MITSUBISHI ELECTRIC

GRAPHIC OPERATION TERMINAL

GOT2000 Series

Connection Manual
(α2 Connection)

For GT Works3 Version1 (ELE)

■α2 CONNECTION

● SAFETY PRECAUTIONS ●

(Always read these precautions before using this equipment.)

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

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

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

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

[DESIGN PRECAUTIONS]

⚠ WARNING

● Some failures of the GOT, 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.

● The GOT backlight failure disables the operation on the touch switch(s).
 When the GOT backlight has a failure, the POWER LED blinks (orange/blue) and the display section dims.
 In such a case, the input by the touch switch(s) is disabled.

● The display section of the GOT is an analog-resistive type touch panel.
 The GOT is multi-touch compliant; however, do not touch three points or more simultaneously on the display section.
 Doing so may cause an accident due to incorrect output or malfunction.

● When programs or parameters of the controller (such as a PLC) that is monitored by the GOT are changed, be sure to reset the GOT or shut off the power of the GOT at the same time.
 Not doing so can cause an accident due to false output or malfunction.

[DESIGN PRECAUTIONS]

⚠ WARNING

- If a communication fault (including cable disconnection) occurs during monitoring on the GOT, communication between the GOT and PLC CPU is suspended and the GOT becomes inoperative.
  For bus connection : The CPU becomes faulty and the GOT becomes inoperative.
  For other than bus connection : The GOT becomes inoperative.
  A system where the GOT is used should be configured to perform any significant operation to the system by using the switches of a device other than the GOT on the assumption that a GOT communication fault will occur.
  Not doing so can cause an accident due to false output or malfunction.

⚠ CAUTION

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

[MOUNTING PRECAUTIONS]

⚠ WARNING

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

[MOUNTING PRECAUTIONS]

⚠CAUTION

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

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

- When loading the communication 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.
  Under tightening can cause the GOT to drop, short circuit or malfunction.
  Overtightening can cause a drop, failure or malfunction due to the damage of the screws or unit.

- When closing the USB environmental protection cover, fix the cover to the GOT by pushing the [PUSH] mark on the latch firmly to comply with the protective structure.

- 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

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

- When using the GOT in the environment of oil or chemicals, use the protective cover for oil.Failure to do so may cause failure or malfunction due to the oil or chemical entering into the GOT.

[WIRING PRECAUTIONS]

⚠WARNING

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

⚠CAUTION

- Make sure to ground the FG terminal and LG terminal of the GOT power supply section to the protective ground conductors dedicated to the GOT with a ground resistance of 100 Ω or less.
- When tightening the terminal screws, use a Phillips-head screwdriver No.2.
- Terminal screws which are not to be used must be tightened always at torque 0.5 N·m to 0.8 N·m. Otherwise there will be a danger of short circuit against the solderless terminals.

[WIRING PRECAUTIONS]

⚠CAUTION

- Use applicable solderless terminals and tighten them with the specified torque.
  If any solderless spade terminal is used, it may be disconnected when the terminal screw comes loose, resulting in failure.
- Correctly wire the GOT power supply section after confirming the rated voltage and terminal arrangement of the product.
  Not doing so can cause a fire or failure.
- Tighten the terminal screws of the GOT power supply section in the specified torque range (0.5 N·m to 0.8 N·m).
  Undertightening can cause a short circuit or malfunction.
  Overtightening can cause a short circuit or malfunction due to the damage of the screws or the GOT.
- Exercise care to avoid foreign matter such as chips and wire offcuts entering the GOT.
  Not doing so can cause a fire, failure or malfunction.
- The module has an ingress prevention label on its top to prevent foreign matter, such as wire offcuts, from entering the module during wiring.
  Do not peel this label during wiring.Before starting system operation, be sure to peel this label because of heat dissipation.
- Plug the communication cable into the GOT interface or the connector of the connected unit, and tighten the mounting screws and the terminal screws in the specified torque range.
  Undertightening can cause a short circuit or malfunction.
  Overtightening can cause a short circuit or malfunction due to the damage of the screws or unit.
- Plug the QnA/ACPU/Motion controller(A series) bus connection cable by inserting it into the connector of the connected unit until it "clicks".
  After plugging, check that it has been inserted snugly.
  Not doing so can cause a malfunction due to a contact fault.

[TEST OPERATION PRECAUTIONS]

⚠WARNING

- Before performing the test operations of the user creation monitor screen (such as turning ON or OFF bit device, changing the word device current value, changing the settings or current values of the timer or counter, and changing the buffer memory current value), read through the manual carefully and make yourself familiar with the operation method.
  During test operation, never change the data of the devices which are used to perform significant operation for the system.
  False output or malfunction can cause an accident.

[STARTUP/MAINTENANCE PRECAUTIONS]

⚠ WARNING

- When power is on, do not touch the terminals.
  Doing so can cause an electric shock or malfunction.
- Correctly connect the battery connector.
  Do not charge, disassemble, heat, short-circuit, solder, or throw the battery into the fire.
  Doing so will cause the battery to produce heat, explode, or ignite, resulting in injury and fire.
- Before starting cleaning or terminal screw retightening, always switch off the power externally in all phases.
  Not switching the power off in all phases can cause a unit failure or malfunction.
  Undertightening can cause a short circuit or malfunction.
  Overtightening can cause a short circuit or malfunction due to the damage of the screws or unit.

⚠ CAUTION

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

[TOUCH PANEL PRECAUTIONS]

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

[PRECAUTIONS WHEN THE DATA STORAGE IS IN USE]

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

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

[DISPOSAL PRECAUTIONS]

⚠ CAUTION

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

MEMO
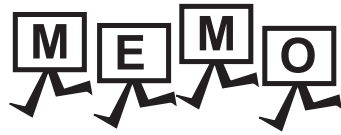
INTRODUCTION

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

CONTENTS

MANUALS

The following table lists the manual relevant to this product.
Refer to each manual for any purpose.

■ Screen creation software manuals

Manual name	Manual number (Model code)
GT Works3 Version1 Installation Procedure Manual	-
GT Works3 Help (GOT2000) English	-

■ Connection manuals

Manual name	Manual number (Model code)
GOT2000 Series Connection Manual (Mitsubishi Product) For GT Works3 Version1	SH-081197ENG (1D7MJ8)
GOT2000 Series Connection Manual (Non Mitsubishi Product 1) For GT Works3 Version1	SH-081198ENG (1D7MJ9)
GOT2000 Series Connection Manual (Non Mitsubishi Product 2) For GT Works3 Version1	SH-081199ENG (1D7MK1)
GOT2000 Series Connection Manual (Microcomputer, MODBUS, Products, Peripherals) For GT Works3 Version1	SH-081200ENG (1D7MK2)

■ GT SoftGOT2000 manuals

Manual name	Manual number (Model code)
GT SoftGOT2000 Version1 Operating Manual	SH-081201ENG (1D7MK3)

■ GOT2000 manuals

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

■ Creating a project

Obtaining the specifications and operation methods of GT Designer3	GT Designer3 (GOT2000) Help
Setting available functions on GT Designer3	
Creating a screen displayed on the GOT	
Obtaining useful functions to increase efficiency of drawing	

Setting details for figures and objects	GT Designer3 (GOT2000) Help
Setting functions for the data collection or trigger action	
Setting functions to use peripheral devices	

Simulating a created project on a personal computer	GT Designer3 (GOT2000) Help

■ Connecting a controller to the GOT

Obtaining information of Mitsubishi products applicable to the GOT	GOT2000 Series Connection Manual (Mitsubishi Products) for GT Works3 Version1
Connecting Mitsubishi products to the GOT	
Connecting multiple controllers to one GOT (Multi-channel function)	
Establishing communication between a personal computer and a controller via the GOT (FA transparent function)	

Obtaining information of Non-Mitsubishi products applicable to the GOT	• GOT2000 Series Connection Manual (Non-Mitsubishi Products 1) for GT Works3 Version1
Connecting Non-Mitsubishi products to the GOT	• GOT2000 Series Connection Manual (Non-Mitsubishi Products 2) for GT Works3 Version1

Obtaining information of peripheral devices applicable to the GOT	GOT2000 Series Connection Manual (Microcomputer, MODBUS Products, Peripherals) for GT Works3 Version1
Connecting peripheral devices including a barcode reader to the GOT	

■ Transferring data to the GOT

Writing data to the GOT	GT Designer3 (GOT2000) Help
Reading data from the GOT	
Verifying a editing project to a GOT project	

■ Others

Obtaining specifications (including part names, external dimensions, and options) of each GOT	GOT2000 Series User's Manual (Hardware)
Installing the GOT	
Operating the utility	GOT2000 Series User's Manual (Utility)
Configuring the gateway function	GT Designer3 (GOT2000) Help
Configuring the extended function and option function	GOT2000 Series User's Manual (Monitor)
Using a personal computer as the GOT	GT SoftGOT2000 Version1 Operating Manual for GT Works3 Version1

ABBREVIATIONS AND GENERIC TERMS

■ GOT

Abbreviations and generic terms			Description
GOT2000 Series	GT27	GT2712-S	GT2712-STBA, GT2712-STWA, GT2712-STBD, GT2712-STWD
		GT2710-S	GT2710-STBA?GT2710-STBD
		GT2710-V	GT2710-VTBA, GT2710-VTWA, GT2710-VTBD, GT2710-VTWD
		GT2708-S	GT2708-STBA?GT2708-STBD
		GT2708-V	GT2708-VTBA?GT2708-VTBD
	GT23	GT2310-V	GT2310-VTBA?GT2310-VTBD
		GT2308-V	GT2308-VTBA?GT2308-VTBD
	GT SoftGOT2000		GT SoftGOT2000 Version1
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 Controller Network communication unit	GT15-J71GP23-SX
CC-Link IE Field Network communication unit	GT15-J71GF13-T2
CC-Link communication unit	GT15-J61BT13
Serial multi-drop connection unit	GT01-RS4-M
Connection conversion adapter	GT10-9PT5S

■ Option unit

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

■ Option

Abbreviations and generic terms		Description
SD card		L1MEM-2GBSD, L1MEM-4GBSD
Battery		GT11-50BAT, GT11-BAT
Protective sheet	For GT27	GT27-12PSCC, GT25-10PSCC, GT25-08PSCC, GT27-12PSCB-UC, GT25-10PSCB-UC, GT25-08PSCB-UC
	For GT23	GT23-10PSCB, GT23-08PSCB
Protective cover for oil		GT20-10PCO, GT20-08PCO
USB environmental protection cover		GT25-UCOV
Stand		GT15-90STAND, GT15-80STAND, GT15-70STAND, GT15-60STAND
Attachment		GT15-70ATT-98, GT15-70ATT-87, GT15-60ATT-97, GT15-60ATT-96, GT15-60ATT-87, GT15-60ATT-77

■ Software

(1) Software related to GOT

Abbreviations and generic terms	Description
GT Works3	SW1DNC-GTW3-J, SW1DND-GTW3-J, SW1DNC-GTW3-E, SW1DND-GTW3-E, SW1DND-GTW3-C
GT Designer3 Version1	Screen drawing software GT Designer3 for GOT2000/GOT1000 series
GT Designer3	Screen drawing software for GOT2000 series included in GT Works3
GT Designer3 (GOT2000)	
GT Designer3 (GOT1000)	Screen drawing software for GOT1000 series included in GT Works3
GT Simulator3	Screen simulator GT Simulator3 for GOT2000/GOT1000/GOT900 series
GT SoftGOT2000	Monitoring software GT SoftGOT2000 series
GT Converter2	Data conversion software GT Converter2 for GOT1000/GOT900 series
GT Designer2 Classic	Screen drawing software GT Designer2 Classic for GOT900 series
GT Designer2	Screen drawing software GT Designer2 for GOT1000/GOT900 series
DU/WIN	Screen drawing software FX-PCS-DU/WIN for GOT-F900 series

(2) Software related to GOT

Abbreviations and generic terms	Description
GT Works3	SW1DNC-GTW3-J, SW1DND-GTW3-J, SW1DNC-GTW3-E, SW1DND-GTW3-E, SW1DND-GTW3-C
GT Designer3 Version1	Screen drawing software GT Designer3 for GOT2000/GOT1000 series
GT Designer3	Screen drawing software for GOT2000 series included in GT Works3
GT Designer3 (GOT2000)	
GT Designer3 (GOT1000)	Screen drawing software for GOT1000 series included in GT Works3
GT Simulator3	Screen simulator GT Simulator3 for GOT2000/GOT1000/GOT900 series
GT SoftGOT2000	Monitoring software GT SoftGOT2000 series
GT Converter2	Data conversion software GT Converter2 for GOT1000/GOT900 series
GT Designer2 Classic	Screen drawing software GT Designer2 Classic for GOT900 series
GT Designer2	Screen drawing software GT Designer2 for GOT1000/GOT900 series
DU/WIN	Screen drawing software FX-PCS-DU/WIN for GOT-F900 series

(3) Other software

Abbreviations and generic terms	Description
GX Works2	SW□DNC-GXW2-J (-JA, -JAZ) type programmable controller engineering software (□ indicates a version.)
GX Simulator2	GX Works2 with the simulation function
GX Simulator	SW□D5C-LLT-J (-JV) type ladder logic test tool function software package (SW5D5C-LLT (-V) or later versions) (□ indicates a version.)
GX Developer	SW□D5C-GPPW-J (-JV)/SW□D5F-GPPW (-V) type software package (□ indicates a version.)
GX LogViewer	SW□DNN-VIEWER-J type software package (□ indicates a version.)
PX Developer	SW□D5C-FBDQ-J type FBD software package for process control (□ indicates a version.)
MT Works2	Motion controller engineering environment MELSOFT MT Works2(SW□DNC-MTW2-J) (□ indicates a version.)
MT Developer	SW□RNC-GSV type integrated start-up support software for motion controller Q series (□ indicates a version.)
MR Configurator2	SW□DNC-MRC2-J type servo configuration software (□ indicates a version.)
MR Configurator	MRZJW□-SETUP type servo configuration software (□ indicates a version.)
FR Configurator	Inverter setup software (FR-SW□-SETUP-WJ) (□ indicates a version.)
NC Configurator	CNC parameter setting support tool NC Configurator
FX Configurator-FP	Parameter setting, monitoring, and testing software packages for FX3U-20SSC-H (SW□D5CFXSSCJ) (□ indicates a version.)
FX3U-ENET-L Configuration tool	FX3U-ENET-L type Ethernet module setting software (SW1D5-FXENETL-J)
RT ToolBox2	Robot program creation software (3D-11C-WINJ)
MX Component	MX Component Version□(SW□D5C-ACT-J, SW□D5C-ACT-JA) (□ indicates a version.)
MX Sheet	MX Sheet Version□(SW□D5C-SHEET-J, SW□D5C-SHEET-JA) (□ indicates a version.)
QnUDVCPU·LCPU Logging Configuration Tool	QnUDVCPU·LCPU logging configuration tool (SW1DNN-LLUTL-J)

■ License key (for GT SoftGOT1000)

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
KOYO EI	KOYO ELECTRONICS INDUSTRIES CO., LTD.
JTEKT	JTEKT Corporation
SHARP	Sharp Manufacturing Systems Corporation
SHINKO	Shinko Technos Co., Ltd.
CHINO	CHINO CORPORATION
TOSHIBA	TOSHIBA CORPORATION
TOSHIBA MACHINE	TOSHIBA MACHINE CO., LTD.
PANASONIC	Panasonic Corporation
PANASONIC IDS	Panasonic Industrial Devices SUNX Co., Ltd.
HITACHI IES	Hitachi Industrial Equipment Systems Co., Ltd.
HITACHI	Hitachi, Ltd.
FUJI ELECTRIC	FUJI ELECTRIC CO., LTD.
YASKAWA	YASKAWA Electric Corporation
YOKOGAWA	Yokogawa Electric Corporation
RKC	RKC INSTRUMENT INC.
ALLEN-BRADLEY	Allen-Bradley products manufactured by Rockwell Automation, Inc.
GE IP	GE Intelligent Platforms KK
LS IS	LS Industrial Systems Co., Ltd.
SCHNEIDER	Schneider Electric SA
SICK	SICK AG
SIEMENS	Siemens AG
PLC	Programmable controller manufactured by each corporation
Control equipment	Control equipment manufactured by each corporation
Temperature controller	Temperature controller manufactured by each corporation
Indicating controller	Indicating controller manufactured by each corporation
Controller	Controller manufactured by each corporation

■ **Symbols**

Following symbols are used in this manual.

Following GOT is shown.

| GT 27 | Shows GT27. |
| GT 23 | Shows GT23. |

PLC			Connection cable			GOT		Number of connectable equipments
Model name	RS-232 interface cable	Communication type	Connection diagram number	Max. distance		Option device	Model	
AL2-14MR AL2-24MR	AL2-GSM-CAB	RS-232	(User making)RS232 connection diagram 1)	15m		- (Built into GOT)	GT 27 GT 23	1 GOT for 1 PLC
						GT15-RS2-9P	GT 27 GT 23	

2.4 GOT Side Settings

2.4.1 Setting communication interface (Communication settings)

Set the channel of the connected equipments.

2.

3.
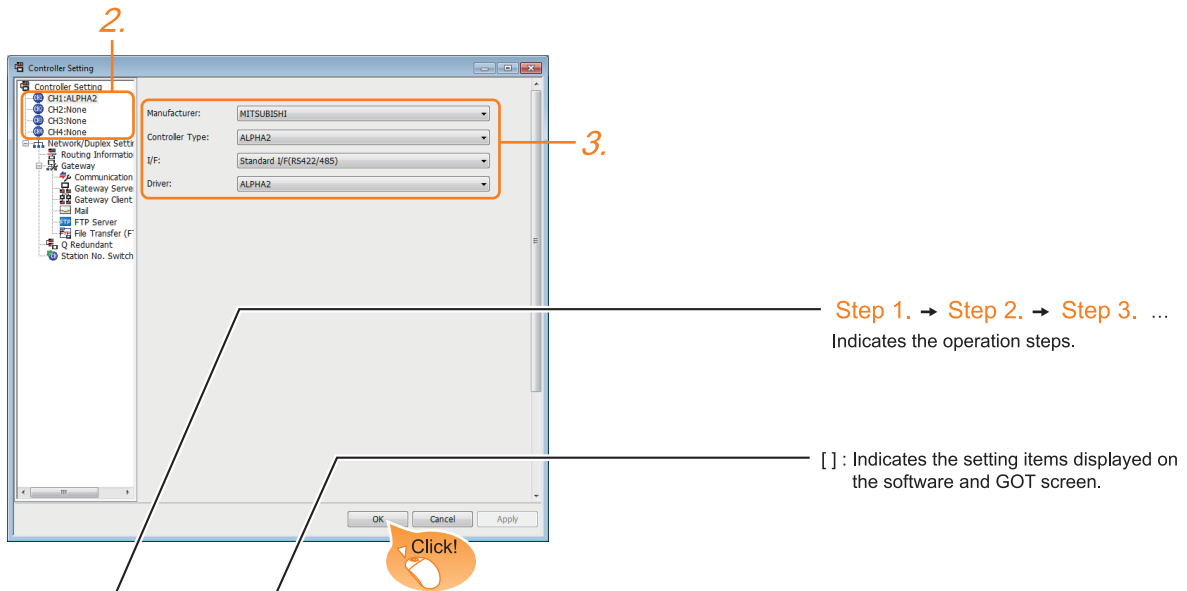
Step 1. → Step 2. → Step 3. …
Indicates the operation steps.

[ ] : Indicates the setting items displayed on the software and GOT screen.

Click!

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

Step 2. The Controller Setting window is displayed. Select the channel to be used from the list menu.

Step 3. Select the followings.
Manufacturer: MITSUBISHI
Controller Type: ALPHA2
I/F: Interface to be used
Driver: ALPHA2

POINT Refers to the information required.

Step 4. Click the [OK] button when settings are completed.

POINT

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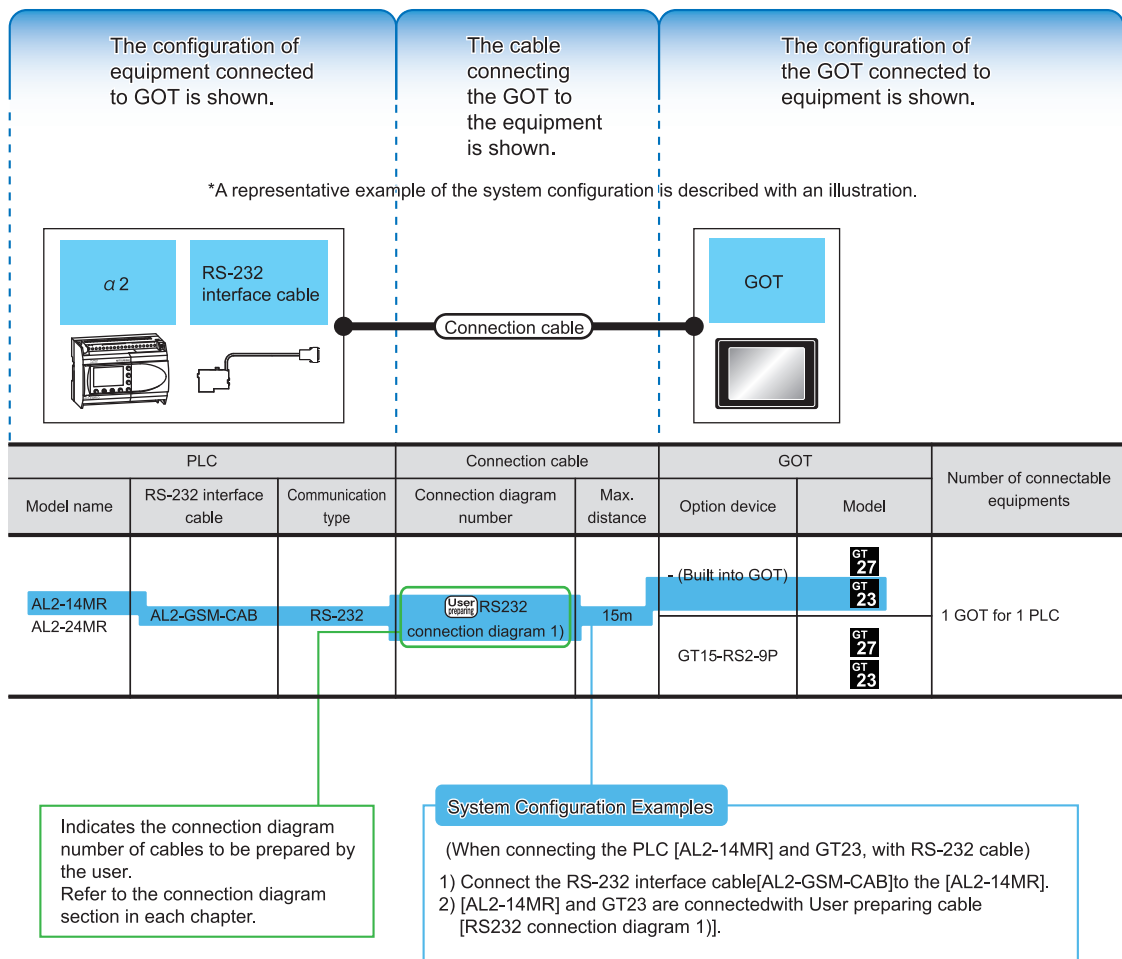For details, refer to the following.

➡ 1.1.2 I/F communication setting

Indicates the location of related content.

Since the above page was created for explanation purpose, it differs from the actual page.

■ About system configuration

The following describes the system configuration of each connection included in this manual.

| The configuration of equipment connected to GOT is shown. | The cable connecting the GOT to the equipment is shown. | The configuration of the GOT connected to equipment is shown. |

*A representative example of the system configuration is described with an illustration.

α2 | RS-232 interface cable

Connection cable

GOT

PLC			Connection cable		GOT		Number of connectable equipments
Model name	RS-232 interface cable	Communication type	Connection diagram number	Max. distance	Option device	Model	
AL2-14MR AL2-24MR	AL2-GSM-CAB	RS-232	(User preparing) RS232 connection diagram 1)	15m	- (Built into GOT)	GT 27 GT 23	1 GOT for 1 PLC
					GT15-RS2-9P	GT 27 GT 23	

Indicates the connection diagram number of cables to be prepared by the user.
Refer to the connection diagram section in each chapter.

System Configuration Examples

(When connecting the PLC [AL2-14MR] and GT23, with RS-232 cable)

1) Connect the RS-232 interface cable[AL2-GSM-CAB]to the [AL2-14MR].
2) [AL2-14MR] and GT23 are connectedwith User preparing cable
   [RS232 connection diagram 1)].

Since the above page was created for explanation purpose, it differs from the actual page.

MEMO

1. PREPARATORY PROCEDURES FOR MONITORING

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

Setting the communication interface Determine the connection type and channel No. to be used, and perform the communication setting.	➡ 1.1Setting the Communication Interface ➡ Each chapter GOT Side Settings

⬇

Writing the project data and OS Write the standard monitor OS, communication driver, option OS, project data and communication settings onto the GOT.	➡ 1.2.1Writing the package data onto the GOT

⬇

Verifying the project data and OS Verify the standard monitor OS, communication driver, option OS, project data and communication settings are properly written onto the GOT.	➡ 1.2.2Checking the package data writing on GOT

⬇

Attaching the communication unit and connecting the cable Mount the optional equipment and prepare/connect the connection cable according to the connection type.	➡ 1.3Option Devices for the Respective Connection ➡ 1.4Connection Cables for the Respective Connection ➡ Each chapter System Configuration ➡ Each chapter Connection Diagram

⬇

Verifying GOT recognizes connected equipment Verify the GOT recognizes controllers on [Communication Settings] of the Utility.	➡ 1.5Verifying GOT Recognizes Connected Equipment

⬇

Verifying the GOT is monitoring normally Verify the GOT is monitoring normally using Utility, Developer, etc.	➡ 1.6Checking 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.

1.1.1 Setting connected equipment (Channel setting)

Set the channel of the equipment connected to the GOT.
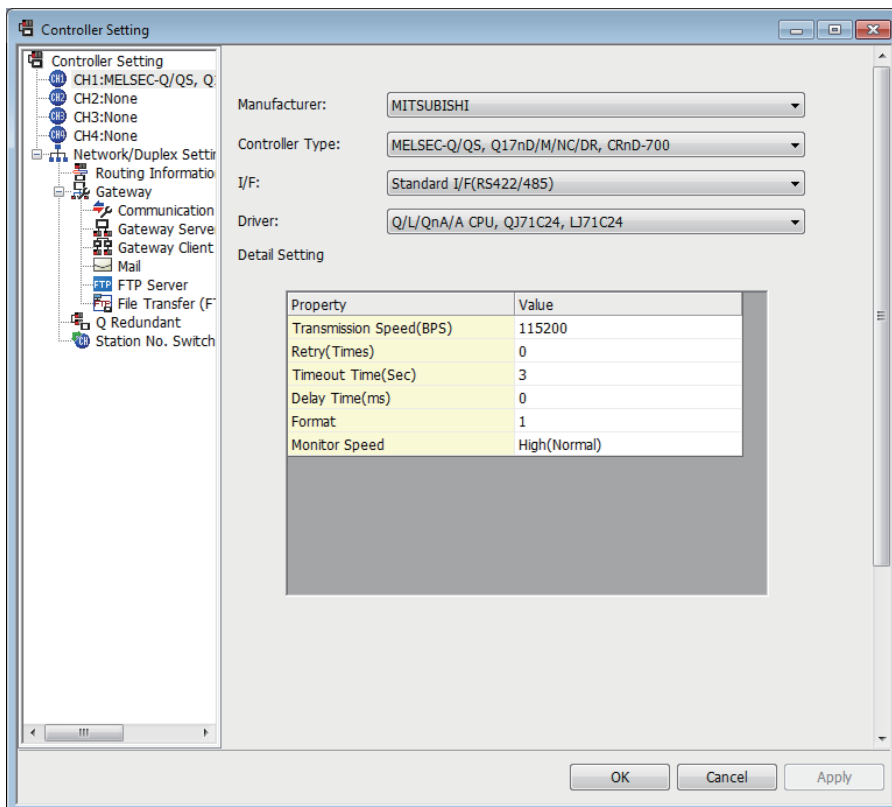
■1. Setting

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

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

Step 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.
>
> ➡ Mitsubishi Products 21. MULTI-CHANNEL FUNCTION

■2. Setting item

This section describes the setting items of the Manufacturer, Controller Type, Driver and I/F.
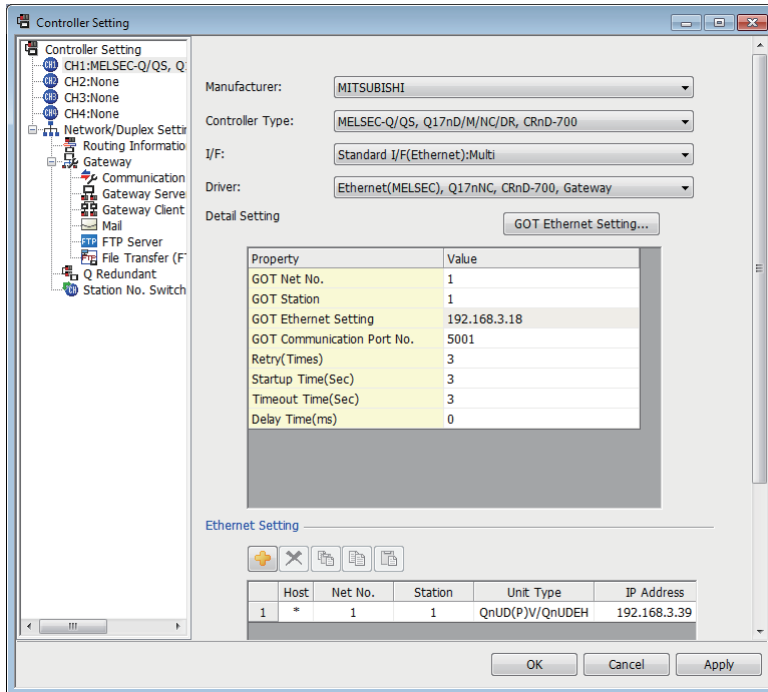
Item	Description
Manufacturer	Select the manufacturer of the equipment to be connected to the GOT.
Type	Select the type of the equipment to be connected to the GOT. For the settings, refer to the following. ➡ (2)Setting [Controller Type]
I/F	Select the interface of the GOT to which the equipment is connected.For the settings, refer to the following. ➡ (3)Setting [I/F]
Driver	Select the communication driver to be written to the GOT. For the settings, refer to the following. ➡ (1)Setting [Driver]
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.

(1) 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

(2) **Setting [Controller Type]**
The types for the selection differs depending on the PLC to be used.
For the settings, refer to the following.

Type	Model name			
MELSEC-Q/QS, Q17nD/M/NC/DR, CRnD-700	Q00CPU	Q01CPU	Q02CPU	
	Q02HCPU	Q06HCPU	Q12HCPU	Q25HCPU
	Q02PHCPU	Q06PHCPU	Q12PHCPU	Q25PHCPU
	Q172CPU	Q173CPU	Q172CPUN	Q173CPUN
	Q172HCPU	Q173HCPU		
	Q00UJCPU	Q00UCPU	Q01UCPU	Q02UCPU
	Q03UDCPU			
	Q04UDHCPU	Q06UDHCPU	Q10UDHCPU	Q13UDHCPU
	Q20UDHCPU	Q26UDHCPU		
	Q03UDECPU	Q04UDEHCPU	Q06UDEHCPU	Q10UDEHCPU
	Q13UDEHCPU	Q20UDEHCPU	Q26UDEHCPU	Q50UDEHCPU
	Q100UDEHCPU			
	Q03UDVCPU	Q04UDVCPU	Q06UDVCPU	Q13UDVCPU
	Q26UDVCPU			
	Q04UDPVCPU	Q06UDPVCPU	Q13UDPVCPU	Q26UDPVCPU
	Q12DCCPU-V	Q24DHCCPU-V	Q24DHCCPU-LS	
	Q172DCPU	Q173DCPU	Q172DCPU-S1	Q173DCPU-S1
	Q172DSCPU	Q173DSCPU	Q170MCPU	Q170MSCPU
	Q170MSCPU-S1			
	CNC C70(Q173NCCPU)		CRnQ-700(Q172DRCPU)	
	CR750-Q(Q172DRCPU)		CR751-Q(Q172DRCPU)	
	CRnD-700	CR75 0-D	CR75 1-D	
MELSEC-QnA, MELDAS C6*	Q00JCPU	Q00CPU	Q01CPU	Q02CPU
	Q02HCPU	Q06HCPU	Q12HCPU	Q25HCPU
	Q02PHCPU	Q06PHCPU	Q12PHCPU	Q25PHCPU
	Q12PRHCPU	Q25PRHCPU		
	QS001CPU[3]			
	Q2ACPU	Q2ACPU-S1	Q3ACPU	Q4ACPU
	Q4ARCPU			
	Q2ASCPU	Q2ASCPU-S1	Q2ASHCPU	Q2ASHCPU-S1
	MELDAS C6(FCA C6)		MELDAS C64(FCA C64)	
MELSEC-L	L02CPU	L06CPU	L26CPU	L26CPU-BT
	L02CPU-P	L06CPU-P	L26CPU-P	L26CPU-PBT
	L02SCPU	L02SCPU-P		
	NZ2GF-ETB			

*1 When using the multiple CPU system
When using the GOT to monitor the multiple CPU system of other station, select [MELSEC-Q/QS, Q17nD/M/NC/DR, CRnD-700]for the type regardless of the host PLC CPU type.
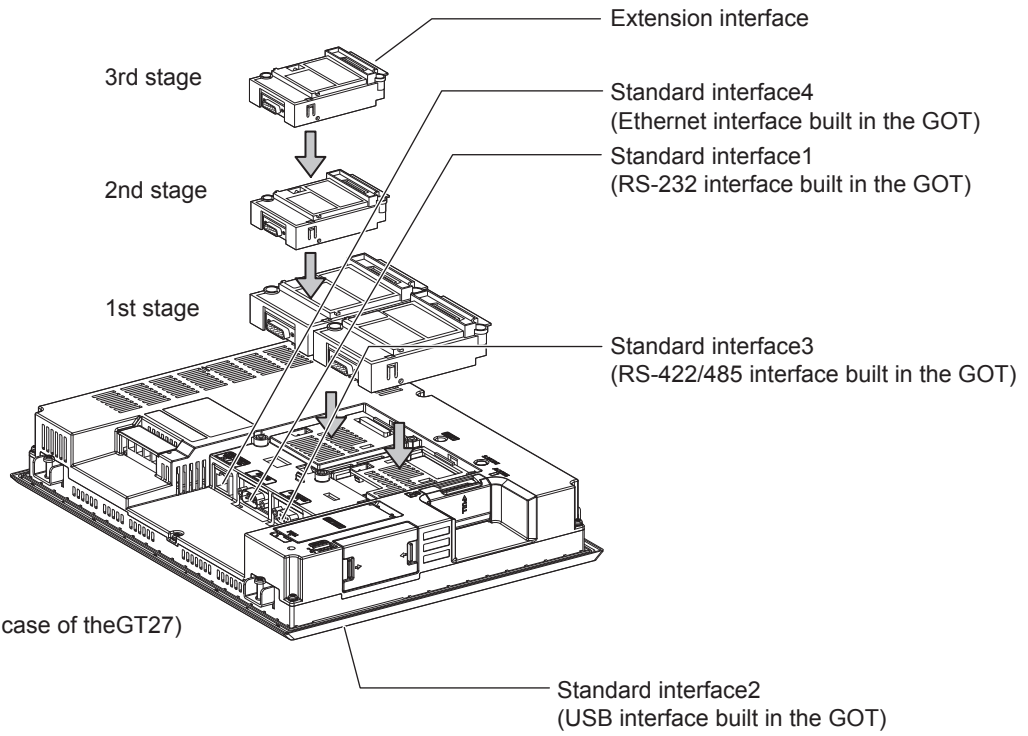*2 When connecting to the remote I/O station in the MELSECNET/H network system, set the type to [MELSEC-QnA, MELDAS C6 *].

Type	Model name			
MELSEC-A	A2UCPU	A2UCPU-S1	A3UCPU	A4UCPU
	A2ACPU	A2ACPUP21	A2ACPUR21	A2ACPU-S1
	A2ACPUP21-S1	A2ACPUR21-S1	A3ACPU	A3ACPUP21
	A3ACPUR21			
	A1NCPU	A1NCPUP21	A1NCPUR21	A2NCPU
	A2NCPUP21	A2NCPUR21	A2NCPU-S1	A2NCPUP21-S1
	A2NCPUR21-S1	A3NCPU	A3NCPUP21	A3NCPUR21
	A2USCPU	A2USCPU-S1	A2USHCPU-S1	
	A1SCPU	A1SCPUC24-R2	A1SHCPU	A2SCPU
	A2SHCPU	A1SJCPU	A1SJCPU-S3	A1SJHCPU
	A0J2HCPU	A0J2HCPUP21	A0J2HCPUR21	A0J2HCPU-DC24
	A2CCPU	A2CCPUP21	A2CCPUR21	A2CCPUC24
	A2CCPUC24-PRF	A2CJCPU-S3		
	A1FXCPU			
	A273UCPU	A273UHCPU	A273UHCPU-S3	A373UCPU
	A373UCPU-S3			
	A171SCPU	A171SCPU-S3	A171SCPU-S3N	A171SHCPU
	A171SHCPUN	A172SHCPU	A172SHCPUN	A173UHCPU
	A173UHCPU-S1			
MELSEC-FX	FX$_0$	FX$_{0S}$	FX$_{0N}$	FX$_1$
	FX$_2$	FX$_{2C}$	FX$_{1S}$	FX$_{1N}$
	FX$_{2N}$	FX$_{1NC}$	FX$_{2NC}$	FX$_{3S}$
	FX$_{3G}$	FX$_{3GC}$	FX$_{3U}$	FX$_{3UC}$
MELSEC-WS	WS0-CPU0	WS0-CPU1		
MELSERVO-J2M-*DU	MELSERVO-J2M-P8A		MELSERVO-J2M-*DU	
	MELSERVO-J2S-*A		MELSERVO-J2S-*CP	
	MELSERVO-J2S-*CL		MELSERVO-J3-*A	
	MELSERVO-J3-*T		MELSERVO-J4-*A	
FREQROL 500/700 Series	FREQROL-S500	FREQROL-S500E		
	FREQROL-E500			
	FREQROL-F500	FREQROL-F500L	FREQROL-F500J	
	FREQROL-A500	FREQROL-A500L		
	FREQROL-V500	FREQROL-V500L		
	FREQROL-E700			
	FREQROL-F700	FREQROL-F700P	FREQROL-F700PJ	
	FREQROL-A700			

(3) 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.

Extension interface

3rd stage

Standard interface4
(Ethernet interface built in the GOT)

2nd stage

Standard interface1
(RS-232 interface built in the GOT)

1st stage

Standard interface3
(RS-422/485 interface built in the GOT)

(Example: In the case of theGT27)

Standard interface2
(USB interface built in the GOT)

1.1.2 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.

■1. Setting

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

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

■2. Setting item

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

Item		Description
Standard I/F setting		Set channel No. and drivers to the GOT standard interfaces. Standard I/F-1, Standard I/F-2, Standard I/F-3, Standard I/F-4
	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) 8 :Used for barcode function, RFID function, remote personal computer operation (serial) 9 :Used for connecting Host (PC), Ethernet download A :Used for gateway function Multi:Used for Ethernet multiple connection
	Driver	Set the driver for the device to be connected. ・ None ・ Host (Personal computer) ・ Each communication driver for connected devices
	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.
	RS232 Setting	To validate the 5V power supply function in RS232, mark the [Enable the 5V power supply] checkbox. The RS232 setting is invalid in the following cases. ・ CH No. of [I/F-2: RS232] is [9]
Extension I/F setting		Set the communication unit attached to the extension interface of the GOT.
	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 :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 (serial) A :Video/RGB input funcyion, multimedia function, external I/O/operation panel function, RGB display function, sound output function
	Driver	Set the driver for the device to be connected. ・ None ・ Each driver for connected devices
	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.

POINT

Channel No., drivers, [RS232 Setting]

(1) 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.

➡ Mitsubishi Products 21. MULTI-CHANNEL FUNCTION

(2) 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] section in each chapter

1.1.3 Precautions

(1) 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, CRnD-700]for the type, regardless of the host PLC CPU type (QCPU, QnACPU, ACPU). When other models are selected, the setting of the CPU No. becomes unavailable.

(2) Precautions for changing model

(a) 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.

(b) When the changed Manufacturer or Controller Type does not correspond to the network.

The network will be set to the host station.

(c) 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].
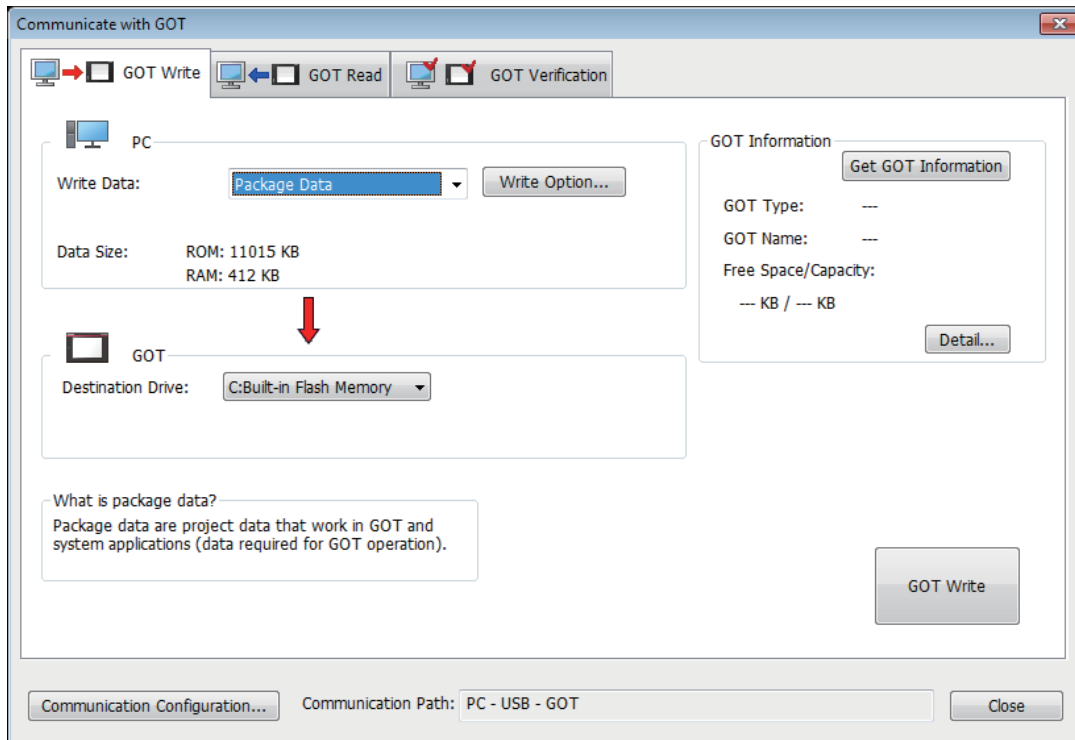
1.2   Writing the Package Data onto the GOT

Write the Package Data onto the GOT.
For details on writing to GOT, refer to the following manual.

➟ GT Designer3 Version□ Screen Design Manual
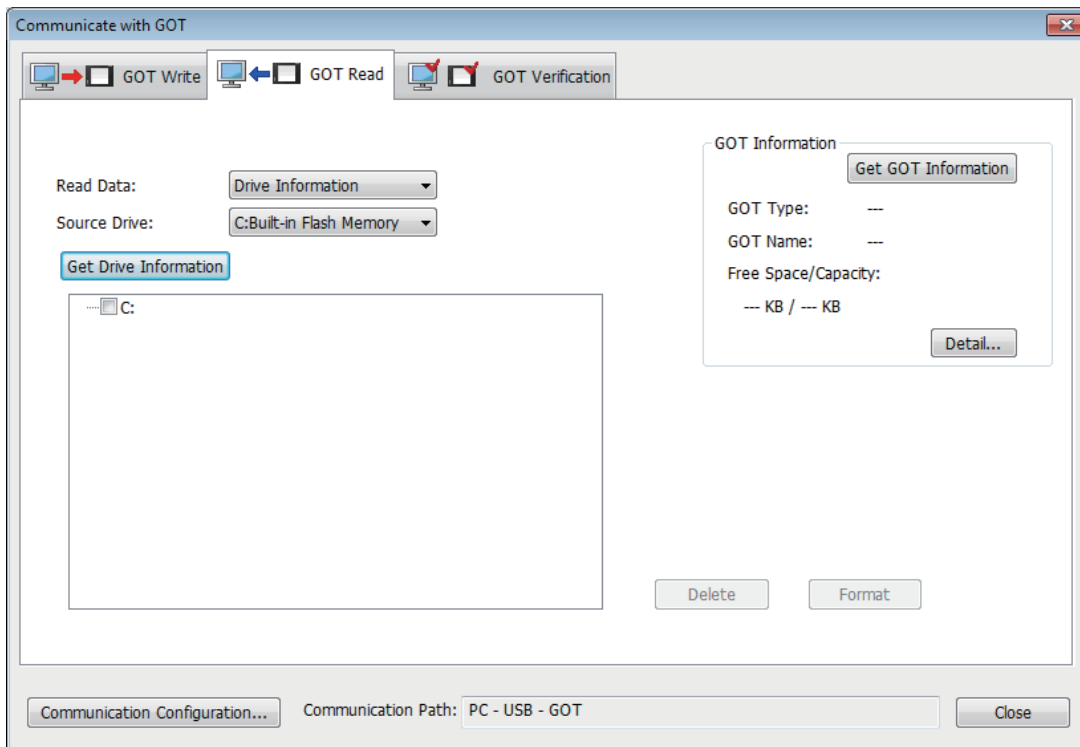
1.2.1   Writing the package data onto the GOT

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

Step 2.   The [Communication configuration] dialog box appears.
Set the communication setting between the GOT and the personal computer.
Click the [OK] button when settings are completed.

Step 3.   The [GOT Write] tab appears into the [Communicate with GOT] dialog box. Confirm if the Write Data is [Package Data]. If not selected, select the [Package Data].

Step 4.   Check the [Destination Drive], and then click the [GOT Write] button.

1.2.2 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) Help

Step 1. Select [Communication] → [Read from GOT…] from the menu.

Step 2. The [Communication configuration] dialog box appears.
Set the communication setting between the GOT and the personal computer.
Click the [OK] button when settings are completed.

Step 3. The [GOT Read] tab appears into the [Communicate with GOT] dialog box.
Change the Read Data from the [Project Data] to the [Drive Information].

Step 4. Click the [Get Drive Information] button.

Step 5. Confirm that the package data are 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.

1.3.1 Communication module

Product name	Model	Specifications
Bus connection unit	GT15-QBUS	For QCPU (Q mode), motion controller CPU (Q series) Bus connection (1ch) unit standard model
	GT15-QBUS2	For QCPU (Q mode), motion controller CPU (Q series) Bus connection (2ch) unit standard model
	GT15-ABUS	For A/QnACPU, motion controller CPU (A series) Bus connection (1ch) unit standard model
	GT15-ABUS2	For A/QnACPU, motion controller CPU (A series) Bus connection (2ch) unit standard model
	GT15-75QBUSL	For QCPU (Q mode), motion controller CPU (Q series) Bus connection (1ch) unit slim model
	GT15-75QBUS2L	For QCPU (Q mode), motion controller CPU (Q series) Bus connection (2ch) unit slim model
	GT15-75ABUSL	For A/QnACPU, motion controller CPU (A series) Bus connection (1ch) unit slim model
	GT15-75ABUS2L	For A/QnACPU, motion controller CPU (A series) Bus connection (1ch) unit slim model
Serial communication module	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 module	GT15-J71LP23-25	Optical loop unit
	GT15-J71BR13	Coaxial bus unit
MELSECNET/10 Communication module	GT15-J71LP23-25	Optical loop unit (for use with the MELSECNET/H unit in the NET/10 mode)
	GT15-J71BR13	Coaxial bus unit (for use with the MELSECNET/H unit in the NET/10 mode)
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

1.3.2 Option unit

Product name	Model	Specifications
Printer unit	GT15-PRN	USB slave (PictBridge) for connecting printer 1 ch
Multimedia unit	GT27-MMR-Z	For video input signal (NTSC/PAL) 1 ch, playing movie (GT16M-MMR + GT27-IF1000 set)
Video input unit	GT27-V4-Z	For video input signal (NTSC/PAL) 4 ch (GT16M-V4 + GT27-IF1000 set)
RGB input unit	GT27-R2-Z	For analog RGB input signal 2 ch (GT16M-R2 + GT27-IF1000 set)
Video/RGB input unit	GT27-V4R1-Z	For video input signal (NTSC/PAL) 4 ch, for analog RGB mixed input signal 1 ch (GT16M-V4R1 + GT27-IF1000 set)
RGB output unit	GT27-ROUT-Z	For analog RGB output signal 1 ch (GT16M-ROUT + GT27-IF1000 set)
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)

1.3.3 Serial Multi-Drop Connection Unit

Product name	Model	Specifications
Serial multi-drop connection unit	GT01-RS4-M	GOT multi-drop connection module ➠ Mitsubishi Products 19. GOT MULTI-DROP CONNECTION

1.3.4 Installing a unit on another unit (Checking the unit installation position)

This section describes the precautions for installing units on another unit.
For the installation method of each unit, refer to the User's Manual for the communication unit and option unit you are using.
For the method for installing a unit on another unit, refer to the following.

➡ User's Manual of GOT used.

■1. Calculating consumed current

For using multiple extension units, a bar code reader, or a RFID controller, the total current for the extension units, bar code reader, or RFID controller must be within the current that the GOT can supply.
For the current that the GOT can supply and the current for the extension units, bar code reader, or RFID controller, refer to the following tables. Make sure that the total of consumed current is within the capacity of the GOT.

(1) Current supply capacity of the GOT

GOT type	Current supply capacity (A)
GT2710-V	2.4
GT2708-V	2.4
GT2310-V	2.4
GT2308-V	2.4

(2) Current consumed by an extension unit/barcode reader/RFID controller

Module type	Consumed current (A)	Module type	Consumed current (A)
GT15-QBUS, GT15-QBUS2, GT15-75QBUSL, GT15-75QBUS2L	0.275[*1]	GT27-V4-Z	0.12[*1]
GT15-ABUS, GT15-ABUS2, GT15-75ABUSL, GT15-75ABUS2L	0.12	GT27-R2-Z	0[*1]
GT15-RS2-9P	0.29	GT27-V4R1-Z	0.12[*1]
GT15-RS4-9S	0.33	GT27-ROUT-Z	0.11[*1]
GT15-RS4-TE	0.3	GT27-MMR-Z	0.27[*1]
GT15-J71GP23-SX	1.07	GT15-SOUT	0.08
GT15-J71LP23?25	0.56	GT15-DIO	0.1
GT15-J71BR13	0.77	GT15-DIOR	0.1
GT15-J61BT13	0.56	RFID controller	*2
Bar code reader	*2		
GT15-PRN	0.09		

*1 Value used for calculating the current consumption of the multi-channel function.
For the specifications of the unit, refer to the manual included with the unit.

*2 When the GOT supplies power to a barcode reader or a RFID controller from the standard interface, add their consumed current. (Maximum value is less than 0.3 A)

(3) Calculation example

(a) When connecting the GT15-J71BR13, GT15-RS4-9S (3 units), GT15-J71E71-100 (For the gateway function) and a bar code reader (0.12 A) to the GT1575-V

Current supply capacity of GOT (A)	Total consumed current (A)
2.2	0.77+0.33+0.33+0.33+0.224+0.12=2.104

Since the calculated value is within the capacity of the GOT, they can be connected to the GOT.

(b) When connecting the GT15-J71BR13, GT15-RS4-9S (2 units), GT15-J71E71-100 (For the gateway function) and a bar code reader (0.12 A) to the GT1585-S

Current supply capacity of GOT (A)	Total consumed current (A)
1.74	0.77+0.33+0.33+0.224+0.12=1.774

Since the calculated value exceeds the capacity of the GOT, such configuration is not allowed.
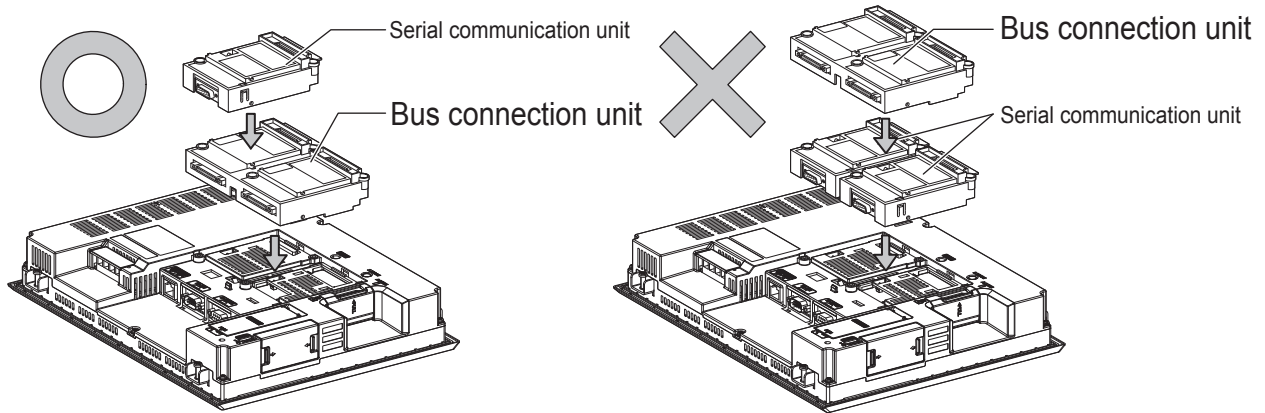
■2. **When using a bus connection unit**

The installation position varies depending on the bus connection unit to be used.

(1) **Wide bus units (GT15-75QBUS(2)L, GT15-75ABUS(2)L, GT15-QBUS2, GT15-ABUS2)**

Install a bus connection unit in the 1st stage of the extension interface.
If a bus connection unit is installed in the 2nd stage or above, the unit cannot be used.
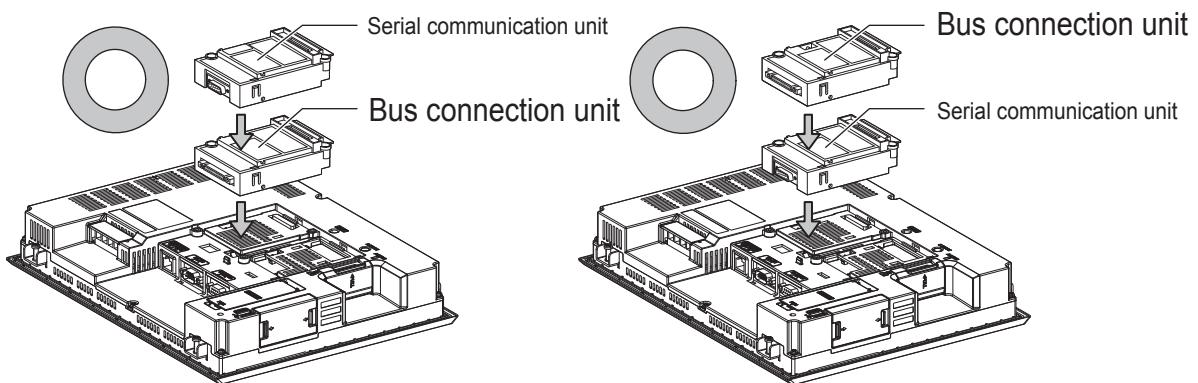
Example: Installing a bus connection unit and serial communication units

(2) **Standard size bus connection unit (GT15-QBUS, GT15-ABUS)**

A bus connection unit can be installed in any position (1st to 3rd stage) of the extension interface.

Example: Installing a bus connection unit and serial communication units

■3. **When using a MELSECNET/H communication unit, CC-Link IE Controller Network communication unit, CC-Link IE Field Network communication unit, or CC-Link communication unit (GT15-J61BT13)**

Install a MELSECNET/H communication unit, CC-Link IE Controller Network communication unit, CC-Link IE Field Network communication unit, or CC-Link communication unit in the 1st stage of an extension interface.
These communication units cannot be used if installed in the 2nd or higher stage.

Example: When installing a MELSECNET/H communication unit and a serial communication unit
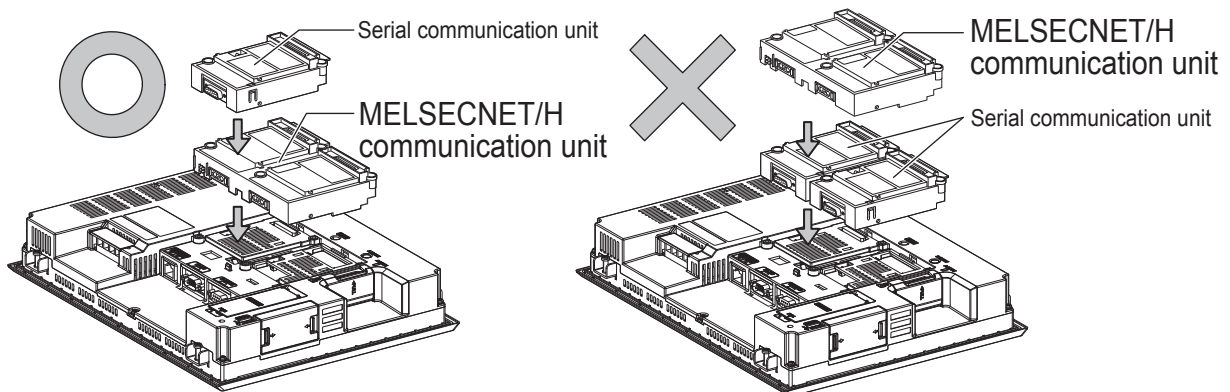
■4. When using a serial communication unit

A serial communication unit can be installed in any position (1st to 3rd stage) of the extension interface.
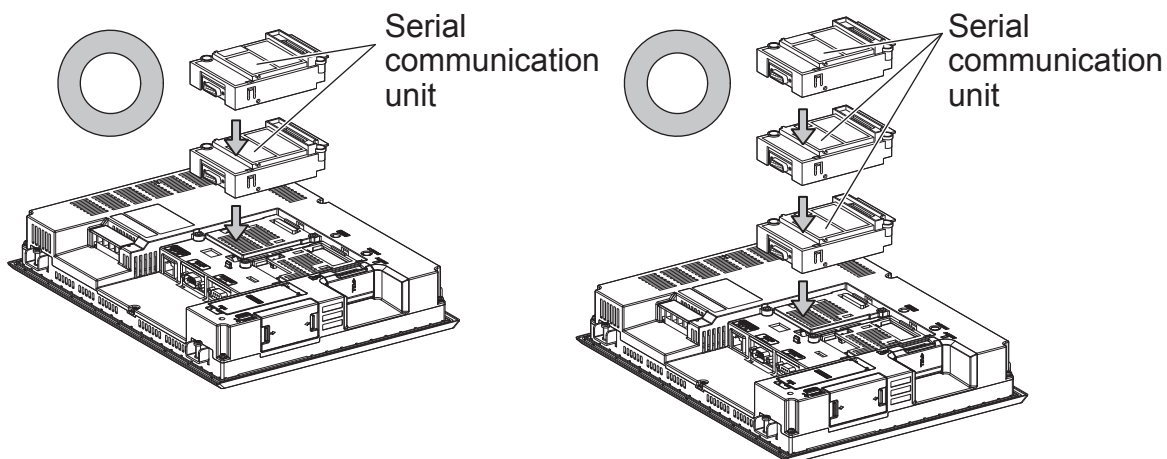
■5. When using the printer unit, sound output unit, or external I/O unit

The printer unit, sound output unit, or external I/O unit can be installed in any position (1st to 3rd stage) of the extension interface.
Example: When installing a printer unit
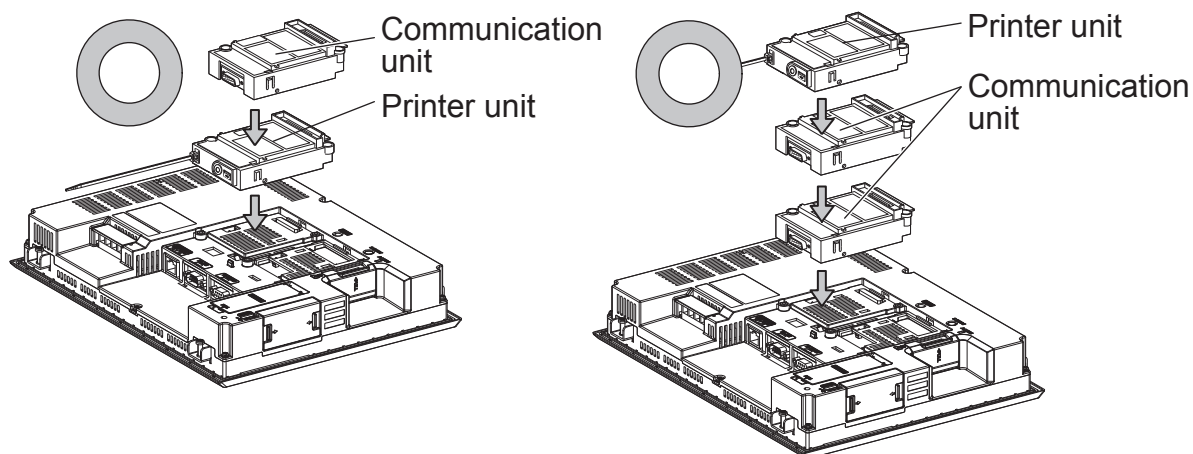
■6. When using the video input unit, RGB input unit, video/RGB input unit, RGB output unit, or multimedia unit

Install the video input unit, RGB input unit, video/RGB input unit, RGB output unit, or multimedia unit at the 1st stage of the extension interface.These units cannot be used if installed in the 2nd or higher stage.

When any of these units is used, the communication units indicated below must be installed in the 2nd stage of the extension interface.

Communication unit	Model
Bus connection unit	GT15-QBUS2, GT15-ABUS2
MELSECNET/H communication unit	GT15-J71LP23-25, GT15-J71BR13
CC-Link IE Controller Network communication unit	GT15-J71GP23-SX
CC-Link communication unit	GT15-J61BT13

Example: When installing a video input unit and a MELSECNET/H communication unit
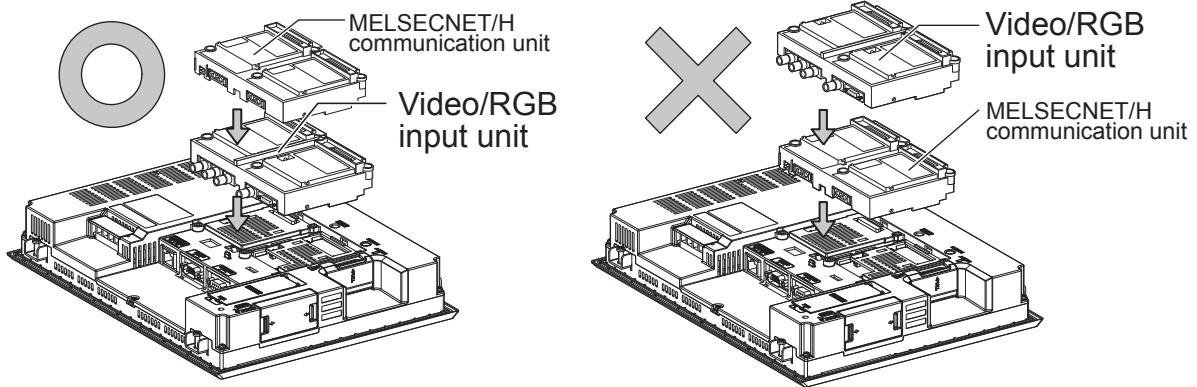
1.4　Connection Cables for the Respective Connection

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.

1.4.1　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.

■1.　RS-232 interface

Use the following as the RS-232 interface and RS-232 communication unit connector on the GOT. For the GOT side connection cable, use a connector and connector cover applicable to the GOT connector.

(1)　Connector specifications

GOT	Connector type	Connector model	Manufacturer
GT27	9-pin D-sub (male) inch screw fixed type	17LE-23090-27(D4C□)	DDK Ltd.
GT23			
GT15-RS2-9P			
GT01-RS4-M			

(2)　Connector pin arrangement

GOT2000

GOT main part connector
see from the front

5　　　　1

9　　　　6

9-pin D-sub (female)
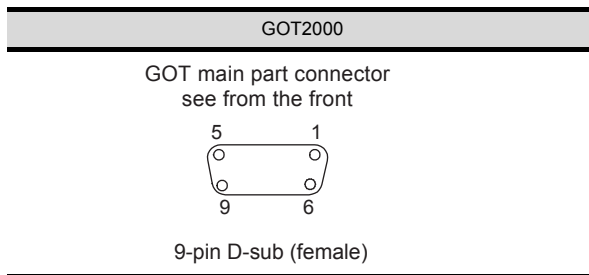
■2.　RS-422/485 interface

Use the following as the RS-422/485interface and the RS-422/485communication unit connector on the GOT. For the GOT side of the connection cable, use a connector and connector cover applicable to the GOT connector.

(1)　Connector model

GOT	Interface	Connector type	Connector model	Manufacturer
GT27	RS-422/485	9-pin D-sub (female) M2.6 millimeter screw fixed type	17LE-13090-27(D3AC)	DDK Ltd.
GT23	RS-422/485			
GT15-RS4-9S	RS-422/485			
GT01-RS4-M	RS-422			
GT15-RS4-TE	RS-485	—	SL-SMT3.5/10/90F BOX	Weidmuller interconnections inc

(2)　Connector pin arrangement

GOT2000

GOT main part connector
see from the front

5　　　　1

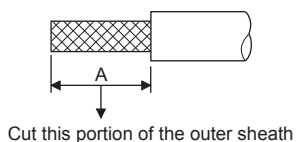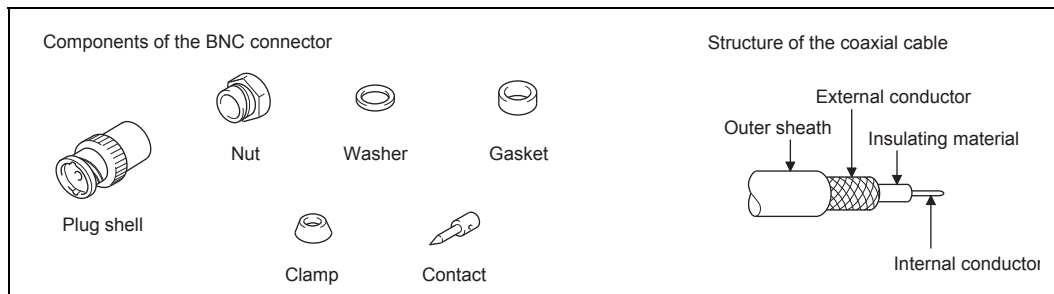9　　　　6

9-pin D-sub (female)
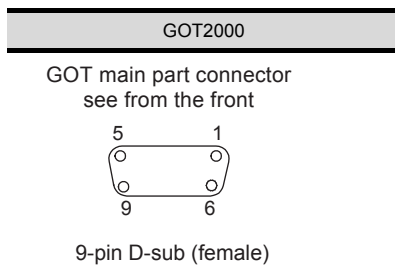
1.4.2　Coaxial cable connector connection method

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.

Components of the BNC connector

Nut　　Washer　　Gasket

Plug shell

Clamp　　Contact

Structure of the coaxial cable

External conductor

Outer sheath　　Insulating material

Internal conductor

Cut this portion of the outer sheath

Step 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

Clamp

Nut
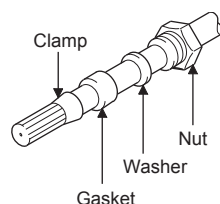
Washer

Gasket

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

Insulating material

Internal conductor

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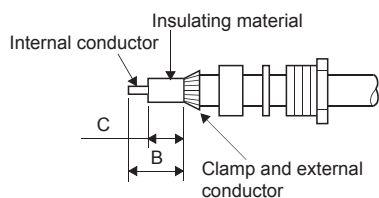
Step 3. Cut the external conductor, insulting material, and internal conductor with the dimensions as shown below.
Note that the external conductor should be cut to the same dimension as the tapered section of the clamp and smoothed down to the clamp.

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

Solder here
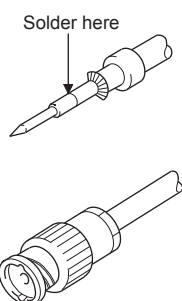
Step 4. Solder the contact to the internal conductor.

Step 5. Insert the connector 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.
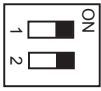

1.4.3 Terminating resistors of GOT

The following shows the terminating resistor specifications on the GOT side.
When setting the terminating resistor in each connection type, refer to the following.
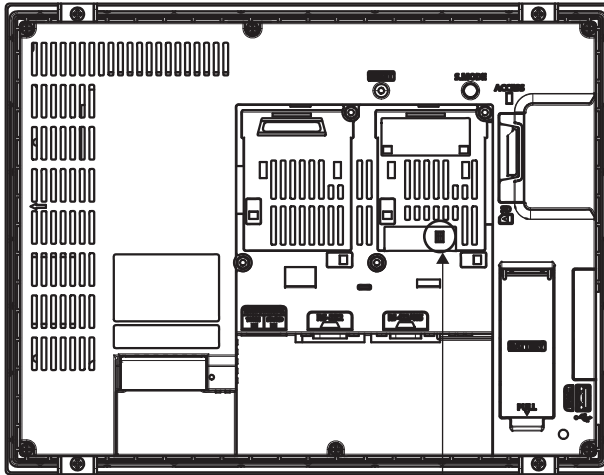
■1. GT27, GT23

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 GT2710-V
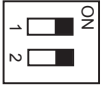
Terminating resistor setting switch
(inside the cover)

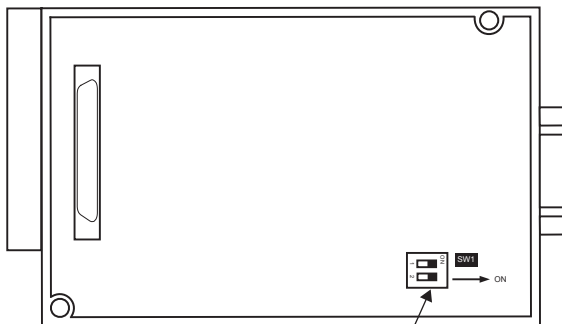## ■2. RS-422/485 communication unit

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 RS-422/485 communication unit

Terminating resistor setting switch

Rear view of RS-422/485 communication unit.

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)
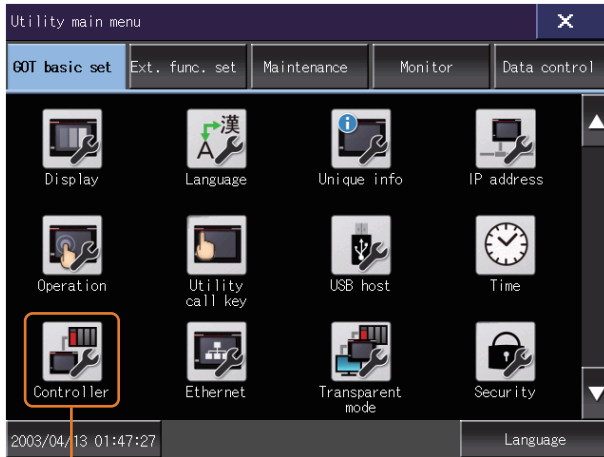
Step 1. After powering up the GOT, touch [Utility main menu]→[Controller].
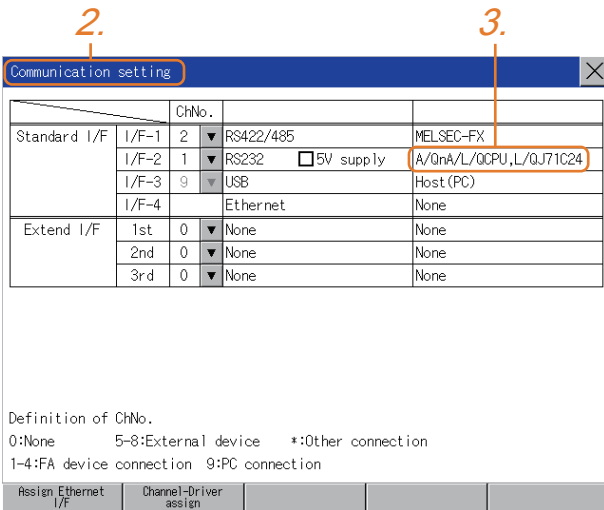
Step 2. The [Communication Settings] appears.

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

Step 4. When the communication driver name is not displayed normally, carry out the following procedure again.
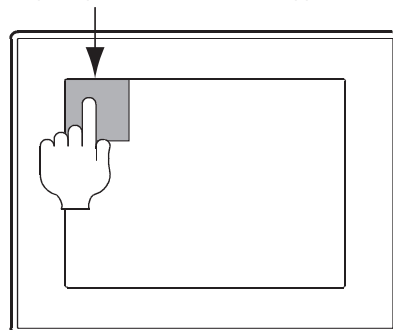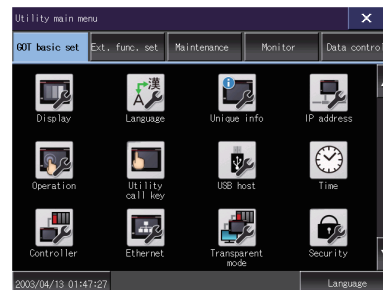
➡ 1.1Setting the Communication Interface

POINT

Utility

(1) How to display Utility (at default)

When using GT27, GT23

Utility call key
1-point press on GOT screen upper-left corner

Utility display

(2) 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)

(3) Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.

➡ GOT2000 Series User's Manual (Utility)

(4) Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.
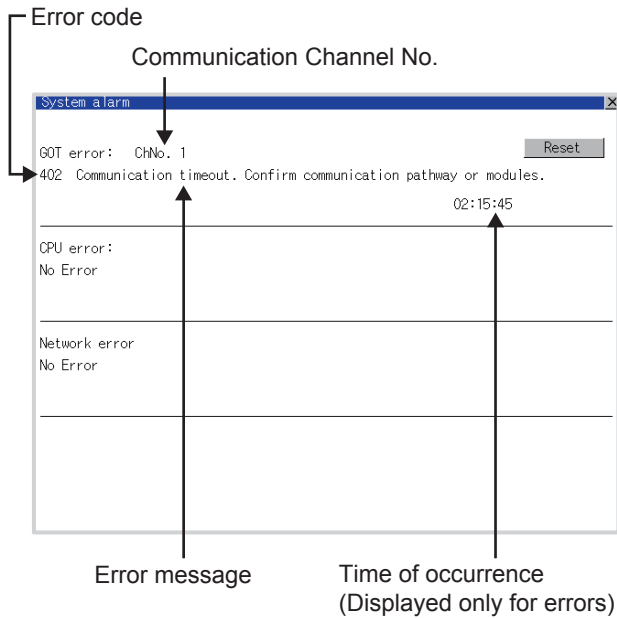
1.6 Checking for Normal Monitoring

1.6.1 Check on the GOT

■1. 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)

Error code

Communication Channel No.

```
System alarm                                              ×

GOT error:   ChNo. 1                          [ Reset ]
402  Communication timeout. Confirm communication pathway or modules.
                                          02:15:45
───────────────────────────────────────────────────────
CPU error:
No Error

───────────────────────────────────────────────────────
Network error
No Error

───────────────────────────────────────────────────────

```

Error message

Time of occurrence
(Displayed only for errors)

POINT

Advanced alarm popup display

With the advanced 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 advanced popup display, refer to the following manual.

➡ GT Designer3 (GOT2000) Help

■2. Perform an I/O check

Whether the PLC can communicate with the GOT or not can be checked by the I/O check function.
If this check ends successfully, it means correct communication interface settings and proper cable connection.
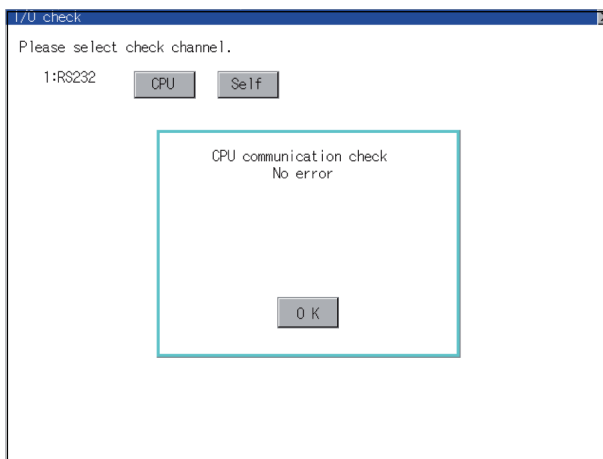Display the I/O check screen by Main Menu.

- Display the I/O check screen by [Main menu] → [Self check] → [I/O check].

For details on the I/O check, refer to the following manual:

➡ GOT2000 Series User's Manual (Utility)
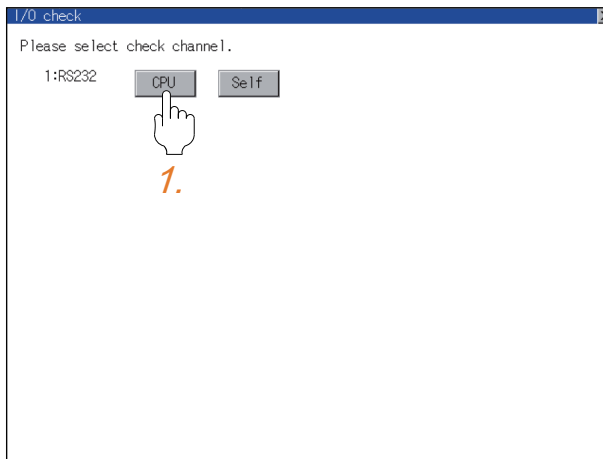
I/O check Please select check channel. 1:RS232 [CPU] [Self] *1.*	**Step 1.** Touch [CPU] on the I/O check screen. Touching [CPU] executes the communication check with the connected PLC.

⬇

|	
I/O check Please select check channel. 1:RS232 [CPU] [Self] CPU communication check No error [O K]	**Step 2.** When the communication screen ends successfully, the screen on the left is displayed.

■3. Confirming the communication status with network unit by GOT

(1) For MELSECNET/H, MELSECNET/10 network system

The communication status between the GOT and the MELSECNET/H, MELSECNET/10 network system can be confirmed by the Utility screen of the GOT.
For details on the operation method of the GOT Utility screen, refer to the following manual.
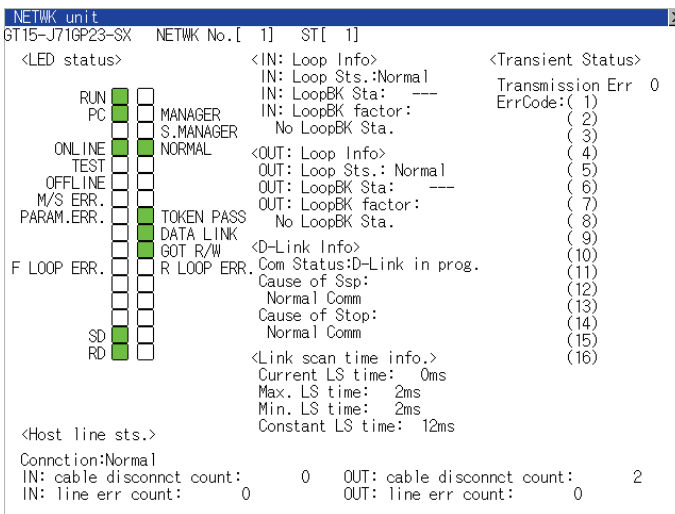
➡ GOT2000 Series User's Manual (Utility)
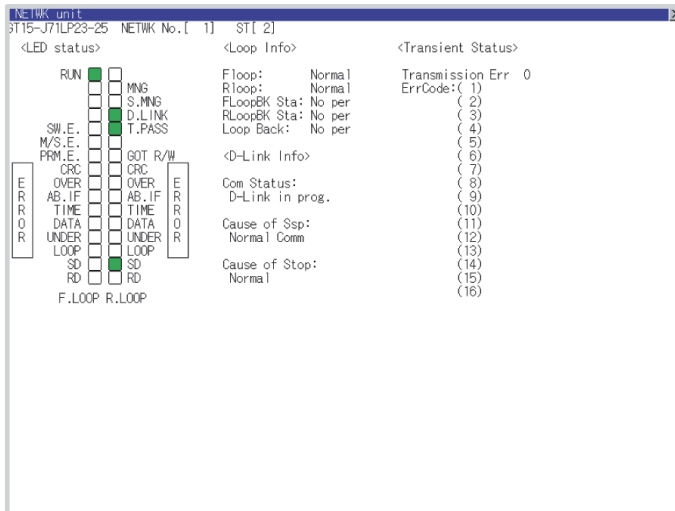
(2) For CC-Link IE Controller Network system

The communication status between the GOT and CC-Link IE Controller Network can be confirmed by the utility screen of the GOT.
For details on the operation method of the GOT Utility screen, refer to the following manual.

➡ GOT2000 Series User's Manual (Utility)

(3) For CC-Link IE Field Network system

The communication status between the GOT and CC-Link IE Field Network can be confirmed by the utility screen of the GOT.

For details on the operation method of the GOT Utility screen, refer to the following manual.
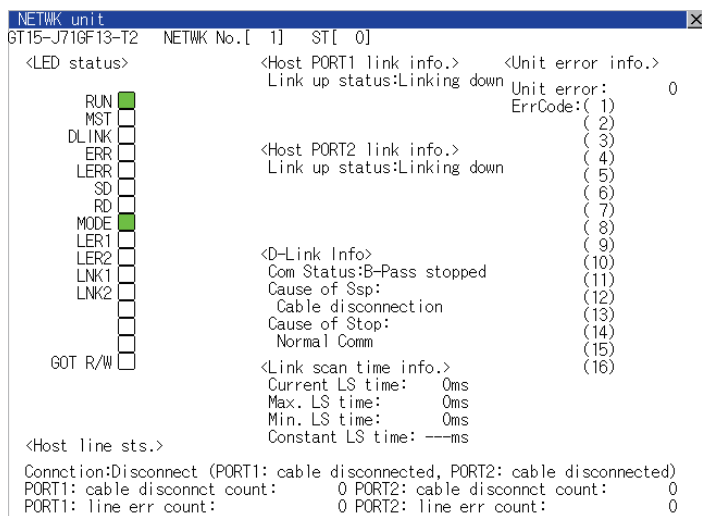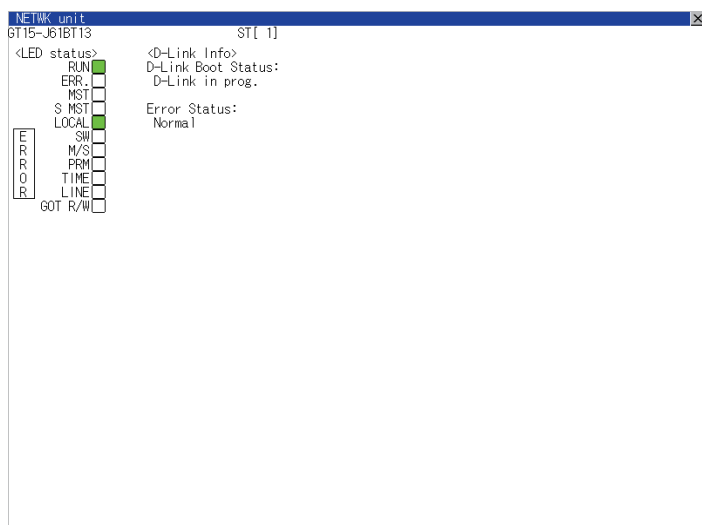
➡ GOT2000 Series User's Manual (Utility)

```
NETWK unit                                                        ×
GT15-J71GF13-T2    NETWK No.[ 1]   ST[ 0]

  <LED status>              <Host PORT1 link info.>   <Unit error info.>
                              Link up status:Linking down  Unit error:       0
           RUN ■                                       ErrCode:( 1)
           MST □                                              ( 2)
         DLINK □                                              ( 3)
           ERR □            <Host PORT2 link info.>           ( 4)
          LERR □              Link up status:Linking down     ( 5)
            SD □                                              ( 6)
            RD □                                              ( 7)
          MODE ■                                              ( 8)
          LER1 □                                              ( 9)
          LER2 □            <D-Link Info>                    (10)
          LNK1 □             Com Status:B-Pass stopped       (11)
          LNK2 □             Cause of Ssp:                   (12)
               □              Cable disconnection            (13)
               □             Cause of Stop:                  (14)
               □              Normal Comm                    (15)
       GOT R/W □            <Link scan time info.>           (16)
                             Current LS time:    0ms
                             Max. LS time:       0ms
                             Min. LS time:       0ms
   <Host line sts.>         Constant LS time: ---ms

   Connction:Disconnect (PORT1: cable disconnected, PORT2: cable disconnected)
   PORT1: cable disconnct count:       0 PORT2: cable disconnct count:       0
   PORT1: line err count:              0 PORT2: line err count:             0
```

(4) For CC-Link system

The communication status between the GOT and the CC-Link System can be confirmed by the Utility screen of the GOT.

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

➡ GOT2000 Series User's Manual (Utility)

```
NETWK unit                                           ×
GT15-J61BT13                    ST[ 1]
 <LED status>    <D-Link Info>
        RUN ■    D-Link Boot Status:
       ERR. □     D-Link in prog.
        MST □
      S MST □    Error Status:
      LOCAL ■     Normal
   E    SW □
   R   M/S □
   R   PRM □
   O  TIME □
   R  LINE □
      GOT R/W □
```

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

■1. Confirming the communication state on Windows®, GT Designer3

(1) When using the Command Prompt of Windows®
Execute a Ping command at the Command Prompt of Windows®.

(a) When normal communication
C:\>Ping 192.168.3.18
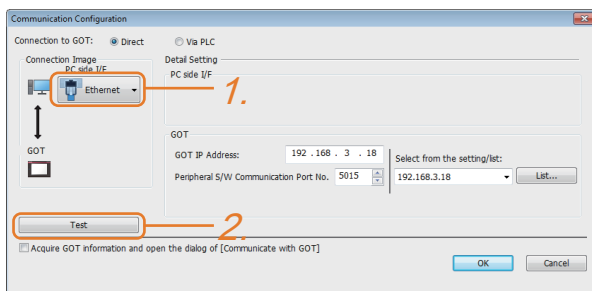Reply from 192.168.3.18: bytes=32 time<1ms TTL=64

(b) When abnormal communication
C:\>Ping 192.168.3.18
Request timed out.

(2) When using the [Test] of GT Designer3
Select [Communication] → [Communication Configuration] to display [Test].

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

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

Step 3. Check if GT Designer3 has been connected to the GOT.
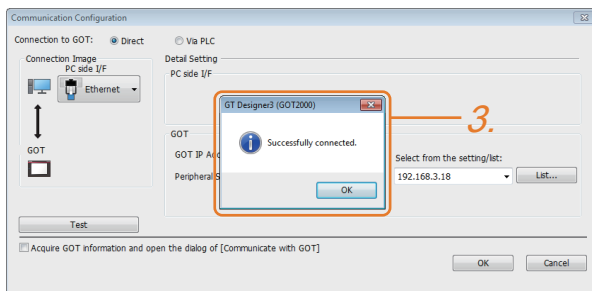
(3) When abnormal communication
At abnormal communication, check the followings and execute the [Test] .
• Mounting condition of Ethernet communication unit
• Cable connecting condition
• Confirmation of [Communication Settings]
• IP address of GOT specified by the [Test].

POINT

Ethernet diagnostics of GX Developer

Ethernet diagnostics of GX Developer is available to a Ping test from the PLC.
For details of Ethernet diagnostics of GX Developer, refer to the following manual.

➡ User's manual of the Ethernet module

■2. **Confirming the communication state on the GOT**

[Ethernet status check] can be confirmed by the Utility screen of the GOT.
For details on the operation method of the GOT Utility screen, refer to the following manual.

➡ GOT2000 Series User's Manual (Utility)

Ethernet status check	✕

★IP address of the other terminal

192 . 168 . 3 . 39

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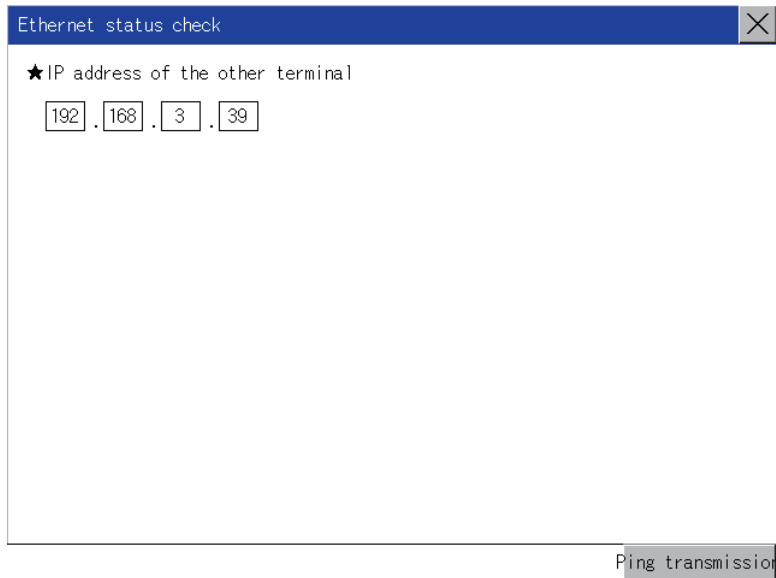
1.6.3 Confirming the communication state to each station (Station monitoring function)

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).

(1) No. of faulty stations

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) Help

●Numerical Display (Data Operation tab)

Set [mask processing] to the upper eight bits (b8 to b15) of GS230 on Numerical Display.
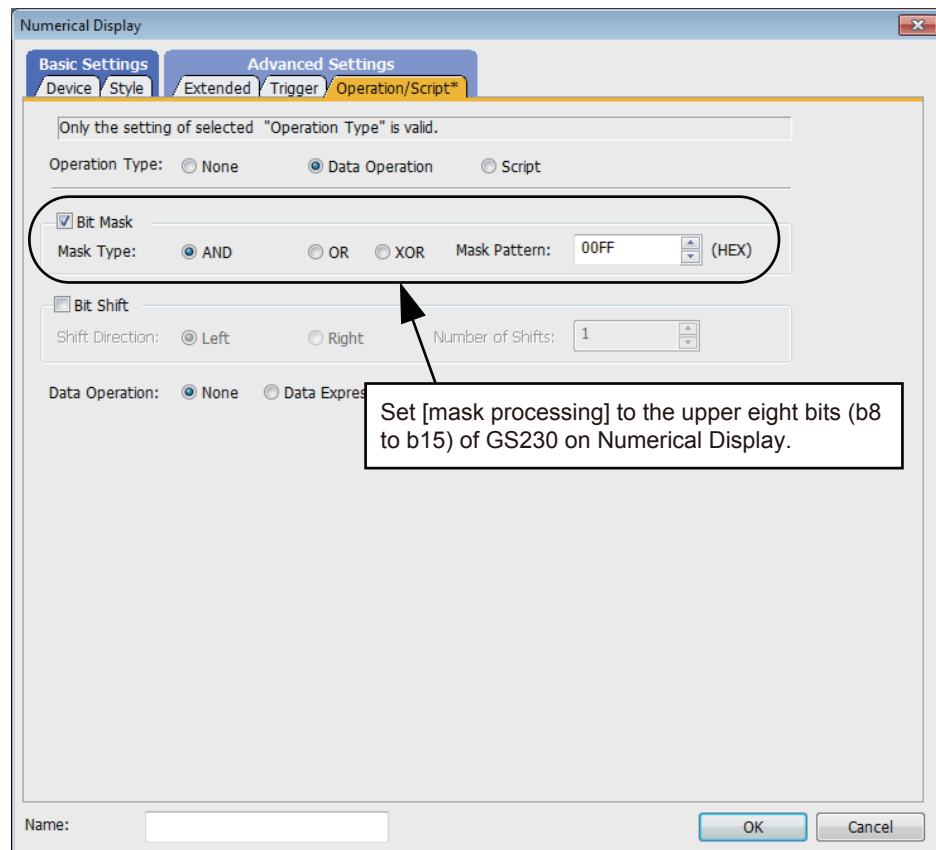
(2) Faulty station information

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

The bit is reset after the fault is recovered.

The station number to which each device corresponds changes according to the connection/non connection with Ethernet.

With Ethernet connection: 1 to 128

With servo amplifier and inverter connection: 0 to 127

Example) With Ethernet connection, when PC No. 100 CPU connecting to Ch3 is faulty, GS327.b3 is set.

The following table shows the case with Ethernet connection.

Device				PLC No./Station 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

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

➡ GT Designer3 Screen Design Manual (Fundamentals) Appendix.2.3 GOT special register (GS)

(3) 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 servo amplifier and inverter, 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)

1.6.4 Check on GX Developer

■1. Check if the PLC CPU recognizes the GOT (For bus connection) (QCPU (Q mode) only)

Using the [System monitor] of GX Developer, check if the PLC CPU recognizes the GOT or not.
For the GX Developer operation method, refer to the following manual.

➡ GX Developer Version □Operating Manual

(1) Check the Module Name, I/O Address and Implementation Position. (The display example is based on GX Developer Version 8)

GX Developer → [Diagnostics] → [System monitor]
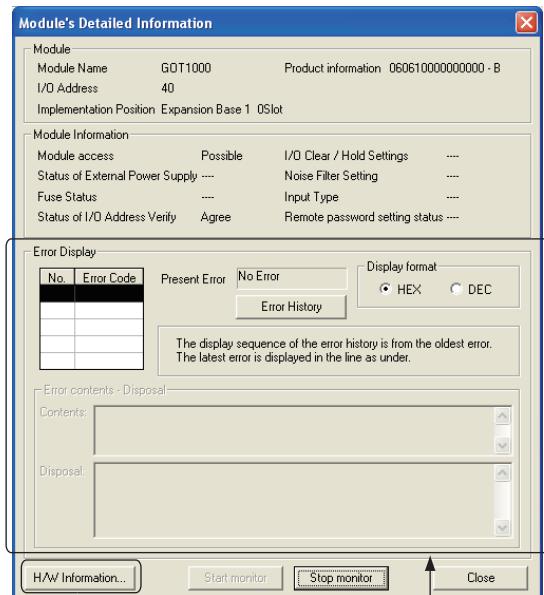
Not displayed   No error displayed
                                 at all times

■2. Checking the wiring state (For optical loop system only)

Check if the optical fiber cable is connected correctly in [Loop test] of GX Developer.
For the GX Developer operation method, refer to the following manual.

➡ Q Corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network)

(1) Check the [Receive direction error station] (The display example on GX Developer Version 8)

Startup procedure

GX Developer → [Diagnostics] → [MELSECNET (II)/10/H diagnostics] → [Loop test]
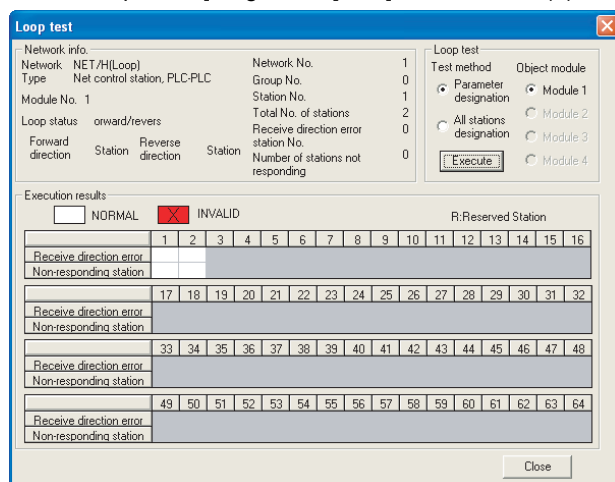
■3. **Checking if the GOT is performed the data link correctly**

(1) For MELSECNET/H, MELSECNET/10 network system
Check if the GOT is performed the data link correctly in [Other station information].
For the GX Developer operation method, refer to the following manual.

➠ Q Corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network)

(a) Check [Communication status of each station] and [Data-Link status of each station] (The display example on GX Developer Version 8)

Startup procedure

GX Developer → [Diagnostics] → [MELSECNET (II)/10/H diagnostics] → [Other station info.]
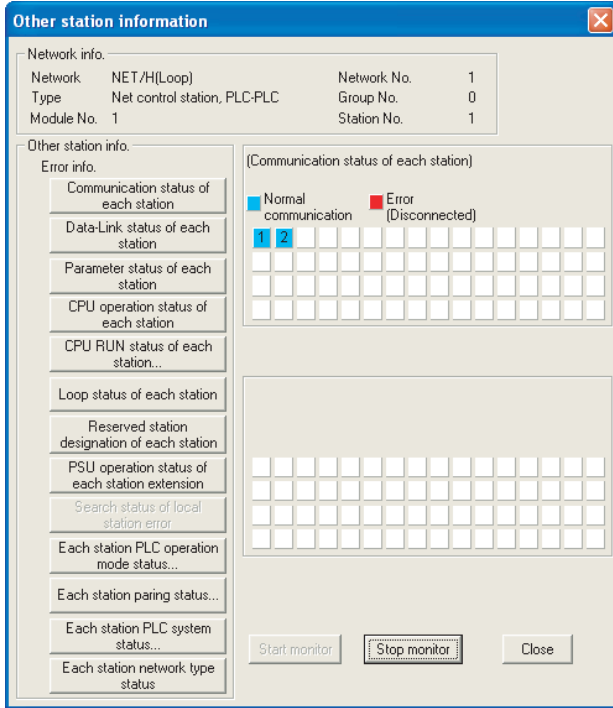
(2) For CC-Link IE Controller Network system
Use [CC IE Control diagnostics…] of GX Developer to check if the GOT is correctly performed the data link.
For the GX Developer operation method, refer to the following manual.

➠ CC-Link IE Controller Network Reference Manual

(a) Check the [Select station network device status display] (The display example on GX Developer Version 8)

Startup procedure

GX Developer → [Diagnostics] → [CC IE Control diagnostics…)] → [CC IE Control Network Diagnostics]
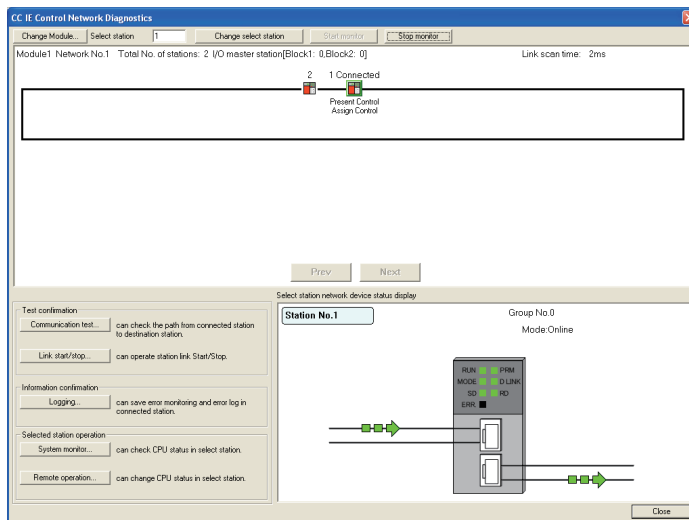
(3) CC IE Control Network Diagnostics

Use [Monitoring other station] of the GX Developer to check if the GOT is correctly performed the data link.
For the GX Developer operation method, refer to the following manual.

➡ CC-Link System Master/Local Module User's Manual QJ61BT11N

(a) Check the [Status] (The display example on GX Developer Version 8)

Startup procedure

GX Developer → [Diagnostics] → [CC-Link / CC-Link LT diagnostics] → [Monitoring other station]
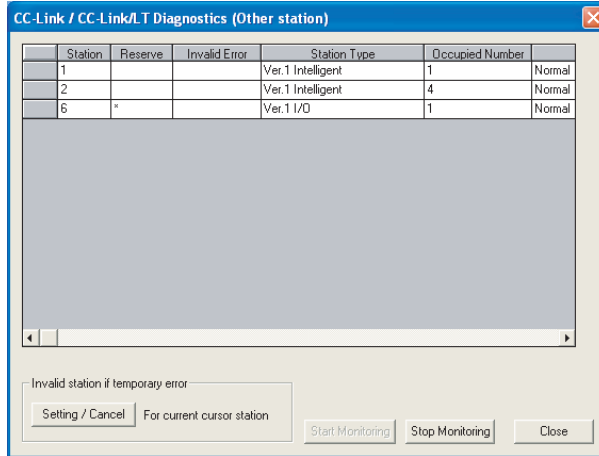
1.6.5   Check on GX Works2

■1.   For CC-Link IE Field Network system

Use [CC IE Field diagnostics] of GX Works2 to check if the GOT is correctly performed the data link.
For the GX Works2 operation method, refer to the following manual.

➡ MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual

Startup procedure

GX Works2 → [diagnostics] → [CC IE Field diagnostics]
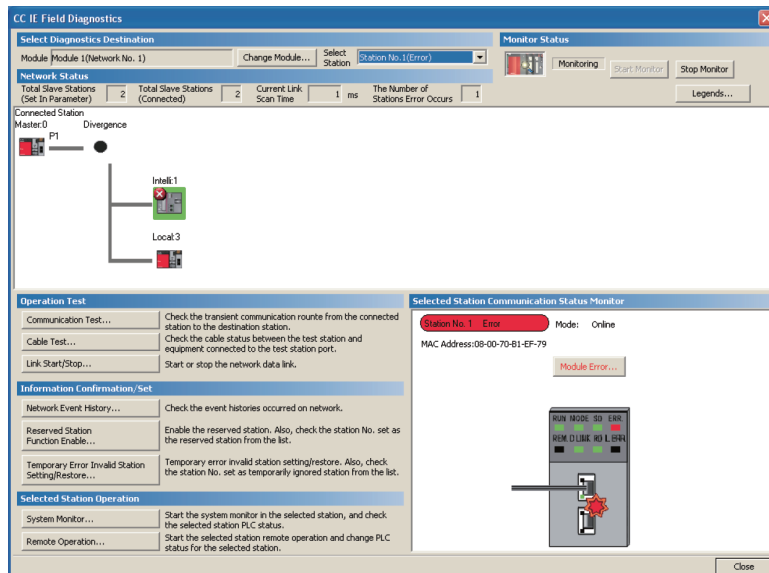
1.6.6   Check on the PLC

■1.   Checking the wiring state of the optical fiber cable (For CC-Link IE Controller Network only)

Check if the fiber-optic cable is connected correctly to all the modules in the CC-Link IE Controller Network.
Perform the line test from the control station of the CC-Link IE Controller Network to check the wiring state of the fiber-optic cable.
For the line testing method, refer to the following manual.

➡ CC-Link IE Controller Network Reference Manual

■2.   Checking the wiring state of the CC-Link dedicated cable (For CC-Link system only)

Check if the CC-Link dedicated cable is connected correctly to all the modules in the CC-Link system.
Perform the line test from the master station of the CC-Link System to check the wiring state of the CC-Link dedicated cable.
For the line testing method, refer to the following manuals.

➡ CC-Link System Master/Local Module User's Manual QJ61BT11N

➡ CC-Link System Master/Local Module User's Manual AJ61QBT11, A1SJ61QBT11

➡ CC-Link System Master/Local Module User's Manual AJ61BT11, A1SJ61BT11
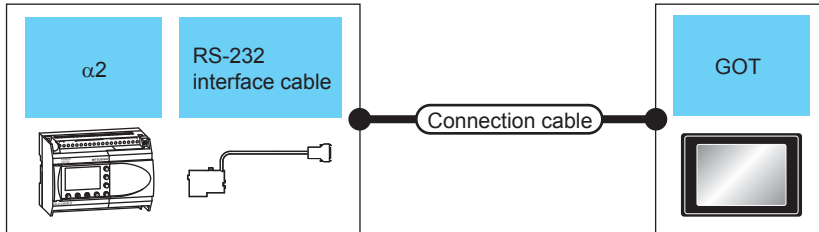
MEMO

2. ALPHA2 CONNECTION

2.1   List of Connectable Models
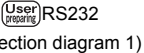
The following shows the connectable models.

Model name	Clock	Communication type	GOT	Refer to
AL2-14MR	×	RS-232	**GT 27** **GT 23**	➡ 2.2.1
AL2-24MR				

2.2   System Configuration

2.2.1   Connecting to AL2-14MR, AL2-24MR

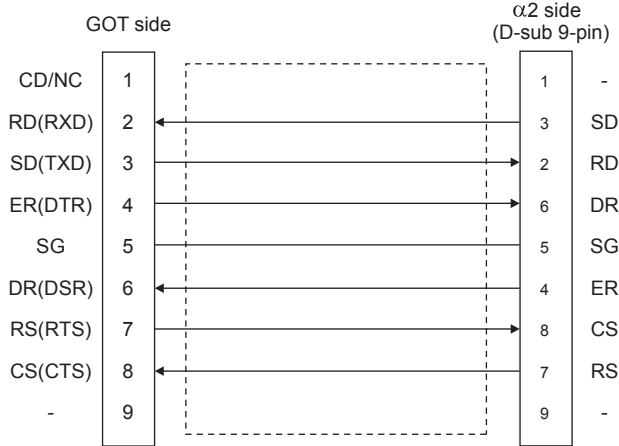| PLC			Connection cable		GOT		Number of connectable equipments
Model name	RS-232 interface cable	Communication type	Connection diagram number	Max. distance	Option device	Model	
AL2-14MR AL2-24MR	AL2-GSM-CAB	RS-232	(User preparing) RS232 connection diagram 1)	15m	- (Built into GOT)	**GT 27** **GT 23**	1 GOT for 1 PLC
					GT15-RS2-9P	**GT 27** **GT 23**	

2.3 Connection Diagram

The following shows the connection diagrams of cables used for connecting the GOT to a α2.

2.3.1 RS-232 cable

#### ■1. Connection diagram

(1) RS232 connection diagram 1)

GOT side				α2 side (D-sub 9-pin)	
CD/NC	1			1	-
RD(RXD)	2	←		3	SD
SD(TXD)	3	→		2	RD
ER(DTR)	4	→		6	DR
SG	5			5	SG
DR(DSR)	6	←		4	ER
RS(RTS)	7	→		8	CS
CS(CTS)	8	←		7	RS
-	9			9	-

■2. Precautions when preparing cable

(1) Cable length
The length of the cable RS-232 must be 15m or less.

(2) GOT side connector
For the GOT side connector, refer to the following.

➠ 1.4.1 GOT connector specifications

(3) α2 side connector
Use the connector compatible with the α2.
For the GOT side connector, refer to the following.

➠ α2 Simple Application Controller HARDWARE MANUAL

2.4.1   Setting communication interface (Communication settings)

Set the channel of the connected equipments.
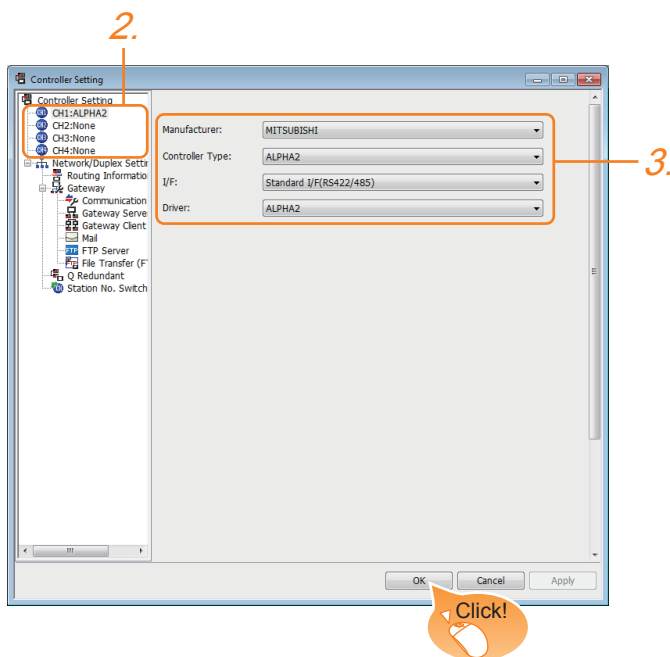
Step 1.   Select [Common] → [Controller Setting] from the menu.

Step 2.   The Controller Setting window is displayed. Select the channel to be used from the list menu.

Step 3.   Select the followings.
Manufacturer: MITSUBISHI
Controller Type: ALPHA2
I/F: Interface to be used
Driver: ALPHA2

Step 4.   Click the [OK] button when settings are completed.

POINT

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

➡ 1.1.2 I/F communication setting

2.5 PLC Side Settings

For details of the α2, refer to the following manual.

➡ COMMUNICATION MANUAL α2 SIMPLE APPLICATION CONTROLLER

➡ PROGRAMING MANUAL α2 SIMPLE APPLICATION CONTROLLER

2.5.1 Communication setting

Make the communication settings by front panel key or ALVLS/WIN-E.

Item	Setting
Modem	other
Data Bit	8
Parity	None
Stop Bit	1
Baud Rate	9600

2.6 Device Range that Can Be Set

The device ranges of controller that can be used for GOT are as follows.
Note that the device ranges in the following tables are the maximum values that can be set in GT Designer3.
The device specifications of controllers may differ depending on the models, even though belonging to the same series.
Please make the setting according to the specifications of the controller actually used.
When a non-existent device or a device number outside the range is set, other objects with correct device settings may not be monitored.

■1. Setting item
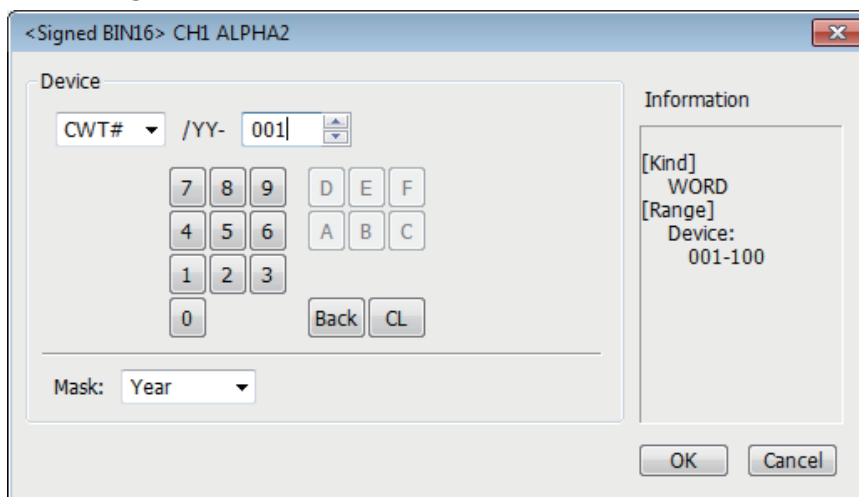
Item	Description
Device	Set the device name, device number, and bit number. The bit number can be set only when specifying the bit of word device.
Information	Displays the device type and setting range which are selected in [Device].
Mask	Set this item when using the "Communication Word Device For Time Switch FB (CWT#)".

   (1) Setting of the mask type

      (a) Mask type Year (CWT#/YY)
          Set "year" of the Time Switch FB.

Device	Setting range	Description
CWT#/YY	1998 to 2053	• From the year 1998 to the year 2053 • This item is valid only while Date setting is valid. • Date setting becomes valid when "CWT#/YY" is set while Weekly setting is valid. In that case, "month", "day" and "output ON/OFF status" are initialized to "January", "1" and "OFF" respectively.

(b) Mask type Month (CWT#/MM)
Set "month" of the Time Switch FB.

Device	Setting range	Description
CWT#/MM	1 to 12	• From January to December • This item is valid only while Date setting is valid. • Date setting becomes valid when "CWT#/MM" is set while Weekly setting is valid. In that case, "year", "day" and "output ON/OFF status" are initialized to "2009", "1" and "OFF" respectively.

(c) Mask type Day (CWT#/DD)
Set "day" of the Time Switch FB.

Device	Setting range	Description
CWT#/DD	1 to 31	• From the 1st day to the 31st day • This item is valid only while Date setting is valid. • Date setting becomes valid when "CWT#/DD" is set while Weekly setting is valid. In that case, "year", "month" and "output ON/OFF status" are initialized to "2009", "January" and "OFF" respectively.

(d) Mask type Hour (CWT#/HH)
Set "hour" of the Time Switch FB.

Device	Setting range	Description
CWT#/HH	0 to 23	• From 0 hour to 23 hours

(e) Mask type Minute (CWT#/MI)
Set "minute" of the Time Switch FB.

Device	Setting range	Description
CWT#/MI	0 to 59	• From 0 minute to 59 minutes

(f) Mask type DMY (CWT#/DM)
Set "monthly" or "yearly" of the Time Switch FB.

Device	Setting range	Description

CWT#/DM	0 to 2	• 0: Time settings by date
		  1: Monthly time settings
		  2: Yearly time settings
		• This item is valid only while Date setting is valid.
		• Date setting becomes valid when "CWT#/DM" is set while Weekly setting is valid. In that case, "year", "month" and "day" are initialized to "2009", "January" and "1" respectively.

(g) Mask type BI (CWT#/BI)
Set "output ON/OFF status" of the Time Switch FB.

Device	Description
CWT#/BI	• 0: OFF 1: ON

(h) Mask type Weekday (CWT#/WD)
Set "day of the week" of the Time Switch FB.

Device	Description

CWT#/MD	• b0: Sunday
	  b1: Monday
	  b2: Tuesday
	  b3: Wednesday
	  b4: Thursday
	  b5: Friday
	  b6: Saturday
	  b7: Reserved (Fixed to "0")
	  b8: Every day of the week
	  b9 to b14: Reserved (Fixed to "0")
	  b15: 0 = Weekly setting, 2 = Date setting
	• This item is valid only while Weekly setting is valid.
	• Date setting becomes valid when "CWT#/WD.b15=1" is written while Weekly setting is valid. In that case, "year", "month", "day" and "output ON/OFF status" are initialized to "2009", "January", "1" and "OFF" respectively.
	• Weekly setting becomes valid when "CWT#/WD.b15=0" is written while Date setting is valid. In that case, "day of the week" and "week of the month" are initialized to "every day of the week" and "every week" respectively.
	• Weekly setting becomes valid when "1" is written to either of "CWT#/WD.b0" to "CWT#/WD.b6" and "CWT#/WD.b8" while Date setting is valid. In that case, "week of the month" is initialized to "every week".

(i) Mask type Week (CWT#/WE)
     Set "week of the month" of the Time Switch FB.

Device	Description

CWT#/WE	• b0: 1st week (1st to 7th days)
	  b1: 2nd week (8th to 14th days)
	  b2: 3rd week (15th to 21st days)
	  b3: 4th week (22nd to 28th days)
	  b4: 5th week (29th day to month end)
	  b5 to b7: Reserved (Fixed to "0")
	  b8: Every week
	  b9 to b15: Reserved (Fixed to "0")
	• This item is valid only while Weekly setting is valid.
	• Weekly setting becomes valid when "1" is written to either of "CWT#/WE.b0" to "CWT#/WE.b4" and "CWT#/WE.b8" while Date setting is valid. In that case, "day of the week" is initialized to "every day of the week".

2.6.1   ALPHA2

	Device name	Setting range	Device No. representation
Bit device	System Bit (M)[1]	M01 to M24	Decimal
	Input Terminal (I)	I01 to I15	
	External Input (EI)	EI129 to EI132	
	Output Terminal (O)	O01 to O09	
	External Output (EO)	EO129 to EO132	
	Key Input (K)	K01 to K08	
	Link Input (E)	E01 to E04	
	Link Output (A)	A01 to A04	
	Control Device (N)	N01 to N04	
	Communication Word Device For Time Switch FB (CWT#BI)	CWT#/BI-001 to CWT#/BI-100	
	Communication Bit Device (CB)[4]	CB001 to CB100	
Word device	Analog Input (AI)[1][2]	AI01 to AI08	Decimal
	Communication Word Device (CW)[2][4]	CW001 to CW100	
	Communication Word Device For Time Switch FB (CWT#**)[2]	CWT#/**-001 to CWT#/**-100	
	Communication Word Device For Time Switch FB (CWT)[3]	CWT001 to CWT100	

[1]   Only reading is possible.
[2]   Only 16-bit (1-word) specification is possible.
[3]   Only 32-bit (2-word) designation is possible.
      On the PLC side, CWT means CW that related
      TimeSwitchFunctionBlock.
[4]   For details of CW and CB, refer to the following manuals.

➡ COMMUNICATION MANUAL α2 SIMPLE APPLICATION CONTROLLER

REVISIONS

Print Date	* Manual Number	Sub Number	Revision
Sep., 2013	JY997D52301	A	First edition

WARRANTY

Please confirm the following product warranty details before using this product.

1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be repaired at no cost via the sales representative or Mitsubishi Service Company. However, if repairs are required onsite at domestic or overseas location, expenses to send an engineer will be solely at the customer's discretion. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.

[Gratis Warranty Term]

The gratis warranty term of the product shall be for 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.

[Gratis Warranty Range]

(1) 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 expence.
    The primary failure diagnosis will, however, be free of charge should the cause of failure be attributable to Mitsubishi Electric Corporation.
(2) 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.
(3) Even within the gratis warranty term, repairs shall be charged for in the following cases.
    1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
    2. Failure caused by unapproved modifications, etc., to the product by the user.
    3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
    4. Failure that could have been avoided if consumable parts designated in the instruction manual had been correctly serviced or replaced.
    5. Replacing consumable parts such as the battery, backlight and fuses.
    6. 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.
    7. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
    8. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

(1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued.
    Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.
(2) Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

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

4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation to damages caused by any cause found not to be the responsibility of Mitsubishi, loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products, special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products, replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.

6. Product application

(1) In using the Mitsubishi graphic operation terminal, the usage conditions shall be that the application will not lead to a major accident even if any problem or fault should occur in the graphic operation terminal device, and that backup and fail-safe functions are systematically provided outside of the device for any problem or fault.
(2) The Mitsubishi graphic operation terminal has been designed and manufactured for applications in general industries, etc. Thus, applications in which the public could be affected such as in nuclear power plants and other power plants operated by respective power companies, and applications in which a special quality assurance system is required, such as for Railway companies or Public service purposes shall be excluded from the graphic operation terminal applications.
    In addition, applications in which human life or property that could be greatly affected, such as in aircraft, medical applications, incineration and fuel devices, manned transportation equipment for recreation and amusement, and safety devices, shall also be excluded from the graphic operation terminal range of applications.
    However, in certain cases, some applications may be possible, providing the user consults the local Mitsubishi representative outlining the special requirements of the project, and providing that all parties concerned agree to the special circumstances, solely at our discretion.
    In some of three cases, however, Mitsubishi Electric Corporation may consider the possibility of an application, provided that the customer notifies Mitsubishi Electric Corporation of the intention, the application is clearly defined and any special quality is not required.

GOT2000 Series Connection Manual
(α2 Connection)

Specifications subject to change without notice. Printed in Japan, September 2013.