the products are defective or damaged.

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

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

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

*5 If you touch two or more points on the touch panel simultaneously and a switch is placed between the two points, the switch may be activated. Do not touch two or more points on the touch panel simultaneously.

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

3.2.4 GT21

■1. GT2104-R

Item		Specifications
		GT2104-RTBD
Display section *1*2	Display device	TFT color LCD
	Screen size	4.3" Wide
	Resolution	480 × 272 dots
	Display size	95.0 (3.74)(W) × 53.8 (H)(2.12) mm(inch)
	Number of displayed characters	16-dot standard font: 30 characters × 17 rows (Two-byte characters) 12-dot standard font: 40 characters × 22 rows (Two-byte characters)
	Display color	65536 colors
	Brightness adjustment	32 levels
	Backlight	LED (Not replaceable)
	Backlight life *3	Approx. 50000 h (Operating ambient temperature: 25 °C, display intensity: 50%)
Touch panel *4	Type	Analog resistive film
	Key size	Minimum 2 × 2 dots (per key)
	Simultaneous press	Not available *5 (Only 1 point can be touched.)
	Life	1 million touches or more (Operating force: 0.98 N or less)
Human sensor	Detection length	-
	Detection temperature	-
User memory capacity	User memory capacity	Memory for storage (ROM): 9 MB
	Life (number of write times)	100000 times
Built-in clock precision		±45 seconds/month (Ambient temperature: 25 °C)
Battery		GT11-50BAT lithium battery
	Life	Approx. 5 years (Ambient temperature: 25 °C)
Built-in interface	RS-232	1 channel, transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: 9-pin connector terminal block
	RS-422/485	1 channel, transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: 9-pin connector terminal block
	Ethernet	1 channel, data transfer method: 10BASE-T, 100BASE-TX Connector shape: RJ-45 (Modular jack)
	USB (Host)	-
		-
	USB (Device)	1 channel
		Maximum transfer rate: Full-Speed 12 Mbps, connector shape: USB Mini-B
	SD card *6	1 channel, SDHC compliant (maximum 32 GB)
	Extension interface	-
	Auxiliary extension interface	-
Built-in interface	Side interface	-
Buzzer output		Single tone (Tone length adjustable)
POWER LED		-
Productive structure		Front: IP67 *7 In control panel: IP2X
External dimensions		128(5.04) (W) × 102(4.02) (H) × 40(1.57) (D) mm(inch)
Panel cut dimensions		118(4.65) (W) × 92(3.63) (H) mm(inch)
Weight (Excluding installation fitting)		0.4(0.88) kg(lb)
Compatible software package		GT Works3 Version1.122C or later

*1 As a characteristic of liquid crystal display panels, bright dots (always lit) and dark dots (never lit) may appear on the panel.
Since liquid crystal display panels comprise a great number of display elements, the appearance of bright and back dots cannot be reduced to zero.
Individual differences in liquid crystal display panels may cause differences in color, uneven brightness and flickering.
Note that these phenomena are characteristics of liquid crystal display panels and it does not mean the products are defective or damaged.

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

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

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

*5 If you touch two points or more simultaneously on the touch panel, a touch switch near the touched points may operate unexpectedly.
Do not touch two points or more simultaneously on the touch panel.

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

■2. GT2104-P

Item		Specifications	
		GT2104-PMBD	GT2104-PMBDS
Display section *1*2	Display device	TFT monochrome LCD	
	Screen size	4.5"	
	Resolution	384 × 128 dots	
	Display size	109.4 (4.38)(W) × 36.5 (H)(1.46) mm(inch)	
	Number of displayed characters	16-dot standard font: 24 characters × 8 rows (Two-byte characters) 12-dot standard font: 32 characters × 10 rows (Two-byte characters)	
	Display color	Monochrome (black/white) 32 shade grayscale	
	Brightness adjustment	32 levels	
	Backlight	5-color LED (White, green, pink, orange, red) (Not replaceable)	
	Backlight life *3	Approx. 50000 h (Operating ambient temperature: 25 °C, display intensity: 50%)	
Touch panel *4	Type	Analog resistive film	
	Key size	Minimum 2 × 2 dots (per key)	
	Simultaneous press	Not available *5 (Only 1 point can be touched.)	
	Life	1 million touches or more (Operating force: 0.98 N or less)	
Human sensor	Detection length	-	
	Detection temperature	-	
User memory capacity	User memory capacity	Memory for storage (ROM): 3 MB	
	Life (number of write times)	100000 times	
Built-in clock precision		-	
Battery		-	
	Life	-	
Built-in interface	RS-232 (rear face)	-	1 channel, transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: MINI-DIN 6-pin (female)
	RS-232 (side face)	-	-
	RS-422/485	1 channel, transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: 5-pin connector terminal block	1 channel, transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: 9-pin connector terminal block
	RS-422	-	-
	Ethernet	1 channel, data transfer method: 10BASE-T, 100BASE-TX Connector shape: RJ-45 (Modular jack)	-
	USB (Host)	-	
		-	
	USB (Device)	1 channel	
		Maximum transfer rate: Full-Speed 12 Mbps, connector shape: USB Mini-B	
	SD card *6	1 channel, SDHC compliant (maximum 32 GB)	-
	Extension interface	-	
	Auxiliary extension interface	-	
	Side interface	-	
Buzzer output		Single tone (Tone length adjustable)	
POWER LED		-	
Productive structure		Front: IP67 *7 In control panel: IP2X	

Item	Specifications	
	GT2104-PMBD	GT2104-PMBDS
External dimensions	145(5.80) (W) × 76(3.04) (H) × 32.5(1.30) (D) mm(inch)	145(5.80) (W) × 76(3.04) (H) × 29.5(1.18) (D) mm(inch) *8
Panel cut dimensions	137(5.48) (W) × 66(2.60) (H) mm(inch)	
Weight (Excluding installation fitting)	0.3(0.66) kg(lb)	
Compatible software package	GT Works3 Version1.131M or later	

*1 As a characteristic of liquid crystal display panels, bright dots (always lit) and dark dots (never lit) may appear on the panel. Since liquid crystal display panels comprise a great number of display elements, the appearance of bright and back dots cannot be reduced to zero.
Individual differences in liquid crystal display panels may cause differences in color, uneven brightness and flickering.
Note that these phenomena are characteristics of liquid crystal display panels and it does not mean the products are defective or damaged.

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

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

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

*5 If you touch two points or more simultaneously on the touch panel, a touch switch near the touched points may operate unexpectedly.
Do not touch two points or more simultaneously on the touch panel.

*6 The SD card unit (GT21-03SDCD), sold separately, needs to be mounted.

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

*8 The dimension when the SD card unit (GT21-03SDCD) is mounted is 113 (4.45)(W) × 74(2.92) (H) × 32(1.26) (D) mm(inch).

■3. GT2103-P

Item		Specifications			
		GT2103-PMBD	GT2103-PMBDS	GT2103-PMBDS2	GT2103-PMBLS
Display section *1*2	Display device	TFT monochrome LCD			
	Screen size	3.8"			
	Resolution	320 × 128 dots			
	Display size	89.0 (3.51)(W) × 35.6 (H)(1.41) mm(inch)			
	Number of displayed characters	16-dot standard font: 20 characters × 8 rows (Two-byte characters) 12-dot standard font: 26 characters × 10 rows (Two-byte characters)			
	Display color	Monochrome (black/white) 32 shade grayscale			
	Brightness adjustment	32 levels			
	Backlight	5-color LED (White, green, pink, orange, red) (Not replaceable)			
	Backlight life *3	Approx. 50000 h (Operating ambient temperature: 25 °C, display intensity: 50%)			
Touch panel *4	Type	Analog resistive film			
	Key size	Minimum 2 × 2 dots (per key)			
	Simultaneous press	Not available *5 (Only 1 point can be touched.)			
	Life	1 million touches or more (Operating force: 0.98 N or less)			
Human sensor	Detection length	-			
	Detection temperature	-			
User memory capacity	User memory capacity	Memory for storage (ROM): 3 MB			
	Life (number of write times)	100000 times			
Built-in clock precision		-			
Battery		-			
	Life	-			

Item		Specifications			
		GT2103-PMBD	GT2103-PMBDS	GT2103-PMBDS2	GT2103-PMBLS
Built-in interface	RS-232 (rear face)	-	1 channel, transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: MINI-DIN 6-pin (female)	1 channel, transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: MINI-DIN 6-pin (female)	-
	RS-232 (side face)	-	-	1 channel, transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: 9-pin connector terminal block (female)	-
	RS-422/485	1 channel, transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: 5-pin connector terminal block (female)	1 channel, transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: 9-pin connector terminal block (female)	-	-
	RS-422	-	-	-	1 channel, transmission speed: 115200, 57600, 38400, 19200, 9600, 4800 bps Connector shape: 9-pin connector terminal block
	Ethernet	1 channel, data transfer method: 10BASE-T, 100BASE-TX Connector shape: RJ-45 (Modular jack)	-	-	-
	USB (Host)	-			
		-			
	USB (Device)	1 channel			
		Maximum transfer rate: Full-Speed 12 Mbps, connector shape: USB Mini-B			
	SD card [*6]	1 channel, SDHC compliant (maximum 32 GB)			-
	Extension interface	-			
	Auxiliary extension interface	-			
	Side interface	-			
Buzzer output		Single tone (Tone length adjustable)			
POWER LED		-			
Productive structure		Front: IP67 [*7] In control panel: IP2X			
External dimensions		113(4.45) (W) × 74(2.92) (H) × 32(1.26) (D) mm(inch)	113(4.45) (W) × 74(2.92) (H) × 27(1.07) (D) mm(inch) [*8]		113(4.45) (W) × 74(2.92) (H) × 27(1.07) (D) mm(inch)
Panel cut dimensions		105(4.14) (W) × 66(2.60) (H) mm(inch)			
Weight (Excluding installation fitting)		0.2(0.44) kg(lb)			0.18(0.40) kg(lb)
Compatible software package		GT Works3 Version1.112S or later		GT Works3 Version1.119L or later	

*1 As a characteristic of liquid crystal display panels, bright dots (always lit) and dark dots (never lit) may appear on the panel. Since liquid crystal display panels comprise a great number of display elements, the appearance of bright and back dots cannot be reduced to zero.
Individual differences in liquid crystal display panels may cause differences in color, uneven brightness and flickering.
Note that these phenomena are characteristics of liquid crystal display panels and it does not mean the products are defective or damaged.

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

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

*4 When a stylus is used, the touch panel has a life of 100 thousand touches.
The stylus must satisfy the following specifications.

• Material: polycarbonate resin
•Tip radius: 0.8 mm or more

*5 If you touch two points or more simultaneously on the touch panel, a touch switch near the touched points may operate unexpectedly.
Do not touch two points or more simultaneously on the touch panel.

*6 The SD card unit (GT21-03SDCD), sold separately, needs to be mounted.

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

*8 The dimension when the SD card unit (GT21-03SDCD) is mounted is 113 (4.45)(W) × 74(2.92) (H) × 32(1.26) (D) mm(inch).

3.3 Specifications of Power Supply Section

The following shows the power supply specifications of the GOT.

POINT

Operation at instantaneous power failure

If an instantaneous power failure occurs in the power supply and continues for more than the permissible period, the GOT may be reset.
Make sure to power on the unit more than 5 seconds after power-off.

3.3.1 GT27

■1. GT27 Input power supply 100 V AC to 240 V AC

Item		Specifications			
		GT2715-XTBA	GT2712-STBA GT2712-STWA	GT2710-STBA GT2710-VTBA GT2710-VTWA	GT2708-STBA GT2708-VTBA
Power supply voltage		100 V AC to 240 V AC (+10%, -15%)			
Power supply frequency		50 Hz/60 Hz (±5%)			
Maximum apparent power		140 VA	100 VA		
Power consumption	Under the maximum load	51 W or less	44 W or less	41 W or less	41 W or less
	Main unit	25 W	19 W	17 W	15 W
	Main unit (Backlight OFF)	10 W	10 W	10 W	10 W
Inrush current		40 A or less (3 ms, ambient temperature: 25 °C, under the maximum load)	60 A or less (2 ms, ambient temperature: 25 °C, under the maximum load)		
Permissible instantaneous power failure time		20 ms or less (100 V AC or more)			
Noise immunity		Noise voltage: 1500 Vp-p, noise width: 1 μs, measured by a noise simulator with noise frequency ranging from 25 Hz to 60 Hz.			
Withstand voltage		1500 V AC for 1 minute across power terminals and earth			
Insulation resistance		500 V DC across power terminals and earth, 10 MΩ or more by an insulation resistance tester			
Applicable wire size		0.75 mm^2 to 2 mm^2			
Applicable solderless terminal		Solderless terminal for M3 screw RAV1.25-3, V2-S3.3, V2-N3A, FV2-N3A			
Applicable tightening torque (Terminal block terminal screw)		0.5 N·m to 0.8 N·m			

■2. GT27 Input power supply 24 V DC

Item		Specifications				
		GT2715-XTBD	GT2712-STBD GT2712-STWD	GT2710-STBD GT2710-VTBD GT2710-VTWD	GT2708-STBD GT2708-VTBD	GT2705-VTBD
Power supply voltage		24 V DC (+25%, -20%)				
Power consumption	Under the maximum load	48 W or less	45 W or less	42 W or less	39 W or less	30 W or less
	Main unit	23 W	18 W	15 W	13 W	7 W
	Main unit (Backlight OFF)	8 W	8 W	8 W	8 W	5 W
Inrush current		5 A or less (20 ms, ambient temperature: 25 °C, under the maximum load)				69A or less (1 ms, ambient temperature: 25 °C, under the maximum load)
Permissible instantaneous power failure time		10 ms or less				
Noise immunity		Noise voltage: 500 Vp-p, noise width: 1 μs, measured by a noise simulator with noise frequency ranging from 25 Hz to 60 Hz.				
Withstand voltage		350 V AC for 1 minute across power terminals and earth				
Insulation resistance		500 V DC across power terminals and earth, 10 MΩ or more by an insulation resistance tester				
Applicable wire size		0.75 mm^2 to 2 mm^2				
Applicable solderless terminal		Solderless terminal for M3 screw RAV1.25-3, V2-S3.3, V2-N3A, FV2-N3A				
Applicable tightening torque (Terminal block terminal screw)		0.5 N·m to 0.8 N·m				

3.3.2 GT25

■1. GT25 Input power supply 100 V AC to 240 V AC

Item		Specifications		
		GT2512-STBA GT2512F-STNA	GT2510-VTBA GT2510-VTWA GT2510F-VTNA	GT2508-VTBA GT2508-VTWA GT2508F-VTNA
Power supply voltage		100 V AC to 240 V AC (+10%, -15%)		
Power supply frequency		50 Hz/60 Hz (±5%)		
Maximum apparent power		80 VA	80 VA	70 VA
Power consumption	Under the maximum load	35 W or less	34 W or less	31 W or less
	Main unit	14 W	12 W	11 W
	Main unit (Backlight OFF)	7 W	7 W	7 W
Inrush current		60 A or less (2 ms, ambient temperature: 25 °C, under the maximum load)		
Permissible instantaneous power failure time		20 ms or less (100 V AC or more)		
Noise immunity		Noise voltage: 1500 Vp-p, noise width: 1 μs, measured by a noise simulator with noise frequency ranging from 25 Hz to 60 Hz.		
Withstand voltage		1500 V AC for 1 minute across power terminals and earth		
Insulation resistance		500 V DC across power terminals and earth, 10 MΩ or more by an insulation resistance tester		
Applicable wire size		0.75 mm^2 to 2 mm^2		
Applicable solderless terminal		Solderless terminal for M3 screw RAV1.25-3, V2-S3.3, V2-N3A, FV2-N3A		
Applicable tightening torque (Terminal block terminal screw)		0.5 N·m to 0.8 N·m		

■2. GT25 Input power supply 24 V DC

Item		Specifications		
		GT2512-STBD GT2512F-STND	GT2510-VTBD GT2510-VTWD GT2510F-VTND	GT2508-VTBD GT2508-VTWD GT2508F-VTND
Power supply voltage		24 V DC (+25%, -20%)		
Power consumption	Under the maximum load	37 W or less	33 W or less	31 W or less
	Main unit	13 W	10 W	8 W
	Main unit (Backlight OFF)	6 W	6 W	6 W
Inrush current		5 A or less (20 ms, ambient temperature: 25 °C, under the maximum load)		
Permissible instantaneous power failure time		10 ms or less		
Noise immunity		Noise voltage: 500 Vp-p, noise width: 1 μs, measured by a noise simulator with noise frequency ranging from 25 Hz to 60 Hz.		
Withstand voltage		350 V AC for 1 minute across power terminals and earth		
Insulation resistance		500 V DC across power terminals and earth, 10 MΩ or more by an insulation resistance tester		
Applicable wire size		0.75 mm^2 to 2 mm^2		
Applicable solderless terminal		Solderless terminal for M3 screw RAV1.25-3, V2-S3.3, V2-N3A, FV2-N3A		
Applicable tightening torque (Terminal block terminal screw)		0.5 N·m to 0.8 N·m		

3.3.3 GT23

■1. GT23 Input power supply 100 V AC to 240 V AC

Item		Specifications	
		GT2310-VTBA	GT2308-VTBA
Power supply voltage		100 V AC to 240 V AC (+10%, -15%)	
Power supply frequency		50 Hz/60 Hz (±5%)	
Maximum apparent power		44 VA (under the maximum load)	30 VA (under the maximum load)
Power consumption	Under the maximum load	18 W or less	11 W or less
	Main unit	15 W	9 W
	Main unit (Backlight OFF)	8 W	6 W
Inrush current		40 A or less (4 ms, ambient temperature: 25 °C, under the maximum load)	
Permissible instantaneous power failure time		20 ms or less (100 V AC or more)	
Noise immunity		Noise voltage: 1500 Vp-p, noise width: 1 μs, measured by a noise simulator with noise frequency ranging from 25 Hz to 60 Hz.	
Withstand voltage		1500 V AC for 1 minute across power terminals and earth	
Insulation resistance		500 V DC across power terminals and earth, 10 MΩ or more by an insulation resistance tester	
Applicable wire size		0.75 mm^2 to 2 mm^2	
Applicable solderless terminal		Solderless terminal for M3 screw RAV1.25-3, V2-S3.3, V2-N3A, FV2-N3A	
Applicable tightening torque (Terminal block terminal screw)		0.5 N·m to 0.8 N·m	

■2. GT23 Input power supply 24 V DC

Item		Specifications	
		GT2310-VTBD	GT2308-VTBD
Power supply voltage		24 V DC (+25%, -20%)	
Power consumption	Under the maximum load	16 W or less	11 W or less
	Main unit	13 W	8 W
	Main unit (Backlight OFF)	7 W	6 W
Inrush current		40 A or less (2 ms, ambient temperature: 25 °C, under the maximum load)	
Permissible instantaneous power failure time		10 ms or less	
Noise immunity		Noise voltage: 500 Vp-p, noise width: 1 μs, measured by a noise simulator with noise frequency ranging from 25 Hz to 60 Hz.	
Withstand voltage		350 V AC for 1 minute across power terminals and earth	
Insulation resistance		500 V DC across power terminals and earth, 10 MΩ or more by an insulation resistance tester	
Applicable wire size		0.75 mm^2 to 2 mm^2	
Applicable solderless terminal		Solderless terminal for M3 screw RAV1.25-3, V2-S3.3, V2-N3A, FV2-N3A	
Applicable tightening torque (Terminal block terminal screw)		0.5 N·m to 0.8 N·m	

3.3.4 GT21

■1. GT21 Input power supply 24 V DC/5 V DC

Item		Specifications						
		GT2104-RTBD	GT2104-PMBD	GT2104-PMBDS	GT2103-PMBD	GT2103-PMBDS	GT2103-PMBDS2	GT2103-PMBLS
Power supply voltage		24 V DC (+10%, -15%)						5 V DC (+5%, -5%) Power from the sequencer
Power consumption	Under the maximum load	4.4 W or less	2.9 W or less	2.2 W or less	2.6 W or less	1.9 W or less	2.2 W or less	1.1 W or less
	Backlight OFF	2.9 W	2.2 W	1.5 W	2.0 W	1.3 W	1.6 W	0.7 W
Inrush current		18 A or less (2 ms, ambient temperature: 25 °C, under the maximum load)	30 A or less (1 ms, ambient temperature: 25 °C, under the maximum load)					-
Permissible instantaneous power failure time		5 ms or less						-
Noise immunity		Noise voltage: 1000 Vp-p, noise width: 1 μs, measured by a noise simulator with noise frequency ranging from 30 Hz to 100 Hz.						
Withstand voltage		500 V AC for 1 minute across power supply terminals and earth						-
Insulation resistance		500 V DC across power supply terminals and earth, 10 MΩ or more by an insulation resistance tester						-
Applicable wire size		Single wiring: Single wire 0.14 to 1.5 mm^2 (AWG26 to AWG16) Stranded wire 0.14 to 1.0 mm^2 (AWG26 to AWG16) Rod terminal with an insulation sleeve 0.25 to 0.5 mm^2 (AWG24 to AWG20) Double wiring: Single wire 0.14 to 0.5 mm^2 (AWG26 to AWG20) Stranded wire 0.14 to 0.2 mm^2 (AWG26 to AWG24)						
Applicable solderless terminal		AI 0.25-6BU (AWG24), AI 0.34-6TQ (AWG22), AI 0.5-6WH (AWG20) (manufactured by PHOENIX CONTACT) Swage: CRIMPFOXZA3 (manufactured by PHOENIX CONTACT)						
Applicable tightening torque (Terminal block terminal screw)		0.22 to 0.25 N·m						

3.4 Battery Specifications

■1. Applicable battery

The following batteries are applicable for GOT2000 series.

Model name	Description	Target GOT
GT11-50BAT	Battery for backup of SRAM data, clock data, and system status log data.	GT27,GT25,GT23,GT21 *1

*1 GT2103-P does not have a built-in battery.

■2. Battery specifications

The following describes the battery specifications for the GOT2000 series.

Item	Specifications
Model name	GT11-50BAT
Type	Magnesium manganese dioxide lithium primary battery
Initial voltage	3.0V
Nominal current	550mAh
Storage life	Approx.5 years (Operating ambient temperature of 25°C)
Total power stoppage time	■3. Battery life
Lithium content	0.00015kg

POINT

For the battery directive in EU member states, refer to the following.

➠ 9.4 ■2. Handling of batteries and devices with built-in batteries in EU member states

■3. Battery life

Life span of the battery set in the GOT is shown below.

Battery life			
Operating ambient temperature of 0° to 25°C	Operating ambient temperature of 25° to 45°C	Operating ambient temperature of 45° to 55°C	Data backup time after detection of battery voltage low *1
3 years	4 years	3 years	14 days

*1 In the following conditions, the data backup time is 5 minutes after the power supply is turned off.(As for GT23, the data backup time is 30 seconds.)

- The battery connector is disconnected.
- The battery connector is disconnected.

POINT

The battery connector is disconnected.

(1) Battery life reference: Approx.4 years in actual use (Ambient temperature: 25°C)

Battery replacement time reference: 3 to 4 years

Calculate the natural discharge amount of the battery, as necessary.

(2) Check if the battery condition is normal within the utility.

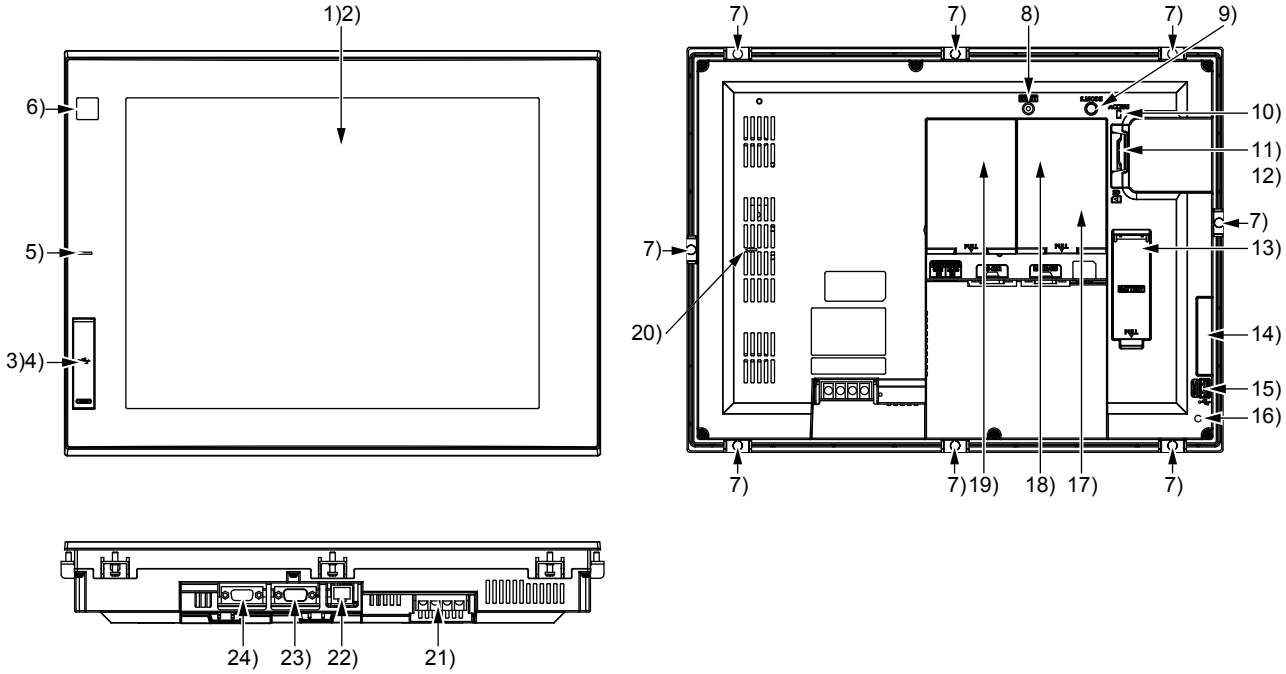
Refer to the following for the details of battery status display.

➠ GOT2000 Series User's Manual (Utility)

4. PART NAMES AND SETTINGS

4.1 GT27

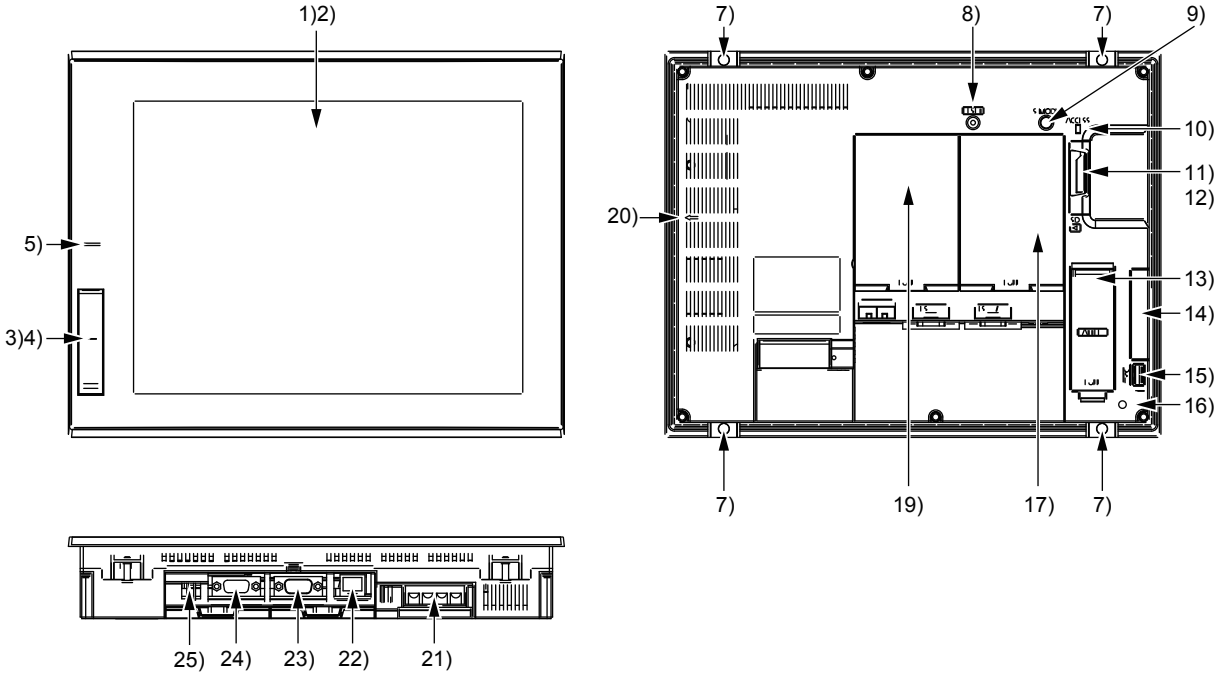
■1. GT2715-X



For the names of parts, refer to the following.

➠ ■6. Part names and settings OF GT27

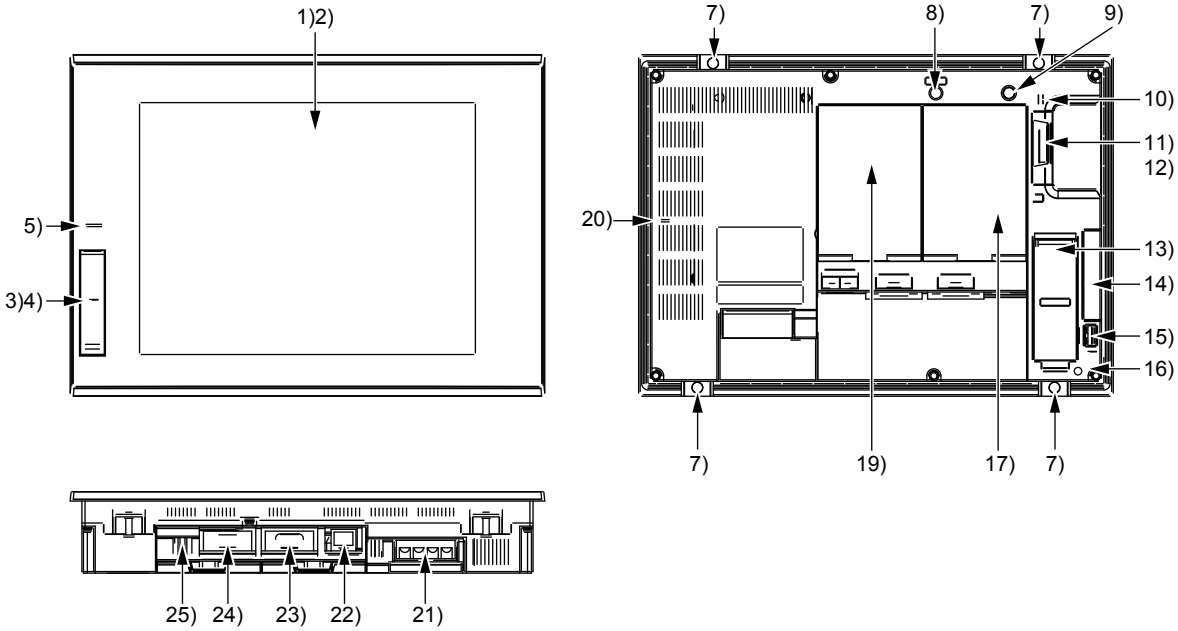
■2. GT2712-S



For the names of parts, refer to the following.

➠ ■6. Part names and settings OF GT27

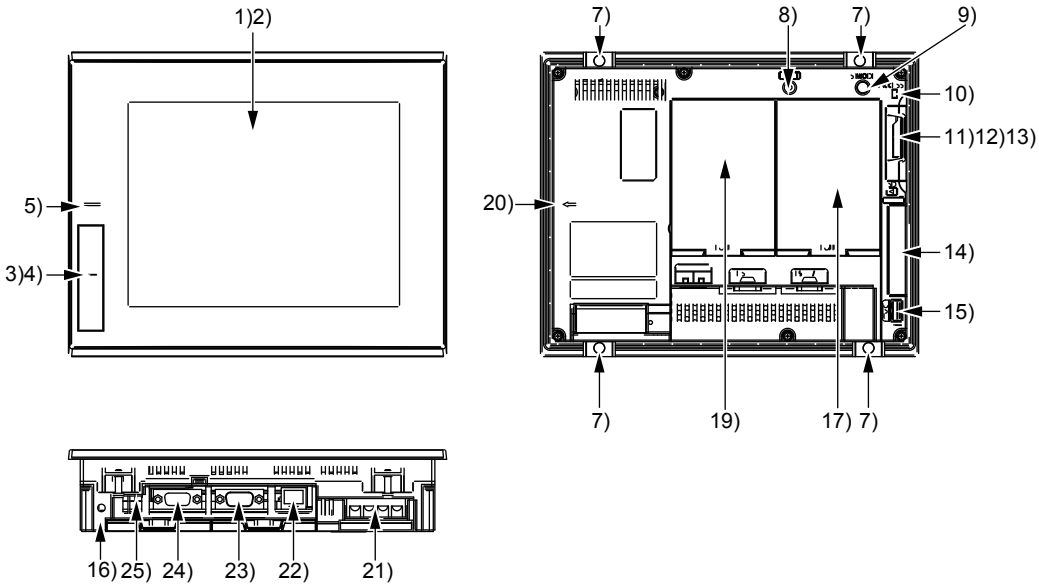
■3. GT2710-S, GT2710-V



For the names of parts, refer to the following.

➠ ■6. Part names and settings OF GT27

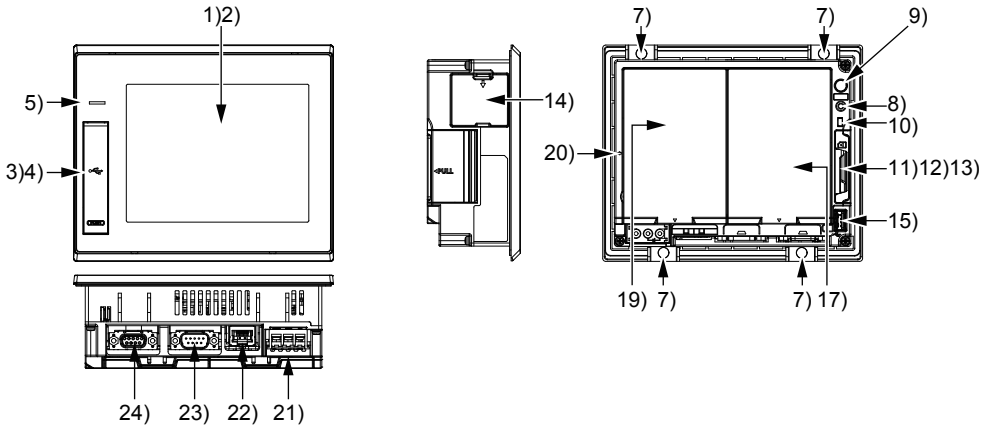
■4. GT2708-S, GT2708-V



For the names of parts, refer to the following.

➠ ■6. Part names and settings OF GT27

■5. GT2705-V



For the names of parts, refer to the following.

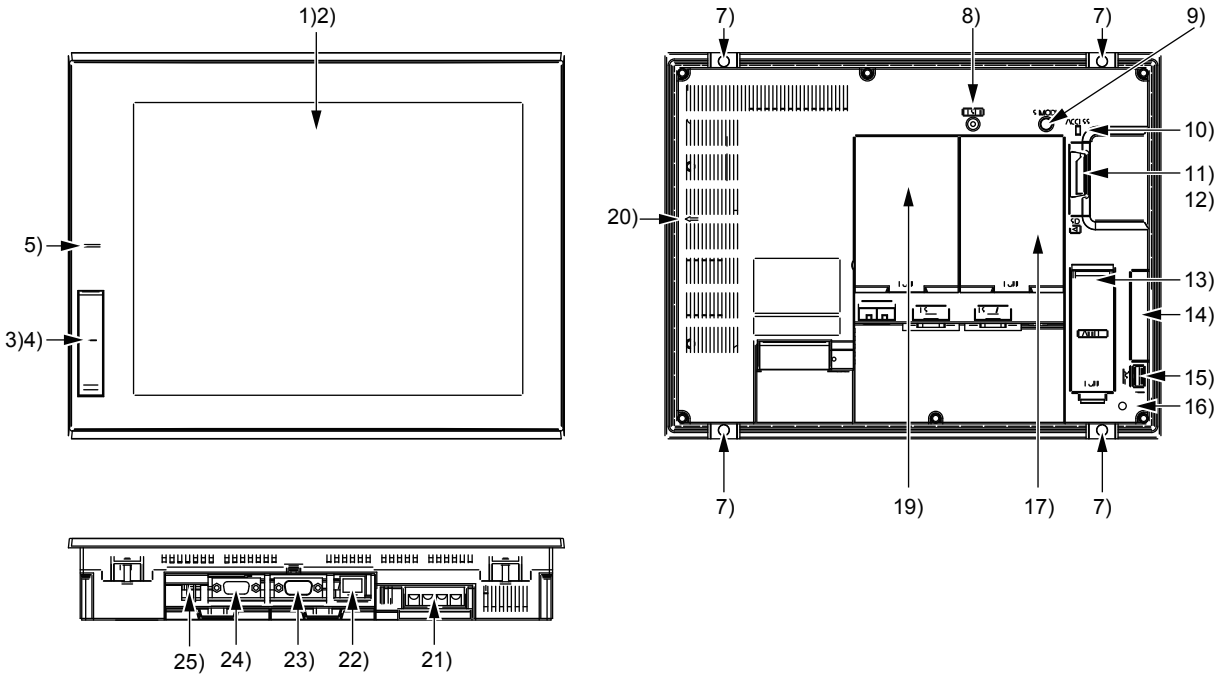
➠ ■6. Part names and settings OF GT27

■6. Part names and settings OF GT27

No.	Name	Description
1)	Display section	Displays the utility and the user-created screen.
2)	Touch panel	For operating the touch switches in the utility and the user-created screen
3)	USB interface (Host/front)	For connecting a USB mouse and a USB keyboard, transferring data, and storing data (Connector shape; TYPE-A) Applicable models : GT2715-XTBA/D, GT2712-STBA/D, GT2710-STBA/D, GT2710-VTBA/D, GT2708-STBA/D, GT2708-VTBA/D, GT2705-VTBD
4)	USB interface (Device/front)	For connecting a personal computer (Connector shape: Mini-B) Applicable models : GT2715-XTBA/D, GT2712-STBA/D, GT2710-STBA/D, GT2710-VTBA/D, GT2708-STBA/D, GT2708-VTBA/D, GT2705-VTBD
5)	POWER LED	Lit in blue : Power is properly supplied. Lit in orange : Screen saving Blinks in orange and blue: Backlight failure Not lit : Power is not supplied.
6)	Human sensor	Detects human movement. (GT2715,GT2712 only)
7)	Unit installation fitting	Mounting fixtures for fixing the GOT to the control panel
8)	Reset switch	Hardware reset switch
9)	S.MODE switch	Used for OS installation at the GOT startup
10)	SD card access LED	ON: SD card installed Blink: SD card accessed OFF: SD card not installed or SD card installed but removal possible
11)	SD card interface	For installing an SD card
12)	SD card cover	Has the function to switch the access to the SD card between enabled and disabled states. When the cover is opened: Access prohibited When the cover is closed: Access allowed
13)	Battery	Space for housing the battery
14)	Side interface	For installing a communication unit
15)	USB interface (Host/back)	For connecting a USB mouse and a USB keyboard, transferring data, and storing data (Connector shape; TYPE-A)
16)	Cable clamp mounting hole	Cable clamp mounting hole as a precaution against a disconnection of the USB cable (Recommended product: RSG-130-V0 of KITAGAWA INDUSTRIES CO.,LTD.)
17)	Terminating resistor setting switch (inside the cover)	Switches the terminating resistor for the RS-422/485 communication port between used and unused states (initial setting (unused))
18)	Auxiliary extension interface	For installing an option unit Applicable models : GT2715-XTBA/D, GT2712-STBA/D, GT2710-STBA/D, GT2710-VTBA/D, GT2708-STBA/D, GT2708-VTBA/D
19)	Extension interface	For installing a communication unit or an option unit
20)	Vertical installation arrow mark	For the vertical installation, install the GOT so that the arrow points upward.
21)	Power terminal	Power input terminal, LG terminal (except GT2705-V), FG terminal
22)	Ethernet interface	For communicating with a controller or connecting a personal computer (Connector shape: RJ-45 (modular jack))
23)	RS-232 interface	For communication with a controller (Connector shape: D-sub 9-pin (male))
24)	RS-422/485 interface	For communication with a controller (Connector shape: D-sub 9-pin (female))
25)	USB interface (Device/back)	For connecting a personal computer (Connector shape: Mini-B) Applicable models : GT2712-STWA/D, GT2710-VTWA/D

4.2 GT25

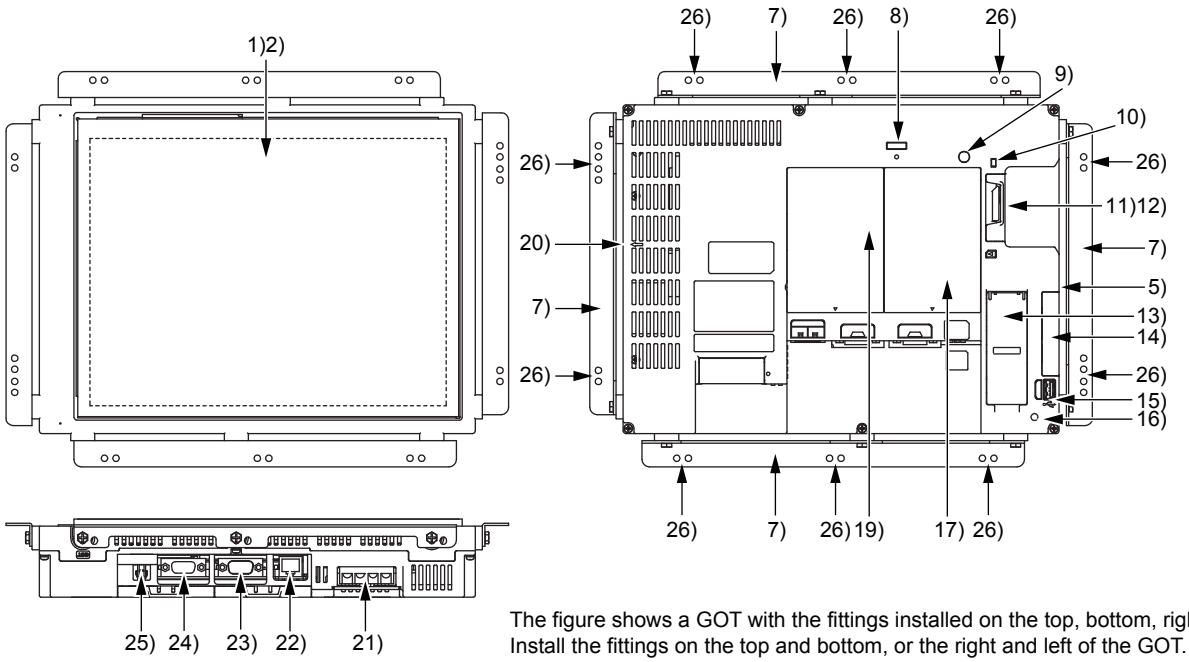
■1. GT2512-S



For the names of parts, refer to the following.

➠ ■7. Part names and settings OF GT25

■2. GT2512F-S

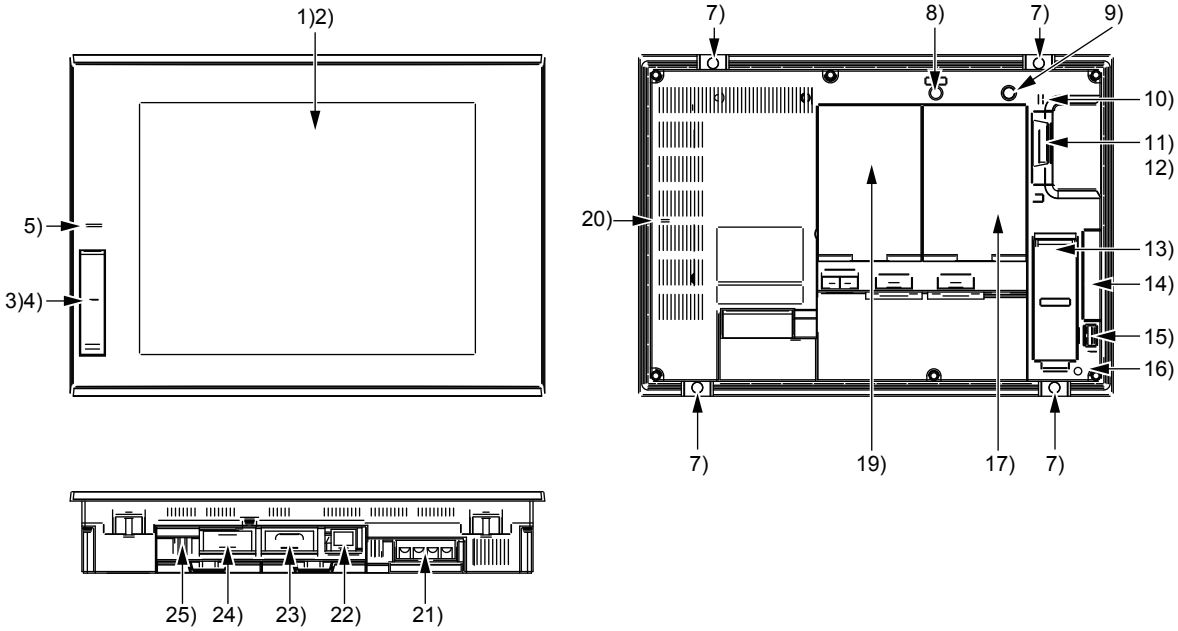


The figure shows a GOT with the fittings installed on the top, bottom, right, and left. Install the fittings on the top and bottom, or the right and left of the GOT.

For the names of parts, refer to the following.

➠ ■7. Part names and settings OF GT25

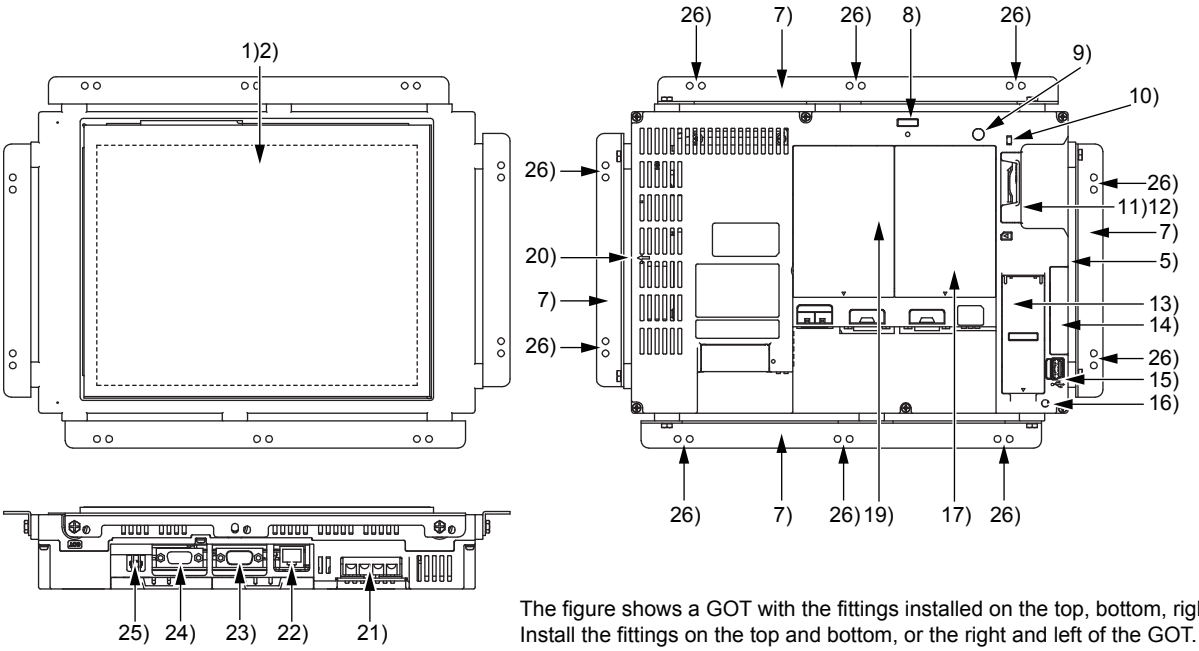
■3. GT2510-V



For the names of parts, refer to the following.

➠ ■7. Part names and settings OF GT25

■4. GT2510F-V

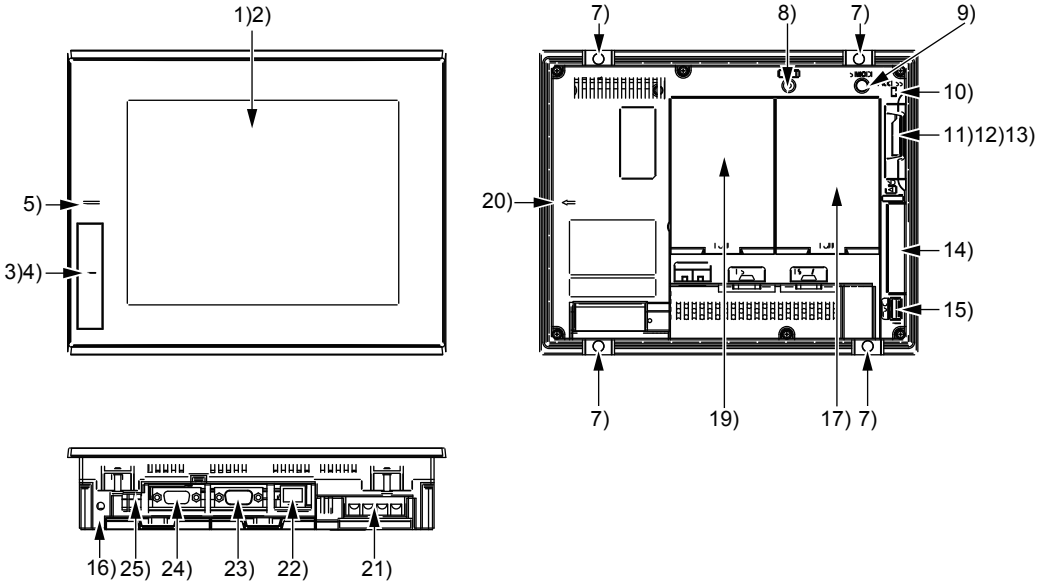


The figure shows a GOT with the fittings installed on the top, bottom, right, and left. Install the fittings on the top and bottom, or the right and left of the GOT.

For the names of parts, refer to the following.

➠ ■7. Part names and settings OF GT25

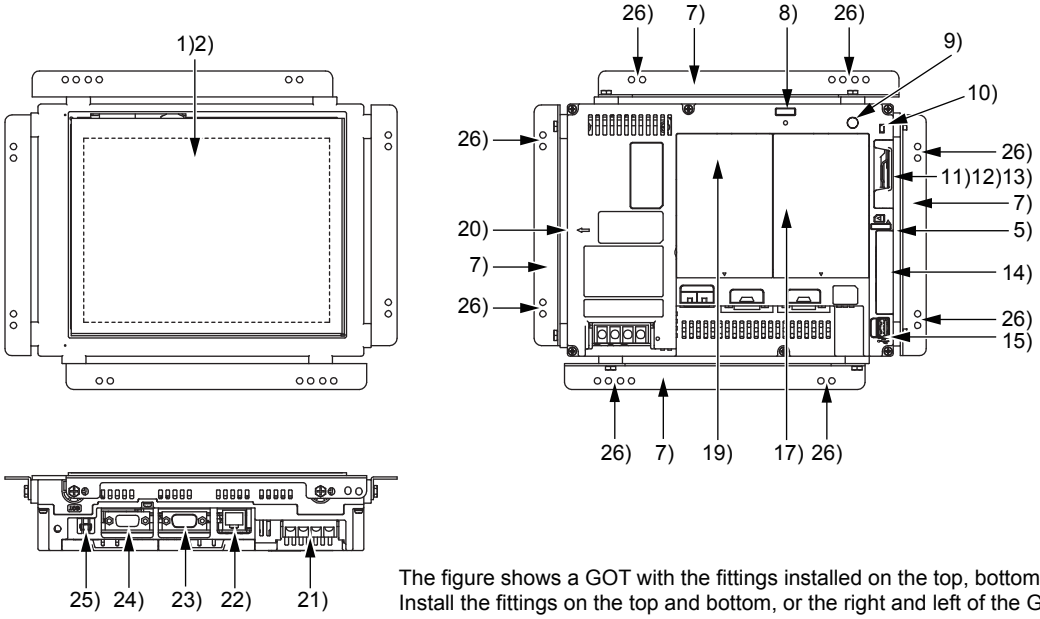
■5. GT2508-V



For the names of parts, refer to the following.

➠ ■7. Part names and settings OF GT25

■6. GT2508F-V



The figure shows a GOT with the fittings installed on the top, bottom, right, and left. Install the fittings on the top and bottom, or the right and left of the GOT.

For the names of parts, refer to the following.

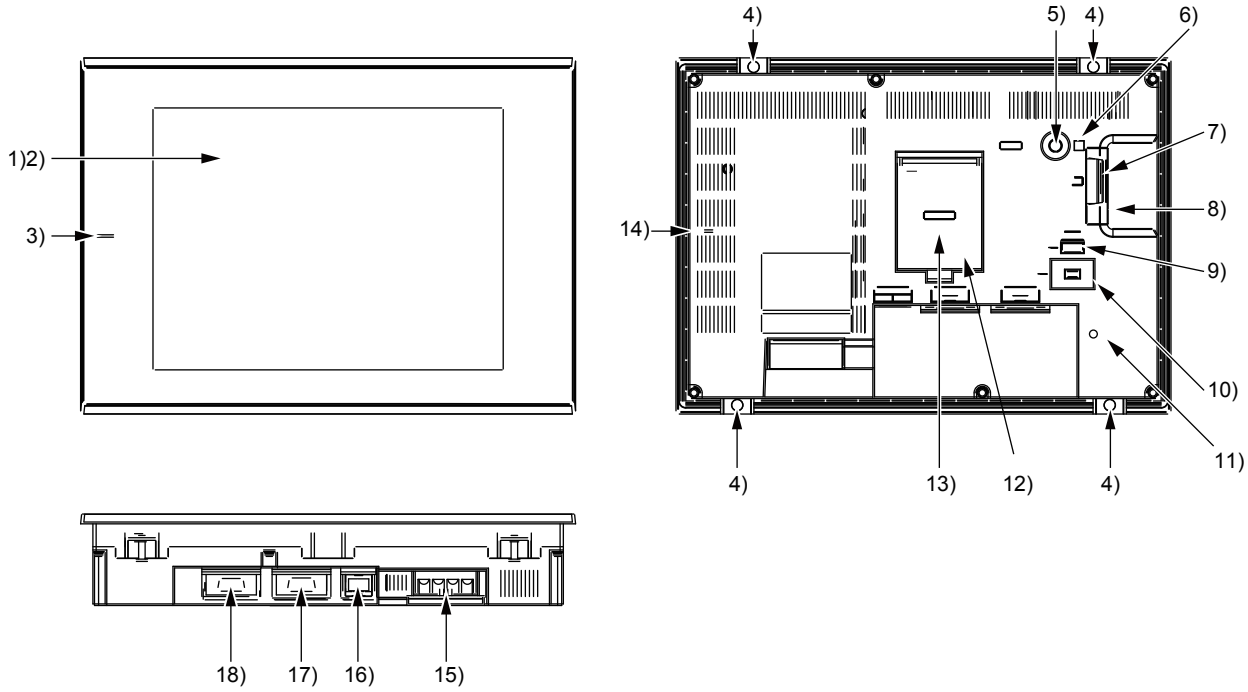
➠ ■7. Part names and settings OF GT25

■7. Part names and settings OF GT25

No.	Name	Description
1)	Display section	Displays the utility and the user-created screen.
2)	Touch panel	For operating the touch switches in the utility and the user-created screen
3)	USB interface (Host/front)	For connecting a USB mouse and a USB keyboard, transferring data, and storing data (Connector shape; TYPE-A) Applicable models : GT2512-STBA/D, GT2510-VTBA/D, GT2508-VTBA/D
4)	USB interface (Device/front)	For connecting a personal computer (Connector shape: Mini-B) Applicable models : GT2512-STBA/D, GT2510-VTBA/D, GT2508-VTBA/D
5)	POWER LED	Lit in blue : Power is properly supplied. Lit in orange : Screen saving Blinks in orange and blue: Backlight failure Not lit : Power is not supplied. (For GT2512F-STNA/D, GT2510F-VTNA/D, and GT2508F-VTNA/D, you can check the LED status from the GOT rear face.)
7)	Unit installation fitting	Mounting fixtures for fixing the GOT to the control panel
8)	Reset switch	Hardware reset switch
9)	S.MODE switch	Used for OS installation at the GOT startup
10)	SD card access LED	ON: SD card installed Blink: SD card accessed OFF: SD card not installed or SD card installed but removal possible
11)	SD card interface	For installing an SD card
12)	SD card cover	Has the function to switch the access to the SD card between enabled and disabled states. When the cover is opened: Access prohibited When the cover is closed: Access allowed
13)	Battery	Space for housing the battery
14)	Side interface	For installing a communication unit
15)	USB interface (Host/back)	For connecting a USB mouse and a USB keyboard, transferring data, and storing data (Connector shape; TYPE-A)
16)	Cable clamp mounting hole	Cable clamp mounting hole as a precaution against a disconnection of the USB cable (Recommended product: RSG-130-V0 of KITAGAWA INDUSTRIES CO.,LTD.)
17)	Terminating resistor setting switch (inside the cover)	Switches the terminating resistor for the RS-422/485 communication port between used and unused states (initial setting (unused))
19)	Extension interface	For installing a communication unit or an option unit
20)	Vertical installation arrow mark	For the vertical installation, install the GOT so that the arrow points upward.
21)	Power terminal	Power input terminal, LG terminal (except GT2705-V), FG terminal
22)	Ethernet interface	For communicating with a controller or connecting a personal computer (Connector shape: RJ-45 (modular jack))
23)	RS-232 interface	For communication with a controller (Connector shape: D-sub 9-pin (male))
24)	RS-422/485 interface	For communication with a controller (Connector shape: D-sub 9-pin (female))
25)	USB interface (Device/back)	For connecting a personal computer (Connector shape: Mini-B) Applicable models : GT2512F-STNA/D, GT2510F-VTNA/D, GT2510-VTWA/D, GT2508F-VTNA/D, GT2508-VTWA/D
26)	Fitting installation hole	For fixing the fitting to the control panel (GT2512F-STNA/D, GT2510F-VTNA/D, and GT2508F-VTNA/D)

■1. GT2310-V, GT2308-V

Example) GT2310-VTBA



For the names of parts, refer to the following.

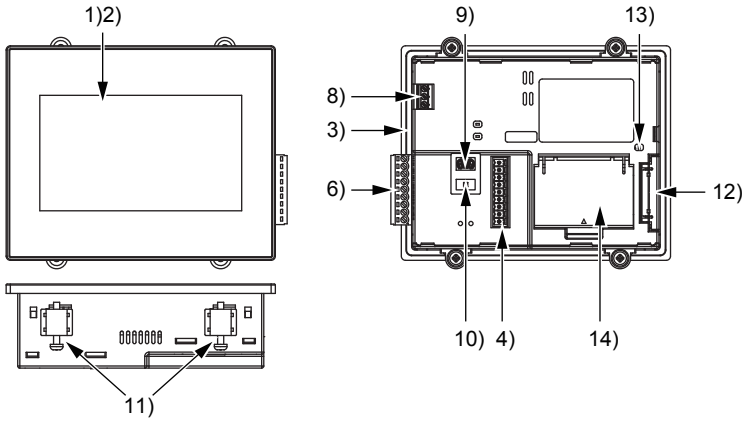
➠ ■2. Part names and settings OF GT23

■2. Part names and settings OF GT23

No.	Name	Description
1)	Display section	Displays the utility and the user-created screen.
2)	Touch panel	For operating the touch switches in the utility and the user-created screen
3)	POWER LED	Lit in blue : Power is properly supplied. Lit in orange : Screen saving Blinks in orange and blue: Backlight failure Not lit : Power is not supplied.
4)	Unit installation fitting	Mounting fixtures for fixing the GOT to the control panel
5)	S.MODE switch	Used for OS installation at the GOT startup
6)	SD card access LED	ON: SD card installed Blink: SD card accessed OFF: SD card not installed or SD card installed but removal possible
7)	SD card interface	For installing an SD card
8)	SD card cover	Has the function to switch the access to the SD card between enabled and disabled states. When the cover is opened: Access prohibited When the cover is closed: Access allowed
9)	USB interface (Host)	For connecting a USB mouse and a USB keyboard, transferring data, and storing data (Connector shape; TYPE-A)
10)	USB interface (Device)	For connecting a personal computer (Connector shape: Mini-B)
11)	Cable clamp mounting hole	Cable clamp mounting hole as a precaution against a disconnection of the USB cable (Recommended product: RSG-130-V0 of KITAGAWA INDUSTRIES CO.,LTD.)
12)	Terminating resistor setting switch (inside the cover)	Switches the terminating resistor for the RS-422/485 communication port between used and unused states (initial setting (unused))
13)	Battery	Space for housing the battery
14)	Vertical installation mark	When using the GOT with the vertical display, install the GOT so that the arrow points upward.
15)	Power terminal	Power input terminal, LG terminal, FG terminal
16)	Ethernet interface	For communicating with a controller or connecting a personal computer (Connector shape: RJ-45 (modular jack))
17)	RS-232 interface	For communication with a controller (Connector shape: D-sub 9-pin (male))
18)	RS-422/485 interface	For communication with a controller (Connector shape: D-sub 9-pin (female))

4.4 GT21

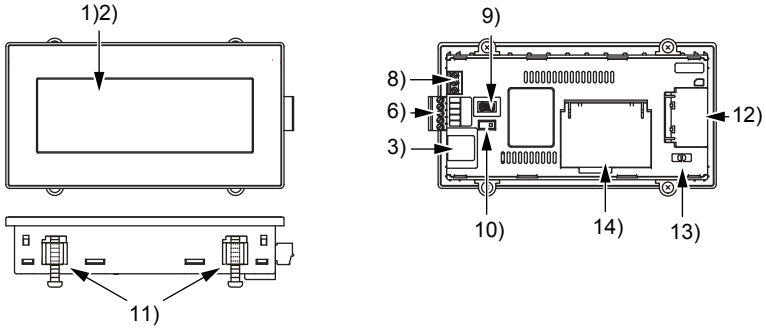
■1. GT2104-RTBD



For the names of parts, refer to the following.

➠ ■8. Part names and settings OF GT21

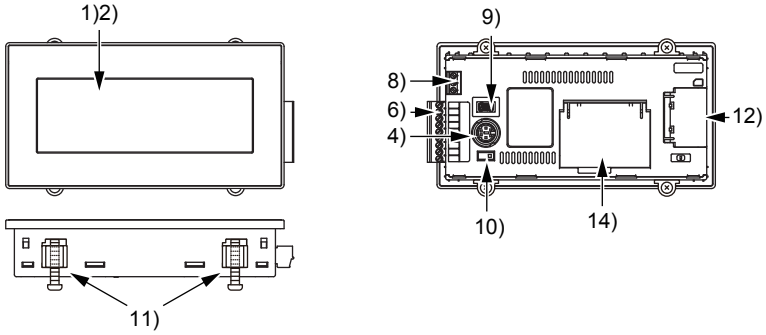
■2. GT2104-PMBD



For the names of parts, refer to the following.

➠ ■8. Part names and settings OF GT21

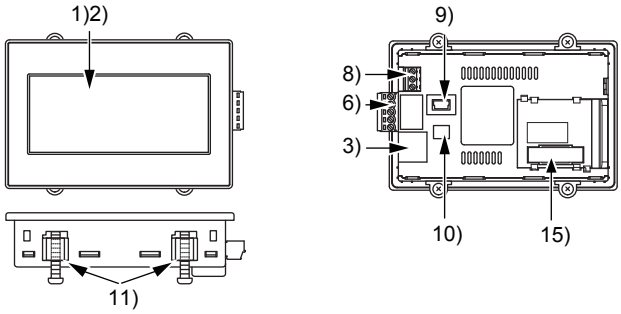
■3. GT2104-PMBDS



For the names of parts, refer to the following.

➠ ■8. Part names and settings OF GT21

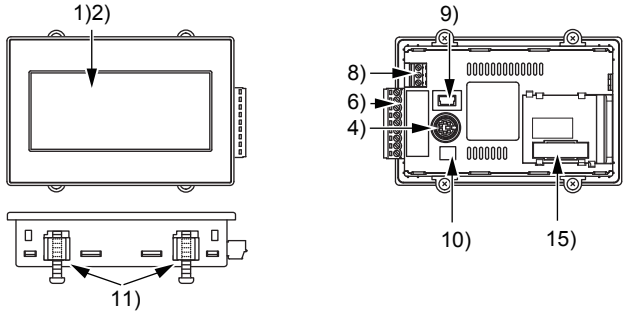
■4. GT2103-PMBD



For the names of parts, refer to the following.

➠ ■8. Part names and settings OF GT21

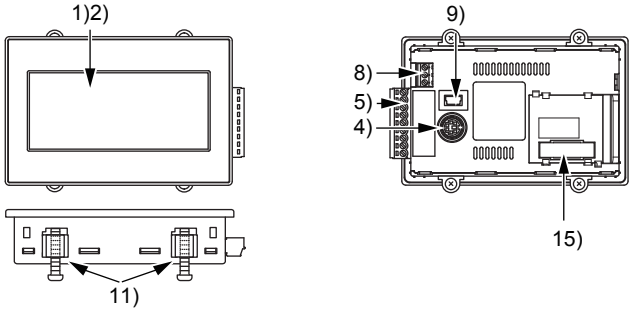
■5. GT2103-PMBDS



For the names of parts, refer to the following.

➠ ■8. Part names and settings OF GT21

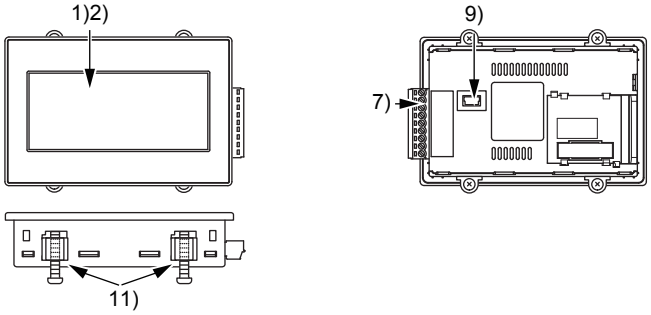
■6. GT2103-PMBDS2



For the names of parts, refer to the following.

➠ ■8. Part names and settings OF GT21

■7. GT2103-PMBLS



For the names of parts, refer to the following.

➠ ■8. Part names and settings OF GT21

■8. Part names and settings OF GT21

No.	Name	Description
1)	Display section	Displays the utility and the user-created screen
2)	Touch panel	For operating the touch switches in the utility and the user-created screen
3)	Ethernet interface	For communicating with a controller or connecting a personal computer (Connector shape: RJ-45 (Modular jack))
4)	RS-232 interface (Rear face)	For communicating with a controller or connecting a personal computer (FA transparent function) Connector shape is different depending on the model of the GT21. • GT2104-R:9-pin connector terminal block • GT2104-P:MINI-DIN 6-pin • GT2103-P:MINI-DIN 6-pin For connecting multiple GOTs, a barcode reader, an RFID, or a serial printer
5)	RS-232 interface (Side face)	For communicating with a controller or connecting a personal computer (Female MINI-DIN 6-pin) For connecting multiple GOTs, a barcode reader, an RFID, or a serial printer
6)	RS-422/485 interface	For communicating with a controller (9-pin or 5-pin connector terminal block)
7)	RS-422 interface	For communicating with a controller (9-pin connector terminal block)
8)	Power supply terminal	Power supply input terminal, FG terminal
9)	USB interface (Device)	For transferring data and storing data (Connector shape: Mini-B)
10)	Terminating resistor setting switch	Switches the terminating resistor for the RS-422/485 communication port among 330 Ω, OPEN, and 110 Ω (Initial setting (330 Ω))
11)	Installation fitting	For fixing the GOT to the control panel
12)	SD card interface	For SD card installed
13)	SD card access LED	ON: SD card installed Blink: SD card accessed OFF: SD card not installed or SD card installed but removal possible
14)	Battery	Space for housing the battery
15)	SD card unit connector (inside the cover)	For mounting the SD card unit

5. EMC DIRECTIVE AND LOW VOLTAGE DIRECTIVE

5.1 Overview

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.
In addition, conformance to the Low Voltage Directive, another European Directive, has also been a legal obligation since 1997.
Manufacturers, who recognize that their products comply with the EMC Directive and the Low Voltage Directive, must declare that their products comply with the Directives and put a CE mark on the products.

■1. Sales representative in Europe

The sales representative in Europe is as shown below.
Company name: Mitsubishi Electric Europe BV
Address: Gothaer strase 8, 40880 Ratingen, Germany

5.1.1 Conforming standards in the EMC Directive

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

Applied standard	Test standard	Test details	Standard value
EN61131-2 : 2007	CISPR16-2-3 Radiated noise*1	Test for measuring electromagnetic emissions from the product	• 30 MHz to 230 MHz QP: 30 dBμV/m (measured at 30 m)*2*3 • 230MHz to 1000MHz QP: 37 dBμV/m (measured at 30 m)*2*3
	CISPR16-2-1 Conducted noise*1	Test for measuring electromagnetic emissions from the product to the power cables	• 150kHz to 500kHz QP: 79dB,Mean: 66dB*2 • 500kHz to 30MHz QP: 73dB,Mean: 60dB*2
	IEC61000-4-2 Electrostatic immunity*1	Immunity test in which static electricity is applied to the cabinet of the equipment	• Contact discharge: ±4 kV • Aerial discharge: ±8 kV
	IEC61000-4-3 Radiated electromagnetic field, amplitude modulation*1	Immunity test in which an electric field is applied to the product	80 MHz to 1000 MHz: 10 V/m 1.4GHz to 2GHz: 3V/m 2.0GHz to 2.7GHz: 1V/m (80% amplitude modulation at 1 kHz)
	IEC61000-4-4 Fast transient burst noise*1	Immunity test in which burst noise is applied to the power cables and the signal lines	Power cable: 2 kV Digital I/O (24V or higher): 1kV Digital I/O (less than 24 V): 250 V or higher Analog I/O (signal lines): 250 V or higher
	IEC61000-4-5 Surge immunity*1	Immunity test in which lightening surge is applied to the product	• AC power type Power cable (between cable and ground): ±2 kV Power cable (between cables): ±1 kV Data communication port: ±1 kV • DC power type Power cable (between cable and ground): ±0.5kV Power cable (between cables): ±0.5kV Data communication port: ±1 kV
	IEC61000-4-6 Conducted RF immunity*1	Immunity test in which a noise inducted on the power cable and the signal lines is applied	Power cable: 10V Data communication port: 10 V
	IEC61000-4-8 Power supply frequency magnetic field immunity	Test for checking normal operations under the circumstance exposed to the ferromagnetic field noise of the power supply frequency (50/60 Hz)	30 A/m
EN61131-2 : 2007	IEC61000-4-11 Instantaneous power failure and voltage dips immunity	Test for checking normal operations at instantaneous power failure	• AC power type 0.5 cycle 0% (Interval 1 second to 10 seconds) 250/300 cycle 0% 10/12 cycle 40% 25/30 cycle 70%

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

QP: 40 dBμV/m (measured at 10 m)
- 230MHz to 1000MHz
  QP: 47 dBμV/m (measured at 10 m)

5.1.2 Conforming standards in the Low Voltage Directive

The GOT complies with the following standards in the Low Voltage Directive.
- EN61131-2: Programmable controllers - Equipment requirements and tests
- EN60950-1: Information technology equipment - Safety

5.2 EMC Directive Requirements

The EMC Directive requires the following.

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

To comply with the EMC Directive, this section explains the precautions for configuring equipment integrating the GOT.
The data described herein are produced with our best, based on the regulation requirements and standards obtained by Mitsubishi. However, the data do not guarantee that the whole equipment produced according to the data comply with the above directive.
The manufacturer of the equipment must determine the method to comply with the EMC Directive and conformance to the directive.

5.2.1 Installing the GOT on the control panel

The GOT is an open type device (designed to be integrated in equipment).
Make sure to install the GOT in a control panel.
This restriction ensures safety and also has a large effect of suppressing noise generated from the GOT by using the control panel.

■1. Control panel

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

Manufacturer	Series name	Contact
KITAGAWA INDUSTRIES CO., LTD.	RFSG series (Recommended Product)	0587-34-3651

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

■2. Connection of power and ground cables

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

(1) Wiring the ground cable

Provide a ground point near the GOT. Short-circuit the line ground terminal (LG terminal) and the frame ground terminal (FG terminal) of the GOT, and ground them with the thickest and shortest cable as possible.

(2) Ground cable length

The ground cable length must be 30 cm or shorter.
The LG and FG terminals pass the noise generated in the PLC system to the ground.
Therefore, ensure an impedance as low as possible.
Since the ground cables relieve the noise, the cables themselves carry a large noise.
Thus, short wiring prevents the cable from acting as an antenna.
(A long conductor is an antenna radiating noise more efficiently.)

(3) Treatment of the power cable and the ground cable

Twist the ground cable led from the ground point with the power cable.
Twisting with the ground cable relieves more noise from the power cable to the ground.
When a noise filter is installed to the power cable, twisting the power cable and the ground cable may not be required.

5.2.2 Installing a noise filter (power supply line filter)

A noise filter is a part to effectively reduce conducted noise.
Except some models, installation of a noise filter to the power supply lines is not necessary. However, installing the noise filter can reduce conducted noise.
The noise filter is effective to reduce conducted noise in the band of 10 MHz or less.
Use a noise filter equivalent to the following noise filters (double π-type filters).

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

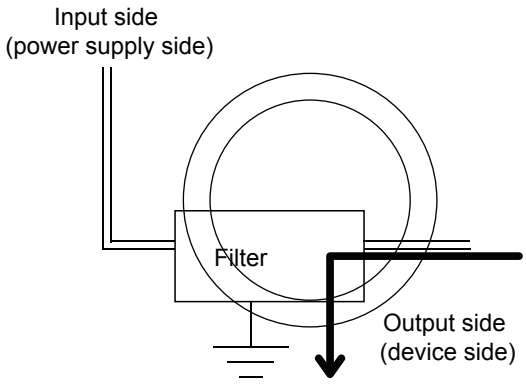
■1. Precautions

The following shows the precautions for installing a noise filter.

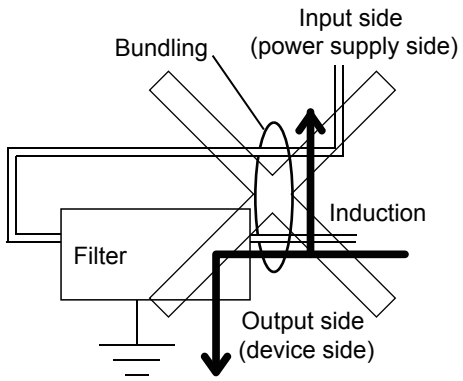
(1) Prohibition of bundling cables

Do not bundle the input and output cables of the noise filter.
Bundling the cables inducts the noise from the output-side cable into the input-side cable where noise has been eliminated by the noise filter.

Wire the input and output cables separately.



Bundling the input and output cables inducts noise.



(2) Grounding the noise filter

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

5.2.3 System configuration

You can also check the EMC Directive compliance status of the GOT2000 series at the Mitsubishi Electric Factory Automation Global Website.
For the latest information, go to the Mitsubishi Electric Factory Automation Global Website.
http://www.mitsubishielectric.co.jp/fa/

■1. GOT

Use the following GOTs having a CE mark on the rating plate.
For how to check the hardware version of the GOT, refer to the following.

➠ 11.6 Confirming of Versions and Conforming Standards

○: Compliant ×: Not compliant

Product name	Model	Hardware version (Manufacture year and month)	EMC Directive
GT2715	GT2715-XTBA	Version A or later (April 2014)	○
	GT2715-XTBD		
GT2712	GT2712-STBA	Version A or later (August 2013)	○
	GT2712-STBD		
	GT2712-STWA		
	GT2712-STWD		
GT2710	GT2710-STBA		
	GT2710-STBD		
	GT2710-VTBA		
	GT2710-VTBD		
	GT2710-VTWA		
	GT2710-VTWD		
GT2708	GT2708-STBA		
	GT2708-STBD		
	GT2708-VTBA		
	GT2708-VTBD		
GT2705	GT2705-VTBD	Version A or later (April 2015)	○
GT2512	GT2512-STBA	Version A or later (October 2014)	○
	GT2512-STBD		
	GT2512F-STNA	Version A or later (January 2016)	
	GT2512F-STND		
GT2510	GT2510-VTBA	Version A or later (April 2014)	○
	GT2510-VTBD		
	GT2510-VTWA		
	GT2510-VTWD		
	GT2510F-VTNA	Version A or later (January 2016)	
	GT2510F-VTND		
GT2508	GT2508-VTBA	Version A or later (April 2014)	○
	GT2508-VTBD		
	GT2508-VTWA		
	GT2508-VTWD		
	GT2508F-VTNA	Version A or later (January 2016)	
	GT2508F-VTND		
GT2310	GT2310-VTBA	Version A or later (August 2013)	○
	GT2310-VTBD		
GT2308	GT2308-VTBA		
	GT2308-VTBD		

Product name	Model	Hardware version (Manufacture year and month)	EMC Directive
GT2104	GT2104-RTBD	Version B or later (March 2015)	○
	GT2104-PMBD	Version B or later (October 2015)	×
	GT2104-PMBDS		×
GT2103	GT2103-PMBD	Version B or later (October 2014)	○
	GT2103-PMBDS		
	GT2103-PMBDS2	Version B or later (April 2015)	○
	GT2103-PMBLS		

■2. Connection type

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

○: Compliant ×: Not compliant

Connection type*1	GT27	GT25	GT23	GT21
Ethernet connection	○	○	○	○
Direct CPU connection	○	○	○	○
Computer link connection	○	○	○	×
Bus connection	○	○	×	×
MELSECNET/H connection (PLC to PLC network)	○	○	×	×
CC-Link IE Field Network connection	○	○	×	×
CC-Link IE Controller Network connection	○	○	×	×
CC-Link connection (Intelligent device station)	○	○	×	×
GOT multi-drop connection	×	×	×	×
Other connections*2 (Connection with non-Mitsubishi PLC, microcomputer, inverter, temperature controller, servo amplifier, CNC, and MODBUS equipment)	○	○	○	○

*1 For the details of each connection type, refer to the following manual.

➠ GOT2000 Series Connection Manual For GT Works3 Version1 compatible for a controller used

*2 When connecting the GOT to other controllers such as a non-Mitsubishi PLC, fabricate connection cables and configure the system following the EMC Directive specifications.

➠ ■10. Non-Mitsubishi PLC, microcomputer, temperature controller, inverter, servo amplifier, CNC, MODBUS/RTU, and MODBUS/TCP connections

POINT

Connected devices

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

■3. Communication unit

To comply with the EMC Directive, use the following communication units.
When any other than the following communication units is used, the GOT does not comply with the EMC Directive.

Connection type	Communication unit	Hardware version (Manufacture year and month)
Ethernet connection	GOT Ethernet interface	-
Direct CPU connection	GOT RS-232 interface	-
	GOT RS-422/485 interface	-
	GT15-RS2-9P GT15-RS4-9S	Version D or later (January 2006)
Computer link connection	GOT RS-232 interface	-
	GOT RS-422/485 interface	-
	GT15-RS2-9P GT15-RS4-9S	Version D or later (January 2006)
Bus connection	GT15-QBUS	Version D or later (October 2005)
	GT15-QBUS2 GT15-ABUS GT15-ABUS2	Version C or later (October 2005)
	GT15-75QBUSL GT15-75QBUS2L GT15-75ABUSL GT15-75ABUS2L	Version G or later (March 2005)
MELSECNET/H connection (PLC to PLC network)	GT15-J71LP23-25 GT15-J71BR13	Version C or later (September 2006)
CC-Link IE Controller Network connection	GT15-J71GP23-SX	Version A or later (December 2007)
CC-Link IE Field Network connection	GT15-J71GF13-T2	Version A or later (April 2011)
CC-Link connection (Intelligent device station)	GT15-J61BT13	Version C or later (September 2006)
Non-Mitsubishi PLC connection	GOT RS-232 interface	-
	GOT RS-422/485 interface	-
	GT15-RS2-9P GT15-RS4-9S	Version D or later (January 2006)
Microcomputer connection (Ethernet)	GOT Ethernet interface	-
Microcomputer connection (Serial)	GOT RS-232 interface	-
	GOT RS-422/485 interface	-
	GT15-RS2-9P GT15-RS4-9S	Version D or later (January 2006)
Temperature controller connection	GOT RS-232 interface	-
	GOT RS-422/485 interface	-
	GT15-RS2-9P GT15-RS4-9S GT15-RS4-TE	Version D or later (January 2006)
Inverter connection	GOT RS-422/485 interface	-
	GT15-RS4-9S	Version D or later (January 2006)
Servo amplifier connection	GOT RS-232 interface	-
	GOT RS-422/485 interface	-
	GT15-RS2-9P GT15-RS4-9S	Version D or later (January 2006)

Connection type	Communication unit	Hardware version (Manufacture year and month)
CNC connection	GOT RS-232 interface	-
	GOT RS-422/485 interface	-
	GT15-RS2-9P GT15-RS4-9S	Version D or later (January 2006)
	GT15-J71LP23-25 GT15-J61BT13	Version C or later (September 2006)
	GOT Ethernet interface	-
MODBUS/RTU connection	GOT RS-232 interface	-
	GOT RS-422/485 interface	-
	GT15-RS2-9P, GT15-RS4-9S	Version D or later (January 2006)
MODBUS/TCP connection	GOT Ethernet interface	-

■4. Option unit

To comply with the EMC Directive, use the following option units.
When any other than the following option units is used, the GOT does not comply with the EMC Directive.

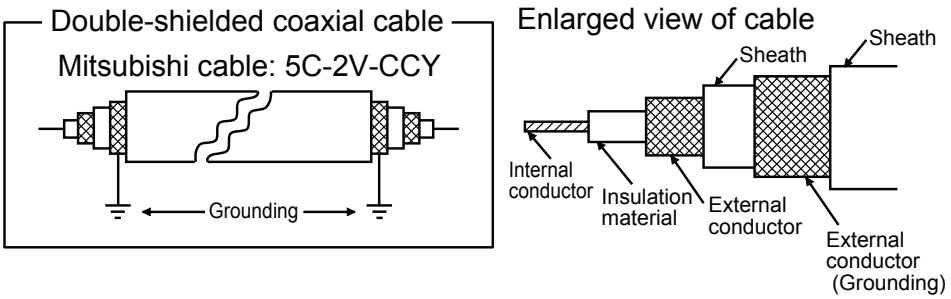
Product name	Model	Hardware version (Manufacture year and month)
Multimedia unit	GT27-MMR-Z	Version A or later (August 2013)
Video/RGB input unit	GT27-V4R1-Z	Version A or later (August 2013), GT2715: Version B or later (April 2014)*1
Video input unit	GT27-V4-Z	
RGB input unit	GT27-R2	Version A or later (April 2015)
	GT27-R2-Z	Version A or later (August 2013), GT2715: Version B or later (April 2014)*1
RGB output unit	GT27-ROUT	Version A or later (April 2015)
	GT27-ROUT-Z	Version A or later (August 2013)
Printer unit	GT15-PRN	Version B or later (Feb 2006)
Sound output unit	GT15-SOUT	Version B or later (May 2007)
External I/O unit	GT15-DIO	Version B or later (May 2007)
	GT15-DIOR	Version A or later (July 2008)
SD card unit	GT21-03SDCD	- (October 2014)

*1 To use the unit on GT2715, the hardware version of the supplied GT16M-V4R1-Z/GT16M-V4-Z/GT16M-R2-Z and GT27-IF1000 must also be B or later.

■5. Cable

(1) MELSECNET/H (coaxial cable), and video connections

Use a double shielded coaxial cable.
The 5C-2V connector plug is applicable to the double shielded coaxial cable.
Connect the 5C-2V connector plug to the coaxial cable inside the double shielded coaxial cable.
Ground the shielded part outside the double shielded coaxial cable as shown in the following figure.



(2) CC-Link IE Field Network connection

Use the following cable dedicated to the CC-Link IE Field Network.

Manufacturer	Model
Mitsubishi Electric System & Service Co., Ltd.	SC-E5EW-S□M

(3) Other connections

For the details of the cables used, refer to the following manual.

➠ GOT2000 Series Connection Manual For GT Works3 Version1 compatible for a controller used

POINT

Fabricating cables

To comply with the EMC Directive, fabricate cables (including user-created cables).
For how to fabricate a cable, refer to the following.

➠ GOT2000 Series Connection Manual For GT Works3 Version1 compatible for a controller used

5.2.4 Connection of power cables and ground cables

Carry out wiring and connect the power and ground cables according to the following instruction.
By the different wiring or connection method, the system may not comply with EMC Directive.

■1. Wiring method

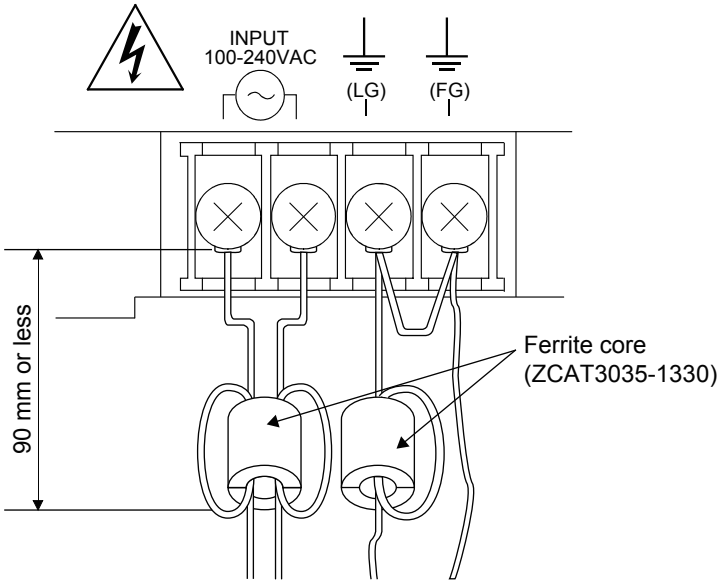
As shown in the figure below, connect the power cable and the ground cable, and then attach a ferrite core (ZCAT3035-1330, manufactured by TDK Corporation) within the specified range.
GT23 does not need ferrite cores.
Make sure to ground the LG cable and FG cable.

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

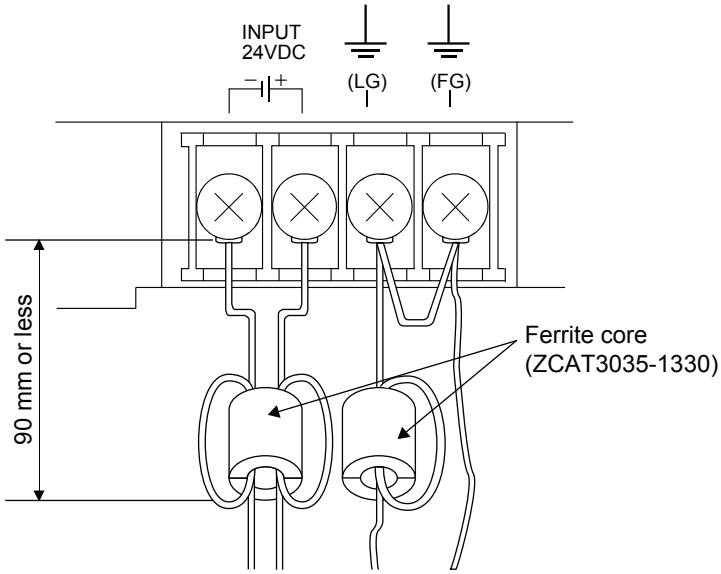
➠ 5.2.1 ■2. Connection of power and ground cables

GT2705-VTBD does not have the LG ground terminal.

(1) 100 V AC to 240 V AC GOT power supply section (GT27,GT25,GT23 Only)



(2) 24 V DC GOT power supply section (GT27,GT25,GT23 Only)



5.2.5 Fabricating a connection cable

Fabricate the cables used for the GOT by the methods as shown in this section.
The fabrication requires a ferrite core, cable clamp, and cable shielding materials.
The following products have passed the Mitsubishi EMC Directive compliance test.

- ZCAT3035-1330 ferrite core (TDK Corporation)
- AD75CK-type cable clamp (Mitsubishi Electric Corporation)
- Zipper tubing SHNJ type (Zippertubing (Japan),Ltd)

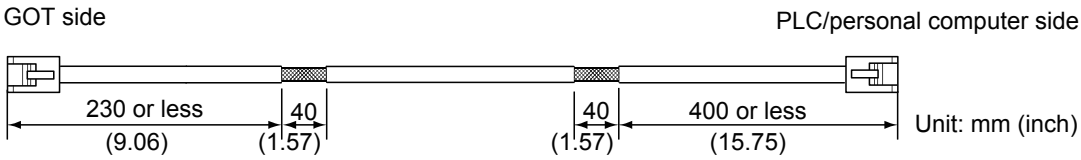
■1. Ethernet connection

(1) Ethernet cable

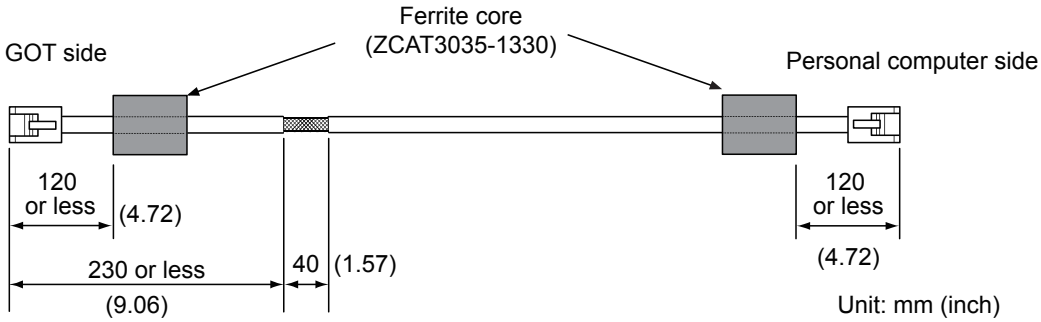
Strip off the sheath at both ends of the cable as shown in the figure below to expose braided shield for grounding.
The braided shield sections are used for grounding with a cable clamp.

➠ 5.2.6 Grounding a cable

- Connecting to the Ethernet interface of the GOT



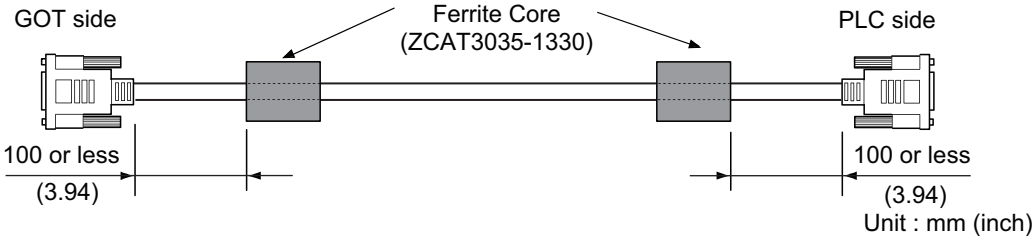
- Connecting to the multimedia unit (GT27-MMR-Z)



■2. Direct CPU connection

(1) RS-232 cable and RS-422 cable

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

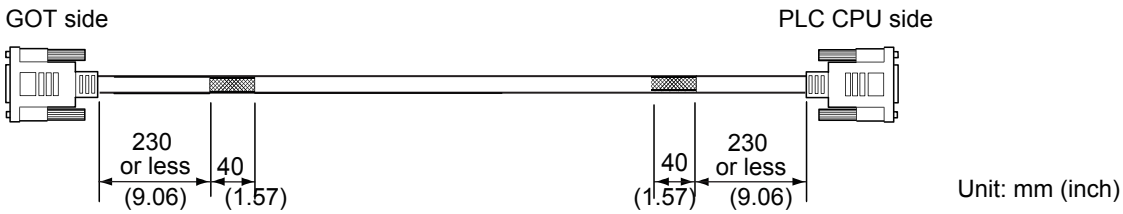


■3. Computer link connection

(1) RS-232 cable and RS-422 cable

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

➠ 5.2.6 Grounding a cable

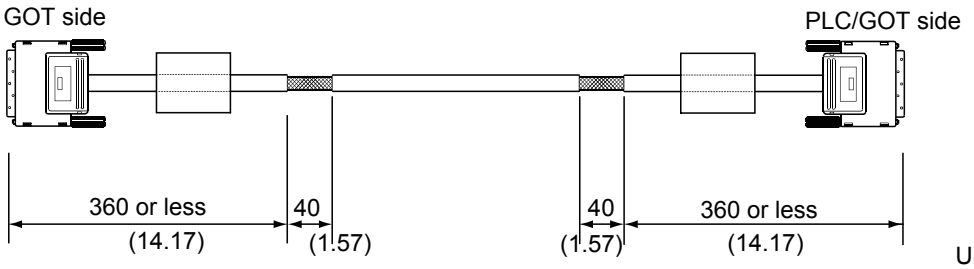


■4. Bus connection

(1) GT15-QC□B and GT15-QC□BS

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

➠ 5.2.6 Grounding a cable



Unit: mm (inch)

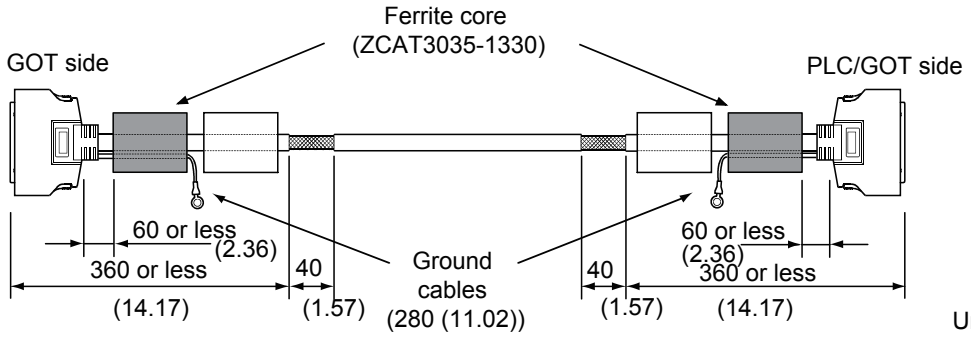
(2) GT15-C□BS

Step 1. Cut the ground cables from both ends of the cable to the length as shown in the figure below.

Step 2. Install ferrite cores to the cable in the positions as shown in the figure below, and insert the ground cables through the ferrite cores.

Step 3. Strip off the sheath at both ends of the cable as shown in the figure below to expose braided shield sections for grounding.
The braided shield sections are used for grounding with a cable clamp.

➠ 5.2.6 Grounding a cable

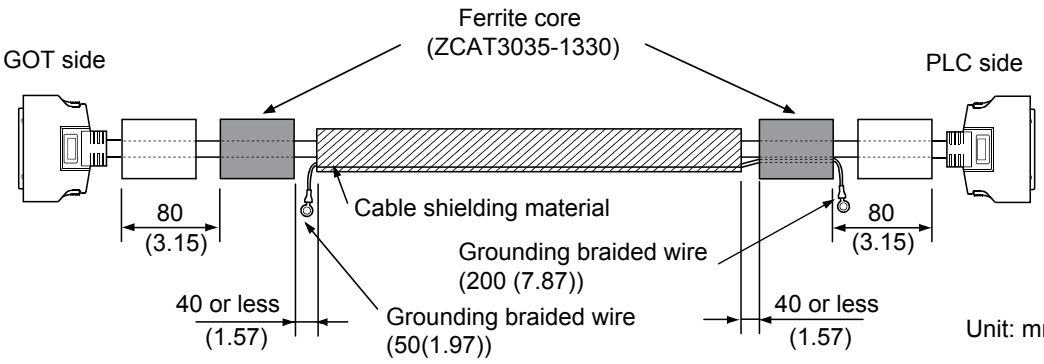


Unit: mm (inch)

(3) Other bus connection cables

Step 1. Wrap the cable shielding material around the cable, and pull out the braided cables for grounding from the cable shielding material with the length as shown in the figure below.

Step 2. Install ferrite cores to the cable in the positions as shown in the figure below, and insert the braided cable for grounding at the PLC side through the ferrite core.



Unit: mm (inch)

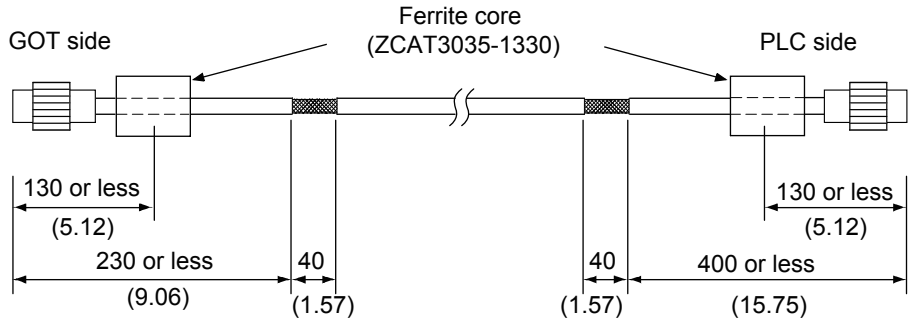
■5. MELSECNET/H connection (PLC to PLC network) connection

(1) Coaxial cable

Step 1. Strip off the sheath at both ends of the cable as shown in the figure below to expose outer braided shield for grounding.
The braided shield sections are used for grounding with a cable clamp.

➠ 5.2.6 Grounding a cable

Step 2. Install a ferrite core to the cable in the positions as shown in the figure below.



Unit: mm (inch)

(2) Fiber-optic cable

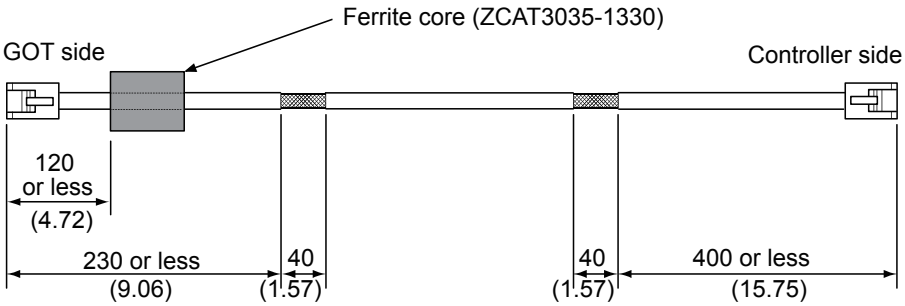
Fabricating a cable is not required.

■6. CC-Link IE Field Network connection

Step 1. Strip off the sheath at both ends of the cable as shown in the figure below to expose braided shield for grounding.
The braided shield sections are used for grounding with a cable clamp.

➠ 5.2.6 Grounding a cable

Step 2. Install a ferrite core to the cable in the positions as shown in the figure below.



Unit: mm (inch)

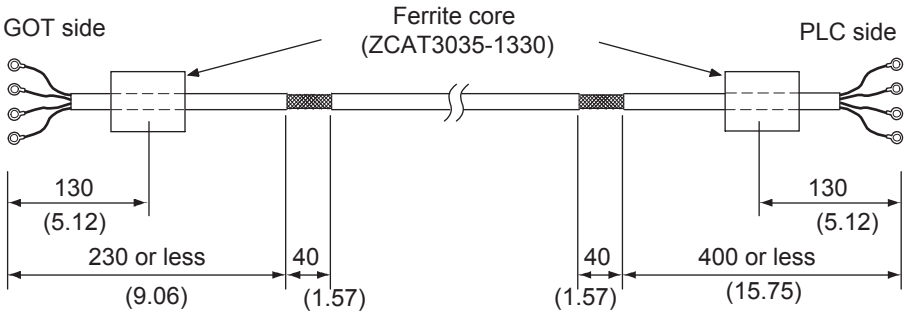
■7. CC-Link connection (Intelligent device station)

Step 1. Strip off the sheath at both ends of the cable as shown in the figure below to expose braided shield for grounding.
The braided shield sections are used for grounding with a cable clamp.

➠ 5.2.6 Grounding a cable

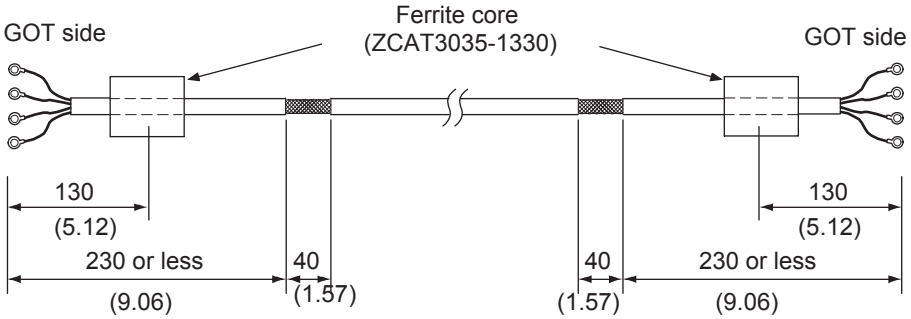
Step 2. Install a ferrite core to the cable in the positions as shown in the figure below.

- CC-Link dedicated cable for connecting the GOT and PLC



Unit: mm (inch)

- CC-Link dedicated cable for connecting the GOT and GOT



Unit: mm (inch)

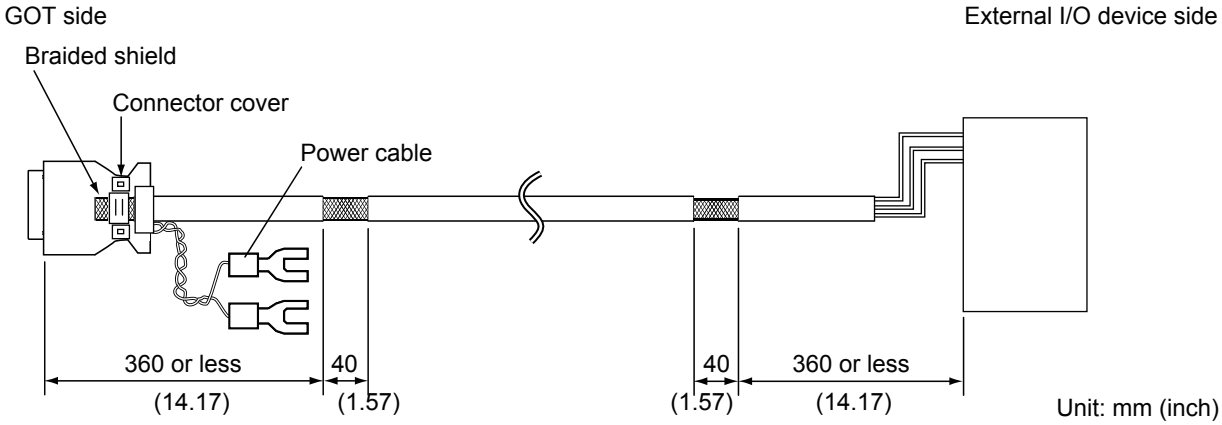
■8. External I/O device connection

Step 1. Strip off the sheath at both ends of the cable as shown in the figure below to expose braided shield for grounding.
The braided shield sections are used for grounding with a cable clamp.

➠ 5.2.6 Grounding a cable

Step 2. Connect the braided shield to the connector with the connector cover.

Step 3. Twist the power cables.



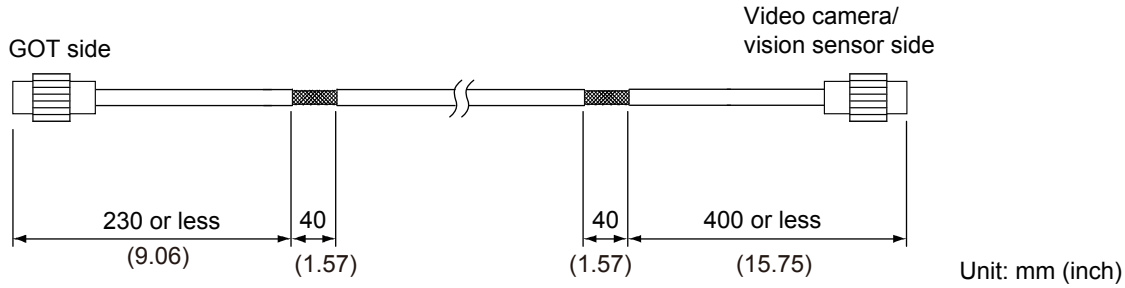
Unit: mm (inch)

■9. Video/RGB connection

(1) Video input cable

Step 1. Strip off the sheath at both ends of the cable as shown in the figure below to expose outer braided shield for grounding.
The braided shield sections are used for grounding with a cable clamp.

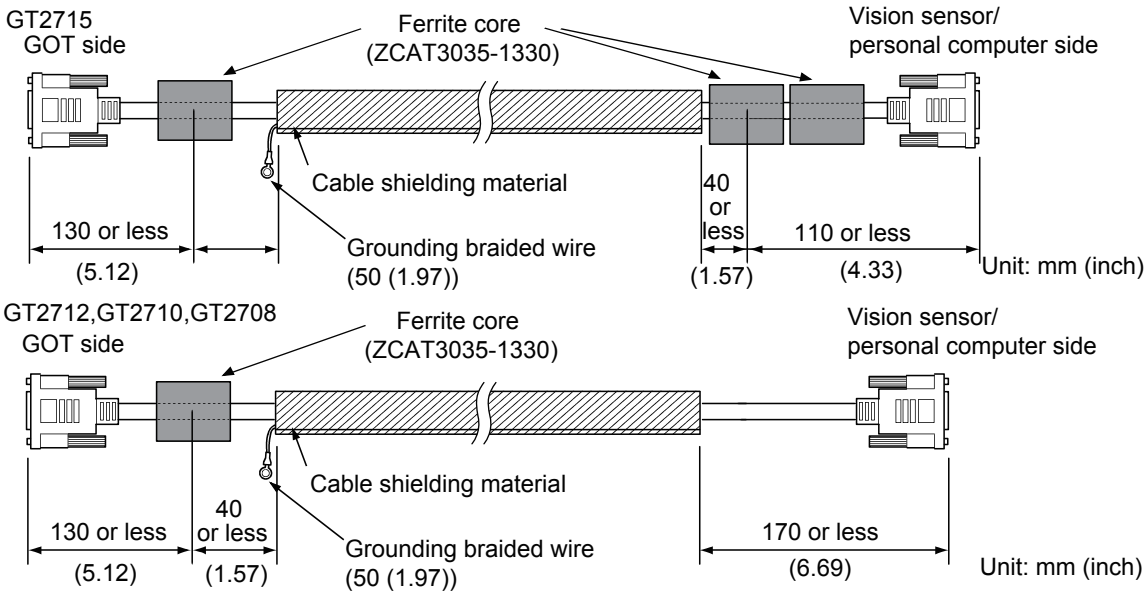
➠ 5.2.6 Grounding a cable



(2) RGB input cable

Step 1. Wrap the cable shielding material around the cable, and pull out the braided cables for grounding from the cable shielding material with the length as shown in the figure below.

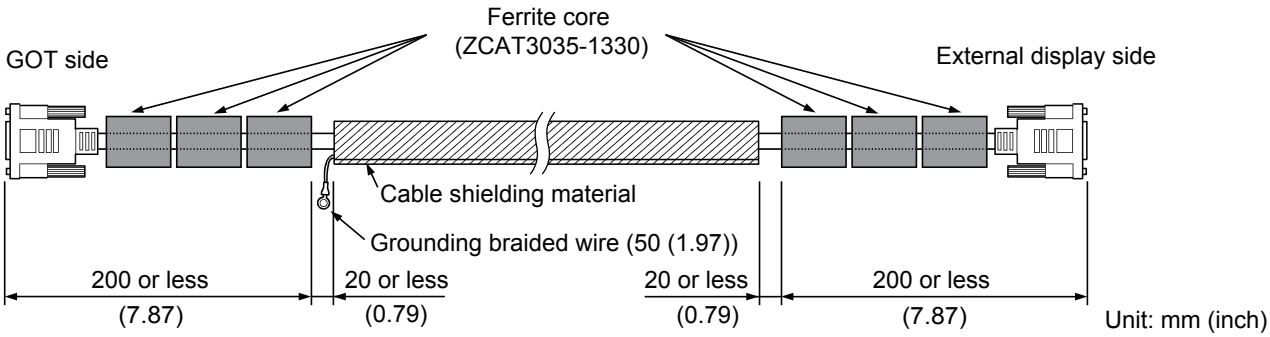
Step 2. Install a ferrite core to the cable in the positions as shown in the figure below.



(3) RGB output cable

Step 1. Wrap the cable shielding material around the cable, and pull out the braided cables for grounding from the cable shielding material with the length as shown in the figure below.

Step 2. Install a ferrite core to the cable in the positions as shown in the figure below.



■10. Non-Mitsubishi PLC, microcomputer, temperature controller, inverter, servo amplifier, CNC, MODBUS/RTU, and MODBUS/TCP connections

Create the cables (RS-232 cable, RS-422/485 cable) for connecting the GOT and a controller by yourself.
For how to create a cable, refer to the following.

➠ GOT2000 Series Connection Manual For GT Works3 Version1 compatible for a controller used

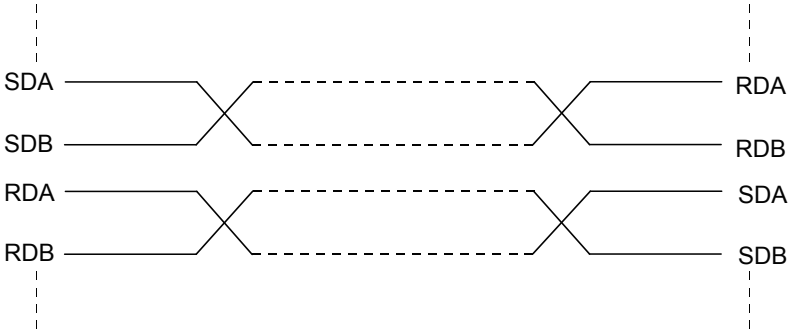
POINT

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

When the GOT is connected to a controller, configure the system according to the EMC Directive specifications for the controller.
The following shows the recommended instructions to comply with the EMC Directive.
However, the manufacturer of the equipment must determine the method to comply with the EMC Directive and conformance to the directive.

(1) RS-422/485 cable

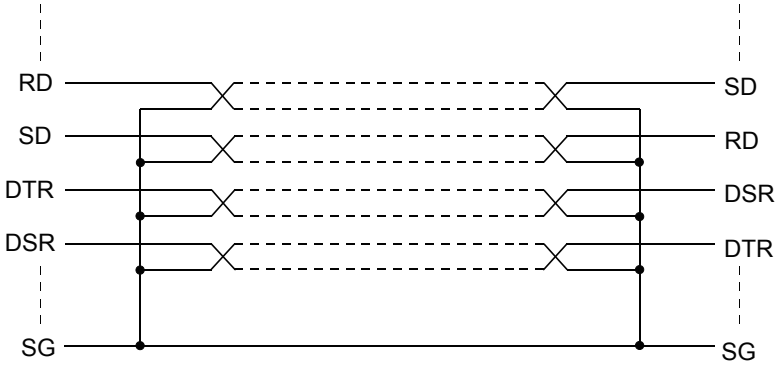
- When connecting each signal wire (except SG and FG wires), twist two signal wires as shown below.



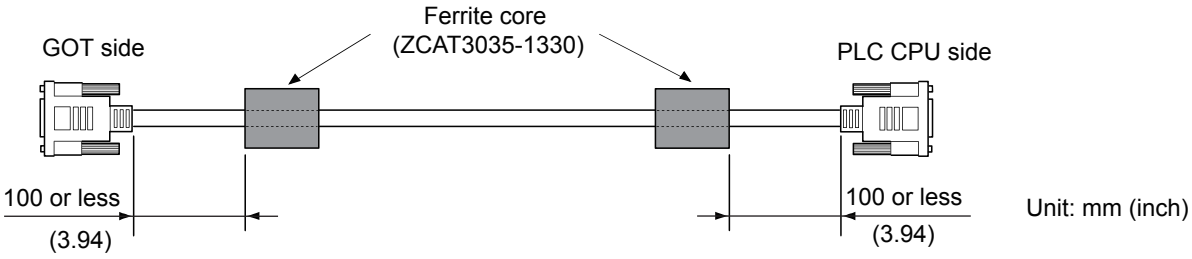
- Connect two or more SG wires.

(2) RS-232 cable

- Twist each signal wire (except SG and FG wires) with the SG wire.



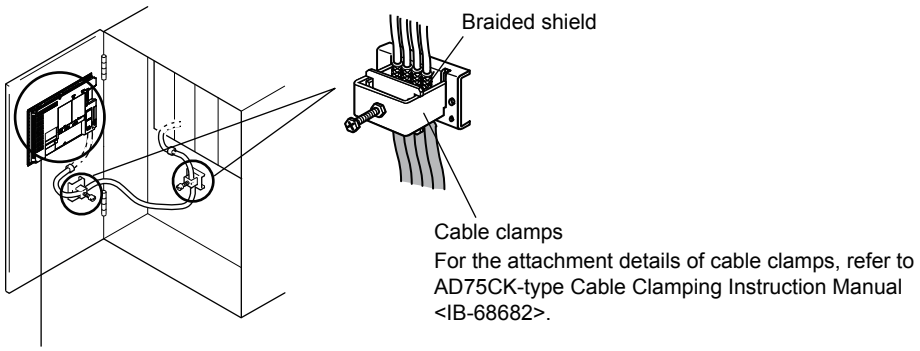
- Install a ferrite core to the cable in the positions as shown in the figure below.

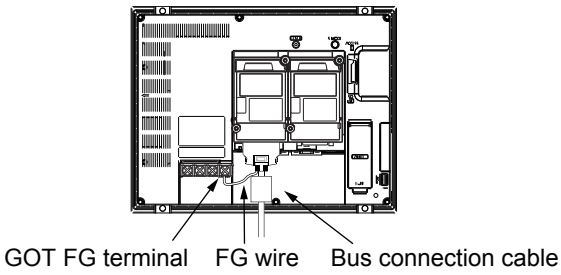


5.2.6 Grounding a cable

■1. Grounding method

Ground the cable and ground cable to the control panel where the GOT and the PLC are installed.
Ground the braided shield section of the cable to the control panel with the cable clamp (AD75CK).





To ground a bus connection cable, ground the braided cable for grounding to the control panel by tightening a screw.

■2. Precautions

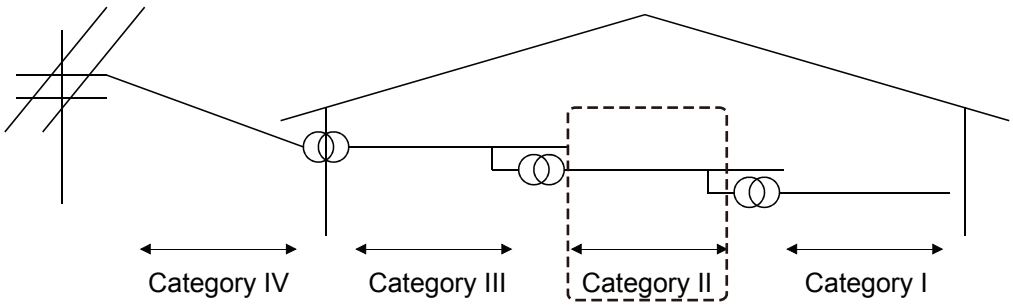
Do not arrange the cable clamp close to the other cables that are not clamped.
The noise from the control panel may enter the cable clamp and adversely affect the GOT.

5.3 Low Voltage Directive Requirements

The Low Voltage Directive requires that the equipment operating with power supply ranging from 50 V AC to 1000 V AC or 75 V DC to 1500 V DC has enough safety.
This section explains the precautions for the installation and wiring of the GOT to comply with the Low Voltage Directive.
The data described herein are produced with our best, based on the regulation requirements and standards obtained by Mitsubishi. However, the data do not guarantee that the equipment produced according to the data comply with the above directive.
The manufacturer of the equipment must determine the method to comply with the Low Voltage Directive and conformance to the directive.

5.3.1 Power supply

The insulation specification of the GOT is designed assuming installation category II.
Make sure to supply power to the GOT in installation category II.



The installation category indicates the withstand surge voltage generated by lightning strike. Installation category I indicates the lowest withstand level, and installation category IV indicates the highest withstand level.
Installation category II indicates a power supply whose voltage has been reduced by two or more levels of isolation transformers from the public power distribution.

5.3.2 Control panel

The GOT is an open type device (designed to be integrated in equipment).
Make sure to install the GOT in a control panel.

■1. Electric shock protection

To prevent a person who does not have enough knowledge of electric facilities, such as an operator, from electric shock, take the following measures on the control panel.

(1) Locking the control panel

Lock the control panel, and allow only a person who is well educated and has enough knowledge of electric facilities to unlock the control panel.

(2) Automatic power shutdown

Build the structure so that the power supply is shut down when the control panel is opened.

■2. Dustproof and waterproof features

The control panel also prevents dust and water.
Insufficient dustproof and waterproof protection may lower the insulation withstand voltage, resulting in an insulation breakdown.
Since the insulation of the GOT is designed assuming pollution degree 2, use the GOT in an environment of pollution degree 2 or less.

Pollution degree	Description
1	Environment where the air is dry and nonconductive dust occurs
2	Environment where normally nonconductive dust occurs However, temporary conductivity occasionally occurs due to the accumulated dust. For example, the inside of the control panel in a control room or in the floor at a typical factory
3	Environment where conductive dust occurs and conductivity may occur due to the accumulated dust For example, a typical factory floor
4	Environment where continuous conductivity may occur due to rain, snow, and others For example, outdoor

5.3.3 Grounding

The GOT has the following ground terminals.
The ground terminals must be grounded in use.
Ground the GOT to ensure the safety and to comply with the EMC Directive.

Functional grounding  : The functional ground terminal improves noise resistance.

5.3.4 External wiring

■1. External controllers

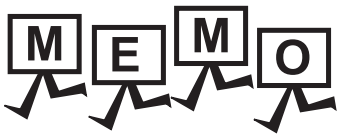
If an external device connected to the GOT has a hazardous voltage circuit, the interface circuit to the GOT must have a reinforced insulation.

■2. Reinforced insulation

The reinforced insulation indicates the insulation with the following withstand voltage.

Reinforced insulation withstand voltage (Source: Installation Category II of IEC664)

Rated voltage of hazardous voltage area	Withstand surge voltage (1.2/50 μs)
150 V AC or less	2500V
300 V AC or less	4000V


MEMO

6. INSTALLATION AND REMOVAL

6.1 Installation Precautions

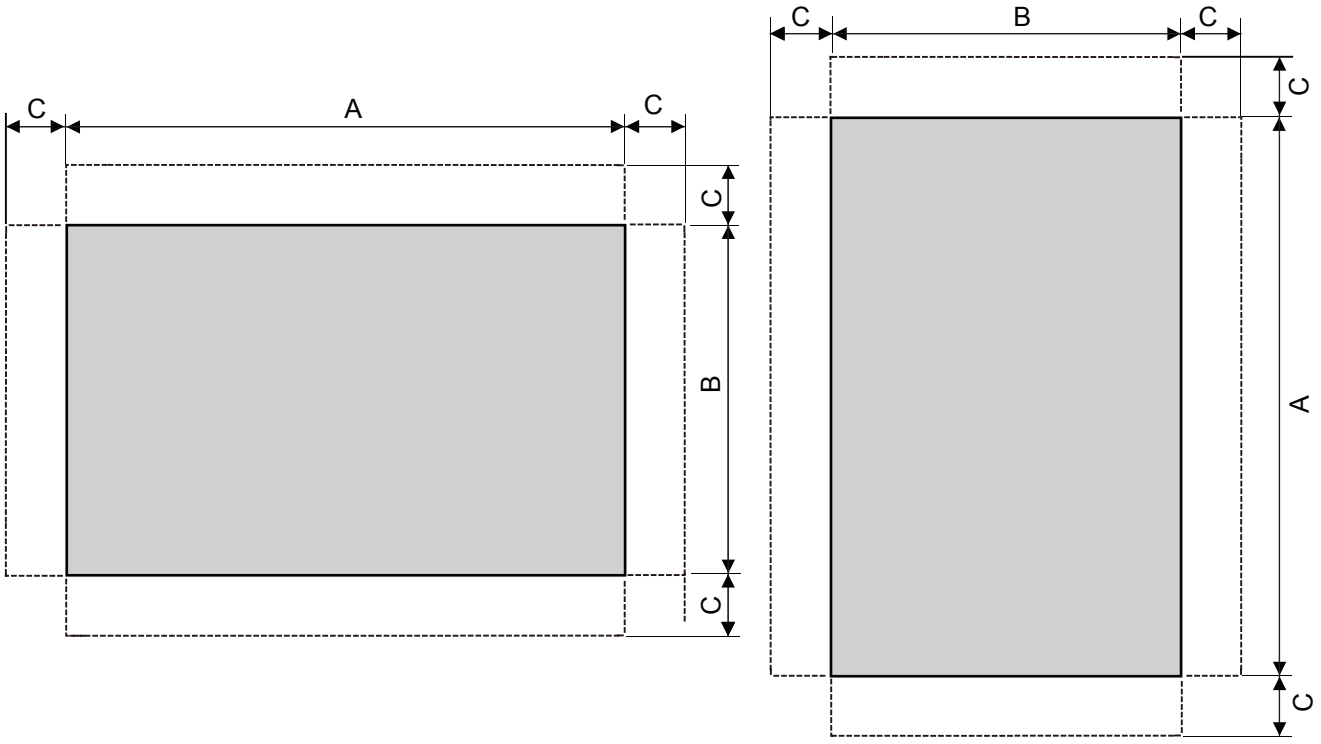
Install the GOT with consideration of the control panel inside dimensions and the installation prohibited area.
Depending on the types of connection cables connected to the GOT, the distance more than the described dimensions may be required.
Install the GOT with consideration of the connector dimensions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

6.2 Panel Cut Dimensions

6.2.1 GT27

■1. GT2715-X

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



Horizontal Vertical

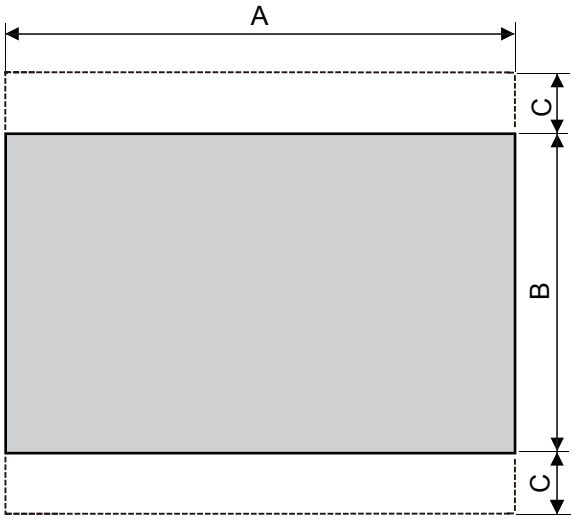
Unit: mm (inch)

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

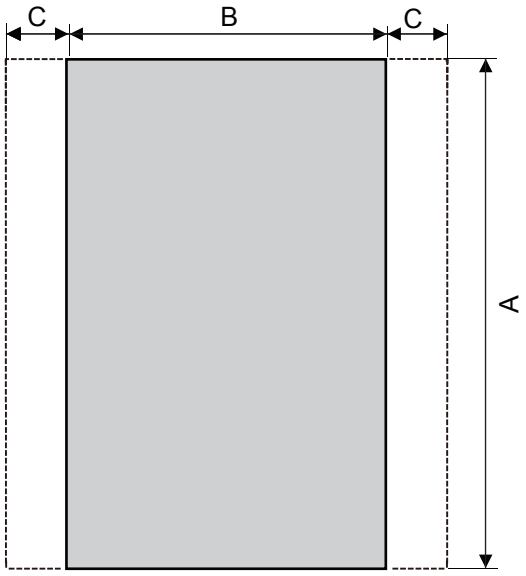
The C dimension shows the measurements for installing fittings on the control panel.

■2. GT2712-S, GT2710-S, GT2710-V, GT2708-S, GT2708-V, GT2705-V

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



Horizontal



Vertical

Unit: mm (inch)

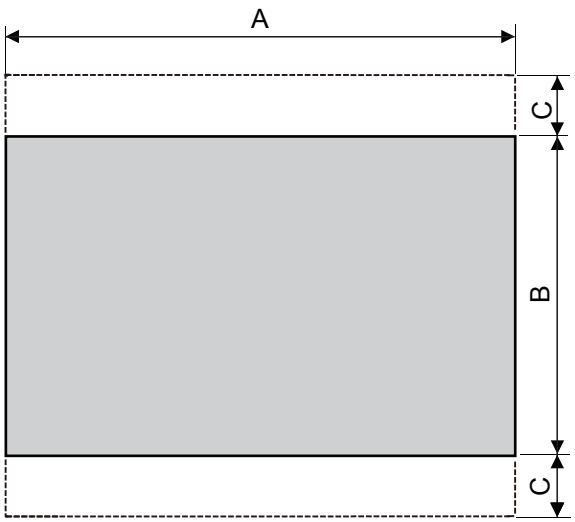
Model	A	B	C	Panel thickness
GT2712-S	302(11.89) (+2(0.08), 0(0))	228(8.98) (+2(0.08), 0(0))	10(0.39) or More	1.6 (0.06)to 4(0.16)
GT2710-S,GT2710-V	289(11.38) (+2(0.08), 0(0))	200(7.87) (+2(0.08), 0(0))		
GT2708-S,GT2508-V	227(8.94) (+2(0.08), 0(0))	176(6.93) (+2(0.08), 0(0))		
GT2705-V	153(6.02) (+2(0.08), 0(0))	121(4.76) (+2(0.08), 0(0))		

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

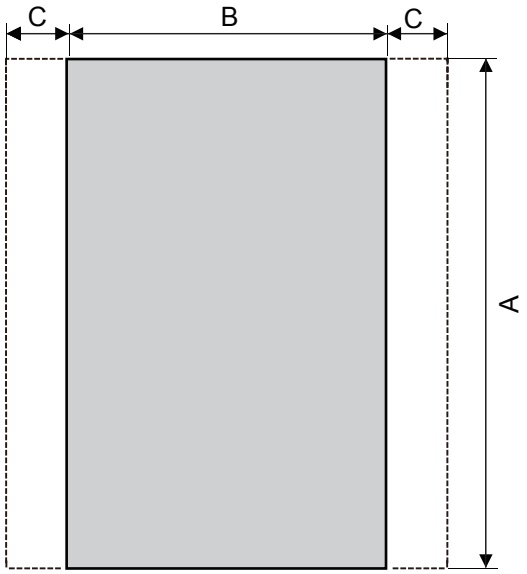
6.2.2 GT25

■1. GT2512-S, GT2510-V, GT2508-V

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



Horizontal



Vertical

Unit: mm (inch)

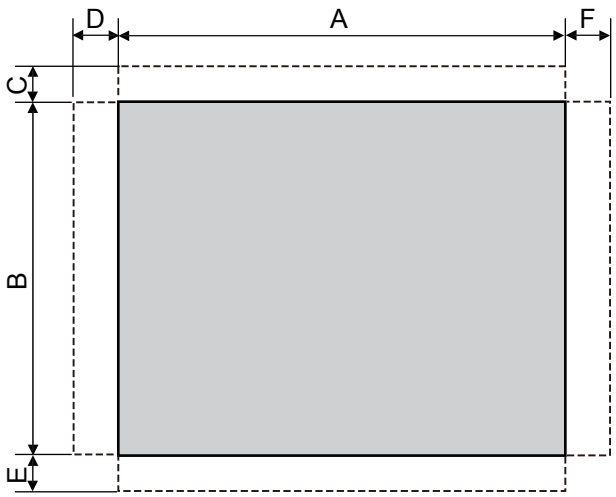
Model	A	B	C	Panel thickness
GT2512-S	302(11.89) (+2(0.08), 0(0))	228(8.98) (+2(0.08), 0(0))	10(0.39) or More	1.6 (0.06)to 4(0.16)
GT2510-V	289(11.38) (+2(0.08), 0(0))	200(7.87) (+2(0.08), 0(0))		
GT2508-V	227(8.94) (+2(0.08), 0(0))	176(6.93) (+2(0.08), 0(0))		

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

■2. GT2512F-S, GT2510F-V, GT2508F-V

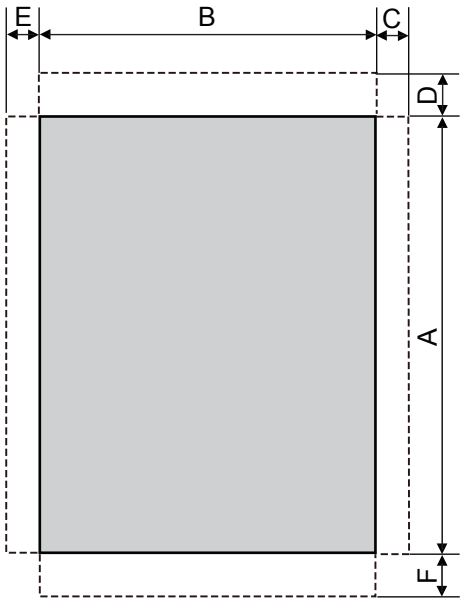
Open an installation hole on the control panel with the dimensions as shown below.

Horizontal



Back of the control panel

Vertical



Back of the control panel

Unit: mm (inch)

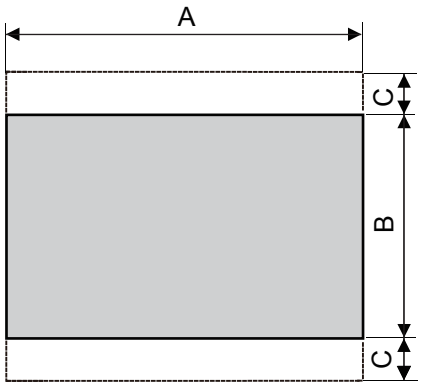
Model	Fitting installation position (on the GOT)	A	B	C	D	E	F	Panel thickness
GT2512F-S	Long side of the GOT	269(10.59) (+2(0.08), 0(0))	214(8.43) (+2(0.08), 0(0))	28(1.10)	17(0.67)	36(1.42)	26(1.02)	1.5(0.06)to 4(0.16)
	Short side of the GOT			10(0.39)	35(1.38)	18(0.71)	44(1.73)	
GT2510F-V	Long side of the GOT	234(9.21) (+2(0.08), 0(0))	187(7.36) (+2(0.08), 0(0))	28(1.10)	33(1.30)	32(1.26)	33(1.30)	
	Short side of the GOT			10(0.39)	51(2.01)	14(0.55)	51(2.01)	
GT2508F-V	Long side of the GOT	194(7.64) (+2(0.08), 0(0))	158(6.22) (+2(0.08), 0(0))	28(1.10)	14(0.55)	32(1.26)	29(1.14)	
	Short side of the GOT			10(0.39)	32(1.26)	14(0.55)	47(1.85)	

The C to F dimensions show the measurements for installing fittings on the control panel.
Additionally, install studs on the control panel.
For information on how to install studs, refer to the following.

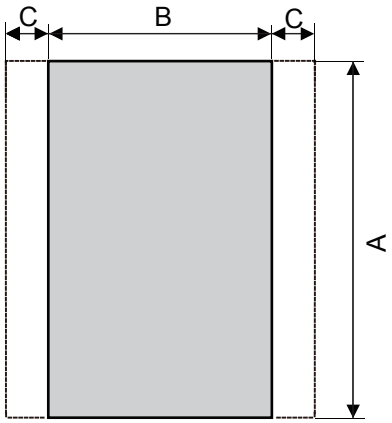
➠ 6.3 Stud

6.2.3 GT23

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



Horizontal



Vertical

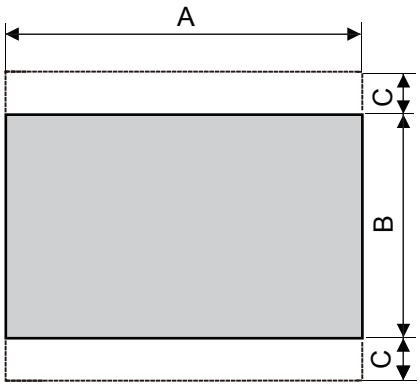
Unit: mm (inch)

Model	A	B	C	Panel thickness
GT2310	289(11.38) (+2(0.08), 0(0))	200(7.87) (+2(0.08), 0(0))	10(0.39) or More	1.6(0.06) to 4(0.16)
GT2308	227(8.94) (+2(0.08), 0(0))	176(6.93) (+2(0.08), 0(0))		

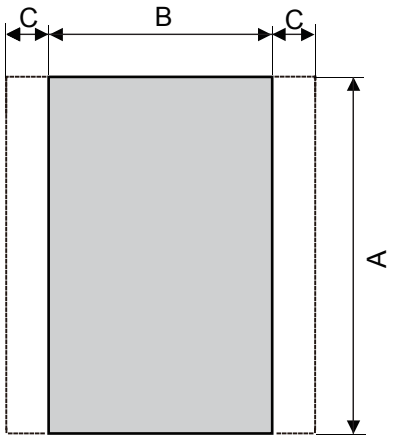
The C dimension shows the measurements for installing fittings on the control panel.

6.2.4 GT21

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



Horizontal



Vertical

Unit: mm (inch)

Model	A	B	C	Panel thickness
GT2104-R	118(4.65) (+1(0.04), 0(0))	92(3.63) (+1(0.04), 0(0))	13(0.52) or more	1(0.04) to 4(0.16)
GT2104-P	137(5.48) (+1(0.04), 0(0))	66(2.60) (+1(0.04), 0(0))	13(0.52) or more	1(0.04) to 4(0.16)
GT2103-P	105(4.14) (+1(0.04), 0(0))	66(2.60) (+1(0.04), 0(0))	13(0.52) or more	1(0.04) to 4(0.16)

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

6.3 Stud

6.3.1 Stud specifications

Use the studs that satisfy the following specifications.

Diameter	Length
M4	10 mm (0.39 inch) or more

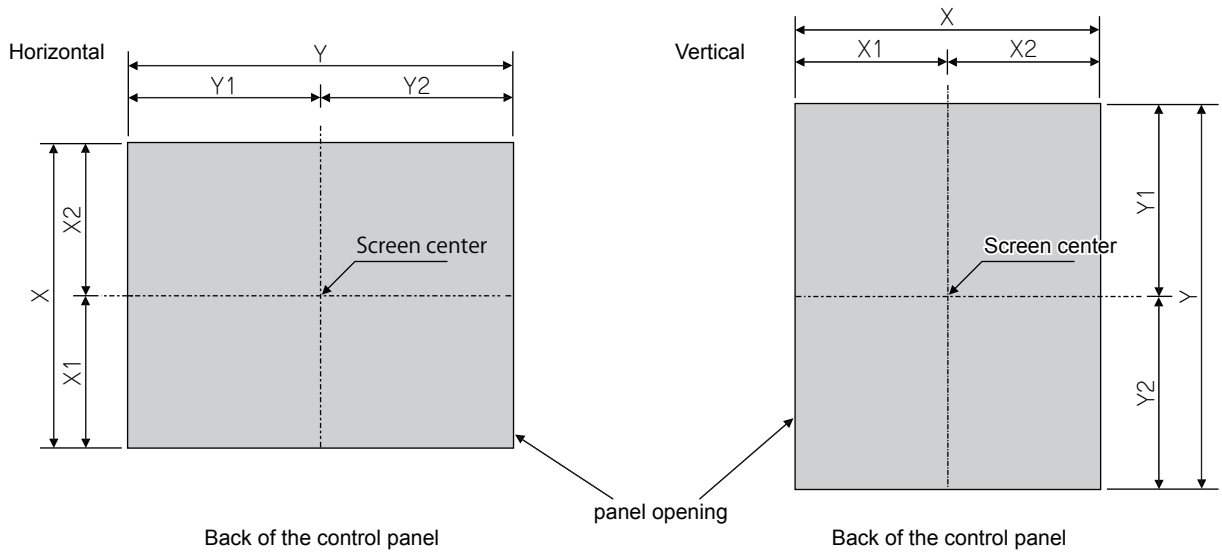
The studs on the control panel must have strength adequate to withstand a tightening torque of 0.9 N•m or more.
Make sure that no foreign matter such as welding waste is at and around the bases of the studs.
Tighten nuts on the studs in the specified torque range (0.8 N•m to 0.9 N•m) with a wrench for M4 nuts.

6.3.2 Distance between studs

■1. GT2512F-S, GT2510F-V, GT2508F-V

To mount the GOT on the control panel, studs are necessary.
Align the studs with the installation holes of the fittings, and install the studs.
The fittings must be installed on the top and bottom, or the right and left of the GOT.
For GT2512F, you are recommended to install the fittings on the long sides of the GOT.

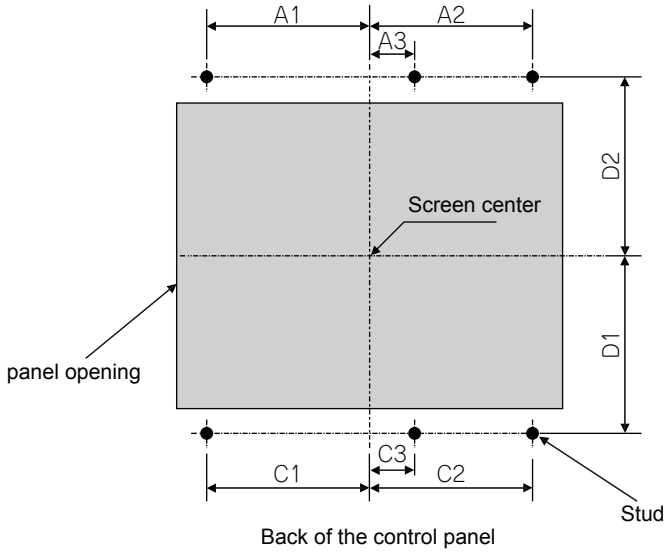
(1) Measurements based on the screen center



Unit: mm (inch)

Model	X	X1	X2	Y	Y1	Y2
GT2512F-S	214(8.43) (+2(0.08), 0(0))	103(4.06) (+2(0.08), 0(0))	111(4.37)	269(10.59) (+2(0.08), 0(0))	134.5(5.30) (+1(0.04), 0(0))	134.5(5.30)
GT2510F-V	187(7.36) (+2(0.08), 0(0))	89.5(3.52) (+1(0.04), 0(0))	97.5(3.84)	234(9.21) (+2(0.08), 0(0))	117(4.61) (+1(0.04), 0(0))	117(4.61)
GT2508F-V	158(6.22) (+2(0.08), 0(0))	75.25(2.96) (+1(0.04), 0(0))	82.75(3.26)	194(7.64) (+2(0.08), 0(0))	97.5(3.84) (+1(0.04), 0(0))	96.5(3.80)

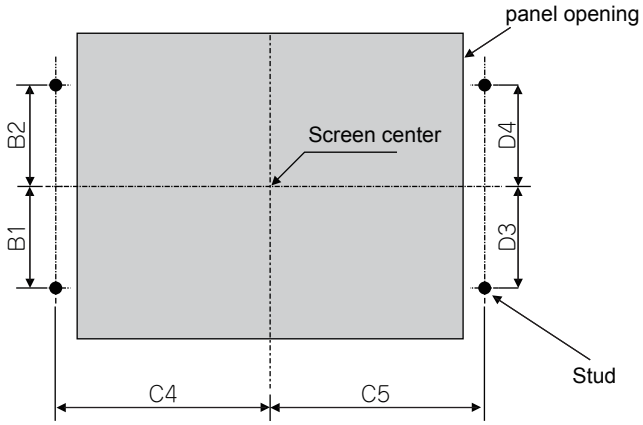
(2) Measurements for the horizontally-oriented GOT with fittings on its top and bottom



Unit: mm (inch)

Model	A1	A2	A3	C1	C2	C3	D1	D2
GT2512F-S	98(3.86)± 0.15(0.01)	113(4.45)± 0.15(0.01)	7.5(0.30)± 0.15(0.01)	98(3.86)± 0.15(0.01)	113(4.45)± 0.15(0.01)	7.5(0.30)± 0.15(0.01)	128.5(5.06)± 0.15(0.01)	132.5(5.22)± 0.15(0.01)
GT2510F-V	105.5(4.15)± 0.15(0.01)	105.5(4.15)± 0.15(0.01)	0(0)	105.5(4.15)± 0.15(0.01)	105.5(4.15)± 0.15(0.01)	0(0)	114.5(4.51)± 0.15(0.01)	118.5(4.67)± 0.15(0.01)
GT2508F-V	64.5(2.54)± 0.15(0.01)	74.5(2.93)± 0.15(0.01)	-	64.5(2.54)± 0.15(0.01)	74.5(2.93)± 0.15(0.01)	-	104.5(4.11)± 0.15(0.01)	104.5(4.11)± 0.15(0.01)

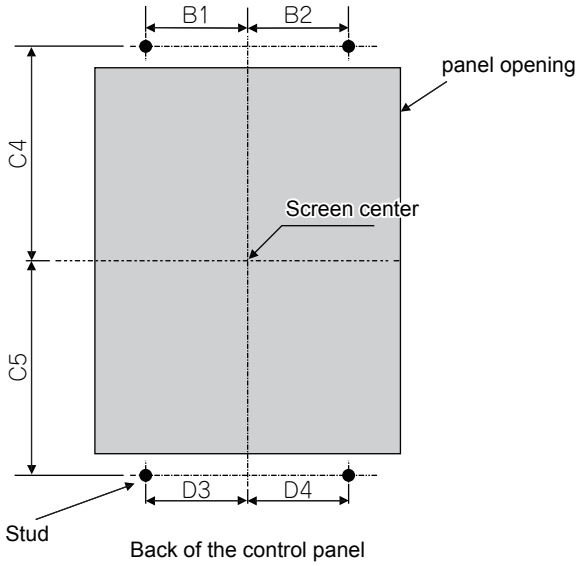
(3) Measurements for the horizontally-oriented GOT with fittings on its right and left



Unit: mm (inch)

Model	B1	B2	C4	C5	D3	D4
GT2512F-S	75.5(2.97)± 0.15(0.01)	79.5(3.13)± 0.15(0.01)	160(6.30)± 0.15(0.01)	175(6.89)± 0.15(0.01)	75.5(2.97)± 0.15(0.01)	79.5(3.13)± 0.15(0.01)
GT2510F-V	58(2.28)± 0.15(0.01)	58(2.28)± 0.15(0.01)	161(6.34)± 0.15(0.01)	161(6.34)± 0.15(0.01)	58(2.28)± 0.15(0.01)	58(2.28)± 0.15(0.01)
GT2508F-V	58(2.28)± 0.15(0.01)	58(2.28)± 0.15(0.01)	126(4.96)± 0.15(0.01)	134(5.28)± 0.15(0.01)	58(2.28)± 0.15(0.01)	58(2.28)± 0.15(0.01)

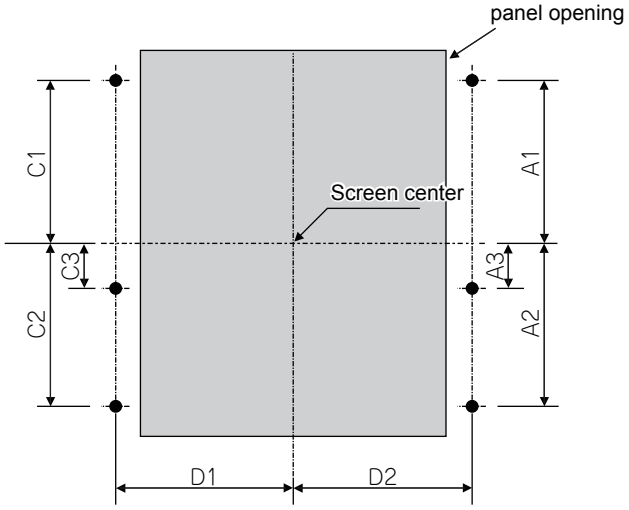
(4) Measurements for the vertically-oriented GOT with fittings on its top and bottom



Unit: mm (inch)

Model	B1	B2	C4	C5	D3	D4
GT2512F-S	75.5(2.97)± 0.15(0.01)	79.5(3.13)± 0.15(0.01)	160(6.30)± 0.15(0.01)	175(6.89)± 0.15(0.01)	75.5(2.97)± 0.15(0.01)	79.5(3.13)± 0.15(0.01)
GT2510F-V	58(2.28)± 0.15(0.01)	58(2.28)± 0.15(0.01)	161(6.34)± 0.15(0.01)	161(6.34)± 0.15(0.01)	58(2.28)± 0.15(0.01)	58(2.28)± 0.15(0.01)
GT2508F-V	58(2.28)± 0.15(0.01)	58(2.28)± 0.15(0.01)	126(4.96)± 0.15(0.01)	134(5.28)± 0.15(0.01)	58(2.28)± 0.15(0.01)	58(2.28)± 0.15(0.01)

(5) Measurements for the vertically-oriented GOT with fittings on its right and left



Unit: mm (inch)

Model	A1	A2	A3	C1	C2	C3	D1	D2
GT2512F-S	98(3.86)± 0.15(0.01)	113(4.45)± 0.15(0.01)	7.5(0.30)± 0.15(0.01)	98(3.86)± 0.15(0.01)	113(4.45)± 0.15(0.01)	7.5(0.30)± 0.15(0.01)	128.5(5.06)± 0.15(0.01)	132.5(5.22)± 0.15(0.01)
GT2510F-V	105.5(4.15)±0. 15(0.01)	105.5(4.15)±0. 15(0.01)	0(0)	105.5(4.15)±0. 15(0.01)	105.5(4.15)±0. 15(0.01)	0(0)	114.5(4.51)± 0.15(0.01)	118.5(4.67)±0. 15(0.01)
GT2508F-V	64.5(2.54)± 0.15(0.01)	74.5(2.93)± 0.15(0.01)	-	64.5(2.54)± 0.15(0.01)	74.5(2.93)± 0.15(0.01)	-	104.5(4.11)± 0.15(0.01)	104.5(4.11)± 0.15(0.01)

6.4 Installation Position

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

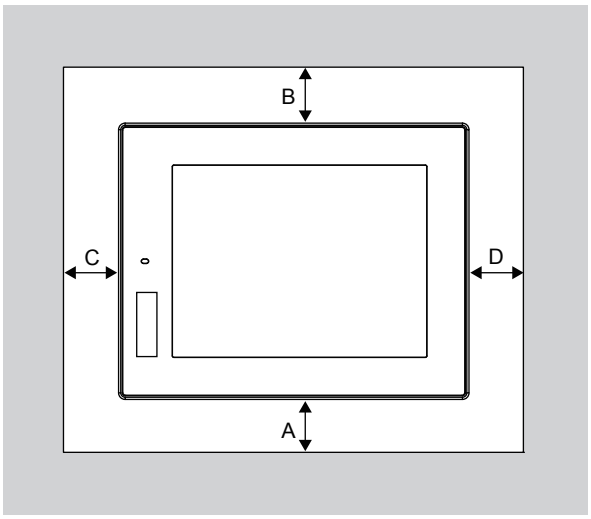
6.4.1 GT27

Depending on the units and cables used for the GOT, the distance more than the described dimensions may be required.
Install the GOT with consideration of the connector dimensions and the cable bend radius.
For the cable pull-out distance from the bottom of the GOT, refer to the following.

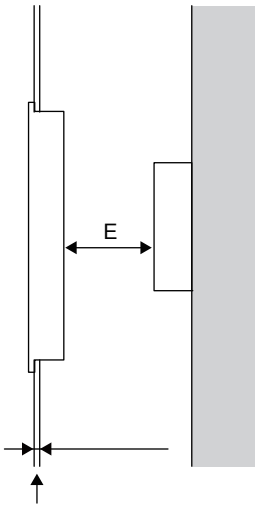
➠ 11.2 Depth dimensions and cable bend dimensions for the GOT with an extension unit

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

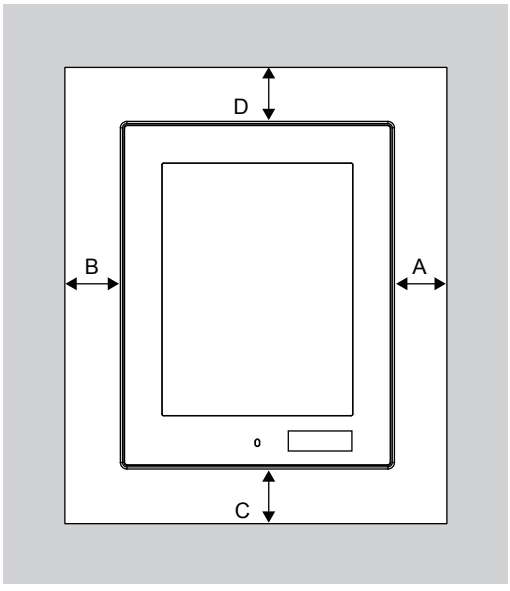
➠ 4.1 GT27



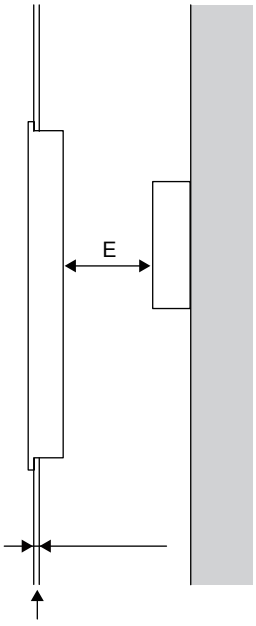
Horizontal



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



Vertical



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

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

Unit: mm (inch)

Item		GT27				
		GT2715-X	GT2712-S	GT2710-S, GT2710-V	GT2708-S, GT2708-V	GT2705-V
A	GOT only	48(1.89) or more [18(0.71) or more]			48(1.89) or more [29(1.14) or more]	59(2.33) or more
	Bus connection unit is fitted	48(1.89) or more [18(0.71) or more]			23(0.91) or more [29(1.14) or more]	48(1.89) or more
	Serial connection unit is fitted	48(1.89) or more [18(0.71) or more]				47(1.85) or more
	CC-Link communication unit (GT15-J61BT13) fitted	48(1.89) or more [18(0.71) or more]				50(1.97) or more [22(0.87) or more]
	MELSECNET/H communication unit (coaxial) fitted*1	48(1.89) or more [18(0.71)or more]	48(1.89) or more [38(1.50) or more]	48(1.89) or more [45(1.77) or more]	67(2.64) or more	81(3.19) or more
	MELSECNET/H communication unit(optical) fitted*2	48(1.89) or more [18(0.71) or more]				77(3.04) or more
	CC-Link IE Controller Network communication unit fitted	48(1.89) or more [18(0.71) or more]				55(2.17) or more
	CC-Link IE Field Network communication unit fitted	48(1.89) or more [18(0.71) or more]				55(2.17) or more
	Video input unit fitted*1	48(1.89) or more [18(0.71)or more]	48(1.89) or more [38(1.50) or more]	48(1.89) or more [45(1.77) or more]	67(2.64) or more	-
	RGB input unit fitted*3	48(1.89) or more [18(0.71) or more]				-
	Video/RGB input unit fitted*1*3	48(1.89) or more [18(0.71)or more]	48(1.89) or more [38(1.50) or more]	48(1.89) or more [45(1.77) or more]	67(2.64) or more	-
	RGB output unit fitted*3	48(1.89) or more [18(0.71) or more]				-
	Multimedia unit fitted*1	48(1.89) or more [18(0.71)or more]	48(1.89) or more [38(1.50) or more]	48(1.89) or more [45(1.77) or more]	67(2.64) or more	-
	Printer unit fitted	48(1.89) or more [18(0.71) or more]				
	External I/O unit fitted	48(1.89) or more [18(0.71) or more]				
	Sound output unit fitted	48(1.89) or more [18(0.71) or more]				
B		Horizontal: 78(3.07) or more [18(0.71) or more] Vertical: 48(1.89) or more [18(0.71) or more]				
C	When the SD card is used	50(1.97)or more [20(0.79) or more]			50(1.97) or more	100(3.94) or more
	When the SD card is not used	50(1.97) or more [20(0.79) or more]				
D		Horizontal: 50(1.97) or more [20(0.79) or more] Vertical: 80(3.15) or more [20(0.79) or more]				
E*4		100(3.94) or more [20(0.79) or more]				

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

*2 This value differs depending on the cable used.

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

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

6.4.2 GT25

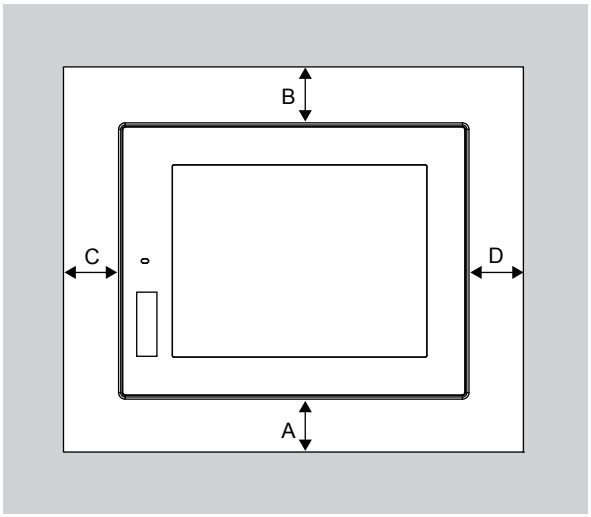
■1. GT2512-S, GT2510-V, GT2508-V

Depending on the units and cables used for the GOT, the distance more than the described dimensions may be required.
Install the GOT with consideration of the connector dimensions and the cable bend radius.
For the cable pull-out distance from the bottom of the GOT, refer to the following.

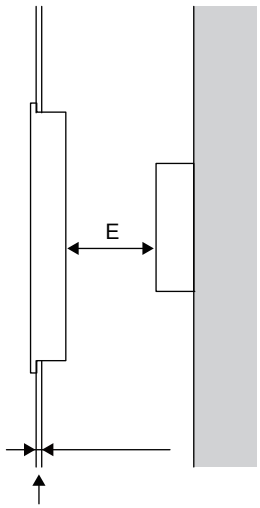
➠ 11.2 Depth dimensions and cable bend dimensions for the GOT with an extension unit

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

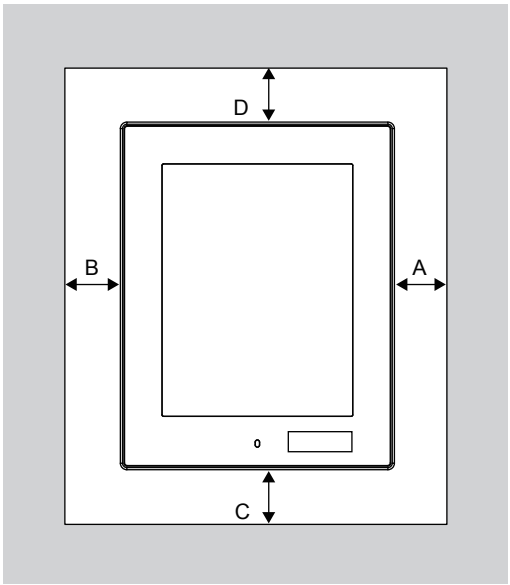
➠ 4.2 GT25



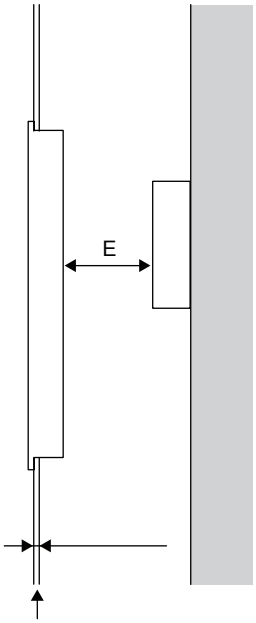
Horizontal



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



Vertical



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

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

Unit: mm (inch)

Item		GT25		
		GT2512-S	GT2510-V	GT2508-V
A	GOT only	48(1.89) or more [18(0.71) or more]		48(1.89) or more [29(1.14) or more]
	Bus connection unit is fitted	48(1.89) or more [18(0.71) or more]		23(0.91) or more [29(1.14) or more]
	Serial connection unit is fitted	48(1.89) or more [18(0.71) or more]		
	CC-Link communication unit (GT15-J61BT13) fitted	48(1.89) or more [18(0.71) or more]		
	MELSECNET/H communication unit (coaxial) fitted*1	48(1.89) or more [38(1.50) or more]	48(1.89) or more [45(1.77) or more]	67(2.64) or more
	MELSECNET/H communication unit(optical) fitted*2	48(1.89) or more [18(0.71) or more]		
	CC-Link IE Controller Network communication unit fitted	48(1.89) or more [18(0.71) or more]		
	CC-Link IE Field Network communication unit fitted	48(1.89) or more [18(0.71) or more]		
	Printer unit fitted	48(1.89) or more [18(0.71) or more]		
	External I/O unit fitted	48(1.89) or more [18(0.71) or more]		
	Sound output unit fitted	48(1.89) or more [18(0.71) or more]		
B		Horizontal: 78(3.07) or more [18(0.71) or more] Vertical: 48(1.89) or more [18(0.71) or more]		
C	When the SD card is used	50(1.97)or more [20(0.79) or more]		50(1.97) or more
	When the SD card is not used	50(1.97) or more [20(0.79) or more]		
D		Horizontal: 50(1.97) or more [20(0.79) or more] Vertical: 80(3.15) or more [20(0.79) or more]		
E*3		100(3.94) or more [20(0.79) or more]		

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

*2 This value differs depending on the cable used.

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

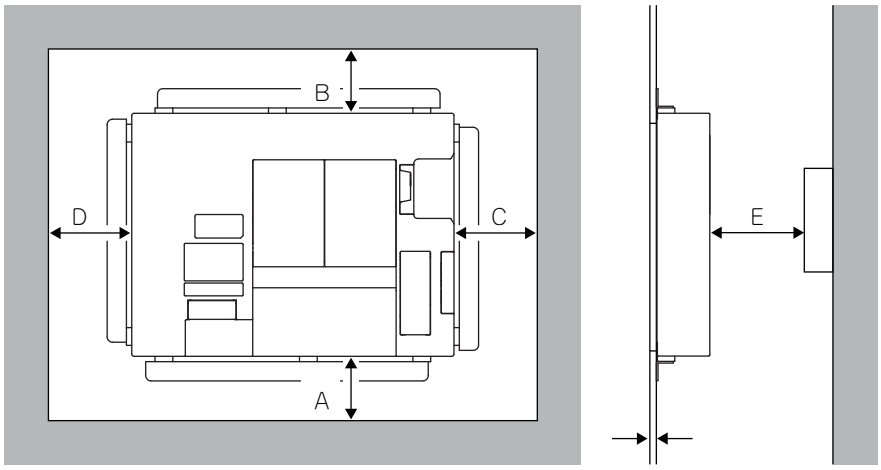
■2. GT2512F-S, GT2510F-V, GT2508F-V

Depending on the units and cables used for the GOT, the distance more than the described dimensions may be required.
Install the GOT with consideration of the connector dimensions and the cable bend radius.
For the cable pull-out distance from the bottom of the GOT, refer to the following.

➠ 11.2 Depth dimensions and cable bend dimensions for the GOT with an extension unit

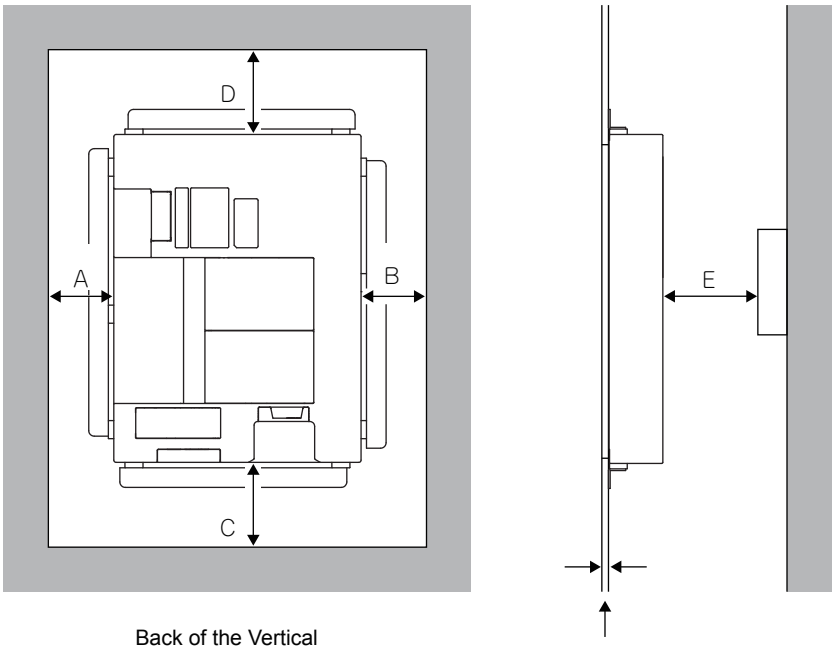
For the vertical installation, install the GOT so that the vertical installation arrow printed on the GOT rear face points upward.

➠ 4.2 GT25



Back of the Horizontal

Panel thickness: 1.5 mm to 4 mm
(0.06 to 0.16inch)



Back of the Vertical

Panel thickness: 1.5 mm to 4 mm
(0.06 to 0.16inch)

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

Unit: mm (inch)

Item		GT25		
		GT2512F-S	GT2510F-V	GT2508F-V
A	GOT only	58(2.28) or more [28(1.10) or more]		58(2.28) or more [39(1.54) or more]
	Bus connection unit is fitted	58(2.28) or more [28(1.10) or more]		33(1.30) or more [39(1.54) or more]
	Serial connection unit is fitted	58(2.28) or more [28(1.10) or more]		
	CC-Link communication unit (GT15-J61BT13) fitted	58(2.28) or more [28(1.10) or more]		
	MELSECNET/H communication unit (coaxial) fitted*1	58(2.28) or more [48(1.89) or more]	58(2.28) or more [55(2.17)or more]	77(3.03) or more
	MELSECNET/H communication unit(optical) fitted*2	58(2.28) or more [28(1.10) or more]		
	CC-Link IE Controller Network communication unit fitted	58(2.28) or more [28(1.10) or more]		
	CC-Link IE Field Network communication unit fitted	58(2.28) or more [28(1.10) or more]		
	Printer unit fitted	58(2.28) or more [28(1.10) or more]		
	External I/O unit fitted	58(2.28) or more [28(1.10) or more]		
	Sound output unit fitted	58(2.28) or more [28(1.10) or more]		
B		Horizontal: 88(3.46) or more [28(1.10) or more] Vertical: 58(2.28) or more [28(1.10) or more]		
C	When the SD card is used	58(2.28) or more [28(1.10) or more]		58(2.28) or more
	When the SD card is not used	58(2.28) or more [28(1.10) or more]		
D		Horizontal: 58(2.28) or more [28(1.10) or more] Vertical: 88(3.46) or more [28(1.10) or more]		
E*3		100(3.94) or more [20(0.79) or more]		

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

*2 This value differs depending on the cable used.

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

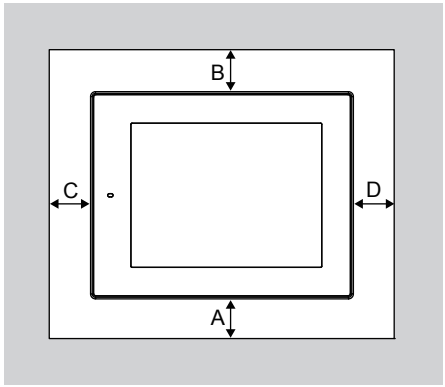
6.4.3 GT23

Depending on the units and cables used for the GOT, the distance more than the described dimensions may be required.
Install the GOT with consideration of the connector dimensions and the cable bend radius.
For the cable pull-out distance from the bottom of the GOT, refer to the following.

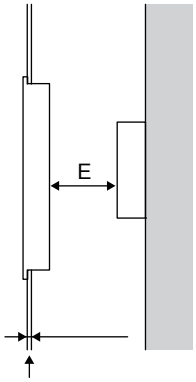
➠ 11.1 External Dimension Diagrams

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

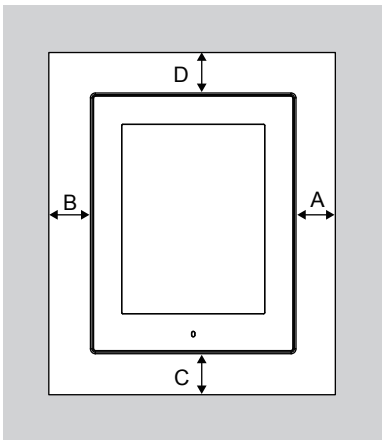
➠ 4.3 GT23



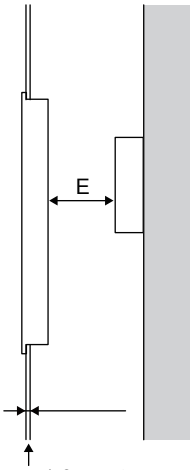
Horizontal



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



Vertical



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

Unit: mm (inch)

Item		GT2310-V	GT2308-V
A		48(1.89) or more [18(0.71) or more]	
B		Horizontal: 78(3.07) or more [18(0.71) or more] Vertical: 50(1.97) or more [20(0.79) or more]	
C	When the SD card is used	Horizontal: 50(1.97) or more [20(0.79) or more] Vertical: 80(3.15) or more [20(0.79) or more]	Horizontal: 50(1.97) or more Vertical: 80(3.15) or more [50(1.97) or more]
	When the SD card is not used	Horizontal: 50(1.97) or more [20(0.79) or more] Vertical: 80(3.15) or more [20(0.79) or more]	
D		50(1.97) or more [20(0.79) or more]	
E*1		100(3.94) or more [20(0.79) or more]	

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

6.4.4 GT21

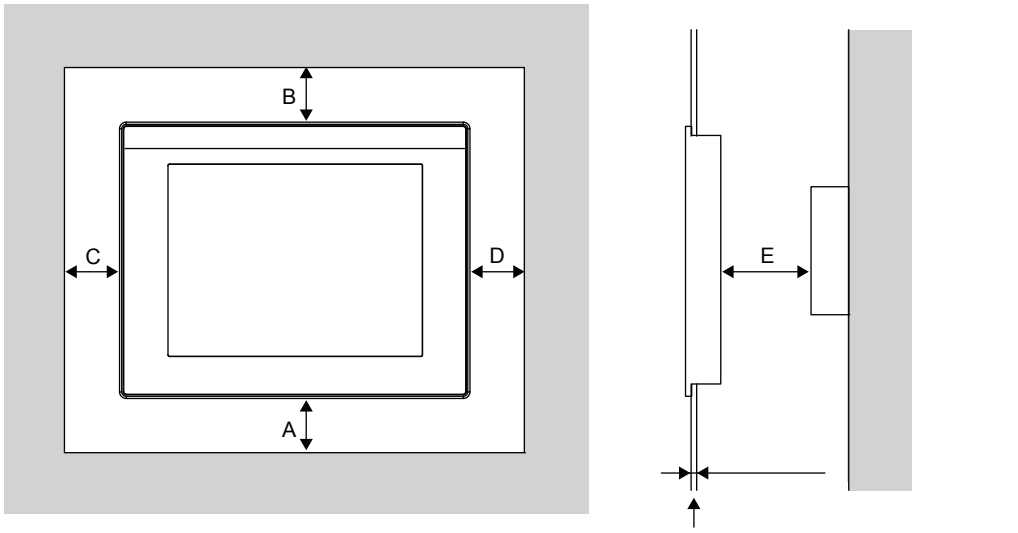
Depending on the units and cables used for the GOT, the distance more than the described dimensions may be required. Install the GOT with consideration of the connector dimensions and the cable bend radius.
For the cable pull-out distance from the bottom of the GOT, refer to the following.

➠ 11.1 External Dimension Diagrams

For the vertical installation, install the GOT so that the power supply terminal, which is located on the GOT rear face, is at the lower side.

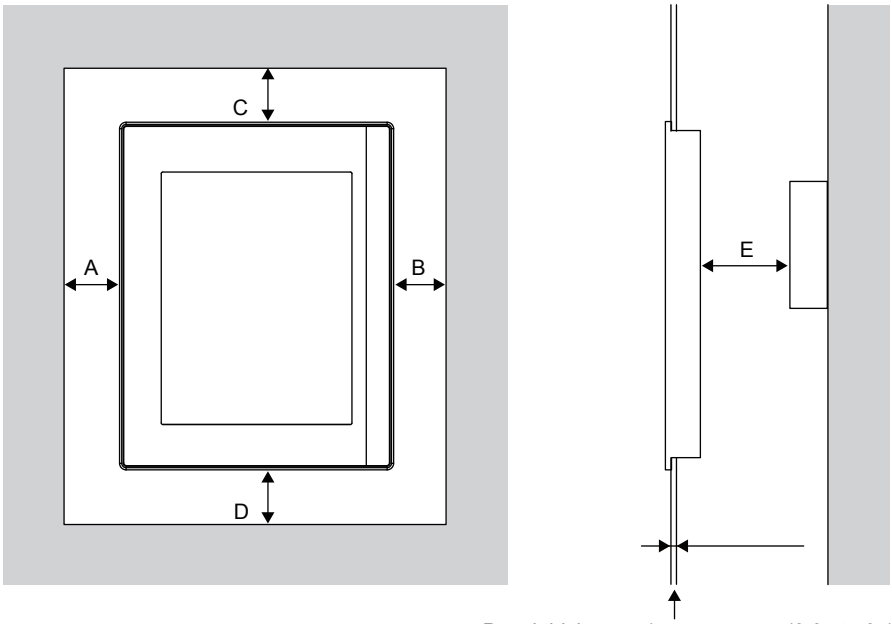
➠ 4.4 GT21

Horizontal



Panel thickness: 1 mm to 4 mm (0.06 to 0.16 inch)

Vertical



Panel thickness: 1 mm to 4 mm (0.04 to 0.16 inch)

The following table lists the distance required between the GOT and the other devices.
The dimensions within the parentheses apply when no equipment generating radiated noise (such as a contactor) or heat is installed near the GOT.

Unit: mm (inch)

Item		GT21
		GT2104-R, GT2104-P, GT2103-P
A		50 (1.97) or more [20 (0.79) or more]
B		50 (1.97) or more [20 (0.79) or more]
C	When the SD card is used	50 (1.97) or more
	When the SD card is not used	50 (1.97) or more [20 (0.79) or more]
D		50 (1.97) or more
E*1		80 (3.15) or more [20 (0.79) or more]

*1 When an RS-232 cable or personal computer connection cable is connected to the rear face of GT2104-RTBD, GT2103-PMBDS, or GT2103-PMBDS2, a distance of 80 mm (3.15 inches) or more is required.
When a user-created RS-232 cable is connected to the connector terminal block at the rear face of GT2104-RTBD, a distance of 20 mm (0.79 inch) or more is required.

6.5 Control Panel Inside Temperature and GOT Installation Angle

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

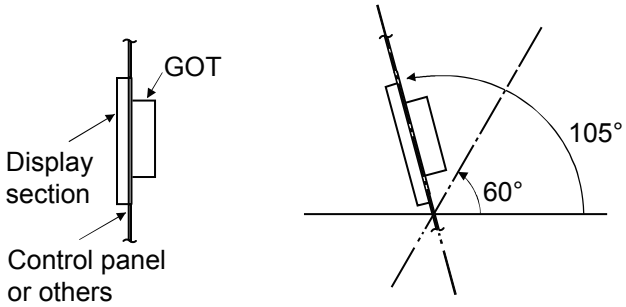
6.5.1 GT27

■1. GT27

When a multimedia unit (GT27-MMR-Z), MELSECNET/H communication unit (GT15-J71LP23-25, GT15-J71BR13), or CC-Link communication unit (GT15-J61BT13) is mounted, the operating ambient temperature must be 5°C lower than the maximum temperature described in Section 3.1 General Specifications.

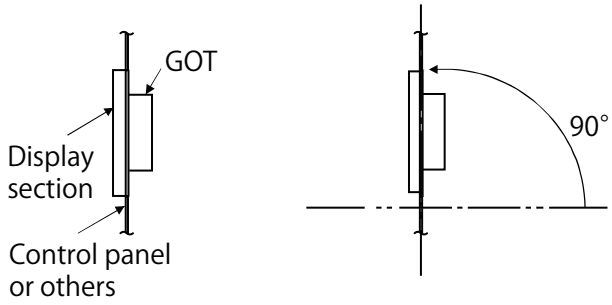
(1) Installing the GOT horizontally

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



(2) Installing the GOT vertically

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



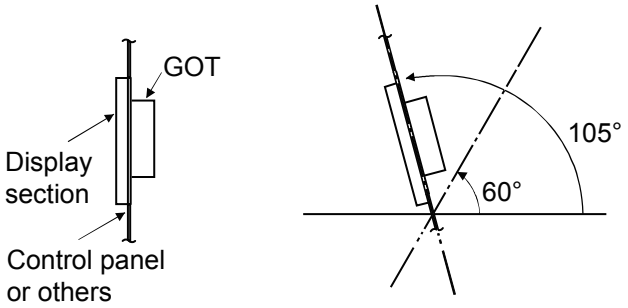
6.5.2 GT25

■1. GT2512-S, GT2510-V, GT2508-V

When a multimedia unit (GT27-MMR-Z), MELSECNET/H communication unit (GT15-J71LP23-25, GT15-J71BR13), or CC-Link communication unit (GT15-J61BT13) is mounted, the operating ambient temperature must be 5°C lower than the maximum temperature described in Section 3.1 General Specifications.

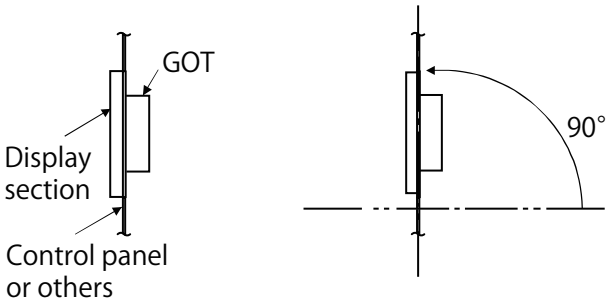
(1) Installing the GOT horizontally

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



(2) Installing the GOT vertically

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

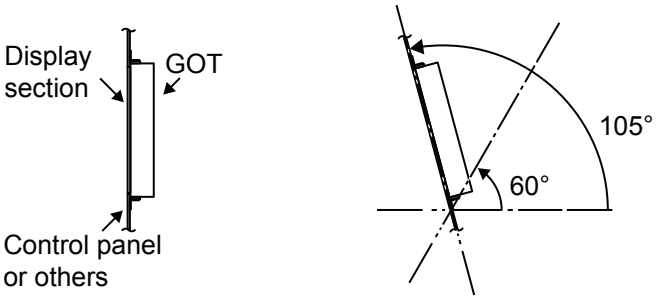


■2. GT2512F-S, GT2510F-V, GT2508F-V

When a multimedia unit (GT27-MMR-Z), MELSECNET/H communication unit (GT15-J71LP23-25, GT15-J71BR13), or CC-Link communication unit (GT15-J61BT13) is mounted, the operating ambient temperature must be 5°C lower than the maximum temperature described in Section 3.1 General Specifications.

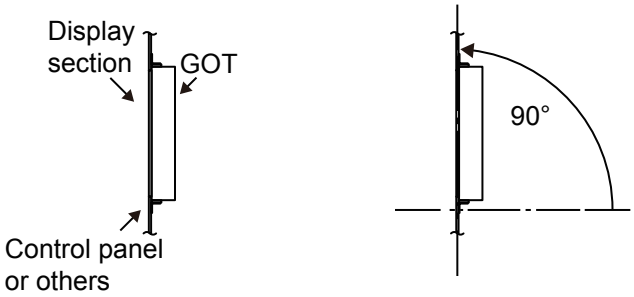
(1) Installing the GOT horizontally

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



(2) Installing the GOT vertically

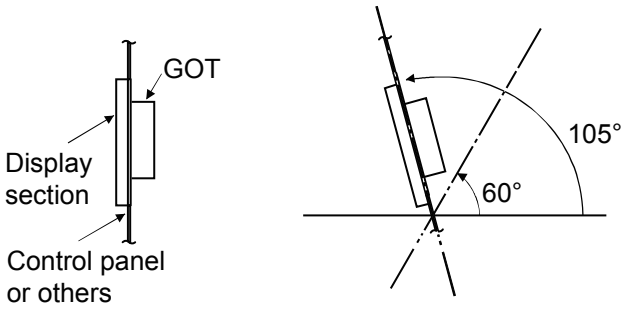
When the GOT is installed a 90° angle, , the control panel inside temperature must be within 55°C.
When the GOT is installed at any angle other than 90°, the control panel inside temperature must be within 40°C.



6.5.3 GT23

■1. GT23

Regardless of the installation orientation, install the GT23 so that the following conditions are satisfied.
When the GOT is installed at any angle from 60 ° to 105 °, the control panel inside temperature must be within 55 °C.
When the GOT is installed at any angle outside the range from 60 ° to 105 °, the control panel inside temperature must be within 40 °C.

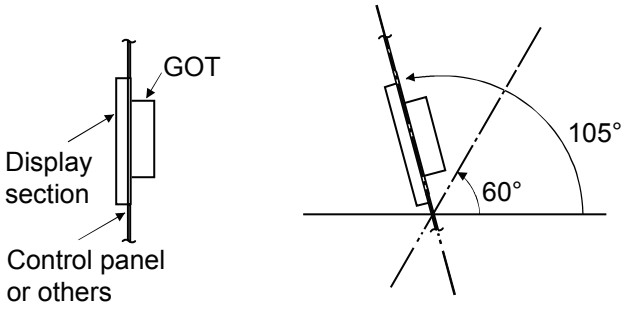


6.5.4 GT21

■1. GT21

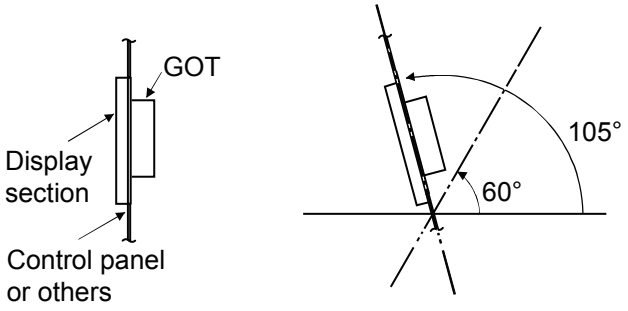
(1) Installing the GOT horizontally

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



(2) Installing the GOT vertically

When the GOT is installed at any angle from 60 ° to 105 °, the control panel inside temperature must be within 50 °C.
When the GOT is installed at any angle outside the range from 60 ° to 105 °, the control panel inside temperature must be within 40 °C.



6.6 Installing the GOT

The following shows the procedure for installing the GOT.

6.6.1 GT27, GT25, GT23

■1. GT27, GT2512-S, GT2510-V, GT2508-V, GT23

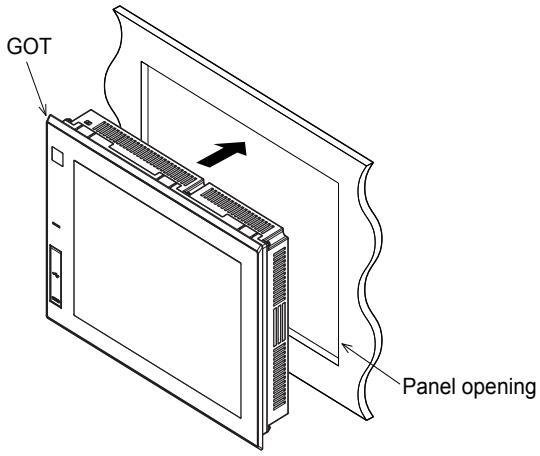
Install the GOT in the following procedure.
For the panel cut dimensions for the GOT, refer to the following.

➠ 6.2 Panel Cut Dimensions

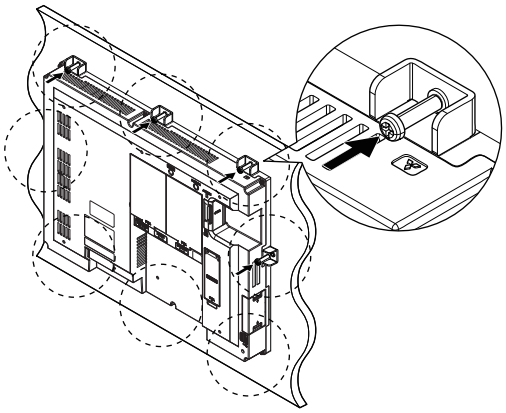
The following shows an installation example for the horizontal direction.
For the vertical installation, install the GOT so that the vertical installation arrow printed on the GOT rear face points upward.

➠ 4. PART NAMES AND SETTINGS

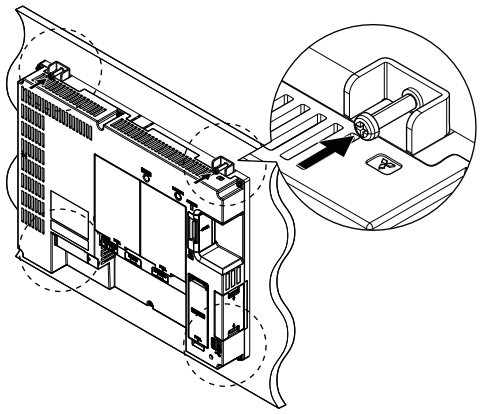
Step 1. Insert the GOT rear face into the panel opening.



Step 2. While positioning a fitting on the mounting hole of the GOT, tighten a screw within the specified torque range (0.36 N·m to 0.48 N·m).
Tightening the screw with a torque exceeding the specified torque range may deform the GOT front panel, causing the protective sheet to become crinkled.
For GT2715-X (8 fittings)



For GT27 except GT2715-X, GT25, and GT23 (4 fittings)



Step 3. Remove the protective film from the GOT.

■2. GT2512F-S, GT2510F-V, GT2508F-V

To fasten the fittings on the control panel, studs are neccessary.
For the details of panel cutting dimensions and studs, refer to the following.

➠ 6.2 Panel Cut Dimensions

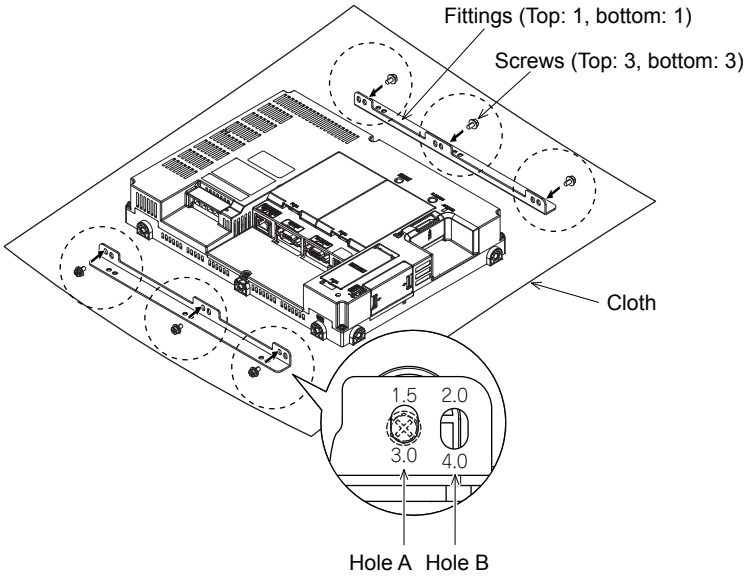
➠ 6.3 Stud

The following table shows the material and surface treatment of the control panel recommended for attaching the environmental protection sheet..

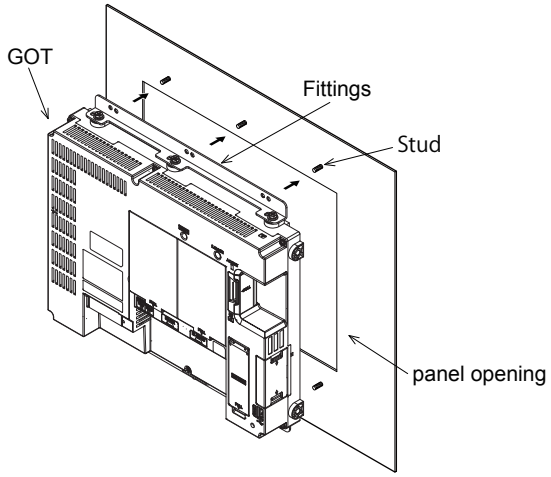
Item	Description
Material	Stainless or aluminum
Coating	Melamine resin coating, acrylic resin coating, or no coating
Surface roughness	Ra0.2 to 0.5 (μm)

Check that no dirt or damage is on the control panel on which the environmental protection sheet is attached.
Since the environmental protection sheet cannot be reattached, make sure to check the attachment method and attach the sheet carefully.
After removing the protective film from the GOT, make sure that no dust or other substances adhere to the display section.
The following shows the procedure for installing GT2512F-S as an example. In this example, the supplied fittings are installed on the top and bottom of the GOT, and the control panel thickness is 3 mm.

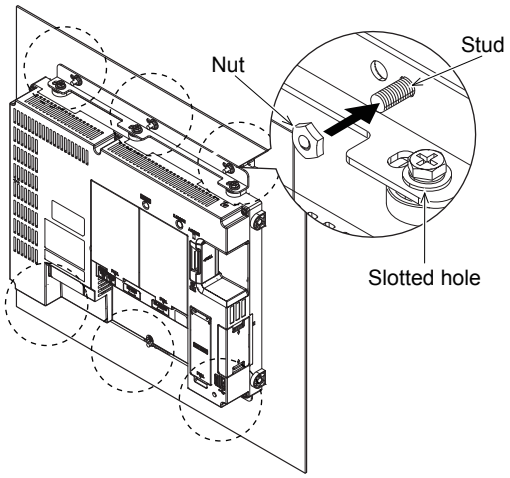
Step 1. Install the supplied fittings on the top and bottom of the GOT with screws.
Each fitting has two types of holes as shown below.Use the appropriate type of holes according to the control panel thickness.
Hole A: for the control panel thickness 1.5 mm to 3.0 mm
Hole B: for the control panel thickness 2.0 mm to 4.0 mm
When installing the fittings on the GOT, you are recommended to put a cloth or others under the GOT to prevent the display section from being damaged.


Fittings (Top: 1, bottom: 1)
Screws (Top: 3, bottom: 3)
Cloth
1.5
2.0
3.0
4.0
Hole A
Hole B

Step 2. Align the installation holes of the fittings with the studs, and insert the studs in the holes.

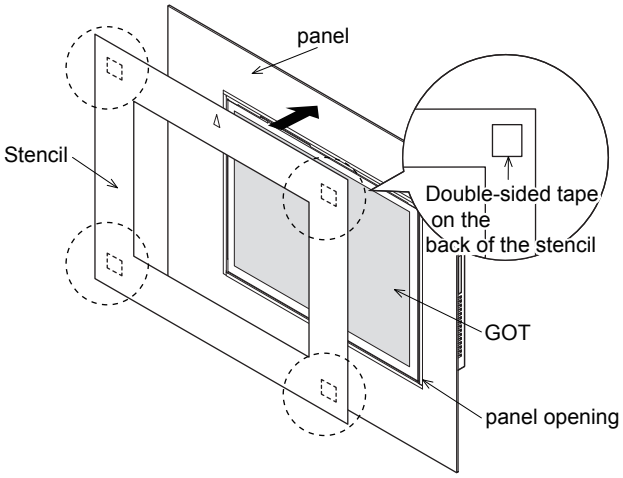


Step 3. Tighten nuts on the studs in the specified torque range (0.8 N•m to 0.9 N•m) with a wrench for M4 nuts.
Loosen the screws in the slotted holes of the fittings, and adjust the positons of the screws to make the GOT display section and the control panel surface be in the same plane.

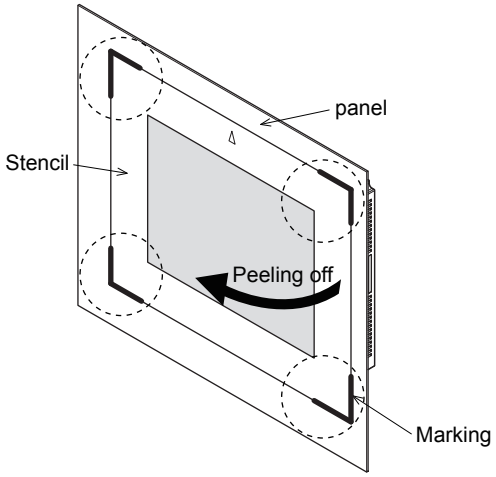


To attach the environmental protection sheet (sold separately), proceed to step 4.
To attach a user-prepared environmental protection sheet, follow the maunal of the sheet used.

Step 4. Remove the inner part of the supplied stencil.
Position the stencil on the panel opening, and attach the stencil using backside double-sided tape in four places.

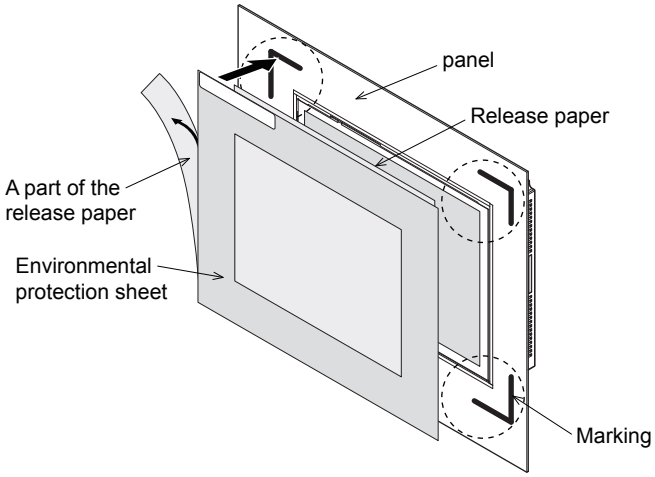


Step 5. Mark the four corners of the stencil on the control panel with a pencil or others.
Remove the stencil.

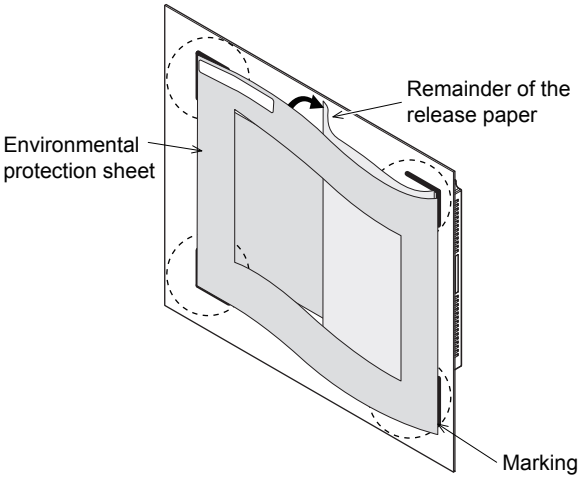


Step 6. Remove the protective film from the GOT, and make sure that no dust or other substances adhere to the display section.

Step 7. Peel off a part of the release paper on the back of the environmental protection sheet.
Do not remove the protective film from the environmental protection sheet. Align the sheet with the four markings on the control panel, and attach the peeled off part of the sheet to the control panel.

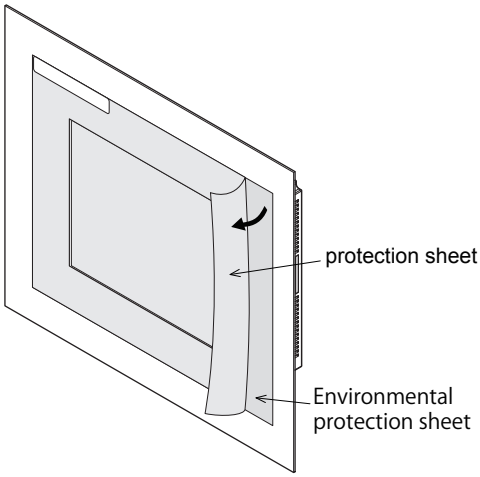


Step 8. Peel off the remainder of the release paper, and attach the whole environmental protection sheet to the control panel.
Since the environmental protection sheet cannot be reattached, make sure to check the attachment method and attach the sheet carefully.
Make sure to attach the sheet from the attached part in step 7, and fit the sheet onto the control panel without leaving any air between them.



Step 9. Erase the markings.

Step 10. Apply enough pressure to the adhesive part of the environmental protection sheet.To ensure adequate adhesive strength, you are recommended to use the GOT about 24 hours later after the environmental protection sheet is attached.(Roll a roller back and forth two times with a load of 2 kg.)
Check that the environmental protection sheet has no wrinkle, dirt, or others, and then remove the protective film from the sheet.



6.6.2 GT21

■1. GT21

Install the GOT in the following procedure.
For the panel cut dimensions for the GOT, refer to the following.

➠ 6.2 Panel Cut Dimensions

The following shows an installation example for the horizontal direction.
For the vertical installation, install the GOT so that the power supply terminal, which is located on the GOT rear face, is at the lower side.

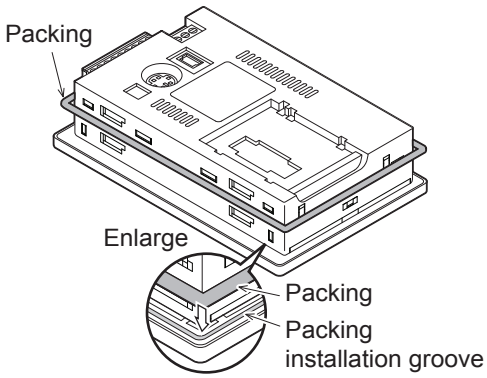
➠ 4.4 GT21

POINT

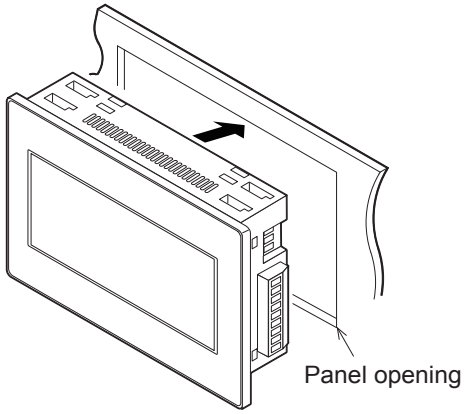
Cautions for an installation panel

Use a panel that has no warpage, damage, and unevenness on its surface. Failure to do so may not result in waterproof effect.
Determine the panel thickness considering the panel strength.
(For example, even though the panel has thickness within the range, the strength may be insufficient depending on the material and size. Insufficient panel strength may result in warpage depending on the installation position of the GOT and other devices.)

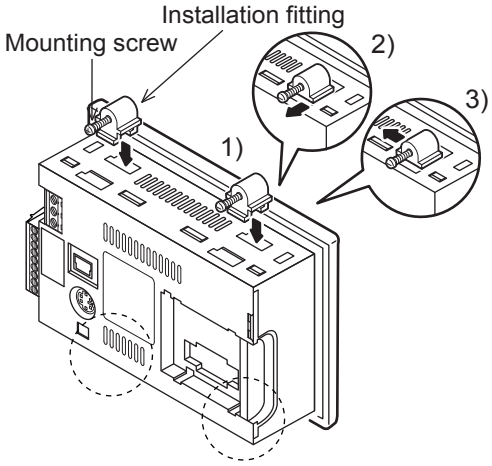
Step 1. Install a packing to the packing installation groove on the GOT rear face.



Step 2. Insert the GOT rear face into the panel opening. (The following shows an example of the horizontal installation.)



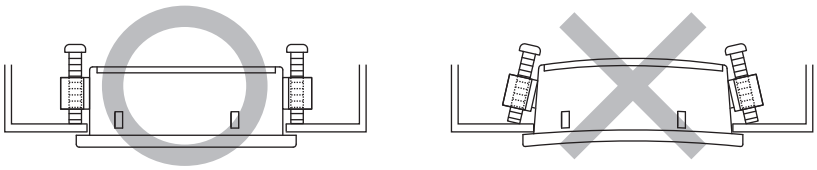
Step 3. Insert the hook of an installation fitting (supplied) into the mounting hole of the GOT.
Slide the installation fitting toward the GOT rear face.
Then, viewing from the GOT rear face, slide the fitting to the left to fix, and tighten a screw within the specified torque range (0.20 N•m to 0.25 N•m).
Fix the GOT using 4 fittings at the top and the bottom of the GOT.



POINT

Cautions for the GOT installation

Tighten mounting screws within the specified torque range.
Undertightening can cause the GOT to drop.
In addition, waterproof effect or oilproof effect may not be obtained.
Tightening the screw in the specified torque range or more may damage the GOT or distort the panel, causing wrinkles on the surface of the display section. The wrinkles may lower visibility and lead to an incorrect input to the touch panel.
Waterproof effect or oilproof effect may not be obtained because of distortion of the GOT or panel.



Step 4. The GOT in the factory shipment state has a protective film on the display section.
After installing the GOT, remove the film.

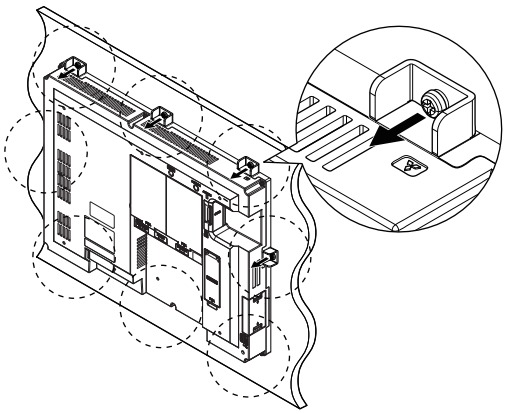
6.7 Removing the GOT

The following shows the procedure for removing the GOT.

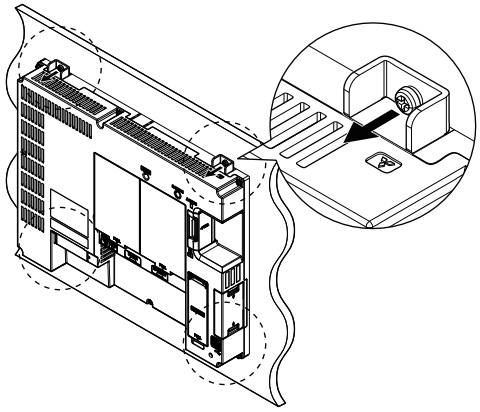
6.7.1 GT27, GT25, GT23

■1. GT27, GT2512-S, GT2510-V, GT2508-V, GT23

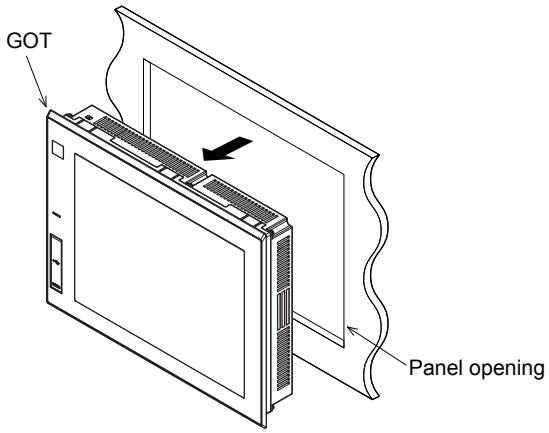
Step 1. Remove the screws from the GOT.
Remove the fittings from the GOT.
For GT2715-X (8 fittings)



For GT27 except GT2715-X, GT25, and GT23 (4 fittings)



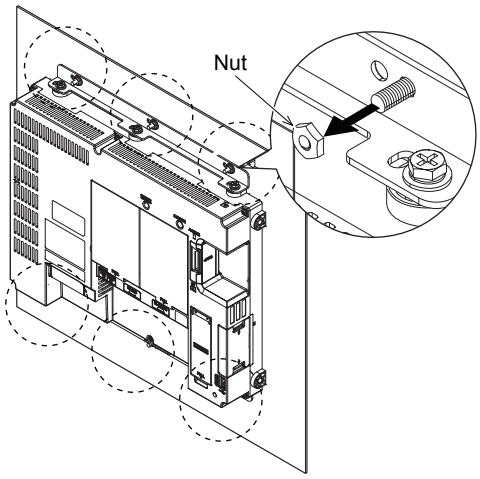
Step 2. Remove the GOT from the panel opening.



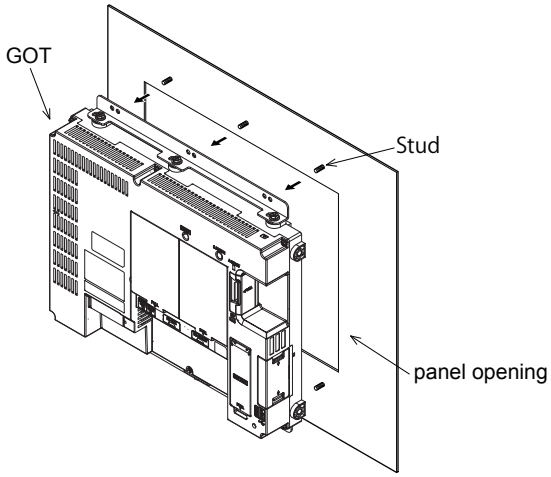
■2. GT2512F-S, GT2510F-V, GT2508F-V

The following shows the procedure for removing GT2512F-S as an example.

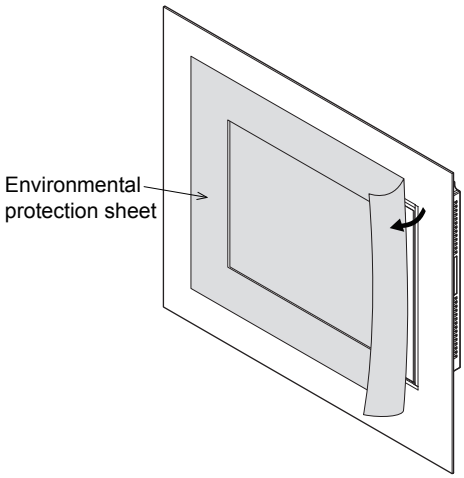
Step 1. Remove the nuts.



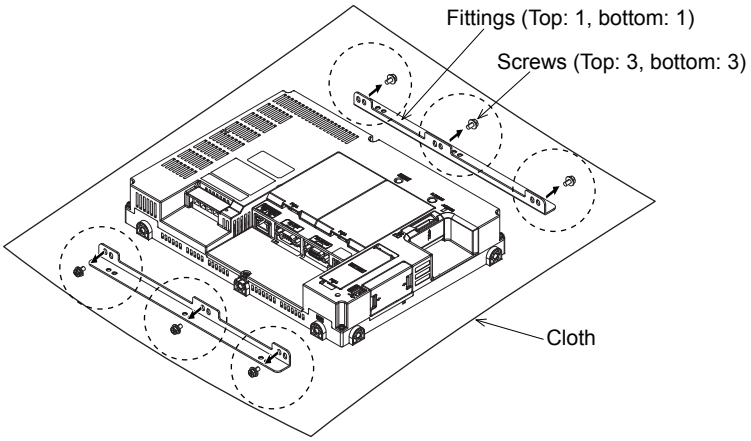
Step 2. Remove the GOT from the panel opening.



Step 3. Remove the environmental protection sheet gradually.
If the sheet is difficult to remove, warm the sheet with a dryer or others.



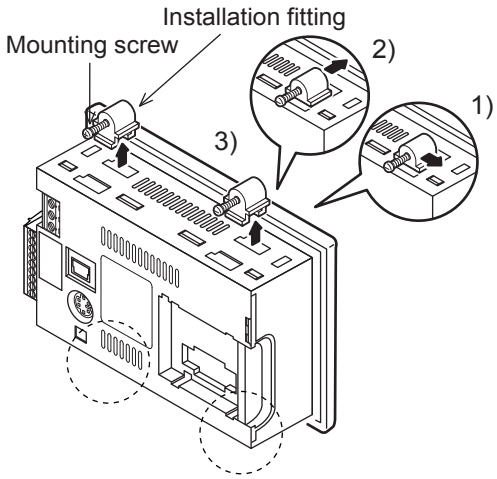
Step 4. Remove the screws from the GOT.
Remove the fittings from the GOT.
You are recommended to put a cloth or others under the GOT to prevent the display section from being damaged.



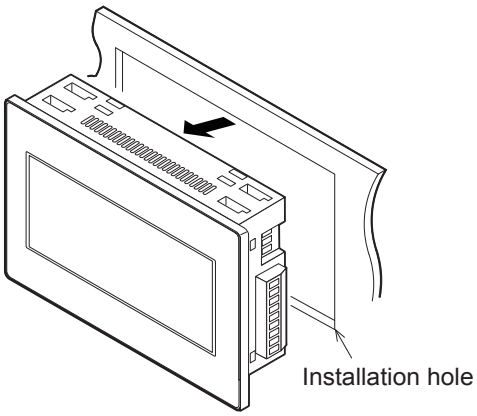
6.7.2 GT21

■1. GT21

Step 1. Remove the mounting screws of the installation fitting on the GOT in the following order 1) to 3). Remove the installation fitting on the GOT.



Step 2. Remove the GOT from the panel opening.



6.8 Installing and Removing the Extension Unit

For installing and removing a single extension unit, refer to the user's manual included in each extension unit.

POINT

Installing the extension interface relay board

Installing any of the following communication units to the GOT does not require the extension interface relay board to be installed.

- Bus connection unit (GT15-QBUS2, GT15-ABUS2)
- MELSECNET/H communication unit
- CC-Link IE Controller Network communication unit
- CC-Link IE Field Network communication unit
- CC-Link communication unit

For installing/removing a wireless LAN communication unit to/from GT27 or GT25, refer to the following.

➠ GOT2000 Series Wireless LAN Communication Unit User's Manual

For installing/removing an SD card to/from GT21, refer to the following.

➠ GT21-03SDCD General Description

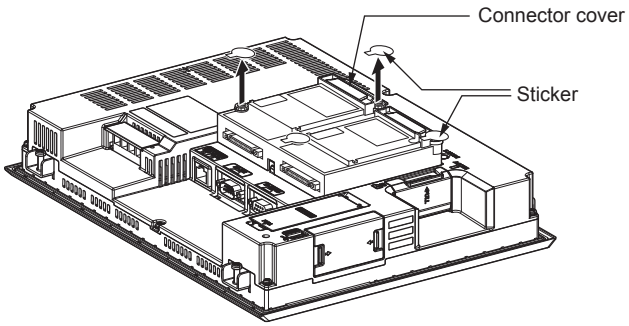
The procedure of installing and removing the multiple extension units is as follows.

6.8.1 Installing multiple extension units

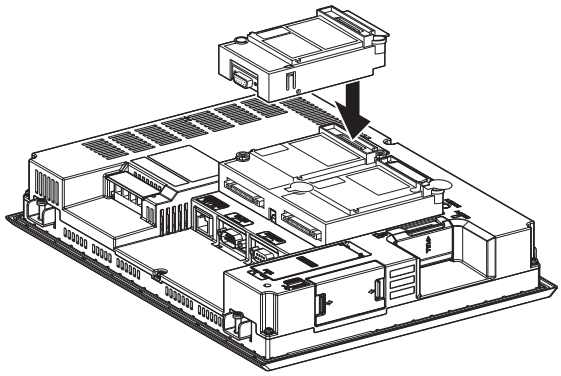
This section explains the procedure for mounting an extension unit on an already mounted extension unit.

Step 1. Make sure that the GOT power is off.

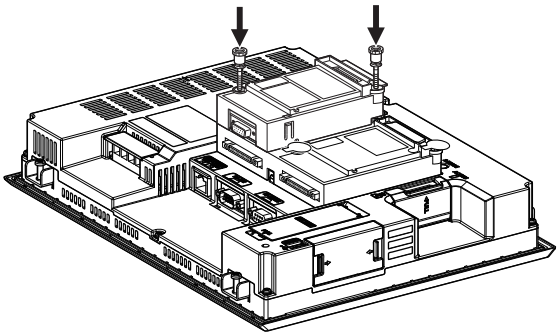
Step 2. Remove the connector cover and the stickers from the mounted extension unit.



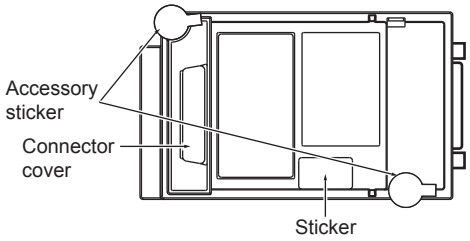
Step 3. Mount an extension unit on the mounted extension unit.



Step 4. Tighten the screws within the specified torque range (0.36 N·m to 0.48 N·m).



Step 5. To mount another extension unit, repeat Step 2 to Step 3.
When you do not mount another extension unit, cover the screws with the accessory stickers to avoid static electricity.
Keep the connector cover and the stickers attached.



POINT

(1) Mounting position of the communication unit that occupies two extension interfaces
The following lists the communication units that occupy two extension interfaces. These units must be mounted to the GOT directly.
These communication unit cannot be mounted on other communication units.
When a video/RGB unit or a multimedia unit is mounted to the GOT, mount a communication unit on the video/RGB unit or the multimedia unit.
- Bus connection unit (GT15-QBUS2, GT15-ABUS2, GT15-75QBUS2L, and GT15-75ABUS2L only)
- MELSECNET/H communication unit
- CC-Link IE Controller Network communication unit
- CC-Link IE Field Network communication unit
- CC-Link communication unit (GT15-J61BT13)

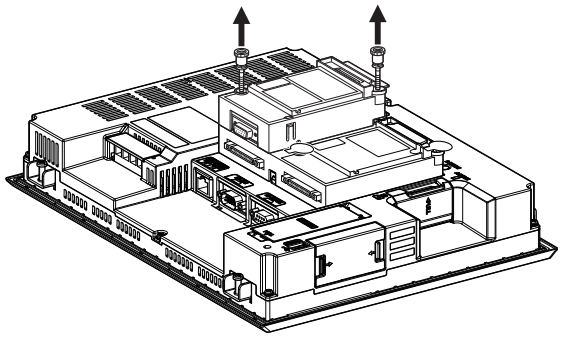
(2) Mounting GT15-75QBUSL, GT15-75QBUS2L, GT15-75ABUSL, and GT15-75ABUS2L
These units cannot be mounted on a video/RGB unit or a multimedia unit.
When connecting these units by the bus connection, use GT15-QBUS, GT15-QBUS2, GT15-ABUS, or GT15-ABUS2.

6.8.2 Removing the extension unit

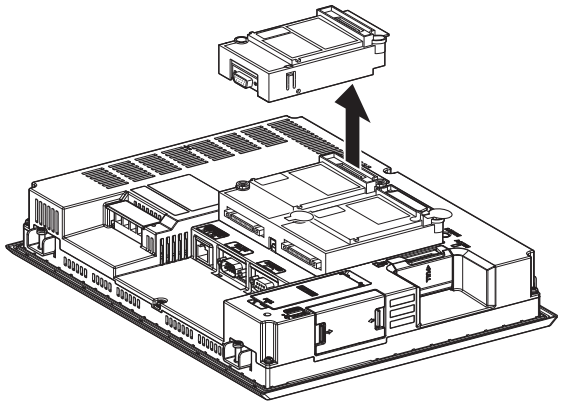
Step 1. Make sure that the GOT power is off.

Step 2. Remove the accessory stickers from the mounted extension unit.

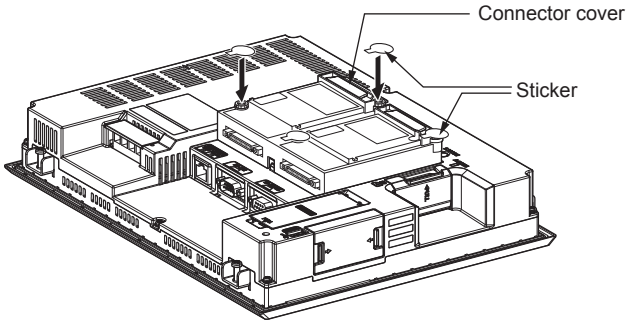
Step 3. Loosen the screws of the unit.



Step 4. Remove the extension unit.



Step 5. Install the connector covers and stickers of the extension interface.



6.9 Installing the Battery

Install a battery to the GOT before the first startup.
The following shows the procedure for installing a battery.(Described with the GOT rear face facing up.)

POINT

(1) Battery

- GT27,GT25:
  GT27 and GT25 come with a battery in the battery holder. Before using GT27 and GT25, connect the battery connector to the GOT connector.
- GT23 :
  Batteries for GT23 (GT11-50BAT) are sold separately. Purchase a battery before using GT23, mount it to the GOT, and connect the GOT connector to battery connector.
- GT2104-R :
  GT2104-R come with a battery in the battery holder.
- GT2103-P :
  Installing a battery is not required for GT2103-P. (GT2103-P holds the data by the built-in flash ROM.)

(2) battery replacement time

- GT27, GT25, GT23 :
  To replace the battery, leave the GOT on for more than 10 minutes before replacing the battery.Replace the battery within 5 minutes.
- GT2104-R :
  Replace the battery within 30 seconds.

The battery installation procedure differs depending on the GOT models.

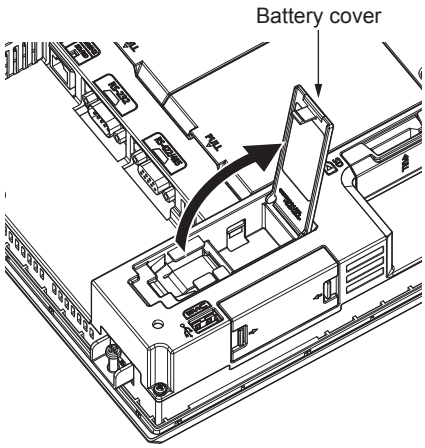
➠ 6.9.1 Installing the battery to GT2715, GT2712, GT2710, GT2512 or GT2510
6.9.2 Installing the battery to GT2708, GT2705, or GT2508
6.9.3 Installing the battery to GT2310 or GT2308
6.9.4 Installing the battery to GT2104-R, GT2104-P

6.9.1 Installing the battery to GT2715, GT2712, GT2710, GT2512 or GT2510

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

Step 1. Make sure that the GOT power is off.

Step 2. Install the battery to the GOT rear face.
Open the battery cover as shown below.

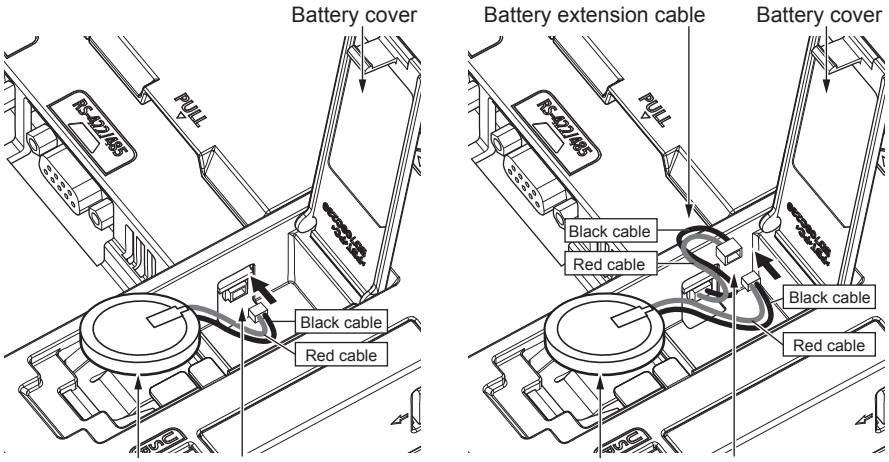


Step 3. To replace the battery, remove the old battery, and then disconnect the connector.
For information on how to remove the battery, refer to the following.

➠ 6.10 Removing the Battery

Step 4. The GOT-side connector depends on whether the GOT has a battery extension cable.

- Without a battery extension cable
  Insert the battery connector to the GOT connector.
- With a battery extension cable
  Insert the battery connector to the battery extension cable connector of the GOT.



Without a battery extension cable

With a battery extension cable

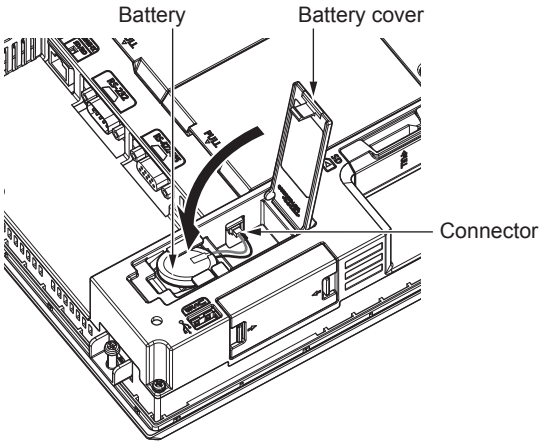
The GT27 models with the following hardware versions have no battery extension cable.

- GT2715: Version G or later (manufactured in September 2014)
- GT2712: Version M or later (manufactured in September 2014)
- GT2710: Version Nor later (manufactured in September 2014)

The GT25 models have no battery extension cable regardless of the hardware version.
For how to check the hardware version, refer to the following.

➠ 11.6 Confirming of Versions and Conforming Standards

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



Step 6. Turn on the GOT.

Step 7. Check that the battery condition is normal with the utility.
For the details of the battery condition display, refer to the following.

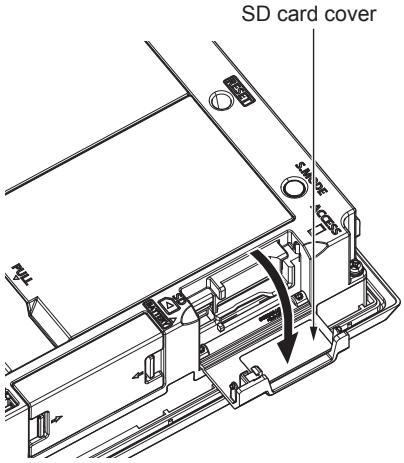
➠ GOT2000 Series User's Manual (Utility)

6.9.2 Installing the battery to GT2708, GT2705, or GT2508

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

Step 1. Make sure that the GOT power is off.

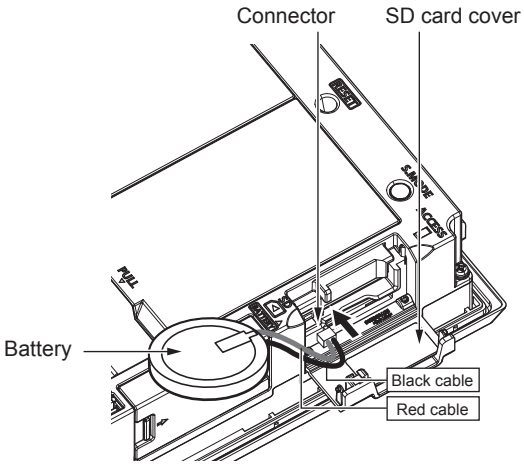
Step 2. Install the battery inside the SD card cover on the side of the GOT.
Open the SD card cover as shown in the following figure.



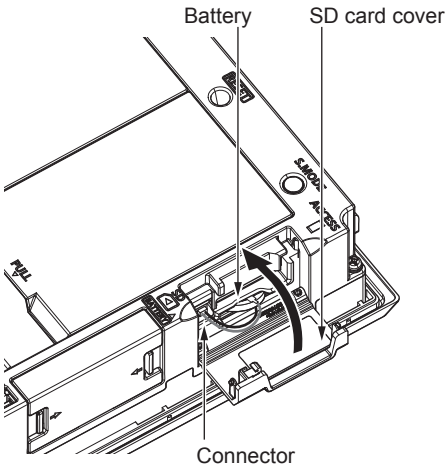
Step 3. To replace the battery, remove the old battery, and then disconnect the connector.
For information on how to remove the battery, refer to the following.

➠ 6.10 Removing the Battery

Step 4. Insert the battery connector to the GOT connector.



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



Step 6. Turn on the GOT.

Step 7. Check that the battery condition is normal with the utility.
For the details of the battery condition display, refer to the following.

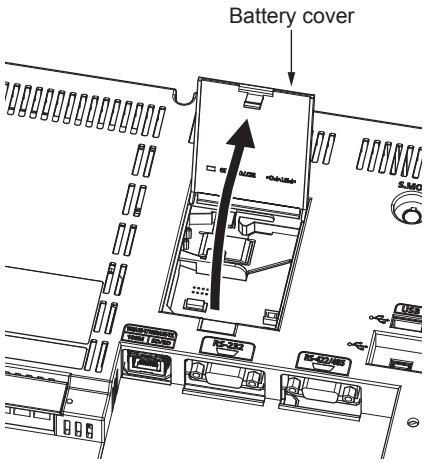
➠ GOT2000 Series User's Manual (Utility)

6.9.3 Installing the battery to GT2310 or GT2308

The following shows the battery installation procedure, taking GT2310 as an example.

Step 1. Make sure that the GOT power is off.

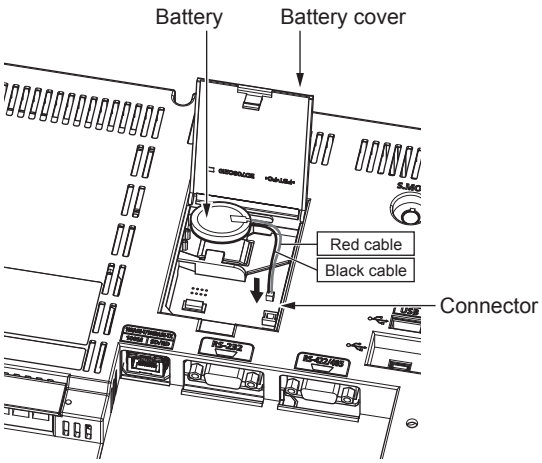
Step 2. Install the battery to the GOT rear face.
Open the battery cover as shown below.



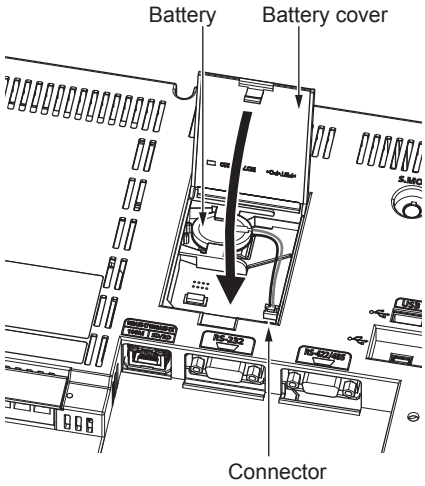
Step 3. To replace the battery, remove the old battery, and then disconnect the connector.
For information on how to remove the battery, refer to the following.

➠ 6.10 Removing the Battery

Step 4. Insert the battery connector to the GOT connector.



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



Step 6. Turn on the GOT.

Step 7. Check that the battery condition is normal with the utility.
For the details of the battery condition display, refer to the following.

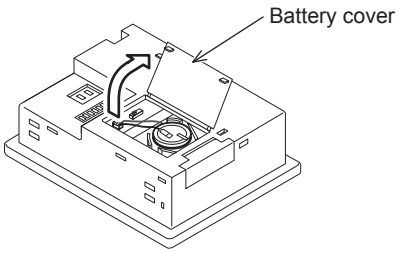
➠ GOT2000 Series User's Manual (Utility)

6.9.4 Installing the battery to GT2104-R, GT2104-P

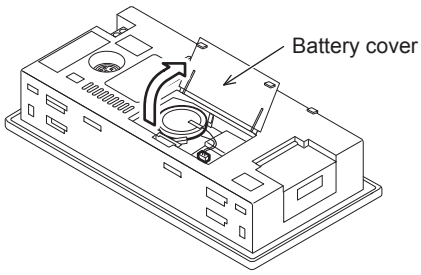
The following shows the battery installation procedure, taking GT2104-R, GT2104-P as an example.

Step 1. Make sure that the GOT power is off.

Step 2. Open the battery cover as shown below.



GT2104-R

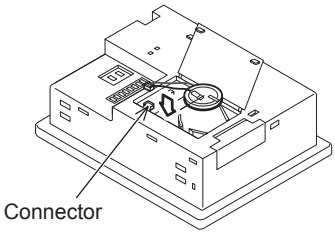


GT2104-P

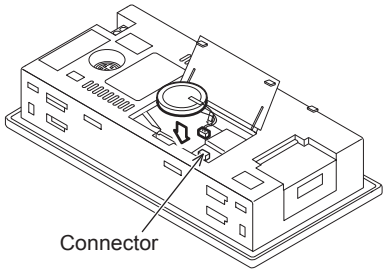
Step 3. To replace the battery, remove the old battery, and then disconnect the connector.
For information on how to remove the battery, refer to the following.

➠ 6.10 Removing the Battery

Step 4. Insert the battery connector to the GOT connector.

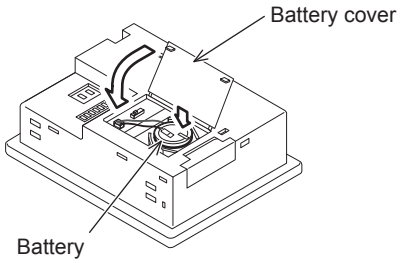


GT2104-R

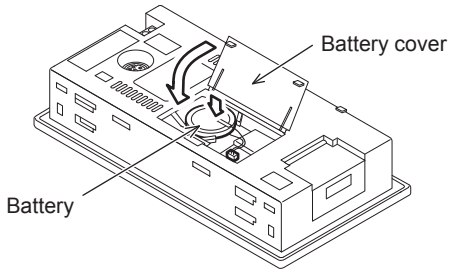


GT2104-P

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



GT2104-R



GT2104-P

Step 6. Turn on the GOT.

Step 7. Check that the battery condition is normal with the utility.
For the details of the battery condition display, refer to the following.

➠ GOT2000 Series User's Manual (Utility)

6.10 Removing the Battery

The battery removal procedure differs depending on the GOT models.

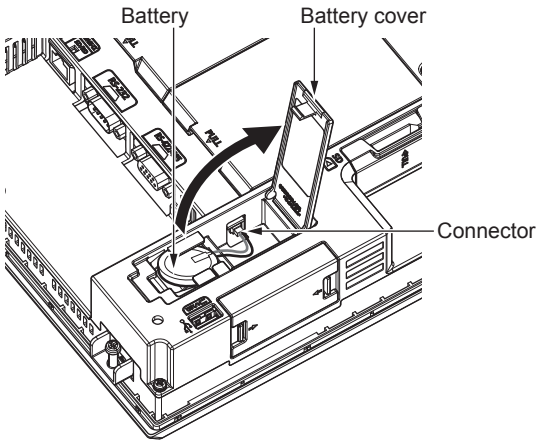
➠ 6.10.1 Removing the battery from GT2715, GT2712, GT2710, GT2512 or GT2510
6.10.2 Removing the battery from GT2708, GT2705, GT2710 or GT2508
6.10.3 Removing the battery from GT2310 or GT2308
6.10.4 Removing the battery from GT2104-R, GT2104-P

6.10.1 Removing the battery from GT2715, GT2712, GT2710, GT2512 or GT2510

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

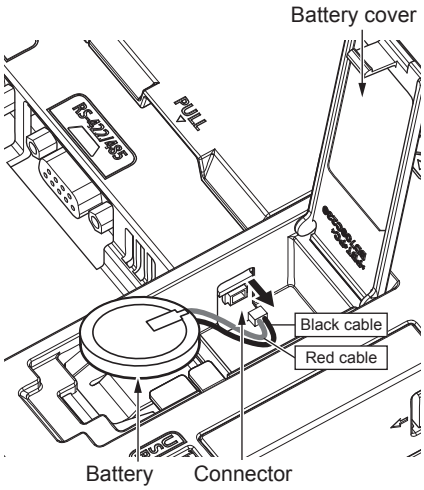
Step 1. Make sure that the GOT power is off.

Step 2. The battery is stored in the GOT rear face.
Open the battery cover as shown below.

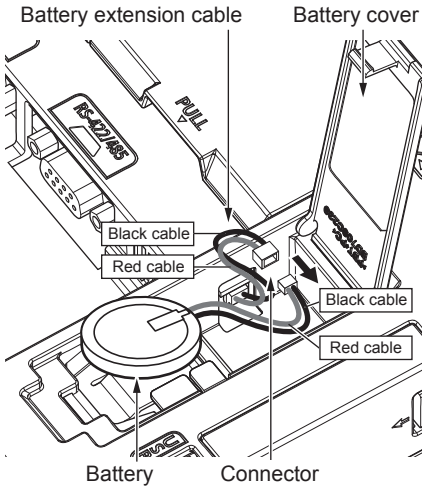


Step 3. After removing the battery from the battery holder of the GOT, unplug the connector.
The GOT-side connector depends on whether the GOT has a battery extension cable.

- Without a battery extension cable
  Unplug the battery connector from the GOT connector.
- With a battery extension cable
  Unplug the battery connector from the battery extension cable connector of the GOT.



Without a battery extension cable



With a battery extension cable

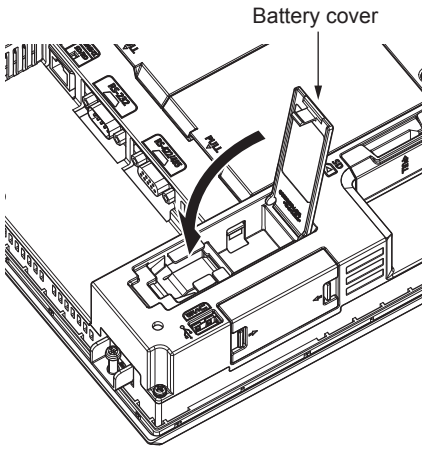
The GT27 models with the following hardware versions have no battery extension cable.

- GT2715: Version G or later (manufactured in September 2014)
- GT2712: Version M or later (manufactured in September 2014)
- GT2710: Version Nor later (manufactured in September 2014)

The GT25 models have no battery extension cable regardless of the hardware version.
For how to check the hardware version, refer to the following.

➠ 11.6 Confirming of Versions and Conforming Standards

Step 4. Push and close the battery cover until it clicks.

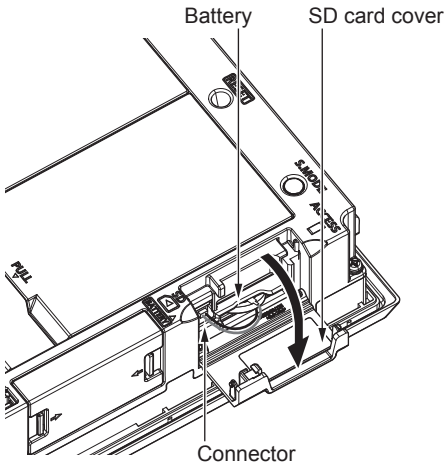


6.10.2 Removing the battery from GT2708, GT2705, GT2710 or GT2508

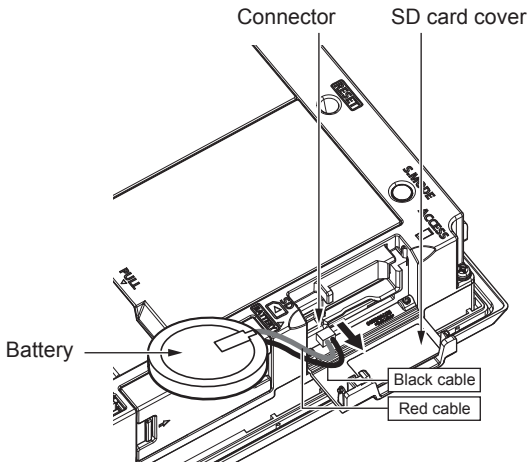
The following shows the battery removal procedure, taking GT2708 as an example.

Step 1. Make sure that the GOT power is off.

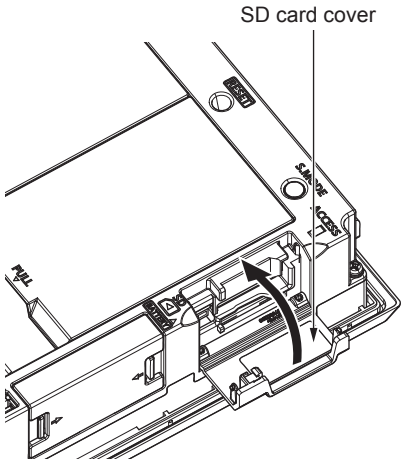
Step 2. The battery is stored inside the SD card cover on the side of the GOT.
Open the SD card cover as shown in the following figure.



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



Step 4. Close the SD card cover until it clicks.

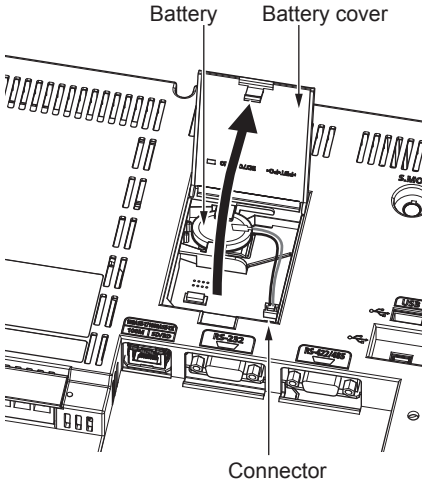


6.10.3 Removing the battery from GT2310 or GT2308

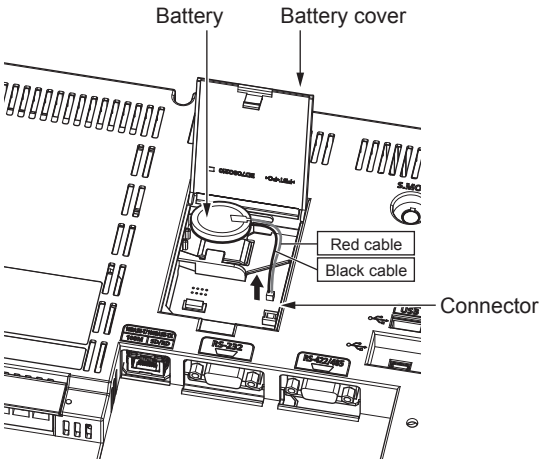
The following shows the battery removal procedure, taking GT2310 as an example.

Step 1. Make sure that the GOT power is off.

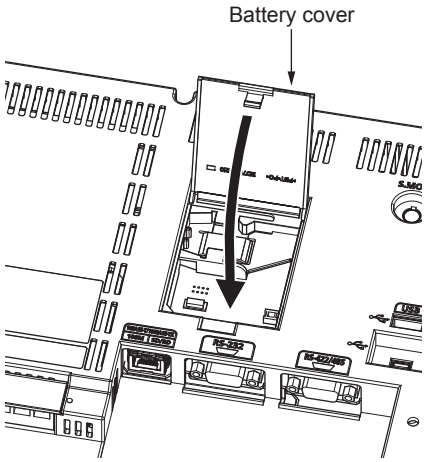
Step 2. The battery is stored in the GOT rear face.
Open the battery cover as shown below.



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



Step 4. Push and close the battery cover until it clicks.

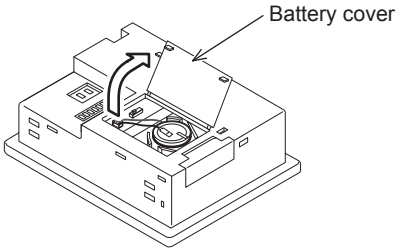


6.10.4 Removing the battery from GT2104-R, GT2104-P

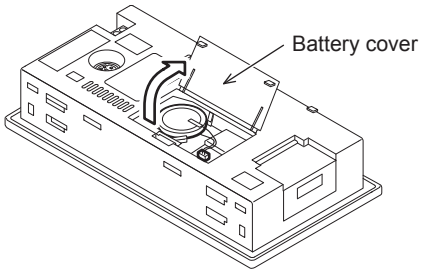
The following shows the battery removal procedure, taking GT2104-R, GT2104-P as an example.

Step 1. Make sure that the GOT power is off.

Step 2. Open the battery cover as shown below.

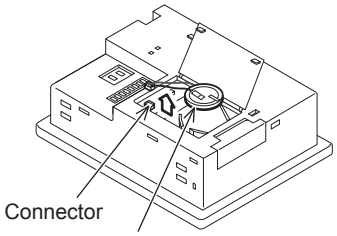


GT2104-R

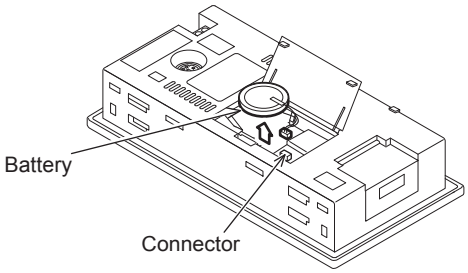


GT2104-P

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

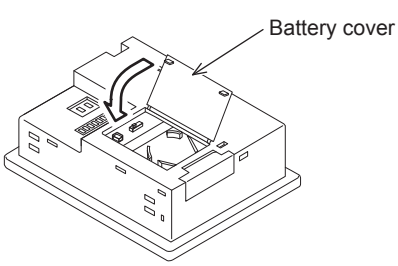


GT2104-R

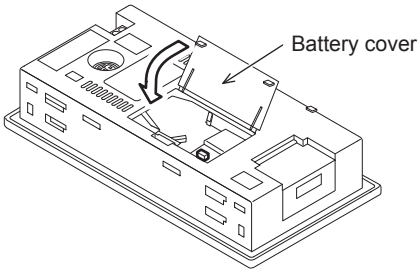


GT2104-P

Step 4. Push and close the battery cover until it clicks.



GT2104-R



GT2104-P

6.11 Installing the SD Card

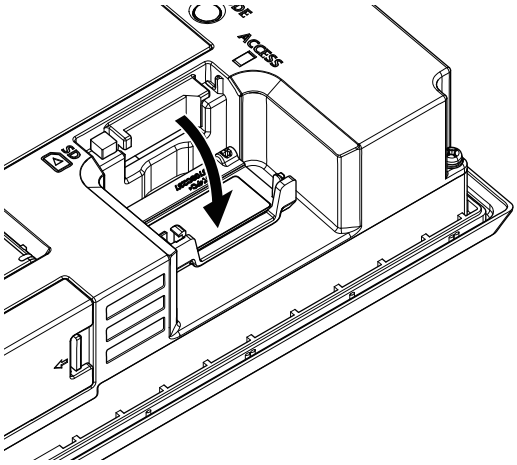
⚠CAUTION

- Turning off the GOT while it accesses the SD card results in damage to the SD card and files.
- When using the GOT with an SD card inserted, check the following items.
  - GT27, GT25, GT23
    When inserting a SD card into the GOT, make sure to close the SD card cover.
    Failure to do so causes the data not to be read or written.
  - GT21
    When inserting an SD card into the SD card unit, make sure to enable the SD card access in the GOT utility in advance.

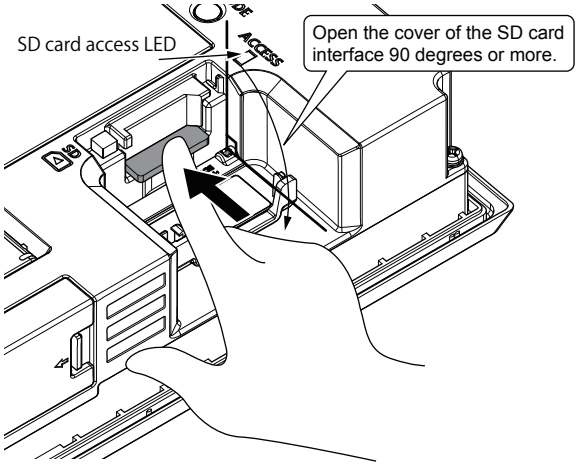
The following shows the procedure for installing and removing an SD card.(Described with the GOT rear face facing up.)

6.11.1 GT27, GT25, GT23

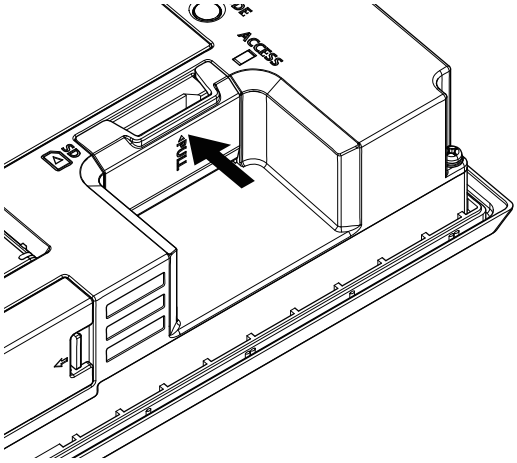
Step 1. Open the SD card cover as shown below.



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



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



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

6.11.2 GT21

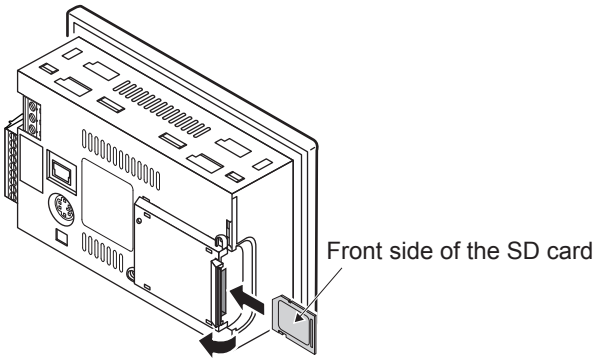
Before inserting or removing an SD card, turn off the GOT or select [Access inhibit] in the SD card access setting of the GOT.

Step 1. Touch [Utility main menu] → [Data control] → [SD card access] → [Permissions], and select [Access inhibit].

➠ GOT2000 Series User's Manual (Utility)

Check that the SD card access LED turns off.
When the LED is off, the SD card can be inserted or removed at the GOT power-on.

Step 2. Open the SD card cover, and insert the SD card with its front side (name plate side) facing outward. Close the SD card cover.



Step 3. Touch [SD card access] → [Access inhibit], and select [Permissions].
Check that the SD card access LED turns on.

6.12 Removing the SD Card

⚠WARNING

- If the SD card mounted on drive A of the GOT is removed while the GOT is accessed, processing for the GOT might be interrupted about for 20 seconds.
  The GOT cannot be operated during this period.
  The functions that run in the background including a screen updating, alarm, logging, scripts, and others are also interrupted.
  This stop affects the system operation, causing an accident.
  Remove the SD card after checking the following items.
  • GT27, GT25, GT23
  Check that the SD card access LED is off before removing the SD card.
  • GT21
  Disable the SD card access in the GOT utility, and then check that the SD card access LED is off before removing the SD card.

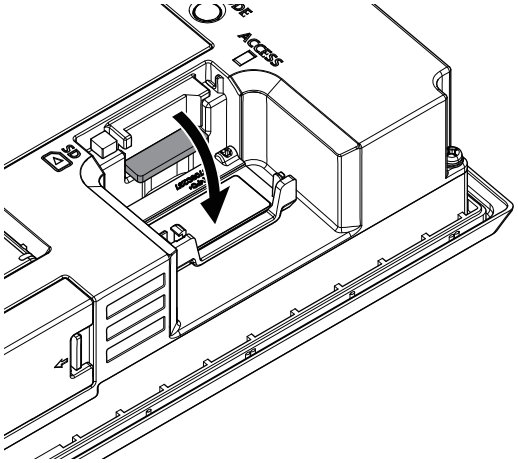
⚠CAUTION

- If the data storage mounted on the GOT is removed while the GOT is accessed, the data storage and files are damaged.
  To remove the data storage from the GOT, check that the access to the data storage in SD card access LED, the system signal, and others is not performed.
- When using the GOT with an SD card inserted, check the following items.
  • GT27, GT25, GT23
  When inserting a SD card into the GOT, make sure to close the SD card cover.
  Failure to do so causes the data not to be read or written.
  • GT21
  When inserting an SD card into the SD card unit, make sure to enable the SD card access in the GOT utility in advance.
- When removing the SD card from the GOT, make sure to support the SD card by hand as it may pop out.
  Failure to do so may cause the SD card to drop from the GOT, resulting in a failure or break.
- Before removing the USB device from the GOT, follow the procedure for removal on the utility screen of the GOT.
  After the successful completion dialog is displayed, remove the USB device by hand carefully.
  Failure to do so may cause the USB device to drop from the GOT, resulting in a failure or break.

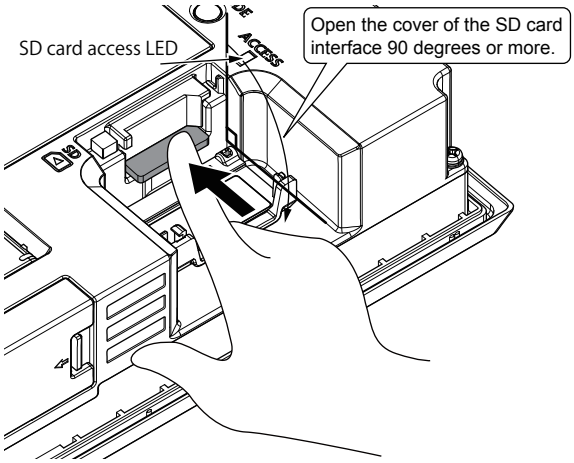
The following shows the procedure for installing and removing an SD card.(Described with the GOT rear face facing up.)

6.12.1 GT27, GT25, GT23

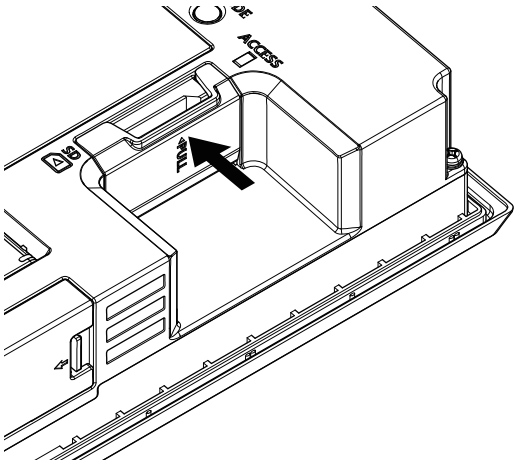
Step 1. Open the SD card cover as shown below.



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



Step 3. Close the cover of the SD card interface.



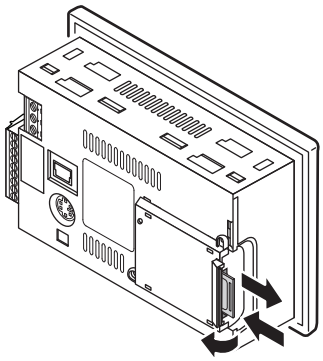
6.12.2 GT21

Step 1. Touch [[Utility main menu] → [Data control] → [SD card access] → [Permissions], and select [Access inhibit].

➠ GOT2000 Series User's Manual (Utility)

Check that the SD card access LED turns off.
When the LED is off, the SD card can be inserted or removed at the GOT power-on.

Step 2. Open the SD card cover, and remove the SD card.



POINT

(1) Cautions for removing the SD card

While the SD card access LED is on, do not remove the SD card or power off the GOT. Doing so results in damage to the SD card and files.
When removing the SD card from the GOT, make sure to hold the SD card as it may pop out.

(2) Enabling or disabling the SD card access when the SD card cover is removed (GT27 and GT25 only)

The SD card access is enabled or disabled by closing or opening the SD card cover. If the SD card cover is faulty and remains opened, the SD Card Access Switch Status Control (GS1820.b0) turns on.

To enable or disable the SD card access, turn on or off GS1820.b1.

6.13 Installing and Removing the USB Devices

The following shows the procedure for installing and removing a USB device.

POINT

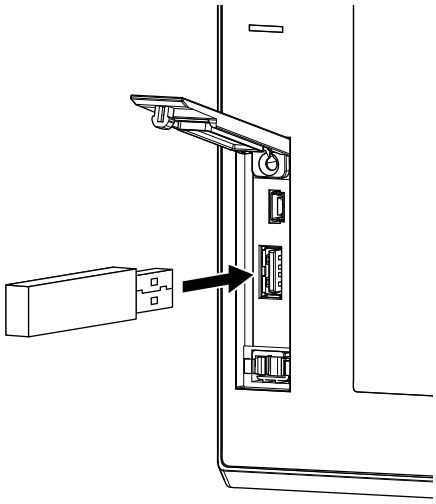
The following shows the procedure for installing and removing a USB device

When connecting the devices to the USB interface (Host) using USB hub with the GOT power on, drive assignment of connected USB devices may be changed.To use the USB hub devices, turn on the GOT with the devices connected.

6.13.1 Installing the USB devices

Step 1. Push the [PUSH] mark on the USB environmental protection cover to open the cover.

Step 2. Insert the USB interface to the USB interface (Host) as shown below.
Make sure to insert the USB interface connector in the correct direction.

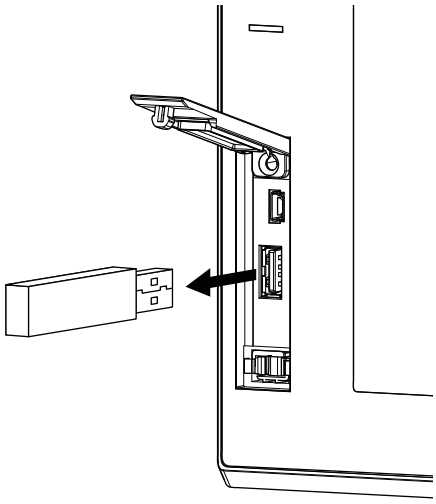


6.13.2 Removing the USB devices

Step 1. Place the USB device in removable mode.For the setting method, refer to the following.

➠ GOT2000 Series User's Manual (Utility)

Step 2. Remove the USB interface from the USB interface (Host) as shown below.



Step 3. Push the [PUSH] mark on the USB environmental protection cover to close the cover.

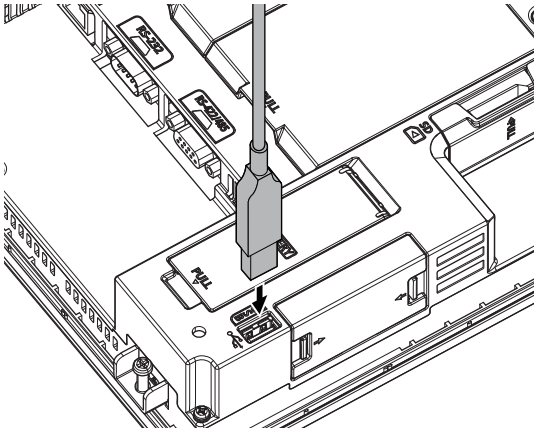
6.14 Installing and Removing the USB cable

The following shows the procedure for installing and removing a USB cable to the USB interface on the GOT rear face.

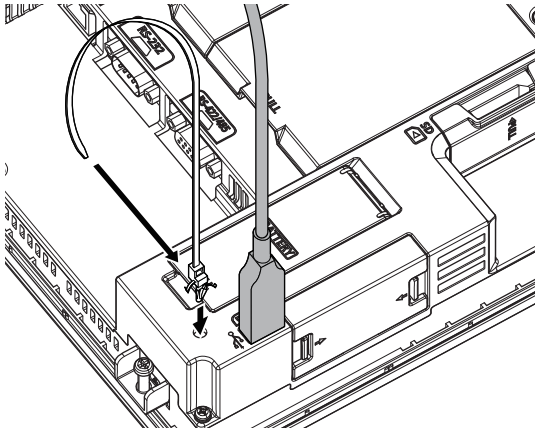
6.14.1 Installing the USB cable

Install the USB cable to the GOT in the following procedure.
Attach a cable clamp depending on the usage environment, such as when fixing a cable is difficult.

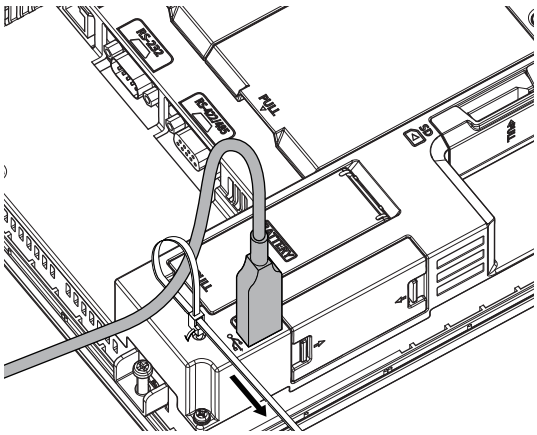
Step 1. Install the USB cable to a USB interface (Host/device) on the GOT rear face.



Step 2. Insert a cable clamp to the mounting hole for a cable clamp shown in the following figure and push it until you hear a clicking sound. For the direction that the band goes through, refer to the arrow in the figure. (Cable clamp used in this example: RSG-130-V0, KITAGAWA INDUSTRIES CO.,LTD.)



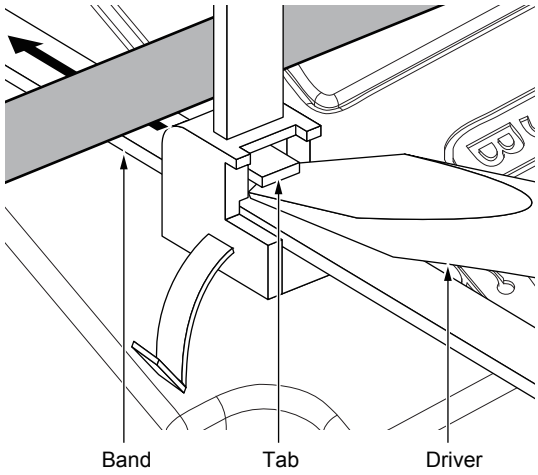
Step 3. Pass the USB cable through a hole of the cable clamp and pull the band to fix the cable.



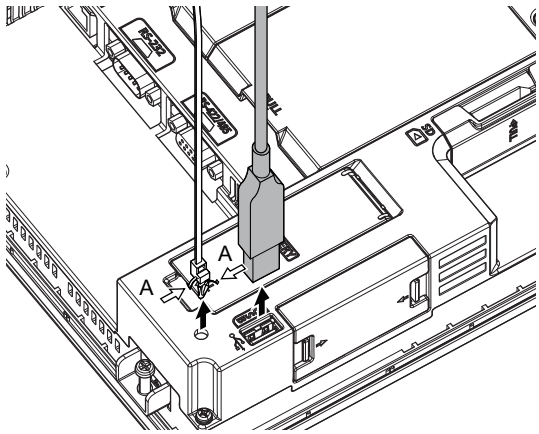
6.14.2 Removing the USB cable

When removing the mounted cable clamp and USB cable, refer to the following procedure.
(Cable clamp used in this example: RSG-130-V0, KITAGAWA INDUSTRIES CO.,LTD.)

Step 1. Remove the cable clamp band
Draw out the band while pushing up the tab of the cable clamp with a screwdriver or other tools.

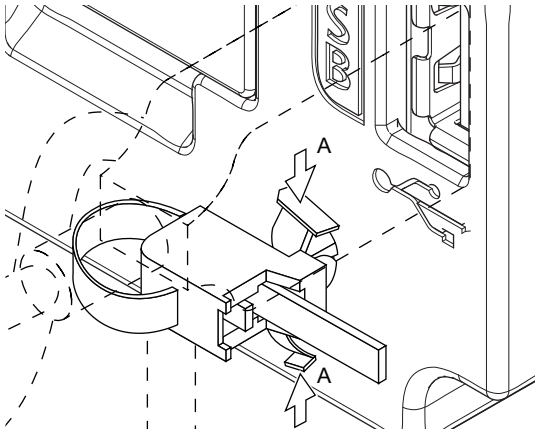


Step 2. Remove the cable clamp while holding its both sides (Arrow A in the figure). Removing the USB cable



POINT

The USB cable can be removed from the unit with the cable clamp. Remove the cable with holding both sides of the cable clamp (Arrow A in the figure).



7. WIRNG OF POWER SUPPLY SECTION

⚠WARNING

- Be sure to shut off all phases of the external power supply used by the system before wiring.
  Failure to do so may result in an electric shock, product damage or malfunctions.
- 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. (GT21 does not have the LG terminal.)
- 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 to be connected, and tighten the mounting screws and the terminal screws in the specified torque range.
  Undertightening can cause a short circuit or malfunction.
  Overtightening can cause a short circuit or malfunction due to the damage of the screws or unit.

This section describes wiring to the GOT power supply section.
For the connection to a controller, refer to the following manual.

➠ GOT2000 Series Connection Manual For GT Works3 Version1 compatible for a controller used

For external dimensions of connection cable, refer to the following.

➠ 11. APPENDICES

POINT

General preventive measures against noise

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

(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 a surge suppressor on the terminal of the molded case circuit breaker (MCCB), electromagnetic contactor, relay, solenoid valve, or induction motor to supress the noise.

(3) Releasing noise to the ground

(a) Make sure to connect the ground cable to the ground.

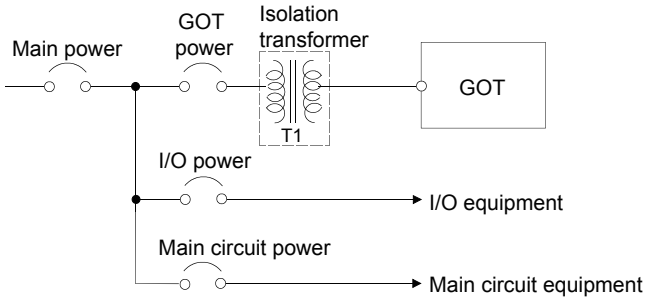
(b) Use a short and thick cable to lower its ground resistance.

(c) Ground the power system and the control system separately.

7.1 Wiring of External Power Supply

■1. Separating the power supply system

Carry out wiring so that the power supply system is separated into the GOT, I/O equipment, and power equipment as shown below.
When frequent noise is identified, connect an isolation transformer.



■2. Separating the power cables from the main circuit line and the I/O signal line

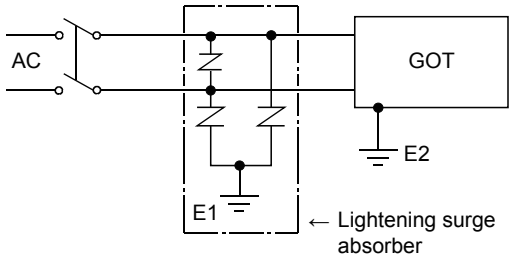
Separate the 100 V AC, 200 V AC, and 24 V DC cables from the main circuit lines (high voltage, large current) and I/O signal lines.
Separate them with a distance of 100 mm or more as a guide.

■3. Treatment on power cables

Twist 100 V AC, 200 V AC, and 24 V DC cables as closely as possible, and connect the cables with the minimum length between the power supply and each device.
To minimize the voltage drop, use thick wires as much as possible (Cable cross section: 0.75 mm2 to 2 mm2).
Use M3 solderless terminals, and securely tighten them with a tightening torque of 0.5 N·m to 0.8 N·m to prevent any problems.

■4. Connecting the lightning surge absorber

As measures against surge due to lightning, connect a lightning surge absorber as shown below.

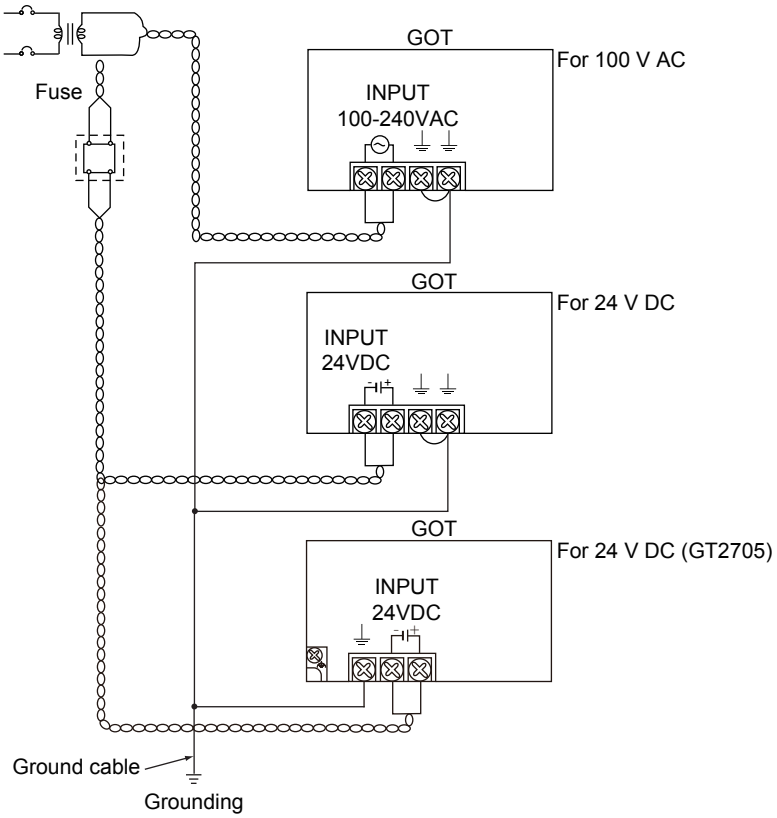


Separate the grounding of the lightning surge absorber (E1) from the grounding of the GOT (E2).
Select an appropriate lightning surge absorber that has the maximum allowable circuit voltage withstanding the maximum power supply voltage.

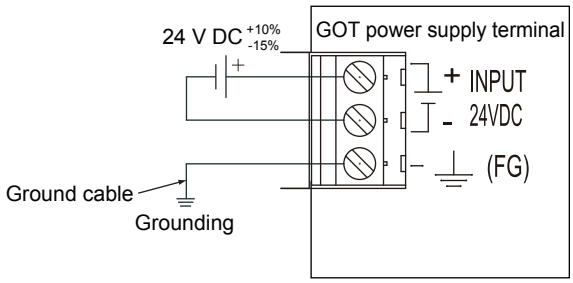
7.2 Power Supply Wiring to th GOT

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

GT27, GT25, GT23



GT21



■1. Precautions

(1) Treatment on power cables

For 100 V AC, 200 V AC, and 24 V DC cables, use thick wires as much as possible (Cable cross section: 0.75 mm^2 to 2 mm^2), and make sure to twist them to the terminals.
To prevent a short circuit due to loose screws, use a solderless terminal with an insulation sleeve.

(2) Grounding

After connecting the LG terminal and the FG terminal, make sure to connect them to the ground.
Otherwise, the system is susceptible to noise.
The LG terminal has a potential equal to a half of the input voltage.
Therefore, touching the terminal may lead to an electric shock.
For GT2705-V, connect only the FG terminal because the model does not have the LG terminal.

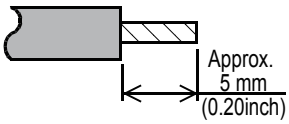
■2. Precautions (GT21)

(1) Terminal processing of power cables

Connect a stranded wire or a single wire directly, or use a rod terminal with an insulation sleeve.
Do not tighten the terminal screws in the specified torque range or more. Doing so can cause a failure or malfunction.

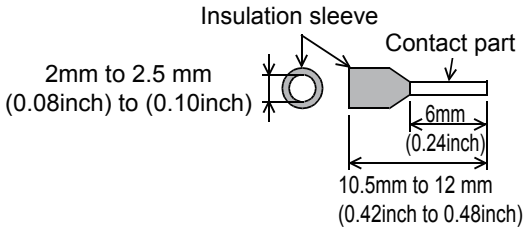
(a) When connecting a stranded wire or a single wire directly

Twist the end of the stranded wire to prevent the elemental wires from protruding.
Do not apply solder plating on the wire terminal.



(b) When using a rod terminal with an insulation sleeve

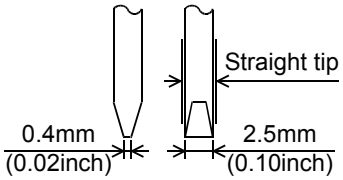
A wire with a thick sheath cannot enter the insulation sleeve smoothly. Select a wire referring to the figure of external dimensions below.



Manufacturer	Swage
PHOENIX CONTACT	CRIMPFOX UD6

(2) Tool

Tighten the power supply terminal using a commercially-available small screwdriver. The tip of the screwdriver must be straight and as wide as the shaft, as shown in the figure below.



Manufacturer	Model
PHOENIX CONTACT	SZS 0.4 × 2.5

7.3 Grounding

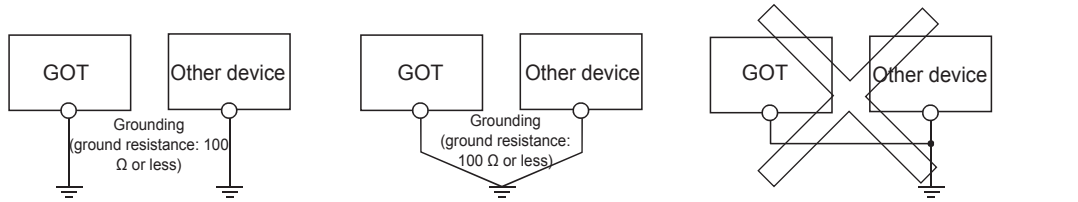
Each GOT has the following ground terminals.
• GT27 (except GT2705-V), GT25, GT23: FG terminal and LG terminal
• GT2705-V, GT21 : FG terminal

7.3.1 Grounding the GOT

■1. Grounding method

Ground the GOT as shown below.

- Use independent grounding as much as possible for the GOT.
  Ground the GOT with a ground resistance of 100 Ω or less.
- When independent grounding cannot be applied for the GOT, use shared grounding as shown in (2) below.



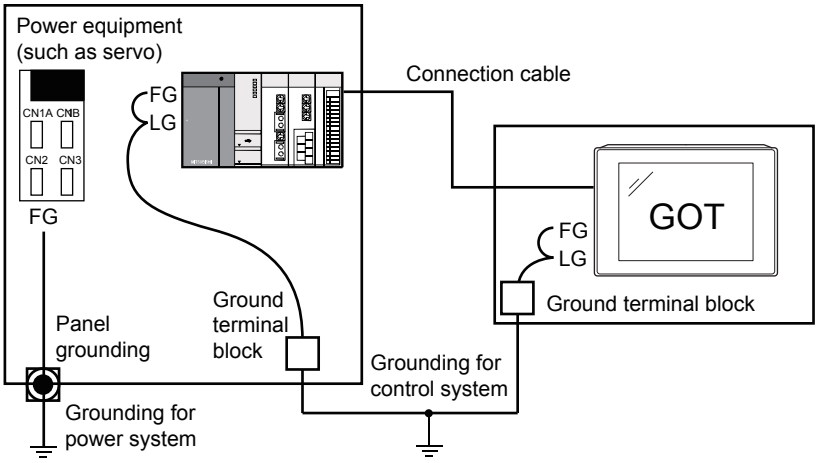
(1) Independent grounding····· Best (2) Shared grounding····· Good (3) Common grounding·····Not allowed

- For the grounding methods of (1) and (2) above, use a cable with 2 mm^2 or more cross section.
  Make a ground point near the GOT as much as possible to shorten the ground cable.

■2. Grounding examples

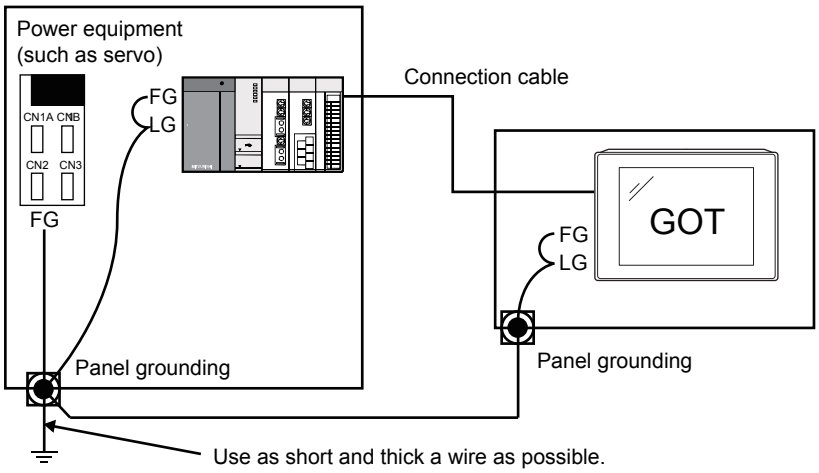
(1) Independent grounding (Best)

For grounding for control system, ground the system at one end.
Especially for the control devices communicating each other, ground the system at one end.



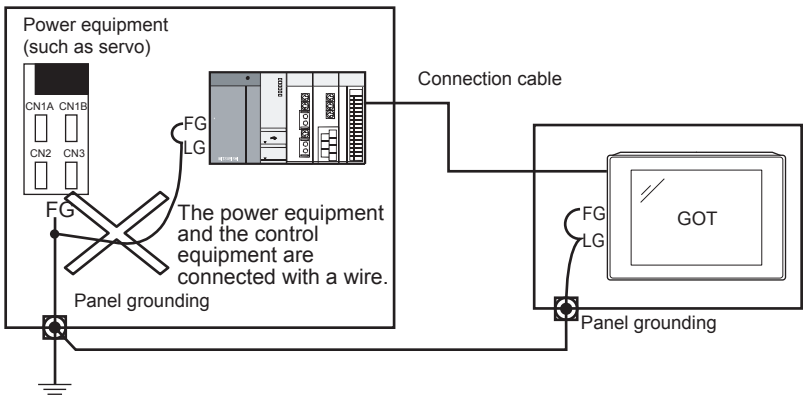
(2) Shared grounding (Good)

Ground the system at one end.
To prevent noise from entering the GOT, use a short and thick wire for grounding between the ground and the control panel to lower ground resistance.

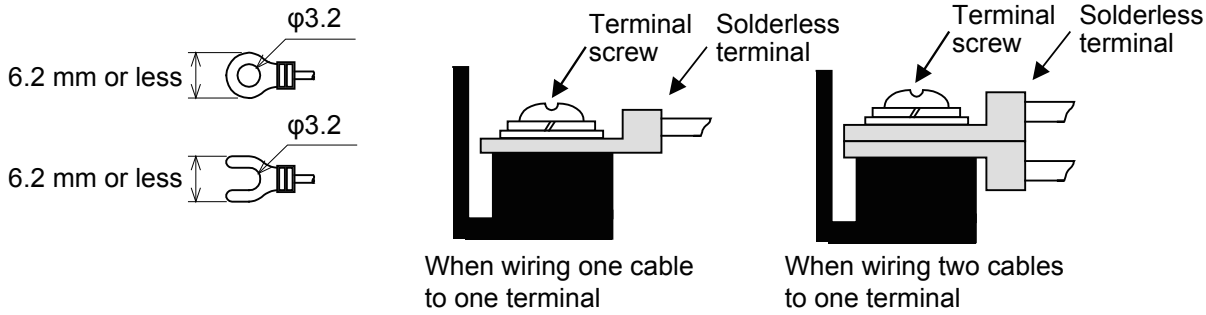


(3) Common grounding (Not allowed)

Do not connect the ground cables of the power equipment and control equipment with a wire.
When the cables are connected, noise from the power equipment may affect the control equipment, causing a malfunction.



■3. Recommended terminal shape



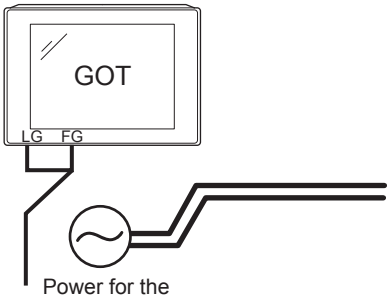
Applicable solderless terminal
RAV1.25-3, V2-S3.3, V2-N3A, FV2-N3A

7.3.2 Causes of wiring-related malfunction and countermeasure examples

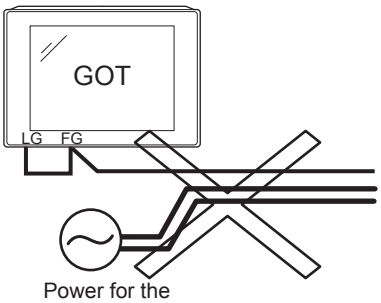
Causes of a malfunction due to grounding of the GOT include potential difference caused by grounding and noise.
The following measures may reduce potential difference and noise.

■1. Wiring of the ground cable and power line of the GOT

When the ground cable and power line of the GOT are installed together, the GOT may malfunction due to noise.
Separating the ground cable and power line of the GOT in wiring reduces the influence of noise.



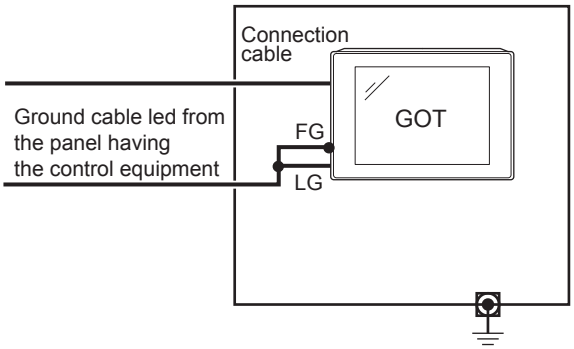
Good example: The ground and power cables are separated in wiring.



Bad example: The ground and power cables are installed together.

■2. When leading the ground cable from the control panel having control equipment into the control panel having the GOT

When a single ground cable is led from the control panel having control equipment, including a PLC, into the control panel having the GOT, the cable may be directly connected to the power terminal of the GOT.

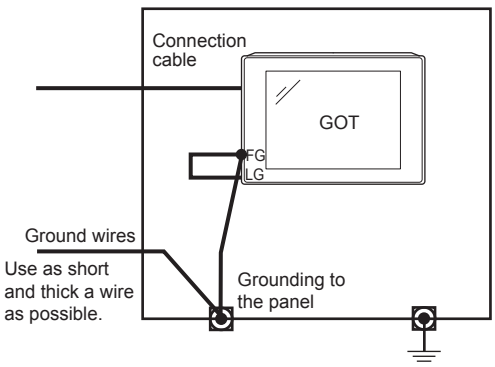


The malfunction due to the potential difference caused by the grounding in such a case may be prevented by reducing the voltage as shown in countermeasure example 1 below.

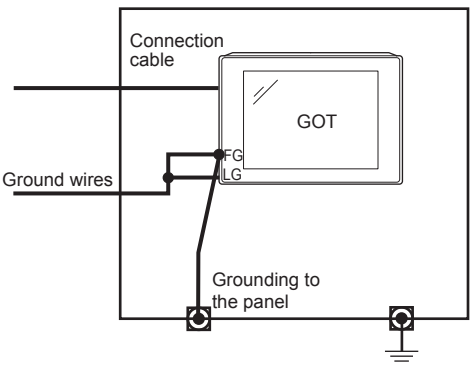
(1) Countermeasure example 1

When any potential difference between the ground cable and the control panel having the GOT affects the GOT, also connect the ground cable to the control panel.
When Countermeasure example 1-1 is difficult to be taken, such as the wiring is impossible, carry out wiring as shown in Countermeasure example 1-2.

Measure example 1-1



Measure example 1-2

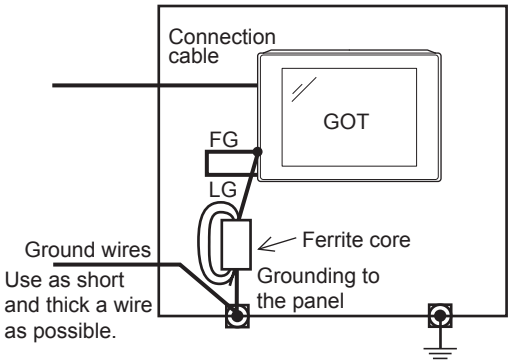


If noise further affects the GOT by taking Countermeasure example 1, Countermeasure example 2 may reduce the influence of noise.

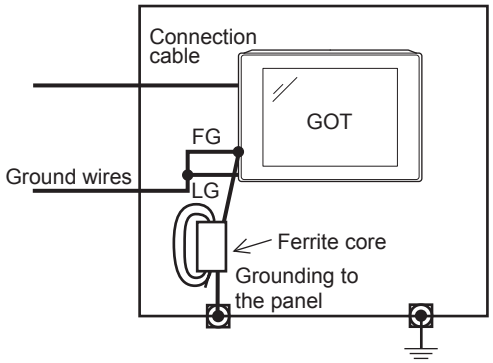
(2) Countermeasure example 2

If the noise from the control panel having the GOT adversely affects the GOT even after Countermeasure example 1 is taken, attach the ferrite core (KITAGAWA INDUSTRIES CO.,LTD. RFC-H13 or equivalent).
When attaching a ferrite core, insert the cable through the ferrite core several times (approximately three times).
When Countermeasure example 2-1 is difficult to be taken, such as the wiring is impossible, carry out wiring as shown in Countermeasure example 2-2.

Measure example 2-1



Measure example 2-2



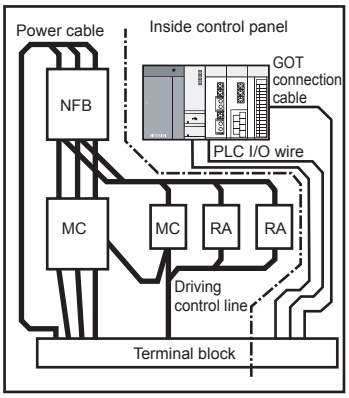
7.4 Wiring Inside and Outside the Control Panel

7.4.1 Control panel inside wiring

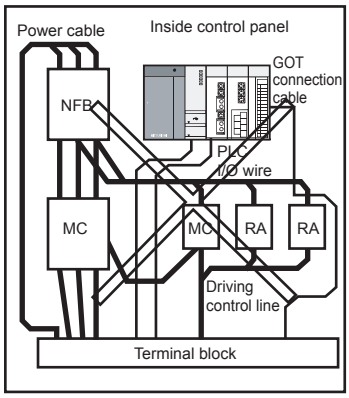
As shown in the following figure, power lines, including power cables and servo amplifier driving cables, and communication cables, including bus connection cables and network cables, must not be mixed.
Mixing the power lines and communication cables may cause a malfunction due to noise.
When devices that generate surge noise, including a molded case circuit breaker (MCCB), electromagnetic contactor (MC), relay (RA), solenoid valve, and induction motor, are used, a surge suppressor is effective.
For the surge suppressor, refer to the following.

➠ 7.5 Attaching a Surge Suppressor to Control Equipment

Separately wired power lines and communication cables



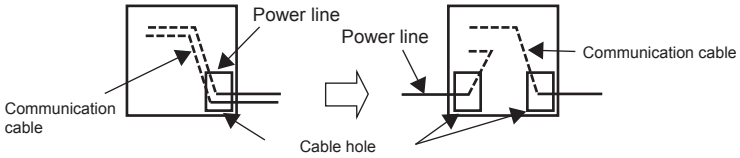
Mixed power lines and communication cables



7.4.2 Control panel outside wiring

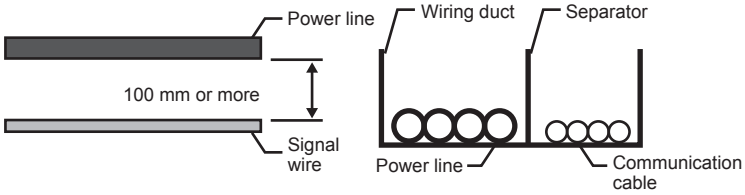
To lead the power line and the communication cable outside the control panel, open cable holes at two separate places to lead the cables separately out.
When the cables are led out through the same cable hole for wiring reasons, the cables are more easily affected by noise.

Wiring the power lines and the communication cables outside the control panel



Separate the power line and communication cable each other 100 mm or more in the duct.
When the cables are close each other for wiring reasons, use a separator (made of metal).
Doing so reduces the noise influence.

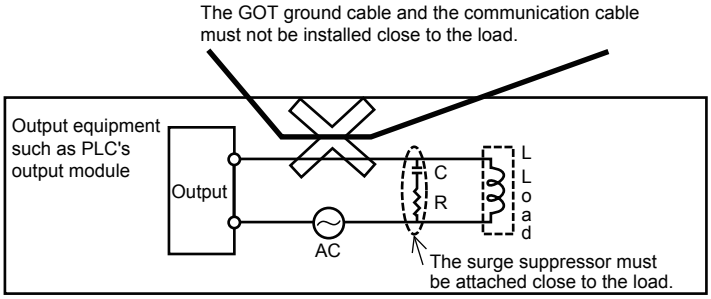
Wiring of power line and communication cable in the duct



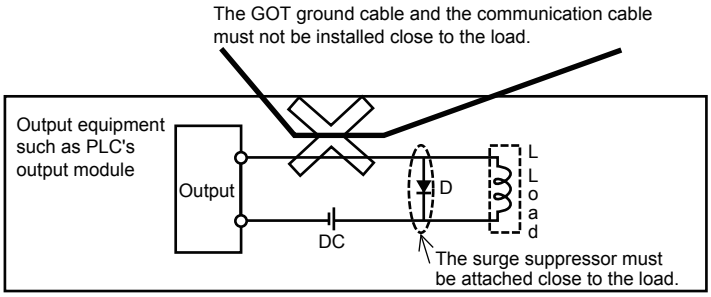
7.5 Attaching a Surge Suppressor to Control Equipment

When the GOT fails to work properly, for example a communication error occurs, in synchronization with the ON/OFF status of the specific control equipment, including a molded case circuit breaker, electromagnetic contactor, relay, solenoid valve, and induction motor (hereinafter described as load), the GOT may be affected by surge noise.
In such a case, separate the ground cable and the communication cable from the load.
When the ground cable or communication cable has to be installed close to the load, attaching a surge suppressor is effective.
Attach a surge suppressor closest to the load.

■1. Measures against AC inductive load



■2. Measures against DC inductive load



7.6 Grounding the Extension Unit

7.6.1 Wiring of the FG cable of a bus connection cable

This section explains wiring of FG cables when a GOT is connected to a PLC CPU with bus connection cables.

POINT

Cables connected to the PLC CPU

Do not install the connection cable together with or close to the main circuit lines (high voltage, large current) or I/O signal lines.

■1. Connecting the QCPU/motion controller CPU (Q series) and GOT

Grounding of the FG cable for the QCPU and motion controller CPU (Q series) is unnecessary since they have no FG cable.

■2. Connecting the QnACPU/ACPU/motion controller CPU (A series) and GOT

Ground a GOT as shown below when GT15-C□EXSS-1 or GT15-C□BS is used.

POINT

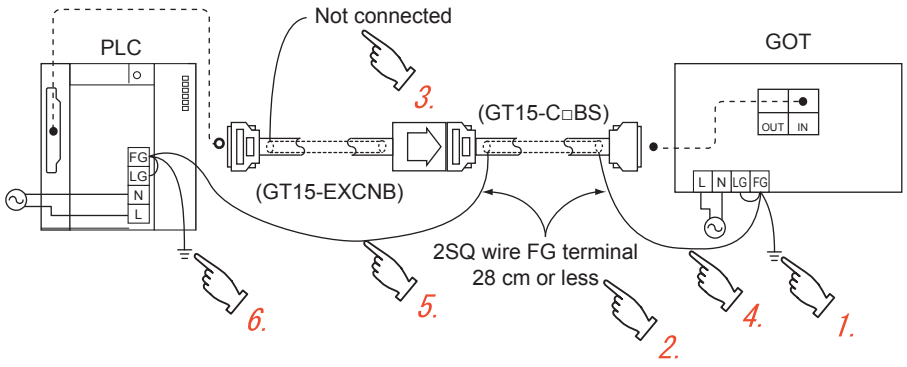
(1) Terminals of the GOT

Layout of terminal blocks of a GOT differs depending on the GOT model.
Check the terminal layout of the GOT to be used and perform wiring.

(2) Ground cables

Up to two ground cables can be connected to each of LG and FG of the GOT.
When three or more ground cables need to be connected, connect the third and later cables to the LG.

(1) For GT15-C□EXSS-1



Step 1. Connect the LG and FG of the GOT power supply at the terminal block and ground them with one cable.

Step 2. Wire the FG cable of the GT15-C□BS. The length of the cable must be 28 cm or shorter.

Step 3. Do not connect the ground cable for FG of the GT15-EXCNB.

Step 4. Connect the FG cable of the GT15-C□BS at the GOT side to FG of the power terminal block of the GOT.

Step 5. Connect the FG cable of the GT15-C□BS at the PLC side to the FG of the power supply module of the PLC.

Step 6. Connect the LG and FG of the PLC at the terminal block and ground them with one cable.

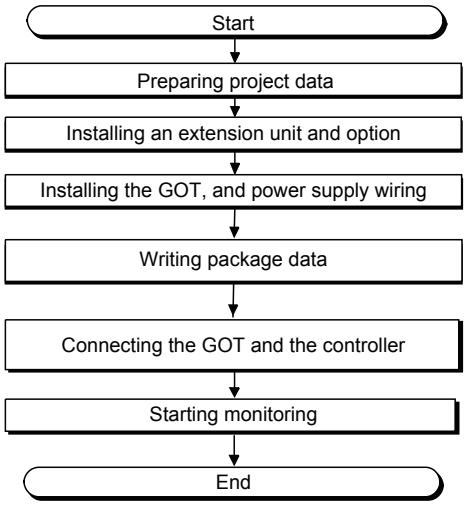
(2) For GT15-C□BS

Perform the grounding at the GOT side (described in (1)) for both GOTs.

8. OPERATING THE GOT

8.1 Outline Procedure to Start the GOT

This section explains the outline procedure to operate the GOT.



■1. Preparing project data

Step 1. Install GT Designer3 Version1 on the personal computer.
For how to install GT Designer3 Version1, refer to the following.

➠ GT Works3 Version1 Installation Instructions

Step 2. Create project data with GT Designer3 Version1.
For how to use GT Designer3 Version1 and create project data, refer to the following.

➠ GT Designer3 (GOT2000) Help

■2. Installing an extension unit and option

Step 1. Install options other than the SD card and USB memory to the GOT.
For how to install options, refer to the following.

➠ 6.9 Installing the Battery

➠ User's Manual of each option

Step 2. Install an extension unit to the GOT.
For how to install extension units, refer to the following.

➠ 6.8 Installing and Removing the Extension Unit

■3. Installing the GOT, and power supply wiring

Step 1. Install the GOT to the control panel.
For how to install the GOT, refer to the following.

➠ 6.6 Installing the GOT

Step 2. Carry out wiring of power cables for the GOT.
For the wiring of power cables, refer to the following.

➠ 7. WIRNG OF POWER SUPPLY SECTION

■4. Writing package data

Write package data with GT Designer3 Version1.
The writing procedure differs depending on the data writing method.

POINT

Terms

(1) Basic software

The basic software is equivalent to an operating system of the GOT.
A GOT in which no basic software is written cannot be started.

(2) Package data

The package data contains project data and applications necessary to execute the project data.
Writing the package data into the GOT enables you to use the user-created project data on the GOT.

(1) Writing package data directly from a personal computer to the GOT

Connect the GOT and a personal computer, and write the package data to the GOT.

Step 1. Connect the personal computer and GOT.

- USB:
  Connect the USB interface (Device) and the USB port of the personal computer with a USB cable.
- Ethernet:
  Connect the Ethernet interface and the Ethernet port of the personal computer with an Ethernet cable.
  To write the package data to the GOT by Ethernet, install the basic software to the GOT and configure the communication settings to enable the communication between the GOT and the personal computer by Ethernet in advance.
- Via PLC:(GT27, GT25 only)
  Connect the GOT and the personal computer via the PLC connected to the GOT.

For each connection setting, refer to the following.

➠ GT Designer3 (GOT2000) Help

Step 2. Turn on the GOT.

Step 3. Write the package data with GT Designer3 Version1.
For how to write the package data, refer to the following.

➠ GT Designer3 (GOT2000) Help

(2) Writing package data from the data storage to the GOT

Write the package data to the GOT using the data storage such as an SD card.

Step 1. Install a data storage such as an SD card to the personal computer.

Step 2. Write the package data to the data storage with GT Designer3 Version1.
For how to write the package data, refer to the following.

➠ GT Designer3 (GOT2000) Help

Step 3. Install the data storage to the GOT.

- SD card (A drive): Insert the card to the SD card interface.
- USB memory (Drive B): Insert the memory to the USB interface (Host).
- Other data storage (Drive B to drive G): Connect the storage to the USB interface (Host).

Step 4. Turn on the GOT.
To start the GOT with the built-in flash memory (Drive C), write the package data to the built-in flash memory (Drive C) of the GOT.
For how to write the package data, refer to the following.

➠ GOT2000 Series User's Manual (Utility)

To start the GOT with the data storage (Drive A, B, D to G), writing the package data to the built-in flash memory (Drive C) of the GOT is not required.

■5. Connecting the GOT and the controller

Step 1. Check the communication settings in the utility screen of the GOT.

➠ GOT2000 Series User's Manual (Utility)

Step 2. Turn off the power of the GOT.

Step 3. Connect the GOT and controller with a cable.

➠ GOT2000 Series Connection Manual For GT Works3 Version1 compatible for a controller used

■6. Starting monitoring

Step 1. Turn on the GOT and the connected system.

Step 2. The GOT starts monitoring.

POINT

Precautions when the startup source of the GOT is any other than the built-in flash memory (Drive C)

(1) GOT startup time

The GOT startup time is longer than the normal startup time.
The GOT startup time differs depending on the data storage type, number of written applications, and package data size.

(2) Handling the SD card during the GOT startup

When the startup source is the SD card (Drive A), do not open the cover of the SD card interface during the GOT startup.
Doing so causes the GOT to fail to start normally.

(3) Corrective actions when the GOT cannot be started

The GOT cannot be started in any of the following conditions.
Take the following corrective actions, and turn on the GOT again.

Condition	Corrective action
The type of the physical GOT differs from the GOT type of the package data stored in the SD card.	Prepare the SD card that stores the package data containing the GOT type same as the GOT to be used.
The GOT has insufficient memory.	Delete unnecessary data in the memory of the GOT. ➠ GT Designer3 (GOT2000) Help

8.2 Creating Project Data

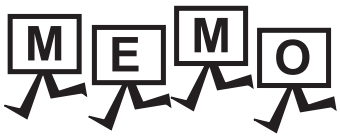
Create project data with GT Designer3 Version1.
For how to operate GT Designer3 Version1, refer to the following.

➠ GT Designer3 (GOT2000) Help

■1. Precautions for drawing

(1) Starting GT Designer3 Version1

When starting GT Designer3 Version1, make sure to start the GOT2000 application.
You cannot create the GOT2000 screens with the GOT1000 application.


MEMO

9. MAINTENANCE AND INSPECTION

⚠ WARNING

- When power is on, do not touch the terminals.
  Doing so can cause an electric shock or malfunction.
- Correctly connect the battery connector.
  Do not charge, disassemble, heat, short-circuit, solder, or throw the battery into the fire.
  Doing so will cause the battery to produce heat, explode, or ignite, resulting in injury and fire.
- 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 from the cable portion.
  Doing so can cause the unit or cable to be damaged or can cause a malfunction due to a cable connection fault.
- Before touching the unit, always touch grounded metals, etc. to discharge static electricity from human body, etc.
  Not doing so can cause the unit to fail or malfunction.
- When disposing of this product, treat it as industrial waste.
  When disposing of batteries, separate them from other wastes according to the local regulations.
  (Refer to 9.4 Low-voltage Battery Detection and Battery Replacement for details of the battery directive in the EU member states.)

9.1 Daily Inspection

The GOT does not have consumable components that shorten its life.
However, the battery and liquid crystal display have limited life.
The periodical replacement of the battery is recommended.
For replacing the liquid crystal display, consult Mitsubishi Electric System & Service Co., Ltd.
For the battery and the liquid crystal display, refer to the following.

➠ 3.2 Performance Specifications

■1. Daily inspection items

Item	Inspection item		Inspection method	Criterion	Corrective action
1)	GOT installation status		Check for loose screws.	Securely tightened	Retighten screws with the specified torque.
2)	Connection status	Loose terminal screws	Retighten screws with a screwdriver.	Not loose	Retighten terminal screws.
		Proximity of solderless terminals	Visual check	Proper intervals	Correct intervals.
		Loose contactors	Visual check	Not loose	Retighten contactor fixing screws.
3)	Usage status	Dirt on the protective sheet	Visual check	Not outstanding	Replace the sheet with a new sheet.
		Foreign material adherence	Visual check	No foreign matter adherence	Remove and clean the foreign material.

For the model of the protective sheet and the replacement procedure, refer to the following.

➠ User's manual of the protective sheet

9.2 Periodic Inspection

■1. Half-yearly or yearly inspection items

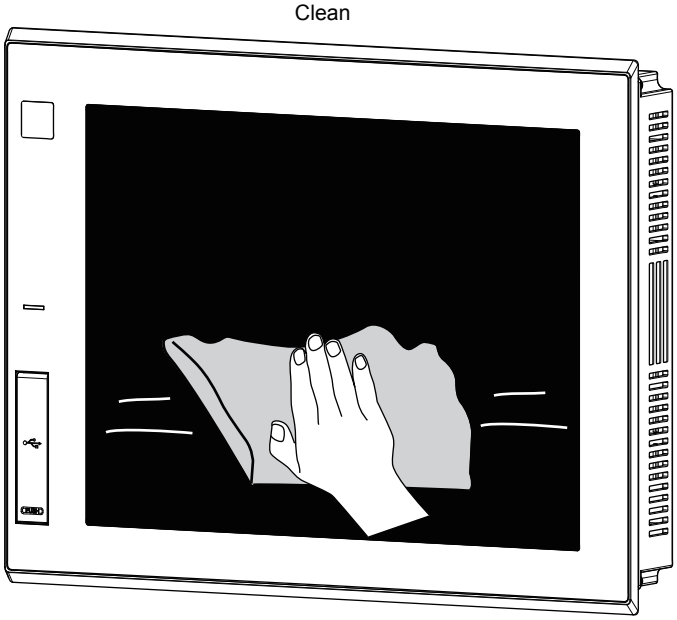
Inspect the following items when moving or modifying equipment, or changing wiring.

Item	Inspection item		Inspection method	Criterion		Corrective action
1	Surrounding environment	Ambient temperature	Measure corrosive gas with a thermometer or hygrometer.	Display section	0 °C to 40 °C	For use in a control panel, the control panel inside temperature is the ambient temperature.
				Other sections	0 °C to 55 °C	
		Ambient humidity		10 % RH to 90% RH		
		Atmosphere		No corrosive gas		
2	GOT with 100 V AC - 240 V AC power	Power supply voltage check	Measure voltage across the 100 V AC terminal to the 240 V AC terminal.	85 V AC to 242 V AC		Change the power supply.
	GOT with 24 V DC power	Input polarity of 24 V DC power	Measure voltage across 24 V DC terminals.	Left: - Right: +		Change wiring.
3	Installation status	Looseness	Move the unit.	Mounted firmly		Retighten screws.
		Foreign material adherence	Visual check	No foreign matter adherence		Remove and clean the foreign material.
4	Connection status	Loose terminal screws	Retighten screws with a screwdriver.	Not loose		Retighten terminal screws.
		Proximity of solderless terminals	Visual check	Proper intervals		Correct intervals.
		Loose contactors	Visual check	Not loose		Retighten contactor fixing screws.
5	Battery		Check the voltage status of the GOT built-in battery in [Time] of the utility. ➠ GOT2000 Series User's Manual (Utility)	No alarm		Replace the battery with a new battery when the current battery has reached the specified life span, even if the low voltage is not indicated.

9.3 Screen 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 or ethanol.

Clean



POINT

Precautions for screen cleaning

Do not use solvents such as acetone, benzene, toluene, and alcohol.
Solvents may deform the protective sheet or peel the dissolvable paint on the surface.
In addition, do not use spray solvents.
Doing so may cause an electrical failure of the GOT and peripheral devices.

9.4 Low-voltage Battery Detection and Battery Replacement

■1. Low-voltage battery detection and battery replacement

The battery is used to hold the SRAM data, clock data, and backup data of the system status log data.
The periodical replacement of the battery is recommended.
For the battery replacement procedure, refer to the following.

➠ 6.9 Installing the Battery

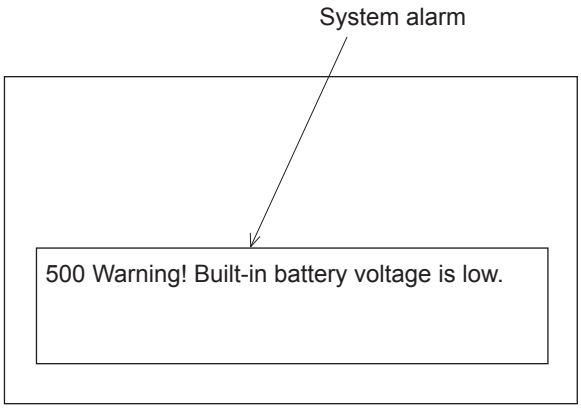
You can check if the battery has a low voltage by using the utility and the system alarm.

For details of the battery status display by using the utility, refer to the following.

➠ GOT2000 Series User's Manual (Utility)

The system alarm enables the GOT to display the message notifying the low-voltage battery when the battery voltage is low.
To display the message by the system alarm, set [Battery alarm display] to ON.

➠ GOT2000 Series User's Manual (Utility)



For the details of the system alarm, refer to the following.

➠ GT Designer3 (GOT2000) Help

POINT

Battery replacement timing

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

■2. Handling of batteries and devices with built-in batteries in EU member states

This section explains the precautions for disposing of waste batteries in EU member states and for exporting batteries and devices with built-in batteries to EU member states.

(1) Precautions for disposal

EU member states have a separate collection system for waste batteries.
Dispose of batteries properly at the local community waste collection/recycling center.
The following symbol is printed on batteries and packaging of devices with built-in batteries used for Mitsubishi Graphic Operation Terminal (GOT).

POINT

This symbol is valid in the EU member states only.
The symbol is specified in Article 20 "Information for end-users" and ANNEX II of the new EU Battery Directive (2006/66/EC).

The symbol indicates that batteries need to be disposed of separately from other wastes.

(2) Precautions for export

The new EU Battery Directive (2006/66/EC) requires the following when batteries and/or devices with built-in batteries are sold and exported to EU member states.

- To print the symbol on batteries, devices, or their packaging
- To explain the symbol in the manuals of the products

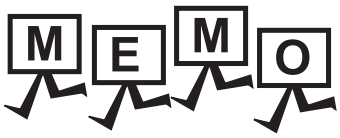
The batteries and/or devices with built-in batteries manufactured before the EU Battery Directive (2006/66/EC) took effect are also subject to the directive.

(a) Labelling the symbol

To market or export batteries and/or devices with built-in batteries, which have no symbol, to EU member states, print the symbol as shown in (1) above on the GOT or its packaging.

(b) Attaching the manual

To export devices incorporating the GOT to EU member states, attach this manual.
If no GOT manual is included with the equipment, separately attach an explanatory note regarding the symbol to the manuals of each device.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10. TROUBLESHOOTING

10.1 GOT Restoration Sheets

This section provides check sheets for restoration in cases where the GOT does not operate normally.
The following explains how to use each sheet.

■1. When the GOT does not operate or malfunctions (GOT status check sheet)

When the GOT does not operate or malfunctions, identify the cause of the malfunction using ■the GOT status check sheet, and take a corrective action.
When the GOT is restored, see the status for a while.

■2. When the wiring needs to be improved (GOT installation status check sheet)

As a result of the above check (1), the cause of the malfunction or others is thought to be due to the noise generated by the GOT wiring status, take a corrective action for wiring by using the GOT installation status check sheet.
When the GOT is restored, see the status for a while.

■3. When a corrective action other than the above is required (System configuration check sheet)

If a malfunction or others still occurs even after the above checks, fill out the system configuration check sheet with details about your system, and consult your local Mitsubishi Electric System & Service Co., Ltd.
When sending a faulty product, attach the GOT restoration sheets (GOT status check sheet, GOT installation status check sheet, and the system configuration check sheet) checked in this section.
Keep copies of the restoration sheets.

10.1.1 GOT status check sheet

Check the GOT starting from ■1. GOT status.
Mark checkboxes that apply.to the symptom of your GOT.
Proceed according to the corrective actions.

■1. GOT status

(1) Check of failure frequency, such as the GOT does not operate and an error occurs on the screen

Check	Symptom	Cause	Corrective action
□	Always occurs.	• Frequency: Example: Once a month	Proceed to (2).
□	Occurs sometimes.		

(2) Check of the displayed error code (system alarm)

Check	Symptom	Cause	Corrective action
□	Can be checked.	• Error code (system alarm): Example: 460 Communication unit error	Take the corrective action for the error code (system alarm) or error message. If the status does not change with the corrective action, proceed to (3).
□	Cannot be checked.		Proceed to (3).

(3) Check of the POWER LED

Check	Symptom	Cause/status	Corrective action
□	Lit in blue. (GT27, GT25, GT23 only)	The power is supplied normally.	Proceed to (4).
□	Lit in orange (GT27, GT25, GT23 only)	Screen saving is being performed. When the read device of the system information was set, the device was turned on and the screen was switched to the forced screen saving status.	Check the setting of the read device. If no problem is found in the setting, proceed to (4).
□	Blinks in orange/blue. (GT27, GT25, GT23 only)	A backlight failure has occurred.	Proceed to ■5. Faulty product investigation. If the GOT is not restored, proceed to (4).
□	Not lit	The power is not supplied.	Check if the power is supplied. If the GOT is not restored, proceed to . ■5. Faulty product investigation
		If the power is supplied, the GOT hardware may be faulty.	

(4) Check of the screen display

Check	Symptom	Cause/status	Corrective action
□	The screen is completely black.	The LCD or basic software may be faulty.	Perform the following in order. 1) Write the package data again. 2) Install the basic software again. If the GOT is not restored by the above operations, proceed to ■5. Faulty product investigation.
□	The screen is completely white.	The GOT hardware may be faulty.	Proceed to ■5. Faulty product investigation.
□	A line is displayed on the screen.	The GOT hardware may be faulty. Example: A vertical line is displayed. 	
□	Other faulty displays		
□	The screen freezes.	The screen display is not updated and any operation is unavailable.	Proceed to (5).

(5) Check of buzzer sound

Check	Symptom	Cause/status	Corrective action
□	No buzzer sound	-	Proceed to ■2. Status of the GOT when it freezes (screen operation stopped).
□	Continues to beep randomly.	• Buzzer sound:	
□	Continues to beep in a particular pattern.	Example: The rhythm repeats as three beeps, one beep, and two beeps.	
□	Beeps continuously.	When the read device of the system information was set, the device was turned on and the Buzzer Output signal was input.	Check the setting of the read device. If the Buzzer Output signal has no error, proceed to ■2. Status of the GOT when it freezes (screen operation stopped).

■2. Status of the GOT when it freezes (screen operation stopped)

(1) Check of switching to the utility screen

Check	Symptom	Cause/status	Corrective action
□	Possible	• Error code (system alarm): Example: 460 Communication unit error	When the system alarm display function can be used, take the action for the error code (system alarm) displayed. If the corrective action cannot be taken, proceed to (2).
□	Impossible	The system alarm cannot be used.	Proceed to (3).

(2) Executing the I/O check from the GOT utility

Check	Symptom	Cause/status	Corrective action
□	Communication error	• Display details: Example: A message indicating that the cause may be a connection error has been displayed.	Proceed to (3).
□	No error	The hardware such as a communication interface has no error.	Proceed to ■3. PLC status.

(3) Check of the objects that are not displayed on the monitor screen

Check	Symptom	Cause/status	Corrective action
□	Found	• Details:	Proceed to ■3. PLC status.
□	Not found	Example: The numerical display object is not displayed.	

■3. PLC status

(1) PLC failure

Check	Symptom	Cause/status	Corrective action
□	Always occurs.	CONTROL-BUS. ERROR, SP. UNIT LAY. ERROR, or others is considered. • Error code (system alarm): Example: 1204 CPU H/W failure	Proceed to the following.
□	Occurs sometimes.	The PLC CPU may be affected by noise or the hardware may be faulty. • Frequency: Example: Once a month • Error code (system alarm): Example: 1204 CPU H/W failure	Proceed to ■4. GOT restoration procedure.
□	Operates normally.	-	

■4. GOT restoration procedure

Follow the procedure below starting from 1), and check if the GOT is restored. Mark the corresponding checkbox.
If the GOT is not restored, proceed to the next check item.

No.	Check item	Check	Cause/status	Corrective action
1)	Press the GOT reset switch. *1*3	□ Restored □ Not restored	If the GOT is restored by the operation on the left, a temporary malfunction or others due to noise is considered.	Take the corrective action of 10.1.2 GOT installation status check sheet.
2)	Power on/off the GOT. *2*3	□ Restored □ Not restored		
3)	Reset or power on/off the PLC CPU.	□ Restored □ Not restored		
4)	Power on/off the GOT and PLC CPU simultaneously.	□ Restored □ Not restored		
5)	Connect the cable again.	□ Restored □ Not restored	If the GOT is restored by the operation on the left, the cable connection may be faulty.	Securely connect the cable. If an error occurs again, proceed to ■5. Faulty product investigation.
6)	Write the package data again.	□ Restored □ Not restored	If the GOT is restored by the operation on the left, data may have been destroyed by an action such as powering off the GOT during the package data writing or basic software installation.	Do not power off the GOT during data transfer. If an error occurs again, proceed to ■5. Faulty product investigation.
7)	Install the basic software again.	□ Restored □ Not restored		
8)	Take the preventive measures against noise (10.1.2 GOT installation status check sheet).	□ Restored □ Not restored	A temporary malfunction or others due to noise is considered.	Take the action in 10.1.2 GOT installation status check sheet.
9)	Replace the unit.	□ Restored □ Not restored	If the GOT is restored by the operation on the left, the unit may has a hardware failure.	Install the failure unit to the GOT again to check that the unit causes the malfunction. After the check, proceed to ■5. Faulty product investigation.
10)	The GOT is not restored even by 1) to 9).	-	-	Proceed to ■5. Faulty product investigation.

*1 Models other than GT23 are the targets. The GOT reset switch does not operate when the bus connection is used.
*2 Models other than GT23 are the targets. When using the bus connection, do not turn off and then on the GOT while the PLC power is on.
Make sure to turn off the PLC first, and turn off and then on the GOT.
*3 Models other than GT23 are the targets. Powering off the GOT causes an error in the control station for the MELSECNET/H connection or in the master station for the CC-Link connection (intelligent device station).

■5. Faulty product investigation

If you cannot restore the GOT, consult your local Mitsubishi Electric System & Service Co., Ltd.
Depending on the problem details, we may ask you to send the faulty product to us.
In that case, attach the GOT status check sheet, GOT installation status check sheet, and system configuration check sheet filled with details about your system.

10.1.2 GOT installation status check sheet

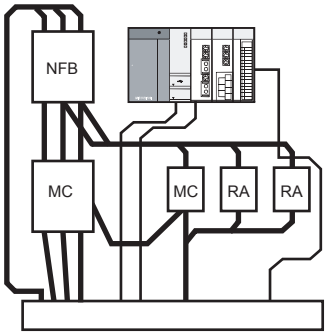
Check the current installation status of your GOT as shown in ■1. to ■7.
According to the status of the GOT found after a check, take measures described below if necessary.
If the measure is taken, mark the effect, "Effective" or "Ineffective".

Each GOT has the following ground terminals.
• GT27 (except GT2705-V), GT25 GT23: FG terminal and LG terminal
• GT2705-V, GT21 : FG terminal

■1. Control panel inside wiring

(1) Current status

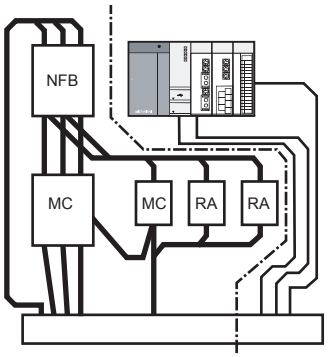
Check if power lines, such as power cables and servo amplifier driving cables, and communication cables, such as bus connection cables (except for GT23) and network cables, are mixed in the wiring duct inside the control panel.



□ Mixed
□ Not mixed

(2) Measure for the mixed cables

Wiring the power lines and the communication cables inside the control panel without mixing them in the duct reduces the influence of noise.

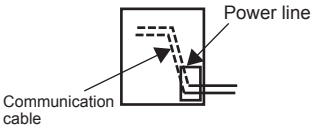


□ Effective
□ Ineffective

■2. Control panel outside wiring

(1) Current status

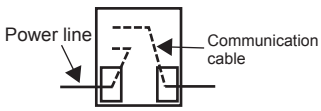
Check if the power line and the communication cable are installed together.



□ Installed together
□ Not installed together

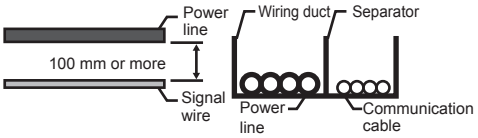
(2) Measure for the cables tied in a bundle

As shown in the figure below, leading the power line and communication cable separately from different places to the outside of the control panel reduces the influence of noise from the power line.



□ Effective
□ Ineffective

Separating the communication cable from the power line or using a separator (made of metal) in the duct, as shown below, reduces the influence of noise.

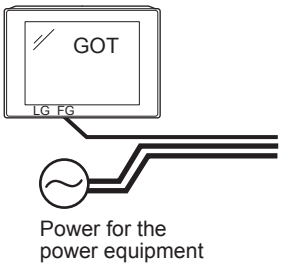


□ Effective
□ Ineffective

■3. Wiring of the FG cable and power line for the GOT

(1) Current status

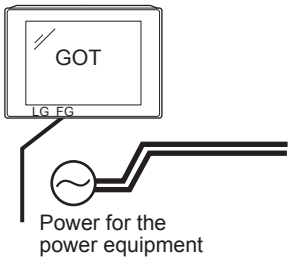
Check if the FG cable and power line of the GOT are installed together.



□ Installed together
□ Not installed together

(2) Measure for the cables tied in a bundle

Separating the FG cable and power line of the GOT reduces the influence of noise.

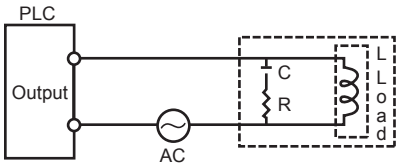


□ Effective
□ Ineffective

■4. Measures against surge

(1) Current status

Check if a surge suppressor is used for the wiring of the load such as a molded case circuit breaker, electromagnetic contactor, relay, solenoid valve, or induction motor.
When a surge suppressor is used, fill in the entry column below with the surge suppressor model and the name of the equipment with the surge suppressor.



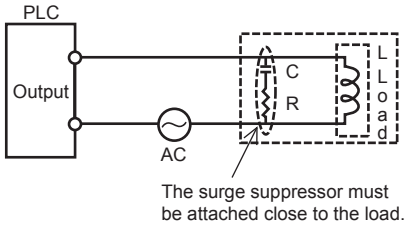
□ Used
□ Not used

Entry column

Surge suppressor model	Equipment name

(2) Measure for the equipment without a surge suppressor

Attaching a surge suppressor close to the load reduces the influence of surge on the GOT.

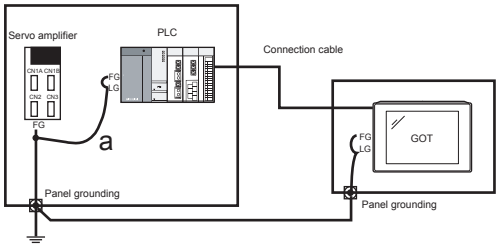


□ Effective
□ Ineffective

■5. Installation status

(1) Current status

Check if the FG cables of the control equipment (such as a PLC) and the power equipment (such as a servo amplifier) are connected as shown in "a" of the following figure.

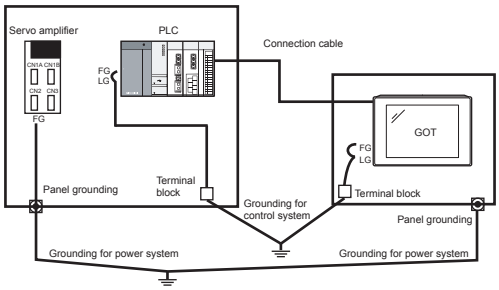


□ Applicable
□ Not applicable

(2) Measure when a single ground cable is led

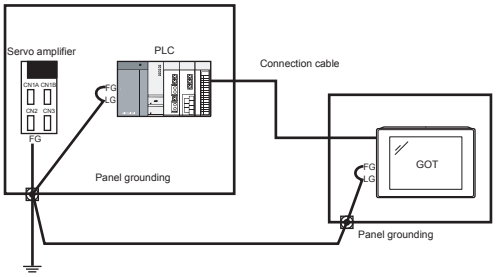
Perform independent grounding at two places as shown in Figure A.
The independent grounding reduces the influence of noise.
When independent grounding is unavailable, perform shared grounding as shown in Figure B.

Figure A



□ Effective
□ Ineffective

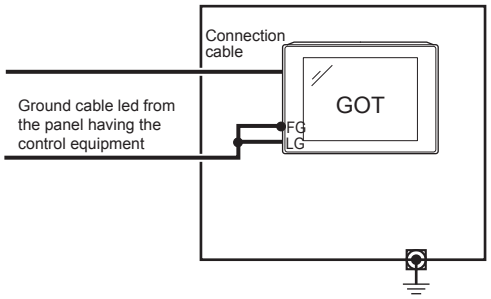
Figure B



■6. Grounding status of the control panel having the GOT

(1) Current status

Check if a single ground cable is led from the control panel having the control equipment such as a PLC to the control panel having the GOT.



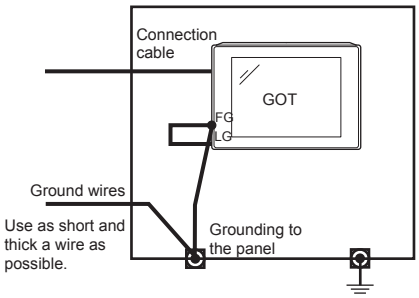
□ Applicable
□ Not applicable

(2) Measure when a single ground cable is led

(a) Measure 1

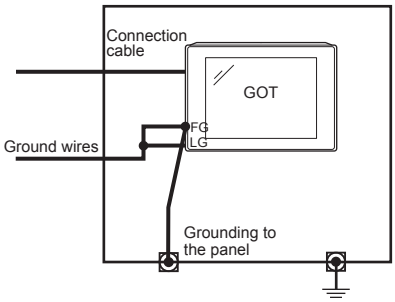
By connecting the ground cable to the control panel having the GOT as shown in Figure A to reduce the potential difference, a malfunction can be prevented.
If wiring as shown in Figure A is unavailable, perform wiring as shown in Figure B.

Figure A



□ Effective
□ Ineffective

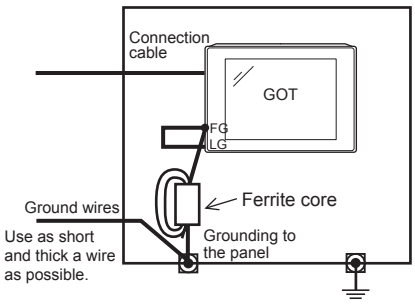
Figure B



(b) Measure 2

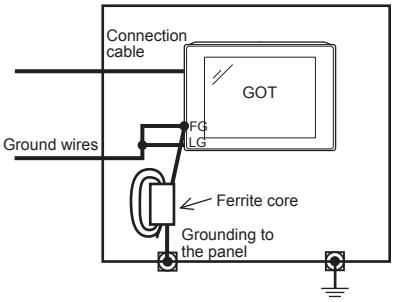
By attaching a ferrite core (KITAGAWA INDUSTRIES CO.,LTD. RFC-H13 or equivalent) to the ground cable connected to the control panel having the GOT as shown in Figure C, the influence of noise is reduced.
If wiring as shown in Figure C is unavailable, perform wiring as shown in Figure D.

Figure C



□ Effective
□ Ineffective

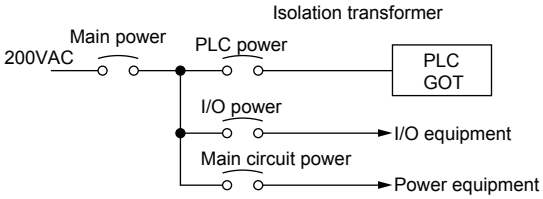
Figure D



■7. Power supply system

(1) Current status

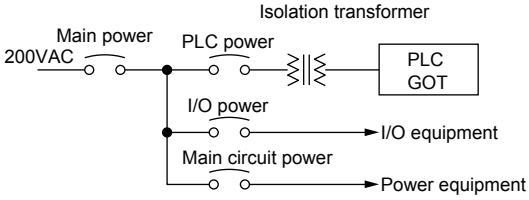
Check if the power is supplied for the GOT, I/O equipment (such as a relay), and power equipment (such as a servo amplifier) from the same system.



□ Applicable
□ Not applicable

(2) Measure when a single ground cable is led

By separately wiring the GOT power and the I/O equipment power/power equipment power, and connecting an isolation transformer, the influence of noise is reduced.



□ Effective
□ Ineffective

10.1.3 System configuration check sheet

Fill in the following table with the details of the system configuration, such as the GOT type and unit model.

■1. System configuration for the GOT

Item		System configuration	
		Usage	Model
GOT (Example: GT2710-STBA)		-	
Communication interface	Communication unit	Used, Not used	
	GOT built-in interface	Used, Not used	
Option unit		Used, Not used	
Cable between the controller and GOT		-	
Cable length		-	
When using any other units or options, describe them.			

■2. System configuration for the PLC

Item	System configuration	
	Usage	Model
Power supply module	-	
CPU	-	
Serial communication module Computer link module	Used, Not used	
Network module	Used, Not used	
Interrupt module	Used, Not used	
Positioning module	Used, Not used	
Number of PLC extension base units	-	extension base units
When using any other units or others, describe them.		

■3. Entry column for recurrence (when the malfunction has occurred after the corrective action was taken)

Describe the operation situation when the GOT screen froze or the GOT display is faulty at the recurrence.

10.2 Troubleshooting for the Bus Connection

If an error occurs in the bus connection between the GOT and the PLC CPU and the cause is not clear with the system alarm, perform the troubleshooting described in this section.
For the details of the system alarm, refer to the following.

➠ GOT2000 Series User's Manual (Utility)

For the details of the bus connection, refer to the following.

➠ GOT2000 Series Connection Manual For GT Works3 Version1 compatible for a controller used

10.2.1 Identifying the error position

This section explains how to identify the error position.
For the details of the PLC CPU error and special register, refer to the User's Manual of the PLC CPU used.

■1. How to identify the error position

Identify the error position, modify the sequence program or replace the module where the error occurs, and check whether the error occurs again.
If the error occurs again, other causes are considered.
Refer to the following to narrow possible error positions.

➠ Refer to the User's Manual of the PLC CPU you use.

(1) Checking the error in the PLC

Step 1. Check the type of the error detected in the PLC using GX Works2 or others.

Step 2. Check each module and the installation and grounding status of the cables according to the error message on the PLC CPU.

(2) Checking the error occurrence timing

Check the timing of the error occurrence.

(a) An error occurs when the power is turned on or immediately after the PLC is reset.

The error may be detected in the initial process of the PLC CPU.
In this case, since the faulty module cannot be usually identified, set only the END instruction in the sequence program and remove the modules one by one.
When the error is eliminated after a specific module has been removed, the module may have caused the error.

(b) An error occurs after or several seconds after a specific operation.

The error may occur in the sequence program.
Check the error step where the error may occur and the sequence program in the step.
You can determine whether the whole sequence program has a problem by setting only the END instruction in the sequence program.

(c) An error occurs when a specific device operates.

A malfunction caused by noise is considered.
Check if any signal line such as a bus connection cable is not installed close to the operating device.
If the line is close to the device, keep a distance of 100 mm or more between the line and the device.

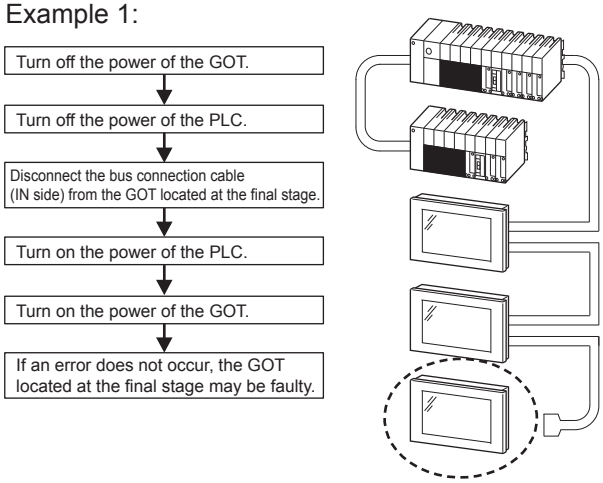
(3) Identifying the module where an error occurs

Identify the module where an error occurs using the PLC CPU error codes and special resister information.

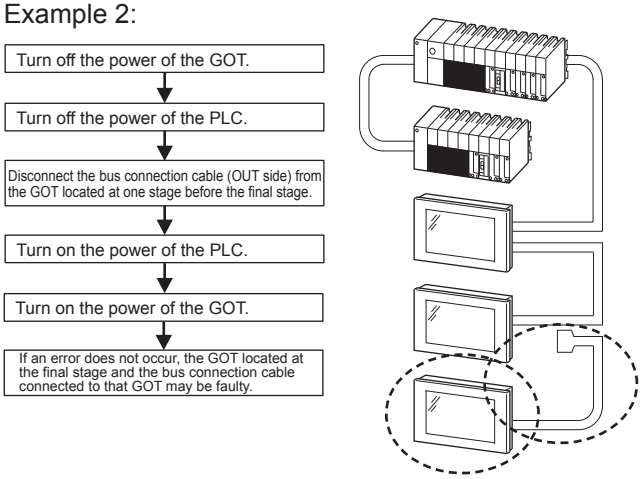
10.2.2 Narrowing the possible error positions

If the system cannot be restored even though the module with an error is replaced, another module may cause the error. Disconnect the extension cables and bus connection cables in order, starting from the module at the end of the system, and check for the error.
The module, extension cable, or bus connection cable disconnected immediately before the error does not occur is considered to cause the error.
The following shows examples of narrowing possible error positions. (When QnASCPU and an extension base unit are used)

Example 1:



Example 2:



Repeat examples 1 and 2 above to identify the error position.

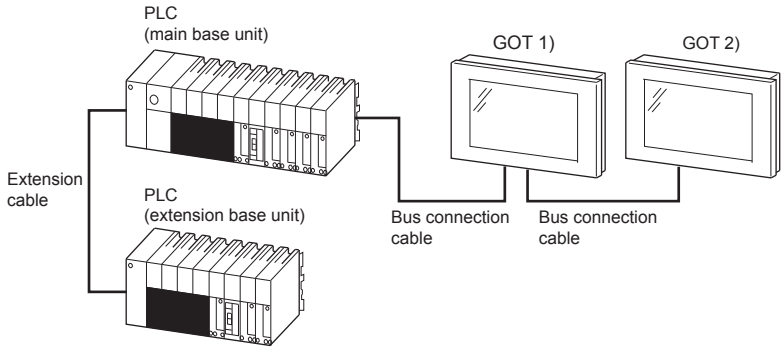
POINT

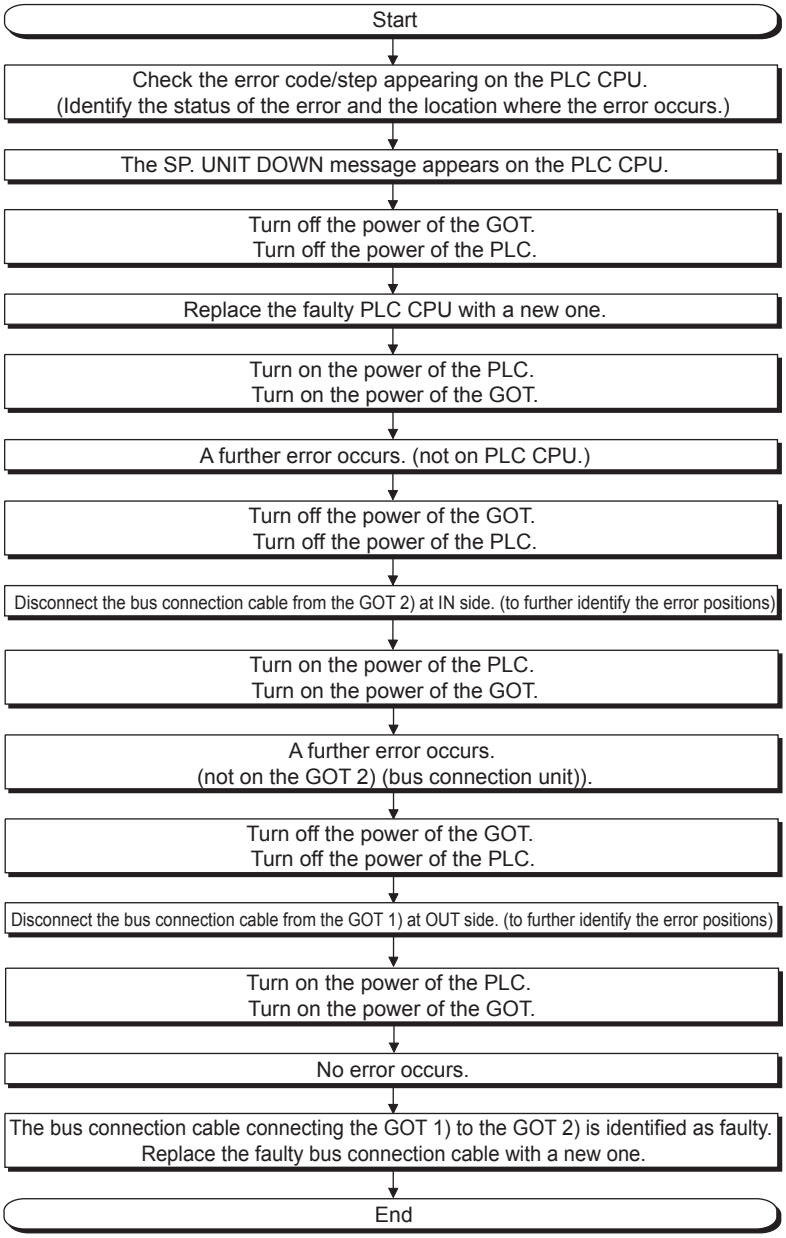
Precautions for narrowing the possible error positions

When disconnecting the modules from the extension base unit in order, setting only the END instruction in the sequence program eliminates errors arising from the sequence program. Therefore, you can check the error occurrence easily.
When the error does not occur frequently, take time to check the error occurrence with the modules disconnected.
This check is effective to identify a noise invading route when the malfunction is caused by noise.

10.2.3 Specific example of troubleshooting

With the following system as an example, this section shows a troubleshooting when an error occurs in the PLC CPU. (When QnASCPU and an extension base unit are used)





10.3 Error Messages and System Alarms

This section explains the error messages and system alarms displayed on the GOT.
The system alarm function displays the error code and error message when an error occurs in the GOT, controller, or network.
For the details of the system alarm, refer to the following.

➠ GT Designer3 (GOT2000) Help

POINT

Error code and channel No.

You can check error codes in the error code storage area of the system information function.
You can check the channel No. where an error occurs with the GOT special register (GS262 to 264).
For the details of the system information and GOT special register, refer to the following.

➠ GT Designer3 (GOT2000) Help

10.3.1 Displayed contents

The section explains an example of displaying an error code and error message on the GOT.

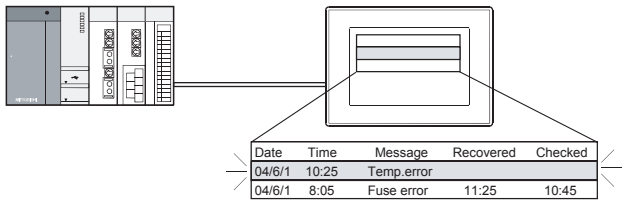
■1. Displaying the error codes and error messages with the popup display (Alarm popup display)

When an error occurs, the GOT can display the error code and error message with the popup display at the front of the monitor screen.
Since an alarm pops up regardless of the screen, you cannot miss the error.

Generated alarms are popped up regardless of the screen.

■2. Displaying the error codes and error messages in a list (System alarm display)

When an error occurs, the GOT can display the error codes and error messages in the list set on the screen.
Displaying multiple errors and recording the events as history are available.



Create a screen to display alarms, and confirm the details of the alarms and take measures for the errors.

■3. Checking error messages with the utility (Utility)

You can check the error codes and error messages using the system alarm display of the utility even though its object is not set.

➠ GOT2000 Series User's Manual (Utility)

Error codes and reference manuals

Error source	Error code	Description	Storage location of channel No. with error*1	Reference
Controller	0 to 99 (Value of D9008)	Error code of CPU (ACPU)	GS263	User's Manual of the ACPU connected to the GOT
	100 to 299	Error code of the following controllers FXCPU*2 Non-Mitsubishi PLC Temperature controller (OMRON temperature controller only)		Manual of the controller connected to the GOT Deal with errors according to the error messages.
GOT*5	300 to 399	Error code of the GOT main unit function	GS262*4	GOT2000 Series User's Manual (Utility)
	400 to 499	Error code of the GOT communication function		
	500 to 699	Error code of the GOT main unit function		
Network	800 to 999	Error code of the network	GS264	
CPU	1000 to 10000 (Value of SD0)	Error code of the CPU (QCPU, LCPU, or QnACPU)	GS263	User's Manual of the QCPU, LCPU, or QnACPU connected to the GOT
Motion controller	10001 to 10999	Error code of the motion controller (Q173DCPU/Q172DCPU)		User's Manual of the motion controller connected to the GOT
CNC C70	11000 to 11999	Error code of the CNC (Q173NCCPU)		User's Manual of the CNC C70 connected to the GOT
Robot controller	12000 to 12999	Error code of the robot controller (Q172DRCPU)		User's Manual of the robot controller connected to the GOT
Servo amplifier*3	20016 to 20237	Error code of the servo amplifier		User's Manual of the servo amplifier connected to the GOT

*1 For the details of the GOT special registers (GS262 to GS264), refer to the following.

➠ GT Designer3 (GOT2000) Help

*2 FXCPU has error codes 100 to 109, indicating the status of M8060 to M8069.
(Example) If error code (100) occurs, handle the error according to the M8060 description.

*3 The GOT displays the error code displayed on the servo amplifier (hexadecimal) in decimal + 20000.
Therefore, when referring to the manual of the servo amplifier with the error code displayed on the GOT using the system alarm, subtract 20000 from the GOT error code and convert the last 3 digits into the hexadecimal number.
(Example: When the GOT system alarm shows 20144, the error code of the servo amplifier is 90H.)

*4 Depending on the error code, the channel No. is not stored.
For channel No. storage availability of each error code, refer to the following.

➠ GT Designer3 (GOT2000) Help

*5 With the system alarm related to the file access, you cannot identify the drive where the alarm occurs. However, you can identify the drive by checking the File Access Error signal (b7 to b10) of System signal 2-2.

10.3.2 Error messages and system alarms

For the details of the error massages and the system alarms displayed on the GOT, refer to the following.

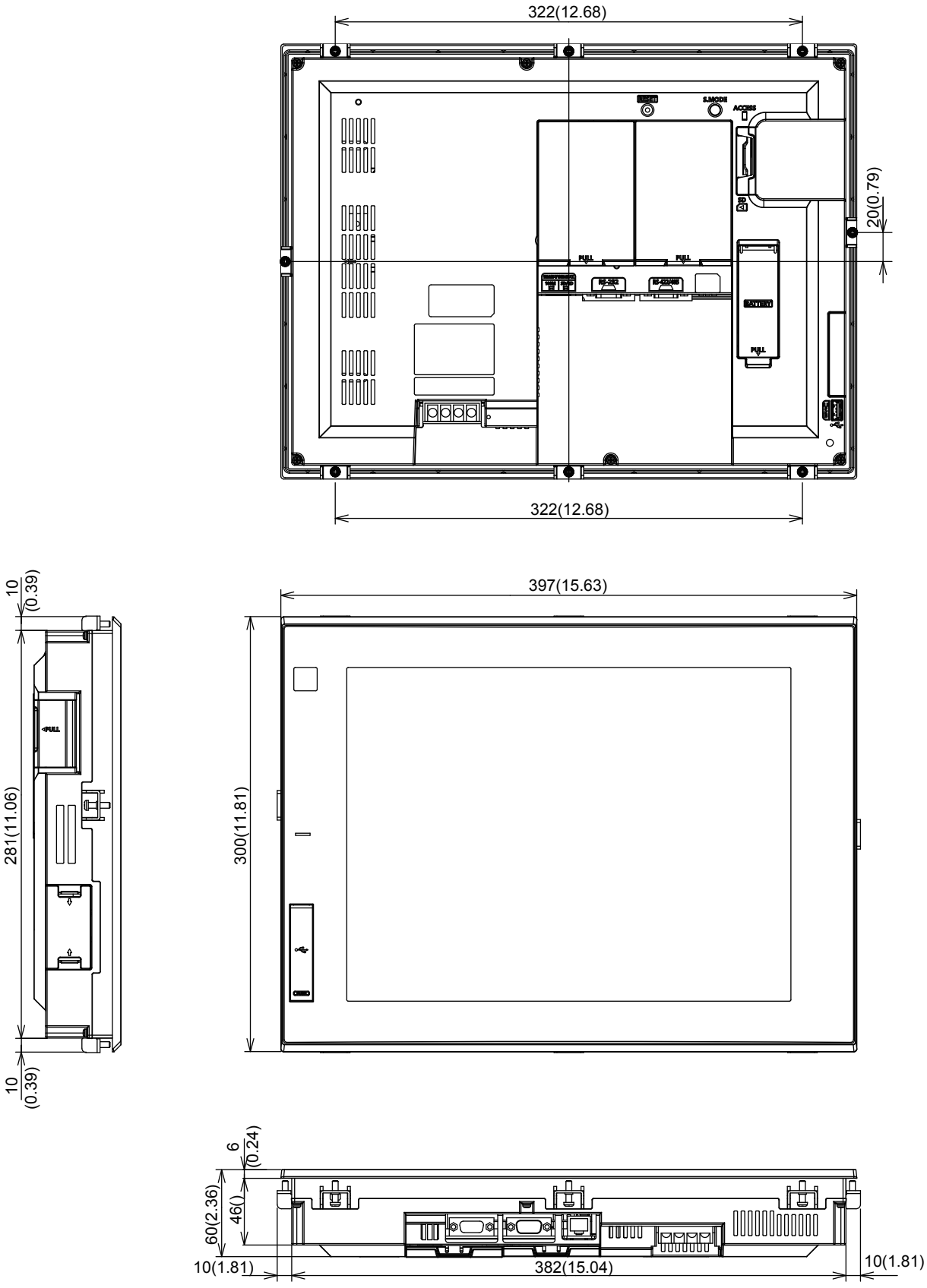
➠ GOT2000 Series User's Manual (Utility)

11. APPENDICES

11.1 External Dimension Diagrams

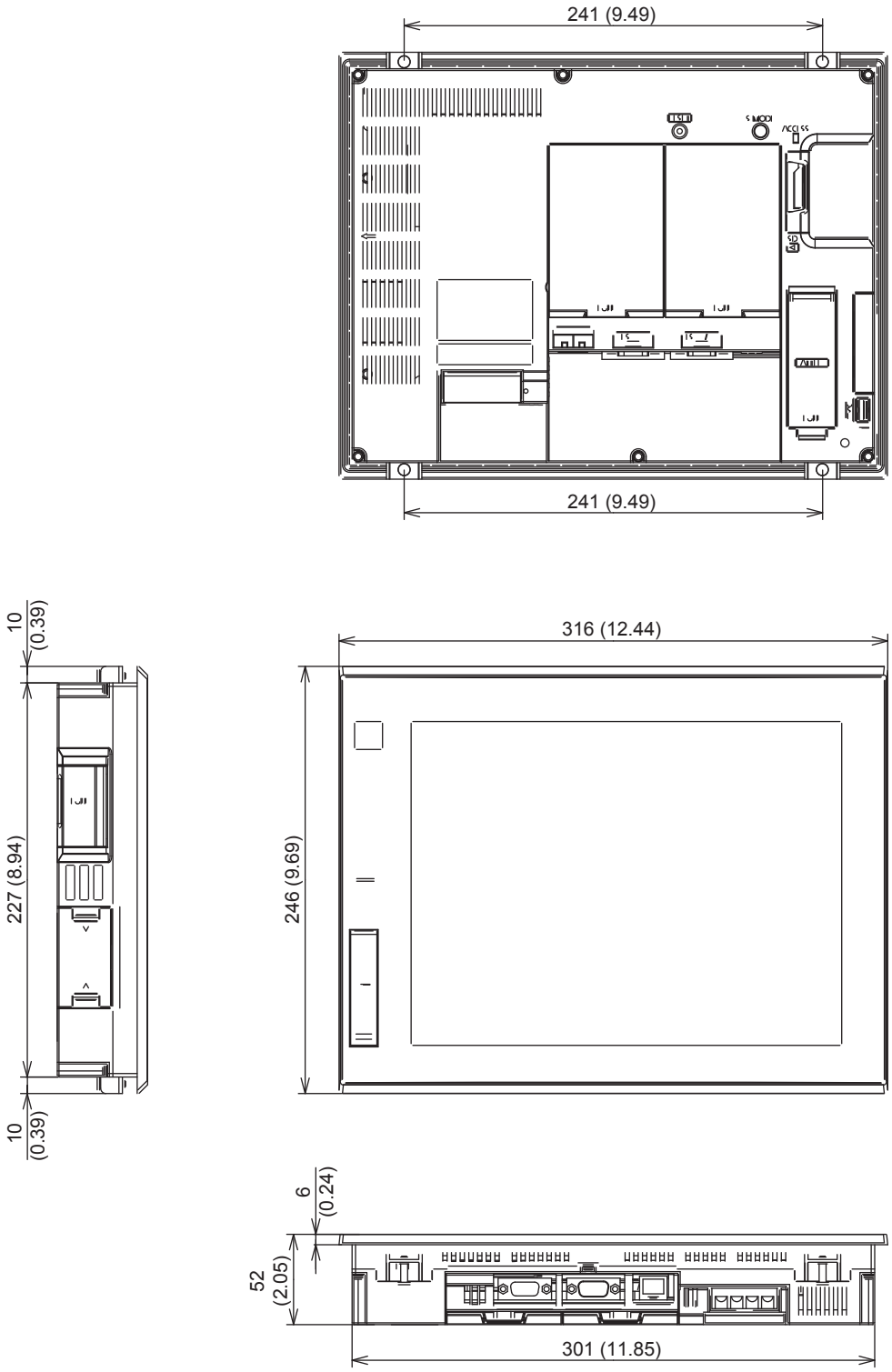
11.1.1 GT27

■1. GT2715-X



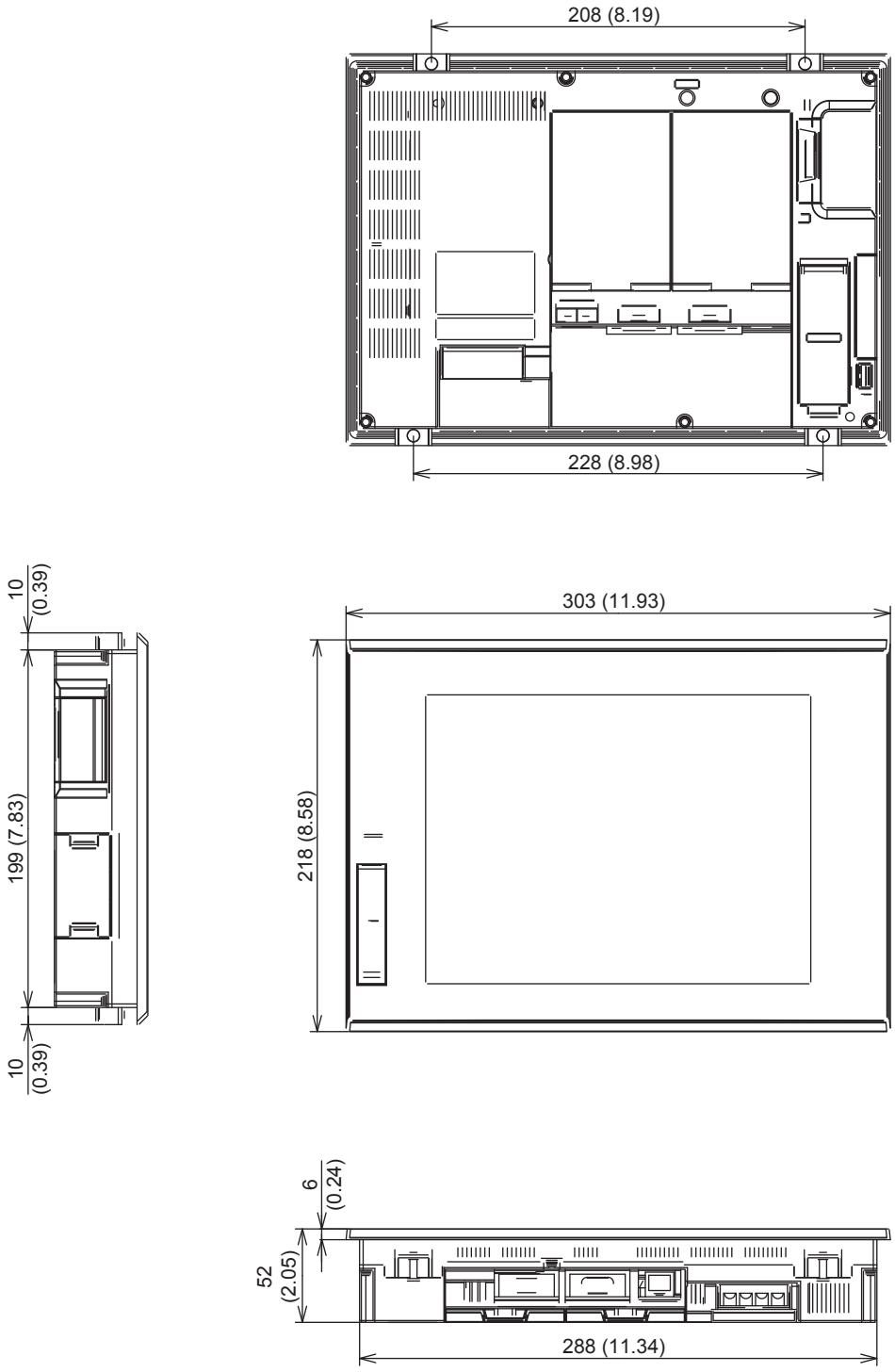
Unit: mm (inch)

■2. GT2712-S



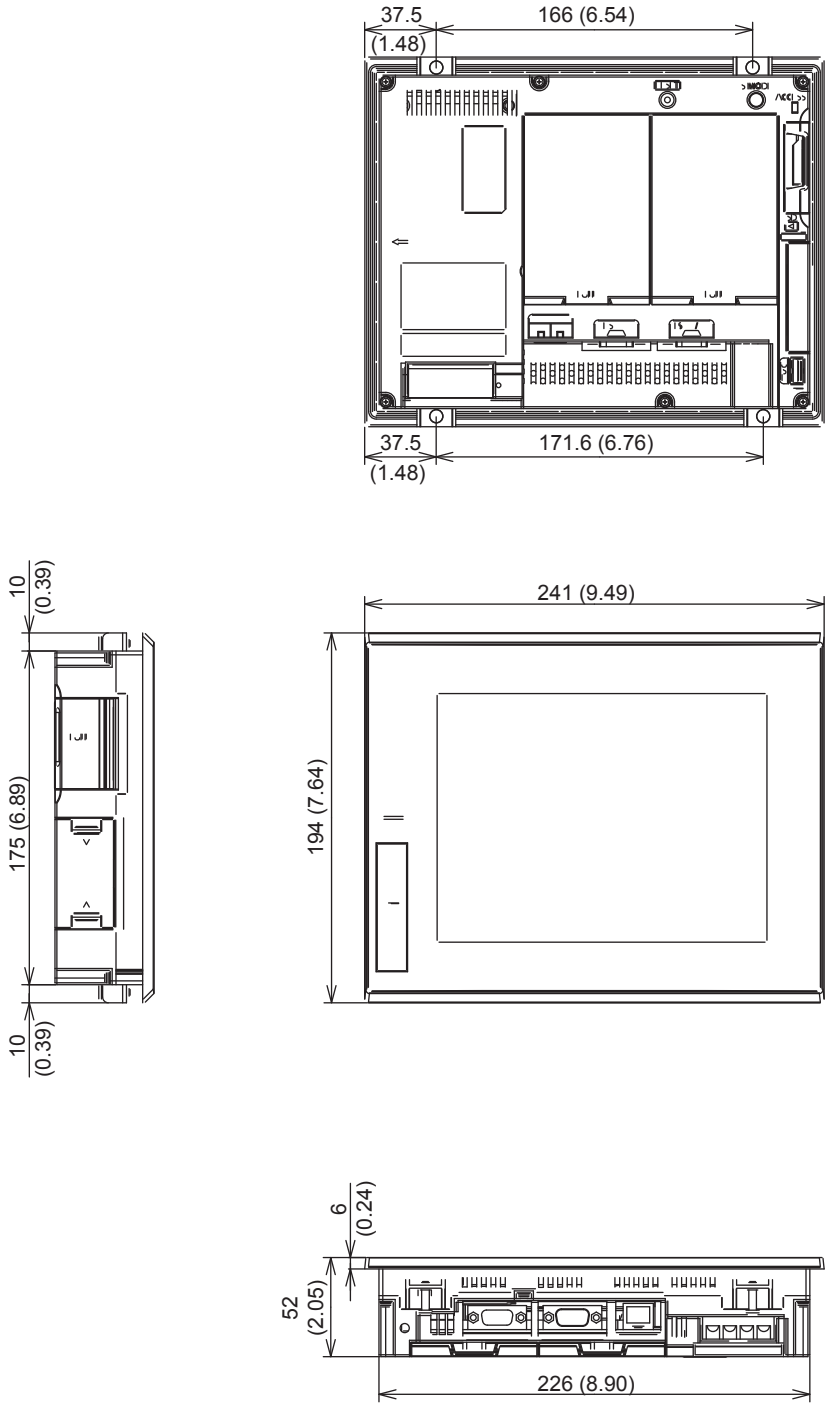
Unit: mm (inch)

■3. GT2710-S,GT2710-V



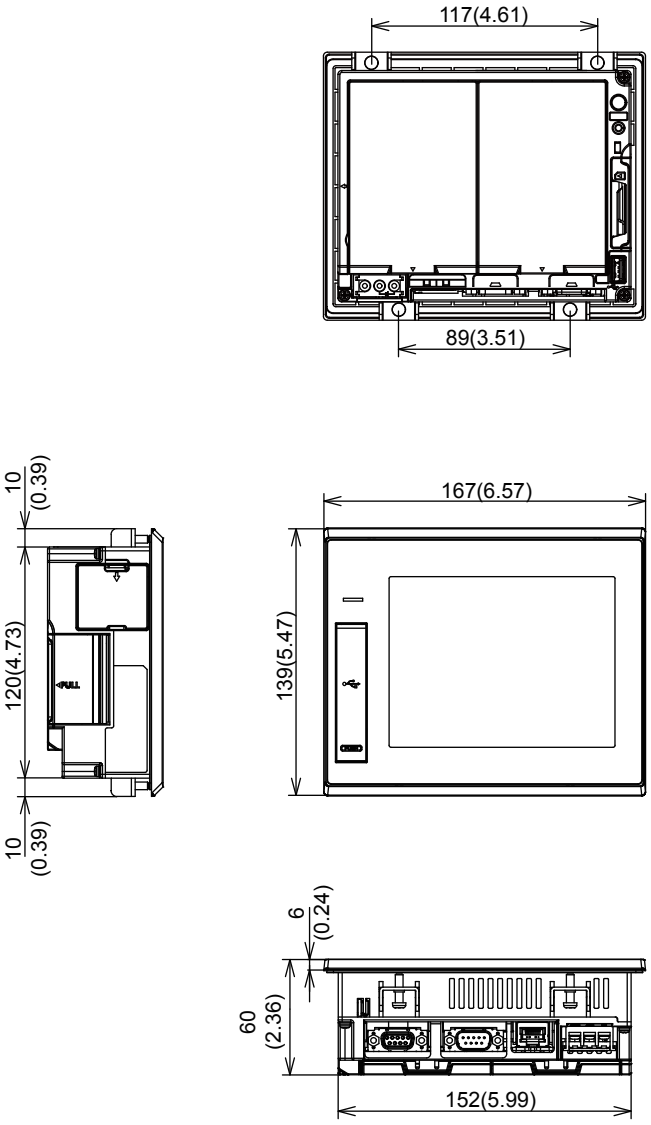
Unit: mm (inch)

■4. GT2708-S,GT2708-V



Unit: mm (inch)

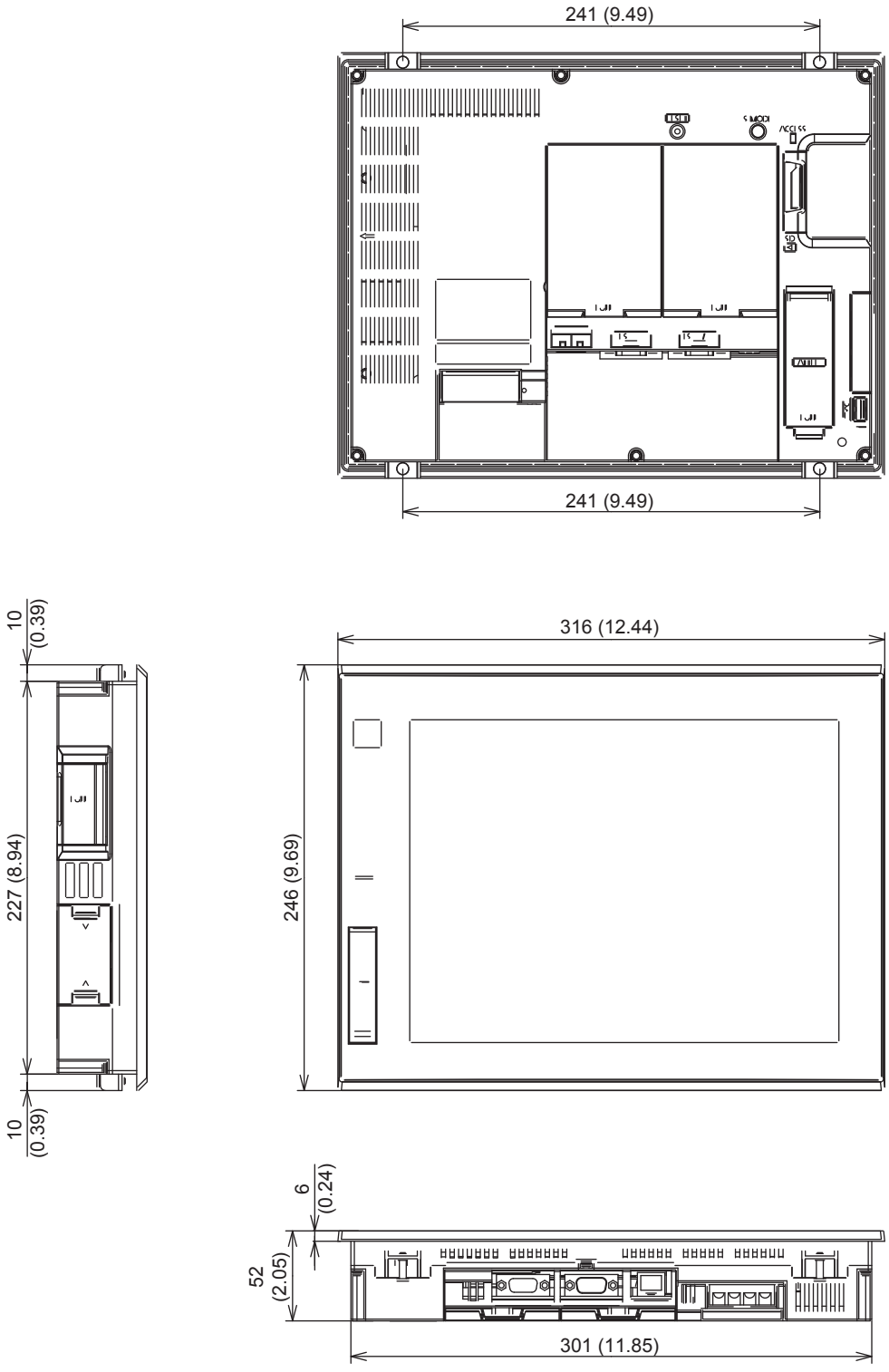
■5. GT2705-V



Unit: mm (inch)

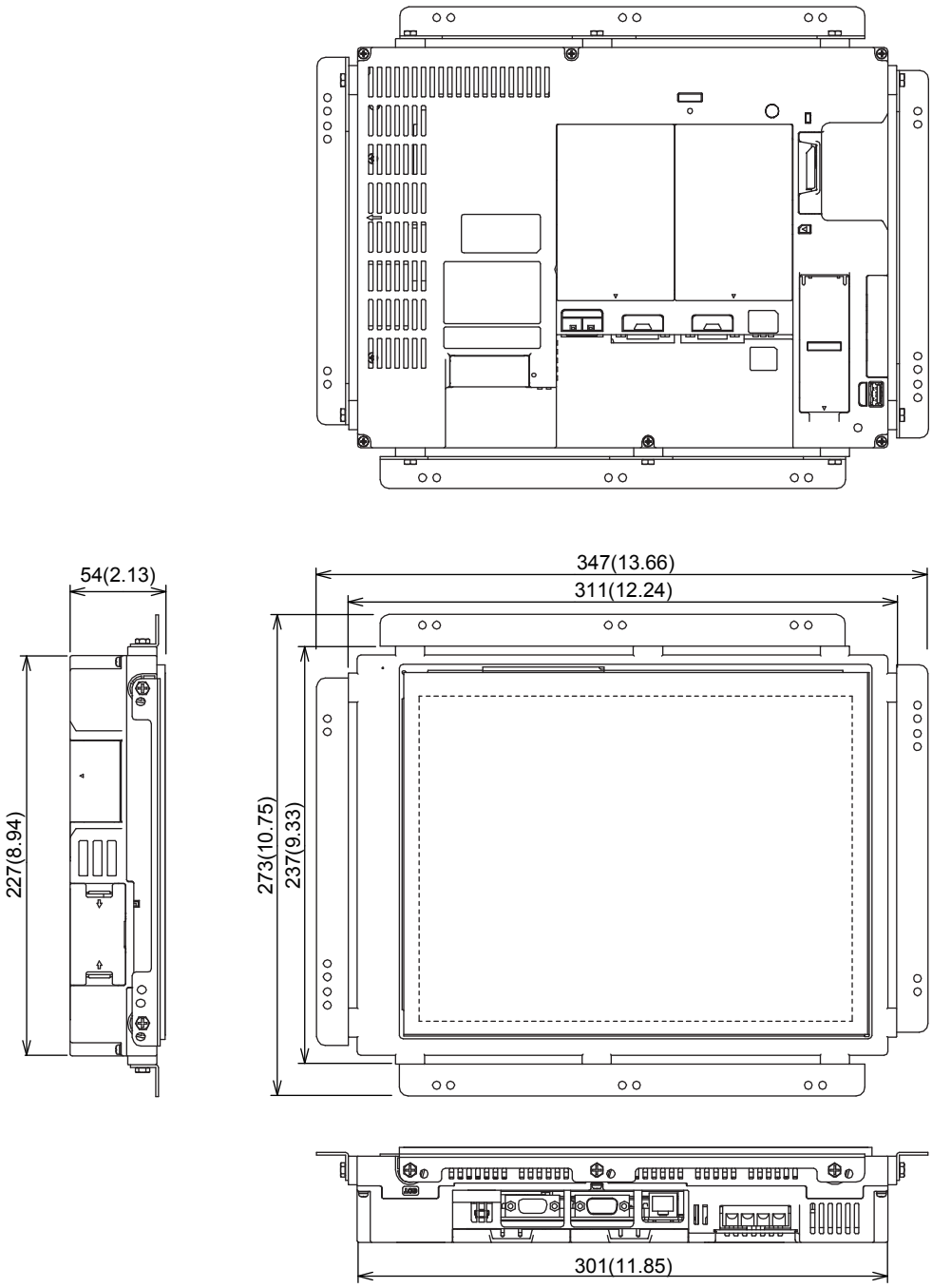
11.1.2 GT25

■1. GT2512-S



Unit: mm (inch)

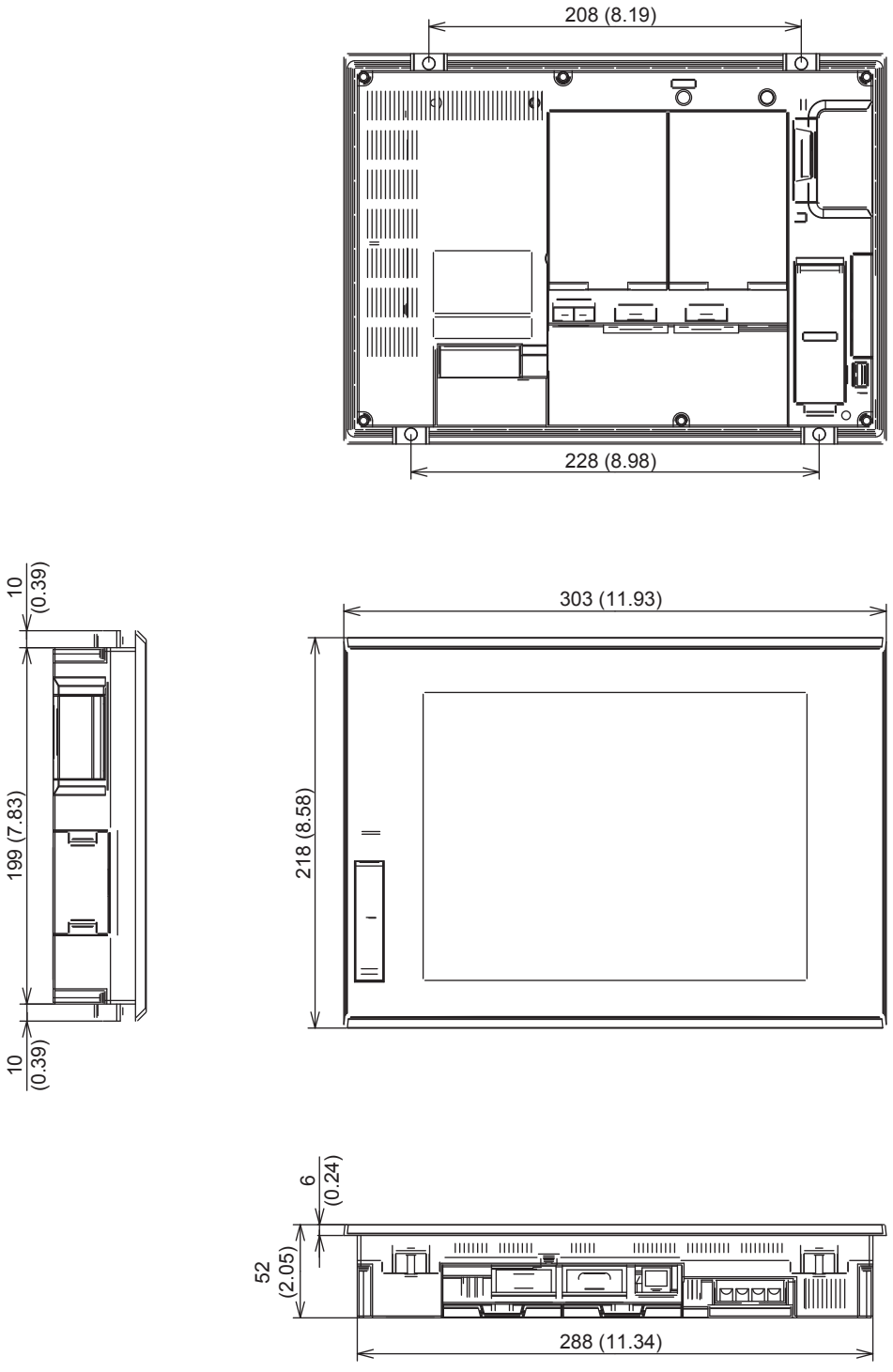
■2. GT2512F-S



Unit: mm (inch)

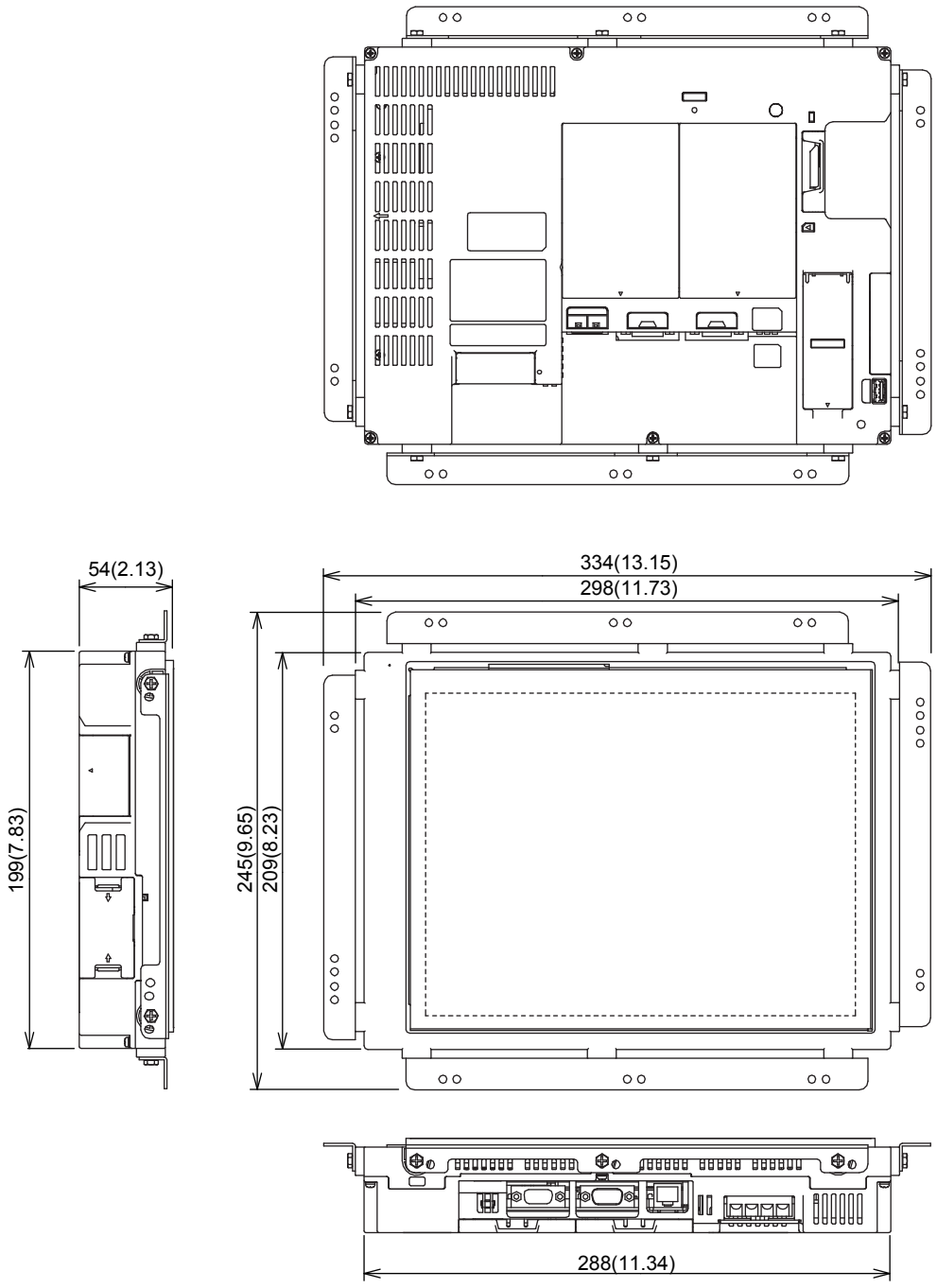
The values indicate the dimensions when all the fittings are installed to the GOT.
Install the fittings on the top and bottom, or the right and left of the GOT.

■3. GT2510-V



Unit: mm (inch)

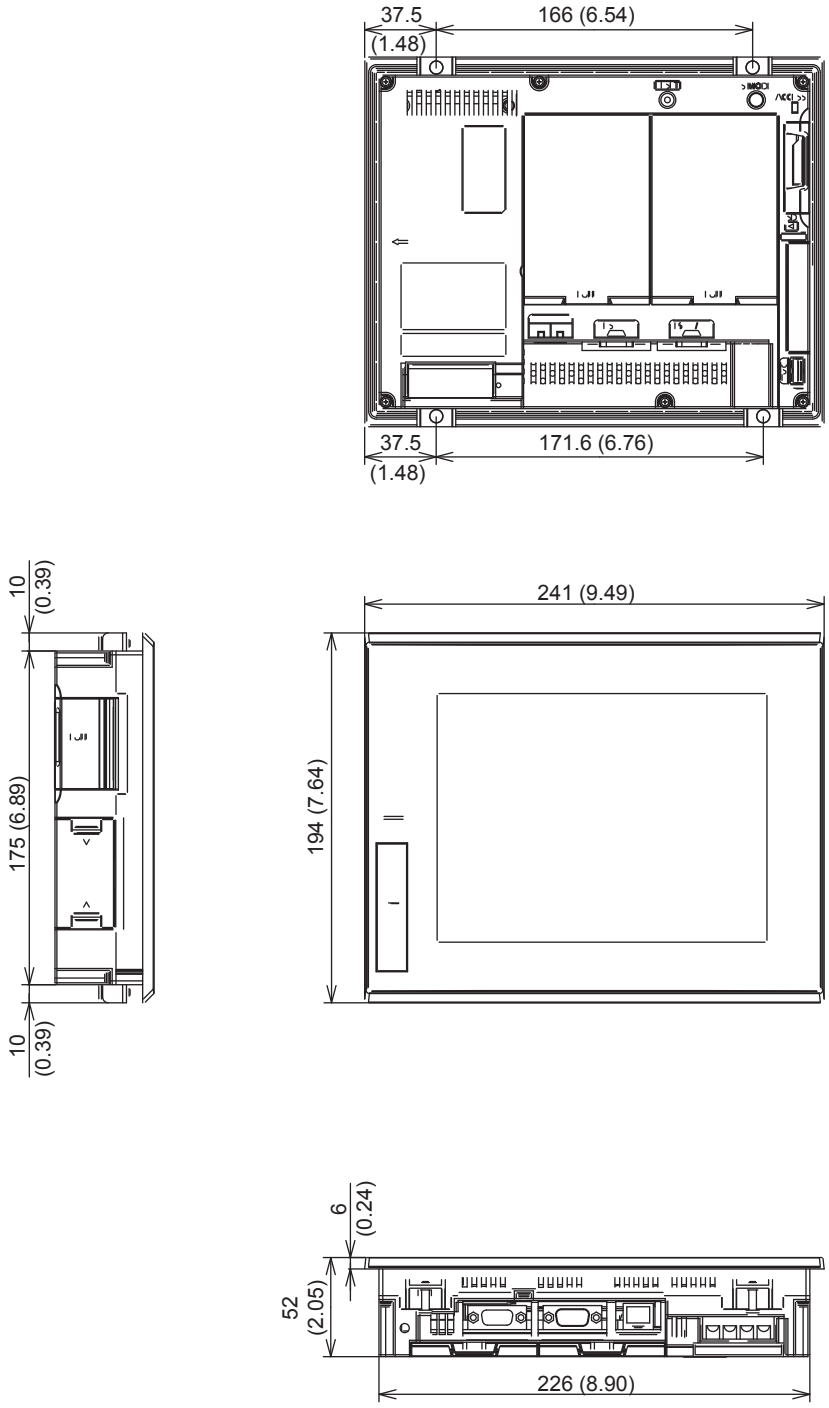
■4. GT2510F-V



Unit: mm (inch)

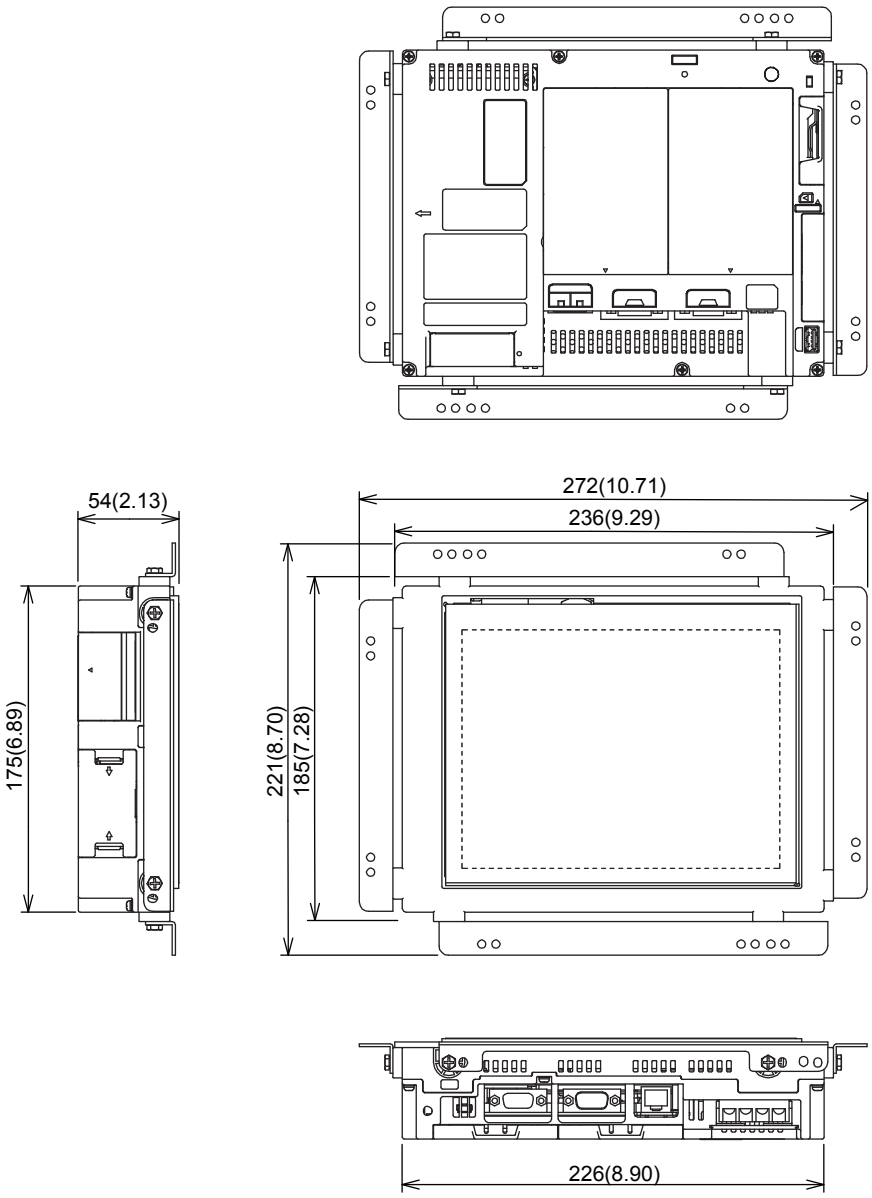
The values indicate the dimensions when all the fittings are installed to the GOT.
Install the fittings on the top and bottom, or the right and left of the GOT.

■5. GT2508-V



Unit: mm (inch)

■6. GT2508F-V

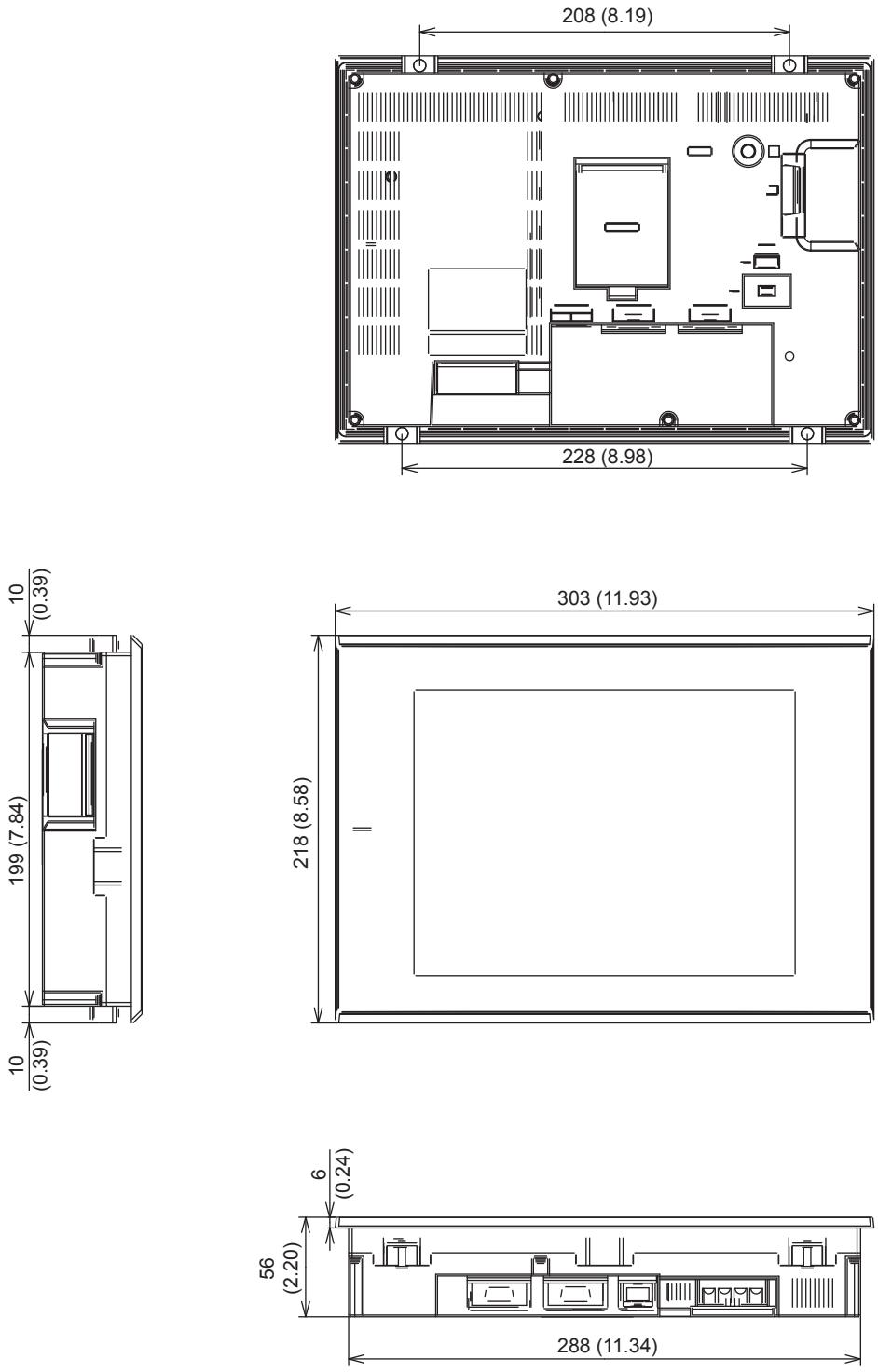


Unit: mm (inch)

The values indicate the dimensions when all the fittings are installed to the GOT.
Install the fittings on the top and bottom, or the right and left of the GOT.

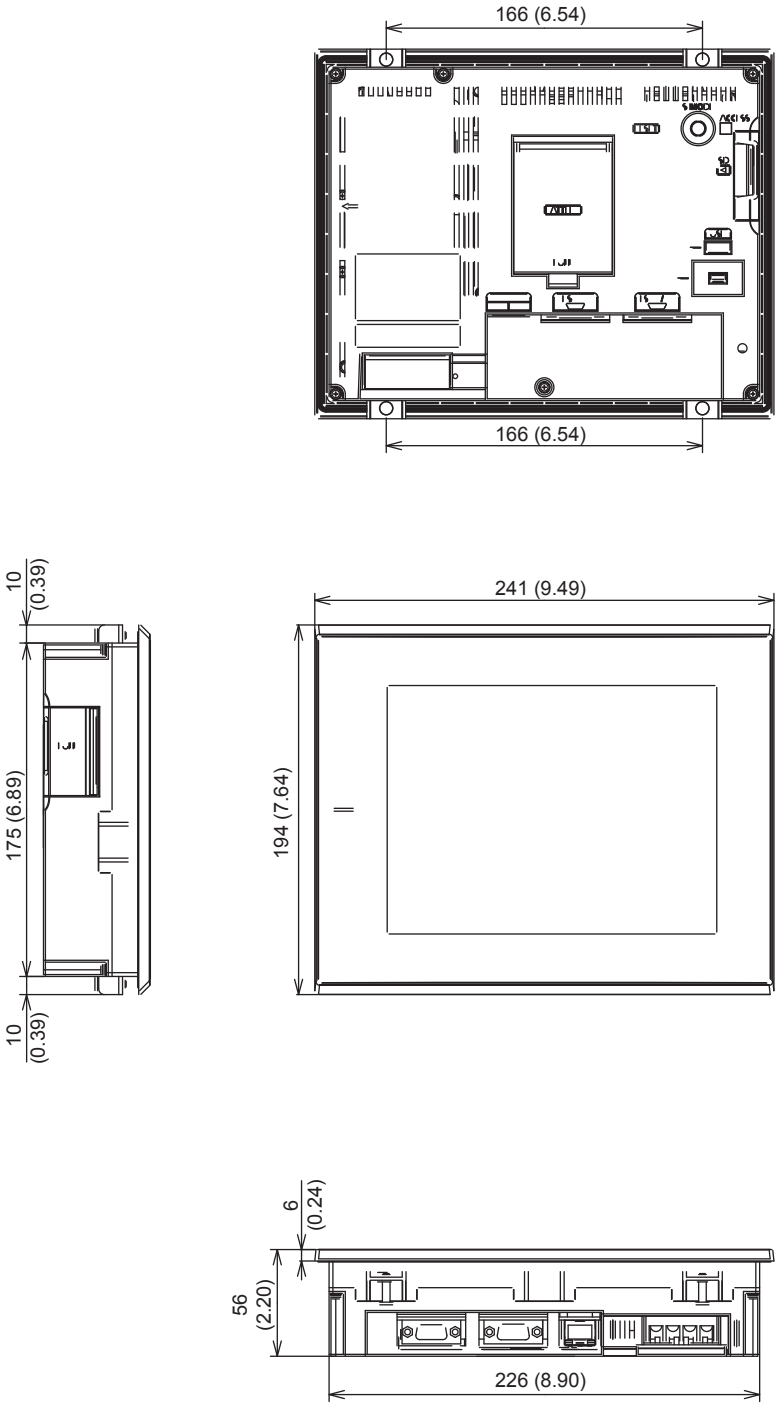
11.1.3 GT23

■1. GT2310-V



Unit: mm (inch)

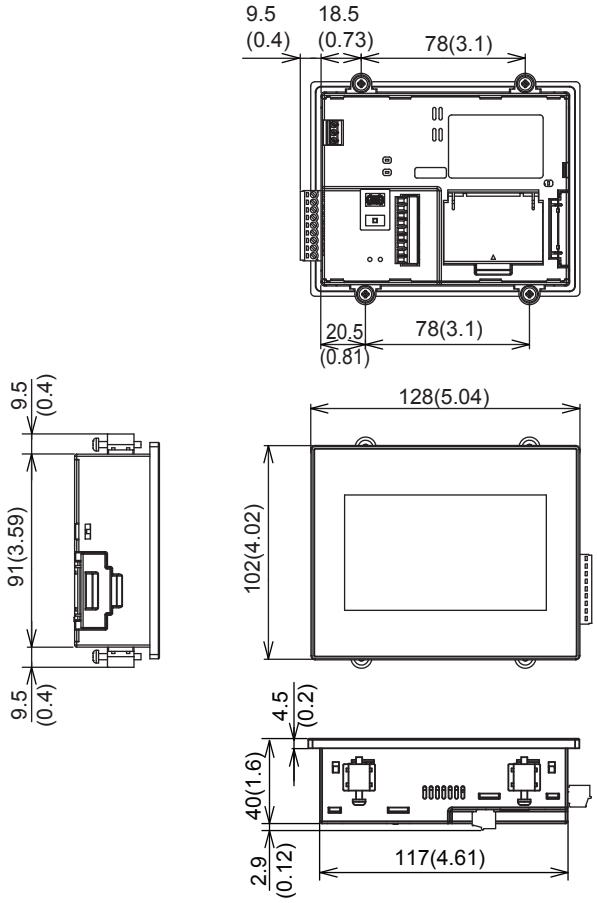
■2. GT2308-V



Unit: mm (inch)

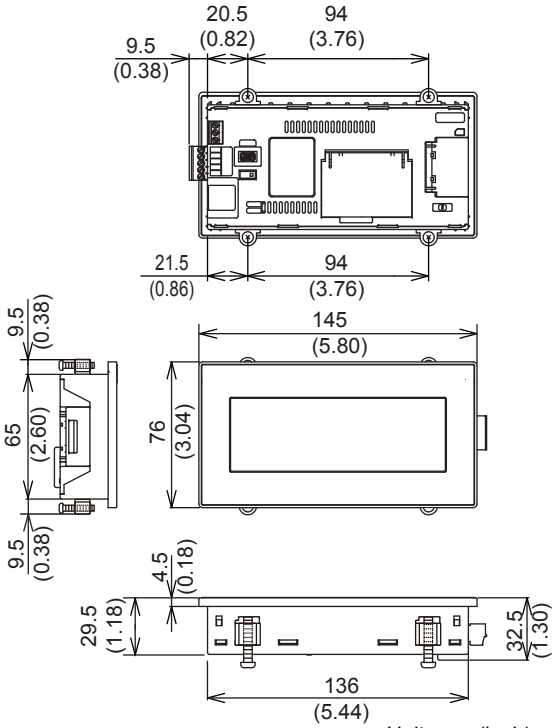
11.1.4 GT21

■1. GT2104-RTBD



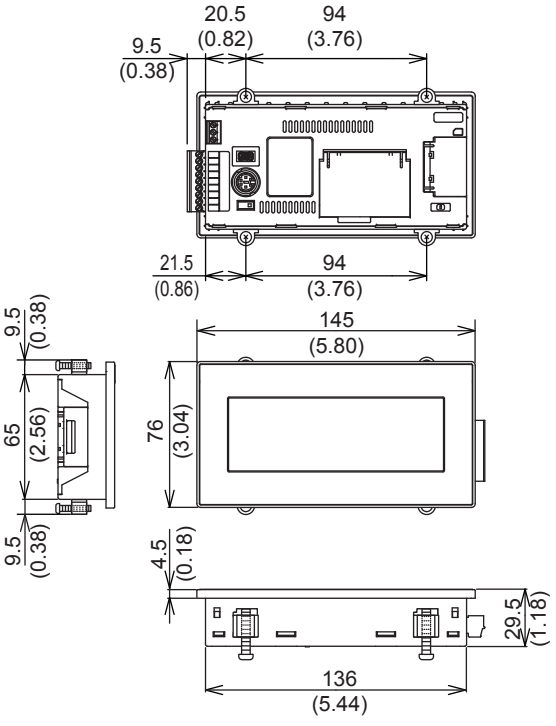
Unit: mm (inch)

■2. GT2104-PMBD



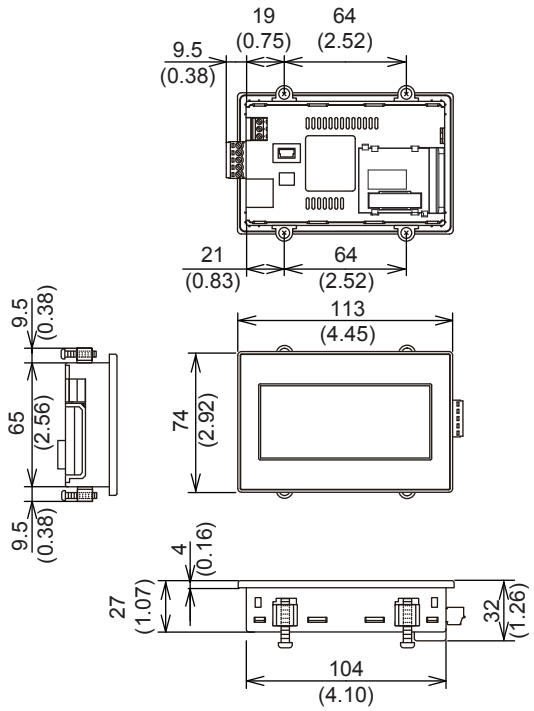
Unit: mm (inch)

■3. GT2104-PMBDS



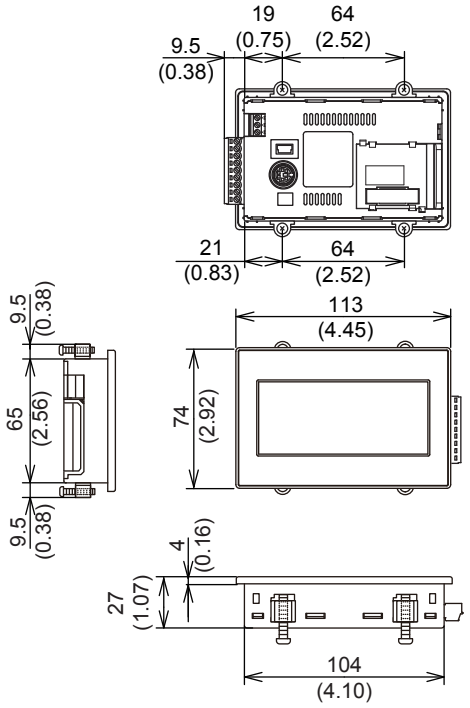
Unit: mm (inch)

■4. GT2103-PMBD



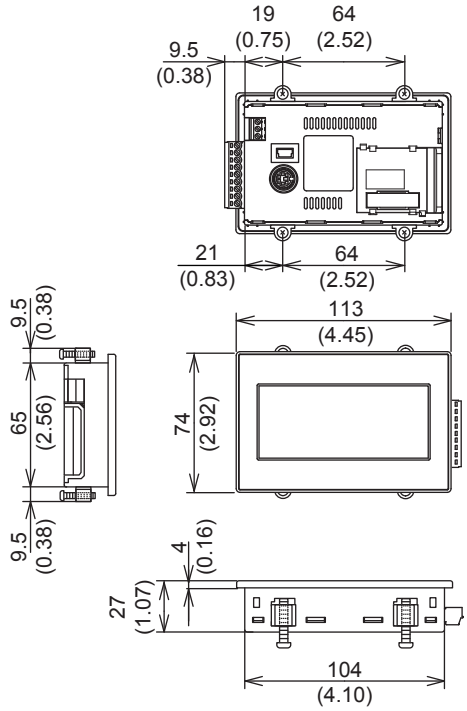
Unit: mm (inch)

■5. GT2103-PMBDS



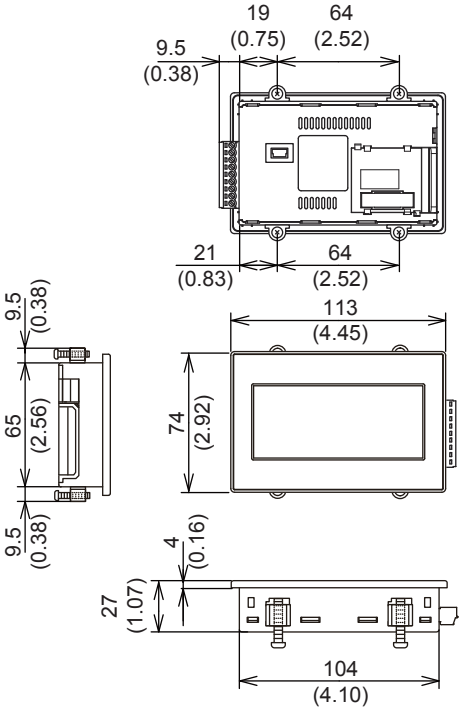
Unit: mm (inch)

■6. GT2103-PMBDS2



Unit: mm (inch)

■7. GT2103-PMBLS



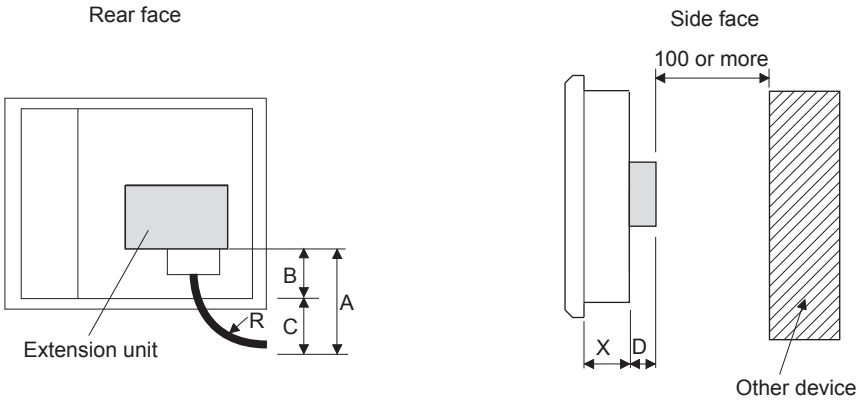
Unit: mm (inch)

11.2 Depth dimensions and cable bend dimensions for the GOT with an extension unit

11.2.1 GT27

The following table shows the depth dimensions and the cable bend dimensions for the GOT with one extension unit. For the dimensions for the GOT with several extension units mounted in multiple stages, refer to the following.

➠ 11.4 Depth dimensions for the GOT with several extension units mounted in multiple stages (GT27, GT25)



unit: mm (inch)

GOT model	Dimension of X
GT2715-X	54(2.13)
GT2712-S	46(1.81)
GT2710-S, GT2710-V	46(1.81)
GT2708-S, GT2708-V	46(1.81)
GT2705-V	54(2.13)

■1. GT2715-X

Unit: mm (inch)

Model	A	B	C *2	D	R (cable bend radius)
GT15-QBUS, GT15-QBUS2	88(3.46)	139(5.47)	0	23(0.91)	50(1.97)
GT15-75QBUSL, GT15-75QBUS2L	88(3.46)		0	10(0.39)	50(1.97)
GT15-RS2-9P *1, GT15-RS4-9S *1	72.5(2.85)		0	23(0.91)	27.5(1.08)
GT15-RS4-TE *1	33.5(1.32)		0		-
GT15-J71LP23-25	*3		*3		*3
GT15-J71BR13	79(3.11)		0		30(1.18)
GT15-J71GP23-SX	65(2.56)		0	37(1.46)	15(0.59)
GT15-J71GF13-T2 *4	65(2.56)		0		26(1.02)
GT15-J61BT13	47(1.85)		0	23(0.91)	28(1.10)
GT25-FNADP	-		0	25(0.98)	-
GT27-V4-Z	132(5.20)		0	44.5(1.75)	20(0.79)
GT27-R2	75(2.96)		0	20(0.79)	32(1.26)
GT27-R2-Z	77(3.03)		0	23(0.91)	32(1.26)
GT27-V4R1-Z	BNC: 132(5.20) RGB: 77(3.03)		0	44.5(1.75)	BNC: 20(0.79) RGB: 32(1.26)
GT27-ROUT	75(2.96)		0	20(0.79)	32(1.26)
GT27-ROUT-Z	77(3.03)		0	44.5(1.75)	32(1.26)
GT27-MMR-Z	132(5.20)		0	58.5(2.30)	-
GT15-PRN	52(2.05)		0	23(0.91)	18(0.71)
GT15-DIO	77(3.03)		0	23(0.91)	43(1.69)
GT15-DIOR					
GT15-SOUT	41(1.61)		0		30(1.18)

*1 For cables prepared by the user, the dimensions in the table are not applied.

*2 If cable bending radius is smaller than the lowest part of the GOT rear face, the dimension of *3 is equal to or less than 0;however, it is written as "0" in the table.

*3 For details of the cable for GT15-J71LP23-25 (optical loop unit), contact your local Mitsubishi Electric System & Service Co., Ltd.

*4 The bend radius depends on the Ethernet cable to be used.

■2. GT2712-S

Unit: mm (inch)

Model	A	B	C *2	D	R (cable bend radius)
GT15-QBUS, GT15-QBUS2	88(3.46)	85(3.35)	3(0.12)	23(0.91)	50(1.97)
GT15-75QBUSL, GT15-75QBUS2L	88(3.46)		3(0.12)	10(0.39)	50(1.97)
GT15-RS2-9P *1, GT15-RS4-9S *1	72.5(2.85)		0	23(0.91)	27.5(1.08)
GT15-RS4-TE *1	33.5(1.32)		0		-
GT15-J71LP23-25	*3		*3		*3
GT15-J71BR13	79(3.11)		0		30(1.18)
GT15-J71GP23-SX	65(2.56)		0	37(1.46)	15(0.59)
GT15-J71GF13-T2 *4	65(2.56)		0		26(1.02)
GT15-J61BT13	47(1.85)		0	23(0.91)	28(1.10)
GT25-FNADP	-		-	25(0.98)	-
GT27-V4-Z	132(5.20)		47(1.85)	44.5(1.75)	20(0.79)
GT27-R2	75(2.96)		0	20(0.79)	32(1.26)
GT27-R2-Z	77(3.03)		0	44.5(1.75)	32(1.26)
GT27-V4R1-Z	BNC: 132(5.20) RGB: 77(3.03)		BNC: 47(1.85) RGB: 0	44.5(1.75)	BNC: 20(0.79) RGB: 32(1.26)
GT27-ROUT	75(2.96)		0	20(0.79)	32(1.26)
GT27-ROUT-Z	77(3.03)		0	44.5(1.75)	32(1.26)
GT27-MMR-Z	132(5.20)		47(1.85)	58.5(2.30)	20(0.79)
GT15-PRN	52(2.05)		0	23(0.91)	18(0.71)
GT15-DIO	77(3.03)		0	23(0.91)	43(1.69)
GT15-DIOR					
GT15-SOUT	41(1.61)		0		30(1.18)

*1 For cables prepared by the user, the dimensions in the table are not applied.

*2 If cable bending radius is smaller than the lowest part of the GOT rear face, the dimension of *3 is equal to or less than 0;however, it is written as "0" in the table.

*3 For details of the cable for GT15-J71LP23-25 (optical loop unit), contact your local Mitsubishi Electric System & Service Co., Ltd.

*4 The bend radius depends on the Ethernet cable to be used.

■3. GT2710-S,GT2710-V

Unit: mm (inch)

Model	A	B	C *2	D	R (cable bend radius)
GT15-QBUS, GT15-QBUS2	88(3.46)	78(3.07)	10(0.39)	23(0.91)	50(1.97)
GT15-75QBUSL, GT15-75QBUS2L	88(3.46)		10(0.39)	10(0.39)	50(1.97)
GT15-RS2-9P *1, GT15-RS4-9S *1	72.5(2.85)		0	23(0.91)	27.5(1.08)
GT15-RS4-TE *1	33.5(1.32)		0		-
GT15-J71LP23-25	*3		*3		*3
GT15-J71BR13	79(3.11)		1(0.04)		30(1.18)
GT15-J71GP23-SX	65(2.56)		0	37(1.46)	15(0.59)
GT15-J71GF13-T2 *4	65(2.56)		0		26(1.02)
GT15-J61BT13	47(1.85)		0	23(0.91)	28(1.10)
GT25-FNADP	-		-	25(0.98)	-
GT27-V4-Z	132(5.20)		54(2.95)	44.5(1.75)	20(0.79)
GT27-R2	75(2.96)		0	20(0.79)	32(1.26)
GT27-R2-Z	77(3.03)		0	44.5(1.75)	32(1.26)
GT27-V4R1-Z	BNC: 132(5.20) RGB: 77(3.03)		BNC: 54(2.95) RGB: 0	44.5(1.75)	BNC: 20(0.79) RGB: 32(1.26)
GT27-ROUT	75(2.96)		0	20(0.79)	32(1.26)
GT27-ROUT-Z	77(3.03)		0	44.5(1.75)	32(1.26)
GT27-MMR-Z	132(5.20)		45(1.77)	58.5(2.30)	20(0.79)
GT15-PRN	52(2.05)		0	23(0.91)	18(0.71)
GT15-DIO	77(3.03)		0	23(0.91)	43(1.69)
GT15-DIOR					
GT15-SOUT	41(1.61)		0		30(1.18)

*1 For cables prepared by the user, the dimensions in the table are not applied.

*2 If cable bending radius is smaller than the lowest part of the GOT rear face, the dimension of *3 is equal to or less than 0;however, it is written as "0" in the table.

*3 For details of the cable for GT15-J71LP23-25 (optical loop unit), contact your local Mitsubishi Electric System & Service Co., Ltd.

*4 The bend radius depends on the Ethernet cable to be used.

■4. GT2708-S,GT2708-V

Unit: mm (inch)

Model	A	B	C *2	D	R (cable bend radius)
GT15-QBUS, GT15-QBUS2	88(3.46)	56(2.20)	32(1.26)	23(0.91)	50(1.97)
GT15-75QBUSL, GT15-75QBUS2L	88(3.46)		32(1.26)	10(0.39)	50(1.97)
GT15-RS2-9P *1, GT15-RS4-9S *1	72.5(2.85)		16.5(0.65)	23(0.91)	27.5(1.08)
GT15-RS4-TE *1	33.5(1.32)		0		-
GT15-J71LP23-25	*3		*3		*3
GT15-J71BR13	79(3.11)		23(0.91)		30(1.18)
GT15-J71GP23-SX	65(2.56)		9(0.95)	37(1.46)	15(0.59)
GT15-J71GF13-T2 *4	65(2.56)		9(0.95)		26(1.02)
GT15-J61BT13	47(1.85)		0	23(0.91)	28(1.10)
GT25-FNADP	-		-	25(0.98)	-
GT27-V4-Z	132(5.20)		76(2.99)	44.5(1.75)	20(0.79)
GT27-R2	75(2.96)		19(0.75)	20(0.79)	32(1.26)
GT27-R2-Z	77(3.03)		21(0.83)	44.5(1.75)	32(1.26)
GT27-V4R1-Z	BNC: 132(5.20) RGB: 77(3.03)		BNC: 76(2.99) RGB: 21(0.83)	44.5(1.75)	BNC: 20(0.79) RGB: 32(1.26)
GT27-ROUT	75(2.96)		19(0.75)	20(0.79)	32(1.26)
GT27-ROUT-Z	77(3.03)		21(0.83)	44.5(1.75)	32(1.26)
GT27-MMR-Z	132(5.20)		76(2.99)	58.5(3.82)	20(0.79)
GT15-PRN	52(2.05)		0	23(0.91)	18(0.71)
GT15-DIO	77(3.03)		21(0.83)	23(0.91)	43(1.69)
GT15-DIOR					
GT15-SOUT	41(1.61)		0		30(1.18)

*1 For cables prepared by the user, the dimensions in the table are not applied.

*2 If cable bending radius is smaller than the lowest part of the GOT rear face, the dimension of *3 is equal to or less than 0;however, it is written as "0" in the table.

*3 For details of the cable for GT15-J71LP23-25 (optical loop unit), contact your local Mitsubishi Electric System & Service Co., Ltd.

*4 The bend radius depends on the Ethernet cable to be used.

■5. GT2705-V

Unit: mm (inch)

Model	A	B	C *2	D	R (cable bend radius)
GT15-QBUS, GT15-QBUS2	88(3.46)	16(0.63)	72(2.84)	23(0.91)	50(1.97)
GT15-75QBUSL, GT15-75QBUS2L	88(3.46)		72(2.84)	10(0.39)	50(1.97)
GT15-RS2-9P *1, GT15-RS4-9S *1	72.5(2.85)		56.5(2.23)	23(0.91)	27.5(1.08)
GT15-RS4-TE *1	33.5(1.32)		0		-
GT15-J71LP23-25	*3		*3		*3
GT15-J71BR13	79(3.11)		63(2.48)		30(1.18)
GT15-J71GP23-SX	65(2.56)		49(1.93)	37(1.46)	15(0.59)
GT15-J71GF13-T2 *4	65(2.56)		49(1.93)		26(1.02)
GT15-J61BT13	47(1.85)		0	23(0.91)	28(1.10)
GT25-FNADP	-		-	25(0.98)	-
GT15-PRN	52(2.05)		36(1.42)	23(0.91)	18(0.71)
GT15-DIO	77(3.03)		61(2.41)	23(0.91)	43(1.69)
GT15-DIOR					
GT15-SOUT	41(1.61)		0		30(1.18)

*1 For cables prepared by the user, the dimensions in the table are not applied.

*2 If cable bending radius is smaller than the lowest part of the GOT rear face, the dimension of *3 is equal to or less than 0;however, it is written as "0" in the table.

*3 For details of the cable for GT15-J71LP23-25 (optical loop unit), contact your local Mitsubishi Electric System & Service Co., Ltd.

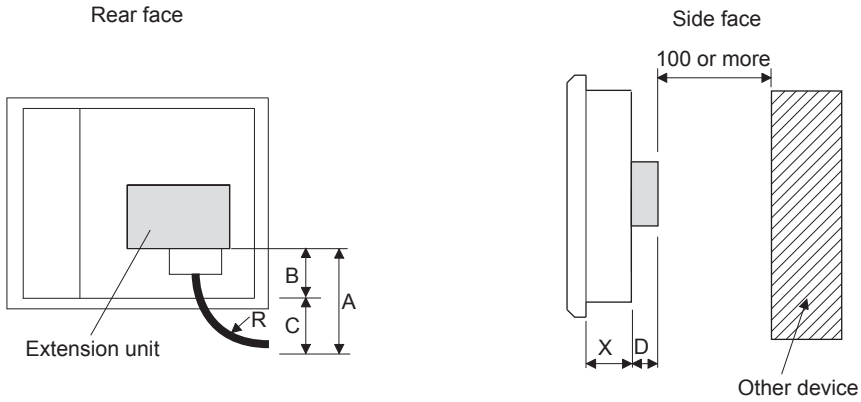
*4 The bend radius depends on the Ethernet cable to be used.

11.2.2 GT25

The following table shows the depth dimensions and the cable bend dimensions for the GOT with one extension unit. For the dimensions for the GOT with several extension units mounted in multiple stages, refer to the following.

➠ 11.4 Depth dimensions for the GOT with several extension units mounted in multiple stages (GT27, GT25)

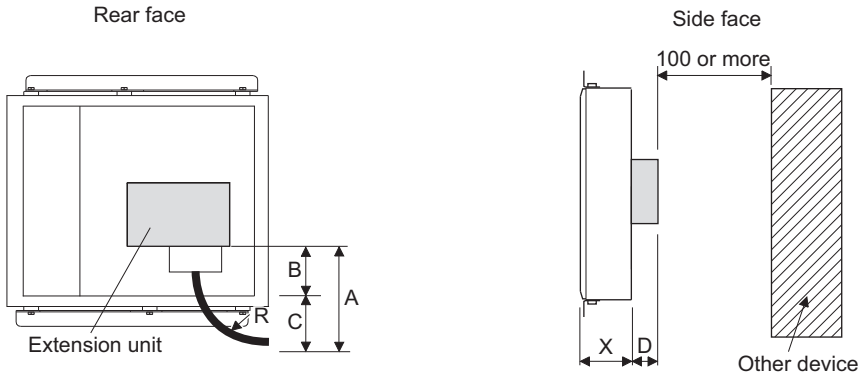
■1. GT2512-S,GT2510-V,GT2508-V



unit: mm (inch)

GOT model	Dimension of X
GT2512-S	46(1.81)
GT2510-V	46(1.81)
GT2508-V	46(1.81)

■2. GT2512F-S,GT2510F-V,GT2508F-V



unit: mm (inch)

GOT model	Dimension of X
GT2512F-S	54(2.13)
GT2510F-V	54(2.13)
GT2508F-V	54(2.13)

■3. GT2512-S,GT2512F-S

Unit: mm (inch)

Model	A	B	C *2	D	R (cable bend radius)
GT15-QBUS, GT15-QBUS2	88(3.46)	85(3.35)	3(0.12)	23(0.91)	50(1.97)
GT15-75QBUSL, GT15-75QBUS2L	88(3.46)		3(0.12)	10(0.39)	50(1.97)
GT15-RS2-9P *1, GT15-RS4-9S *1	72.5(2.85)		0	23(0.91)	27.5(1.08)
GT15-RS4-TE *1	33.5(1.32)		0		-
GT15-J71LP23-25	*3		*3		*3
GT15-J71BR13	79(3.11)		0		30(1.18)
GT15-J71GP23-SX	65(2.56)		0	37(1.46)	15(0.59)
GT15-J71GF13-T2 *4	65(2.56)		0		26(1.02)
GT15-J61BT13	47(1.85)		0	23(0.91)	28(1.10)
GT25-FNADP	-		-	25(0.98)	-
GT15-PRN	52(2.05)		0	23(0.91)	18(0.71)
GT15-DIO	77(3.03)		0	23(0.91)	43(1.69)
GT15-DIOR					
GT15-SOUT	41(1.61)		0		30(1.18)

*1 For cables prepared by the user, the dimensions in the table are not applied.

*2 If cable bending radius is smaller than the lowest part of the GOT rear face, the dimension of *3 is equal to or less than 0;however, it is written as "0" in the table.

*3 For details of the cable for GT15-J71LP23-25 (optical loop unit), contact your local Mitsubishi Electric System & Service Co., Ltd.

*4 The bend radius depends on the Ethernet cable to be used.

■4. GT2510-V,GT2510F-V

Unit: mm (inch)

Model	A	B	C *2	D	R (cable bend radius)
GT15-QBUS, GT15-QBUS2	88(3.46)	78(3.07)	10(0.39)	23(0.91)	50(1.97)
GT15-75QBUSL, GT15-75QBUS2L	88(3.46)		10(0.39)	10(0.39)	50(1.97)
GT15-RS2-9P *1, GT15-RS4-9S *1	72.5(2.85)		0	23(0.91)	27.5(1.08)
GT15-RS4-TE *1	33.5(1.32)		0		-
GT15-J71LP23-25	*3		*3		*3
GT15-J71BR13	79(3.11)		1(0.04)		30(1.18)
GT15-J71GP23-SX	65(2.56)		0	37(1.46)	15(0.59)
GT15-J71GF13-T2 *4	65(2.56)		0		26(1.02)
GT15-J61BT13	47(1.85)		0	23(0.91)	28(1.10)
GT25-FNADP	-		-	25(0.98)	-
GT15-PRN	52(2.05)		0	23(0.91)	18(0.71)
GT15-DIO	77(3.03)		0	23(0.91)	43(1.69)
GT15-DIOR					
GT15-SOUT	41(1.61)		0		30(1.18)

*1 For cables prepared by the user, the dimensions in the table are not applied.

*2 If cable bending radius is smaller than the lowest part of the GOT rear face, the dimension of *3 is equal to or less than 0;however, it is written as "0" in the table.

*3 For details of the cable for GT15-J71LP23-25 (optical loop unit), contact your local Mitsubishi Electric System & Service Co., Ltd.

*4 The bend radius depends on the Ethernet cable to be used.

■5. GT2508-V,GT2508F-V

Unit: mm (inch)

Model	A	B	C *2	D	R (cable bend radius)
GT15-QBUS, GT15-QBUS2	88(3.46)	56(2.20)	32(1.26)	23(0.91)	50(1.97)
GT15-75QBUSL, GT15-75QBUS2L	88(3.46)		32(1.26)	10(0.39)	50(1.97)
GT15-RS2-9P *1, GT15-RS4-9S *1	72.5(2.85)		16.5(0.65)	23(0.91)	27.5(1.08)
GT15-RS4-TE *1	33.5(1.32)		0		-
GT15-J71LP23-25	*3		*3		*3
GT15-J71BR13	79(3.11)		23(0.91)		30(1.18)
GT15-J71GP23-SX	65(2.56)		9(0.35)	37(1.46)	15(0.59)
GT15-J71GF13-T2 *4	65(2.56)		9(0.35)		26(1.02)
GT15-J61BT13	47(1.85)		0	23(0.91)	28(1.10)
GT25-FNADP	-		-	25(0.99)	-
GT15-PRN	52(2.05)		0	23(0.91)	18(0.71)
GT15-DIO	77(3.03)		21(0.83)	23(0.91)	43(1.69)
GT15-DIOR					
GT15-SOUT	41(1.61)		0		30(1.18)

*1 For cables prepared by the user, the dimensions in the table are not applied.

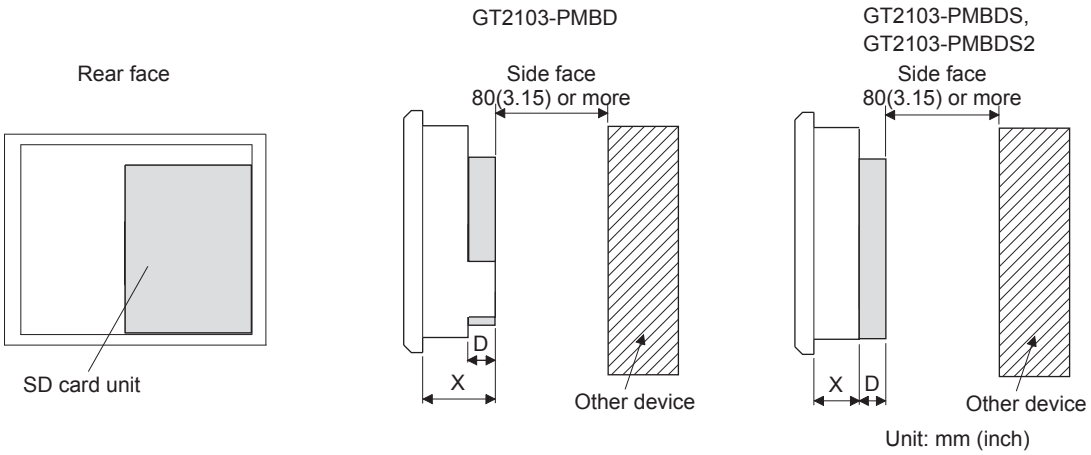
*2 If cable bending radius is smaller than the lowest part of the GOT rear face, the dimension of *3 is equal to or less than 0;however, it is written as "0" in the table.

*3 For details of the cable for GT15-J71LP23-25 (optical loop unit), contact your local Mitsubishi Electric System & Service Co., Ltd.

*4 The bend radius depends on the Ethernet cable to be used.

11.3 Depth dimensions for the GOT with an SD card unit (GT2103-P)

The following table shows the depth dimensions for the GOT with an SD card unit.



Unit: mm (inch)

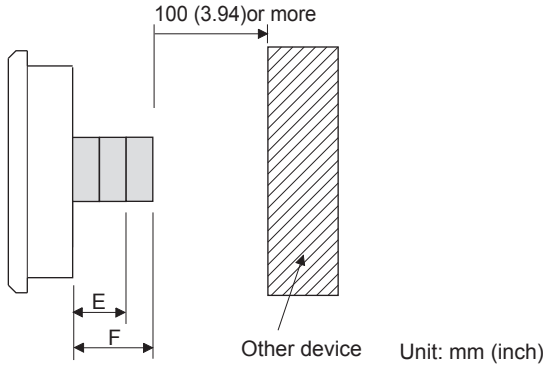
GOT type	X	D
GT2103-PMBD	32(1.26)	5(0.20)
GT2103-PMBDS, GT2103-PMBDS2	27(1.07)	5(0.20)

*1 GT2103-PMBLS can not mount the SD card unit.

11.4 Depth dimensions for the GOT with several extension units mounted in multiple stages (GT27, GT25)

The following shows how to calculate the depth dimensions for the GOT with several extension units mounted in multiple stages.
For the dimensions for the GOT with one extension unit, refer to the dimension D in .

Step 1. Select the GOT main unit coefficient from the following table.



GOT type	G (main unit coefficient)
GT27, GT25	1.5(0.06)

Step 2. Select the option coefficient of the extension unit from the following table.

Model	H (option coefficient)
GT27-V4-Z *1*2, GT27-R2-Z *1*2, GT27-V4R1-Z *1*2, GT27-ROUT-Z *1*2	43.0(1.69)
GT15-QBUS, GT15-QBUS2, GT15-RS2-9P, GT15-RS4-9S, GT15-RS4-TE, GT15-J71LP23-25, GT15-J71BR13, GT15-J61BT13, GT15-PRN, GT15-DIO, GT15-DIOR, GT15-SOUT	21.5(0.85)
GT27-MMR-Z *1*2	57.0(2.24)
GT15-J71GP23-SX *1, GT15-J71GF13-T2 *1	35.5(1.40)

*1 Mounting GT27-V4-Z, GT27-R2-Z, GT27-V4R1-Z, GT27-ROUT-Z, or GT27-MMR-Z requires two stages. When mounting GT15-J71GP23-SX or GT15-J71GF13-T2 on any of the above units, mount it in the third stage.
*2 The extension unit cannot be used on GT2705, GT2512, GT2510, or GT2508.

Step 3. Substitute the coefficients selected in step 1 and step 2 to the following formula.
E (for two extension units) = G (GOT main unit coefficient) + H (option coefficient) + H (option coefficient)
F (for three extension units) = G (GOT main unit coefficient) + H (option coefficient) + H (option coefficient) + H (option coefficient)

Calculation example:
Dimension F (for three extension units) for installing the multimedia unit (GT27-MMR-Z) in the first stage and the second stage,and the CC-Link IE Controller Network communication unit (GT15-J71GP23-SX) in the third stage on the GT2712

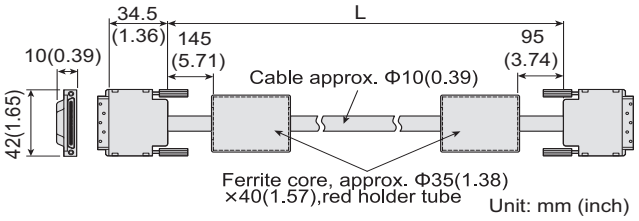
F (for three extension units) = -3.5 (main unit coefficient of GT2712) + 57.0(option coefficient of GT27-MMR-Z) + 35.5 (option coefficient of GT15-J71GP23-SX) = 89.0
When the above two extension units are installed, the dimension F is 89.0 mm.

11.5 External dimension diagrams of the communication cable

■1. External dimension diagrams of the bus connection cable connector

Cable model	Cable length (m(ft.))	External dimension diagram
GT15-QC□B	0.6(2.0),1.2(3.9),3(10),5(16),10(33)	(1)
GT15-QC□BS	15(49),20(66),25(82),30(98),35(115)	

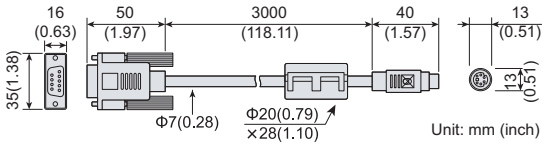
(1) GT15-QC□B, GT15-QC□BS



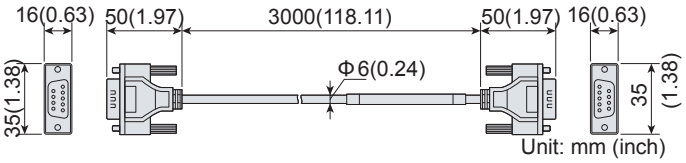
■2. External dimension diagrams of the RS-232 connection cable connector

Cable model	Cable length (m(ft.))	External dimensions
GT01-C30R2-6P	3(10)	(1)
GT01-C30R2-9S	3(10)	(2)
GT01-C30R2-25P	3(10)	(3)
GT10-C30R2-6P	3(10)	(4)

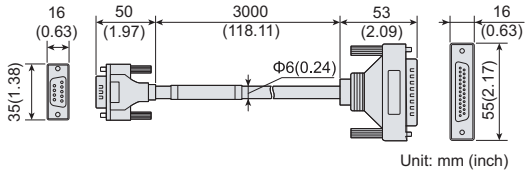
(1) GT01-C30R2-6P



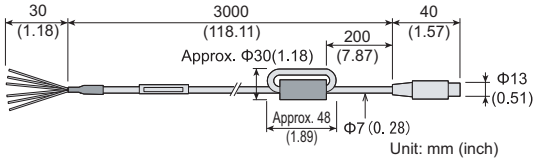
(2) GT01-C30R2-9S



(3) GT01-C30R2-25P



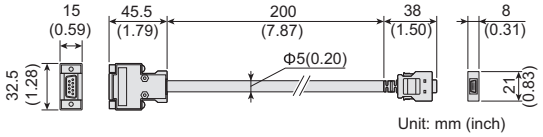
(4) GT10-C30R2-6P



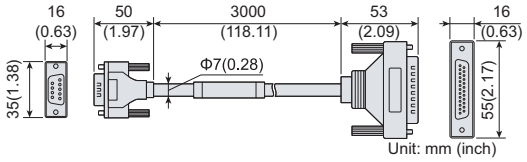
■3. External dimension diagrams of the RS-422 connection cable connector

Cable model	Cable length (m(ft.))	External dimensions
GT16-C02R4-9S	0.2(0.7)	(1)
GT01-C30R4-25P	3(10)	(2)
GT01-C□R4-25P	10(33),20(66),30(98)	(3)
GT01-C□R4-8P	1(3),3(10),10(33),20(66),30(98)	(4)
GT10-C□R4-8P	1(3),3(10),10(33),20(66),30(98)	(5)
GT10-C□R4-25P	3(10),10(33),20(66),30(98)	(6)
GT21-C□R4-8P5	1(3),3(10),10(33),20(66),30(98)	(5)
GT21-C□R4-25P5	3(10),10(33),20(66),30(98)	(6)
GT10-C10R4-8PL	1(3)	(7)
GT10-C□R4-8PC	1(3),3(10),10(33),20(66),30(98)	(8)
GT10-C02H-9SC	0.2(0.7)	(9)

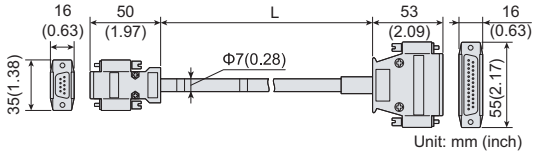
(1) GT16-C02R4-9S



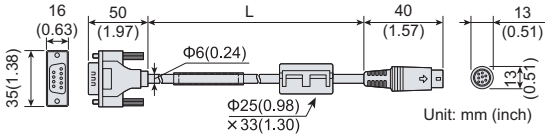
(2) GT01-C30R4-25P



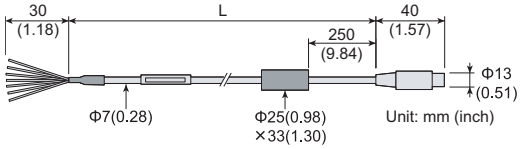
(3) GT01-C□R4-25P



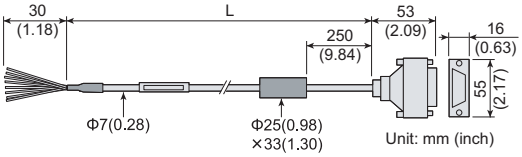
(4) GT01-C□R4-8P



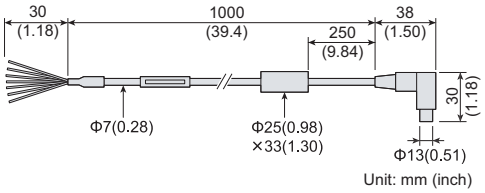
(5) GT10-C□R4-8P, GT21-C□R4-8P5



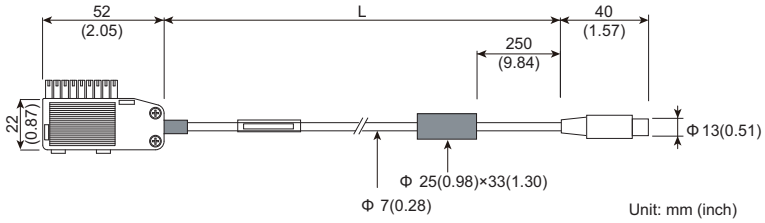
(6) GT10-C□R4-25P, GT21-C□R4-25P5



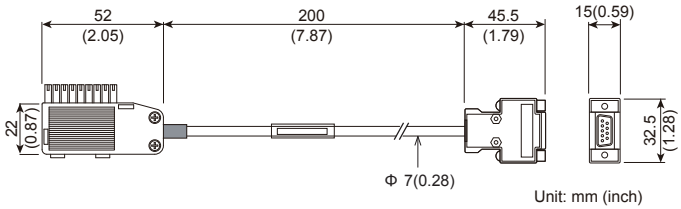
(7) GT10-C10R4-8PL



(8) GT10-C□R4-8PC



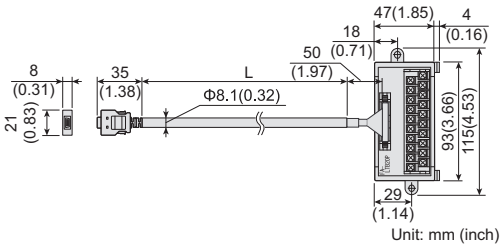
(9) GT10-C02H4-9SC



■4. External dimension diagrams of RS-485 terminal block conversion unit

Cable model	Cable length (m(ft.))	External dimensions
FA-LTBGT2R4CBL□	0.5, 1, 2	(1)

(1) FA-LTBGT2R4CBL□

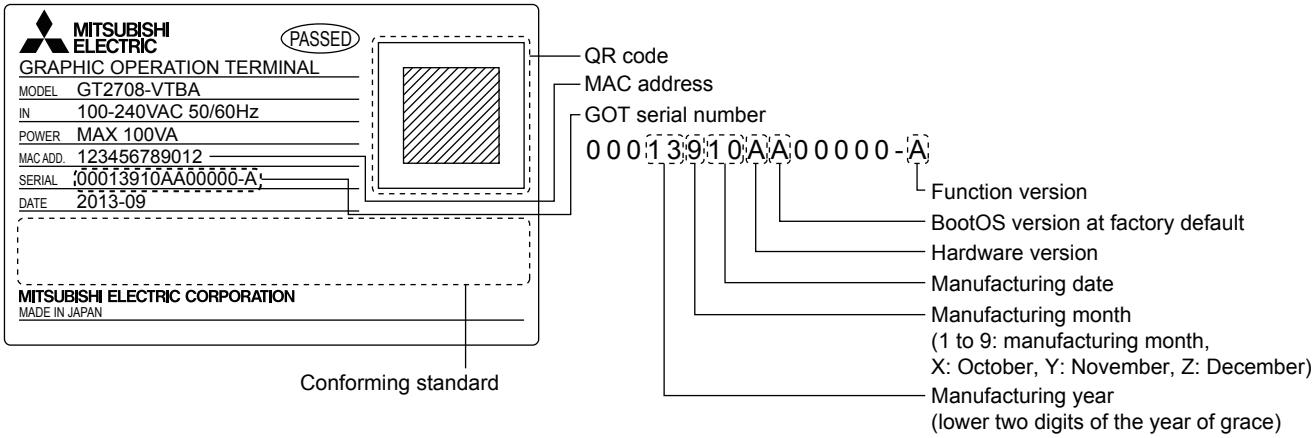


11.6 Confirming of Versions and Conforming Standards

11.6.1 GT27, GT25, GT23

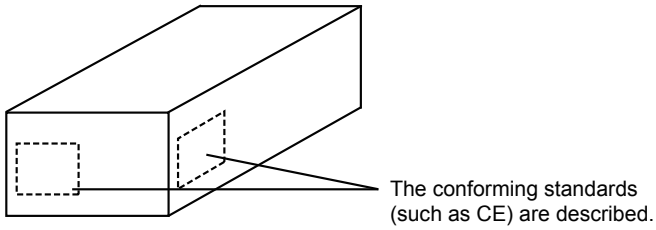
■1. Rating plate

The GOT hardware version, BootOS version at factory default, function version, and conforming standards can be checked with the rating plate on the GOT rear face.



■2. Packing box

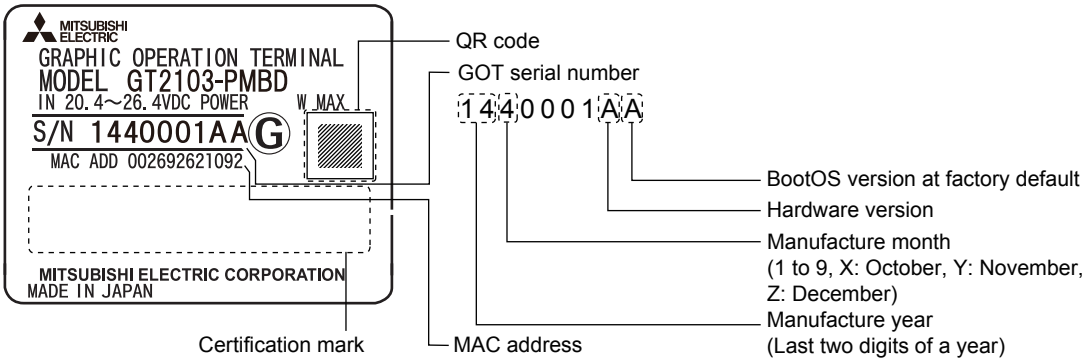
The conforming standards can be confirmed by the label on the packing box.
Note that the position of the label differs depending on the model or the shipment date.



11.6.2 GT21

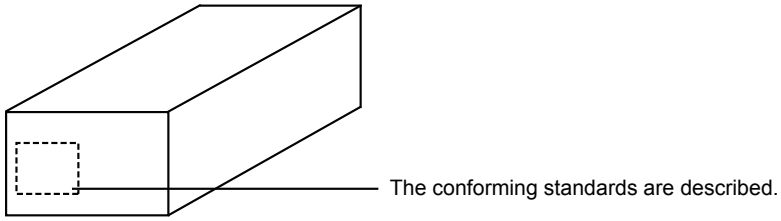
■1. Rating plate

The GOT hardware version, BootOS version at factory default, function version, and conforming standards can be checked with the rating plate on the GOT rear face.



■2. Packing box

The conforming standards can be confirmed by the label on the packing box.
Note that the position of the label differs depending on the shipment date.



11.7 Transportation Precautions

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

11.7.1 Relevant models

The battery for the GOT2000 series is classified as shown in the table below.

Product name	Model	Description	Handled as
Battery for GOT2000 series	GT11-50BAT	Lithium battery	Non-dangerous goods

11.7.2 Transportation 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.

11.8 Calculating consumed current of GT2705-V

For using multiple extension units, a bar code reader, or a RFID controller, the total current for the extension units, bar code reader, or RFID controller must be within the current that the GT2705-V can supply.
GOT other than GT2705-V, the calculation of the current value is not required.
For the current that the GT2705-V can supply and the current for the extension units, bar code reader, or RFID controller,refer to the following tables. Make sure that the total of consumed current is within the capacity of the GT2705-V.

■1. Current supply capacity of the GOT

Can be supplied current of GT2705-V is 1.3A.

■2. Current consumed by an extension unit/barcode reader/RFID controller

Module type	Consumed current (A)
GT15-QBUS, GT15-QBUS2, GT15-75QBUSL, GT15-75QBUS2L	0.275 *1
GT15-ABUS, GT15-ABUS2, GT15-75ABUSL, GT15-75ABUS2L	0.12
GT15-RS2-9P	0.29
GT15-RS4-9S	0.33
GT15-RS4-TE	0.3
GT15-J71GP23-SX	1.07
GT15-J71GF13-T2	0.96
GT15-J71LP23-25	0.56
GT15-J71BR13	0.77
GT15-J61BT13	0.56
GT25-FNADP	0.4
Barcode reader	*2
GT15-PRN	0.09
GT15-SOUT	0.08
GT15-DIO	0.1
GT15-DIOR	0.1
RFID controller	*2

*1 Value used for calculating the current consumption of the multi-channel function.
For the specifications of the unit, refer to the manual included with the unit.

*2 When the GOT supplies power to a barcode reader or a RFID controller from the standard interface, add their consumed current.(Maximum value is less than 0.3 A)

■3. Calculation example

(1) When connecting the GT15-QBUS2 and GT15-RS2-9P (2 units) to the GT2705-V

Current supply capacity of GT2705-V 1.3A
Total consumed current 0.275+0.29+0.29=0.855A

Since the calculated value is within the capacity of the GT2705-V, they can be connected to the GT2705-V.

(2) When connecting the GT15-J71GP23-SX and GT15-RS2-9P (2 units) to the GT2705-V

Current supply capacity of GT2705-V 1.3A
Total consumed current 1.07+0.29+0.29=1.65A

Since the calculated value exceeds the capacity of the GT2705-V, such configuration is not allowed.

REVISIONS

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

Print Date	* Manual Number	Revision
September 2013	SH(NA)-081194ENG-A	First printing : GT Designer3 Version1.100E
November 2013	SH(NA)-081194ENG-B	Compatible with GT Works3 Version1.104J • Description of SAFETY PRECAUTIONS changed • Abbreviations and generic terms changed • Compatible with printer unit • Compatible with wireless LAN connection (to be supported soon) • General specifications changed • Performance specifications changed • Printer unit added to the list of Depth dimensions and cable bend dimensions for the GOT with an extension unit, and Depth dimensions for the GOT with several extension units mounted in multiple stages.
January 2014	SH(NA)-081194ENG-C	Compatible with GT Works3 Version1.108N • Abbreviations and generic terms changed • Installation Position changed • Depth dimensions and cable bend dimensions for the GOT with an extension unit changed
April 2014	SH(NA)-081194ENG-D	Compatible with GT Works3 Version1.112S • Description of SAFETY PRECAUTIONS changed • Abbreviations and generic terms changed • GT2715-X, GT25, and options added
June 2014	SH(NA)-081194ENG-E	Compatible with GT Works3 Version1.117X • Description of SAFETY PRECAUTIONS changed • Vertical installation of GT27, GT25, and GT23 supported
July 2014	SH(NA)-081194ENG-F	Cotible with GT Works3 Version1.118Y • Abbreviations, generic terms, and icon indications changed • Battery installation and removal procedures changed
October 2014	SH(NA)-081194ENG-G	Compatible with GT Works3 Version1.122C • Description of SAFETY PRECAUTIONS is changed. • Abbreviations, generic terms, and icon indications are changed. • GT21 is supported. • GT2512-S is supported.
January 2015	SH(NA)-081194ENG-H	Writing errors have been corrected.
April 2015	SH(NA)-081194ENG-I	Compatible with GT Works3 Version1.130L • Abbreviations, generic terms, and icon indications are changed. • Field network adapter unit is supported. • RGB input unit (GT27-R2) is supported. • RGB output unit (GT27-ROUT) is supported. • GT2705-V, GT2104-R, GT2103-PMBDS2, GT2103-PMBLS is supported. • The SD cards added
May 2015	SH(NA)-081194ENG-J	Writing errors have been corrected.
June 2015	SH(NA)-081194ENG-K	The model names of the CC-Link IE Field Network communication unit set have been added.
October 2015	SH(NA)-081194ENG-L	Compatible with GT Works3 Version1.144A • Abbreviations, generic terms, and icon indications are changed. • GT2104-PMBD, GT2104-PMBDS is supported.
December 2015	SH(NA)-081194ENG-M	Writing errors have been corrected.

Print Date	* Manual Number	Revision
December 2015	SH(NA)-081194ENG-N	Compatible with GT Works3 Version1.150G • The description of SAFETY PRECAUTIONS has been changed. • Abbreviations, generic terms, and icon indications have been changed. • GT2512F-S, GT2510F-V, GT2508F-V, and environmental protection sheets have been added.

WARRANTY

Please check 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.

(1) Gratis Warranty Term

The gratis warranty term of the product shall be for thirty-six (36) months after the date of purchase or delivery to a designated place.
Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be forty-two (42) months.
The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

(2) Gratis Warranty Range

(a) The customer shall be responsible for the primary failure diagnosis unless otherwise specified.
If requested by the customer, Mitsubishi Electric Corporation or its representative firm may carry out the primary failure diagnosis at the customer's expense.
The primary failure diagnosis will, however, be free of charge should the cause of failure be attributable to Mitsubishi Electric Corporation.

(b) The range shall be limited to normal use within the usage state, usage methods, and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.

(c) Even within the gratis warranty term, repairs shall be charged in the following cases.
- Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
- Failure caused by unapproved modifications, etc., to the product by the user.
- When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
- Failure that could have been avoided if consumable parts designated in the instruction manual had been correctly serviced or replaced.
- Replacing consumable parts such as a battery, backlight, and fuse.
- Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
- Failure caused by reasons that could not be predicted by scientific technology standards at the time of shipment from Mitsubishi.
- Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

■2. 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) Mitsubishi shall not accept a request for product supply (including spare parts) 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 to:

(1) Damages caused by any cause found not to be the responsibility of Mitsubishi.

(2) Loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products.

(3) Special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products.

(4) Replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

■5. Changes in product specifications

The specifications given in the catalogs, manuals, or technical documents are subject to change without prior notice.

■6. Product application

(1) In using the Mitsubishi graphic operation terminal, the usage conditions shall be that the application will not lead to a major accident even if any problem or fault should occur in the graphic operation terminal device, and that backup and fail-safe functions are systematically provided outside of the device for any problem or fault.

(2) The Mitsubishi graphic operation terminal has been designed and manufactured for applications in general industries, etc.
Thus, applications in which the public could be affected such as in nuclear power plants and other power plants operated by respective power companies, and applications in which a special quality assurance system is required, such as for Railway companies or Public service shall be excluded from the graphic operation terminal applications.
In addition, applications in which human life or property could be greatly affected, such as in aircraft, medical, railway applications, incineration and fuel devices, manned transportation equipment, recreation and amusement devices, safety devices, shall also be excluded from the graphic operation terminal.
Even for the above applications, however, Mitsubishi Electric Corporation may consider the possibility of an application, provided that the customer notifies Mitsubishi Electric Corporation of the intention, the application is clearly defined and any special quality is not required, after the user consults the local Mitsubishi representative.

SH(NA)-081194ENG-N

GOT2000 Series User's Manual (Hardware)

MODEL	GOT2000-U-HW-E
MODEL CODE	1D7MJ5
SH(NA)-081194ENG-N(1512)MEE	

When exported from Japan, this manual does not require application to the Ministry of Economy, Trade and Industry for service transaction permission.

MITSUBISHI ELECTRIC CORPORATION

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