MITSUBISHI ELECTRIC

GRAPHIC OPERATION TERMINAL

GOT2000

GOT2000 Series
Connection Manual (Microcomputers, MODBUS/Fieldbus Products, Peripherals)
For GT Works3 Version1

-GT27 model
-GT25 model
-GT25 open frame model
-GT25 wide model
-GT25 rugged model
-GT23 model
-GT21 model
-GT21 wide model

SAFETY PRECAUTIONS

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

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

Note that failure to observe ⚠ CAUTION may lead to a serious accident depending on the circumstances.
Make sure to observe both warnings and cautions to ensure 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.
- 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, GS25]
  The POWER LED blinks (orange/blue), the display section dims, and inputs by a touch switch are disabled.
  [GT2105-Q]
  The POWER LED blinks (orange/blue), and the display section dims. However, inputs by a touch switch are still available.
  [GT2107-W, GT2104-R, GT2104-P, GT2103-P, GS21]
  The display section dims. However, inputs by a touch switch are still available.
  Even if the display section dims, inputs by a touch switch may still be available. This may cause an unintended operation 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. (This system signal is not available on GT2107-W, GT2104-R, GT2104-P, GT2103-P, and GS21.)

[DESIGN PRECAUTIONS]

⚠WARNING

- 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, GS25, GS21]
  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.
  (1) For bus connection (GT27 and GT25 only): The GOT becomes inoperative. Power on the PLC CPU again to reestablish communication.
  (2) 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.
- To maintain the security (confidentiality, integrity, and availability) of the GOT and the system against unauthorized access, DoS[*1] attacks, computer viruses, and other cyberattacks from unreliable networks and devices via network, take appropriate measures such as firewalls, virtual private networks (VPNs), and antivirus solutions.
  Mitsubishi Electric shall have no responsibility or liability for any problems involving GOT trouble and system trouble by unauthorized access, DoS attacks, computer viruses, and other cyberattacks.
  *1 DoS: A denial-of-service (DoS) attack disrupts services by overloading systems or exploiting vulnerabilities, resulting in a denial-of-service (DoS) state.

[DESIGN PRECAUTIONS]

⚠CAUTION

- Do not bundle the control and communication cables with main-circuit, power or other wiring.
  Run the above cables separately from such wiring and keep them a minimum of 100mm apart.
  Not doing so noise can cause a malfunction.
- Do not press the GOT display section with a pointed material as a pen or driver.
  Doing so can result in a damage or failure of the display section.
- When the GOT connects to an Ethernet network, the IP address setting is restricted according to the system configuration.
  [GT27, GT25, GT23, GS25]
  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.
  [GT21, GS21]
  Setting the IP address (192.168.3.18) in the following system configurations can cause IP address duplication at GOT startup, adversely affecting communications of the device whose IP address is 192.168.3.18.
  The operation at IP address duplication depends on the devices and the system.
  When multiple GOTs connect to the Ethernet network:
  Do not set the IP address (192.168.3.18) for the GOTs and the controllers in the network.
  When one GOT connects to the Ethernet network:
  Do not set the IP address (192.168.3.18) for the controllers other than the GOT in the network.
- When using the Ethernet interfaces, set an IP address for each interface to access a different network.
- Turn on the controllers and the network devices to be ready for communication before they communicate with the GOT.
  Failure to do so can cause a communication error on the GOT.
- When the GOT is subject to shock or vibration, or some colors appear on the screen of the GOT, the screen of the GOT might flicker.

[MOUNTING PRECAUTIONS]

⚠WARNING

- Be sure to shut off all phases of the external power supply used by the system before mounting or removing the GOT main unit to/from the panel.
  Not doing so can cause the unit to fail or malfunction.
- 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 Phillips cross-head screwdriver No. 2.
  Undertightening can cause the GOT to drop, short circuit or malfunction.
  Overtightening can cause a drop, short circuit or malfunction due to the damage of the screws or the GOT.
  The specified torque range is as follows.
  [GT27, GT25-W, GT2512-S, GT2510-V, GT2508-V, GT23, GT2107-W, GS25]
  Specified torque range (0.36 N•m to 0.48 N•m)
  [GT2505-V, GT2105-Q]
  Specified torque range (0.30 N•m to 0.50 N•m)
  [GT2104-R, GT2104-P, GT2103-P]
  Specified torque range (0.20 N•m to 0.25 N•m)
- When mounting a unit on the GOT, tighten the mounting screws in the specified torque range.
  Undertightening can cause the GOT to drop, short circuit or malfunction.
  Overtightening can cause a drop, failure or malfunction due to the damage of the screws or unit.
  The specified torque range is as follows.
  [GT27, GT25 (except GT25-W)]
  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.
  [GT25-W, GS25]
  When mounting the wireless LAN communication unit on the GOT, fit it to the wireless LAN communication unit interface 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.
  [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.
- When closing the USB environmental protection cover, note the following points to ensure the IP rating.
  [GT27, GT25 (except GT25-W and GT2505-V)]
  Push the [PUSH] mark on the latch firmly to fix the cover to the GOT.
  [GT2512-WX, GT2510-WX, GT2507-W, GT2505-V, GT2107-W, GS25]
  Push the USB mark on the latch firmly to fix the cover to the GOT.
  [GT2105-Q]
  Tighten the lower fixing screws of the cover in the specified torque range (0.36 N•m to 0.48 N•m) to fix the cover to the GOT.

[MOUNTING PRECAUTIONS]

⚠CAUTION

- 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.
- 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.
- Do not operate or store the GOT in the environment exposed to direct sunlight, rain, high temperature, dust, humidity, or vibrations.
- Although GT2507T-W is ruggedized for environments such as UV rays, temperatures and vibrations, its operation is not guaranteed in all conditions and environments.
  Make sure to use or store the GOT in an appropriate environment.
- 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.
- Do not operate the GOT with its display section frozen.
  The water droplets on the display section may freeze at a low temperature.
  Touch switches and other input objects may malfunction if the display section is frozen.

[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

- When grounding the FG terminal and LG terminal of the GOT power supply section, note the following points.
  Not doing so may cause an electric shock or malfunction.
  [GT27, GT25, GT23, GT2107-W, GT2105-Q, GS25, GS21]
  Make sure to ground the FG terminal and LG terminal of the GOT power supply section solely for the GOT (ground resistance: 100 Ω or less, cross-sectional area of the ground cable: 2.0 mm^2 or more).
  (GT2705-V, GT25-W, GT2505-V, GT2107-W, GT2105-Q, GS25, and GS21 do not have the LG terminal.)
  [GT2104-R, GT2104-P, GT2103-P]
  Make sure to ground the FG terminal of the GOT power supply section with a ground resistance of 100 Ω or less. (For GT2104-PMBLS and GT2103-PMBLS, grounding is unnecessary.)
- When tightening the terminal screws, use the following screwdrivers.
  [GT27, GT25, GT23, GT2107-W, GT2105-Q, GS25, GS21]
  Use a Phillips-head screwdriver No. 2.
  [GT2104-R, GT2104-P, GT2103-P]
  For the usable screwdrivers, refer to the following.
  ☞ GOT2000 Series User's Manual (Hardware)
- Tighten the terminal screws of the GOT power supply section in the following specified torque range.
  [GT27, GT25, GT23, GS25]
  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, GT2107-W, GT2105-Q, GS25, GS21]
  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.
  [GT2104-R, GT2104-P, GT2103-P]
  Connect a stranded wire or a solid 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 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.
  The specified torque range is as follows.
  [GT27, GT25, GT23, GT2107-W, GT2105-Q, GS25]
  Specified torque range (0.5 N•m to 0.8 N•m)
  [GT2104-R, GT2104-P, GT2103-P]
  Specified torque range (0.22 N•m to 0.25 N•m)
  [GS21]
  Specified torque range (0.5 N•m to 0.6 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.

[WIRING PRECAUTIONS]

⚠CAUTION

- Some models have an ingress prevention label on their top to prevent foreign matter, such as wire offcuts, from entering the GOT during wiring.
  Do not peel this label during wiring.
  Before starting system operation, be sure to peel this label because of heat dissipation.
- 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 may 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.

[TEST OPERATION PRECAUTIONS]

⚠WARNING

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

[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.
- Before cleaning the GOT, be sure to turn off the power.
  Before cleaning, check the following items.
  • Ensure that there are no problems with the installation condition of the GOT to the control panel.
  • Ensure that there are no damages on the environmental protection sheet (not replaceable).
  If the environmental protection sheet peels or the cleaning solution enters between the sheet and the display section during cleaning, stop the cleaning immediately.
  In such a case, do not use the GOT.

[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 FOR USING A DATA STORAGE]

⚠WARNING

- Do not remove the SD card from drive A while the SD card is being accessed by the GOT, or the GOT may stop processing for about 20 seconds.
  During this stop, you cannot operate the GOT, and the functions running in the background, including the screen refresh, alarm, logging, and script, also stop.
  This stop may affect the system operation, causing an accident.
  Before removing the SD card, check the following items.
  [GT27, GT25 (except GT2505-V and GT25HS-V), GT23, GS25]
  Before removing the SD card, check that the SD card access LED is off.
  [GT2505-V, GT25HS-V]
  Make sure to turn off the SD card access switch before removing the SD card.Not doing so may damage the SD card and files.
  [GT21, GS21]
  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.
- Do not remove the data storage from the file server (drive N) that is being accessed by the GOT, or the system operation may be affected.
  Before removing the data storage, check the relevant system signal to make sure that the data storage is not being accessed.

[PRECAUTIONS FOR USING A DATA STORAGE]

⚠CAUTION

- Do not remove the data storage from the GOT while the data storage is being accessed by the GOT, or the data storage and files may be damaged.
  Before removing the data storage, check the SD card access LED, relevant system signal, or others to make sure that the data storage is not being 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 (except GT2505-V and GT25HS-V), GT23, GS25]
  After inserting an SD card into the GOT, make sure to close the SD card cover.
  Otherwise, data cannot be read or written.
  [GT2505-V, GT25HS-V]
  After inserting an SD card into the GOT, make sure to turn on the SD card access switch.
  Otherwise, data cannot be read or written.
  [GT21, GS21]
  After inserting an SD card into the SD card unit, make sure to enable the SD card access in the GOT utility.
  Otherwise, data cannot be read or written.

[PRECAUTIONS FOR USING A DATA STORAGE]

⚠CAUTION

- 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 a malfunction due to poor contact. (GT27, GT25, GT2107-W, GS25)
- Before removing the data storage from the GOT, follow the procedure for removal on the utility screen of the GOT. After the successful completion dialog is displayed, remove the data storage by hand carefully.
  Not doing so may cause the data storage to drop from the GOT, resulting in a failure or break.

[PRECAUTIONS FOR USE]

⚠CAUTION

- Do not touch the edges of the touch panel (display section) repeatedly.
  Doing so may result in a failure.
- Do not turn off the GOT while data is being written to the storage memory (ROM) or SD card.
  Doing so may corrupt the data, rendering the GOT inoperative.
- The GOT rugged model uses the environmental protection sheet (not replaceable) with UV protection function on the front surface.
  Therefore, it is possible to suppress deterioration of the touch panel or the liquid crystal display panel that may be caused by ultraviolet rays.
  Note that if the rugged model is exposed to ultraviolet rays for an extended period of time, the front surface may turn yellow.
  If the rugged model is likely to be exposed to ultraviolet rays for an extended period of time, it is recommended to use a UV protective sheet (option).

[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 you remotely operate control equipment using such functions, the field operator may not notice the remote operation, 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.
- When operating the server (GOT) of the GOT Mobile function to disconnect a client, notify the operator of the client about the disconnection beforehand.
  Not doing so may cause an accident.

[PRECAUTIONS FOR EXCLUSIVE AUTHORIZATION CONTROL]

⚠WARNING

- Before using the GOT network interaction function to prevent simultaneous operations from multiple pieces of equipment, make sure you understand the function.
You can enable or disable the exclusive authorization control of the GOT network interaction function 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 is operable simultaneously from multiple 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 the GOT2000 Series User's Manual (Hardware) 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 the GOT2000 Series User's Manual (Hardware) 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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INTRODUCTION

Thank you for choosing Mitsubishi Electric Graphic Operation Terminal (GOT).
Before using the product, read this manual carefully and make sure you understand the functions and performance of the GOT for correct use.

☞ Manuals for GT Works3
☞ Abbreviations, Generic Terms, and Model Icons

Manuals for GT Works3

The electronic manuals related to this product are installed together with the screen design software.
If you need the printed manuals, consult your local sales office.

Manuals for GT Designer3 (GOT2000)

Point

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

■Screen design software-related manuals

Manual name	Manual number (Model code)	Format
GT Works3 Installation Instructions	-	PDF
GT Designer3 (GOT2000) Screen Design Manual	SH-081220ENG (1D7ML9)	PDF e-Manual
GT Converter2 Version3 Operating Manual for GT Works3	SH-080862ENG	PDF e-Manual
GOT2000 Series MES Interface Function Manual for GT Works3 Version1	SH-081228ENG	PDF e-Manual

■Connection manuals

Manual name	Manual number (Model code)	Format
GOT2000 Series Connection Manual (Mitsubishi Electric Products) For GT Works3 Version1	SH-081197ENG (1D7MJ8)	PDF e-Manual
GOT2000 Series Connection Manual (Non-Mitsubishi Electric Products 1) For GT Works3 Version1	SH-081198ENG	PDF e-Manual
GOT2000 Series Connection Manual (Non-Mitsubishi Electric Products 2) For GT Works3 Version1	SH-081199ENG	PDF e-Manual
GOT2000 Series Connection Manual (Microcomputers, MODBUS/Fieldbus Products, Peripherals) For GT Works3 Version1	SH-081200ENG	PDF e-Manual
GOT2000 Series Handy GOT Connection Manual For GT Works3 Version1	SH-081867ENG (1D7MS9)	PDF e-Manual
GOT2000 Series Connection Manual (α2 Connection) for GT Works3 Version1	JY997D52301	PDF e-Manual

■GT SoftGOT2000 manuals

Manual name	Manual number (Model code)	Format
GT SoftGOT2000 Version1 Operating Manual	SH-081201ENG	PDF e-Manual
MELSOFT GT OPC UA Client Operating Manual	SH-082174ENG	PDF

■GOT2000 series user's manuals

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

■GOT SIMPLE series user's manuals

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

■Manuals related to GT Works3 add-on projects

Manual name	Manual number (Model code)	Format
GT Works3 Add-on License for GOT2000 Enhanced Drive Control (Servo) Project Data Manual (Fundamentals)	SH-082072ENG (1D7MV1)	PDF e-Manual
GT Works3 Add-on License for GOT2000 Enhanced Drive Control (Servo) Project Data Manual (Screen Details)	SH-082074ENG (1D7MV3)	PDF e-Manual

Manuals for GT Designer3 (GOT1000)

Refer to the Help and manuals for GT Designer3 (GOT1000).

Abbreviations, Generic Terms, and Model Icons

The following shows the abbreviations, generic terms, and model icons used in this manual.

GOT

■GOT2000 series

Abbreviations and generic terms			Description	Meaning of icon	
				Available	Unavailable
GT27	GT27-X	GT2715-X	GT2715-XTBA GT2715-XTBD	GT 27	-
	GT27-S	GT2712-S	GT2712-STBA GT2712-STWA GT2712-STBD GT2712-STWD		
		GT2710-S	GT2710-STBA GT2710-STBD		
		GT2708-S	GT2708-STBA GT2708-STBD		
	GT27-V	GT2710-V	GT2710-VTBA GT2710-VTWA GT2710-VTBD GT2710-VTWD		
		GT2708-V	GT2708-VTBA GT2708-VTBD		
		GT2705-V	GT2705-VTBD		
GT25			All GT25 models	GT 25	-
	GT25-W	GT2512-WX	GT2512-WXTBD GT2512-WXTSD	GT 25	-
		GT2510-WX	GT2510-WXTBD GT2510-WXTSD		
		GT2507-W	GT2507-WTBD GT2507-WTSD		
		GT2507T-W	GT2507T-WTSD		
	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		
		GT2505-V	GT2505-VTBD		
	GT25HS-V Handy GOT	GT2506HS-V	GT2506HS-VTBD	GT 2506 HS	-
		GT2505HS-V	GT2505HS-VTBD	GT 2505 HS	-
GT23	GT23-V	GT2310-V	GT2310-VTBA GT2310-VTBD	GT 23	-
		GT2308-V	GT2308-VTBA GT2308-VTBD		

Abbreviations and generic terms			Description	Meaning of icon	
				Available	Unavailable
GT21			All GT21 models	GT 21	-
	GT21-W	GT2107-W	GT2107-WTBD GT2107-WTSD	GT 21 07W	-
	GT21-Q	GT2105-Q	GT2105-QTBDS GT2105-QMBDS	GT 21 05Q	-
	GT21-R	GT2104-R	GT2104-RTBD	GT 21 04R	-
	GT21-P	GT2104-P	GT2104-PMBD	GT 21 03P 04P ET/R4	-
			GT2104-PMBDS	GT 21 03P 04P R4	-
			GT2104-PMBDS2	GT 21 03P 04P R2	-
			GT2104-PMBLS	GT 21 03P 04P R4-5V	-
		GT2103-P	GT2103-PMBD	GT 21 03P 04P ET/R4	-
			GT2103-PMBDS	GT 21 03P 04P R4	-
			GT2103-PMBDS2	GT 21 03P 04P R2	-
			GT2103-PMBLS	GT 21 03P 04P R4-5V	-
GT SoftGOT2000			GT SoftGOT2000 Version1	Soft GOT 2000	-

■GOT SIMPLE series

Abbreviations and generic terms		Description	Meaning of icon	
			Available	Unavailable
GS25		GS2512-WXTBD	GS 25	-
GS21	GS21-W-N	GS2110-WTBD-N GS2107-WTBD-N	GS 21	-
	GS21-W	GS2110-WTBD GS2107-WTBD		

■GOT1000 series, GOT900 series, and GOT800 series

Abbreviations and generic terms	Description	Meaning of icon	
		Available	Unavailable
GOT1000 Series	GOT1000 Series	-	
GOT900 Series	GOT-A900 Series GOT-F900 Series	-	
GOT800 Series	GOT-800 Series	-	

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 TSN communication unit	GT25-J71GN13-T2
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
Ethernet communication unit	GT25-J71E71-100
RS-232/485 signal conversion adapter	GT14-RS2T4-9P

Option unit

Abbreviations and generic terms	Description
Printer unit	GT15-PRN
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)
Digital video output unit	GT27-VHOUT
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

Option

Abbreviations and generic terms	Description
SD card	NZ1MEM-2GBSD NZ1MEM-4GBSD NZ1MEM-8GBSD NZ1MEM-16GBSD L1MEM-2GBSD L1MEM-4GBSD
Battery	GT11-50BAT GT15-BAT
Protective sheet	GT27-15PSGC GT25-12WPSGC GT25-12PSGC GT25-10WPSGC GT25-10PSGC GT25-08PSGC GT21-07WPSGC GT25T-07WPSVC GT25-05PSGC GT25-05PSGC-2 GT21-05PSGC GT21-04RPSGC-UC GT21-03PSGC-UC GT21-04PSGC-UC GT27-15PSCC GT25-12WPSCC GT25-12PSCC GT25-10WPSCC GT25-10PSCC GT25-08PSCC GT25-05PSCC GT25-05PSCC-2 GT25-12PSCC-UC GT25-10PSCC-UC GT25-08PSCC-UC GT21-07WPSCC GT21-05PSCC GT21-04RPSCC-UC GT21-04PSCC-UC GT21-03PSCC-UC GT16H-60PSC GT14H-50PSC
Antibacterial/antiviral protective sheet	GT25-12PSAC GT25-10PSAC GT25-08PSAC
Environmental protection sheet	GT25F-12ESGS GT25F-10ESGS GT25F-08ESGS
Protective cover for oil	GT20-15PCO GT20-12PCO GT20-10PCO GT20-08PCO GT21-12WPCO GT21-10WPCO GT21-07WPCO GT25T-07WPCO GT25-05PCO GT25-05PCO-2 GT05-50PCO GT21-04RPCO GT10-30PCO GT10-20PCO
USB environmental protection cover	GT25-UCOV GT25-05UCOV GT21-WUCOV

Abbreviations and generic terms	Description
Stand	GT15-90STAND GT15-80STAND GT15-70STAND GT05-50STAND GT25-10WSTAND GT21-07WSTAND GT25T-07WSTAND
Attachment	GT15-70ATT-98 GT15-70ATT-87 GT15-60ATT-97 GT15-60ATT-96 GT15-60ATT-87 GT15-60ATT-77 GT21-04RATT-40
Panel-mounted USB port extension	GT14-C10EXUSB-4S GT10-C10EXUSB-5S
Connector conversion box	GT16H-CNB-42S GT16H-CNB-37S GT11H-CNB-37S
Emergency stop switch guard cover	GT16H-60ESCOV GT14H-50ESCOV
Wall-mounting attachment	GT14H-50ATT

Software

■Software related to GOT

Abbreviations and generic terms	Description
GT Works3	SW1DND-GTWK3-J, SW1DND-GTWK3-E, SW1DND-GTWK3-C
GT Designer3 Version1	Screen design software GT Designer3 for GOT2000 and GOT1000 series
GT Designer3	Screen design software for GOT2000 series included in GT Works3
GT Designer3 (GOT2000)	
GT Designer3 (GOT1000)	Screen design software for GOT1000 series included in GT Works3
Speech synthesis license	GT Works Text to Speech License (SW1DND-GTVO-M)
Add-on license	GT Works3 add-on license for GOT2000 enhanced drive control (servo) project data (SW1DND-GTSV-MZ)
GENESIS64 Advanced	GENESIS64 server application (GEN64-APP)
GENESIS64 Basic SCADA	GENESIS64 server application (GEN64-BASIC)
GENESIS64	Generic term of GENESIS64 Advanced and GENESIS64 Basic SCADA
GOT Mobile function license for GT SoftGOT2000	License required to use the GOT Mobile function with GT SoftGOT2000 (SGT2K-WEBSKEY-□)
GT Simulator3	Screen simulator GT Simulator3 for GOT2000, GOT1000, and GOT900 series
GT SoftGOT2000	GOT2000 compatible HMI software GT SoftGOT2000
GT OPC UA Client	MELSOFT GT OPC UA Client (SW1DNN-GTOUC-MD)
GT Converter2	Data conversion software GT Converter2 for GOT1000 and GOT900 series
GT Designer2 Classic	Screen design software GT Designer2 Classic for GOT900 series
GT Designer2	Screen design software GT Designer2 for GOT1000 and GOT900 series
DU/WIN	Screen design software FX-PCS-DU/WIN for GOT-F900 series

■Software related to iQ Works

Abbreviations and generic terms	Description
iQ Works	iQ Platform compatible engineering environment MELSOFT iQ Works
MELSOFT Navigator	Integrated development environment software included in SW□DND-IQWK (iQ Platform compatible engineering environment MELSOFT iQ Works) (□ represents a version.)
MELSOFT iQ AppPortal	SW□DND-IQAPL-M type integrated application management software (□ represents a version.)

■Other software

Abbreviations and generic terms		Description
GX Works3		SW□DND-GXW3-E (-EA, -EAZ) type programmable controller engineering software (□ represents a version.)
GX Works2		SW□DNC-GXW2-E (-EA, -EAZ) type programmable controller engineering software (□ represents 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) (□ represents a version.)
GX Developer		SW□D5C-GPPW-E (-EV)/SW□D5F-GPPW (-V) type software package (□ represents a version.)
GX LogViewer		SW□DNN-VIEWER-E type software package (□ represents a version.)
MI Configurator		Configuration and monitor tool for Mitsubishi Electric industrial computers (SW□DNNMICONF-M) (□ represents a version.)
PX Developer		SW□D5C-FBDQ-E type FBD software package for process control (□ represents a version.)
MT Works2		Motion controller engineering environment MELSOFT MT Works2 (SW□DND-MTW2-E) (□ represents a version.)
MT Developer		SW□RNC-GSV type integrated start-up support software for motion controller Q series (□ represents a version.)
CW Configurator		Setting/monitoring tools for the C Controller module and MELSECWinCPU (SW□DND-RCCPU-E) (□ represents a version.)
MR Configurator2		SW□DNC-MRC2-E type servo configuration software (□ represents a version.)
MR Configurator		MRZJW□-SETUP type servo configuration software (□ represents a version.)
FR Configurator2		Inverter setup software (SW□DND-FRC2-E) (□ represents a version.)
FR Configurator		Inverter setup software (FR-SW□-SETUP-WE) (□ represents 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 package for FX3U-20SSC-H (SW□D5CFXSSCE) (□ represents a version.)
FX Configurator-EN-L		FX3U-ENET-L type Ethernet module setting software (SW1D5-FXENETL-E)
FX Configurator-EN		FX3U-ENET type Ethernet module setting software (SW1D5C-FXENET-E)
RT ToolBox2		Robot program creation software (3D-11C-WINE)
RT ToolBox3		Robot program creation software (3F-14C-WINE)
MX Component		MX Component Version□ (SW□D5C-ACT-E, SW□D5C-ACT-EA) (□ represents a version.)
MX Sheet		MX Sheet Version□ (SW□D5C-SHEET-E, SW□D5C-SHEET-EA) (□ represents a version.)
CPU Module Logging Configuration Tool		CPU module logging configuration tool (SW1DNN-LLUTL-E)

License key (for GT SoftGOT2000)

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

Others

Abbreviations and generic terms	Description
IAI	IAI Corporation
AZBIL	Azbil Corporation
OMRON	OMRON Corporation
KEYENCE	KEYENCE CORPORATION
JTEKT ELECTRONICS (formerly KOYO EI)	JTEKT ELECTRONICS CORPORATION (formerly KOYO ELECTRONICS INDUSTRIES CO., LTD.)
JTEKT	JTEKT CORPORATION
SHARP	Sharp Corporation
SHINKO	Shinko Technos Co., Ltd.
CHINO	CHINO CORPORATION
TOSHIBA	TOSHIBA CORPORATION
SHIBAURA MACHINE	SHIBAURA 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.
HIRATA	Hirata Corporation
FUJI	FUJI ELECTRIC CO., LTD.
MURATEC	Muratec products manufactured by Murata Machinery, 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 ELECTRIC (formerly LS IS)	LS ELECTRIC Co., Ltd (formerly 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
SCHNEIDER EJH	Schneider Electric Japan Holdings Ltd.
PLC	Programmable controller manufactured by its respective company
Control equipment	Control equipment manufactured by its respective company
Temperature controller	Temperature controller manufactured by its respective company
Indicating controller	Indicating controller manufactured by its respective company
Controller	Controller manufactured by its respective company
Industrial switch (for CC-Link IE TSN Class B)	CC-Link IE TSN Class B (Synchronized Realtime Communication) hub certified by CC-Link Partner Association
Industrial switch (for CC-Link IE TSN Class A)	CC-Link IE TSN Class A (Realtime Communication) hub certified by CC-Link Partner Association
CC-Link IE TSN-equipped module	Generic term for the following CC-Link IE TSN master/local modules and CC-Link IE TSN Plus master/local module • RJ71GN11-T2 • RJ71GN11-EIP • FX5-CCLGN-MS

PART 1 PREPARATORY PROCEDURES FOR MONITORING

1 PREPARATORY PROCEDURES FOR MONITORING

- Page 31 Setting the Communication Interface
- Page 42 Writing the Package Data onto the GOT
- Page 44 Option Devices for the Respective Connection
- Page 49 Connection Cables for the Respective Connection
- Page 60 Verifying GOT Recognizes Connected Equipment
- Page 62 Checking for Normal Monitoring

The following shows the procedures to be taken before monitoring and corresponding reference sections.

1. Setting the communication interface

Determine the connection type and channel No. to be used, and perform the communication setting.

☞ Page 31 Setting the Communication Interface

☞ Each chapter GOT Side Settings

2. Writing the package data

Write the project data, system application onto the GOT.

☞ Page 42 Writing the Package Data onto the GOT

3. Verifying the package data

Verify the project data, system application are properly written onto the GOT.

☞ Page 43 Checking the package data writing on GOT

4. Attaching the communication unit and connecting the cable

Mount the optional equipment and prepare/connect the connection cable according to the connection type.

☞ Page 44 Option Devices for the Respective Connection

☞ Page 49 Connection Cables for the Respective Connection

☞ Each chapter System Configuration

☞ Each chapter Connection Diagram

5. Verifying GOT recognizes connected equipment

Verify the GOT recognizes controllers on [Communication Settings] of the Utility.

☞ Page 60 Verifying GOT Recognizes Connected Equipment

6. Verifying the GOT is monitoring normally

Verify the GOT is monitoring normally using Utility, Developer, etc.

☞ Page 62 Checking for Normal Monitoring

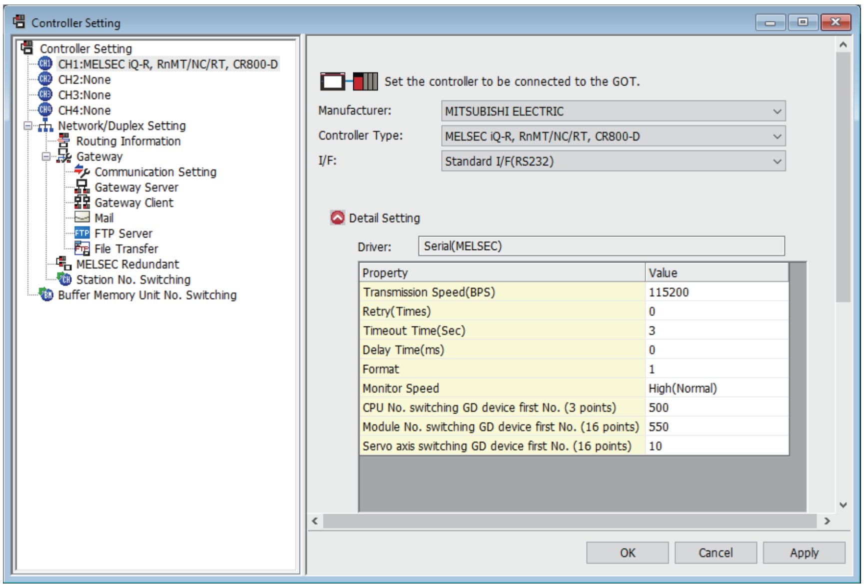
1.1 Setting the Communication Interface

Set the communication interface of GOT and the connected equipment.
When using the GOT at the first time, make sure to set the channel of communication interface and the communication driver before writing to GOT.
Set the communication interface of the GOT at [Controller Setting] and [I/F Communication Setting] in GT Designer3.

Setting connected equipment (Channel setting)

Set the channel of the equipment connected to the GOT.

Setting



1. Select [Common] → [Controller Setting] from the menu.

2. The Controller Setting dialog box appears. Select the channel No. to be used from the list menu.

3. Refer to the following explanations for the setting.

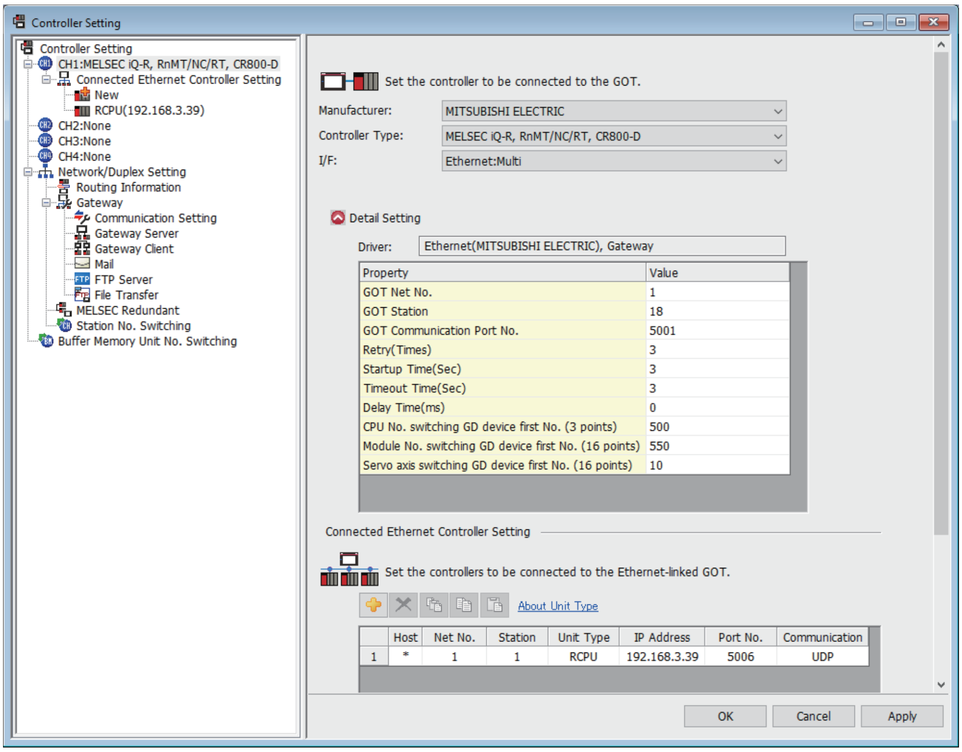
Point

Channel No.2 to No.4
Use the channel No.2 to No.4 when using the Multi-channel function.
For details of the Multi-channel function, refer to the following.
☞ GOT2000 Series Connection Manual (Mitsubishi Electric Products) For GT Works3 Version1

Setting item

This section describes the setting items of the Manufacturer, Controller Type, Driver and I/F.

When using the channel No.2 to No.4, put a check mark at [Use CH*].



Item	Description
Use CH*	Select this item when setting the channel No.2 to No.4.
Manufacturer	Select the manufacturer of the equipment to be connected to the GOT.
Type	Select the type of the equipment to be connected to the GOT. For the settings, refer to the following. ☞ Page 33 Setting [Controller Type]
I/F	Select the interface of the GOT to which the equipment is connected. For the settings, refer to the following. ☞ Page 34 Setting [I/F]
Driver	Select the communication driver to be written to the GOT. For the settings, refer to the following. ☞ Page 32 Setting [Driver] When multiple communication drivers can be selected, this item is displayed. When only one communication driver can be selected, the driver name is displayed under [Detail Setting].
Detail Setting	Make settings for the transmission speed and data length of the communication driver. ☞ Refer to each chapter of the equipment to be connected to the GOT.

■Setting [Driver]

The displayed items for a driver differ according to the settings [Manufacturer], [Controller Type] and [I/F].

When the driver to be set is not displayed, confirm if [Manufacturer], [Controller Type] and [I/F] are correct.

For the settings, refer to the following.

☞ [Setting the communication interface] section in each chapter

■Setting [Controller Type]

The type differs depending on the device to be used.

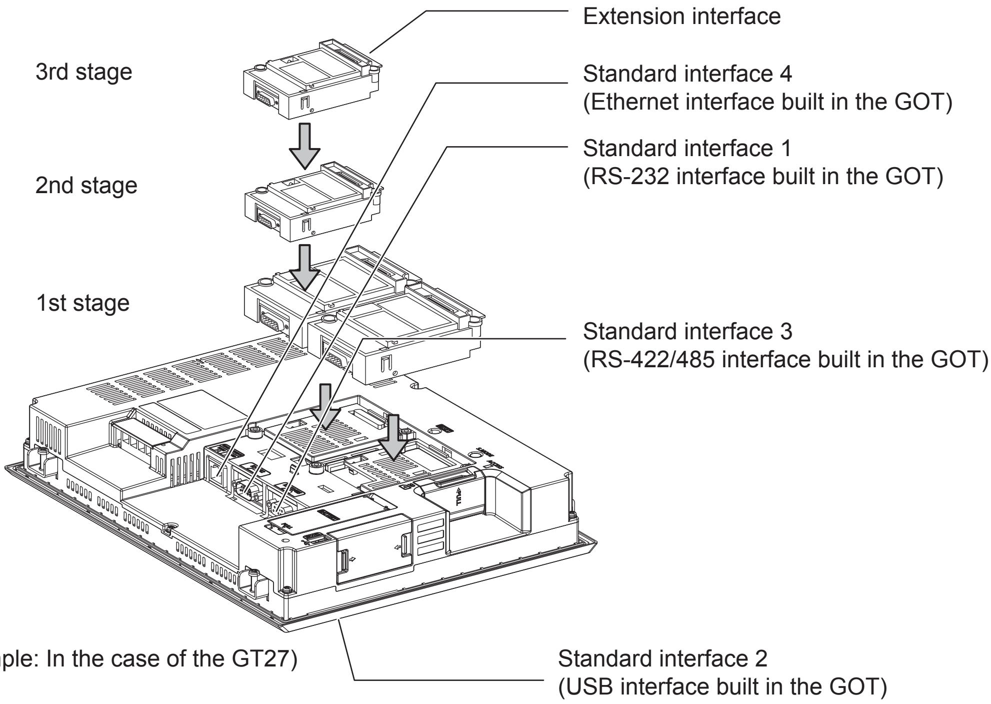
For the settings, refer to the following.

Type	Connectable device
[CC-Link IE Field Network Basic]	CC-Link IE Field Network Basic master stations For the CC-Link IE Field Network Basic master stations validated by Mitsubishi Electric Corporation, refer to the following. 📖List of CC-Link IE Field Network Basic-compatible Equipment Validated to Operate with the GOT2000 Series (GOT-A-0149)
[SLMP]	SLMP servers For the SLMP-compatible equipment validated by Mitsubishi Electric Corporation, refer to the following Technical Bulletin. 📖List of SLMP-compatible Equipment Validated to Operate with the GOT2000 Series (GOT-A-0153)
[MODBUS Slave(GOT:Master)]	MODBUS slaves For the MODBUS slave equipment validated by Mitsubishi Electric Corporation, refer to the following Technical Bulletin. 📖List of Valid Devices Applicable for GOT2000 Series MODBUS Connection for Overseas (GOT-A-0170)
[MODBUS Master(GOT:Slave)]	MODBUS master equipment For the MODBUS master equipment validated by Mitsubishi Electric Corporation, refer to the following Technical Bulletin. 📖List of Valid Devices Applicable for GOT2000 Series MODBUS Connection for Overseas (GOT-A-0170)
[DeviceNet]	DeviceNet master equipment
[PROFIBUS DP]	PROFIBUS DP master equipment
[Computer]	Personal computer, microcomputer board, PLC, or other devices

■Setting [I/F]

The interface differs depending on the GOT to be used.

Set the I/F according to the connection and the position of communication unit to be mounted onto the GOT.



(Example: In the case of the GT27)

GOT Ethernet Setting

The GOT can be connected to a different network by using the following network.

1) GOT IP Address Setting

Set the following communication port setting.

Standard port (When using GT25-W or GS25: Port 1)

Set [GOT IP Address] and [Subnet Mask] in the standard port with a built-in GOT, or port 1.

Extended port (When using GT25-W or GS25: Port 2)

Set [GOT IP Address] and [Subnet Mask] in the extension port (the Ethernet interface for the Ethernet communication module), or port 2 with a built-in GOT.

When using any GOTs other than GT25-W and GS25, install BootOS version Z or later to use the extended port.

For details on writing the BootOS, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

Wireless LAN

Set [GOT IP Address], [Subnet Mask], [Peripheral S/W Communication Port No.], and [Transparent Port No.] for the wireless LAN interface.

2) GOT Ethernet Common Setting

Set the following setting which is common to the standard port and the extension port, or port 1 and port 2.

- [Default Gateway]
- [Peripheral S/W Communication Port No.]
- [Transparent Port No.]

3) IP Filter Setting

By configuring the IP filter setting, the access from the specific IP address can be permitted or shut off.

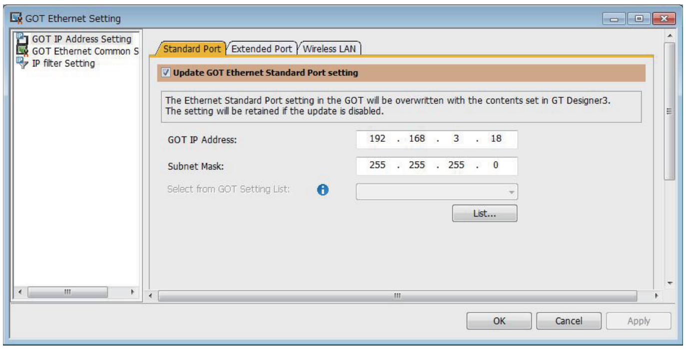
GOT IP Address Setting

Set the GOT IP address.

■[Standard Port] or [Port 1]

The following shows an example for [Standard Port].

1. Select [Common] → [GOT Ethernet Setting] → [GOT IP Address Setting] from the menu to display the [GOT Ethernet Setting] window.



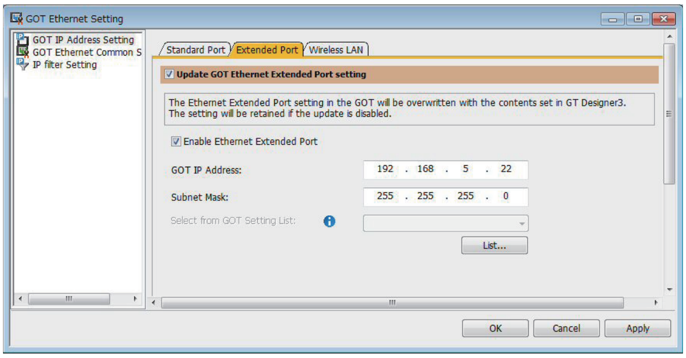
2. On the [Standard Port] tab, configure the following settings.

Item	Description	Range
Update GOT Ethernet standard port setting	The GOT Ethernet standard port settings are applied on GOT.	-
GOT IP Address	Set the IP address of the GOT IP Address. (Default:192.168.3.18)	0.0.0.0 to 255.255.255.255
Subnet Mask	Set the subnet mask for the sub network. (Only for connection via router) If the sub network is not used, the default value is set. (Default: 255.255.255.0)	0.0.0.0 to 255.255.255.255
Select from GOT Setting List	Select the GOT set in [GOT Setting List] dialog. ☞ GT Designer3 (GOT2000) Screen Design Manual	-

■[Extended Port], or [Port 2]

The following shows an example for [Extended Port].

1. Select [Common] → [GOT Ethernet Setting] → [GOT IP Address Setting] from the menu to display the [GOT Ethernet Setting] window.

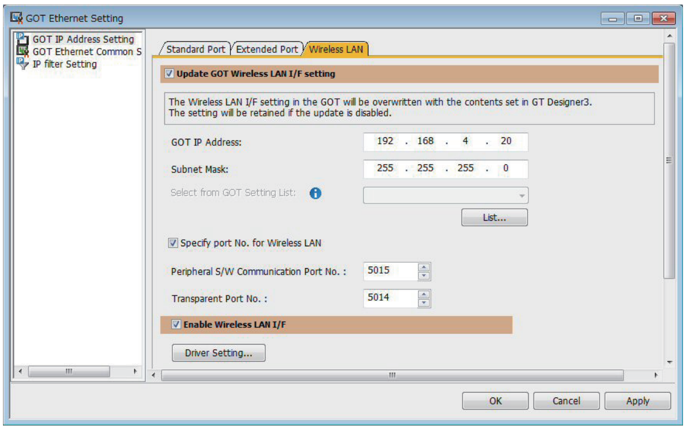


2. On the [Extended Port] tab, configure the following settings.

Item	Description	Range
Update GOT Ethernet extended port setting	The GOT Ethernet extended port settings are applied on GOT.	-
Enable Ethernet extended port	Enable the ethernet extended port.	-
GOT IP Address	Set the IP address of the GOT IP Address. (Default:192.168.5.22)	0.0.0.0 to 255.255.255.255
Subnet Mask	Set the subnet mask for the sub network. (Only for connection via router) If the sub network is not used, the default value is set. (Default: 255.255.255.0)	0.0.0.0 to 255.255.255.255
Select from GOT Setting List	Select the GOT set in [GOT Setting List] dialog. ☞ GT Designer3 (GOT2000) Screen Design Manual	-

■[Wireless LAN]

1. Select [Common] → [GOT Ethernet Setting] → [GOT IP Address Setting] from the menu to display the [GOT Ethernet Setting] window.



2. On the [Wireless LAN] tab, configure the following settings.

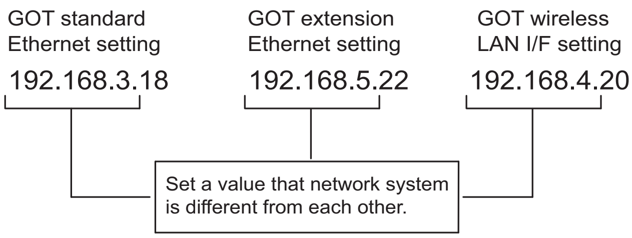
Item	Description	Range
Update GOT Wireless LAN I/F setting	The wireless LAN interface settings are applied on GOT.	-
Enable Wireless LAN I/F	Enable the wireless LAN.	-
GOT IP Address	Set the IP address of the wireless LAN I/F. (Default:192.168.4.20)	0.0.0.0 to 255.255.255.255
Subnet Mask	Set the subnet mask for the sub network. (Only for connection via router) If the sub network is not used, the default value is set. (Default: 255.255.255.0)	0.0.0.0 to 255.255.255.255
Select from GOT Setting List	Select the GOT set in [GOT Setting List] dialog. ☞ GT Designer3 (GOT2000) Screen Design Manual	-
Specify port No. for Wireless LAN	Enable the port number setting for the wireless LAN separately from GOT Ethernet common setting.	-
Peripheral S/W Communication Port No.	Set the GOT port No. for the communication with the peripheral S/W. (Default: 5015)	1024 to 65534 (Except for 5011 to 5013, 49153 to 49170)
Transparent Port No.	Set the GOT port No. for the transparent function. (Default: 5014)	1024 to 65534 (Except for 5011 to 5013, 49153 to 49170)
Driver setting	Display [Detail Settings] dialog, ☞ Page 434 Communication detail settings	-

Point

GOT IP address

For GOT IP address of each Ethernet setting, set a value that network system is different from each other.

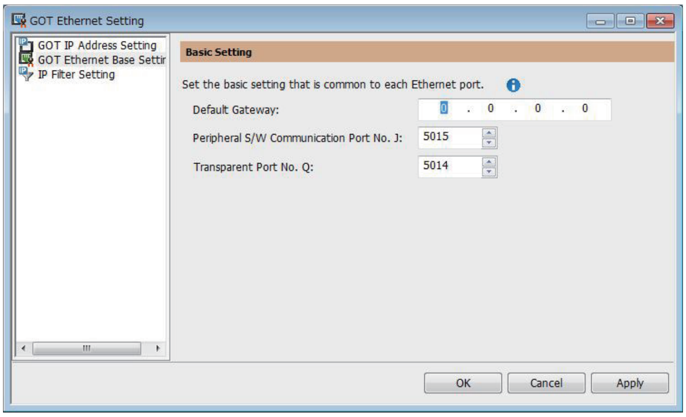
(When the subnet mask is [255.255.255.0])



GOT Ethernet Common Setting

Set the following setting which is common to the standard port and the extension port, or port 1 and port 2.

1. Select [Common] → [GOT Ethernet Setting] → [GOT Ethernet Common Setting] from the menu to display the [GOT Ethernet Setting] window.

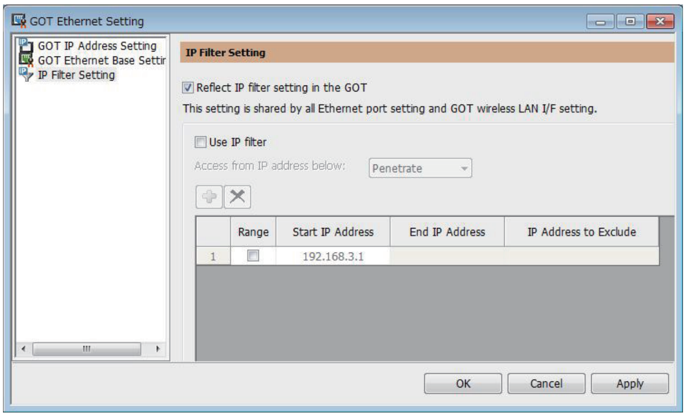


2. Configure the following settings.

Item	Description	Range
Default Gateway	Set the router address of the default gateway where the GOT is connected. (Only for connection via router) (Default: 0.0.0.0)	0.0.0.0 to 255.255.255.255
Peripheral S/W Communication Port No.	Set the GOT port No. for the communication with the peripheral S/W. (Default: 5015)	1024 to 65534 (Except for 5011 to 5013, 49153 to 49170)
Transparent Port No.	Set the GOT port No. for the transparent function. (Default: 5014)	1024 to 65534 (Except for 5011 to 5013, 49153 to 49170)

IP Filter Setting

1. Select [Common] → [GOT Ethernet Setting] → [IP Filter Setting] from the menu to display the [GOT Ethernet Setting] window.



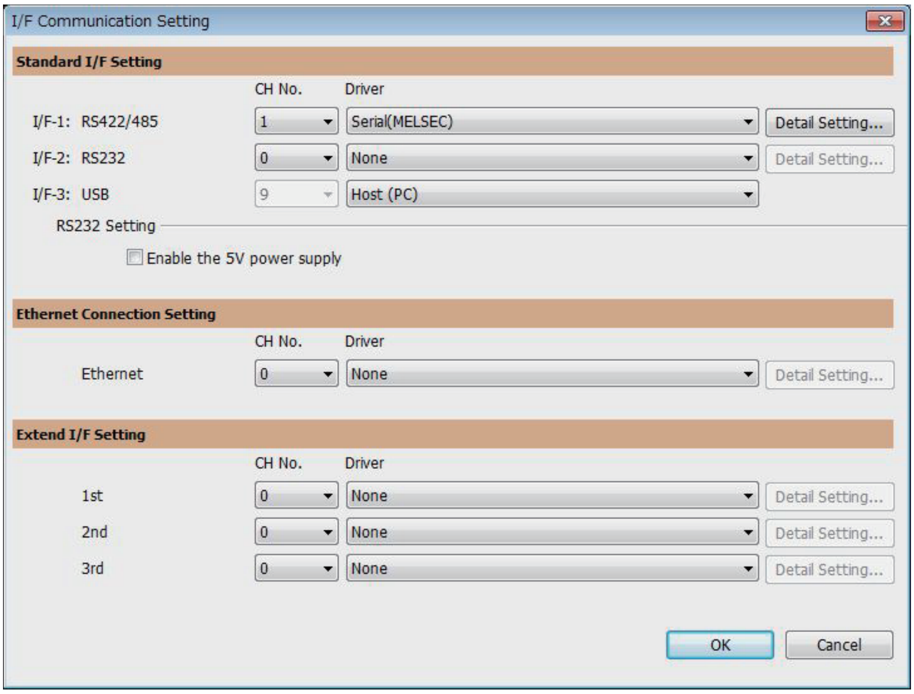
2. For the detailed settings, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

I/F communication setting

This function displays the list of the GOT communication interfaces.
Set the channel and the communication driver to the interface to be used.

Setting



1. Select [Common] → [I/F Communication Setting] from the menu.

2. The I/F Communication Setting dialog box appears. Make the settings with reference to the following explanation.

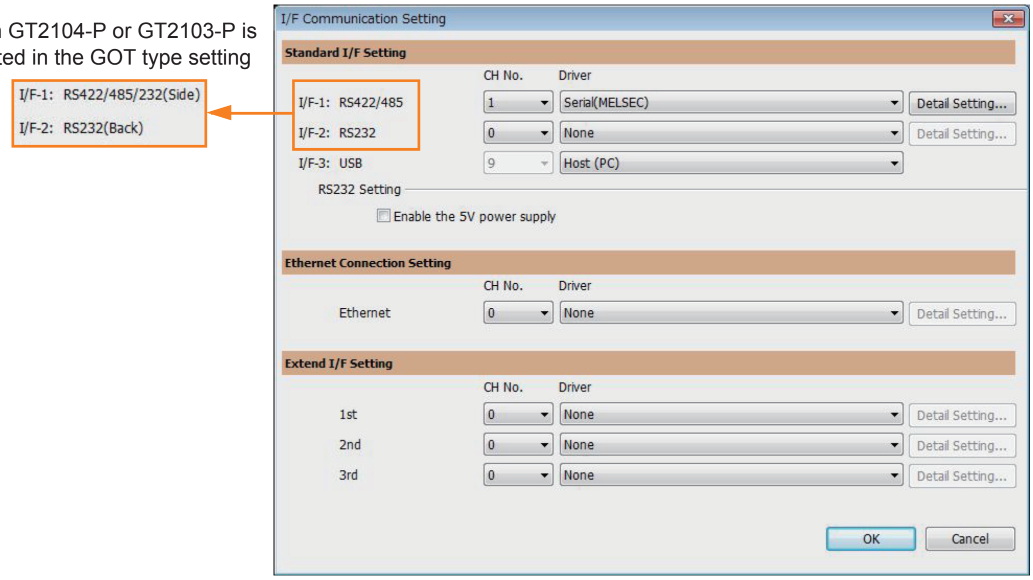
Setting item

The following describes the setting items for the standard I/F setting and extension I/F setting.

For the detailed explanations, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

When GT2104-P or GT2103-P is selected in the GOT type setting



Item	Description	
Standard I/F Setting	Set channel No. and drivers to the GOT standard interfaces.	
	CH No.	Set the CH No. according to the intended purpose. 0: Not used 1 to 4: Used for connecting a controller of channel No. 1 to 4 set in Setting connected equipment (Channel setting) 5 to 8: Used for barcode function, RFID function, remote personal computer operation function (serial) A: Used for the report function (with a serial printer), hard copy function (with a serial printer).
	Driver	Set the driver for the device to be connected. • Each communication driver suitable to the channel numbers • Each communication driver for connected devices
	Detail Setting	Set the detailed settings for the communication driver. ☞ Refer to each chapter of the equipment to be connected to the GOT.
	I/F-1,I/F-2,I/F-3	The communication type of the GOT standard interface is displayed.
	RS232 Setting	To validate the 5V power supply function in RS232, mark the [Enable the 5V power supply] checkbox. The RS232 setting is invalid when the CH No. of [I/F-1: RS232] is [9]. Not applicable to GT21 and GS21.
Ethernet Connection Setting	Set the channel number and the communication driver to the Ethernet interface with a built-in GOT.	
	CH No.	Set the CH No. according to the intended purpose. 0: Not used 1 to 4: Used for connecting a controller of channel No. 1 to 4 set in Setting connected equipment (Channel setting) 9: Used for connecting Host (PC) or Ethernet download A: Used for the remote personal computer operation function (Ethernet), VNC server function, gateway function, and MES interface function. Multi: Used for multi-channel Ethernet connection
	Driver	Set the driver for the device to be connected. • Each communication driver suitable to the channel numbers • Each communication driver for connected devices
	Detail Setting	Set the detailed settings for the communication driver. ☞ Refer to each chapter of the equipment to be connected to the GOT.

Item	Description	
Extend I/F Setting	Set the communication unit attached to the extension interface of the GOT. Not applicable to GT21 and GS21.	
	CH No.	Set the CH No. according to the intended purpose. The number of channels differs depending on the GOT to be used. 0: Not used 1 to 4: Used for the controllers of channel numbers 1 to 4 set in controller setting (channel setting). 5 to 8: Used for the barcode function, the RFID function, and the remote personal computer operation function (Serial). A: Used for the video/RGB display function, multimedia function, external I/O function, operation panel function, video output function, report function, hard copy function (with a printer), and sound output function.
	Driver	Set the driver for the device to be connected. • Each communication driver suitable to the channel numbers • Each communication driver for connected devices
	Detail Setting	Set the detailed settings for the communication driver. ☞ Refer to each chapter of the equipment to be connected to the GOT.

Point

Channel No., drivers, [RS232 Setting]

• Channel No.2 to No.4

Use the channel No.2 to No.4 when using the Multi-channel function.

For details of the Multi-channel function, refer to the following.

☞ GOT2000 Series Connection Manual (Mitsubishi Electric Products) For GT Works3 Version1

• Drivers

The displayed items for a driver differ according to the settings [Manufacturer], [Controller Type] and [I/F].

When the driver to be set is not displayed, confirm if [Manufacturer], [Controller Type] and [I/F] are correct.

☞ [Setting the communication interface] section in each chapter

Precautions

When using the multiple CPU system

When using the GOT to monitor the multiple CPU system of other stations, select [MELSEC-Q/QS, Q17nD/M/NC/DR/DSR, CRnD-700] for the type, regardless of the host PLC CPU type (QCPU, QnACPU, or ACPU).

When other models are selected, the setting of the CPU No. becomes unavailable.

Precautions for changing model

■When devices that cannot be converted are included.

When setting of [Manufacturer] or [Controller Type] is changed, GT Designer3 displays the device that cannot be converted (no corresponding device type, or excessive setting ranges) as [??]. In this case, set the device again.

■When the changed Manufacturer or Controller Type does not correspond to the network.

The network will be set to the host station.

■When the Manufacturer or Controller Type is changed to [None]

The GT Designer3 displays the device of the changed channel No. as [??]. In this case, set the device again.

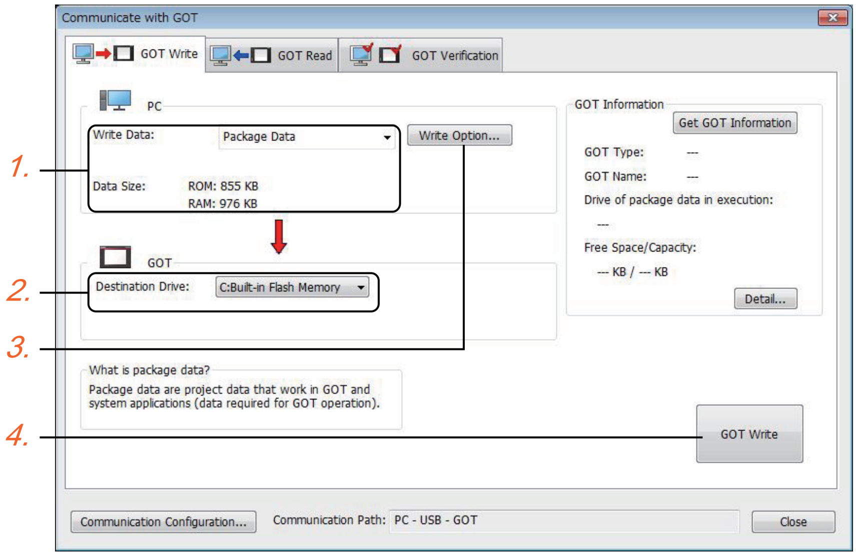
Since the channel No. is retained, the objects can be reused in other channel No. in a batch by using the [Device Bach Edit], [CH No. Batch Edit] or [Device List].

1.2 Writing the Package Data onto the GOT

Write the package data onto the GOT.
For details on writing to GOT, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

Writing the Package Data onto the GOT



1. Select [Package Data] for [Write Data].

The capacity of the transfer data is displayed in [Data Size]. Check that the destination drive has the sufficient available space.

2. Select [Destination Drive].

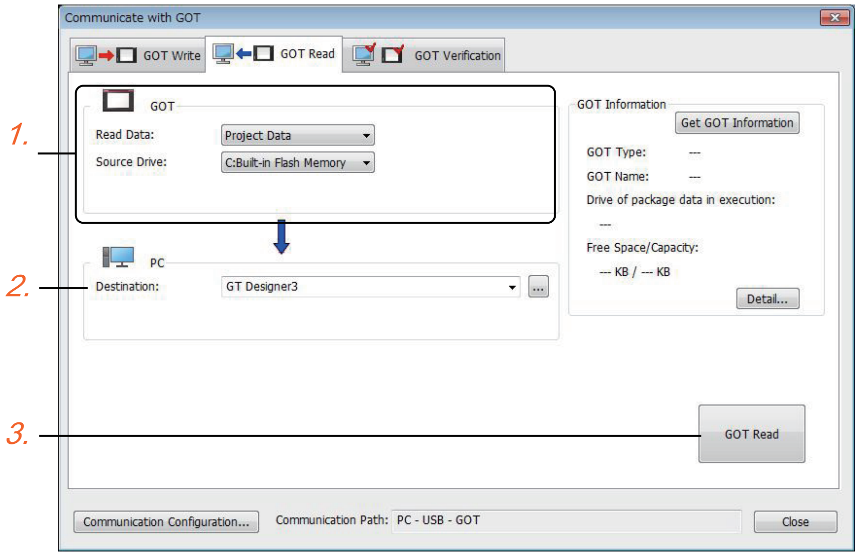
3. When the system application or the special data is required to be added to the package data or deleted, click the [Write Option] button and configure the setting in the [Write Option] dialog.

4. Click the [GOT Write] button.

5. The package data is written to the GOT.

Checking the package data writing on GOT

Confirm if the package data is properly written onto the GOT by reading from GOT using GT Designer3.
For reading from the GOT, refer to the following manual.
☞ GT Designer3 (GOT2000) Screen Design Manual



1. Set [GOT Side] as follows.

- Select [Project Data] or [Package Data] for [Read Data].
- Select the drive where the project data or the package data is stored for [Source Drive].

2. Set [PC Side].

Set the reading destination of the project for [Destination].
To read the project data to GT Designer3, select [GT Designer3].
(When [Read Data] is [Package Data], the project data cannot be read to GT Designer3.)
To read the project data as a file, click the [...] button to set the saving format and the saving destination of the file.

3. Click the [GOT Read] button.

4. The project is read.

5. Confirm that the project data is written correctly onto the GOT.

1.3 Option Devices for the Respective Connection

The following shows the option devices to connect in the respective connection type.
For the specifications, usage and connecting procedure on option devices, refer to the respective device manual.

Communication module

Product name	Model	Specifications
Bus connection unit	GT15-QBUS	For QCPU (Q mode), Motion CPU (Q series) Bus connection (1ch) unit standard model
	GT15-QBUS2	For QCPU (Q mode), Motion CPU (Q series) Bus connection (2ch) unit standard model
	GT15-ABUS	For A/QnACPU, Motion CPU (A series) Bus connection (1ch) unit standard model
	GT15-ABUS2	For A/QnACPU, Motion CPU (A series) Bus connection (2ch) unit standard model
	GT15-75QBUSL	For QCPU (Q mode), Motion CPU (Q series) Bus connection (1ch) unit slim model
	GT15-75QBUS2L	For QCPU (Q mode), Motion CPU (Q series) Bus connection (2ch) unit slim model
	GT15-75ABUSL	For A/QnACPU, Motion CPU (A series) Bus connection (1ch) unit slim model
	GT15-75ABUS2L	For A/QnACPU, Motion CPU (A series) Bus connection (1ch) unit slim model
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))
	GT15-RS4-TE	RS-422/485 serial communication unit (terminal block)
MELSECNET/H communication unit	GT15-J71LP23-25	Optical loop unit
	GT15-J71BR13	Coaxial bus unit
MELSECNET/10 communication unit	GT15-J71LP23-25	Optical loop unit (MELSECNET/H communication unit used in the MNET/10 mode)
	GT15-J71BR13	Coaxial bus unit (MELSECNET/H communication unit used in the MNET/10 mode)
CC-Link IE TSN communication unit	GT25-J71GN13-T2	Local station (device station)
CC-Link IE Controller Network communication unit	GT15-J71GP23-SX	Optical loop unit
CC-Link IE Field Network communication unit	GT15-J71GF13-T2	CC-Link IE Field Network (1000BASE-T) unit
CC-Link communication unit	GT15-J61BT13	Intelligent device station unit CC-Link Ver. 2 compatible
Ethernet communication unit	GT25-J71E71-100	Ethernet(100Base-TX) unit
Wireless LAN communication unit[*1*2]	GT25-WLAN	• Used for the connection to the IEEE802.11b/g/n compliant, built-in antenna, access point (master unit), station (slave unit), personal computers, tablets, and smartphones. • Compliance with Japan Radio Law[*3], FCC[*4], RE[*6] (R&TTE[*4]), SRRC[*5], KC[*5], Radio Equipment Regulations (UKCA)[*7]

*1 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.
*2 When [Operation Mode] is set to [Access Point] in [Wireless LAN Setting] of GT Designer3, up to five stations are connectable to the wireless LAN access point (base station).
*3 The product with hardware version A or later (manufactured in December 2013) complies with the regulation.
The product with hardware version A can be used only in Japan.
For information on how to check the hardware version, refer to the following.
☞ GOT2000 Series User's Manual (Hardware)
*4 The product with hardware version B or later (manufactured from 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.
For information on how to check the hardware version, refer to the following.
☞ GOT2000 Series User's Manual (Hardware)
*5 The product with hardware version D or later (manufactured from May 2016) complies with the regulation.
The product with hardware version D or later can be used in Japan, the United States, the EU member states, Switzerland, Norway, Iceland, Liechtenstein, China (excluding Hong Kong, Macao, and Taiwan), and South Korea.
For information on how to check the hardware version, refer to the following.
☞ GOT2000 Series User's Manual (Hardware)
*6 The product complies with the RE Directive from March 31, 2017.
*7 The product with hardware version G or later (manufactured from October 2021) complies with the regulation.
The product with hardware version G or later can be used in Japan, the United States, the EU member states, the UK, Switzerland, Norway, Iceland, Liechtenstein, China (excluding Hong Kong, Macao, and Taiwan), and South Korea.

Option unit

Product name	Model	Specifications
Multimedia unit	GT27-MMR-Z	For video input signal (NTSC/PAL) 1 ch, playing movie
Video input unit	GT27-V4-Z	For video input signal (NTSC/PAL) 4 ch
RGB input unit	GT27-R2 GT27-R2-Z	For analog RGB input signal 2 ch
Video/RGB input unit	GT27-V4R1-Z	For video input signal (NTSC/PAL) 4 ch, for analog RGB mixed input signal 1 ch
RGB output unit	GT27-ROUT GT27-ROUT-Z	For analog RGB output signal 1 ch
Digital video output unit	GT27-VHOUT	For digital video output, 1 channel
Sound output unit	GT15-SOUT	For sound output
External I/O unit	GT15-DIOR	For the connection to external I/O device or operation panel (Negative Common Input/Source Type Output)
	GT15-DIO	For the connection to external I/O device or operation panel (Positive Common Input/Sink Type Output)

Conversion cables

Product name	Model	Specifications
RS-485 terminal block conversion modules	FA-LTBGT2R4CBL05	RS-422/485 (Connector) ↔ RS-485 (Terminal block) Supplied connection cable dedicated for the conversion unit
	FA-LTBGT2R4CBL10	
	FA-LTBGT2R4CBL20	

Serial Multi-Drop Connection Unit

Product name	Model	Specifications
Serial multi-drop connection unit	GT01-RS4-M	GOT multi-drop connection module ☞ GOT2000 Series Connection Manual (Mitsubishi Electric Products) For GT Works3 Version1

Field network adapter unit

Product name	Model	Specifications
Field network adapter unit	GT25-FNADP	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 (hereinafter referred to as the communication module). Field networks: • PROFIBUS DP-V1 • DeviceNet How to incorporate the communication module to the field network adapter unit, and the details of the product name of the communication module, refer to the following manual. ☞ GOT2000 Series Field Network Adapter Unit User's Manual

RS-232/485 signal conversion adapter

Product name	Model	Specifications
RS-232/485 signal conversion adapter	GT14-RS2T4-9P	RS-232 signal (D-Sub 9-pin connector) → RS-485 signal (Terminal block)

Precautions when installing units on top of one another

When units are mounted on another unit, the mounting position is restricted depending on the combination of the units.

Point

- Mounting method of a communication unit and option unit

For the mounting method of a communication unit and option unit, refer to the following.

GOT2000 Series User's Manual (Hardware)

- When the multi-channel function is used

When the multi-channel function is used, the combination of connection types is restricted.

For the combination of connection types, refer to the following.

GOT2000 Series Connection Manual (Mitsubishi Electric Products) For GT Works3 Version1

Product name		Model	Number of occupied slots	Mounting position
Group A *1	Video input unit	GT27-V4-Z *2	2	1st stage
	RGB input unit	GT27-R2		
		GT27-R2-Z *2		
	Video/RGB input unit	GT27-V4R1-Z *2		
	RGB output unit	GT27-ROUT		
		GT27-ROUT-Z *2		
	Multimedia unit	GT27-MMR-Z *2		
	Digital video output unit	GT27-VHOUT		
Group B *1	Bus connection unit (2 channels) *3	GT15-QBUS2	2	• When a unit in group A is mounted: Upper stage of the group A unit • When no unit in group A is mounted: 1st stage • When any units in group C are mounted: Lower stage of the group C units
		GT15-ABUS2		
	MELSECNET/H communication unit	GT15-J71LP23-25		
		GT15-J71BR13		
	CC-Link IE TSN communication unit	GT25-J71GN13-T2		
	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		
Group C	Bus connection unit (1 channel) *3*4	GT15-QBUS	1	• When a unit in group A is mounted: Upper stage of the group A unit • When a unit in group B is mounted: Upper stage of the group B unit
		GT15-ABUS		
	Ethernet communication unit	GT25-J71E71-100		
	Serial communication unit	GT15-RS2-9P		
		GT15-RS4-9S		
		GT15-RS4-TE		
	Sound output unit	GT15-SOUT		
	External I/O unit	GT15-DIOR		
		GT15-DIO		
	Printer unit	GT15-PRN		
Field network adapter unit		GT25-FNADP	1	Uppermost stage

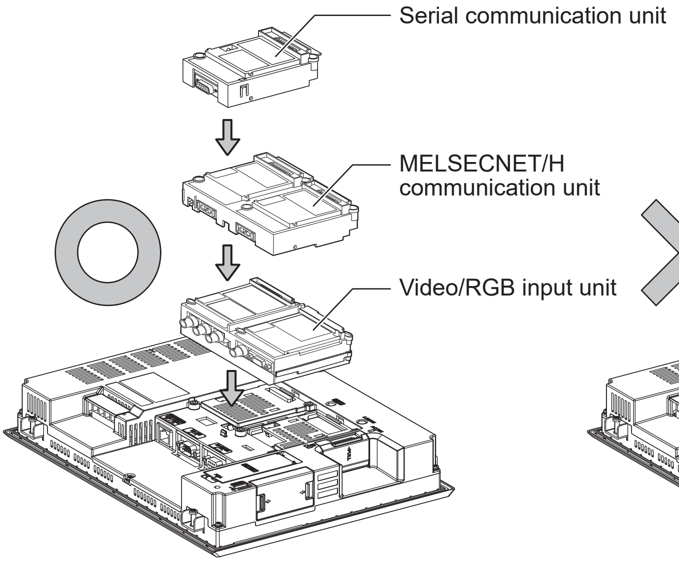
*1 Only one of the units can be mounted on the GOT.

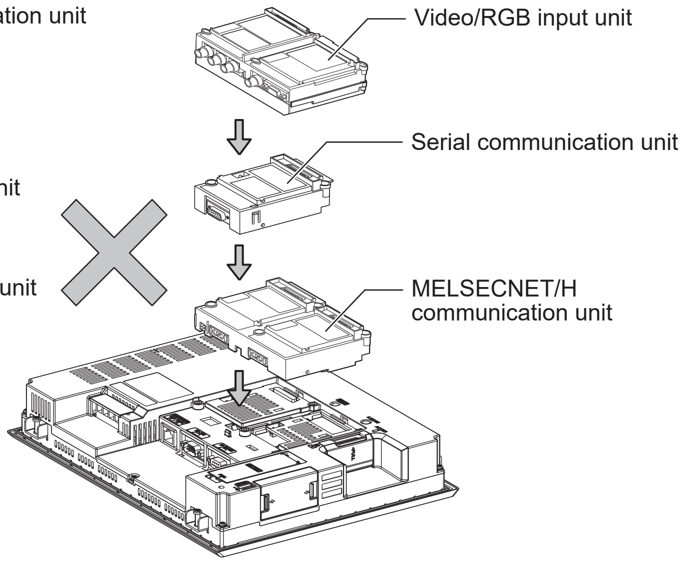
*2 Mounting the unit requires two stages.

*3 A slim model bus connection unit (GT15-75QBUSL, GT15-75QBUS2L, GT15-75ABUSL, or GT15-75ABUS2L) cannot be mounted on another unit.

*4 The unit cannot be mounted on a unit in group B.

Example) When mounting a video/RGB input unit, MELSECNET/H communication unit, and serial communication unit





1.4 Connection Cables for the Respective Connection

To connect the GOT to a device in the respective connection type, connection cables between the GOT and a device are necessary.
For cables needed for each connection, refer to each chapter for connection.
For the dimensions of the connection cable and the connector shape, refer to the following.
☞ GOT2000 Series User's Manual (Hardware)

GOT connector specifications

The following shows the connector specifications on the GOT side.
Refer to the following table when preparing connection cables by the user.

RS-232 interface

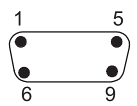
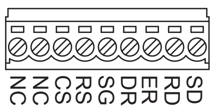
The following connector or equivalent connector is used for the RS-232 interface of the GOT and the RS-232 communication unit.
For the GOT side of the connection cable, use a connector and connector cover applicable to the GOT connector.

■Connector specifications

GOT	Connector type	Connector model	Manufacturer
GT27, GT25, GT23, GT2107-W, GT2105-QTBDS, GT2105-QMBDS, GS25, GS21	9-pin D-sub (male) #4-40UNC inch screw thread	17LE-23090-27(D3CH)-FA	DDK Ltd.
GT15-RS2-9P	9-pin D-sub (male) #4-40UNC inch screw thread	17LE-23090-27(D3CH)-FA	DDK Ltd.
GT01-RS4-M		JES-9P-2A3A	J.S.T.MFG.CO.,LTD. (JST)
GT2104-RTBD GT2104-PMBDS2 GT2103-PMBDS2	9-pin terminal block *1*2	MC1.5/9-G-3.5BK	PHOENIX CONTACT Inc

*1 The terminal block (MC1.5/9-ST-3.5 or corresponding product) of the cable side is packed together with the GT2104-RTBD, GT2103-PMBDS2.
*2 The applicable solderless terminal of the terminal block is AI 0.25-6BU (AWG24) (PHOENIX CONTACT Inc.).
When fabricating a connection cable, use CRIMPFOX 6 (PHOENIX CONTACT Inc.) for crimping tool.

■Connector pin arrangement

GT27, GT25, GT23, GT2107-W, GT2105-QTBDS, GT2105-QMBDS, GS25, GS21, GT15-RS2-9P, GT01-RS4-M	GT2104-RTBD, GT2104-PMBDS2, GT2103-PMBDS2
GOT main part connector see from the front  9-pin D-sub (male)	See from the back of a GOT main part  9-pin terminal block

RS-422/485 interface

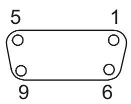
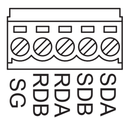
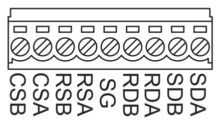
The following connector or equivalent connector is used for the RS-422/485 interface of the GOT and the RS-422/485 communication unit.
For the GOT side of the connection cable, use a connector and connector cover applicable to the GOT connector.

■Connector model

GOT	Connector type	Connector model	Manufacturer
GT27, GT25, GT23, GT2107-W, GT2105-QTBDS, GT2105-QMBDS, GS25, GS21	9-pin D-Sub (female) M2.6 metric screw thread	17LE-13090-27(D3AH)-FA	DDK Ltd.
GT2104-PMBD GT2103-PMBD	5-pin terminal block *1*3	MC1.5/5-G-3.5BK	PHOENIX CONTACT Inc
GT2104-RTBD GT2104-PMBDS GT2104-PMBLS GT2103-PMBDS GT2103-PMBLS	9-pin terminal block *2*3	MC1.5/9-G-3.5BK	PHOENIX CONTACT Inc
GT15-RS4-9S	9-pin D-Sub (female) M2.6 metric screw thread	17LE-13090-27(D3AH)-FA	DDK Ltd.
GT01-RS4-M		JES-9S-2A3B14	J.S.T.MFG.CO.,LTD. (JST)
GT15-RS4-TE	-	SL-SMT3.5/10/90F BOX	Weidmüller Interface GmbH & Co. KG

*1 The terminal block (MC1.5/5-ST-3.5 or corresponding product) of the cable side is packed together with the GT2103-PMBD.
*2 The terminal block (MC1.5/9-ST-3.5 or corresponding product) of the cable side is packed together with the GT2104-RTBD, GT2103-PMBDS, GT2103-PMBLS.
*3 The applicable solderless terminal of the terminal block is AI 0.25-6BU (AWG24) (PHOENIX CONTACT Inc.).
When fabricating a connection cable, use CRIMPFOX 6 (PHOENIX CONTACT Inc.) for crimping tool.

■Connector pin arrangement

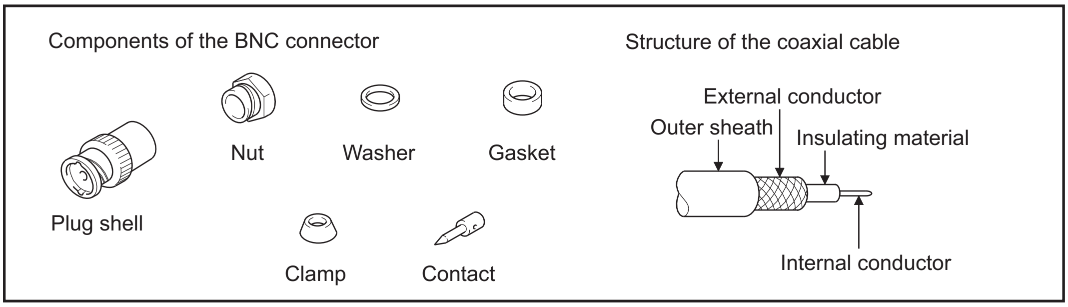
GT27, GT25, GT23, GT2107-W, GT2105-QTBDS, GT2105-QMBDS, GS25, GS21, GT15-RS4-9P, GT01-RS4-M	GT2104-PMBD, GT2103-PMBD	GT2104-RTBD, GT2104-PMBDS, GT2104-PMBLS, GT2103-PMBDS, GT2103-PMBLS
GOT main part connector see from the front  9-pin D-sub (female)	See from the back of a GOT main part  5-pin terminal block	See from the back of a GOT main part  9-pin terminal block

Coaxial cableconnector connection method

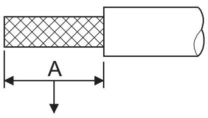
The following describes the method for connecting the BNC connector (connector plug for coaxial cable) and the cable.

⚠CAUTION

- Solder the coaxial cable connectors properly.
  Insufficient soldering may result in malfunctions.

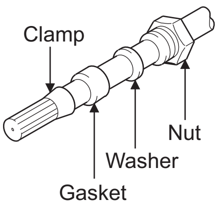


1. Remove the external sheath of the coaxial cable with dimensions as shown below.

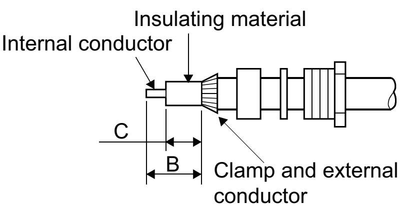


Cable in use	A
3C-2V	15mm
5C-2V, 5C-2V-CCY	10mm

2. Pass the nut, washer, gasket, and clamp through the coaxial cable as shown on the left and loosen the external conductor.

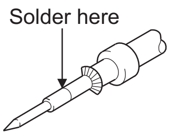


3. Cut the external conductor, insulting material, and internal conductor with the dimensions as shown below.
Note that the external conductor should be cut to the same dimension as the tapered section of the clamp and smoothed down to the clamp.

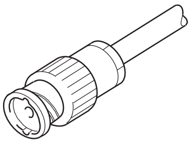


Cable in use	B	C
3C-2V	6 mm	3 mm
5C-2V, 5C-2V-CCY	7 mm	5 mm

4. Solder the contact to the internal conductor.



5. Insert the contact assembly shown in step 4 into the plug shell and screw the nut into the plug shell.



Precautions for soldering

Note the following precautions when soldering the internal conductor and contact.

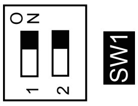
- Make sure that the solder does not bead up at the soldered section.
- Make sure there are no gaps between the connector and cable insulator or they do not cut into each other.
- Perform soldering quickly so the insulation material does not become deformed.

Terminating resistors of GOT

The following shows the terminating resistor specifications on the GOT side.
When setting the terminating resistor in each connection type, refer to the following.

RS-422/485 communication unit

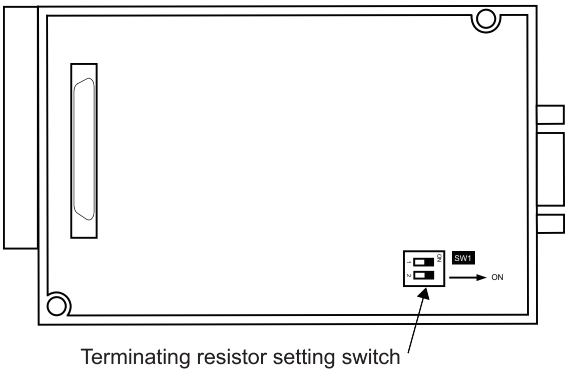
Set the terminating resistor using the terminating resistor setting switch.



Terminating resistor*1	Switch No.	
	1	2
100 OHM	ON	ON
Disable	OFF	OFF

*1 The default setting is "Disable".

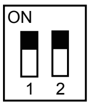
- For RS422/485 communication unit



Rear view of RS-422/485 communication unit.

GT27

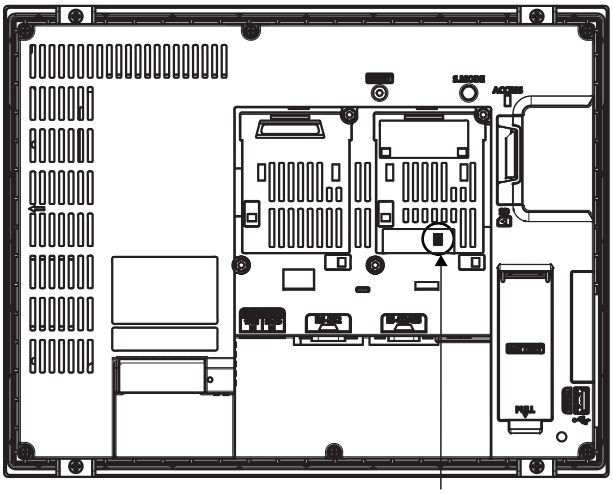
Set the terminating resistor using the terminating resistor setting switch.



Terminating resistor[*1]	Switch No.	
	1	2
Enable	ON	ON
Disable	OFF	OFF

*1 The default setting is "Disable".

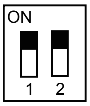
- For GT2710-V



Terminating resistor setting switch
(inside the cover)

GT25 (except GT25-W and GT2505-V)

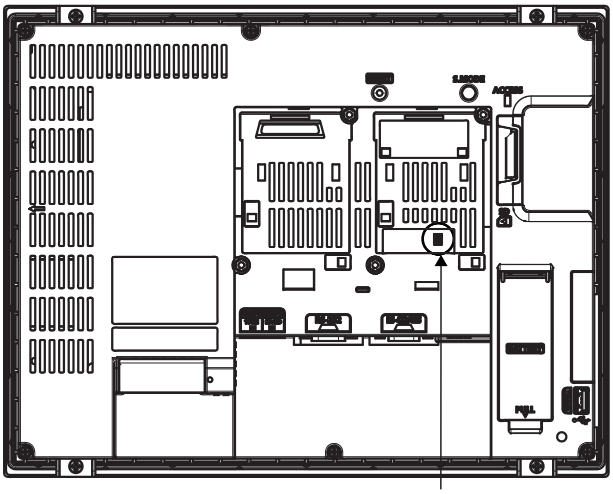
Set the terminating resistor using the terminating resistor setting switch.



Terminating resistor[*1]	Switch No.	
	1	2
Enable	ON	ON
Disable	OFF	OFF

*1 The default setting is "Disable".

- For GT2510-V



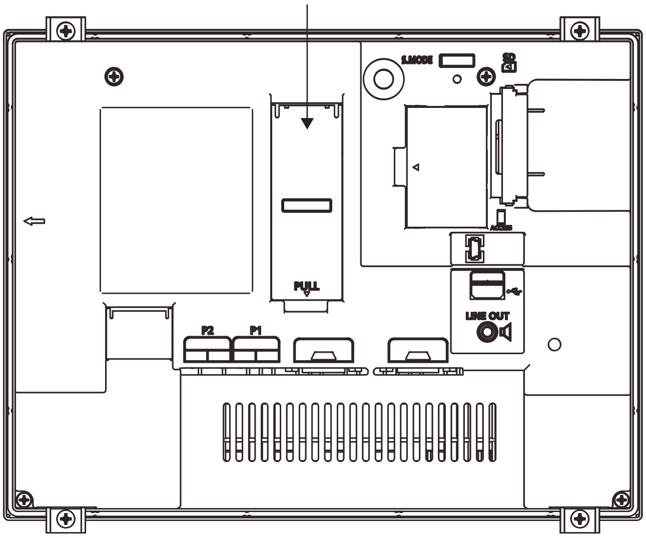
Terminating resistor setting switch
(inside the cover)

GT25-W

Set the terminating resistor using the terminating resistor selector.

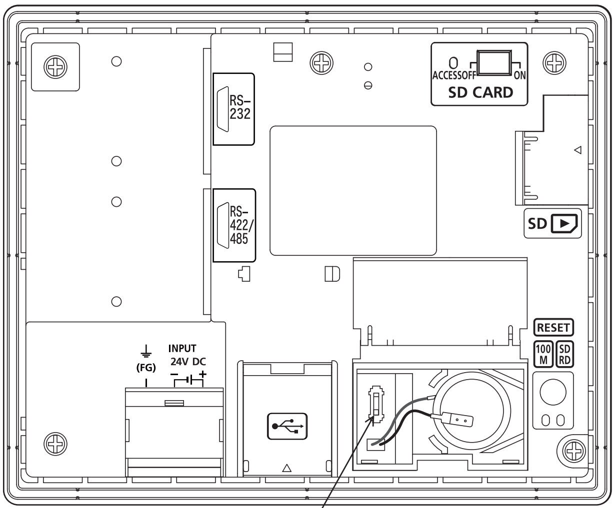
- For GT2510-WX

Terminating resistor selector switch
(inside the cover)



GT2505-V

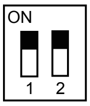
Set the terminating resistor using the terminating resistor selector.



Terminating resistor selector switch

GT23

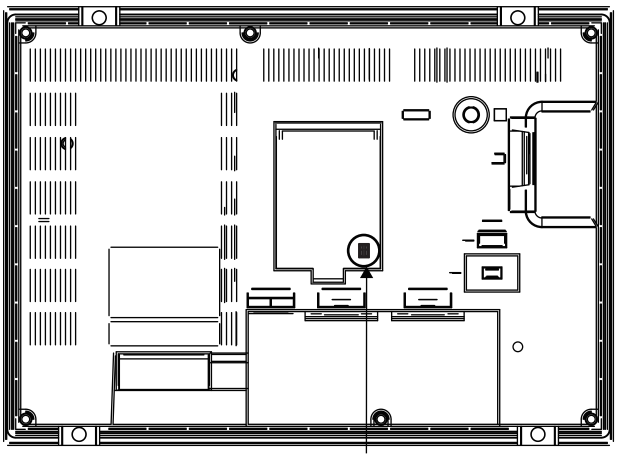
Set the terminating resistor using the terminating resistor setting switch.



Terminating resistor[*1]	**Switch No.**	
	1	**2**
Enable	ON	ON
Disable	OFF	OFF

*1 The default setting is "Disable".

- For GT2310-V

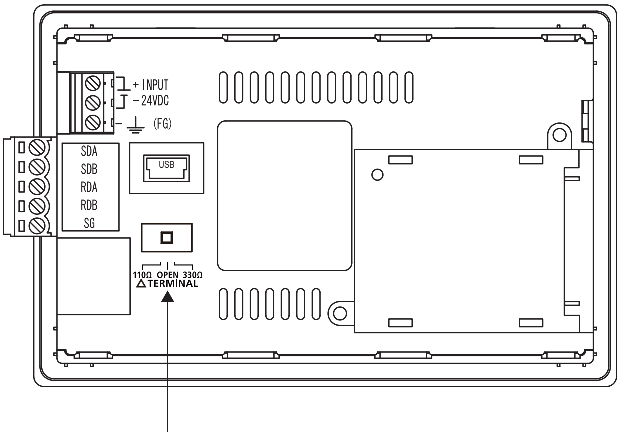


Terminating resistor setting switch
(inside the cover)

GT21

Set the terminating resistor using the terminating resistor setting switch.

- For GT2103-PMBD

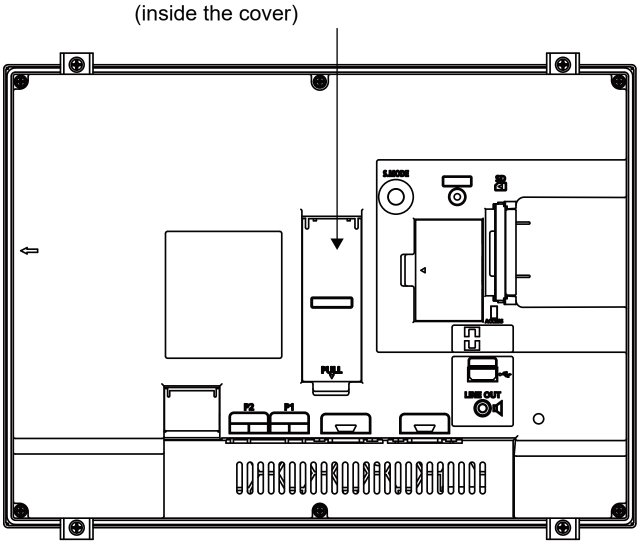


Terminating resistor selector switch

GS25

Set the terminating resistor using the terminating resistor selector.

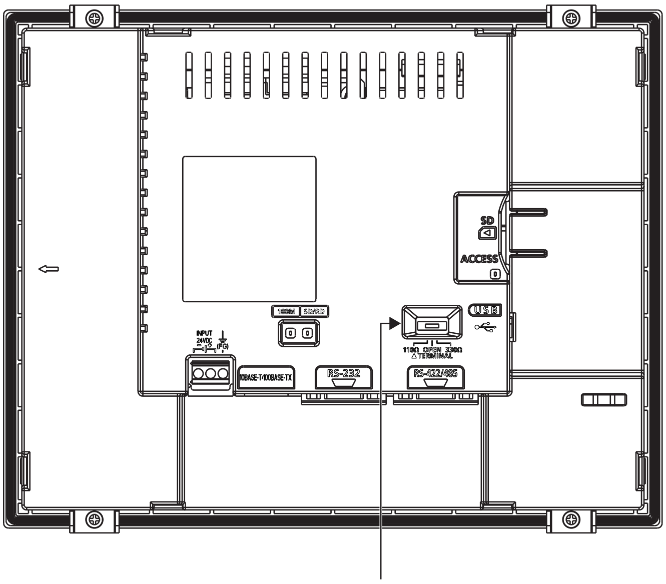
Terminating resistor selector switch
(inside the cover)



GS21-W-N

Set the terminating resistor using the terminating resistor setting switch.

- For GS2110-WTBD-N



Terminating resistor selector switch

Point

- Terminating resistor selector switch position

The position of the terminating resistor selector switch depends on the GOT type.

For the details, refer to the following.

GOT2000 Series User's Manual (Hardware)

- Terminating resistor of GS21-W

The terminating resistor of GS21-W is fixed to 330 Ω.

For the details, refer to the following.

☞ GOT SIMPLE Series User's Manual

Setting the RS-232/485 signal conversion adaptor

Set the 2-wire/4-wire terminating resistor setting switch according to the connection type.

Point

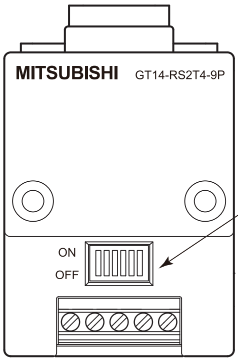
Enable the 5V power supply

Make sure to validate "Enable the 5V power supply" in the [RS232 Setting] to operate the RS-232/485 signal conversion adaptor.

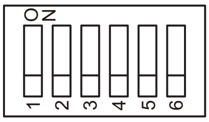
☞ Page 39 I/F communication setting

When validating the function using the utility function of the GOT main unit, refer to the following manual.

📖GOT2000 Series User's Manual (Utility)



Setting the 2-wire/4-wire terminating resistor setting switch



Setting item	Set value	Switch No.					
		1	2	3	4	5	6
2-wire/4-wire	2-wire (1Pair)	ON	ON	-	-	-	OFF
	4-wire (2Pair)	OFF	OFF	-	-	-	OFF
Terminating resistor	110Ω	-	-	ON	OFF	OFF	OFF
	OPEN	-	-	OFF	OFF	OFF	OFF
	330Ω	-	-	OFF	ON	ON	OFF

Point

RS-232/485 signal conversion adapter

For details on the RS-232/485 signal conversion adapter, refer to the following manual.

☞ GT14-RS2T4-9P RS-232/485 Signal Conversion Adapter User's Manual

1.5 Verifying GOT Recognizes Connected Equipment

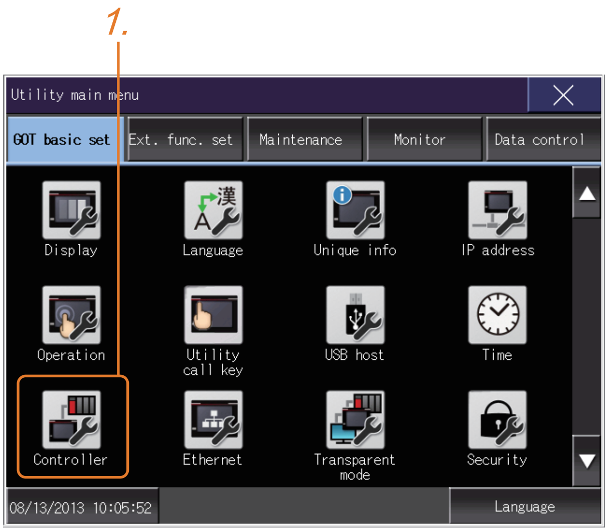
Verify the GOT recognizes controllers on [Communication Settings] of the Utility.

- Channel number of communication interface, communication drivers allocation status
- Communication unit installation status

For details on the Utility, refer to the following manual.

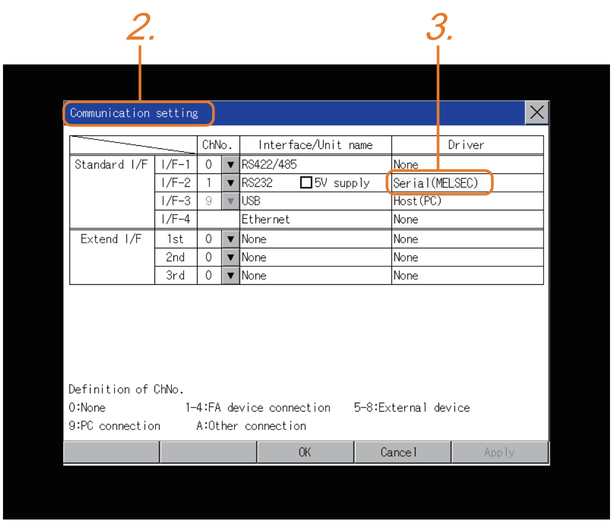
☞ GOT2000 Series User's Manual (Utility)

1. After powering up the GOT, touch [GOT basic set] → [Controller] from the Utility.



2. The [Communication Settings] appears.

3. Verify that the communication driver name to be used is displayed in the communication interface box to be used.



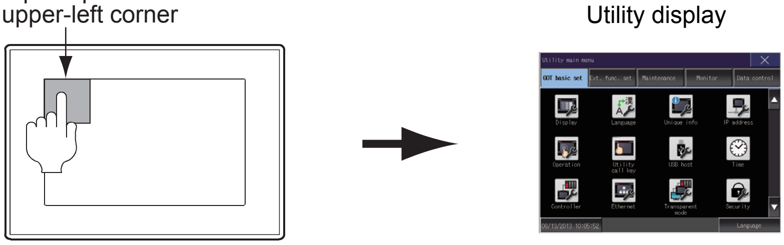
4. When the communication driver name is not displayed normally, carry out the following procedure again.

☞ Page 31 Setting the Communication Interface

Point

Utility

• How to display Utility (at default)



• Utility call

When setting [Pressing time] to other than 0 second on the setting screen of the utility call key, press and hold the utility call key until the buzzer sounds. For the setting of the utility call key, refer to the following.

☞ GOT2000 Series User's Manual (Utility)

• Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.

For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

• Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

1.6 Checking for Normal Monitoring

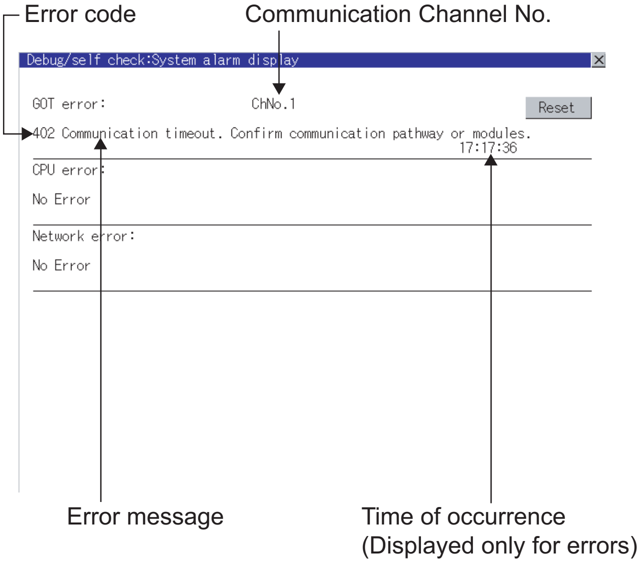
Check on the GOT

Check for errors occurring on the GOT

Presetting the system alarm to project data allows you to identify errors occurred on the GOT, PLC CPU, servo amplifier and communications.

For details on the operation method of the GOT Utility screen, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)



Point

Alarm popup display

With the alarm popup display function, alarms are displayed as a popup display regardless of whether an alarm display object is placed on the screen or not (regardless of the display screen).

Since comments can be flown from right to left, even a long comment can be displayed all.

For details of the alarm popup display, refer to the following manual.

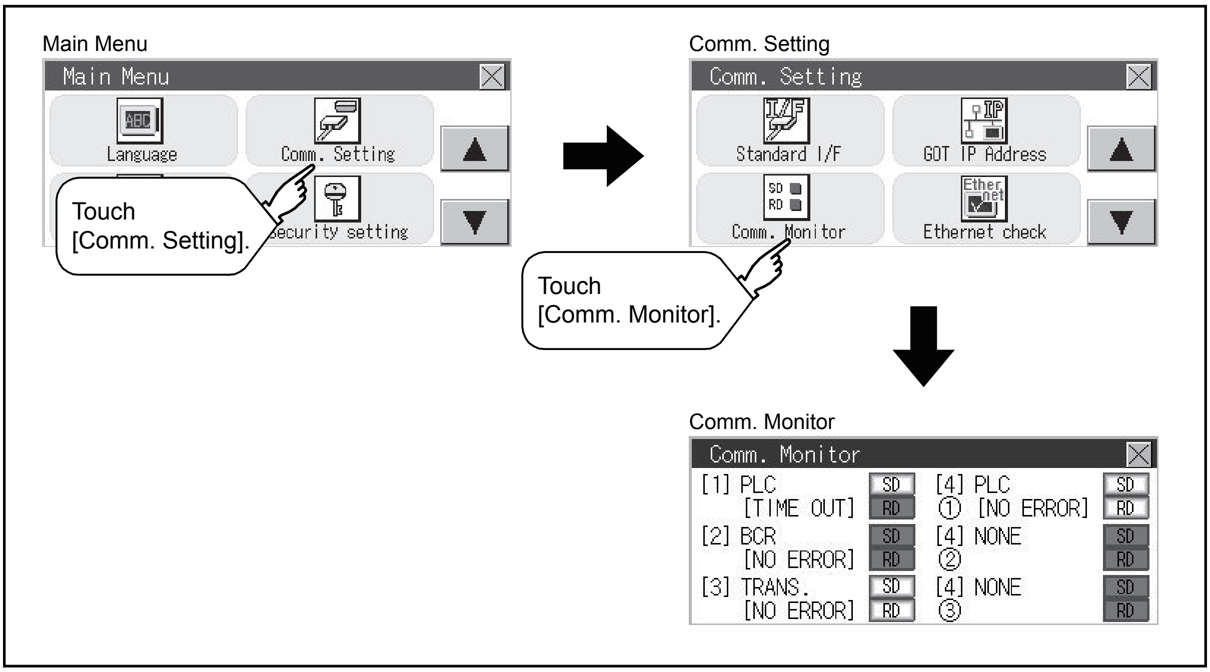
☞ GT Designer3 (GOT2000) Screen Design Manual

Communication monitoring function

The communication monitoring is a function that checks whether the PLC can communicate with the GOT.
If this check ends successfully, it means correct communication interface settings and proper cable connection.
Display the communication monitoring function screen by [Main Menu] → [Comm. Setting] → [Comm. Monitor].
For details on the communication monitoring function, refer to the following manual:

☞ GOT2000 Series User's Manual (Utility)

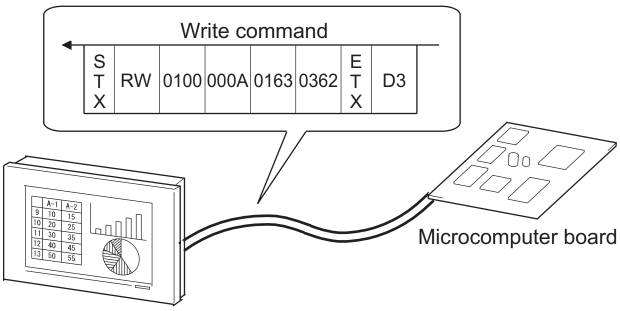
(Operation of communication monitoring function screen)



Write data to virtual devices inside GOT (For microcomputer connection)

Send a message from the host to the GOT, and confirm that the values are stored in the virtual devices inside the GOT.

☞ Page 157 System Configuration Examples



Confirming the communication state on the GOT side (For Ethernet connection)

Confirming the communication state on Windows, GT Designer3

■When using the Windows Command Prompt

Execute a Ping command at the Command Prompt of Windows.

- At normal communication

C:\>Ping 192.168.3.18

Reply from 192.168.3.18: bytes=32 time<1ms TTL=64

- At abnormal communication

C:\>Ping 192.168.3.18

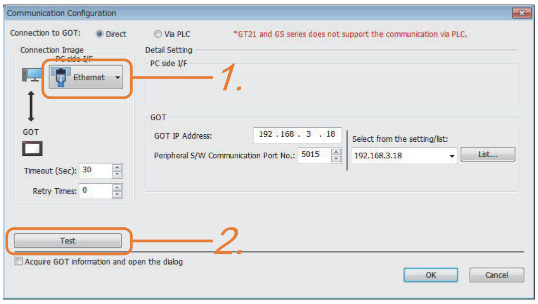
Request timed out.

■When using the [TEST] of GT Designer3

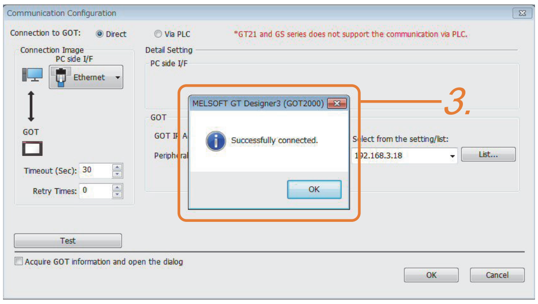
Select [Communication] → [Communication settings] from the menu to display [TEST].

1. Set the [PC side I/F] to the [Ethernet].

2. Specify the [GOT IP Address] of the [Communication Configuration] and click the [Test] button.



3. Check if GT Designer3 has been connected to the GOT.



■At abnormal communication

At abnormal communication, check the followings and execute the Ping command or [TEST] again.

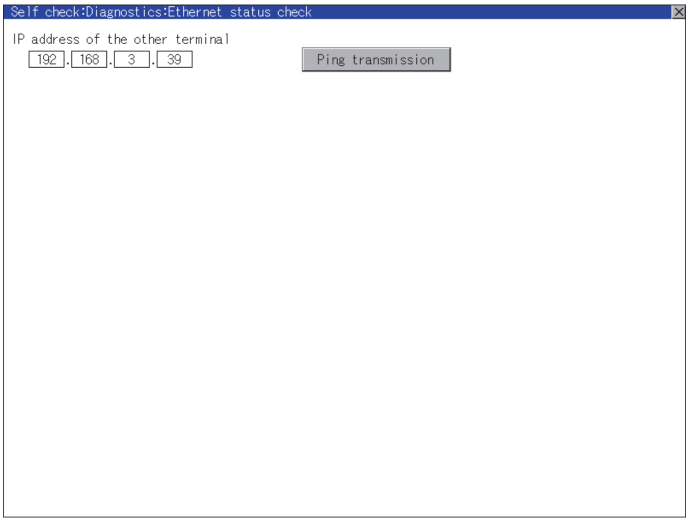
- Mounting condition of Ethernet communication unit
- Cable connecting condition
- Confirmation of [Communication Settings]
- IP address of GOT specified by Ping command

Confirming the communication state on the GOT

The Ping test can be confirmed by the Utility screen of the GOT.

For the operation method of GOT Utility, refer to the following.

☞ GOT2000 Series User's Manual (Utility)



Confirming the communication state to each station (Station monitoring function)

The station monitoring function detects the faults (communication timeout) of the stations monitored by the GOT. When detecting the abnormal state, it allocates the data for the faulty station to the GOT special register (GS).

No. of faulty stations

■Ethernet connection (Except for Ethernet multiple connection)

Total No. of the faulty CPU is stored.

Device	b15 to b8	b7 to b0
GS230	(00H fixed)	No. of faulty stations

■Ethernet multiple connection

Total No. of the faulty connected equipment is stored.

Channel	Device	b15 to b8	b7 to b0
Ch1	GS280	(00H fixed)	No. of faulty stations
Ch2	GS300	(00H fixed)	No. of faulty stations
Ch3	GS320	(00H fixed)	No. of faulty stations
Ch4	GS340	(00H fixed)	No. of faulty stations

Point

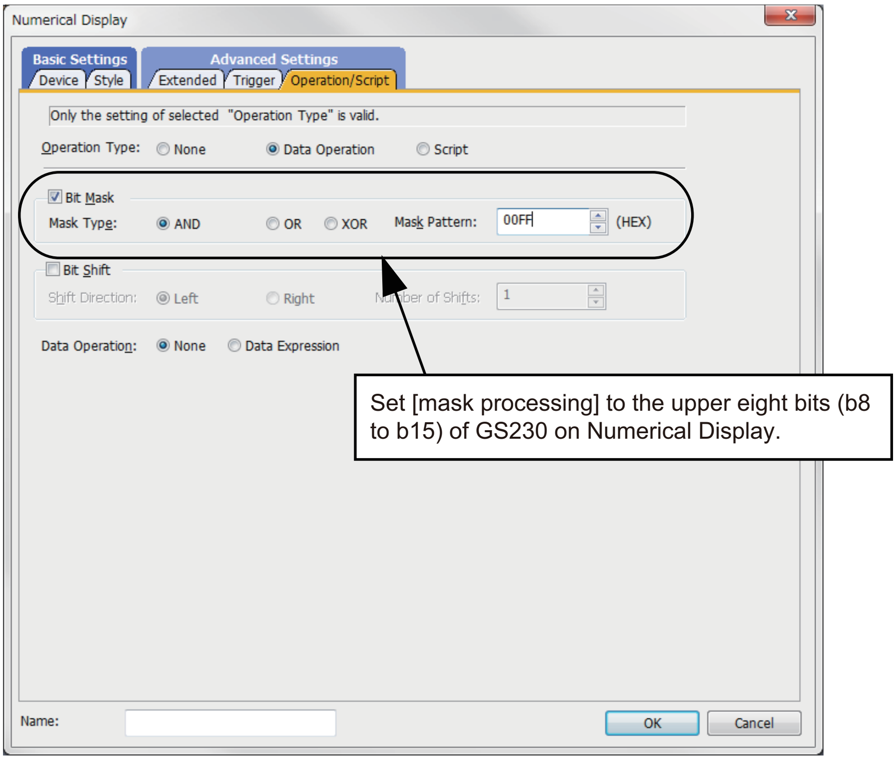
When monitoring GS230 on Numerical Display

When monitoring GS230 on Numerical Display, check [mask processing] with data operation tab as the following.

For the data operation, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

• Numerical Display (Data Operation tab)

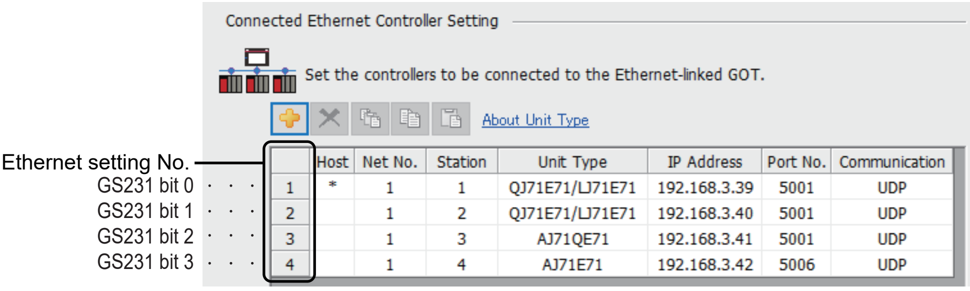


Faulty station information

The bit corresponding to the faulty station is set. (0: Normal, 1: Abnormal)

The bit is reset after the fault is recovered.

■Ethernet connection



Device	Ethernet setting No.															
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
GS231	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
GS232	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
GS233	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33
GS234	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49
GS235	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
GS236	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
GS237	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97
GS238	128	127	126	125	124	123	122	121	120	119	118	117	116	115	114	113

The following shows the Ethernet setting numbers for each device in the Ethernet multiple connection.

Device				Ethernet setting No.															
Ch1	Ch2	Ch3	Ch4	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
GS281	GS301	GS321	GS341	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
GS282	GS302	GS322	GS342	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
GS283	GS303	GS323	GS343	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33
GS284	GS304	GS324	GS344	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49
GS285	GS305	GS325	GS345	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65
GS286	GS306	GS326	GS346	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
GS287	GS307	GS327	GS347	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97
GS288	GS308	GS328	GS348	128	127	126	125	124	123	122	121	120	119	118	117	116	115	114	113

■CC-Link IE TSN connection

Device	Station number															
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
GS1281	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
GS1282	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
GS1283	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32
GS1284	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48
GS1285	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
GS1286	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80
GS1287	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	96
GS1288	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	112

■Connection with the temperature controller (AZBIL temperature controller (DMC50))

Device				Station number-Sub Station															
Ch1	Ch2	Ch3	Ch4	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
GS281	GS301	GS321	GS341	1-15	1-14	1-13	1-12	1-11	1-10	1-9	1-8	1-7	1-6	1-5	1-4	1-3	1-2	1-1	1-0
GS282	GS302	GS322	GS342	2-15	2-14	2-13	2-12	2-11	2-10	2-9	2-8	2-7	2-6	2-5	2-4	2-3	2-2	2-1	2-0
GS283	GS303	GS323	GS343	3-15	3-14	3-13	3-12	3-11	3-10	3-9	3-8	3-7	3-6	3-5	3-4	3-3	3-2	3-1	3-0
GS284	GS304	GS324	GS344	4-15	4-14	4-13	4-12	4-11	4-10	4-9	4-8	4-7	4-6	4-5	4-4	4-3	4-2	4-1	4-0
GS285	GS305	GS325	GS345	5-15	5-14	5-13	5-12	5-11	5-10	5-9	5-8	5-7	5-6	5-5	5-4	5-3	5-2	5-1	5-0
GS286	GS306	GS326	GS346	6-15	6-14	6-13	6-12	6-11	6-10	6-9	6-8	6-7	6-6	6-5	6-4	6-3	6-2	6-1	6-0
GS287	GS307	GS327	GS347	7-15	7-14	7-13	7-12	7-11	7-10	7-9	7-8	7-7	7-6	7-5	7-4	7-3	7-2	7-1	7-0
GS288	GS308	GS328	GS348	8-15	8-14	8-13	8-12	8-11	8-10	8-9	8-8	8-7	8-6	8-5	8-4	8-3	8-2	8-1	8-0

■Connection types other than the above

The supported device differs depending on the communication driver to be used.

• Communication drivers supported by the host station only

Communication driver list		
Bus Q	Bus A/QnA	Serial(MELSEC)
AJ71QC24, MELDAS C6*	AJ71C24/UC24	CC-Link(G4)
MELSEC-FX	MELSEC-WS	OMRON SYSMAC
YASKAWA GL	YASKAWA CP9200 (H)	YASKAWA CP9300MS (MC compatible)
YASKAWA MP2000/MP900/CP9200SH	AB Control/CompactLogix	SHARP JW
TOSHIBA PROSEC T/V	HITACHI IES HIDIC H	HITACHI IES HIDIC H(Protocol2)
PANASONIC MEWNET-FP	PANASONIC MEWTOCOL-7	SIEMENS S7-200
YOKOGAWA FA500/FA-M3/STARDOM	Serial(KEYENCE)	HITACHI S10mini/S10V
FUJI MICREX-SX SPH	SHIBAURA MACHINE TCmini	SICK Flexi Soft
IAI X-SEL	PROFIBUS DP	DeviceNet

The host station uses the 0th bit at the top.

Ch1: GS281.b0

Ch2: GS301.b0

Ch3: GS321.b0

Ch4: GS341.b0

- Communication drivers supported by the other stations

Communication driver list		
CC-Link IE Controller Network	CC-Link IE Field Network	MEI Nexgenie
AB SLC500 AB 1:N connection	AB MicroLogix	AB MicroLogix(Extended)
SIEMENS S7-300/400	JTEKT TOYOPUC-PC	FUJI MICREX-F
GE(SNP-X)	KOYO KOSTAC/DL	LS Industrial Systems MASTER-K
Hirata HNC	IAI robocylinder	Panasonic MINAS A4
Panasonic MINAS A5	Muratec MPC	MELSERVO-J4,J3,J2S/M,JE
FREQROL 500/700/800,SENSORLESS SERVO	FREQROL 800	FREQROL(Batch monitor)
OMRON THERMAC/INPANEL NEO	OMRON Digital Temperature Controller	AZBIL SDC/DMC
AZBIL DMC50	RKC SR Mini HG (MODBUS)	FUJI Temperature Controller/Digital Controller
YOKOGAWA GREEN/UT100/UT2000/ UTAdvanced	SHINKO TECHNOS CONTROLLER	CHINO MODBUS device
MODBUS/RTU Master		

The following shows the supported devices.

Device				Station number															
Ch1	Ch2	Ch3	Ch4	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
GS281	GS301	GS321	GS341	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0*1
GS282	GS302	GS322	GS342	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
GS283	GS303	GS323	GS343	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32
GS284	GS304	GS324	GS344	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48
GS285	GS305	GS325	GS345	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
GS286	GS306	GS326	GS346	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80
GS287	GS307	GS327	GS347	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	96
GS288	GS308	GS328	GS348	127 *1*2	126 *1*2	125 *1*2	124 *1*2	123 *1*2	122 *1*2	121 *1*2	120	119	118	117	116	115	114	113	112

*1 When CC-Link IE Controller network connection is not used.

*2 When CC-Link IE Field network connection is not used.

For details on the GS Device, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

Network No., station No. notification

The network No. and station No. of the GOT in Ethernet connection are stored at GOT startup.

If connected by other than Ethernet, 0 is stored.

Device				Description
CH1	CH2	CH3	CH4	
GS376	GS378	GS380	GS382	Network No. (1 to 239)
GS377	GS379	GS381	GS383	Station No. (1 to 64)

Check on the PLC

Read IC tag (For RFID connection)

Read IC tag with a RFID reader/writer and check that the read data are written into the PLC CPU.

Detailed settings including sequence programs, device settings and other settings required for monitoring, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

MEMO

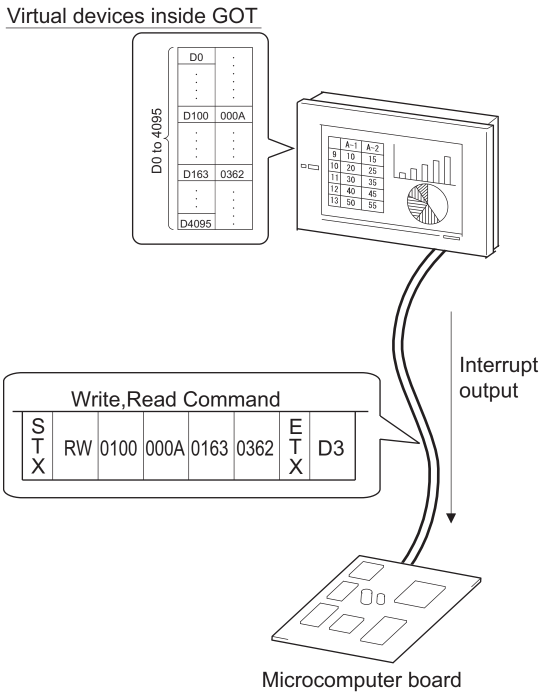
PART 2 MICROCOMPUTER

2 MICROCOMPUTER CONNECTION (SERIAL)

2.1 Microcomputer Connection (Serial)

The microcomputer connection (Serial) is a function by which data can be written or read from a personal computer, microcomputer board, PLC, and others (hereinafter, host) to the virtual devices of the GOT by connecting the host and the GOT by Serial.

Interrupt output is also available from the GOT to the host.



Point

Virtual devices inside the GOT

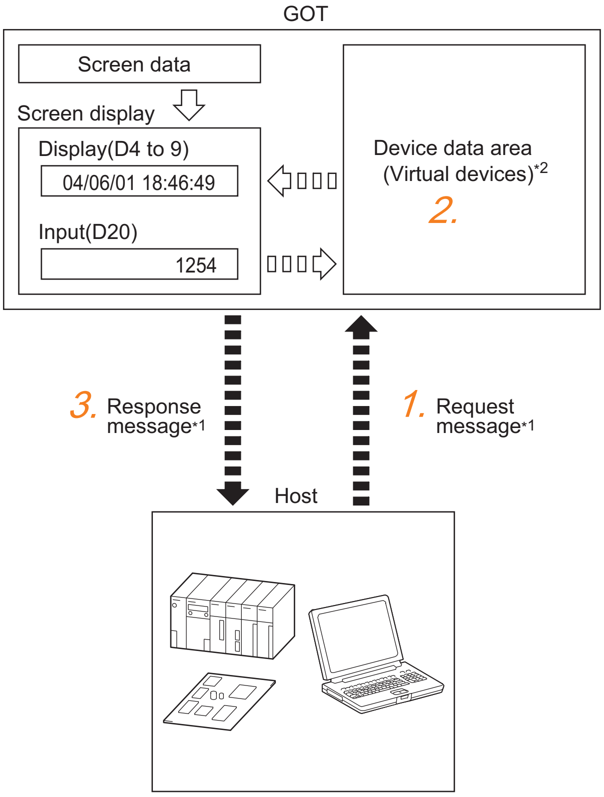
The devices inside the GOT are used in the microcomputer connection.

(PLC devices are not used)

☞ Page 87 Device Data Area

Flow of data processing

■When reading or writing data



1. The host sends a request message (the read or write command) to the GOT.

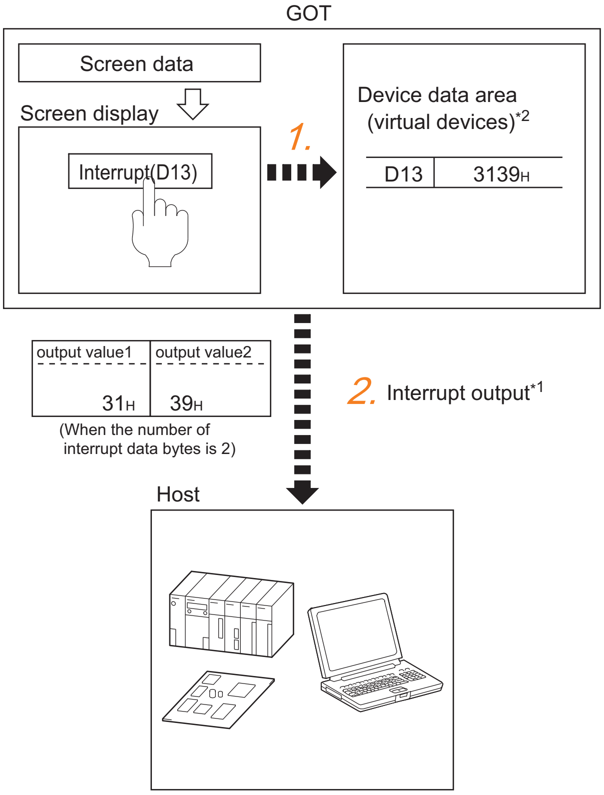
2. The GOT reads or writes data from or to its virtual devices according to the request from the host.

3. Upon completion of the processing, the GOT sends a response message (processing result) to the host.

Creating the following objects on the screen allows you to use the data read or written from or to the virtual devices.

- Numerical display object to display the data written by the write command
- Numerical input object to input data to be uploaded to the host

■When outputting interrupts



1. Data are written to the virtual devices for interrupt output from the touch switches on the GOT.

2. The GOT sends the written data (interrupt output) to the host.

*1 Page 101 Message Formats

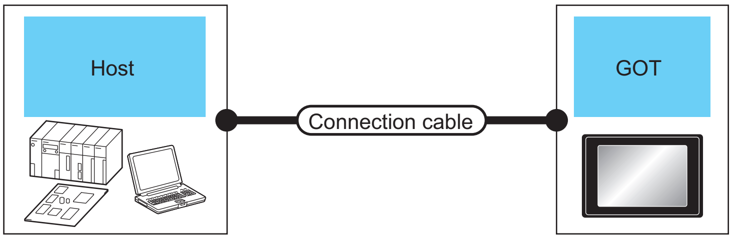
*2 Page 87 Device Data Area

2.2 System Configuration

For the microcomputer connection (serial)

When connecting one GOT

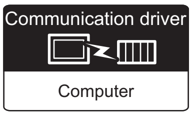
Communication driver
Computer

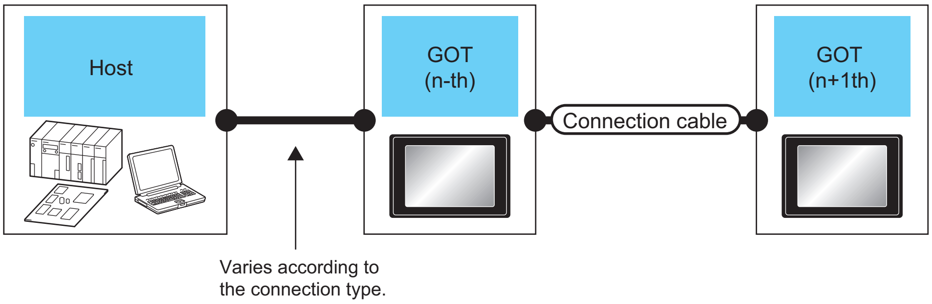


Host		Connection cable	GOT		Number of connectable equipment
Communication Type	Max. distance	Connection diagram number	Option device[*2]	Model	
RS-232	Differs according to host side specifications	User preparing Page 81 RS-232 connection diagram 1)	- (Built into GOT)	GT27, GT25, GT23, GT2107W, GT2105Q, GS25, GS21	1 GOT for 1 host
			GT15-RS2-9P	GT27, GT25	
			GT10-C02H-6PT9P[*1]	GT2103P/2104P R4, GT2103P/2104P R2	
		User preparing Page 82 RS-232 connection diagram 2)	- (Built into GOT)	GT2104R, GT2103P/2104P R2	
RS-422	Differs according to host side specifications	User preparing Page 85 RS-422 connection diagram 1)	- (Built into GOT)	GT27, GT25, GT23, GT2107W, GT2105Q, GS25, GS21	
			GT15-RS4-9S	GT27, GT25	
			GT10-C02H-9SC	GT2104R, GT2103P/2104P R4	
		User preparing Page 85 RS-422 connection diagram 2)	- (Built into GOT)	GT2104R, GT2103P/2104P ET/R4, GT2103P/2104P R4	

*1 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.
*2 GT25-W, GT2505-V does not support the option device.

When connecting multiple GOTs





Host		GOT (n-th) *1		Connection cable				GOT (n+1th) *1		Number of connectable equipment
Connection type	Communication Type	Option device	Model	Option device	Communication Type	Cable model	Max. distance	Option device	Model	
For the system configuration between the GOT and host, refer to the following. ☞ Page 75 When connecting one GOT	RS-232	- (Built into GOT)	GT21 07W, GT21 05Q, GS21	-	RS-422	User preparing Page 86 RS-422 connection diagram 5)	30m	- (Built into GOT)	GT21 07W, GT21 05Q, GS21	4 GOT for 1 host
							30m	GT10-C02H-9SC	GT21 04R, GT21 03P/04P R4	
		- (Built into GOT)	GT21 04R	GT10-C02H-9SC	RS-422	User preparing Page 86 RS-422 connection diagram 5)	30m	- (Built into GOT)	GT21 07W, GT21 05Q, GS21	
								GT10-C02H-9SC	GT21 04R, GT21 03P/04P R4	
				-		User preparing Page 85 RS-422 connection diagram 3)	30m	- (Built into GOT)	GT21 04R, GT21 03P/04P R4	
				-		User preparing Page 86 RS-422 connection diagram 4)	30m	- (Built into GOT)	GT21 03P/04P ET/R4 *3	
		- (Built into GOT)	GT21 03P/04P R2	-	RS-232	GT10-C30R2-6P(3m)*2	3m	- (Built into GOT)	GT21 03P/04P R2	
				GT10-C02H-6PT9P*5		User preparing Page 83 RS-232 connection diagram 4)	15m	- (Built into GOT)	GT21 03P/04P R2	
						GT01-C30R2-9S(3m) or User preparing Page 84 RS-232 connection diagram 8)	15m	- (Built into GOT)	GT21 07W, GT21 05Q, GS21	
								GT10-C02H-6PT9P*5	GT21 03P/04P R4, GT21 03P/04P R2	

Host		GOT (n-th) *1		Connection cable				GOT (n+1th) *1		Number of connectable equipment
Connection type	Communication Type	Option device	Model	Option device	Communication Type	Cable model	Max. distance	Option device	Model	
For the system configuration between the GOT and host, refer to the following. ☞ Page 75 When connecting one GOT	RS-232	GT10-C02H-6PT9P*5	GT21 03P 04P R4	GT10-C02H-9SC	RS-422	(User preparing) Page 86 RS-422 connection diagram 5)	30m	- (Built into GOT)	GT21 07W, GT21 05Q, GS21	4 GOT for 1 host
								GT10-C02H-9SC	GT21 03P 04P R4	
				-		(User preparing) Page 85 RS-422 connection diagram 3)	30m	- (Built into GOT)	GT21 03P 04P R4	
						(User preparing) Page 86 RS-422 connection diagram 4)	30m	- (Built into GOT)	GT21 03P 04P ET/R4 *3	
		GT10-C02H-6PT9P*5	GT21 03P 04P R2	-	RS-232	(User preparing) Page 83 RS-232 connection diagram 5)	15m	- (Built into GOT)	GT21 03P 04P R2	
					RS-232	GT10-C30R2-6P(3m)*4	3m	- (Built into GOT)	GT21 03P 04P R2	
					RS-232	(User preparing) Page 84 RS-232 connection diagram 7)	30m	- (Built into GOT)	GT21 07W, GT21 05Q, GS21	
								GT10-C02H-6PT9P*5	GT21 03P 04P R4, GT21 03P 04P R2	

Host		GOT (n-th) *1		Connection cable				GOT (n+1th) *1		Number of connectable equipment
Connection type	Communication Type	Option device	Model	Option device	Communication Type	Cable model	Max. distance	Option device	Model	
For the system configuration between the GOT and host, refer to the following. ☞ Page 75 When connecting one GOT	RS-422	- (Built into GOT)	GT21 07W, GT21 05Q, GS21	-	RS-232	GT01-C30R2-9S(3m) or (User preparing) Page 84 RS-232 connection diagram 8)	15m	- (Built into GOT)	GT21 07W, GT21 05Q, GS21	4 GOT for 1 host
							15m	GT10-C02H-6PT9P*5	GT21 03P/04P R4, GT21 03P/04P R2	
		- (Built into GOT)	GT21 04R	-	RS-232	(User preparing) Page 83 RS-232 connection diagram 5)	15m	- (Built into GOT)	GT21 04R, GT21 03P/04P R2	
						GT10-C30R2-6P(3m)*4	3m	- (Built into GOT)	GT21 03P/04P R4, GT21 03P/04P R2	
						(User preparing) Page 84 RS-232 connection diagram 7)	30m	- (Built into GOT)	GT21 07W, GT21 05Q, GS21	
								GT10-C02H-6PT9P*5	GT21 03P/04P R4, GT21 03P/04P R2	
		GT10-C02H-9SC		-	RS-232	(User preparing) Page 83 RS-232 connection diagram 5)	15m	- (Built into GOT)	GT21 04R, GT21 03P/04P R2	
						GT10-C30R2-6P(3m)*4	3m	- (Built into GOT)	GT21 03P/04P R4, GT21 03P/04P R2	
						(User preparing) Page 84 RS-232 connection diagram 7)	30m	- (Built into GOT)	GT21 07W, GT21 05Q, GS21	
								GT10-C02H-6PT9P*5	GT21 03P/04P R4, GT21 03P/04P R2	

Host		GOT (n-th) *1		Connection cable				GOT (n+1th) *1		Number of connectable equipment
Connection type	Communication Type	Option device	Model	Option device	Communication Type	Cable model	Max. distance	Option device	Model	
For the system configuration between the GOT and host, refer to the following. ☞ Page 75 When connecting one GOT	RS-422	- (Built into GOT)	GT 21 03P 04P R4	-	RS-232	GT10-C30R2-6P(3m)*2	3m	- (Built into GOT)	GT 21 03P 04P R2	4 GOT for 1 host
				GT10-C02H-6PT9P*5		User preparing Page 83 RS-232 connection diagram 4)	15m	- (Built into GOT)	GT 21 03P 04P R2	
						GT01-C30R2-9S(3m) or User preparing Page 84 RS-232 connection diagram 8)	15m	- (Built into GOT)	GT 21 07W, GT 21 05Q, GS 21	
								GT10-C02H-6PT9P*5	GT 21 03P 04P R4, GT 21 03P 04P R2	
		GT10-C02H-9SC		GT10-C02H-6PT9P*5	RS-232	GT01-C30R2-9S(3m) or User preparing Page 84 RS-232 connection diagram 8)	15m	- (Built into GOT)	GT 21 07W, GT 21 05Q, GS 21	
								GT10-C02H-6PT9P*5	GT 21 03P 04P R4, GT 21 03P 04P R2	
						User preparing Page 83 RS-232 connection diagram 4)	15m	- (Built into GOT)	GT 21 03P 04P R2	
				-		GT10-C30R2-6P(3m)*2	3m	- (Built into GOT)	GT 21 03P 04P R2	

*1 This is the connection type (for n-th and n+1th from the host) of GOT, which is connected to the host.
*2 For the connection to GOT, refer to the connection diagram.
☞ Page 82 RS-232 connection diagram 3)
*3 When connecting multiple GOTs, set the GT2104-PMBD, GT2103-PMBD in the terminal position and connect them.
The GT2104-PMBD, GT2103-PMBD cannot be connected in any other position.
*4 For the connection to GOT, refer to the connection diagram.
☞ Page 83 RS-232 connection diagram 6)
*5 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

2.3 Connection Diagram

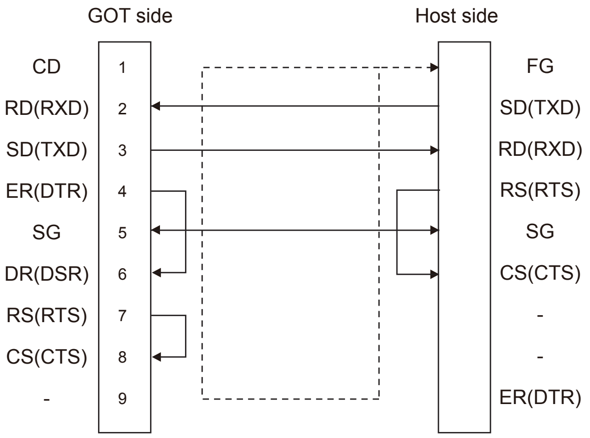
The following diagram shows the connection between the GOT and the microcomputer.

RS-232 cable

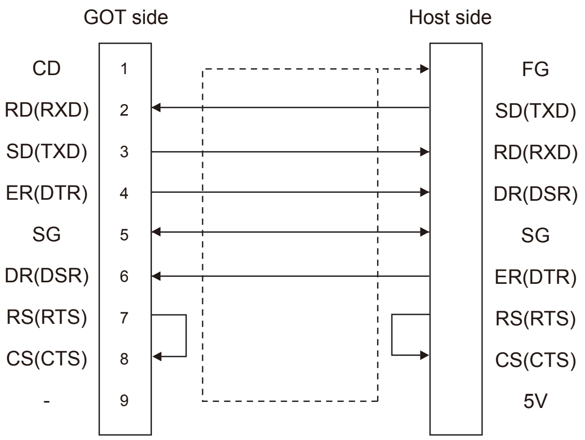
Connection diagram

■RS-232 connection diagram 1)

Example of the case where the DTR/DSR signal is not used

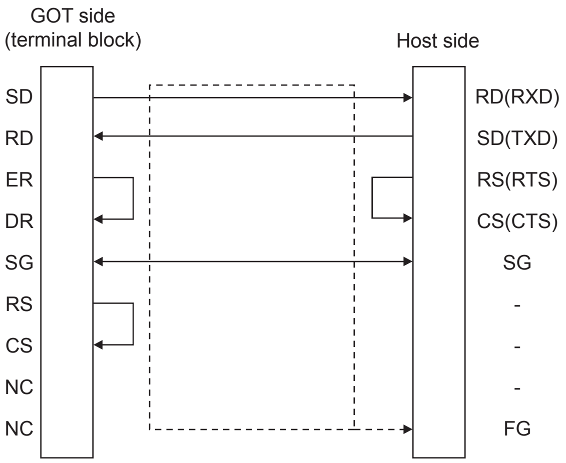


Example of the case where the DTR/DSR signal is used

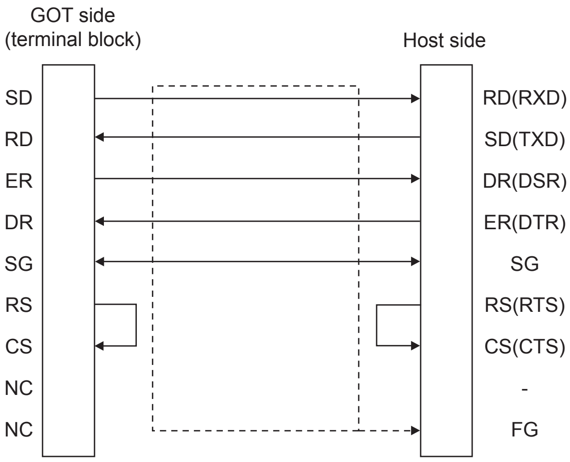


■RS-232 connection diagram 2)

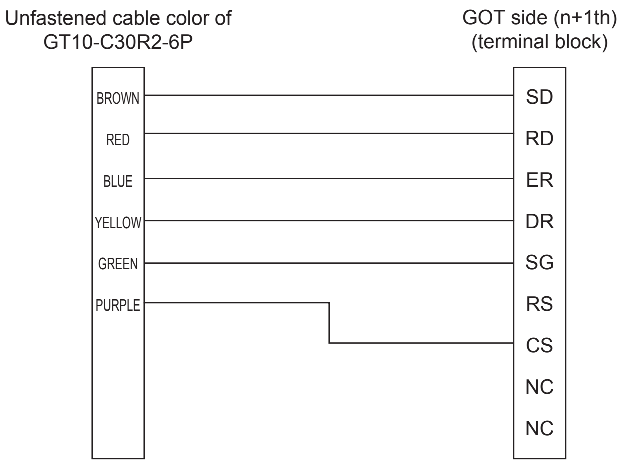
Example of the case where the DTR/DSR signal is not used



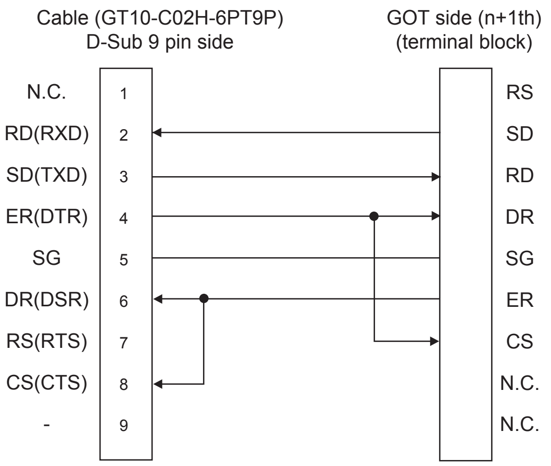
Example of the case where the DTR/DSR signal is used



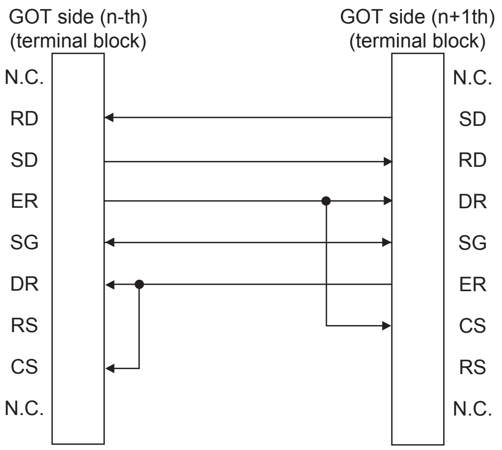
■RS-232 connection diagram 3)



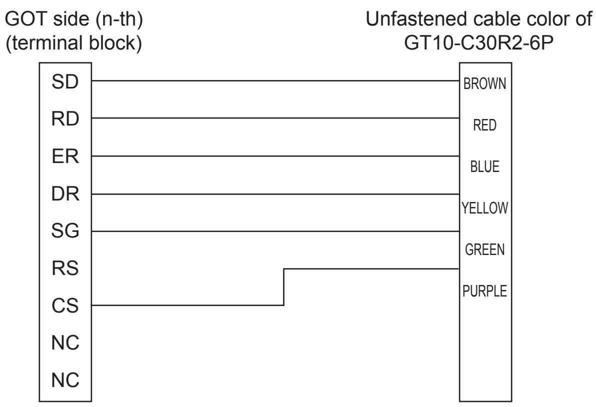
■RS-232 connection diagram 4)



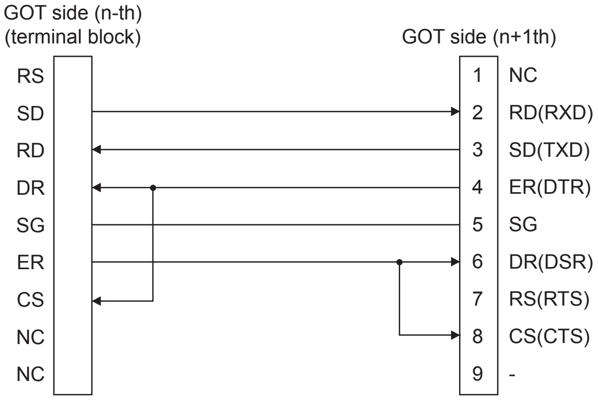
■RS-232 connection diagram 5)



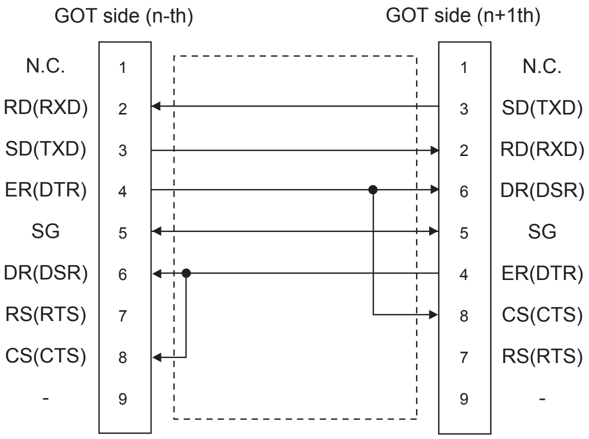
■RS-232 connection diagram 6)



■RS-232 connection diagram 7)



■RS-232 connection diagram 8)



Precautions when preparing a cable

■Cable length

The length of the RS-232 cable must be 15m or less.

■GOT side connector

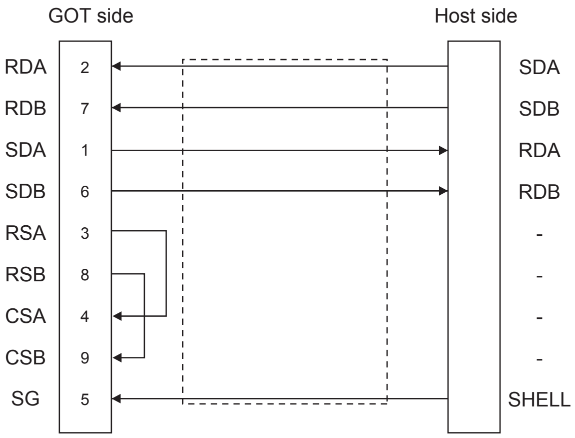
For the GOT side connector, refer to the following.

☞ Page 49 GOT connector specifications

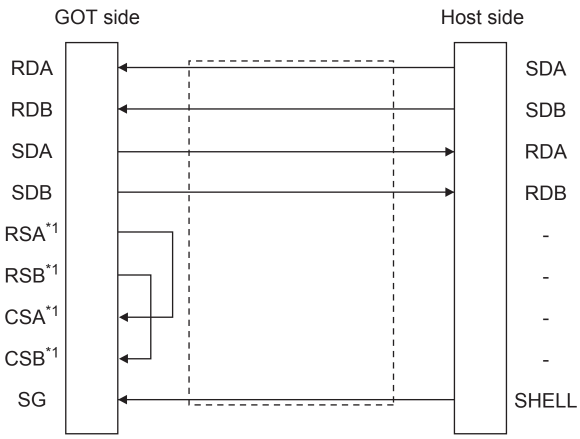
RS-422 cable

Connection diagram

■RS-422 connection diagram 1)

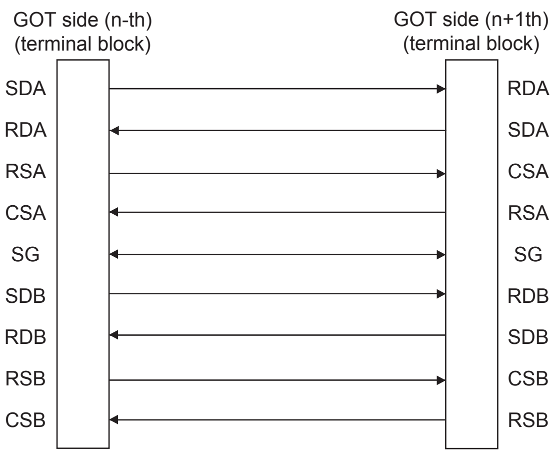


■RS-422 connection diagram 2)

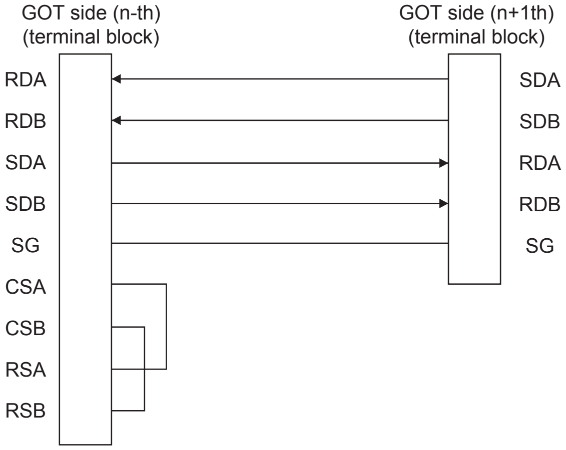


*1 The signals RSA, RSB, CSA, and CSB are not provided for GT2104-PMBD, GT2103-PMBD.
Return connection is not required.

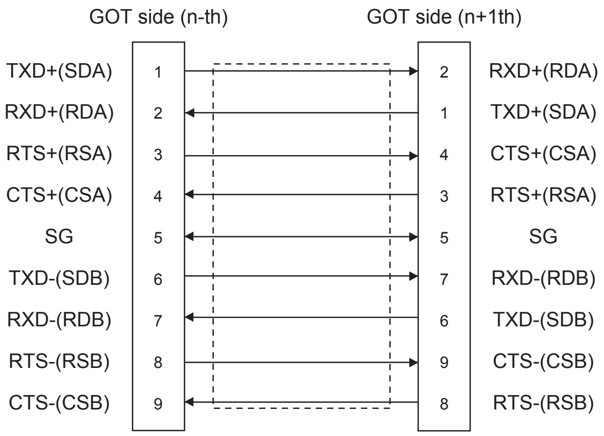
■RS-422 connection diagram 3)



■RS-422 connection diagram 4)



■RS-422 connection diagram 5)



Point

The polarity A and B in signal names may be reversed depending on the microcomputer to be used.
Prepare a cable according to the microcomputer to be used.

Precautions when preparing a cable

■Cable length

The distance between the GOT and the PLC of connection diagram 1), 2) and 3) must be 1200 m or less.
The length of the RS-422 connection diagram 4) or RS-422 connection diagram 5) must be 30m or less.

■GOT side connector

For the GOT side connector, refer to the following.
☞ Page 49 GOT connector specifications

Connecting terminating resistors

■GOT side

When connecting a microcomputer to the GOT, a terminating resistor must be connected to the GOT.

- For GT27, GT25 (except GT2505-V), GT23, GS25

Set the terminating resistor setting switch of the GOT main unit to disable.

- For GT2505-V, GT21, and GS21-W

Set the terminating resistor selector to 330 Ω.

- For GS21-W

Since the terminating resistor is fixed to 330 Ω, no setting is required for the terminating resistor.
For the procedure to set the terminating resistor, refer to the following.
☞ Page 53 Terminating resistors of GOT

2.4 Device Data Area

The following shows a list of virtual devices inside the GOT available in the microcomputer connection (serial), and the address specification values for each data format.

The address specification of the virtual devices differs depending on the data format.*1

Model	Virtual device*2			Address specification value					Refer to
	Name	Device range (decimal)	Device type	Format 1, 2	Format 3 to 6	Format 7 to 10	Format 11 to 13	Format 14, 15	
GT27 GT25 GT23 GS25	D	0 to 4095	Word	0 to 4095	D0 to 4095	D0 to 4095	0000 to 0FFFH	8000 to 9FFFH	☞ Page 88 D devices
	R	0 to 4095	Word	4096 to 8191	R0 to 4095	R0 to 4095	1000 to 1FFFH	0000 to 1FFFH	☞ Page 92 R devices
	L	0 to 2047	Bit	8192 to 8319	L0 to 2047	L0 to 2047	2000 to 207FH	A000 to A0FFH	☞ Page 93 L devices
	M	0 to 2047	Bit	8320 to 8447	M0 to 2047	M0 to 2047	2080 to 20FFH	2000 to 20FFH	☞ Page 94 M devices
	SD	0 to 15	Word	8448 to 8463	D9000 to 9015	SD0 to 15	2100 to 210FH	2100 to 211FH (3000 to 300DH)*3	☞ Page 95 SD devices
	SM	0 to 63	Bit	8464 to 8467	M9000 to 9063	SM0 to 63	2110 to 2113H	2200 to 2207H	☞ Page 99 SM devices
GT21 GS21	D	0 to 4095	Word	0 to 4095	-	-	0000 to 0FFFH	8000 to 9FFFH	☞ Page 88 D devices
	R	0 to 4095	Word	4096 to 8191	-	-	1000 to 1FFFH	0000 to 1FFFH	☞ Page 92 R devices
	L	0 to 2047	Bit	8192 to 8319	-	-	2000 to 207FH	A000 to A0FFH	☞ Page 93 L devices
	M	0 to 2047	Bit	8320 to 8447	-	-	2080 to 20FFH	2000 to 20FFH	☞ Page 94 M devices
	SD	0 to 15	Word	8448 to 8463	-	-	2100 to 210FH	2100 to 211FH (3000 to 300DH)*3	☞ Page 95 SD devices
	SM	0 to 63	Bit	8464 to 8467	-	-	2110 to 2113H	2200 to 2207H	☞ Page 99 SM devices

*1 For the address specification method for each data format, refer to the following.

☞ Page 101 Message Formats

- Formats 1, 2 : GOT-A900 Series microcomputer connection
- Formats 3 to 6 : A compatible 1C frame
- Formats 7 to 10 : QnA compatible 3C/4C frame
- Formats 11 to 13 : SCHNEIDER EJH's memory link method
- Formats 14, 15 : GOT-F900 Series microcomputer connection

*2 When reusing GOT900 Series project data

• GOT-A900 Series virtual devices (D0 to 2047)

Can be used as they are without changing the assignments.

• GOT-F900 Series virtual devices

Since some of the assigned virtual device values differ as indicated below, change the assignment using device batch edit of GT Designer3.

Refer to the following manual for device batch edit of GT Designer3.

☞ GT Designer3 (GOT2000) Screen Design Manual

GOT2000 Series virtual devices	GOT-F900 Series virtual devices
D0 to 2047	—
D2048 to 4095	—
R0 to 4095	D0 to 4095
L0 to 2047	—
M0 to 2047	M0 to 2047
SD0 to 15	D8000 to 8015 GD0 to 6
SM0 to 63	M8000 to 8063

*3 Access to SD3 to 9 can also be made by the specification of the addresses (3000 to 300DH) of GD0 to 6 on the GOT-F900 Series.

Point

Values of virtual devices inside the GOT

When the GOT is turned OFF or reset, values are cleared to their defaults (bit devices: OFF, word devices: 0).

Values are held in the memory when project data are written to the GOT.

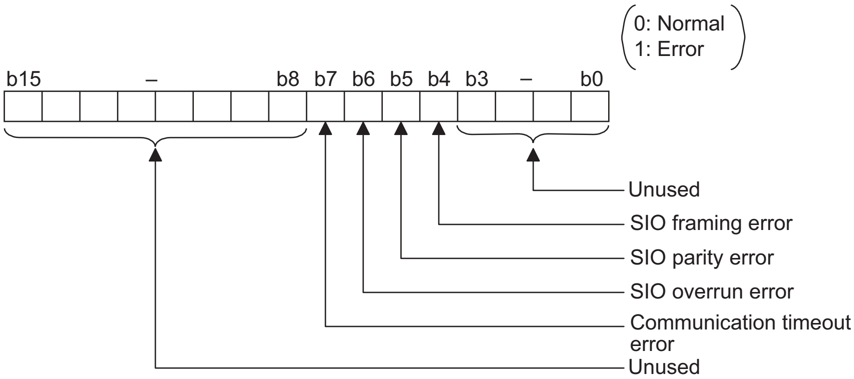
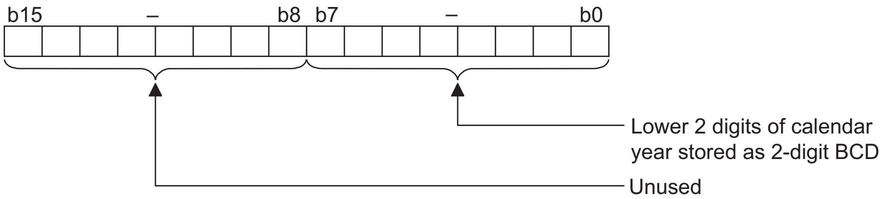
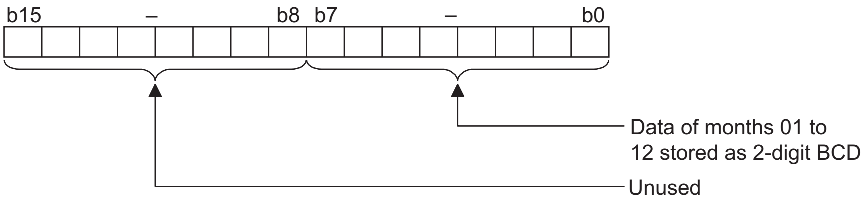
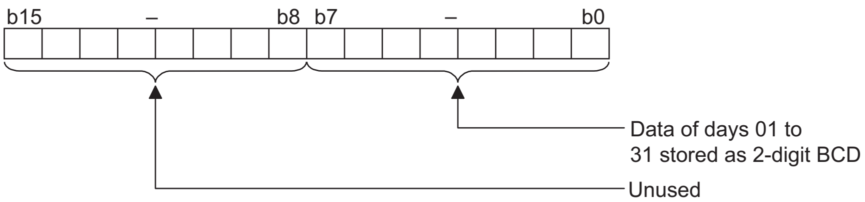
D devices

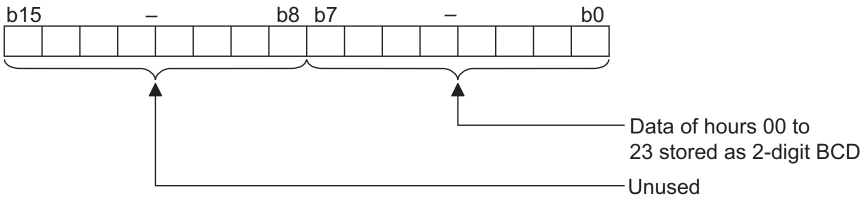
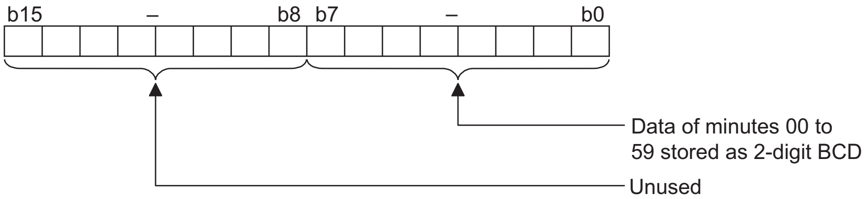
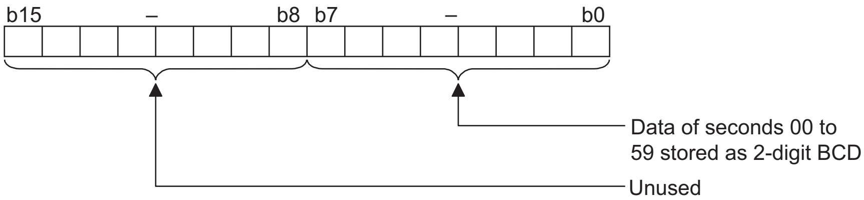
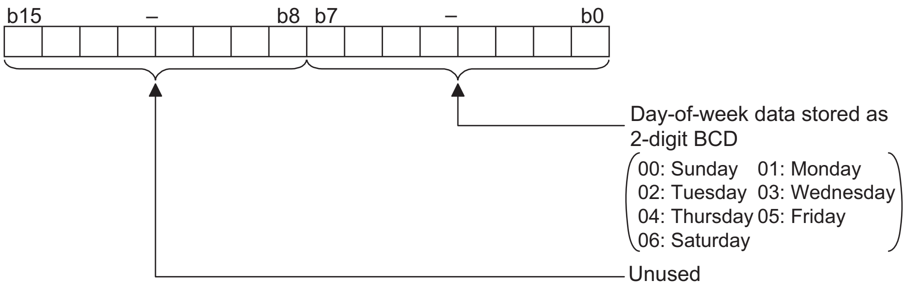
The D devices are word devices into which GOT communication errors, clock data or other information are stored.

The user can also store data using the user area.

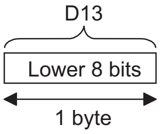
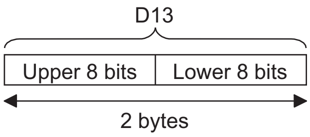
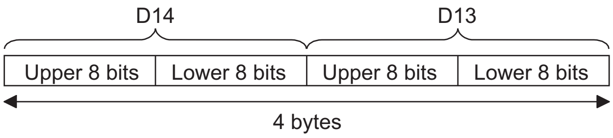
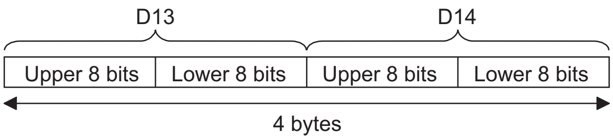
List of D devices

The following lists the D devices (virtual devices inside the GOT).

Address	Description	Set side
D0 to 2	Unused	—
D3	Communication error status Stores the communication error details of GOT.  • b4 to 6 turn ON when an SIO error occurs, and turn OFF when an request message from the host is received successfully after the error occurrence. • b7 turns ON about 3 seconds after the host side DTR becomes OFF, and turns OFF when transmission is performed successfully to the host after the error occurrence.	System
D4	Clock data (year) 	
D5	Clock data (month) 	
D6	Clock data (day) 	

Address	Description	Set side
D7	Clock data (hour)  	System
D8	Clock data (minute)  	
D9	Clock data (second)  	
D10	Clock data (day of the week)  	
D11, D12	Unused	—

2

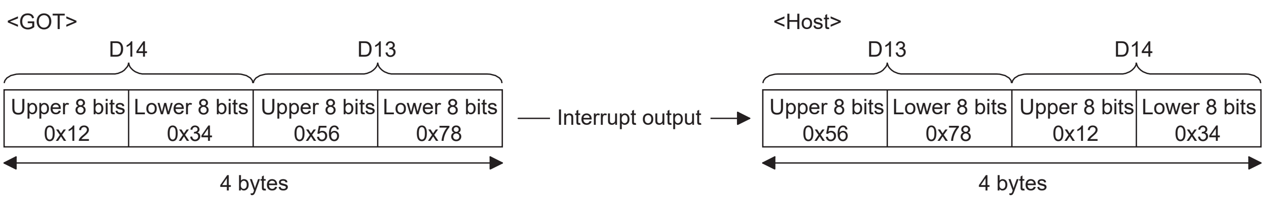
Address	Description	Set side
D13 D14	Interrupt output When data are written to D13 and D14 from a GOT touch switch, for example, the data of D13 and D14 are transmitted (interrupt output) to the host side. *1*2 Set the data amount (bytes) for an interrupt output to [Interrupt Data Byte(Byte)] in the communication detail settings. ☞ Page 153 Setting communication interface (Controller Setting) • Output value when [1] is set to [Interrupt Data Byte(Byte)] in the communication detail settings  • Output value when [2] is set to [Interrupt Data Byte(Byte)] in the communication detail settings  • Output value when [4] is set to [Interrupt Data Byte(Byte)] in the communication detail settings*3 (1) When [32bit Storage] in the communication detail settings is set to [LH Order]  (2) When [32bit Storage] in the communication detail settings is set to [HL Order] 	User
D15 to 19	Unused	—
D20 to 2031	User area	User
D2032 to 2034	Unused	—
D2035	1-second binary counter The counter is incremented at 1-second intervals after the GOT is turned ON. (The time elapsed after GOT is turned ON is stored in 1-second units.) Data are stored in binary format.	System
D2036 to 4095	User area	User

*1 After the interrupt data is written, the data is output within 1 to 10 ms.

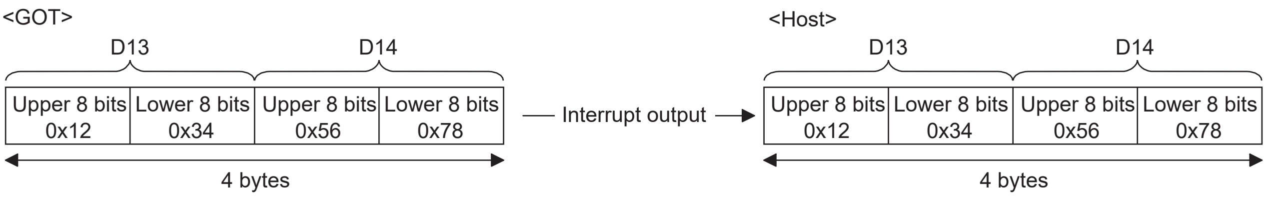
*2 When data are written to D13 and D14 from the host side, interrupt output is not performed.

*3 When 32-bit data are written to D13 and D14, the values are output to the host side regardless of the setting for [32bit Storage] in the communication detail settings.
Example) When outputting 0x12345678 with unsigned 32-bit binary data

· LH Order



· HL Order



Point

- The side where virtual devices are set

System: Set on the system side.

User: Set on the user side (by sending request messages from host or using the touch switches, etc. on the GOT).

- Interrupt output (D13, D14)

To disable the interrupt output, turn on SM52 (interrupt code output disable flag).

☞ Page 99 SM devices

To execute the interrupt output in format 1, 2, 11, 14, or 15, set the data length to 8 bits in the communication detail settings.

When "7 bits" is set, the MSB (8th bit) is ignored. (Example: FFH → 7FH)

☞ Page 153 Setting communication interface (Controller Setting)

Differences in address specifications by data format

The address specification of devices varies depending on the data format.*1

The following shows the address specification values for each data format.

Model	Address	Address specification value					
		Format 1, 2	Format 3 to 6	Format 7 to 10	Format 11 to 13	Format 14, 15	
GT27 GT25 GT23 GS25	D0	0	D0	D0	0000H	8000H 8001H	8000H 8001H Upper 8 bits Lower 8 bits
	D1	1	D1	D1	0001H	8002H 8003H	8002H 8003H Upper 8 bits Lower 8 bits
	:	:	:	:	:	:	
	D4095	4095	D4095	D4095	0FFFH	9FFEH 9FFFH	9FFEH 9FFFH Upper 8 bits Lower 8 bits
GT21 GS21	D0	0	-	-	0000H	8000H 8001H	8000H 8001H Upper 8 bits Lower 8 bits
	D1	1	-	-	0001H	8002H 8003H	8002H 8003H Upper 8 bits Lower 8 bits
	:	:	-	-	:	:	
	D4095	4095	-	-	0FFFH	9FFEH 9FFFH	9FFEH 9FFFH Upper 8 bits Lower 8 bits

*1 For the address specification method for each data format, refer to the following.

☞ Page 101 Message Formats

- Formats 1, 2 : GOT-A900 Series microcomputer connection
- Formats 3 to 6 : A compatible 1C frame
- Formats 7 to 10 : QnA compatible 3C/4C frame
- Formats 11 to 13 : SCHNEIDER EJH's memory link method
- Formats 14, 15 : GOT-F900 Series microcomputer connection

R devices

The R devices are word devices into which user data are stored.
All of these devices can be used as a user area.

List of R devices and differences in address specification by data format

The following shows the R devices (virtual devices inside the GOT).
The address specification values different depending on the data format are also given below.[*1]

Model	Address	Address specification value					
		Format 1, 2	Format 3 to 6	Format 7 to 10	Format 11 to 13	Format 14, 15	
GT27 GT25 GT23 GS25	R0	4096	R0	R0	1000H	0000H 0001H	0000H 0001H Upper 8 bits Lower 8 bits
	R1	4097	R1	R1	1001H	0002H 0003H	0002H 0003H Upper 8 bits Lower 8 bits
	:	:	:	:	:	:	
	R4095	8191	R4095	R4095	1FFFH	1FFEH 1FFFH	1FFEH 1FFFH Upper 8 bits Lower 8 bits
GT21 GS21	R0	4096	-	-	1000H	0000H 0001H	0000H 0001H Upper 8 bits Lower 8 bits
	R1	4097	-	-	1001H	0002H 0003H	0002H 0003H Upper 8 bits Lower 8 bits
	:	:	-	-	:	:	
	R4095	8191	-	-	1FFFH	1FFEH 1FFFH	1FFEH 1FFFH Upper 8 bits Lower 8 bits

*1 For the address specification method for each data format, refer to the following.
☞ Page 101 Message Formats

- Formats 1, 2 : GOT-A900 Series microcomputer connection
- Formats 3 to 6 : A compatible 1C frame
- Formats 7 to 10 : QnA compatible 3C/4C frame
- Formats 11 to 13 : SCHNEIDER EJH's memory link method
- Formats 14, 15 : GOT-F900 Series microcomputer connection

L devices

The L devices are bit devices into which user data are stored.
All of these devices can be used as a user area.

List of L devices and differences in address specification by data format

The following shows the L devices (virtual devices inside the GOT).
The address specification values different depending on the data format are also given below.[*1]

Model	Address								Address specification value				
	b7	b6	b5	b4	b3	b2	b1	b0	Format 1, 2	Format 3 to 6	Format 7 to 10	Format 11 to 13	Format 14, 15
GT27 GT25 GT23 GS25	L7	L6	L5	L4	L3	L2	L1	L0	8192	Same as address column on left[*2]		2000H	A000H
	L15	L14	L13	L12	L11	L10	L9	L8					A001H
	L23	L22	L21	L20	L19	L18	L17	L16	8193			2001H	A002H
	L31	L30	L29	L28	L27	L26	L25	L24					A003H
	:								:			:	:
	L2039	L2038	L2037	L2036	L2035	L2034	L2033	L2032	8319			207FH	A0FEH
	L2047	L2046	L2045	L2044	L2043	L2042	L2041	L2040					A0FFH
GT21 GS21	L7	L6	L5	L4	L3	L2	L1	L0	8192	-		2000H	A000H
	L15	L14	L13	L12	L11	L10	L9	L8					A001H
	L23	L22	L21	L20	L19	L18	L17	L16	8193			2001H	A002H
	L31	L30	L29	L28	L27	L26	L25	L24					A003H
	:								:			:	:
	L2039	L2038	L2037	L2036	L2035	L2034	L2033	L2032	8319			207FH	A0FEH
	L2047	L2046	L2045	L2044	L2043	L2042	L2041	L2040					A0FFH

*1 For the address specification method for each data format, refer to the following.
☞ Page 101 Message Formats
- Formats 1, 2 : GOT-A900 Series microcomputer connection
- Formats 3 to 6 : A compatible 1C frame
- Formats 7 to 10 : QnA compatible 3C/4C frame
- Formats 11 to 13 : SCHNEIDER EJH's memory link method
- Formats 14, 15 : GOT-F900 Series microcomputer connection

*2 For reading or writing data in word units, specify the addresses in a unit of 16 points. (Example: L0, L16, L32, etc.)

M devices

The M devices are bit devices into which user data are stored.

All of these devices can be used as a user area.

List of M devices and differences in address specification by data format

The following shows the M devices (virtual devices inside the GOT).

The address specification values different depending on the data format are also given below.*1

Model	Address								Address specification value				
	b7	b6	b5	b4	b3	b2	b1	b0	Format 1, 2	Format 3 to 6	Format 7 to 10	Format 11 to 13	Format 14, 15
GT27 GT25 GT23 GS25	M7	M6	M5	M4	M3	M2	M1	M0	8320	Same as address column on left *2		2080H	2000H
	M15	M14	M13	M12	M11	M10	M9	M8					2H001H
	M23	M22	M21	M20	M19	M18	M17	M16	8321			2081H	2002H
	M31	M30	M29	M28	M27	M26	M25	M24					2003H
	:								:			:	:
	M2039	M2038	M2037	M2036	M2035	M2034	M2033	M2032	8447			20FFH	20FEH
	M2047	M2046	M2045	M2044	M2043	M2042	M2041	M2040					20FFH
GT21 GS21	M7	M6	M5	M4	M3	M2	M1	M0	8320	-		2080H	2000H
	M15	M14	M13	M12	M11	M10	M9	M8					2001H
	M23	M22	M21	M20	M19	M18	M17	M16	8321			2081H	2002H
	M31	M30	M29	M28	M27	M26	M25	M24					2003H
	:								:			:	:
	M2039	M2038	M2037	M2036	M2035	M2034	M2033	M2032	8447			20FFH	20FEH
	M2047	M2046	M2045	M2044	M2043	M2042	M2041	M2040					20FFH

*1 For the address specification method for each data format, refer to the following.

☞ Page 101 Message Formats

- Formats 1, 2 : GOT-A900 Series microcomputer connection
- Formats 3 to 6 : A compatible 1C frame
- Formats 7 to 10 : QnA compatible 3C/4C frame
- Formats 11 to 13 : SCHNEIDER EJH's memory link method
- Formats 14, 15 : GOT-F900 Series microcomputer connection

*2 For reading or writing data in word units, specify the addresses in a unit of 16 points. (Example: M0, M16, M32, etc.)

SD devices

The SD devices are word devices into which GOT communication errors (error codes), clock data and other information are stored.

List of SD devices

The following lists the SD devices (virtual devices inside the GOT).

Address	Description	Set side
SD0 SD1	100ms counter (32bits) The counter is incremented at 100ms intervals after GOT is turned ON. (The time elapsed after GOT is turned ON is stored in 100ms units.) (1) When [32bit Storage] in the communication detail settings is set to [LH Order] The lower and upper bits are stored in SD0 and SD1 respectively. SD1: Upper word / SD0: Lower word (2) When [32bit Storage] in the communication detail settings is set to [HL Order] The upper and lower bits are stored in SD0 and SD1 respectively. SD0: Upper word / SD1: Lower word	System
SD2*1	Communication error status An error data (error code) occurred during communication is stored. • Host Address (Communication error that occurred on the request destination GOT) 0: No error 1: Parity error 2: Framing error 3: Overrun error 4: Communication message error 5: Command error 6: Clock data setting error • Other station (Communication error that occurred on another GOT when multiple GT21 units are connected) 101: Parity error 102: Framing error 103: Overrun error 104: Communication message error 105: Timeout error (No station of the specified address exists.) 106: Multiple units not connectable 107: Clock data setting error	
SD3	Clock data (second) Second data of 00 to 59 is stored.	
SD4	Clock data (minute) Minute data of 00 to 59 is stored.	
SD5	Clock data (hour) Hour data of 00 to 23 is stored.	
SD6	Clock data (day) Day data of 00 to 31 is stored.	
SD7	Clock data (month) Month data of 01 to 12 is stored.	
SD8	Clock data (year) The last two digits of four-digit year data are stored.	
SD9	Clock data (day of the week) Day-of-the-week data is stored. 0: Sunday 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday	
SD10 to 15	Unused	—

*1 For details and corrective actions for the errors (error codes) that are stored into SD2, refer to the following:
☞ Page 96 Details and actions for errors (error codes) stored into SD2

Point

The side where virtual devices are set
System: Set on the system side.
User: Set on the user side (by sending request messages from host or using the touch switches, etc. on the GOT).

Details and actions for errors (error codes) stored into SD2

Error code	Description	Action
0	No error	—
1, 101	Parity error The parity bit does not match.	• Check the communication cable and communication module attachment. • Check the settings of "Communication Detail Settings". • Match the GOT and host transmission settings.
2, 102	Framing error The data bit and/or stop bit are not correct.	
3, 103	Overrun error The next data was transmitted from the host before GOT completes the processing of the data received.	• Check the settings of "Communication Detail Settings". • Decrease the transmission speed.
4, 104	Communication message error EXT/CR could not be found before the upper limit of the receive buffer was exceeded.	• Check the communication cable and communication module attachment. • Check the settings of "Communication Detail Settings". • Review the contents of the message to transmit.
5	Command error An unsupported command was used.	• Review the contents of the message to transmit. • Check the commands in the message. ☞ Page 103 List of commands
105	Timeout error There is no response from the GOT, or the station of the specified address does not exist.	• Check the communication cable and communication module attachment. • Check the settings of "Communication Detail Settings". • Review the contents of the message to transmit.
106	Multiple units not connectable The RS-232 port is occupied.	• Check the communication cable and communication module attachment. • Check the settings of "Communication Detail Settings". • Check to see if the RS-232 port is occupied.
6, 107	Clock data setting error The setting value of the clock data has error.	• Review the contents of the message to transmit. • Check whether the non-existent data is set (e.g. setting "07" at the day of the week) as clock data.

Differences in address specifications by data format

The address specification of devices varies depending on the data format.*1

The following shows the address specification values for each data format.

Model	Address	Address specification value					
		Formats 1, 2	**Formats 3 to 6**	**Formats 7 to 10**	**Formats 11 to 13**	**Formats 14, 15*2**	
GT27 GT25 GT23 GS25	SD0	8448	D9000	SD0	2100H	2100H 2101H	$\overbrace{\text{Upper 8 bits}}^{2100_H}$ $\overbrace{\text{Lower 8 bits}}^{2101_H}$
	SD1	8449	D9001	SD1	2101H	2102H 2103H	$\overbrace{\text{Upper 8 bits}}^{2102_H}$ $\overbrace{\text{Lower 8 bits}}^{2103_H}$
	SD2	8450	D9002	SD2	2102H	2104H 2105H	$\overbrace{\text{Upper 8 bits}}^{2104_H}$ $\overbrace{\text{Lower 8 bits}}^{2105_H}$
	SD3	8451	D9003	SD3	2103H	2106H (3000H) 2107H (3001H)	$\overbrace{\text{Upper 8 bits}}^{2106_H(3000_H)}$ $\overbrace{\text{Lower 8 bits}}^{2107_H(3001_H)}$
	SD4	8452	D9004	SD4	2104H	2108H (3002H) 2109H (3003H)	$\overbrace{\text{Upper 8 bits}}^{2108_H(3002_H)}$ $\overbrace{\text{Lower 8 bits}}^{2109_H(3003_H)}$
	SD5	8453	D9005	SD5	2105H	210AH (3004H) 210BH (3005H)	$\overbrace{\text{Upper 8 bits}}^{210A_H(3004_H)}$ $\overbrace{\text{Lower 8 bits}}^{210B_H(3005_H)}$
	SD6	8454	D9006	SD6	2106H	210CH (3006H) 210DH (3007H)	$\overbrace{\text{Upper 8 bits}}^{210C_H(3006_H)}$ $\overbrace{\text{Lower 8 bits}}^{210D_H(3007_H)}$
	SD7	8455	D9007	SD7	2107H	210EH (3008H) 210FH (3009H)	$\overbrace{\text{Upper 8 bits}}^{210E_H(3008_H)}$ $\overbrace{\text{Lower 8 bits}}^{210F_H(3009_H)}$
	SD8	8456	D9008	SD8	2108H	2110H (300AH) 2111H (300BH)	$\overbrace{\text{Upper 8 bits}}^{2110_H(300A_H)}$ $\overbrace{\text{Lower 8 bits}}^{2111_H(300B_H)}$
	SD9	8457	D9009	SD9	2109H	2112H (300CH) 2113H (300DH)	$\overbrace{\text{Upper 8 bits}}^{2112_H(300C_H)}$ $\overbrace{\text{Lower 8 bits}}^{2113_H(300D_H)}$

Model	Address	Address specification value					
		Formats 1, 2	Formats 3 to 6	Formats 7 to 10	Formats 11 to 13	Formats 14, 15*2	
GT 21 GS 21	SD0	8448	D9000	-	-	2100H 2101H	2100H 2101H Upper 8 bits Lower 8 bits
	SD1	8449	D9001	-	-	2102H 2103H	2102H 2103H Upper 8 bits Lower 8 bits
	SD2	8450	D9002	-	-	2104H 2105H	2104H 2105H Upper 8 bits Lower 8 bits
	SD3	8451	D9003	-	-	2106H (3000H) 2107H (3001H)	2106H(3000H) 2107H(3001H) Upper 8 bits Lower 8 bits
	SD4	8452	D9004	-	-	2108H (3002H) 2109H (3003H)	2108H(3002H) 2109H(3003H) Upper 8 bits Lower 8 bits
	SD5	8453	D9005	-	-	210AH (3004H) 210BH (3005H)	210AH(3004H) 210BH(3005H) Upper 8 bits Lower 8 bits
	SD6	8454	D9006	-	-	210CH (3006H) 210DH (3007H)	210CH(3006H) 210DH(3007H) Upper 8 bits Lower 8 bits
	SD7	8455	D9007	-	-	210EH (3008H) 210FH (3009H)	210EH(3008H) 210FH(3009H) Upper 8 bits Lower 8 bits
	SD8	8456	D9008	-	-	2110H (300AH) 2111H (300BH)	2110H(300AH) 2111H(300BH) Upper 8 bits Lower 8 bits
	SD9	8457	D9009	-	-	2112H (300CH) 2113H (300DH)	2112H(300CH) 2113H(300DH) Upper 8 bits Lower 8 bits

*1 For the address specification method for each data format, refer to the following.

☞ Page 101 Message Formats

- Formats 1, 2 : GOT-A900 Series microcomputer connection
- Formats 3 to 6 : A compatible 1C frame
- Formats 7 to 10 : QnA compatible 3C/4C frame
- Formats 11 to 13 : SCHNEIDER EJH's memory link method
- Formats 14, 15 : GOT-F900 Series microcomputer connection

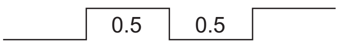
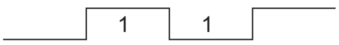
*2 SD3 to 9 correspond to GD0 to 6 on the GOT-F900 Series.
Access to SD3 to 9 can be also made by the specification of the addresses (3000 to 300DH) of GD0 to 6 on the GOT-F900 Series.

SM devices

The SM devices are bit devices into which interrupt outputs and clock data that turn ON or OFF at 1-second cycles.

List of SM devices

The following shows the SM devices (virtual devices inside the GOT).

<table>
<tr><th>Address</th><th>Description</th><th>Set side</th></tr>
<tr><td>SM0 to 49</td><td>Interrupt output
When the ON or OFF state of SM0 to 49 is changed by a touch switch on the GOT, for example, the interrupt codes shown below are transmitted (interrupt output) to the host side. *1*2
Set the data amount (bytes) for an interrupt output to [Interrupt Data Byte(Byte)] in the communication detail settings.
☞ Page 153 Setting communication interface (Controller Setting)
<table>
<tr><th>Address</th><th>Event type</th><th>Interrupt code</th></tr>
<tr><td rowspan="2">SM0</td><td>Changed from OFF to ON</td><td>50H</td></tr>
<tr><td>Changed from ON to OFF</td><td>51H</td></tr>
<tr><td rowspan="2">SM1</td><td>Changed from OFF to ON</td><td>52H</td></tr>
<tr><td>Changed from ON to OFF</td><td>53H</td></tr>
<tr><td rowspan="2">SM2</td><td>Changed from OFF to ON</td><td>54H</td></tr>
<tr><td>Changed from ON to OFF</td><td>55H</td></tr>
<tr><td>≀</td><td>≀</td><td>≀</td></tr>
<tr><td rowspan="2">SM48</td><td>Changed from OFF to ON</td><td>B0H</td></tr>
<tr><td>Changed from ON to OFF</td><td>B1H</td></tr>
<tr><td rowspan="2">SM49</td><td>Changed from OFF to ON</td><td>B2H</td></tr>
<tr><td>Changed from ON to OFF</td><td>B3H</td></tr>
</table>
</td><td>User</td></tr>
<tr><td>SM50</td><td>1-second cycle clock
Turns ON and OFF in 1-second cycles.
</td><td rowspan="2">System</td></tr>
<tr><td>SM51</td><td>2-second cycle clock
Turns ON and OFF in 2-second cycles.
</td></tr>
<tr><td>SM52</td><td>Interrupt code output disable flag
Enables or disables the output of the interrupt code and special interrupt code.
OFF: Output enabled, ON: Output disabled
When the output is set to be disabled, no interrupt data are output to the host.
(Relevant devices: D13, D14, SM0 to 49)</td><td>User</td></tr>
<tr><td>SM53 to 63</td><td>Unused</td><td>—</td></tr>
</table>

*1 After the ON or OFF state is changed, the interrupt data is output within 1 to 10 ms.
*2 When the ON or OFF state of SM0 to 49 is changed from the host side, interrupt output is not performed.

Point

- The side where virtual devices are set

System: Set on the system side.

User: Set on the user side (by sending request messages from host or using the touch switches, etc. on the GOT).

- Interrupt outputs (SM0 to 49)

To disable the interrupt output, turn on SM52 (interrupt code output disable flag).

☞ Page 99 SM devices

To execute the interrupt output in format 1, 2, 11, 14, or 15, set the data length to 8 bits in the communication detail settings.

When "7 bits" is set, the MSB (8th bit) is ignored. (Example: FFH → 7FH)

☞ Page 153 Setting communication interface (Controller Setting)

Differences in address specifications by data format

The address specification of devices varies depending on the data format.*1

The following shows the address specification values for each data format.

Model	Address								Address specification value				
	b7	b6	b5	b4	b3	b2	b1	b0	Format 1, 2	Format 3 to 6	Format 7 to 10	Format 11 to 13	Format 14, 15
GT27 GT25 GT23 GS25	SM7	SM6	SM5	SM4	SM3	SM2	SM1	SM0	8464	*2*4	*3*4	2110H	2200H
	SM15	SM14	SM13	SM12	SM11	SM10	SM9	SM8					2201H
	SM23	SM22	SM21	SM20	SM19	SM18	SM17	SM16	8465			2111H	2202H
	SM31	SM30	SM29	SM28	SM27	SM26	SM25	SM24					2203H
	SM39	SM38	SM37	SM36	SM35	SM34	SM33	SM32	8466			2112H	2204H
	SM47	SM46	SM45	SM44	SM43	SM42	SM41	SM40					2205H
	Unused			SM52	SM51	SM50	SM49	SM48	8467			2113H	2206H
	Unused								—				—
GT21 GS21	SM7	SM6	SM5	SM4	SM3	SM2	SM1	SM0	8464	—	—	2110H	2200H
	SM15	SM14	SM13	SM12	SM11	SM10	SM9	SM8					2201H
	SM23	SM22	SM21	SM20	SM19	SM18	SM17	SM16	8465			2111H	2202H
	SM31	SM30	SM29	SM28	SM27	SM26	SM25	SM24					2203H
	SM39	SM38	SM37	SM36	SM35	SM34	SM33	SM32	8466			2112H	2204H
	SM47	SM46	SM45	SM44	SM43	SM42	SM41	SM40					2205H
	Unused			SM52	SM51	SM50	SM49	SM48	8467			2113H	2206H
	Unused								—				—

*1 For the address specification method for each data format, refer to the following.

☞ Page 101 Message Formats

- Formats 1, 2 : GOT-A900 Series microcomputer connection
- Formats 3 to 6 : A compatible 1C frame
- Formats 7 to 10 : QnA compatible 3C/4C frame
- Formats 11 to 13 : SCHNEIDER EJH's memory link method
- Formats 14, 15 : GOT-F900 Series microcomputer connection

*2 In formats 3 to 6, values are specified within a range of M9000 to 9052.

*3 In formats 7 to 10, values are specified within a range of SM0 to 52.

*4 For reading or writing data in word units, specify the addresses in a unit of 16 points. (Example: SM0, SM16, SM32, etc.)

2.5 Message Formats

This section describes the format of messages that can be used in the microcomputer connection (serial).

Data format type

Set the data format in the communication detail settings in GT Designer3.
For details of the data format setting method, refer to the following.
☞ Page 153 Setting communication interface (Controller Setting)

Formats 1, 2 (GOT-A900 Series microcomputer connection)

This is the same message format as when a microcomputer connection is established with the GOT-A900 series.

Type	Name	Description	Refer to
Format 1	GOT-A900 Series microcomputer connection (format 1)	This format is used when the GOT is connected to the host in a 1:1 connection.	☞ Page 106 Formats 1, 2
Format 2	GOT-A900 Series microcomputer connection (format 2)	This is the appended format with error code at the error response of the GOT-A900 Series microcomputer connection (format 1).	

Formats 3 to 6 (A compatible 1C frame)

This is the same message format as when communication is performed using the dedicated protocol of the A series computer link module.

Type	Name	Description	Refer to
Format 3	A compatible 1C frame (format 1)	This is the basic format of the dedicated protocols.	☞ Page 118 Formats 3 to 6
Format 4	A compatible 1C frame (format 2)	This is the appended format of the A compatible 1C frame (format 1) with a block No.	
Format 5	A compatible 1C frame (format 3)	This is the enclosed format of the A compatible 1C frame (format 1) with STX and ETX.	
Format 6	A compatible 1C frame (format 4)	This is the appended format of the A compatible 1C frame (format 1) with CR and LF.	

Formats 7 to 10 (QnA compatible 3C/4C frame)

This is the same message format as when a communication is performed using the MC protocol of Q/QnA Series serial communication module.

Type	Name	Description	Refer to
Format 7	QnA compatible 3C/4C frame (format 1)	This is the basic format of the MC protocols.	☞ Page 123 Formats 7 to 10
Format 8	QnA compatible 3C/4C frame (format 2)	This is the appended format of the QnA compatible 3C/4C frame (format 1) with block No.	
Format 9	QnA compatible 3C/4C frame (format 3)	This is the enclosed format of the QnA compatible 3C/4C frame (format 1) with STX and ETX.	
Format 10	QnA compatible 3C/4C frame (format 4)	This is the appended format of the QnA compatible 3C/4C frame (format 1) with CR and LF.	

Formats 11 to 13 (SCHNEIDER EJH's memory link method)

This is the same message format as the protocol of the SCHNEIDER EJH's memory link method.

Type	Name	Description	Refer to
Format 11	SCHNEIDER EJH's memory link method (compatible mode)	This is the basic format of the SCHNEIDER EJH's memory link method.	☞ Page 129 Formats 11 to 13
Format 12	SCHNEIDER EJH's memory link method (extended mode, ASCII code 1:1)	This is the format with sum check, CR, and LF appended to the SCHNEIDER EJH's memory link method (compatible mode).	
Format 13	SCHNEIDER EJH's memory link method (extended mode, ASCII code 1:n)	This is the format with a station No. appended to the SCHNEIDER EJH's memory link method (extended mode, ASCII code 1:1).	

Formats 14, 15 (GOT-F900 Series microcomputer connection)

This is the same message format as when a microcomputer connection is established with the GOT-F900 Series.

Type	Name	Description	Refer to
Format 14	GOT-F900 Series microcomputer connection (format 1)	Use this format when establishing a 1:1 or m:n connection between the GOT and the host. The end code is CR.	☞ Page 139 Formats 14, 15
Format 15	GOT-F900 Series microcomputer connection (format 2)	Use this format when establishing a 1:1 or m:n connection between the GOT and the host. The end code is ETX or sum check.	

List of commands

The following shows the list of commands available in each data format.

List of commands for formats 1, 2 (GOT-A900 Series microcomputer connection)

Command		Command name	Description	Max. number of points processed
Symbol	ASCII code			
RD	52H 44H	Batch read in word units	Reads bit devices in 16-point units.	99 words (1584 points)
			Reads word devices in 1-point units.	99 points
WD	57H 44H	Batch write in word units	Writes to bit devices in 16-point units.	99 words (1584 points)
			Writes to word devices in 1-point units.	99 points
RR	52H 52H	Random read in word units *1	Reads multiple different bit devices in 16-point units.	256 words (4096 points)
			Reads multiple different word devices in 1-point units.	256 points
RW	52H 57H	Random write in word units *1	Writes to multiple different word devices in 16-point units.	128 words (2048 points)
			Writes to multiple different word devices in 1-point units.	128 points
TR	54H 52H	Read clock data	Reads the clock data of the GOT.	—
TS	54H 53H	Set clock data	Sets the clock data of the GOT.	—

*1 Mixed specification of bit devices and word devices is also possible.

List of commands for formats 3 to 6 (A compatible 1C frame)

Command		Command name	Description	Max. number of points processed
Symbol	ASCII code			
BR JR	42H 52H 4AH 52H	Batch read in bit units	Reads bit devices in 1-point units.	64 points
WR QR	57H 52H 51H 52H	Batch read in word units	Reads bit devices in 16-point units.*2	64 words (1024 points)
			Reads word devices in 1-point units.	64 points
BW JW	42H 57H 4AH 57H	Batch write in bit units	Writes to bit devices in 1-point units.	64 points
WW QW	57H 57H 51H 57H	Batch write in word units	Writes to bit devices in 16-point units.*2	64 words (1024 points)
			Writes to word devices in 1-point units.	64 points
BT JT	42H 54H 4AH 54H	Test in bit units (Random write)	Writes to multiple different bit devices in 1-point units.	64 points
WT QT	57H 54H 51H 54H	Test in word units (Random write)	Writes to multiple different bit devices in 16-point units.*2	64 words (1024 points)
			Writes to multiple different word devices in 1-point units.	64 points
TR*1	54H 52H	Read clock data	Reads the clock data of the GOT.	—
TS*1	54H 53H	Set clock data	Sets the clock data of the GOT.	—

*1 This is a dedicated command of GOT for the microcomputer connection.
*2 Specifies the address of bit devices in 16-point units. (Example: M0, M16, M32, and others)

Command lists for formats 7 to 10 (QnA compatible 3C/4C frame)

Command	Sub-command	Command name	Description	Max. number of points processed
0401	0001	Batch read in bit units	Reads bit devices in 1-point units.	64 points
0401	0000	Batch read in word units	Reads bit devices in 16-point units.*3	64 words (1024 points)
			Reads word devices in 1-point units.	64 points
1401	0001	Batch write in bit units	Writes to bit devices in 1-point units.	64 points
1401	0000	Batch write in word units	Writes to bit devices in 16-point units.*3	64 words (1024 points)
			Writes to word devices in 1-point units.	64 points
0403	0000	Random read in word units *1	Reads multiple different bit devices in 16-point and 32-point units.*3	64 words (1024 points)
			Reads multiple different word devices in 1-point and 2-point units.	64 points
1402	0001	Random write in bit units	Writes to multiple different bit devices in 1-point units.	64 points
1402	0000	Random write in word units *1	Writes to multiple different bit devices in 16-point and 32-point units.*3	64 words (1024 points)
			Writes to multiple different word devices in 1-point and 2-point units.	64 points
0406	0000	Multiple block batch read	Reads multiple blocks. A bit device (16 bits for 1 point) or a word device (1 word for 1 point) is regarded as one block.*3	64 points
1406	0000	Multiple block batch write	Writes multiple blocks. A bit device (16 bits for 1 point) or a word device (1 word for 1 point) is regarded as one block.*3	64 points
1901*2	0000	Read clock data	Reads the clock data of the GOT.	—
0901*2	0000	Set clock data	Sets the clock data of the GOT.	—

*1 Mixed specification of bit devices and word devices is also possible.
*2 This is a dedicated command of GOT for the microcomputer connection.
*3 Specifies the address of bit devices in 16-point units. (Example: M0, M16, M32, and others)

List of commands for formats 11 to 13 (SCHNEIDER EJH's memory link method)

Command		Command name	Description	Max. number of points processed
Symbol	ASCII code			
R	52H	Batch read in word units	Reads bit devices in 16-point units.	256 words (4096 points)
			Reads word devices in 1-point units.	256 points
W	57H	Batch write in word units	Writes to bit devices in 16-point units.	Format 11: 496 words (7936 points) Format 12: 256 words (4096 points) Format 13: 256 words (4096 points)
			Writes to word devices in 1-point units.	Format 11: 496 points Format 12: 256 points Format 13: 256 points
I	49H	Interrupt inquiry	Issues an interrupt inquiry. (format 13 only)	—
N*1	4DH	Read clock data	Reads the clock data of the GOT.	—
M*1	4EH	Set clock data	Sets the clock data of the GOT.	—

*1 This is a dedicated command of GOT for the microcomputer connection.

List of commands for formats 14, 15 (GOT-F900 series microcomputer connection)

Command		Command name	Description	Max. number of points processed
Symbol	ASCII code			
0	30H	Batch read (without the station No.)	Reads bit devices in byte units.	255 bytes (2040 points)
			Reads word devices in byte units.	255 bytes (127 points)
A	41H	Batch read (with the station No.)	Reads bit devices in byte units.	255 bytes (2040 points)
			Reads word devices in byte units.	255 bytes (127 points)
1	31H	Batch write (without the station No.)	Writes to bit devices in byte units.	255 bytes (2040 points)
			Writes to word devices in byte units.	255 bytes (127 points)
B	42H	Batch write (with the station No.)	Writes to bit devices in byte units.	255 bytes (2040 points)
			Writes to word devices in byte units.	255 bytes (127 points)
3	33H	Multi-point write in bit units (without the station No.)	Writes bit patterns (bit ON or OFF, inversion, direct specification) in 1-point units (8 bits for 1 point) to a specified device.	70 bytes (560 points)
D	44H	Multi-point write in bit units (with the station No.)		
4	34H	Fill command (without the station No.)	Writes the same value to a range of specified devices.	—
E	45H	Fill command (with the station No.)		
5	35H	Set clock data (without the station No.)	Sets the clock data of the GOT.	—
F	46H	Set clock data (with the station No.)		
6	36H	Read clock data (without the station No.)	Reads the clock data of the GOT.	—
G	47H	Read clock data (with the station No.)		

Formats 1, 2

The following describes the message formats 1 and 2 (GOT-A900 Series microcomputer connection).

GT 27 GT 25 GT 23 GT 21 GS 25 GS 21

Basic format of data communication

<table>
<tr><th>Item</th><th colspan="2">Message format</th></tr>
<tr><td>Request message
(host → GOT)</td><td colspan="2">
<table>
<tr><td>STX</td><td>Command</td><td>Data</td><td>ETX</td><td>Sum Check</td></tr>
<tr><td>02H</td><td>(H) (L)</td><td></td><td>03H</td><td>(H) (L)</td></tr>
</table>
Sum check is performed in this range.</td></tr>
<tr><td>Response message during normal communication
(GOT → host)</td><td colspan="2">(1) During processing of read commands
<table>
<tr><td>STX</td><td>Data</td><td>ETX</td><td>Sum Check</td></tr>
<tr><td>02H</td><td></td><td>03H</td><td>(H) (L)</td></tr>
</table>
Sum check is performed in this range.
(2) During processing of write commands
<table>
<tr><td>ACK</td></tr>
<tr><td>06H</td></tr>
</table></td></tr>
<tr><td>Response message during faulty communication
(GOT → host)</td><td>(format 1: GOT-A900 Series microcomputer connection (format 1))
<table>
<tr><td>NAK</td></tr>
<tr><td>15H</td></tr>
</table></td><td>(format 2: GOT-A900 Series microcomputer connection (format 2))
<table>
<tr><td>NAK</td><td>Error Code</td></tr>
<tr><td>15H</td><td></td></tr>
</table></td></tr>
<tr><td>During interrupt output *2</td><td>(format 1: GOT-A900 Series microcomputer connection (format 1))
<table>
<tr><td>Output value</td></tr>
<tr><td>1/2/4 bytes*1</td></tr>
</table></td><td>(format 2: GOT-A900 Series microcomputer connection (format 2))
<table>
<tr><td>STX</td><td>Output value</td><td>ETX</td><td>Sum check</td></tr>
<tr><td>02H</td><td>1/2/4 bytes*1</td><td>03H</td><td>(H) (L)</td></tr>
</table>
Sum check is performed in this range.</td></tr>
</table>

*1 Set the number of interrupt data bytes in the communication detail settings in GT Designer3.
For setting the number of interrupt data bytes, refer to the following.
☞ Page 153 Setting communication interface (Controller Setting)

*2 Interrupt output can be executed by writing the data to the interrupt output devices (D13 and D14).
☞ Page 88 D devices

Details of data items in message format

Point

Data code during communication
Communication is performed in ASCII code. (excluding interrupt output)

■Control codes

Symbol	ASCII code	Description
STX	02H	Start of Text (start marker of message frame)
ETX	03H	End of Text (end marker of message frame)
EOT	04H	End of Transmission
ENQ	05H	Enquiry (start of enquiry)
NAK	15H	Negative ACK (error response)
ACK	06H	Acknowledge (write completion response)
LF	0AH	Line Feed
CL	0CH	Clear
CR	0DH	Carriage Return

■Command

Specifies the contents to access from the host to GOT.
The command is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.
For details of the commands that can be used, refer to the following.
☞ Page 103 List of commands

■Address

Specifies the head No. of the device data to be read or written.
The address notated in decimal is converted to a 4-digit ASCII code (Hex) and transmitted from the upper digit.
For details of the device range that can be accessed, refer to the following.
☞ Page 87 Device Data Area

■Number of points

Specifies the device data points to be read or written. (Setting range: 1 to 99)
The address notated in decimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.

■Year, month, day, hour, minute, second and day of the week data

Specifies the year, month, day, hour, minute, second, and the day of the week data to be read or set to the GOT clock data.
The address notated in decimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.
☞ Page 114 Read clock data (TR) command
☞ Page 115 Set clock data (TS) command

■Data

Specifies the data to be read from or written to the specified device data. (word unit)
The address notated in hexadecimal is converted to a 4-digit ASCII code (Hex) and transmitted from the upper digit.

■Error code

This is the response message at faulty communication appended with error contents.
Error code is transmitted in 1 byte.
For details of the error codes generated in format 2 (GOT-A900 Series microcomputer connection (format 2)), refer to the following:
☞ Page 117 Error code list

■Sum check code

The sum check code is obtained by converting the lower 1 byte (8 bits) of the result (sum), after having added the sum check target data as binary data, to 2-digit ASCII code (Hex).

STX	Command		Address				Number of points		ETX	Sum Check	
	R	D	0	1	0	0	0	2		B	C
02H	52H	44H	30H	31H	30H	30H	30H	32H	03H	42H	43H
	(H)	(L)	(H)	—	—	(L)	(H)	(L)		(H)	(L)

Sum check is performed in this range.

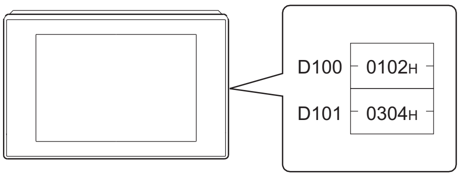
52H + 44H + 30H + 31H + 30H + 30H + 30H + 32H + 03H = 1BCH

Message Formats

■Batch read in word units (RD) command

• When reading a word device

The following shows an example of reading the two points of the virtual devices D100 and D101.
(Assuming D100=0102H, D101=0304H are stored.)



Item: Request message (host → GOT)

Message format:

STX	Command		Address				Number of points		ETX	Sum Check	
	R	D	0	1	0	0	0	2		B	C
02H	52H	44H	30H	31H	30H	30H	30H	32H	03H	42H	43H
	(H)	(L)	(H)	—	—	(L)	(H)	(L)		(H)	(L)

Sum check is performed in this range.

Item: Response message during normal communication (GOT → host)

Message format:

STX	Data 1 (D100)				Data 2 (D101)				ETX	Sum Check	
	0	1	0	2	0	3	0	4		8	D
02H	30H	31H	30H	32H	30H	33H	30H	34H	03H	38H	44H
	(H)	—	—	(L)	(H)	—	—	(L)		(H)	(L)

Sum check is performed in this range.

Item: Response message during faulty communication (GOT → host)

Message format:

(format 1: GOT-A900 Series microcomputer connection (format 1))

NAK
15H

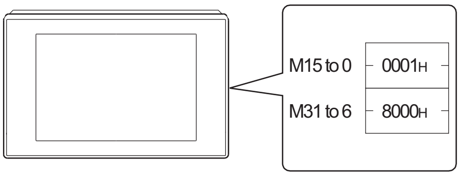
(format 2: GOT-A900 Series microcomputer connection (format 2))

NAK	Error code
15H	06H

The above is a case where the sum check error (06H) has occurred.

- When reading a bit device

The following shows an example of reading the two points of the virtual devices M0 to M31.
(Assuming M0="1" and M31="1" are stored.

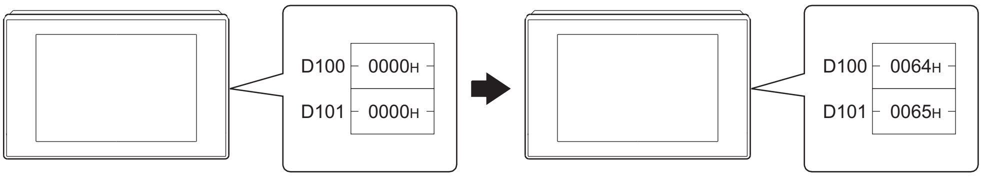


<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Request message
(host → GOT)</td><td>
<table>
<tr><td>STX</td><td colspan="2">Command</td><td colspan="4">Address</td><td colspan="2">Number of points</td><td>ETX</td><td colspan="2">Sum Check</td></tr>
<tr><td></td><td>R</td><td>D</td><td>8</td><td>3</td><td>2</td><td>0</td><td>0</td><td>2</td><td></td><td>C</td><td>8</td></tr>
<tr><td>02H</td><td>52H</td><td>44H</td><td>38H</td><td>33H</td><td>32H</td><td>30H</td><td>30H</td><td>32H</td><td>03H</td><td>43H</td><td>38H</td></tr>
<tr><td></td><td>(H)</td><td>(L)</td><td>(H)</td><td>—</td><td>—</td><td>(L)</td><td>(H)</td><td>(L)</td><td></td><td>(H)</td><td>(L)</td></tr>
</table>
Sum check is performed in this range.</td></tr>
<tr><td>Response message during normal communication
(GOT → host)</td><td>Sum check is performed in this range.
<table>
<tr><td>STX</td><td colspan="4">Data 1 (M15 to 0)</td><td colspan="4">Data 2 (M31 to 16)</td><td>ETX</td><td colspan="2">Sum Check</td></tr>
<tr><td></td><td>0</td><td>0</td><td>0</td><td>1</td><td>8</td><td>0</td><td>0</td><td>0</td><td></td><td>8</td><td>C</td></tr>
<tr><td>02H</td><td>30H</td><td>30H</td><td>30H</td><td>31H</td><td>38H</td><td>30H</td><td>30H</td><td>30H</td><td>03H</td><td>38H</td><td>43H</td></tr>
<tr><td></td><td>(H)</td><td>–</td><td>–</td><td>(L)</td><td>(H)</td><td>–</td><td>–</td><td>(L)</td><td></td><td>(H)</td><td>(L)</td></tr>
</table>
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
M15 M14 M13 M12 M11 M10 M9 M8 M7 M6 M5 M4 M3 M2 M1 M0 M31 M30 M29 M28 M27 M26 M25 M24 M23 M22 M21 M20 M19 M18 M17 M16</td></tr>
<tr><td>Response message during faulty communication
(GOT → host)</td><td>(format 1: GOT-A900 Series microcomputer connection (format 1))
<table>
<tr><td>NAK</td></tr>
<tr><td>15H</td></tr>
</table>
(format 2: GOT-A900 Series microcomputer connection (format 2))
<table>
<tr><td>NAK</td><td>Error code</td></tr>
<tr><td>15H</td><td>06H</td></tr>
</table>
The above is a case where the sum check error (06H) has occurred.</td></tr>
</table>

■Batch write in word units (WD) command

- When writing to a word device

The following shows as example of writing "0064H"and "0065H"to virtual devices D100 and D101.



Before execution / After execution

Item	Message format
Request message (host → GOT)	See request message format below
Response message during normal communication (GOT → host)	See normal response format below
Response message during faulty communication (GOT → host)	See faulty response formats below

Request message (host → GOT)

STX	Command		Address				Number of points		Data 1(D100)				Data 2 (D101)				ETX	Sum Check	
	W	D	0	1	0	0	0	2	0	0	6	4	0	0	6	5		5	6
02H	57H	44H	30H	31H	30H	30H	30H	32H	30H	30H	36H	34H	30H	30H	36H	35H	03H	35H	36H
	(H)	(L)	(H)	—	—	(L)	(H)	(L)	(H)	—	—	(L)	(H)	—	—	(L)		(H)	(L)

Sum check is performed in this range.

Response message during normal communication (GOT → host)

ACK
06H

Response message during faulty communication (GOT → host)

(format 1: GOT-A900 Series microcomputer connection (format 1))

NAK
15H

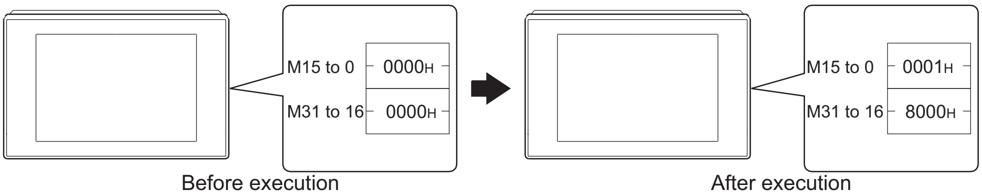
(format 2: GOT-A900 Series microcomputer connection (format 2))

NAK	Error code
15H	06H

The above is a case where the sum check error (06H) has occurred.

- When writing to a bit device

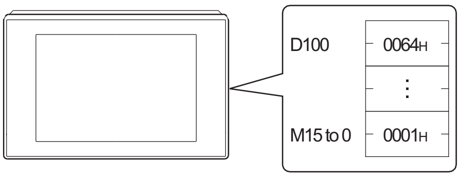
The following shows an example of writing "1"s to virtual devices M0 and M31.



<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Request message
(host → GOT)</td><td>
Sum check is performed in this range.
<table>
<tr><td>STX</td><td colspan="2">Command</td><td colspan="4">Address</td><td colspan="2">Number of points</td><td colspan="4">Data 1 (M15 to 0)</td><td colspan="4">Data 2 (M31 to 16)</td><td>ETX</td><td colspan="2">Sum Check</td></tr>
<tr><td></td><td>W</td><td>D</td><td>8</td><td>3</td><td>2</td><td>0</td><td>0</td><td>2</td><td>0</td><td>0</td><td>0</td><td>1</td><td>8</td><td>0</td><td>0</td><td>0</td><td></td><td>5</td><td>6</td></tr>
<tr><td>02H</td><td>57H</td><td>44H</td><td>38H</td><td>33H</td><td>32H</td><td>30H</td><td>30H</td><td>32H</td><td>30H</td><td>30H</td><td>30H</td><td>31H</td><td>38H</td><td>30H</td><td>30H</td><td>30H</td><td>03H</td><td>35H</td><td>36H</td></tr>
<tr><td></td><td>(H)</td><td>(L)</td><td>(H)</td><td>–</td><td>–</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>–</td><td>–</td><td>(L)</td><td>(H)</td><td>–</td><td>–</td><td>(L)</td><td></td><td>(H)</td><td>(L)</td></tr>
</table>
<table>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>M15</td><td>M14</td><td>M13</td><td>M12</td><td>M11</td><td>M10</td><td>M9</td><td>M8</td><td>M7</td><td>M6</td><td>M5</td><td>M4</td><td>M3</td><td>M2</td><td>M1</td><td>M0</td><td>M31</td><td>M30</td><td>M29</td><td>M28</td><td>M27</td><td>M26</td><td>M25</td><td>M24</td><td>M23</td><td>M22</td><td>M21</td><td>M20</td><td>M19</td><td>M18</td><td>M17</td><td>M16</td></tr>
</table>
</td></tr>
<tr><td>Response message during normal communication
(GOT → host)</td><td>
<table>
<tr><td>ACK</td></tr>
<tr><td>06H</td></tr>
</table>
</td></tr>
<tr><td>Response message during faulty communication
(GOT → host)</td><td>
(format 1: GOT-A900 Series microcomputer connection (format 1))
<table>
<tr><td>NAK</td></tr>
<tr><td>15H</td></tr>
</table>
(format 2: GOT-A900 Series microcomputer connection (format 2))
<table>
<tr><td>NAK</td><td>Error code</td></tr>
<tr><td>15H</td><td>06H</td></tr>
</table>
The above is a case where the sum check error (06H) has occurred.
</td></tr>
</table>

■Random read in word units (RR) command

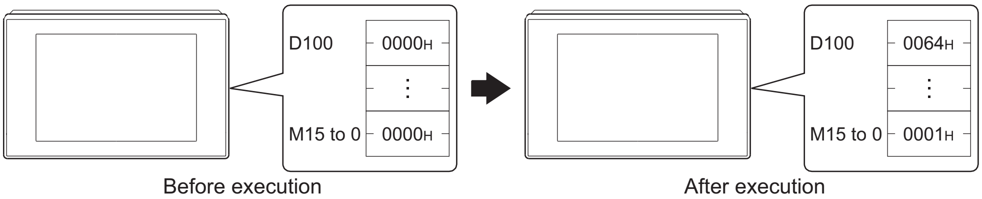
The following shows an example of reading the two points of the virtual devices D100 and M0 to M15.
(Assuming D100=0064H, M0=1are stored.)



<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Request message
(host → GOT)</td><td>
<table>
<tr><td>STX</td><td colspan="2">Command</td><td colspan="4">Address 1</td><td colspan="4">Address 2</td><td>ETX</td><td colspan="2">Sum Check</td></tr>
<tr><td></td><td>R</td><td>R</td><td>0</td><td>1</td><td>0</td><td>0</td><td>8</td><td>3</td><td>2</td><td>0</td><td></td><td>3</td><td>5</td></tr>
<tr><td>02H</td><td>52H</td><td>52H</td><td>30H</td><td>31H</td><td>30H</td><td>30H</td><td>38H</td><td>33H</td><td>32H</td><td>30H</td><td>03H</td><td>33H</td><td>35H</td></tr>
<tr><td></td><td>(H)</td><td>(L)</td><td>(H)</td><td>–</td><td>–</td><td>(L)</td><td>(H)</td><td>–</td><td>–</td><td>(L)</td><td></td><td>(H)</td><td>(L)</td></tr>
</table>
Sum check is performed in this range.
</td></tr>
<tr><td>Response message
during normal
communication
(GOT → host)</td><td>
Sum check is performed in this range.
<table>
<tr><td>STX</td><td colspan="4">Data 1 (D100)</td><td colspan="4">Data 2 (M15 to 0)</td><td>ETX</td><td colspan="2">Sum Check</td></tr>
<tr><td></td><td>0</td><td>0</td><td>6</td><td>4</td><td>0</td><td>0</td><td>0</td><td>1</td><td></td><td>8</td><td>E</td></tr>
<tr><td>02H</td><td>30H</td><td>30H</td><td>36H</td><td>34H</td><td>30H</td><td>30H</td><td>30H</td><td>31H</td><td>03H</td><td>38H</td><td>45H</td></tr>
<tr><td></td><td>(H)</td><td>–</td><td>–</td><td>(L)</td><td>(H)</td><td>–</td><td>–</td><td>(L)</td><td></td><td>(H)</td><td>(L)</td></tr>
</table>
<table>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>M15</td><td>M14</td><td>M13</td><td>M12</td><td>M11</td><td>M10</td><td>M9</td><td>M8</td><td>M7</td><td>M6</td><td>M5</td><td>M4</td><td>M3</td><td>M2</td><td>M1</td><td>M0</td></tr>
</table>
</td></tr>
<tr><td>Response message
during faulty
communication
(GOT → host)</td><td>
(format 1: GOT-A900 Series microcomputer connection (format 1))
<table>
<tr><td>NAK</td></tr>
<tr><td>15H</td></tr>
</table>
(format 2: GOT-A900 Series microcomputer connection (format 2))
<table>
<tr><td>NAK</td><td>Error code</td></tr>
<tr><td>15H</td><td>06H</td></tr>
</table>
The above is a case where the sum check error (06H) has occurred.
</td></tr>
</table>

■Random write in word units (RW) command

The following shows an example of writing "0064H" and "1" to virtual devices D100 and M0, respectively.



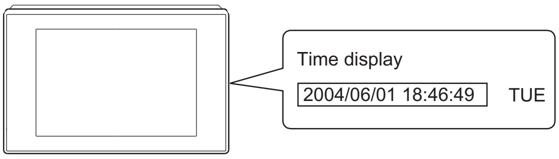
<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Request message
(host → GOT)</td><td>
<table>
<tr><td>STX</td><td colspan="2">Command</td><td rowspan="2">Following*1</td><td>ETX</td><td colspan="2">Sum Check</td></tr>
<tr><td>02H</td><td>R
52H
(H)</td><td>W
57H
(L)</td><td>03H</td><td>C
43H
(H)</td><td>5
35H
(L)</td></tr>
</table>
Sum check is performed in this range.

*1
<table>
<tr><td colspan="4">Address 1</td><td colspan="4">Data 1 (D100)</td><td colspan="4">Address 2</td><td colspan="4">Data 2 (M15 to 0)</td></tr>
<tr><td>0
30H
(H)</td><td>1
31H
–</td><td>0
30H
–</td><td>0
30H
(L)</td><td>0
30H
(H)</td><td>0
30H
–</td><td>6
36H
–</td><td>4
34H
(L)</td><td>8
38H
(H)</td><td>3
33H
–</td><td>2
32H
–</td><td>0
30H
(L)</td><td>0
30H
(H)</td><td>0
30H
–</td><td>0
30H
–</td><td>1
31H
(L)</td></tr>
</table>
<table>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>M15</td><td>M14</td><td>M13</td><td>M12</td><td>M11</td><td>M10</td><td>M9</td><td>M8</td><td>M7</td><td>M6</td><td>M5</td><td>M4</td><td>M3</td><td>M2</td><td>M1</td><td>M0</td></tr>
</table>
</td></tr>
<tr><td>Response message during normal communication
(GOT → host)</td><td>
<table>
<tr><td>ACK</td></tr>
<tr><td>06H</td></tr>
</table>
</td></tr>
<tr><td>Response message during faulty communication
(GOT → host)</td><td>
(format 1: GOT-A900 Series microcomputer connection (format 1))
<table>
<tr><td>NAK</td></tr>
<tr><td>15H</td></tr>
</table>
(format 2: GOT-A900 Series microcomputer connection (format 2))
<table>
<tr><td>NAK</td><td>Error code</td></tr>
<tr><td>15H</td><td>06H</td></tr>
</table>
The above is a case where the sum check error (06H) has occurred.
</td></tr>
</table>

■Read clock data (TR) command

The following shows an example of reading the clock data of GOT.

(Assuming that the clock data of GOT has been set to "2004, June 1, 18:46:49, Tuesday".)

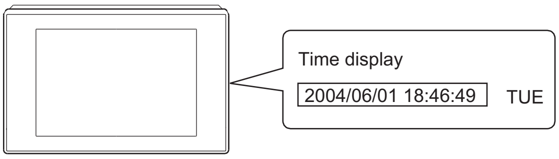


<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Request message
(host → GOT)</td><td>
<table>
<tr><td>STX</td><td colspan="2">Command</td><td>ETX</td><td colspan="2">Sum Check</td></tr>
<tr><td></td><td>T</td><td>R</td><td></td><td>A</td><td>9</td></tr>
<tr><td>02H</td><td>54H</td><td>52H</td><td>03H</td><td>41H</td><td>39H</td></tr>
<tr><td></td><td>(H)</td><td>(L)</td><td></td><td>(H)</td><td>(L)</td></tr>
</table>
Sum check is performed in this range.</td></tr>
<tr><td>Response message during normal communication
(GOT → host)</td><td>
<table>
<tr><td>STX</td><td colspan="2">Year data</td><td colspan="2">Month data</td><td colspan="2">Day data</td><td colspan="2">Hour data</td><td colspan="2">Minute data</td><td colspan="2">Second data</td><td colspan="2">Day-of-week data</td><td>ETX</td><td colspan="2">Sum Check</td></tr>
<tr><td></td><td>0</td><td>4</td><td>0</td><td>6</td><td>0</td><td>1</td><td>1</td><td>8</td><td>4</td><td>6</td><td>4</td><td>9</td><td>0</td><td>2</td><td></td><td>D</td><td>0</td></tr>
<tr><td>02H</td><td>30H</td><td>34H</td><td>30H</td><td>36H</td><td>30H</td><td>31H</td><td>31H</td><td>38H</td><td>34H</td><td>36H</td><td>34H</td><td>39H</td><td>30H</td><td>32H</td><td>03H</td><td>44H</td><td>30H</td></tr>
<tr><td></td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td></td><td>(H)</td><td>(L)</td></tr>
</table>
Sum check is performed in this range.</td></tr>
<tr><td>Response message during faulty communication
(GOT → host)</td><td>(format 1: GOT-A900 Series microcomputer connection (format 1))
<table>
<tr><td>NAK</td></tr>
<tr><td>15H</td></tr>
</table>
(format 2: GOT-A900 Series microcomputer connection (format 2))
<table>
<tr><td>NAK</td><td>Error code</td></tr>
<tr><td>15H</td><td>06H</td></tr>
</table>
The above is a case where the sum check error (06H) has occurred.</td></tr>
</table>

■Set clock data (TS) command

The following shows an example of setting the clock data of GOT.

(Assuming the clock data of GOT is to be set to "2004, June 1, 18:46:49 Tuesday".)



After execution

<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Request message
(host → GOT)</td><td>
<table>
<tr><td>STX</td><td colspan="2">Command</td><td colspan="2">Year data</td><td colspan="2">Month data</td><td colspan="2">Day data</td><td colspan="2">Hour data</td><td colspan="2">Minute data</td><td colspan="2">Second data</td><td colspan="2">Day-of-week data</td><td>ETX</td><td colspan="2">Sum Check</td></tr>
<tr><td></td><td>T</td><td>S</td><td>0</td><td>4</td><td>0</td><td>6</td><td>0</td><td>1</td><td>1</td><td>8</td><td>4</td><td>6</td><td>4</td><td>9</td><td>0</td><td>2</td><td></td><td>7</td><td>7</td></tr>
<tr><td>02H</td><td>54H</td><td>53H</td><td>30H</td><td>34H</td><td>30H</td><td>36H</td><td>30H</td><td>31H</td><td>31H</td><td>38H</td><td>34H</td><td>36H</td><td>34H</td><td>39H</td><td>30H</td><td>32H</td><td>03H</td><td>37H</td><td>37H</td></tr>
<tr><td></td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td></td><td>(H)</td><td>(L)</td></tr>
</table>
Sum check is performed in this range.
</td></tr>
<tr><td>Response message during normal communication
(GOT → host)</td><td>
<table>
<tr><td>ACK</td></tr>
<tr><td>06H</td></tr>
</table>
</td></tr>
<tr><td>Response message during faulty communication
(GOT → host)</td><td>
(format 1: GOT-A900 Series microcomputer connection (format 1))
<table>
<tr><td>NAK</td></tr>
<tr><td>15H</td></tr>
</table>
(format 2: GOT-A900 Series microcomputer connection (format 2))
<table>
<tr><td>NAK</td><td>Error code</td></tr>
<tr><td>15H</td><td>06H</td></tr>
</table>
The above is a case where the sum check error (06H) has occurred.
</td></tr>
</table>

Point

When a wrong day of the week has been set by the clock data setting command

If a wrong day of the week is set by the clock data setting commands, the corrected day of the week will be set.

Example: When June 1, 2004 (Thursday) is set by the clock data setting command (The actual day of week is Tuesday.)

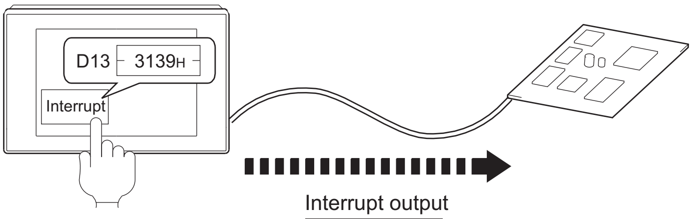
Tuesday (TUE) will be set.

■In the case of interrupt outputs

Write data to the interrupt output devices (D13 and D14) to output the data to the host.

(Assuming that "3139H" is written to D13 and "AA55H" to D14.)

Example) When [Interrupt Data Byte] in the communication detail settings is set to 2 byte as shown in (2) of the table below



Interrupt output

Output value 1	Output value 2
31H	39H

<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Interrupt output
(GOT → host)</td><td>
(1) When [Interrupt Data Byte(Byte)] in the communication detail settings is set to [1]

(format 1: in the case of GOT-A900 Series microcomputer connection (format 1))
<table>
<tr><th>Output value 1</th></tr>
<tr><td>39H</td></tr>
</table>
(format 2: in the case of GOT-A900 Series microcomputer connection (format 2))
<table>
<tr><th>STX</th><th>Output value 1</th><th>ETX</th><th colspan="2">Sum check</th></tr>
<tr><td></td><td></td><td></td><td>3</td><td>C</td></tr>
<tr><td>02H</td><td>39H</td><td>03H</td><td>33H</td><td>43H</td></tr>
<tr><td></td><td></td><td></td><td>(H)</td><td>(L)</td></tr>
</table>
Sum check is performed in this range.

(2) When [Interrupt Data Byte(Byte)] in the communication detail settings is set to [2]

(format 1: in the case of GOT-A900 Series microcomputer connection (format 1))
<table>
<tr><th>Output value 1</th><th>Output value 2</th></tr>
<tr><td>31H</td><td>39H</td></tr>
</table>
(format 2: in the case of GOT-A900 Series microcomputer connection (format 2))
<table>
<tr><th>STX</th><th>Output value 1</th><th>Output value 2</th><th>ETX</th><th colspan="2">Sum check</th></tr>
<tr><td></td><td></td><td></td><td></td><td>6</td><td>D</td></tr>
<tr><td>02H</td><td>31H</td><td>39H</td><td>03H</td><td>36H</td><td>44H</td></tr>
<tr><td></td><td></td><td></td><td></td><td>(H)</td><td>(L)</td></tr>
</table>
Sum check is performed in this range.

(3) When [Interrupt Data Byte(Byte)] in the communication detail settings is set to [4]
• When [32bit Storage] in the communication detail settings is set to [LH Order]

(format 1: in the case of GOT-A900 Series microcomputer connection (format 1))
<table>
<tr><th>Output value1</th><th>Output value2</th><th>Output value3</th><th>Output value4</th></tr>
<tr><td>AAH</td><td>55H</td><td>31H</td><td>39H</td></tr>
</table>
(format 2: in the case of GOT-A900 Series microcomputer connection (format 2))
<table>
<tr><th>STX</th><th>Output value1</th><th>Output value2</th><th>Output value3</th><th>Output value4</th><th>ETX</th><th colspan="2">Sum Check</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>6</td><td>C</td></tr>
<tr><td>02H</td><td>AAH</td><td>55H</td><td>31H</td><td>39H</td><td>03H</td><td>36H</td><td>43H</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>(H)</td><td>(L)</td></tr>
</table>
Sum check is performed in this range.

• When [32bit Storage] in the communication detail settings is set to [HL Order]

(format 1: in the case of GOT-A900 Series microcomputer connection (format 1))
<table>
<tr><th>Output value1</th><th>Output value2</th><th>Output value3</th><th>Output value4</th></tr>
<tr><td>31H</td><td>39H</td><td>AAH</td><td>55H</td></tr>
</table>
(format 2: in the case of GOT-A900 Series microcomputer connection (format 2))
<table>
<tr><th>STX</th><th>Output value1</th><th>Output value2</th><th>Output value3</th><th>Output value4</th><th>ETX</th><th colspan="2">Sum Check</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>6</td><td>C</td></tr>
<tr><td>02H</td><td>31H</td><td>39H</td><td>AAH</td><td>55H</td><td>03H</td><td>36H</td><td>43H</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>(H)</td><td>(L)</td></tr>
</table>
Sum check is performed in this range.
</td></tr>
</table>

Point

Interrupt output

To disable the interrupt output, turn on SM52 (interrupt code output disable flag).

☞ Page 99 SM devices

To execute the interrupt output in format 1, 2, 11, 14, or 15, set the data length to 8 bits in the communication detail settings.

When "7 bits" is set, the MSB (8th bit) is ignored. (Example: FFH → 7FH)

☞ Page 153 Setting communication interface (Controller Setting)

2

Error code list

In the case of format 2 (GOT-A900 series microcomputer connection (format 2)), the error contents (error code) are appended to the response message during faulty communication.

The following shows error code, error contents, cause, and measures.

Error code	Description	Action
06H	Sum check error The sum check code created from received data differs from the sum check code in the receive data.	• Review the contents of the message to transmit.
10H	Command error An unsupported command was used.	• Review the contents of the message to transmit. • Check the commands in the message. ☞ Page 103 List of commands
11H	Message length error The upper limit of the data length that can be received by the GOT has been exceeded.	• Review the contents of the message to transmit. • Check the data length of the message.(data length of the data section, etc.)
12H	Communication message error EXT was not found within the upper limit of the receive buffer.	• Check the communication cable and communication module attachment. • Check the settings in the communication detail settings. • Review the contents of the message to transmit.
15H	Clock data setting error The setting value of the clock data has error.	• Review the contents of the message to transmit. • Check whether the non-existent data is set (e.g. setting "07" at the day of the week) as clock data.
7AH	Address error The start address of the read or write device is out of range.	• Review the contents of the message to transmit. • Check the devices that can be used and the device ranges. ☞ Page 87 Device Data Area
7BH	Exceeded number of points error The read or write range has exceeded the device range.	

Precautions

■Storage order for 32-bit data

To use the program of the GOT-A900 series by setting 32-bit data to the GOT1000 series, set [HL Order] for [32bit Storage] in the communication detail settings.

If [LH Order] is set, higher-order bits and lower-order bits are reversed when 32-bit data is displayed or written to the GOT.

Formats 3 to 6

The following describes the message formats 3 to 6 (A compatible 1C frame).

GT 27 GT 25 GT 23 GS 25

Basic format of data communication

This is the same message format as when communication is performed using the dedicated protocol (A compatible 1C frame) of the A Series computer link module.

For details of the basic format of data communication, refer to the following manual:

MELSEC Communication Protocol Reference Manual

This section describes items whose settings differ from the dedicated protocol of the A Series computer link modules, and the dedicated commands for a GOT microcomputer connection.

Example: Request message for the batch read in word units (QR) command in format 4 (A compatible 1C frame (format 2))

Character A section

ENQ	Block No.		Station No.		PLC No.		Command		Wait	Address							Number of points		Sum Check	
	0	0	0	0	0	0	Q	R	0	D	0	0	0	1	0	0	0	2	B	A
05H	30H	30H	30H	30H	30H	30H	51H	52H	30H	44H	30H	30H	30H	31H	30H	30H	30H	32H	42H	41H
	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)		(H)	–	–	–	–	–	(L)	(H)	(L)	(H)	(L)

Sum check is performed in this range.

Details of data items in message format

Point

Data code during communication

Communication is performed in ASCII code.

■Block No, PLC No.

Ignored in a microcomputer connection of the GOT.

Specify "00".

"00" is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.

■Station No.

Station No. is used to identify the GOT with which the host communicates. (Setting range: 0 to 31)

The address notated in decimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.

The GOT processes only commands whose station No. matches the "Host Address (0 to 31)" set at "Communication Detail Settings". (The message of command whose station No. does not match is ignored.)

For setting method of "Communication Detail Settings", refer to the following.

☞ Page 153 Setting communication interface (Controller Setting)

■Command

Specifies the contents to access from the host to GOT.

The command is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.

For details of the commands that can be used, refer to the following.

☞ Page 103 List of commands

■Message wait

Ignored in a microcomputer connection of the GOT.

Specify "0".

"0" is converted to a 1-digit ASCII code (hexadecimal) and transmitted.

■Address

Specifies the head No. of the device data to be read or written.

The data annotated in decimal is converted to a 5- or 7-digit ASCII code (Hex) and transmitted from the upper digit.

For details of the device range that can be accessed, refer to the following.

☞ Page 87 Device Data Area

■Number of points

Specifies the device data points to be read or written. (Setting range: 1 to 40H)

The address notated in hexadecimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.

■Year, month, day, hour, minute, second and day of the week data

Specifies the year, month, day, hour, minute, second, and day of the week data to be read or set to the GOT clock data.

The address notated in decimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.

☞ Page 120 Read clock data (TR) command

☞ Page 121 Set clock data (TS) command

■Error code

This is the response message at faulty communication appended with error contents.

The address notated in hexadecimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.

For details on error codes generated in formats 3 to 6 (A compatible 1C frame), refer to the following.

☞ Page 122 Error code list

Point

When connecting a microcomputer, etc. that uses the dedicated protocol of the A series computer link module with the GOT

When connecting a microcomputer, etc. that uses the dedicated protocol of the A series computer link module with the GOT, correct the commands to use and the device range according to the specifications of GOT.

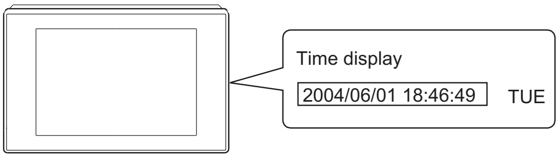
Message format

The following shows the message format of the dedicated commands for a microcomputer connection of GOT.

■Read clock data (TR) command

The following shows an example of reading the clock data of GOT.

(Assuming that the clock data of GOT has been set to "2004, June 1, 18:46:49, Tuesday".)



Item	Message format
Request message (host → GOT)	Example: Format 3 (A compatible 1C frame (format 1))

ENQ	Station No.		PLC No.		Command		Wait	Sum Check	
	0	0	0	0	T	R	0	9	6
05H	30H	30H	30H	30H	54H	52H	30H	39H	36H
	(H)	(L)	(H)	(L)	(H)	(L)		(H)	(L)

Sum check is performed in this range.

Item	Message format
Response message during normal communication (GOT → host)	Example: Format 3 (A compatible 1C frame (format 1))

Character B section

STX	Station No.		PLC No.		Following*1	ETX	Sum Check	
	0	0	0	0			9	0
02H	30H	30H	30H	30H		03H	39H	30H
	(H)	(L)	(H)	(L)			(H)	(L)

Sum check is performed in this range.

*1

Year data		Month data		Day data		Hour data		Minute data		Second data		Day-of-week data	
0	4	0	6	0	1	1	8	4	6	4	9	0	2
30H	34H	30H	36H	30H	31H	31H	38H	34H	36H	34H	39H	30H	32H
(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)

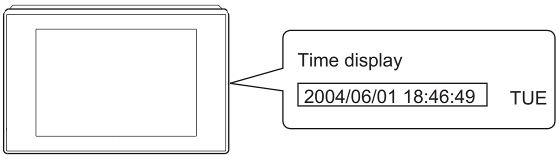
Item	Message format
Response message during faulty communication (GOT → host)	Example: Format 3 (A compatible 1C frame (format 1))

NAK	Station No.		PLC No.		Error code	
	0	0	0	0	0	5
15H	30H	30H	30H	30H	30H	35H
	(H)	(L)	(H)	(L)	(H)	(L)

The above is the case where an overrun error (05H) has occurred.

■Set clock data (TS) command

The following shows an example of setting the clock data of GOT.
(Assuming the clock data of GOT is to be set to "2004, June 1, 18:46:49 Tuesday".)



After execution

Item	Message format
Request message (host → GOT)	Example: Format 3 (A compatible 1C frame (format 1))

Character C section

ENQ	Station No.		PLC No.		Command		Wait	Following*1	Sum Check	
	0	0	0	0	T	S	0		6	4
05H	30H	30H	30H	30H	54H	53H	30H		36H	34H
	(H)	(L)	(H)	(L)	(H)	(L)			(H)	(L)

Sum check is performed in this range.

*1

Year data		Month data		Day data		Hour data		Minute data		Second data		Day-of-week data	
0	4	0	6	0	1	1	8	4	6	4	9	0	2
30H	34H	30H	36H	30H	31H	31H	38H	34H	36H	34H	39H	30H	32H
(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)

Item	Message format
Response message during normal communication (GOT → host)	Example: Format 3 (A compatible 1C frame (format 1))

ACK	Station No.		PLC No.	
	0	0	0	0
06H	30H	30H	30H	30H
	(H)	(L)	(H)	(L)

Item	Message format
Response message during faulty communication (GOT → host)	Example: Format 3 (A compatible 1C frame (format 1))

NAK	Station No.		PLC No.		Error code	
	0	0	0	0	0	5
15H	30H	30H	30H	30H	30H	35H
	(H)	(L)	(H)	(L)	(H)	(L)

The above is the case where an overrun error (05H) has occurred.

Point

When a wrong day of the week has been set by the clock data setting command
If a wrong day of the week is set by the clock data setting commands, the corrected day of the week will be set.
Example: When June 1, 2004 (Thursday) is set by the clock data setting command (The actual day of week is Tuesday.)
Tuesday (TUE) will be set.

Error code list

The following shows error code, error contents, cause, and measures.

Error code	Description	Action
01H	Parity error The parity bit does not match.	• Check the communication cable and communication module attachment. • Check the settings of "Communication Detail Settings". • Match the GOT and host transmission settings.
02H	Sum check error The sum check code created from received data differs from the sum check code in the receive data.	• Review the contents of the message to transmit.
03H	Protocol error Received a message that does not follow the control procedure of the format set at "Communication Detail Settings".	• Check the settings of "Communication Detail Settings". • Review the contents of the message to transmit.
05H	Overrun error The next data was transmitted from the host before GOT completes the processing of the data received.	• Check the settings of "Communication Detail Settings". • Decrease the transmission speed.
06H	Character section error The character section specification error. • The method of specifying the character section is wrong. • The specified command has error. • The number of points of the processing requests exceeds the allowable range. • A non-existent device has been specified. • The setting value of the clock data has error.	• Review the contents of the message to transmit. • Check the commands in the message. ☞ Page 103 List of commands • Check the devices that can be used and the device ranges. ☞ Page 87 Device Data Area • Check whether the non-existent data is set (e.g. setting "07" at the day of the week) as clock data.
07H	Character error A character other than "A to Z", "0 to 9", space, and control codes has been received.	• Review the contents of the message to transmit.

Formats 7 to 10

The following describes the message formats 7 to 10 (QnA compatible 3C/4C frame).

GT 27 GT 25 GT 23 GS 25

Basic format of data communication

This is the same message format as when communication is performed using the MC protocol (QnA compatible 3C/4C frame) of the Q/QnA Series serial communication module.

For details of the basic format of data communication, refer to the following manual:

MELSEC Communication Protocol Reference Manual

This section describes items whose settings differ from the MC protocol of the Q/QnA Series serial communication module, and the dedicated commands for a GOT microcomputer connection.

Example: Request message for the batch read in word units (0401) command in format 8 (QnA compatible 4C frame (format 2))

ENQ	Block No.		Frame ID No.		Station No.		Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		Host Address No.		Following *1	Sum check	
	0	0	F	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0		5	4
05H	30H	30H	46H	38H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H		35H	34H
	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)	(H)	(L)		(H)	(L)

Sum check is performed in this range.

*1

Character A section

Command				Sub-command				Device code		Head Device						Device points			
0	4	0	1	0	0	0	0	D	*	0	0	0	1	0	0	0	0	0	2
30H	34H	30H	31H	30H	30H	30H	30H	44H	2AH	30H	30H	30H	31H	30H	30H	30H	30H	30H	32H
(H)	–	–	(L)	(H)	–	–	(L)	(H)	(L)	(H)	–	–	–	–	(L)	(H)	–	–	(L)

Point

QnA compatible 4C frame (format 5)

GOT cannot use the QnA compatible 4C frame (format 5).

Details of data items in message format

Point

Data code during communication
Communication is performed in ASCII code.

■Block No., network No., PLC No., request destination module I/O No. and station No.

Ignored in a microcomputer connection of the GOT.
Specify "00". (The request destination module I/O No. is "0000".)
"00" is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.
(The request destination module I/O No. is 4-digit.)

■Station No.

Station No. is used to identify the GOT with which the host communicates.(Setting range: 0 to 1FH)
The address notated in hexadecimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.
The GOT processes only commands whose station No. matches the "Host Address (0 to 31)" set at "Communication Detail Settings". (The message of command whose station No. does not match is ignored.)
For setting method of "Communication Detail Settings", refer to the following.
☞ Page 153 Setting communication interface (Controller Setting)

■Command, sub-command

Specifies the contents to access from the host to GOT.
The command is converted to a 4-digit ASCII code (Hex) and transmitted from the upper digit.
For details of the commands that can be used, refer to the following.
☞ Page 103 List of commands

■Device code

Specifies the device data points to be read or written.
The command is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.
For details of the device range that can be accessed, refer to the following.
☞ Page 87 Device Data Area

■Head device

Specifies the head No. of the device data to be read or written.
The address notated in decimal is converted to a 6-digit ASCII code (Hex) and transmitted from the upper digit.
For details of the device range that can be accessed, refer to the following.
☞ Page 87 Device Data Area

■Device points

Specifies the device data points to be read or written. (Setting range: 1 to 40H)
The address notated in hexadecimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.
When specifying multiple devices as follows, limit the total device points to within 64 points.

- When using random read or write command

When setting multiple bit accesses, word accesses or double word accesses, limit the total number of access points to within 64 points

- When using multiple block batch read or write commands

When setting multiple blocks, limit the total number of points of all blocks to within 64 points.

■Year, month, day, hour, minute, second and day of the week data

Specifies the year, month, day, hour, minute, second, and day of the week data to be read or set to the GOT clock data.

The address notated in decimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.

☞ Page 126 Read clock data (1901) command

☞ Page 127 Set clock data (0901) command

■Error code

This is the response message at faulty communication appended with error contents.

The address notated in hexadecimal is converted to a 4-digit ASCII code (Hex) and transmitted from the upper digit.

For details on error codes that are generated in formats 7 to 10 (QnA compatible 3C/4C frame), refer to the following.

☞ Page 128 Error code list

Point

When connecting a microcomputer, etc. that uses the MC protocol of the Q/QnA series serial communication module with the GOT

When connecting a microcomputer, etc. that uses the MC protocol of the Q/QnA series serial communication module with the GOT, correct the commands to be used and the device ranges to match the GOT specifications.

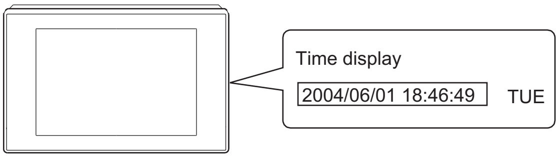
Message format

The following shows the message format of the dedicated commands for a microcomputer connection of GOT.

■Read clock data (1901) command

The following shows an example of reading the clock data of GOT.

(Assuming that the clock data of GOT has been set to "2004, June 1, 18:46:49, Tuesday".)



Item	Message format
Request message (host → GOT)	Example: Format 7 (QnA compatible 4C frame (format 1))

ENQ	Frame ID No.		Station No.		Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		Following *1	Sum check	
	F	8	0	0	0	0	0	0	0	0	0	0	0	0		A	9
05H	46H	38H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H		41H	39H
	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)		(H)	(L)

Sum check is performed in this range.

*1

Host Address No.		Command				Sub-command			
0	0	1	9	0	1	0	0	0	0
30H	30H	31H	39H	30H	31H	30H	30H	30H	30H
(H)	(L)	(H)	–	–	(L)	(H)	–	–	(L)

Character A section: Sub-command

Item	Message format
Response message during normal communication (GOT → host)	Example: Format 7 (QnA compatible 4C frame (format 1))

STX	Frame ID No.		Station No.		Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		Following *1	ETX	Sum check	
	F	8	0	0	0	0	0	0	0	0	0	0	0	0			E	E
02H	46H	38H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H		03H	43H	43H
	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)			(H)	(L)

Sum check is performed in this range.

Character B section

*1

Host Address No.		Year data		Month data		Day data		Hour data		Minute data		Second data		Day-of-week data	
0	0	0	4	0	6	0	1	1	8	4	6	4	9	0	2
30H	30H	30H	34H	30H	36H	30H	31H	31H	38H	34H	36H	34H	39H	30H	32H
(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)

Item	Message format
Response message during faulty communication (GOT → host)	Example: Format 7 (QnA compatible 4C frame (format 1))

NAK	Frame ID No.		Station No.		Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		Host Address No.		Following *1
	F	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15H	46H	38H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	
	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)	(H)	(L)	

*1

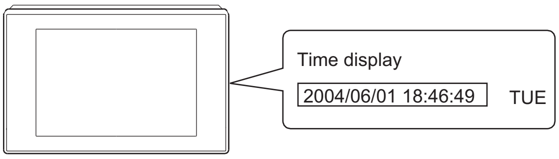
Error code			
7	F	6	9
37H	46H	36H	39H
(H)	–	–	(L)

The above is the case where a parity error (7F69H) has occurred.

■Set clock data (0901) command

The following shows an example of setting the clock data of GOT.

(Assuming the clock data of GOT is to be set to "2004, June 1, 18:46:49 Tuesday".)



After execution

Item	Message format

Request message (host → GOT)

Example: Format 7 (QnA compatible 4C frame (format 1))

ENQ	Frame ID No.		Station No.		Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		Host Address No.		Following *1	Sum check	
	F	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0		7	5
05H	46H	38H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H		37H	35H
	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)	(H)	(L)		(H)	(L)

Sum check is performed in this range.

*1

Character C section

Command				Sub-command			
0	9	0	1	0	0	0	0
30H	39H	30H	31H	30H	30H	30H	30H
(H)	–	–	(L)	(H)	–	–	(L)

→ 1)

Character C section

1) →

Year data		Month data		Day data		Hour data		Minute data		Second data		Day-of-week data	
0	4	0	6	0	1	1	8	4	6	4	9	0	2
30H	34H	30H	36H	30H	31H	31H	38H	34H	36H	34H	39H	30H	32H
(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)

Response message during normal communication (GOT → host)

Example: Format 7 (QnA compatible 4C frame (format 1))

ACK	Frame ID No.		Station No.		Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		Host Address No.	
	F	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06H	46H	38H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H
	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)	(H)	(L)

Response message during faulty communication (GOT → host)

Example: Format 7 (QnA compatible 4C frame (format 1))

NAK	Frame ID No.		Station No.		Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		Host Address No.		Following*1
	F	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15H	46H	38H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	
	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)	(H)	(L)	

*1

Error code			
7	F	6	9
37H	46H	36H	39H
(H)	–	–	(L)

The above is the case where a parity error (7F69H) has occurred.

Point

When a wrong day of the week has been set by the clock data setting command

If a wrong day of the week is set by the clock data setting commands, the corrected day of the week will be set.

Example: When June 1, 2004 (Thursday) is set by the clock data setting command (The actual day of week is Tuesday.)

Tuesday (TUE) will be set.

Error code list

The following shows error code, error contents, cause, and measures.

Error code	Description	Action
7E40H	Command error An unsupported command or sub-command was used.	• Review the contents of the message to transmit. • Check the commands in the message. ☞ Page 103 List of commands
7E41H	Data length error Specified the data points exceeding those that can be communicated during random read or write.	• Review the contents of the message to transmit. • Check the devices that can be used and the device ranges. ☞ Page 87 Device Data Area
7E42H	Number of data error The number of requests exceeds the command range.	
7E43H	Device error A non-existent device has been specified.	• Review the contents of the message to transmit. • Check the devices that can be used and the device ranges. ☞ Page 87 Device Data Area
7E46H	Clock data setting error The setting value of the clock data has error.	• Review the contents of the message to transmit. • Check whether the non-existent data is set (e.g. setting "07" at the day of the week) as clock data.
7E4FH	Exceeded number of points error The read or write range has exceeded the device range.	• Review the contents of the message to transmit. • Check the devices that can be used and the device ranges. ☞ Page 87 Device Data Area
7F20H	Character error A character other than "A to Z", "0 to 9", space, and control codes has been received.	• Review the contents of the message to transmit.
7F23H	Communication message error EXT or CR+LF was not found within the upper limit of the receive buffer.	• Check the communication cable and communication module attachment. • Check the settings in the communication detail settings. • Review the contents of the message to transmit.
7F24H	Sum check error The sum check code created from received data differs from the sum check code in the receive data.	• Review the contents of the message to transmit.
7F67H	Overrun error The next data was transmitted from the host before GOT completes the processing of the data received.	• Check the settings in the communication detail settings. • Decrease the transmission speed.
7F68H	Framing error The data bit and/or stop bit are not correct.	• Check the communication cable and communication module attachment. • Check the settings in the communication detail settings. • Match the GOT and host transmission settings.
7F69H	Parity error The parity bit does not match.	
7F6AH	Buffer full error The receive buffer overflowed.	• Check the communication cable and communication module attachment. • Check the settings in the communication detail settings. • Review the contents of the message to transmit.

Formats 11 to 13

The following describes the message formats 11 to 13 (SCHNEIDER EJH's (former Digital Electronics Corporation) memory link method).

GT27 GT25 GT23 GT21 GS25 GS21

Basic format of data communication

This is the same format as the protocol of the SCHNEIDER EJH's memory link method.
For details of the basic format of data communication, refer to the following manual:
☞ The connection manual of the device manufactured by SCHNEIDER EJH
This section describes items whose settings differ from the protocols of the SCHNEIDER EJH's memory link method and dedicated commands for a microcomputer connection of the GOT.
Example: Request message for the batch read in word units (R) command in format 13 (SCHNEIDER EJH's memory link method (extended mode, ASCII code 1:n))

ENQ	Station No.		ESC	Com-mand	Address				Number of points				Sum Check		CR	LF
	0	0		R	0	0	6	4	0	0	0	2	5	E		
05H	30H	30H	1BH	52H	30H	30H	36H	34H	30H	30H	30H	32H	35H	45H	0DH	0AH
	(H)	(L)			(H)	–	–	(L)	(H)	–	–	(L)	(H)	(L)		

Sum check is performed in this range.

Point

Compatibility with the SCHNEIDER EJH's memory link method
In the case of formats 12 and 13 (SCHNEIDER EJH's memory link method (extended mode)), a communication error may occur since some communication packets are not compatible with the SCHNEIDER EJH's memory link method in the communication.
To give the compatibility, turn on the digital compatible signals (GS580 to GS583) of the GOT internal device and communicate in the fully compatible message format.

Device	Function	Bit	Bit position	Settings
GS580	Microcomputer connection extended setting (CH1)	Digital compatible signal	b0	0: Partly compatible (Default) 1: Fully compatible
GS581	Microcomputer connection extended setting (CH2)	Digital compatible signal	b0	0: Partly compatible (Default) 1: Fully compatible
GS582	Microcomputer connection extended setting (CH3)	Digital compatible signal	b0	0: Partly compatible (Default) 1: Fully compatible
GS583	Microcomputer connection extended setting (CH4)	Digital compatible signal	b0	0: Partly compatible (Default) 1: Fully compatible

When the digital compatible signal turns on, interrupt outputs (D13 to D14, SM0 to SM49) are invalid.
To use interrupt outputs, turn off the digital compatible signal.
For the GOT internal device, refer to the following manual.
☞ GT Designer3 (GOT2000) Screen Design Manual

Details of data items in message format

Point

Data code during communication
Communication is performed in ASCII code.

■Command

Specifies the contents to access from the host to GOT.
The command is converted to a 1-digit ASCII code (Hex) and transmitted.
For details of the commands that can be used, refer to the following.
☞ Page 103 List of commands

■Station No.

Station No. is used to identify the GOT with which the host communicates. (Setting range: 0 to 1FH)
The address notated in hexadecimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.
The GOT processes only commands whose station No. matches the "Host Address (0 to 31)" set at "Communication Detail Settings". (The message of command whose station No. does not match is ignored.)
For setting method of "Communication Detail Settings", refer to the following.
☞ Page 155 Communication detail settings

■Address

Specifies the head No. of the device data to be read or written.
The address notated in hexadecimal is converted to a 4-digit ASCII code (Hex) and transmitted from the upper digit.
For details of the device range that can be accessed, refer to the following.
☞ Page 87 Device Data Area

■Number of points

Specifies the device data points to be read or written.
The address notated in hexadecimal is converted to a 4-digit ASCII code (Hex) and transmitted from the upper digit.
The setting range depends on the format and command.

Format	Command	Command name	Setting range
11	R	Batch read in word units	1 to 100H
	W	Batch write in word units	1 to 1F0H
12	R	Batch read in word units	1 to 100H
	W	Batch write in word units	
13	R	Batch read in word units	1 to 100H
	W	Batch write in word units	

■Year, month, day, hour, minute, second and day of the week data

Specifies the year, month, day, hour, minute, second, and day of the week data to be read or set to the GOT clock data.
The address notated in decimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.
☞ Page 132 Read clock data (N) command
☞ Page 134 Set clock data (M) command

■Error code

This is the response message at faulty communication appended with error contents.
The address notated in hexadecimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.
For details on the error codes generated in formats 12 and 13 (SCHNEIDER EJH's memory link method (extended mode)), refer to the following.
☞ Page 138 Error code list

Point

When connecting a microcomputer or others that uses the protocol of the SCHNEIDER EJH's memory link method with the GOT
To do so, correct the commands to be used and the device ranges to match the specifications of the GOT.

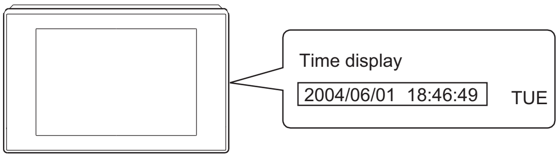
Message format

The following shows the message format of the dedicated commands for a microcomputer connection of GOT.

■Read clock data (N) command

The following shows an example of reading the clock data of GOT.

(Assuming that the clock data of GOT has been set to "2004, June 1, 18:46:49, Tuesday".)



Item	Message format

Request message (host → GOT)

Example: Format 13 (SCHNEIDER EJH's memory link method (extended mode, ASCII code 1:n))

• Digital compatible signal (GS580 to GS583): OFF (Partly compatible)

ENQ	Station No.		ESC	Com-mand	Sum Check		CR	LF
	0	0		N	C	E		
05H	30H	30H	1BH	4EH	43H	45H	0DH	0AH
	(H)	(L)			(H)	(L)		

This range Sum check

• Digital compatible signal (GS580 to GS583): ON (Fully compatible)

ENQ	Station No.		ESC	Com-mand	Sum Check		CR	LF
	0	0		N	C	9		
05H	30H	30H	1BH	4EH	43H	39H	0DH	0AH
	(H)	(L)			(H)	(L)		

This range Sum check

Response message during normal communication (GOT → host)

Example: Format 13 (SCHNEIDER EJH's memory link method (extended mode, ASCII code 1:n))

• Digital compatible signal (GS580 to GS583): OFF (Partly compatible)

STX	Station No.		ESC	Com-mand	Following*1	ETX	Sum Check		CR	LF
	0	0		A			8	E		
02H	30H	30H	1BH	41H		03H	38H	45H	0DH	0AH
	(H)	(L)					(H)	(L)		

This range Sum check

*1

Year data		Month data		Day data		Hour data		Minute data		Second data		Day-of-week data	
0	4	0	6	0	1	1	8	4	6	4	9	0	2
30H	34H	30H	36H	30H	31H	31H	38H	34H	36H	34H	39H	30H	32H
(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)

• Digital compatible signal (GS580 to GS583): ON (Fully compatible)

STX	Station No.		ESC	Com-mand	Following*1	ETX	Sum Check		CR	LF
	0	0		A			8	C		
02H	30H	30H	1BH	41H		03H	38H	43H	0DH	0AH
	(H)	(L)					(H)	(L)		

This range Sum check

*1

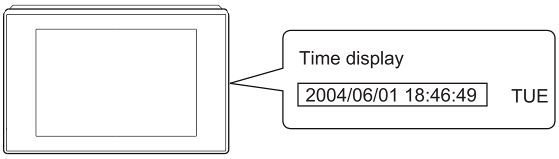
Year data		Month data		Day data		Hour data		Minute data		Second data		Day-of-week data	
0	4	0	6	0	1	1	8	4	6	4	9	0	2
30H	34H	30H	36H	30H	31H	31H	38H	34H	36H	34H	39H	30H	32H
(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)

<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Response message during faulty communication (GOT → host)</td><td>Example: Format 13 (SCHNEIDER EJH's memory link method (extended mode, ASCII code 1:n))
<table>
<tr><td>NAK</td><td colspan="2">Station No.</td><td colspan="2">Error code</td><td>CR</td><td>LF</td></tr>
<tr><td></td><td>0</td><td>0</td><td>0</td><td>6</td><td></td><td></td></tr>
<tr><td>15H</td><td>30H</td><td>30H</td><td>30H</td><td>36H</td><td>0DH</td><td>0AH</td></tr>
<tr><td></td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td></td><td></td></tr>
</table>
The above is a case where the sum check error (06H) has occurred.</td></tr>
</table>

■Set clock data (M) command

The following shows an example of setting the clock data of GOT.

(Assuming the clock data of GOT is to be set to "2004, June 1, 18:46:49 Tuesday".)



After execution

<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Request message
(host → GOT)</td><td>
Example: Format 13 (SCHNEIDER EJH's memory link method (extended mode, ASCII code 1:n))
• Digital compatible signal (GS580 to GS583): OFF (Partly compatible)
<table>
<tr><td>ENQ</td><td colspan="2">Station No.</td><td>ESC</td><td>Com-
mand</td><td rowspan="4">Following*1</td><td colspan="2">Sum Check</td><td>CR</td><td>LF</td></tr>
<tr><td></td><td>0</td><td>0</td><td></td><td>M</td><td>9</td><td>A</td><td></td><td></td></tr>
<tr><td>05H</td><td>30H</td><td>30H</td><td>1BH</td><td>4DH</td><td>39H</td><td>41H</td><td>0DH</td><td>0AH</td></tr>
<tr><td></td><td>(H)</td><td>(L)</td><td></td><td></td><td>(H)</td><td>(L)</td><td></td><td></td></tr>
</table>
Sum check is performed in this range.
*1
<table>
<tr><td colspan="2">Year data</td><td colspan="2">Month data</td><td colspan="2">Day data</td><td colspan="2">Hour data</td><td colspan="2">Minute data</td><td colspan="2">Second data</td><td colspan="2">Day-of-week data</td></tr>
<tr><td>0</td><td>4</td><td>0</td><td>6</td><td>0</td><td>1</td><td>1</td><td>8</td><td>4</td><td>6</td><td>4</td><td>9</td><td>0</td><td>2</td></tr>
<tr><td>30H</td><td>34H</td><td>30H</td><td>36H</td><td>30H</td><td>31H</td><td>31H</td><td>38H</td><td>34H</td><td>36H</td><td>34H</td><td>39H</td><td>30H</td><td>32H</td></tr>
<tr><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td></tr>
</table>
• Digital compatible signal (GS580 to GS583): ON (Fully compatible)
<table>
<tr><td>ENQ</td><td colspan="2">Station No.</td><td>ESC</td><td>Com-
mand</td><td rowspan="4">Following*1</td><td colspan="2">Sum Check</td><td>CR</td><td>LF</td></tr>
<tr><td></td><td>0</td><td>0</td><td></td><td>M</td><td>9</td><td>5</td><td></td><td></td></tr>
<tr><td>05H</td><td>30H</td><td>30H</td><td>1BH</td><td>4DH</td><td>39H</td><td>35H</td><td>0DH</td><td>0AH</td></tr>
<tr><td></td><td>(H)</td><td>(L)</td><td></td><td></td><td>(H)</td><td>(L)</td><td></td><td></td></tr>
</table>
Sum check is performed in this range.
*1
<table>
<tr><td colspan="2">Year data</td><td colspan="2">Month data</td><td colspan="2">Day data</td><td colspan="2">Hour data</td><td colspan="2">Minute data</td><td colspan="2">Second data</td><td colspan="2">Day-of-week data</td></tr>
<tr><td>0</td><td>4</td><td>0</td><td>6</td><td>0</td><td>1</td><td>1</td><td>8</td><td>4</td><td>6</td><td>4</td><td>9</td><td>0</td><td>2</td></tr>
<tr><td>30H</td><td>34H</td><td>30H</td><td>36H</td><td>30H</td><td>31H</td><td>31H</td><td>38H</td><td>34H</td><td>36H</td><td>34H</td><td>39H</td><td>30H</td><td>32H</td></tr>
<tr><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td></tr>
</table>
</td></tr>
<tr><td>Response message during normal communication
(GOT → host)</td><td>
Example: Format 13 (SCHNEIDER EJH's memory link method (extended mode, ASCII code 1:n))
<table>
<tr><td>ACK</td><td colspan="2">Station No.</td><td>CR</td><td>LF</td></tr>
<tr><td></td><td>0</td><td>0</td><td></td><td></td></tr>
<tr><td>06H</td><td>30H</td><td>30H</td><td>0DH</td><td>0AH</td></tr>
<tr><td></td><td>(H)</td><td>(L)</td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Response message during faulty communication
(GOT → host)</td><td>
Example: Format 13 (SCHNEIDER EJH's memory link method (extended mode, ASCII code 1:n))
<table>
<tr><td>NAK</td><td colspan="2">Station No.</td><td colspan="2">Error code</td><td>CR</td><td>LF</td></tr>
<tr><td></td><td>0</td><td>0</td><td>0</td><td>6</td><td></td><td></td></tr>
<tr><td>15H</td><td>30H</td><td>30H</td><td>30H</td><td>36H</td><td>0DH</td><td>0AH</td></tr>
<tr><td></td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td></td><td></td></tr>
</table>
The above is a case where the sum check error (06H) has occurred.
</td></tr>
</table>

Point

When a wrong day of the week has been set by the clock data setting command

If a wrong day of the week is set by the clock data setting commands, the corrected day of the week will be set.

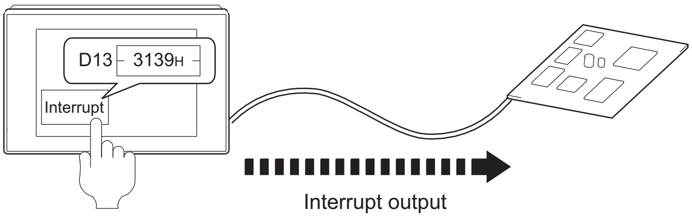
Example: When June 1, 2004 (Thursday) is set by the clock data setting command (The actual day of week is Tuesday.)

Tuesday (TUE) will be set.

■In the case of interrupt inquiry

The following shows the example of an interrupt inquiry when data are written to the interrupt output devices (D13 and D14). (Assuming that "3139H" is written to D13 and "AA55H" to D14.)

Example: When [Interrupt Data Byte(Byte)] is set to [2] in format 11



Interrupt output

Output value 1	Output value 2
31H	39H

Item	Message format
Request message (host → GOT)	Example: Format 13 (SCHNEIDER EJH's memory link method (extended mode, ASCII code 1:n))

• Digital compatible signal (GS580 to GS583): OFF (Partly compatible)

ENQ	Station No.		ESC	Command	Sum Check		CR	LF
	0	0		I	C	9		
05H	30H	30H	1BH	49H	43H	39H	0DH	0AH
	(H)	(L)			(H)	(L)		

This range Sum check

• Digital compatible signal (GS580 to GS583): ON (Fully compatible)

ENQ	Station No.		ESC	Command	Sum Check		CR	LF
	0	0		I	C	4		
05H	30H	30H	1BH	49H	43H	34H	0DH	0AH
	(H)	(L)			(H)	(L)		

This range Sum check

Item	Message format
Interrupt inquiry (GOT → host)	Example: Format 13 (SCHNEIDER EJH's memory link method (extended mode, ASCII code 1:n))

(1) When [Interrupt Data Byte(Byte)] in the communication detail settings is set to [1]

STX	Station No.		ESC	Command	Data quantity		Output value 1		ETX	Sum Check		CR	LF
	0	0		I	0	1	3	9		9	4		
02H	30H	30H	1BH	49H	30H	31H	33H	39H	03H	39H	44H	0DH	0AH
	(H)	(L)			(H)	(L)	(H)	(L)		(H)	(L)		

This range Sum check is performed.

(2) When [Interrupt Data Byte(Byte)] in the communication detail settings is set to [2]

STX	Station No.		ESC	Command	Data quantity		Output value 1		Output value 2		ETX	Sum Check		CR	LF
	0	0		I	0	1	3	1	3	9		F	9		
02H	30H	30H	1BH	49H	30H	31H	33H	31H	33H	39H	03H	46H	39H	0DH	0AH
	(H)	(L)			(H)	(L)	(H)	(L)	(H)	(L)		(H)	(L)		

Sum check is performed in this range.

(3) When [Interrupt Data Byte(Byte)] in the communication detail settings is set to [4]

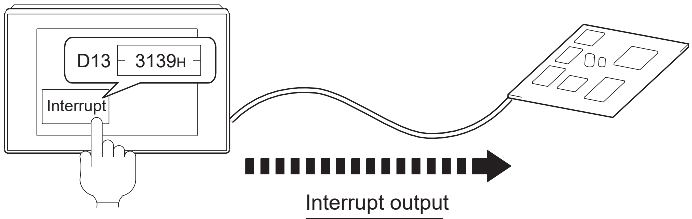
STX	Station No.		ESC	Command	Data quantity		Output value 1		Output value 2		Output value 3		Output value 4		ETX	Sum Check		CR	LF
	0	0		I	0	1	A	A	5	5	3	1	3	9		E	7		
02H	30H	30H	1BH	49H	30H	31H	41H	41H	35H	35H	33H	31H	33H	39H	03H	45H	37H	0DH	0AH
	(H)	(L)			(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)		(H)	(L)		

Sum check is performed in this range.

■In the case of interrupt outputs

Write data to the interrupt output devices (D13 and D14) to output the data to the host.
(Assuming that "3139H" is written to D13 and "AA55H" to D14.)

Example) When [Interrupt Data Byte] in the communication detail settings is set to 2 byte as shown in (2) of the table below



Interrupt output

Output value 1	Output value 2
31H	39H

Item	Message format
Interrupt output (GOT → host)	Example: Format 13 (SCHNEIDER EJH's memory link method (extended mode, ASCII code 1:n))

(1) When [Interrupt Data Byte(Byte)] in the communication detail settings is set to [1]

STX	Station No.		ESC	Com-mand	Data quantity		Output value 1		ETX	Sum Check		CR	LF
	0	0		I	0	1	3	9		9	4		
02H	30H	30H	1BH	49H	30H	31H	33H	39H	03H	39H	44H	0DH	0AH
	(H)	(L)			(H)	(L)	(H)	(L)		(H)	(L)		

This range Sum check is performed.

(2) When [Interrupt Data Byte(Byte)] in the communication detail settings is set to [2]

STX	Station No.		ESC	Com-mand	Data quantity		Output value 1		Output value 2		ETX	Sum Check		CR	LF
	0	0		I	0	2	3	1	3	9		F	9		
02H	30H	30H	1BH	49H	30H	32H	33H	31H	33H	39H	03H	46H	39H	0DH	0AH
	(H)	(L)			(H)	(L)	(H)	(L)	(H)	(L)		(H)	(L)		

Sum check is performed in this range.

(3) When [Interrupt Data Byte(Byte)] in the communication detail settings is set to [4]

- When [32bit Storage] in the communication detail settings is set to [LH Order]

STX	Station No.		ESC	Com-mand	Data quantity		Output value 1		Output value 2		Output value 3		Output value 4		ETX	Sum Check		CR	LF
	0	0		I	0	4	A	A	5	5	3	1	3	9		E	7		
02H	30H	30H	1BH	49H	30H	34H	41H	41H	35H	35H	33H	31H	33H	39H	03H	45H	37H	0DH	0AH
	(H)	(L)			(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)		(H)	(L)		

Sum check is performed in this range.

- When [32bit Storage] in the communication detail settings is set to [HL Order]

STX	Station No.		ESC	Com-mand	Data quantity		Output value 1		Output value 2		Output value 3		Output value 4		ETX	Sum Check		CR	LF
	0	0		I	0	4	3	1	3	9	A	A	5	5		E	7		
02H	30H	30H	1BH	49H	30H	34H	33H	31H	33H	39H	41H	41H	35H	35H	03H	45H	37H	0DH	0AH
	(H)	(L)			(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)		(H)	(L)		

Sum check is performed in this range.

Point

Interrupt output
To disable the interrupt output, turn on SM52 (interrupt code output disable flag).
☞ Page 99 SM devices
To execute the interrupt output in format 1, 2, 11, 14, or 15, set the data length to 8 bits in the communication detail settings.
When "7 bits" is set, the MSB (8th bit) is ignored. (Example: FFH → 7FH)
☞ Page 153 Setting communication interface (Controller Setting)

Error code list

In the case of formats 12 and 13 (SCHNEIDER EJH's memory link method (extended mode)), the details (error code) of the error are appended to the response message during faulty communication.
The following shows error code, error contents, cause, and measures.

Error code	Description	Action
06H	Sum check error The sum check code created from received data differs from the sum check code in the receive data.	• Review the contents of the message to transmit.
10H	Command error An unsupported command was used.	• Review the contents of the message to transmit. • Check the commands in the message. ☞ Page 103 List of commands
12H	Message length error The upper limit of the data length that can be received by the GOT has been exceeded.	
16H	Clock data setting error The setting value of the clock data has error.	• Review the contents of the message to transmit. • Check whether the non-existent data is set (e.g. setting "07" at the day of the week) as clock data.
FAH	Address error The start address of the read or write device is out of range.	• Review the contents of the message to transmit. • Check the data length of the message.(data length of the data section, etc.)
FBH	Exceeded number of points error The read or write range has exceeded the device range.	• Review the contents of the message to transmit. • Check the devices that can be used and the device ranges. ☞ Page 87 Device Data Area
FCH	Message format error The format of the received message has error.	• Check the settings in the communication detail settings. • Review the contents of the message to transmit.
FFH	Timeout error There is no response from the GOT, or the station of the specified address does not exist.	• Check the communication cable and communication module attachment. • Check the settings in the communication detail settings. • Review the contents of the message to transmit.

Precautions

■Storage order for 32-bit data

To use the program of the SCHNEIDER EJH's memory link method by setting 32-bit data to the GOT1000 series, set [HL Order] for [32bit Storage] in the communication detail settings.
If [LH Order] is set, higher-order bits and lower-order bits are reversed when 32-bit data is displayed on or written to the GOT.

Formats 14, 15

The following describes the message formats 14 and 15 (GOT-F900 Series microcomputer connection).

GT 27 GT 25 GT 23 GT 21 GS 25 GS 21

Basic format of data communication

Item	Message format
Request message (host → GOT)	See below
Response message during normal communication (GOT → host)	See below
Response message during faulty communication (GOT → host)	See below
During interrupt output *2	See below

Request message (host → GOT)

(format 14: GOT-F900 Series microcomputer connection (format 1))

(1) w/out station No.

STX	Com-mand	Data	CR
02H			0DH

(2) w/station No.

STX	Com-mand	Station No.	Data	CR
02H		(H) (L)		0DH

(format 15: GOT-F900 Series microcomputer connection (format 2))

(1) w/out station No.

STX	Com-mand	Data	ETX	Sum Check
02H			03H	(H) (L)

Sum check is performed in this range.

(2) w/station No.

STX	Com-mand	Station No.	Data	ETX	Sum Check
02H		(H) (L)		03H	(H) (L)

Sum check is performed in this range.

Response message during normal communication (GOT → host)

(1) During processing of read commands

(format 14: GOT-F900 Series microcomputer connection (format 1))

STX	Data	CR
02H		0DH

(format 15: GOT-F900 Series microcomputer connection (format 2))

STX	Data	ETX	Sum Check
02H		03H	(H) (L)

Sum check is performed in this range.

(2) During processing of write commands

ACK
06H

Response message during faulty communication (GOT → host)

NAK
15H

During interrupt output *2

Output value
1/2/4 bytes*1

*1 Set the number of interrupt data bytes in the communication detail settings in GT Designer3.
For setting the number of interrupt data bytes, refer to the following.
☞ Page 153 Setting communication interface (Controller Setting)

*2 Write data to the interrupt devices (D13 and D14) to enable an interrupt output.
☞ Page 88 D devices

Details of data items in message format

Point

Data code during communication

Communication is performed in ASCII code. (excluding interrupt output)

■Control codes

Symbol	ASCII code	Description
STX	02H	Start of Text (start marker of message frame)
ETX	03H	End of Text (end marker of message frame)
EOT	04H	End of Transmission
ENQ	05H	Enquiry (start of enquiry)
NAK	15H	Negative ACK (error response)
ACK	06H	Acknowledge (write completion response)
LF	0AH	Line Feed
CL	0CH	Clear
CR	0DH	Carriage Return

■Command

Specifies the contents to access from the host to GOT.
The command is converted to a 1-digit ASCII code (Hex) and transmitted.
For details of the commands that can be used, refer to the following.
☞ Page 103 List of commands

■Station No.

Station No. is used to identify the GOT with which the host communicates. (Setting range: 0 to 31)
The address notated in decimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.
The GOT processes only commands whose station No. matches the "Host Address (0 to 31)" set at "Communication Detail Settings". (The message of command whose station No. does not match is ignored.)
For setting method of "Communication Detail Settings", refer to the following.
☞ Page 153 Setting communication interface (Controller Setting)

■Address

Specifies the head No. of the device data to be read or written.
The address notated in hexadecimal is converted to a 4-digit ASCII code (Hex) and transmitted from the upper digit.
For details of the device range that can be accessed, refer to the following.
☞ Page 87 Device Data Area

■Bit pattern

Specifies the pattern of the bits to change.
The address notated in hexadecimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.
☞ Page 146 Multi-point write in bit units (3) command (without station No.), multi-point write in bit units (D) command (with station No.)

■Write specification

Specifies how to change the data of the specified address by bit pattern.
(Setting range: 0 to 3)
Data notated in decimal is converted to a 1-digit ASCII code (Hex) and transmitted.
☞ Page 146 Multi-point write in bit units (3) command (without station No.), multi-point write in bit units (D) command (with station No.)

■Number of bytes

Specifies the number of bytes of the device data to be batch read or written. (Setting range: 0 to FFH)

The address notated in hexadecimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.

■Number of points

Specifies the number of device data to be written to multiple points in bit units. (Setting range: 0 to 70)

The address notated in decimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.

■Year, month, day, hour, minute, second and day of the week data

Specifies the year, month, day, hour, minute, second, and day of the week data to be read or set to the GOT clock data.

The address notated in decimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.

☞ Page 149 Read clock data (6) command (without station No.), read clock data (G) command (with station No.)

☞ Page 150 Set clock data (5) command (w/out station No.), set clock data (F) command (w/station No.)

■Data

Specifies the data to be read or written from or to the specified device data. (word unit)

The address notated in hexadecimal is converted to a 4-digit ASCII code (Hex) and transmitted from the upper digit.

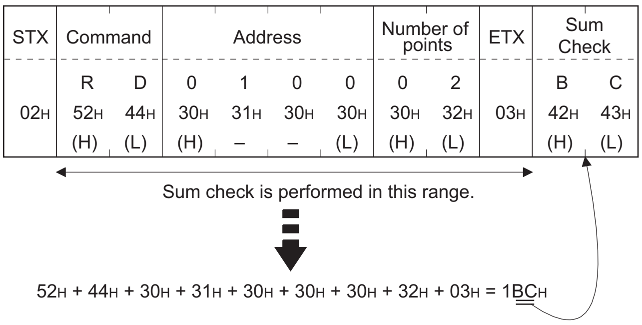
■Write data

Specifies the data to be written to the specified device data.

The address notated in hexadecimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.

■Sum check code (for format 15: GOT-F900 series microcomputer connection (format 2) only)

The sum check code is obtained by converting the lower 1 byte (8 bits) of the result (sum), after having added the sum check target data as binary data, to 2-digit ASCII code (Hex).

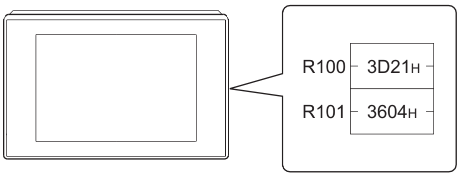


Message format

■Batch read (0) command (without station No.), batch read (A) command (with station No.)

- When reading a word device

The following shows an example of reading four bytes of virtual devices R100 to R101 from the GOT at station No.15.
(Assuming R100=3D21H, R101=3604H are stored.)



Item	Message format

Request message (host → GOT)

(format 14: GOT-F900 Series microcomputer connection (format 1))

STX	Command	Station No.		Address				Number of bytes		CR
	A	1	5	0	0	C	8	0	4	
02H	41H	31H	35H	30H	30H	43H	38H	30H	34H	0DH
		(H)	(L)	(H)	–	–	(L)	(H)	(L)	

(format 15: GOT-F900 Series microcomputer connection (format 2))

STX	Command	Station No.		Address				Number of bytes		ETX	Sum Check	
	A	1	5	0	0	C	8	0	4		E	9
02H	41H	31H	35H	30H	30H	43H	38H	30H	34H	03H	45H	39H
		(H)	(L)	(H)	–	–	(L)	(H)	(L)		(H)	(L)

Sum check is performed in this range.

Response message during normal communication (GOT → host)

(format 14: GOT-F900 Series microcomputer connection (format 1))

STX	Data 1 (R100 upper)		Data 2 (R100 lower)		Data 3 (R101 upper)		Data 4 (R101 lower)		CR
	3	D	2	1	3	6	0	4	
02H	33H	44H	32H	31H	33H	36H	30H	34H	0DH
	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	

(format 15: GOT-F900 Series microcomputer connection (format 2))

STX	Data 1 (R100 upper)		Data 2 (R100 lower)		Data 3 (R101 upper)		Data 4 (R101 lower)		ETX	Sum Check	
	3	D	2	1	3	6	0	4		A	A
02H	33H	44H	32H	31H	33H	36H	30H	34H	03H	41H	41H
	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)		(H)	(L)

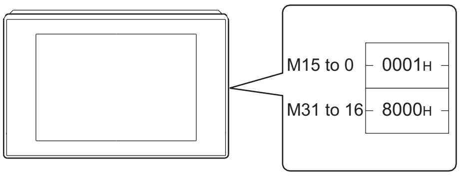
Sum check is performed in this range.

Response message during faulty communication (GOT → host)

NAK
15H

- When reading a bit device

The following shows an example of reading four bytes of the virtual devices M0 to M31.
(Assuming M0="1" and M31="1" are stored.)



Item	Message format
Request message (host → GOT)	(format 14: GOT-F900 Series microcomputer connection (format 1))
	(format 15: GOT-F900 Series microcomputer connection (format 2))
Response message during normal communication (GOT → host)	(format 14: GOT-F900 Series microcomputer connection (format 1))
	(format 15: GOT-F900 Series microcomputer connection (format 2))
Response message during faulty communication (GOT → host)	NAK / 15H

Request message (host → GOT)

(format 14: GOT-F900 Series microcomputer connection (format 1))

STX	Command	Station No.		Address				Number of bytes		CR
	A	1	5	2	0	0	0	0	4	
02H	41H	31H	35H	32H	30H	30H	30H	30H	34H	0DH
		(H)	(L)	(H)	–	–	(L)	(H)	(L)	

(format 15: GOT-F900 Series microcomputer connection (format 2))

STX	Command	Station No.		Address				Number of bytes		ETX	Sum Check	
	A	1	5	2	0	0	0	0	4		D	0
02H	41H	31H	35H	32H	30H	30H	30H	30H	34H	03H	44H	30H
		(H)	(L)	(H)	–	–	(L)	(H)	(L)		(H)	(L)

Sum check is performed in this range.

Response message during normal communication (GOT → host)

(format 14: GOT-F900 Series microcomputer connection (format 1))

STX	Data 1 (M7 to 0)		Data 2 (M15 to 8)		Data 3 (M23 to 16)		Data 4 (M31 to 24)		CR
	0	1	0	0	0	0	8	0	
02H	30H	31H	30H	30H	30H	30H	38H	30H	0DH
	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	

M7	M6	M5	M4	M3	M2	M1	M0	M15	M14	M13	M12	M11	M10	M9	M8	M23	M22	M21	M20	M19	M18	M17	M16	M31	M30	M29	M28	M27	M26	M25	M24
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0

(format 15: GOT-F900 Series microcomputer connection (format 2))

Sum check is performed in this range.

STX	Data 1 (M7 to 0)		Data 2 (M15 to 8)		Data 3 (M23 to 16)		Data 4 (M31 to 24)		ETX	Sum Check	
	0	1	0	0	0	0	8	0		8	C
02H	30H	31H	30H	30H	30H	30H	38H	30H	03H	38H	43H
	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)		(H)	(L)

M7	M6	M5	M4	M3	M2	M1	M0	M15	M14	M13	M12	M11	M10	M9	M8	M23	M22	M21	M20	M19	M18	M17	M16	M31	M30	M29	M28	M27	M26	M25	M24
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0

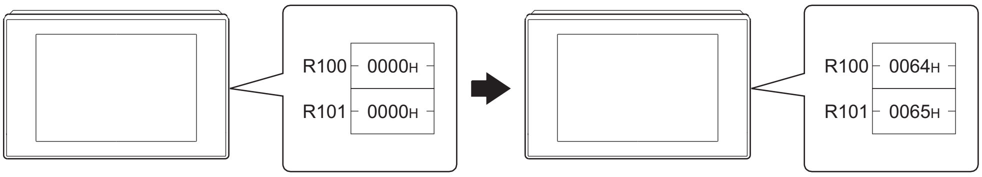
Response message during faulty communication (GOT → host)

NAK
15H

■Batch write (1) command (without station No.), batch write (B) command (with station No.)

- When writing to a word device

The following shows an example of writing "0064H" and "0065H" to virtual devices R100 and R101 on the GOT at station No.15.



Before execution After execution

Item	Message format
Request message (host → GOT)	(format 14: GOT-F900 Series microcomputer connection (format 1))

STX	Com-mand	Station No.		Address				Number of bytes		Following*1	CR
	B	1	5	0	0	C	8	0	4		
02H	42H	31H	35H	30H	30H	43H	38H	30H	34H		0DH
		(H)	(L)	(H)	–	–	(L)	(H)	(L)		

(format 15: GOT-F900 Series microcomputer connection (format 2))

STX	Com-mand	Station No.		Address				Number of bytes		Following*1	ETX	Sum Check	
	B	1	5	0	0	C	8	0	4			9	1
02H	42H	31H	35H	30H	30H	43H	38H	30H	34H		03H	39H	31H
		(H)	(L)	(H)	–	–	(L)	(H)	(L)			(H)	(L)

Sum check is performed in this range.

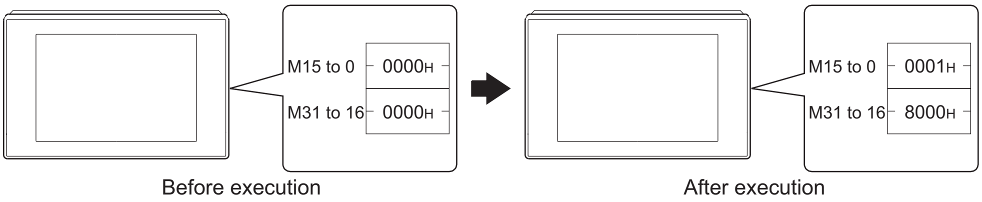
*1

Data 1 (R100 upper)		Data 2 (R100 lower)		Data 3 (R101 upper)		Data 4 (R101 lower)	
0	0	6	4	0	0	6	5
30H	30H	36H	34H	30H	30H	36H	35H
(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)

Item	Message format
Response message during normal communication (GOT → host)	ACK 06H
Response message during faulty communication (GOT → host)	NAK 15H

- When writing to a bit device

The following shows an example of writing "1"s to virtual devices M0 and M31 on the GOT at station No.15.



<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Request message
(host → GOT)</td><td>
(format 14: GOT-F900 Series microcomputer connection (format 1))
<table>
<tr><td>STX</td><td>Com-
mand</td><td colspan="2">Station No.</td><td colspan="4">Address</td><td colspan="2">Number of bytes</td><td rowspan="4">Following*1</td><td>CR</td></tr>
<tr><td></td><td>B</td><td>1</td><td>5</td><td>2</td><td>0</td><td>0</td><td>0</td><td>0</td><td>4</td><td></td></tr>
<tr><td>02H</td><td>42H</td><td>31H</td><td>35H</td><td>32H</td><td>30H</td><td>30H</td><td>30H</td><td>30H</td><td>34H</td><td>0DH</td></tr>
<tr><td></td><td></td><td>(H)</td><td>(L)</td><td>(H)</td><td>–</td><td>–</td><td>(L)</td><td>(H)</td><td>(L)</td><td></td></tr>
</table>
(format 15: GOT-F900 Series microcomputer connection (format 2))
<table>
<tr><td>STX</td><td>Com-
mand</td><td colspan="2">Station No.</td><td colspan="4">Address</td><td colspan="2">Byte Number</td><td rowspan="4">Following*1</td><td>ETX</td><td colspan="2">Sum Check</td></tr>
<tr><td></td><td>B</td><td>1</td><td>5</td><td>2</td><td>0</td><td>0</td><td>0</td><td>0</td><td>4</td><td></td><td>5</td><td>A</td></tr>
<tr><td>02H</td><td>42H</td><td>31H</td><td>35H</td><td>32H</td><td>30H</td><td>30H</td><td>30H</td><td>30H</td><td>34H</td><td>03H</td><td>35H</td><td>41H</td></tr>
<tr><td></td><td></td><td>(H)</td><td>(L)</td><td>(H)</td><td>–</td><td>–</td><td>(L)</td><td>(H)</td><td>(L)</td><td></td><td>(H)</td><td>(L)</td></tr>
</table>
Sum check is performed in this range.

*1
<table>
<tr><td colspan="2">Data 1
(M7 to 0)</td><td colspan="2">Data 2
(M15 to 8)</td><td colspan="2">Data 3
(M23 to 16)</td><td colspan="2">Data 4
(M31 to 24)</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>8</td><td>0</td></tr>
<tr><td>30H</td><td>31H</td><td>30H</td><td>30H</td><td>30H</td><td>30H</td><td>38H</td><td>30H</td></tr>
<tr><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td></tr>
</table>
<table>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>M7</td><td>M6</td><td>M5</td><td>M4</td><td>M3</td><td>M2</td><td>M1</td><td>M0</td><td>M15</td><td>M14</td><td>M13</td><td>M12</td><td>M11</td><td>M10</td><td>M9</td><td>M8</td><td>M23</td><td>M22</td><td>M21</td><td>M20</td><td>M19</td><td>M18</td><td>M17</td><td>M16</td><td>M31</td><td>M30</td><td>M29</td><td>M28</td><td>M27</td><td>M26</td><td>M25</td><td>M24</td></tr>
</table>
</td></tr>
<tr><td>Response message during normal communication
(GOT → host)</td><td>
<table>
<tr><td>ACK</td></tr>
<tr><td>06H</td></tr>
</table>
</td></tr>
<tr><td>Response message during faulty communication
(GOT → host)</td><td>
<table>
<tr><td>NAK</td></tr>
<tr><td>15H</td></tr>
</table>
</td></tr>
</table>

■Multi-point write in bit units (3) command (without station No.), multi-point write in bit units (D) command (with station No.)

The following shows an example of turning OFF the virtual device M31 and turning ON the virtual device M2038 on the GOT at station No.31.

Item	Message format
Request message (host → GOT)	(format 14: GOT-F900 Series microcomputer connection (format 1))

STX	Com-mand	Station No.		Number of points		Following*1	CR
	D	3	1	0	2		
02H	44H	33H	31H	30H	32H		0DH
		(H)	(L)	(H)	(L)		

(format 15: GOT-F900 Series microcomputer connection (format 2))

STX	Com-mand	Station No.		Number of points		Following *1	ETX	Sum check	
	D	3	1	0	2			E	C
02H	44H	33H	31H	30H	32H		03H	45H	43H
		(H)	(L)	(H)	(L)			(H)	(L)

Sum check is performed in this range.

*1

Write specification 1	Address1				Bit pattern1		Write specification 2	Address2				Bit pattern2	
1	2	0	0	3	8	0	0	2	0	F	E	4	0
31H	32H	30H	30H	33H	38H	30H	30H	32H	30H	46	45H	34H	30H
	(H)	–	–	(L)	(H)	(L)		(H)	–	–	(L)	(H)	(L)

*2

(write specification1=1)

Source data bit pattern	1	0	1	0	1	0	1	0
	1	0	0	0	0	0	0	0
Result	0	0	1	0	1	0	1	0
	M31	M30	M29	M28	M27	M26	M25	M24

*2

(write specification2=0)

Source data bit pattern	1	0	1	0	1	0	1	0
	0	1	0	0	0	0	0	0
Result	1	1	1	0	1	0	1	0
	M2039	M2038	M2037	M2036	M2035	M2034	M2033	M2032

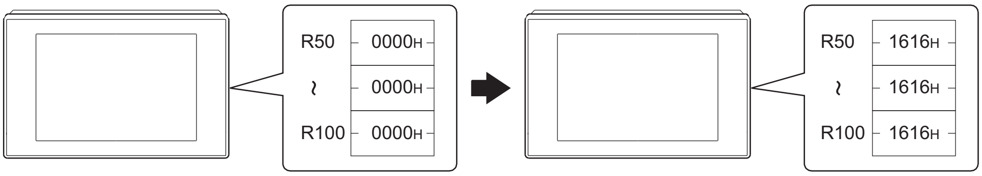
Item	Message format
Response message during normal communication (GOT → host)	ACK 06H
Response message during faulty communication (GOT → host)	NAK 15H

*1 The write specification specifies how the data of the specified address is changed in the bit pattern.

Write specification	Function	Description	Action example
0	ON specification	Bits set to "1" by the bit pattern are turned ON.	Original data 1010 Bit pattern 1100 Result 1110
1	OFF specification	Bits set to "1" by the bit pattern are turned OFF.	Original data 1010 Bit pattern 1100 Result 0010
2	Invert specification	Bits set to "1" by the bit pattern are inverted.	Original data 1010 Bit pattern 1100 Result 0110
3	Write specification	The numerical values to write by the bit pattern are specified directly.	Original data 1010 Bit pattern 1100 Result 1100

■Fill command (4) (w/out station No.), fill command (E) (w/station No.)

The following shows an example of writing "16"s to virtual devices R50 to R100 on the GOT at station No.27.



Before execution After execution

Item	Message format
Request message (host → GOT)	(format 14: GOT-F900 Series microcomputer connection (format 1))

STX	Com-mand	Station No.		Start address				End address				Write Data		CR
	E	2	7	0	0	6	4	0	0	C	9	1	6	
02H	45H	32H	37H	30H	30H	36H	34H	30H	30H	43H	39H	31H	36H	0DH
		(H)	(L)	(H)	–	–	(L)	(H)	–	–	(L)	(H)	(L)	

(format 15: GOT-F900 Series microcomputer connection (format 2))

STX	Com-mand	Station No.		Start address				End address				Write Data		ETX	Sum Check	
	E	2	7	0	0	6	4	0	0	C	9	1	6		B	E
02H	45H	32H	37H	30H	30H	36H	34H	30H	30H	43H	39H	31H	36H	03H	42H	45H
		(H)	(L)	(H)	–	–	(L)	(H)	–	–	(L)	(H)	(L)		(H)	(L)

Sum check is performed in this range.

Item	Message format
Response message during normal communication (GOT → host)	ACK 06H
Response message during faulty communication (GOT → host)	NAK 15H

Point

- Start address/end address specification conditions

Specify addresses so that the start address is the same or less than the end address.

Error response occurs in the following cases:

The address to specify has the start address greater than the end address.

Either of the start address or end address exceeds the device range that can be specified.

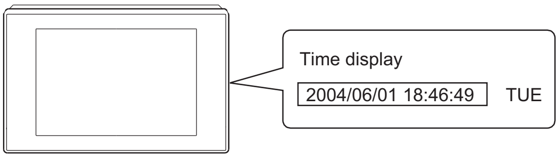
- Address specifying crossing over different devices

The start address and end address can be specified crossing over different devices.

■Read clock data (6) command (without station No.), read clock data (G) command (with station No.)

The following shows an example of reading the clock data of GOT at station No.27.

(Assuming that the clock data of GOT has been set to "2004, June 1, 18:46:49, Tuesday".)



Item	Message format
Request message (host → GOT)	(format 14: GOT-F900 Series microcomputer connection (format 1)) (format 15: GOT-F900 Series microcomputer connection (format 2))
Response message during normal communication (GOT → host)	(format 14: GOT-F900 Series microcomputer connection (format 1)) (format 15: GOT-F900 Series microcomputer connection (format 2))
Response message during faulty communication (GOT → host)	NAK

Request message (host → GOT)

(format 14: GOT-F900 Series microcomputer connection (format 1))

STX	Com-mand	Station No.		CR
	G	2	7	
02H	47H	32H	37H	0DH
		(H)	(L)	

(format 15: GOT-F900 Series microcomputer connection (format 2))

STX	Com-mand	Station No.		ETX	Sum Check	
	G	2	7		B	3
02H	47H	32H	37H	03H	42H	33H
		(H)	(L)		(H)	(L)

Sum check is performed in this range.

Response message during normal communication (GOT → host)

(format 14: GOT-F900 Series microcomputer connection (format 1))

STX	Year data		Month data		Day data		Hour data		Minute data		Second data		Day-of-week data		CR
	0	4	0	6	0	1	1	8	4	6	4	9	0	2	
02H	30H	34H	30H	36H	30H	31H	31H	38H	34H	36H	34H	39H	30H	32H	0DH
	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	

(format 15: GOT-F900 Series microcomputer connection (format 2))

STX	Year data		Month data		Day data		Hour data		Minute data		Second data		Day-of-week data		ETX	Sum Check	
	0	4	0	6	0	1	1	8	4	6	4	9	0	2		D	0
02H	30H	34H	30H	36H	30H	31H	31H	38H	34H	36H	34H	39H	30H	32H	03H	44H	30H
	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)		(H)	(L)

Sum check is performed in this range.

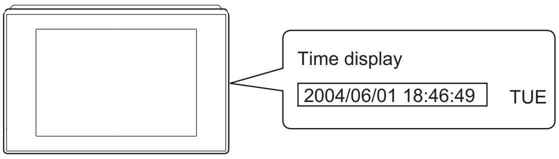
Response message during faulty communication (GOT → host)

NAK
15H

■Set clock data (5) command (w/out station No.), set clock data (F) command (w/station No.)

The following shows an example of setting clock data of GOT at station No.27.

(Assuming the clock data of GOT is to be set to "2004, June 1, 18:46:49 Tuesday".)



After execution

Item	Message format

Request message (host → GOT)

(format 14: GOT-F900 Series microcomputer connection (format 1))

STX	Com-mand	Station No.		Year data		Month data		Day Data		Hour data		Minute data		Second data		Day-of-week data		CR
	F	2	7	0	4	0	6	0	1	1	8	4	6	4	9	0	2	
02H	46H	32H	37H	30H	34H	30H	36H	30H	31H	31H	38H	34H	36H	34H	39H	30H	32H	0DH
		(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	

(format 15: GOT-F900 Series microcomputer connection (format 2))

STX	Com-mand	Station No.			ETX	Sum Check	
	F	2	7	Following*1		7	F
02H	46H	32H	37H		03H	37H	46H
		(H)	(L)			(H)	(L)

Sum check is performed in this range.

*1

Year data		Month data		Day data		Hour data		Minute data		Second data		Day-of-week data	
0	4	0	6	0	1	1	8	4	6	4	9	0	2
30H	34H	30H	36H	30H	31H	31H	38H	34H	36H	34H	39H	30H	32H
(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)

Response message during normal communication (GOT → host)

ACK
06H

Response message during faulty communication (GOT → host)

NAK
15H

Point

When a wrong day of the week has been set by the clock data setting command

If a wrong day of the week is set by the clock data setting commands, the corrected day of the week will be set.

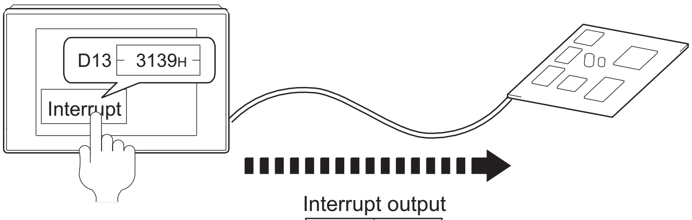
Example: When June 1, 2004 (Thursday) is set by the clock data setting command (The actual day of week is Tuesday.)

Tuesday (TUE) will be set.

■In the case of interrupt outputs

Write data to the interrupt output devices (D13 and D14) to output the data to the host.
(Assuming that "3139H" is written to D13 and "AA55H" to D14.)

Example) When [Interrupt Data Byte] in the communication detail settings is set to 2 byte as shown in (2) of the table below



Interrupt output

Output value 1	Output value 2
31H	39H

<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Interrupt output
(GOT → host)</td><td>
(1) When [Interrupt Data Byte(Byte)] in the communication detail settings is set to [1]
<table><tr><th>Output value 1</th></tr><tr><td>39H</td></tr></table>
(2) When [Interrupt Data Byte(Byte)] in the communication detail settings is set to [2]
<table><tr><th>Output value 1</th><th>Output value 2</th></tr><tr><td>31H</td><td>39H</td></tr></table>
(3) When [Interrupt Data Byte(Byte)] in the communication detail settings is set to [4]
• When [32bit Storage] in the communication detail settings is set to [LH Order]
<table><tr><th>Output value 1</th><th>Output value 2</th><th>Output value 3</th><th>Output value 4</th></tr><tr><td>AAH</td><td>55H</td><td>31H</td><td>39H</td></tr></table>
• When [32bit Storage] in the communication detail settings is set to [HL Order]
<table><tr><th>Output value 1</th><th>Output value 2</th><th>Output value 3</th><th>Output value 4</th></tr><tr><td>31H</td><td>39H</td><td>AAH</td><td>55H</td></tr></table>
</td></tr>
</table>

Point

Interrupt output
To disable the interrupt output, turn on SM52 (interrupt code output disable flag).
☞ Page 99 SM devices
To execute the interrupt output in format 1, 2, 11, 14, or 15, set the data length to 8 bits in the communication detail settings.
When "7 bits" is set, the MSB (8th bit) is ignored. (Example: FFH → 7FH)
☞ Page 153 Setting communication interface (Controller Setting)

Error code list

When faulty, the error code is stored in SD2.

For details on error code stored in SD2, the error contents, cause and measures, refer to the following.

☞ Page 96 Details and actions for errors (error codes) stored into SD2

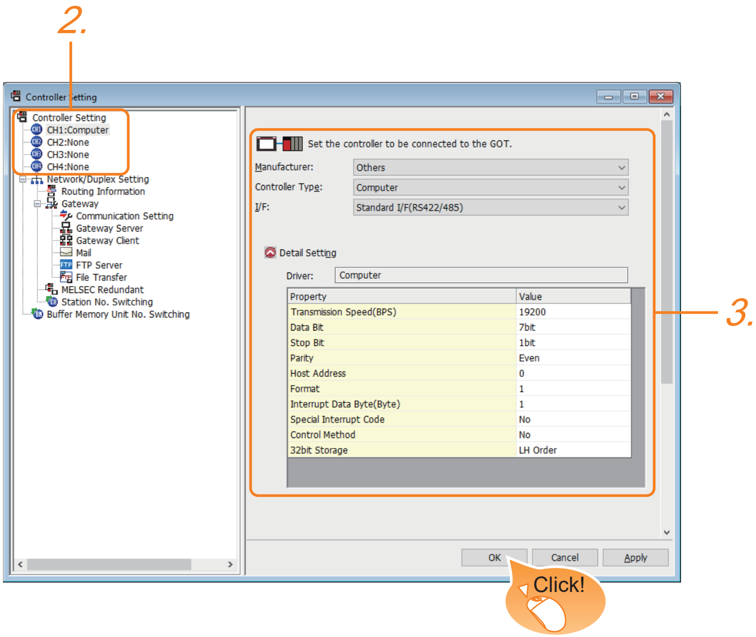
When an error other than those to be stored in SD2 occurs, at faulty, only the NAK response is executed.

2.6 GOT Side Settings

Setting communication interface (Controller Setting)

Controller setting

Set the channel of the equipment to be connected to the GOT.



1. Select [Common] → [Controller Setting] from the menu.

2. In the [Controller Setting] window, select the channel No. to be used from the list menu.

3. Set the following items.

- [Manufacturer]: [Others]
- [Controller Type]: [Computer]
- [I/F]: Interface to be used
- [Detail Setting]: Configure the settings according to the usage environment.

☞ Page 155 Communication detail settings

4. When you have completed the settings, click the [OK] button.

Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

☞ Page 39 I/F communication setting

Extension setting for microcomputer

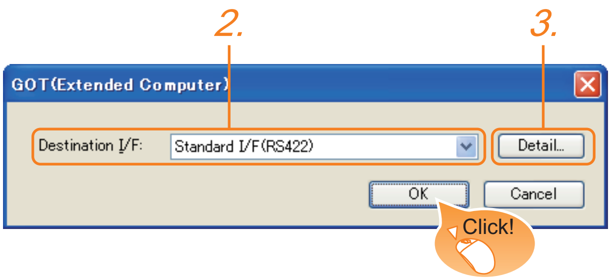
Set the GOT interface connecting to the n+1th GOT.

No setting is required for a terminal GOT.

Point

Microcomputer connection extension

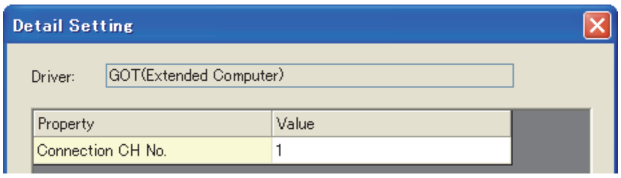
The setting is required when connecting multiple GOTs for one microcomputer.



1. Select [Common] → [Peripheral Setting] → [GOT(Extended Computer)] from the menu.

2. Set the interface to which the n+1th GOT is connected.

3. Clicking the detail setting button displays the Communication Detail Settings dialog box for the communication driver.



Item	Description	Range
Connection CH No.	This CH No. is used for the connection with a microcomputer or n-1th GOT. (Default: 1)	1 fixed

4. When you have completed the settings, click the [OK] button.

Communication detail settings

Make the settings according to the usage environment.

Property	Value
Transmission Speed(BPS)	19200
Data Bit	7 bit
Stop Bit	1 bit
Parity	Even
Host Address	0
Format	1
Interrupt Data Byte(Byte)	1
Special Interrupt Code	No
Control Method	No
32bit Storage	LH Order

Item	Description	Range
Transmission Speed(BPS)	Set this item when change the transmission speed used for communication with the connected equipment. (Default: 19200bps)	4800bps, 9600bps, 19200bps, 38400bps, 57600bps, 115200bps
Data Bit	Set this item when change the data length used for communication with the connected equipment. (Default: 7bits)	7bits, 8bits
Stop Bit	Specify the stop bit length for communications. (Default: 1bit)	1bit, 2bits
Parity	Specify whether or not to perform a parity check, and how it is performed during communication. (Default: Even)	None Even Odd
Host Address	Specify the host address (station No. of the PLC to which the GOT is connected) in the network of the GOT. (Default: 0)	0 to 31
Format	Select the communication format. (Default: 1)	1 to 15
Interrupt Data Byte(Byte)	Specify the number of bytes of interrupt data. (Default: 1)	1, 2, 4
Special Interrupt Code	Set whether or not to output the special interrupt code. (Default: No)	Yes, No
Control Method	Set this item when selecting the XON/XOFF control for the control method. (Default: No)	XON/XOFF, No
32bit Storage	Select the steps to store two words (32-bit data). (Default: LH Order)	LH Order, HL Order

Point

• Special Interrupt Code

A special interrupt code is output when each event occurs.

However, when multiple events occur simultaneously, the special interrupt code may not be output.

The following shows the types of special interrupt codes and events.

Special Interrupt Code (Hex)	Event type
20H	Base screen, overlap window 1 to 5 When the screen is switched by the screen switching device, the special interrupt code will be output. The base screen and each overlap window are switched independently. (Example of output) When all the screen switching device values assigned to the Base Screen and Overlap Window 1 to 2 are changed, 6 special interrupt codes are output.
21H	This code is output when a numerical or ASCII input is completed.
22H	This code is output when reading or writing of the recipe data is completed.
23H	This code is output when a barcode or RFID data is read.

• Communication detail setting when connecting multiple GOTs

For the following items, set the same settings to the n+1th GOT interface as the CH No.1 of n-th GOT.

Transmission Speed

Data Bit

Stop Bit

Parity

Set each [Host Address] for the GOT.

• Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.

For details on the Utility, refer to the following manual.

☞ User's Manual of GOT used.

• Precedence in communication settings

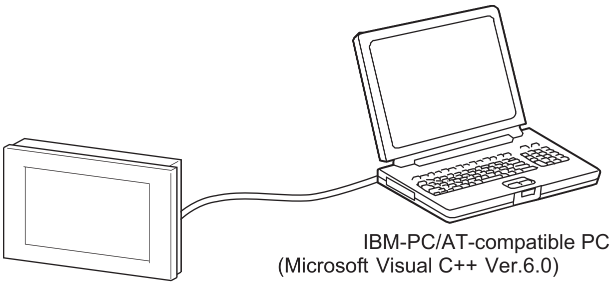
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

2.7 System Configuration Examples

The following shows a system configuration example in the case of the microcomputer connection (serial).

System configuration

The system configuration example illustrated below is explained in this section.



Communication settings on GOT side and monitor screen settings

■Transmission settings

Set the transmission settings of the GOT.

Configure the transmission settings for the microcomputer connection (serial) in the communication detail settings in GT Designer3.

☞ Page 155 Communication detail settings

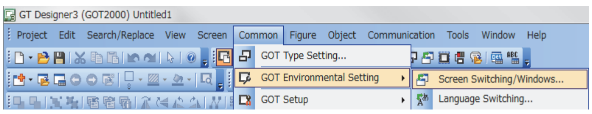
Setting item	Setting details
Transmission Speed(BPS)	38400bps
Data bit	8bits
Stop bit	1bit
Parity	Even
Host address (0 to 31)	0
Format	1
Interrupt Data Byte(Byte)	1
Special Interrupt Code	None
Control Method	None
32bit Storage	LH Order

■Monitor screen settings

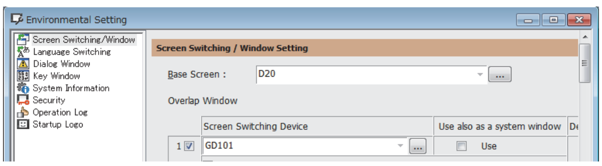
The following shows the monitor screen settings in this system configuration example.

- Common settings

Set D20 to the screen switching device (base screen).



1. Select [Common] → [GOT Environmental Setting] → [Screen Switching/Window] to display [Environment Setup] on GT Designer3.

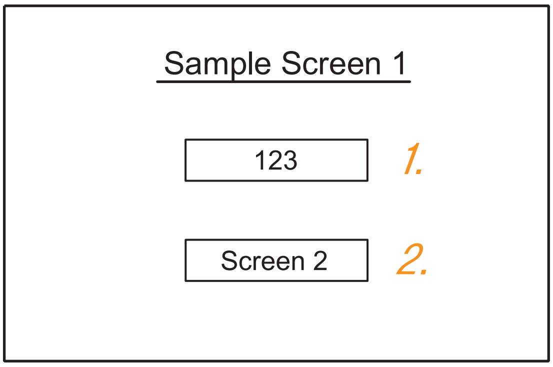


2. Set D20 to the screen switching device (base screen).

- Monitor screen image

Create the following screens by GT Designer3.

Base screen 1



1. Numerical display

By setting this with the numerical display, the device value of D21 can be monitored.

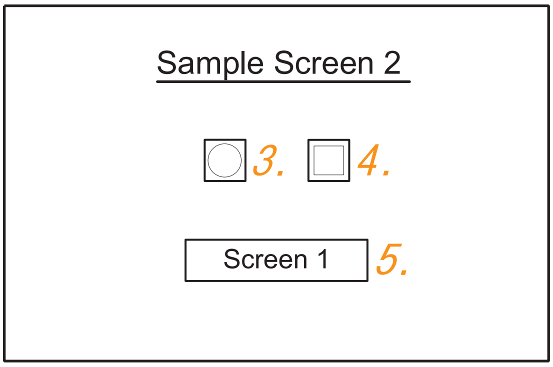
The device value is incremented only while [Sample Screen 1] is displayed.

2. Switch 1

This is the screen switching switch to [Sample Screen 2].

Touching this changes the base screen to [Sample Screen 2].

Base screen 2



3. Bit lamp

The device status of D22.b0 is displayed as a lamp.

4. Switch 2

This is an alternate switch for changing the state of D22.b0.

5. Switch 3

This is the screen switching switch to [Sample Screen 1]. Touching this changes the base screen to [Sample Screen 1].

Numerical display

No.	Basic Settings				
	Device/Style				
	Device	Data Type	Format	Number Size	Digits
1	D21	Unsigned BIN16	Signed Decimal	Arbitrary	4

Touch switch

No.	Basic Settings					
	Action					
	Action	Next Screen	Device	Data Type	Setting Value	Action Type
2	Screen Switching Base	Fixed Screen No.2	—	—	—	—
	Word	—	D13	Signed BIN16	Constant 1	—
4	BIt	—	D22.b0	—	—	Alternate
5	Screen Switching Base	Fixed Screen No.1	—	—	—	—
	Word	—	D13	Signed BIN16	Constant 255	—

Bit lamp

No.	Basic Settings			
	Device/Style			
	Lamp Type	Device	Shape	Shape Attribute
3	BIt	D22.b0	Arbitrary	Arbitrary

Outline of system operation

The following describes the processing on the host side, display or processing on the GOT side, and data transfer packets.
(Assuming that host side programs use programs which perform the processing on host side shown below.)

<table>
<tr><th>Processing</th><th colspan="2">Processing on the host side</th><th>Packet used for data transfer</th><th>Display or processing on the GOT side</th></tr>
<tr><td rowspan="5">Initial processing</td><td colspan="2">Opens the port.</td><td>——</td><td>——</td></tr>
<tr><td colspan="2">Writes "1" to the screen switching device (D20).</td><td>Screen 1 batch switching Write packet *1</td><td>Displays base screen 1.</td></tr>
<tr><td colspan="2">Receives a response from the GOT.</td><td>——</td><td>——</td></tr>
<tr><td colspan="2">Judges whether or not there is an error in the response from the GOT.</td><td>——</td><td>——</td></tr>
<tr><td colspan="2">Writes an initial value to device (D21).</td><td>Batch numerical value display write packet *2</td><td>Displays "0" on the numerical value display on base screen 1.</td></tr>
<tr><td rowspan="6">Reception of response or interrupt from GOT</td><td>When receiving a response to writing to device (D21) from the GOT</td><td>Issues the current value acquisition request to device (D21).</td><td>Batch numerical value display read packet *3</td><td rowspan="4">Increments the numerical value displayed on base screen 1.
(The host side repeats the processing on the left as long as base screen 1 is displayed.))</td></tr>
<tr><td rowspan="3">When receiving a response to reading of device (D21) from the GOT</td><td>Creates the next device value (D21).</td><td>——</td></tr>
<tr><td>Calculates the sum check of the send packet.</td><td>——</td></tr>
<tr><td>Issues the update request of device (D21).</td><td>Batch numerical value display write packet *2</td></tr>
<tr><td>When receiving an interrupt requesting the base screen switching from 1 to 2</td><td>Sets the state of the base screen to base screen 2.</td><td>Interrupt receive packet *6</td><td>Touch touch switch 1 to switch to base screen 2. Notify the host by an interrupt.</td></tr>
<tr><td>When receiving an interrupt requesting the base screen switching from 2 to 1</td><td>Sets the state of the base screen to base screen 1.</td><td>Interrupt receive packet *6</td><td>Touch touch switch 3 to switch to base screen 1. Notify the host by an interrupt.</td></tr>
<tr><td>End processing
(only when receiving an error response)</td><td colspan="2">Close the port.</td><td>——</td><td>——</td></tr>
</table>

*1 Displays the send packet structure of the screen 1 batch switching write packet.

STX	Command		Address				Number of points		Data 1 (D20)				ETX	Sum Check	
	W	D	0	0	2	0	0	1	0	0	0	1		8	2
02H	57H	44H	30H	30H	32H	30H	30H	31H	30H	30H	30H	31H	03H	38H	32H
	(H)	(L)	(H)	–	–	(L)	(H)	(L)	(H)	–	–	(L)		(H)	(L)

Sum check is performed in this range.

*2 Displays the send packet structure of the numerical value display batch write packet.

STX	Command		Address				Number of points		Data 1 (D21)				ETX	Sum check	
	W	D	0	0	2	1	0	1	(any value)					(Changes according to data section.)	
02H	57H	44H	30H	30H	32H	31H	30H	31H					03H		
	(H)	(L)	(H)	–	–	(L)	(H)	(L)	(H)	–	–	(L)		(H)	(L)

Sum check is performed in this range.

*3 Displays the send packet structure of the numerical value display batch read packet.

STX	Command		Address				Number of points		ETX	Sum Check	
	R	D	0	0	2	1	0	1		B	D
02H	52H	44H	30H	30H	32H	31H	30H	31H	03H	42H	44H
	(H)	(L)	(H)	–	–	(L)	(H)	(L)		(H)	(L)

Sum check is performed in this range.

*4 Displays the receive packet structure of the batch write response packet.

When normally operated

ACK
06H

When an error occurred

NAK
15H

*5 Displays the receive packet structure of the batch read response packet.

When normally operated

STX	Data				ETX	Sum check	
02H	(any data)				03H	(Changes according to data section.)	
	(H)	–	–	(L)		(H)	(L)

Sum check is performed in this range.

When an error occurred

NAK
15H

*6 Displays the receive packet structure of the interrupt receive packet.

Output value
Interrupt data (value of D13)

2.8 Device Range that Can Be Set

For the device setting dialog and the device range that can be used on the GOT, refer to the following.

☞ Page 436 Microcomputer ([Computer])

2.9 Precautions

GOT clock control

Even though the time setting function and time notification function are set in the GOT time setting, the settings are disabled.
When reading from or writing to the clock data between the GOT and host, use the dedicated command.

Operation in which the GOT shifts to the offline mode

Before performing operation in which the GOT shifts to the offline mode such as writing the package data, stop the communication between the GOT and the host.
After shifting to the offline mode, the GOT cannot respond to the requests from the host.
Even after the GOT returns from the offline mode, the communication may not be performed until the timeout time of the host side elapses.

3 MICROCOMPUTER CONNECTION (ETHERNET)

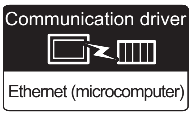
3

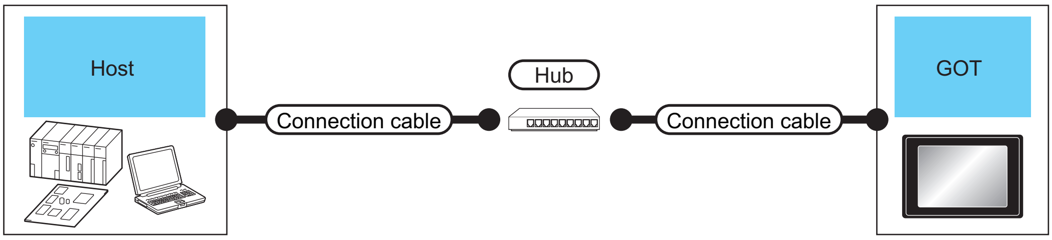
3.1 Microcomputer connection (Ethernet)

The microcomputer connection (Ethernet) is a function by which data can be written or read from a personal computer, microcomputer board, PLC, and others (hereinafter, host) to the virtual devices of the GOT by connecting the host and the GOT by Ethernet.
Interrupt output is also available from the GOT to the host.
For the flow of the data processing, such as reading or writing data and interrupt output, refer to the following.
☞ Page 72 Microcomputer Connection (Serial)

3.2 System Configuration

For the microcomputer connection (Ethernet)





Host	Connection cable		GOT		Number of connectable equipment			
Communication Type	Cable model	Maximum segment length*2	Option device*3	Model	Per GOT channel*4		Per host*5	
					UDP	TCP	UDP	TCP
Ethernet	Twisted pair cable*1 • 100BASE-TX Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher	100m	- (Built into GOT)	GT27 GT25 GT23 GT21 07W GT21 04R GT21 03P 04P ET/R4 GS25 GS21	Unlimited	1	Unlimited	Unlimited
			GT25-J71E71-100	GT27 GT25				

*1 The destination connected with the twisted pair cable varies with the configuration of the applicable Ethernet network system.
Connect to the Ethernet module, hub, transceiver or other system equipment corresponding to the applicable Ethernet network system.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standard.

*2 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
• 10BASE-T: Max. 4 nodes for a cascade connection (500m)
• 100BASE-TX: Max. 2 nodes for a cascade connection (205m)
When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.

*3 GT25-W, GT2505-V does not support the option device.

*4 The number of connectable controllers per GOT channel is indicated.

*5 The number of GOTs connectable to one host is indicated.

3.3 Device Data Area

The following shows a list of virtual devices inside the GOT available in the microcomputer connection (Ethernet), and the address specification values for each data format.
The address specification of the virtual devices differs depending on the data format.*1

Model	Virtual device*2			Address specification value				Refer to
	Name	Device range (decimal)	Device type	Format 1, 2	Format 3, 4	Format 5	Format 6 to 9	
GT27 GT25 GT23 GS25	D	0 to 4095	Word	0 to 4095	8000 to 9FFFH	0000 to 0FFFH	D0 to D4095	Page 166 D devices
	R	0 to 4095	Word	4096 to 8191	0000 to 1FFFH	1000 to 1FFFH	R0 to R4095	Page 170 R devices
	L	0 to 2047	Bit	8192 to 8319	A000 to A0FFH	2000 to 207FH	L0 to L2047	Page 171 L devices
	M	0 to 2047	Bit	8320 to 8447	2000 to 20FFH	2080 to 20FFH	M0 to M2047	Page 172 M devices
	SD	0 to 15	Word	8448 to 8463	2100 to 211FH (3000 to 300DH)*3	2100 to 210FH	SD0 to SD15	Page 173 SD devices
	SM	0 to 63	Bit	8464 to 8467	2200 to 2207H	2110 to 2113H	SM0 to SM63	Page 177 SM devices
GT21 GS21	D	0 to 4095	Word	—		0000 to 0FFFH	D0 to D4095	Page 166 D devices
	R	0 to 4095	Word			1000 to 1FFFH	R0 to R4095	Page 170 R devices
	L	0 to 2047	Bit			2000 to 207FH	L0 to L2047	Page 171 L devices
	M	0 to 2047	Bit			2080 to 20FFH	M0 to M2047	Page 172 M devices
	SD	0 to 15	Word			2100 to 210FH	SD0 to SD15	Page 173 SD devices
	SM	0 to 63	Bit			2110 to 2113H	SM0 to SM63	Page 177 SM devices

*1 For the address specification method for each data format, refer to the following.
Page 179 Message Formats

- Formats 1, 2 : GOT-A900 Series microcomputer connection
- Formats 3, 4 : GOT-F900 series microcomputer connection
- Formats 5 : SCHNEIDER EJH's memory link method
- Formats 6, 7 : 4E frame
- Formats 8, 9 : QnA compatible 3E frame

*2 When reusing GOT900 Series project data
• GOT-A900 Series virtual devices (D0 to 2047)
Can be used as they are without changing the assignments.
• GOT-F900 Series virtual devices
Since some of the assigned virtual device values differ as indicated below, change the assignment using device batch edit of GT Designer3.
Refer to the following manual for device batch edit of GT Designer3.
GT Designer3 (GOT2000) Screen Design Manual

GOT2000 Series virtual devices	GOT-F900 Series virtual devices
D0 to 2047	—
D2048 to 4095	—
R0 to 4095	D0 to 4095
L0 to 2047	—
M0 to 2047	M0 to 2047
SD0 to 15	D8000 to 8015 GD0 to 6
SM0 to 63	M8000 to 8063

*3 Access to SD3 to 9 can also be made by the specification of the addresses (3000 to 300DH) of GD0 to 6 on the GOT-F900 Series.

Point

Values of virtual devices inside the GOT

When the GOT is turned OFF or reset, values are cleared to their defaults (bit devices: OFF, word devices: 0).

Values are held in the memory when project data are written to the GOT.

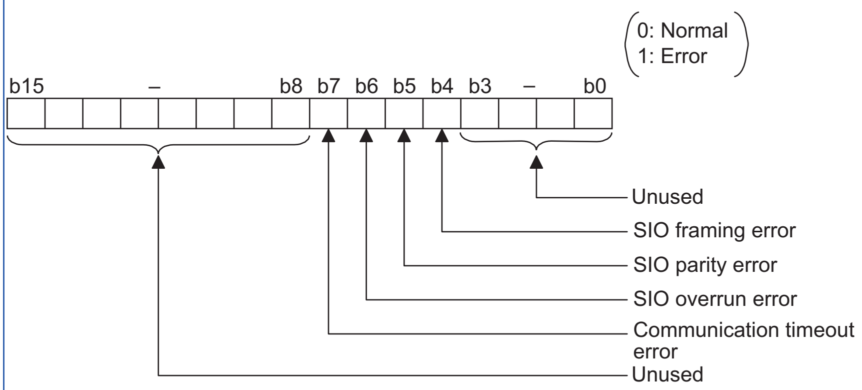
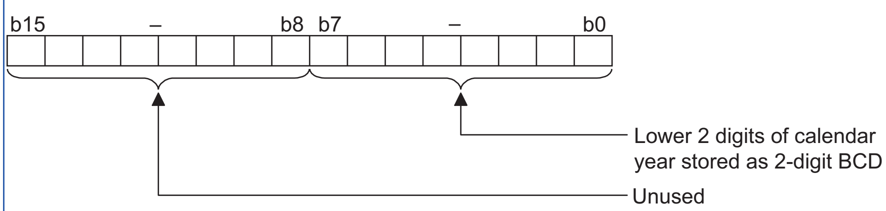
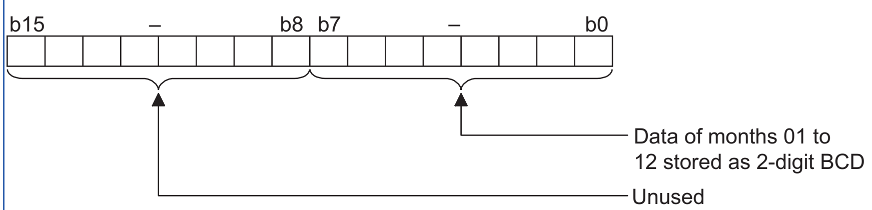
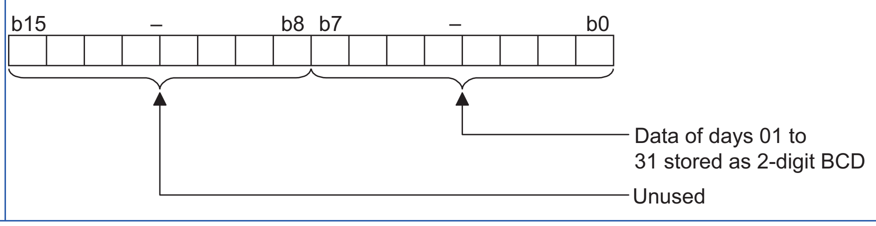
D devices

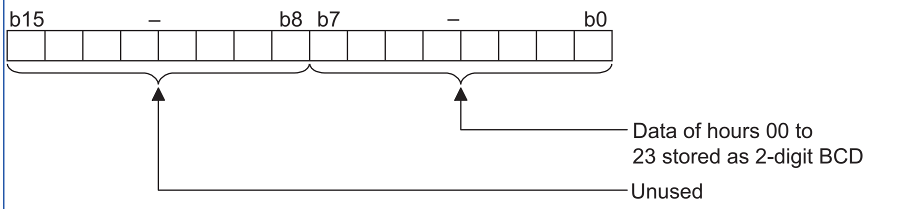
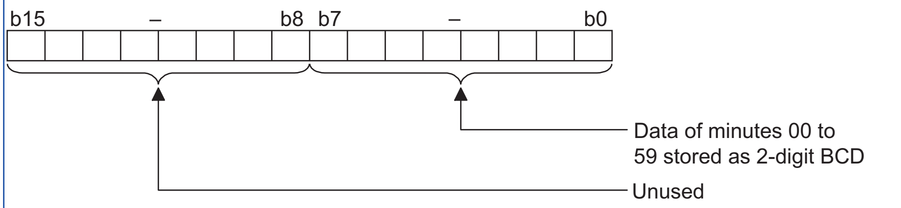
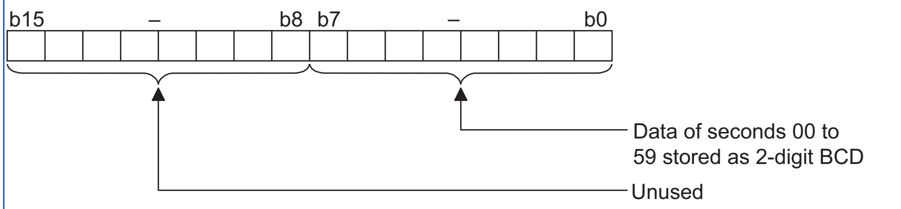
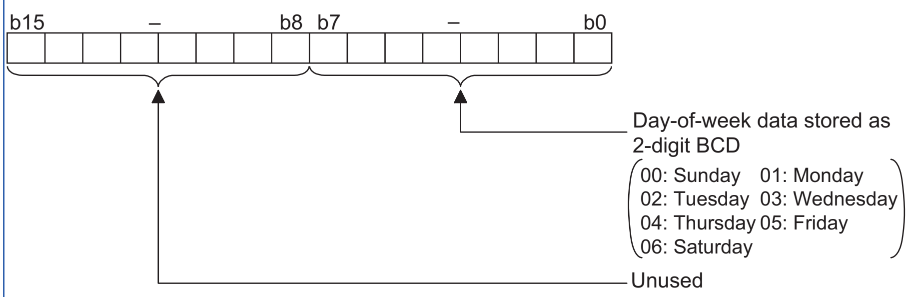
The D devices are word devices into which GOT communication errors, clock data or other information are stored.

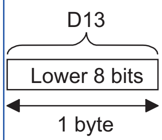
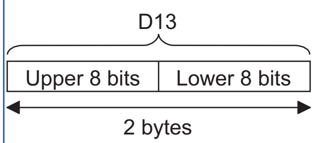
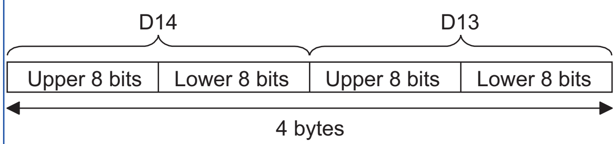
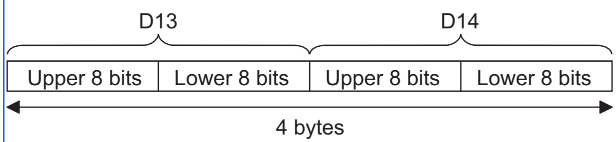
The user can also store data using the user area.

List of D devices

The following lists the D devices (virtual devices inside the GOT).

<table>
<tr><th>Address</th><th>Description</th><th>Set side</th></tr>
<tr><td>D0 to 2</td><td>Unused</td><td>—</td></tr>
<tr><td>D3</td><td>Communication error status
Stores the communication error details of GOT.

• b4 to 6 turn ON when an SIO error occurs, and turn OFF when an request message from the host is received successfully after the error occurrence.
• b7 turns ON about 3 seconds after the host side DTR becomes OFF, and turns OFF when transmission is performed successfully to the host after the error occurrence.</td><td rowspan="4">System</td></tr>
<tr><td>D4</td><td>Clock data (year)
</td></tr>
<tr><td>D5</td><td>Clock data (month)
</td></tr>
<tr><td>D6</td><td>Clock data (day)
</td></tr>
</table>

Address	Description	Set side
D7	Clock data (hour) 	System
D8	Clock data (minute) 	
D9	Clock data (second) 	
D10	Clock data (day of the week) 	
D11, D12	Unused	—

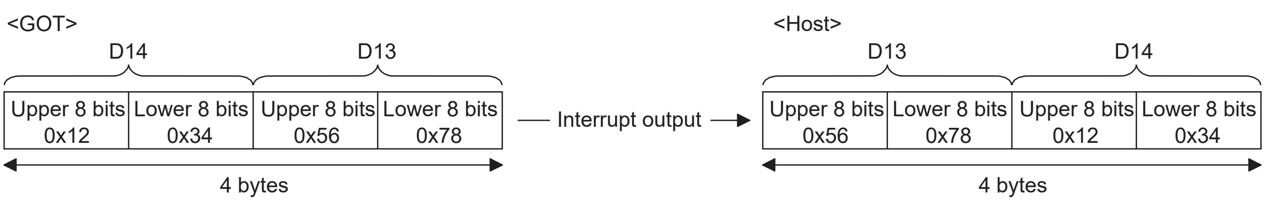
Address	Description	Set side
D13 D14	Interrupt output When data are written to D13 and D14 from a GOT touch switch, for example, the data of D13 and D14 are transmitted (interrupt output) to the host side. *1*2 Set the data amount (number of bytes) to execute an interrupt output for [Interrupt Data Byte] in the communication detail settings. ☞ Page 233 Setting communication interface (Controller Setting) • Output value when [1] is set to [Interrupt Data Byte] in the communication detail settings.  • Output value when [2] is set to [Interrupt Data Byte] in the communication detail settings.  • Output value when [4] is set to [Interrupt Data Byte] in the communication detail settings.*3 (1) When [32bit Storage] in the communication detail settings is set to [LH Order]  (2) When [32bit Storage] in the communication detail settings is set to [HL Order] 	User
D15 to 19	Unused	—
D20 to 2031	User area	User
D2032 to 2034	Unused	—
D2035	1-second binary counter The counter is incremented at 1-second intervals after the GOT is turned ON. (The time elapsed after GOT is turned ON is stored in 1-second units.) Data are stored in binary format.	System
D2036 to 4095	User area	User

*1 After writing data, the interrupt data is output within a period of 1 to 10 ms.

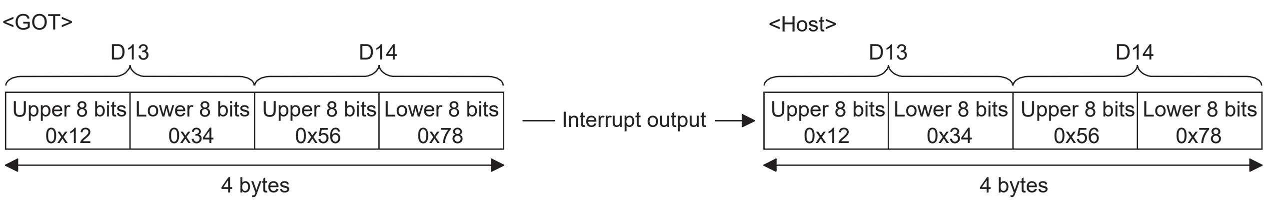
*2 When data are written to D13 and D14 from the host side, interrupt output is not performed.

*3 When 32-bit data are written to D13 and D14, the values are output to the host side regardless of the setting for [32bit Storage] in the communication detail settings.
Example) When outputting 0x12345678 with unsigned 32-bit binary data

· LH Order



· HL Order



Point

- The side where virtual devices are set

System: Set on the system side.

User: Set on the user side (by sending request messages from host or using the touch switches, etc. on the GOT).

- Interrupt output (D13, D14)

To disable the interrupt output, turn on SM52 (interrupt code output disable flag).

☞ Page 177 SM devices

Differences in address specifications by data format

The address specification of devices varies depending on the data format.*1

The following shows the address specification values for each data format.

Model	Address	Address specification value				
		Format 1, 2	Format 3, 4		Format 5	Format 6 to 9
GT27 GT25 GT23 GS25	D0	0	8000H 8001H	8000H 8001H Upper 8 bits Lower 8 bits	0000H	D0
	D1	1	8002H 8003H	8002H 8003H Upper 8 bits Lower 8 bits	0001H	D1
	:	:		:	:	:
	D4095	4095	9FFEH 9FFFH	9FFEH 9FFFH Upper 8 bits Lower 8 bits	0FFFH	D4095
GT21 GS21	D0	—			0000H	D0
	D1				0001H	D1
	:				:	:
	D4095				0FFFH	D4095

*1 For the address specification method for each data format, refer to the following.

☞ Page 179 Message Formats

- Formats 1, 2 : GOT-A900 Series microcomputer connection
- Formats 3, 4 : GOT-F900 series microcomputer connection
- Formats 5 : SCHNEIDER EJH's memory link method
- Formats 6, 7 : 4E frame
- Formats 8, 9 : QnA compatible 3E frame

R devices

The R devices are word devices into which user data are stored.
All of these devices can be used as a user area.

List of R devices and differences in address specification by data format

The following shows the R devices (virtual devices inside the GOT).
The address specification values different depending on the data format are also given below.*1

Model	Address	Address specification value				
		Format 1, 2	Format 3, 4		Format 5	Format 6 to 9
GT27 GT25 GT23 GS25	R0	4096	0000H 0001H	$\underbrace{0000_H}_{\text{Upper 8 bits}}$ $\underbrace{0001_H}_{\text{Lower 8 bits}}$	1000H	R0
	R1	4097	0002H 0003H	$\underbrace{0002_H}_{\text{Upper 8 bits}}$ $\underbrace{0003_H}_{\text{Lower 8 bits}}$	1001H	R1
	:	:	:		:	:
	R4095	8191	1FFEH 1FFFH	$\underbrace{1FFE_H}_{\text{Upper 8 bits}}$ $\underbrace{1FFF_H}_{\text{Lower 8 bits}}$	1FFFH	R4095
GT21 GS21	R0	—			1000H	R0
	R1				1001H	R1
	:				:	:
	R4095				1FFFH	R4095

*1 For the address specification method for each data format, refer to the following.
☞ Page 179 Message Formats

- Formats 1, 2 : GOT-A900 Series microcomputer connection
- Formats 3, 4 : GOT-F900 series microcomputer connection
- Formats 5 : SCHNEIDER EJH's memory link method
- Formats 6, 7 : 4E frame
- Formats 8, 9 : QnA compatible 3E frame

L devices

The L devices are bit devices into which user data are stored.

All of these devices can be used as a user area.

List of L devices and differences in address specification by data format

The following shows the L devices (virtual devices inside the GOT).

The address specification values different depending on the data format are also given below.*1

Model	Address								Address specification value				
	b7	b6	b5	b4	b3	b2	b1	b0	Format 1, 2	Format 3, 4		Format 5	Format 6 to 9
										When GS580.b8, GS581.b8, GS582.b8, or GS583.b8 is ON	When GS580.b8, GS581.b8, GS582.b8, or GS583.b8 is OFF		
GT27 GT25 GT23 GS25	L7	L6	L5	L4	L3	L2	L1	L0	8192	A000H	A001H	2000H	Same as address column on left*2
	L15	L14	L13	L12	L11	L10	L9	L8		A001H	A000H		
	L23	L22	L21	L20	L19	L18	L17	L16	8193	A002H	A003H	2001H	
	L31	L30	L29	L28	L27	L26	L25	L24		A003H	A002H		
	:								:	:	:	:	
	L2039	L2038	L2037	L2036	L2035	L2034	L2033	L2032	8319	A0FEH	A0FFH	207FH	
	L2047	L2046	L2045	L2044	L2043	L2042	L2041	L2040		A0FFH	A0FEH		
GT21 GS21	L7	L6	L5	L4	L3	L2	L1	L0	—			2000H	Same as address column on left*2
	L15	L14	L13	L12	L11	L10	L9	L8					
	L23	L22	L21	L20	L19	L18	L17	L16				2001H	
	L31	L30	L29	L28	L27	L26	L25	L24					
	:											:	
	L2039	L2038	L2037	L2036	L2035	L2034	L2033	L2032				207FH	
	L2047	L2046	L2045	L2044	L2043	L2042	L2041	L2040					

*1 For the address specification method for each data format, refer to the following.

☞ Page 179 Message Formats

- Formats 1, 2 : GOT-A900 Series microcomputer connection
- Formats 3, 4 : GOT-F900 series microcomputer connection
- Formats 5 : SCHNEIDER EJH's memory link method
- Formats 6, 7 : 4E frame
- Formats 8, 9 : QnA compatible 3E frame

*2 For reading or writing data in word units, specify the addresses in 16-point units. (Example: L0, L16, L32, and others)

M devices

The M devices are bit devices into which user data are stored.

All of these devices can be used as a user area.

List of M devices and differences in address specification by data format

The following shows the M devices (virtual devices inside the GOT).

The address specification values different depending on the data format are also given below.[*1]

Model	Address								Address specification value				
	b7	b6	b5	b4	b3	b2	b1	b0	Format 1, 2	Format 3, 4		Format 5	Format 6 to 9
										When GS580.b8, GS581.b8, GS582.b8, or GS583.b8 is ON	When GS580.b8, GS581.b8, GS582.b8, or GS583.b8 is OFF		
GT27 GT25 GT23 GS25	M7	M6	M5	M4	M3	M2	M1	M0	8320	2000H	2001H	2080H	Same as address column on left[*2]
	M15	M14	M13	M12	M11	M10	M9	M8		2001H	2000H		
	M23	M22	M21	M20	M19	M18	M17	M16	8321	2002H	2003H	2081H	
	M31	M30	M29	M28	M27	M26	M25	M24		2003H	2002H		
	:								:	:	:	:	
	M2039	M2038	M2037	M2036	M2035	M2034	M2033	M2032	8447	20FEH	20FFH	20FFH	
	M2047	M2046	M2045	M2044	M2043	M2042	M2041	M2040		20FFH	20FEH		
GT21 GS21	M7	M6	M5	M4	M3	M2	M1	M0	—			2080H	Same as address column on left[*2]
	M15	M14	M13	M12	M11	M10	M9	M8					
	M23	M22	M21	M20	M19	M18	M17	M16				2081H	
	M31	M30	M29	M28	M27	M26	M25	M24					
	:											:	
	M2039	M2038	M2037	M2036	M2035	M2034	M2033	M2032				20FFH	
	M2047	M2046	M2045	M2044	M2043	M2042	M2041	M2040					

*1 For the address specification method for each data format, refer to the following.

☞ Page 179 Message Formats

- Formats 1, 2 : GOT-A900 Series microcomputer connection
- Formats 3, 4 : GOT-F900 series microcomputer connection
- Formats 5 : SCHNEIDER EJH's memory link method
- Formats 6, 7 : 4E frame
- Formats 8, 9 : QnA compatible 3E frame

*2 For reading or writing data in word units, specify the addresses in 16-point units. (Example: M0, M16, M32, and others)

SD devices

The SD devices are word devices into which GOT communication errors (error codes), clock data and other information are stored.

List of SD devices

The following lists the SD devices (virtual devices inside the GOT).

Address	Description	Set side
SD0 SD1	100ms counter (32bits) The counter is incremented at 100ms intervals after GOT is turned ON. (The time elapsed after GOT is turned ON is stored in 100ms units.) (1) When [32bit Storage] in the communication detail settings is set to [LH Order] The lower and upper bits are stored in SD0 and SD1 respectively. SD1: Upper word, SD0: Lower word (2) When [32bit Storage] in the communication detail settings is set to [HL Order] The upper and lower bits are stored in SD0 and SD1 respectively. SD0: Upper word, SD1: Lower word	System
SD2[*1]	Communication error status An error data (error code) occurred during communication is stored. • Host Address (Communication error that occurred on the request destination GOT) 0: No error 1: Parity error 2: Framing error 3: Overrun error 4: Communication message error 5: Command error 6: Clock data setting error	
SD3	Clock data (second) Second data of 00 to 59 is stored.	
SD4	Clock data (minute) Minute data of 00 to 59 is stored.	
SD5	Clock data (hour) Hour data of 00 to 23 is stored.	
SD6	Clock data (day) Day data of 00 to 31 is stored.	
SD7	Clock data (month) Month data of 01 to 12 is stored.	
SD8	Clock data (year) The last two digits of four-digit year data are stored.	
SD9	Clock data (day of the week) Day-of-the-week data is stored. 0: Sunday 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday	
SD10 to 15	Unused	—

*1 For details and corrective actions for the errors (error codes) that are stored into SD2, refer to the following:
☞ Page 174 Details and actions for errors (error codes) stored into SD2

Point

The side where virtual devices are set
System: Set on the system side.
User: Set on the user side (by sending request messages from host or using the touch switches, etc. on the GOT).

Details and actions for errors (error codes) stored into SD2

Error code	Description	Action
0	No error	—
1, 101	Parity error The parity bit does not match.	• Check the communication cable and communication module attachment. • Check the settings of "Communication Detail Settings". • Match the GOT and host transmission settings.
2, 102	Framing error The data bit and/or stop bit are not correct.	
3, 103	Overrun error The next data was transmitted from the host before GOT completes the processing of the data received.	• Check the settings of "Communication Detail Settings". • Decrease the transmission speed.
4, 104	Communication message error EXT/CR could not be found before the upper limit of the receive buffer was exceeded.	• Check the communication cable and communication module attachment. • Check the settings of "Communication Detail Settings". • Review the contents of the message to transmit.
5	Command error An unsupported command was used.	• Review the contents of the message to transmit. • Check the commands in the message. ☞ Page 180 List of commands
105	Timeout error There is no response from the GOT, or the station of the specified address does not exist.	• Check the communication cable and communication module attachment. • Check the settings of "Communication Detail Settings". • Review the contents of the message to transmit.
106	Multiple units not connectable The RS-232 port is occupied.	• Check the communication cable and communication module attachment. • Check the settings of "Communication Detail Settings". • Check to see if the RS-232 port is occupied.
6, 107	Clock data setting error The setting value of the clock data has error.	• Review the contents of the message to transmit. • Check whether the non-existent data is set (e.g. setting "07" at the day of the week) as clock data.

Differences in address specifications by data format

The address specification of devices varies depending on the data format.*1

The following shows the address specification values for each data format.

Model	Address	Address specification value				
		Format 1, 2	Format 3, 4*2		Format 5	Format 6 to 9
GT27 GT25 GT23 GS25	SD0	8448	2100H 2101H	2100H 2101H Upper 8 bits Lower 8 bits	2100H	SD0
	SD1	8449	2102H 2103H	2102H 2103H Upper 8 bits Lower 8 bits	2101H	SD1
	SD2	8450	2104H 2105H	2104H 2105H Upper 8 bits Lower 8 bits	2102H	SD2
	SD3	8451	2106H (3000H) 2107H (3001H)	2106H(3000H) 2107H(3001H) Upper 8 bits Lower 8 bits	2103H	SD3
	SD4	8452	2108H (3002H) 2109H (3003H)	2108H(3002H) 2109H(3003H) Upper 8 bits Lower 8 bits	2104H	SD4
	SD5	8453	210AH (3004H) 210BH (3005H)	210AH(3004H) 210BH(3005H) Upper 8 bits Lower 8 bits	2105H	SD5
	SD6	8454	210CH (3006H) 210DH (3007H)	210CH(3006H) 210DH(3007H) Upper 8 bits Lower 8 bits	2106H	SD6
	SD7	8455	210EH (3008H) 210FH (3009H)	210EH(3008H) 210FH(3009H) Upper 8 bits Lower 8 bits	2107H	SD7
	SD8	8456	2110H (300AH) 2111H (300BH)	2110H(300AH) 2111H(300BH) Upper 8 bits Lower 8 bits	2108H	SD8
	SD9	8457	2112H (300CH) 2113H (300DH)	2112H(300CH) 2113H(300DH) Upper 8 bits Lower 8 bits	2109H	SD9
GT21 GS21	SD0	—			2100H	SD0
	SD1				2101H	SD1
	SD2				2102H	SD2
	SD3				2103H	SD3
	SD4				2104H	SD4
	SD5				2105H	SD5
	SD6				2106H	SD6
	SD7				2107H	SD7
	SD8				2108H	SD8
	SD9				2109H	SD9

*1 For the address specification method for each data format, refer to the following.
☞ Page 179 Message Formats

- Formats 1, 2 : GOT-A900 Series microcomputer connection
- Formats 3, 4 : GOT-F900 series microcomputer connection
- Formats 5 : SCHNEIDER EJH's memory link method
- Formats 6, 7 : 4E frame
- Formats 8, 9 : QnA compatible 3E frame

*2 SD3 to 9 correspond to GD0 to 6 on the GOT-F900 Series.
Access to SD3 to 9 can be also made by the specification of the addresses (3000 to 300DH) of GD0 to 6 on the GOT-F900 Series.

SM devices

The SM devices are bit devices into which interrupt outputs and clock data that turn ON or OFF in 1-second cycles are stored.

List of SM devices

The following shows the SM devices (virtual devices inside the GOT).

<table>
<tr><th>Address</th><th>Description</th><th>Set side</th></tr>
<tr><td>SM0 to 49</td><td>Interrupt output
When the ON or OFF state of SM0 to 49 is changed by a touch switch on the GOT, for example, the interrupt codes shown below are transmitted (interrupt output) to the host side. *1*2
Set the data amount (number of bytes) to execute an interrupt output for [Interrupt Data Byte] in the communication detail settings.
☞ Page 233 Setting communication interface (Controller Setting)
<table>
<tr><th>Address</th><th>Event type</th><th>Interrupt code</th></tr>
<tr><td rowspan="2">SM0</td><td>Changed from OFF to ON</td><td>50H</td></tr>
<tr><td>Changed from ON to OFF</td><td>51H</td></tr>
<tr><td rowspan="2">SM1</td><td>Changed from OFF to ON</td><td>52H</td></tr>
<tr><td>Changed from ON to OFF</td><td>53H</td></tr>
<tr><td rowspan="2">SM2</td><td>Changed from OFF to ON</td><td>54H</td></tr>
<tr><td>Changed from ON to OFF</td><td>55H</td></tr>
<tr><td>≀</td><td>≀</td><td>≀</td></tr>
<tr><td rowspan="2">SM48</td><td>Changed from OFF to ON</td><td>B0H</td></tr>
<tr><td>Changed from ON to OFF</td><td>B1H</td></tr>
<tr><td rowspan="2">SM49</td><td>Changed from OFF to ON</td><td>B2H</td></tr>
<tr><td>Changed from ON to OFF</td><td>B3H</td></tr>
</table>
</td><td>User</td></tr>
<tr><td>SM50</td><td>1-second cycle clock
Turns ON and OFF in 1-second cycles.
</td><td rowspan="2">System</td></tr>
<tr><td>SM51</td><td>2-second cycle clock
Turns ON and OFF in 2-second cycles.
</td></tr>
<tr><td>SM52</td><td>Interrupt code output disable flag
Enables or disables the output of the interrupt code and special interrupt code.
OFF: Output enabled, ON: Output disabled
When the output is set to be disabled, no interrupt data are output to the host.
(Relevant devices: D13, D14, SM0 to 49)</td><td>User</td></tr>
<tr><td>SM53 to 63</td><td>Unused</td><td>—</td></tr>
</table>

*1 After the ON or OFF state is changed, the interrupt data is output within a period of 1 to 10 ms.
*2 When the ON or OFF state of SM0 to 49 is changed from the host side, interrupt output is not performed.

Point

The side where virtual devices are set

System: Set on the system side.

User: Set on the user side (by sending request messages from host or using the touch switches, etc. on the GOT).

Differences in address specifications by data format

The address specification of devices varies depending on the data format.*1

The following shows the address specification values for each data format.

Model	Address								Address specification value				
	b7	b6	b5	b4	b3	b2	b1	b0	Format 1, 2	Format 3, 4		Format 5	Format 6 to 9
										When GS580.b8, GS581.b8, GS582.b8, or GS583.b8 is ON	When GS580.b8, GS581.b8, GS582.b8, or GS583.b8 is OFF		
GT27 GT25 GT23 GS25	SM7	SM6	SM5	SM4	SM3	SM2	SM1	SM0	8464	2200H	2201H	2110H	*2*3
	SM15	SM14	SM13	SM12	SM11	SM10	SM9	SM8		2201H	2200H		
	SM23	SM22	SM21	SM20	SM19	SM18	SM17	SM16	8465	2202H	2203H	2111H	
	SM31	SM30	SM29	SM28	SM27	SM26	SM25	SM24		2203H	2202H		
	SM39	SM38	SM37	SM36	SM35	SM34	SM33	SM32	8466	2204H	2205H	2112H	
	SM47	SM46	SM45	SM44	SM43	SM42	SM41	SM40		2205H	2204H		
	Unused			SM52	SM51	SM50	SM49	SM48	8467	2206H	2207H	2113H	
	Unused								—	—	—		
GT21 GS21	SM7	SM6	SM5	SM4	SM3	SM2	SM1	SM0	—		2201H	2110H	*2*3
	SM15	SM14	SM13	SM12	SM11	SM10	SM9	SM8			2200H		
	SM23	SM22	SM21	SM20	SM19	SM18	SM17	SM16			2203H	2111H	
	SM31	SM30	SM29	SM28	SM27	SM26	SM25	SM24			2202H		
	SM39	SM38	SM37	SM36	SM35	SM34	SM33	SM32			2205H	2112H	
	SM47	SM46	SM45	SM44	SM43	SM42	SM41	SM40			2204H		
	Unused			SM52	SM51	SM50	SM49	SM48			2207H	2113H	
	Unused										—		

*1 For the address specification method for each data format, refer to the following.

☞ Page 179 Message Formats

- Formats 1, 2 : GOT-A900 Series microcomputer connection
- Formats 3, 4 : GOT-F900 series microcomputer connection
- Formats 5 : SCHNEIDER EJH's memory link method
- Formats 6, 7 : 4E frame
- Formats 8, 9 : QnA compatible 3E frame

*2 In formats 6, 7, values are specified within a range of SM0 to 52.

*3 For reading or writing data in word units, specify the addresses in 16-point units. (Example: SM0, SM16, SM32, and others)

3.4 Message Formats

This section describes the format of messages that can be used in the microcomputer connection (Ethernet).

Data format type

Set the data format in the communication detail settings in GT Designer3.
For details of the data format setting method, refer to the following.
☞ Page 233 Setting communication interface (Controller Setting)

Formats 1, 2 (GOT-A900 Series microcomputer connection)

This is the same message format as when a microcomputer connection is established with the GOT-A900 series.

Type	Name	Description	Refer to
Format 1	GOT-A900 series microcomputer connection (ASCII)	This format is used when the GOT is connected to the host in a 1:1 connection. The data format is ASCII.	☞ Page 184 Formats 1, 2
Format 2	GOT-A900 series microcomputer connection (Binary)	This format is used when the GOT is connected to the host in a 1:1 connection. The data format is Binary.	

Formats 3, 4 (GOT-F900 series microcomputer connection)

This is the compatible message format with when a microcomputer connection is established with the GOT-F900 Series.

Type	Name	Description	Refer to
Format 3	GOT-F900 series microcomputer connection (ASCII)	This format is used when the GOT is connected to the host in a 1:1 connection. The data format is ASCII.	☞ Page 196 Formats 3, 4
Format 4	GOT-F900 series microcomputer connection (Binary)	This format is used when the GOT is connected to the host in a 1:1 connection. The data format is Binary.	

Format 5 (SCHNEIDER EJH's memory link method)

This is the message format compatible with the protocol of the SCHNEIDER EJH's memory link method.

Type	Name	Description	Refer to
Format 5	SCHNEIDER EJH's memory link method	This is the basic format of the SCHNEIDER EJH's memory link method.	☞ Page 210 Format 5

Formats 6, 7 (4E frame)

This is the compatible message format with when a communication is performed using the MC protocol of Q/QnA Series serial communication module.

Type	Name	Description	Refer to
Format 6	4E frame (ASCII)	This is the basic format of the MC protocols. The data format is ASCII.	☞ Page 214 Formats 6, 7
Format 7	4E frame (Binary)	This is the basic format of the MC protocols. The data format is Binary.	

Formats 8, 9 (QnA compatible 3E frame)

This is the compatible message format with when a communication is performed using the MC protocol of Q/QnA Series serial communication module.

Type	Name	Description	Refer to
Format 8	QnA compatible 3E frame (ASCII)	This is the basic format of the MC protocols. The data format is ASCII.	☞ Page 224 Formats 8, 9
Format 9	QnA compatible 3E frame (Binary)	This is the basic format of the MC protocols. The data format is Binary.	

List of commands

The following shows the list of commands available in each data format.
Specify the number of devices within each device range in a request message.
If the specified number of devices exceeds the device range, the device value cannot be written or read by a command.
For the device range, refer to the following.
☞ Page 165 Device Data Area
Interrupt output is available in all formats only when [Protocol] is set to [TCP/IP] in the communication detail settings.

List of commands for format 1 (GOT-A900 series microcomputer connection (ASCII))

Command		Command name	Description	Max. number of points processed
Symbol	ASCII code			
RD	52H 44H	Batch read in word units	Reads bit devices in 16-point units.	99 words (1584 points)
			Reads word devices in 1-point units.	99 points
WD	57H 44H	Batch write in word units	Writes to bit devices in 16-point units.	99 words (1584 points)
			Writes to word devices in 1-point units.	99 points
RR	52H 52H	Random read in word units *1	Reads multiple different bit devices in 16-point units.	256 words (4096 points)
			Reads multiple different word devices in 1-point units.	256 points
RW	52H 57H	Random write in word units *1	Writes to multiple different word devices in 16-point units.	128 words (2048 points)
			Writes to multiple different word devices in 1-point units.	128 points
TR	54H 52H	Read clock data	Reads the clock data of the GOT.	—
TS	54H 53H	Set clock data	Sets the clock data of the GOT.	—

*1 Mixed specification of bit devices and word devices is also possible.

List of commands for format 2 (GOT-A900 series microcomputer connection (Binary))

Command	Command name	Description	Max. number of points processed
RD	Batch read in word units	Reads bit devices in 16-point units.	255 words (4080 points)
		Reads word devices in 1-point units.	255 points
WD	Batch write in word units	Writes to bit devices in 16-point units.	255 words (4080 points)
		Writes to word devices in 1-point units.	255 points
RR	Random read in word units *1	Reads multiple different bit devices in 16-point units.	512 words (8192 points)
		Reads multiple different word devices in 1-point units.	512 points
RW	Random write in word units *1	Writes to multiple different word devices in 16-point units.	256 words (4096 points)
		Writes to multiple different word devices in 1-point units.	256 points
TR	Read clock data	Reads the clock data of the GOT.	—
TS	Set clock data	Sets the clock data of the GOT.	—

*1 Mixed specification of bit devices and word devices is also possible.

List of commands for formats 3, 4 (GOT-F900 series microcomputer connection)

Command		Command name	Description	Max. number of points processed
Symbol	ASCII code			
0	30H	Batch read (without station No.)	Reads bit devices in byte units.	255 bytes (2040 points)
			Reads word devices in byte units.	255 bytes (127 points)
A	41H	Batch read (with station No.)	Reads bit devices in byte units.	255 bytes (2040 points)
			Reads word devices in byte units.	255 bytes (127 points)
1	31H	Batch write (without station No.)	Writes to bit devices in byte units.	255 bytes (2040 points)
			Writes to word devices in byte units.	255 bytes (127 points)
B	42H	Batch write (with station No.)	Writes to bit devices in byte units.	255 bytes (2040 points)
			Writes to word devices in byte units.	255 bytes (127 points)
3	33H	Multi-point write in bit units (without station No.)	Writes bit patterns (bit ON or OFF, inversion, direct specification) in 1-point units (8 bits for 1 point) to a specified device.	99 points
D	44H	Multi-point write in bit units (with station No.)		
4	34H	Fill command (without station No.)	Writes the same value to a range of specified devices.	—
E	45H	Fill command (with station No.)		
5	35H	Set clock data (without station No.)	Sets the clock data of the GOT.	—
F	46H	Set clock data (with station No.)		
6	36H	Read clock data (without station No.)	Reads the clock data of the GOT.	—
G	47H	Read clock data (with station No.)		

3

List of commands for format 5 (SCHNEIDER EJH's memory link method)

Command		Command name	Description	Max. number of points processed
Symbol	ASCII code			
R	52H	Batch read in word units	Reads bit devices in 16-point units.	512 words (8192 points)
			Reads word devices in 1-point units.	512 points
W	57H	Batch write in word units	Writes to bit devices in 16-point units.	512 words (8192 points)
			Writes to word devices in 1-point units.	512 points
I	49H	Interrupt inquiry	Issues an interrupt inquiry.	—

List of commands for format 6 (4E frame (ASCII)), format 8 (QnA compatible 3E frame (ASCII))

Command	Sub-command	Command name	Description	Max. number of points processed
0401	0001	Batch read in bit units	Reads bit devices in 1-point units.	896 points
0401	0000	Batch read in word units	Reads bit devices in 16-point units.*3	256 words (4096 points)
			Reads word devices in 1-point units.	256 points
1401	0001	Batch write in bit units	Writes to bit devices in 1-point units.	896 points
1401	0000	Batch write in word units	Writes to bit devices in 16-point units.*3	244 words (3904 points)
			Writes to word devices in 1-point units.	244 points
0403	0000	Random read in word units *1	Reads multiple different bit devices in 16-point and 32-point units.*3	128 words (2048 points)
			Reads multiple different word devices in 1-point and 2-point units.	128 points
1402	0001	Random write in bit units	Writes to multiple different bit devices in 1-point units.	96 points
1402	0000	Random write in word units *1	Writes to multiple different bit devices in 16-point and 32-point units.*3	64 words (1024 points)
			Writes to multiple different word devices in 1-point and 2-point units.	64 points
0406	0000	Multiple block batch read	Reads multiple blocks. A bit device (16 bits for 1 point) or a word device (1 word for 1 point) is regarded as one block.*3	80 points
1406	0000	Multiple block batch write	Writes multiple blocks. A bit device (16 bits for 1 point) or a word device (1 word for 1 point) is regarded as one block.*3	64 points
1901*2	0000	Read clock data	Reads the clock data of the GOT.	—
0901*2	0000	Set clock data	Sets the clock data of the GOT.	—

*1 Mixed specification of bit devices and word devices is also possible.
*2 This is a dedicated command of GOT for the microcomputer connection.
*3 Specifies the address of bit devices in 16-point units. (Example: M0, M16, M32, and others)

List of commands for format 7 (4E frame (Binary)), format 9 (QnA compatible 3E frame (Binary))

Command	Sub-command	Command name	Description	Max. number of points processed
0401	0001	Batch read in bit units	Reads bit devices in 1-point units.	896 points
0401	0000	Batch read in word units	Reads bit devices in 16-point units. *3	512 words (8192 points)
			Reads word devices in 1-point units.	512 points
1401	0001	Batch write in bit units	Writes to bit devices in 1-point units.	896 points
1401	0000	Batch write in word units	Writes to bit devices in 16-point units. *3	496 words (7936 points)
			Writes to word devices in 1-point units.	496 points
0403	0000	Random read in word units *1	Reads multiple different bit devices in 16-point and 32-point units. *3	255 words (4080 points)
			Reads multiple different word devices in 1-point and 2-point units.	255 points
1402	0001	Random write in bit units	Writes to multiple different bit devices in 1-point units.	188 points
1402	0000	Random write in word units *1	Writes to multiple different bit devices in 16-point and 32-point units. *3	128 words (2048 points)
			Writes to multiple different word devices in 1-point and 2-point units.	128 points
0406	0000	Multiple block batch read	Reads multiple blocks. A bit device (16 bits for 1 point) or a word device (1 word for 1 point) is regarded as one block. *3	160 points
1406	0000	Multiple block batch write	Writes multiple blocks. A bit device (16 bits for 1 point) or a word device (1 word for 1 point) is regarded as one block. *3	128 points
1901 *2	0000	Read clock data	Reads the clock data of the GOT.	—
0901 *2	0000	Set clock data	Sets the clock data of the GOT.	—

*1 Mixed specification of bit devices and word devices is also possible.
*2 This is a dedicated command of GOT for the microcomputer connection.
*3 Specifies the address of bit devices in 16-point units. (Example: M0, M16, M32, and others)

Formats 1, 2

The following describes the message formats 1 and 2 (GOT-A900 Series microcomputer connection).

GT 27 GT 25 GT 23 GS 25

Basic format of data communication

Item	Message format
Request message (host → GOT)	| Command | Data | | (H) (L) | |
Response message during normal communication (GOT → host)	(1) During processing of read commands | Data | (2) During processing of write commands | ACK | | 06H |
Response message during faulty communication (GOT → host)	| NAK | Error Code | | 15H | |
During interrupt output *2	| Output value | | 1/2/4 bytes*1 |

*1 Set the number of interrupt data bytes in the communication detail settings in GT Designer3.
For setting the number of interrupt data bytes, refer to the following.
☞ Page 233 Setting communication interface (Controller Setting)

*2 Interrupt output can be executed by writing the data to the interrupt output devices (D13 and D14).
☞ Page 166 D devices

Details of data items in message format

Point

Data code during communication

Communication of the format 1 is performed in ASCII code. (excluding interrupt output)

Communication of the format 2 is performed in Binary code.

■Control codes

Symbol	ASCII code	Description
EOT	04H	End of Transmission
ENQ	05H	Enquiry (start of enquiry)
NAK	15H	Negative ACK (error response)
ACK	06H	Acknowledge (write completion response)
LF	0AH	Line Feed
CL	0CH	Clear
CR	0DH	Carriage Return

■Command

Specifies the contents to access from the host to GOT.

The command is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.

For details of the commands that can be used, refer to the following.

☞ Page 180 List of commands

■Address

Specifies the head No. of the device data to be read or written.

In the format 1, the address notated in decimal is converted to a 4-digit ASCII code (Hex) and transmitted from the upper digit.

In the format 2, the address notated in decimal is converted to a 2-digit Binary code (binary) and transmitted from the upper digit.

For details of the device range that can be accessed, refer to the following.

☞ Page 165 Device Data Area

■Number of points

Specifies the device data points to be read or written. (Setting range: Range of the maximum number of points processed for each command)

In the format 1, the address notated in decimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.

In the format 2, the address notated in decimal is converted to a 1-digit Binary code (binary) and transmitted.

■Year, month, day, hour, minute, second and day of the week data

Specifies the year, month, day, hour, minute, second, and day of the week data to be read or set to the GOT clock data.

In the format 1, the address notated in decimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.

In the format 2, the address notated in decimal is converted to a 1-digit Binary code (binary) and transmitted.

☞ Page 192 Read clock data (TR) command

☞ Page 193 Set clock data (TS) command

■Data

Specifies the data to read from or write to the specified device data. (word unit)

In the format 1, the address notated in hexadecimal is converted to a 4-digit ASCII code (Hex) and transmitted from the upper digit.

In the format 2, the address notated in hexadecimal is converted to a 2-digit Binary code (binary) and transmitted from the upper digit.

■Error code

This is the response message at faulty communication appended with error contents. Error code is transmitted in 1 byte.

For the error codes, refer to the following.

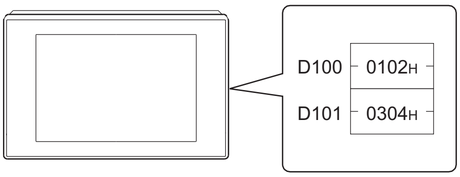
☞ Page 195 Error code list

Message Formats

■Batch read in word units (RD) command

- When reading a word device

The following shows an example of reading the two points of the virtual devices D100 and D101.
(Assuming D100=0102H, D101=0304H are stored.)



Item	Message format
Request message (host → GOT)	(format 1: GOT-A900 Series microcomputer connection (ASCII))
	(format 2: GOT-A900 Series microcomputer connection (Binary))
Response message during normal communication (GOT → host)	(format 1: GOT-A900 Series microcomputer connection (ASCII))
	(format 2: GOT-A900 Series microcomputer connection (Binary))
Response message during faulty communication (GOT → host)	The above is a case where the sum check error (06H) has occurred.

Request message (host → GOT), format 1 (ASCII):

Command		Address				Number of points	
R	D	0	1	0	0	0	2
52H	44H	30H	31H	30H	30H	30H	32H
(H)	(L)	(H)	—	—	(L)	(H)	(L)

Request message (host → GOT), format 2 (Binary):

Command		Address		Number of points
R	D	00H	64H	02H

Response message during normal communication (GOT → host), format 1 (ASCII):

Data 1 (D100)				Data 2 (D101)			
0	1	0	2	0	3	0	4
30H	31H	30H	32H	30H	33H	30H	34H
(H)	—	—	(L)	(H)	—	—	(L)

Response message during normal communication (GOT → host), format 2 (Binary):

Data 1 (D100)		Data 2 (D101)	
01H	02H	03H	04H

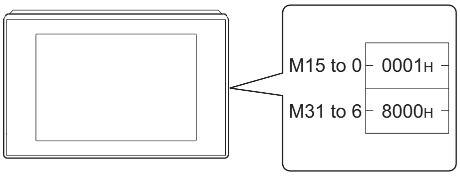
Response message during faulty communication (GOT → host):

NAK	Error code
15H	06H

The above is a case where the sum check error (06H) has occurred.

• When reading a bit device

The following shows an example of reading the two points of the virtual devices M0 to M31.
(Assuming M0="1" and M31="1" are stored.)



Item	Message format
Request message (host → GOT)	(format 1: GOT-A900 Series microcomputer connection (ASCII))

Command		Address				Number of points	
R	D	8	3	2	0	0	2
52H	44H	38H	33H	32H	30H	30H	32H
(H)	(L)	(H)	–	–	(L)	(H)	(L)

(format 2: GOT-A900 Series microcomputer connection (Binary))

Command		Address		Number of points
R	D	83H	20H	02H

Item	Message format
Response message during normal communication (GOT → host)	(format 1: GOT-A900 Series microcomputer connection (ASCII))

Data 1 (M15 to 0)				Data 2 (M31 to 16)			
0	0	0	1	8	0	0	0
30H	30H	30H	31H	38H	30H	30H	30H
(H)	–	–	(L)	(H)	–	–	(L)

M15	M14	M13	M12	M11	M10	M9	M8	M7	M6	M5	M4	M3	M2	M1	M0	M31	M30	M29	M28	M27	M26	M25	M24	M23	M22	M21	M20	M19	M18	M17	M16
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(format 2: GOT-A900 Series microcomputer connection (Binary))

Data 1 (M15 to 0)		Data 2 (M31 to 16)	
00H	01H	80H	00H

M15	M14	M13	M12	M11	M10	M9	M8	M7	M6	M5	M4	M3	M2	M1	M0	M31	M30	M29	M28	M27	M26	M25	M24	M23	M22	M21	M20	M19	M18	M17	M16
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Item	Message format
Response message during faulty communication (GOT → host)	

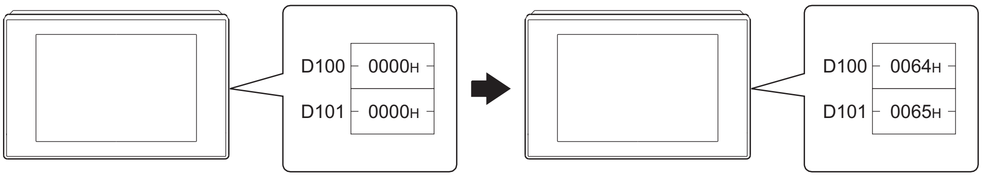
NAK	Error code
15H	06H

The above is a case where the sum check error (06H) has occurred.

■Batch write in word units (WD) command

- When writing to a word device

The following shows as example of writing "0064H"and "0065H"to virtual devices D100 and D101.

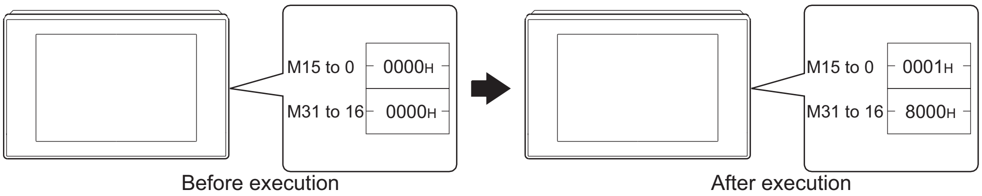


Before execution After execution

<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Request message
(host → GOT)</td><td>(format 1: GOT-A900 Series microcomputer connection (ASCII))
<table>
<tr><td colspan="2">Command</td><td colspan="4">Address</td><td colspan="2">Number of points</td><td colspan="4">Data 1(D100)</td><td colspan="4">Data 2 (D101)</td></tr>
<tr><td>W</td><td>D</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>2</td><td>0</td><td>0</td><td>6</td><td>4</td><td>0</td><td>0</td><td>6</td><td>5</td></tr>
<tr><td>57H</td><td>44H</td><td>30H</td><td>31H</td><td>30H</td><td>30H</td><td>30H</td><td>32H</td><td>30H</td><td>30H</td><td>36H</td><td>34H</td><td>30H</td><td>30H</td><td>36H</td><td>35H</td></tr>
<tr><td>(H)</td><td>(L)</td><td>(H)</td><td>—</td><td>—</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>—</td><td>—</td><td>(L)</td><td>(H)</td><td>—</td><td>—</td><td>(L)</td></tr>
</table>
(format 2: GOT-A900 Series microcomputer connection (Binary))
<table>
<tr><td colspan="2">Command</td><td colspan="2">Address</td><td>Number of points</td><td colspan="2">Data1 (D100)</td><td colspan="2">Data 2 (D101)</td></tr>
<tr><td>W</td><td>D</td><td>00H</td><td>64H</td><td>02H</td><td>00H</td><td>64H</td><td>00H</td><td>65H</td></tr>
</table>
</td></tr>
<tr><td>Response message during normal communication
(GOT → host)</td><td>
<table>
<tr><td>ACK</td></tr>
<tr><td>06H</td></tr>
</table>
</td></tr>
<tr><td>Response message during faulty communication
(GOT → host)</td><td>
<table>
<tr><td>NAK</td><td>Error code</td></tr>
<tr><td>15H</td><td>06H</td></tr>
</table>
The above is a case where the sum check error (06H) has occurred.</td></tr>
</table>

- When writing to a bit device

The following shows an example of writing "1"s to virtual devices M0 and M31.



Item	Message format
Request message (host → GOT)	(format 1: GOT-A900 Series microcomputer connection (ASCII))

Command		Address				Number of points		Data 1 (M15 to 0)				Data 2 (M31 to 16)			
W	D	8	3	2	0	0	2	0	0	0	1	8	0	0	0
57H	44H	38H	33H	32H	30H	30H	32H	30H	30H	30H	31H	38H	30H	30H	30H
(H)	(L)	(H)	–	–	(L)	(H)	(L)	(H)	–	–	(L)	(H)	–	–	(L)

M15	M14	M13	M12	M11	M10	M9	M8	M7	M6	M5	M4	M3	M2	M1	M0	M31	M30	M29	M28	M27	M26	M25	M24	M23	M22	M21	M20	M19	M18	M17	M16
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(format 2: GOT-A900 Series microcomputer connection (Binary))

Command		Address		Number of points	Data 1 (M15 to 0)		Data 2 (M31 to 16)	
W	D	20H	80H	02H	00H	01H	80H	00H

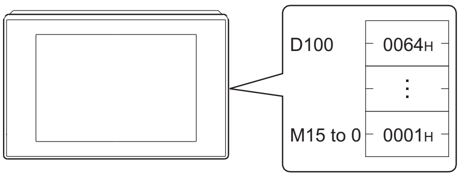
M15	M14	M13	M12	M11	M10	M9	M8	M7	M6	M5	M4	M3	M2	M1	M0	M31	M30	M29	M28	M27	M26	M25	M24	M23	M22	M21	M20	M19	M18	M17	M16
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Item	Message format
Response message during normal communication (GOT → host)	ACK: 06H
Response message during faulty communication (GOT → host)	NAK: 15H, Error code: 06H The above is a case where the sum check error (06H) has occurred.

■Random read in word units (RR) command

The following shows an example of reading the two points of the virtual devices D100 and M0 to M15.

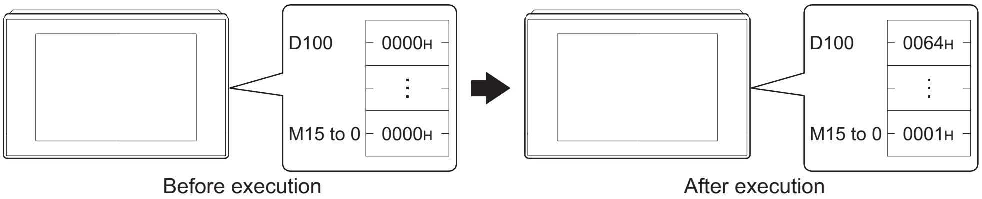
(Assuming D100=0064H, M0=1are stored.)



<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Request message
(host → GOT)</td><td>
(format 1: GOT-A900 Series microcomputer connection (ASCII))
<table>
<tr><td colspan="2">Command</td><td colspan="4">Address 1</td><td colspan="4">Address 2</td></tr>
<tr><td>R</td><td>R</td><td>0</td><td>1</td><td>0</td><td>0</td><td>8</td><td>3</td><td>2</td><td>0</td></tr>
<tr><td>52H</td><td>52H</td><td>30H</td><td>31H</td><td>30H</td><td>30H</td><td>38H</td><td>33H</td><td>32H</td><td>30H</td></tr>
<tr><td>(H)</td><td>(L)</td><td>(H)</td><td>–</td><td>–</td><td>(L)</td><td>(H)</td><td>–</td><td>–</td><td>(L)</td></tr>
</table>
(format 2: GOT-A900 Series microcomputer connection (Binary))
<table>
<tr><td colspan="2">Command</td><td colspan="2">Address 1</td><td colspan="2">Address 2</td></tr>
<tr><td>R</td><td>R</td><td>00H</td><td>64H</td><td>20H</td><td>80H</td></tr>
</table>
</td></tr>
<tr><td>Response message
during normal
communication
(GOT → host)</td><td>
(format 1: GOT-A900 Series microcomputer connection (ASCII))
<table>
<tr><td colspan="4">Data 1 (D100)</td><td colspan="4">Data 2 (M15 to 0)</td></tr>
<tr><td>0</td><td>0</td><td>6</td><td>4</td><td>0</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>30H</td><td>30H</td><td>36H</td><td>34H</td><td>30H</td><td>30H</td><td>30H</td><td>31H</td></tr>
<tr><td>(H)</td><td>–</td><td>–</td><td>(L)</td><td>(H)</td><td>–</td><td>–</td><td>(L)</td></tr>
</table>
<table>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>M15</td><td>M14</td><td>M13</td><td>M12</td><td>M11</td><td>M10</td><td>M9</td><td>M8</td><td>M7</td><td>M6</td><td>M5</td><td>M4</td><td>M3</td><td>M2</td><td>M1</td><td>M0</td></tr>
</table>
(format 2: GOT-A900 Series microcomputer connection (Binary))
<table>
<tr><td colspan="2">Data 1
(D100)</td><td colspan="2">Data 2
(M15 to 0)</td></tr>
<tr><td>00H</td><td>64H</td><td>00H</td><td>01H</td></tr>
</table>
<table>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>M15</td><td>M14</td><td>M13</td><td>M12</td><td>M11</td><td>M10</td><td>M9</td><td>M8</td><td>M7</td><td>M6</td><td>M5</td><td>M4</td><td>M3</td><td>M2</td><td>M1</td><td>M0</td></tr>
</table>
</td></tr>
<tr><td>Response message
during faulty
communication
(GOT → host)</td><td>
<table>
<tr><td>NAK</td><td>Error code</td></tr>
<tr><td>15H</td><td>06H</td></tr>
</table>
The above is a case where
the sum check error (06H)
has occurred.
</td></tr>
</table>

■Random write in word units (RW) command

The following shows an example of writing "0064H" and "1" to virtual devices D100 and M0, respectively.



Item: Request message (host → GOT)

Message format:

(format 1: GOT-A900 Series microcomputer connection (ASCII))

Command		Address 1				Data 1 (D100)				Address 2				Data 2 (M15 to 0)			
R	W	0	1	0	0	0	0	6	4	8	3	2	0	0	0	0	1
52H	57H	30H	31H	30H	30H	30H	30H	36H	34H	38H	33H	32H	30H	30H	30H	30H	31H
(H)	(L)	(H)	–	–	(L)	(H)	–	–	(L)	(H)	–	–	(L)	(H)	–	–	(L)

Data 2 (M15 to 0):

M15	M14	M13	M12	M11	M10	M9	M8	M7	M6	M5	M4	M3	M2	M1	M0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

(format 2: GOT-A900 Series microcomputer connection (Binary))

Command		Address 1		Data 1 (D100)		Address 2		Data 2 (M15 to 0)	
R	W	00H	64H	00H	00H	20H	80H	00H	01H

Data 2 (M15 to 0):

M15	M14	M13	M12	M11	M10	M9	M8	M7	M6	M5	M4	M3	M2	M1	M0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Item: Response message during normal communication (GOT → host)

Message format:

ACK
06H

Item: Response message during faulty communication (GOT → host)

Message format:

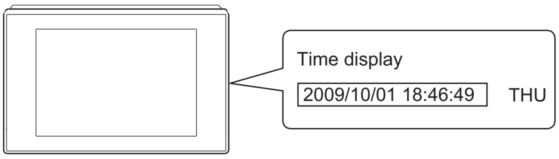
NAK	Error code
15H	06H

The above is a case where the sum check error (06H) has occurred.

■Read clock data (TR) command

The following shows an example of reading the clock data of GOT.

(Assuming that the clock data of GOT has been set to "2009, October 1, 18:46:49, Thursday".)

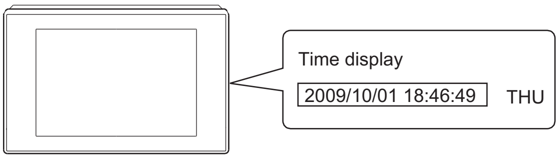


<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Request message
(host → GOT)</td><td>
<table>
<tr><th colspan="2">Command</th></tr>
<tr><td>T</td><td>R</td></tr>
<tr><td>54H</td><td>52H</td></tr>
<tr><td>(H)</td><td>(L)</td></tr>
</table>
</td></tr>
<tr><td>Response message
during normal
communication
(GOT → host)</td><td>
(format 1: GOT-A900 Series microcomputer connection (ASCII))
<table>
<tr><th colspan="2">Year data</th><th colspan="2">Month data</th><th colspan="2">Day data</th><th colspan="2">Hour data</th><th colspan="2">Minute data</th><th colspan="2">Second data</th><th colspan="2">Day-of-week data</th></tr>
<tr><td>0</td><td>9</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>8</td><td>4</td><td>6</td><td>4</td><td>9</td><td>0</td><td>4</td></tr>
<tr><td>30H</td><td>39H</td><td>31H</td><td>30H</td><td>30H</td><td>31H</td><td>31H</td><td>38H</td><td>34H</td><td>36H</td><td>34H</td><td>39H</td><td>30H</td><td>34H</td></tr>
<tr><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td></tr>
</table>
(format 2: GOT-A900 Series microcomputer connection (Binary))
<table>
<tr><th>Year data</th><th>Month data</th><th>Day data</th><th>Hour data</th><th>Minute data</th><th>Second data</th><th>Day-of-week data</th></tr>
<tr><td>09H</td><td>0AH</td><td>01H</td><td>12H</td><td>2EH</td><td>31H</td><td>04H</td></tr>
</table>
</td></tr>
<tr><td>Response message
during faulty
communication
(GOT → host)</td><td>
<table>
<tr><th>NAK</th><th>Error code</th></tr>
<tr><td>15H</td><td>06H</td></tr>
</table>
The above is a case where
the sum check error (06H)
has occurred.
</td></tr>
</table>

■Set clock data (TS) command

The following shows an example of setting the clock data of GOT.

(Assuming the clock data of GOT is to be set to "2009, October 1, 18:46:49 Thursday".)



After execution

<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Request message
(host → GOT)</td><td>
(format 1: GOT-A900 Series microcomputer connection (ASCII))
<table>
<tr><td colspan="2">Command</td><td colspan="2">Year data</td><td colspan="2">Month data</td><td colspan="2">Day data</td><td colspan="2">Hour data</td><td colspan="2">Minute data</td><td colspan="2">Second data</td><td colspan="2">Day-of-week data</td></tr>
<tr><td>T</td><td>S</td><td>0</td><td>9</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>8</td><td>4</td><td>6</td><td>4</td><td>9</td><td>0</td><td>4</td></tr>
<tr><td>54H</td><td>53H</td><td>30H</td><td>39H</td><td>31H</td><td>30H</td><td>30H</td><td>31H</td><td>31H</td><td>38H</td><td>34H</td><td>36H</td><td>34H</td><td>39H</td><td>30H</td><td>34H</td></tr>
<tr><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td></tr>
</table>
(format 2: GOT-A900 Series microcomputer connection (Binary))
<table>
<tr><td colspan="2">Command</td><td>Year data</td><td>Month data</td><td>Day data</td><td>Hour data</td><td>Minute data</td><td>Second data</td><td>Day-of-week data</td></tr>
<tr><td>T</td><td>S</td><td>09H</td><td>0AH</td><td>01H</td><td>12H</td><td>2EH</td><td>31H</td><td>04H</td></tr>
</table>
</td></tr>
<tr><td>Response message during normal communication
(GOT → host)</td><td>
<table>
<tr><td>ACK</td></tr>
<tr><td>06H</td></tr>
</table>
</td></tr>
<tr><td>Response message during faulty communication
(GOT → host)</td><td>
<table>
<tr><td>NAK</td><td>Error code</td></tr>
<tr><td>15H</td><td>06H</td></tr>
</table>
The above is a case where the sum check error (06H) has occurred.
</td></tr>
</table>

Point

When a wrong day of the week has been set by the clock data setting command

If a wrong day of the week is set by the clock data setting commands, the corrected day of the week will be set.

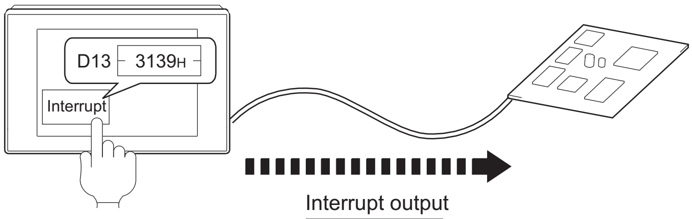
Example: When June 1, 2004 (Thursday) is set by the clock data setting command (The actual day of week is Tuesday.)

Tuesday (TUE) will be set.

■In the case of interrupt outputs

Write data to the interrupt output devices (D13 and D14) to output the data to the host.
(Assuming that "3139H" is written to D13 and "AA55H" to D14.)

Example) When [Interrupt Data Byte] in the communication detail settings is set to 2 byte as shown in (2) of the table below



Interrupt output

Output value 1	Output value 2
31H	39H

<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Interrupt output
(GOT → host)</td><td>
(1) When [Interrupt Data Byte] in the communication detail settings is set to [1]
<table><tr><th>Output value 1</th></tr><tr><td>39H</td></tr></table>
(2) When [Interrupt Data Byte] in the communication detail settings is set to [2]
<table><tr><th>Output value 1</th><th>Output value 2</th></tr><tr><td>31H</td><td>39H</td></tr></table>
(3) When [Interrupt Data Byte] in the communication detail settings is set to [4]
• When [32bit Storage] in the communication detail settings is set to [LH Order]
<table><tr><th>Output value1</th><th>Output value2</th><th>Output value3</th><th>Output value4</th></tr><tr><td>AAH</td><td>55H</td><td>31H</td><td>39H</td></tr></table>
• When [32bit Storage] in the communication detail settings is set to [HL Order]
<table><tr><th>Output value1</th><th>Output value2</th><th>Output value3</th><th>Output value4</th></tr><tr><td>31H</td><td>39H</td><td>AAH</td><td>55H</td></tr></table>
</td></tr>
</table>

Point

Interrupt output

To disable the interrupt output, turn on SM52 (interrupt code output disable flag).

☞ Page 177 SM devices

Error code list

The error contents (error code) are appended to the response message during faulty communication.
The following shows error code, error contents, cause, and measures.

Error code	Description	Action
10H	Command error An unsupported command was used.	• Review the contents of the message to transmit. • Check the commands in the message. ☞ Page 180 List of commands
11H	Message length error The upper limit of the data length that can be received by the GOT has been exceeded.	• Review the contents of the message to transmit. • Check the data length of the message. (data length of the data section, etc.)
15H	Clock data setting error The setting value of the clock data has error.	• Review the contents of the message to transmit. • Check whether the non-existent data is set (e.g. setting "07" at the day of the week) as clock data.
7AH	Address error The start address of the read or write device is out of range.	• Review the contents of the message to transmit. • Check the devices that can be used and the device ranges. ☞ Page 165 Device Data Area
7EH	Exceeded number of points error The read or write range has exceeded the device range.	

Precautions

■Storage order for 32-bit data

To use the program of the GOT-A900 series by setting 32-bit data to the GOT1000 series, set [HL Order] for [32bit Storage] in the communication detail settings.
If [LH Order] is set, higher-order bits and lower-order bits are reversed when 32-bit data is displayed on or written to the GOT.

Formats 3, 4

The following describes the message formats 3 and 4 (GOT-F900 Series microcomputer connection).

GT27 GT25 GT23 GS25

Basic format of data communication

Item	Message format
Request message (host → GOT)	(1) w/out station No. Com-mand | Data
	(2) w/station No. Com-mand | Station No. (H) (L) | Data
Response message during normal communication (GOT → host)	(1) During processing of read commands Data
	(2) During processing of write commands ACK 06H
Response message during faulty communication (GOT → host)	NAK 15H
During interrupt output *2	Output value 1/2/4 bytes*1

*1 Set the number of interrupt data bytes in the communication detail settings in GT Designer3.
For setting the number of interrupt data bytes, refer to the following.
☞ Page 233 Setting communication interface (Controller Setting)

*2 Interrupt output can be executed by writing the data to the interrupt output devices (D13 and D14).
☞ Page 166 D devices

Details of data items in message format

Point

Data code during communication
Communication of the format 3 is performed in ASCII code. (excluding interrupt output)
Communication of the format 4 is performed in Binary code.

■Control codes

Symbol	ASCII code	Description
EOT	04H	End of Transmission
ENQ	05H	Enquiry (start of enquiry)
NAK	15H	Negative ACK (error response)
ACK	06H	Acknowledge (write completion response)
LF	0AH	Line Feed
CL	0CH	Clear
CR	0DH	Carriage Return

■Command

Specifies the contents to access from the host to GOT.
The command is converted to a 1-digit ASCII code (Hex) and transmitted.
For details of the commands that can be used, refer to the following.
☞ Page 180 List of commands

■Station No.

Station No. is used to identify the GOT with which the host communicates. (Setting range: 0 to 31)
In the format 3, the address notated in decimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.
In the format 4, the address notated in decimal is converted to a 1-digit Binary code (binary) and transmitted.
The GOT processes only commands whose station No. matches the "Host Address (0 to 31)" set at "Communication Detail Settings". (The message of command whose station No. does not match is ignored.)
For setting method of "Communication Detail Settings", refer to the following.
☞ Page 233 Setting communication interface (Controller Setting)

■Address

Specifies the head No. of the device data to be read or written.
In the format 3, the address notated in hexadecimal is converted to a 4-digit ASCII code (Hex) and transmitted from the upper digit.
In the format 4, the address notated in hexadecimal is converted to a 2-digit Binary code (binary) and transmitted from the upper digit.
For details of the device range that can be accessed, refer to the following.
☞ Page 165 Device Data Area

■Bit pattern

Specifies the pattern of the bits to change.
In the format 3, the address notated in hexadecimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.
In the format 4, the address notated in hexadecimal is converted to a 1-digit Binary code (binary) and transmitted.
☞ Page 203 Multi-point write in bit units (3) command (without station No.), multi-point write in bit units (D) command (with station No.)

■Write specification
Specifies how to change the data of the specified address by bit pattern.
(Setting range: 0 to 3)
Data notated in decimal is converted to a 1-digit ASCII code (Hex) and transmitted.
☞ Page 203 Multi-point write in bit units (3) command (without station No.), multi-point write in bit units (D) command (with station No.)

■Number of bytes
Specifies the number of bytes of the device data to be batch read or written. (Setting range: 0 to FFH)
In the format 3, the address notated in hexadecimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.
In the format 4, the address notated in hexadecimal is converted to a 1-digit Binary code (binary) and transmitted.

■Number of points
Specifies the device data points to be written to multi-point in bit units. (Setting range: Range of the maximum number of points processed for each command)
In the format 3, the address notated in decimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.
In the format 4, the address notated in decimal is converted to a 1-digit Binary code (binary) and transmitted.

■Year, month, day, hour, minute, second and day of the week data
Specifies year, month, day, hour, minute, second, and day of the week data to be read or set to the GOT clock data.
In the format 3, the address notated in decimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.
In the format 4, the address notated in decimal is converted to a 1-digit Binary code (binary) and transmitted.
☞ Page 206 Read clock data (6) command (without station No.), read clock data (G) command (with station No.)
☞ Page 207 Set clock data (5) command (without station No.), set clock data (F) command (with station No.)

■Data
Specifies the data to read from or write to the specified device data. (word unit)
In the format 3, the address notated in hexadecimal is converted to a 4-digit ASCII code (Hex) and transmitted from the upper digit.
In the format 4, the address notated in hexadecimal is converted to a 2-digit Binary code (binary) and transmitted from the upper digit.

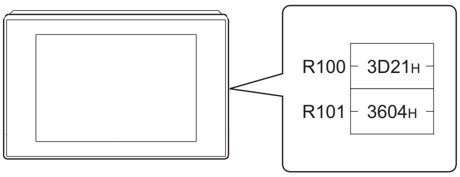
■Write data
Specifies the data to write to the specified device data.
The address notated in hexadecimal is converted to a 2-digit ASCII code (Hex) and transmitted from the upper digit.

Message format

■Batch read (0) command (without station No.), batch read (A) command (with station No.)

- When reading a word device

The following shows an example of reading four bytes of virtual devices R100 to R101 from the GOT at station No.15.
(Assuming R100=3D21H, R101=3604H are stored.)



Item	Message format
Request message (host → GOT)	(format 3: GOT-F900 Series microcomputer connection (ASCII))

Com-mand	Station No.		Address				Number of bytes	
A	1	5	0	0	C	8	0	4
41H	31H	35H	30H	30H	43H	38H	30H	34H
	(H)	(L)	(H)	–	–	(L)	(H)	(L)

(format 4: GOT-F900 Series microcomputer connection (Binary))

Com-mand	Station No.	Address		Number of bytes
A	0FH	00H	C8H	04H

Item	Message format
Response message during normal communication (GOT → host)	(format 3: GOT-F900 Series microcomputer connection (ASCII))

Data 1 (R100 upper)		Data 2 (R100 lower)		Data 3 (R101 upper)		Data 4 (R101 lower)	
3	D	2	1	3	6	0	4
33H	44H	32H	31H	33H	36H	30H	34H
(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)

(format 4: GOT-F900 Series microcomputer connection (Binary))

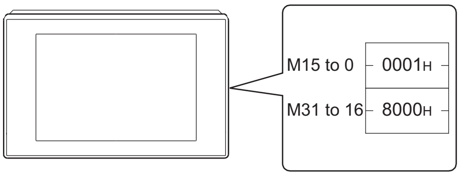
Data 1 (R100 upper)	Data 2 (R100 lower)	Data 3 (R101 upper)	Data 4 (R101 lower)
3DH	21H	36H	04H

Item	Message format
Response message during faulty communication (GOT → host)	

NAK
15H

• When reading a bit device

The following shows an example of reading four bytes of the virtual devices M0 to M31.
(Assuming M0="1" and M31="1" are stored.)



Item	Message format

Request message (host → GOT)

(format 3: GOT-F900 Series microcomputer connection (ASCII))

Com-mand	Station No.		Address				Number of bytes	
A	1	5	2	0	0	0	0	4
41H	31H	35H	32H	30H	30H	30H	30H	34H
	(H)	(L)	(H)	–	–	(L)	(H)	(L)

(format 4: GOT-F900 Series microcomputer connection (Binary))

Com-mand	Station No.	Address		Number of bytes
A	0FH	20H	00H	04H

Response message during normal communication (GOT → host)

(format 3: GOT-F900 Series microcomputer connection (ASCII))

Data 1 (M7 to 0)		Data 2 (M15 to 8)		Data 3 (M23 to 16)		Data 4 (M31 to 24)	
0	1	0	0	0	0	8	0
30H	31H	30H	30H	30H	30H	38H	30H
(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)

M7	M6	M5	M4	M3	M2	M1	M0	M15	M14	M13	M12	M11	M10	M9	M8	M23	M22	M21	M20	M19	M18	M17	M16	M31	M30	M29	M28	M27	M26	M25	M24
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0

(format 4: GOT-F900 Series microcomputer connection (Binary))

Data 1 (M7 to 0)	Data 2 (M15 to 8)	Data 3 (M23 to 16)	Data 4 (M31 to 24)
01H	00H	00H	80H

M7	M6	M5	M4	M3	M2	M1	M0	M15	M14	M13	M12	M11	M10	M9	M8	M23	M22	M21	M20	M19	M18	M17	M16	M31	M30	M29	M28	M27	M26	M25	M24
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0

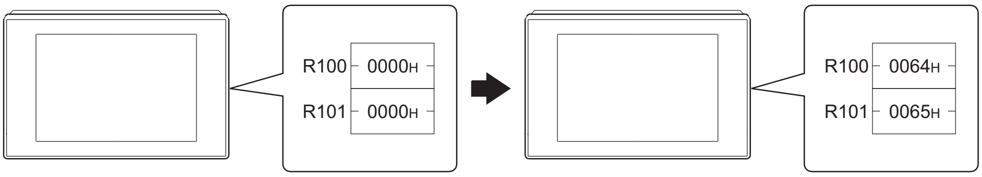
Response message during faulty communication (GOT → host)

NAK
15H

■Batch write (1) command (without station No.), batch write (B) command (with station No.)

• When writing to a word device

The following shows an example of writing "3D21H" and "3604H" to virtual devices R100 and R101 on the GOT at station No.15.



Before execution After execution

Item: Request message (host → GOT)

Message format:

(format 3: GOT-F900 Series microcomputer connection (ASCII))

Command	Station No.		Address				Number of bytes		
B	1	5	0	0	C	8	0	4	Following*1
42H	31H	35H	30H	30H	43H	38H	30H	34H	
	(H)	(L)	(H)	–	–	(L)	(H)	(L)	

*1

Data 1 (R100 upper)		Data 2 (R100 lower)		Data 3 (R101 upper)		Data 4 (R101 lower)	
3	D	2	1	3	6	0	4
33H	44H	32H	31H	33H	36H	30H	34H
(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)

(format 4: GOT-F900 Series microcomputer connection (Binary))

Command	Station No.	Address		Number of bytes	
B	0FH	00H	C8H	04H	Following*2

*2

Data 1 (R100 upper)	Data 2 (R100 lower)	Data 3 (R101 upper)	Data 4 (R101 lower)
3DH	21H	36H	04H

Item: Response message during normal communication (GOT → host)

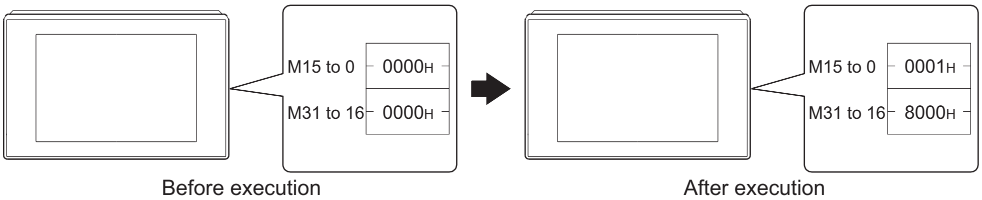
ACK
06H

Item: Response message during faulty communication (GOT → host)

NAK
15H

- When writing to a bit device

The following shows an example of writing "1"s to virtual devices M0 and M31 on the GOT at station No.15.



Item	Message format
Request message (host → GOT)	(format 3: GOT-F900 Series microcomputer connection (ASCII))

Com-mand	Station No.		Address				Number of bytes		
B	1	5	2	0	0	0	0	4	Following*1
42H	31H	35H	32H	30H	30H	30H	30H	34H	
	(H)	(L)	(H)	–	–	(L)	(H)	(L)	

*1

Data 1 (M7 to 0)		Data 2 (M15 to 8)		Data 3 (M23 to 16)		Data 4 (M31 to 24)	
0	1	0	0	0	0	8	0
30H	31H	30H	30H	30H	30H	38H	30H
(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)

0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
M7	M6	M5	M4	M3	M2	M1	M0	M15	M14	M13	M12	M11	M10	M9	M8	M23	M22	M21	M20	M19	M18	M17	M16	M31	M30	M29	M28	M27	M26	M25	M24

(format 4: GOT-F900 Series microcomputer connection (Binary))

Com-mand	Station No.	Address		Number of bytes	
B	0FH	20H	00H	04H	Following*2

*2

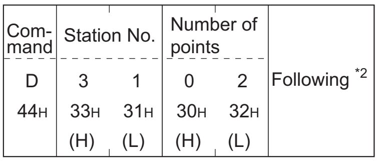
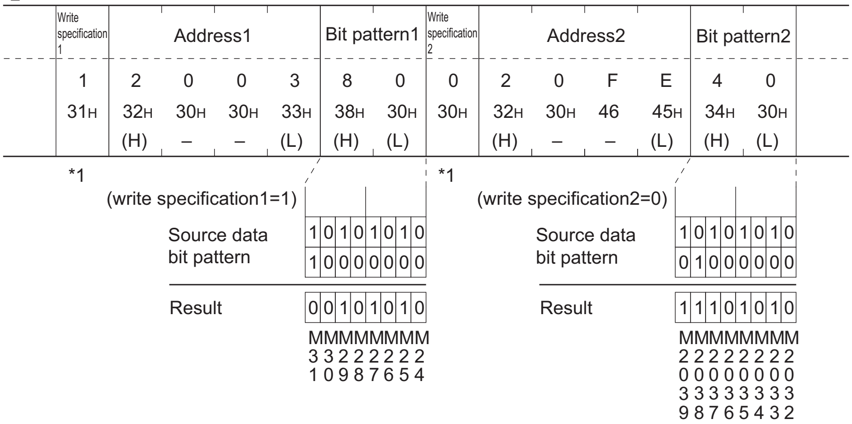
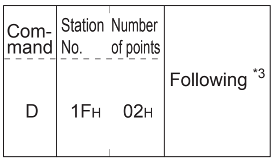
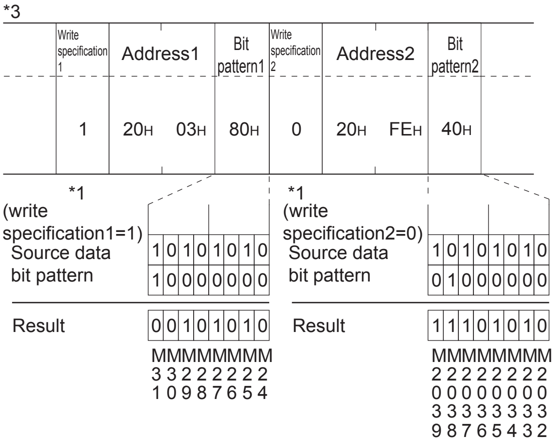
Data 1 (M7 to 0)	Data 2 (M15 to 8)	Data 3 (M23 to 16)	Data 4 (M31 to 24)
01H	00H	00H	80H

0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
M7	M6	M5	M4	M3	M2	M1	M0	M15	M14	M13	M12	M11	M10	M9	M8	M23	M22	M21	M20	M19	M18	M17	M16	M31	M30	M29	M28	M27	M26	M25	M24

Item	Message format
Response message during normal communication (GOT → host)	ACK 06H
Response message during faulty communication (GOT → host)	NAK 15H

■Multi-point write in bit units (3) command (without station No.), multi-point write in bit units (D) command (with station No.)

The following shows an example of turning OFF the virtual device M31 and turning ON the virtual device M2038 on the GOT at station No.31.

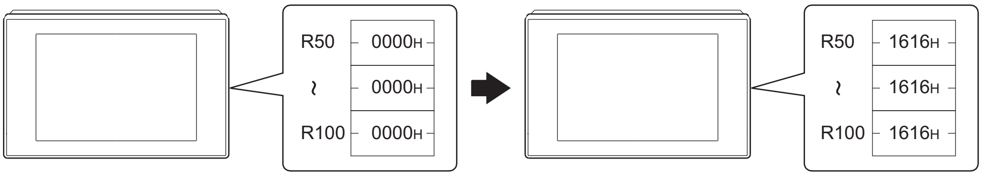
Item	Message format
Request message (host → GOT)	(format 3: GOT-F900 Series microcomputer connection (ASCII))  *2  (format 4: GOT-F900 Series microcomputer connection (Binary))  *3 
Response message during normal communication (GOT → host)	ACK 06H
Response message during faulty communication (GOT → host)	NAK 15H

*1 The write specification specifies how the data of the specified address is changed in the bit pattern.

Write specification	Function	Description	Action example
0	ON specification	Bits set to "1" by the bit pattern are turned ON.	Original data1010 Bit pattern1100
			Result1110
1	OFF specification	Bits set to "1" by the bit pattern are turned OFF.	Original data1010 Bit pattern1100
			Result0010
2	Invert specification	Bits set to "1" by the bit pattern are inverted.	Original data1010 Bit pattern1100
			Result0110
3	Write specification	The numerical values to write by the bit pattern are specified directly.	Original data1010 Bit pattern1100
			Result1100

■Fill command (4) (without station No.), fill command (E) (with station No.)

The following shows an example of writing "16"s to virtual devices R50 to R100 on the GOT at station No.27.



Before execution　　　　After execution

<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Request message
(host → GOT)</td><td>(format 3: GOT-F900 Series microcomputer connection (ASCII))
<table>
<tr><th>Com-mand</th><th colspan="2">Station No.</th><th colspan="4">Start address</th><th colspan="4">End address</th><th colspan="2">Write Data</th></tr>
<tr><td>E</td><td>2</td><td>7</td><td>0</td><td>0</td><td>6</td><td>4</td><td>0</td><td>0</td><td>C</td><td>9</td><td>1</td><td>6</td></tr>
<tr><td>45H</td><td>32H</td><td>37H</td><td>30H</td><td>30H</td><td>36H</td><td>34H</td><td>30H</td><td>30H</td><td>43H</td><td>39H</td><td>31H</td><td>36H</td></tr>
<tr><td></td><td>(H)</td><td>(L)</td><td>(H)</td><td>–</td><td>–</td><td>(L)</td><td>(H)</td><td>–</td><td>–</td><td>(L)</td><td>(H)</td><td>(L)</td></tr>
</table>
(format 4: GOT-F900 Series microcomputer connection (Binary))
<table>
<tr><th>Com-mand</th><th>Station No.</th><th colspan="2">Start address</th><th colspan="2">End address</th><th>Write Data</th></tr>
<tr><td>E</td><td>1BH</td><td>00H</td><td>64H</td><td>00H</td><td>C9H</td><td>16H</td></tr>
</table>
</td></tr>
<tr><td>Response message during normal communication
(GOT → host)</td><td>
<table>
<tr><th>ACK</th></tr>
<tr><td>06H</td></tr>
</table>
</td></tr>
<tr><td>Response message during faulty communication
(GOT → host)</td><td>
<table>
<tr><th>NAK</th></tr>
<tr><td>15H</td></tr>
</table>
</td></tr>
</table>

Point

- Start address/end address specification conditions

Specify addresses so that the start address is the same or less than the end address.

Error response occurs in the following cases:

The address to specify has the start address greater than the end address.

Either of the start address or end address exceeds the device range that can be specified.

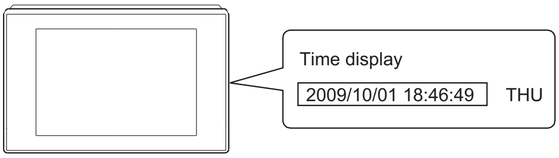
- Address specifying crossing over different devices

The start address and end address can be specified crossing over different devices.

■Read clock data (6) command (without station No.), read clock data (G) command (with station No.)

The following shows an example of reading the clock data of GOT at station No.27.

(Assuming that the clock data of GOT has been set to "2009, October 1, 18:46:49, Thursday".)

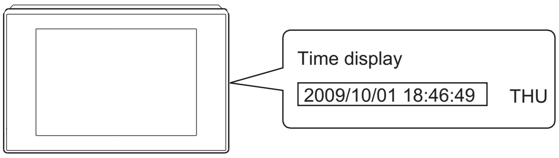


<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Request message
(host → GOT)</td><td>(format 3: GOT-F900 Series microcomputer connection (ASCII))
<table>
<tr><td>Command</td><td colspan="2">Station No.</td></tr>
<tr><td>G
47H</td><td>2
32H
(H)</td><td>7
37H
(L)</td></tr>
</table>
(format 4: GOT-F900 Series microcomputer connection (Binary))
<table>
<tr><td>Command</td><td>Station No.</td></tr>
<tr><td>G</td><td>1BH</td></tr>
</table></td></tr>
<tr><td>Response message during normal communication
(GOT → host)</td><td>(format 3: GOT-F900 Series microcomputer connection (ASCII))
<table>
<tr><td colspan="2">Year data</td><td colspan="2">Month data</td><td colspan="2">Day data</td><td colspan="2">Hour data</td><td colspan="2">Minute data</td><td colspan="2">Second data</td><td colspan="2">Day-of-week data</td></tr>
<tr><td>0
30H
(H)</td><td>9
39H
(L)</td><td>1
31H
(H)</td><td>0
30H
(L)</td><td>0
30H
(H)</td><td>1
31H
(L)</td><td>1
31H
(H)</td><td>8
38H
(L)</td><td>4
34H
(H)</td><td>6
36H
(L)</td><td>4
34H
(H)</td><td>9
39H
(L)</td><td>0
30H
(H)</td><td>4
34H
(L)</td></tr>
</table>
(format 4: GOT-F900 Series microcomputer connection (Binary))
<table>
<tr><td>Year data</td><td>Month data</td><td>Day data</td><td>Hour data</td><td>Minute data</td><td>Second data</td><td>Day-of-week data</td></tr>
<tr><td>09H</td><td>0AH</td><td>01H</td><td>12H</td><td>2EH</td><td>31H</td><td>04H</td></tr>
</table></td></tr>
<tr><td>Response message during faulty communication
(GOT → host)</td><td><table>
<tr><td>NAK</td></tr>
<tr><td>15H</td></tr>
</table></td></tr>
</table>

■Set clock data (5) command (without station No.), set clock data (F) command (with station No.)

The following shows an example of setting clock data of GOT at station No.27.

(Assuming the clock data of GOT is to be set to "2009, October 1, 18:46:49 Thursday".)



After execution

<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Request message
(host → GOT)</td><td>(format 3: GOT-F900 Series microcomputer connection (ASCII))
<table>
<tr><td>Com-mand</td><td colspan="2">Station No.</td><td colspan="2">Year data</td><td colspan="2">Month data</td><td colspan="2">Day Data</td><td colspan="2">Hour data</td><td colspan="2">Minute data</td><td colspan="2">Second data</td><td colspan="2">Day-of-week data</td></tr>
<tr><td>F</td><td>2</td><td>7</td><td>0</td><td>9</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>8</td><td>4</td><td>6</td><td>4</td><td>9</td><td>0</td><td>4</td></tr>
<tr><td>46H</td><td>32H</td><td>37H</td><td>30H</td><td>39H</td><td>31H</td><td>30H</td><td>30H</td><td>31H</td><td>31H</td><td>38H</td><td>34H</td><td>36H</td><td>34H</td><td>39H</td><td>30H</td><td>34H</td></tr>
<tr><td></td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td><td>(H)</td><td>(L)</td></tr>
</table>
(format 4: GOT-F900 Series microcomputer connection (Binary))
<table>
<tr><td>Com-mand</td><td>Station No.</td><td>Year data</td><td>Month data</td><td>Day data</td><td>Hour data</td><td>Minute data</td><td>Second data</td><td>Day-of-week data</td></tr>
<tr><td>F</td><td>1BH</td><td>09H</td><td>0AH</td><td>01H</td><td>12H</td><td>2EH</td><td>31H</td><td>04H</td></tr>
</table></td></tr>
<tr><td>Response message during normal communication
(GOT → host)</td><td><table><tr><td>ACK</td></tr><tr><td>06H</td></tr></table></td></tr>
<tr><td>Response message during faulty communication
(GOT → host)</td><td><table><tr><td>NAK</td></tr><tr><td>15H</td></tr></table></td></tr>
</table>

Point

When a wrong day of the week has been set by the clock data setting command

If a wrong day of the week is set by the clock data setting commands, the corrected day of the week will be set.

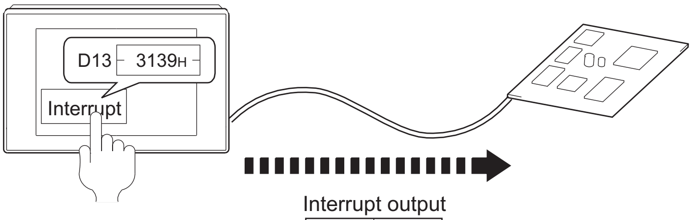
Example: When June 1, 2004 (Thursday) is set by the clock data setting command (The actual day of week is Tuesday.)

Tuesday (TUE) will be set.

■In the case of interrupt outputs

Write data to the interrupt output devices (D13 and D14) to output the data to the host.
(Assuming that "3139H" is written to D13 and "AA55H" to D14.)

Example) When [Interrupt Data Byte] in the communication detail settings is set to 2 byte as shown in (2) of the table below



Interrupt output

Output value 1	Output value 2
31H	39H

<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Interrupt output
(GOT → host)</td><td>
(1) When [Interrupt Data Byte] in the communication detail settings is set to [1]
<table><tr><th>Output value 1</th></tr><tr><td>39H</td></tr></table>
(2) When [Interrupt Data Byte] in the communication detail settings is set to [2]
<table><tr><th>Output value 1</th><th>Output value 2</th></tr><tr><td>31H</td><td>39H</td></tr></table>
(3) When [Interrupt Data Byte] in the communication detail settings is set to [4]
• When [32bit Storage] in the communication detail settings is set to [LH Order]
<table><tr><th>Output value 1</th><th>Output value 2</th><th>Output value 3</th><th>Output value 4</th></tr><tr><td>AAH</td><td>55H</td><td>31H</td><td>39H</td></tr></table>
• When [32bit Storage] in the communication detail settings is set to [HL Order]
<table><tr><th>Output value 1</th><th>Output value 2</th><th>Output value 3</th><th>Output value 4</th></tr><tr><td>31H</td><td>39H</td><td>AAH</td><td>55H</td></tr></table>
</td></tr>
</table>

Point

Interrupt output
To disable the interrupt output, turn on SM52 (interrupt code output disable flag).
☞ Page 177 SM devices

Error code list

When faulty, the error code is stored in SD2.

For details on error code stored in SD2, the error contents, cause and measures, refer to the following.

☞ Page 174 Details and actions for errors (error codes) stored into SD2

When an error other than those to be stored in SD2 occurs, at faulty, only the NAK response is executed.

Format 5

The following describes the message format 5 (SCHNEIDER EJH's (former Digital Electronics Corporation) memory link method).

GT27 GT25 GT23 GT21 GS25 GS21

Basic format of data communication

This is the same format as the protocol of the SCHNEIDER EJH's memory link method.

For details of the basic format of data communication, refer to the following manual:

☞ The connection manual of the device manufactured by SCHNEIDER EJH

This section describes items whose settings differ from the protocols of the SCHNEIDER EJH's memory link method and dedicated commands for a microcomputer connection of the GOT.

Example: Request message for the batch read in word units (R) command in format 5 (SCHNEIDER EJH's memory link method)

				Data length				ESC	Com-mand	Address		Number of points	
B									R				
42H	00H	00H	00H	00H	00H	00H	06H	1BH	52H	00H	64H	00H	02H

Details of data items in message format

Point

Data code during communication

Communication is performed in Binary code.

■Command

Specifies the contents to access from the host to GOT.

The command is converted to a 1-digit ASCII code (Hex) and transmitted.

For details of the commands that can be used, refer to the following.

☞ Page 180 List of commands

■Address

Specifies the head No. of the device data to be read or written.

The address notated in hexadecimal is converted to a 4-digit Binary code (Hex) and transmitted from the upper digit.

For details of the device range that can be accessed, refer to the following.

☞ Page 165 Device Data Area

■Number of points

Specifies the device data points to be read or written. (Setting range: Range of the maximum number of points processed for each command)

The address notated in hexadecimal is converted to a 4-digit Binary code (Hex) and transmitted from the upper digit.

■Error code

This is the response message at faulty communication appended with error contents.

The address notated in hexadecimal is converted to a 2-digit Binary code (Hex) and transmitted from the upper digit.

For details on error code generated in format 5 (SCHNEIDER EJH's memory link method), refer to the following.

☞ Page 213 Error code list

Point

When connecting a microcomputer or others that uses the protocol of the SCHNEIDER EJH's memory link method with the GOT

To do so, correct the commands to be used and the device ranges to match the specifications of the GOT.

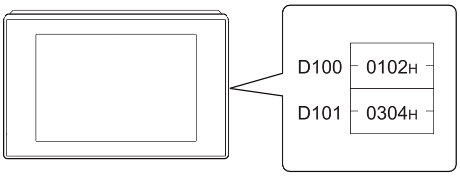
Message Formats

The following shows the message format of the dedicated commands for a microcomputer connection of GOT.

■Batch read in word units (R) command

The following shows an example of reading the two points of the virtual devices D100 and D101.

(Assuming D100=0102H, D101=0304H are stored.)

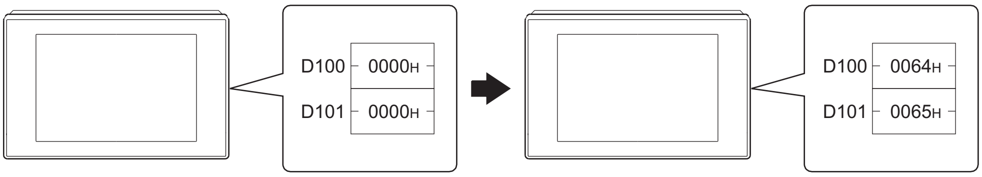


Item	Message format													
Request message (host → GOT)					Data length				ESC	Com-mand	Address		Number of points	
	B									R				
	42H	00H	00H	00H	00H	00H	00H	06H	1BH	52H	00H	64H	00H	02H
Response message during normal communication (GOT → host)					Data length				ESC	Com-mand	Address		Number of points	
	b									A				
	42H	00H	00H	00H	00H	00H	00H	06H	1BH	41H	01H	02H	03H	04H

■Batch write in word units (WD) command

- When writing to a word device

The following shows as example of writing "0064H"and "0065H"to virtual devices D100 and D101.



Before execution After execution

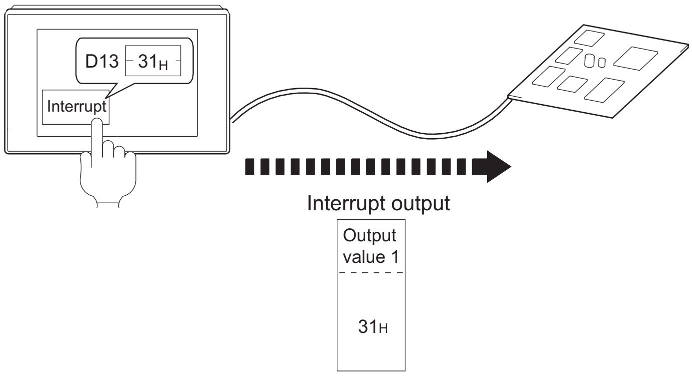
Item	Message format																	
Request message (host → GOT)					Data length				ESC	Com-mand	Address		Number of points		Data 1		Data 2	
	B									W								
	42H	00H	00H	00H	00H	00H	00H	0AH	1BH	57H	00H	64H	00H	02H	00H	64H	00H	65H
Response message during normal communication (GOT → host)					Data length				ACK									
	b																	
	42H	00H	00H	00H	00H	00H	00H	06H	06H									

■In the case of interrupt outputs

Write data to the interrupt output devices (D13 and D14) to output the data to the host.

(Assuming that "31H" is written to D13.)

Example) When [Interrupt Data Byte] in the communication detail settings is set to 1 byte as shown in the table below



Item	Message format
Interrupt output (GOT → host)	When [Interrupt Data Byte] in the communication detail settings is set to [1] Output value 1: 31H

Point

Interrupt output

To disable the interrupt output, turn on SM52 (interrupt code output disable flag).

☞ Page 177 SM devices

Error code list

In the case of format 5 (SCHNEIDER EJH's memory link method), the details (error code) of the error are appended to the response message during faulty communication.
The following shows error code, error contents, cause, and measures.

Error code	Description	Action
10H	Command error An unsupported command was used.	• Review the contents of the message to transmit. • Check the commands in the message. ☞ Page 180 List of commands
12H	Message length error The upper limit of the data length that can be received by the GOT has been exceeded.	
FAH	Address error The start address of the read or write device is out of range.	• Review the contents of the message to transmit. • Check the data length of the message.(data length of the data section, etc.)
FBH	Exceeded number of points error The read or write range has exceeded the device range.	• Review the contents of the message to transmit. • Check the devices that can be used and the device ranges. ☞ Page 165 Device Data Area
FCH	Message format error The format of the received message has error.	• Check the settings in the communication detail settings. • Review the contents of the message to transmit.
FFH	Timeout error There is no response from the GOT, or the station of the specified address does not exist.	• Check the communication cable and communication module attachment. • Check the settings in the communication detail settings. • Review the contents of the message to transmit.

Precautions

■Storage order for 32-bit data

To use the program of the SCHNEIDER EJH's memory link method by setting 32-bit data to the GOT1000 series, set [HL Order] for [32bit Storage] in the communication detail settings.
If [LH Order] is set, higher-order bits and lower-order bits are reversed when 32-bit data is displayed on or written to the GOT.

Formats 6, 7

The following describes the message formats 6 and 7 (4E frame).

GT 27 GT 25 GT 23 GT 21 GS 25 GS 21

Basic format of data communication

This is the same message format as when communication is performed using the MC protocol (4E frame) of the Q/QnA Series serial communication module.

For details of the basic format of data communication, refer to the following manual:

📖MELSEC Communication Protocol Reference Manual

This section describes items whose settings differ from the MC protocol of the Q/QnA Series serial communication module, and the dedicated commands for a GOT microcomputer connection.

Example: Request message for the batch read (0401) command in word units

Device name : D

Head device : 100

Device points : 2

Communication setting of GOT side : Network No.=1, PLC No.=1

(Format 6 (4E frame (ASCII))

Request type	Serial No.	Fixed value	Network No.	PLC No.	Request destination module I/O No.	Request destination module station No.	Following *1
5 4 0 0	0 0 0 0	0 0 0 0	0 1	0 1	0 0 0 0	0 0	
35H 34H 30H 30H	30H 30H 30H 30H	30H 30H 30H 30H	30H 31H	30H 31H	30H 30H 30H 30H	30H 30H	
(H) (L) (H) (L)	(H) (L) (H) (L)	(H) (L) (H) –	(H) (L)	(H) (L)	(H) – – (L)	(H) (L)	

*1

Request data length	CPU monitoring timer	Command	
0 0 1 8	0 0 0 0	0 4 0 1	→ 1)
30H 30H 31H 38H	30H 30H 30H 30H	30H 34H 30H 31H	
(H) (L) (H) (L)	(H) (L) (H) (L)	(H) – – (L)	

Data length target range

Character A section

	Sub-command	Device code	Head Device	Device points
1) →	0 0 0 0	D *	0 0 0 1 0 0	0 0 0 2
	30H 30H 30H 30H	44H 2AH	30H 30H 30H 31H 30H 30H	30H 30H 30H 32H
	(H) – – (L)	(H) (L)	(H) – – – – (L)	(H) – – (L)

Data length target range

(format 7:4E frame (Binary))

Request type	Serial No.	Fixed value	Network No.	PLC No.	Request destination module I/O No.	Request destination module station No.	Request data length	CPU monitoring timer	Command	Sub-command	Head Device	Device code	Device points
54H 00H	00H 00H	00H 00H	01H	01H	00H 00H	00H	0CH 00H	00H 00H	01H 04H	00H 00H	64H 00H 00H	A8H	02H 00H

Data length target range

Details of data items in message format

Point

Data code during communication

Communication of format 6 is performed in ASCII code.

Communication of the format 7 is performed in Binary code.

The following table shows the contents of the data items.

<table>
<tr><th rowspan="2">Data item name</th><th colspan="2">Contents</th></tr>
<tr><th>Format 6</th><th>Format 7</th></tr>
<tr><td rowspan="2">Request type
(Microcomputer side)</td><td colspan="2">Indicates it is a command message.</td></tr>
<tr><td>Command message: ASCII "5400" (Fixed value)</td><td>Command message: 54H (Upper digit) (Fixed value)</td></tr>
<tr><td rowspan="2">Response type (GOT side)</td><td colspan="2">Indicates it is a response message.</td></tr>
<tr><td>Response message: ASCII "D400" (Fixed value)</td><td>Response message: D4H (Upper digit) (Fixed value)</td></tr>
<tr><td>Serial No.</td><td colspan="2">Arbitrary number for recognition of the message appended at the microcomputer side. GOT sends the response message appending this Serial No.</td></tr>
<tr><td>Fixed value</td><td>Should be ASCII "0000".</td><td>Should be "0000H".</td></tr>
<tr><td rowspan="2">Network No.</td><td colspan="2">Set the same number as the network No. set in the GOT.
For setting method of "Communication Detail Settings", refer to the following.
☞ Page 233 Setting communication interface (Controller Setting)</td></tr>
<tr><td>Transmit the data converted to a 2-digit ASCII code from the upper digit.</td><td>Transmit the data converted to a 2-digit binary code.</td></tr>
<tr><td rowspan="2">PLC No.</td><td colspan="2">Set the same number as the PLC No. set in the GOT.
For setting method of "Communication Detail Settings", refer to the following.
☞ Page 233 Setting communication interface (Controller Setting)</td></tr>
<tr><td>Transmit the data converted to a 2-digit ASCII code from the upper digit.</td><td>Transmit the data converted to a 2-digit binary code.</td></tr>
<tr><td>Request destination module I/O No.</td><td colspan="2">Ignore GOT.</td></tr>
<tr><td>Request destination module station No.</td><td colspan="2">Ignore GOT.</td></tr>
<tr><td rowspan="2">Request data length</td><td colspan="2">Number of bytes from the start of CPU monitoring timer to the last request data.</td></tr>
<tr><td>Transmit the data converted to a 4-digit ASCII code from the upper digit.</td><td>Transmit the data converted to a 4-digit binary code from the lower two digits.</td></tr>
<tr><td rowspan="2">Response data length</td><td colspan="2">Appended to the response message from the microcomputer side.
Number of bytes from the start of end code to the last response data or last error response data.</td></tr>
<tr><td>Transmit the data converted to a 4-digit ASCII code from the upper digit.</td><td>Transmit the data converted to a 4-digit binary code from the lower two digits.</td></tr>
<tr><td>CPU monitoring timer</td><td colspan="2">Ignore GOT.</td></tr>
<tr><td rowspan="2">Command, Sub-command</td><td colspan="2">Specifies the access contents from the microcomputer side to GOT. For details of the commands that can be used, refer to the following.
☞ Page 180 List of commands</td></tr>
<tr><td>Transmit the command and sub-command converted to a 4-digit ASCII code, from the upper digit.</td><td>Transmit the data converted to a 4-digit binary code from the lower two digits.</td></tr>
<tr><td rowspan="2">Device code</td><td colspan="2">Specifies the code by which the device data to be read or written is recognized. For the accessible device range, refer to the following.
☞ Page 165 Device Data Area</td></tr>
<tr><td>Transmit the 2-digit ASCII code corresponding to the following device codes.<table><tr><th>Device name</th><th>Device code</th></tr><tr><td>M</td><td>M*</td></tr><tr><td>SM</td><td>SM</td></tr><tr><td>L</td><td>L*</td></tr><tr><td>D</td><td>D*</td></tr><tr><td>SD</td><td>SD</td></tr><tr><td>R</td><td>R*</td></tr></table></td><td>Transmit the 2-digit binary code corresponding to the following device codes.<table><tr><th>Device name</th><th>Device code</th></tr><tr><td>M</td><td>90H</td></tr><tr><td>SM</td><td>91H</td></tr><tr><td>L</td><td>92H</td></tr><tr><td>D</td><td>A8H</td></tr><tr><td>SD</td><td>A9H</td></tr><tr><td>R</td><td>AFH</td></tr></table></td></tr>
</table>

Data item name	Contents	
	Format 6	Format 7
Head device	Specifies the head No. of the device data to be read or written. For details of the device range that can be accessed, refer to the following. ☞ Page 165 Device Data Area	
	Transmit the data notated in decimal converted to a 6-digit ASCII code, from the upper digit.	Transmit the data converted to a 6-digit binary code from the lower two digits.
Device points	Specifies the device data points to be read or written. (Setting range: Range of the maximum number of points processed for each command) <When using the random read or write command> When setting multiple bit accesses, word accesses or double word accesses, limit the total number of access points to within 64 points. <When using multiple block batch read or write commands> When setting multiple blocks, limit the total number of points of all blocks to within the maximum number of points processed for each command.	
	Transmit the data notated in decimal converted to a 4-digit ASCII code, from the upper digit.	Transmit the data converted to a 4-digit binary code from the lower two digits.
Year, month, day, hour, minute, second and day of the week data	Specifies the year, month, day, hour, minute, second, and day of the week data to be read or set to the GOT clock data. ☞ Page 217 Read clock data (1901) command ☞ Page 220 Set clock data (0901) command	
	Transmit the data notated in decimal converted to a 2-digit ASCII code, from the upper digit.	Transmit the data converted to a 2-digit binary code.
End code (Microcomputer side)	Appended to the response message from the microcomputer side. If an error occurs at the microcomputer side, the error code is displayed. ☞ Page 223 Error code list	
	Transmit the data notated in hexadecimal converted to a 4-digit ASCII code, from the upper digit.	Transmit the data converted to a 4-digit binary code from the lower two digits.

Point

When connecting a microcomputer, etc. that uses the MC protocol of the Q/QnA series serial communication module with the GOT

When connecting a microcomputer, etc. that uses the MC protocol of the Q/QnA series serial communication module with the GOT, correct the commands to be used and the device ranges to match the GOT specifications.

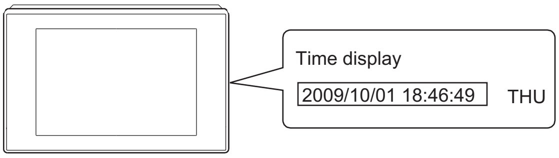
Message format

The following shows the message format of the dedicated commands for a microcomputer connection of GOT.

■Read clock data (1901) command

The following shows an example of reading the clock data of GOT.

(Assuming that the clock data of GOT has been set to "2009, October 1, 18:46:49, Thursday".)



Item	Message format
Request message (host → GOT)	(format 6:4E frame (ASCII))

Request type				Serial No.				Fixed value				Network No.		PLC No.		Following *1
5	4	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
35H	34H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	31H	30H	31H	
(H)	–	–	(L)	(H)	–	–	(L)	(H)	–	–	(L)	(H)	(L)	(H)	(L)	

*1

Request destination module I/O No.				Request destination module station No.		Request data length				CPU monitoring timer				
0	0	0	0	0	0	0	0	0	C	0	0	0	0	→ 1)
30H	30H	30H	30H	30H	30H	30H	30H	30H	43H	30H	30H	30H	30H	
(H)	–	–	(L)	(H)	(L)	(H)	–	–	(L)	(H)	–	–	(L)	

Character A section

	Command				Sub-command			
1) →	1	9	0	1	0	0	0	0
	31H	39H	30H	31H	30H	30H	30H	30H
	(H)	–	–	(L)	(H)	–	–	(L)

(format 7:4E frame (Binary))

Request type		Serial No.		Fixed value		Network No.	PLC No.	Request destination module I/O No.		Request destination module station No.	Request data length		Following *1
54H	00H	00H	00H	00H	00H	01H	01H	00H	00H	00H	06H	00H	

*1

Data length target range

CPU monitoring timer		Command		Sub-command	
00H	00H	01H	19H	00H	00H

Item	Message format
Response message during normal communication (GOT → host)	(format 6:4E frame (ASCII))

Response type				Serial No.				Fixed value				Network No.		PLC No.		Following *1
D	4	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
44H	34H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	31H	30H	31H	
(H)	–	–	(L)	(H)	–	–	(L)	(H)	–	–	(L)	(H)	(L)	(H)	(L)	

*1

Request destination module I/O No.				Request destination module station No.		Response data length				End code				
0	0	0	0	0	0	0	0	1	2	0	0	0	0	→ 1)
30H	30H	30H	30H	30H	30H	30H	30H	31H	32H	30H	30H	30H	30H	
(H)	–	–	(L)	(H)	(L)	(H)	–	–	(L)	(H)	–	–	(L)	

Character B section

	Year data		Month data		Day data		Hour data		Minute data		Second data		Day-of-week data	
1) →	0	9	1	0	0	1	1	8	4	6	4	9	0	4
	30H	39H	31H	30H	30H	31H	31H	38H	34H	36H	34H	39H	30H	34H
	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)

(format 7:4E frame (Binary))

Request type		Serial No.		Fixed value		Network No.	PLC No.	Request destination module I/O No.		Request destination module station No.	Response data length		Following *1
D4H	00H	00H	00H	00H	00H	01H	01H	00H	00H	00H	09H	00H	

*1 Data length target range

End code		Year data	Month data	Day data	Hour data	Minute data	Second data	Day-of-week data
00H	00H	09H	0AH	01H	12H	2EH	31H	04H

Item	Message format
Response message during faulty communication (GOT → host)	(format 6:4E frame (ASCII))

Response type				Serial No.				Fixed value				Network No.		PLC No.		Following *1
D	4	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
44H	34H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	31H	30H	31H	
(H)	–	–	(L)	(H)	–	–	(L)	(H)	–	–	(L)	(H)	(L)	(H)	(L)	

*1

Request destination module I/O No.				Request destination module station No.		Response data length				End code				
0	0	0	0	0	0	0	0	1	6	0	0	5	6	→ 1)
30H	30H	30H	30H	30H	30H	30H	30H	31H	36H	30H	30H	35H	36H	
(H)	–	–	(L)	(H)	(L)	(H)	–	–	(L)	(H)	–	–	(L)	

	Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		Command				Sub-command			
1) →	0	0	0	0	0	0	0	0	0	0	1	9	0	1	0	0	0	0
	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	31H	39H	30H	31H	30H	30H	30H	30H
	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)	(H)	–	–	(L)	(H)	–	–	(L)

(format 7:4E frame (Binary))

Request type		Serial No.		Fixed value		Network No.	PLC No.	Request destination module I/O No.		Request destination module station No.	Response data length		Following *1
D4H	00H	00H	00H	00H	00H	01H	01H	00H	00H	00H	0BH	00H	

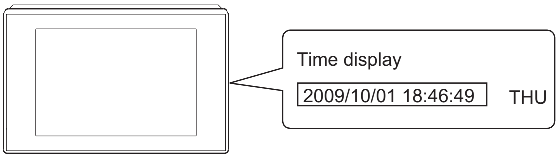
*1 Data length target range

End code		Network No.	PLC No.	Request destination module I/O No.		Request destination module station No.	Command		Sub-command	
56H	00H	00H	00H	00H	00H	00H	01H	19H	00H	00H

■Set clock data (0901) command

The following shows an example of setting the clock data of GOT.

(Assuming the clock data of GOT is to be set to "2009, October 1, 18:46:49 Thursday".)



After execution

Item	Message format
Request message (host → GOT)	(format 6:4E frame (ASCII))

Response type				Serial No.				Fixed value				Network No.		PLC No.		Following *1
5	4	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
35H	34H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	31H	30H	31H	
(H)	–	–	(L)	(H)	–	–	(L)	(H)	–	–	(L)	(H)	(L)	(H)	(L)	

*1

Request destination module I/O No.				Request destination module station No.		Request data length				CPU monitoring timer				Command				
0	0	0	0	0	0	0	0	1	A	0	0	0	0	0	9	0	1	→ 1)
30H	30H	30H	30H	30H	30H	30H	30H	31H	41H	30H	30H	30H	30H	31H	39H	30H	31H	
(H)	–	–	(L)	(H)	(L)	(H)	–	–	(L)	(H)	–	–	(L)	(H)	–	–	(L)	

Character C section

	Sub-command				Year data		Month data		Day data		Hour data		Minute data		Second data		Day-of-week data	
1) →	0	0	0	0	0	9	1	0	0	1	1	8	4	6	4	9	0	4
	30H	30H	30H	30H	30H	39H	31H	30H	30H	31H	31H	38H	34H	36H	34H	39H	30H	34H
	(H)	–	–	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)

(format 7:4E frame (Binary))

Request type		Serial No.		Fixed value		Network No.	PLC No.	Request destination module I/O No.		Request destination module station No.	Request data length		Following *1
54H	00H	00H	00H	00H	00H	01H	01H	00H	00H	00H	0DH	00H	

*1

Data length target range

CPU monitoring timer		Command		Sub-command		Year data	Month data	Day data	Hour data	Minute data	Second data	Day-of-week data
00H	00H	01H	09H	00H	00H	09H	0AH	01H	12H	2EH	31H	04H

Item	Message format
Response message during normal communication (GOT → host)	(format 6:4E frame (ASCII))

Response type	Serial No.	Fixed value	Network No.	PLC No.	Following *1
D 4 0 0	0 0 0 0	0 0 0 0	0 1	0 1	
44H 34H 30H 30H	30H 30H 30H 30H	30H 30H 30H 30H	30H 31H	30H 31H	
(H) – – (L)	(H) – – (L)	(H) – – (L)	(H) (L)	(H) (L)	

*1

	Request destination module I/O No.	Request destination module station No.	Response data length	End code
	0 0 0 0	0 0	0 0 0 4	0 0 0 0
	30H 30H 30H 30H	30H 30H	30H 30H 30H 34H	30H 30H 30H 30H
	(H) – – (L)	(H) (L)	(H) – – (L)	(H) – – (L)

(format 7:4E frame (Binary))

Data length target range

Request type	Serial No.	Fixed value	Network No.	PLC No.	Request destination module I/O No.	Request destination module station No.	Response data length	End code
D4H 00H	00H 00H	00H 00H	01H	01H	00H 00H	00H	02H 00H	00H 00H

Item	Message format
Response message during faulty communication (GOT → host)	(format 6:4E frame (ASCII))

Response type	Serial No.	Fixed value	Network No.	PLC No.	Following *1
D 4 0 0	0 0 0 0	0 0 0 0	0 1	0 1	
44H 34H 30H 30H	30H 30H 30H 30H	30H 30H 30H 30H	30H 31H	30H 31H	
(H) – – (L)	(H) – – (L)	(H) – – (L)	(H) (L)	(H) (L)	

*1

	Request destination module I/O No.	Request destination module station No.	Response data length	End code	
	0 0 0 0	0 0	0 0 1 6	0 0 5 6	→ 1)
	30H 30H 30H 30H	30H 30H	30H 30H 31H 36H	30H 30H 35H 36H	
	(H) – – (L)	(H) (L)	(H) – – (L)	(H) – – (L)	

	Network No.	PLC No.	Request destination module I/O No.	Request destination module station No.	Command	Sub-command
1) →	0 0	0 0	0 0 0 0	0 0	0 9 0 1	0 0 0 0
	30H 30H	30H 30H	30H 30H 30H 30H	30H 30H	30H 39H 30H 31H	30H 30H 30H 30H
	(H) (L)	(H) (L)	(H) – – (L)	(H) (L)	(H) – – (L)	(H) – – (L)

(format 7:4E frame (Binary))

Request type	Serial No.	Fixed value	Network No.	PLC No.	Request destination module I/O No.	Request destination module station No.	Response data length	Following*1
D4H 00H	00H 00H	00H 00H	01H	01H	00H 00H	00H	0BH 0H	

Data length target range

*1

	End code	Network No.	PLC No.	Request destination module I/O No.	Request destination module station No.	Command	Sub-command
	56H 00H	00H	00H	00H 00H	00H	01H 09H	00H 00H

3

Point

When a wrong day of the week has been set by the clock data setting command

If a wrong day of the week is set by the clock data setting commands, the corrected day of the week will be set.

Example: When June 1, 2004 (Thursday) is set by the clock data setting command (The actual day of week is Tuesday.)

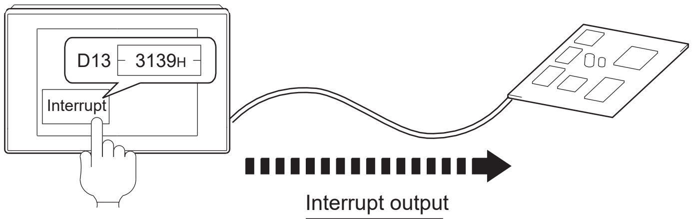
Tuesday (TUE) will be set.

■In the case of interrupt outputs

Write data to the interrupt output devices (D13 and D14) to output the data to the host.

(Assuming that "3139H" is written to D13 and "AA55H" to D14.)

Example) When [Interrupt Data Byte] in the communication detail settings is set to 2 byte as shown in (2) of the table below



Interrupt output

Output value 1	Output value 2
31H	39H

<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Interrupt output
(GOT → host)</td><td>
(1) When [Interrupt Data Byte] in the communication detail settings is set to [1]
<table><tr><th>Output value 1</th></tr><tr><td>39H</td></tr></table>
(2) When [Interrupt Data Byte] in the communication detail settings is set to [2]
<table><tr><th>Output value 1</th><th>Output value 2</th></tr><tr><td>31H</td><td>39H</td></tr></table>
(3) When [Interrupt Data Byte] in the communication detail settings is set to [4]
• When [32bit Storage] in the communication detail settings is set to [LH Order]
<table><tr><th>Output value1</th><th>Output value2</th><th>Output value3</th><th>Output value4</th></tr><tr><td>AAH</td><td>55H</td><td>31H</td><td>39H</td></tr></table>
• When [32bit Storage] in the communication detail settings is set to [HL Order]
<table><tr><th>Output value1</th><th>Output value2</th><th>Output value3</th><th>Output value4</th></tr><tr><td>31H</td><td>39H</td><td>AAH</td><td>55H</td></tr></table>
</td></tr>
</table>

Point

Interrupt output

To disable the interrupt output, turn on SM52 (interrupt code output disable flag).

☞ Page 177 SM devices

Error code list

The following shows error code, error contents, cause, and measures.

Error code	Description	Action
0002H	Device point error The specified device range to be read or written is incorrect.	• Check the specified head device and number of points, and correct it. ☞ Page 165 Device Data Area
0050H	Request (command) type or response (response) type code error A code other than the specified value is set for the command type or response type.	• Check and correct the command type or response type set in the microcomputer.
0056H	Device error A non-existent device has been specified.	• Check the devices that can be used and the device ranges. ☞ Page 165 Device Data Area
0057H	Device point error • The command number of points specification from the microcomputer exceeds the maximum number of points processed at each process (number of points processed in one communication). • The start address (head device number) to specified number of points exceeds the maximum address (device number, step number) for each process.	• Correct the specified number of points, or the start address (device number). ☞ Page 165 Device Data Area
	When writing data which the command bit length is longer or shorter than the specification, the set number of write data points differs from the specified number of points value.	• Check the command data length and set the data again.
0058H	• The command start address (head device number, start step number) specification from the microcomputer exceeds the range that can be specified. • A value outside the GOT parameter setting range is specified for reading or writing the microcomputer program or file register (R).	• Correct the values to values that can be specified in each process.
	• Word device is specified in the command for bit device. • In the command for word device, a bit device start number is specified in other than hexadecimal.	• Correct the command or the specified device.
00A1H	Request content cannot be analyzed because the text length or request data length is too short.	• Review the text length or the head request data length.
00A2H	Request cannot be processed.	• Correct the request content and command.
C0D6H	The specification of network No. and station No. have error.	• Review the network No., station No. specification method.

Formats 8, 9

The following describes the message formats 8 and 9 (QnA compatible 3E frame).

GT 27 GT 25 GT 23 GT 21 GS 25 GS 21

Basic format of data communication

This is the same message format as when communication is performed using the MC protocol (QnA compatible 3E frame) of the Q/QnA Series serial communication module.

For details of the basic format of data communication, refer to the following manual:

MELSEC Communication Protocol Reference Manual

This section describes items whose settings differ from the MC protocol of the Q/QnA Series serial communication module, and the dedicated commands for a GOT microcomputer connection.

Example: Request message for the batch read (0401) command in word units

Device name : D

Head device : 100

Device points : 2

Communication setting of GOT side : Network No.=1, PLC No.=1

(Format 8: QnA compatible 3E frame (ASCII))

Subheader				Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		Request data length				Following *1
5	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	8	
35H	30H	30H	30H	30H	31H	30H	31H	30H	30H	30H	30H	30H	30H	30H	30H	31H	38H	
(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)	(H)	(L)	(H)	(L)	

*1

Character A section

CPU monitoring timer				Command				Sub-command				Device code		Start Device						Device points			
0	0	0	0	0	4	0	1	0	0	0	0	D	*	0	0	0	1	0	0	0	0	0	2
30H	30H	30H	30H	30H	34H	30H	31H	30H	30H	30H	30H	44H	2AH	30H	30H	30H	31H	30H	30H	30H	30H	30H	32H
(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	–	–	(L)	(H)	(L)	(H)	–	–	–	–	(L)	(H)	–	–	(L)

Data length target data

(Format 9: QnA compatible 3E frame (Binary))

Subheader		Network No.	PLC No.	Request destination module I/O No.		Request destination module station No.	Request data length		CPU monitoring timer		Command		Sub-command		Start Device			Device code	Device points	
50H	00H	01H	01H	00H	00H	00H	0CH	00H	00H	00H	01H	04H	00H	00H	64H	00H	00H	A8H	02H	00H

Data length target data

Details of data items in message format

Point

Data code during communication

Communication of format 8 is performed in ASCII code.

Communication of the format 9 is performed in Binary code.

The following table shows the contents of the data items.

<table>
<tr><th rowspan="2">Data item name</th><th colspan="2">Contents</th></tr>
<tr><th>Format 8</th><th>Format 9</th></tr>
<tr><td rowspan="2">Subheader
(Microcomputer side)</td><td colspan="2">Indicates it is a command message.</td></tr>
<tr><td>Command message: ASCII "5000" (Fixed value)</td><td>Command message: 50H (Upper digit) (Fixed value)</td></tr>
<tr><td rowspan="2">Subheader (GOT side)</td><td colspan="2">Indicates it is a response message.</td></tr>
<tr><td>Response message: ASCII "D000" (Fixed value)</td><td>Response message: D0H (Upper digit) (Fixed value)</td></tr>
<tr><td rowspan="2">Network No.</td><td colspan="2">Set the same number as the network No. set in the GOT.
For setting method of "Communication Detail Settings", refer to the following.
☞ Page 233 Setting communication interface (Controller Setting)</td></tr>
<tr><td>Transmit the data converted to a 2-digit ASCII code from the upper digit.</td><td>Transmit the data converted to a 2-digit binary code.</td></tr>
<tr><td rowspan="2">PLC No.</td><td colspan="2">Set the same number as the PLC No. set in the GOT.
For setting method of "Communication Detail Settings", refer to the following.
☞ Page 233 Setting communication interface (Controller Setting)</td></tr>
<tr><td>Transmit the data converted to a 2-digit ASCII code from the upper digit.</td><td>Transmit the data converted to a 2-digit binary code.</td></tr>
<tr><td>Request destination module I/O No.</td><td colspan="2">Ignore GOT.</td></tr>
<tr><td>Request destination module station No.</td><td colspan="2">Ignore GOT.</td></tr>
<tr><td rowspan="2">Request data length</td><td colspan="2">Number of bytes from the start of CPU monitoring timer to the last request data.</td></tr>
<tr><td>Transmit the data converted to a 4-digit ASCII code from the upper digit.</td><td>Transmit the data converted to a 4-digit binary code from the lower two digits.</td></tr>
<tr><td rowspan="2">Response data length</td><td colspan="2">Appended to the response message from the microcomputer side.
Number of bytes from the start of end code to the last response data or last error response data.</td></tr>
<tr><td>Transmit the data converted to a 4-digit ASCII code from the upper digit.</td><td>Transmit the data converted to a 4-digit binary code from the lower two digits.</td></tr>
<tr><td>CPU monitoring timer</td><td colspan="2">Ignore GOT.</td></tr>
<tr><td rowspan="2">Command, Sub-command</td><td colspan="2">Specifies the access contents from the microcomputer side to GOT. For details of the commands that can be used, refer to the following.
☞ Page 180 List of commands</td></tr>
<tr><td>Transmit the command and sub-command converted to a 4-digit ASCII code, from the upper digit.</td><td>Transmit the data converted to a 4-digit binary code from the lower two digits.</td></tr>
<tr><td rowspan="2">Device code</td><td colspan="2">Specifies the code by which the device data to be read or written is recognized.
For details of the device range that can be accessed, refer to the following.
☞ Page 165 Device Data Area</td></tr>
<tr><td>Transmit the 2-digit ASCII code corresponding to the following device codes.<table><tr><th>Device name</th><th>Device code</th></tr><tr><td>M</td><td>M*</td></tr><tr><td>SM</td><td>SM</td></tr><tr><td>L</td><td>L*</td></tr><tr><td>D</td><td>D*</td></tr><tr><td>SD</td><td>SD</td></tr><tr><td>R</td><td>R*</td></tr></table></td><td>Transmit the 2-digit binary code corresponding to the following device codes.<table><tr><th>Device name</th><th>Device code</th></tr><tr><td>M</td><td>90H</td></tr><tr><td>SM</td><td>91H</td></tr><tr><td>L</td><td>92H</td></tr><tr><td>D</td><td>A8H</td></tr><tr><td>SD</td><td>A9H</td></tr><tr><td>R</td><td>AFH</td></tr></table></td></tr>
<tr><td rowspan="2">Head device</td><td colspan="2">Specifies the head No. of the device data to be read or written.
For details of the device range that can be accessed, refer to the following.
☞ Page 165 Device Data Area</td></tr>
<tr><td>Transmit the data notated in decimal converted to a 6-digit ASCII code, from the upper digit.</td><td>Transmit the data converted to a 6-digit binary code from the lower two digits.</td></tr>
<tr><td rowspan="2">Device points</td><td colspan="2">Specifies the device data points to be read or written. (Setting range: Range of the maximum number of points processed for each command)
<When using random read or write command>
When setting multiple bit accesses, word accesses or double word accesses, limit the total number of access points to within 64 points.
<When using multiple block batch read or write commands>
When setting multiple blocks, limit the total number of points of all blocks to within the maximum number of points processed for each command.</td></tr>
<tr><td>Transmit the data notated in decimal converted to a 4-digit ASCII code, from the upper digit.</td><td>Transmit the data converted to a 4-digit binary code from the lower two digits.</td></tr>
</table>

Data item name	Contents	
	Format 8	Format 9
Year, month, day, hour, minute, second and day of the week data	Specifies the year, month, day, hour, minute, second, and day of the week data to be read or set to the GOT clock data. ☞ Page 227 Read clock data (1901) command ☞ Page 229 Set clock data (0901) command	
	Transmit the data notated in decimal converted to a 2-digit ASCII code, from the upper digit.	Transmit the data converted to a 2-digit binary code.
End code (Microcomputer side)	Appended to the response message from the microcomputer side. If an error occurs at the microcomputer side, the error code is displayed. ☞ Page 232 Error code list	
	Transmit the data notated in hexadecimal converted to a 4-digit ASCII code, from the upper digit.	Transmit the data converted to a 4-digit binary code from the lower two digits.

Point

When connecting a microcomputer, etc. that uses the MC protocol of the Q/QnA series serial communication module with the GOT

When connecting a microcomputer, etc. that uses the MC protocol of the Q/QnA series serial communication module with the GOT, correct the commands to be used and the device ranges to match the GOT specifications.

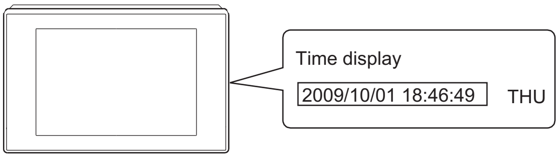
Message format

The following shows the message format of the dedicated commands for a microcomputer connection of GOT.

■Read clock data (1901) command

The following shows an example of reading the clock data of GOT.

(Assuming that the clock data of GOT has been set to "2009, October 1, 18:46:49, Thursday".)



Item	Message format
Request message (host → GOT)	(format 8:QnA compatible 3E frame (ASCII))

Subheader				Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		Following *1
5	0	0	0	0	1	0	1	0	0	0	0	0	0	
35H	30H	30H	30H	30H	31H	30H	31H	30H	30H	30H	30H	30H	30H	
(H)	–	–	(L)	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)	

*1

Request data length				CPU monitoring timer				Command				Sub-command (Character A section)			
0	0	0	C	0	0	0	0	1	9	0	1	0	0	0	0
30H	30H	30H	43H	30H	30H	30H	30H	31H	39H	30H	31H	30H	30H	30H	30H
(H)	–	–	(L)	(H)	–	–	(L)	(H)	–	–	(L)	(H)	–	–	(L)

Data length target data (CPU monitoring timer to Sub-command)

(format 9:QnA compatible 3E frame (Binary))

Subheader		Network No.	PLC No.	Request destination module I/O No.		Request destination module station No.	Request data length		CPU monitoring timer		Command		Sub-command	
50H	00H	01H	01H	00H	00H	00H	06H	00H	00H	00H	01H	19H	00H	00H

Data length target data (CPU monitoring timer to Sub-command)

Item	Message format
Response message during normal communication (GOT → host)	(format 8:QnA compatible 3E frame (ASCII))

Subheader				Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		Response data length				Following *1
D	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	2	
44H	30H	30H	30H	30H	31H	30H	31H	30H	30H	30H	30H	30H	30H	30H	30H	31H	32H	
(H)	–	–	(L)	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)	(H)	–	–	(L)	

*1

Character B section (Year data to Day-of-week data)

End code				Year data		Month data		Day data		Hour data		Minute data		Second data		Day-of-week data	
0	0	0	0	0	9	1	0	0	1	1	8	4	6	4	9	0	4
30H	30H	30H	30H	30H	39H	31H	30H	30H	31H	31H	38H	34H	36H	34H	39H	30H	34H
(H)	–	–	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)

Data length target data (End code to Day-of-week data)

(format 9:QnA compatible 3E frame (Binary))

Subheader		Network No.	PLC No.	Request destination module I/O No.		Request destination module station No.	Response data length		End code		Year data	Month data	Day data	Hour data	Minute data	Second data	Day-of-week data
D0H	00H	01H	01H	00H	00H	00H	09H	00H	00H	00H	09H	0AH	01H	12H	2EH	31H	04H

Data length target data (End code to Day-of-week data)

Item	Message format
Response message during faulty communication (GOT → host)	(format 8:QnA compatible 3E frame (ASCII))

(format 8:QnA compatible 3E frame (ASCII))

Subheader				Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		Response data length				Following *1
D	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	6	
44H	30H	30H	30H	30H	31H	30H	31H	30H	30H	30H	30H	30H	30H	30H	30H	31H	36H	
(H)	–	–	(L)	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)	(H)	–	–	(L)	

*1

End code				Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		
0	0	5	6	0	0	0	0	0	0	0	0	0	0	→ 1)
30H	30H	35H	36H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	
(H)	–	–	(L)	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)	

Data length target data

	Command				Sub-command			
1) →	1	9	0	1	0	0	0	0
	31H	39H	30H	31H	30H	30H	30H	30H
	(H)	–	–	(L)	(H)	–	–	(L)

Data length target data

(format 9:QnA compatible 3E frame (Binary))

Subheader		Network No.	PLC No.	Request destination module I/O No.		Request destination module station No.	Response data length		Following *1
D0H	00H	01H	01H	00H	00H	00H	0BH	00H	

*1

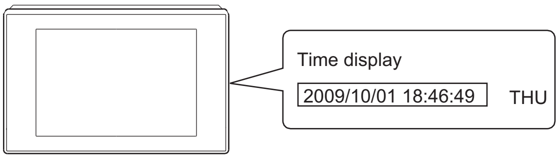
End code		Network No.	PLC No.	Request destination module I/O No.		Request destination module station No.	Command		Sub-command	
56H	00H	00H	00H	00H	00H	00H	01H	19H	00H	00H

Data length target data

■Set clock data (0901) command

The following shows an example of setting the clock data of GOT.

(Assuming the clock data of GOT is to be set to "2009, October 1, 18:46:49 Thursday".)



After execution

Item	Message format
Request message (host → GOT)	(format 8:QnA compatible 3E frame (ASCII))

Subheader				Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		Following *1
5	0	0	0	0	1	0	1	0	0	0	0	0	0	
35H	30H	30H	30H	30H	31H	30H	31H	30H	30H	30H	30H	30H	30H	
(H)	–	–	(L)	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)	

*1

Response data length				CPU monitoring timer				Command				
0	0	1	A	0	0	0	0	0	9	0	1	→ 1)
30H	30H	31H	41H	30H	30H	30H	30H	31H	39H	30H	31H	
(H)	–	–	(L)	(H)	–	–	(L)	(H)	–	–	(L)	

Data length target data

Character C section

	Sub-command				Year data		Month data		Day data		Hour data		Minute data		Second data		Day-of-week data	
1) →	0	0	0	0	0	9	1	0	0	1	1	8	4	6	4	9	0	4
	30H	30H	30H	30H	30H	39H	31H	30H	30H	31H	31H	38H	34H	36H	34H	39H	30H	34H
	(H)	–	–	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)	(H)	(L)

Data length target data

(format 9:QnA compatible 3E frame (Binary))

Subheader		Network No.	PLC No.	Request destination module I/O No.		Request destination module station No.	Request data length		Following *1
50H	00H	01H	01H	00H	00H	00H	0DH	00H	

*1

CPU monitoring timer		Command		Sub-command		Year data	Month data	Day data	Hour data	Minute data	Second data	Day-of-week data
00H	00H	01H	09H	00H	00H	09H	0AH	01H	12H	2EH	31H	04H

Data length target data

Item	Message format
Response message during normal communication (GOT → host)	(see below)

Response message during normal communication (GOT → host)

(format 8:QnA compatible 3E frame (ASCII))

Subheader				Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		Following *1
D	0	0	0	0	1	0	1	0	0	0	0	0	0	
44H	30H	30H	30H	30H	31H	30H	31H	30H	30H	30H	30H	30H	30H	
(H)	–	–	(L)	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)	

*1

Response data length				End code			
0	0	0	4	0	0	0	0
30H	30H	30H	34H	30H	30H	30H	30H
(H)	–	–	(L)	(H)	–	–	(L)

Data length target data

(format 9:QnA compatible 3E frame (Binary))

Subheader		Network No.	PLC No.	Request destination module I/O No.		Request destination module station No.	Response data length		End code	
D0H	00H	01H	01H	00H	00H	00H	02H	00H	00H	00H

Data length target data

Response message during faulty communication (GOT → host)

(format 8:QnA compatible 3E frame (ASCII))

Subheader				Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		Response data length				Following *1
D	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	6	
44H	30H	30H	30H	30H	31H	30H	31H	30H	30H	30H	30H	30H	30H	30H	30H	31H	36H	
(H)	–	–	(L)	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)	(H)	–	–	(L)	

*1

End code				Network No.		PLC No.		Request destination module I/O No.				Request destination module station No.		
0	0	5	6	0	0	0	0	0	0	0	0	0	0	→ 1)
30H	30H	35H	36H	30H	30H	30H	30H	30H	30H	30H	30H	30H	30H	
(H)	–	–	(L)	(H)	(L)	(H)	(L)	(H)	–	–	(L)	(H)	(L)	

Data length target data

	Command				Sub-command			
1) →	0	9	0	1	0	0	0	0
	30H	39H	30H	31H	30H	30H	30H	30H
	(H)	–	–	(L)	(H)	–	–	(L)

Data length target data

(format 9:QnA compatible 3E frame (Binary))

Subheader		Network No.	PLC No.	Request destination module I/O No.		Request destination module station No.	Response data length		Following *1
D0H	00H	01H	01H	00H	00H	00H	0BH	00H	

*1

End code		Network No.	PLC No.	Request destination module I/O No.		Request destination module station No.	Command		Sub-command	
56H	00H	00H	00H	00H	00H	00H	01H	09H	00H	00H

Data length target data

Point

When a wrong day of the week has been set by the clock data setting command

If a wrong day of the week is set by the clock data setting commands, the corrected day of the week will be set.

Example: When June 1, 2004 (Thursday) is set by the clock data setting command (The actual day of week is Tuesday.)

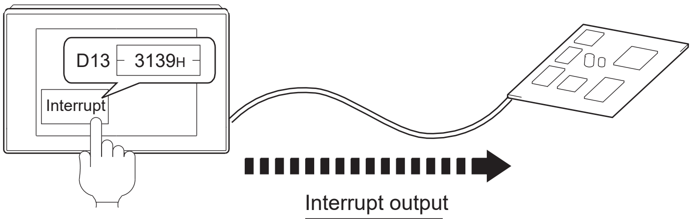
Tuesday (TUE) will be set.

■In the case of interrupt outputs

Write data to the interrupt output devices (D13 and D14) to output the data to the host.

(Assuming that "3139H" is written to D13 and "AA55H" to D14.)

Example) When [Interrupt Data Byte] in the communication detail settings is set to 2 byte as shown in (2) of the table below



Interrupt output

Output value 1	Output value 2
31H	39H

<table>
<tr><th>Item</th><th>Message format</th></tr>
<tr><td>Interrupt output
(GOT → host)</td><td>
(1) When [Interrupt Data Byte] in the communication detail settings is set to [1]
<table><tr><th>Output value 1</th></tr><tr><td>39H</td></tr></table>
(2) When [Interrupt Data Byte] in the communication detail settings is set to [2]
<table><tr><th>Output value 1</th><th>Output value 2</th></tr><tr><td>31H</td><td>39H</td></tr></table>
(3) When [Interrupt Data Byte] in the communication detail settings is set to [4]
• When [32bit Storage] in the communication detail settings is set to [LH Order]
<table><tr><th>Output value1</th><th>Output value2</th><th>Output value3</th><th>Output value4</th></tr><tr><td>AAH</td><td>55H</td><td>31H</td><td>39H</td></tr></table>
• When [32bit Storage] in the communication detail settings is set to [HL Order]
<table><tr><th>Output value1</th><th>Output value2</th><th>Output value3</th><th>Output value4</th></tr><tr><td>31H</td><td>39H</td><td>AAH</td><td>55H</td></tr></table>
</td></tr>
</table>

Point

Interrupt output

To disable the interrupt output, turn on SM52 (interrupt code output disable flag).

☞ Page 177 SM devices

Error code list

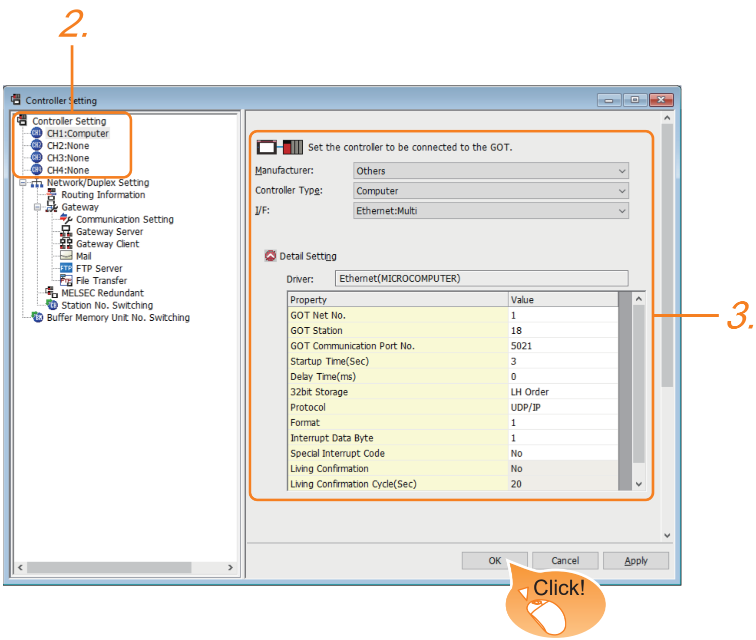
For the error codes, refer to the following.

☞ Page 223 Error code list

3.5 GOT Side Settings

Setting communication interface (Controller Setting)

Set the channel of the equipment to be connected to the GOT.



1. Select [Common] → [Controller Setting] from the menu.

2. In the [Controller Setting] window, select the channel No. to be used from the list menu.

3. Set the following items.

- [Manufacturer]: [Others]
- [Controller Type]: [Computer]
- [I/F]: [Ethernet:Multi]

When using the Ethernet communication unit (GT25-J71E71-100), also select [Ethernet:Multi].

- [Detail Setting]: Configure the settings according to the usage environment.

☞ Page 234 Communication detail settings

4. When you have completed the settings, click the [OK] button.

Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

☞ Page 39 I/F communication setting

Communication detail settings

Make the settings according to the usage environment.

Property	Value
GOT Net No.	1
GOT Station	18
GOT Communication Port No.	5021
Startup Time(Sec)	3
Delay Time(ms)	0
32bit Storage	LH Order
Protocol	UDP/IP
Format	1
Interrupt Data Byte	1
Special Interrupt Code	No
Living Confirmation	No
Living Confirmation Cycle(Sec)	20
Destination module I/O number	0

Item	Description	Range
GOT NET No.	Set the network No. of the GOT. (Default: 1)	1 to 239
GOT Station	Set the station No. of the GOT. (Default: 18)	1 to 64
GOT Communication Port No.	Set the GOT port No. for the connection with the Ethernet module. (Default: 5021*5)	1024 to 5010. 5014 to 65534 (Except for 5011, 5012, 5013 and 49153 to 49170)
Startup Time(sec)	Specify the time period from the GOT startup until GOT starts the communication with the PLC CPU. (Default: 3sec)	3 to 255sec
Delay Time(ms)	Set the send delay time to lower the load of the network and the connected PLCs. (Default: 0ms)	0 to 10000 (ms)
32bit Storage	Select the steps to store two words (32-bit data). (Default: LH Order)	LH Order or HL Order
Protocol *1	Select the communication protocol (Default: UDP/IP)	TCP/IP UDP/IP
Format *2	Select the communication format. (Default: 1)*2	1 to 9
Interrupt Data Length	Specify the number of bytes of interrupt data. (Default: 1)	1, 2 or 4
Special Interrupt Code	Set whether or not to output the special interrupt code. (Default: No)	Yes or No
Living Confirmation *3	Set whether or not to perform a living confirmation. (Default: No)	Yes or No
Living Confirmation Cycle *4	Set the sampling to perform a living confirmation. (Default: 20s)	10 to 100s
Destination module I/O number	Set the values for the I/O number and the station number of the connection destination module that responds to the request from the controller. Not available to GT21 and GS21. (It operates with [Same as requested value].) (Default: 0)	0 or Same as requested value

*1 For the interrupt output, select [TCP/IP].
*2 For GT21 and GS21, refer to the following.
Format: 5 to 9
Default: 6
*3 Select [Yes] only when [Protocol] is [TCP/IP].
*4 The setting value can be changed when the [Living Confirmation] is [Yes].
*5 When assigning the same driver to the multiple channels, in the communication drivers set as the second and following, the default value of [GOT Communication Port No.] becomes the earliest number in the vacant numbers of No. 6000 and later.

Point

Special Interrupt Code

The special interrupt codes are output at event occurrences.

If multiple events occur simultaneously, the special interrupt codes may not be output.

The following shows the special interrupt codes and the event types.

Special Interrupt Code (Hex)	Event type
20H	Base screen, overlap window 1 to 5 When the screen is switched by the screen switching device, the special interrupt code will be output. The base screen and each overlap window are switched independently. (Example of output) When all the screen switching device values assigned to the Base Screen and Overlap Window 1 to 2 are changed, 6 special interrupt codes are output.
21H	This code is output when a numerical or ASCII input is completed.
22H	This code is output when reading or writing of the recipe data is completed.
23H	This code is output when a barcode or RFID data is read.

• Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.

For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

• Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

GOT Ethernet Setting

The GOT can be connected to a different network by configuring the following setting.

GOT IP address setting

Set the following communication port setting.

- Standard port (When using GT25-W or GS25: Port 1)
- Extended port (When using GT25-W or GS25: Port 2)

GOT Ethernet common setting

Set the following setting which is common to the standard port and the extension port, or port 1 and port 2.

- [Default Gateway]
- [Peripheral S/W Communication Port No.]
- [Transparent Port No.]

IP filter setting

By configuring the IP filter setting, the access from the specific IP address can be permitted or shut off.

For the detailed settings, refer to the following manual.

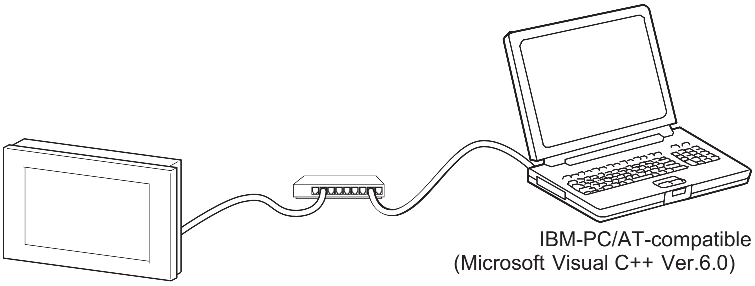
☞ Page 35 GOT Ethernet Setting

3.6 System Configuration Examples

The following shows a system configuration example in the case of the microcomputer connection (Ethernet).

System configuration

The system configuration example illustrated below is explained in this section.



Communication settings on GOT side and monitor screen settings

■Transmission settings

Set the transmission settings of the GOT.

The transmission settings in the microcomputer connection (Ethernet) are made at [Detail Setting] on GT Designer3.

☞ Page 234 Communication detail settings

■Monitor screen settings

For the monitor screen settings in this system configuration example, refer to the example of the system configuration of the microcomputer connection (serial).

☞ Page 157 System Configuration Examples

3.7 Device Range that Can Be Set

For the device setting dialog and the device range that can be used on the GOT, refer to the following.

☞ Page 436 Microcomputer ([Computer])

3.8 Precautions

GOT clock control

Even though the time setting function and time notification function are set in the GOT time setting, the settings are disabled.
When reading from or writing to the clock data between the GOT and microcomputer, use the dedicated command.

UDP/IP connection

When the commands are sent from multiple controllers simultaneously, the GOT may not receive all the commands.
Retry sending the commands on the controller, to receive them on the GOT again.

Station monitoring function

The microcomputer connection (Ethernet) does not support the station monitoring function.

Interrupt output

The interrupt output is available only for the TCP/IP connection.
The interrupt output cannot be executed in the UDP/IP connection.

MEMO

PART 3 ODVA

4 DeviceNet CONNECTION

4.1 Connectable Model List

GOT2000 Series products support the slave function of DeviceNet communication, the open FA network.
Thus, the GOT can be connected with each DeviceNet master.

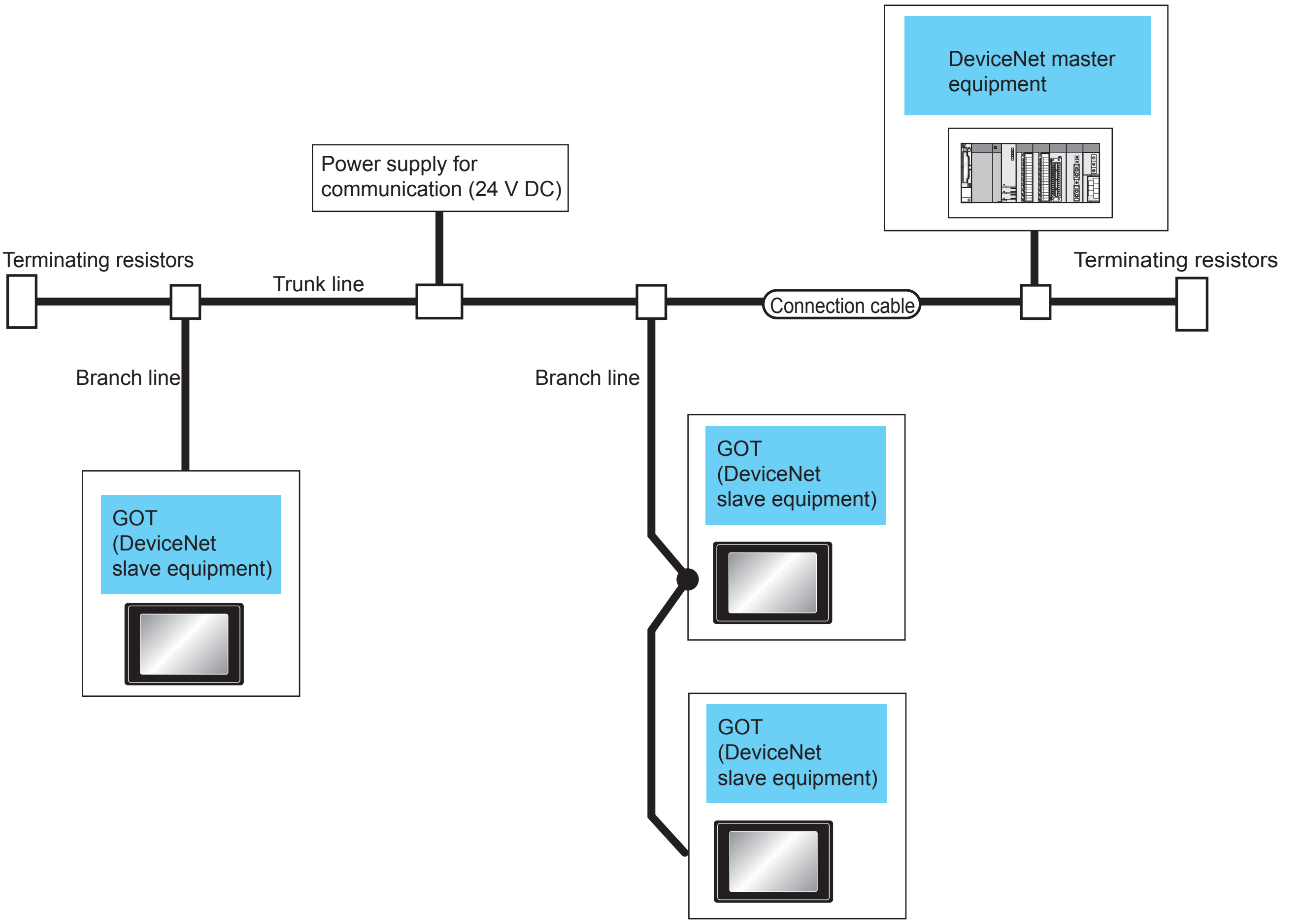
Point

BootOS version of the GOT
Install the version N or later of BootOS so that the GOT supports the DeviceNet connection.
For the procedure to check the BootOS version and upgrade the version, refer to the following manuals.
☞ GT Designer3 (GOT2000) Screen Design Manual
☞ GOT2000 Series User's Manual (Utility)

4.2 System Configuration

Connecting to DeviceNet master equipment

Communication driver
DeviceNet



Controller	Communication Type	Connection cable		Terminating resistors *4	GOT (DeviceNet slave equipment)		Number of connectable equipment
		Cable model Connection diagram number	Max. distance		Option device*5	model	
DeviceNet master equipment	DeviceNet	Page 242 DeviceNet connection diagram 1)	500m*1	121Ω, ±1%, 1/4W	GT25-FNADP*2	GT 27, GT 25	*3

*1 The maximum distance varies depending on the transmission speed and cable size. Confirm the specifications on the DeviceNet master equipment side.

*2 Install the communication module (ABCC-M40-DEV, Type number: AB6909-B or AB6909-C) manufactured by HMS to the GT25-FNADP.
For the communication module installation method, refer to the following manual.
☞ GOT2000 Series Field Network Adapter Unit Instruction Manual

*3 Up to 63 GOT modules (DeviceNet slave equipment) can be connected to one DeviceNet master equipment.

*4 Connect terminal resistors at the both ends of the trunk line.

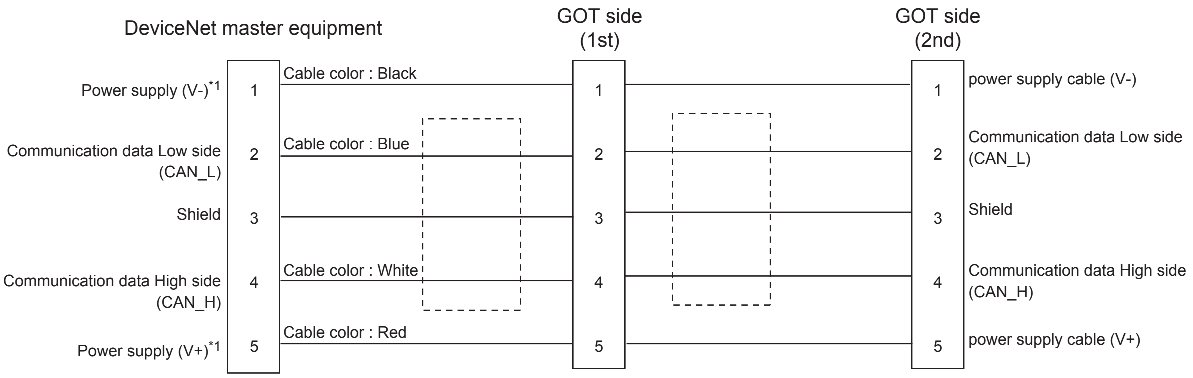
*5 GT25-W, GT2505-V does not support the option device.

4.3 Connection Diagram

The following diagram shows the connection between the GOT and the controller.

Connection Diagram

■DeviceNet connection diagram 1)



*1 The power supply for communication (24 V DC) is required to supply the power to the power supply (V-) and power supply (V+).

Precautions when preparing a cable

■Cable length

For the Cable length, refer to the following.

☞ Page 241 System Configuration

■GOT side connector (DeviceNet slave equipment)

For the GOT side connector, refer to the following.

☞ Manual of Anybus CompactCom M40 Network Communication Module by HMS

■DeviceNet master equipment side connector

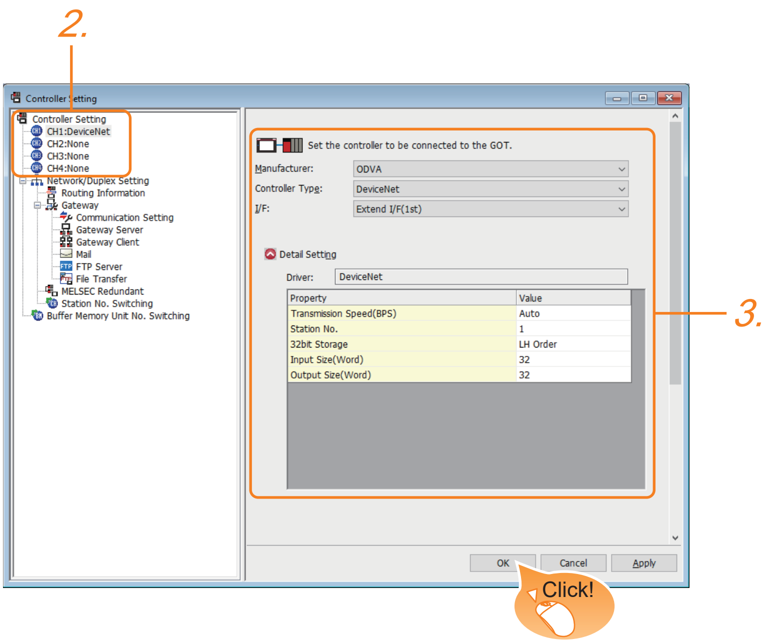
Use the connector compatible with the DeviceNet master equipment side module.

For details, refer to the DeviceNet master equipment user's manual.

4.4 GOT Side Settings

Setting communication interface (Controller Setting)

Set the channel of the equipment to be connected to the GOT.



1. Select [Common] → [Controller Setting] from the menu.

2. In the [Controller Setting] window, select the channel No. to be used from the list menu.

3. Set the following items.

- [Manufacturer]: [ODVA]
- [Controller Type]: [DeviceNet]
- [I/F]: Interface to be used
- [Detail Setting]: Configure the settings according to the usage environment.

☞ Page 244 Communication detail settings

4. When you have completed the settings, click the [OK] button.

Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

☞ Page 39 I/F communication setting

Communication detail settings

Make the settings according to the usage environment.

Property	Value
Transmission Speed(BPS)	Auto
Station No.	1
32bit Storage	LH Order
Input Size(Word)	32
Output Size(Word)	32

Item	Description	Range
Transmission Speed (BPS)[*1]	Set this item when change the transmission speed used for communication with the connected equipment. (Default: Auto)	125K, 250K, 500K, Auto
Station No.[*1]	Set the station No. (Default: 1)	0 to 63
32bit Storage	Select the steps to store two words (32-bit data). (Default: LH Order)	LH Order/HL Order
Input Size (Word)[*1]	Set the Input Size. (Default: 32)	0 to 128
Output Size (Word)[*1]	Set the Output Size. (Default: 32)	0 to 128

*1 Align the setting with that on the DeviceNet master equipment side.
☞ Page 246 DeviceNet master equipment Side Settings

Point

- Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.
For details on the Utility, refer to the following manual.
☞ GOT2000 Series User's Manual (Utility)

- Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

4.5 Preparation of EDS File for GOT

Prepare the EDS file for the GOT to make available the configuration tool on the DeviceNet master equipment side.

How to acquire EDS file for GOT

Acquisition from the DVD

The EDS file for GOT (GOT2000.eds) is stored in the following folder of the DVD (GT Works3 Ver.1.130L or later).

<Root>¥Disk5¥ConfigurationFile¥DeviceNet¥GOT2000.eds

4.6 DeviceNet master equipment Side Settings

This section explains how to set the DeviceNet master equipment.

Point

DeviceNet master equipment
For the details of the DeviceNet master equipment setting method, refer to the manual of the used DeviceNet master equipment.

Installing the EDS file for GOT

Install the EDS file for GOT to the configuration tool on the DeviceNet master equipment side, and set the GOT as slave equipment.
For how to acquire the EDS file for GOT, refer to the following.
☞ Page 245 Preparation of EDS File for GOT

Communication configuration

Set the communication parameters on the DeviceNet master equipment side using the switches or configuration tool.

Item		Setting range
Master equipment	Station No.*1	0 to 63
	Transmission speed*2	125kbps 250kbps 500kbps
	Input Size (Word)*3	0 to 128
	Output Size (Word)*3	0 to 128
Slave equipment	Station No.*1*4	0 to 63

*1 Make sure that the station No. does not overlap.
*2 When the setting of “Transmission Speed” on the GOT side is not set to “Automatic”, align it with the setting on the master equipment side.
☞ Page 243 GOT Side Settings
*3 Align the settings of “Input Size (Word)” and “Output Size (Word)” on the GOT side with the settings on the master equipment side.
*4 Align the setting of “Station No.” on the GOT side with the station No. of the slave equipment.
☞ Page 243 GOT Side Settings

4.7 Device Range that Can Be Set

For the device setting dialog and the device range that can be used on the GOT, refer to the following.

☞ Page 439 ODVA ([DeviceNet])

4.8 Precautions

EDS file for GOT

Do not edit the EDS file for GOT.

Edition may cause communication errors.

Type number of the communication module manufactured by HMS

Use the communication module having the type number described in the following manual.

☞ GOT2000 Series Field Network Adapter Unit Instruction Manual

Software version of the communication module manufactured by HMS

For the software version of the connectable communication module manufactured by HMS, refer to the following technical news.

☞ List of DeviceNet-compliant Equipment Validated to Operate with the GOT2000 Series (GOT-A-0084)

Installation of the field network adapter unit (GT25-FNADP)

The field network adapter unit (GT25-FNADP) can be installed only at the top stage of the GOT.

☞ Page 47 Precautions when installing units on top of one another

MEMO

PART 4 MODBUS

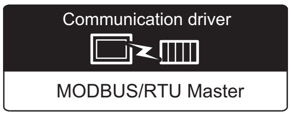
5 MODBUS/RTU MASTER CONNECTION

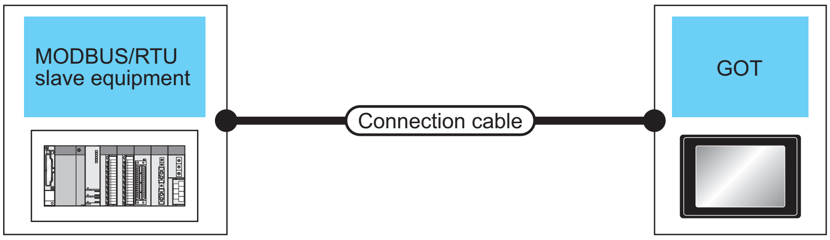
5.1 Connectable Model List

GOT2000 Series products support the master function of MODBUS communication, the open FA network.
Thus, the GOT can be connected with each MODBUS slave.
For the MODBUS/RTU equipment validated by Mitsubishi Electric Corporation, refer to the following Technical Bulletin.
☞ List of Valid Devices Applicable for GOT2000 Series MODBUS Connection for Overseas (GOT-A-0170)
For Technical Bulletins, go to the Mitsubishi Electric Factory Automation Global Website.
www.MitsubishiElectric.com/fa

5.2 System Configuration

Connecting to MODBUS/RTU slave equipment





Controller	Communication Type	Connection cable		GOT		Number of connectable equipment
		Cable model Connection diagram number	Max. distance	Option device	Model	
MODBUS/RTU equipment	RS-232	User preparing Page 254 RS-232 connection diagram 1)	15m*1	- (Built into GOT)	GT27 GT25 GT23 GT21 07W GT21 05Q GS25 GS21	1 MODBUS equipment for 1 GOT
				GT15-RS2-9P	GT27 GT25 *7*8	
				GT10-C02H-6PT9P*4	GT21 03P 04P R4 GT21 03P 04P R2	
		User preparing Page 254 RS-232 connection diagram 2)	15m*1	- (Built into GOT)	GT21 04R GT21 03P 04P R2	

Controller	Communication Type	Connection cable		GOT		Number of connectable equipment
		Cable model Connection diagram number	Max. distance	Option device	Model	
MODBUS/RTU equipment	RS-422/485	Page 255 RS-422/485 connection diagram 1)(4-wire) or Page 256 RS-422/485 connection diagram 2)(2-wire)	1200m*1	FA-LTBGT2R4CBL05(0.5m)*2 FA-LTBGT2R4CBL10(1m)*2 FA-LTBGT2R4CBL20(2m)*2	GT27 GT25 GT23 GS25 *8	Up to 31 MODBUS equipment for 1 GOT *3*6
		Page 256 RS-422/485 connection diagram 3)(4-wire) or Page 257 RS-422/485 connection diagram 4)(2-wire)	1200m*1	- (Built into GOT)	GT27 GT25 GT23 GS25	
				GT15-RS4-9S	GT27 GT25 *7*8	
				GT10-C02H-9SC	GT21 04R, GT21 03P/04P R2	
		Page 256 RS-422/485 connection diagram 3)(4-wire)	1200m *1	- (Built into GOT)	GT21 07W, GT21 05Q, GS21 *12	
		Page 257 RS-422/485 connection diagram 4)(2-wire)	1200m *1	- (Built into GOT)	GT21 07W, GT21 05Q, GS21 *13	
		Page 259 RS-422/485 connection diagram 8)(4-wire) or Page 259 RS-422/485 connection diagram 9)(2-wire)	1200m*1	GT10-9PT5S*5	GT25, GT21 05Q *9	
		Page 257 RS-422/485 connection diagram 5)(2-wire)	1200m*1	GT15-RS4-TE	GT27 GT25 *7*8	
		Page 260 RS-422/485 connection diagram 10)(4-wire) or Page 260 RS-422/485 connection diagram 11)(2-wire)	1200m *1	GT14-RS2T4-9P *10	GT25 *11	
		Page 258 RS-422/485 connection diagram 6)(4-wire) or Page 258 RS-422/485 connection diagram 7)(2-wire)	1200m*1	- (Built into GOT)	GT21 04R, GT21 03P/04P ET/R4, GT21 03P/04P R4	

*1 The shortest specification on the MODBUS/RTU equipment side is prioritized.
*2 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.
For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.
*3 When it is less than 31 units, the number of the maximum connectable units on the MODBUS/RTU equipment side will apply.
*4 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.
*5 Connect it to the RS-422/485 interface (built into GOT).
*6 Up to 10 pieces of MODBUS equipment can be connected to GS21-W.
*7 Not available to GT25-W.
*8 Not available to GT2505-V.
*9 GT2505-V, GT2105-Q only supported.
*10 Mount it on the RS-232 interface (GOT built-in).
*11 Only available to GT2505-V.
*12 For GS21-W, use the RS-422 interface for connection.
*13 Only available to GS21-W-N for GS21.

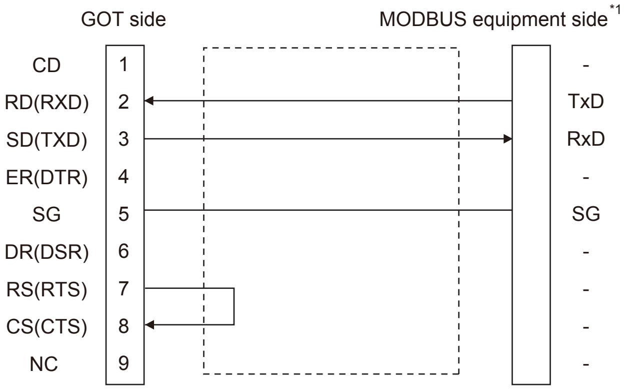
5.3 Connection Diagram

The following diagram shows the connection between the GOT and the controller.

RS-232 cable

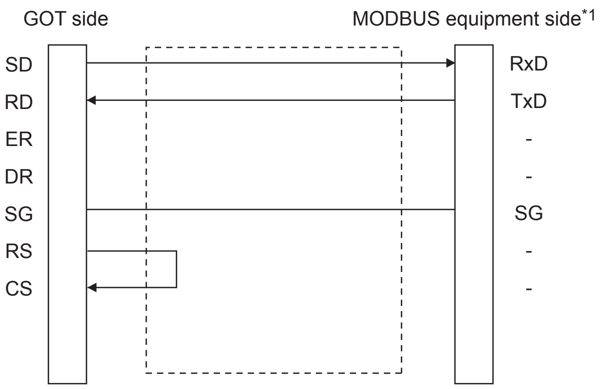
Connection diagram

■RS-232 connection diagram 1)



*1 Some MODBUS/RTU equipment require the control line (CS, RS, etc.) to be controlled.
Make sure to connect the cables and wires as described in the MODBUS/RTU equipment manual.

■RS-232 connection diagram 2)



*1 Some MODBUS/RTU equipment require the control line (CS, RS, etc.) to be controlled.
Make sure to connect the cables and wires as described in the MODBUS/RTU equipment manual.

Precautions when preparing a cable

■Cable length

The length of the RS-232 cable must be 15m or less.

■GOT side connector

For the GOT side connector, refer to the following.

☞ Page 49 GOT connector specifications

■MODBUS equipment side connector

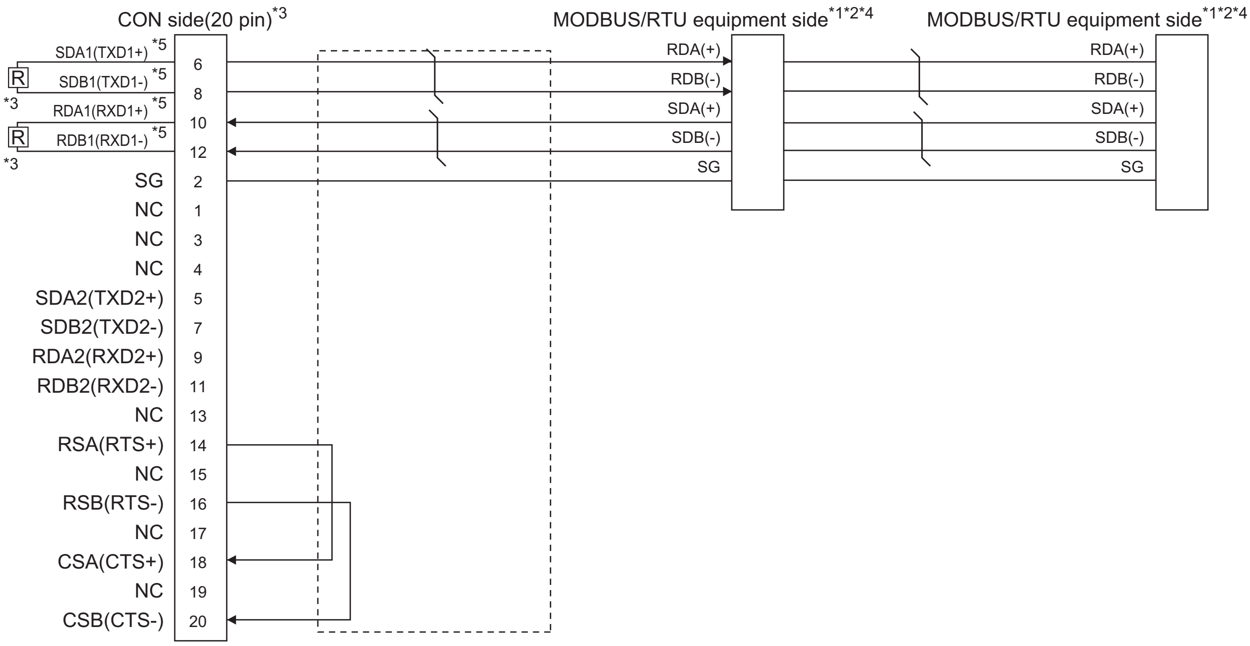
Use the connector compatible with the MODBUS/RTU equipment side module.

For details, refer to the MODBUS/RTU equipment user's manual.

RS-422/485 cable

The following shows the connection diagrams and connector specifications of the RS-422/485 cable used for connecting the GOT to a PLC.

RS-422/485 connection diagram 1)



*1 Some MODBUS/RTU equipment doesn't have SG.In this case, the wiring between GOT and SG is unnecessary.

*2 Some MODBUS/RTU equipment require the control line (CS, RS, etc.) to be controlled. Make sure to connect the cables and wires as described in the MODBUS/RTU equipment manual.

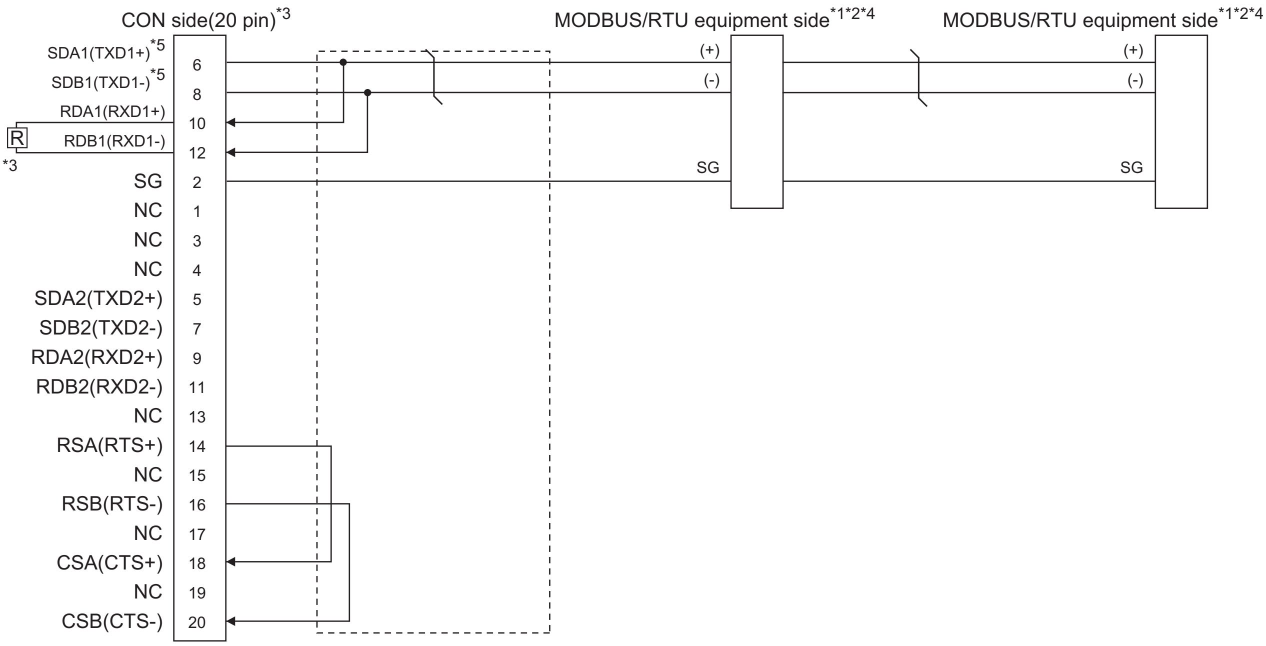
*3 A terminating resistor is required. Set the terminating resistor selector of the main unit to "Disable" and connect a 110Ω terminating resistor.

☞ Page 53 Terminating resistors of GOT

*4 For the terminating resistor of MODBUS/RTU equipment, refer to the manual of MODBUS/RTU equipment to be used.

*5 Use the twisted pair cable for SDA1/SDB1 and RDA1/RDB1.

RS-422/485 connection diagram 2)



*1 The actual terminal layout on the MODBUS/RTU equipment may differ from the example shown above. SDA/B(+/-) and RDA/B(+/-) terminals can be separated from each other. Make sure to connect the cables and wires as described in the MODBUS/RTU equipment manual.

*2 Some MODBUS/RTU equipment doesn't have SG. In this case, the wiring between GOT and SG is unnecessary.

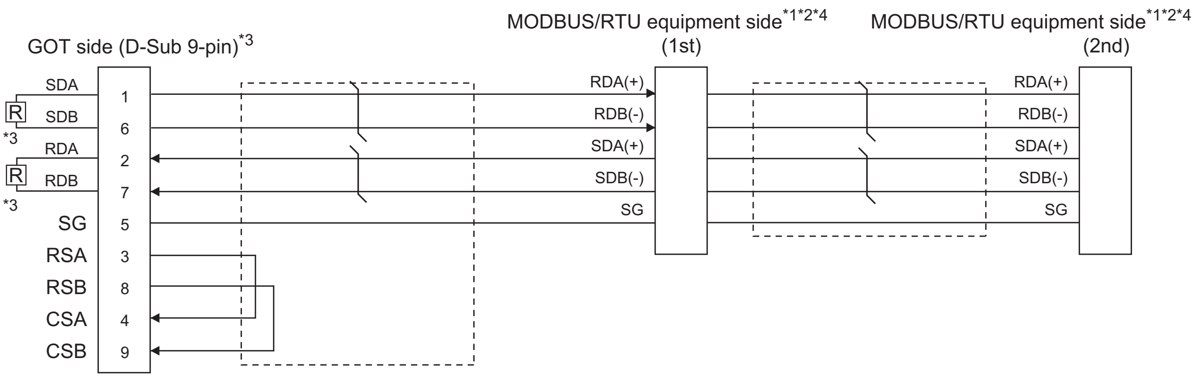
*3 A terminating resistor is required. Set the terminating resistor selector of the main unit to "Disable" and connect a 110Ω terminating resistor.

☞ Page 53 Terminating resistors of GOT

*4 For the terminating resistor of MODBUS/RTU equipment, refer to the manual of MODBUS/RTU equipment to be used.

*5 Use the twisted pair cable for SDA1/SDB1.

RS-422/485 connection diagram 3)



*1 Some MODBUS/RTU equipment doesn't have SG. In this case, the wiring between GOT and SG is unnecessary.

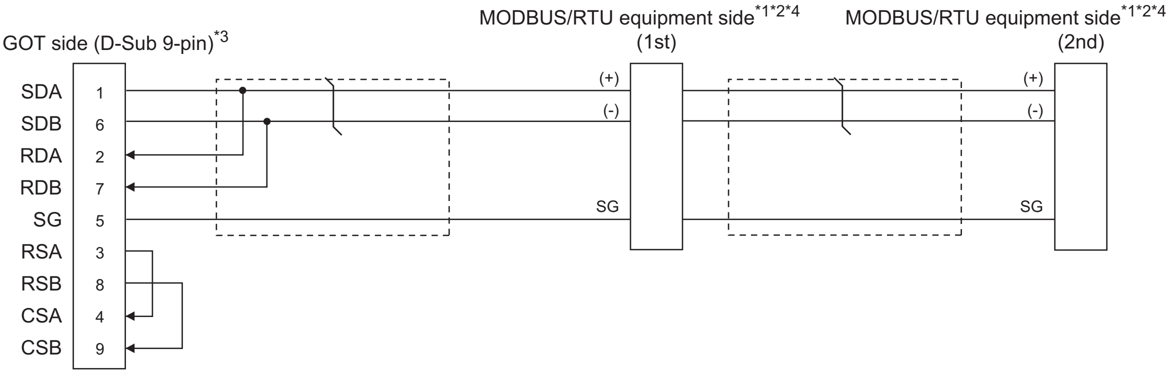
*2 Some MODBUS/RTU equipment require the control line (CS, RS, etc.) to be controlled.
Make sure to connect the cables and wires as described in the MODBUS/RTU equipment manual.

*3 A terminating resistor is required for the terminal GOT. For GT27, GT25 (except GT2505-V), and GS25, set the terminating resistor selector of the GOT to "Disable" and connect a 330 Ω terminating resistor.
For GT2505-V, GT21, and GS21-W-N, set the terminating resistor setting switch of the GOT to 330 Ω.
Since the terminating resistor of GS21-W is fixed to 330 Ω, connecting and setting of the terminating resistor are not required.

☞ Page 53 Terminating resistors of GOT

*4 For the terminating resistor of MODBUS/RTU equipment, refer to the manual of MODBUS/RTU equipment to be used.

RS-422/485 connection diagram 4)



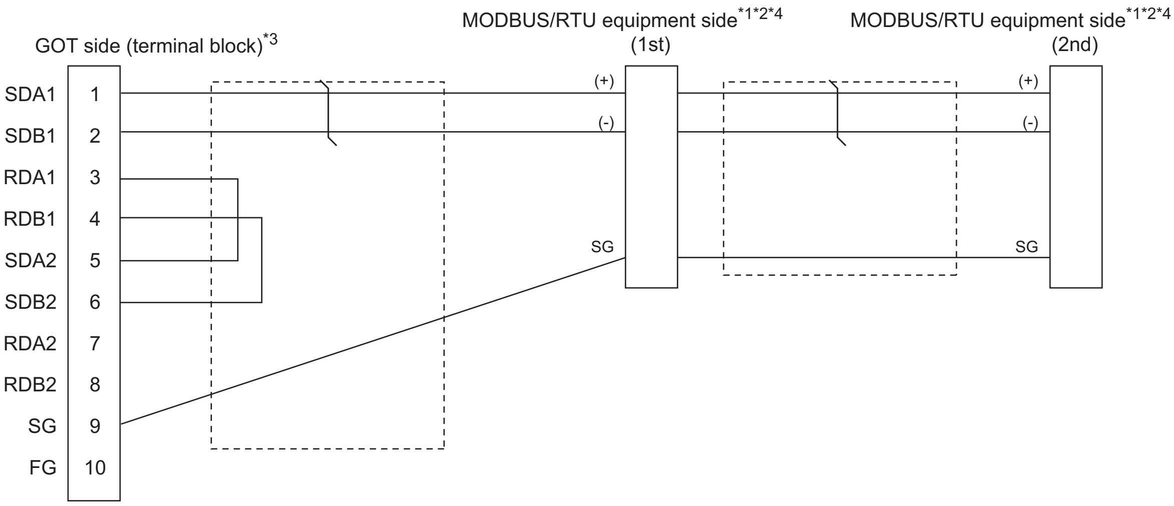
*1 The actual terminal layout on the MODBUS/RTU equipment may differ from the example shown above. SDA/B(+/-) and RDA/B(+/-) terminals can be separated from each other. Make sure to connect the cables and wires as described in the MODBUS/RTU equipment manual.

*2 Some MODBUS/RTU equipment doesn't have SG. In this case, the wiring between GOT and SG is unnecessary.

*3 When arranging GT27, GT25 (except GT2505-V), GT23, or GS25 in the end position of the system configuration, set the terminating resistor to "Enable". (For GT2505-V, GT21, and GS21-W-N, set it to "110 Ω").
When arranging GT27, GT25 (except GT2505-V), GT23, or GS25 in any position other than the end position, set the terminating resistor to "Disable". (For GT2505-V, GT21, and GS21-W-N, set it to "OPEN".)
☞ Page 53 Terminating resistors of GOT

*4 For the terminating resistor of MODBUS/RTU equipment, refer to the manual of MODBUS/RTU equipment to be used.

RS-422/485 connection diagram 5)



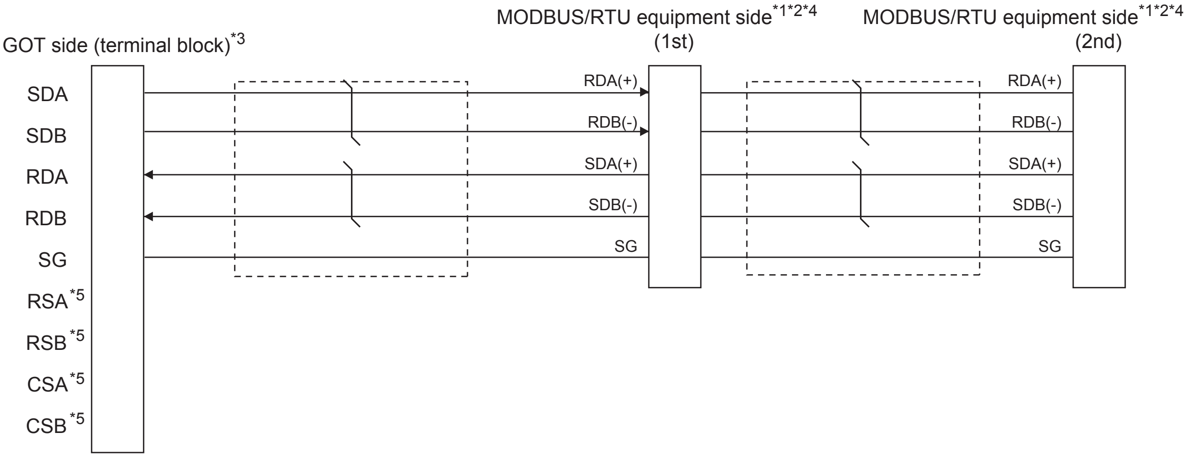
*1 The actual terminal layout on the MODBUS/RTU equipment may differ from the example shown above. SDA/B(+/-) and RDA/B(+/-) terminals can be separated from each other. Make sure to connect the cables and wires as described in the MODBUS/RTU equipment manual.

*2 Some MODBUS/RTU equipment doesn't have SG. In this case, the wiring between GOT and SG is unnecessary.

*3 When placing the GOT to the terminal in the system configuration, set the terminating resistor to "Enable".
When placing the GOT to the position other than the terminal, set the terminating resistor of the GOT to "Disable".
☞ Page 53 Terminating resistors of GOT

*4 For the terminating resistor of MODBUS/RTU equipment, refer to the manual of MODBUS/RTU equipment.

RS-422/485 connection diagram 6)



*1 The actual terminal layout on the MODBUS/RTU equipment may differ from the example shown above. SDA/B(+/-) and RDA/B(+/-) terminals can be separated from each other. Make sure to connect the cables and wires as described in the MODBUS/RTU equipment manual.

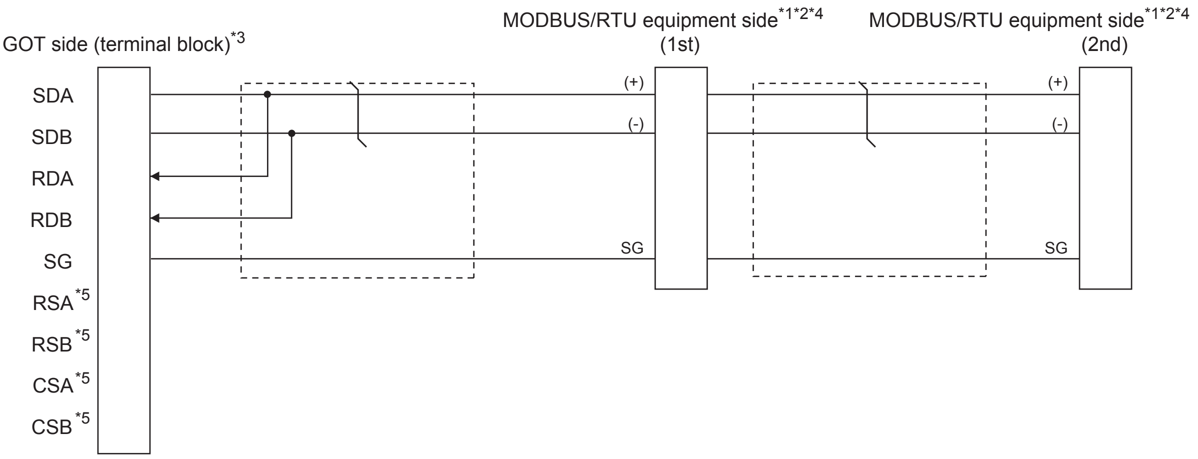
*2 Some MODBUS/RTU equipment doesn't have SG. In this case, the wiring between GOT and SG is unnecessary.

*3 When placing the GOT to the terminal in the system configuration, set the terminating resistor to "330Ω".
When placing the GOT to the position other than the terminal, set the terminating resistor of the GOT to "OPEN".
☞ Page 53 Terminating resistors of GOT

*4 For the terminating resistor of MODBUS/RTU equipment, refer to the manual of MODBUS/RTU equipment to be used.

*5 The signals RSA, RSB, CSA, and CSB are not provided for GT2104-PMBD, GT2103-PMBD.

RS-422/485 connection diagram 7)



*1 The actual terminal layout on the MODBUS/RTU equipment may differ from the example shown above. SDA/B(+/-) and RDA/B(+/-) terminals can be separated from each other. Make sure to connect the cables and wires as described in the MODBUS/RTU equipment manual.

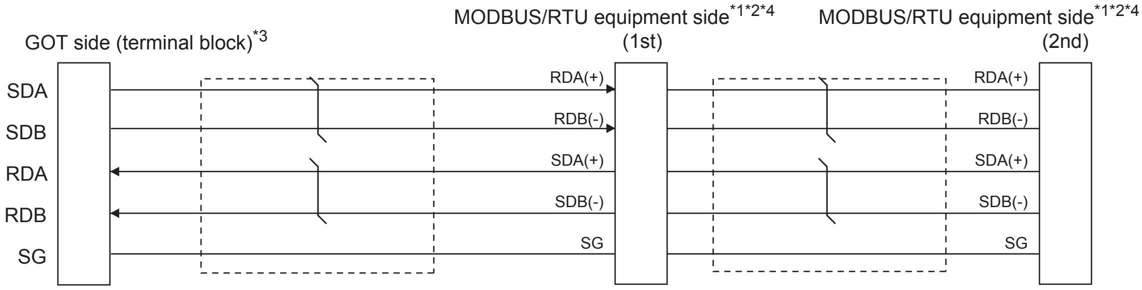
*2 Some MODBUS/RTU equipment doesn't have SG. In this case, the wiring between GOT and SG is unnecessary.

*3 When placing the GOT to the terminal in the system configuration, set the terminating resistor to "110Ω".
When placing the GOT to the position other than the terminal, set the terminating resistor of the GOT to "OPEN".
☞ Page 53 Terminating resistors of GOT

*4 For the terminating resistor of MODBUS/RTU equipment, refer to the manual of MODBUS/RTU equipment to be used.

*5 The signals RSA, RSB, CSA, and CSB are not provided for GT2104-PMBD, GT2103-PMBD.
Return connection is not required.

RS-422/485 connection diagram 8)



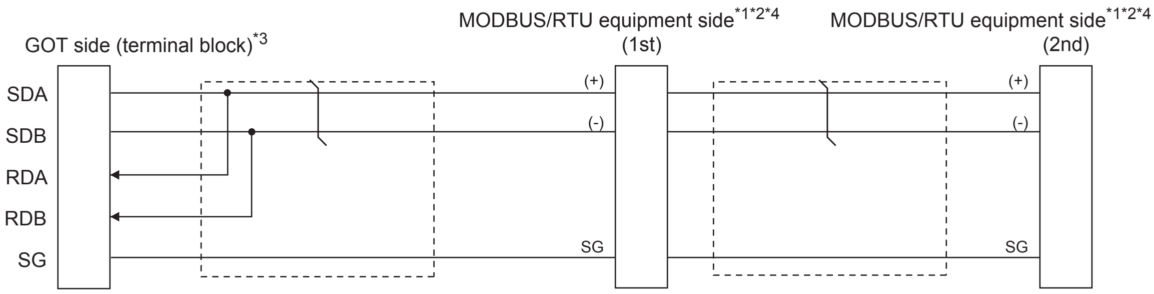
*1 Some MODBUS/RTU equipment doesn't have SG. In this case, the wiring between GOT and SG is unnecessary.

*2 Some MODBUS/RTU equipment require the control line (CS, RS, etc.) to be controlled.
Make sure to connect the cables and wires as described in the MODBUS/RTU equipment manual.

*3 When placing the GOT to the terminal in the system configuration, set the terminating resistor to "330Ω".
When placing the GOT to the position other than the terminal, set the terminating resistor of the GOT to "OPEN".
☞ Page 53 Terminating resistors of GOT
Set the 1pair/2pair signal selection switch to "1pair" when using the connection conversion adapter.
☞ Connection Conversion Adapter User's manual

*4 For the terminating resistor of MODBUS/RTU equipment, refer to the manual of MODBUS/RTU equipment.

RS-422/485 connection diagram 9)



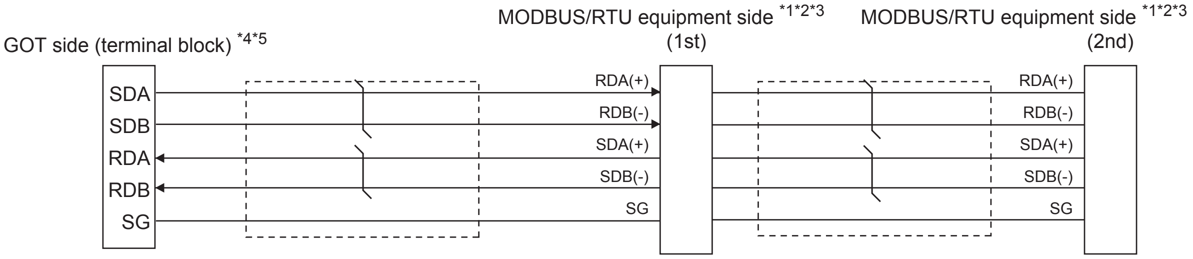
*1 The actual terminal layout on the MODBUS/RTU equipment may differ from the example shown above. SDA/B(+/-) and RDA/B(+/-) terminals can be separated from each other. Make sure to connect the cables and wires as described in the MODBUS/RTU equipment manual.

*2 Some MODBUS/RTU equipment doesn't have SG. In this case, the wiring between GOT and SG is unnecessary.

*3 When placing the GOT to the terminal in the system configuration, set the terminating resistor to "110Ω".
When placing the GOT to the position other than the terminal, set the terminating resistor of the GOT to "OPEN".
☞ Page 53 Terminating resistors of GOT
Set the 1pair/2pair signal selection switch to "1pair" when using the connection conversion adapter.
☞ Connection Conversion Adapter User's manual

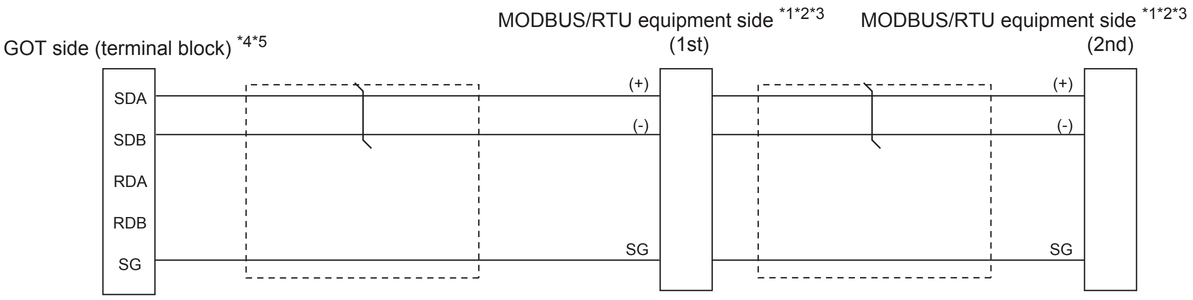
*4 For the terminating resistor of MODBUS/RTU equipment, refer to the manual of MODBUS/RTU equipment.

RS-422/485 connection diagram 10)



*1 The actual terminal layout on the MODBUS/RTU equipment may differ from the example shown above. SDA/B(+/-) and RDA/B(+/-) terminals can be separated from each other.
In such a case, connect the cables and wires as described in the MODBUS/RTU equipment manual.
*2 Some MODBUS/RTU equipment does not have SG.
In this case, the wiring between the GOT and SG is unnecessary.
*3 For the terminating resistor of the MODBUS/RTU equipment, refer to the manual of the MODBUS/RTU equipment to be used.
*4 Set the 2-wire/4-wire terminating resistor setting switch of the RS-232/485 signal conversion adapter as shown below.
2-wire/4-wire: 4-wire (2Pair)
• When placing the GOT to the terminal
Set the termination resistor setting to the terminating resistor value of the MODBUS/RTU equipment.
However, only 110 Ω and 330 Ω can be set to the termination resistor of the GOT.
When the terminating resistor value of the MODBUS/RTU equipment is other than 110 Ω or 330 Ω, set the termination resistor setting of the GOT to OPEN, and connect the terminating resistor according to the terminating resistor value of the MODBUS/RTU equipment externally to the RS-232/485 signal conversion adapter.
• When placing the GOT to the position other than the terminal
Set the termination resistor of the GOT to OPEN.
☞ Page 59 Setting the RS-232/485 signal conversion adaptor
*5 Some MODBUS/RTU equipment requires the control line (CS, RS) to be controlled.
In such a case, the RS-232/485 signal conversion adapter cannot be used for the connection.

RS-422/485 connection diagram 11)



*1 The actual terminal layout on the MODBUS/RTU equipment may differ from the example shown above. SDA/B(+/-) and RDA/B(+/-) terminals can be separated from each other.
In such a case, connect the cables and wires as described in the MODBUS/RTU equipment manual.
*2 Some MODBUS/RTU equipment does not have SG.
In this case, the wiring between the GOT and SG is unnecessary.
*3 For the terminating resistor of the MODBUS/RTU equipment, refer to the manual of the MODBUS/RTU equipment to be used.
*4 Set the 2-wire/4-wire terminating resistor setting switch of the RS-232/485 signal conversion adapter as shown below.
2-wire/4-wire: 2-wire (1Pair)
• When placing the GOT to the terminal
Set the termination resistor setting to the terminating resistor value of the MODBUS/RTU equipment.
However, only 110 Ω and 330 Ω can be set to the termination resistor of the GOT.
When the terminating resistor value of the MODBUS/RTU equipment is other than 110 Ω or 330 Ω, set the termination resistor setting of the GOT to OPEN, and connect the terminating resistor according to the terminating resistor value of the MODBUS/RTU equipment externally to the RS-232/485 signal conversion adapter.
• When placing the GOT to the position other than the terminal
Set the termination resistor of the GOT to OPEN.
☞ Page 59 Setting the RS-232/485 signal conversion adaptor
*5 Some MODBUS/RTU equipment requires the control line (CS, RS) to be controlled.
In such a case, the RS-232/485 signal conversion adapter cannot be used for the connection.

Precautions when preparing a cable

■Cable length

The length of the RS-422/485 cable must be 1200m or less.

■GOT side connector

For the GOT side connector, refer to the following.

☞ Page 49 GOT connector specifications

■MODBUS/RTU equipment side connector

Use the connector compatible with the MODBUS/RTU equipment side module.

For details, refer to the MODBUS equipment user's manual.

Connecting terminating resistors

■GOT side

When connecting a MODBUS/RTU equipment to the GOT, a terminating resistor must be connected to the GOT.

- For GT27, GT25 (except GT2505-V), GT23, GS25

Set the terminating resistor using the terminating resistor setting switch.

- For GT2505-V, GT21, and GS21-W-N

Set the terminating resistor using the terminating resistor selector.

- For GS21-W

Since the terminating resistor is fixed to 330 Ω, setting the terminating resistor is not necessary.

For the procedure to set the terminating resistor, refer to the following.

☞ Page 53 Terminating resistors of GOT

■MODBUS/RTU equipment side

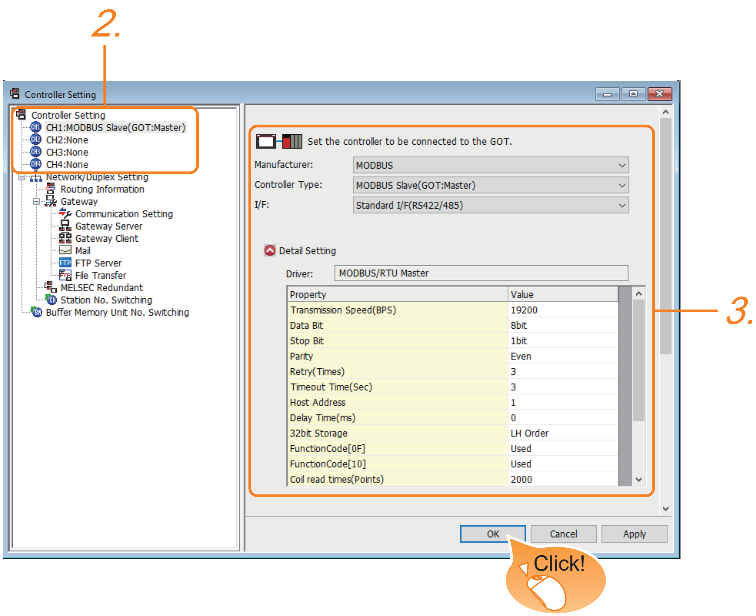
When connecting a MODBUS/RTU equipment to the GOT, a terminating resistor must be connected to the MODBUS/RTU equipment.

For details, refer to the MODBUS/RTU equipment user's manual.

5.4 GOT Side Settings

Setting communication interface (Controller Setting)

Set the channel of the equipment to be connected to the GOT.



1. Select [Common] → [Controller Setting] from the menu.

2. In the [Controller Setting] window, select the channel No. to be used from the list menu.

3. Set the following items.

- [Manufacturer]: [MODBUS]
- [Controller Type]: [MODBUS Slave(GOT:Master)]
- [I/F]: Interface to be used
- [Detail Setting]: Configure the settings according to the usage environment.

☞ Page 263 Communication detail settings

4. When you have completed the settings, click the [OK] button.

Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

☞ Page 39 I/F communication setting

Communication detail settings

Make the settings according to the usage environment.

Property	Value
Transmission Speed(BPS)	19200
Data Bit	8bit
Stop Bit	1bit
Parity	Even
Retry(Times)	3
Timeout Time(Sec)	3
Host Address	1
Delay Time(ms)	0
32bit Storage	LH Order
FunctionCode[0F]	Used
FunctionCode[10]	Used
Coil read times(Points)	2000
Input relay read times(Points)	2000
Holding register read times(Points)	125
Input register read times(Points)	125
Coil write times(Points)	800
Holding register write times(Points)	100

Item	Description	Range
Transmission Speed	Set this item when change the transmission speed used for communication with the connected equipment. (Default: 19200bps)	9600bps, 19200bps, 38400bps, 57600bps, 115200bps
Data Bit	Set this item when change the data length used for communication with the connected equipment. (Default: 8bits)	7bits/8bits
Stop Bit	Specify the stop bit length for communications. (Default: 1bit)	1bit/2bits
Parity	Specify whether or not to perform a parity check, and how it is performed during communication. (Default: Even)	None Even Odd
Retry	Set the number of retries to be performed when a communication error occurs. (Default: 3times)	0 to 5times
Timeout Time	Set the time period for a communication to time out. (Default: 3sec)	1 to 30sec
Host Address	Specify the host address in the network of the GOT. (Default: 1)	1 to 247
Delay Time*1	Set this item to adjust the transmission timing of the communication request from the GOT. (Default: 0ms)	0 to 300ms
32bit Storage	Select the steps to store two words (32-bit data). (Default: LH Order)	LH Order/HL Order
FunctionCode[0F]	Select the FunctionCode [0F]. (Default: Used)	Used/Unused
FunctionCode[10]	Select the FunctionCode [10]. (Default: Used)	Used/Unused
Coil read times	Set the Coil read time. (Default: 2000)	1 to 2000 points
Input relay read time	Set the Input relay read time. (Default: 2000)	1 to 2000 points
Holding register read times	Set the Holding register read times. (Default: 125)	1 to 125 points
Input register read times	Set the Input register read times. (Default: 125)	1 to 125 points
Coil write times	Set the Coil write times. (Default: 800)	1 to 1968 points
Holding register write times	Set the Holding register write times. (Default: 100)	1 to 123 points

*1 The GOT ensures in advance the minimum interval (3.5 characters time) for communication frame defined in the MODBUS/RTU. Therefore, the actual send delay time is as follows.

Actual send delay time	=	Send delay time set in the communication detail setting	+	3.5 character time
				Minimum interval for communication frame defined in MODBUS/RTU

If the communication with MODBUS/RTU equipment is not established, some equipment which requires a delay longer than 3.5 character time may be connected.
When connecting to MODBUS/RTU equipment which requires a delay longer than 3.5 character time, adjust the send delay time.

Point

- Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.
For details on the Utility, refer to the following manual.
☞ GOT2000 Series User's Manual (Utility)

- Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

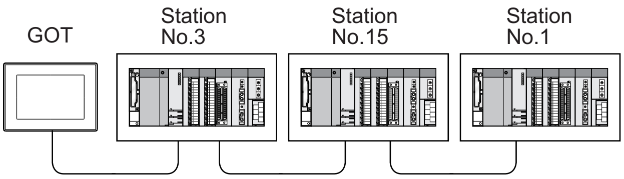
5.5 MODBUS/RTU Slave Equipment Side Setting

Point

MODBUS/RTU Slave equipment
For details of the MODBUS/RTU Slave equipment, refer to the manual of MODBUS/RTU Slave equipment to be used.

Station number setting

In the MODBUS network, a maximum of 31 MODBUS/RTU slave equipment can be connected to one GOT.
Assign a non-overlapped station number ranging from 1 to 247 arbitrarily to each MODBUS/RTU slave equipment.
In the system configuration, the MODBUS/RTU slave equipment with the station number set with the host address must be included.
The station number can be set without regard to the cable connection order. There is no problem even if station numbers are not consecutive.



Examples of station number setting

Direct specification

When setting the device, specify the station number of the MODBUS/RTU slave equipment of which data is to be changed.

Specification range
1 to 247

Indirect specification

When setting the device, indirectly specify the station number of the MODBUS/RTU slave equipment of which data is to be changed using the 16-bit GOT internal data register (GD10 to GD16).
When specifying the station No. from 248 to 254 on GT Designer3, the value of GD10 to GD16 compatible to the station No. specification will be the station No. of the MODBUS/RTU slave equipment.

Specification station NO.	Compatible device	Setting range
248	GD10	0 to 255: 0 : All station specification (broadcast) 255 : Host station access For the setting other than the above, an error (dedicated device is out of range) will occur.
249	GD11	
250	GD12	
251	GD13	
252	GD14	
253	GD15	
254	GD16	

All station specification (broadcast)

Target station differs depending on write-in operation or read-out operation.

- For write-in operation, all station will be a target.
- For read-out operation, only the host station will be a target.

5.6 Function Code

The following shows the message format for the MODBUS communication.

Address	Function code	Data	CRC

The GOT supports the following function codes.

Function code	Function	Number of devices that are accessible with one message [Unit: point(s)]
0x01	Read Coils	1 to 2000
0x02	Read Discrete Inputs	1 to 2000
0x03	Read Holding Registers	1 to 125
0x04	Read Input Registers	1 to 125
0x05	Write Single Coil	1
0x06	Write Single Register	1
0x0F	Write Multiple Coils	1 to 1968
0x10	Write Multiple Register	1 to 123
0x14	Read File Record	1 to 124
0x15	Write File Record	1 to 122

5.7 MODBUS Communication Control Function

This function is to prevent a communication response delay by the equipment with different specifications in the MODBUS network.

The GOT special register (GS) controls available function codes.

Set this function when equipment applicable to the following conditions is used on the MODBUS network.

- Equipment that supports only some function codes
- Equipment whose maximum transfer size is small for function codes

The following lists the GOT special registers (GS) used for the MODBUS communication control function.

GOT special register (GS)	Description
GS579	Specification of the communication setting (common or individual) for each CH
GS570 to GS576	Common communication settings
GS590 to GS596	Individual communication settings for CH1
GS597 to GS603	Individual communication settings for CH2
GS604 to GS610	Individual communication settings for CH3
GS611 to GS617	Individual communication settings for CH4

For the details of the GOT special registers (GS), refer to the following manual.

📖GT Designer3 (GOT2000) Screen Design Manual

5.8 Device Range that Can Be Set

For the device setting dialog and the device range that can be used on the GOT, refer to the following.

☞ Page 441 MODBUS ([MODBUS Slave(GOT:Master)])

5.9 Precautions

Communication confirmation to connected equipment

The GOT reads the following devices for checking whether the GOT can communicate with the controller.

GOT	Device
GT27, GT25, GT23, and GS25	The holding register (400001) is read.
GT21 and GS21	The coil (000001) is read. When reading the coil (000001) fails, the holding register (400001) is read.

When the controller is a MODBUS/RTU equipment that does not have the holding register (400001), check whether the MODBUS/RTU equipment sends back a response to the request from the GOT.
Communication is available when the MODBUS/RTU equipment sends back a response, regardless of the message type (normal or abnormal).

Station No. settings of the MODBUS/RTU slave equipment side

In the system configuration, the MODBUS/RTU slave equipment with the station number set with the host address must be included.For details of host address setting, refer to the following.

☞ Page 262 Setting communication interface (Controller Setting)

GOT clock control

The settings of "time adjusting" or "time broadcast" made on the GOT will be disabled on the PLC.

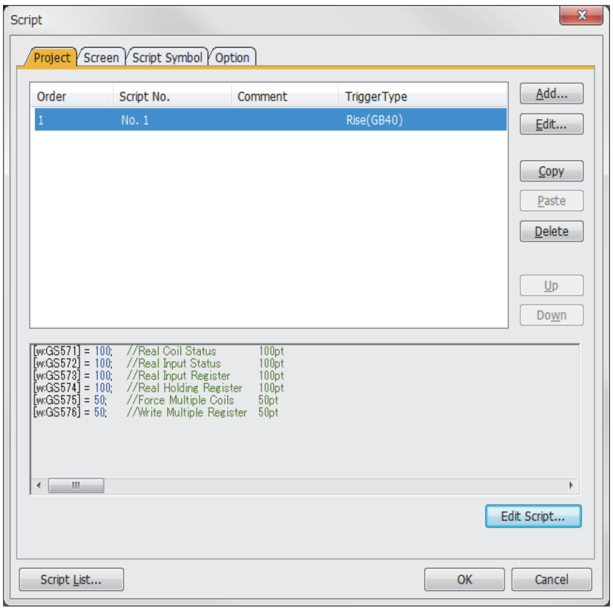
Disconnecting some of multiple connected equipment

The GOT can disconnect some of multiple connected equipment by setting GOT internal device. For example, the faulty station where a communication timeout error occurs can be disconnected from connected equipment. For details of GOT internal device setting, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

MODBUS communication control function on the GS device

At GOT startup, set MODBUS communication control function with project scripts, etc.
If settings are changed after communication start, a communication error may occur.



Setting example for project script

MEMO

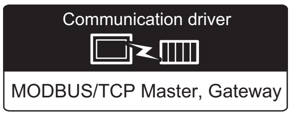
6 MODBUS/TCP MASTER CONNECTION

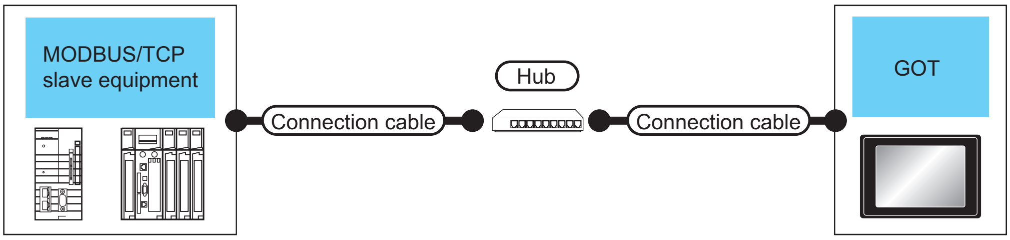
6.1 Connectable Model List

GOT2000 Series products support the master function of MODBUS/TCP communication, the open FA network.
Thus, the GOT can be connected with each MODBUS/TCP slave.
For the MODBUS/TCP equipment validated by Mitsubishi Electric Corporation, refer to the following Technical Bulletin.
☞ List of Valid Devices Applicable for GOT2000 Series MODBUS Connection for Overseas (GOT-A-0170)
For Technical Bulletins, go to the Mitsubishi Electric Factory Automation Global Website.
www.MitsubishiElectric.com/fa

6.2 System Configuration

Connecting to MODBUS/TCP slave equipment





Controller	Communication Type	Connection cable		External device	Connection cable		GOT*2		Number of connectable equipment
		Cable model*4	Maximum segment length*3		Cable model	Maximum segment length*3	Option device*7	GOT model	
MODBUS/ TCP equipment	Ethernet	• 100BASE-TX Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher	100m	Hub*1	• 100BASE-TX Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher	100m	- (Built into GOT)	GT27 GT25 GT23 GT21 07W GT21 04R GT21 03P 04P ET/R4 GS25 GS21	When controller:GOT is N:1 The number of controllers for 1 GOT is TCP: 128 or less.*6 When controller:GOT is 1:N The following shows the number of GOTs for 1 controller Depends on the MODBUS/TCP equipment used.*5
							GT25-J71E71-100	GT27 GT25	

*1 Connect the GOT to the MODBUS/TCP equipment via a hub.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standards.

*2 When connecting GOT2000 to equipment that meets the 10BASE (-T/2/5) standard, use the switching hub and operate in an environment where 10Mbps and 100Mbps can be mixed.

*3 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
• 10BASE-T: Max. 4 nodes for a cascade connection (500m)
• 100BASE-TX: Max. 2 nodes for a cascade connection (205m)
When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.

*4 Use the straight cable.

*5 For details, refer to the MODBUS/TCP equipment manual.

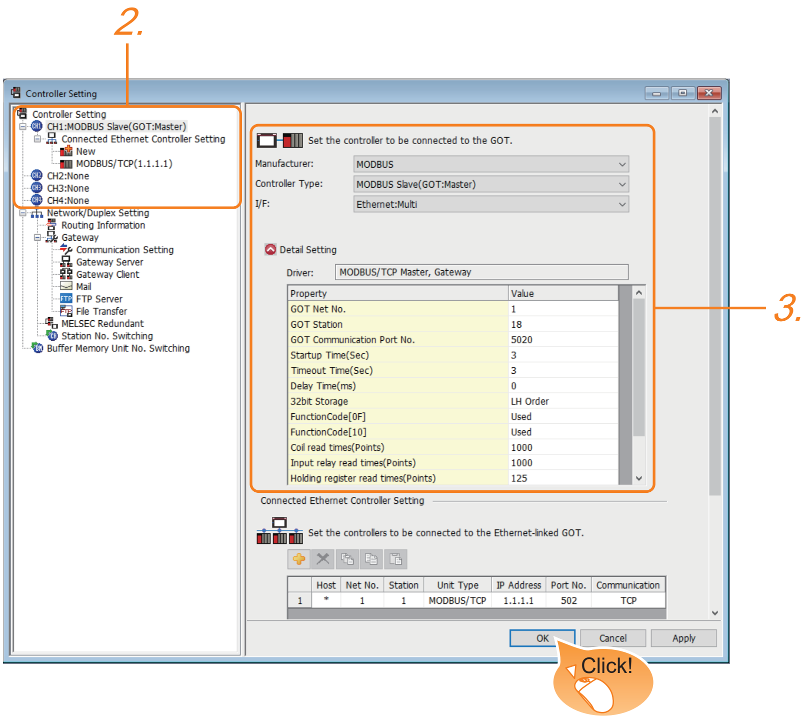
*6 For GT21 or GS21, 4 or less.

*7 GT25-W, GT2505-V does not support the option device.

6.3 GOT Side Settings

Setting communication interface (Controller Setting)

Set the channel of the equipment to be connected to the GOT.



1. Select [Common] → [Controller Setting] from the menu.

2. In the [Controller Setting] window, select the channel No. to be used from the list menu.

3. Set the following items.

- [Manufacturer]: [MODBUS]
- [Controller Type]: [MODBUS Slave(GOT:Master)]
- [I/F]: [Ethernet:Multi]

When using the Ethernet communication unit (GT25-J71E71-100), also select [Ethernet:Multi].

- [Detail Setting]: Configure the settings according to the usage environment.

☞ Page 272 Communication detail settings

4. When you have completed the settings, click the [OK] button.

Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

☞ Page 39 I/F communication setting

Communication detail settings

Make the settings according to the usage environment.

Property	Value
GOT Net No.	1
GOT Station	18
GOT Communication Port No.	5020
Startup Time(Sec)	3
Timeout Time(Sec)	3
Delay Time(ms)	0
32bit Storage	LH Order
FunctionCode[0F]	Used
FunctionCode[10]	Used
Coil read times(Points)	1000
Input relay read times(Points)	1000
Holding register read times(Points)	125
Input register read times(Points)	125
Coil write times(Points)	800
Holding register write times(Points)	100

Item	Description	Range
GOT Net No.	Set the network No. of the GOT. (Default: 1)	1 to 239
GOT Station*1	Set the station No. of the GOT. (Default: 18)	1 to 247
GOT Communication Port No.	Set the GOT port No. for the connection with the Ethernet module. (Default: 5020*2)	1024 to 5010, 5014 to 65534 (Except for 5011, 5012, 5013 and 49153 to 49170)
Startup Time	Specify the time period from the GOT startup until GOT starts the communication with the PLC CPU. (Default: 3sec)	3 to 255sec
Timeout Time	Set the time period for a communication to time out. (Default: 3sec)	3 to 90sec
Delay Time	Set the delay time for reducing the load of the network/destination PLC. (Default: 0ms)	0 to 10000 (ms)
32bit Storage	Select the steps to store two words (32-bit data). (Default: LH Order)	LH Order/HL Order
FunctionCode[0F]	Set whether to use the function code [0F]. (Default: Used)	Used/Unused
FunctionCode[10]	Set whether to use the function code [10]. (Default: Used)	Used/Unused
Coil read times	Set the read points of the coil. (Default: 1000 points)	1 to 2000 (points)
Input relay read times	Set the read points of the input relay. (Default: 1000 points)	1 to 2000 (points)
Holding registor read times	Set the read points of the holding register. (Default: 125 points)	1 to 125 (points)
Input register read times	Set the read points of the input register. (Default: 125 points)	1 to 125 (points)
Coil write times	Set the write points of the coil. (Default: 800 points)	1 to 800(points)
Holding register write times	Set the write points of the holding register. (Default: 100 points)	1 to 100(points)

*1 Set different values for [GOT Station] of [Detail Setting] and [Station] of [Connected Ethernet Controller Setting].
☞ Page 274 Connected Ethernet controller setting
*2 When assigning the same driver to the multiple channels, in the communication drivers set as the second and following, the default value of [GOT Communication Port No.] becomes the earliest number in the vacant numbers of No. 6000 and later.

Point

- Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.

For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

- Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

GOT Ethernet Setting

The GOT can be connected to a different network by configuring the following setting.

GOT IP address setting

Set the following communication port setting.

- Standard port (When using GT25-W or GS25: Port 1)
- Extended port (When using GT25-W or GS25: Port 2)

GOT Ethernet common setting

Set the following setting which is common to the standard port and the extension port, or port 1 and port 2.

- [Default Gateway]
- [Peripheral S/W Communication Port No.]
- [Transparent Port No.]

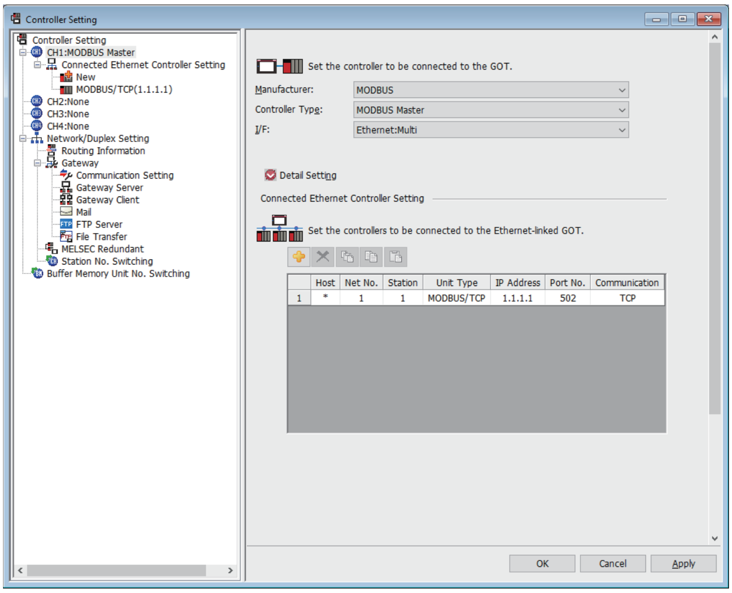
IP filter setting

By configuring the IP filter setting, the access from the specific IP address can be permitted or shut off.

For the detailed settings, refer to the following manual.

☞ Page 35 GOT Ethernet Setting

Connected Ethernet controller setting



Item	Description	Range
Host	The host is displayed. It refers to a station that can be connected without setting a station number. (The host is indicated with an asterisk (*).)	—
Net No.	Set the network No. of the connected Ethernet module. (Default: 1)	1 to 239
Station*2	Set the station No. of the connected Ethernet module. (Default: 1)	1 to 247
Unit Type*1	Select the destination Ethernet module. (Default: MODBUS/TCP)	MODBUS/TCP MODBUS/TCP(unit ID fixed)
IP Address	Set the IP address of the connected Ethernet module. (Default: 1.1.1.1)	PLC side IP address
Port No.	Set the port No. of the connected Ethernet module. (Default: 502)	1 to 65535
Communication format	TCP (fixed)	TCP (fixed)

*1 When the module ID is required to be fixed to 255, select [MODBUS/TCP(unit ID fixed)].
*2 Set different values for [GOT Station] of [Detail Setting] and [Station] of [Connected Ethernet Controller Setting].
☞ Page 272 Communication detail settings

Point

- [Connected Ethernet Controller Setting] for GT21 and GS21

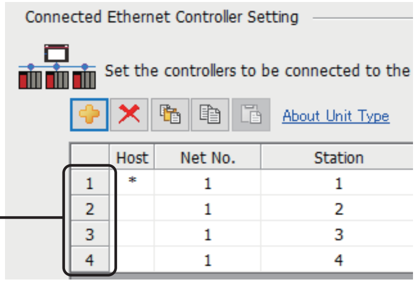
Effective range of [Connected Ethernet Controller Setting]

Only [1] to [4] of [Connected Ethernet Controller Setting] can be used for GT21 and GS21.

If [5] onwards are used, the settings are invalid on GT21 and GS21.

[Host] setting

Set [Host] within the range from [1] to [4] in [Connected Ethernet Controller Setting].

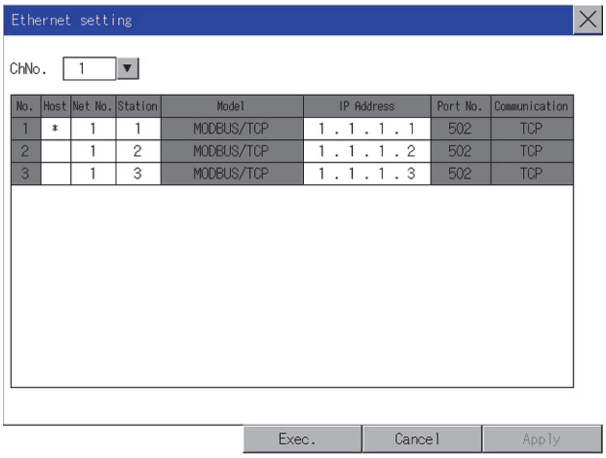


Only [1] to [4] can be used.

- Changing the host with GOT module

The host can be changed by the GOT module Utility. For details of settings, refer to the following.

☞ GOT2000 Series User's Manual (Utility)



6.4 MODBUS/TCP Slave Side Settings

For details of the MODBUS/TCP equipment, refer to the manual of MODBUS/RTU equipment to be used.

6.5 Function Code

The following shows the message format for the MODBUS communication.

Address	Function code	Data	CRC

The GOT supports the following function codes.

Function code	Function	Number of devices that are accessible with one message [Unit: point(s)]
0x01	Read Coils	1 to 1000
0x02	Read Discrete Inputs	1 to 1000
0x03	Read Holding Registers	1 to 125
0x04	Read Input Registers	1 to 125
0x05	Write Single Coil	1
0x06	Write Single Register	1
0x0F	Write Multiple Coils	1 to 800
0x10	Write Multiple Register	1 to 123
0x14	Read File Record	1 to 124
0x15	Write File Record	1 to 122

6.6 MODBUS Communication Control Function

This function is to prevent a communication response delay by the equipment with different specifications in the MODBUS network.

The GOT special register (GS) controls available function codes.

Set this function when equipment applicable to the following conditions is used on the MODBUS network.

- Equipment that supports only some function codes
- Equipment whose maximum transfer size is small for function codes

The following lists the GOT special registers (GS) used for the MODBUS communication control function.

GOT special register (GS)	Description
GS579	Specification of the communication setting (common or individual) for each CH
GS570 to GS576	Common communication settings
GS590 to GS596	Individual communication settings for CH1
GS597 to GS603	Individual communication settings for CH2
GS604 to GS610	Individual communication settings for CH3
GS611 to GS617	Individual communication settings for CH4

For the details of the GOT special registers (GS), refer to the following manual.

GT Designer3 (GOT2000) Screen Design Manual

6.7 Device Range that Can Be Set

For the device setting dialog and the device range that can be used on the GOT, refer to the following.

Page 441 MODBUS ([MODBUS Slave(GOT:Master)])

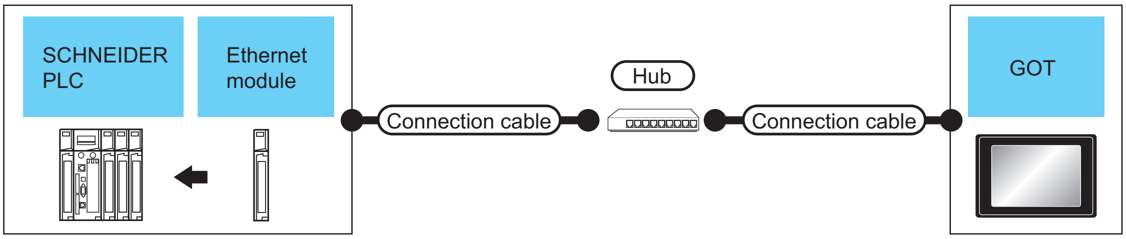
6.8 Example of Connection

Connecting to SCHNEIDER PLC

System Configuration

Communication driver

MODBUS/TCP Master, Gateway



controller	Ethernet module*4	Communication Type	Connection cable		External device	Connection cable		GOT*2		Number of connectable equipment
			Cable model*5	Max. distance*3		Cable model	Max. distance*3	Option device	GOT model	
Modicon Premium Series	TSX ETY 4102 TSX ETY 5102	Ethernet	• 100BASE-TX Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher	100m	Hub*1	• 100BASE-TX Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher	100m	- (Built into GOT)		64 GOTs for 1 PLC
Modicon Quantum Series	140 NOE 771 00 140 NOE 771 10 140 NWM 100 00									

*1 Connect the GOT to the Ethernet module via a hub.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standards.

*2 When connecting GOT2000 to equipment that meets the 10BASE (-T/2/5) standard, use the switching hub and operate in an environment where 10Mbps and 100Mbps can be mixed.

*3 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
• 10BASE-T: Max. 4 nodes for a cascade connection (500m)
• 100BASE-TX: Max. 2 nodes for a cascade connection (205m)
When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.

*4 Product manufactured by SCHNEIDER ELECTRIC SA.For details of the product, contact SCHNEIDER ELECTRIC SA.

*5 Use the straight cable.

PLC Side Setting

Point

SCHNEIDER ELECTRIC PLC
For details of SCHNEIDER PLC, refer to the following manual.
☞ SCHNEIDER PLC user's Manual

■Parameter settings

Set the parameter settings with programming software for SCHNEIDER PLC.

- For Modicon Premium series

Set for PL7 Pro programming software.

Item	Set value
Processors	Connected CPU module
Memory cards	Memory card to be used
Module	Connected Ethernet module
IP Address	IP address for Ethernet module
Size of global address fields	Setting for device points Bits: Coil, Input Words: Input register, Maintenance register

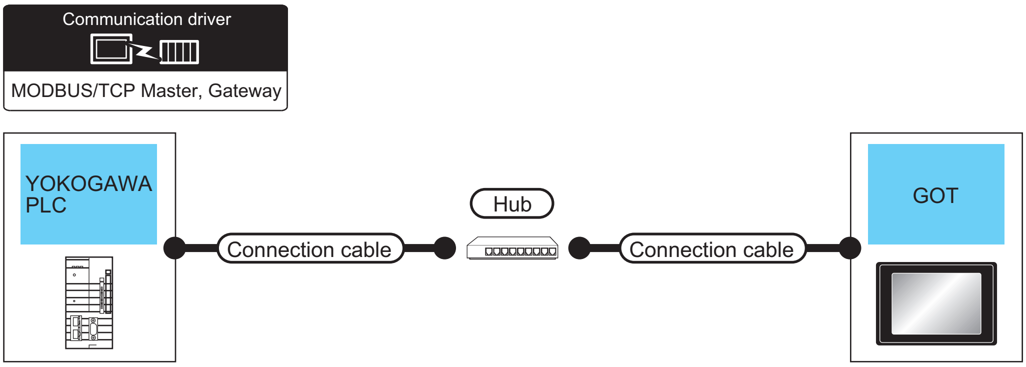
- For Modicon Quantum series

Set for Concept programming software.

Item	Set value
PLC Selection	Connected CPU module
TCP/IP Ethernet	Numbers of unit
I/O Module Selection	Connected Ethernet module
Internet Address	IP address for Ethernet module

Connecting to YOKOGAWA PLC

System Configuration



controller	Communication Type	Connection cable		External device	Connection cable		GOT[*3]		Number of connectable equipment
		Cable model[*5]	Max. distance[*4]		Cable model	Max. distance[*4]	Option device	GOT Model	
STARDOM[*1] (NFCP100, NFJT100)	Ethernet	Twisted pair cable • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP): Category 3, 4, and 5 • 100BASE-TX Shielded twisted pair cable (STP): Category 5 and 5e	100m	Hub[*2]	Twisted pair cable • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP): Category 3, 4, and 5 • 100BASE-TX Shielded twisted pair cable (STP): Category 5 and 5e	100m	- (Built into GOT)	GT27, GT25, GT23, GT21 07W, GT21 04R, GT21 03P 04P ET/R4, GS25, GS21	126 GOTs for 1 PLC

*1 When connecting STARDOM to MODBUS/TCP, Modbus Communication Portfolio License is required.
For details, refer to the following manual.
☞ YOKOGAWA PLC user's Manual

*2 When connect a GOT to a PLC, connect to the PCL Ethernet port via a hub.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standards.

*3 When connecting GOT2000 to equipment that meets the 10BASE (-T/2/5) standard, use the switching hub and operate in an environment where 10Mbps and 100Mbps can be mixed.

*4 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
• 10BASE-T: Max. 4 nodes for a cascade connection (500m)
• 100BASE-TX: Max. 2 nodes for a cascade connection (205m)
When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.

*5 Use the straight cable.

PLC Side Setting

Make the communication settings as shown below. For details of the communication settings, refer to the following manual.

☞ Peripheral Software Manual for YOKOGAWA PLC

Point

Connection between STARDOM and the PC for communication settings

For the communication settings of STARDOM, STARDOM and the PC for communication settings must be connected to Ethernet using the Resource Configurator (peripheral software).

■Modbus Communication Portfolio License

To set the communication settings for STARDOM, an installation of Modbus Communication Portfolio License is required.

For details of the communication settings, refer to the following manual.

☞ STARDOM FCN/FCJ Guide

■Defining Logic POU

Define Logic POU using Logic Designer (peripheral software), and download the project to STARDOM.

- Start Logic Designer and create a new project using a template.

Use [STARDOM Serial Communication] template.

- Insert Firmware Library to the new project.

Right-click [Library] under the project tree in Logic Designer.

Right-click [Insert] and select [Firmware Library].

Double-click the [SD_FCXPLCE_LIB] folder and double-click [SD_FCXPLCE_LIB.fwl] to select it.

The library path inserted in the procedures above is as follows.

{Install Folder}\LogicDesigner\Mwt\Plc\Fw_lib\SD_FCXPLCE_LIB\SD_FCXPLCE_LIB.fwl

- Insert User Library to the new project.

Right-click [Library] under the project tree in Logic Designer.

Right-click [Insert] and select [User Library].

Double-click [SD_CMODBUSE_PF.mwt], [SD_CUTIL_PF.mwt] and [SD_CMODBUSS_PF.mwt] to select it.

(When [STARDOM Serial Communication] is used for the template, [SD_CUTIL_PF.mwt] is inserted as default.)

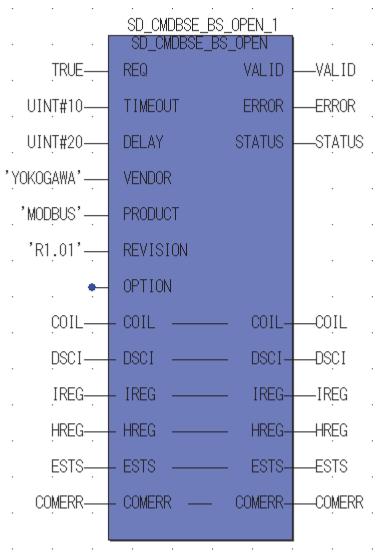
The library path inserted in the procedures above is as follows.

{Install Folder}\LogicDesigner\Libraries\SD_CMODBUSE_PF.mwt

{Install Folder}\LogicDesigner\Libraries\SD_CUTIL_PF.mwt

{Install Folder}\LogicDesigner\Libraries\SD_CMODBUSS_PF.mwt

• Copy a sample project POU to the new project.
Open "SD_CMODBUSE_Sample1.mwt".
Right-click [ComEServerModbus*] in the Logic POU under the project tree in the SD_CMODBUSE_Sample1 project, and select [Copy].
Right-click the [Logic POU] under the project tree in the previously created project, and select [Paste].
Double-click the [ComEServerModbus*] file in the [ComEServerModbus*] folder.
For the following terminals, set as shown below.



• Set devices to be monitored by a GOT.
Right-click the [ComEServerModbus*] file in the [ComEServerModbus*] folder in the logic POU under the project tree and select [Insert] - [Cord worksheet].
Set the variable devices to be monitored.
Instantiate Logic POU.Define an already defined instance to Task0.
Right-click [Physical hardware] - [Configuration:IPC_33/FCX01:FCX/Tasks/Task0:CYCLIC] and select [Insert] - [Program instance].
Define the program instance name and select ComEServerModbus for the program type.
• Defining Target Setting
Define the IP address of STARDOM to set the communication settings.
Double-click [Physical hardware] - [Configuration:IPC_33/FCX01:FCX/Target Setting] and input the IP address or the host name.
• Downloading the project
Execute [Build] - [Make].
(Same as when pressing the function key F9).
Download after confirming that the compile error does not occur. Select [Download] in the project control dialog displayed when [Online] - [Project control] is selected.
When the download is completed, select [Cold] and start STARDOM.

Device range

When performing monitoring with the GOT connected to a YOKOGAWA PLC and setting devices for objects, use devices within the device range of the YOKOGAWA PLC.
When a device outside the range is set on an object, an indefinite value is displayed on the object.
(No error is displayed in the system alarm.)
For details on the device range of YOKOGAWA PLCs, refer to the following manual:
☞ YOKOGAWA PLC user's Manual

Precautions

■For dual-redundant configuration

When STARDOM is configured with a redundant system, the connection is not supported.

■Not communicating with GOT and STARDOM in a specified period

When the GOT does not communicate with STARDOM in a specified period during the GOT is turned on, STARDOM disconnects the line for the GOT. As the line is disconnected, the GOT displays an error when the GOT monitors STARDAM after the disconnection.
After the error displayed as the system alarm (No.402: timeout error) on the GOT, the normal communication is recovered and the GOT can monitor STARDOM.

6.9 Precautions

When connecting to multiple GOTs

■Setting PLC No.

When connecting two or more GOTs in the MODBUS/TCP network, set each [PLC No.] to the GOT.

☞ Page 271 Setting communication interface (Controller Setting)

■Setting IP address

Do not use the IP address "192.168.0.18" when using multiple GOTs with the GOT 1000 series mixed.

A communication error may occur on the GOT with the IP address.

When setting IP address

Do not use "0" and "255" at the end of an IP address.

(Numbers of *.*.*.0 and *.*.*.255 are used by the system)

The GOT may not monitor the controller correctly with the above numbers.

Consult with the administrator of the network before setting an IP address to the GOT and controller.

When connecting to the multiple network equipment (including GOT) in a segment

By increasing the network load, the transmission speed between the GOT and PLC may be reduced.

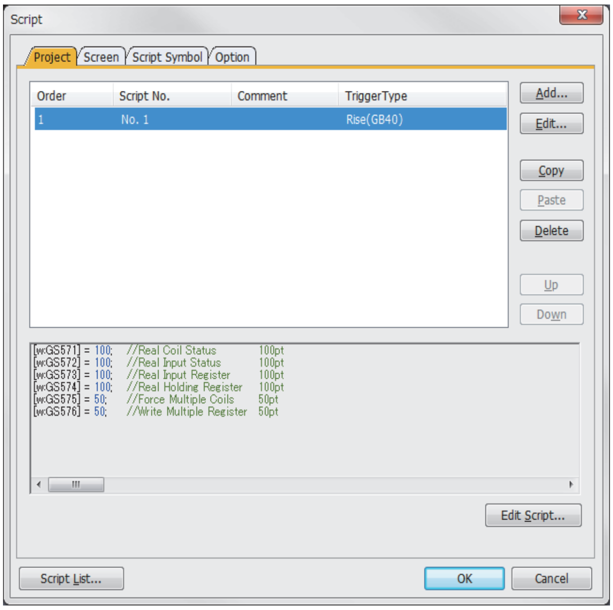
The following actions may improve the communication performance.

- Using a switching hub
- More high speed by 100BASE-TX (100Mbps)
- Reduction of the monitoring points on GOT

MODBUS communication control function on the GS device

At GOT startup, set MODBUS communication control function with project scripts, etc.

If settings are changed after communication start, a communication error may occur.



Setting example for project script

MEMO

7 MODBUS/RTU SLAVE CONNECTION

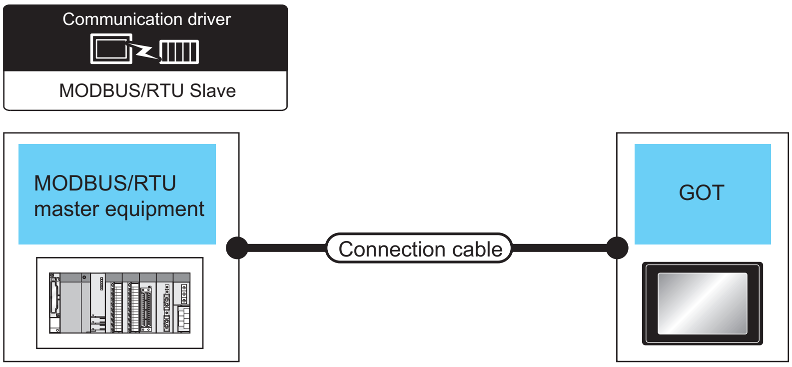
7.1 Connectable Model List

The GOT2000 series supports the slave function of the MODBUS communication that is the open FA network.
Thus, the GOT can be connected with each MODBUS master equipment.
For the MODBUS/RTU equipment validated by Mitsubishi Electric Corporation, refer to the following Technical Bulletin.
☞ List of Valid Devices Applicable for GOT2000 Series MODBUS Connection for Overseas (GOT-A-0170)
For Technical Bulletins, go to the Mitsubishi Electric Factory Automation Global Website.
www.MitsubishiElectric.com/fa

7

7.2 System Configuration

Connecting to MODBUS/RTU master equipment



Controller	Communication Type	Connection cable		GOT		Number of connectable equipment
		Cable model Connection diagram number	Max. distance	Option device*7*8	model	
MODBUS/RTU master equipment	RS-232	User preparing Page 288 RS-232 connection diagram 1)	15m*1	- (Built into GOT)	GT27, GT25, GT23, GT21 07W, GT21 05Q, GS25, GS21	1 MODBUS/RTU master equipment for 1 GOT
				GT15-RS2-9P	GT27, GT25	
				GT10-C02H-6PT9P*4	GT21 03P 04P R4, GT21 03P 04P R2	
		User preparing Page 288 RS-232 connection diagram 2)	15m*1	- (Built into GOT)	GT21 04R, GT21 03P 04P R2	

Controller	Communication Type	Connection cable		GOT		Number of connectable equipment
		Cable model Connection diagram number	Max. distance	Option device*7*8	model	
MODBUS/RTU master equipment	RS-422/485	Page 289 RS-422/485 connection diagram 1)(4-wire) or Page 290 RS-422/485 connection diagram 2)(2-wire)	1200m*1	FA-LTBGT2R4CBL05(0.5m)*2 FA-LTBGT2R4CBL10(1m)*2 FA-LTBGT2R4CBL20(2m)*2	GT27 GT25 GS25	Up to 31 GOTs for 1 MODBUS/RTU master equipment *3*6
		Page 290 RS-422/485 connection diagram 3)(4-wire) or Page 291 RS-422/485 connection diagram 4)(2-wire)	1200m*1	- (Built into GOT)	GT27 GT25 GT23 GS25	
				GT15-RS4-9S	GT27 GT25	
				GT10-C02H-9SC	GT21 04R GT21 03P 04P R2	
		Page 290 RS-422/485 connection diagram 3)(4-wire)	1200m *1	- (Built into GOT)	GT21 07W GT21 05Q GS21 *10	
		Page 291 RS-422/485 connection diagram 4)(2-wire)	1200m *1	- (Built into GOT)	GT21 07W GT21 05Q GS21 *11	
		Page 293 RS-422/485 connection diagram 8)(4-wire) or Page 293 RS-422/485 connection diagram 9)(2-wire)	1200m*1	GT10-9PT5S*5	GT25 GT21 05Q *9	
		Page 291 RS-422/485 connection diagram 5)(2-wire)	1200m*1	GT15-RS4-TE	GT27 GT25	
		Page 292 RS-422/485 connection diagram 6)(4-wire) or Page 292 RS-422/485 connection diagram 7)(2-wire)	1200m*1	- (Built into GOT)	GT21 04R GT21 03P 04P ET/R4 GT21 03P 04P R4	

*1 The shortest specification on the MODBUS/RTU master equipment side is prioritized.
*2 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.
*3 When it is less than 31 units, the number of the maximum connectable units on the MODBUS/RTU master equipment side will apply.
*4 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.
*5 Connect it to the RS-422/485 interface (built into GOT).
*6 GS21-W is connectable with one set of MODBUS/RTU equipment.
*7 GT25-W is not compatible to the option devices other than FA-LTBGT2R4CBL□□.
*8 GT2505-V does not support the option device other than GT10-9PT5S.
*9 GT2505-V, GT2105-Q only supported.
*10 For GS21-W, use the RS-422 interface for connection.
*11 Only available to GS21-W-N for GS21.

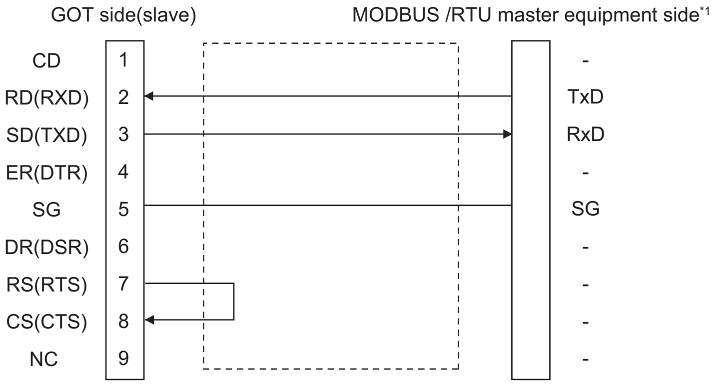
7.3 Connection Diagram

The following diagram shows the connection between the GOT and the controller.

RS-232 cable

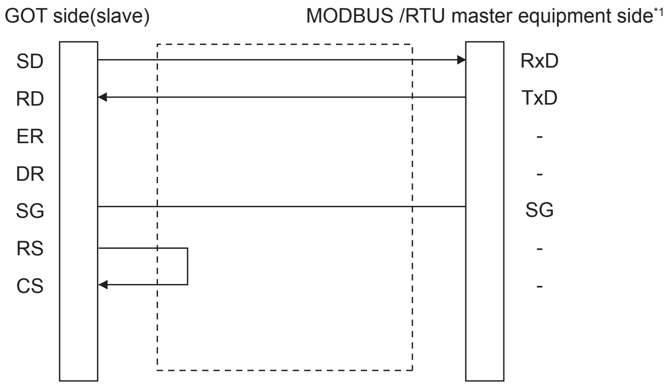
Connection diagram

■RS-232 connection diagram 1)



*1 Some MODBUS/RTU master equipment require the control line (CS, RS, etc.) to be controlled.
Make sure to connect the cables and wires as described in the MODBUS/RTU master equipment manual.

■RS-232 connection diagram 2)



*1 Some MODBUS/RTU master equipment require the control line (CS, RS, etc.) to be controlled.
Make sure to connect the cables and wires as described in the MODBUS/RTU master equipment manual.

Precautions when preparing a cable

■Cable length

The length of the RS-232 cable must be 15m or less.

■GOT side connector

For the GOT side connector, refer to the following.

☞ Page 49 GOT connector specifications

■MODBUS equipment side connector

Use the connector compatible with the MODBUS/RTU master equipment side module.

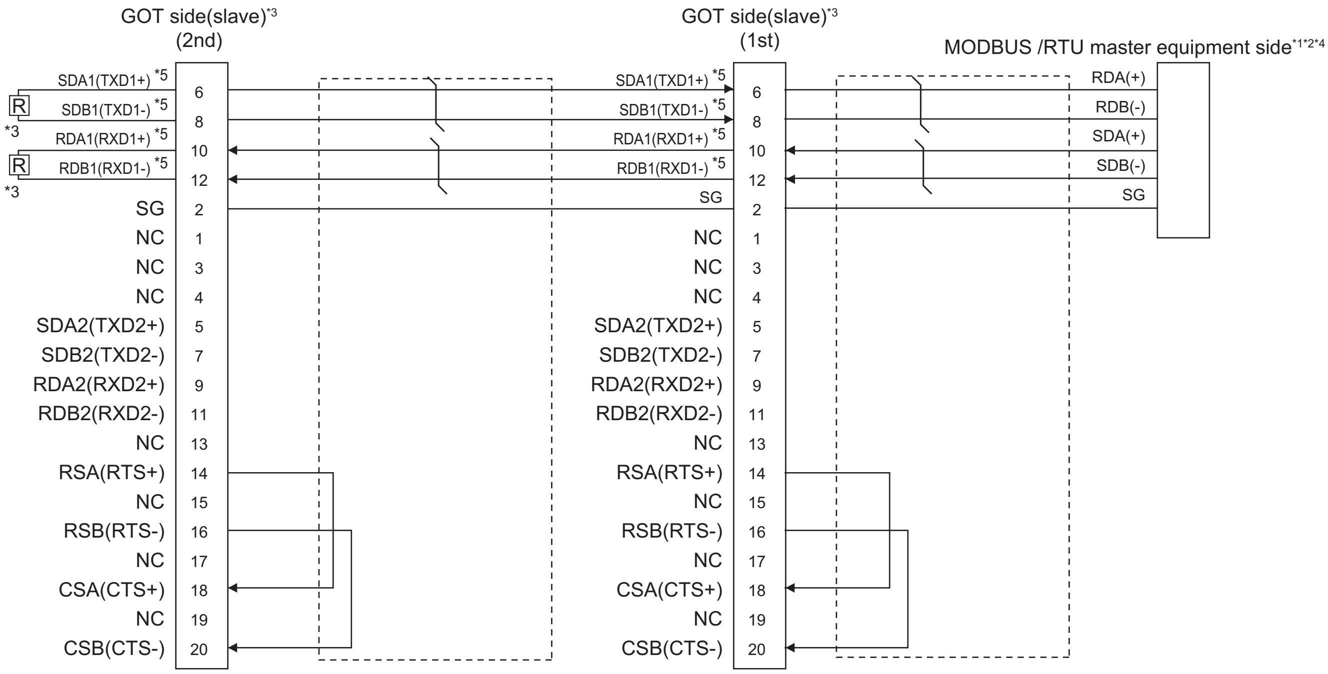
For details, refer to the MODBUS/RTU master equipment user's manual.

RS-422/485 cable

The following shows the connection diagrams and connector specifications of the RS-422/485 cable used for connecting the GOT to a PLC.

Connection diagram

■RS-422/485 connection diagram 1)



*1 Some MODBUS/RTU master equipment don't have SG. In this case, the wiring between GOT and SG is unnecessary.

*2 Some MODBUS/RTU master equipment require the control line (CS, RS, etc.) to be controlled. Make sure to connect the cables and wires as described in the MODBUS/RTU master equipment manual.

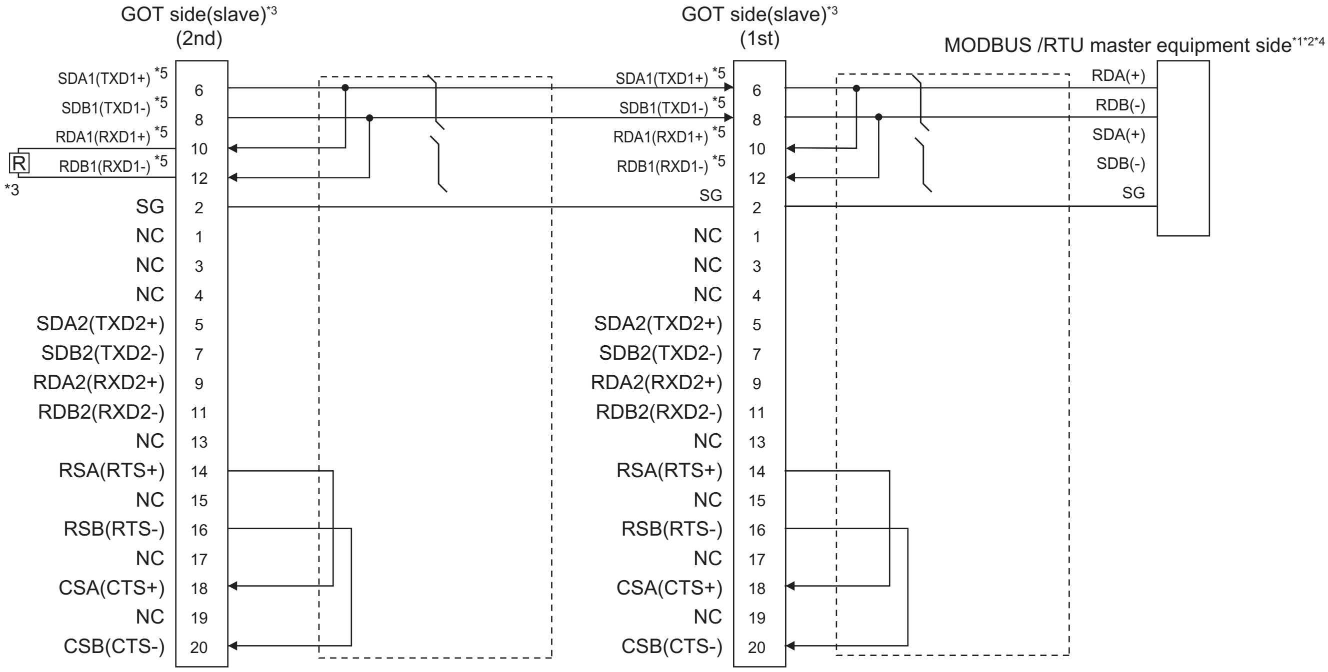
*3 A terminating resistor is required for the terminal GOT. Set the terminating resistor selector of the main unit to "Disable" and connect a 110 Ω terminating resistor.

☞ Page 53 Terminating resistors of GOT

*4 For the terminating resistor of MODBUS/RTU master equipment, refer to the manual of MODBUS/RTU master equipment to be used.

*5 Use the twisted pair cable for SDA1/SDB1 and RDA1/RDB1.

■RS-422/485 connection diagram 2)



*1 The actual terminal layout on the MODBUS/RTU master equipment may differ from the example shown above. SDA/B(+/-) and RDA/B(+/-) terminals can be separated from each other. Make sure to connect the cables and wires as described in the MODBUS/RTU master equipment manual.

*2 Some MODBUS/RTU master equipment don't have SG. In this case, the wiring between GOT and SG is unnecessary.

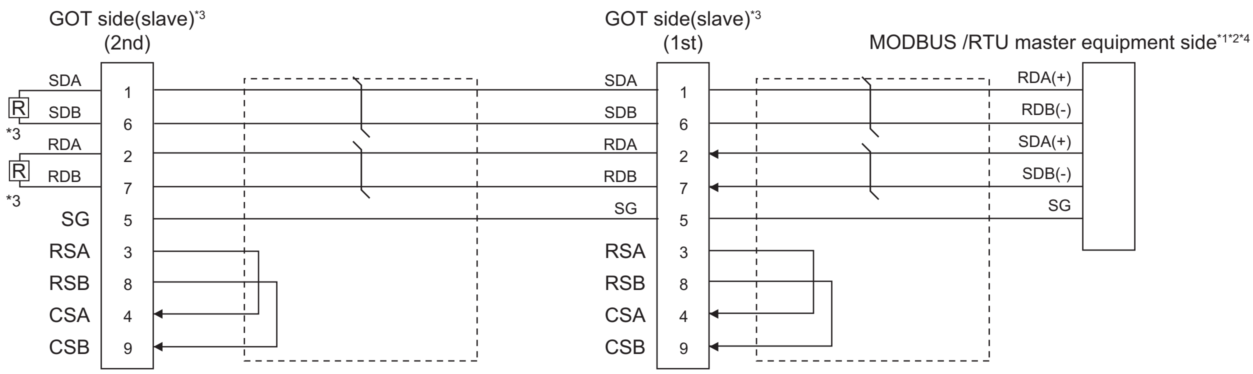
*3 A terminating resistor is required for the terminal GOT. Set the terminating resistor selector of the main unit to "Disable" and connect a 110 Ω terminating resistor.

☞ Page 53 Terminating resistors of GOT

*4 For the terminating resistor of MODBUS/RTU master equipment, refer to the manual of MODBUS/RTU master equipment to be used.

*5 Use the twisted pair cable for SDA1/SDB1.

■RS-422/485 connection diagram 3)



*1 Some MODBUS/RTU master equipment don't have SG. In this case, the wiring between GOT and SG is unnecessary.

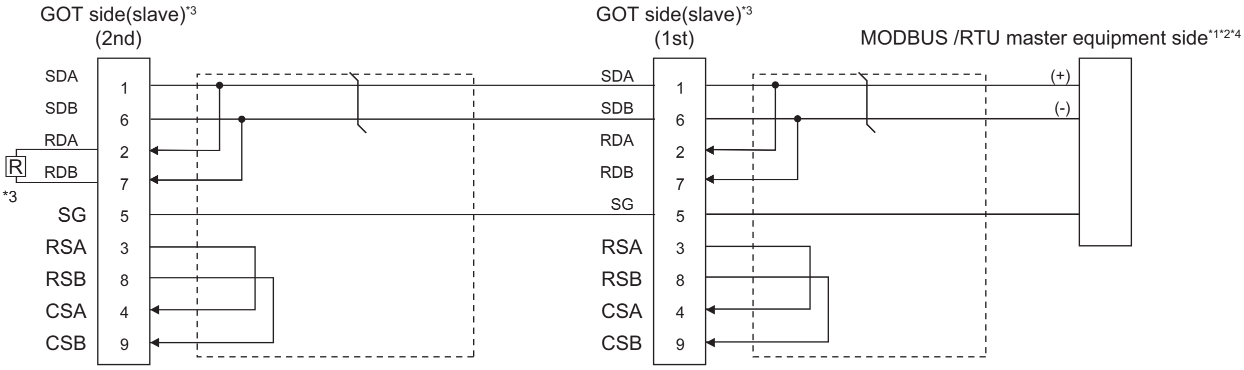
*2 Some MODBUS/RTU master equipment require the control line (CS, RS, etc.) to be controlled. Make sure to connect the cables and wires as described in the MODBUS/RTU master equipment manual.

*3 A terminating resistor is required for the terminal GOT. For GT27, GT25 (except GT2505-V), and GS25, set the terminating resistor selector of the GOT to "Disable" and connect a 330 Ω terminating resistor.
For GT2505-V, GT21, and GS21-W-N, set the terminating resistor setting switch of the GOT to 330 Ω.
Since the terminating resistor of GS21-W is fixed to 330 Ω, connecting and setting of the terminating resistor are not required.

☞ Page 53 Terminating resistors of GOT

*4 For the terminating resistor of MODBUS/RTU master equipment, refer to the manual of MODBUS/RTU master equipment to be used.

■RS-422/485 connection diagram 4)



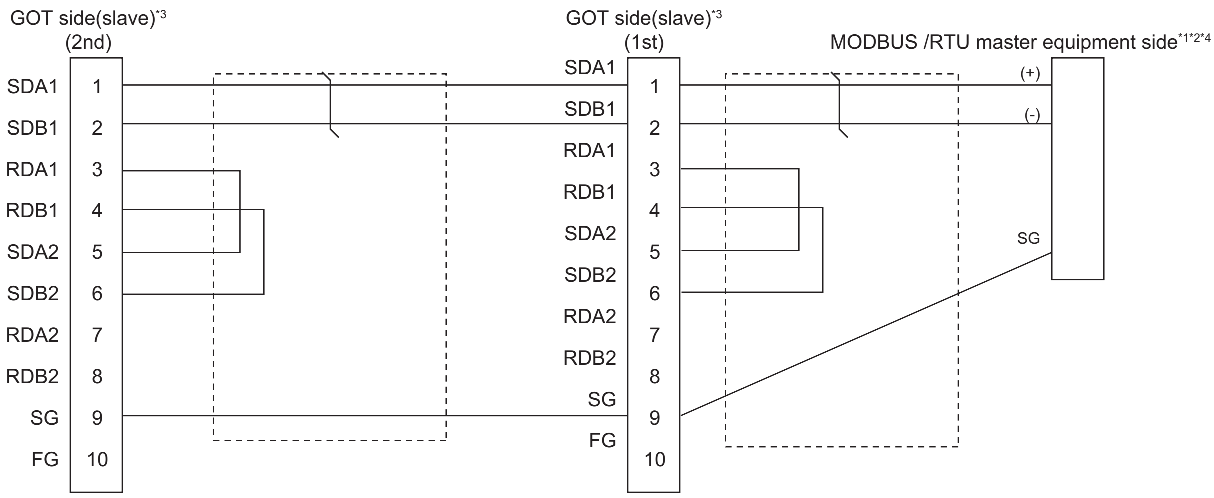
*1 The actual terminal layout on the MODBUS/RTU master equipment may differ from the example shown above. SDA/B(+/-) and RDA/B(+/-) terminals can be separated from each other. In such cases, make sure to connect the cables and wires as described in the MODBUS/RTU master equipment manual.

*2 Some MODBUS/RTU master equipment don't have SG. In this case, the wiring between GOT and SG is unnecessary.

*3 When arranging GT27, GT25 (except GT2505-V), GT23, or GS25 in the end position of the system configuration, set the terminating resistor to "Enable". (For GT2505-V, GT21, and GS21-W-N, set it to "110 Ω").
When arranging GT27, GT25 (except GT2505-V), GT23, or GS25 in any position other than the end position, set the terminating resistor to "Disable". (For GT2505-V, GT21, and GS21-W-N, set it to "OPEN".)
☞ Page 53 Terminating resistors of GOT

*4 For the terminating resistor of MODBUS/RTU master equipment, refer to the manual of MODBUS/RTU master equipment.

■RS-422/485 connection diagram 5)



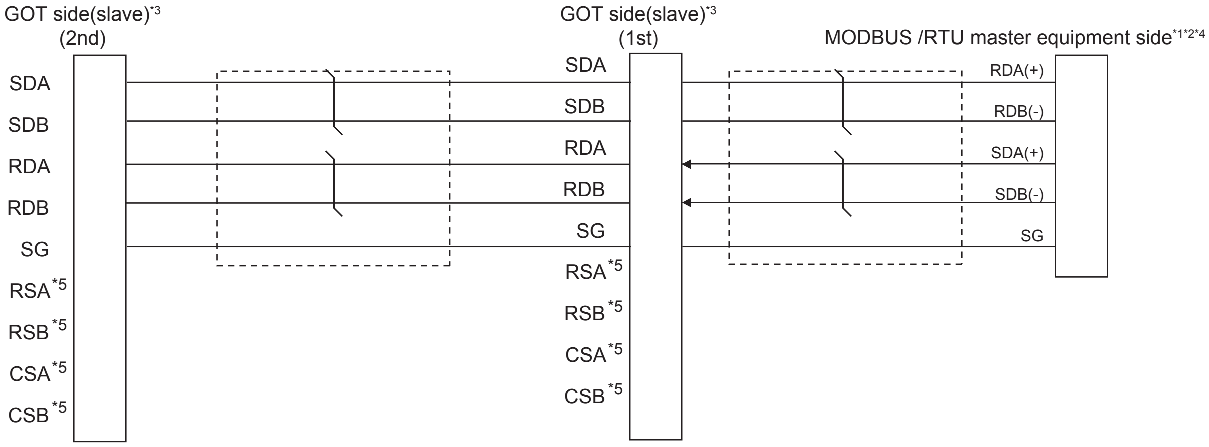
*1 The actual terminal layout on the MODBUS/RTU master equipment may differ from the example shown above. SDA/B(+/-) and RDA/B(+/-) terminals can be separated from each other. In such cases, make sure to connect the cables and wires as described in the MODBUS/RTU master equipment manual.

*2 Some MODBUS/RTU master equipment don't have SG. In this case, the wiring between GOT and SG is unnecessary.

*3 When placing the GOT to the terminal in the system configuration, set the terminating resistor to "Enable".
When placing the GOT to the position other than the terminal, set the terminating resistor of the GOT to "Disable".
☞ Page 53 Terminating resistors of GOT

*4 For the terminating resistor of MODBUS/RTU master equipment, refer to the manual of MODBUS/RTU master equipment.

■RS-422/485 connection diagram 6)



*1 The actual terminal layout on the MODBUS/RTU master equipment may differ from the example shown above. SDA/B(+/-) and RDA/B(+/-) terminals can be separated from each other. In such cases, make sure to connect the cables and wires as described in the MODBUS/RTU master equipment manual.

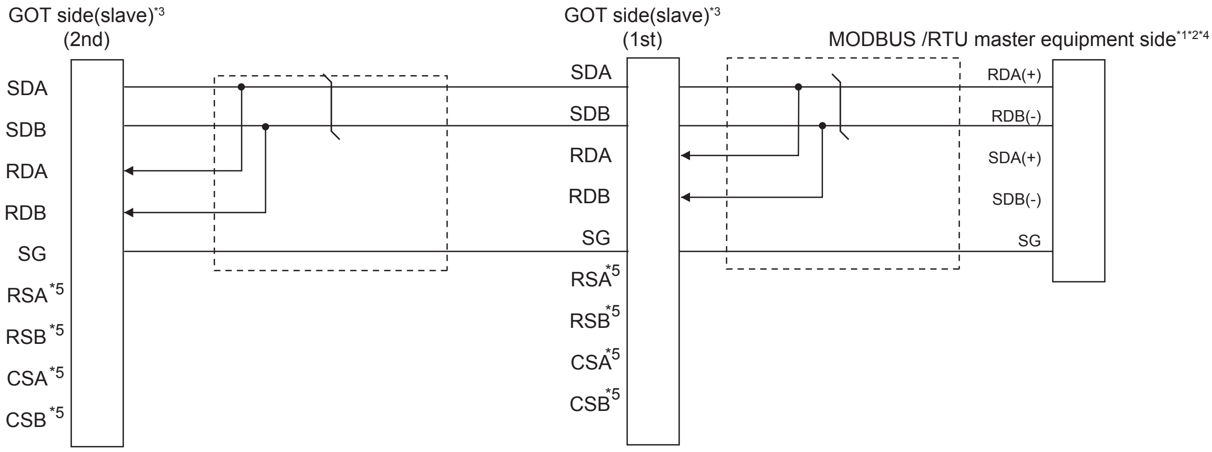
*2 Some MODBUS/RTU master equipment don't have SG. In this case, the wiring between GOT and SG is unnecessary.

*3 When placing the GOT to the terminal in the system configuration, set the terminating resistor to "330 Ω". When placing the GOT to the position other than the terminal, set the terminating resistor of the GOT to "OPEN".
☞ Page 53 Terminating resistors of GOT

*4 For the terminating resistor of MODBUS/RTU master equipment, refer to the manual of MODBUS/RTU master equipment.

*5 The signals RSA, RSB, CSA, and CSB are not provided for GT2104-PMBD, GT2103-PMBD.

■RS-422/485 connection diagram 7)



*1 The actual terminal layout on the MODBUS/RTU master equipment may differ from the example shown above. SDA/B(+/-) and RDA/B(+/-) terminals can be separated from each other. In such cases, make sure to connect the cables and wires as described in the MODBUS/RTU master equipment manual.

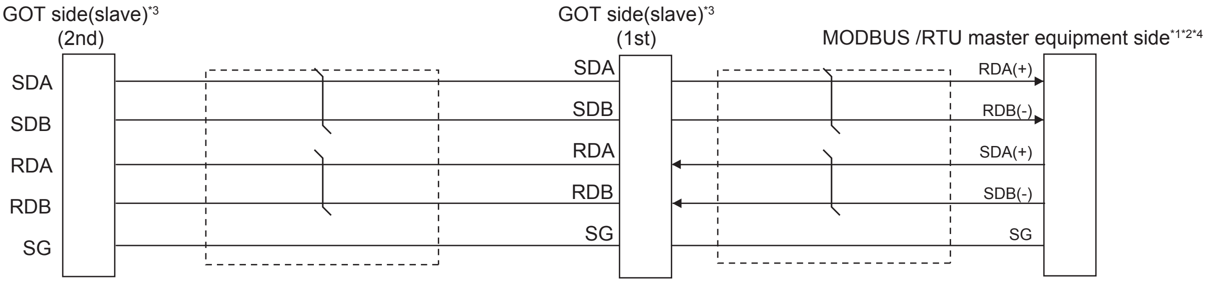
*2 Some MODBUS/RTU master equipment don't have SG. In this case, the wiring between GOT and SG is unnecessary.

*3 When placing the GOT to the terminal in the system configuration, set the terminating resistor to "110 Ω". When placing the GOT to the position other than the terminal, set the terminating resistor of the GOT to "OPEN".
☞ Page 53 Terminating resistors of GOT

*4 For the terminating resistor of MODBUS/RTU master equipment, refer to the manual of MODBUS/RTU master equipment.

*5 The signals RSA, RSB, CSA, and CSB are not provided for GT2104-PMBD, GT2103-PMBD. Return connection is not required.

■RS-422/485 connection diagram 8)



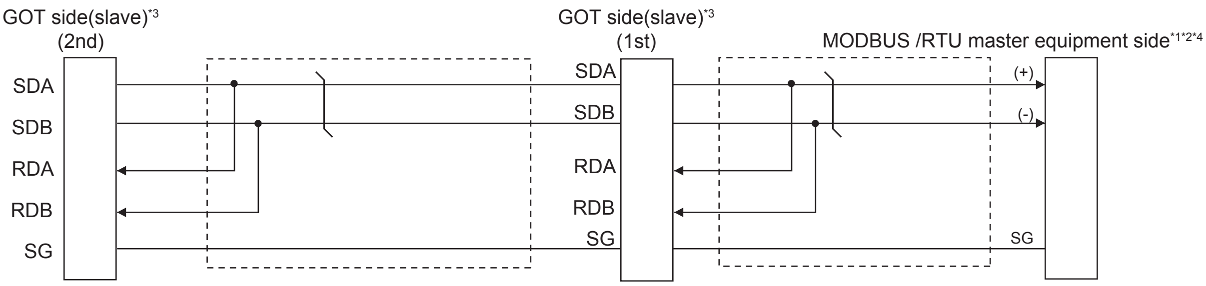
*1 Some MODBUS/RTU master equipment doesn't have SG. In this case, the wiring between GOT and SG is unnecessary.

*2 Some MODBUS/RTU master equipment require the control line (CS, RS, etc.) to be controlled.
Make sure to connect the cables and wires as described in the MODBUS/RTU master equipment manual.

*3 When placing the GOT to the terminal in the system configuration, set the terminating resistor to "330 Ω".
When placing the GOT to the position other than the terminal, set the terminating resistor of the GOT to "OPEN".
☞ Page 53 Terminating resistors of GOT
Set the 1pair/2pair signal selection switch to "2pair" when using the connection conversion adapter.
☞ Connection Conversion Adapter User's manual

*4 For the terminating resistor of MODBUS/RTU master equipment, refer to the manual of MODBUS/RTU master equipment.

■RS-422/485 connection diagram 9)



*1 The actual terminal layout on the MODBUS/RTU master equipment may differ from the example shown above. SDA/B(+/-) and RDA/B(+/-) terminals can be separated from each other. Make sure to connect the cables and wires as described in the MODBUS/RTU master equipment manual.

*2 Some MODBUS/RTU master equipment doesn't have SG. In this case, the wiring between GOT and SG is unnecessary.

*3 When placing the GOT to the terminal in the system configuration, set the terminating resistor to "110 Ω".
When placing the GOT to the position other than the terminal, set the terminating resistor of the GOT to "OPEN".
☞ Page 53 Terminating resistors of GOT
Set the 1pair/2pair signal selection switch to "1pair" when using the connection conversion adapter.
☞ Connection Conversion Adapter User's manual

*4 For the terminating resistor of MODBUS/RTU master equipment, refer to the manual of MODBUS/RTU master equipment.

Precautions when preparing a cable

■Cable length

The length of the RS-422/485 cable must be 1200m or less.

■GOT side connector

For the GOT side connector, refer to the following.

☞ Page 49 GOT connector specifications

■MODBUS/RTU master equipment side connector

Use the connector compatible with the MODBUS/RTU master equipment side module.

For details, refer to the MODBUS/RTU master equipment user's manual.

Connecting terminating resistors

■GOT side

When connecting a MODBUS/RTU master equipment to the GOT, a terminating resistor must be connected to the GOT.

- For GT27, GT25 (except GT2505-V), GT23, GS25

Set the terminating resistor using the terminating resistor setting switch.

- For GT2505-V, GT21, and GS21-W-N

Set the terminating resistor using the terminating resistor selector.

- For GS21-W

Since the terminating resistor is fixed to 330 Ω, setting the terminating resistor is not necessary.

For the procedure to set the terminating resistor, refer to the following.

☞ Page 53 Terminating resistors of GOT

■MODBUS/RTU equipment side

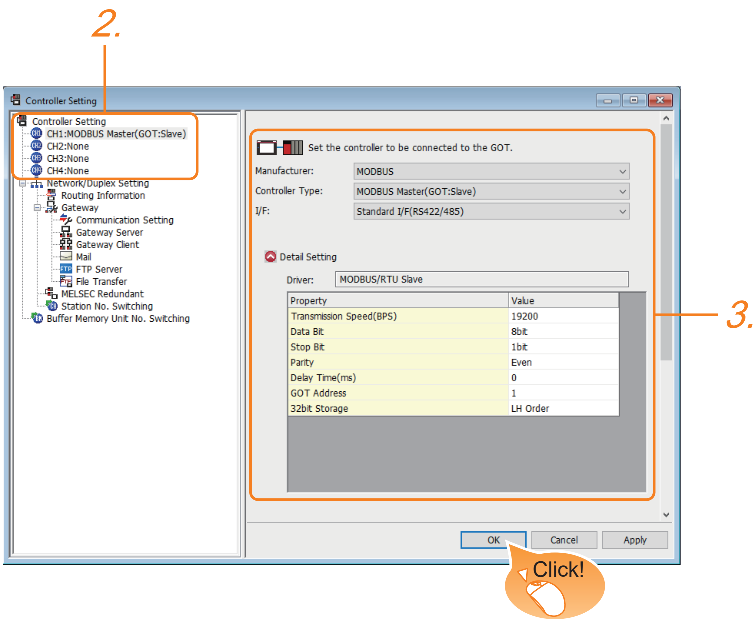
When connecting a MODBUS/RTU master equipment to the GOT, a terminating resistor must be connected to the MODBUS/RTU master equipment.

For details, refer to the MODBUS/RTU master equipment user's manual.

7.4 GOT Side Settings

Setting communication interface (Controller Setting)

Set the channel of the equipment to be connected to the GOT.



1. Select [Common] → [Controller Setting] from the menu.

2. In the [Controller Setting] window, select the channel No. to be used from the list menu.

3. Select the following items and the detail setting is displayed.

- [Manufacturer]: [MODBUS]
- [Controller Type]: [MODBUS Master(GOT:Slave)]
- [I/F]: Interface to be used
- [Detail Setting]: Configure the settings according to the usage environment.

☞ Page 296 Communication detail settings

4. When you have completed the settings, click the [OK] button.

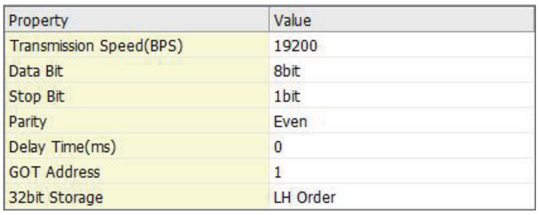
Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

☞ Page 39 I/F communication setting

Communication detail settings

Make the settings according to the usage environment.



Property	Value
Transmission Speed(BPS)	19200
Data Bit	8bit
Stop Bit	1bit
Parity	Even
Delay Time(ms)	0
GOT Address	1
32bit Storage	LH Order

Item	Description	Range
Transmission Speed	Set this item when change the transmission speed used for communication with the connected equipment. (Default: 19200bps)	9600bps, 19200bps, 38400bps, 57600bps, 115200bps
Data Bit	Set this item when change the data length used for communication with the connected equipment. (Default: 8bits)	7bit/8bit
Stop Bit	Specify the stop bit length for communications. (Default: 1bit)	1bit/2bit
Parity	Specify whether or not to perform a parity check, and how it is performed during communication. (Default: Even)	None Even Odd
Delay Time*1	Set this item to adjust the transmission timing of the communication request from the GOT. (Default: 0ms)	0 to 300ms
GOT Station	Set the station No. of the GOT. (Default: 1)	1 to 247
32bit Storage	Select the steps to store two words (32-bit data). (Default: LH Order)	LH Order/HL Order

*1 The GOT ensures in advance the minimum interval (3.5 characters time) for communication frame defined in the MODBUS/RTU. Therefore, the actual send delay time is as follows.

Actual send delay time = Send delay time set in the communication detail setting + 3.5 character time

Minimum interval for communication frame defined in MODBUS/RTU

If the communication with MODBUS/RTU master equipment is not established, some equipment which requires a delay longer than 3.5 character time may be connected.
When connecting to MODBUS/RTU master equipment which requires a delay longer than 3.5 character time, adjust the send delay time.

Point

• Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting]after writing [Controller Setting] of project data.

For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

• Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

7.5 MODBUS/RTU master equipment Side Settings

Point

MODBUS/RTU master equipment
For details of the MODBUS/RTU master equipment, refer to the manual of MODBUS/RTU master equipment to be used.

7.6 Function Code

The following shows the message format for the MODBUS communication.

Address	Function code	Data	CRC

The GOT (slave) supports the following function codes.

Function code	Function	Number of devices that are accessible with one message [Unit: point(s)]
0x01	Read Coils	1 to 2000
0x02	Read Discrete Inputs	1 to 2000
0x03	Read Holding Registers	1 to 125
0x04	Read Input Registers	1 to 125
0x05	Write Single Coil	1
0x06	Write Single Register	1
0x08*1	Diagnostics	-
0x0F	Write Multiple Coils	1 to 1968
0x10	Write Multiple Register	1 to 123

*1 Only available to the loopback (sub function code 0x0000).

7.7 GOT (Slave) Operations for All Station Specification (Broadcast)

The all station specification (broadcast) operates when [0] is specified as the slave address in the request packet.
The following describes the GOT (slave) operations for all station specification (broadcast) from the MODBUS/RTU master equipment.

- The GOT (slave) will not respond to the read-out requests specifying all stations from the MODBUS/RTU master equipment (read-out disabled).
- The GOT (slave) will perform the write-in requests specifying all stations from the MODBUS/RTU master equipment but will not respond.
- The GOT (slave) will not respond to the diagnosis requests specifying all stations from the MODBUS/RTU master equipment (loopback disabled).

7.8 Device Range that Can Be Set

For the device setting dialog and the device range that can be used on the GOT, refer to the following.

☞ Page 446 MODBUS ([MODBUS Master(GOT:Slave)])

7.9 Precautions

Errors that occur in the GOT at MODBUS/RTU slave connection

In MODBUS/RTU slave connection, contents of the message display, causes, and countermeasures when an error occurs in the GOT are described below. When the following errors occur, the GOT will generate a system alarm.

Error code	Contents of the message display	Causes	Countermeasures
309[*1]	Device reading error. Correct device.	• An error occurred when reading consecutive devices. • A device that is out of the monitor range is specified at a place where consecutive device is specified, such as graph function or system information.	Correct so that a device No. in the monitor range is specified.
315[*1]	Device writing error. Correct device.	• Writing was executed to a device No. that is out of the monitor range. • Writing was executed to a write-prohibit device.	Review the write target device and the device No.
322[*1]	The specified device No. is out of range. Confirm the available device range.	• A device read error occurs. • The GOT accesses the device that is out of range specified by the master station.	To take corrective actions, check the range that is allocated to the master station and range of the monitoring target device.

*1 This may occur even when the MODBUS/RTU slave is not connected.

Error codes (MODBUS Exception Codes) returned from GOT (slave) to MODBUS master equipment

The GOT (slave) supports the following error codes (MODBUS Exception Codes) in respect to the request from the MODBUS master equipment. When the following errors occur, the GOT will not generate a system alarm.
The description, causes and countermeasures for each error code are explained below.

■Error codes issued in common in respect to request from master equipment

Error code (HEX)	Category	Description	Causes	Countermeasures
0x01	-	ILLEGAL FUNCTION	A function code not supported by the GOT was received.	Use only function codes supported by GOT. Refer to the following for details on function codes supported by the GOT. ☞ Page 297 Function Code

■Error code issued in response to read request from master equipment

Error code (HEX)	Category	Description	Causes	Countermeasures
0x02	Read/Write	ILLEGAL DATA ADDRESS	An out-of-range device was accessed.	Check that the device being accessed is correct.

■Error code issued in response to write request from master equipment

Error code (HEX)	Category	Description	Causes	Countermeasures
0x02	Read/Write	ILLEGAL DATA ADDRESS	An out-of-range device was accessed.	Check that the device being accessed is correct.
0x03	Write	ILLEGAL DATA VALUE	The request packet (number of write points, number of write data bytes, and number of write data items) is inconsistent.	Check that a correct packet is sent from the master equipment.

■Error code issued when diagnosis occurs (function code 0x08)

Error code (HEX)	Category	Description	Causes	Countermeasures
0x01	-	ILLEGAL FUNCTION	The GOT received an unsupported sub-function code.	Use only 0x0000 (loopback) for the sub-function codes.

Operation in which the GOT shifts to the offline mode

Before performing operation in which the GOT shifts to the offline mode such as writing the package data, stop the communication between the GOT and the MODBUS/RTU master equipment.
After shifting to the offline mode, the GOT cannot respond to the requests from the MODBUS/RTU master equipment.
Even after the GOT returns from the offline mode, the communication may not be performed until the timeout time of the MODBUS/RTU master equipment side elapses.

MEMO

8 MODBUS/TCP SLAVE CONNECTION

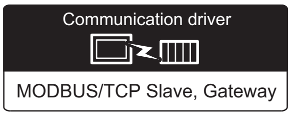
8.1 Connectable Model List

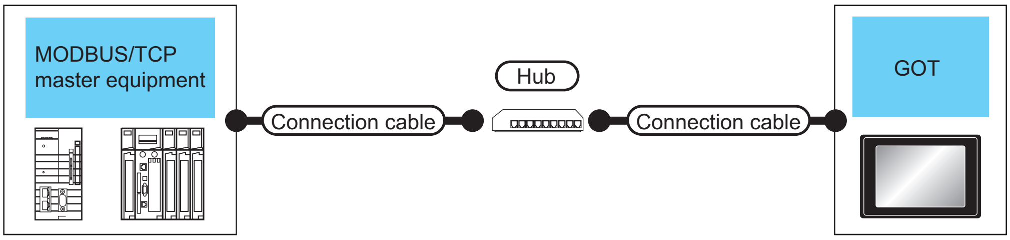
The GOT2000 series supports the slave function of the MODBUS/TCP communication that is the open FA network.
Thus, the GOT can be connected with each MODBUS master equipment.
For the MODBUS/TCP equipment validated by Mitsubishi Electric Corporation, refer to the following Technical Bulletin.
☞ List of Valid Devices Applicable for GOT2000 Series MODBUS Connection for Overseas (GOT-A-0170)
For Technical Bulletins, go to the Mitsubishi Electric Factory Automation Global Website.
www.MitsubishiElectric.com/fa

8

8.2 System Configuration

Connecting to MODBUS/TCP master equipment





Controller	Communication Type	Connection cable		External device	Connection cable		GOT*2		Number of connectable equipment
		Cable model*4	Maximum segment length*3		Cable model	Maximum segment length*3	Option device*6	GOT model	
MODBUS/TCP master equipment	Ethernet	• 100BASE-TX Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher	100m	Hub*1	• 100BASE-TX Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher	100m	- (Built into GOT)	GT27, GT25, GT23, GT21 (07W), GT21 (04R), GT21 (03P, 04P, ET/R4), GS25, GS21	When the ratio of master equipment to the GOT is N:1 16 or less (4 or less for GT21 or GS21) When the ratio of master equipment to the GOT is N:1 The following shows the number of GOTs for 1 master equipment Depends on the MODBUS/TCP master equipment used*5.
MODBUS/TCP master equipment	Ethernet	• 100BASE-TX Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher	100m	Hub*1	• 100BASE-TX Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher	100m	GT25-J71E71-100	GT27, GT25	When the ratio of master equipment to the GOT is N:1 16 or less (4 or less for GT21 or GS21) When the ratio of master equipment to the GOT is N:1 The following shows the number of GOTs for 1 master equipment Depends on the MODBUS/TCP master equipment used*5.

*1 Connect the GOT to the MODBUS/TCP master equipment via a hub.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standards.

*2 When connecting GOT2000 to equipment that meets the 10BASE (-T/2/5) standard, use the switching hub and operate in an environment where 10Mbps and 100Mbps can be mixed.

*3 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
• 10BASE-T: Max. 4 nodes for a cascade connection (500m)
• 100BASE-TX: Max. 2 nodes for a cascade connection (205m)
When switching hubs are used, the cascade connection between the switching hub s has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.

*4 Use the straight cable.

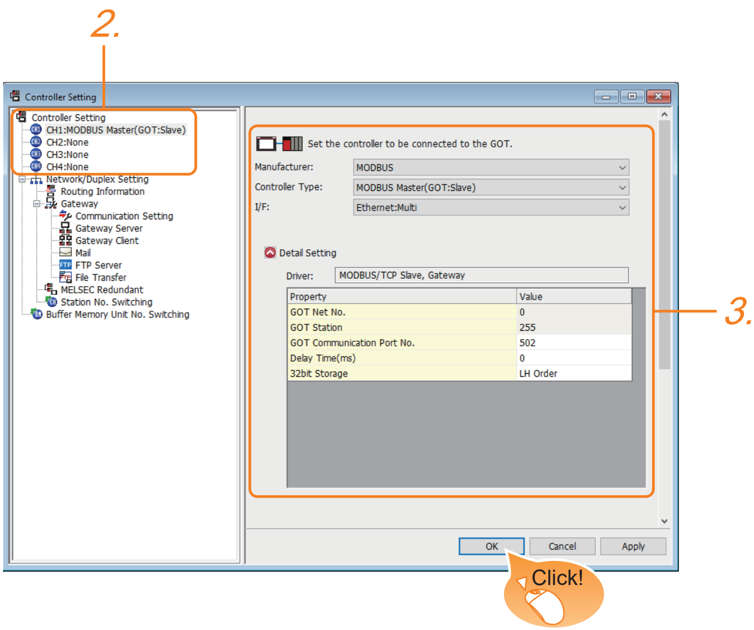
*5 For details, refer to the MODBUS/TCP master equipment manual.

*6 GT25-W, GT2505-V does not support the option device.

8.3 GOT Side Settings

Setting communication interface (Controller Setting)

Set the channel of the equipment to be connected to the GOT.



1. Select [Common] → [Controller Setting] from the menu.

2. In the [Controller Setting] window, select the channel No. to be used from the list menu.

3. Select the following items and the detail setting is displayed.

- [Manufacturer]: [MODBUS]
- [Controller Type]: [MODBUS Master(GOT:Slave)]
- [I/F]: [Ethernet:Multi]

When using the Ethernet communication unit (GT25-J71E71-100), also select [Ethernet:Multi].

- [Detail Setting]: Configure the settings according to the usage environment.

☞ Page 304 Communication detail settings

4. When you have completed the settings, click the [OK] button.

Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

☞ Page 39 I/F communication setting

Communication detail settings

Make the settings according to the usage environment.

Property	Value
GOT Net No.	0
GOT Station	255
GOT Communication Port No.	502
Delay Time(ms)	0
32bit Storage	LH Order

Item	Description	Range
GOT Net No.	Not used	-
GOT Station	Not used	-
GOT Communication Port No.	Set the GOT port No. for the connection with the Ethernet module. (Default: 502*1)	502 to 65534 (Except for 503 to 1023, 5011 to 5013 and 49153 to 49170)
Delay Time	Set the delay time for reducing the load of the network/destination PLC. (Default: 0ms)	0 to 10000 (ms)
32bit Storage	Select the steps to store two words (32-bit data). (Default: LH Order)	LH Order/HL Order

*1 When assigning the same driver to the multiple channels, in the communication drivers set as the second and following, the default value of [GOT Communication Port No.] becomes the earliest number in the vacant numbers of No. 6000 and later.

Point

- Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.

For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

- Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

GOT Ethernet Setting

The GOT can be connected to a different network by configuring the following setting.

GOT IP address setting

Set the following communication port setting.

- Standard port (When using GT25-W or GS25: Port 1)
- Extended port (When using GT25-W or GS25: Port 2)

GOT Ethernet common setting

Set the following setting which is common to the standard port and the extension port, or port 1 and port 2.

- [Default Gateway]
- [Peripheral S/W Communication Port No.]
- [Transparent Port No.]

IP filter setting

By configuring the IP filter setting, the access from the specific IP address can be permitted or shut off.

For the detailed settings, refer to the following manual.

☞ Page 35 GOT Ethernet Setting

8.4 MODBUS/TCP Master Equipment Side Settings

For details of the MODBUS/TCP master equipment, refer to the manual of MODBUS/TCP master equipment to be used.

8.5 Function Code

The following shows the message format for the MODBUS communication.

Address	Function code	Data	CRC

The GOT (slave) supports the following function codes (sub function codes).

Function code	Function	Number of devices that are accessible with one message [Unit: point(s)]
0x01	Read Coils	1 to 2000
0x02	Read Discrete Inputs	1 to 2000
0x03	Read Holding Registers	1 to 125
0x04	Read Input Registers	1 to 125
0x05	Write Single Coil	1
0x06	Write Single Register	1
0x0F	Write Multiple Coils	1 to 1968
0x10	Write Multiple Register	1 to 123

8.6 Device Range that Can Be Set

For the device setting dialog and the device range that can be used on the GOT, refer to the following.

☞ Page 446 MODBUS ([MODBUS Master(GOT:Slave)])

8.7 Precautions

Send delay

"Send delay" is a setting used for low-speed devices that cannot respond when the send response is too fast. When "Send delay" is set with the GOT's communication devices detail settings, the "Send delay" is enabled for all master devices that are connected.

Errors that occur in the GOT at MODBUS/TCP slave connection

In MODBUS/TCP slave connection, contents of the message display, causes, and countermeasures when an error occurs in the GOT are described below. When the following errors occur, the GOT will generate a system alarm.

Error code	Contents of the message display	Causes	Countermeasures
309*1	Device reading error. Correct device.	• An error occurred when reading consecutive devices. • A device that is out of the monitor range is specified at a place where consecutive device is specified, such as graph function or system information.	Correct so that a device No. in the monitor range is specified.
315*1	Device writing error. Correct device.	• Writing was executed to a device No. that is out of the monitor range. • Writing was executed to a write-prohibit device.	Review the write target device and the device No.
322*1	The specified device No. is out of range. Confirm the available device range.	• A device read error occurs. • The GOT accesses the device that is out of range specified by the master station.	To take corrective actions, check the range that is allocated to the master station and range of the monitoring target device.

*1 This may occur even when the MODBUS/TCP slave is not connected.

Error codes (MODBUS Exception Codes) returned from GOT (slave) to MODBUS master equipment

The GOT (slave) supports the following error codes (MODBUS Exception Codes) in respect to the request from the MODBUS master equipment. When the following errors occur, the GOT will not generate a system alarm.
The description, causes and countermeasures for each error code are explained below.

■Error codes issued in common in respect to request from master equipment

Error code (HEX)	Category	Description	Causes	Countermeasures
0x01	-	ILLEGAL FUNCTION	A function code not supported by the GOT was received.	Use only function codes supported by GOT. Refer to the following for details on function codes supported by the GOT. ☞ Page 305 Function Code

■Error code issued in response to read request from master equipment

Error code (HEX)	Category	Description	Causes	Countermeasures
0x02	Read/Write	ILLEGAL DATA ADDRESS	An out-of-range device was accessed.	Check that the device being accessed is correct.

■Error code issued in response to write request from master equipment

Error code (HEX)	Category	Description	Causes	Countermeasures
0x02	Read/Write	ILLEGAL DATA ADDRESS	An out-of-range device was accessed.	Check that the device being accessed is correct.
0x03	Write	ILLEGAL DATA VALUE	The request packet (number of write points, number of write data bytes, and number of write data items) is inconsistent.	Check that a correct packet is sent from the master equipment.

PART 5 PROFIBUS

9 PROFIBUS DP CONNECTION

9.1 Connectable Model List

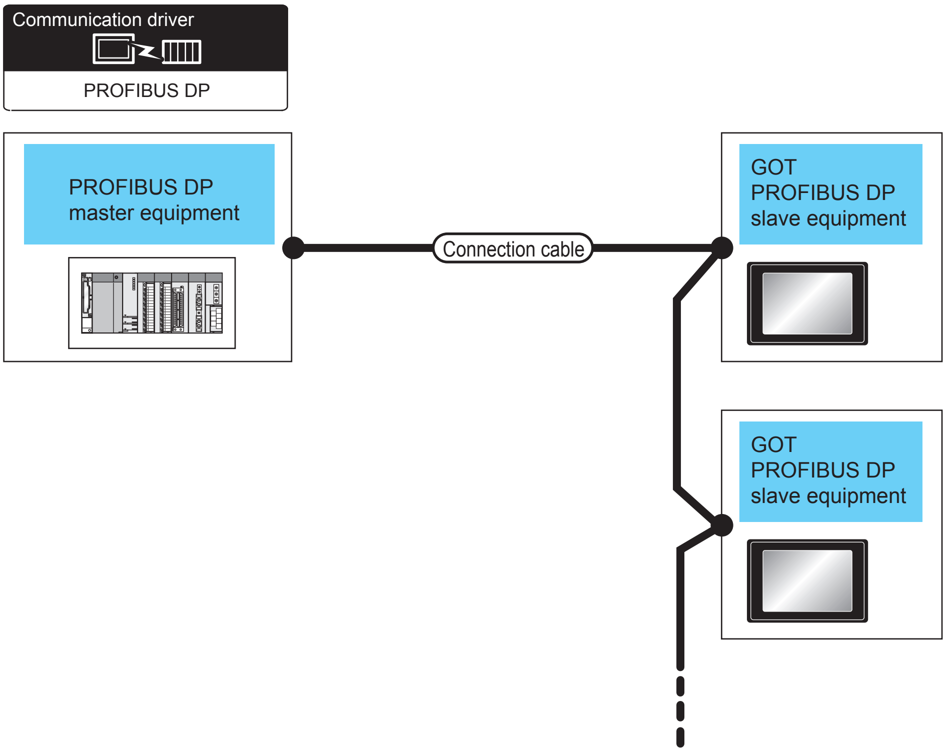
GOT2000 Series products support the slave function of PROFIBUS DP communication, the open FA network.
Thus, the GOT can be connected with each PROFIBUS DP master.

Point

BootOS version of GOT main unit
Install the version N or later of BootOS so that the GOT supports the PROFIBUS DP connection.
For the procedure to check the BootOS version and upgrade the version, refer to the following manuals.
☞ GT Designer3 (GOT2000) Screen Design Manual
☞ GOT2000 Series User's Manual (Utility)

9.2 System Configuration

Connecting to PROFIBUS DP master equipment



Controller	Communication Type	Connection cable		GOT		Number of connectable equipment
		Connection diagram number	Max. distance	Option device*4	model	
PROFIBUS DP master equipment	PROFIBUS DP	User preparing Page 310 PROFIBUS DP connection diagram 1)	1200m*1	GT25-FNADP*2	GT 27 GT 25	*3

*1 The maximum distance varies depending on the transmission speed. Confirm the specification on the PROFIBUS DP master equipment side.

*2 Install the communication module (ABCC-M40-DPV1, Type number: AB6910-B or AB6910-C) manufactured by HMS to the GT25-FNADP
The communication module manufactured by HMS must be prepared by the user.
For the communication module installation method, refer to the following manual.
☞ GOT2000 Series Field Network Adapter Unit Instruction Manual

*3 The number of connectable GOT modules (PROFIBUS DP slave equipment) to one PROFIBUS DP master equipment varies depending on the presence/absence of repeater units. Up to 9 repeater units can be used.
When repeater units are not installed: Up to 32 GOT modules (PROFIBUS DP slave equipment) can be connected to each segment.
When repeater units are installed: Up to 125 GOT modules (PROFIBUS DP slave equipment) can be connected to each segment.

*4 GT25-W, GT2505-V does not support the option device.

9.3 Connection Diagram

The following shows the specifications of the cables used to connect the GOT and the controller and the connection diagrams.

Recommended PROFIBUS DP cable and connectors

Cable specification

Use the A type cable for PROFIBUS DP. For the specifications, refer to the table below.

Item	specification
Impedance	135 to 165 Ohm / 3 to 20 MHz
Capacity	30 pF/m maximum
Resistance	110 Ohm/km maximum
Conductor diameter	0.64 mm minimum
Conductor area	0.34 mm^2 minimum

Recommended cable

Manufacturer name	Model name	Remarks
SIEMENS	6XV1830-0EH10	PROFIBUS cable having standard specifications

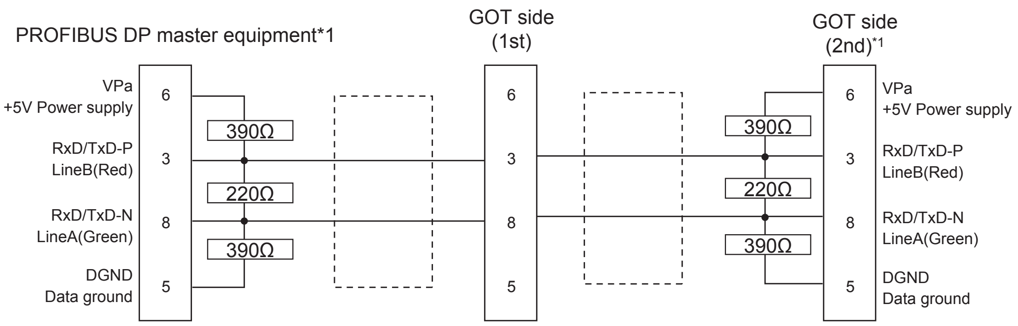
Recommended connectors

Manufacturer name	Model name	Remarks
SIEMENS	6ES7 972-0BA52-0XA0	PROFIBUS DP bus connector (For wiring at 90°, without PG port)
	6ES7 972-0BB52-0XA0	PROFIBUS DP bus connector (For wiring at 90°, with PG port)
	6ES7 972-0BA60-0XA0	PROFIBUS DP bus connector (For wiring at 35°, without PG port)
	6ES7 972-0BB60-0XA0	PROFIBUS DP bus connector (For wiring at 35°, with PG port)

PROFIBUS DP Cable

The figure below shows the connection diagram of PROFIBUS DP cables connecting the GOT and PLC.

PROFIBUS DP connection diagram 1)



*1 Connect a terminal resistor to the PROFIBUS DP equipment located at the end of a segment.
When using the cable (6XV1830-0EH10) manufactured by SIEMENS, set to ON the terminal resistor switch provided in the cable connector.

Precautions when preparing a cable

■Cable length

For the Cable length, refer to the following.

☞ Page 309 System Configuration

■GOT side connector (PROFIBUS DP slave equipment)

For the GOT side connector, refer to the following.

☞ Manual of Anybus CompactCom M40 Network Communication Module by HMS

■PROFIBUS DP master equipment side connector

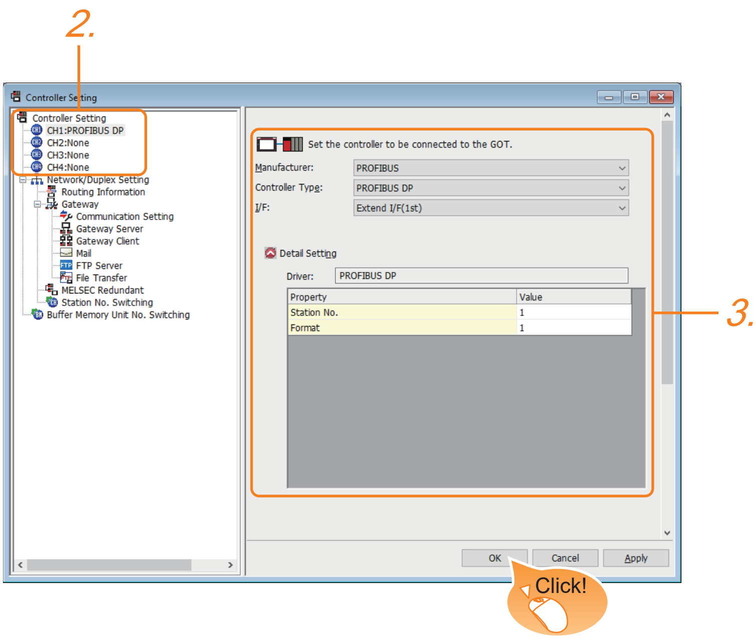
Use the connector compatible with the PROFIBUS DP master equipment side module.

For details, refer to the PROFIBUS DP master equipment user's manual.

9.4 GOT Side Settings

Setting communication interface (Controller Setting)

Set the channel of the equipment to be connected to the GOT.



1. Select [Common] → [Controller Setting] from the menu.

2. In the [Controller Setting] window, select the channel No. to be used from the list menu.

3. Select the following items and the detail setting is displayed.

- [Manufacturer]: [PROFIBUS]
- [Controller Type]: [PROFIBUS DP]
- [I/F]: Interface to be used
- [Detail Setting]: Configure the settings according to the usage environment.

☞ Page 313 Communication detail settings

4. When you have completed the settings, click the [OK] button.

Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

☞ Page 39 I/F communication setting

Communication detail settings

Make the settings according to the usage environment.

Property	Value
Station No.	1
Format	1

Item	Description	Range
Station No.*1	Set the station No. (Default: 1)	1 to 125
Format*2	Set the following format. Format 1: Big endian Format 2: Little endian (Default: 1)	1, 2

*1 Align the setting with the station No. of the slave equipment set on the master equipment side.
*2 Align the setting with the specification of the PROFIBUS DP master equipment.

Point

• Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.

For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

• Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

9.5 Preparation of GSD File for GOT

Prepare the GSD file for the GOT to make available the configuration tool on the PROFIBUS DP master equipment side.

How to acquire GSD file for GOT

Acquisition from the DVD

The GSD file for GOT (GOT_0F39.gsd) is stored in the following folder of the DVD (GT Works3 Ver.1.130L or later).

<Root>¥Disk5¥ConfigurationFile¥PROFIBUS DP¥GOT_0F39.gsd

<Root>¥Disk5¥ConfigurationFile¥PROFIBUS DP¥GOT.bmp

*: GOT.bmp is a bitmap image of GOT.

9.6 PROFIBUS DP master equipment Side Settings

9

This section explains how to set the PROFIBUS DP master equipment.

Point

PROFIBUS DP master equipment
For the details of the PROFIBUS DP master equipment setting method, refer to the manual of the used PROFIBUS DP master equipment.

Installing the GSD file for GOT

Install the GSD file for GOT to the configuration tool on the PROFIBUS DP master equipment side, and set the GOT as slave equipment.
For how to acquire the GSD file for GOT, refer to the following.
☞ Page 314 Preparation of GSD File for GOT

Communication configuration

Set the following communication parameters using the configuration tool on the PROFIBUS DP master equipment side.

Item		Setting range/Setting method
Master equipment	Station No.*1	0 to 125
	Transmission speed	9.6kbps 19.2kbps 45.45kbps 93.75kbps 187.5kbps 500kbps 1.5Mbps 12Mbps
Slave equipment	Station No.*1*2	0 to 125
	Device setting	For the setting method, refer to the following manual. ☞ Manual of PROFIBUS DP master equipment

*1 Make sure that the station No. does not overlap.
*2 Align the setting of “Station No.” on the GOT side with the station No. of the slave equipment.
☞ Page 312 GOT Side Settings

9.7 Device Range that Can Be Set

For the device setting dialog and the device range that can be used on the GOT, refer to the following.

☞ Page 449 PROFIBUS ([PROFIBUS DP])

9.8 Precautions

GSD file for GOT

Do not edit the GSD file for GOT. Edition may cause communication errors.

Type number of the communication module manufactured by HMS

Use the communication module having the type number described in the following manual.

☞ GOT2000 Series Field Network Adapter Unit Instruction Manual

Software version of the communication module manufactured by HMS

For the software version of the connectable communication module manufactured by HMS, refer to the following technical news.

☞ List of PROFIBUS DP-compliant Equipment Validated to Operate with the GOT2000 Series (GOT-A-0083)

Installation of the field network adapter unit (GT25-FNADP)

The field network adapter unit (GT25-FNADP) can be installed only at the top stage of the GOT.

☞ Page 47 Precautions when installing units on top of one another

PART 6 CLPA

10 SLMP CONNECTION

10.1 Connectable Model List

GOT2000 Series products support the master function of SLMP communication, the open FA network.

Thus, the GOT can be connected with each SLMP server.

For the SLMP-compatible equipment validated by Mitsubishi Electric Corporation, refer to the following Technical Bulletin.

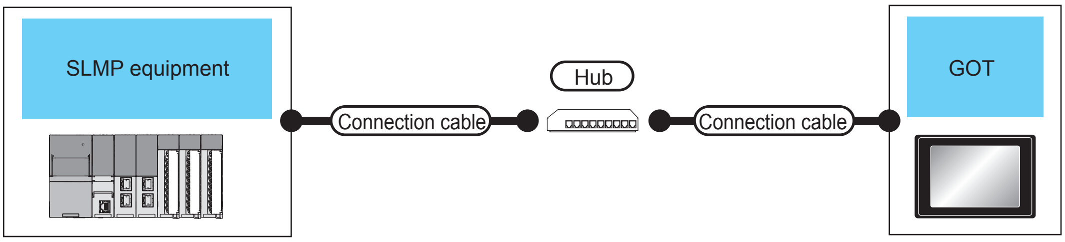
📖List of SLMP-compatible Equipment Validated to Operate with the GOT2000 Series (GOT-A-0153)

For Technical Bulletins, go to the Mitsubishi Electric Factory Automation Global Website.

www.MitsubishiElectric.com/fa

10.2 System Configuration

Connecting to SLMP equipment



Controller	Communication Type	Connection cable		External device	Connection cable		GOT*2		Number of connectable equipment
		Cable model*4	Maximum segment length*3		Cable model	Maximum segment length*3	Option device*6	GOT model	
SLMP equipment	Ethernet	• 1000BASE-T 100BASE-TX Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher	100m	Hub*1	• 1000BASE-T 100BASE-TX Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher	100m	- (Built into GOT)	GT27 GT25 GT23 GT21 07W GT21 04R GT21 03P 04P ET/R4 GS25 GS21	When SLMP equipment:GOT is N:1 The number of SLMP equipment for 1 GOT is TCP: 128 or less. When SLMP equipment:GOT is 1:N The following shows the number of GOTs for 1 SLMP equipment Depends on the SLMP equipment used.*5
							GT25-J71E71-100	GT27 GT25	

*1 Connect the GOT to the SLMP equipment via a hub.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX/1000BASE-T standards.

*2 When connecting GOT2000 to equipment that meets the 10BASE (-T/2/5) standard, use the switching hub and operate in an environment where 10Mbps and 100Mbps can be mixed.

*3 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
• 10BASE-T: Max. 4 nodes for a cascade connection (500m)
• 100BASE-TX: Max. 2 nodes for a cascade connection (205m)
When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.

*4 Use the straight cable.

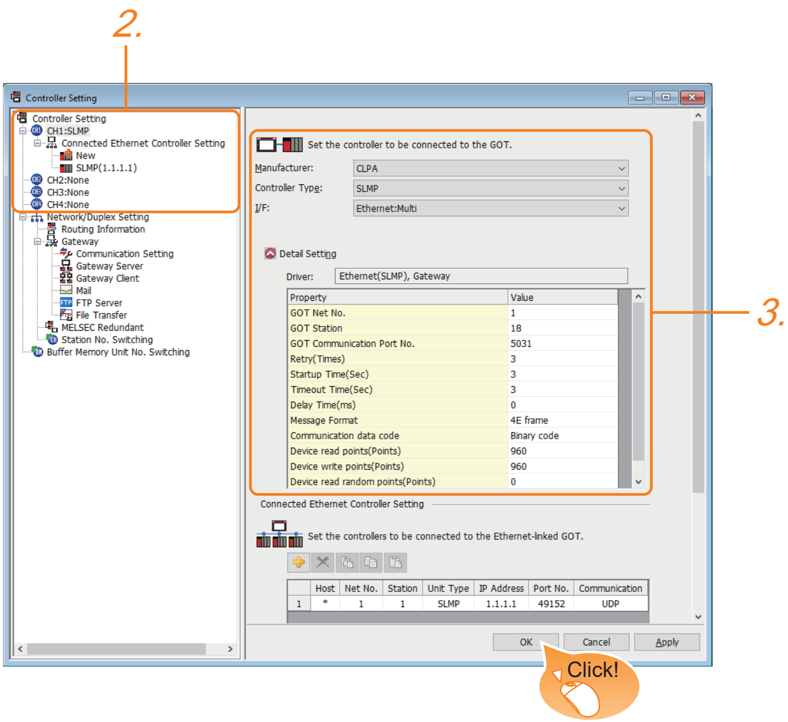
*5 For details, refer to the SLMP equipment manual.

*6 GT25-W, GT2505-V does not support the option device.

10.3 GOT Side Settings

Setting communication interface (Controller Setting)

Set the channel of the equipment to be connected to the GOT.



1. Select [Common] → [Controller Setting] from the menu.

2. In the [Controller Setting] window, select the channel No. to be used from the list menu.

3. Select the following items and the detail setting is displayed.

- [Manufacturer]: [CLPA]
- [Controller Type]: [SLMP]
- [I/F]: [Ethernet:Multi]

When using the Ethernet communication unit (GT25-J71E71-100), also select [Ethernet:Multi].

- [Detail Setting]: Configure the settings according to the usage environment.

☞ Page 321 Communication detail settings

4. When you have completed the settings, click the [OK] button.

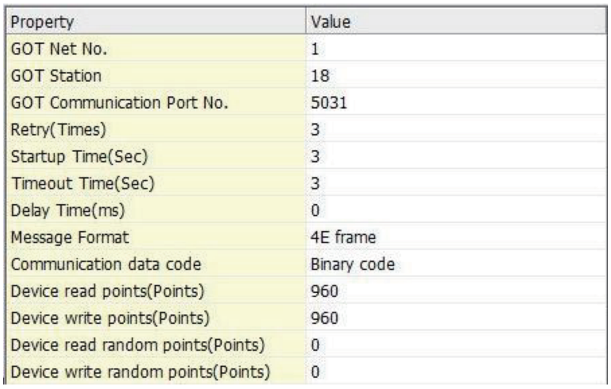
Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting].For details, refer to the following.

☞ Page 39 I/F communication setting

Communication detail settings

Make the settings according to the usage environment.



Property	Value
GOT Net No.	1
GOT Station	18
GOT Communication Port No.	5031
Retry(Times)	3
Startup Time(Sec)	3
Timeout Time(Sec)	3
Delay Time(ms)	0
Message Format	4E frame
Communication data code	Binary code
Device read points(Points)	960
Device write points(Points)	960
Device read random points(Points)	0
Device write random points(Points)	0

Item	Description	Range
GOT Net No.	Set the network No. of the GOT. (Default: 1)	1 to 239
GOT Station*1	Set the station No. of the GOT. (Default: 18)	1 to 120
GOT Communication Port No.	Set the GOT port No. for the connection with the Ethernet module. (Default: 5031*3)	1024 to 5010, 5014 to 49152, 49171 to 65534 (Except for 49153 to 49170)
Retry	Set the number of retries to be performed when a communication timeout occurs. When receiving no response after retries, the communication times out. (Default: 3times)	0 to 5times
Startup Time	Specify the time period from the GOT startup until GOT starts the communication with the PLC CPU. (Default: 3sec)	3 to 255sec
Timeout Time	Set the time period for a communication to time out. (Default: 3sec)	1 to 90sec
Delay Time	Set the delay time for reducing the load of the network/destination PLC. (Default: 0ms)	0 to 10000 (ms)
Message Format	Set the message format. (Default: 4E frame)	QnA compatible 3E frame, 4E frame
Communication data code	Set the communication data code. (Default: Binary code)	ASCII code, Binary code
Device read points*2	Set the device read points. (Default: 960 points)	1 to 960 points
Device write points*2	Set the device write points. (Default: 960 points)	1 to 960 points
Device read random points*2	Device read random points (Default: 0 point)	0 to 192 points
Device write random points*2	Device write random points (Default: 0 point)	0 to 160 points

*1 Set different values for [GOT Station] of [Detail Setting] and [Station] of [Connected Ethernet Controller Setting].
☞ Page 323 Connected Ethernet controller setting

*2 Pay attention to the following items for read/write points.
- Set the points to be processed at one-time communication.
- The point is in word device units. The point is to be 16 times of the set value for the bit device.
- The points could be less than the set value when UDP protocol or ASCII code are used.
- Refer to the following Technical News for details.

List of SLMP-compatible Equipment Validated to Operate with the GOT2000 Series (GOT-A-0153)

*3 When assigning the same driver to the multiple channels, in the communication drivers set as the second and following, the default value of [GOT Communication Port No.] becomes the earliest number in the vacant numbers of No. 6000 and later.

Point

- Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.

For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

- Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

GOT Ethernet Setting

The GOT can be connected to a different network by configuring the following setting.

GOT IP address setting

Set the following communication port setting.

- Standard port (When using GT25-W or GS25: Port 1)
- Extended port (When using GT25-W or GS25: Port 2)

GOT Ethernet common setting

Set the following setting which is common to the standard port and the extension port, or port 1 and port 2.

- [Default Gateway]
- [Peripheral S/W Communication Port No.]
- [Transparent Port No.]

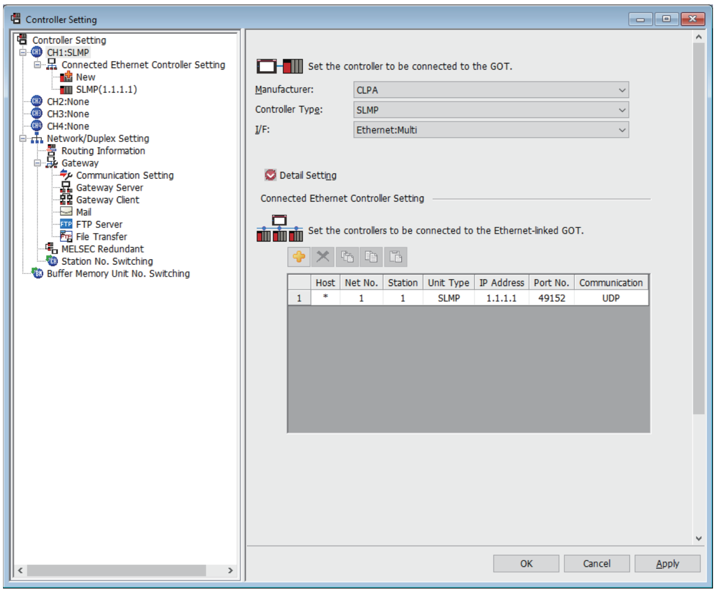
IP filter setting

By configuring the IP filter setting, the access from the specific IP address can be permitted or shut off.

For the detailed settings, refer to the following manual.

☞ Page 35 GOT Ethernet Setting

Connected Ethernet controller setting



Item	Description	Range
Host	The host is displayed. It refers to a station that can be connected without setting a station number. (The host is indicated with an asterisk (*).)	—
Net No.	Set the network No. of the connected Ethernet module. (Default: 1)	1 to 239
Station*1	Set the station No. of the connected Ethernet module. (Default: 1)	1 to 120, 125 *2
Unit Type	SLMP (fixed)	—
IP Address	Set the IP address of the connected Ethernet module. (Default: 1.1.1.1)	SLMP equipment side IP address
Port No.	Set the port number of the SLMP compatible device. (Default: 49152)	1 to 65535
Communication format	UDP, TCP (Default: UDP)	Adjust the setting with the communication format of the SLMP compatible device.

*1 Set different values for [GOT Station] of [Detail Setting] and [Station] of [Connected Ethernet Controller Setting].

☞ Page 321 Communication detail settings

*2 Set 125 to [Station] to access the master station of the CC-Link IE TSN network.

Point

- [Connected Ethernet Controller Setting] for GT21 and GS21

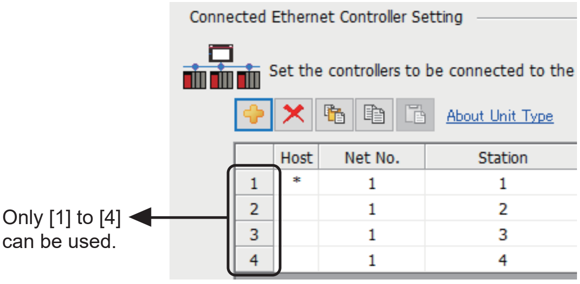
Effective range of [Connected Ethernet Controller Setting]

Only [1] to [4] of [Connected Ethernet Controller Setting] can be used for GT21 and GS21.

If [5] onwards are used, the settings are invalid on GT21 and GS21.

[Host] setting

Set [Host] within the range from [1] to [4] in [Connected Ethernet Controller Setting].

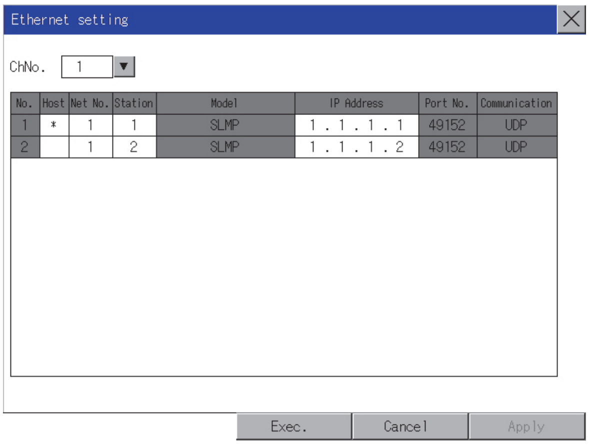


Changing the host with GOT module

- The host can be changed by the GOT module Utility.

For details of settings, refer to the following.

📖GOT2000 Series User's Manual (Utility)

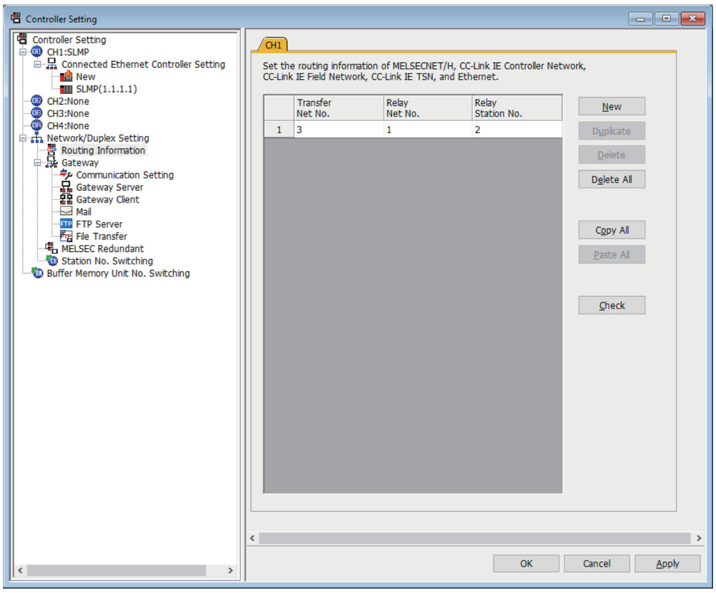


Routing parameter setting

Up to 64 [Transfer Network No.]s can be set.
However, the same transfer network number cannot be set twice or more (multiple times).
Therefore, the one that can access to other station from there quest source host GOT is 64 kinds of [Transfer NetworkNo.]s.

Point

Routing parameter setting
When communicating within the host network, routing parameter setting is unnecessary.
For details of routing parameters, refer to the following manual.
☞ Manuals of SLMP equipment



Item	Range
Transfer Network No.	1 to 239
Relay Network No.	1 to 239
Relay Station No.	0 to 120, 125 *1

*1 When 125 is set to [Relay Station No.], the master station of CC-Link IE TSN can be accessed.

Point

• Routing parameter setting of relay station
Routing parameter setting may also be necessary for the relay station. For the setting, refer to the following.
☞ Manuals of SLMP equipment
• Parameter reflection function of MELSOFT Navigator
The color of the cells for the items which are reflected to GT Designer3 from MELSOFT Navigator changes to green. Set items, which are displayed in green cells, from the MELSOFT Navigator.
When the settings of Transfer network No., Relay network No. or Relay station No. are reflected to the parameter from the MELSOFT Navigator, those settings are added. Items set in advance are not deleted. However, if the target network No. overlaps, the item set in advance is overwritten.
The routing information is used manually by the user when the data is created. Therefore, after changing the network configuration by MELSOFT Navigator, create a routing information again. For details of the creation of the routing information, refer to the MELSOFT Navigator help.

10.4 SLMP Equipment Side Settings

Refer to the following manual for the setting of the SLMP compatible devices.

☞ Manuals of SLMP equipment

10.5 Device Range that Can Be Set

For the device setting dialog and the device range that can be used on the GOT, refer to the following.

☞ Page 452 CLPA ([SLMP])

10.6 Precautions

Replacing SLMP compatible device

After replacing an external device or a SLMP compatible device due to failure and so on, the devices may not communicate by changing the MAC address. (When replaced with a device that has the same IP address)

When a device in the Ethernet network is replaced, restart all devices in the network.

The deviation between MC protocol and SLMP protocol

When using our products used in MC protocol for SLMP protocol, there is a difference between the corresponding commands.

Refer to the following manual and check if they are convertible.

☞ SLMP Reference Manual

Setting the message format

When the message format setting is not consistent with the communication frame type, monitoring may not be performed properly.

Set the message format according to the communication frame type of the SLMP-compatible equipment.

- ST type: QnA compatible 3E frame
- MT type: 4E frame

For details of the communication frame of the SLMP-compatible equipment, refer to the following.

📖Manuals of SLMP equipment

For setting the message format, refer to the following.

☞ Page 321 Communication detail settings

11 CC-Link IE Field NETWORK BASIC CONNECTION

11.1 Connectable Model List

The GOT2000 series supports the remote station function of the CC-Link IE Field Network Basic communication, which is an open FA network.

Therefore, the GOT2000 series can communicate with various CC-Link IE Field Network Basic master stations.

For the CC-Link IE Field Network Basic master stations validated by Mitsubishi Electric Corporation, refer to the following.

📖List of CC-Link IE Field Network Basic-compatible Equipment Validated to Operate with the GOT2000 Series (GOT-A-0149)

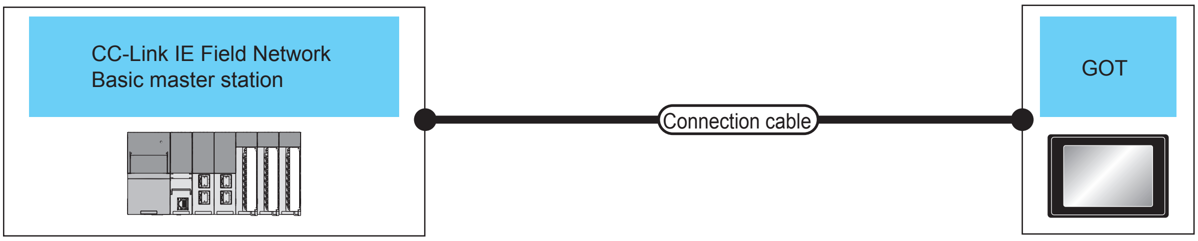
For Technical Bulletins, go to the Mitsubishi Electric Factory Automation Global Website.

www.MitsubishiElectric.com/fa

11.2 System Configuration

When connecting to the CC-Link IE Field Network Basic master station

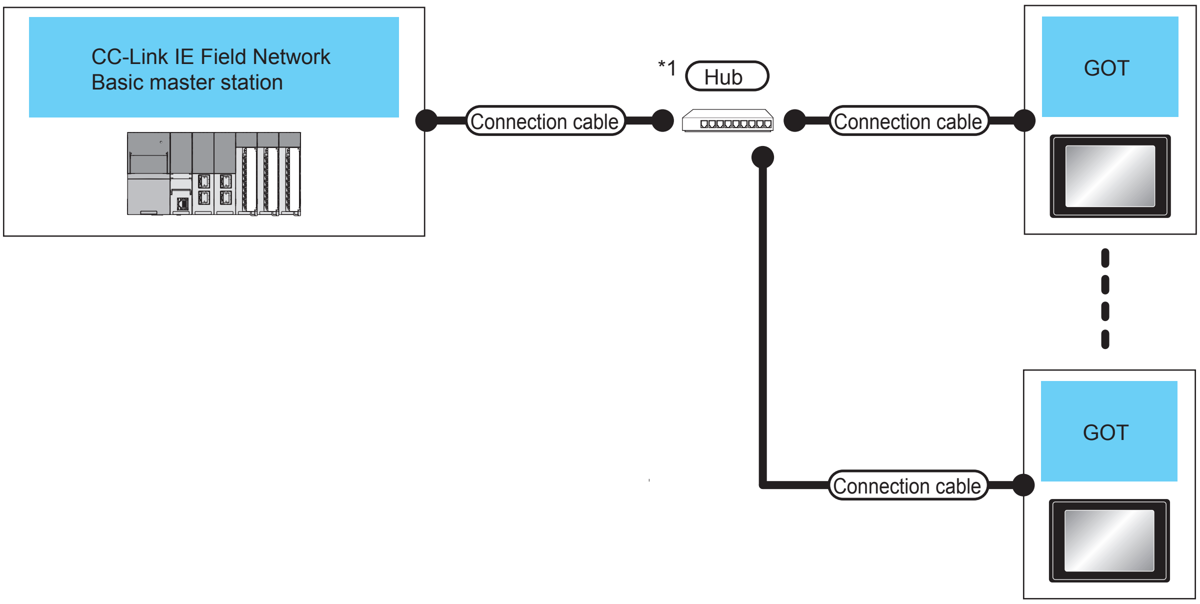
When connecting to one master station



Controller	Communication Type	Connection cable		GOT (remote station)		Number of connectable equipment
		Cable model	Maximum segment length	Option device *1	GOT model	
CC-Link IE Field Network Basic master station	Ethernet	100BASE-TX Shielded twisted pair cable (STP) of category 5 or higher	100m	- (Built into GOT)	GT27, GT25, GT23, GT21 07W, GT21 04R, GT21 03P 04P ET/R4, GS25, GS21	1 GOT for 1 master station
				GT25-J71E71-100	GT27, GT25	

*1 GT25-W, GT2505-V does not support the option device.

When multiple GOTs (remote stations) are connected to one master station



*1 Use hubs that satisfy the following conditions.
- Conform to the IEEE802.3 (100BASE-TX) standard.
- Include Auto MDI/MDI-X.
- Include an automatic negotiation function.
- Switching hub (layer 2 switch) (Do not use repeater hubs)

Controller	Communication Type	Connection cable		External device	Connection cable		GOT (remote station)		Number of connectable equipment
		Cable model*3	Maximum segment length*2		Cable model	Maximum segment length*2	Option device*5	GOT model	
CC-Link IE Field Network Basic master station	Ethernet*4	100BASE-TX Shielded twisted pair cable (STP) of category 5 or higher	100m	Hub*1	100BASE-TX Shielded twisted pair cable (STP) of category 5 or higher	100m	- (Built into GOT)	GT27, GT25, GT23, GT21 07W, GT21 04R, GT21 03P/04P ET/R4, GS25, GS21	Up to 64 GOTs (remote stations) for 1 master station
							GT25-J71E71-100	GT27, GT25	

*1 Connect the GOT to the CC-Link IE Field Network Basic master station via a hub.
Use cables, connectors, and hubs that meet the IEEE802.3 100BASE-TX standards.

*2 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
- 100BASE-TX: Max. 2 nodes for a cascade connection (205m)

When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.

*3 Use the straight cable.

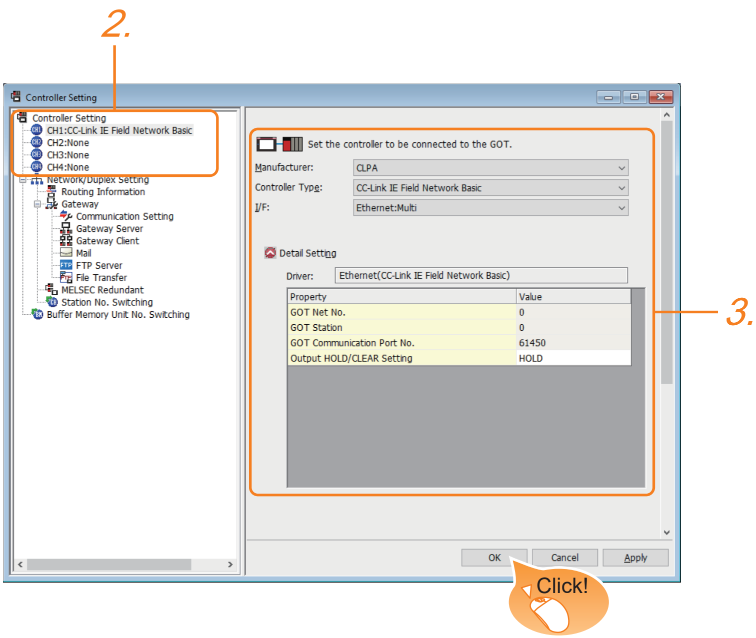
*4 CC-Link IE Field Network Basic communication does not support connection beyond routers.

*5 GT25-W, GT2505-V does not support the option device.

11.3 GOT Side Settings

Setting communication interface (Controller Setting)

Set the channel of the equipment to be connected to the GOT.



1. Select [Common] [Controller Setting] from the menu.

2. In the [Controller Setting] window, select the channel No. to be used from the list menu.

3. Select the following items and the detail setting is displayed.

- [Manufacturer]: [CLPA]
- [Controller Type]: [CC-Link IE Field Network Basic]
- [I/F]: [Ethernet:Multi]

When using the Ethernet communication unit (GT25-J71E71-100), also select [Ethernet:Multi].

- [Detail Setting]: Configure the settings according to the usage environment.

☞ Page 331 Communication detail settings

4. When you have completed the settings, click the [OK] button.

Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting].For details, refer to the following.

☞ Page 39 I/F communication setting

Communication detail settings

Make the settings according to the usage environment.

Property	Value
GOT Net No.	0
GOT Station	0
GOT Communication Port No.	61450
Output HOLD/CLEAR Setting	HOLD

Item	Description	Range
GOT Net No.	Not used	-
GOT Station	Not used	-
GOT Communication Port No.	Displays the port No. that is used by cyclic transmission of CC-Link IE Field Network Basic for the GOT.	61450 (fixed)
Output HOLD/CLEAR setting	Select whether the GOT holds or clears its device value (output data of the master and remote stations(GOT)) when the master station stops running. (Default: HOLD)	HOLD, CLEAR

Point

- Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.

For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

- Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

- Port No. [61451]

For CC-Link IE Field Network Basic, the port No. [61451] is used as a port for device detection. When the port No. [61451] is used for other communication functions, CC-Link IE Field Network Basic connection cannot be used.

GOT Ethernet Setting

The GOT can be connected to a different network by configuring the following setting.

GOT IP address setting

Set the following communication port setting.

- Standard port (When using GT25-W or GS25: Port 1)
- Extended port (When using GT25-W or GS25: Port 2)

GOT Ethernet common setting

Set the following setting which is common to the standard port and the extension port, or port 1 and port 2.

- [Default Gateway]
- [Peripheral S/W Communication Port No.]
- [Transparent Port No.]

IP filter setting

By configuring the IP filter setting, the access from the specific IP address can be permitted or shut off.

For the detailed settings, refer to the following manual.

☞ Page 35 GOT Ethernet Setting

11.4 Master Station Side Settings

For the settings of the CC-Link IE Field Network Basic master station, refer to the following manual.

☞ Manual for CC-Link IE Field Network Basic master station

11.5 Device Range that Can Be Set

For the device setting dialog and the device range that can be used on the GOT, refer to the following.

☞ Page 457 CLPA ([CC-Link IE Field Network Basic])

11.6 Precautions

Port No. [61451]

For CC-Link IE Field Network Basic, the port No. [61451] is used as a port for device detection. When the port No. [61451] is used for other communication functions, CC-Link IE Field Network Basic connection cannot be used.

Errors that occurs in the GOT at CC-Link IE Field Network Basic connection

In CC-Link IE Field Network Basic connection, contents of the message display, causes, and countermeasures when an error occurs in the GOT are described below.

Error code	Contents of the message display	Causes	Countermeasures
322[*1]	The specified device No. is out of range. Confirm the available device range.	• A device read error occurs. • The GOT accesses the device that is out of range specified by the master station.	To take corrective actions, check the range that is allocated to the master station and range of the monitoring target device.
402[*1]	The specified device No. is out of range. Confirm the available device range.	When the GOT is turned on, the master station is powered off.	Start the master station, and then turn on the GOT.
496[*2]	Settings for the GOT is not satisfied operation conditions of the communication driver.	• Unusable IP address in CC-Link IE Field Network Basic is set. • The port No. 61451 that is used in CC-Link IE Field Network Basic is used by other functions.	• Set the IP address within the range of 0.0.0.1 to 223.255.255.254. • When setting the IP address and subnet mask to each Ethernet I/F, set the network differently from each other. • Change the port No. of the function that uses the port No. 61451.

*1 May occurs even if CC-Link IE Field Network connection is not used.
*2 Occurs only when CC-Link IE Field Network connection is used.

Network errors that occurs in CC-Link IE Field Network Basic connection

In CC-Link IE Field Network Basic connection, contents of the message display, causes, and countermeasures for the following network errors are described below.

Error code	Contents of the message display	Causes	Countermeasures
854[*1]	The master station is duplicated in the same network.	The master station is duplicated in the same network.	Correct it so that one master station is in the same network.
855[*1]	Parallel-off status	Waiting for the request from the master station	Confirm the status of the master station.

*1 Occurs only when CC-Link IE Field Network connection is used.

Response performance of the GOT

The GOT carries out many object functions as well as CC-Link IE Field Network Basic connection so that the response performance for the master station may deteriorate. If this occurs, adjust the link scan time or timeout time at the master station side The following setting values are recommended.

Model	Recommendation value of link scan time/timeout time
GT27	50 ms and more
GT25	
GT23	150 ms and more
GS25	50 ms and more

PART 7 CONNECTIONS TO PERIPHERAL EQUIPMENT

12 CONNECTION TO SOUND OUTPUT UNIT

12.1 Connectable Model List

For applicable speakers, refer to the following Technical Bulletin.

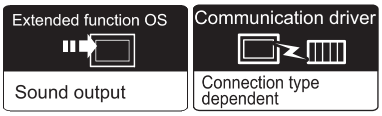
☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)

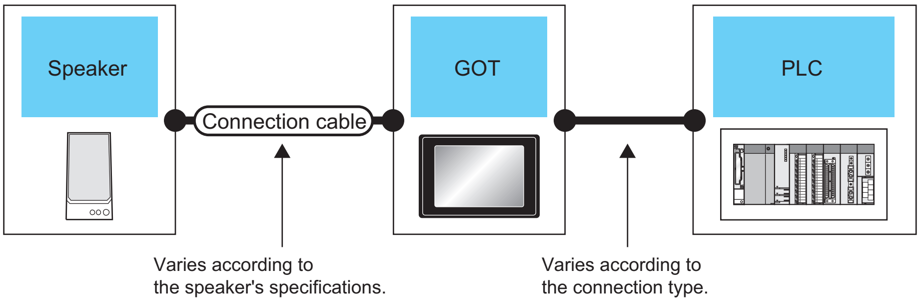
For Technical Bulletins, go to the Mitsubishi Electric Factory Automation Global Website.

www.MitsubishiElectric.com/fa

12.2 System Configuration

Connecting to sound output unit





Speaker	Connection cable	GOT		PLC	Number of connectable equipment
Model name		Option device*1*2	Model		
For applicable speakers, refer to the following Technical News. ☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)		GT15-SOUT	GT 27, GT 25, GS 25	For the system configuration between the GOT and PLC, refer to each chapter.	1 speaker for 1 GOT

*1 GT25-W and GS25 incorporate GT15-SOUT.

*2 GT2505-V does not support the option device.

Point

System configuration between the GOT and PLC

For the system configuration between the GOT and PLC, refer to each chapter.

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

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

GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 2) For GT Works3 Version1

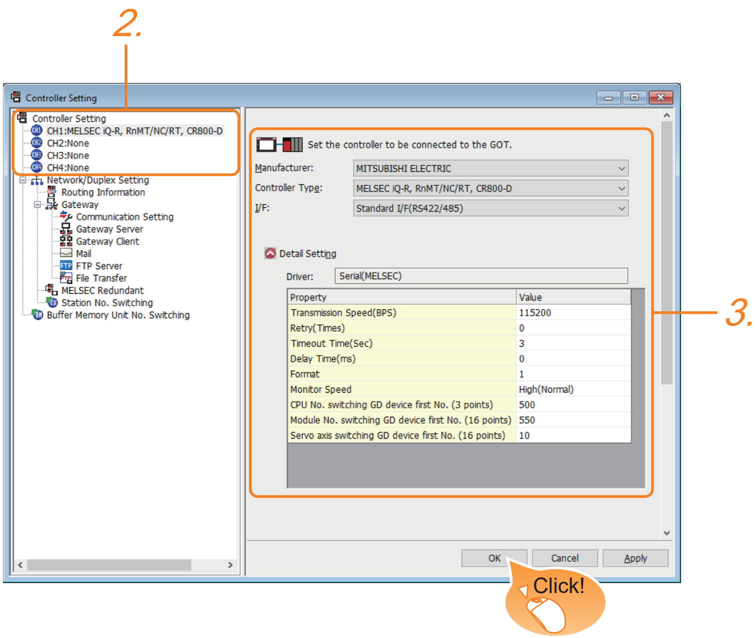
GOT2000 Series Connection Manual (Microcomputer, MODBUS, Products, Peripherals) For GT Works3 Version1

12.3 GOT Side Settings

Setting communication interface

Controller setting

Set the channel of the equipment to be connected to the GOT.



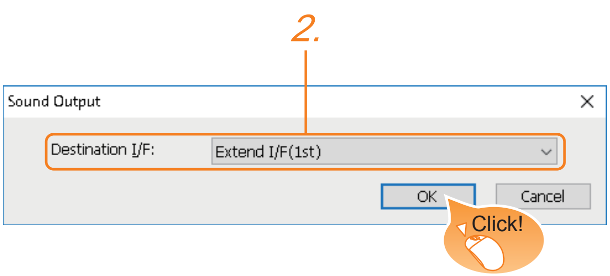
1. Select [Common] → [Controller Setting] from the menu.
2. In the [Controller Setting] window, select the channel No. to be used from the list menu.
3. Set [Manufacturer], [Controller Type], [I/F], and [Detail Setting] according to the controller used.
4. When you have completed the settings, click the [OK] button.

Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

☞ Page 39 I/F communication setting

Sound output unit setting



1. Select [Common] → [Peripheral Setting] → [Sound Output] from the menu.
2. Set the interface to which the sound output unit is connected.
3. When you have completed the settings, click the [OK] button.

Point

- Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.

For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

- Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

12.4 Precautions

Sound output function setting on GT Designer3

Before connecting the sound output unit, make the sound output file setting.

For details, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

13 CONNECTION TO EXTERNAL I/O DEVICE

13.1 Connectable Model List

The following table shows the connectable models.

Series	Clock	Connectable GOT	Refer to
External I/O device	*1	GT 27 GT 25	☞ Page 340 Connecting to the external I/O device

*1 Varies with the connected type.

13

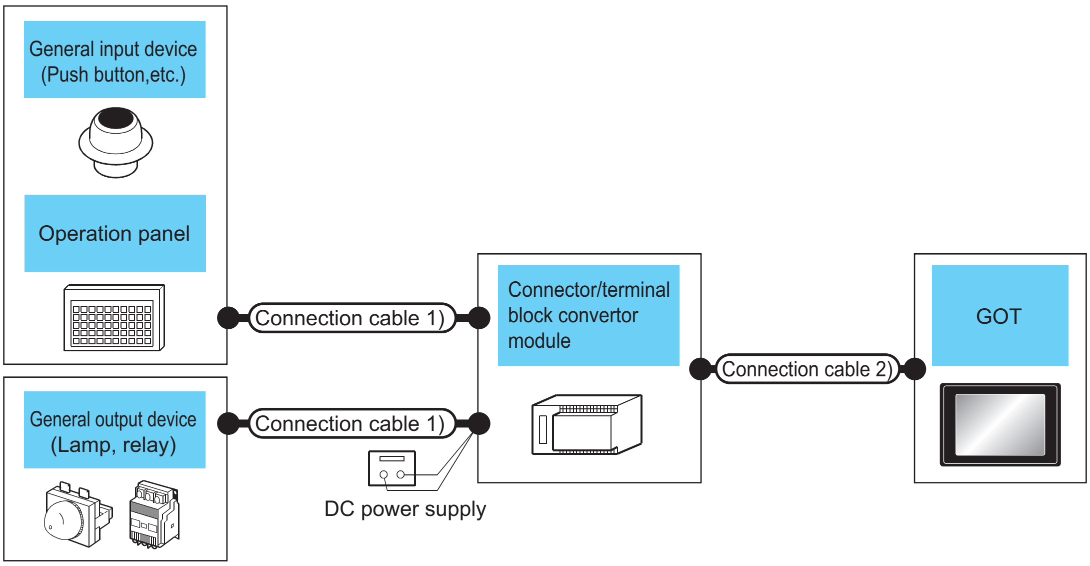
13.2 System Configuration

Connecting to the external I/O device

When inputting and outputting

Extended function OS

External I/O /Operation panel



Name	Connection cable 1)	Connector/terminal block converter module*1*2	Connection cable 2)	GOT*3	
	Connection diagram number		Connection diagram number	Option device*4	Model
General input device (Push button, etc.) Operation panel General output device (Lamp, relay)	User preparing Page 345 Connection diagram 3)	A6TBY36-E ☞ Page 345 Connection diagram 3)	User preparing Page 342 Connection diagram 1)	GT15-DIO	GT 27 GT 25
	User preparing Page 346 Connection diagram 4)	A6TBY54-E ☞ Page 346 Connection diagram 4)			
	User preparing Page 347 Connection diagram 5)	A6TBY36-E ☞ Page 347 Connection diagram 5)	User preparing Page 343 Connection diagram 2)	GT15-DIOR	
	User preparing Page 348 Connection diagram 6)	A6TBY54-E ☞ Page 348 Connection diagram 6)			

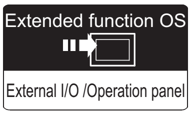
*1 The power supply of 24VDC must be applied for the external I/O unit.
When the power supply of the external I/O unit is stopped in the operation, the operation panel becomes nonfunctional.
For using the operation panel again, reset the GOT after supplying the power to the external I/O unit.

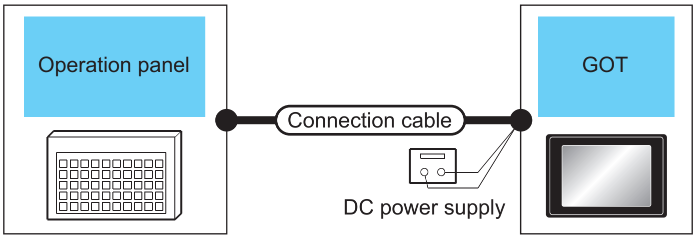
*2 When the connector/terminal block converter module is used, the maximum input points are 64 points.

*3 When starting, turn on the external power supply to the external I/O unit and turn on the GOT.
When turning off the external power supply, a system alarm occurs.
When a system alarm is generated, input/output cannot be performed.
In this case, turn on the main power of the GOT or reset the GOT.
(When bus connection is used, the reset switch on the GOT does not function.)

*4 GT25-W, GT2505-V does not support the option device.

When only inputting





External device		Connection cable*1	GOT*2	
Name	**Connection diagram number**	**Connection diagram number**	**Option device*3**	**Model**
Operation panel	User preparing Page 350 Connection diagram 8)	User preparing Page 349 Connection diagram 7)	GT15-DIO	GT 27 GT 25
	User preparing Page 352 Connection diagram 10)	User preparing Page 351 Connection diagram 9)	GT15-DIOR	

*1 The power supply of 24VDC must be applied for the external I/O unit.
When the power supply of the external I/O unit is stopped in the operation, the operation panel becomes nonfunctional.
For using the operation panel again, reset the GOT after supplying the power to the external I/O unit.

*2 When starting, turn on the external power supply to the external I/O unit and turn on the GOT.
When turning off the external power supply, a system alarm occurs.
When a system alarm is generated, input/output cannot be performed.
In this case, turn on the main power of the GOT or reset the GOT.
(When bus connection is used, the reset switch on the GOT does not function.)

*3 GT25-W, GT2505-V does not support the option device.

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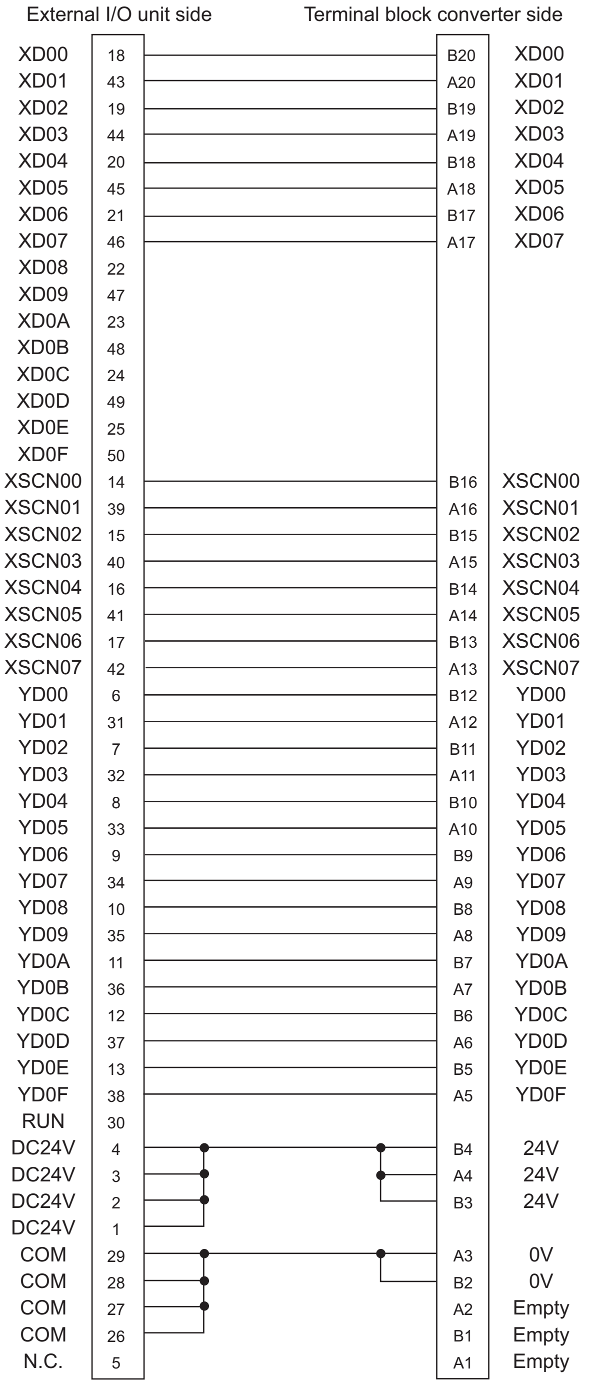
13.3 Connection Diagram

Connection cable between external I/O unit and connector/ terminal block converter module

The connection cable between the external I/O unit and the connector/terminal block converter module must be prepared by the user referring to the followings.

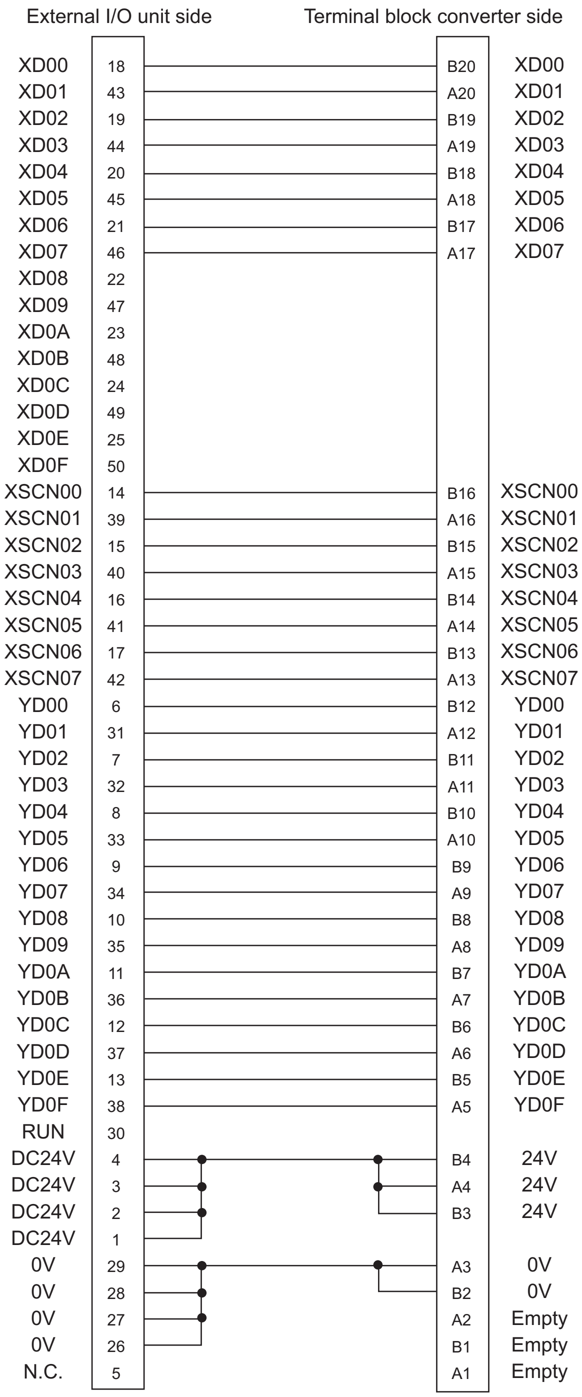
For GT15-DIO

■Connection diagram 1)

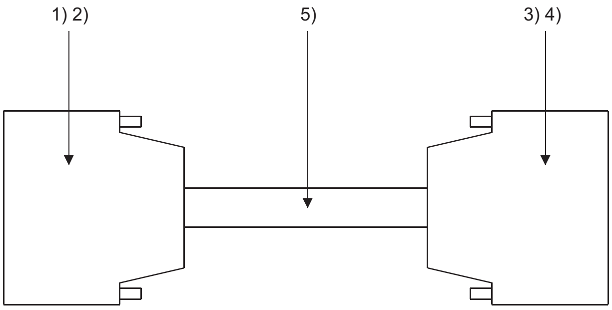


For GT15-DIOR

■Connection diagram 2)



Connector specifications



No.	Name	Model name	Manufacturer
1)	Connector	PCR-E50FS+ (GT15-DIO)	Honda Tsushin Kogyo Co., Ltd.
		PCS-E50FS+ (GT15-DIOR)	
2)	Connector cover	PCS-E50LPA+R *1	
3) 4)	Connector (with a cover)	A6CON1	Mitsubishi Electric Corporation
5)	Connector	FCN-361J040-AU	FUJITSU COMPONENT LIMITED
6)	Connector cover	FCN-360C040-B	
7)	Cable	UL 2464 AWG28 or equivalent	-

*1 The former product PCS-E50LA can also be used.

Precautions when preparing a cable

■Cable length

Maximum cable length differs depending on the cable used. Make the cable length within the range that can satisfy the I/O specifications of the external I/O unit.

■GOT side connector

For the GOT side connector, refer to the following.

☞ Page 49 GOT connector specifications

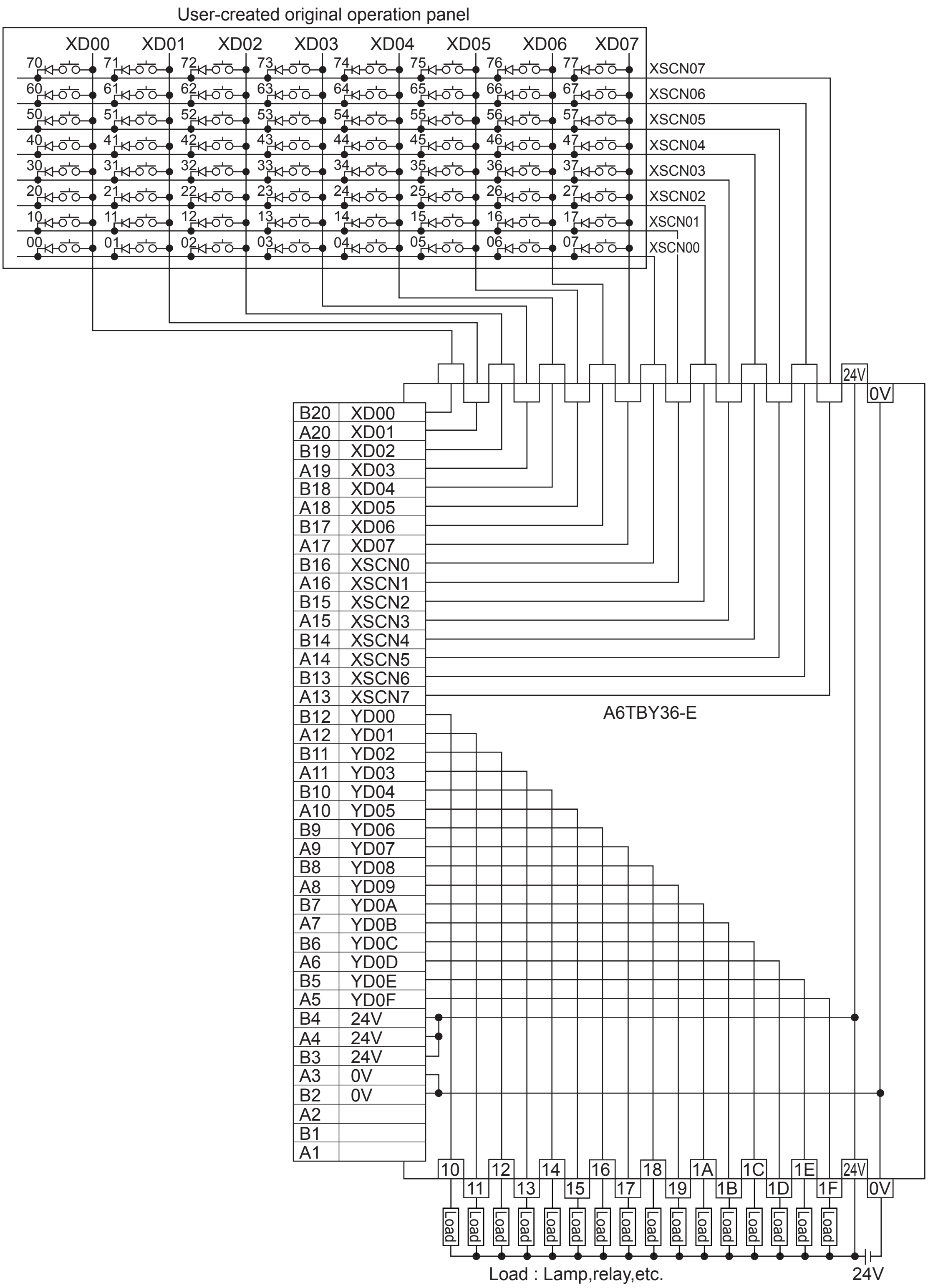
Connection diagram between connector/terminal block converter module and operation panel

The connection cable among the user-created original operation panel, the connector/terminal block converter module, and the general output device must be prepared by the user referring to the followings.

For GT15-DIO

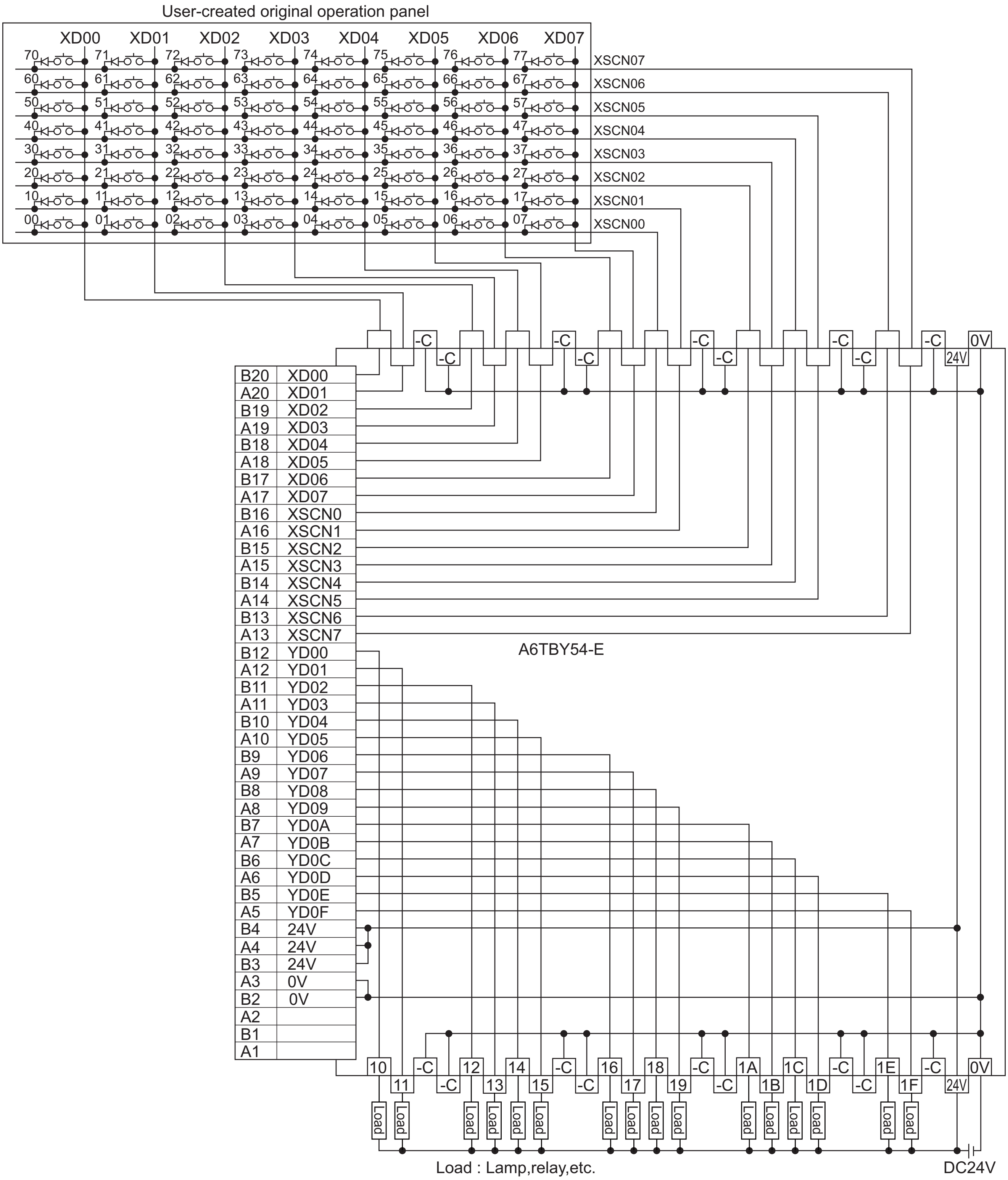
■Connection diagram 3)

When using A6TBY36-E connector/terminal block module



■Connection diagram 4)

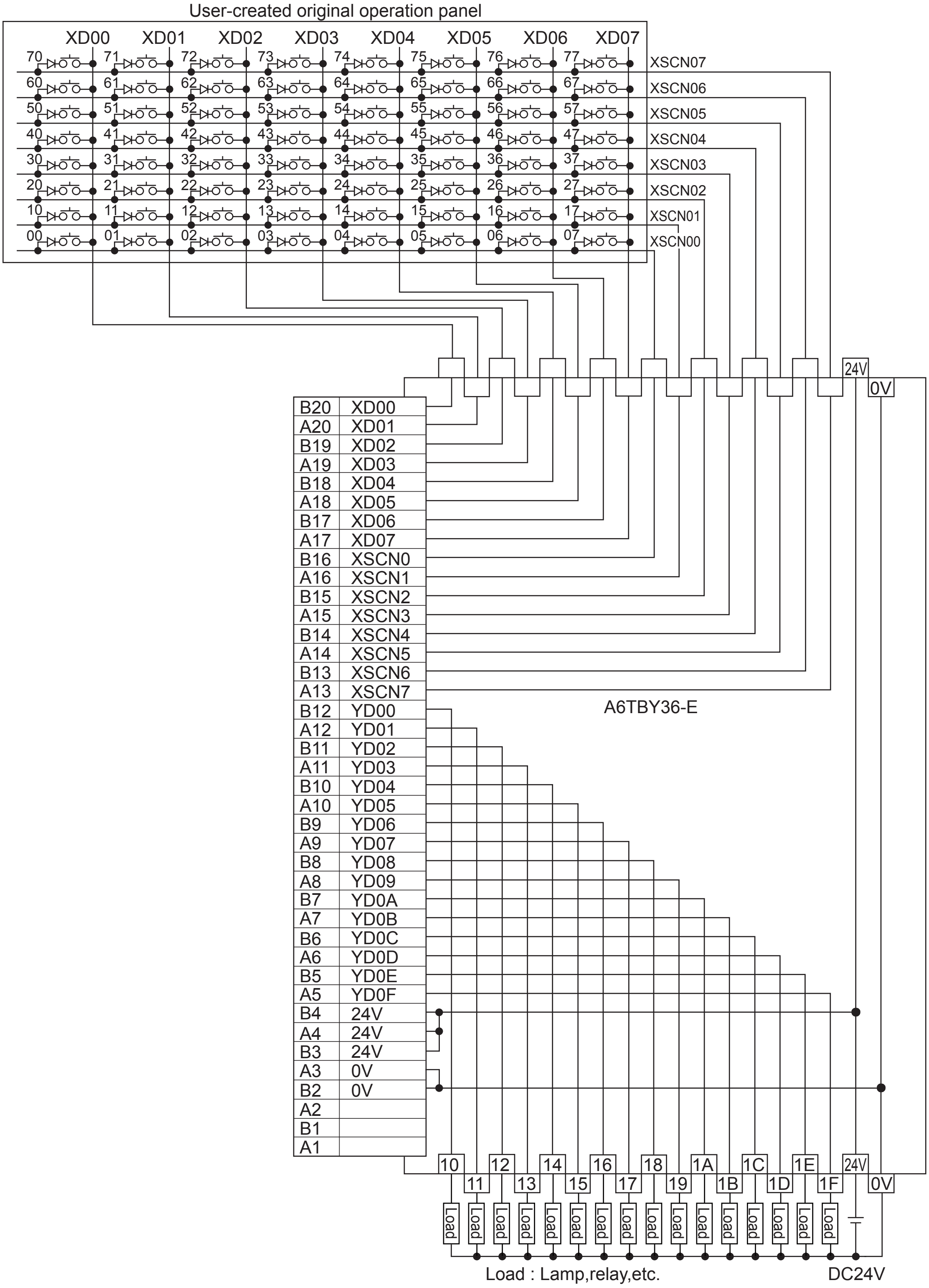
When using A6TBY54-E connector/terminal block module



For GT15-DIOR

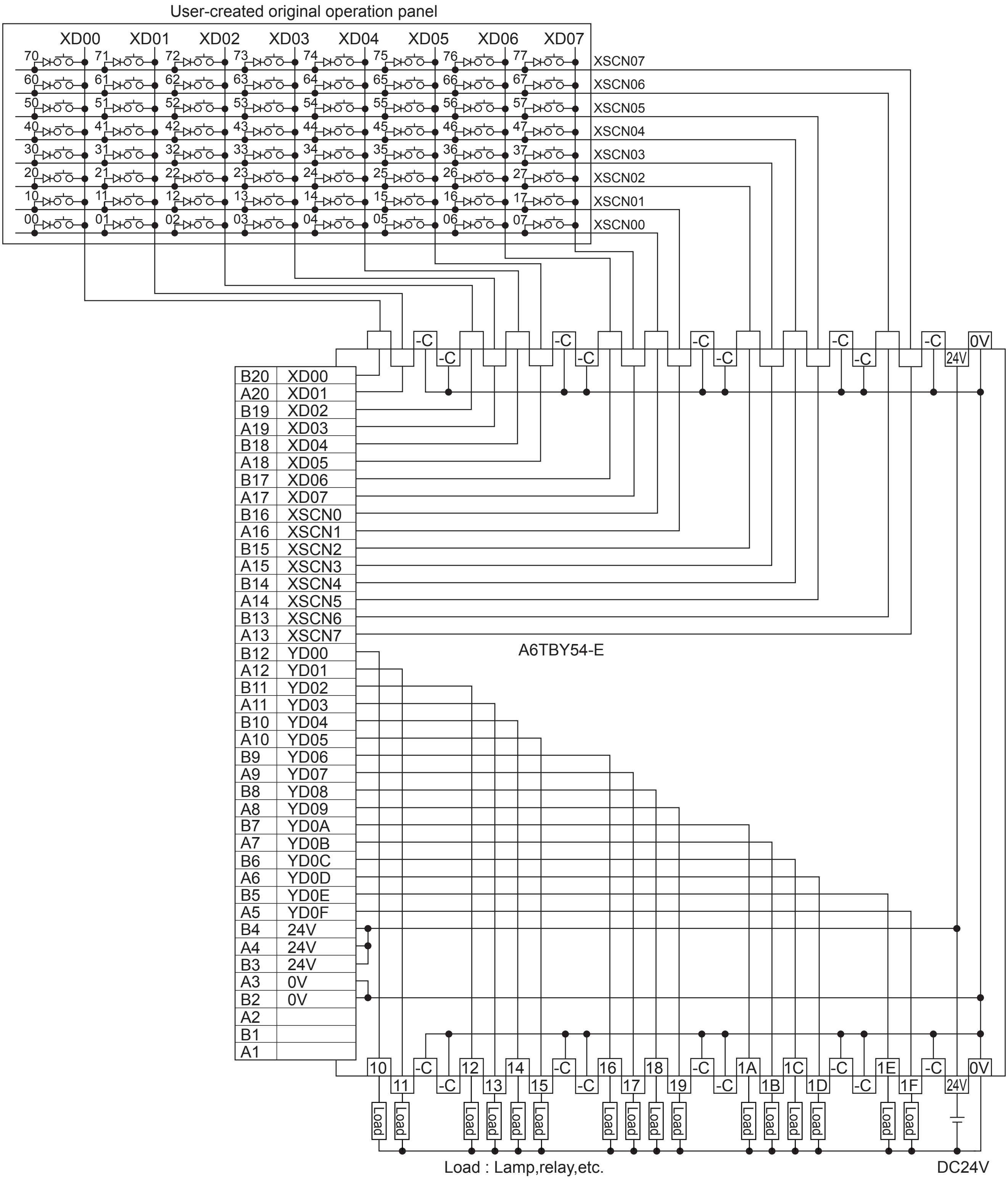
■Connection diagram 5)

When using A6TBY36-E connector/terminal block module



■Connection diagram 6)

When using A6TBY54-E connector/terminal block module

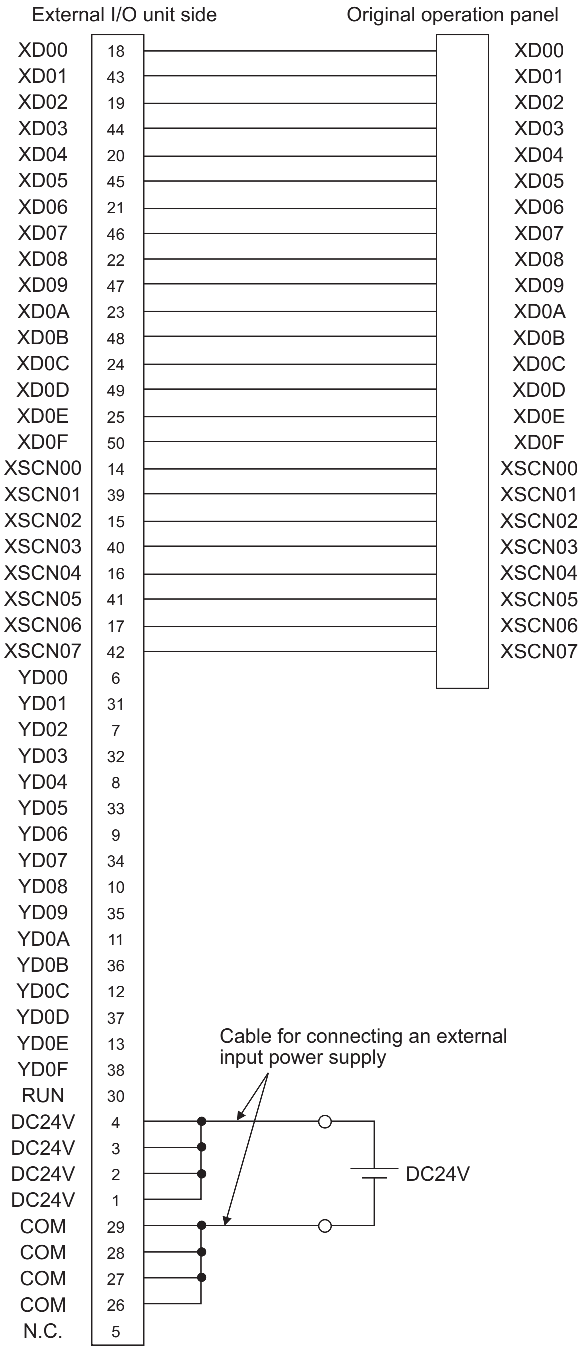


Connection cable between external I/O unit and operation panel

The connection cable between the external I/O unit and the operation panel must be prepared by the user referring to the followings.

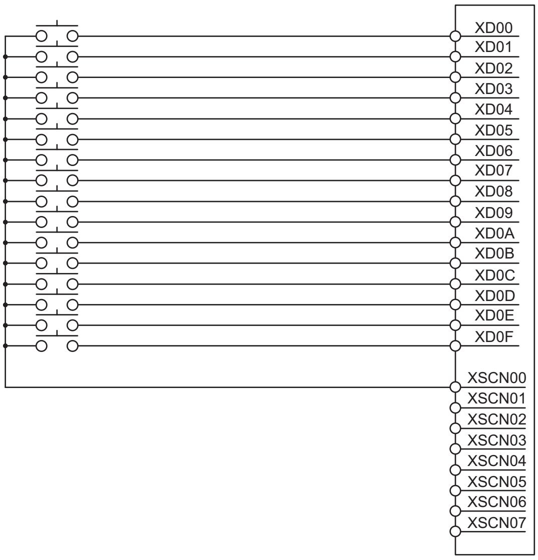
For GT15-DIO

■Connection diagram 7)

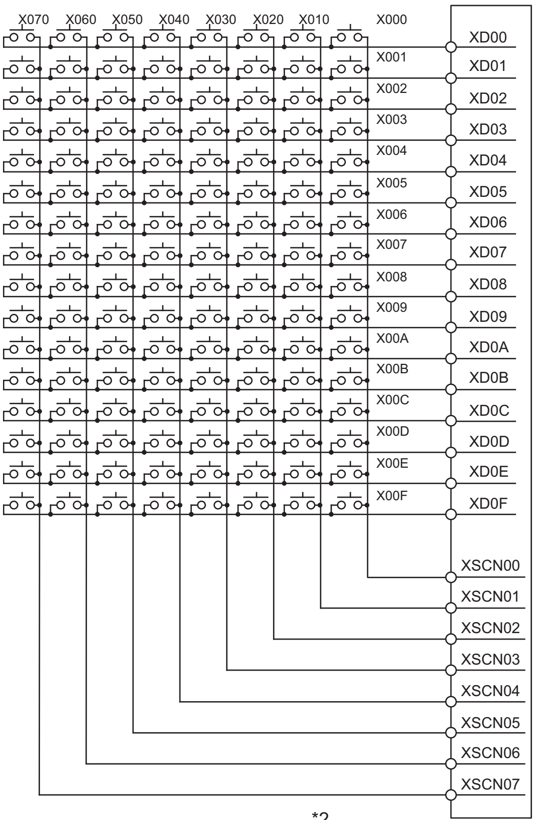


■Connection diagram 8)

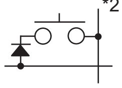
For 16-point input



For 128-point input*1



*2

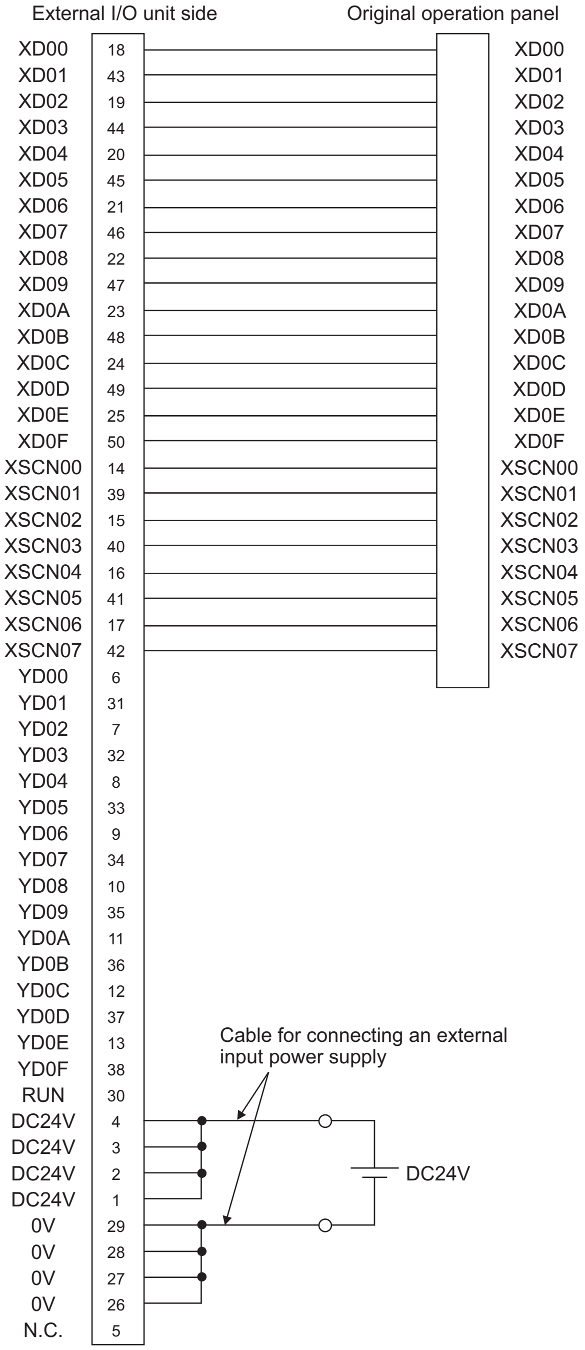


*1 The 128-point input can be executed with using a 16-point input signal (XD00 to XD0F) with an 8-point scan signal (XSCN00 to XSCN07).

*2 When two or more switches are pressed simultaneously, be sure to put the diode to each switch. (Only for 128-point input)

For GT15-DIOR

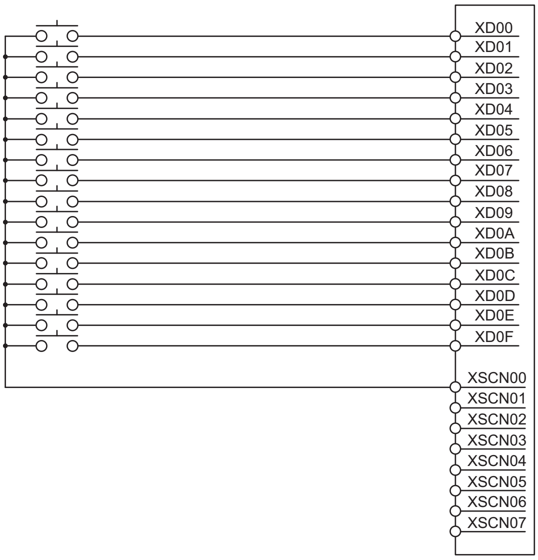
■Connection diagram 9)



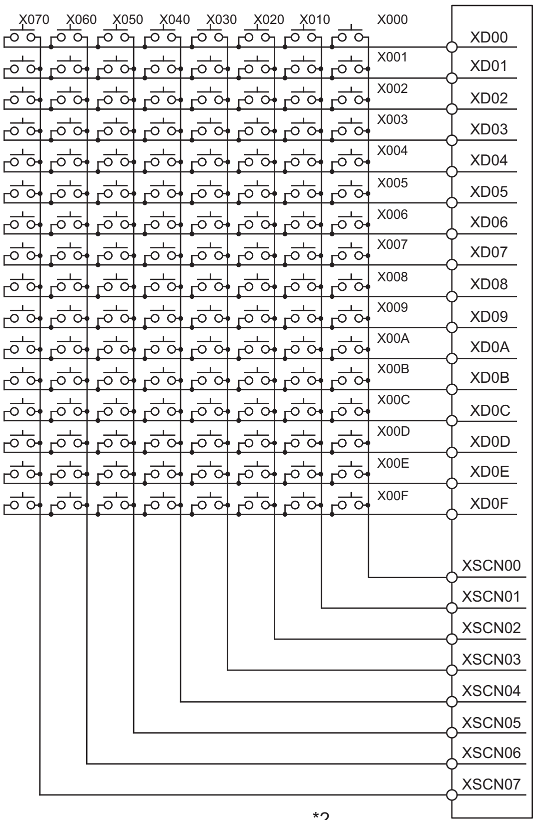
13

■Connection diagram 10)

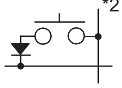
For 16-point input



For 128-point input*1



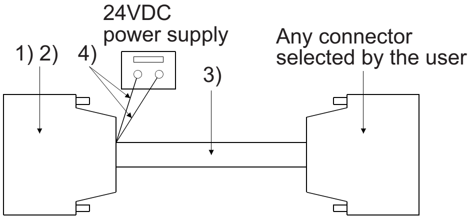
*2



*1 The 128-point input can be executed with using a 16-point input signal (XD00 to XD0F) with an 8-point scan signal (XSCN00 to XSCN07).

*2 When two or more switches are pressed simultaneously, be sure to put the diode to each switch. (Only for 128-point input)

Connector specifications



No.	Name	Model name	Manufacturer
1)	Connector	PCR-E50FS+ (GT15-DIO)	Honda Tsushin Kogyo Co., Ltd.
		PCS-E50FS+ (GT15-DIOR)	
2)	Connector cover	PCS-E50LPA+R *1	
3)	Cable	UL 2464 AWG28 or equivalent	——
4)	Cable for connecting an external input power supply	UL 1007 AWG24 or equivalent	——

*1 The former product PCS-E50LA can also be used.

Precautions when preparing a cable

■Cable length

Maximum cable length differs depending on the cable used.Make the cable length within the range that can satisfy the I/O specifications of the external I/O unit.

■GOT side connector

For the GOT side connector, refer to the following.

☞ Page 49 GOT connector specifications

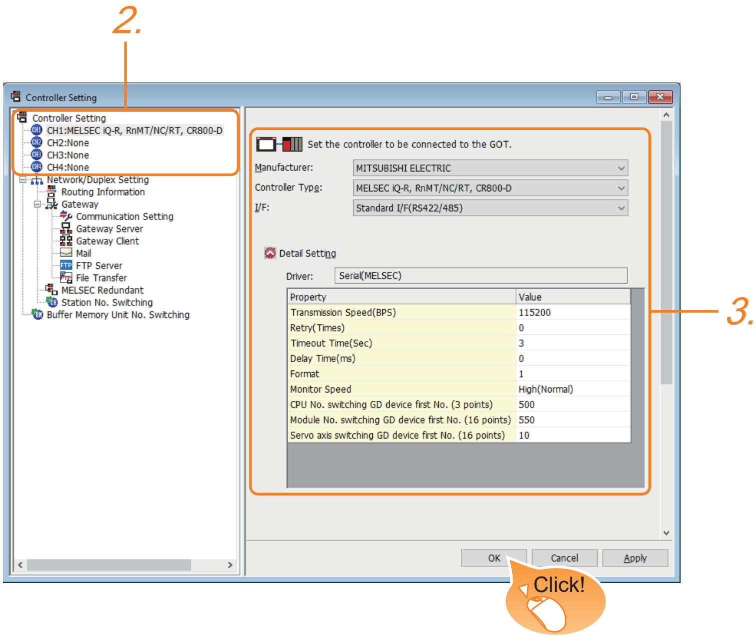
13

13.4 GOT Side Settings

Setting communication interface

Controller setting

Set the channel of the equipment to be connected to the GOT.



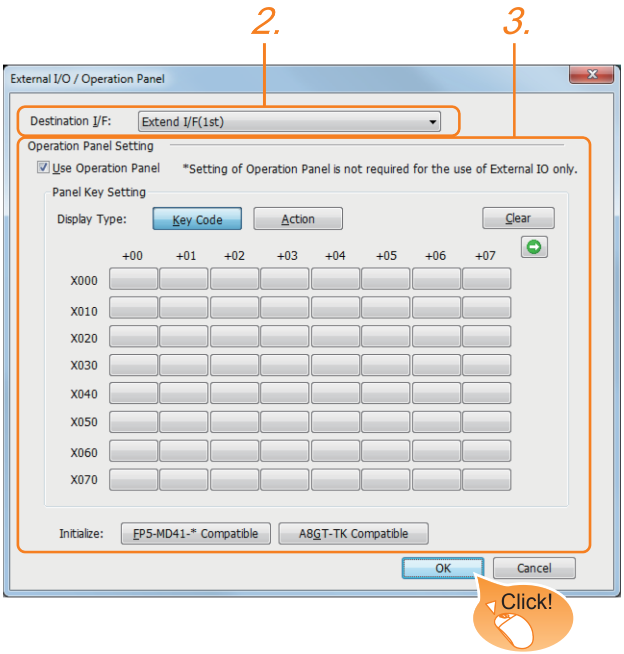
1. Select [Common] → [Controller Setting] from the menu.
2. In the [Controller Setting] window, select the channel No. to be used from the list menu.
3. Set [Manufacturer], [Controller Type], [I/F], and [Detail Setting] according to the controller used.
4. When you have completed the settings, click the [OK] button.

Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

☞ Page 39 I/F communication setting

External I/O device setting



1. Select [Common] → [Peripheral Setting] → [External I/O / Operation Panel] from the menu.

2. Set the interface to which the external I/O device is connected.

3. Check the [Use Operation Panel] to set the operation panel.

For details on the operation panel settings,refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

4. When you have completed the settings, click the [OK] button.

Point

• Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.

For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

• Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

13.5 Precautions

External I/O function setting on GT Designer3

Before using the operation panel, make the operation panel setting.

For details, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

MEMO

14 BAR CODE READER CONNECTION

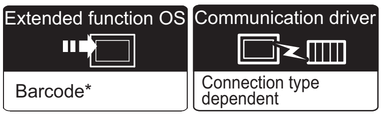
14.1 Connectable Model List

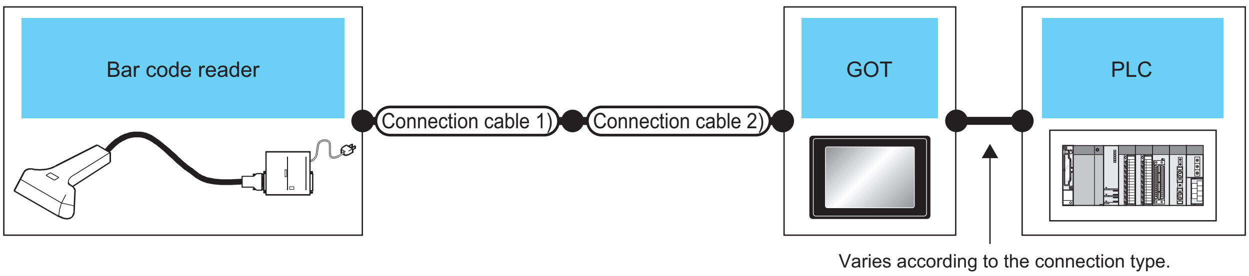
For connectable bar code readers and system equipment, refer to the following Technical Bulletin.
☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)
For Technical Bulletins, go to the Mitsubishi Electric Factory Automation Global Website.
www.MitsubishiElectric.com/fa

14

14.2 System Configuration

Connecting to bar code reader





Bar code reader	Communication Type	Connection cable 1)	Connection cable 2)	GOT		PLC	Number of connectable equipment
				Option device*3	Model		
*1	USB	*1	-	- (Built into GOT)	GT27 GT25 GT23 GT21 07W GS25	For the system configuration between the GOT and PLC, refer to each chapter.	One serial barcode reader and one USB barcode reader for one GOT
	RS-232	*1	-	- (Built into GOT)	GT27 GT25 GT23 GT21 07W GT21 05Q GS25 GS21		
			User preparing Page 359 RS-232 connection diagram 1)	- (Built into GOT)	GT21 04R		
			GT10-C02H-6PT9P*2 (0.2m)	- (Built into GOT)	GT21 03P 04P R4 GT21 03P 04P R2		
			-	GT15-RS2-9P	GT27 GT25		
	RS-422/485	*1	-	- (Built into GOT)	GT27 GT25 GT23 GT21 07W GT21 05Q GS25 GS21		
			-	GT15-RS4-9S	GT27 GT25		
			-	GT15-RS4-TE			
			-	- (Built into GOT)	GT21 04R GT21 03P 04P ET/R4 GT21 03P 04P R4		

*1 For connectable bar code readers, system equipment, available bar code types and connection cables, refer to the following Technical News.

☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)

*2 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

*3 GT25-W, GT2505-V does not support the option device.

Point

• When using the RS-232 communication unit

Use the RS-232 communication unit of the GOT for connecting to a barcode reader.

However, when the RS-232 communication unit is used, the power cannot be supplied to a bar code reader from the GOT.

• System configuration between the GOT and PLC

For the system configuration between the GOT and PLC, refer to each chapter.

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

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

GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 2) For GT Works3 Version1

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

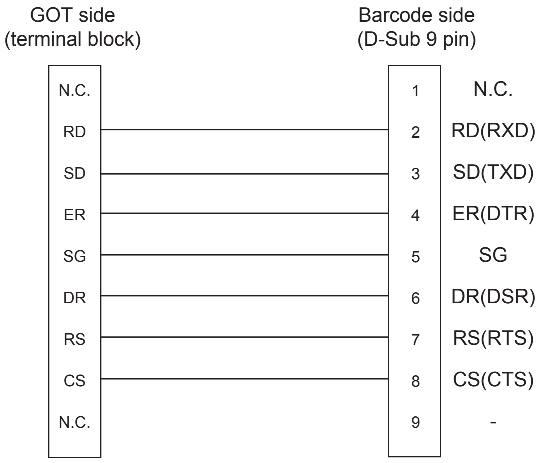
14.3 Connection Diagram

The following diagram shows the connection between the GOT and the barcode.

RS-232 cable

Connection diagram

■RS-232 connection diagram 1)



Precautions when preparing a cable

■Cable length

The length of the RS-232 cable must be 15m or less.

■GOT side connector

For the GOT side connector, refer to the following.

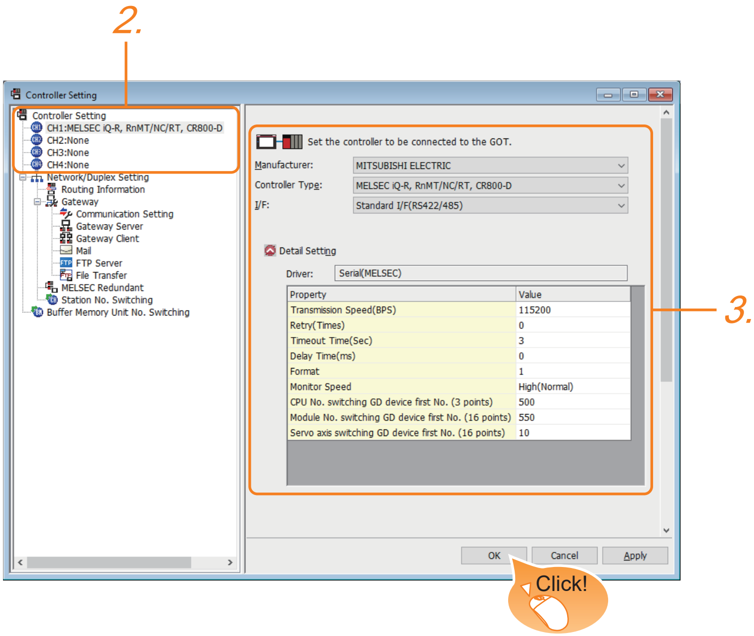
☞ Page 49 GOT connector specifications

14.4 GOT Side Settings

Setting communication interface

Controller setting

Set the channel of the equipment to be connected to the GOT.



1. Select [Common] → [Controller Setting] from the menu.

2. In the [Controller Setting] window, select the channel No. to be used from the list menu.

3. Set [Manufacturer], [Controller Type], [I/F], and [Detail Setting] according to the controller used.

4. When you have completed the settings, click the [OK] button.

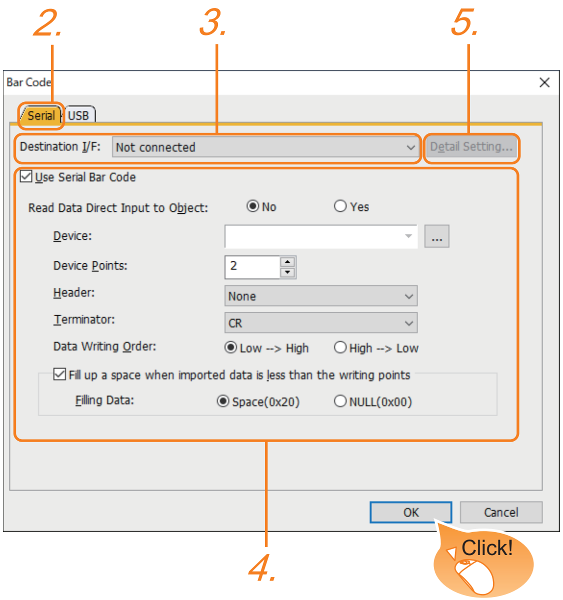
Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

☞ Page 39 I/F communication setting

Bar code reader setting

■When using a serial barcode reader



1. Select [Common] → [Peripheral Setting] → [Bar Code] from the menu.

2. Select the [Serial] tab in the [Bar Code] dialog.

3. Set the interface to which the bar code reader is connected.

4. Select [Use Serial Bar Code] to configure the function setting.

For details on the function setting, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

5. Click the [Detail Setting] button to display the [Detail Setting] dialog for each communication driver.

Make the settings according to the usage environment.

☞ Page 363 Communication detail settings

6. When you have completed the settings, click the [OK] button.

Point

• Communication interface setting

When Channel No.8 is used, the following external devices, which use Channel No.8, cannot be connected at the same time.

RFID controller that uses the external authentication

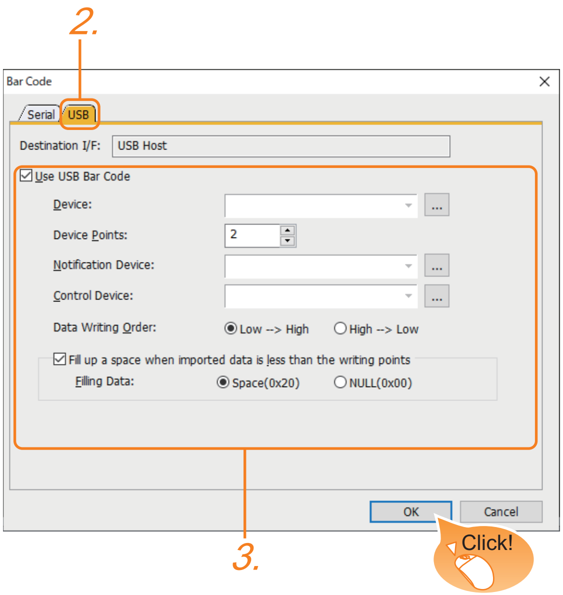
RFID controller that requires the power supply

When connecting the above-mentioned devices at the same time, set [Bar Code] to Channels No. 5 to 7.

• Setting for the driver

To Channels No. 5 to 8, multiple [Bar Code] cannot be set.

■When using a USB barcode reader



1. Select [Common] → [Peripheral Setting] → [Bar Code] from the menu.

2. Select the [USB] tab in the [Bar Code] dialog.

3. Select [Use USB Bar Code] to configure the function setting.

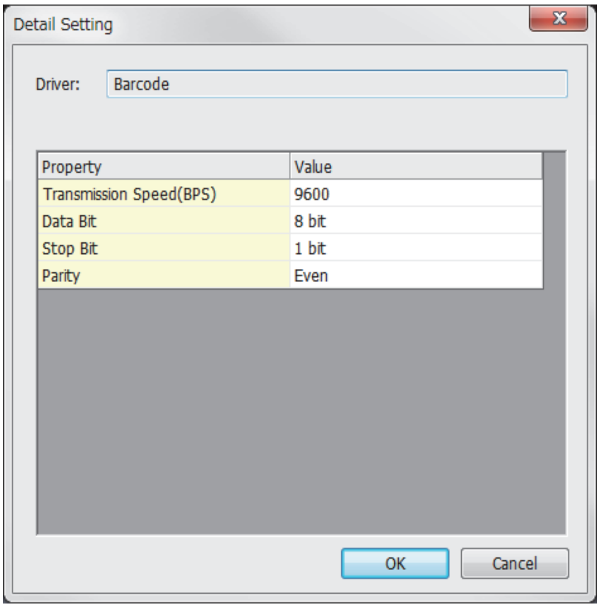
For details on the function setting, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

4. When you have completed the settings, click the [OK] button.

Communication detail settings

Make the settings according to the usage environment.



Item	Description	Range
Transmission Speed	Set this item when change the transmission speed used for communication with the connected equipment. (Default: 9600bps)	4800bps, 9600bps, 19200bps, 38400bps, 57600bps, 115200bps
Data Bit	Set this item when change the data length used for communication with the connected equipment. (Default: 8bits)	7bits/8bits
Stop Bit	Specify the stop bit length for communications. (Default: 1bit)	1bit/2bits
Parity	Specify whether or not to perform a parity check, and how it is performed during communication. (Default: Even)	None Even Odd

Point

- Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.

For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

- Precedence in communication settings

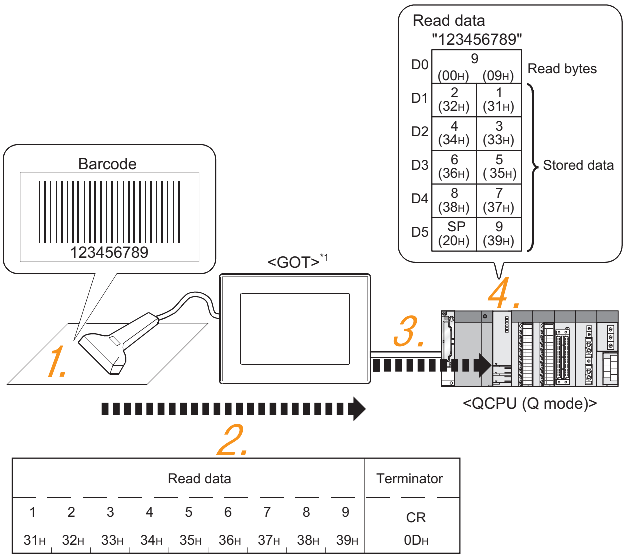
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

14.5 System Configuration Examples

A system configuration example for bar code reader connection is shown below.

When using a serial bar code reader

System configuration



*1 The GOT and QCPU (Q mode) are connected through a bus.
For bus connection, refer to the following manual.
☞ GOT2000 Series Connection Manual (Mitsubishi Electric Products) for GT Works3

1. The bar code is read with the bar code reader.

☞ Page 364 Bar code reader setting

2. The GOT receives the data sent from the bar code reader.

☞ Page 365 Settings in the [I/F Communication Setting] window
☞ Page 365 Settings in the [Detail Setting] dialog

3. The received data are written to the PLC CPU.

☞ Page 366 Settings in the [Bar Code] dialog

4. The data read with the bar code reader are written into the PLC CPU devices.

☞ Page 367 Confirmation on PLC side

Bar code reader setting

The bar code reader shall be configured as shown below.

Item	Set value
Transmission Speed	9600bps
Data Bit	8bit
Stop Bit	1bit
Parity	Even
Header	None
Terminator	CR

Point

Bar code reader setting

For the bar code reader setting, refer to the following manual.

☞ User's Manual of the bar code reader

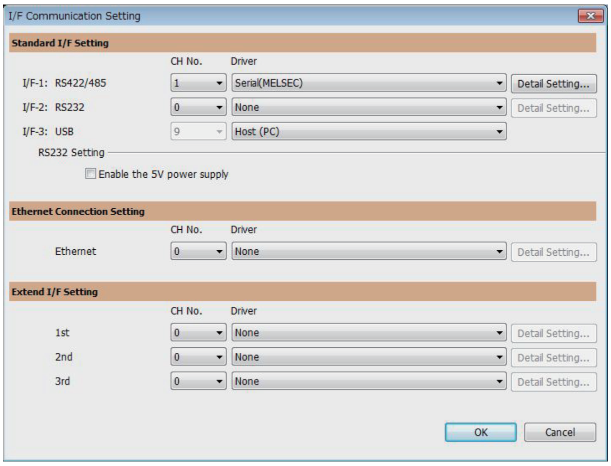
Settings in GT Designer3

■Settings in the [I/F Communication Setting] window

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting].

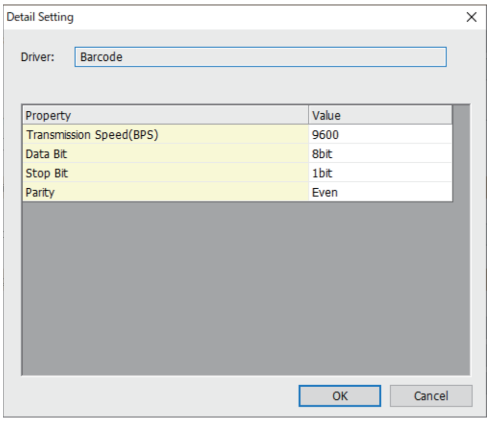
For details, refer to the following.

☞ Page 39 I/F communication setting



■Settings in the [Detail Setting] dialog

1. In the [I/F Communication Setting] window, set the channel and communication driver for the interface to be used, and click the [Detail Setting] button.
2. Keep consistency with the bar code reader setting.



Item	Setting (Use default value.)
[Transmission Speed]	[9600bps]
[Data Bit]	[8bit]
[Stop Bit]	[1bit]
[Parity]	[Even]

Point

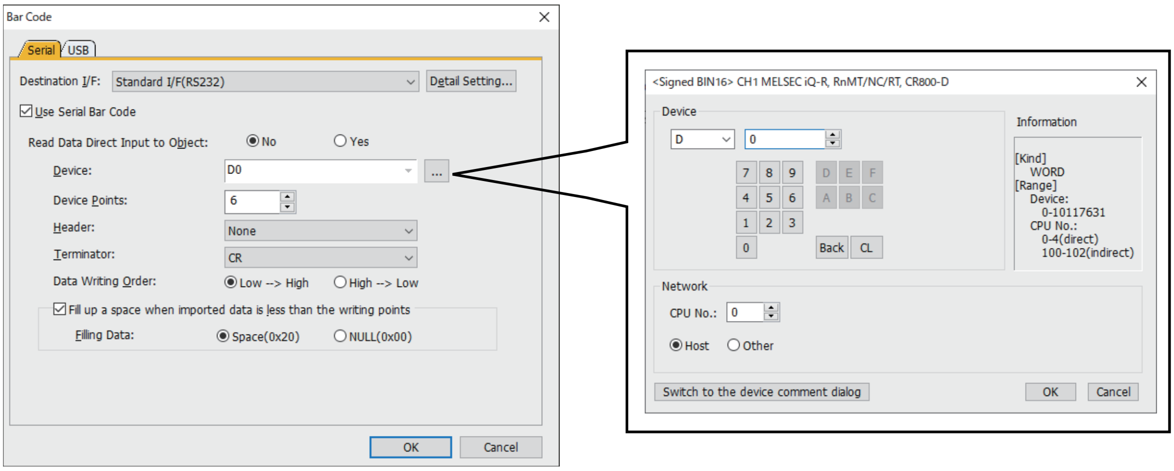
[Controller Setting] of GT Designer3

For the setting method of [Controller Setting] of GT Designer3, refer to the following.

☞ Page 360 Setting communication interface

14

■Settings in the [Bar Code] dialog



Item	Set value
[Read Data Direct Input to Object]	[No]
[Device]	[D0]
[Device Points]	[6]
[Header] *1	[None]
[Terminator] *1	[CR]
[Data Writing Order]	[Low→High]
[Fill up a space when imported data is less than the writing points]	Check (Filling Data is available)
[Filling Data]	[Space (0x20)]

*1 Keep consistency with the bar code reader setting.

Point

[Bar Code] of GT Designer3

For the [Bar Code] setting in GT Designer3, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

Confirmation on PLC side

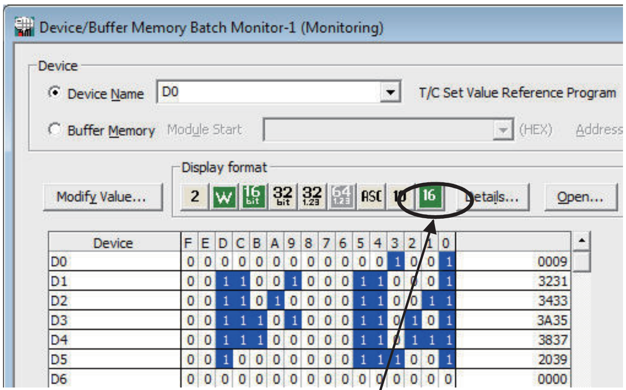
Connect GX Works2 to the QCPU (Q-mode) and check if the data, which has been read with the bar code reader, are written in D0 to D5.

For the GX Works2 operation method, refer to the following manual.

☞ GX Works2 Operating Manual

■Confirming the device values of D0 to D5 (when using GX Works2

Startup procedure: GX Works2 → [Online] → [Monitor] → [Device/Buffer Memory Batch Monitor]

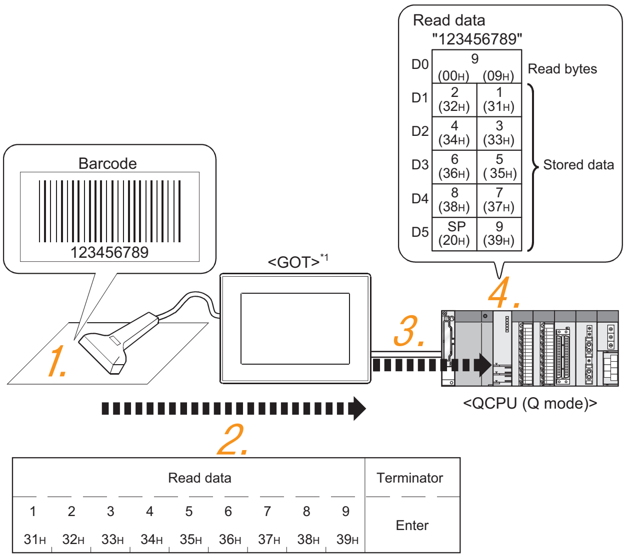


ASCII codes are hexadecimals.
Specify [HEX] for [Value] of the GX
Works2 and confirm the read data.

14

When using a USB bar code reader

System configuration



*1 The GOT and QCPU (Q mode) are connected through a bus.
For bus connection, refer to the following manual.
☞ GOT2000 Series Connection Manual (Mitsubishi Electric Products) for GT Works3

1. The bar code is read with the bar code reader.
☞ Page 368 Bar code reader setting

2. The GOT receives the data sent from the bar code reader.
☞ Page 369 Settings in the [GOT Setup] window

3. The received data are written to the PLC CPU.
☞ Page 369 Settings in the [Bar Code] dialog

4. The data read with the bar code reader are written into the PLC CPU devices.
☞ Page 369 Confirmation on PLC side

Bar code reader setting

The settings for the USB bar code reader are not necessary.

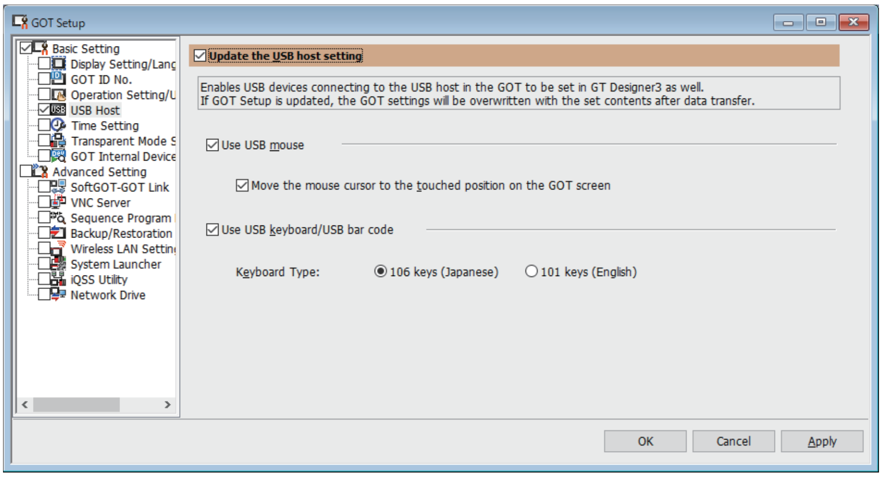
Point

When using a USB barcode reader, input values are handled as ASCII characters.

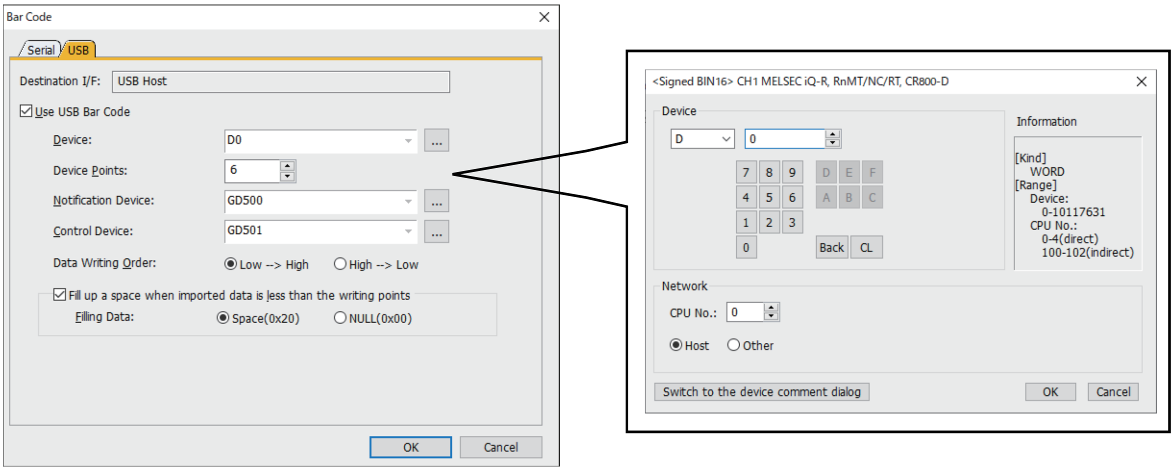
Settings in GT Designer3

■Settings in the [GOT Setup] window

In the [GOT Setup] window ([USB Host]), select [Use USB keyboard/USB bar code] and set [Keyboard Type] according to the setting of the USB barcode reader used.



■Settings in the [Bar Code] dialog



Item	Set value
[Device]	[D0]
[Device Points]	[6]
[Notification Device]	[GD500]
[Control Device]	[GD501]
[Data Writing Order]	[Low→High]
[Fill up a space when imported data is less than the writing points]	Check (Filling Data is available)
[Filling Data]	[Space (0x20)]

Point

[Bar Code] of GT Designer3

For the [Bar Code] setting in GT Designer3, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

Confirmation on PLC side

For the confirmation on the PLC side, refer to the following.

☞ Page 367 Confirmation on PLC side

14.6 Precautions

Bar code function setting on GT Designer3

Before connecting the bar code reader, make the bar code function and system data settings.
For details, refer to the following manual.
☞ GT Designer3 (GOT2000) Screen Design Manual

Controller setting

When using the barcode reader, which requires the power supply from the GOT, set Channel No. 8 using the standard interface.
With Channels No. 5 to 7 of the extension interface, the power cannot be supplied.

15 PC REMOTE CONNECTION

15.1 Connectable Model List

The RGB display is used for the remote personal computer operation connection.
The following table lists the GOT models that support the remote personal computer operation connection.

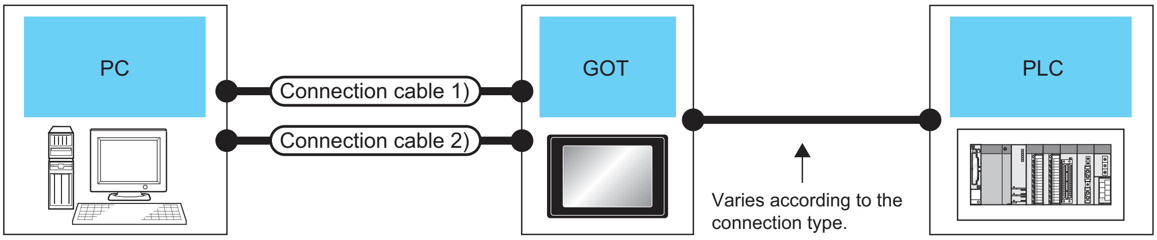
Connection type	Model
Serial connection	GT27 *1
Ethernet connection	GT27 GT25 GT23 GS25

*1 GT2705-V is not supported.

15.2 Serial Connection

System Configuration

Extended function OS — PC remote operation (serial)
Extended function OS — Video/RGB input
Communication driver — Connection type dependent



Personal computer	Connection cable 1)*2		GOT		PLC	Number of connectable equipment
	Cable model	Max. distance	Option device	Model		
To be selected by the user.	GT01-C30R2-9S or RS232 connection diagram 1)	15m	- (Built into GOT)	GT27 *3	For the system configuration between the GOT and PLC, refer to each chapter.	1 personal computer for 1 GOT
			GT15-RS2-9P	GT27 *3		

Personal computer	Connection cable 1)*2		GOT		PLC	Number of connectable equipment
	Cable model	Max. distance	Option device	Model		
To be selected by the user.	GT15-C50VG or Analog RGB connection diagram 1)	*1	GT27-R2*5	GT27 *3	For the system configuration between the GOT and PLC, refer to each chapter.	1 personal computer for 1 GOT
			GT27-R2-Z*5	GT27 *3		
			GT27-V4R1-Z	GT27 *3		

*1 The cable length differs depending on the specification of the personal computer to be used. Use the cable that is compatible with the personal computer to be used.
*2 The connection cable 1) (RS-232 cable) and the connection cable 2) (analog cable) should be connected between the personal computer and the GOT.
*3 GT2705-V is not supported.
*4 The unit installation position, and the number of units, refer to the following.
☞ Page 47 Precautions when installing units on top of one another
*5 Usable for channel 1 only.

Point

System configuration between the GOT and PLC

For the system configuration between the GOT and PLC, refer to each chapter.

GOT2000 Series Connection Manual (Mitsubishi Electric Product) For GT Works3 Version1
GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 1) For GT Works3 Version1
GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 2) For GT Works3 Version1
GOT2000 Series Connection Manual (Microcomputer, MODBUS, Products, Peripherals) For GT Works3 Version1

Connection Diagram

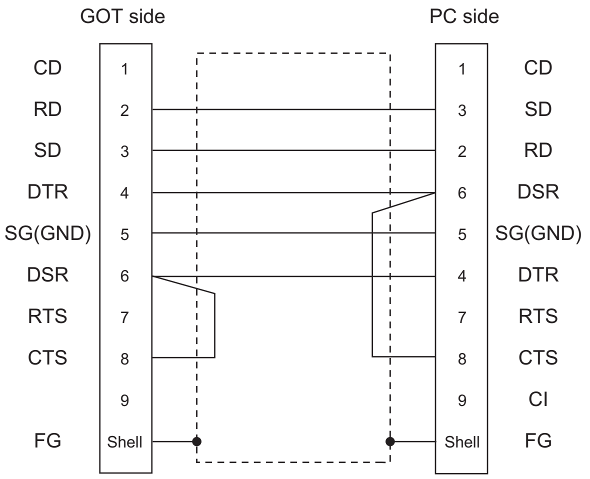
When using a 3m or longer RS-232 cable for connecting a GOT to a personal computer, the cable must be prepared by the user.

The following shows each cable connection diagram.

RS-232 cable

■Connection diagram

- RS232 connection diagram 1)



■Precautions when preparing a cable

- Cable length

The length of the RS-232 cable must be 15m or less.

- GOT side connector

For the GOT side connector, refer to the following.

☞ Page 49 GOT connector specifications

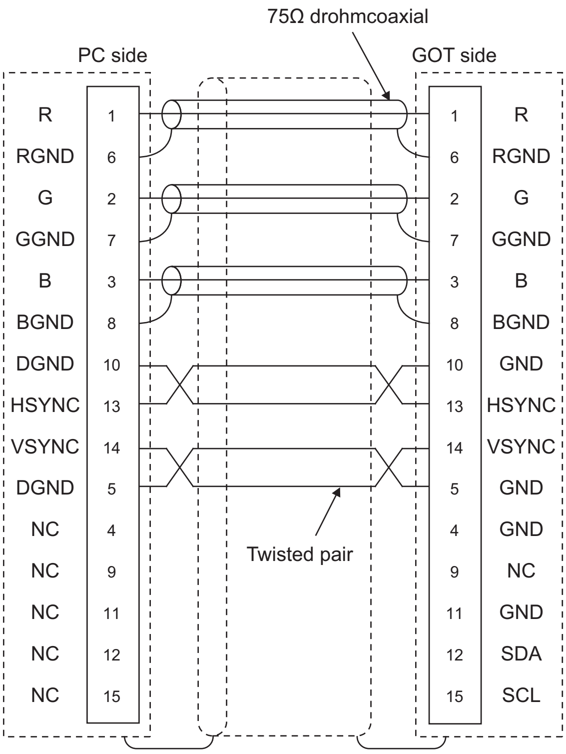
- Personal computer side connector

Use a connector compatible with the personal computer to be used.

Analog RGB cable

■Connection diagram

- Analog RGB connection diagram 1)



■Precautions when preparing a cable

- Cable length

The cable length differs depending on the specification of the personal computer to be used. Create a cable under the specifications of the personal computer.

- GOT side connector

Use the following as the video/RGB input unit and the RGB input unit connectors.

For the GOT side connector and connector cover of the analog RGB cable, use the ones applicable to the GOT connector.

GOT	Connector type	Connector type	Manufacturer
GT16M-R2	17HE-R13150-73MC2	D-Sub 15 pin (female)	DDK Ltd. (DDK)
GT16M-V4R1			
GT15V-75R1			
GT15V-75V4R1			

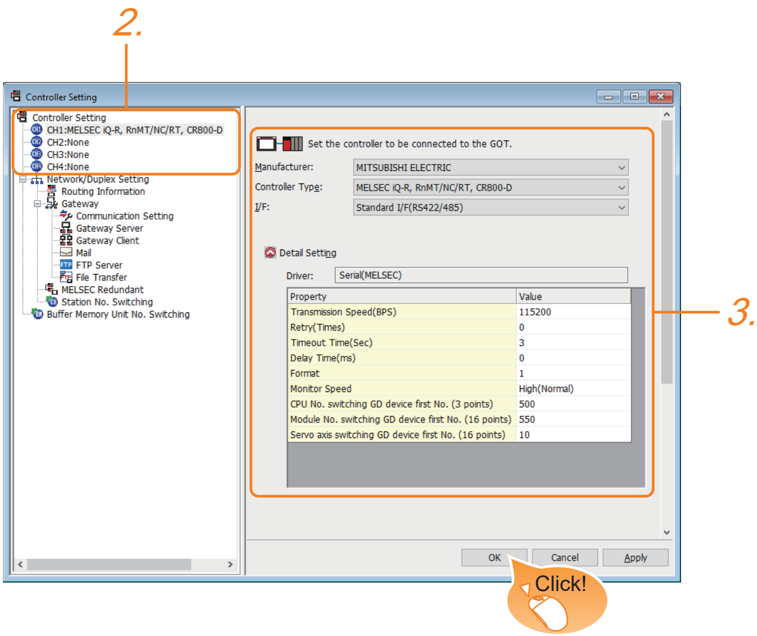
- Personal computer side connector

Use a connector compatible with the personal computer to be used.

GOT Side Settings

Setting communication interface (Controller Setting)

Set the channel of the equipment to be connected to the GOT.



1. Select [Common] → [Controller Setting] from the menu.

2. In the [Controller Setting] window, select the channel No. to be used from the list menu.

3. Set [Manufacturer], [Controller Type], [I/F], and [Detail Setting] according to the controller used.

4. When you have completed the settings, click the [OK] button.

Point

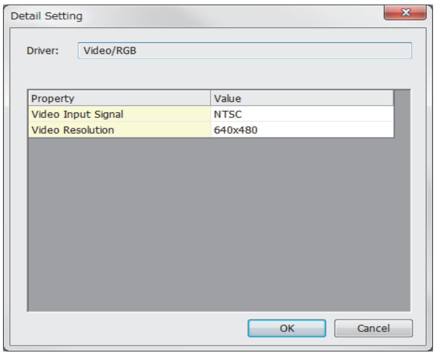
The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

☞ Page 39 I/F communication setting

Communication detail settings

Serial connection

Make the settings according to the usage environment.



Item	Description	Range
Video Input Signal*1	Set the video input signal. (Default: NTSC)	NTSC, PAL
Video Resolution	Set the video resolution. (Default: 640×480)	640×480, 720×480, 768×576

*1 When NTSC format is selected, the resolution is fixed to 640×480.

Point

• Communication interface setting

When Channel No.8 is used, the following external devices, which use Channel No.8, cannot be connected at the same time.

RFID controller that uses the external authentication

Barcode reader and RFID controller that require the power supply

When connecting the above-mentioned devices at the same time, set [PC Remote Operation] to Channels No. 5 to 7.

• Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.

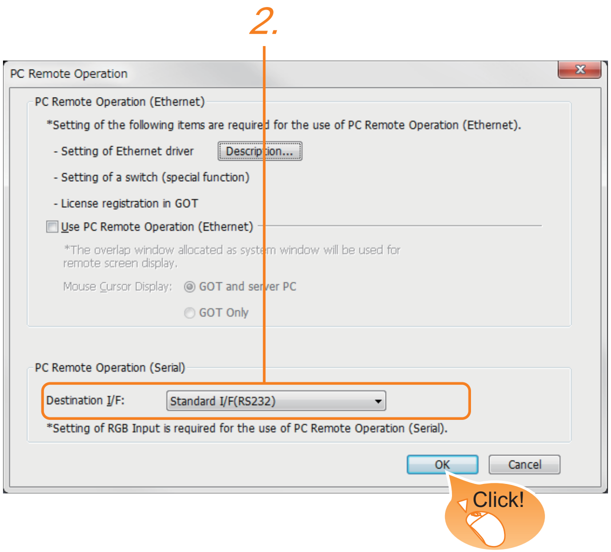
For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

• Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

Settings for the remote personal computer operation

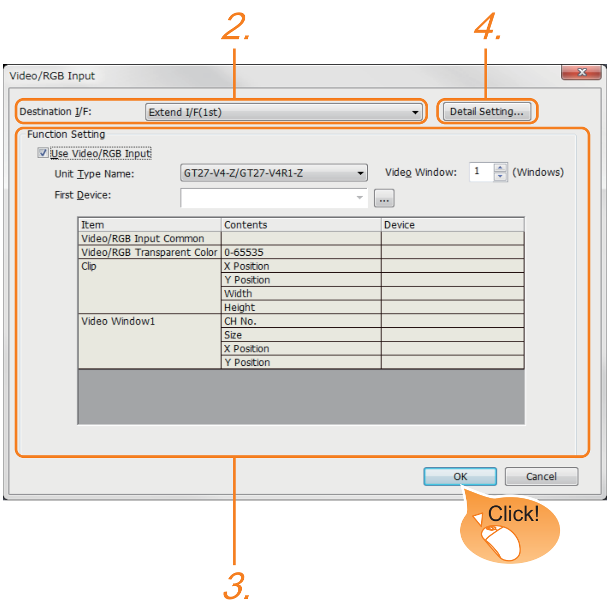


1. Select [Common] → [Peripheral Setting] → [PC Remote Operation] from the menu.

2. Set the interface to which the personal computer is connected for the [Connecting I/F] of [PC Remote Operation (serial)].

3. When you have completed the settings, click the [OK] button.

Settings for the video/RGB equipment



1. Select [Common] → [Peripheral Setting] → [Video/RGB Input] from the menu.

2. Set the interface to which the video/RGB equipment is connected.

3. Check the [Use Video/RGB Input] to set the function. For details on the function setting, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

4. Clicking the detail setting button displays the Communication Detail Settings dialog box for each communication driver.Make the settings according to the usage environment.

☞ Page 377 Communication detail settings

5. When you have completed the settings, click the [OK] button.

Point

Setting for the driver

To Channels No. 5 to 8, multiple [PC Remote Operation] cannot be set.

Installing and setting up computer remote operation driver.

Install and set up the remote personal computer operation driver to the personal computer.

For installing and setting up the remote personal computer operation driver, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

Precautions

Personal computer side setting

Before using the remote personal computer operation function, install the remote personal computer operation driver on the personal computer.

After the driver installation, check that the driver is correctly installed.

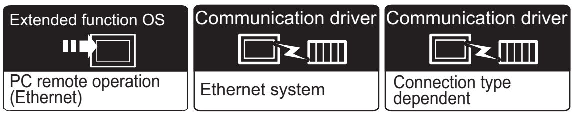
For details of the remote personal computer operation driver, refer to the following manual.

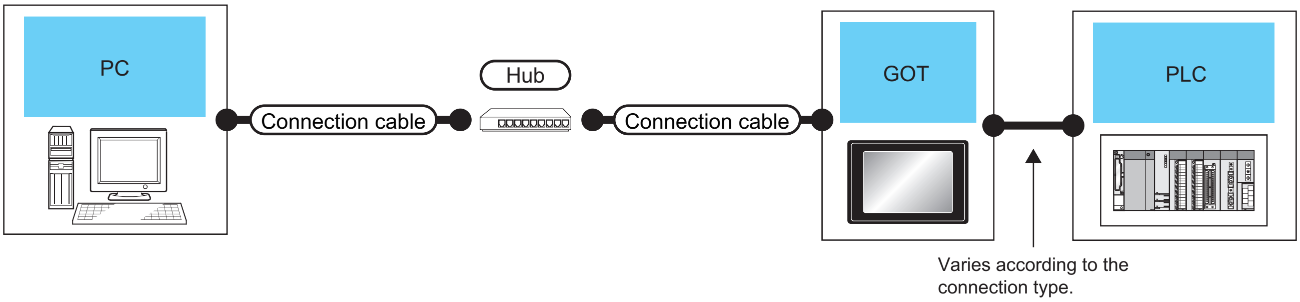
☞ GT Designer3 (GOT2000) Screen Design Manual

15.3 Ethernet Connection

System Configuration

When using the Ethernet connection cable





Personal computer	Connection cable*1*2	Maximum segment length*3	GOT		PLC	Number of connectable equipment
			Option device*4	Model		
To be selected by the user.	• 100BASE-TX Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher	100m	- (Built into GOT)	GT27 GT25 GT23 GS25	For the system configuration between the GOT and PLC, refer to each chapter.	1 personal computer for 1 GOT
			GT25-J71E71-100	GT27 GT25		

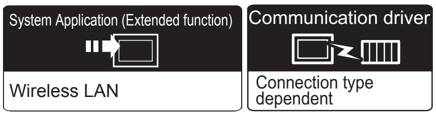
*1 The destination connected with the twisted pair cable varies with the configuration of the applicable Ethernet network system.
Connect to the Ethernet module, hub, transceiver, wireless LAN adapter (NZ2WL-JPA or NZ2WL-JPS), or other system equipment corresponding to the applicable Ethernet network system.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standard.
For the controllers that can be connected to the wireless LAN adapters and how to set the wireless LAN adapter, refer to the manual of the wireless LAN adapter used.

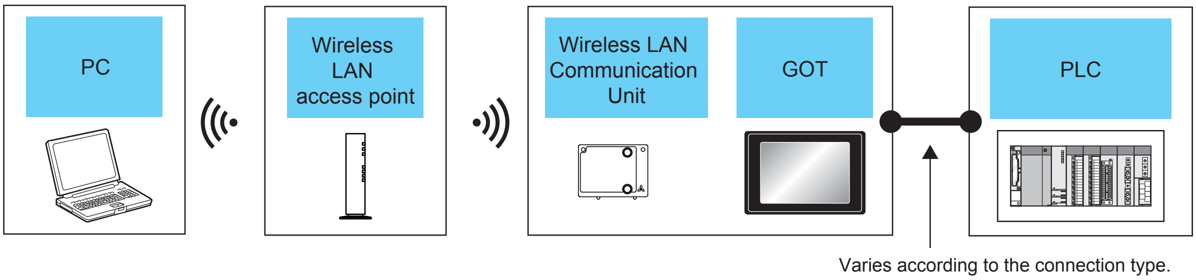
*2 When connecting the GOT and personal computer via a hub, use a cable according to the PC configuration.

*3 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
• 10BASE-T: Max. 4 nodes for a cascade connection (500m)
• 100BASE-TX: Max. 2 nodes for a cascade connection (205m)
When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.

*4 GT25-W, GT2505-V does not support the option device.

When using the wireless LAN





Personal computer	Wireless LAN access point	GOT		PLC	Number of connectable equipment
	Model name	Option device*3	Model		
To be selected by the user.	Wireless access point For the connectable access point and system devices, refer to the following Technical News ☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)	GT25-WLAN	GT 27 GT 25 GS 25 *1	For the system configuration between the GOT and PLC, refer to each chapter.	1 personal computer for 1 GOT
	-	GT25-WLAN	GT 27 GT 25 GS 25 *2		

*1 Select [Station] in [Operation mode] of [Wireless LAN setting] of the [GOT Setup] dialog.
☞ Page 431 WIRELESS LAN CONNECTION
*2 Select [Access point] in [Operation mode] of [Wireless LAN setting] of the [GOT Setup] dialog.
☞ Page 431 WIRELESS LAN CONNECTION
*3 GT2505-V does not support the option device.

Point

System configuration between the GOT and PLC

For the system configuration between the GOT and PLC, refer to each chapter.

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

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

GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 2) For GT Works3 Version1

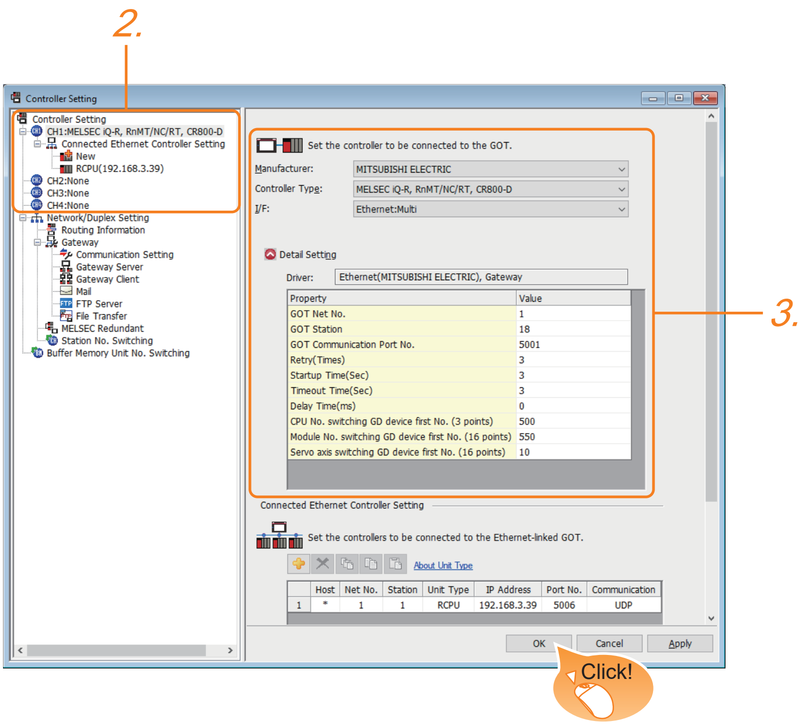
GOT2000 Series Connection Manual (Microcomputer, MODBUS, Products, Peripherals) For GT Works3 Version1

GOT Side Settings

Setting communication interface (Controller Setting)

■When using the Ethernet connection cable

Ethernet communication drivers must be set on the GOT, and set the communication interface setting.



1. Select [Common] → [Controller Setting] from the menu.
2. In the [Controller Setting] window, select the channel No. to be used from the list menu.
3. Set [Manufacturer], [Controller Type], [I/F], and [Detail Setting] according to the controller used.
4. When you have completed the settings, click the [OK] button.

Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

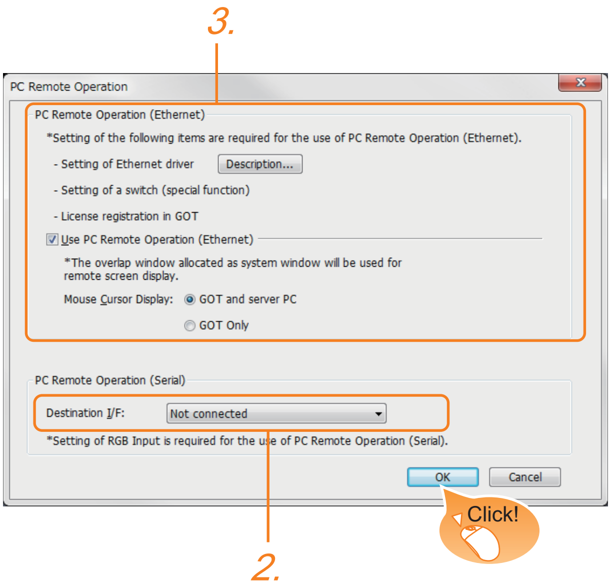
☞ Page 39 I/F communication setting

■When using the wireless LAN

For details of the wireless LAN setting, refer to the following.

☞ Page 431 WIRELESS LAN CONNECTION

Settings for the PC remote operation



1. Select [Common] → [Peripheral Setting] → [PC Remote Operation] from the menu.

2. Set [Connecting I/F] of [PC Remote Operation] to [Disconnect].

3. Check the [Use PC Remote Operation (Ethernet)] of [PC Remote Operation (Ethernet)] to set. For details on the settings, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

4. When you have completed the settings, click the [OK] button.

Install and setting the required software

Install and set the required software according to the system configuration.

For the settings, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

Precautions

Ethernet system driver

Before using the PC remote operation function (Ethernet), install an Ethernet system communication driver to the GOT.

Set the Ethernet system communication driver for the controller setting or peripheral setting.

For the settings, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

MEMO

16 GOT Mobile CONNECTION

16.1 Connectable Model List

The following table lists the GOT models that support the GOT Mobile connection.

- GT27
- GT25
- GS25

For connectable devices and usable browsers as clients, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

Point

CoreOS version of the GOT

To use GOT Mobile connection, install CoreOS version L or later on the GOT.

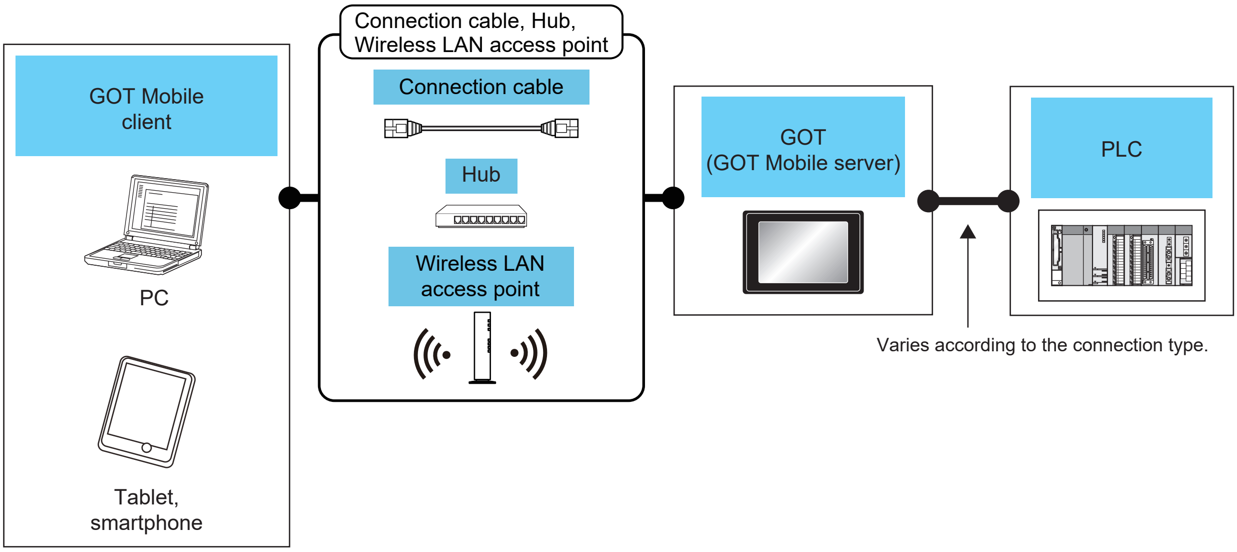
For the procedure to check the CoreOS version and upgrade the version, refer to the following.

☞ GT Designer3 (GOT2000) Screen Design Manual

☞ GOT2000 Series User's Manual (Utility)

16.2 System Configuration

System Application (Extended function)	Extended function OS	Communication driver
Wireless LAN	GOT Mobile	Connection type dependent



PC, Tablet, smartphone (GOT Mobile client)	Connection cable *1*2 Wireless LAN access point	Maximum segment length *3	GOT (GOT Mobile server)		PLC	Number of connectable equipment
			Option device *6	Model		
To be selected by the user.	• 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP): Category 3, 4, and 5 • 100BASE-TX Shielded twisted pair cable (STP): Category 5 and 5e	100m	- (Built into GOT)	GT 27 GT 25 GS 25	For the system configuration between the GOT and PLC, refer to each chapter.	1 personal computer for 5 client
	-	-	GT25-WLAN	GT 27 GT 25 GS 25 *4		
	For the connectable access point and system devices, refer to the following Technical News. ☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)	-	GT25-WLAN	GT 27 GT 25 GS 25 *5		

*1 The destination connected with the twisted pair cable varies with the configuration of the applicable Ethernet network system. Connect to the Ethernet module, hub, transceiver, wireless LAN adapter (NZ2WL-JPA or NZ2WL-JPS), or other system equipment corresponding to the applicable Ethernet network system.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standards.
For the controllers that can be connected to the wireless LAN adapters and how to set the wireless LAN adapter, refer to the manual of the wireless LAN adapter used.

*2 When connecting the GOT and personal computer via a hub, use a cable according to the client configuration.

*3 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
• 10BASE-T: Max. 4 nodes for a cascade connection (500m)
• 100BASE-TX: Max. 2 nodes for a cascade connection (205m)
When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.

*4 Select [Access point] in [Operation mode] of [Wireless LAN setting] of the [GOT Setup] dialog.
☞ Page 431 WIRELESS LAN CONNECTION

*5 Select [Station] in [Operation mode] of [Wireless LAN setting] of the [GOT Setup] dialog.
☞ Page 431 WIRELESS LAN CONNECTION

*6 GT2505-V does not support the option device.

Point

System configuration between the GOT and PLC

For the system configuration between the GOT and PLC, refer to each chapter.

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

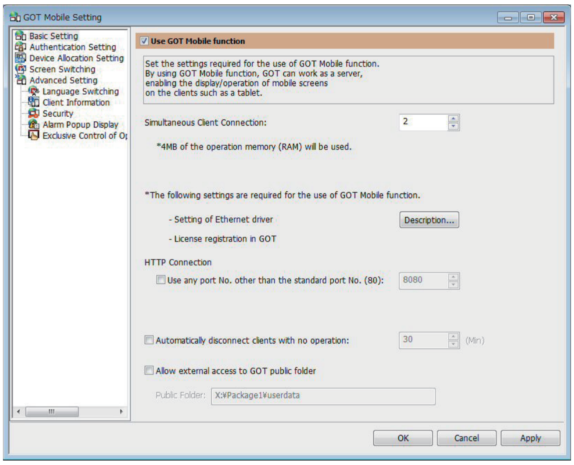
📖GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 1) For GT Works3 Version1

📖GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 2) For GT Works3 Version1

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

16.3 GOT Side Settings

GOT Mobile setting



1. Select [Common] → [GOT Mobile Setting] from the menu.

2. Check the [Use GOT Mobile function] of [GOT Mobile Setting] to set.

For details on the settings, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

3. When you have completed the settings, click the [OK] button.

Setting communication interface (Controller Setting)

When using the wireless LAN

For using the system configuration given in this chapter (Page 386 System Configuration), the wireless LAN setting is required.

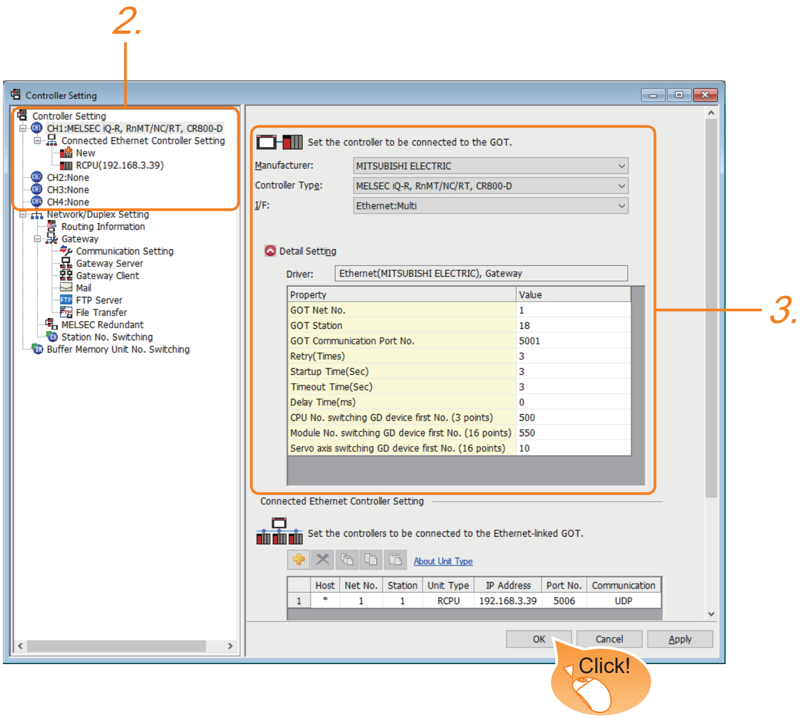
For details of the setting, refer to the following.

☞ Page 431 WIRELESS LAN CONNECTION

When using the Ethernet connection cable

Ethernet communication drivers must be set on the GOT, and set the Communication settings.

■Ethernet communication driver setting



1. Select [Common] → [Controller Setting] from the menu.
2. In the [Controller Setting] window, select the channel No. to be used from the list menu.
3. Set [Manufacturer], [Controller Type], [I/F], and [Detail Setting] according to the controller used.
4. When you have completed the settings, click the [OK] button.

16.4 Precautions

For cautions or troubleshooting of the GOT Mobile function, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

MEMO

17 VNC SERVER CONNECTION

- Page 391 Connectable Model List
- Page 391 System Configuration
- Page 394 GOT Side Settings
- Page 395 Setting in Personal Computer

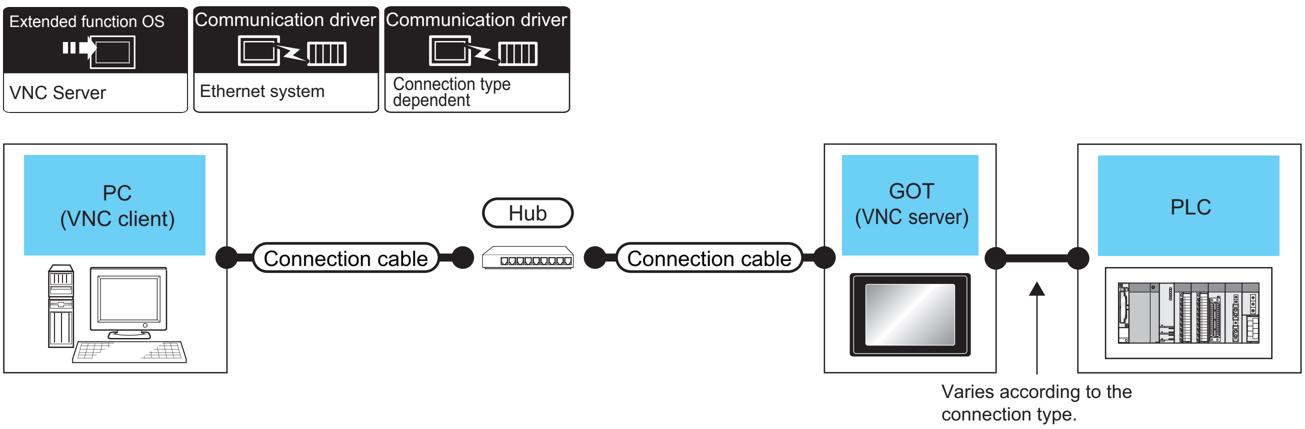
17.1 Connectable Model List

The VNC server can be connected to the following VNC client.

CPU	Software
PC	Ultra VNC

17.2 System Configuration

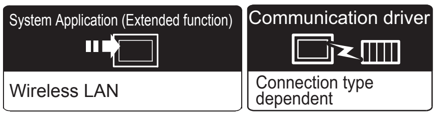
When using the Ethernet connection cable

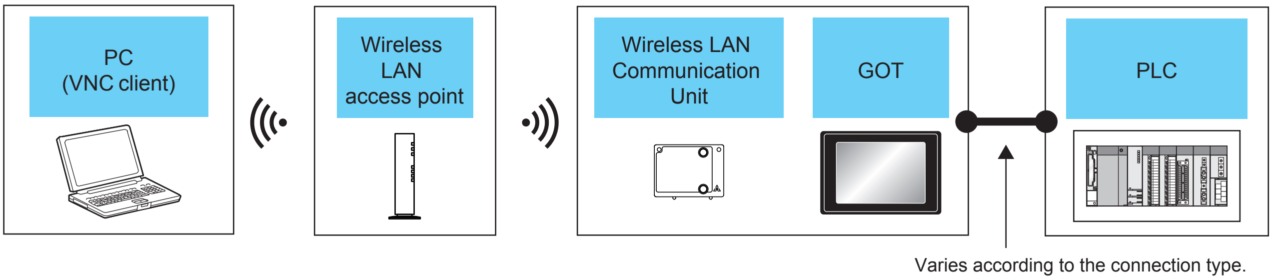


Personal computer (VNC client)	Connection cable*1*2	Maximum segment length*3	GOT (VNC server)		PLC	Number of connectable equipment
			Option device*4	Model		
To be selected by the user.	• 100BASE-TX Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher	100m	- (Built into GOT)	GT 27 GT 25 GT 21 07W GS 25 GS 21 *5	For the system configuration between the GOT and PLC, refer to each chapter.	1 personal computer for 1 GOT
			GT25-J71E71-100	GT 27 GT 25		

*1 The destination connected with the twisted pair cable varies with the configuration of the applicable Ethernet network system.
Connect to the Ethernet module, hub, transceiver, wireless LAN adapter (NZ2WL-JPA or NZ2WL-JPS), or other system equipment corresponding to the applicable Ethernet network system.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standard.
For the controllers that can be connected to the wireless LAN adapters and how to set the wireless LAN adapter, refer to the manual of the wireless LAN adapter used.
*2 When connecting the GOT and personal computer (VNC client) via a hub, use a cable according to the client configuration.
*3 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
• 10BASE-T: Max. 4 nodes for a cascade connection (500m)
• 100BASE-TX: Max. 2 nodes for a cascade connection (205m)
When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.
*4 GT25-W, GT2505-V does not support the option device.
*5 Only available to GS21-W-N for GS21.

When using the wireless LAN





Personal computer	Wireless LAN access point	GOT		PLC	Number of connectable equipment
	Model name	Option device*3	Model		
To be selected by the user.	Wireless access point For the connectable access point and system devices, refer to the following Technical News ☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)	GT25-WLAN	GT 27 GT 25 GS 25 *1	For the system configuration between the GOT and PLC, refer to each chapter.	1 personal computer for 1 GOT
	-	GT25-WLAN	GT 27 GT 25 GS 25 *2		

*1 Select [Station] in [Operation mode] of [Wireless LAN setting] of the [GOT Setup] dialog.
☞ Page 431 WIRELESS LAN CONNECTION

*2 Select [Access point] in [Operation mode] of [Wireless LAN setting] of the [GOT Setup] dialog.
☞ Page 431 WIRELESS LAN CONNECTION

*3 GT2505-V does not support the option device.

Point

System configuration between the GOT and PLC

For the system configuration between the GOT and PLC, refer to each chapter.

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

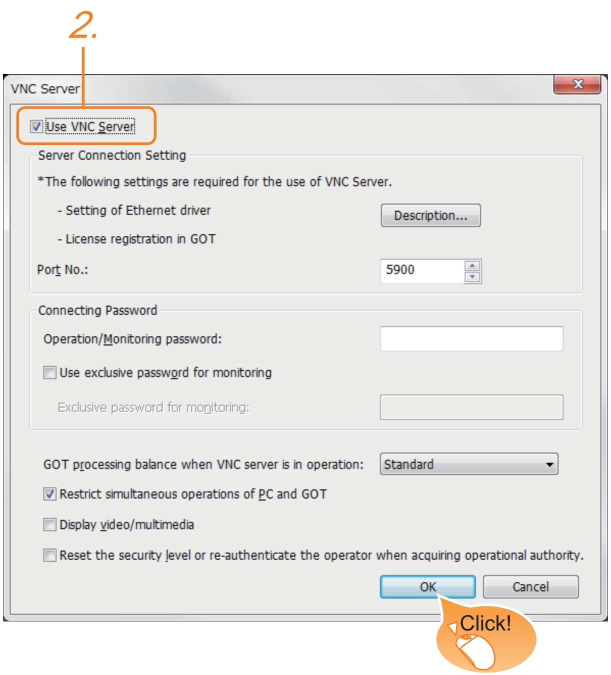
📖GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 1) For GT Works3 Version1

📖GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 2) For GT Works3 Version1

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

17.3 GOT Side Settings

VNC server function setting



1. Select [Common] → [Peripheral Setting] → [VNC Server] from the menu.

2. Check the [VNC Server] of [Use VNC Server] to set. For details on the settings, refer to the following manual.

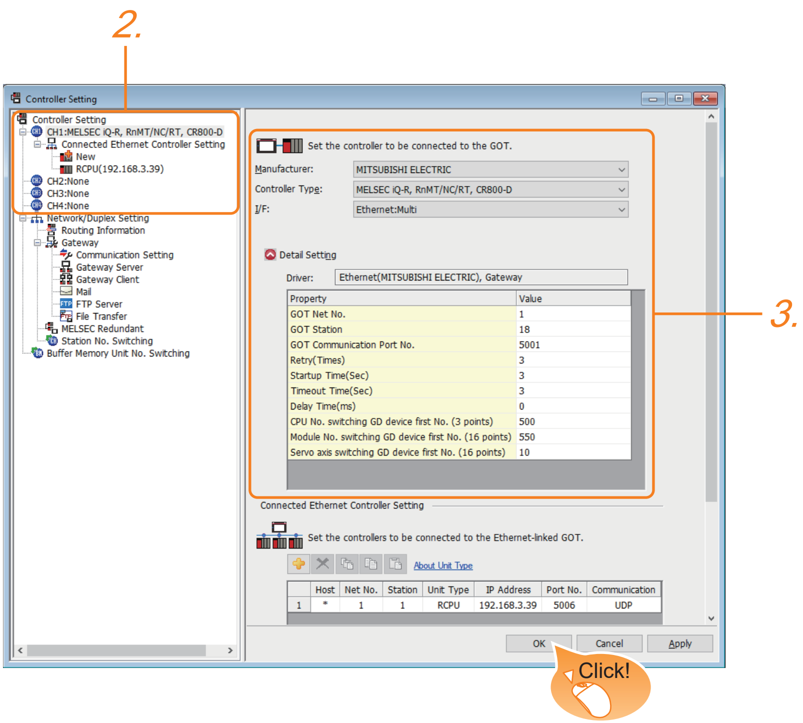
☞ GT Designer3 (GOT2000) Screen Design Manual

3. When you have completed the settings, click the [OK] button.

Setting communication interface (Controller Setting)

When using the Ethernet connection cable

For using the VNC server, Ethernet communication drivers must be set on the GOT, and set the Communication settings



1. Select [Common] → [Controller Setting] from the menu.

2. In the [Controller Setting] window, select the channel No. to be used from the list menu.

3. Set [Manufacturer], [Controller Type], [I/F], and [Detail Setting] according to the controller used.

4. When you have completed the settings, click the [OK] button.

When using the wireless LAN

For details of the wireless LAN setting, refer to the following.

☞ Page 431 WIRELESS LAN CONNECTION

17.4 Setting in Personal Computer

For connecting the VNC server to the personal computer (VNC client), it is necessary to install the VNC client software to the personal computer to be connected and set it.

Refer to the following for details of the VNC client software installation method and setting method.

☞ GT Designer3 (GOT2000) Screen Design Manual

MEMO

18 VIDEO, HDMI, AND RGB CONNECTION

18

18.1 Connectable Model List

The following table lists the GOT models that support the video, HDMI, and RGB connection.

- GT27 (excluding GT2705-V)

For the type of the video camera that can be connected, refer to the following Technical Bulletin.

☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)

For Technical Bulletins, go to the Mitsubishi Electric Factory Automation Global Website.

www.MitsubishiElectric.com/fa

Point

BootOS version of the GOT

To use GT27-R2 or GT27-ROUT, install BootOS version N or later on the GOT.

To use GT27-VHOUT, install BootOS version AK or later on the GOT.

For the procedure to check the BootOS version and upgrade the version, refer to the following.

☞ GT Designer3 (GOT2000) Screen Design Manual

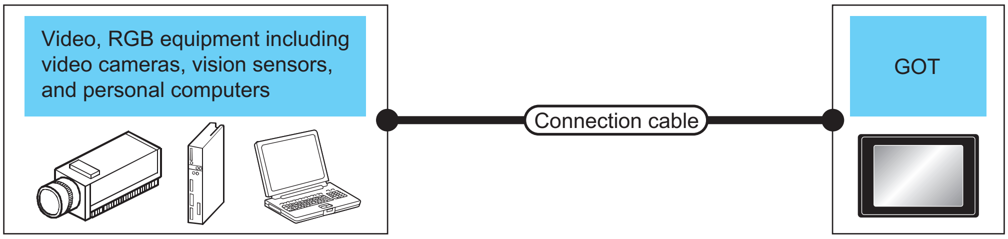
☞ GOT2000 Series User's Manual (Utility)

18.2 System Configuration

Displaying video image on GOT

Extended function OS

Video/RGB



Signal type	Video, RGB equipment	Connection cable[*3]	GOT		Number of connectable equipment
		Cable model Connection diagram number	Option device[*6]	Model	
NTSC/PAL	Equipment including video cameras[*1] and vision sensors[*2] that outputs images by using the NTSC or PAL signal	Page 400 Coaxial connection diagram 1)	GT27-V4-Z GT27-V4R1-Z	GT 27 *5	4 video equipment for 1 GOT
Analog RGB	Equipment including video cameras[*1], vision sensors[*2], and personal computers[*2] that outputs images by using the RGB signal	GT15-C50VG(5m) or Page 401 Analog RGB connection diagram 1)	GT27-R2-Z[*4] GT27-R2	GT 27 *5	2 RGB equipment for 1 GOT
			GT27-V4R1-Z	GT 27 *5	1 RGB equipment for 1 GOT

*1 For connectable video camera types, refer to the following Technical News.
List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)
*2 The user must select a vision sensor or a personal computer to be used.
*3 The cable length differs according to the specifications of the video/RGB equipment.
*4 RGB can be input with two channels. For the switching between two channels, refer to the following manual.
GT Designer3 (GOT2000) Screen Design Manual
*5 GT2705-V is not supported.
*6 For the unit installation position and the number of installed units, refer to the following.
Page 47 Precautions when installing units on top of one another

Point

- Power supply of video camera

Depending on the video camera type, noises from the power supply cable of the camera may cause a malfunction on the PLC or the GOT.In this case, apply the following line filter to the power line of the camera.
Recommended line filter: TDK ZHC2203-11 (or equivalent)

- Power supply of vision sensor

If a video camera is used via a vision sensor, a power supply module may be required depending on the vision sensor to be used.

- Selection of Video signal output source

Depending on the video camera or the system to be used, both the power supply module and the video camera can output video signals. If video signals are output from both the video camera and the power supply module, the voltage level of the signals become lower and the video image cannot be correctly displayed. In this case, use the output from the video camera.

- Power-On of NTSC/PAL compatible video camera

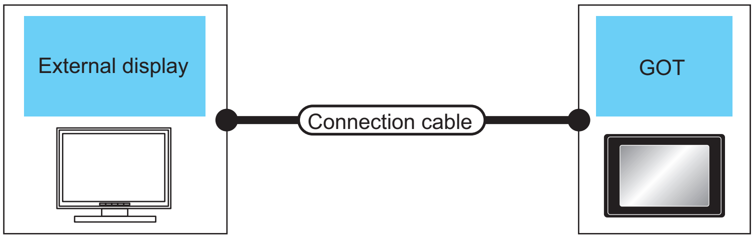
Turn on the NTSC/PAL compatible video camera simultaneously with the GOT.

- Distortion of the image caused by the noise

When the screen is distorted by the noise from the RGB cable, install the following ferrite core to the input part of the RGB cable.
Recommended ferrite core: TDK ZCAT3035-1330 (or equivalent)

Displaying GOT screen on external display

Extended function OS
Video/RGB



Signal type	External display	Connection cable	Maximum cable length	GOT		Number of connectable equipment
	Model name	Model name		Option device*3	Model	
TMDS	HDMI-certified display	HDMI-certified cable	*1	GT27-VHOUT	GT 27 *2	1 external display for 1 GOT
Analog RGB	Monitor that supports VESA-compliant GOT screen resolution For the supported scanning frequency, refer to the following. ☞ GOT2000 Series RGB Output Unit User's Manual	GT15-C50VG(5m) or User preparing Page 401 Analog RGB connection diagram 2)		GT27-ROUT-Z GT27-ROUT		

*1 The maximum cable length varies depending on the specifications of the external display used.
*2 GT2705-V is not supported.
*3 For the unit installation position and the number of installed units, refer to the following.
☞ Page 47 Precautions when installing units on top of one another

18.3 Connection Diagram

The coaxial cable or analog RGB cable to connect the GOT to the video, RGB equipment, or external display must be prepared by the user.
The following shows each cable connection diagram and relevant connectors.

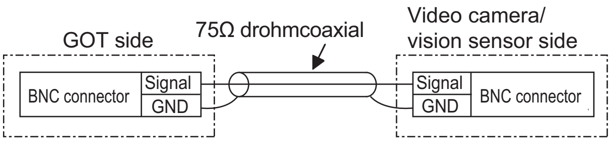
Coaxial cable

The following provides the specifications, the connectors and creation method of the coaxial cable to connect the GOT to the video output equipment.

Connection diagram

■Coaxial connection diagram 1)

Displaying video image on GOT



Cable specification

Item	Specifications
Applicable cable	3C-2V, 5C-2V (JIS C 3501 compliant)

Connecting the BNC connector to the coaxial cable

For how to connect the BNC connector and coaxial cable, refer to the following.

☞ Page 51 Coaxial cableconnector connection method

Precautions when preparing a cable

■Cable length

The cable length differs depending on the specification of the video camera or vision sensor to be used.
Create a cable under the specifications of the video camera/vision sensor.

■GOT side connector

Use the following as the video input unit connector.
For the GOT side connector of the coaxial cable, use the ones compatible with the GOT connector.

GOT	Connector model	Connector type	Manufacturer
GT27-V4-Z	227161-4	BNC	Tyco International, Ltd.
GT27-V4R1-Z			

■Video camera/vision sensor side connector

Use a connector compatible with the video camera/vision sensor to be used.

Point

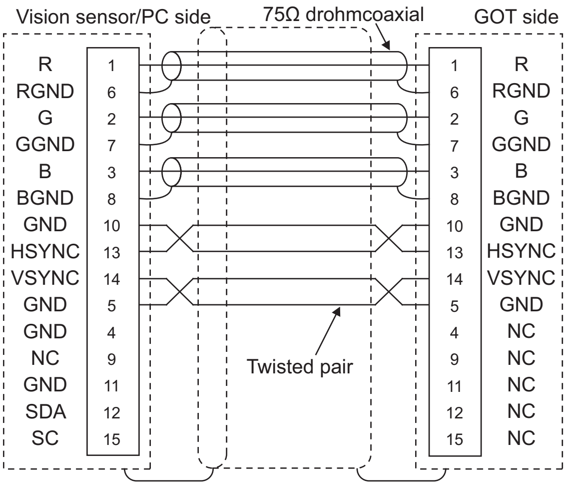
When the coaxial cable is long
When the coaxial cable is long, video signals are attenuated by the cable.
The use of a video signal amplifier is recommended to correct the attenuated signals.
Connect a video signal amplifier in reference to the following:
- Coaxial cable: The cable length is 100m or more when 3C-2V is used.
- Coaxial cable: The cable length is 200m or more when 5C-2V is used.

Analog RGB cable

Connection diagram

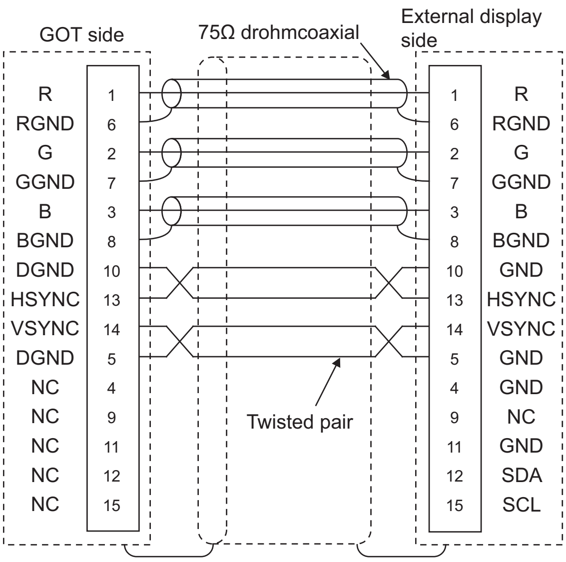
■Analog RGB connection diagram 1)

Displaying video image on GOT



■Analog RGB connection diagram 2)

Displaying GOT screen on external display



Precautions when preparing a cable

■Cable length

The cable length differs depending on the specification of the vision sensor/PC to be used. Create a cable under the specifications of the vision sensor/PC.

■GOT side connector

Use the following as the video/RGB input unit, RGB input unit, and RGB output unit connectors.
For the GOT side connector and connector cover of the analog RGB cable, use the ones applicable to the GOT connector.

GOT	Connector model	Connector type	Manufacturer
GT27-R2-Z	17HE-R13150-73MC2	D-Sub 15-pin (female)	DDK Ltd. (DDK)
GT27-V4R1-Z			
GT27-ROUT-Z			

■Vision sensor/PC side connector

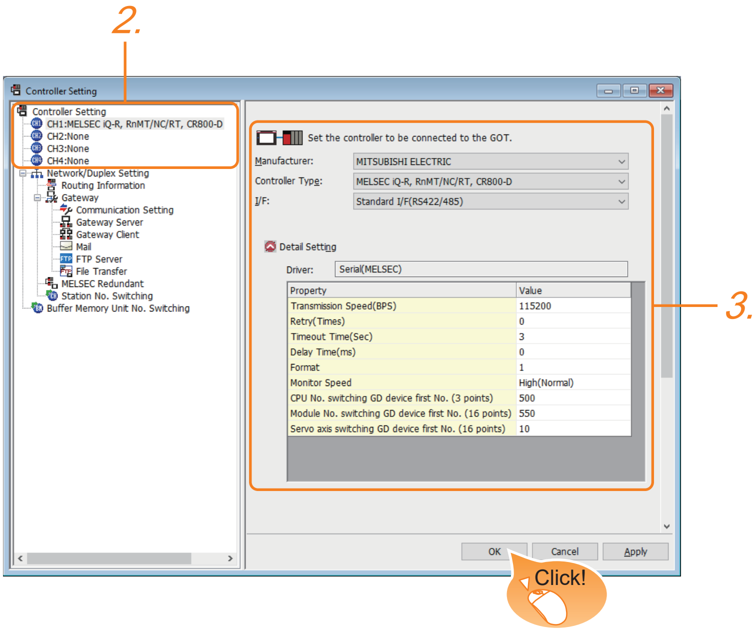
Use a connector compatible with the vision sensor/personal computer to be used.

18.4 GOT Side Settings

Setting communication interface

Controller setting

Set the channel of the equipment to be connected to the GOT.



1. Select [Common] → [Controller Setting] from the menu.

2. In the [Controller Setting] window, select the channel No. to be used from the list menu.

3. Set [Manufacturer], [Controller Type], [I/F], and [Detail Setting] according to the controller used.

4. When you have completed the settings, click the [OK] button.

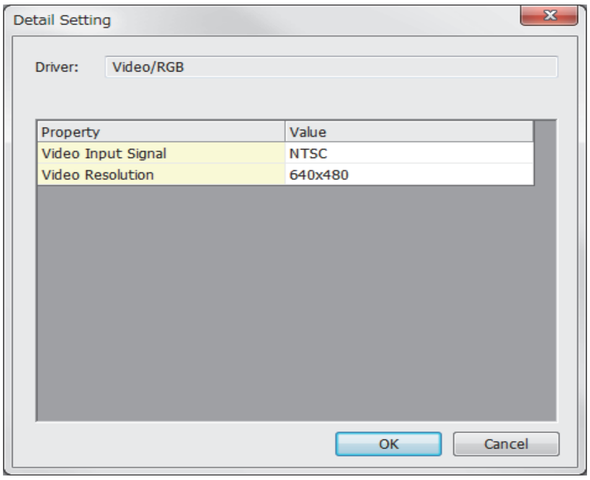
Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

☞ Page 39 I/F communication setting

Communication detail settings

Make the settings according to the usage environment.



Item	Description	Range
Video Input Signal*1	Set the video input signal. (Default: NTSC)	NTSC, PAL
Video Resolution*2	Set the video resolution. (Default: 640×480)	640×480, 720×480, 768×576

*1 When NTSC format is selected, the resolution is fixed to 640×480.

*2 For GT2710-V and GT2708-V, the resolution is fixed to 640×480.

Point

- Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.

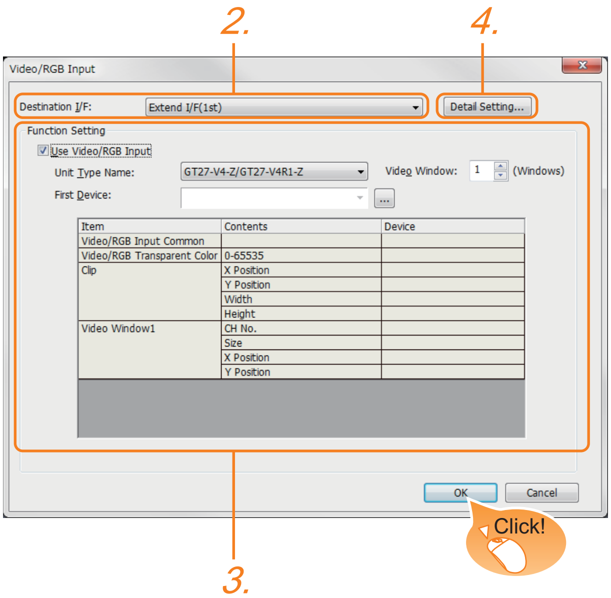
For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

- Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

Settings for the video/RGB equipment



1. Select [Common] → [Peripheral Setting] → [Video/RGB Input] from the menu.

2. Set the interface to which the video/RGB equipment is connected.

3. Check the [Use Video/RGB Input] to set the function. For details on the function setting, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

4. Clicking the detail setting button displays the Communication Detail Settings dialog box for each communication driver.Make the settings according to the usage environment.

☞ Page 403 Communication detail settings

5. When you have completed the settings, click the [OK] button.

Setting the video/RGB function

Set the video/RGB function.
For the video/RGB function setting, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

18.5 Precautions

Connecting to PC

When connecting to a PC, ground the earth wire of the PC.

19 PRINTER CONNECTION

19.1 Connectable Model List

For connectable printers and system equipment, refer to the following Technical Bulletin.

☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)

For Technical Bulletins, go to the Mitsubishi Electric Factory Automation Global Website.

www.MitsubishiElectric.com/fa

Point

BootOS version of the GOT

To use an Ethernet printer, install version AJ or later of BootOS on the GOT.

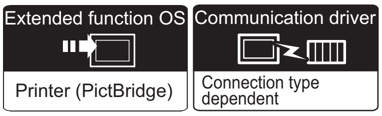
For the procedure to check the BootOS version and upgrade the version, refer to the following.

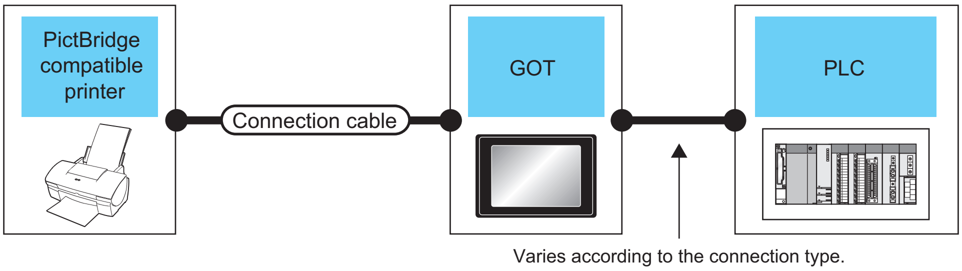
☞ GT Designer3 (GOT2000) Screen Design Manual

☞ GOT2000 Series User's Manual (Utility)

19.2 System Configuration

Connecting to PictBridge compatible printer





Printer	Connection cable	GOT		PLC	Number of connectable equipment
Model name	Model name	Option device[*2]	Model		
For connectable printers and system equipment, refer to the following Technical News. ☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)	GT09-C30USB-5P(3m) (packed together with the printer unit)	GT15-PRN[*1]	GT 27 GT 25	For the system configuration between the GOT and PLC, refer to each chapter.	1 printer for 1 GOT

*1 Communication unit between the GOT and the PictBridge compatible printer.
GOT does not support some PictBridge Compatible Printers. For the precautions for printer connection, refer to the following Technical News.
☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)

*2 GT25-W, GT2505-V does not support the option device.

Point

System configuration between the GOT and PLC

For the system configuration between the GOT and PLC, refer to each chapter.

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

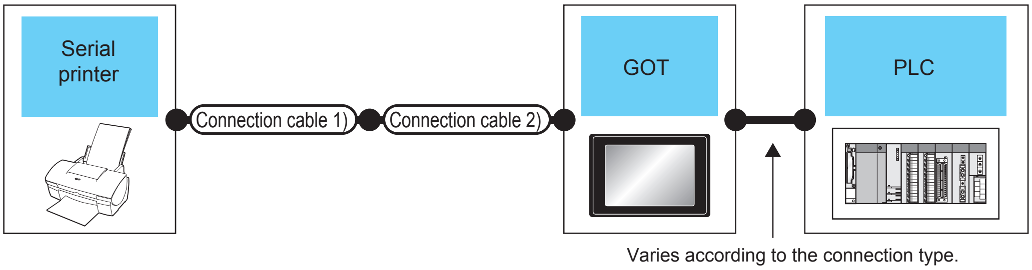
☞ GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 1) For GT Works3 Version1

☞ GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 2) For GT Works3 Version1

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

Connecting to serial printer

Extended function OS	Communication driver
Printer (serial)	Connection type dependent



Printer	Connection cable 1)	Connection cable 2)	GOT		PLC	Number of connectable equipment
Model name	Model name	Model name	Option device*3	Model		
For connectable printers and system equipment, refer to the following Technical News. ☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)	RS-232 cable*1	-	- (Built into GOT)	GT27, GT25, GT23, GT21 07W, GT21 05Q, GS25, GS21	For the system configuration between the GOT and PLC, refer to each chapter.	1 printer for 1 GOT
		User preparing Page 412 RS-232 connection diagram 1)	- (Built into GOT)	GT21 04R		
		GT10-C02H-6PT9P*2 (0.2m)	- (Built into GOT)	GT21 03P/04P R4, GT21 03P/04P R2		
		-	GT15-RS2-9P	GT27, GT25		

*1 The RS-232 cable differs depending on the specification of the printer to be used. Use the RS-232 cable that is compatible with the printer to be used.

*2 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

*3 GT25-W, GT2505-V does not support the option device.

Point

System configuration between the GOT and PLC

For the system configuration between the GOT and PLC, refer to each chapter.

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

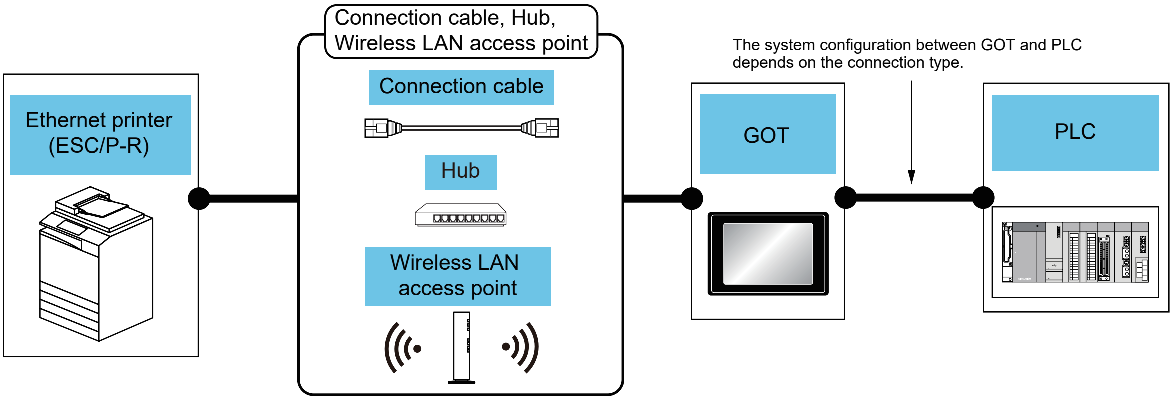
☞ GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 1) For GT Works3 Version1

☞ GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 2) For GT Works3 Version1

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

Connecting an Ethernet printer (ESC/P-R)

Extended function OS	Communication driver
Printer (ESC/P-R)	Connection type dependent



Printer	Connection cable [*1*2], wireless LAN access point	Maximum segment length [*3]	GOT		PLC	Number of connectable equipment
			Option device	Model		
For connectable printers and system equipment, refer to the following Technical News. ☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)	• 100BASE-TX Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher	100m	- (Built into GOT)	GT27	For the system configuration between the GOT and PLC, refer to each chapter.	One printer for one GOT
				GT25		
				GT23		
				GS25		
			GT25-J71E71-100	GT27		
				GT25 *6		
	-	-	GT25-WLAN	GT27 *4		
				GT25 *4*7		
				GS25 *4		
	• Wireless LAN access point For the connectable wireless LAN access points and system devices, refer to the following Technical News. ☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)	-	GT25-WLAN	GT27 *5		
				GT25 *5*7		
				GS25 *5		

*1 The applicable destination to connect the twisted pair cable depends on the configuration of the Ethernet network system.
Connect to the applicable Ethernet module, hub, transceiver, wireless LAN adapter (NZ2WL-JPA or NZ2WL-JPS), or other system equipment according to the Ethernet network system.
Use the cable, connector, or hub that meets the IEEE802.3 10BASE-T/100BASE-TX standard.
For the controller to which the wireless LAN adapter can be connected and how to configure the settings for the wireless LAN adapter, refer to the manual of the wireless LAN adapter you use.
*2 When connecting the GOT and printer via a hub, use a cable according to the printer configuration.
*3 The length between the hub and node.
The maximum length depends on the Ethernet equipment you use.
When a repeater hub is used, the number of connectable personal computers is as follows.
• 10BASE-T: Up to 4 personal computers for a cascade connection (500m)
• 100BASE-TX: Up to 2 personal computers for a cascade connection (205m)
For the cascade connection between the switching hubs, there is no theoretical limit to the number of cascades.
For the limit, contact the switching hub manufacturer.
*4 Set [Operation Mode] to [Access Point] in [Wireless LAN Setting] in the [GOT Setup] window.
☞ GT Designer3 (GOT2000) Screen Design Manual
*5 Set [Operation Mode] to [Station] in [Wireless LAN Setting] in the [GOT Setup] window.
☞ GT Designer3 (GOT2000) Screen Design Manual
*6 GT25-W and GT2505-V are excluded.
*7 GT2505-V is excluded.

Point

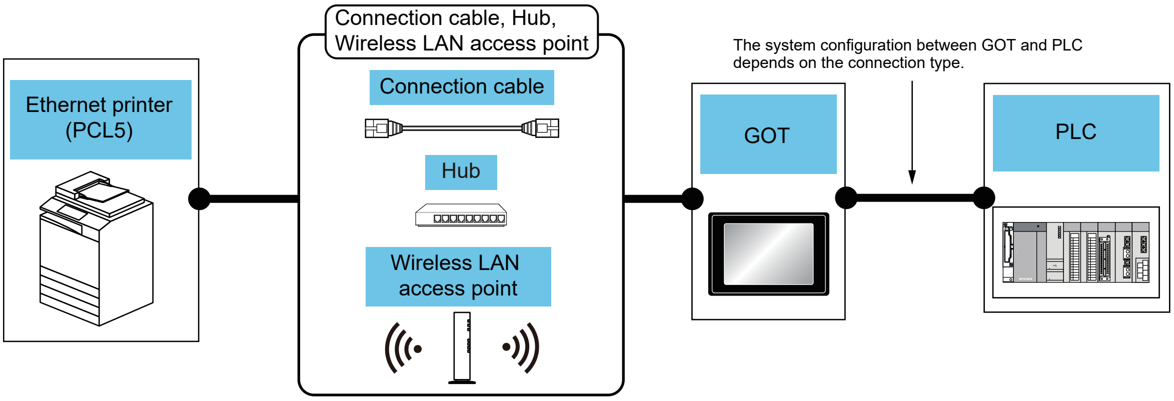
System configuration between the GOT and PLC

For the system configuration between the GOT and PLC, refer to each chapter.

☞ GOT2000 Series Connection Manual (Mitsubishi Electric Products) For GT Works3 Version1
☞ GOT2000 Series Connection Manual (Non-Mitsubishi Electric Products 1) For GT Works3 Version1
☞ GOT2000 Series Connection Manual (Non-Mitsubishi Electric Products 2) For GT Works3 Version1
☞ GOT2000 Series Connection Manual (Microcomputer, MODBUS, Products, Peripherals) For GT Works3 Version1

Connecting an Ethernet printer (PCL5)

Extended function OS	Communication driver
Printer (PCL5)	Connection type dependent



Printer	Connection cable [*1*2], wireless LAN access point	Maximum segment length [*3]	GOT		PLC	Number of connectable equipment
			Option device	Model		
For connectable printers and system equipment, refer to the following Technical News. ☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)	• 100BASE-TX Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher	100m	- (Built into GOT)	GT27 GT25 GT23 GT21 GS25 GS21 *8	For the system configuration between the GOT and PLC, refer to each chapter.	One printer for one GOT
			GT25-J71E71-100	GT27 GT25 *6		
	-	-	GT25-WLAN	GT27 GT25 GS25 *4*7		
	• Wireless LAN access point For the connectable wireless LAN access points and system devices, refer to the following Technical News. ☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)	-	GT25-WLAN	GT27 GT25 GS25 *5*7		

*1 The applicable destination to connect the twisted pair cable depends on the configuration of the Ethernet network system.
Connect to the applicable Ethernet module, hub, transceiver, wireless LAN adapter (NZ2WL-JPA or NZ2WL-JPS), or other system equipment according to the Ethernet network system.
Use the cable, connector, or hub that meets the IEEE802.3 10BASE-T/100BASE-TX standard.
For the controller to which the wireless LAN adapter can be connected and how to configure the settings for the wireless LAN adapter, refer to the manual of the wireless LAN adapter you use.

*2 When connecting the GOT and printer via a hub, use a cable according to the printer configuration.

*3 The length between the hub and node.
The maximum length depends on the Ethernet equipment you use.
When a repeater hub is used, the number of connectable personal computers is as follows.
• 10BASE-T: Up to 4 personal computers for a cascade connection (500m)
• 100BASE-TX: Up to 2 personal computers for a cascade connection (205m)
For the cascade connection between the switching hubs, there is no theoretical limit to the number of cascades.
For the limit, contact the switching hub manufacturer.

*4 Set [Operation Mode] to [Access Point] in [Wireless LAN Setting] in the [GOT Setup] window.
☞ GT Designer3 (GOT2000) Screen Design Manual

*5 Set [Operation Mode] to [Station] in [Wireless LAN Setting] in the [GOT Setup] window.
☞ GT Designer3 (GOT2000) Screen Design Manual

*6 GT25-W and GT2505-V are excluded.

*7 GT2505-V is excluded.

*8 GT2105-Q is excluded.

Point

System configuration between the GOT and PLC
For the system configuration between the GOT and PLC, refer to each chapter.
☞ GOT2000 Series Connection Manual (Mitsubishi Electric Products) For GT Works3 Version1
☞ GOT2000 Series Connection Manual (Non-Mitsubishi Electric Products 1) For GT Works3 Version1
☞ GOT2000 Series Connection Manual (Non-Mitsubishi Electric Products 2) For GT Works3 Version1
☞ GOT2000 Series Connection Manual (Microcomputer, MODBUS, Products, Peripherals) For GT Works3 Version1

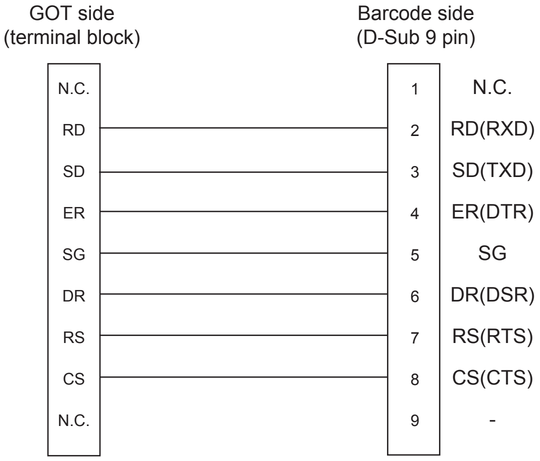
19.3 Connection Diagram

The following diagram shows the connection between the GOT and the barcode.

RS-232 cable

Connection diagram

■RS-232 connection diagram 1)



Precautions when preparing a cable

■Cable length

The length of the RS-232 cable must be 15m or less.

■GOT side connector

For the GOT side connector, refer to the following.

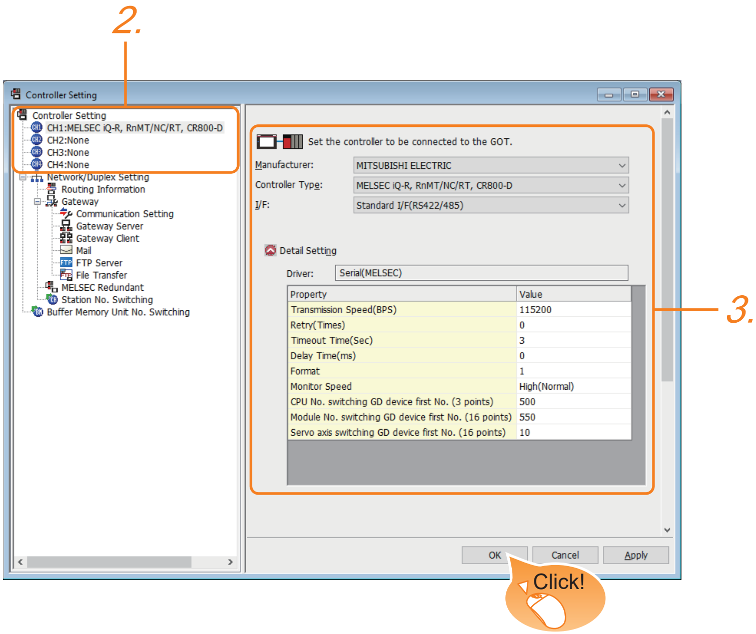
☞ Page 49 GOT connector specifications

19.4 GOT Side Settings

Setting communication interface

Controller setting

Set the channel of the equipment to be connected to the GOT.



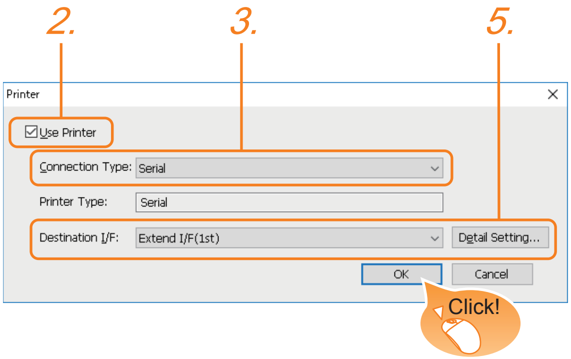
1. Select [Common] → [Controller Setting] from the menu.
2. In the [Controller Setting] window, select the channel No. to be used from the list menu.
3. Set [Manufacturer], [Controller Type], [I/F], and [Detail Setting] according to the controller used.
4. When you have completed the settings, click the [OK] button.

Point

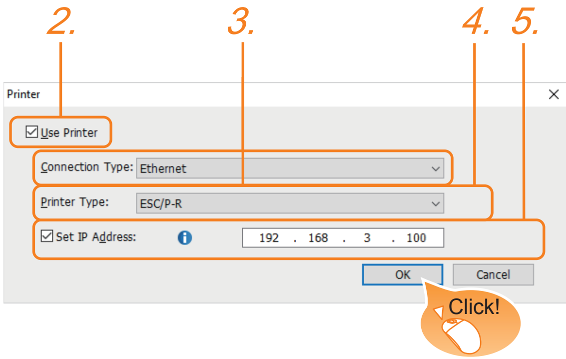
The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

☞ Page 39 I/F communication setting

Printer setting



When [Connection Type] is set to [USB] or [Serial]



When [Connection Type] is set to [Ethernet]

1. Select [Common] → [Peripheral Setting] → [Printer] from the menu.

2. Select [Use Printer].

3. Select [Connection Type].

4. When [Connection Type] is set to [Ethernet], select [Printer Type].

5. The operation differs depending on [Connection Type].

- For [USB]

Select [Destination I/F].

- For [Serial]

Select [Destination I/F].
Click the [Detail Setting] button to display the [Detail Setting] dialog.
Set the details of the communication driver according to the usage environment.

- For [Ethernet]

Select [Set IP Address] to set the IP address of the printer used.

6. When you have completed the settings, click the [OK] button.

Point

- Setting the communication interface

When Channel No.8 is used for the serial printer, the following external devices, which use Channel No.8, cannot be connected at the same time.
Barcode reader that requires the power supply
When connecting the above-mentioned devices at the same time, set the serial printer to Channels No. 5 to 7.

- Setting for the driver

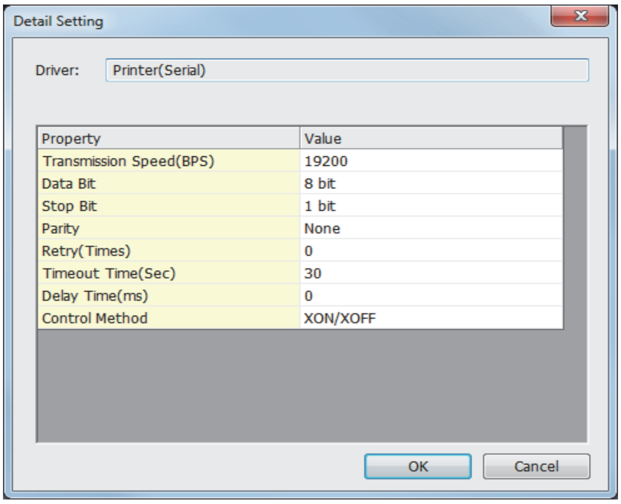
Regardless of the printer type, multiple printers are cannot be set.

- Port number of the Ethernet printer

Use 515 for the port number of the Ethernet printer.

Communication detail settings

Make the settings according to the usage environment.



Item	Description	Range
Transmission Speed	Set this item when change the transmission speed used for communication with printer. (Default: 19200bps)	4800bps, 9600bps, 19200bps, 38400bps, 57600bps, 115200bps
Data Bit*1	Set this item when change the data length used for communication with printer. (Default: 8bits)	7bits/8bits
Stop Bit	Specify the stop bit length for communications. (Default: 1bit)	1bit/2bits
Parity	Specify whether or not to perform a parity check, and how it is performed during communication. (Default: None)	None Even Odd
Retry	Set the number of retries to be performed when a communication error occurs. (Default: 0times)	0 to 5times
Timeout Time	Set the time period for a communication to time out. (Default: 30sec)	3 to 90sec
Delay Time	Set this item to adjust the transmission timing of the communication request from the GOT. (Default: 0ms)	0 to 300ms
Control Method	Set this item when selecting the XON/XOFF control for the control method. (Default: XON/XOFF)	XON/XOFF None

*1 When using the hard copy function, set to 8bit.

Point

- Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.

For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

- Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

19.5 Precautions

Connection/disconnection of USB cable during print operation

When the USB cable is disconnected during print operation, the printer hangs up depending on the model of PictBridge compatible printer. In this case, turn on the main power of the printer and then restart it.

When a printer cannot perform print operation

While the initialization of the printer is being carried out at boot time, some models of PictBridge compatible printers send "Print Ready" signal to GOT.If printing operation is started from GOT, an error will occur and the printing operation will be disabled.If this occurs, restart a printer with the following procedure.

1. Disconnect the USB cable from the printer.
2. Turn the power of the printer OFF.
3. Disconnect the power supply cable of the printer and stop the printer completely.
4. Connect the power supply cable to the printer.
5. Turn the power of the printer ON and wait until the initialization processing of the printer is completed.
6. Connect the USB cable to the printer.

For the handling errors occurred on the printer, refer to the following.

☞ Manual for the printer being used

IP address setting

When the IP addresses of the Ethernet printer and the GOT are the same, a system alarm may occur.
Set different IP addresses for the Ethernet printer and the GOT.

20 MULTIMEDIA CONNECTION

20.1 Connectable Model List

For the type of CF card that can be inserted or connectable video camera types, refer to the following Technical Bulletin.
☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)
For Technical Bulletins, go to the Mitsubishi Electric Factory Automation Global Website.
www.MitsubishiElectric.com/fa

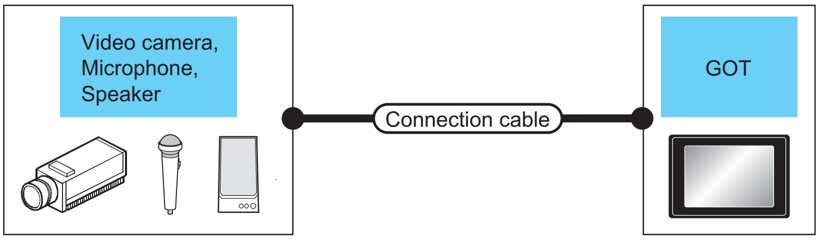
Point

Before making the multimedia connection
Update the software version of the multimedia unit to the latest version.
For the version upgrade of the multimedia unit, refer to the following manual.
☞ GOT2000 Series User's Manual (Utility)

20.2 System Configuration

Saving video image and displaying it on GOT

Extended function OS
Multimedia



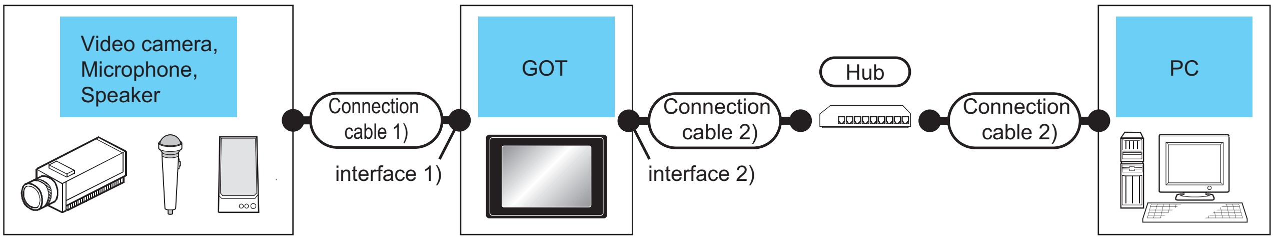
Multimedia controller	Signal type	Connection cable	Max. distance	GOT		Number of connectable equipment
				Option device*5	Model	
*3	NTSC/PAL	User preparing Page 420 Coaxial connection diagram 1)	*1	GT27M-MMR-Z*2	GT 27 *4	1 multimedia controller for 1 GOT

*1 The cable length differs depending on the specification of the video camera used by the user.
*2 For the CF card to be inserted into the multimedia unit, refer to the following.
• Type of CF card that can be inserted
☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)
• Precautions for using the CF card
☞ Page 421 GOT Side Settings
*3 For the type of the video camera that can be connected, refer to the following Technical News.
☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)
*4 GT2705-V is not supported.
*5 The unit installation position, and the number of units, refer to the following.
☞ Page 47 Precautions when installing units on top of one another

Sending video image to personal computer

When using the Ethernet connection cable

System Application (Extended function)	Extended function OS	Option OS	Communication driver
Wireless LAN	Multimedia	Gateway (FTP)	Connection type dependent

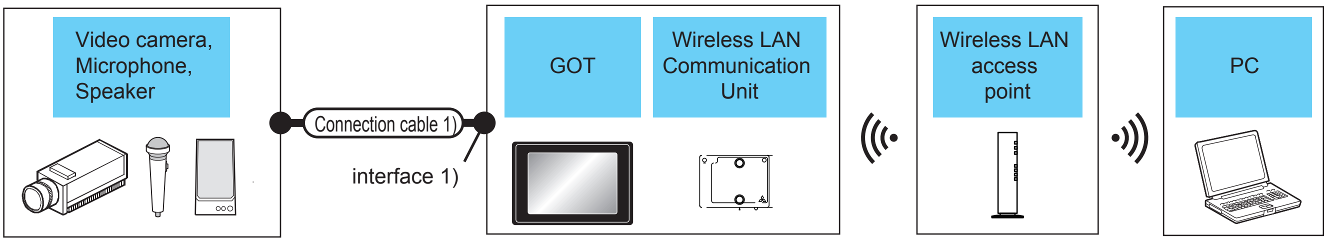


Multimedia controller	Signal type	Connection cable 1)		GOT*2*3			Connection cable 2)		Personal computer*5	Number of connectable equipment
		Model name	Max. distance	Option device*8 (Interface 1))	Model	Option device*8 (Interface 2))	Cable model	Maximum segment length*6		
*4	NTSC/PAL	User preparing Page 420 Coaxial connection diagram 1)	*1	GT27-MMR-Z*3	GT 27	Ethernet Interface (Built into GOT) GT25-J71E71-100	Twisted pair cable • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP): Category 3, 4, and 5 • 100BASE-TX Shielded twisted pair cable (STP): Category 5 and 5e	100m	To be selected by the user.	1 multimedia controller for 1 GOT
					*7	GT27M-MMR-Z				

*1 The cable length differs depending on the specification of the video camera used by the user.
*2 The destination connected with the twisted pair cable varies with the configuration of the applicable Ethernet network system.
Connect to the Ethernet module, hub, transceiver, wireless LAN adapter (NZ2WL-JPA or NZ2WL-JPS), or other system equipment corresponding to the applicable Ethernet network system.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standards.
For the controllers that can be connected to the wireless LAN adapters and how to set the wireless LAN adapter, refer to the manual of the wireless LAN adapter used.
*3 For the CF card to be inserted into the multimedia unit, refer to the following.
• Type of CF card that can be inserted
☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)
• Precautions for using the CF card
☞ Page 421 GOT Side Settings
*4 For the type of the video camera that can be connected, refer to the following Technical News.
☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)
*5 Install the multimedia interaction tool before use.
For details of the multimedia interaction tool, refer to the following manual.
☞ GT Designer3 (GOT2000) Screen Design Manual
*6 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
• 10BASE-T: Max. 4 nodes for a cascade connection (500m)
• 100BASE-TX: Max. 2 nodes for a cascade connection (205m)
When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.
*7 GT2705-V is not supported.
*8 The unit installation position, and the number of units, refer to the following.
☞ Page 47 Precautions when installing units on top of one another

When using the wireless LAN

System Application (Extended function)	Extended function OS	Option OS	Communication driver
Wireless LAN	Multimedia	Gateway (FTP)	Connection type dependent



Multimedia controller	Signal type	Connection cable 1)		GOT*2			Wireless LAN access point	PC*4	Number of connectable Model name equipment
		Model name	Max. distance	Option device*6 (Interface 1))	Model	Option device*6 (Wireless LAN Communication Unit)	Model name		
*3	NTSC/ PAL	User preparing Page 420 Coaxial connection diagram 1)	*1	GT27-MMR-Z*2	GT 27 *5	GT25-WLAN*7	Wireless access point For the connectable access point and system devices, refer to the following Technical News ☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)	To be selected by the user.	1 multimedia controller for 1 GOT
							*8		

*1 The cable length differs depending on the specification of the video camera used by the user.

*2 For the CF card to be inserted into the multimedia unit, refer to the following.
- Type of CF card that can be inserted
  ☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)
- Precautions for using the CF card
  ☞ Page 421 GOT Side Settings

*3 For the type of the video camera that can be connected, refer to the following Technical News.
☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)

*4 Install the multimedia interaction tool before use.
For details of the multimedia interaction tool, refer to the following manual.
☞ GT Designer3 (GOT2000) Screen Design Manual

*5 GT2705-V is not supported.

*6 The unit installation position, and the number of units, refer to the following.
☞ Page 47 Precautions when installing units on top of another

*7 The wireless LAN setting is required. Refer to the following.
☞ Page 431 WIRELESS LAN CONNECTION

*8 When the [Access point] is set to the [Operation mode] using the wireless LAN function for the GOT, the wireless LAN access point is not required.

Point

Power supply of video camera

Depending on the video camera type, noises from the power supply cable of the camera may cause a malfunction on the PLC or the GOT. In this case, apply the following line filter to the power line of the camera.

Recommended line filter: TDK ZHC2203-11 (or equivalent)

20.3 Connection Diagram

The coaxial cable used for connecting the GOT to a video camera should be prepared by the user.
The following shows each cable connection diagram.

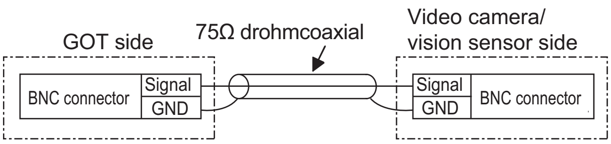
Coaxial cable

The following shows the connection diagrams and connector specifications of the coaxial cable used for connecting the GOT to a video camera.

Connection diagram

■Coaxial connection diagram 1)

Displaying video image on GOT



Cable specification

Item	Specifications
Applicable cable	3C-2V, 5C-2V (JIS C 3501 compliant)

Connecting the BNC connector to the coaxial cable

For connecting the BNC connector and coaxial cable, refer to the following.

☞ Page 51 Coaxial cableconnector connection method

Precautions when preparing a cable

■Cable length

The cable length differs depending on the specification of the video camera to be used.
Create a cable under the specification of the video camera.

■GOT side connector

Use the following as the multimedia unit connector.
For the GOT side connector of the coaxial cable, use the ones compatible with the GOT connector.

GOT	Connector model	Connector type	Manufacturer
GT16M-MMR	227161-4	BNC	Tyco International, Ltd.

■Video camera side connector

Use a connector compatible with the video camera to be used.

Point

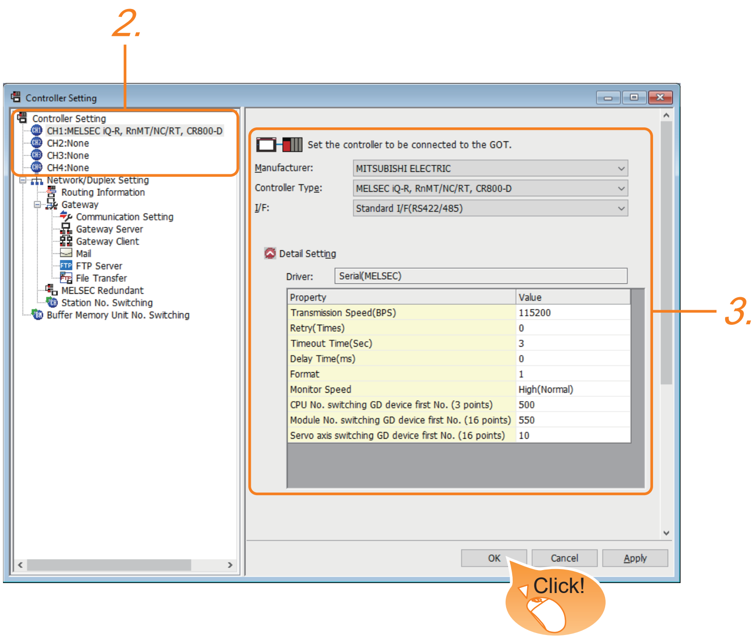
When the coaxial cable is long
When the coaxial cable is long, video signals are attenuated by the cable.
The use of a video signal amplifier is recommended to correct the attenuated signals.
Connect a video signal amplifier in reference to the following:
- Coaxial cable: The cable length is 100m or more when 3C-2V is used.
- Coaxial cable: The cable length is 200m or more when 5C-2V is used.

20.4 GOT Side Settings

Setting communication interface

Controller setting

Set the channel of the equipment to be connected to the GOT.



1. Select [Common] → [Controller Setting] from the menu.

2. In the [Controller Setting] window, select the channel No. to be used from the list menu.

3. Set [Manufacturer], [Controller Type], [I/F], and [Detail Setting] according to the controller used.

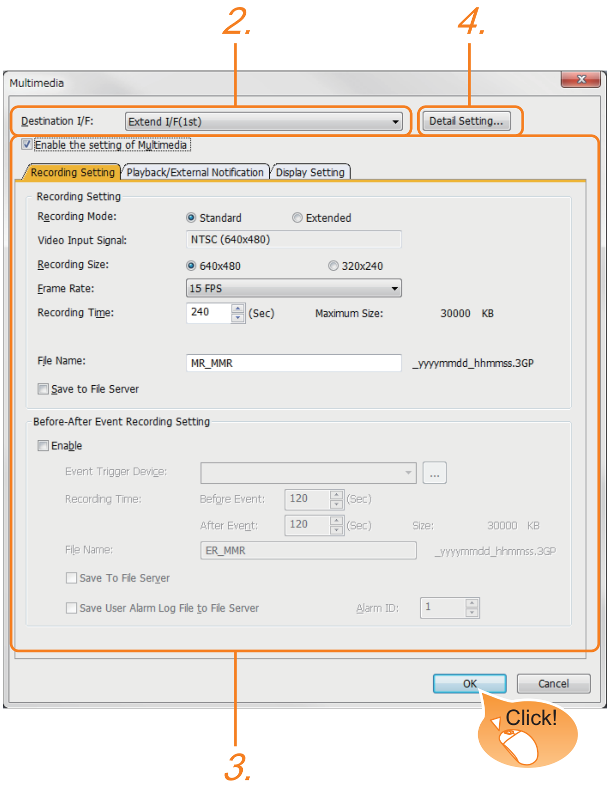
4. When you have completed the settings, click the [OK] button.

Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

☞ Page 39 I/F communication setting

Multimedia setting



1. Select [Common] → [Peripheral Setting] → [Multimedia] from the menu.

2. Set the interface to which the multimedia controller is connected.

3. Check the [Enable the setting of Multimedia] to set the function. For details on the communication settings, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

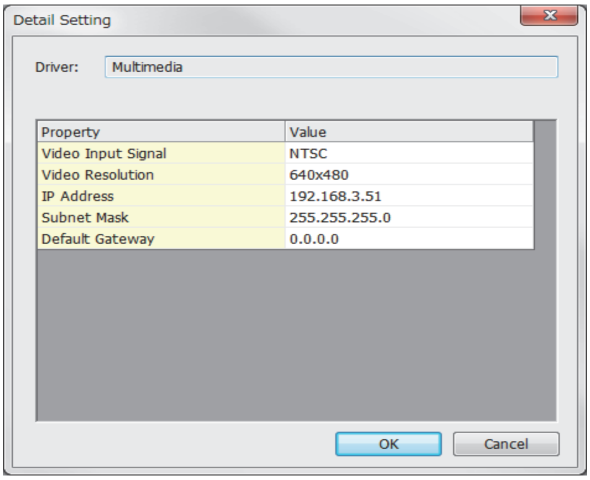
4. Clicking the detail setting button displays the Communication Detail Settings dialog box for each communication driver.Make the settings according to the usage environment.

☞ Page 423 Communication detail settings

5. When you have completed the settings, click the [OK] button.

Communication detail settings

Make the settings according to the usage environment.



Video Setting

Item	Description	Range
Video Input Signal*1	Set the video input signal. (Default: NTSC)	NTSC, PAL
Video Resolution*2	Set the video resolution.	640×480, 720×480, 768×576

*1 When NTSC format is selected, the resolution is fixed to 640×480.When PAL format is selected, the resolution is fixed to 768×576.

*2 For GT2710-V and GT2708-V, the resolution is fixed to 640×480.

IP Address Setting for Multimedia Unit

Set the network settings for connecting from the multimedia unit via Ethernet.

Item	Description	Range
IP Address	Set the IP address of the multimedia unit. (Default: 192.168.3.51)	0.0.0.0 to 255.255.255.255
Subnet Mask	Set the subnet mask for the sub network. (Only for connection via router) If the sub network is not used, the default value is set. (Default: 255.255.255.0)	0.0.0.0 to 255.255.255.255
Default Gateway	Set the router address of the default gateway on the side to which the multimedia unit is connected. (Only for connection via router) (Default: 0.0.0.0)	0.0.0.0 to 255.255.255.255

Point

Network settings with the utility

The network setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.

For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

Installing and setting multimedia interaction tool

Install the multimedia interaction tool onto the personal computer and set it.
For how to install and set multimedia interaction tool, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

Point

To save a video image and display it on the GOT
When saving a video image and displaying it on the GOT, the installation and setting of the multimedia interaction tool onto the personal computer are unnecessary.

Setting the multimedia function

Set the multimedia function.
For the multimedia function setting, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

Set the gateway function

Set the gateway function for using FTP.
For the gateway function setting, refer to the following.

☞ GT Designer3 (GOT2000) Screen Design Manual

Point

To save a video image and display it on the GOT
When saving a video image and displaying it on the GOT, the gateway function setting is unnecessary.

20.5 Precautions

When the multimedia function is used

Select one of the following functions to use.

- Video display function
- RGB display function
- Multimedia function
- Video output function

CF card on the multimedia unit

For the CF card that can be inserted into the multimedia unit, formatting in FAT32 is recommended.
If the CF card formatted in FAT16 is inserted, the following phenomena may occur.

- Reading, writing or saving of movie files takes time.
- When a movie file is played, the movie momentarily looks like as if it stopped.

21 RFID CONNECTION

- Page 425 Connectable Model List
- Page 425 System Configuration
- Page 427 GOT Side Settings
- Page 430 Precautions

21.1 Connectable Model List

For connectable RFID controllers and system equipment, refer to the following Technical Bulletin.

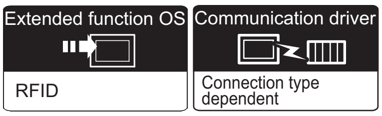
☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)

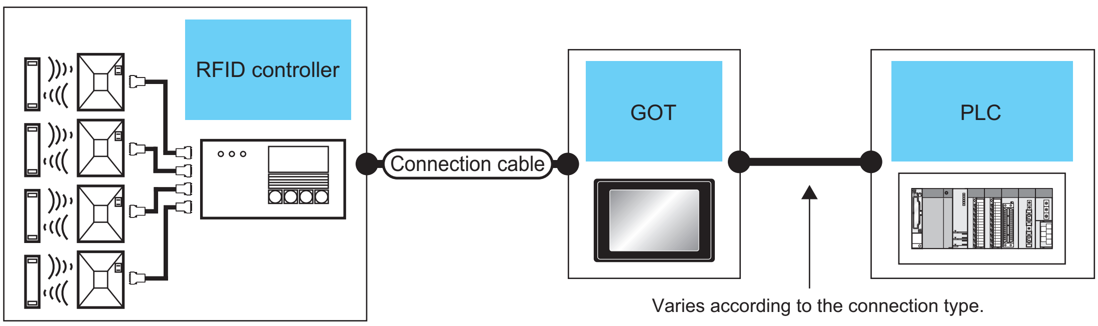
For Technical Bulletins, go to the Mitsubishi Electric Factory Automation Global Website.

www.MitsubishiElectric.com/fa

21.2 System Configuration

Connecting to RFID





RFID controller	Communication Type	Connection cable	GOT		PLC	Number of connectable equipment
			Option device*3	Model		
*1	RS-232	*1	- (Built into GOT)	GT27, GT25, GT23, GT21 07W, GT21 05Q, GS25, GS21	For the system configuration between the GOT and PLC, refer to each chapter.	*1
			- (Built into GOT)	GT21 04R		
			GT15-RS2-9P	GT27, GT25		
			GT10-C02H-6PT9P*2	GT21 03P 04P R4, GT21 03P 04P R2		

RFID controller	Communication Type	Connection cable	GOT		PLC	Number of connectable equipment
			Option device*3	Model		
*1	RS-422/485	*1	- (Built into GOT)	GT 27 GT 25 GT 23 GT 21 07W GT 21 05Q GS 25 GS 21	For the system configuration between the GOT and PLC, refer to each chapter.	*1
			GT15-RS4-9S	GT 27 GT 25		
			GT15-RS4-TE			
			- (Built into GOT)	GT 21 04R GT 21 03P 04P ET/R4 GT 21 03P 04P R4		

*1 For applicable RFID controller of the type/number, configuration equipment, and for connection cables, refer to the following Technical News.
☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)
*2 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.
*3 GT25-W, GT2505-V does not support the option device.

Point

- When using the RS-232 communication unit

Use the RS-232 communication unit of the GOT for connecting to an RFID controller.
However, when the RS-232 communication unit is used, the following operations cannot be supported.
Using the external authentication
Supplying the power to an RFID controller from the GOT

- System configuration between the GOT and PLC

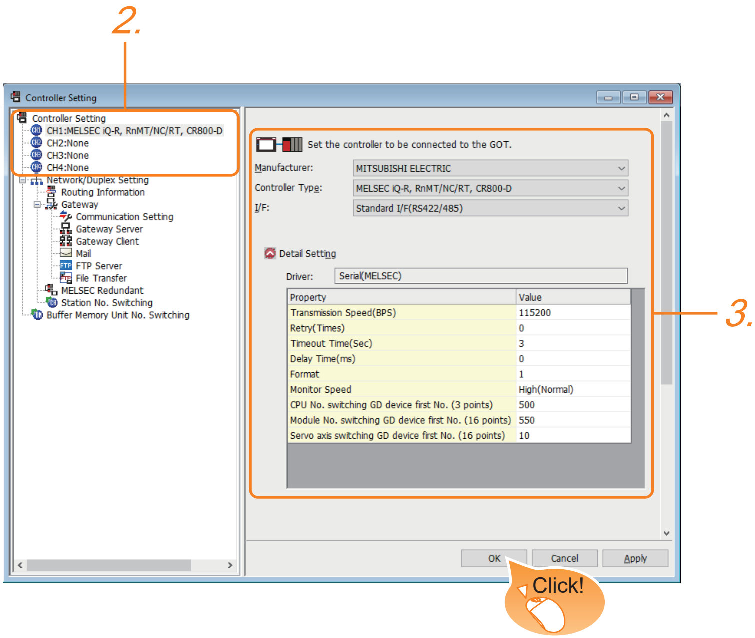
For the system configuration between the GOT and PLC, refer to each chapter.
📖GOT2000 Series Connection Manual (Mitsubishi Electric Product) For GT Works3 Version1
📖GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 1) For GT Works3 Version1
📖GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 2) For GT Works3 Version1
📖GOT2000 Series Connection Manual (Microcomputer, MODBUS, Products, Peripherals) For GT Works3 Version1

21.3 GOT Side Settings

Setting communication interface

Controller setting

Set the channel of the equipment to be connected to the GOT.



1. Select [Common] → [Controller Setting] from the menu.

2. In the [Controller Setting] window, select the channel No. to be used from the list menu.

3. Set [Manufacturer], [Controller Type], [I/F], and [Detail Setting] according to the controller used.

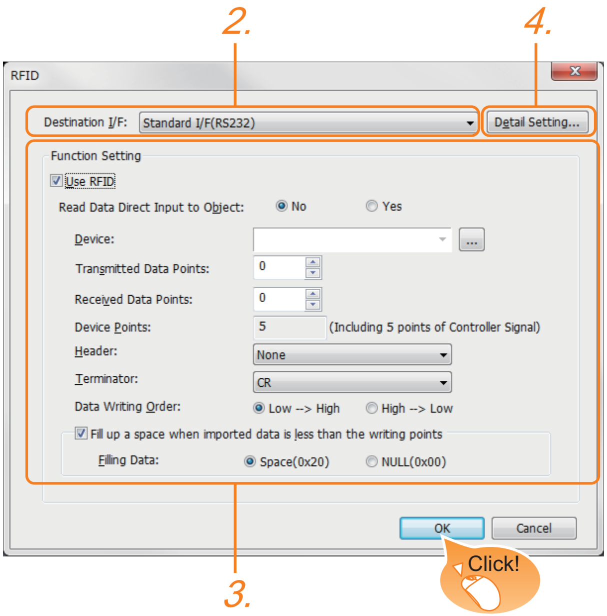
4. When you have completed the settings, click the [OK] button.

Point

The settings of connecting equipment can be set and confirmed in [I/F Communication Setting]. For details, refer to the following.

☞ Page 39 I/F communication setting

RFID setting



1. Select [Common] → [Peripheral Setting] → [RFID] from the menu.

2. Set the interface to which the RFID controller is connected.

3. Check the [Use RFID] to set the function. For details on the function setting, refer to the following manual.

☞ GT Designer3 (GOT2000) Screen Design Manual

4. Clicking the detail setting button displays the Communication Detail Settings dialog box for each communication driver.Make the settings according to the usage environment.

☞ Page 429 Communication detail settings

5. When you have completed the settings, click the [OK] button.

Point

- Communication interface setting

When Channel No.8 is used, the following external devices, which use Channel No.8, cannot be connected at the same time.

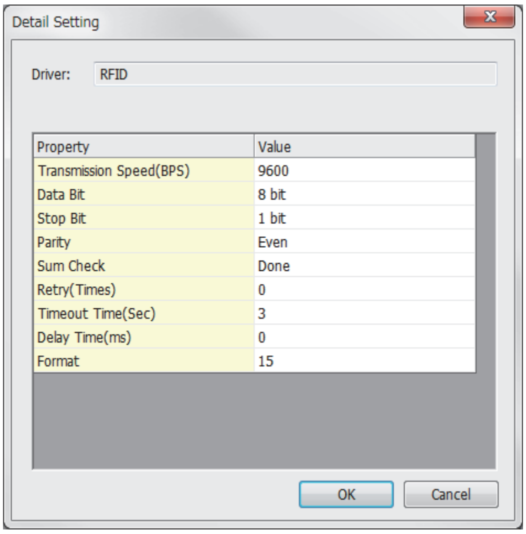
Barcode reader that requires the power supply

When connecting the above-mentioned devices at the same time, set [RFID] to Channels No. 5 to 7.

- Setting for the driver

To Channels No. 5 to 8, multiple [RFID] cannot be set.

Communication detail settings



Item	Description	Range
Transmission Speed(BPS)	Set this item when change the transmission speed used for communication with the connected equipment. (Default: 9600bps)	4800bps, 9600bps, 19200bps, 38400bps, 57600bps, 115200bps
Data Bit	Set this item when change the data length used for communication with the connected equipment. (Default: 8bits)	7bit, 8bit
Stop Bit	Specify the stop bit length for communications. (Default: 1bit)	1bit, 2bit
Parity	Specify whether or not to perform a parity check, and how it is performed during communication. (Default: Even)	None Even Odd
Sum Check	Set whether or not to perform a sum check during communication. (Default: Done)	Done or None
Retry(Times)	Set the number of retries to be performed when a communication timeout occurs. When receiving no response after retries, the communication times out. (Default: 0time)	0 to 5times
Timeout Time(Sec)	Set the time period for a communication to time out. (Default: 3sec)	3 to 30sec
Delay Time(ms)	Set this item to adjust the transmission timing of the communication request from the GOT. (Default: 0ms)	0 to 3000ms
Format	Select the communication format. (Default: 15) Dedicated protocol • Format 10 (LS Industrial Systems Co., Ltd. LSR) • Format 11 (MARS TOHKEN SOLUTION CO.LTD. ICU-60S) • Format 12 (MARS TOHKEN SOLUTION CO.LTD. ICU-215 (Mifare)) Nonprocedural protocol • Format 15	10, 11, 12, 15

Point

• Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Controller Setting] of project data.

For details on the Utility, refer to the following manuals.

☞ User's Manual of GOT used.

• Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

21.4 Precautions

RFID function setting on GT Designer3

Before connecting the RFID controller, set the RFID function and system data.
For details, refer to the following manual.
☞ GT Designer3 (GOT2000) Screen Design Manual

Controller setting

■When using the external authentication

When using the external authentication on the RFID controller, set Channel No. 8 using the standard interface.
When connecting the RFID using Channels No. 5 to 7 of the extension interface, extension interface cannot be used.
For details on the external authentication, refer to the following manual.
☞ GT Designer3 (GOT2000) Screen Design Manual

■When requiring the power supply

When using the RFID controller, which requires the power supply from the GOT, set Channel No. 8 using the standard interface.
With Channels No. 5 to 7 of the extension interface, the power cannot be supplied.

Communication in multiple RFID readers/writers connection

When connecting multiple RFID readers/writers, some controllers may communicate with each RFID reader/writer.
For communicating the RFID controller with the each RFID reader/writer, set an interlock so that the RFID controller does not communicate with RFID readers/writers until the executing communication is completed.

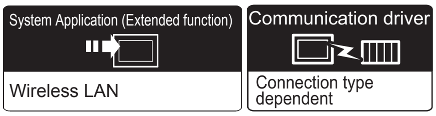
22 WIRELESS LAN CONNECTION

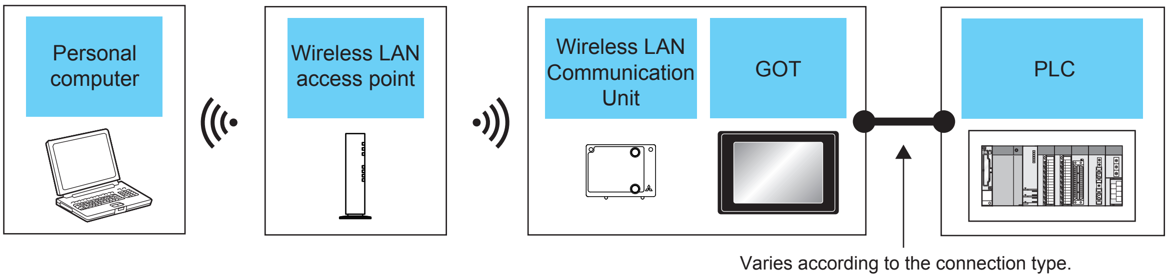
Wireless LAN connection precautions

Check whether the wireless LAN communication unit (GT25-WLAN) is in compliance with the standards.
For the standards that the wireless LAN communication unit (GT25-WLAN) is in compliance with, refer to the following.
☞ Page 44 Communication module

22.1 System Configuration

Connecting to wireless LAN





Personal computer	Wireless LAN access point	GOT		PLC	Number of connectable equipment
	Model name	Option device*4	Model		
To be selected by the user.	Wireless access point For the connectable access point and system devices, refer to the following Technical News ☞ List of Valid Devices Applicable for GOT2000 Series and GOT SIMPLE Series (for Overseas) (GOT-A-0160)	GT25-WLAN	GT 27 GT 25 GS 25 *1	For the system configuration between the GOT and PLC, refer to each chapter.	The multiple GOTs can be connected to one wireless LAN access point.*3
	-	GT25-WLAN	GT 27 GT 25 GS 25 *2		Up to five personal computers can be connected to one GOT.

*1 Select [Station] in [Operation mode] of [Wireless LAN setting] of the [GOT Setup] dialog.
☞ Page 433 Wireless LAN setting
*2 Select [Access point] in [Operation mode] of [Wireless LAN setting] of the [GOT Setup] dialog.
☞ Page 433 Wireless LAN setting
*3 The number of connectable GOTs depends on the specifications of wireless LAN access point.
*4 GT2505-V does not support the option device.

Point

System configuration between the GOT and PLC

For the system configuration between the GOT and PLC, refer to each chapter.

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

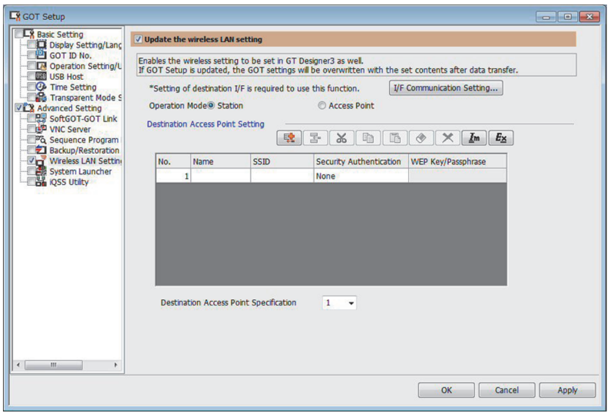
☞ GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 1) For GT Works3 Version1

☞ GOT2000 Series Connection Manual (Non Mitsubishi Electric Product 2) For GT Works3 Version1

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

22.2 GOT Side Settings

Wireless LAN setting



1. Select [Common] → [GOT Setup] → [Advanced Setting] → [Wireless LAN setting] from the menu.

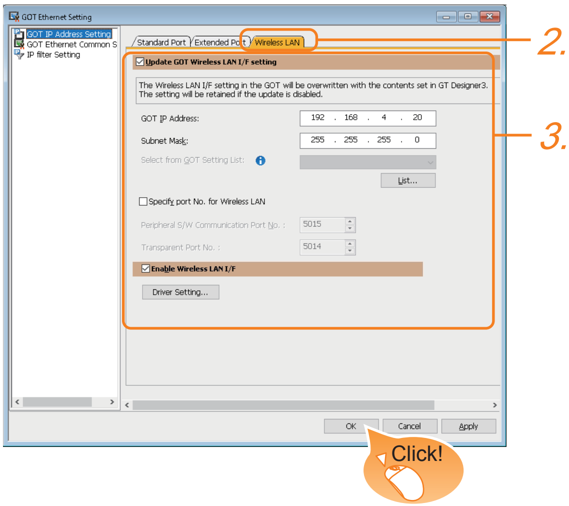
2. As necessary, Select [Station] or [Access Point] to [Operation Mode].

For details of the setting, refer to the following.

☞ GT Designer3 (GOT2000) Screen Design Manual

3. When you have completed the settings, click the [OK] button.

Setting communication interface (GOT Ethernet setting)



1. Select [Common] → [GOT Ethernet Setting] → [GOT IP Address Setting] to display the [GOT Ethernet Setting] window.

2. Select the [Wireless LAN] tab.

3. Set the wireless LAN interface according to the usage environment.

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

☞ Page 37 [Wireless LAN]

4. When you have completed the settings, click the [OK] button.

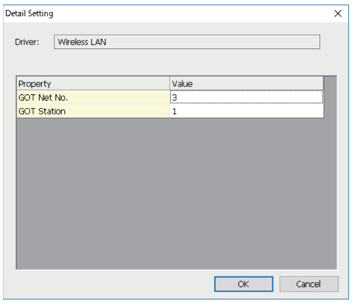
Communication detail settings

Make the settings according to the usage environment.
Display the [Detail Setting] dialog in the following procedure.

1. Select [Common] → [GOT Ethernet Setting] → [GOT IP Address Setting] to display the [GOT Ethernet Setting] window.

2. Select the [Wireless LAN] tab.

3. Select [Enable Wireless LAN I/F] then click the [Driver Setting] button.



Item	Description	Range
GOT Net No.	Set the network No. of the GOT. (Default: 1)	1 to 239
GOT Station	Set the station No. of the GOT. (Default: 1)	1 to 64

Point

• Communication interface setting by Utility
The communication interface setting can be changed on the Utility's [Communication Settings] after writing [Controller Setting] of project data.
For details on the Utility, refer to the following manual.
☞ GOT2000 Series User's Manual (Utility)
• Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

22.3 Precautions

When connecting to multiple GOTs

Do not use the IP address "192.168.0.18" when using multiple GOTs with the GOT 1000 series mixed.
A communication error may occur on the GOT with the IP address.

When setting IP address

Do not use "0" and "255" at the end of an IP address.
(Numbers of *.*.*.0 and *.*.*.255 are used by the system)
The GOT may not monitor the controller correctly with the above numbers.
Consult with the administrator of the network before setting an IP address to the GOT and controller.

APPENDIX

Appendix 1 Settable Device Range

This section describes the range of devices settable in GT Designer3 for each of non-Mitsubishi Electric products connected to the GOT.

The settable range varies with the selection for [Controller Type] in the [Controller Setting] window.

Configure the device setting according to the specifications of the controller to be used.

Device specifications differ depending on the controller model even among the controllers of the same series.

If a non-existent device or a device number out of the range is set for an object, other objects for which correct devices are set may not be monitored.

☞ Page 436 Microcomputer ([Computer])
☞ Page 439 ODVA ([DeviceNet])
☞ Page 441 MODBUS ([MODBUS Slave(GOT:Master)])
☞ Page 446 MODBUS ([MODBUS Master(GOT:Slave)])
☞ Page 449 PROFIBUS ([PROFIBUS DP])
☞ Page 452 CLPA ([SLMP])
☞ Page 457 CLPA ([CC-Link IE Field Network Basic])

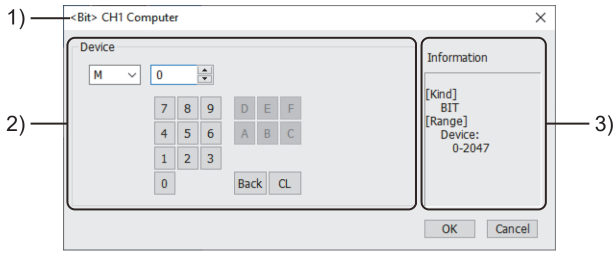
Microcomputer ([Computer])

GT27 GT25 GT23 GT21 GS25 GS21

Item	Reference
Device setting dialog	☞ Page 436 Device setting dialog ([Computer])
Specifications of bit devices	☞ Page 437 Monitoring-supported bit devices ([Computer])
	☞ Page 437 Availability of writing/reading data to/from bit devices ([Computer])
Specifications of word devices	☞ Page 438 Monitoring-supported word devices ([Computer])
	☞ Page 438 Availability of writing/reading data to/from word devices ([Computer])

Device setting dialog ([Computer])

Set a device to be monitored.



1) Title

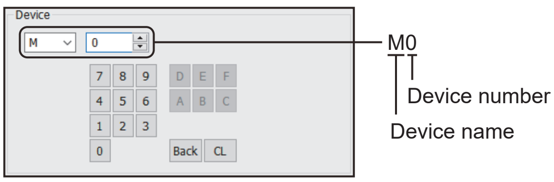
Data type and channel number of the device to be set

2) [Device]

Set the device name and device number.

If a bit number needs to be specified, the setting item is displayed.

Example) Setting of M0



3) [Information]

Displays the setting range of each setting item according to the selected device.

Monitoring-supported bit devices ([Computer])

The following table shows monitoring-supported bit devices.

To check whether writing/reading data to/from each device is available, refer to the following.

☞ Page 437 Availability of writing/reading data to/from bit devices ([Computer])

For the formats of devices, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

○: Available

×: Not available

Device name		Device No. representation	Setting range	Specifications of EG devices*1	
				Assignment to EG devices	Access using a client
M	Internal relay	Decimal	0 to 2047	○	○
L	Latch relay	Decimal	0 to 2047	○	○
SM	Special relay	Decimal	0 to 63	○	○

*1 For the devices assigned to EG devices (gateway devices) and the compatible clients, refer to the following.
📖GT Designer3 (GOT2000) Screen Design Manual

Availability of writing/reading data to/from bit devices ([Computer])

The following shows whether writing/reading data to/from bit devices is available by device type.

When the device type is other than the bit type, set the device No. in multiples of 16.

R/W: Both read and write

R/-: Read only

-/W: Write only

-/-: No read/write access

Device name	Device type				
	Bit	Byte (8 bits)	Word (16 bits)	Double-word (32 bits)	Quad-word (64 bits)
M	R/W	-/-	R/W	R/W	-/-
L	R/W	-/-	R/W	R/W	-/-
SM	R/W	-/-	R/W	R/W	-/-

Monitoring-supported word devices ([Computer])

The following table shows monitoring-supported word devices.

To check whether writing/reading data to/from each device is available, refer to the following.

☞ Page 438 Availability of writing/reading data to/from word devices ([Computer])

For the formats of devices, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

○: Available

×: Not available

Device name		Device No. representation	Setting range	Specifications of EG devices[*1]	
				Assignment to EG devices	Access using a client
D	Data register	Decimal	0 to 4095	○	○
SD	Special register	Decimal	0 to 15	○	○
R	File register	Decimal	0 to 4095	○	○

*1 For the devices assigned to EG devices (gateway devices) and the compatible clients, refer to the following.
📖GT Designer3 (GOT2000) Screen Design Manual

Availability of writing/reading data to/from word devices ([Computer])

The following shows whether writing/reading data to/from word devices is available by device type.

R/W: Both read and write

R/-: Read only

-/W: Write only

-/-: No read/write access

Device name	Device type			
	Word (16 bits)	Double-word (32 bits)	Quad-word (64 bits)	Bit of word data
D	R/W	R/W	-/-	R/W
SD	R/W	R/W	-/-	R/W
R	R/W	R/W	-/-	R/W

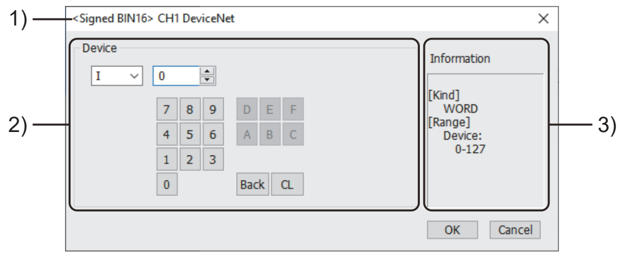
ODVA ([DeviceNet])

GT27 GT25 GS25

Item	Reference
Device setting dialog	☞ Page 439 Device setting dialog ([DeviceNet])
Specifications of word devices	☞ Page 440 Monitoring-supported word devices ([DeviceNet])
	☞ Page 440 Availability of writing/reading data to/from word devices ([DeviceNet])

Device setting dialog ([DeviceNet])

Set a device to be monitored.



1) Title

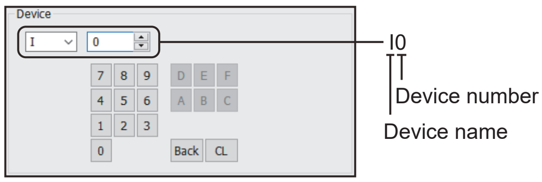
Data type and channel number of the device to be set

2) [Device]

Set the device name and device number.

If a bit number needs to be specified, the setting item is displayed.

Example) Setting of I0



3) [Information]

Displays the setting range of each setting item according to the selected device.

A

Monitoring-supported word devices ([DeviceNet])

The following table shows monitoring-supported word devices.

To check whether writing/reading data to/from each device is available, refer to the following.

☞ Page 440 Availability of writing/reading data to/from word devices ([DeviceNet])

For the formats of devices, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

○: Available

×: Not available

Device name		Device No. representation	Setting range	Specifications of EG devices*1	
				Assignment to EG devices	Access using a client
I	Input	Decimal	0 to 127	○	○
O	Output	Decimal	0 to 127	○	○

*1 For the devices assigned to EG devices (gateway devices) and the compatible clients, refer to the following.
📖GT Designer3 (GOT2000) Screen Design Manual

Availability of writing/reading data to/from word devices ([DeviceNet])

The following shows whether writing/reading data to/from word devices is available by device type.

R/W: Both read and write

R/-: Read only

-/W: Write only

-/-: No read/write access

Device name	Device type			
	Word (16 bits)	Double-word (32 bits)	Quad-word (64 bits)	Bit of word data
I	R/W	R/W	-/-	R/W
O	R/-	R/-	-/-	R/-

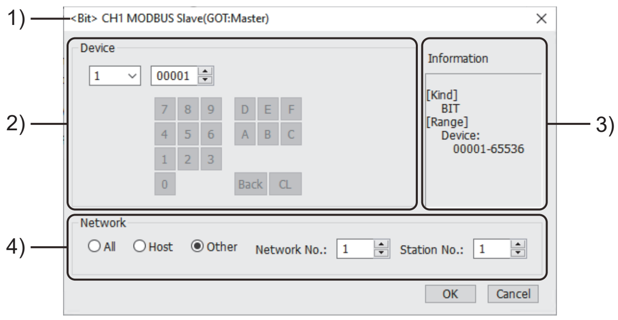
MODBUS ([MODBUS Slave(GOT:Master)])

GT27 GT25 GT23 GT21 GS25 GS21

Item	Reference
Device setting dialog	☞ Page 441 Device setting dialog ([MODBUS Slave(GOT:Master)])
Specifications of bit devices	☞ Page 443 Monitoring-supported bit devices ([MODBUS Slave(GOT:Master)])
	☞ Page 444 Availability of writing/reading data to/from bit devices ([MODBUS Slave(GOT:Master)])
Specifications of word devices	☞ Page 444 Monitoring-supported word devices ([MODBUS Slave(GOT:Master)])
	☞ Page 444 Availability of writing/reading data to/from word devices ([MODBUS Slave(GOT:Master)])
Notation of devices	☞ Page 445 Notation of devices ([MODBUS Slave(GOT:Master)])
Function code	☞ Page 445 Function code ([MODBUS Slave(GOT:Master)])

Device setting dialog ([MODBUS Slave(GOT:Master)])

Set a device to be monitored.



1) Title

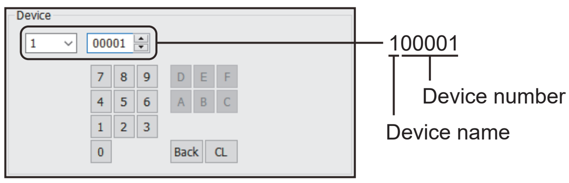
Data type and channel number of the device to be set

2) [Device]

Set the device name and device number.

If a bit number needs to be specified, the setting item is displayed.

Example) Setting of 100001



3) [Information]

Displays the setting range of each setting item according to the selected device.

4) [Network]

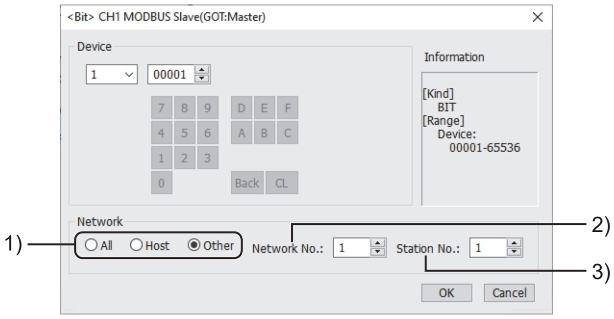
The setting depends on the connection type.

☞ Page 442 Network setting for the MODBUS/RTU connection ([MODBUS Slave(GOT:Master)])

☞ Page 443 Network setting for the MODBUS/TCP connection ([MODBUS Slave(GOT:Master)])

A

■Network setting for the MODBUS/RTU connection ([MODBUS Slave(GOT:Master)])



1) Monitor target specification

Set the monitor target of the set device.

Item	Description
[All]	Select this item when writing data to all the connected controllers. During monitoring, the controller set for [Host Address] of the [Controller Setting] window is monitored. When data is input from a numerical input object, the data is written to all the connected controllers. When no data is input, the controller set for [Host Address] is monitored.
[Host]	Select this item when monitoring the controller set as the host station.
[Other]	Select this item when monitoring the controller that has the specified station number.

2) [Network No.]

This item appears when [Other] is selected for the station type.

For the MODBUS/RTU connection, set 1.

3) [Station No.]

This item appears when [Other] is selected for the station type.

Set the station number.

The setting range is [1] to [247] (direct) or [248] to [254] (indirect).

For indirect specification of a station number, refer to the following.

☞ Page 442 Indirect specification of a station number for the MODBUS/RTU master connection ([MODBUS Slave(GOT:Master)])

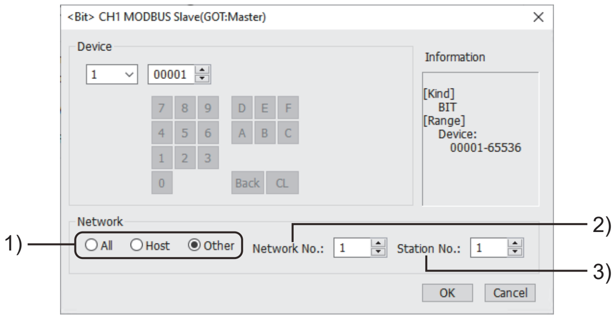
■Indirect specification of a station number for the MODBUS/RTU master connection ([MODBUS Slave(GOT:Master)])

When you specify any of 248 to 254 for the station number, the value of the corresponding GOT data register (GD10 to GD16) is used as the station number.

The following shows the correspondence between station number setting values and GOT data registers (GD).

Station No.	GOT data register (GD)	Setting range
248	GD10	[0] to [255] Setting a value outside the above range causes a device range error. When "0" is set, "All station specification (broadcast)" is specified. When "255" is set, the host station is specified.
249	GD11	
:	:	
253	GD15	
254	GD16	

■Network setting for the MODBUS/TCP connection ([MODBUS Slave(GOT:Master)])



1) Monitor target specification

Set the monitor target of the set device.

Item	Description
[All]	Not available to the MODBUS/TCP connection.
[Host]	Select this item when monitoring the controller set as the host station.
[Other]	Select this item when monitoring the controller that has the specified station number.

2) [Network No.]

This item appears when [Other] is selected for the station type.

Specify a network number.

The setting range is [1] to [239].

3) [Station No.]

This item appears when [Other] is selected for the station type.

Set the station number.

The setting range is [1] to [247].

Monitoring-supported bit devices ([MODBUS Slave(GOT:Master)])

The following table shows monitoring-supported bit devices.

The device range of MODBUS equipment varies by model.

When a model whose device range is not a specified using a multiple of 16 is used, monitoring to the maximum within the range may not be possible.

In this case, the device range is up to the number divisible by 16.

Example) For a model whose coil device range is from 0 to 9999

The range that can be actually monitored is from 0 to 9984.

To check whether writing/reading data to/from each device is available, refer to the following.

☞ Page 444 Availability of writing/reading data to/from bit devices ([MODBUS Slave(GOT:Master)])

For the formats of devices, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

○: Available

×: Not available

Device name		Device No. representation	Setting range	Specifications of EG devices*1	
				Assignment to EG devices	Access using a client
1	Input relay	Decimal	00001 to 65536	○	○ (Not usable as word data)
0	Coils	Decimal	00001 to 65536	○	○ (Not usable as word data)

*1 For the devices assigned to EG devices (gateway devices) and the compatible clients, refer to the following.
📖GT Designer3 (GOT2000) Screen Design Manual

Availability of writing/reading data to/from bit devices ([MODBUS Slave(GOT:Master)])

The following shows whether writing/reading data to/from bit devices is available by device type.

When the device type is other than the bit type, set the device No. in multiples of 16.

R/W: Both read and write

R/-: Read only

-/W: Write only

-/-: No read/write access

Device name	Device type				
	Bit	Byte (8 bits)	Word (16 bits)	Double-word (32 bits)	Quad-word (64 bits)
1	R/-	-/-	-/-	-/-	-/-
0	R/W	-/-	-/-	-/-	-/-

Monitoring-supported word devices ([MODBUS Slave(GOT:Master)])

The following table shows monitoring-supported word devices.

To check whether writing/reading data to/from each device is available, refer to the following.

☞ Page 444 Availability of writing/reading data to/from word devices ([MODBUS Slave(GOT:Master)])

For the formats of devices, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

○: Available

×: Not available

Device name		Device No. representation	Setting range	Specifications of EG devices*1	
				Assignment to EG devices	Access using a client
4	Holding register	Decimal	00001 to 65536	○	○ (Not usable as bit data)
3	Input register	Decimal	00001 to 65536	○	○ (Not usable as bit data)
6	Extension file register	Decimal	(File No.)-6(Device) Notation example: 418-600000 • File No. (decimal): 0 to 418 • Device (decimal): 00000 to 09999	○	○ (Not usable as bit data)

*1 For the devices assigned to EG devices (gateway devices) and the compatible clients, refer to the following.
📖GT Designer3 (GOT2000) Screen Design Manual

Availability of writing/reading data to/from word devices ([MODBUS Slave(GOT:Master)])

The following shows whether writing/reading data to/from word devices is available by device type.

R/W: Both read and write

R/-: Read only

-/W: Write only

-/-: No read/write access

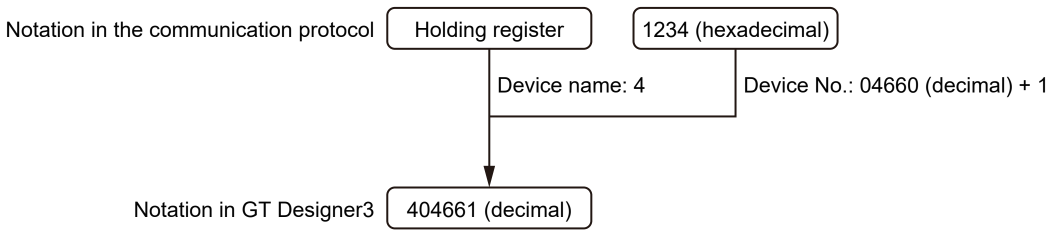
Device name	Device type			
	Word (16 bits)	Double-word (32 bits)	Quad-word (64 bits)	Bit of word data
4	R/W	R/W	-/-	R/W
3	R/-	R/-	-/-	R/-
6	R/W	R/W	-/-	R/W

Notation of devices ([MODBUS Slave(GOT:Master)])

The notation of addresses and that of devices differ between the MODBUS/RTU communication protocol and GT Designer3.
Set the devices using the notation used in GT Designer3.

Notation in the communication protocol		Notation in the GOT	
Device name	Address (hexadecimal)	Device name	Device No. (decimal)
Coils	0000 to FFFF	0	00001 to 65536
Input relay	0000 to FFFF	1	00001 to 65536
Input register	0000 to FFFF	3	00001 to 65536
Holding register	0000 to FFFF	4	00001 to 65536
Extension file register	0000 to 270F	6	00000 to 09999

Example) Monitoring the holding register 1234 (hexadecimal)
Set 404661 in GT Designer3.



Function code ([MODBUS Slave(GOT:Master)])

The GOT supports the following function codes.

Function code	Function	Number of devices that are accessible with one message [Unit: point(s)]	
		MODBUS/RTU	MODBUS/TCP
0x01	Read Coils	1 to 2000	1 to 1000
0x02	Read Discrete Inputs	1 to 2000	1 to 1000
0x03	Read Holding Registers	1 to 125	1 to 125
0x04	Read Input Registers	1 to 125	1 to 125
0x05	Write Single Coil	1	1
0x06	Write Single Register	1	1
0x0F	Write Multiple Coils	1 to 1968	1 to 800
0x10	Write Multiple Register	1 to 123	1 to 123
0x14	Read File Record	1 to 124	1 to 124
0x15	Write File Record	1 to 122	1 to 122

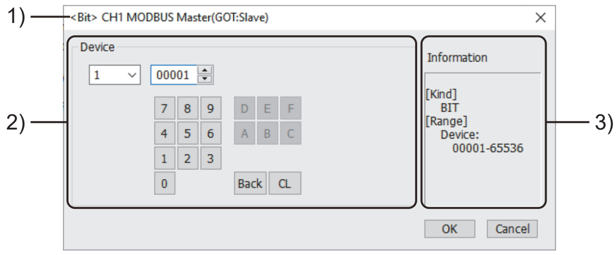
MODBUS ([MODBUS Master(GOT:Slave)])

GT27 GT25 GT23 GT21 GS25 GS21

Item	Reference
Device setting dialog	☞ Page 446 Device setting dialog ([MODBUS Master(GOT:Slave)])
Specifications of bit devices	☞ Page 447 Monitoring-supported bit devices ([MODBUS Master(GOT:Slave)])
	☞ Page 447 Availability of writing/reading data to/from bit devices ([MODBUS Master(GOT:Slave)])
Specifications of word devices	☞ Page 448 Monitoring-supported word devices ([MODBUS Master(GOT:Slave)])
	☞ Page 448 Availability of writing/reading data to/from word devices ([MODBUS Master(GOT:Slave)])
Notation of devices	☞ Page 445 Notation of devices ([MODBUS Slave(GOT:Master)])
Function code	☞ Page 448 Function code ([MODBUS Master(GOT:Slave)])

Device setting dialog ([MODBUS Master(GOT:Slave)])

Set a device to be monitored.



1) Title

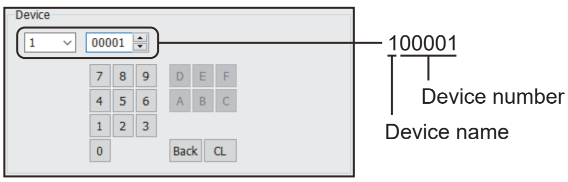
Data type and channel number of the device to be set

2) [Device]

Set the device name and device number.

If a bit number needs to be specified, the setting item is displayed.

Example) Setting of 100001



3) [Information]

Displays the setting range of each setting item according to the selected device.

Monitoring-supported bit devices ([MODBUS Master(GOT:Slave)])

The following table shows monitoring-supported bit devices.

To check whether writing/reading data to/from each device is available, refer to the following.

☞ Page 447 Availability of writing/reading data to/from bit devices ([MODBUS Master(GOT:Slave)])

For the formats of devices, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

○: Available

×: Not available

Device name		Device No. representation	Setting range		Specifications of EG devices[*1]	
			GT27, GT25, GT23, SoftGOT2000, and GS25	GT21 and GS21	Assignment to EG devices	Access using a client
1	Input relay	Decimal	00001 to 65536	00001 to 10000	○	○
0	Coils	Decimal	00001 to 65536	00001 to 10000	○	○

*1 For the devices assigned to EG devices (gateway devices) and the compatible clients, refer to the following.
📖GT Designer3 (GOT2000) Screen Design Manual

Availability of writing/reading data to/from bit devices ([MODBUS Master(GOT:Slave)])

The following shows whether writing/reading data to/from bit devices is available by device type.

When the device type is other than the bit type, set the device No. in multiples of 16.

R/W: Both read and write

R/-: Read only

-/W: Write only

-/-: No read/write access

Device name	Device type				
	Bit	Byte (8 bits)	Word (16 bits)	Double-word (32 bits)	Quad-word (64 bits)
1	R/W	-/-	R/W	R/W	-/-
0	R/W	-/-	R/W	R/W	-/-

Monitoring-supported word devices ([MODBUS Master(GOT:Slave)])

The following table shows monitoring-supported word devices.

To check whether writing/reading data to/from each device is available, refer to the following.

☞ Page 448 Availability of writing/reading data to/from word devices ([MODBUS Master(GOT:Slave)])

For the formats of devices, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

○: Available

×: Not available

Device name		Device No. representation	Setting range		Specifications of EG devices[*1]	
			GT27, GT25, GT23, SoftGOT2000, and GS25	GT21 and GS21	Assignment to EG devices	Access using a client
4	Holding register	Decimal	00001 to 65536	00001 to 10000	○	○
3	Input register	Decimal	00001 to 65536	00001 to 10000	○	○

*1 For the devices assigned to EG devices (gateway devices) and the compatible clients, refer to the following.
📖GT Designer3 (GOT2000) Screen Design Manual

Availability of writing/reading data to/from word devices ([MODBUS Master(GOT:Slave)])

The following shows whether writing/reading data to/from word devices is available by device type.

R/W: Both read and write

R/-: Read only

-/W: Write only

-/-: No read/write access

Device name	Device type			
	Word (16 bits)	Double-word (32 bits)	Quad-word (64 bits)	Bit of word data
4	R/W	R/W	-/-	R/W
3	R/W	R/W	-/-	R/W

Function code ([MODBUS Master(GOT:Slave)])

The GOT supports the following function codes.

Function code	Function	Number of devices that are accessible with one message [Unit: point(s)]	
		MODBUS/RTU	MODBUS/TCP
0x01	Read Coils	1 to 2000	1 to 2000
0x02	Read Discrete Inputs	1 to 2000	1 to 2000
0x03	Read Holding Registers	1 to 125	1 to 125
0x04	Read Input Registers	1 to 125	1 to 125
0x05	Write Single Coil	1	1
0x06	Write Single Register	1	1
0x08[*1]	Diagnostics	-	-
0x0F	Write Multiple Coils	1 to 1968	1 to 1968
0x10	Write Multiple Register	1 to 123	1 to 123

*1 Only available to the loopback (sub function code 0x0000).

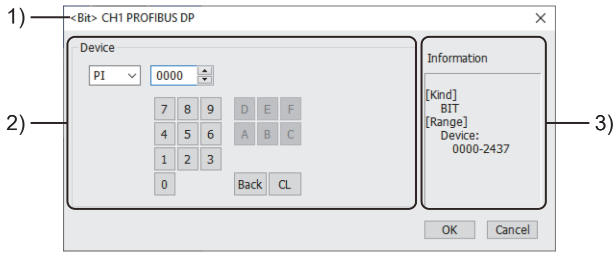
PROFIBUS ([PROFIBUS DP])

GT 27 GT 25 GS 25

Item	Reference
Device setting dialog	☞ Page 449 Device setting dialog ([PROFIBUS DP])
Specifications of bit devices	☞ Page 450 Monitoring-supported bit devices ([PROFIBUS DP])
	☞ Page 450 Availability of writing/reading data to/from bit devices ([PROFIBUS DP])
Specifications of word devices	☞ Page 451 Monitoring-supported word devices ([PROFIBUS DP])
	☞ Page 451 Availability of writing/reading data to/from word devices ([PROFIBUS DP])

Device setting dialog ([PROFIBUS DP])

Set a device to be monitored.



1) Title

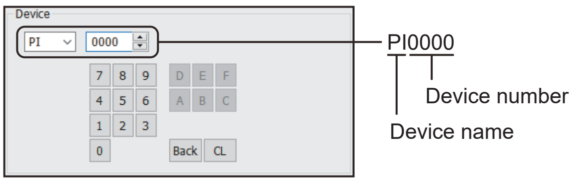
Data type and channel number of the device to be set

2) [Device]

Set the device name and device number.

If a bit number needs to be specified, the setting item is displayed.

Example) Setting of PI0000



3) [Information]

Displays the setting range of each setting item according to the selected device.

A

Monitoring-supported bit devices ([PROFIBUS DP])

The following table shows monitoring-supported bit devices.

To check whether writing/reading data to/from each device is available, refer to the following.

☞ Page 450 Availability of writing/reading data to/from bit devices ([PROFIBUS DP])

For the formats of devices, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

○: Available

×: Not available

Device name		Device No. representation	Setting range	Specifications of EG devices[*1]	
				Assignment to EG devices	Access using a client
PI	Input relay	Decimal + octal	PI(Byte address)(Bit address) Notation example: PI2430 • Byte address (decimal): 000 to 243 • Bit address (octal): 0 to 7	○	○ (Not usable as word data)
PQ	Output relay	Decimal + octal	PQ(Byte address)(Bit address) Notation example: PQ2430 • Byte address (decimal): 000 to 243 • Bit address (octal): 0 to 7	○	○ (Not usable as word data)

*1 For the devices assigned to EG devices (gateway devices) and the compatible clients, refer to the following.
📖GT Designer3 (GOT2000) Screen Design Manual

Availability of writing/reading data to/from bit devices ([PROFIBUS DP])

The following shows whether writing/reading data to/from bit devices is available by device type.

When the device type is other than the bit type, set the device No. in multiples of 16.

To use the device as word data, use the word device that has the same device name appended with "W".

Example) Use PIW for PI.

R/W: Both read and write

R/-: Read only

-/W: Write only

-/-: No read/write access

Device name	Device type				
	Bit	Byte (8 bits)	Word (16 bits)	Double-word (32 bits)	Quad-word (64 bits)
PI	R/W	-/-	-/-	-/-	-/-
PQ	R/-	-/-	-/-	-/-	-/-

Monitoring-supported word devices ([PROFIBUS DP])

The following table shows monitoring-supported word devices.

To check whether writing/reading data to/from each device is available, refer to the following.

☞ Page 451 Availability of writing/reading data to/from word devices ([PROFIBUS DP])

For the formats of devices, refer to the following.

GT Designer3 (GOT2000) Screen Design Manual

○: Available

×: Not available

Device name		Device No. representation	Setting range	Specifications of EG devices[*1]	
				Assignment to EG devices	Access using a client
PIW[*2]	Input relay	Decimal	0 to 242	○	○ (Not usable as bit data)
PQW[*2]	Output relay	Decimal	0 to 242	○	○ (Not usable as bit data)

*1 For the devices assigned to EG devices (gateway devices) and the compatible clients, refer to the following.
GT Designer3 (GOT2000) Screen Design Manual

*2 When the device type is the word (16 bits) type, set the device number with an even number.
When the device type is the double-word (32 bits) type, set the device number in multiples of 4.

Availability of writing/reading data to/from word devices ([PROFIBUS DP])

The following shows whether writing/reading data to/from word devices is available by device type.

To use the device as bit data, use the bit device that has the same device name without "W".

Example) Use PI for PIW.

R/W: Both read and write

R/-: Read only

-/W: Write only

-/-: No read/write access

Device name	Device type			
	Word (16 bits)	Double-word (32 bits)	Quad-word (64 bits)	Bit of word data
PIW	R/W	R/W	-/-	-/-
PQW	R/-	R/-	-/-	-/-

A

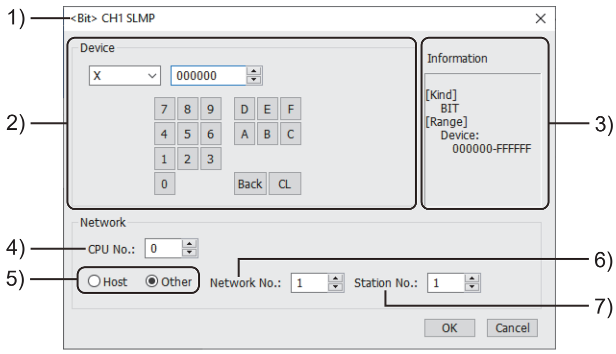
CLPA ([SLMP])

GT27 GT25 GT23 GT21 GS25 GS21

Item	Reference
Device setting dialog	☞ Page 452 Device setting dialog ([SLMP])
Specifications of bit devices	☞ Page 453 Monitoring-supported bit devices ([SLMP])
	☞ Page 454 Availability of writing/reading data to/from bit devices ([SLMP])
Specifications of word devices	☞ Page 455 Monitoring-supported word devices ([SLMP])
	☞ Page 456 Availability of writing/reading data to/from word devices ([SLMP])

Device setting dialog ([SLMP])

Set a device to be monitored.



1) Title

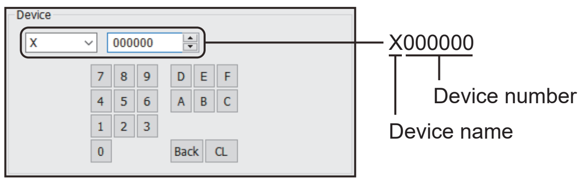
Data type and channel number of the device to be set

2) [Device]

Set the device name and device number.

If a bit number needs to be specified, the setting item is displayed.

Example) Setting of X000000



3) [Information]

Displays the setting range of each setting item according to the selected device.

4) [CPU No.]

Set the CPU number of the controller.

5) Station type specification

Select the station type (host or other) for the controller to be monitored.

- [Host]: The controller to be monitored is the host station.
- [Other]: The controller to be monitored is not the host station.

6) [Network No.]

This item appears when [Other] is selected for the station type.

Specify a network number.

7) [Station No.]

This item appears when [Other] is selected for the station type.

Specify a station number.

Monitoring-supported bit devices ([SLMP])

The following table shows monitoring-supported bit devices.

To check whether writing/reading data to/from each device is available, refer to the following.

☞ Page 454 Availability of writing/reading data to/from bit devices ([SLMP])

For the formats of devices, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

○: Available

×: Not available

Device name		Device No. representation	Setting range	Specifications of EG devices*1	
				Assignment to EG devices	Access using a client
X	Input	Hexadecimal	000000 to FFFFFF	○	○
Y	Output	Hexadecimal	000000 to FFFFFF	○	○
B	Link relay	Hexadecimal	000000 to FFFFFF	○	○
M	Internal relay	Decimal	0 to 16777215	○	○
L	Latch relay	Decimal	0 to 16777215	○	○
F	Annunciator	Decimal	0 to 16777215	○	○
V	Edge relay	Decimal	0 to 16777215	○	○
TC	Timer Coil	Decimal	0 to 16777215	○	○ (Not usable as word data)
TS	Timer contact	Decimal	0 to 16777215	○	○ (Not usable as word data)
CC	Counter Coil	Decimal	0 to 16777215	○	○ (Not usable as word data)
CS	Counter contact	Decimal	0 to 16777215	○	○ (Not usable as word data)
STC	Retentive timer Coil	Decimal	0 to 16777215	○	○ (Not usable as word data)
STS	Retentive timer Contact	Decimal	0 to 16777215	○	○ (Not usable as word data)
SB	Link special relay	Hexadecimal	000000 to FFFFFF	○	○
SM	Special relay	Decimal	0 to 16777215	○	○
DX	Direct access input	Hexadecimal	000000 to FFFFFF	○	○
DY	Direct access output	Hexadecimal	000000 to FFFFFF	○	○
JnX*2	Link input (link direct device)	Hexadecimal	J(Network No.)-X(Device) Notation example: J1-X000000 • Network No. (decimal): 1 to 239 • Device (hexadecimal): 000000 to FFFFFF	○	○
JnY*2	Link output (link direct device)	Hexadecimal	J(Network No.)-Y(Device) Notation example: J1-Y000000 • Network No. (decimal): 1 to 239 • Device (hexadecimal): 000000 to FFFFFF	○	○
JnB*2	Link relay (link direct device)	Hexadecimal	J(Network No.)-B(Device) Notation example: J1-B000000 • Network No. (decimal): 1 to 239 • Device (hexadecimal): 000000 to FFFFFF	○	○
JnSB*2	Link special relay (link direct device)	Hexadecimal	J(Network No.)-SB(Device) Notation example: J1-SB000000 • Network No. (decimal): 1 to 239 • Device (hexadecimal): 000000 to FFFFFF	○	○

*1 For the devices assigned to EG devices (gateway devices) and the compatible clients, refer to the following.
📖GT Designer3 (GOT2000) Screen Design Manual

*2 Not available to GT21 and GS21.

A

Availability of writing/reading data to/from bit devices ([SLMP])

The following shows whether writing/reading data to/from bit devices is available by device type.

When the device type is other than the bit type, set the device No. in multiples of 16.

R/W: Both read and write

R/-: Read only

-/W: Write only

-/-: No read/write access

Device name	Device type				
	Bit	Byte (8 bits)	Word (16 bits)	Double-word (32 bits)	Quad-word (64 bits)
X	R/W	-/-	R/W	R/W	-/-
Y	R/W	-/-	R/W	R/W	-/-
B	R/W	-/-	R/W	R/W	-/-
M	R/W	-/-	R/W	R/W	-/-
L	R/W	-/-	R/W	R/W	-/-
F	R/W	-/-	R/W	R/W	-/-
V	R/W	-/-	R/W	R/W	-/-
TC	R/W	-/-	-/-	-/-	-/-
TS	R/W	-/-	-/-	-/-	-/-
CC	R/W	-/-	-/-	-/-	-/-
CS	R/W	-/-	-/-	-/-	-/-
STC	R/W	-/-	-/-	-/-	-/-
STS	R/W	-/-	-/-	-/-	-/-
SB	R/W	-/-	R/W	R/W	-/-
SM	R/W	-/-	R/W	R/W	-/-
DX	R/W	-/-	R/W	R/W	-/-
DY	R/W	-/-	R/W	R/W	-/-
JnX	R/W	-/-	R/W	R/W	-/-
JnY	R/W	-/-	R/W	R/W	-/-
JnB	R/W	-/-	R/W	R/W	-/-
JnSB	R/W	-/-	R/W	R/W	-/-

Monitoring-supported word devices ([SLMP])

The following table shows monitoring-supported word devices.

To check whether writing/reading data to/from each device is available, refer to the following.

☞ Page 456 Availability of writing/reading data to/from word devices ([SLMP])

For the formats of devices, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

○: Available

×: Not available

Device name		Device No. representation	Setting range	Specifications of EG devices*1	
				Assignment to EG devices	Access using a client
TN	Timer (current value)	Decimal	0 to 16777215	○	○ (Not usable as bit data)
CN	Counter (current value)	Decimal	0 to 16777215	○	○ (Not usable as bit data)
STN	Retentive timer (current value)	Decimal	0 to 16777215	○	○ (Not usable as bit data)
D	Data register	Decimal	0 to 16777215	○	○
SD	Special register	Decimal	0 to 16777215	○	○
W	Link register	Hexadecimal	000000 to FFFFFF	○	○
SW	Link special register	Hexadecimal	000000 to FFFFFF	○	○
R	File register (Block switching method)	Decimal	0 to 16777215	○	○
ZR	File register (Serial number access method)	Hexadecimal	000000 to FFFFFF	○	○
Z	Index register	Decimal	0 to 16777215	○	○
G*2	Module access device (buffer memory)	Decimal	U(Unit No.)-G(Device) Notation example: UFF-G0 • Unit No.(hexadecimal): 00 to FF • Device (decimal): 0 to 16777215	○	○
U3E0G*2	CPU buffer memory	Decimal	U3E0-G(Device) Notation example: U3E0-G0 • Device (decimal): 0 to 16777215	○	○
U3E1G*2	CPU buffer memory	Decimal	U3E1-G(Device) Notation example: U3E1-G0 • Device (decimal): 0 to 16777215	○	○
U3E2G*2	CPU buffer memory	Decimal	U3E2-G(Device) Notation example: U3E2-G0 • Device (decimal): 0 to 16777215	○	○
U3E3G*2	CPU buffer memory	Decimal	U3E3-G (Device) Notation example: U3E3-G0 • Device (decimal): 0 to 16777215	○	○
U3E0HG*2	Fixed-cycle area of the CPU buffer memory (multiple CPU high speed transmission memory)	Decimal	U3E0-HG(Device) Notation example: U3E0-HG0 • Device (decimal): 0 to 16777215	○	○
U3E1HG*2	Fixed-cycle area of the CPU buffer memory (multiple CPU high speed transmission memory)	Decimal	U3E1-HG(Device) Notation example: U3E1-HG0 • Device (decimal): 0 to 16777215	○	○
U3E2HG*2	Fixed-cycle area of the CPU buffer memory (multiple CPU high speed transmission memory)	Decimal	U3E2-HG(Device) Notation example: U3E2-HG0 • Device (decimal): 0 to 16777215	○	○

Device name		Device No. representation	Setting range	Specifications of EG devices*1	
				Assignment to EG devices	Access using a client
U3E3HG*2	Fixed-cycle area of the CPU buffer memory (multiple CPU high speed transmission memory)	Decimal	U3E3-HG(Device) Notation example: U3E3-HG0 • Device (decimal): 0 to 16777215	○	○
JnW*2	Link register (link direct device)	Hexadecimal	J(Network No.)-W(Device) Notation example: J1-W000000 • Network No. (decimal): 1 to 239 • Device (hexadecimal): 000000 to FFFFFF	○	○
JnSW*2	Link special register (link direct device)	Hexadecimal	J(Network No.)-SW(Device) Notation example: J1-SW000000 • Network No. (decimal): 1 to 239 • Device (hexadecimal): 000000 to FFFFFF	○	○
RD*2	Refresh data register	Decimal	0 to 4294967295	○	○

*1 For the devices assigned to EG devices (gateway devices) and the compatible clients, refer to the following.
GT Designer3 (GOT2000) Screen Design Manual
*2 Not available to GT21 and GS21.

Availability of writing/reading data to/from word devices ([SLMP])

The following shows whether writing/reading data to/from word devices is available by device type.

R/W: Both read and write

R/-: Read only

-/W: Write only

-/-: No read/write access

Device name	Device type			
	Word (16 bits)	Double-word (32 bits)	Quad-word (64 bits)	Bit of word data
TN	R/W	R/W	-/-	-/-
CN	R/W	R/W	-/-	-/-
STN	R/W	R/W	-/-	-/-
D*1	R/W	R/W	-/-	R/W
SD*1	R/W	R/W	-/-	R/W
W*1	R/W	R/W	-/-	R/W
SW*1	R/W	R/W	-/-	R/W
R*1	R/W	R/W	-/-	R/W
ZR*1	R/W	R/W	-/-	R/W
Z	R/W	R/W	-/-	-/-
G	R/W	R/W	-/-	R/W
U3E0G	R/W	R/W	-/-	R/W
U3E1G	R/W	R/W	-/-	R/W
U3E2G	R/W	R/W	-/-	R/W
U3E3G	R/W	R/W	-/-	R/W
U3E0HG	R/W	R/W	-/-	R/W
U3E1HG	R/W	R/W	-/-	R/W
U3E2HG	R/W	R/W	-/-	R/W
U3E3HG	R/W	R/W	-/-	R/W
JnW	R/W	R/W	-/-	R/W
JnSW	R/W	R/W	-/-	R/W
RD	R/W	R/W	-/-	R/W

*1 When bit specification of word device is performed, the GOT reads the value from a device and then write a value to the device.
Do not change the device value with a sequence program until the GOT completes writing a value to the device.

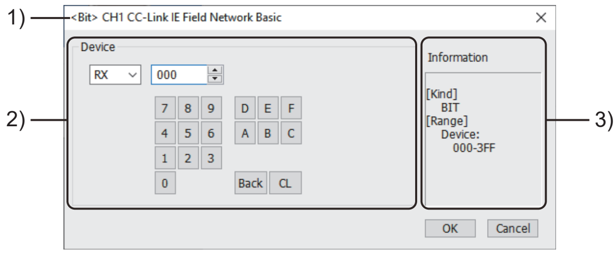
CLPA ([CC-Link IE Field Network Basic])

GT 27 GT 25 GT 23 GT 21 GS 25 GS 21

Item	Reference
Device setting dialog	☞ Page 457 Device setting dialog ([CC-Link IE Field Network Basic])
Specifications of bit devices	☞ Page 458 Monitoring-supported bit devices ([CC-Link IE Field Network Basic])
	☞ Page 458 Availability of writing/reading data to/from bit devices ([CC-Link IE Field Network Basic])
Specifications of word devices	☞ Page 459 Monitoring-supported word devices ([CC-Link IE Field Network Basic])
	☞ Page 459 Availability of writing/reading data to/from word devices ([CC-Link IE Field Network Basic])
Remote device setting of the GOT (remote station)	☞ Page 460 Remote device setting of the GOT (remote station) ([CC-Link IE Field Network Basic])

Device setting dialog ([CC-Link IE Field Network Basic])

Set a device to be monitored.



1) Title

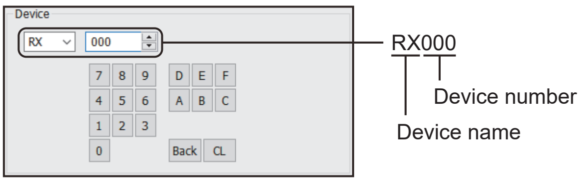
Data type and channel number of the device to be set

2) [Device]

Set the device name and device number.

If a bit number needs to be specified, the setting item is displayed.

Example) Setting of RX000



3) [Information]

Displays the setting range of each setting item according to the selected device.

Monitoring-supported bit devices ([CC-Link IE Field Network Basic])

The following table shows monitoring-supported bit devices.

The device range shown in this section indicates the maximum settable values in GT Designer3.

The range of devices that can actually be monitored depends on the number of stations occupied by remote stations that are set in the master station.

Before setting the device range, check the number of occupied stations that are assigned to the GOT.

If a non-existent device or a device number out of the range is set for an object, other objects for which correct devices are set may not be monitored.

To check whether writing/reading data to/from each device is available, refer to the following.

☞ Page 458 Availability of writing/reading data to/from bit devices ([CC-Link IE Field Network Basic])

For the formats of devices, refer to the following.

📖GT Designer3 (GOT2000) Screen Design Manual

○: Available

×: Not available

Device name		Device No. representation	Setting range	Specifications of EG devices*1	
				Assignment to EG devices	Access using a client
RX	Remote input	Hexadecimal	000 to 3FF	○	○
RY	Remote output	Hexadecimal	000 to 3FF	○	○

*1 For the devices assigned to EG devices (gateway devices) and the compatible clients, refer to the following.
📖GT Designer3 (GOT2000) Screen Design Manual

Availability of writing/reading data to/from bit devices ([CC-Link IE Field Network Basic])

The following shows whether writing/reading data to/from bit devices is available by device type.

When the device type is other than the bit type, set the device No. in multiples of 16.

R/W: Both read and write

R/-: Read only

-/W: Write only

-/-: No read/write access

Device name	Device type				
	Bit	Byte (8 bits)	Word (16 bits)	Double-word (32 bits)	Quad-word (64 bits)
RX	R/W	-/-	R/W	R/W	-/-
RY	R/W	-/-	R/W	R/W	-/-

Monitoring-supported word devices ([CC-Link IE Field Network Basic])

The following table shows monitoring-supported word devices.
The device range shown in this section indicates the maximum settable values in GT Designer3.
The range of devices that can actually be monitored depends on the number of stations occupied by remote stations that are set in the master station.
Before setting the device range, check the number of occupied stations that are assigned to the GOT.
If a non-existent device or a device number out of the range is set for an object, other objects for which correct devices are set may not be monitored.
To check whether writing/reading data to/from each device is available, refer to the following.
☞ Page 459 Availability of writing/reading data to/from word devices ([CC-Link IE Field Network Basic])
For the formats of devices, refer to the following.
📖GT Designer3 (GOT2000) Screen Design Manual
○: Available
×: Not available

Device name		Device No. representation	Setting range	Specifications of EG devices*1	
				Assignment to EG devices	Access using a client
Ww	Remote register	Hexadecimal	000 to 1FF	○	○
Wr	Remote register	Hexadecimal	000 to 1FF	○	○

*1 For the devices assigned to EG devices (gateway devices) and the compatible clients, refer to the following.
📖GT Designer3 (GOT2000) Screen Design Manual

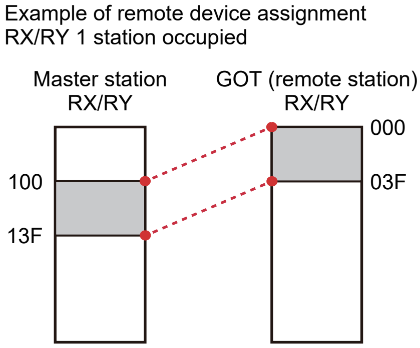
Availability of writing/reading data to/from word devices ([CC-Link IE Field Network Basic])

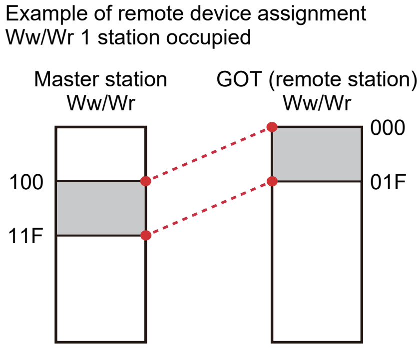
The following shows whether writing/reading data to/from word devices is available by device type.
R/W: Both read and write
R/-: Read only
-/W: Write only
-/-: No read/write access

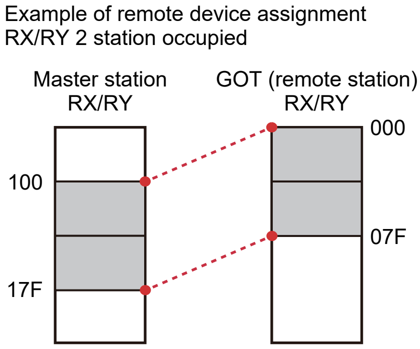
Device name	Device type			
	Word (16 bits)	Double-word (32 bits)	Quad-word (64 bits)	Bit of word data
Ww	R/W	R/W	-/-	R/W
Wr	R/W	R/W	-/-	R/W

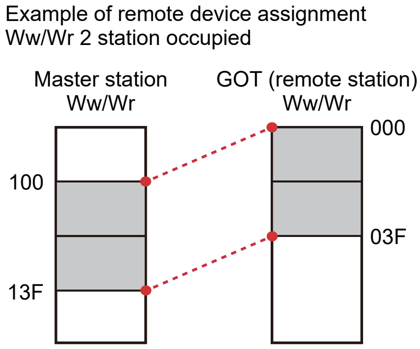
Remote device setting of the GOT (remote station) ([CC-Link IE Field Network Basic])

The devices assigned to the GOT in the master station are allocated in the range starting from the first number in the GOT.
The following shows the examples of device assignment in the master station and in the GOT (remote station).
In the example of remote device assignment (RX/RY 1 station occupied), the remote devices assigned to the GOT (remote station) are RX100 to RX13F and RY100 to RY13F in the master station. Note that the corresponding remote devices in the GOT are RX000 to RX03F and RY000 to RY03F.









MEMO

REVISIONS

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

Revision date	* Manual Number	Revision
Sep. 2013	SH(NA)-081200ENG-A	Compatible with GT Works3 Version1.100E
Nov. 2013	SH(NA)-081200ENG-B	Compatible with GT Works3 Version1.104J • Compatible with printer connection • Compatible with wireless LAN connection (To be supported soon) • Changing the icons of the supported models
Jan. 2014	SH(NA)-081200ENG-C	Compatible with GT Works3 Version1.108N • Compatible with wireless LAN connection • The operation panel function is supported.
Apr. 2014	SH(NA)-081200ENG-D	Compatible with GT Works3 Version1.112S • GT25 and GS21 have been added. • Indirect specification and all station specification for the station No. of MODBUS/RTU are supported.
Jun. 2014	SH(NA)-081200ENG-E	Compatible with GT Works3 Version1.117X • Communication driver (Serial (MELSEC)) compatible.
Oct. 2014	SH(NA)-081200ENG-F	Compatible with GT Works3 Version1.122C • GT21 is added. • IP filter setting compatible.
Jan. 2015	SH(NA)-081200ENG-G	Compatible with GT Works3 Version1.126G • GT21 corresponding to MODBUS/TCP connection. • BAR CODE READER Compatible with Communication Type of the RS-422/485 • RFID connection Change the manufacturer name (MARS TECHNO SCIENCE → MARS TOHKEN SOLUTION)
Apr. 2015	SH(NA)-081200ENG-H	Compatible with GT Works3 Version1.130L • DeviceNet connection is supported. • PROFIBUS DP connection is supported. • GT27 is added (GT2705-VTBD). • GT21 is added (GT2104-RTBD, GT2103-PMBDS2, GT2103-PMBLS).
Jun. 2015	SH(NA)-081200ENG-I	Compatible with GT Works3 Version1.134Q • SLMP connection is supported. • Microcomputer connection (Ethernet) of GT21 is supported.
Jul. 2015	SH(NA)-081200ENG-J	Some corrections
Oct. 2015	SH(NA)-081200ENG-K	Compatible with GT Works3 Version1.144A • GT21 is added (GT2104-PMBD, GT2104-PMBDS). • GOT Mobile connection is supported. • Using the wireless LAN communication unit as an access point is supported. • MODBUS/TCP connection Port No. extension compatible
Dec. 2015	SH(NA)-081200ENG-L	Compatible with GT Works3 Version1.150G • Station blocking function compatible Ethernet connection • Station monitoring function of the following connection CC-Link IE Controller network connection CC-Link IE Field Network connection • The corresponding to the function extension of the Microcomputer connection (Serial/Ethernet) format 1,2 • SLMP connection of GT21 is supported.
May 2016	SH(NA)-081200ENG-M	Compatible with GT Works3 Version1.155M • GT21 is added (GT2105-QTBDS, GT2105-QMBDS, GT2104-PMBDS2, GT2104-PMBLS). • Compatible with DeviceNet communication module type number AB6909-C • Compatible with PROFIBUS communication module type number AB6910-C
Aug. 2016	SH(NA)-081200ENG-N	Compatible with GT Works3 Version1.160S • GOT2000 series Ethernet communication unit is supported.
Oct. 2016	SH(NA)-081200ENG-O	Compatible with GT Works3 Version1.165X • CC-Link IE Field Network Basic connection is supported.

Revision date	* Manual Number	Revision
Jan. 2017	SH(NA)-081200ENG-P	Compatible with GT Works3 Version1.170C • GT2107-W is added (GT2107-WTBD, GT2107-WTSD). • MODBUS/RTU SLAVE connection is supported. • MODBUS/TCP SLAVE connection is supported.
Apr. 2017	SH(NA)-081200ENG-Q	Compatible with GT Works3 Version1.175H • GT25 is added (GT25-W). • USB Bar code is supported. • GT21 CC-Link IE Field Network Basic connection is supported. • GT2107-W VNC server function is supported.
Jun. 2017	SH(NA)-081200ENG-R	Compatible with GT Works3 Version1.180N • GT25 is added (GT2505-V) • For Ethernet connection, the default value of the GOT station No. is changed to [18].
Oct. 2017	SH(NA)-081200ENG-S	Some corrections
Dec. 2017	SH(NA)-081200ENG-T	Compatible with GT Works3 Version 1.190Y • Compatible with avoiding overlapping of [GOT Communication Port No.]
Apr. 2018	SH(NA)-081200ENG-U	Compatible with GT Works3 Version1.195D • CC-Link IE Field Network Basic connection the following function is supported. When the operation of the master station is stopped, select HOLD/CLEAR.
Jul. 2018	SH(NA)-081200ENG-V	Compatible with GT Works3 Version1.200J • The connection to Ethernet printer is supported. • In the communication detail settings of the microcomputer connection (Ethernet), setting the request destination module I/O number is supported. • For the MODBUS/TCP master connection, the connection with the device where the module ID is fixed to 255.
Oct. 2018	SH(NA)-081200ENG-W	Compatible with GT Works3 Version1.205P • GT2505-V supports the following connection using the RS-232/485 signal conversion adapter (GT14-RS2T4-9P). MODBUS/RTU master connection • Digital video output unit (GT27-VHOUT) is supported.
Jan. 2019	SH(NA)-081200ENG-X	Compatible with GT Works3 Version 1.210U • Some corrections
Apr. 2019	SH(NA)-081200ENG-Y	Compatible with GT Works3 Version1.215Z • The connection to Ethernet printer (PCL5) is supported.
Jul. 2019	SH(NA)-081200ENG-Z	Compatible with GT Works3 Version1.220E • The manufacturer name has been changed. (Digital Electronics Corporation → Schneider Electric Japan Holdings Ltd.) • For the SLMP connection, the connection with the CC-Link IE TSN master/local module (RJ71GN11-T2) is supported.
Oct. 2019	SH(NA)-081200ENG-AA	Some corrections
Jan. 2020	SH(NA)-081200ENG-AB	Some corrections
Apr. 2020	SH(NA)-081200ENG-AC	Compatible with GT Works3 Version1.235V • SLMP-compatible devices have been added.
Oct. 2020	SH(NA)-081200ENG-AD	Compatible with GT Works3 Version1.245F • The company name of TOSHIBA MACHINE CO., LTD. has been changed to SHIBAURA MACHINE CO., LTD.
Jan. 2021	SH(NA)-081200ENG-AE	Compatible with GT Works3 Version1.250L • GT25 is added (GT2512-WXTBD, GT2512-WXTSD). • GS21 is added (GS2110-WTBD-N, GS2107-WTBD-N).
Apr. 2021	SH(NA)-081200ENG-AF	Some corrections
Jul. 2021	SH(NA)-081200ENG-AG	Some corrections
Oct. 2021	SH(NA)-081200ENG-AH	Some corrections
Jan. 2022	SH(NA)-081200ENG-AI	Some corrections
Apr. 2022	SH(NA)-081200ENG-AJ	Some corrections
Jul. 2022	SH(NA)-081200ENG-AK	Some corrections
Oct. 2022	SH(NA)-081200ENG-AL	Some corrections
Jan. 2023	SH(NA)-081200ENG-AM	Some corrections
Apr. 2023	SH(NA)-081200ENG-AN	Some corrections

Revision date	* Manual Number	Revision
Jul. 2023	SH(NA)-081200ENG-AP	Compatible with GT Works3 Version1.300N • GS25 model (GS2512-WXTBD) has been added.
Oct. 2023	SH(NA)-081200ENG-AQ	Some corrections

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.

Intellectual Property Rights

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SH(NA)-081200ENG-AQ(2310)MEE
MODEL: GOT2000-CON4-SW1-E
MODEL CODE: -

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