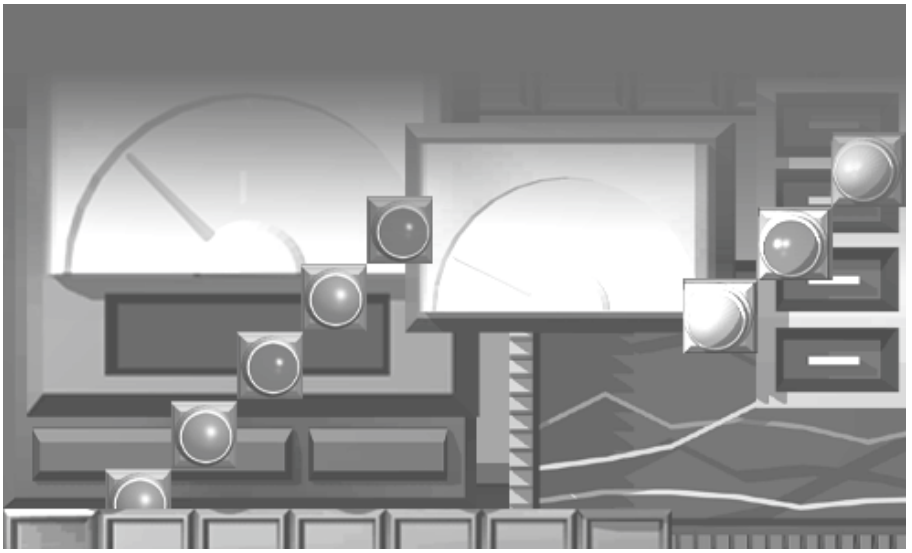
MITSUBISHI

GOT-A900 Series User's Manual

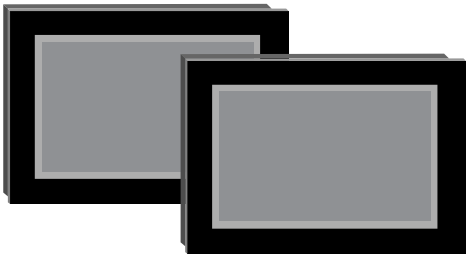
(GT Works Version5/GT Designer Version5 compatible Connection System Manual)



Graphic Operation Terminal

900

series



• SAFETY PRECAUTIONS •

(Always read these instructions 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 instructions given in this manual are concerned with this product. For the safety instructions of the programmable controller system, please read the CPU module user's manual.
In this manual, the safety instructions are ranked as "DANGER" and "CAUTION".

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

Note that the ⚠ CAUTION level may lead to a serious consequence 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 Instructions]

⚠ DANGER

- Some failures of the GOT main unit, communication module, communication board or cable may keep the outputs on or off.
  An external monitoring circuit should be provided to check for output signals which may lead to a serious accident.
  Not doing so can cause an accident due to false output or malfunction.
- If a communication fault (including cable disconnection) occurs during monitoring on the GOT, communication between the GOT and PLC CPU is suspended and the GOT becomes inoperative.
  For bus connection : The CPU becomes faulty and the GOT 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.

[Mounting Instructions]

⚠ DANGER

- 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 a module failure or malfunction.
- Be sure to shut off all phases of the external power supply used by the system before mounting or removing the communication board, communication unit, memory board, external I/O interface unit, or memory card interface unit onto/from the GOT.
  Not doing so can cause a module failure or malfunction.

⚠ CAUTION

- The GOT should be used in the environment given in the general specifications of the GOT user's manual.
  Not doing so can cause an electric shock, fire, malfunction or product damage or deterioration.
- When mounting the GOT main unit to an enclosure, tighten the mounting screws in the specified torque range.
  Undertightening can cause a drop, short circuit or malfunction.
  Overtightening can cause a drop, short circuit or malfunction due to the damage of the screws or module.
- When loading the communication board or communication module to the GOT main unit, fit it to the connection interface of the GOT and tighten the mounting screws in the specified torque range.
  Undertightening can cause a drop, failure or malfunction.
  Overtightening can cause a drop, failure or malfunction due to the damage of the screws or module.
- When loading the memory board into the GOT main unit, load it into its corresponding GOT slot and tighten the mounting screws in the specified torque range.
  Undertightening can cause a malfunction due to a contact fault.
  Overtightening can cause a malfunction due to the damage of the screws or module.
- When loading the PC card into the GOT main unit, insert and push it into its corresponding GOT slot until the PC card eject button comes up.
  Not doing so can cause a malfunction due to a contact fault.
- Before loading or unloading the PC card to or from the GOT, set the memory card access switch to the OFF position.
  Not doing so can cause the PC card data to be corrupted.

[Wiring Instructions]

⚠ DANGER

- Before starting wiring, be sure to shut off all phases of external power supply used by the system.
  Not doing so may cause an electric shock, product damage or malfunction.

⚠ CAUTION

- Always earth the FG, LG and earth terminals of the GOT power supply section to the protective earth conductor.
  Not doing so may cause an electric shock or malfunction.
- Correctly wire the power supply module on the GOT after confirming the rated voltage and terminal arrangement of the product.
  Not doing so can cause a fire or failure.
- Tighten the terminal screws of the GOT power supply section in the specified torque range.
  Undertightening can cause a short circuit or malfunction.
  Overtightening can cause a short circuit or malfunction due to the damage of the screws or module.
- Exercise care to avoid foreign matter such as chips and wire offcuts entering the module.
  Not doing so can cause a fire, failure or malfunction.
- Plug the bus connection cable by inserting it into the connector of the connected module until it "clicks".
  After plugging, check that it has been inserted snugly.
  Not doing so can cause a malfunction due to a contact fault.
- Plug the communication cable into the connector of the connected module and tighten the mounting and terminal screws in the specified torque range.
  Undertightening can cause a short circuit or malfunction.
  Overtightening can cause a short circuit or malfunction due to the damage of the screws or module.

[Test Operation Instructions]

⚠ DANGER

- Before performing test operation (bit device on/off, word device's present value changing, timer/counter's set value and present value changing, buffer memory's present value changing) for a user-created monitor screen, system monitoring, special module monitoring or ladder monitoring, read the manual carefully to fully understand how to operate the equipment.
  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 Instructions]

⚠ DANGER

- When power is on, do not touch the terminals.
  Doing so can cause an electric shock or malfunction.
- Do not change the extension stage setting switch or the I/O slot setting switch.
  Doing so can cause malfunction.
- Before starting cleaning or terminal screw retightening, be sure to shut off all phases of external power supply used by the system.
  Not switching the power off in all phases can cause a module 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 module.

⚠ CAUTION

- Do not disassemble or modify the module.
  Doing so can cause a failure, malfunction, injury or fire.
- Do not touch the conductive and electronic parts of the module directly.
  Doing so can cause a module malfunction or failure.
- The cables connected to the module must be run in ducts or clamped.
  Not doing so can cause the module 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 module, do not hold and pull the cable portion.
  Doing so can cause the module or cable to be damaged or can cause a malfunction due to a cable connection fault.

[Disposal Instructions]

⚠ CAUTION

- When disposing of the product, handle it as industrial waste.

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REVISIONS

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

Print Date	* Manual Number	Revision
Aug., 2000	SH (NA)-080119-A	First edition
Oct., 2000	SH (NA)-080119-B	Partial corrections Section 2.1, Section 5.1.2, Section 6.1.2 Partial additions Section 2.3.2, Section 4.1.3, Section 4.2, Section Chapter 5, Chapter 6, Section 15.1.2, Section 15.1.4, Section 15.1.6
Nob., 2000	SH (NA)-080119-C	Partial additions Section 1.1, Section 16.1 Additions Section 15.5, Section 15.6
Feb., 2001	SH (NA)-080119-D	Overall reexamination of the contents including layouts
May., 2001	SH (NA)-080119-E	Additions Section 2.3.4, Section 3.4, Chapter 8, Chapter 9, Chapter 10, Chapter 11, Section 13.1.5, Chapter 19 Partial additions Section 3.1.1, Section 3.2.1, Section 3.2.2, Section 3.2.3, Section 3.2.5, Section 3.2.6, Section 3.3.1, Section 5.1.1, Section 5.2.1, Section 12.1.3, Section 12.2.3, Section 12.3.2, Section 13.2.2, Section 13.3.1, Section 13.3.2 Partial corrections Section 1.1, Section 1.2, Section 2.1, Section 2.2, Section 2.3.4, Section 5.1.2, Section 5.1.5, Section 5.1.6, Section 12.1.2, Section 12.2.2, Section 12.3.1, Section 12.3.3, Section 18.3.2, Section 21.5, Section 21.6
Jun., 2001	SH (NA)-080119-F	Partial additions Section 2.1
Aug., 2001	SH (NA)-080119-G	Partial additions Section 2.1, Section 2.3.2, Section 4.3.2, Section 4.3.3, Section 21.2.1 Addition Section 3.2.5
May., 2002	SH (NA)-080119-H	Additions Section 21.7 Partial additions Section 1.1, Section 12.1.8, Section 16.2, Section 16.3.1, Section 16.3.2 Partial corrections Section 2.1, Section 2.3.1, Section 2.3.2, Section 3.2.1, Section 3.2.2, Section 3.2.4, Section 3.2.6, Section 3.2.7, Section 4.1.3, Section 4.3, Section 4.3.3, Section 5.1.2, Section 5.2.1, Section 5.2.2, Section 7.1, Section 10.1, Section 11.1, Section 11.2.1, Section 12.1.7, Section 12.2.2, Section 12.3.1, Section 12.3.2, Section 16.1, Section 21.1.1, Section 21.1.4, Section 21.1.6, Section 21.5.1, Section 21.6.1, Appendix 1.3

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

Print Date	* Manual Number	Revision
Jul., 2003	SH (NA)-080119-I	Additions Section 2.1.1, Section 2.1.2 Partial additions Section 3.1.3, Section 12.2.2 Partial corrections Section 5.1.3, Section 5.2.1, Section 5.4
Jan., 2004	SH (NA)-080119-J	Partial corrections Section 4.2, Section 4.3.3, Section 5.2.1, Section 5.4, Section 12.3.2, Section 13.3.2, Section 14.4, Section 15.3.2, Section 16,3.2, Section 17.3, Section 18.3.2, Section 19.3, Section 20.2.1, Section 20.2.2 Partial additions Section 3.2.1, Section 3.2.2, Section 3.2.3, Section 3.2.6, Section 3.2.7
Jun., 2004	SH (NA)-080119-K	Partial corrections About Manuals, Section 2.1.1, Section 8.1, Section 9.1, Section 10.1, Section 11.1 MODEL CODE change Changed from 13JR20 to 1DM189
Jan., 2006	SH (NA)-080119-L	Partial corrections SAFETY PRECAUTIONS, Section 2.1.1, Section 2.1.2, Section 2.3.2, Section 2.3.4, Section 4.3.3 Partial additions Chapter 1, Section 3.2.1, Section 4.3.2, Section 11.2.1 to Section 11.2.3, Section 16.3.1, Section 16.3.2

Japanese Manual Version SH-080114-M

INTRODUCTION

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

CONTENTS

About Manuals

The following manuals related to this product are available. Obtain the manuals as required the according to this table.

• Related manual

Manual name	Manual number (Model code)
GT Works Version 5/GT Designer Version 5 Operating Manual (Start up Manual) Describes how to install GT Works Version 5/GT Designer Version 5 into a personal computer and how to browse the online manuals. (Found in the packing of the GT Works Version 5/GT Designer Version 5)	IB-0800143 (1DM183)
GOT900 Series Operating Manual (Introductory Manual) For those who use the GOT for the first time, describes the way to create a monitor screen on GT Designer, transfer monitor data to the GOT, and display it on the screen. (Available as option)	SH-080116 (1DM141)
GT Works Version 5/GT Designer Version 5 Reference Manual Deals with the system configuration of GT Works Version 5/GT Designer Version 5, the screen makeup of the GT Designer, the general description of various monitoring functions, the procedure for displaying the monitor screen on the GOT, and how to use the help function. (Available as option)	SH-080117 (1DM187)
GT Simulator Version 5 Operating Manual Explains the system configuration, screen makeup and using methods of GT Simulator. (Available as option)	SH-080120 (1DM191)
GOT-A900 Series Operating Manual (GT Works Version 5/GT Designer Version 5 compatible Gateway Functions Manual) Explains the specifications, system configuration, setting methods and others of the gateway functions that can be performed on the GOT-A900 series. (Available as option)	SH-080254 (1DM212)
A985GOT/A975GOT/A970GOT/A960GOT User's Manual Explains the specifications, general system configuration, component devices, part names, option unit loading methods, installation and wiring methods, maintenance and inspection methods, and error codes of A985GOT/A975GOT/A970GOT/A960GOT unit. (Available as option)	SH-4005 (1DM099)
A950GOT/A951GOT/A953GOT/A956GOT User's Manual Explains the specifications, general system configuration, component devices, part names, option unit loading methods, installation and wiring methods, maintenance and inspection methods, and error codes of A950GOT/A951GOT/A953GOT/A956GOT unit. (Available as option)	SH-080018 (1DM103)
GOT-A900 Series Operating Manual (GT Works Version 5/GT Designer Version 5 compatible Extended • Option Functions Manual) Provides the specifications of the utility, system monitoring, ladder monitoring, special function unit monitoring, network monitoring functions, list editor functions, motion monitoring function and servo amplifier monitoring function available for the GOT-A900 series and how to operate the dedicated monitor screen. (Available as option)	SH-080118 (1DM185)
GT SoftGOT Version 6 Operating Manual Describes the system configuration, screen makeup and usage of GT SoftGOT. (Available as option)	SH-080156 (1DM193)

Abbreviations and generic terms in this manual

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

Abbreviations and generic terms		Description
GOT	A985GOT-V	Generic term of A985GOT-TBA-V and A985GOT-TBD-V
	A985GOT	Generic term of A985GOT-TBA, A985GOT-TBD and A985GOT-TBA-EU
	A975GOT	Generic term of A975GOT-TBA-B, A975GOT-TBD-B, A975GOT-TBA, A975GOT-TBD and A975GOT-TBA-EU
	A970GOT	Generic term of A970GOT-TBA-B A970GOT-TBD-B, A970GOT-TBA, A970GOT-TBD, A970GOT-SBA, A970GOT-SBD, A970GOT-LBA, A970GOT-LBD, A970GOT-TBA-EU and A970GOT-SBA-EU
	A97*GOT	Generic term of A975GOT and A970GOT
	A960GOT	Generic term of A960GOT-EBA, A960GOT-EBD and A960GOT-EBA-EU
	A956WGOT	Generic term of A956WGOT-TBD
	A956GOT	Generic term of A956GOT-TBD, A956GOT-SBD, A956GOT-LBD, A956GOT-TBD-M3, A956GOT-SBD-M3 and A956GOT-LBD-M3
	A953GOT	Generic term of A953GOT-TBD, A953GOT-SBD, A953GOT-LBD, A953GOT-TBD-M3, A953GOT-SBD-M3 and A953GOT-LBD-M3
	A951GOT	Generic term of A951GOT-TBD, A951GOT-SBD, A951GOT-LBD, A951GOT-TBD-M3, A951GOT-SBD-M3 and A951GOT-LBD-M3
	A951GOT-Q	Generic term of A951GOT-QTBD, A951GOT-QSBD, A951GOT-QLBD, A951GOT-QTBD-M3, A951GOT-QSBD-M3 and A951GOT-QLBD-M3
	A950GOT	Generic term of A950GOT-TBD, A950GOT-SBD, A950GOT-LBD, A950GOT-TBD-M3, A950GOT-SBD-M3 and A950GOT-LBD-M3
	A950 handy GOT	Generic term of A953GOT-SBD-M3-H and A953GOT-LBD-M3-H
	A95*GOT	Generic term of A956GOT, A953GOT, A951GOT, A951GOT-Q, A950GOT and A950 handy GOT
Communication board	Bus connection board	Generic term of A9GT-QBUSS, A9GT-QBUS2S, A9GT-BUSS and A9GT-BUS2S
	Serial communication board	Generic term of A9GT-RS4, A9GT-RS2 and A9GT-RS2T
Communication unit	Bus connection unit	Generic term of A9GT-QBUS2SU, A9GT-BUS2SU, A9GT-BUS2SU, A7GT-BUSS and A7GT-BUS2S
	Data link unit	Generic term of A7GT-J71AP23, A7GT-J71AR23 and A7GT-J71AT23B
	Network unit	Generic term of A7GT-J71LP23 and A7GT-J71BR13
	CC-Link communication unit	Generic term of A8GT-J61BT13 and A8GT-J61BT15
	Ethernet communication unit	Abbreviation of A9GT-J71E71-T
Option	Protection sheet	Abbreviation of A9GT-80PSC, A9GT-70PSC, A9GT-60PSC and A9GT-50PSC type transparent protection sheets
	Backlight	Abbreviation of A9GT-80LTT, A9GT-70LTTB, A9GT-70LTT, A9GT-70LTS and A9GT-50LT type backlights
	Debug stand	Abbreviation of A9GT-80STAND, A9GT-70STAND and A9GT-50STAND type debug stand
	PC card (memory card)	Abbreviation of PC card with PCMCIA Ver.2.1
	Flash PC card	Generic term of A9GTMEM-10MF, A9GTMEM-20MF and A9GTMEM-40MF
	Compact flash PC card	Compact flash PC card compliant with Compact FlashTM
	Memory board	Abbreviation of A9GT-FNB, A9GT-FNB1M, A9GT-FNB2M, A9GT-FNB4M, A9GT-FNB8M, A9GT-QFNB, A9GT-QFNB4M, A9GT-QFNB8M type option function memory board
	Attachment	Generic term of A77GT-96ATT/A85GT-95ATT/A87GT-96ATT/A87GT-97ATT attachments
	Ten-key Panel	Abbreviation of A8GT-TK ten-key Panel
	A7GT-CNB	Abbreviation of A7GT-CNB bus connector conversion box
	A9GT-QCNB	Abbreviation of A9GT-QCNB bus connector conversion box
Option unit	External I/O unit	Abbreviation of A9GT-70KBF and A8GT-50KBF type external I/O interface unit
	Printer interface unit	Abbreviation of A9GT-50PRF type printer interface unit
	Memory card interface unit	Abbreviation of A1SD59J-MIF memory card interface unit
	Video/RGB mixed input interface unit	Abbreviation of A9GT-80V4R1 type Video/RGB mixed input interface unit
	Video input interface unit	Abbreviation of A9GT-80V4 type Video input interface unit
	RGB input interface unit	Abbreviation of A9GT-80R1 type RGB input interface unit
Software	GT Works Version 5	Abbreviation of SW5D5C-GTWORKS-E software package
	GT Designer Version 5	Generic term of SW5D5C-GOTR-PACKE software package and SW5D5C-GOTR-PACKEV software package
	GT Designer	Abbreviation of image creation software GT Designer for GOT900
	GT Simulator	Abbreviation of GT Simulator screen simulator GOT900
	GT Converter	Abbreviation of data conversion software GT Converter for GOT900
	GT Debugger	Abbreviation of debugging software GT Debugger
	GT Manager	Abbreviation of GT Manager data editing software for GOT900
	GT SoftGOT	Abbreviation of GT SoftGOT monitoring software
	GX Developer	Generic term of SW□D5C-GPPW-E/SW□D5F-GPPW-E software packages
	GX Simulator	Generic term of SW□D5C-LLT-E ladder logic test tool function software packages (SW5D5C-LLT-E or later)

Abbreviations and generic terms		Description
CPU	QCPU (Q Mode)	Generic term of Q00JCPU, Q00CPU, Q01CPU, Q02CPU, Q02HCPU, Q06HCPU, Q12HCPU, Q25HCPU, Q12PHCPU and Q25PHCPU CPU units
	QCPU (A Mode)	Generic term of Q02CPU-A, Q02HCPU-A and Q06HCPU-A CPU units
	QCPU	Generic term of QCPU (Q Mode) and QCPU (A Mode)
	QnACPU (Large Type)	Generic term of Q2ACPU, Q2ACPU-S1, Q3ACPU, Q4ACPU and Q4ARCPU CPU units
	QnACPU (Small Type)	Generic term of Q2ASCPU, Q2ASCPU-S1, Q2ASHCPU and Q2ASHCPU-S1 CPU units
	QnACPU	Generic term of QnACPU (Large Type) and QnACPU (Small Type)
	AnUCPU	Generic term of A2UCPU, A2UCPU-S1, A3UCPU and A4UCPU CPU units
	AnACPU	Generic term of A2ACPU, A2ACPU-S1 and A3ACPU CPU units
	AnNCPU	Generic term of A1NCPU, A2NCPU, A2NCPU-S1 and A3NCPU CPU units
	ACPU (Large Type)	Generic term of AnUCPU, AnACPU and AnNCPU CPU units
	A2US(H)CPU	Generic term of A2USCPU, A2USCPU-S1 and A2USHCPU-S1 CPU units
	AnS(H)CPU	Generic term of A1SCPU, A1SHCPU, A2SCPU and A2SHCPU CPU units
	A1SJ(H)CPU	Generic term of A1SJCPU-S3 and A1SJHCPU CPU units
	ACPU (Small Type)	Generic term of A2US(H)CPU, AnS(H)CPU and A1SJ(H)CPU CPU units
	ACPU	Generic term of ACPU (Large Type), ACPU (Small Type) and A1FXCPU CPU units
	FXCPU	Generic term of FX0 series, FX0N series, FX0S series, FX1 series, FX1N series, FX1NC series, FX1S series, FX2 series , FX2C series, FX2N series, FX2NC series CPU unit
	Motion controller CPU (Q Series)	Generic term of Q172CPU, Q173CPU
	Motion controller CPU (A Series)	Generic term of A273UCPU, A273UHCPU, A273UHCPU-S3, A171SCPU-S3, A171SHCPU, A172SHCPU, A173UHCPU
	Motion controller CPU	Generic term of Motion controller CPU (Q Series), Motion controller CPU (A Series)
	FA controller	Generic term of LM610, LM7600, LM8000 CPU unit
Peripheral connection unit	G4	Abbreviation of AJ65BT-G4-S3
Ethernet unit	E71	Generic term of AJ71E71-S3, A1SJ71E71-B2-S3, A1SJ71E71-B5-S3, AJ71E71N-B2, AJ71E71N-B5T, A1SJ71E71N-B2 and A1SJ71E71N-B5T
	QE71	Generic term of AJ71QE71, A1SJ71QE71-B2, AJ71QE71-B5, A1SJ71QE71-B5, AJ71QE71N-B2, AJ71QE71N-B5T, A1SJ71QE71N-B2 and A1SJ71QE71N-B5T
	Q series-compatible E71	Generic term of QJ71E71, QJ71E71-B2 and QJ71E71-100
Other PLC	Omron PLC	Generic term of C200HS, C200H, C200Hα series(C200HX, C200HG, C200HE), CQM1, C1000H,C2000H,CV500, CV1000, CV2000, CVM1-CPU11, CVM1-CPU21, CS1, CJ1 CPU unit
	Yaskawa PLC	Generic term of GL60S, GL60H, GL70H, GL120, GL130, CP-9200SH, CP-9300MS, MP-920, MP-930, MP-940, CP-9200(H) and PROGIC-8 CPU unit
	SLC500 Series	Generic term of SLC500-20, SLC500-30, SLC500-40, SLC5/01 SLC5/02, SLC5/03, SLC5/04 SLC5/05
	MicroLogix1000 Series	Generic term of 1761-L10BWA, 1761-L10BWB, 1761-L16AWA, 1761-L16BWA, 1761-L16BWB, 1761-L16BBB, 1761-L32AWA, 1761-L32BWA, 1761-L32BWB, 1761-L32BBB, 1761-L32AAA, 1761-L20AWA-5A, 1761-L20BWA-5A, 1761-L20BWB-5A
	MicroLogix1500 Series	Abbreviation of 1764-LSP
	Allen-Bradley PLC	Generic term of SLC 500 Series, MicroLogix1000 Series, MicroLogix1500 Series
	Sharp PLC	Generic term of JW-21CU, JW-22CU, JW-31CUH, JW-32CUH, JW-33CUH, JW-50CUH, JW-70CUH, JW-100CUH CPU unit
	PROSEC T Series	Generic term of T2(PU224 type), T2E, T2N, T3, T3H CPU unit
	PROSEC V Series	Abbreviation of Model3000(S3) CPU unit
	Toshiba PLC	Generic term of PROSEC T Series and PROSEC V Series
	SIEMENS PLC	Generic term of SIMATIC S7-300 Series and SIMATIC S7-400 Series CPU unit
	Large type H series	Generic term of H-302(CPU2-03H), H-702(CPU2-07H), H-1002(CPU2-10H), H-2002(CPU2-20H), H-4010(CPU3-40H), H-300(CPU-03Ha), H-700(CPU-07Ha), H-2000(CPU-20Ha)
	H200 to 252 Series	Generic term of H-200(CPU-02H, CPE-02H), H-250(CPU21-02H), H-252(CPU22-02H), H-252B(CPU22-02HB), H-252C(CPU22-02HC, CPE22-02HC)
	H Series board type	Generic term of H-20DR, H-28DR, H-40DR, H-64DR, H-20DT, H-28DT, H-40DT, H-64DT, HL-40DR, HL-64DR
	EH-150 Series	Generic term of EH-CPU104, EH-CPU208, EH-CPU308, EH-CPU316
	HITACHI PLC (HIDIC H Series)	Generic term of large type H series,H-200 to 252 Series H Series board type, EH-150 Series
	Matsushita Electric Works PLC	Generic term of FP0-C16CT, FP0-C32CT, FP1-C24C, FP1-C40C, FP2, FP3, FP5, FP10(S), FP10SH, FP-M(C20TC) and FP-M(C32TC)
Others	Memory	abbreviation of memory (flash memory) in the GOT
	OS	Abbreviation of GOT system software
	Object	Setting data for dynamic image
	Personal Computer	Personal computer where the corresponding software package is installed
	Servo amplifier	Generic term of the MR-J2S-□A, MR-J2S-□CP and MR-J2M A series

* In this manual, the following products are called by new names.

Old Name	New Name	Remarks
GPPW	GX Developer	Generic term of SW□D5C-GPPW-E/SW□D5F-GPPW-E software packages

Chapter1 Overview

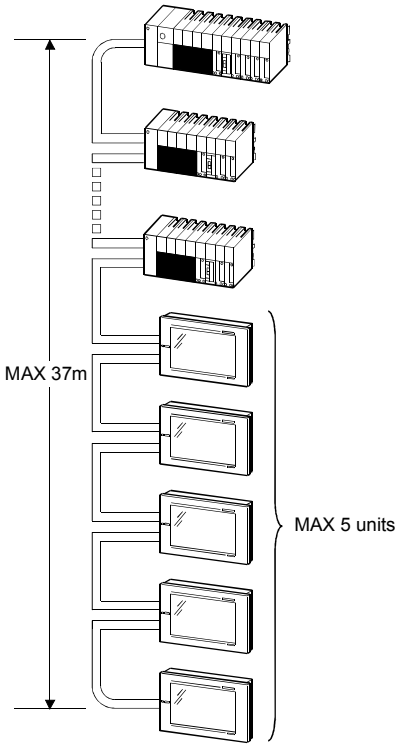
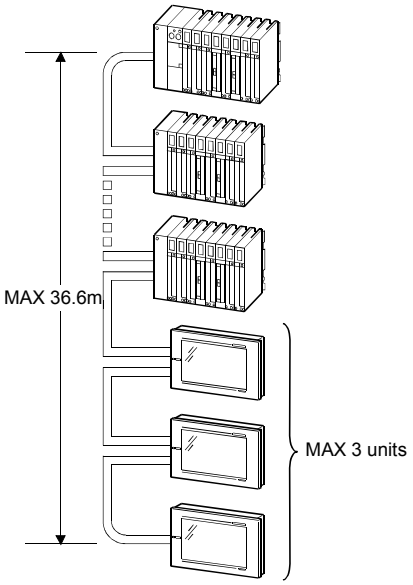
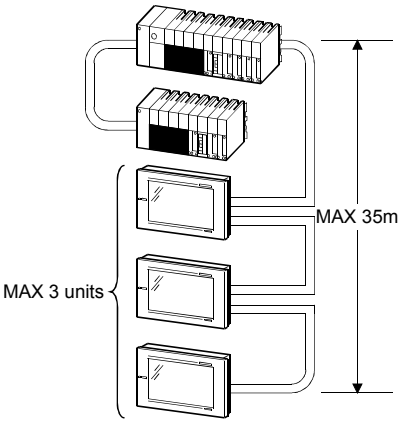
This manual describes the specifications, system configurations, setting method, connection cables and other information of each connection supported by the GOT. When applying the following program examples to the actual system, make sure to examine the applicability and confirm that it will not cause system control problems.

POINT
For connection of GT SoftGOT, refer to the GT SoftGOT Version 5 Operating Manual.

1.1 Connection supported by GOT

(1) Bus connection (Refer to Chapter 3)

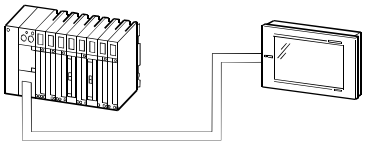
Bus connection is a way of using the extension connector of a base unit for connection of the GOT (connection by I/O bus) and this connection form has the fastest response to a PLC CPU among the GOT connection forms.
Multiple GOTs can be connected in a position away from the PLC CPU to be connected to.
However, only one GOT may be connected depending on the PLC CPU to be connected to.

Connection with QCPU (Q Mode)	Connection with QnACPU/ACPU (Large Type)	Connection with QnACPU/ACPU (Small Type)
Example: Connection with Q25HCPU	Example: Connection with Q2ACPU	Example: Connection with A2USCPU
		

*There are various precautions for bus connection according to the system selected. For details, refer to Chapter 3.

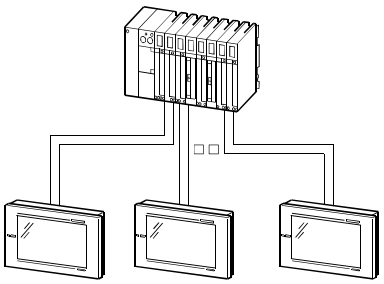
(2) Direct connection to CPU (Refer to Chapter 4)

You can connect the GOT with the PLC CPU by an RS-422/RS-232C cable and this is the most economical way of connection.



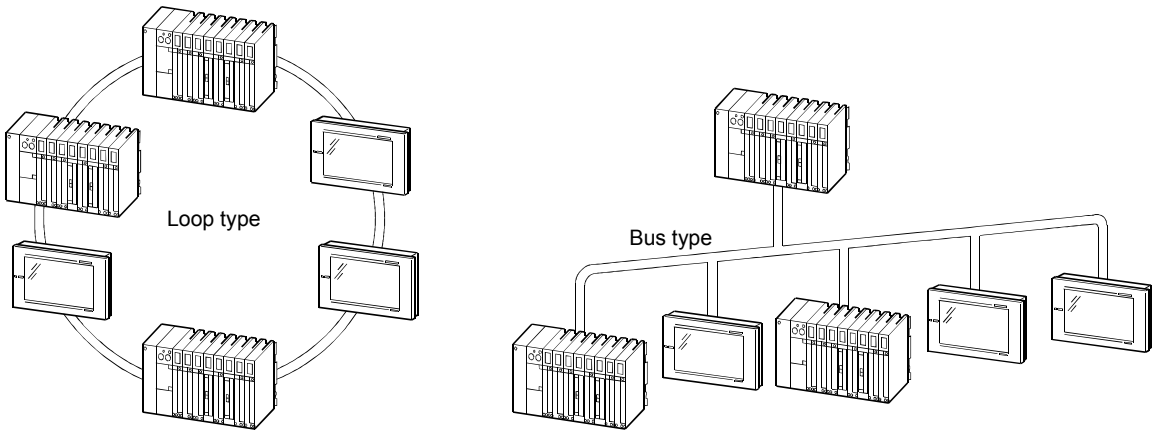
(3) Computer link connection (Refer to Chapter 5)

Since the GOT can be connected with a computer link unit/serial communication unit on a 1:1 or 1:2 (QJ71C24(-R2) function version B only) basis, multiple GOTs can be connected according to the number of computer link units/serial communication units mounted to the PLC CPU.
Also, while monitoring is performed on the GOT, a sequence program can be debugged on the peripheral device, e.g. GX Developer, connected to the PLC CPU or serial communication unit (QJ71C24(-R2) function version B only).



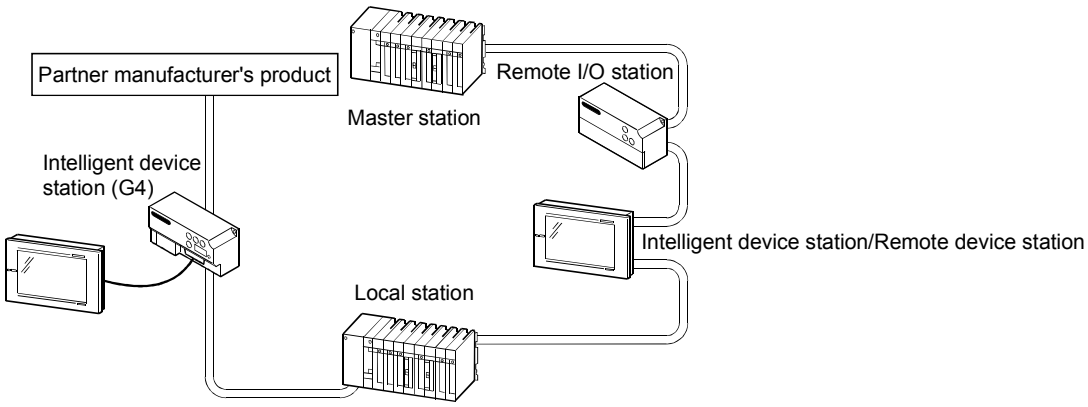
(4) MELSECNET connection (Refer to Chapter 6, Chapter 7)

The GOT is used as a local station of the data link system or a normal station of the network system and allows remote control via network.



(5) CC-Link connection (Refer to Chapter 8 to Chapter 10)

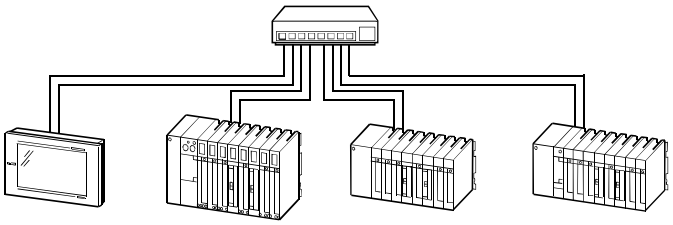
The GOT is used as an intelligent device station or a remote device station of the CC-Link system and allows remote control via network.
Via the G4, the GOT can also be integrated into the CC-Link system.
(When the GOT is connected via the G4, only the QCPU (Q mode) may be monitored.)



1 - 2

(6) Ethernet connection (refer to Chapter 11)

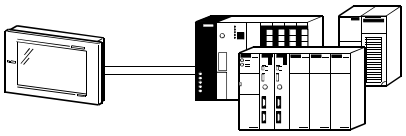
By incorporating the GOT into the Ethernet system (UDP/IP communication protocol), the PLC CPU can be remote-controlled via the network.



(7) Third party PLC connection (refer to Chapters 12 to 19)

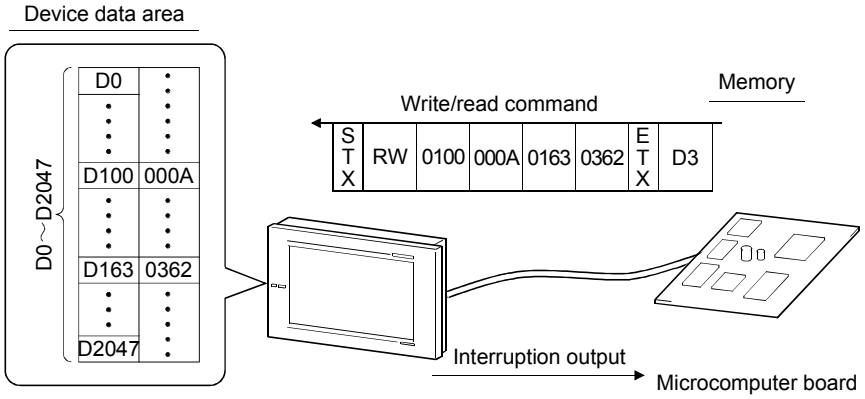
The GOT can be connected with any of the following third party PLC CPUs for monitoring.

- OMRON PLC
- Allen-Bradley PLC
- Toshiba PLC
- Hitachi PLC
- Yaskawa PLC
- Sharp PLC
- SIEMENS PLC
- Matsushita Electric Works PLC



(8) Microcomputer connection (Refer to Chapter 16)

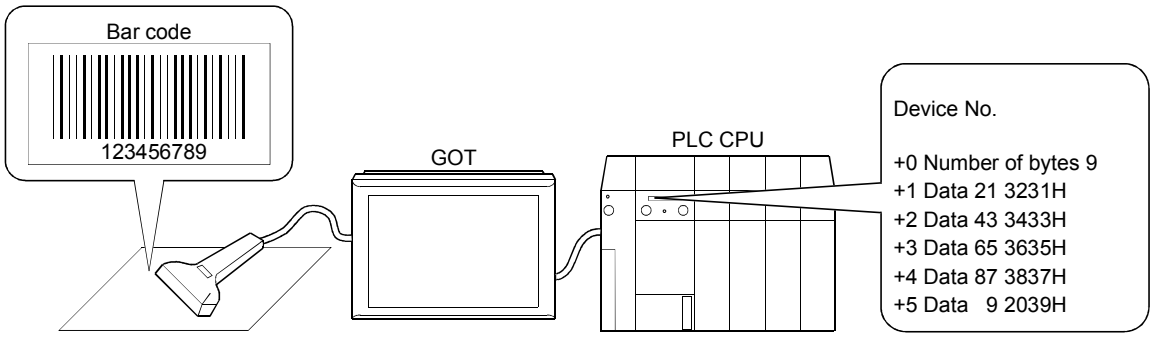
Virtual device (D) of the GOT can be monitored by sending/receiving data from/to a personal computer, microcomputer board, PLC, etc. (hereinafter referred to as "host")



(9) Optional devices connection (Refer to Chapter 21)

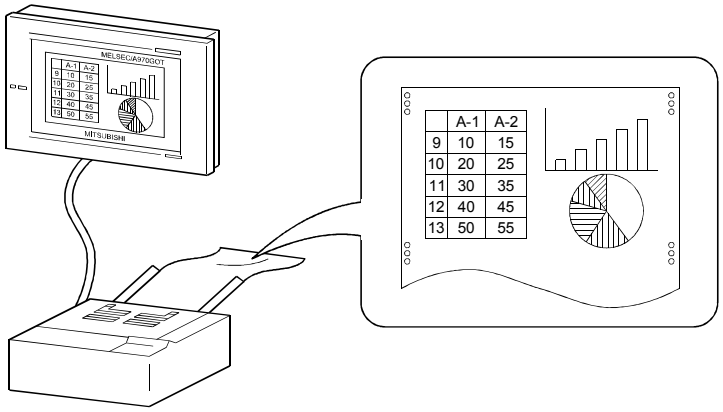
(a) Bar code reader

If connected to a bar code reader, the GOT can write data read with the bar code reader to the PLC CPU.



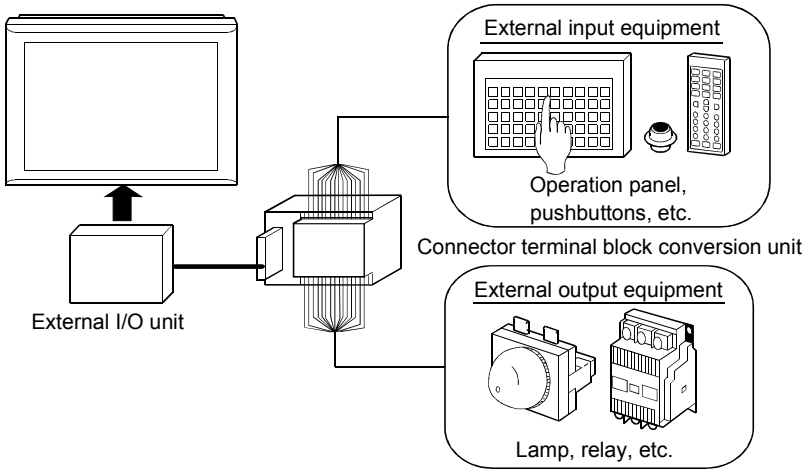
(b) Printer

If connected to a printer, the GOT can print data of alarm history and hard copy functions.



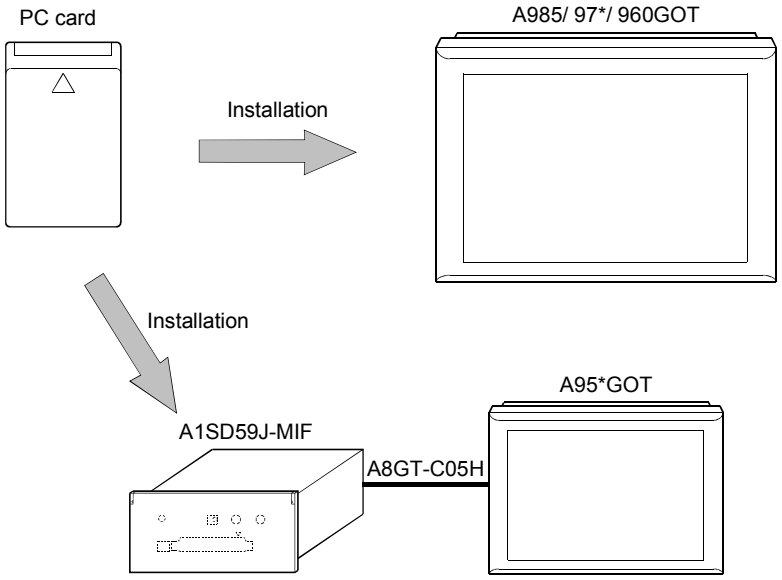
(c) External I/O equipment

By connection of input equipment (operation panel, ten-key panel, pushbuttons, etc.), you can write to devices, e.g. touch input, numerical input and screen switching, from outside the GOT.
In addition, you can connect output equipment (lamps, relays, etc.) to provide outputs from the GOT to the outside.



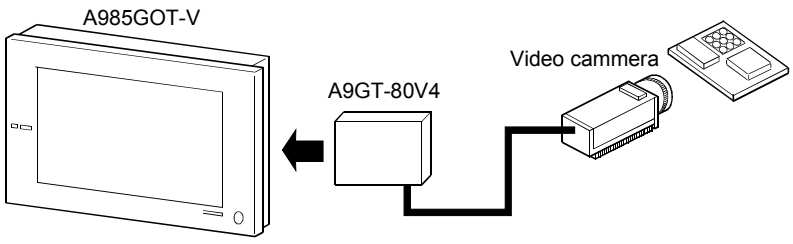
(d) PC card

Installation of PC card on the GOT allows storage of data used in the transfer data (system program, monitor screen data) and object function (alarm history function, recipe function, etc.).



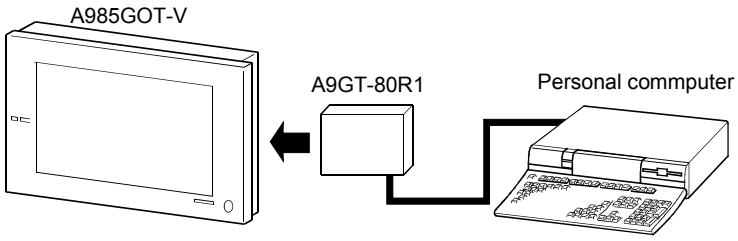
(e) Video camera

By connecting a video camera to the GOT, you can display a picture taken with the video camera in the GOT video window.



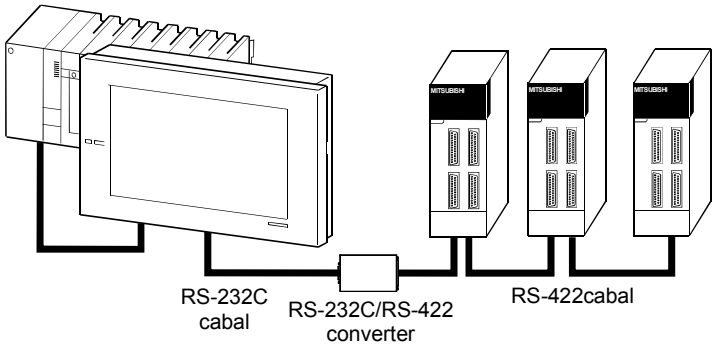
(f) Personal computer

By connecting a personal computer to the GOT, you can display the personal computer screen on the GOT.



(g) Servo amplifier

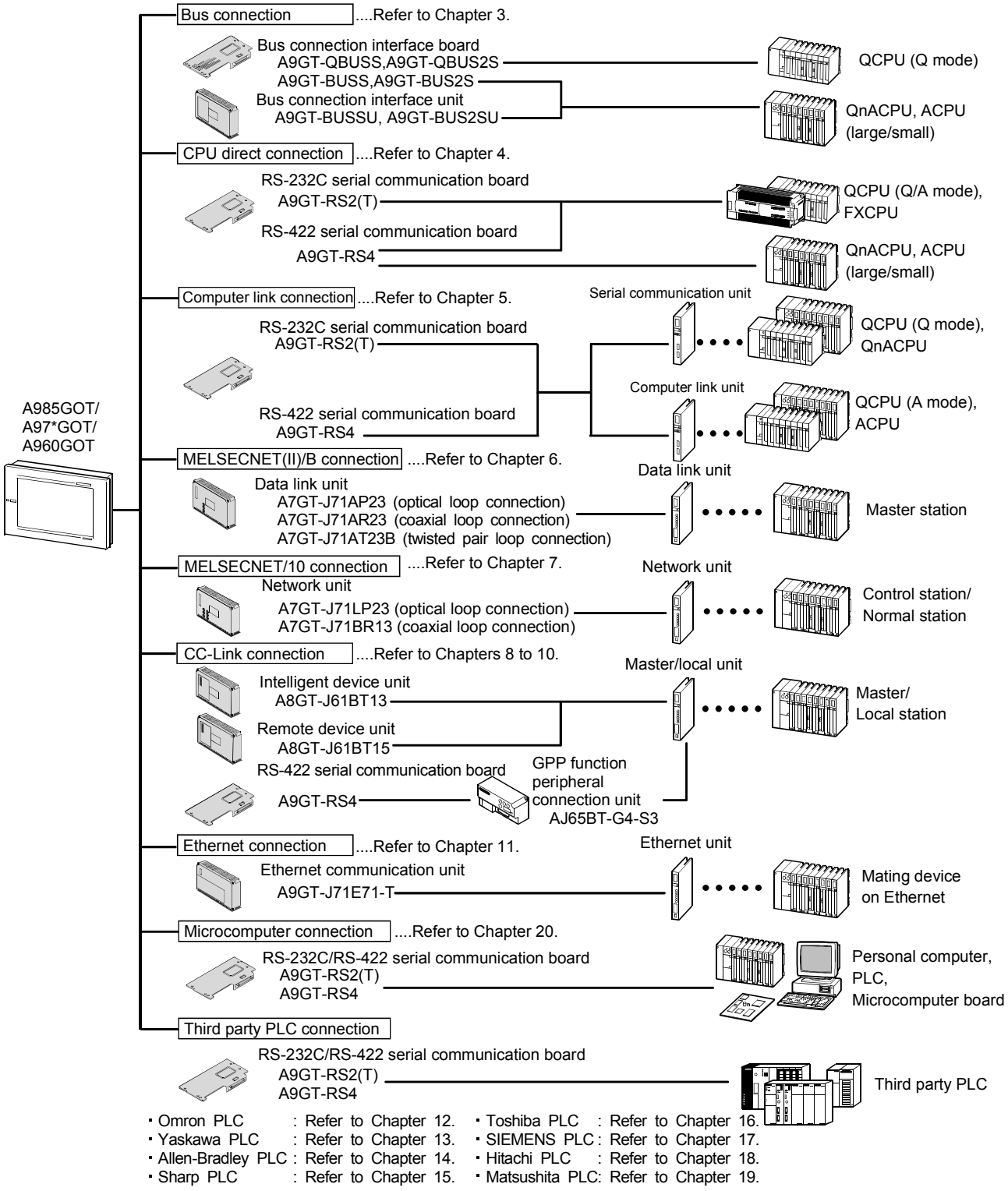
By connecting servo amplifiers to the GOT, you can perform various monitor functions, parameter setting changes, test operation and others for the servo amplifiers.



1.2 Overall system configurations

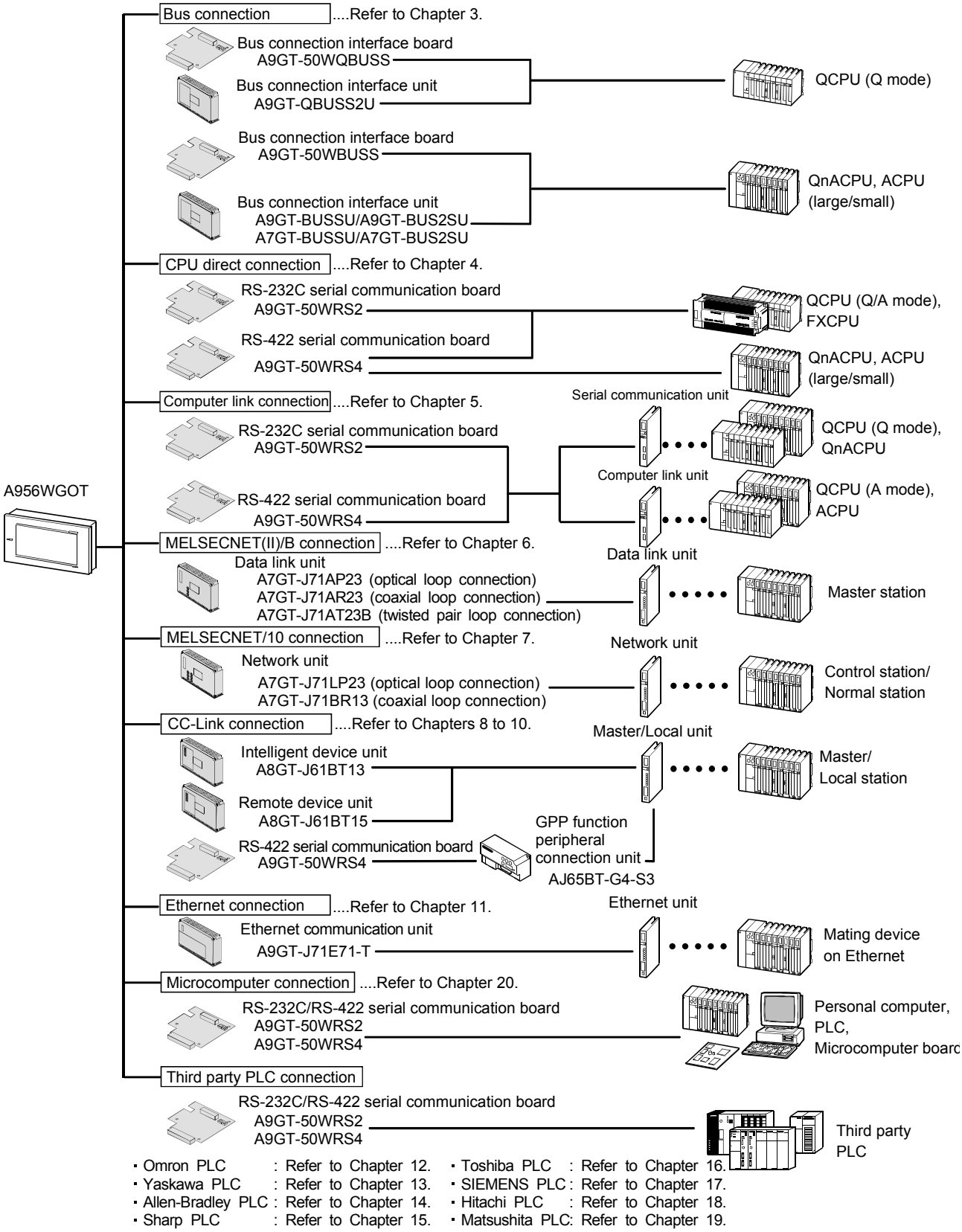
System configurations are given below on a GOT mode basis.

(1) A985GOT/A97*GOT/A960GOT



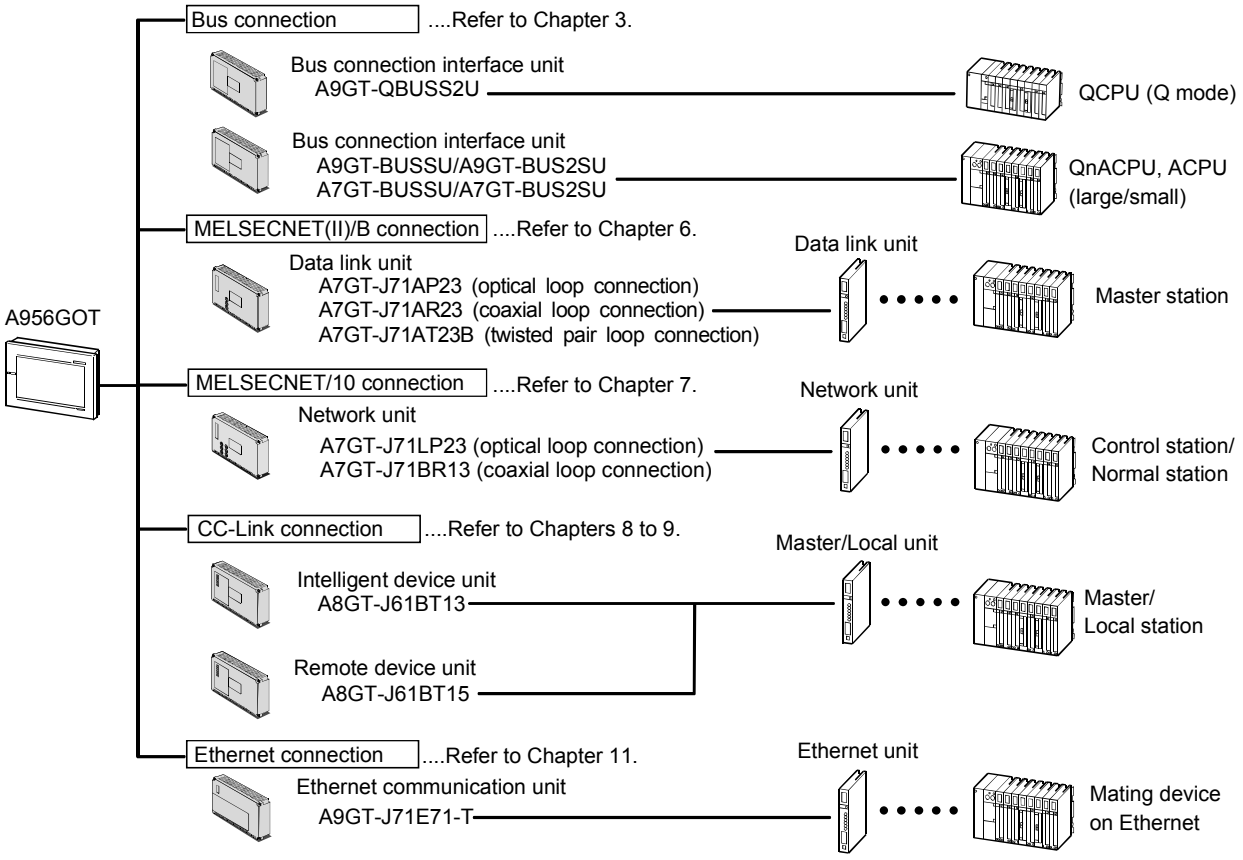
- Omron PLC : Refer to Chapter 12.
- Yaskawa PLC : Refer to Chapter 13.
- Allen-Bradley PLC : Refer to Chapter 14.
- Sharp PLC : Refer to Chapter 15.
- Toshiba PLC : Refer to Chapter 16.
- SIEMENS PLC : Refer to Chapter 17.
- Hitachi PLC : Refer to Chapter 18.
- Matsushita PLC: Refer to Chapter 19.

(2) A956WGOT

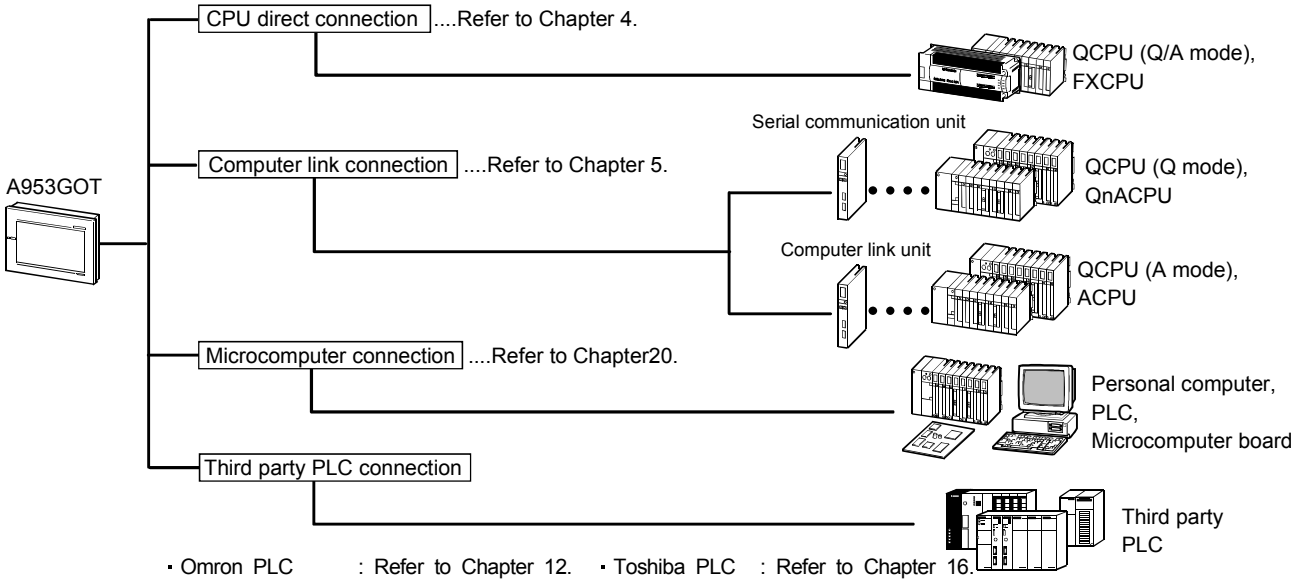


- Omron PLC : Refer to Chapter 12.
- Yaskawa PLC : Refer to Chapter 13.
- Allen-Bradley PLC : Refer to Chapter 14.
- Sharp PLC : Refer to Chapter 15.
- Toshiba PLC : Refer to Chapter 16.
- SIEMENS PLC : Refer to Chapter 17.
- Hitachi PLC : Refer to Chapter 18.
- Matsushita PLC: Refer to Chapter 19.

(3) A956GOT

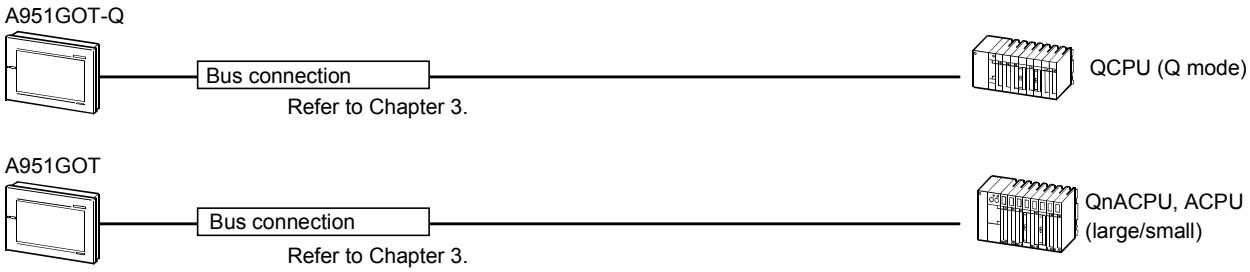


(4) A953GOT

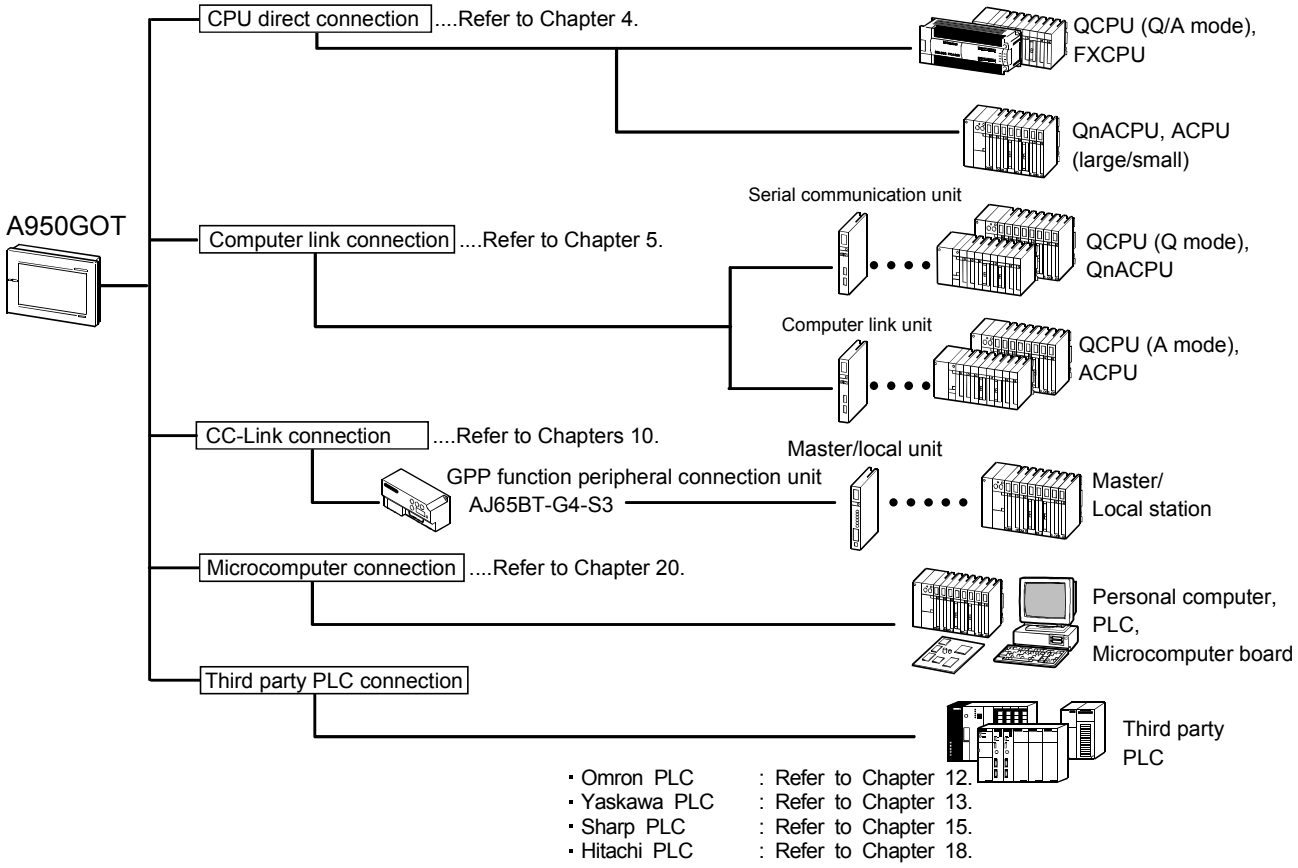


- Omron PLC : Refer to Chapter 12.
- Yaskawa PLC : Refer to Chapter 13.
- Allen-Bradley PLC : Refer to Chapter 14.
- Sharp PLC : Refer to Chapter 15.
- Toshiba PLC : Refer to Chapter 16.
- SIEMENS PLC : Refer to Chapter 17.
- Hitachi PLC : Refer to Chapter 18.
- Matsushita PLC: Refer to Chapter 19.

(5) A951GOT



(6) A950GOT



- Omron PLC : Refer to Chapter 12.
- Yaskawa PLC : Refer to Chapter 13.
- Sharp PLC : Refer to Chapter 15.
- Hitachi PLC : Refer to Chapter 18.

Chapter2 Specification

2.1 PLC CPU that allows monitoring

2.1.1 Applicable CPU list

The PLC CPUs that can be monitored by the GOT are indicated below.

(1) MITSUBISHI PLC

Item			Type				
QCPU	QCPU(Q mode)		Q00JCPU, Q02CPU, Q12PHCPU,	Q00CPU*1, Q02HCPU, Q25PHCPU	Q01CPU*1, Q06HCPU,	Q12HCPU,	Q25HCPU,
	QCPU(A mode)		Q02CPU-A,	Q02HCPU-A,	Q06HCPU-A		
QnACPU	QnACPU Type		Q2ACPU, Q4ACPU,	Q2ACPU-S1, Q4ARCPU	Q2AHCPU,	Q2AHCPU-S1,	Q3ACPU,
	QnASCPU Type		Q2ASCPU,	Q2ASCPU-S1,	Q2ASHCPU,	Q2ASHCPU-S1	
ACPU	AnCPU Type	AnUCPU	A2UCPU,	A2UCPU-S1,	A4UCPU		
		AnACPU	A2ACPU,	A2ACPU-S1,	A3ACPU		
		AnNCPU	A1NCPU,	A2NCPU,	A2NCPU-S1,	A3NCPU	
	AnSCPU Type	AnUS(H) CPU	A2USHCPU-S1				
		AnS(H)CPU	A1SCPU, A1SHCPU,	A1SCPUC24-R2, A2SHCPU,	A2SCPU, A2SHCPU-S1	A2SCPU-S1,	
		A1SJ(H) CPU	A1SJCPU,	A1SJCPU-S3,	A1SJHCPU		
	A1FXCPU		A1FXCPU				
			A0J2HCPU,	A2CCPU,	A2CCPUC24,	A2CJCPU	
FXCPU			FX0 Series, FX1 Series, FX2 Series,	FX0S Series, FX1S Series, FX2C Series,	FX0N Series, FX1N Series, FX2N Series,	FX1NC Series, FX2NC Series,	
Motion controller CPU	A Series		A273UCPU, A373CPU, A171SCPU, A171SHCPU, A173UHCPU,	A273UHCPU, A373UCPU, A171SCPU-S3, A171SHCPUN, A173UHCPU-S1	A273UHCPU-S3, A373UCPU-S3, A171SCPU-S3N, A172SHCPU,	A172SHCPUN,	
	Q Series*2		Q172CPU,	Q173CPU,	Q172CPUN,	Q173CPUN	
FA controller			LM610,	LM7600,	LM8000		

*1 As recommended for use in direct connection of the Q series basic model, the GOT does not support the serial communication function.

*2 Use the following versions of the motion controller CPU (Q Series).

1) Products with the main unit OS of Version 00E

2) Products whose main units have the following serial numbers (indicated on the rating plate on the CPU module side)
Q172CPU : serial numbers K******, Q173CPU : serial numbers J******

(2) Other PLC

Item		Type				
Omron PLC		C200HS, CQM1, CV2000, CJ1H,	C200H, C1000H, CVM1-CPU01, CJ1G,	C200Hα Series(C200HX,C200HG,C200HE), C2000H, CVM1-CPU11, CJ1M	CV500, CVM1-CPU21,	CV1000, CS1,
Yaskawa PLC		GL60S, CP-9200SH, MP-9200(H),	GL60H, CP-9300MS, PROGIC-8	GL70H, MP-920,	GL120, MP-930,	GL130, MP-940,
Allen-Bradley PLC	SLC500 Series	SLC500-20, SLC5/01,	SLC500-30, SLC5/02,	SLC500-40, SLC5/03,	SLC5/04,	SLC5/05
	MicroLogix1000 Series	1761-L10BWA, 1761-L16AWA, 1761-L32AWA, 1761-L20AWA-5A,	1761-L10BWB, 1761-L16BWA, 1761-L32BWA, 1761-L20BWA-5A,	1761-L16BWB, 1761-L32BWB, 1761-L20BWB-5A	1761-L16BBB, 1761-L32BBB,	1761-L32AAA,
	MicroLogix1500 Series	1764-LSP				
Sharp PLC		JW-21CU, JW-50CUH,	JW-22CU, JW-70CUH,	JW-31CUH, JW-100CUH	JW-32CUH,	JW-33CUH,
Toshiba PLC	PROSEC T Series	T3,	T3H,	T2E,	T2N,	T2(PU224 Type)
	PROSEC V Series	Model3000(S3)				
SIEMENS PLC		SIMATIC S7-300 Series,		SIMATIC S7-400 Series		
HITACHI PLC (HIDEC H Series)	Large type H Series	H-302(CPU2-03H), H-2002(CPU2-20H), H-300(CPU-03Ha),		H-702(CPU2-07H), H-4010(CPU3-40H), H-700(CPU-07Ha),		H-1002(CPU2-10H), H-2000(CPU-20Ha)
	H-200 to 252 Series	H-200(CPU-02H,CPE-02H), H-252B(CPU22-02HB),		H-250(CPU21-02H), H-252C(CPU22-02HC,CPE22-02HC)		H-252(CPU22-02H),
	H Series board type	H-20DR, H-28DT,	H-28DR, H-40DT,	H-40DR, H-64DT,	H-64DR, HL-40DR,	H-20DT, HL-64DR
	EH-150 Series	EH-CPU104,	EH-CPU208,	EH-CPU308,	EH-CPU316	
Matsushita Electric Works		FP0-C16CT, FP3, FP-M(C32TC)	FP0-C32CT, FP5,	FP1-C24C, FP10(S),	FP1-C40C, FP10SH,	FP2, FP-M(C20TC),

2 - 2

2.1.2 PLC CPU that can be monitored per connection form

The PLC CPU that can be monitored by the GOT changes with the system up to the PLC CPU monitored (connection form).
The PLC CPUs that can be monitored by the GOT are indicated below per connection form.

○: Applicable △: Partly restricted ×: Inapplicable

PLC CPU Monitored*1		Bus Connection	CPU Direct Connection	Computer Link Connection	Ethernet Connection	MELSECNET Connection			CC-Link Connection		
						Network System		Data link system	Intelligent device station	Remote device station*3	Via G4
						MELSECNET/H	MELSECNET/10*2	MELSECNET/B,(II)			
QCPU (Q mode)		○*9	○*9	○*9	○	×	△*4	×	○	○	○
QCPU (A mode)		×	○	○	○	×	○	○	○	○	×
QnACPU		○	○	○	○	×	△*4	○	○	○	×
ACPU	Other than A1FXCPU	△*5	△*6	△*7*8	○	×	○	○	○	○	×
	A1FXCPU	×	○	×	×	×	×	×	×	×	×
FXCPU		×	○	×	×	×	×	×	×	×	×
FA controller		×	×	×	×	×	○	○	×	×	×
Motion controller CPU (Q series)		○	○	○	○	×	×	×	○	×	○
Motion controller CPU (A series)		○	○	△*8	○	×	○	○	○	○	×
Omron PLC		×	○	○	×	×	×	×	×	×	×
Yaskawa PLC		×	○	○	×	×	×	×	×	×	×
Allen-Bradley PLC		×	○	×	×	×	×	×	×	×	×
Sharp PLC		×	○	○	×	×	×	×	×	×	×
Toshiba PLC		×	×	○	×	×	×	×	×	×	×
SIEMENS PLC		×	○	×	×	×	×	×	×	×	×
HITACHI PLC		×	○	○	×	×	×	×	×	×	×
Matsushita Electric Works PLC		×	○	○	×	×	×	×	×	×	×
Microcomputer		×	○	×	×	×	×	×	×	×	×

*1 Connection to a remote I/O station cannot be made independently of the connection form.
*2 Including the case where the MELSECNET/H is used in the NET/10 mode.
Connection to a remote I/O network cannot be made.
*3 For connection as a remote device station, only the link devices (RX, RY, RWw, RWr) assigned to the GOT may be monitored.
*4 When creating a monitor screen (project data) with the GT Designer, note the following two points.
• When setting the monitor devices, note that the device ranges that can be monitored are the ranges for monitoring the ACPU (A3ACPU equivalent).
• The PLC CPUs monitored are the QCPU (Q mode) and QnACPU, but the PLC type must be set to "MELSEC-A".
*5 The A2CCPU and A2CCPUC24 do not allow bus connection.
*6 When monitoring the AnNCPU(S1), A2SCPU(S1), A0J2HCPU or A2CCPU, data with word specification (Word specification for word/bit device) cannot be written from the GOT to the CPU with software version earlier than the following.
• AnNCPU(S1): Version L or later for the one with link, version H or later for the one without link
• A2SCPU(S1): Version H or later • A0J2HCPU: Version E or later • A2CCPU: Version H or later
*7 The A2CCPU does not allow computer link connection.
*8 For computer link connection of the A2SCPU, A2SHCPU-S1, A2SHCPU, A1SHCPU, A1SJHCPU, A0J2HCPU, A171SHCPU and A172SHCPU, use the computer link module whose software version is version U or later.
In addition, the A0J2-C214-S1 (A0J2HCPU-dedicated computer link module) cannot be used.
*9 The GOT will monitor the host when the device monitored is set as N/W No.: 0 and Station No.: 0 (The station does not actually exist).
The device ranges that can be monitored are the ranges for monitoring the ACPU (A3ACPU equivalent).

2.2 Monitoring of special function unit

(1) When using bus connection/CPU direct connection/computer link connection

- The special function modules on the bases of the connected station and other stations can be monitored.
- Special module monitoring for computer link connection is enabled for the systems of the following combinations.

PLC CPU used	Computer link/serial communication module used
QCPU (Q mode)	QJ71C24
QCPU (A mode)	A1SJ71UC24
QCPU (A mode)	AJ71QC24, A1SJ71QC24
QCPU (A mode)	AJ71UC24, A1SJ71UC24

(2) When using MELSECNET(II) connection/MELSECNET/B connection

- The special function module on the base of the master station can be monitored.
  (Cannot be monitored when the master station is the QnACPU.)
- The special function modules on the bases of local stations cannot be monitored.
- In a system configuration having remote I/O stations, special function modules cannot be monitored.

(3) When using MELSECNET/10 connection

- The special function modules on the bases of the control station and normal stations can be monitored.
  (Cannot be monitored when the stations are the QnACPU.)
- In a system configuration having remote I/O stations, special function modules cannot be monitored.

(4) When using CC-Link connection (remote device station)

- The special function modules cannot be monitored.

(5) When using CC-Link connection (intelligent device station)/CC-Link connection (via G4)

- The special function modules on the bases of the master and local stations can be monitored.
- In a system configuration having remote I/O stations, special function modules cannot be monitored.

(6) When using Ethernet connection

- The special function unit on the base of the PLC CPU assigned the IP address can be monitored.
  The special function modules on the bases of the master and local stations can be monitored.
  (The station assigned in the Ethernet setting of GT Designer can be monitored.)

2.3 Access range for monitoring

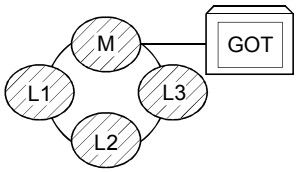
POINT
It should be noted that you cannot connect the GOT to monitor a remote I/O station in a network system or data link system.

2.3.1 Data link system (MELSECNET/B, (II)) access range for monitoring

(1) Bus connection/CPU direct connection/Computer link connection

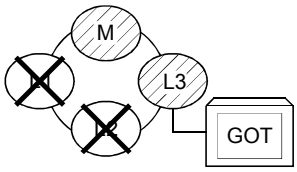
(a) If connected to master station

• Local stations can be monitored. If the PLC CPU of the local station is QnACPU, devices other than B and W that are allocated by the link parameter cannot be monitored.



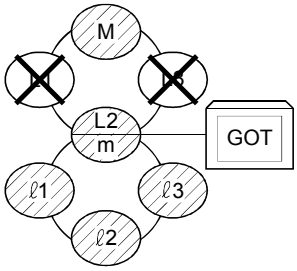
(b) If connected to local station

• The master station can be monitored. If the PLC CPU of the local station is QnACPU, devices other than B and W that are allocated by the link parameter cannot be monitored.
• Other local stations cannot be monitored.



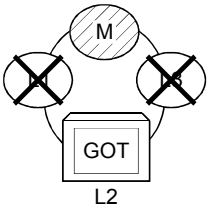
(c) If connected to the master station on the third layer

• The master station on the second layer and local stations on the third layer can be monitored. If the PLC CPU of the local station is QnACPU, devices other than B and W that are allocated by the link parameter cannot be monitored.
• Local stations on the second layer cannot be monitored.



(2) MELSECNET/B connection and MELSECNET(II) connection

• The GOT is regarded as a local station and can monitor only the master station. If the PLC CPU of the local station is QnACPU, devices other than B and W that are allocated by the link parameter cannot be monitored.



• Local devices cannot be monitored. When setting the monitor device, designate the NW number and the station number as follows.
When monitoring devices B and W that are allocated by the link parameter :
NW number : 0, Station number : Local
When monitoring devices other than B and W of the master station :
NW number : 0, Station number :
Others (Station number : 0)

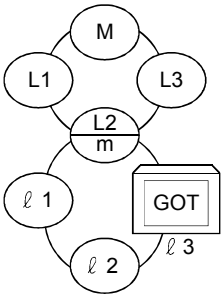
POINT
For monitoring devices B and W that are allocated by the link parameter, make sure to use the local device number if designating devices allocated to other station. If not, display speed will be reduced.

(3) Monitoring devices of other stations

If other devices on the data link system are monitored, display speed will be significantly reduced. Therefore monitor link relay (B) and link register (W) that are allocated by the link parameter.

(4) Setting method of monitor device

Describes the NW numbers for setting monitor devices and method of setting station numbers with an example shown below.



POINT
For monitoring devices B and W that are allocated by the link parameter, make sure to use the local device number if designating devices allocated to other station. If not, display speed will be reduced.

(a) When monitoring devices B and W that are allocated by the connected station (local station) and link parameter :
NW number : 0, Station number : Local

(b) When monitoring devices of other stations :
NW number : 0, Station number : Refer to the following table.

Station number setting

Station connected to GOT \ Station to be accessed	M	L1	L2 m	L3	ℓ1	ℓ2	ℓ3
M	Local	Other 1	Other 2	Other 3	—	—	—
L1	Other 0	Local	—	—	—	—	—
L2 m	Other 0	—	Local	—	Other 1	Other 2	—
L3	Other 0	—	—	Local	—	—	—
ℓ1	—	—	Other 0	—	Local	—	—
ℓ2	—	—	Other 0	—	—	Local	—
ℓ3(GOT)	—	—	Other 0	—	—	—	—

2.3.2 Network system (MELSECNET/H, MELSECNET/10) access range for monitoring

(1) Bus connection
  (a) If connected to multi-PLC system
    1) The control station on the network and all normal stations can be monitored.
    2) The control station on the other network and all normal stations can be monitored.
      (To monitor the other network, be sure to designate the routing parameter.)
    3) When the monitor target is the multi-PLC system, CPU No. 1 to No. 4 can be monitored.
    4) Devices of other stations (other than devices B and W that are allocated by the network parameter) may not allow monitoring depending on their PLC CPU.
      Refer to Examples 1 to 4.in (7).
      The motion controller CPU (Q Series) at other stations cannot be monitored.
  (b) If connected to QCPU(Q Mode)/QnACPU/AnUCPU
    1) The control station on the network and all normal stations can be monitored.
    2) The control station on the other network and all normal stations can be monitored.
      (To monitor the other network, be sure to designate the routing parameter.)
    3) If connected to an intermediate station and the data link system is included, the master station and local stations can be monitored.
    4) If connected to an intermediate station, it is not necessary to designate the data link parameter "Effective unit number for accessing other stations" for the PLC CPU of the connected station. (If designated, the parameter will be ignored.)
    5) Devices of other stations (other than devices B and W that are allocated by the network parameter) may not allow monitoring depending on their PLC CPU.
      Refer to Examples 1 to 4.in (7).
  (c) If connected to AnACPU/AnNCPU
    1) Control stations on the network can be monitored.
      If the PLC CPU of the local station is QCPU (Q Mode)/QnACPU, devices other than B and W that are allocated by the network parameter cannot be monitored.
    2) Normal stations on the network cannot be monitored.
    3) Stations on the other network cannot be monitored.

(2) CPU direct connection/computer link connection
  (a) If connected to multi-PLC system
    1) Access range is as described in (1) (a).
  (b) If connected to QCPU (Q Mode)/QnACPU
    1) Access range is as described in (1) (b).
  (c) If connected to QCPU (A Mode)/AnUCPU
    1) Control station on the network and all normal stations can be monitored.
      When devices of other stations (other than devices B and W that are allocated by the network parameter) are monitored, monitoring is not available if the PLC CPU to be monitored is QCPU (Q Mode)/QnACPU.
    2) If connected to an intermediate station, use data link parameter "Effective unit number to access other stations" to designate the unit number that is connected to the network to be monitored.
  (d) If connected to AnACPU/AnNCPU
    1) Control stations on the network can be monitored.
      If the PLC CPU of the control station is QCPU (Q Mode)/QnACPU, devices other than B and W that are allocated by the network parameter cannot be monitored.
    2) Normal stations on the network cannot be monitored.
    3) The other network cannot be monitored.

(3) CC-Link connection (intelligent device station)/CC-Link connection (via G4)
- Connected stations can be monitored.
- When the connected station is the multi-PLC system, CPU No. 1 to No. 4 can be monitored.
- Other stations on the network system cannot be monitored.

(4) MELSECNET/10 connection
(a) The GOT is regarded as a normal station. The control station on the network and all normal stations can be monitored.
If the PLC CPU to be monitored is QCPU (Q Mode)/QnACPU, monitoring is available within the device access range for AnA. (The access range for monitoring of timer (T) and counter (C) is limited to 0 to 225. File registers (R, ER, ZR) cannot be monitored.)
When the PLC CPU of the monitor target is the multi-PLC system, the control PLC of the network unit can be monitored.

(b) The other network cannot be monitored.

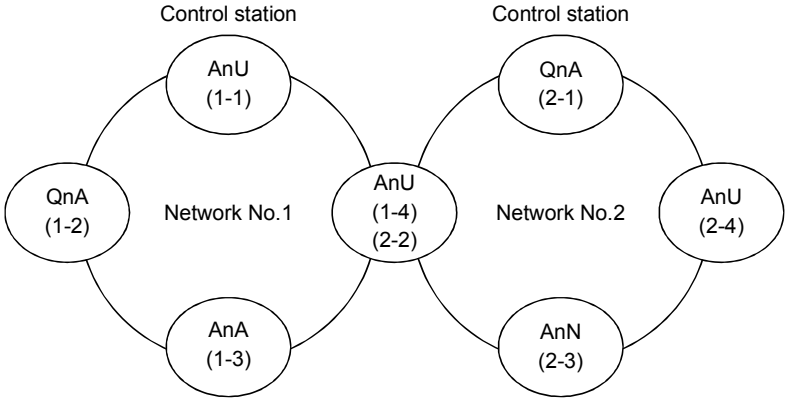
(c) If devices of other stations (other than devices B and W that are allocated by the network parameter) are monitored, monitoring may not be available depending on the PLC CPU of the network system to be monitored. Refer to (Example 6).

(5) Monitoring devices of other stations on network
If devices of other stations on the network system are monitored, display speed will be significantly reduced. Therefore monitor link relay (B) and link register (W) that are allocated by the network parameter.

(6) Monitoring devices of the other network
(a) Be sure to designate the routing parameter to the PLC CPU of the connected station.

(b) If the other network is monitored, display speed of object etc. will be significantly reduced.

(7) Monitor access range of other stations and setting method of monitor devices
(Example 1) When using bus connection



- Monitor access range of other station devices (other than B and W)/other network

Station connected to GOT \ Station to be accessed	Network No.1				Network No.2			
	AnU (1-1)	QnA (1-2)	AnA (1-3)	AnU (1-4)	QnA (2-1)	AnU (2-2)	AnN (2-3)	AnU (2-4)
AnU (1-1)	O Local	×	O	O	×	O	×	O
QnA (1-2)	O	O Local	×	O	O	O	×	O
AnA (1-3)	O	×	O Local	×	×	×	×	×
AnU (1-4) (2-2)	O	×	×	O Local	×	O Local	×	O
QnA (2-1)	O	O	×	O	O Local	O	O	O
AnN (2-3)	×	×	×	×	×	×	O Local	×
AnU (2-4)	O	×	×	O	×	O	×	O Local

O : Accessible × : Not accessible

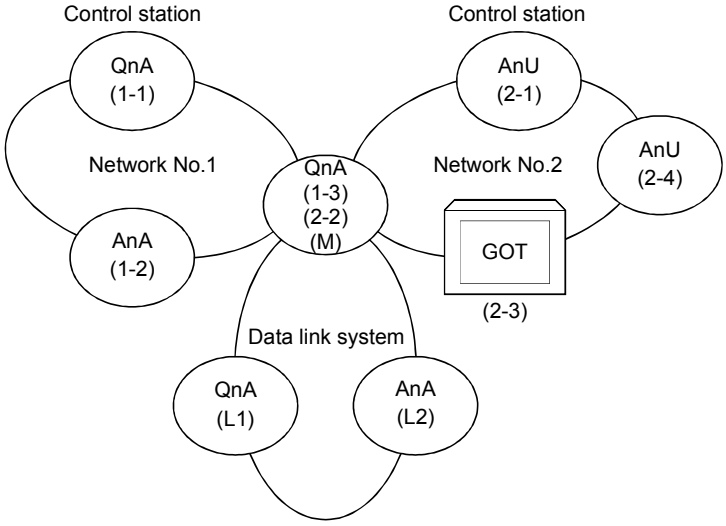
POINT
For monitoring devices B and W that are allocated by the network parameter, make sure to use the local device number if designating devices allocated to other station. If not, display speed will be reduced.

• Designating NW number and station number for setting monitor device
1) Monitoring devices B and W that are allocated by the network parameter at the connected station (local station)
NW number: 0, Station number: Local
2) When monitoring other stations (other than B and W)/other network

Station connected to GOT \ Station to be accessed	Network No.1				Network No.2			
	AnU (1-1)	QnA (1-2)	AnA (1-3)	AnU (1-4)	QnA (2-1)	AnU (2-2)	AnN (2-3)	AnU (2-4)
AnU (1-1)	0, Local	—	1, Other (3)	1, Other (4)	—	2, Other (2)	—	2, Other (4)
QnA (1-2)	1, Other (1)	0, Local	—	1, Other (4)	2, Other (1)	2, Other (2)	—	2, Other (4)
AnA (1-3)	0, Other (0)	—	0, Local	—	—	—	—	—
AnU (1-4) (2-2)	1, Other (1)	—	—	0, Local	—	0, Local	—	2, Other (4)
QnA (2-1)	1, Other (1)	1, Other (2)	—	1, Other (4)	0, Local	2, Other (2)	2, Other (3)	2, Other (4)
AnN (2-3)	—	—	—	—	—	—	0, Local	—
AnU (2-4)	1, Other (1)	—	—	1, Other (4)	—	2, Other (2)	—	0, Local

How to read the table: 2, (NW number) Other (2) (Station number)

(Example 2) When using bus connection



• Monitor access range of other station devices (other than B and W)/other network

Station connected to GOT \ Station to be accessed	Network No.1			Network No.2				Data link system		
	QnA (1-1)	AnA (1-2)	QnA (1-3)	AnU (2-1)	QnA (2-2)	GOT (2-3)	AnU (2-4)	QnA (M)	QnA (L1)	AnA (L2)
QnA (1-1)	○ Local	○	○	○	○	—	○	○	×	×
AnA (1-2)	×	○ Local	×	×	×	—	×	×	×	×
QnA (1-3) (2-2) (M)	○	×	○ Local	○	○ Local	—	○	○ Local	×	○
AnU (2-1)	×	×	×	○ Local	×	—	○	×	×	×
GOT (2-3)	×	×	×	○	△	—	○	△	×	×
AnU (2-4)	×	×	×	○	×	—	○ Local	×	×	×
QnA (L1)	×	×	×	×	×	—	×	×	○ Local	×
AnA (L2)	×	×	×	×	×	—	×	×	×	○ Local

○ : Accessible △ : Accessible within the range for AnA (T/C: 0 to 255, R/ER/ZR cannot be monitored)
× : Not accessible

POINT
For monitoring devices B and W that are allocated by the network parameter, make sure to use the local device number if designating devices allocated to other station. If not, display speed will be reduced.

• Designating NW number and station number for setting monitor device

1) When monitoring devices B and W that are allocated by the network parameter at the connected station (local station)
NW number: 0, Station number: Local station

2) When monitoring other stations (other than B and W)/other network

Station connected to GOT \ Station to be accessed	Network No.1			Network No.2				Data link system		
	QnA (1-1)	AnA (1-2)	QnA (1-3)	AnU (2-1)	QnA (2-2)	GOT (2-3)	AnU (2-4)	QnA (M)	QnA (L1)	AnA (L2)
QnA (1-1)	0, Local	1, Other (2)	1, Other (3)	2, Other (1)	2, Other (2)	—	2, Other (4)	1, Other (3) or 2, Other (2)	—	—
AnA (1-2)	—	0, Local	—	—	0, Local	—	—	—	—	—
QnA (1-3) (2-2) (M)	1, Other (1)	—	0, Local	2, Other (1)	—	—	2, Other (4)	0, Local	—	0, Other (2) *1
AnU (2-1)	—	—	—	0, Local	—	—	2, Other (4)	—	—	—
GOT (2-3)	—	—	—	0, Other (1)	0, Other (2)	—	0, Other (4)	0, Other (2)	—	—
AnU (2-4)	—	—	—	2, Other (1)	—	—	0, Local	—	—	—
QnA (L1)	—	—	—	—	—	—	—	—	0, Local	—
AnA (L2)	—	—	—	—	—	—	—	—	—	0, Local

*1 When monitoring the data link system, designate the NW number as 0.

How to read the table

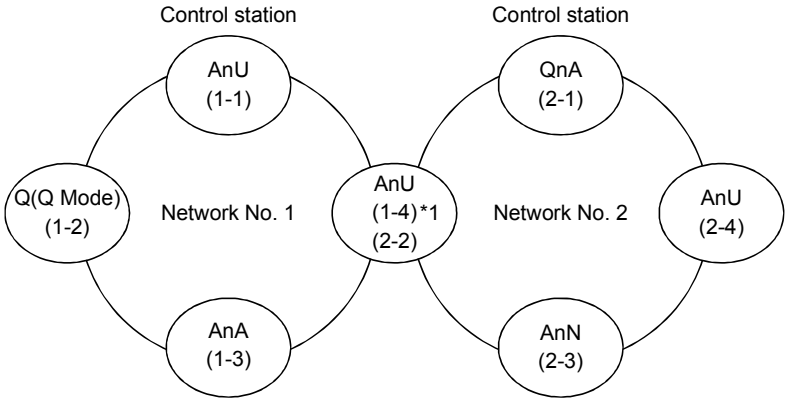
2, Other (2)

↑ NW number

↑ Station number

2 - 10

(Example 3) When using CPU direct connection or computer link connection



*1 Data link parameter "Effective unit number for accessing other stations" is designated to the unit number that is connected to the network No. 1.

• Monitor access range of other station devices (other than B and W)/other network

Station connected to GOT \ Station to be accessed	Network No.1				Network No.2			
	AnU (1-1)	Q(Q Mode) (1-2)	AnA (1-3)	AnU (1-4)	QnA (2-1)	AnU (2-2)	AnN (2-3)	AnU (2-4)
AnU (1-1)	O Local	×	O	O	×	O	×	×
Q(Q Mode) (1-2)	O	O Local	×	O	O	O	×	O
AnA (1-3)	O	×	O Local	×	×	×	×	×
AnU (1-4) (2-2)	O	×	×	O Local	×	O Local	×	×
QnA (2-1)	O	O	×	O	O Local	O	O	O
AnN (2-3)	×	×	×	×	×	×	O Local	×
AnU (2-4)	×	×	×	×	×	O	×	O Local

O : Accessible × : Not accessible

POINT
For monitoring devices B and W that are allocated by the network parameter, make sure to use the local device number if designating devices allocated to other station. If not, display speed will be reduced.

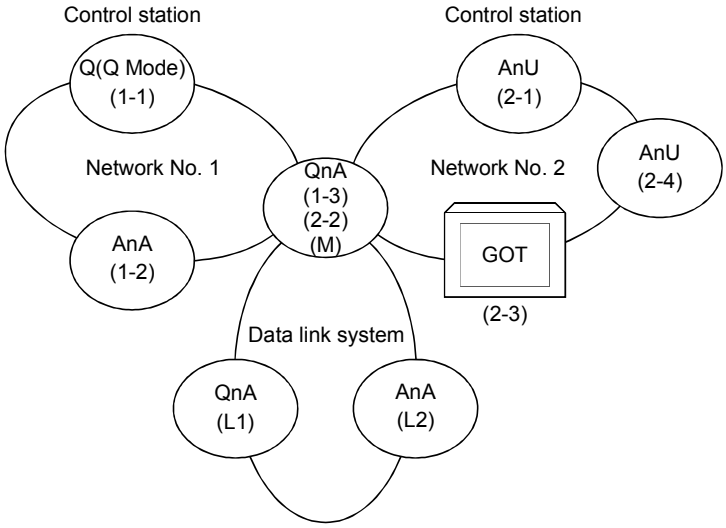
• Designating NW number and station number for setting monitor device
1) Monitoring devices B and W that are allocated by the network parameter at the connected station (local station)
NW number: 0, Station number: Local
2) When monitoring other stations (other than B and W)/other network

Station connected to GOT \ Station to be accessed	Network No.1				Network No.2			
	AnU (1-1)	Q(Q Mode) (1-2)	AnA (1-3)	AnU (1-4)	QnA (2-1)	AnU (2-2)	AnN (2-3)	AnU (2-4)
AnU (1-1)	0, Local	—	0, Other (3)	0, Other (4)	—	0, Other (4)	—	—
Q(Q Mode) (1-2)	1, Other (1)	0, Local	—	1, Other (4)	2, Other (1)	2, Other (2)	—	2, Other (4)
AnA (1-3)	0, Other (0)	—	0, Local	—	—	—	—	—
AnU (1-4) (2-2)	0, Other (1)	—	—	0, Local	—	0, Local	—	—
QnA (2-1)	1, Other (1)	1, Other (2)	—	1, Other (4)	0, Local	2, Other (2)	2, Other (3)	2, Other (4)
AnN (2-3)	—	—	—	—	—	—	0, Local	—
AnU (2-4)	—	—	—	—	—	0, Other (2)	—	0, Local

How to read the table: 2, Other (2)
↑ NW number
↑ Station number

2 - 11

(Example 4) When using CPU direct connection or computer link connection



• Monitor access range of other station devices (other than B and W)/other network

Station connected to GOT \ Station to be accessed	Network No.1			Network No.2				Data link system		
	Q(Q Mode) (1-1)	AnA (1-2)	QnA (1-3)	AnU (2-1)	QnA (2-2)	GOT (2-3)	AnU (2-4)	QnA (M)	QnA (L1)	AnA (L2)
Q(Q Mode) (1-1)	○ Local	○	○	○	○	—	○	○	×	×
AnA (1-2)	×	○ Local	×	×	×	—	×	×	×	×
QnA (1-3) (2-2) (M)	○	×	○ Local	○	○ Local	—	○	○ Local	×	○
AnU (2-1)	×	×	×	○ Local	×	—	○	×	×	×
GOT (2-3)	×	×	×	○	△	—	○	△	×	×
AnU (2-4)	×	×	×	○	×	—	○ Local	×	×	×
QnA (L1)	×	×	×	×	×	—	×	×	○ Local	×
AnA (L2)	×	×	×	×	×	—	×	×	×	○ Local

○ : Accessible △ : Accessible within the range for AnA (T/C: 0 to 255, R/ER/ZR cannot be monitored)
× : Not accessible

2 - 12

POINT
For monitoring devices B and W that are allocated by the network parameter, make sure to use the local device number if designating devices allocated to other station. If not, display speed will be reduced.

• Designating NW number and station number for setting monitor device
1) When monitoring devices B and W that are allocated by the network parameter at the connected station (local station)
NW number: 0, Station number: Local station
2) When monitoring other stations (other than B and W)/other network

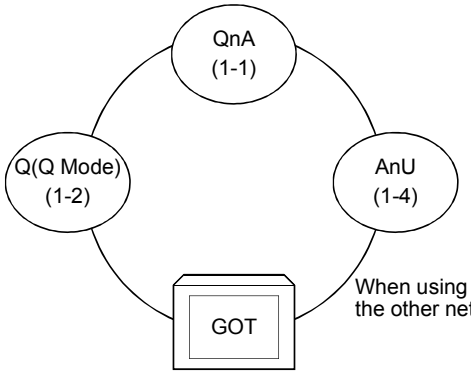
Station connected to GOT \ Station to be ccessed	Network No.1			Network No.2				Data link system		
	Q(Q Mode) (1-1)	AnA (1-2)	QnA (1-3)	AnU (2-1)	QnA (2-2)	GOT (2-3)	AnU (2-4)	QnA (M)	QnA (L1)	AnA (L2)
Q(Q Mode) (1-1)	0, Local	1, Other (2)	1, Other (3)	2, Other (1)	2, Other (2)	—	2, Other (4)	1, Other (3) or 2, Other (2)	—	—
AnA (1-2)	—	0, Local	—	—	—	—	—	—	—	—
QnA (1-3) (2-2) (M)	1, Other (1)	—	0, Local	2, Other (1)	0, Local	—	2, Other (4)	0, Local	—	0, Other (2) *1
AnU (2-1)	—	—	—	0, Local	—	—	2, Other (4)	—	—	—
GOT (2-3)	—	—	—	0, Other (1)	0, Other (2)	—	0, Other (4)	0, Other (2)	—	—
AnU (2-4)	—	—	—	2, Other (1)	—	—	0, Local	—	—	—
QnA (L1)	—	—	—	—	—	—	—	—	0, Local	—
AnA (L2)	—	—	—	—	—	—	—	—	—	0, Local

*1 When monitoring the data link system, designate the NW number as 0.

How to read the table: 2, Other (2)
↑ NW number
↑ Station number

2 - 13

(Example 5) When using MELSECNET/10 connection



• Monitor access range for other station devices (other than B and W)

Station connected to GOT \ Station to be accessed	QnA (1-1)	Q(Q Mode) (1-2)	GOT (1-3)	AnU (1-4)
GOT (1-3)	△	△	—	○

○ : Accessible

△ : Accessible within the range of AnA (T/C: 0 to 255, R/ER/ZR cannot be monitored.)

× : Not accessible

POINT
For monitoring devices B and W that are allocated by the network parameter, make sure to use the local device number if designating devices allocated to other station. If not, display speed will be reduced.

• Designating NW number and station number for setting monitor device

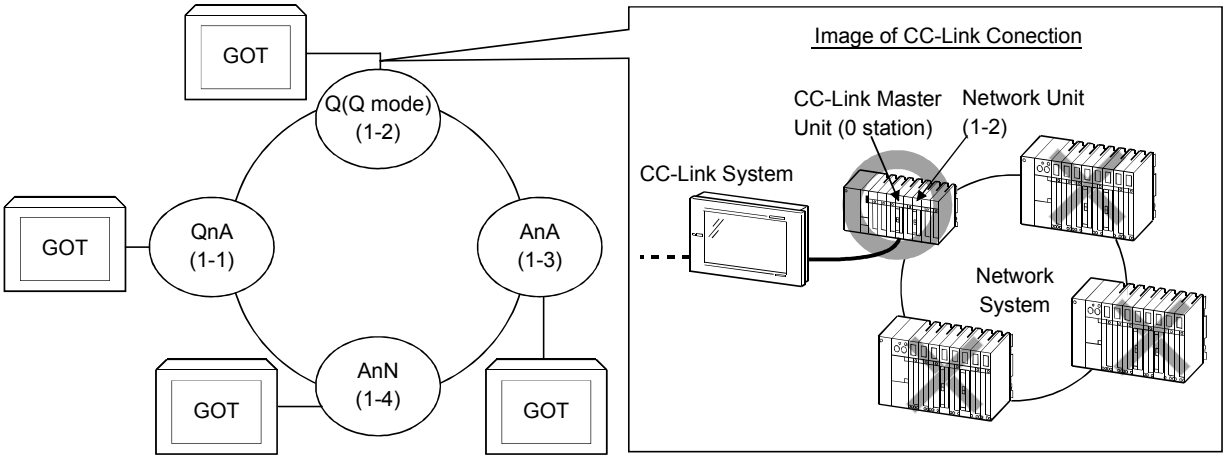
1) Monitoring devices B and W that are allocated by network parameter
NW number: 0, Station number: Local

2) Monitoring other stations (other than B and W)

Station connected to GOT \ Station to be accessed	QnA (1-1)	Q(Q Mode) (1-2)	GOT (1-3)	AnU (1-4)
GOT (1-3)	0, Other (1)	0, Other (2)	—	0, Other (4)

How to read the table 0, Other (2)
NW number Station number

(Example 6) When using CC-Link connection (intelligent device station)
/CC-Link connection (via G4)



Station connected to GOT \ Station to be accessed	QnA (1-1)	Q(Q Mode) (1-2)	AnA (1-3)	AnN (1-4)
QnA (1-1)	×	×	×	×
AnU (1-2)	×	○	×	×
AnA (1-3)	×	×	○	×
AnN (1-4)	×	×	×	○

○: Accessible
× : Not accessible

2.3.3 CC-Link system access range for monitoring

(1) When using Bus connection/CPU direct connection/computer link connection
Only connected stations can be monitored.

(2) When using CC-link connection (remote device station)

(a) Access range
Devices RX, RY, RWw, RWr for which the GOT is allocated to the master station by setting the CC-Link parameter and the internal device of the GOT can be monitored.
Other devices RX, RY, RWw, RWr allocated to the master station cannot be monitored.

(b) Designating NW number and station number
Be sure to designate as follows.
NW number:0, Station number: Local

(c) Designating device name and device number
Use the following device names.
For devices RX, RY, RWw and RWr, designate the addresses allocated by station number setting.

Device to be monitored		Device name to be set by GT Designer	Device setting range
Remote input	RX	X	X0 to X7FF
Remote output	RY	Y	Y0 to Y7FF
Remote register (writing area)	RWw	Ww	Ww0 to WwFF
Remote register (reading area)	RWr	Wr	Wr0 to WrFF
GOT internal bit device	GB	GB	GB0 to GB1023
GOT internal word device	GD	GD	GD0 to GD1023

(3) When using CC-Link connection (intelligent device station)

(a) Access range

Master station/local station can be monitored.

By setting CC-Link parameter, all devices RX, RY, RWw and RWr that are allocated to the master station can be monitored.

When the monitor target is the multi-PLC system, CPU No. 1 to No. 4 can be monitored.

POINT
For monitoring devices RX, RY, RWw and RWr that are allocated by setting CC-Link parameter, make sure to use the local device number if designating devices allocated to other station. If not, display speed will be reduced.

(b) Setting NW number and station number

1) When monitoring devices RX, RY, RWw and RWr that are allocated to the master station by setting CC-Link parameter

NW number: 0, PLC station number: Local

2) When monitoring PLC CPU devices of other station

NW number: 0, PLC station number: Other (Station number: n)

(n: Station number of other station you want to monitor (0: Master station, 1-64: Local station))

(c) Setting device name and device number

1) Monitoring devices RX, RY, RWw and RWr that are allocated by setting CC-Link parameter

Use the following device names.

For devices RX, RY, RWw and RWr, designate the addresses allocated by station number setting.

Device to be monitored		Device name to be set by GT Designer	Device setting range
Remote input	RX	X	X0 to X7FF
Remote output	RY	Y	Y0 to Y7FF
Remote register (writing area)	RWw	Ww	Ww0 to WwFF
Remote register (reading area)	RWr	Wr	Wr0 to WrFF

2) Monitoring PLC CPU devices of other stations

For device name and device number, refer to the GT Works Version 5/GT Designer Version 5 Reference Manual.

(4) When using CC-Link connection (via G4)

(a) Access range

Master station/local station can be monitored.

(b) Setting NW number and station number

1) When monitoring master station

NW number: 0, PLC station number: Host/other (station number: 0)

2) Monitoring local station

NW number: 0, PLC station number: Other (station number: 1 to 64)

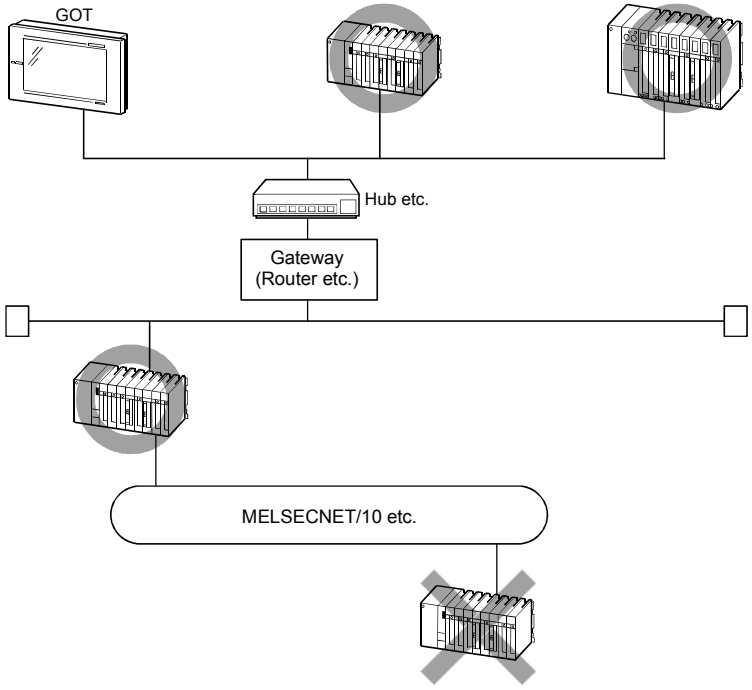
(c) Setting device name and device number

For the device names and device numbers, refer to the GT Works Version 5/GT Designer Version 5 Reference Manual.

2.3.4 Access range for monitoring when using Ethernet connection

(1) Access range

The Ethernet unit specified in the Ethernet setting of GT Designer can be monitored. Communication via MELSECNET/10, MELSECNET/B or MELSECNET(II) cannot be made.



POINT
While the GOT is handled as a host in MELSECNET/10, MELSECNET(II) or CC-Link connection, the station (Ethernet module) set as a host in the Ethernet setting of GT Designer is handled as a host in Ethernet connection.

(2) Various settings

Refer to Section 11.2 for the Ethernet setting using GT Designer and how to set the NW number, station number, device name and device number.

2.3.5 Access range for monitoring when using MELSEC-FXCPU, other PLC and microcomputer connections

Only the connected CPU can be monitored. Other stations cannot be monitored.

Chapter3 Bus connection

3.1 First step in bus connection

POINT

If the GOT, where the basic function OS and the PLC communication driver for QCPU (Q mode) bus connection are not installed, is bus-connected with the QCPU (Q mode), the QCPU will be reset, disabling communications with the QCPU using GX Developer or the like. In this case, disconnecting the bus connection cable of the GOT cancels the resetting of the QCPU.

3.1.1 GOT handling from PLC CPU in bus connection

GOT handling as viewed from PLC CPU is described below.

(1) Connection with QCPU (Q mode)

The PLC CPU recognizes the GOT as a 16 I/O point intelligent function module. Hence, the GOT must be assigned to the empty points of the PLC CPU. The GOT occupies one extension stage (16 points ∗ 10 slots) of the PLC CPU and can be assigned to the occupation location. (Cannot be assigned to the main/extension bases.)

(2) Connection with other than QCPU (Q mode)

The PLC CPU recognizes the GOT as a 32 I/O point special function module. Hence, the GOT must be assigned to the empty points of the PLC CPU. The GOT can be assigned to the location of empty points within the maximum I/O points of the PLC CPU, excluding those of the main base. (Cannot be assigned to the main base.)

POINT

When the GOT is connected to other than the QCPU (Q mode), the I/O signals assigned to the PLC CPU should not be used in sequence programs, etc. as they are used by the GOT system.
If you use them, we cannot guarantee the GOT functions.

3.1.2 Restriction on the number of GOTs by the PLC CPU connected to

In bus connection, note that the number of GOTs connected is restricted by the PLC CPU connected to and the number of special function modules loaded.

CPU Connected To		Number of Connectable GOTs	Total Number of GOTs and Special Function Modules*1 Connectable
QCPU (Q mode), Motion controller CPU (Q Series)		Max. 5	GOTs 5 + Special Function Modules 6 *2
QCPU (A mode)		Not connectable	———
QnACPU		Max. 3	6 in all
ACPU	AnUCPU,AnACPU,A2US(H)CPU	Max. 3	6 in all
	AnNCPU,AnS(H)CPU,A1SJ(H(CPU)	Max. 2	2 in all
	A0J2HCPU	Max. 1	2 in all
	A1FXCPU	Not connectable	———
Motion controller CPU (A Series)	A273U(H)CPU, A273UHCPU-S3, A373UCPU(-S3),A173UHCPU	Max. 3	6 in all
	A171SCPU-S3,A171SHCPU,A172SHCPU	Max. 2	2 in all

*1 Indicates the following types of special function modules.
AD51(S3), AD51H(S3), AD51FD(S3), AD57G(S3), AJ71C21(S1), AJ71C22(S1), AJ71C23, AJ71C24(S3/S6/S8), AJ71E71(-S3), AJ71UC24, A1SJ71C24(-R2/PRF/R4), A1SJ71UC24(-R2/PRF/R4), A1SJ71E71-B2/B5(-S3), A1SD51S

*2 It should be only A1SD51S that the special function modules cannot be connected to the QCPU (Q mode).

3.1.3 Power supply of PLC CPU and GOT

Note the following when supplying power to the PLC CPU and GOT.

CAUTION	• To prevent trouble from occurring, the extension cable which connects the PLC CPU and GOT should be unplugged when the PLC CPU and GOT are off.

(1) Precautions for switching power on

Switch on the PLC CPU and GOT in either of the following methods. (This also applies to the case where several GOTs are connected.)

(a) Switch on the PLC CPU and GOT at the same time.

(b) Switch on the PLC CPU and GOT in this order.

Switching on the GOT runs the PLC CPU.

When several GOTs are connected, there is no specific sequence of switching on the GOTs.

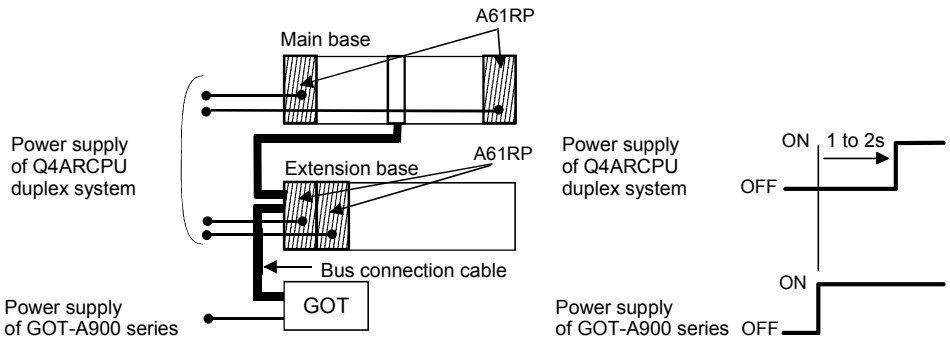
Switching on all GOTs runs the PLC CPU.

POINT

Power on the GOT-A900 series and Q4ARCPU duplex system in the following order.

(1) Power on the GOT-A900 series.

(2) 1 to 2 seconds after power-on of the GOT-A900 series, power on the Q4ARCPU duplex system.



It is recommended to switch power on with an external circuit configured.

If power is not switched on in the order as specified in the restriction, the Q4ARCPU duplex system will not start up in system A but will start up in system B before it starts control.

(2) Precautions for switching off the PLC CPU

Switching off the PLC CPU during monitoring will cause a communication error in the GOT.

When a communication error has occurred, switch off the GOT and switch on the PLC CPU and GOT in the method in above (1).

(3) Precautions for switching off the GOT

If the GOT is switched off during monitoring, the PLC CPU continues running.

(4) Precautions for system design

In the status described in above (3), the GOT does not operate but the PLC CPU (power supply module of the main base unit) supplies the following consumptive current to the GOT.

Hence, design the system so that the sum of the 5VDC consumptive currents of the modules installed on the main base unit and the GOT consumptive currents does not exceed the 5VDC rated output current (8A) of the power supply module.

CPU Connected To	Number of GOTs Connected	Total Consumptive Current [mA]
Connection with QCPU (Q mode)	5	1275
	4	1020
	3	765
	2	510
	1	255
Connection with other than QCPU (Q mode)	3	660
	2	440
	1	220

3 - 3

3.1.4 Restriction when PLC CPU is used in direct method

Note that the inputs X of the empty slots cannot be used when the I/O control system of the PLC CPU to be connected to is the direct method and a 5m extension cable (AC50B(-R), A1SC50NB) is used to connect the first GOT and main/extension base unit.
There are no restrictions when the I/O control system is the refresh method.
When the PLC CPU allows the I/O control system to be changed with the switch, use it in the refresh method.

POINT

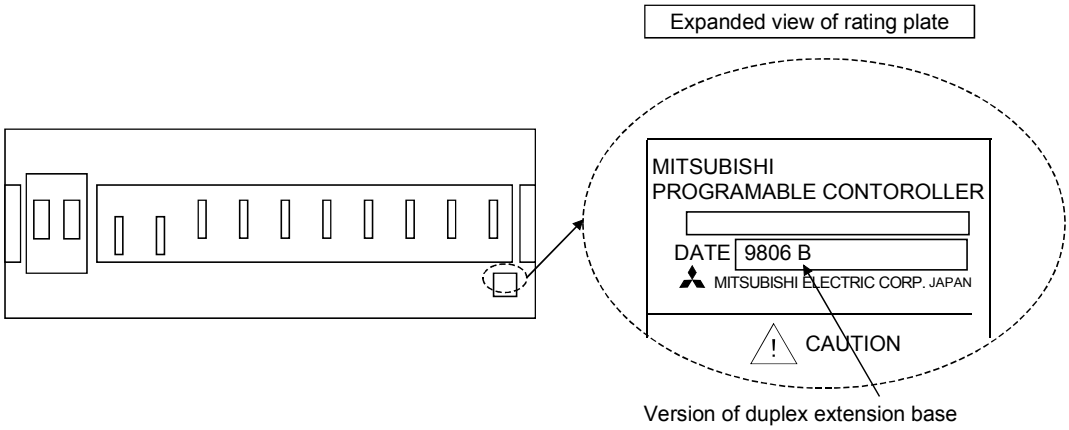
The following examples indicate how to use the inputs X of the empty slots.
- Inputs X are assigned in a MELSECNET(II/B) data link or MELSECNET/10 network.
- The receive data of a MELSECNET/MINI-S3 data link is read to inputs X under the FROM instruction.
- The inputs X of the empty slots are switched on/off from a computer link unit.
- The inputs X of the empty slots are switched on/off with the touch switch function (bit SET/RST/alternate/momentary) of the GOT.

3.1.5 Precautions for use of A1SJCPU and A1SJHCPU

Note that the GOT cannot be used when an extension base unit is connected to the A1SJCPU or A1SJHCPU.

3.1.6 Precautions for GOT connection in duplex system

Note the following when bus-connecting the GOT to the duplex system of the Q4ARCPU.
When connecting the GOT to a duplex system, connect the GOT to the duplex extension base (A68RB) in the last stage of the duplex system.
Also, use the duplex extension base of version B or later.
For the way of confirming the version of the duplex extension base, refer to the DATE column of the rating plate applied to the portion show below.



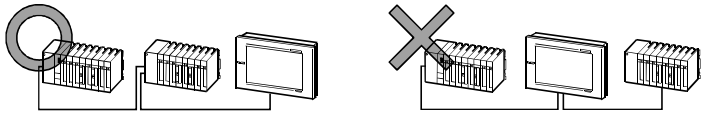
POINT

The GOT will not operate properly in the following system configurations.
- The GOT is bus-connected to the duplex main base (A32RB, A33RB)
- The GOT is bus-connected to the duplex extension base (A68RB) of version A

3.2 System configurations

POINT

Always connect the GOT to the last base unit.
The GOT cannot be connected between base units.



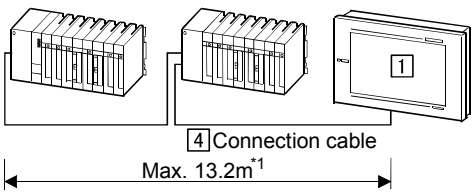
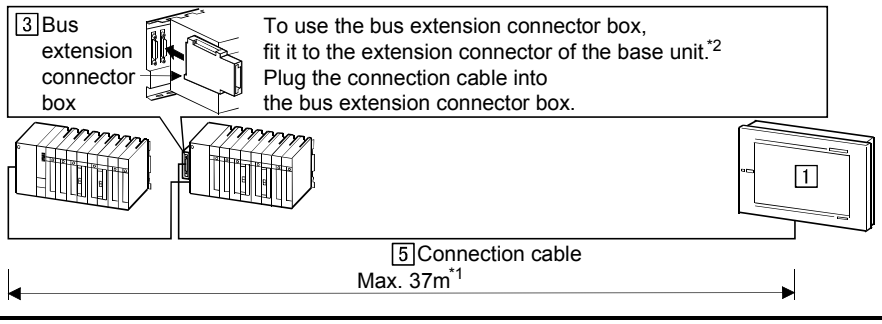
3.2.1 Connection with QCPU (Q mode)

(1) System configurations and connection conditions

The following system configurations and connection conditions assume bus connection with the QCPU (Q mode). The numbers (1 to 5) given in the system configurations denote the numbers (1 to 5) in "(2) System equipment". Refer to these numbers when you want to confirm the types and applications.

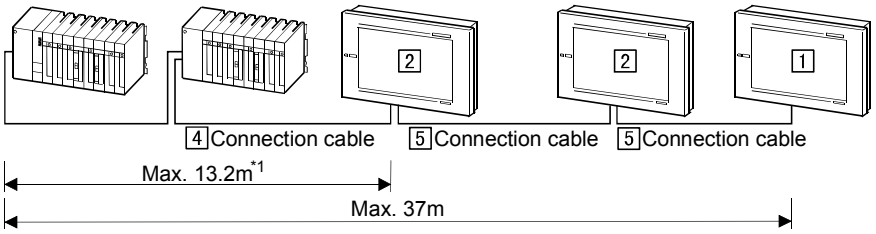
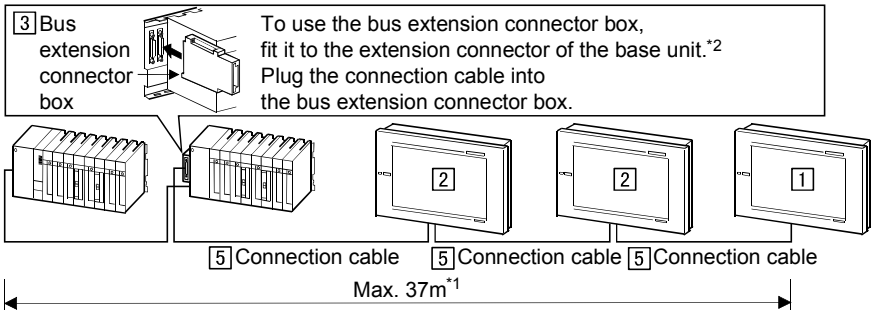
POINT

- Up to five GOTs may be connected.
- Select the connection cables whose lengths satisfy the conditions of the maximum distance depending on the connection conditions.
- Installing the first connected GOT more than 13.2m away requires the bus extension connector box 3. When the Q00JCPU is used, however, the bus extension connector box 3 cannot be used and the GOT should therefore be installed within 13.2m.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 13.2m	
	More than 13.2m	

*1 Also includes the extension cable length (between [base unit] and [base unit]) when the extension base unit is used.

*2 When not using the extension base unit: Fit it to the main base unit.
When using the extension base unit: Fit it to the extension base unit on the last stage.

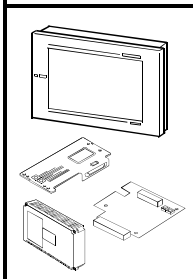
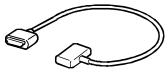
Connection Conditions		System Configuration
Number of connected	Installation distance	
2 to 5 GOTs	First GOT within 13.2m	
	First GOT more than 13.2m	

*1 Also includes the extension cable length (between [base unit] and [base unit]) when the extension base unit is used.

*2 When not using the extension base unit: Fit it to the main base unit.
When using the extension base unit: Fit it to the extension base unit on the last stage.

(2) System equipment

The following table indicates the system equipment needed for connection with the QCPU (Q mode).

Image	No.	Application	Type		
			GOT unit	Bus connection board*1*2	Bus connection unit*1*2
	1	Bus-connected GOT at termination	A985GOT(-V), A97*GOT, A960GOT	A9GT-QBUSS, A9GT-QBUS2S	A9GT-QBUS2SU*4
			A956WGOT	A9GT-50WQBUSS	A9GT-QBUS2SU
			A956GOT	———	A9GT-QBUS2SU
			A951GOT-Q (with built-in communication interface)	———	A9GT-QBUS2SU*4
	2	Bus-connected GOT at midpoint	A985GOT(-V), A97*GOT, A960GOT	A9GT-QBUS2S	———
			A956WGOT	———	A9GT-QBUS2SU
			A956GOT	———	A9GT-QBUS2SU
	3	Unit for extension of distance between [GOT] and [base unit]*3	A9GT-QCNB		
	4	Connection cable between [base unit] and [GOT]	QC06B(0.6m), QC12B(1.2m), QC30B(3.0m), QC50B(5.0m), QC100B(10.0m)		
	5	Connection cable between [bus extension connector box] and [GOT]	QC06B(0.6m), QC12B(1.2m), QC30B(3.0m), QC50B(5.0m), QC100B(10.0m), A9GT-QC150BS(15.0m), A9GT-QC200BS(20.0m), A9GT-QC250BS(25.0m), A9GT-QC300BS(30.0m)		

*1 There are the following differences between the bus connection board and bus connection unit.
A9GT-□BUSS(U) : Has one interface and usable with the GOT at termination. (Unusable with the GOT at midpoint)
A9GT-□BUS2S(U) : Has two interfaces and usable with the GOT at termination and the GOT at midpoint.

*2 A single GOT does not accept multiple bus connection units and bus connection boards.

*3 For the system configuration using the A9GT-QCNB, the same extension number as set to the GOT must be set to the A9GT-QCNB. Refer to Section 3.3 for the extension number setting.

*4 The GOT of the following hardware version is applicable.

GOT	Hardware version
A985GOT-TBA/TBD-V	Hardware version C (Jan., 2001) or later
A985GOT-TBD	Hardware version N (Jan., 2001) or later
A985GOT-TBA	Hardware version J (Jan., 2001) or later
A975GOT-TBA/TBD(-B)	Hardware version G (Jan., 2001) or later
A970GOT-SBA/SBD/LBA/LBD/TBA(-B)/TBD(-B)	Hardware version G (Jan., 2001) or later
A960GOT-EBA/EBD	Hardware version D (Jan., 2001) or later

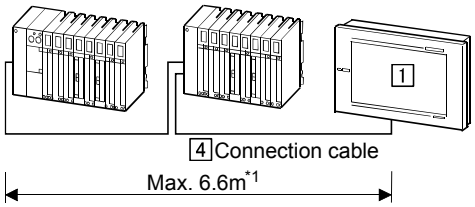
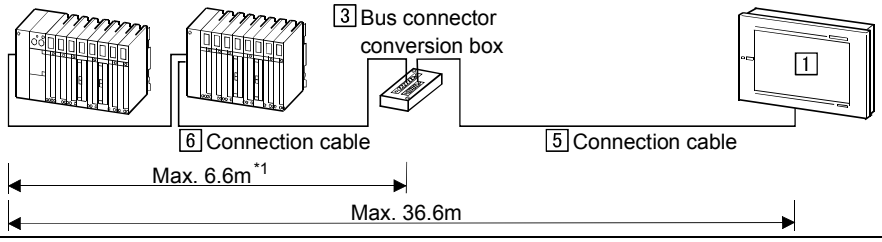
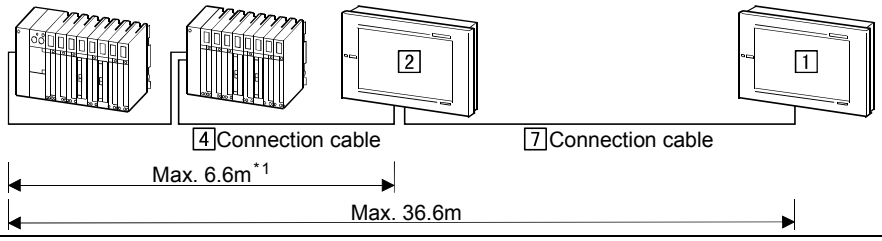
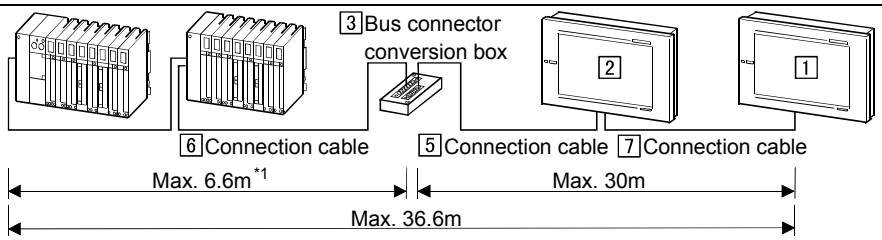
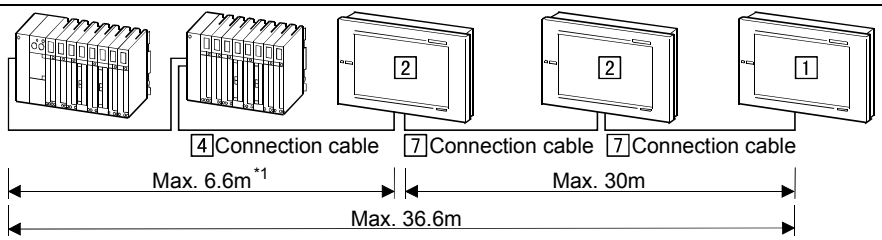
3.2.2 Connection with QnACPU (large type) or ACPU (large type)

(1) System configurations and connection conditions

The following system configurations and connection conditions assume bus connection with the QnACPU (large type) or ACPU (large type).
The numbers (1 to 7) given in the system configurations denote the numbers (1 to 7) in "(2) System equipment". Refer to these numbers when you want to confirm the types and applications.

POINT

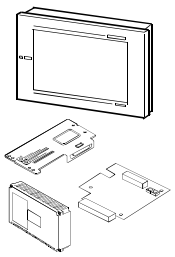
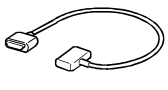
- Up to three GOTs may be connected.
- Select the connection cables whose lengths satisfy the conditions of the maximum distance depending on the connection conditions.
- Installing the first connected GOT more than 6.6m away requires the bus connector conversion box 3.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 6.6m	
	More than 6.6m	
2 GOTs	First GOT within 6.6m	
	First GOT more than 6.6m	
3 GOTs	First GOT within 6.6m	

*1 Also includes the extension cable length (between [base unit] and [base unit]) when the extension base unit is used.

(2) System equipment

The following table indicates the system equipment needed for connection with the QnACPU (large type) or ACPU (large type).

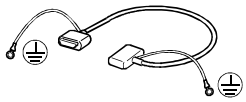
Image	No.	Application	Type		
			GOT unit	Bus connection board*1*2	Bus connection unit*1*2
	1	Bus-connected GOT at termination	A985GOT(-V), A97*GOT, A960GOT	A9GT-BUSS, A9GT-BUS2S	A9GT-BUSSU, A9GT-BUS2SU
			A956WGOT	A9GT-50WBUSS	A9GT-BUSSU, A9GT-BUS2SU
			A956GOT	———	A9GT-BUSSU, A9GT-BUS2SU, A7GT-BUSS, A7GT-BUS2S
			A951GOT (with built-in communication interface)	———	———
	2	Bus-connected GOT at midpoint	A985GOT(-V), A97*GOT, A960GOT	A9GT-BUS2S	A9GT-BUS2SU
			A956WGOT	A9GT-BUS2SU	
			A956GOT	A9GT-BUS2SU, A7GT-BUS2S	
	3	Unit for conversion of connection cable connectors and also for extension of distance between [GOT] and [base unit]	A7GT-CNB		
	4	Connection cable between [base unit] and [GOT]	A8GT-C12NB(1.2m),	A8GT-C30NB(3m),	A8GT-C50NB(5m)
	5	Connection cable between [bus connector conversion box] and [GOT] *3*4*5	A8GT-C100EXSS(10m), A8GT-C100EXSS-1(10m),	A8GT-C200EXSS(20m), A8GT-C200EXSS-1(20m),	A8GT-C300EXSS(30m) A8GT-C300EXSS-1(30m)
	6	Connection cable between [base unit] and [bus connector conversion box]	AC06B(0.6m), AC30B(3m), AC50B-R(5m)	AC12B(1.2m), AC30B-R(3m),	AC12B-R(1.2m), AC50B(5m),
	7	Connection cable between [GOT] and [GOT] *4	A1SC07B(0.7m), A1SC50B(5m), A8GT-C300BS(30m)	A1SC12B(1.2m), A8GT-C100BS(10m),	A1SC30B(3m), A8GT-C200BS(20m),

*1 There are the following differences between the bus connection board and bus connection unit.
A9GT-BUSS(U) : Has one interface and usable with the GOT at termination. (Unusable with the GOT at midpoint)
A9GT-BUS2S(U) : Has two interfaces and usable with the GOT at termination and the GOT at midpoint.

*2 A single GOT does not accept multiple bus connection units and bus connection boards.

*3 When using the bus connection cable (A8GT-C100EXSS, A8GT-C200EXSS, A8GT-C300EXSS), connect the connection cable connectors as indicated below.
Connector "COM1" → PLC CPU side
Connector "COM2" → GOT side

*4 When using the bus connection cable (A8GT-C100EXSS, A8GT-C200EXSS, A8GT-C300EXSS, A8GT-C100BS, A8GT-C200BS, A8GT-C300BS), always connect the ground wires (green wires (1m)) coming out of the connectors at both ends of the cable to the control box or like.



*5 The A8GT-C100EXSS-1/A8GT-C200EXSS-1/A8GT-C300EXSS-1 cable consists of the A8GT-EXCNB (0.5m) and A8GT-C100BS (10m)/C200BS (20m)/C300BS (30m), respectively.
The length of the A8GT-EXCNB (0.5m) need not be considered when calculating the cable length.

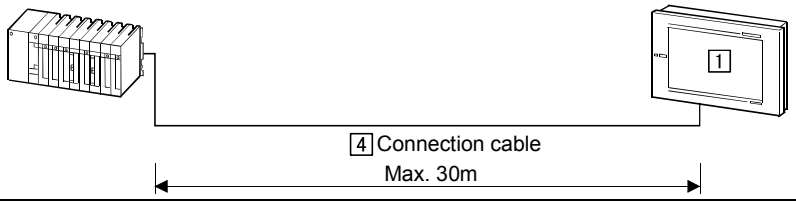
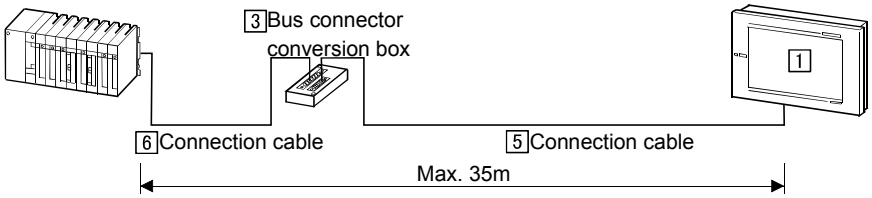
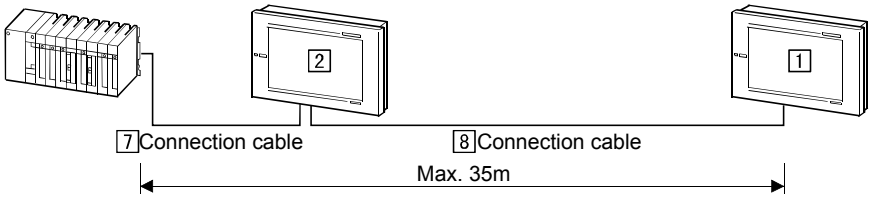
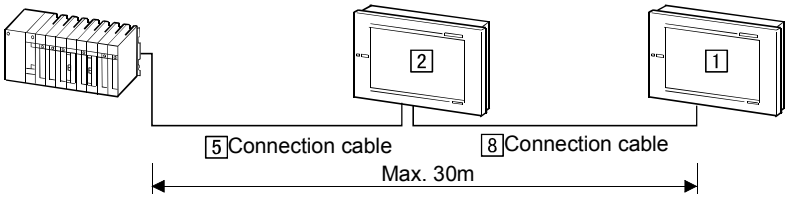
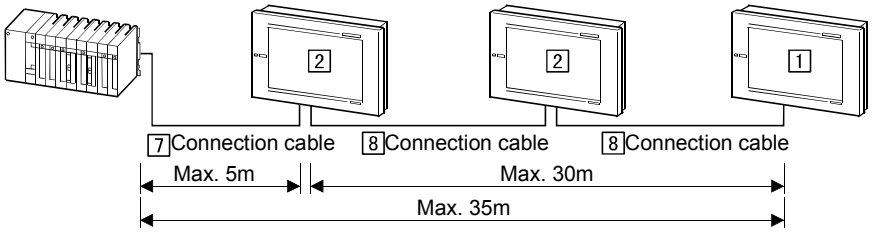
3.2.3 Connection with QnACPU (small type) or ACPU (small type)

(1) System configurations and connection conditions

The following system configurations and connection conditions assume bus connection with the QnACPU (small type) or ACPU (small type).
The numbers (1 to 8) given in the system configurations denote the numbers (1 to 8) in "(2) System equipment". Refer to these numbers when you want to confirm the types and applications.

POINT

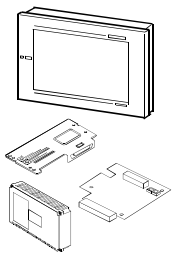
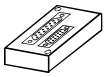
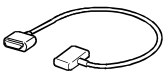
- Up to three GOTs may be connected.
- Select the connection cables whose lengths satisfy the conditions of the maximum distance depending on the connection conditions.
- Installing a single connected GOT more than 35m away requires the bus connector conversion box 3.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 30m	
	More than 30m	
2 GOTs	First GOT within 5m	
	First GOT more than 5m	
3 GOTs	First GOT within 5m	

*1 Also includes the extension cable length (between [base unit] and [base unit]) when the extension base unit is used.

(2) System equipment

The following table indicates the system equipment needed for connection with the QnACPU (small type) or ACPU (small type).

Image	No.	Application	Type		
			GOT unit	Bus connection board*1*2	Bus connection unit*1*2
	1	Bus-connected GOT at termination	A985GOT(-V), A97*GOT, A960GOT	A9GT-BUSS, A9GT-BUS2S,	A9GT-BUSSU, A9GT-BUS2SU
			A956WGOT	A9GT-50WBUSS	A9GT-BUSSU, A9GT-BUS2SU
			A956GOT	———	A9GT-BUSSU, A9GT-BUS2SU, A7GT-BUSS, A7GT-BUS2S
			A951GOT (with built-in communication interface)	———	———
	2	Bus-connected GOT at midpoint	A985GOT(-V), A97*GOT, A960GOT	A9GT-BUS2S	A9GT-BUS2SU
			A956WGOT	A9GT-BUS2SU	
			A956GOT	A9GT-BUS2SU, A7GT-BUS2S	
	3	Unit for conversion of connection cable connectors and also for extension of distance between [GOT] and [base unit]	A7GT-CNB		
	4	Connection cable between [base unit] and [GOT] when only one GOT is connected *3*5*6	A1SC07B(0.7m), A1SC12B(1.2m), A1SC30B(3m), A1SC50B(5m), A8GT-C100EXSS(10m), A8GT-C200EXSS(20m), A8GT-C300EXSS(30m) A8GT-C100EXSS-1(10m), A8GT-C200EXSS-1(20m), A8GT-C300EXSS-1(30m)		
	5	Connection cable between [bus connector conversion box] and [GOT] *3*5*6	A8GT-C100EXSS(10m), A8GT-C200EXSS(20m), A8GT-C300EXSS(30m) A8GT-C100EXSS-1(10m), A8GT-C200EXSS-1(20m), A8GT-C300EXSS-1(30m)		
	6	Connection cable between [base unit] and [bus connector conversion box] *4	A1SC05NB(0.5m), A1SC07NB(0.7m), A1SC30NB(3m), A1SC50NB(5m)		
	7	Connection cable between [base unit] and [GOT] when multiple GOTs are connected	A1SC07B(0.7m), A1SC12B(1.2m), A1SC30B(3m), A1SC50B(5m)		
	8	Connection cable between [GOT] and [GOT] *5	A1SC07B(0.7m), A1SC12B(1.2m), A1SC30B(3m), A1SC50B(5m), A8GT-C100BS(10m), A8GT-C200BS(20m), A8GT-C300BS(30m)		

*1 There are the following differences between the bus connection board and bus connection unit.
A9GT-BUSS(U) : Has one interface and usable with the GOT at termination. (Unusable with the GOT at midpoint)
A9GT-BUS2S(U) : Has two interfaces and usable with the GOT at termination and the GOT at midpoint.

*2 A single GOT does not accept multiple bus connection units and bus connection boards.

*3 When using the bus connection cable (A8GT-C100EXSS, A8GT-C200EXSS, A8GT-C300EXSS), connect the connection cable connectors as indicated below.
Connector "COM1" →PLC CPU side
Connector "COM2" →GOT side

*4 When the extension base unit is used, the sum of cable lengths of the extension cable (between [base unit] and [base unit]) and connection cable (this cable) should be within 6m.

*5 When using the bus connection cable (A8GT-C100EXSS, A8GT-C200EXSS, A8GT-C300EXSS, A8GT-C100BS, A8GT-C200BS, A8GT-C300BS), always connect the ground wires (green wires (1m)) coming out of the connectors at both ends of the cable to the control box or like.

*6 The A8GT-C100EXSS-1/A8GT-C200EXSS-1/A8GT-C300EXSS-1 cable consists of the A8GT-EXCNB (0.5m) and A8GT-C100BS (10m)/C200BS (20m)/C300BS (30m), respectively.
The length of the A8GT-EXCNB (0.5m) need not be considered when calculating the cable length.

3.2.4 Connection with A0J2HCPU

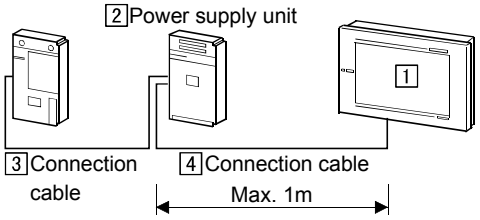
(1) System configurations and connection conditions

The following system configuration and connection conditions assume bus connection with the A0J2HCPU.

The numbers (1 to 4) given in the system configurations denote the numbers (1 to 4) in "(2) System equipment". Refer to these numbers when you want to confirm the types and applications.

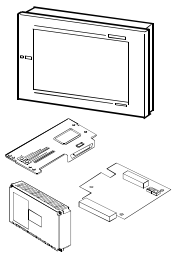
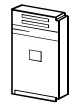
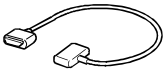
POINT

• Up to one GOT may be connected.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 1m	

(2) System equipment

The following table indicates the system equipment needed for connection with the A0J2HCPU.

Image	No.	Application	Type		
			GOT unit	Bus connection board *1	Bus connection unit *1
	1	Bus-connected GOT at termination	A985GOT(-V), A97*GOT, A960GOT	A9GT-BUSS, A9GT-BUS2S,	A9GT-BUSSU, A9GT-BUS2SU
			A956WGOT	A9GT-50WBUSS	A9GT-BUSSU, A9GT-BUS2SU
			A956GOT	———	A9GT-BUSSU, A9GT-BUS2SU
			A951GOT (with built-in communication interface)	———	———
	2	Unit for supplying power to A0J2HCPU	A0J2-PW		
	3	Connection cable between [A0J2HCPU] and [power supply unit]	A0J2C□□		
	4	Connection cable between [power supply unit] and [GOT]	A9GT-J2C10B(1m)		

*1 A single GOT does not accept multiple bus connection units and bus connection boards.

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3.2.5 Connection with motion controller CPU (Q172CPU, Q173CPU)

For more information about the system configuration, connection conditions and hardware components when connecting with the motion controller CPU (Q172CPU, Q173CPU) via a bus, see "When Connecting the QCPU (Q Mode)" in Section 3.2.1.

3.2.6 Connection with motion controller CPU (A273UCPU, A273UHCPU, A273UHCPU-S3)

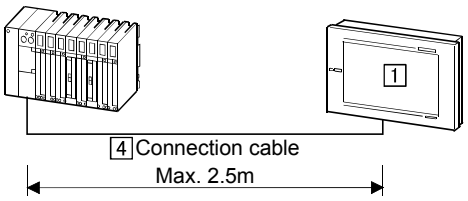
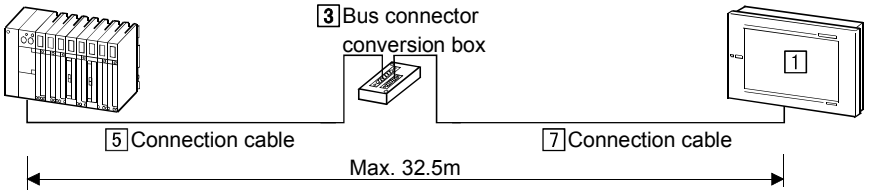
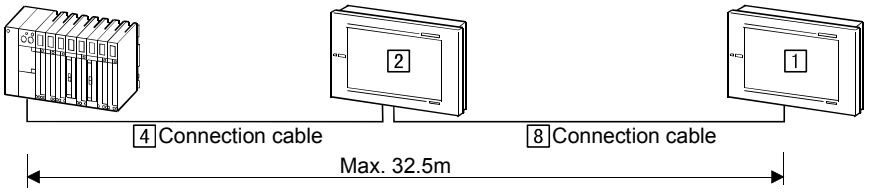
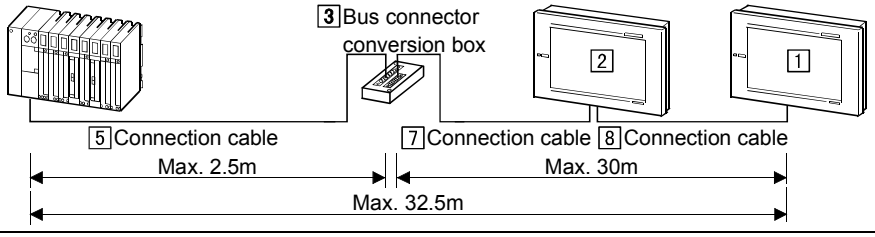
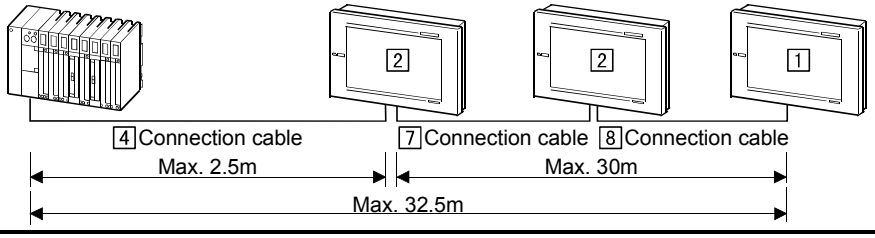
(1) System configurations and connection conditions

The following system configurations and connection conditions assume bus connection with the motion controller CPU (A273UCPU, A273UHCPU, A273UHCPU-S3). The numbers (1 to 9) given in the system configurations denote the numbers (1 to 9) in "(2) System equipment". Refer to these numbers when you want to confirm the types and applications.

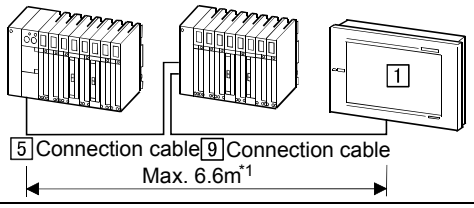
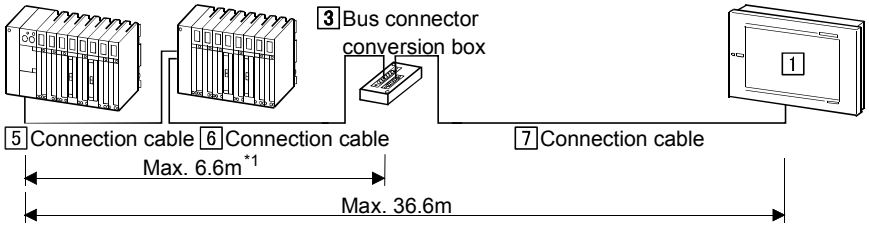
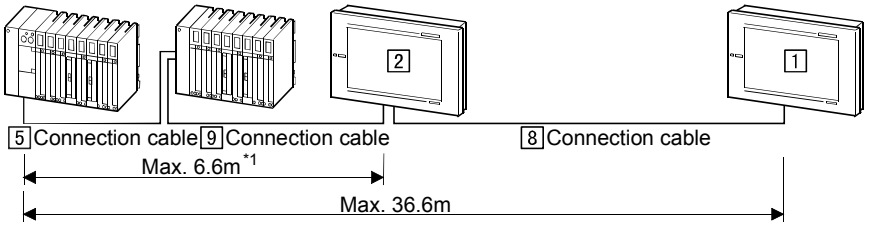
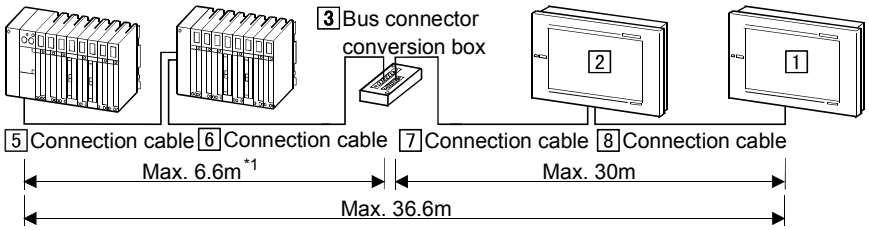
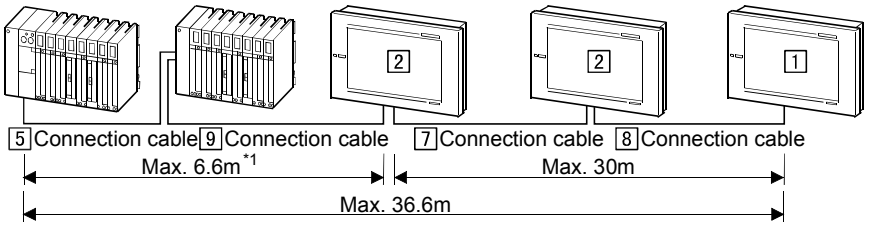
POINT

- The system configuration varies with whether or not the PLC extension base unit is used with the motion controller CPU.
- Up to three GOTs may be connected.
- Select the connection cables whose lengths satisfy the conditions of the maximum distance depending on the connection conditions.
- Installing the GOT at a remote location requires the bus connector conversion box 3.

(a) When PLC extension base unit is not used

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 2.5m	
	More than 2.5m	
2 GOTs	First GOT within 2.5m	
	First GOT more than 2.5m	
3 GOTs	First GOT within 2.5m	

(b) When PLC extension base unit is used

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 6.6m	
	More than 6.6m	
2 GOTs	First GOT within 6.6m	
	First GOT more than 6.6m	
3 GOTs	First GOT within 6.6m	

*1 Also includes the extension cable length (between [base unit] and [base unit]) when the extension base unit is used.

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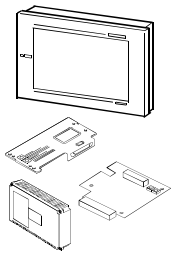
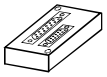
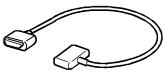
(2) System equipment

The following table indicates the system equipment needed for connection with the motion controller CPU (A273UCPU, A273UHCPU, A273UHCPU-S3).

Image	No.	Application	Type		
			GOT unit	Bus connection board*1*2	Bus connection unit*1*2
	1	Bus-connected GOT at termination	A985GOT(-V), A97*GOT, A960GOT	A9GT-BUSS, A9GT-BUS2S	A9GT-BUSSU, A9GT-BUS2SU
			A956WGOT	A9GT-50WBUSS	A9GT-BUSSU, A9GT-BUS2SU
			A956GOT	———	A9GT-BUSSU, A9GT-BUS2SU
			A951GOT (with built-in communication interface)	———	———
	2	Bus-connected GOT at midpoint	A985GOT(-V), A97*GOT, A960GOT	A9GT-BUS2S	A9GT-BUS2SU
			A956WGOT	A9GT-BUS2SU	
			A956GOT	A9GT-BUS2SU, A7GT-BUS2S	
	3	Unit for conversion of connection cable connectors and also for extension of distance between [GOT] and [base unit]	A7GT-CNB		
	4	Connection cable between [base unit] and [GOT]*3	A370C12B-S1(1.2m), A370C25B-S1(2.5m)		
	5	Connection cable between [base unit] and [GOT]*3 Connection cable between [base unit] and [bus connector conversion box]*3 Connection cable between [base unit] and [base unit]*3	A370C12B(1.2m), A370C25B(2.5m)		
	6	Connection cable between [base unit] and [bus connector conversion box]	AC06B(0.6m), AC30B(3m), AC50B-R(5m)	AC12B(1.2m), AC30B-R(3m),	AC12B-R(1.2m), AC50B(5m),
	7	Connection cable between [GOT] and [GOT] *4*5 Connection cable between [bus connector conversion box] and [GOT] *4*5*6	A8GT-C100EXSS(10m), A8GT-C100EXSS-1(10m),	A8GT-C200EXSS(20m), A8GT-C200EXSS-1(20m),	A8GT-C300EXSS(30m) A8GT-C300EXSS-1(30m)
	8	Connection cable between [GOT] and [GOT] *5	A1SC07B(0.7m), A1SC50B(5m), A8GT-C100BS(10m),	A1SC12B(1.2m), A8GT-C200BS(20m),	A1SC30B(3m), A8GT-C300BS(30m)
	9	Connection cable between [base unit] and [GOT]	A8GT-C12NB(1.2m),	A8GT-C30NB(3m),	A8GT-C50NB(5m)

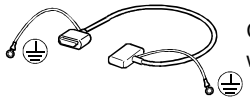
*1 There are the following differences between the bus connection board and bus connection unit.
A9GT-BUSS(U) : Has one interface and usable with the GOT at termination. (Unusable with the GOT at midpoint)
A9GT-BUS2S(U) : Has two interfaces and usable with the GOT at termination and the GOT at midpoint.

*2 A single GOT does not accept multiple bus connection units and bus connection boards.

*3 Plug the connection cable into the PLC extension-only connector.

*4 When using the bus connection cable (A8GT-C100EXSS, A8GT-C200EXSS, A8GT-C300EXSS), connect the connection cable connectors as indicated below.
Connector "COM1" →PLC CPU side
Connector "COM2" →GOT side

*5 When using the bus connection cable (A8GT-C100EXSS, A8GT-C200EXSS, A8GT-C300EXSS, A8GT-C100BS, A8GT-C200BS, A8GT-C300BS), always connect the ground wires (green wires (1m)) coming out of the connectors at both ends of the cable to the control box or like.



Connect both ground wires to control box or like.

*6 The A8GT-C100EXSS-1/A8GT-C200EXSS-1/A8GT-C300EXSS-1 cable consists of the A8GT-EXCNB (0.5m) and A8GT-C100BS (10m)/C200BS (20m)/C300BS (30m), respectively.
The length of the A8GT-EXCNB (0.5m) need not be considered when calculating the cable length.

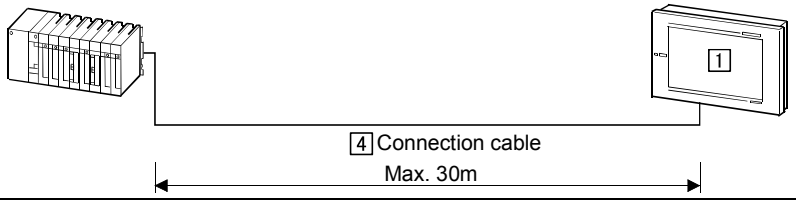
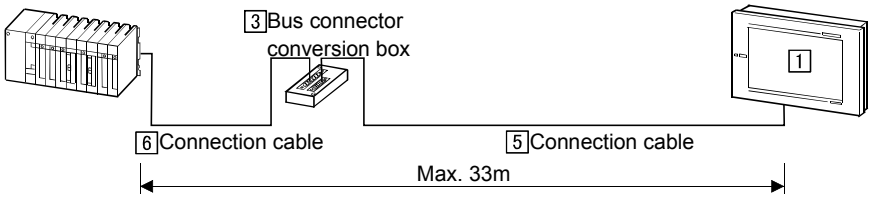
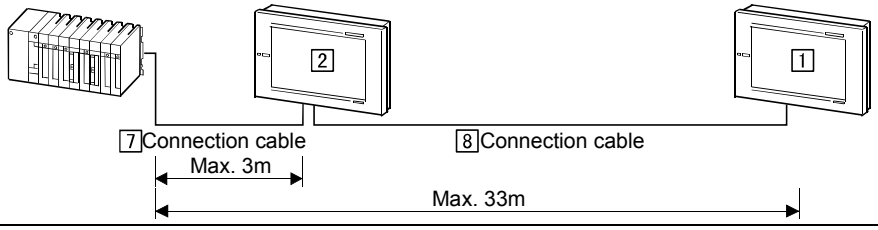
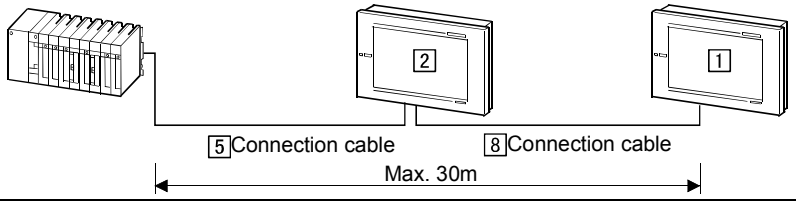
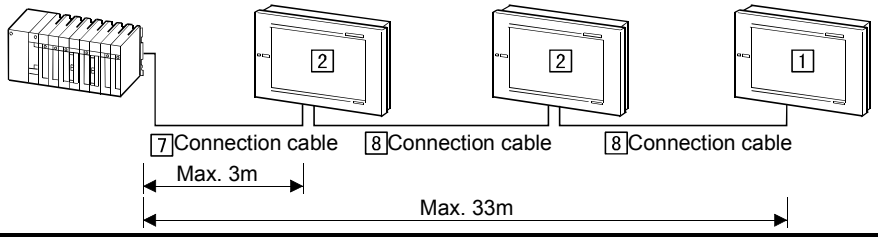
3.2.7 Connection with motion controller CPU (A171SHCPU, A172SHCPU, A173SHCPU(-S1))

(1) System configurations and connection conditions

The following system configurations and connection conditions assume bus connection with motion controller CPU (A171SHCPU, A172SHCPU, A173SHCPU (-S1)).
The numbers (1 to 8) given in the system configurations denote the numbers (1 to 8) in "(2) System equipment". Refer to these numbers when you want to confirm the types and applications.

POINT

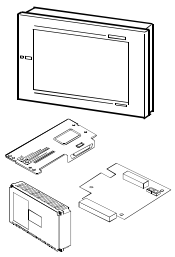
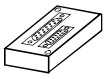
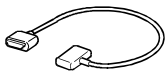
- Up to three GOTs may be connected. (A173SHCPU(-S1) only)
- Use the A168B as the PLC extension base unit to which the GOT is connected.
- Select the connection cables whose lengths satisfy the conditions of the maximum distance depending on the connection conditions.
- Installing a single connected GOT more than 33m away requires the bus connector conversion box 3.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 30m	
	Within 33m	
2 GOTs	First GOT within 3m	
	First GOT more than 3m	
3 GOTs	First GOT within 3m	

*1 Also includes the extension cable length (between [base unit] and [base unit]) when the extension base unit is used.

(2) System equipment

The following table indicates the system equipment needed for motion controller CPU (A273UCPU, A273UHCPU, A273UHCPU-S3).

Image	No.	Application	Type		
			GOT unit	Bus connection board*1*2	Bus connection unit*1*2
	1	Bus-connected GOT at termination	A985GOT(-V), A97*GOT, A960GOT	A9GT-BUSS, A9GT-BUS2S,	A9GT-BUSSU, A9GT-BUS2SU
			A956WGOT	A9GT-50WBUSS	A9GT-BUSSU, A9GT-BUS2SU
			A956GOT	———	A9GT-BUSSU, A9GT-BUS2SU, A7GT-BUSS, A7GT-BUS2S
			A951GOT (with built-in communication interface)	———	———
	2	Bus-connected GOT at midpoint	A985GOT(-V), A97*GOT, A960GOT	A9GT-BUS2S	A9GT-BUS2SU
			A956WGOT	A9GT-BUS2SU	
			A956GOT	A9GT-BUS2SU, A7GT-BUS2S	
	3	Unit for conversion of connection cable connectors and also for extension of distance between [GOT] and [base unit]	A7GT-CNB		
	4	Connection cable between [base unit] and [GOT] when only one GOT is connected *3*5*6	A1SC07B(0.7m), A8GT-C100EXSS(10m), A8GT-C100EXSS-1(10m),	A1SC12B(1.2m), A8GT-C200EXSS(20m), A8GT-C200EXSS-1(20m),	A1SC30B(3m), A8GT-C300EXSS(30m) A8GT-C300EXSS-1(30m)
	5	Connection cable between [bus connector conversion box] and [GOT] *3*5*6	A8GT-C100EXSS(10m), A8GT-C100EXSS-1(10m),	A8GT-C200EXSS(20m), A8GT-C200EXSS-1(20m),	A8GT-C300EXSS(30m) A8GT-C300EXSS-1(30m)
	6	Connection cable between [base unit] and [bus connector conversion box] *4	A1SC05NB(0.5m),	A1SC07NB(0.7m),	A1SC30NB(3m)
	7	Connection cable between [base unit] and [GOT] when multiple GOTs are connected	A1SC07B(0.7m),	A1SC12B(1.2m),	A1SC30B(3m)
	8	Connection cable between [GOT] and [GOT] *5	A1SC07B(0.7m), A8GT-C100BS(10m),	A1SC12B(1.2m), A8GT-C200BS(20m),	A1SC30B(3m), A8GT-C300BS(30m)

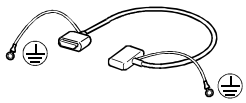
*1 There are the following differences between the bus connection board and bus connection unit.
A9GT-BUSS(U) : Has one interface and usable with the GOT at termination. (Unusable with the GOT at midpoint)
A9GT-BUS2S(U) : Has two interfaces and usable with the GOT at termination and the GOT at midpoint.

*2 A single GOT does not accept multiple bus connection units and bus connection boards.

*3 When using the bus connection cable (A8GT-C100EXSS, A8GT-C200EXSS, A8GT-C300EXSS), connect the connection cable connectors as indicated below.
Connector "COM1" →PLC CPU side
Connector "COM2" →GOT side

*4 When the extension base unit is used, the sum of cable lengths of the extension cable (between [base unit] and [base unit]) and connection cable (this cable) should be within 6m.

*5 When using the bus connection cable (A8GT-C100EXSS, A8GT-C200EXSS, A8GT-C300EXSS, A8GT-C100BS, A8GT-C200BS, A8GT-C300BS), always connect the ground wires (green wires (1m)) coming out of the connectors at both ends of the cable to the control box or like.



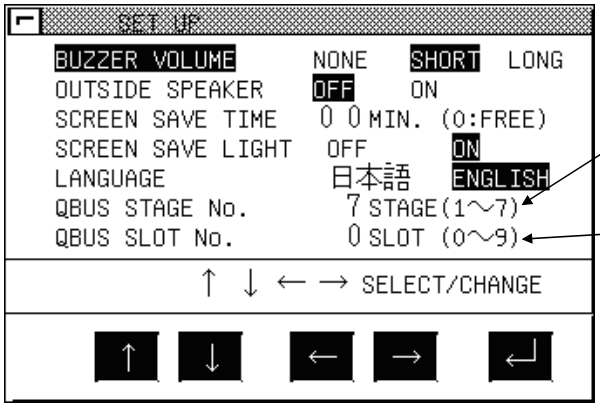
Connect both ground wires to control box or like.

*6 The A8GT-C100EXSS-1/A8GT-C200EXSS-1/A8GT-C300EXSS-1 cable consists of the A8GT-EXCNB (0.5m) and A8GT-C100BS (10m)/C200BS (20m)/C300BS (30m), respectively.
The length of the A8GT-EXCNB (0.5m) need not be considered when calculating the cable length.

3.3 Initial settings

3.3.1 Connection with QCPU (Q mode)

The GOT can be connected with the QCPU (Q mode).
For bus connection, one extension stage (16 points ∗ 10 slots) must be provided for connection of the GOTs.
The GOTs are assigned to the I/O slots of that extension stage.
To set the STAGE No. and SLOT No.s used, set up the utility function of the GOT.
For full information on the utility function, refer to the GOT-A900 Series Operating Manual (GT Works Version 5/GT Designer Version 5 compatible Extended • Option Functions Manual).

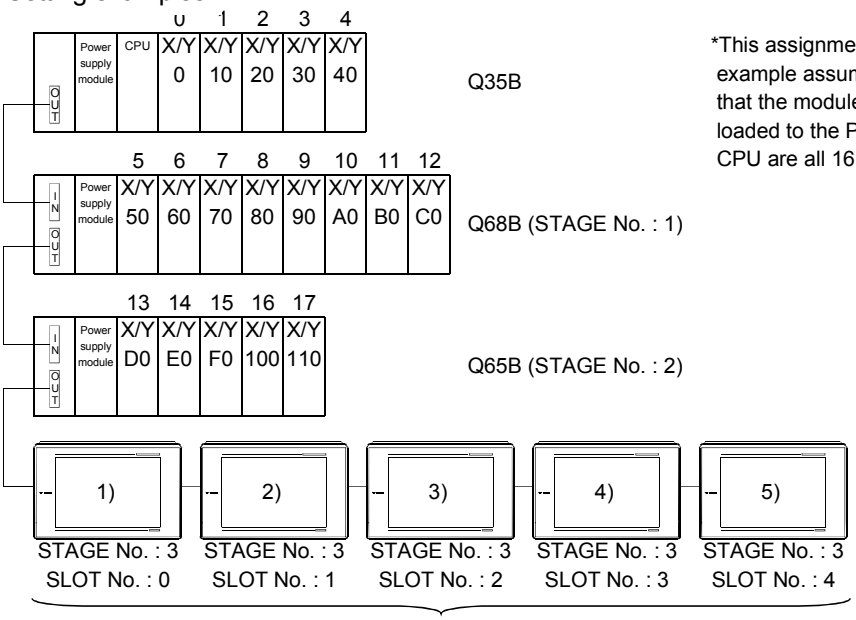


QBUS STAGE No.
Set the STAGE No. for connection of the GOT.
(1 to 7: Set the STAGE No.. Factory-set to 7.)

QBUS SLOT No.
Set the empty I/O SLOT No. where the GOT will be assigned.
(0 to 9: Set the empty I/O SLOT No.. Factory-set to 0)

For the way to set the I/O assignment, refer to the GX Developer Operating Manual.

Setting examples



POINT

- The utility function can be started by switching power on again after installing the system programs (system operating system, communication driver, etc.) into the GOT.
  After starting, touch the [Setup] icon to show the setup screen, and make settings related to bus connection.
- In the system configuration which uses the A9GT-QCNB, the same STAGE No. as that of the GOT must be set to the A9GT-QCNB.
  For details of the setting method, refer to the A9GT-QCNB Bus Extension Connector Box User's Manual.
- When using the QA1S6*B extension base unit, connect the GOT after the extension base unit in terms of hardware, but assign the I/O number after the Q**B base unit.
  <Example>
  When 16-point modules are loaded to all slots in the following configuration

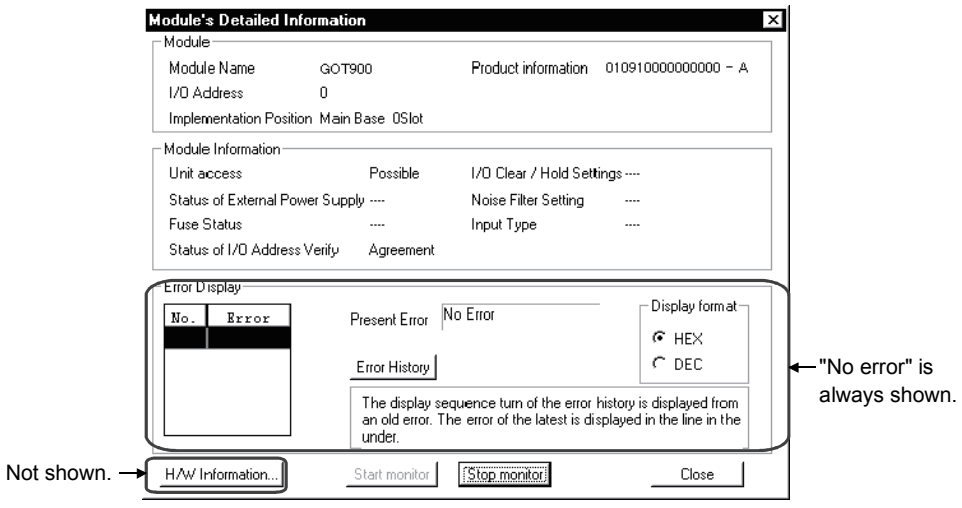
	STAGE No.	I/O number
Q38B main base unit		00 to 7F
Q68B extension base unit	1	80 to FF
QA1S68B extension base unit	3	1A0 to 21F
GOT	2	100 to 19F

- For bus connection with the Q00JCPU, the number of extension base units including the GOT must be within two.
- For bus connection with the Q00CPU or Q01CPU, the number of extension base units including the GOT must be within four.

REMARK

GX Developer has the system monitor function which batch-monitors the status of the PLC system. Note that there are the following restrictions on monitoring the module detail information of the GOT.

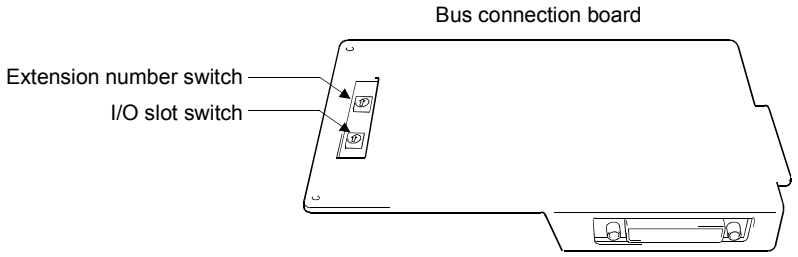
<Screen display example for GX Developer system monitor function>



Hence, confirm the module information of the GOT using the GOT side function (e.g. utility function, system alarm function).

3.3.2 Connection with other than QCPU (Q mode)

For bus connection with any CPU other than the QCPU, the GOT must be assigned to an empty I/O slot on the extension base unit.
To make assignment setting, use the bus connection board/unit installed on the GOT or the STAGE No. switch or I/O slot switch of the A951GOT.



Extension number switch

Set the extension number of the empty I/O slot to which the GOT will be assigned.

1 to 7 : Set the extension number.

0, 8, 9 : Must not be used.

(Factory-set to 0)

I/O slot switch

Set the empty I/O slot number to which the GOT will be assigned.

0 to 7 : Set the empty I/O slot number.

8, 9 : Must not be used.

(Factory-set to 0)

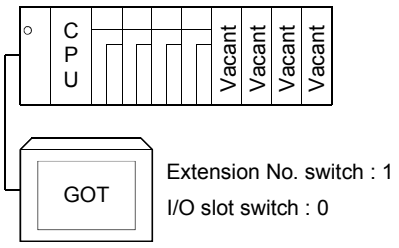
POINT
You cannot assign the GOT to the empty I/O slot on the main base. Therefore, even in a system which does not use the extension base, always allocate the GOT to a vacant I/O slot on the extension base (slot having the vacant points within the maximum I/O points of the PLC CPU, with the exception of those of the standard base).

(1) Setting method used when there is no extension base unit connected

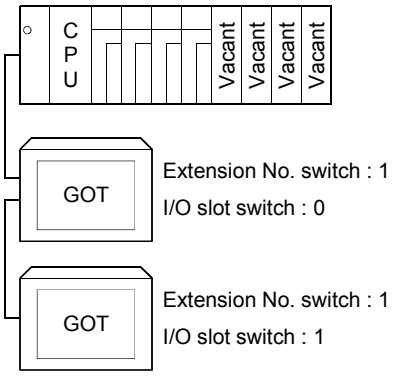
Since the GOT cannot be assigned to an empty slot on the main base, make setting to assign it to the empty slot of the first extension if there is no extension base unit connected.

Setting examples

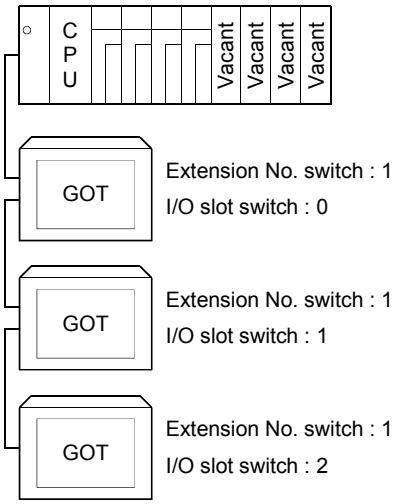
1) Connection of one GOT



2) Connection of two GOTs



3) Connection of three GOTs



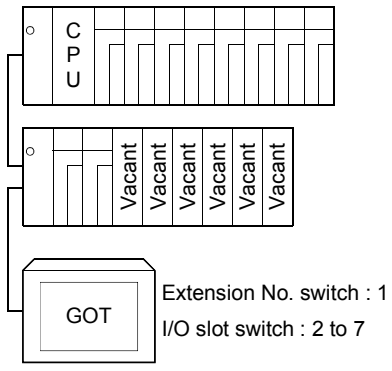
(2) Setting method used for assignment of GOT(s) to empty slot(s) of extension base unit

Set the extension number(s) and slot number(s) of the empty slot(s) to be assigned to.

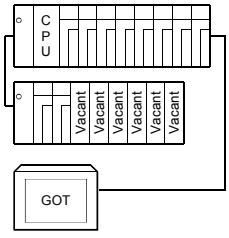
Note that the following setting examples assume the use of a large CPU but the same method applies to the use of a small CPU.

Setting examples

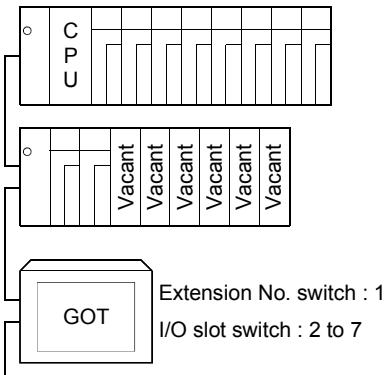
1) Connection of one GOT



*When using a small CPU, connect the bus connection cable to the empty extension connector on the main base.

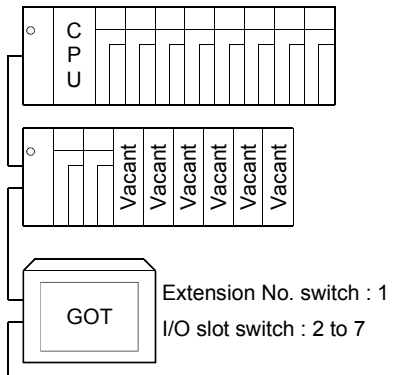


2) Connection of two GOTs



Set switches so that I/O slot switches do not overlap.

3) Connection of three GOTs



Set switches so that I/O slot switches do not overlap.

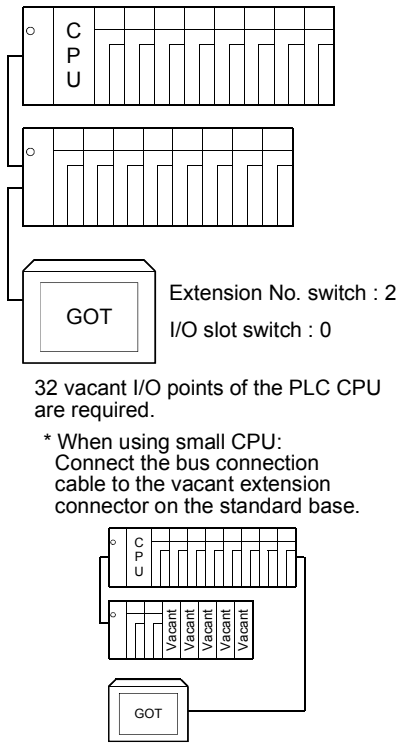
(3) Setting method used when there are no empty slots on the extension base unit connected

When there are no empty I/O slots on the base unit, set the extension number switch(es) and I/O slot switch(es) as indicated below.

Note that the following setting examples assume the use of a large CPU but the same method applies to the use of a small CPU.

Setting examples

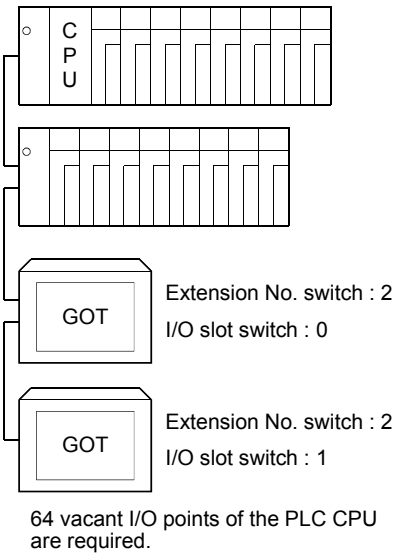
1) Connection of one GOT



32 vacant I/O points of the PLC CPU are required.

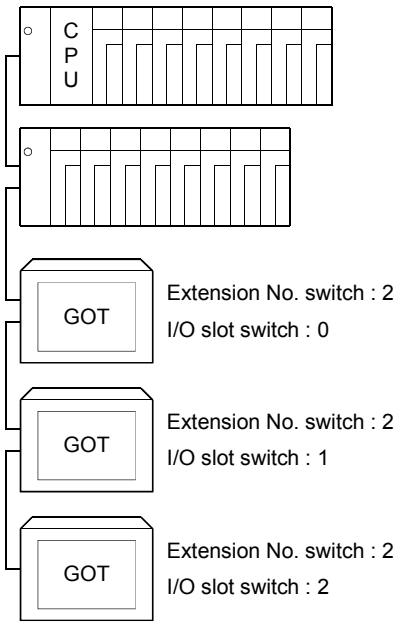
* When using small CPU:
  Connect the bus connection cable to the vacant extension connector on the standard base.

2) Connection of two GOTs



64 vacant I/O points of the PLC CPU are required.

3) Connection of three GOTs



96 vacant I/O points of the PLC CPU are required.

POINT

When using the Q3ACPU, Q4A(R)CPU, A3□ CPU, A4UCPU or A0J2HCPU, the above setting cannot be made.

Empty I/O slots are always needed on the extension base unit.

Also, when using the A0J2HCPU, assign the GOT(s) to I/O slot(s) 0 to 3 of the first extension.

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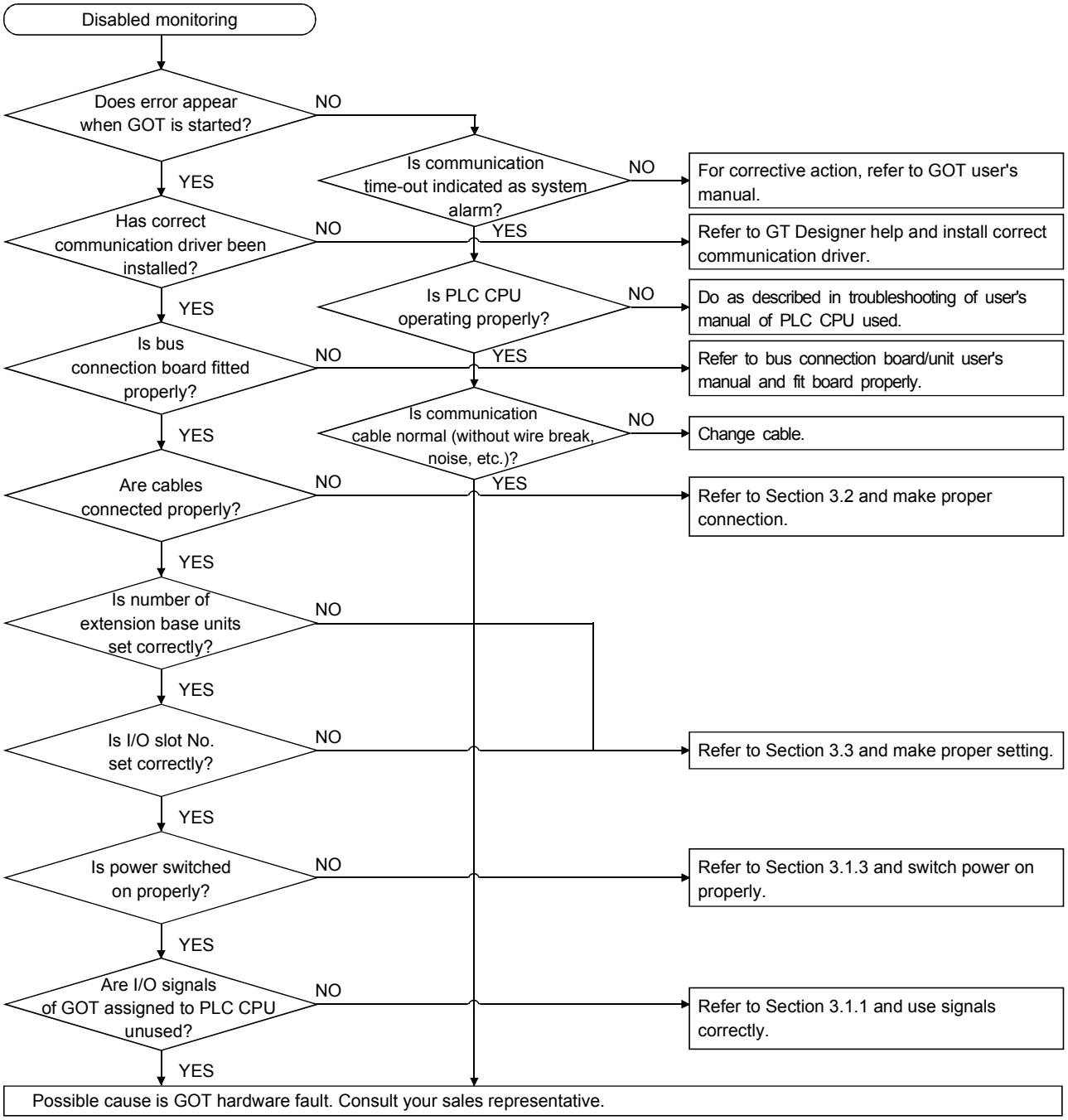
3.4 Troubleshooting for disabled monitoring

The following is the troubleshooting method when the GOT is disabled for monitoring at the time of bus connection.



MEMO

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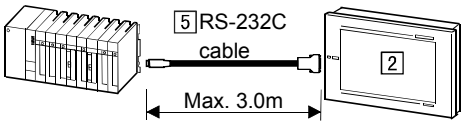
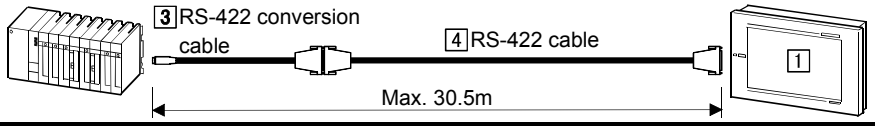
Chapter4 CPU direct connection

4.1 System configurations

4.1.1 Connection with QCPU

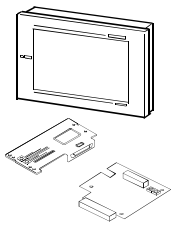
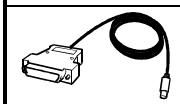
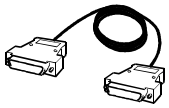
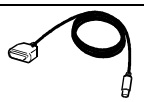
(1) System configurations and connection conditions

The following system configurations and connection conditions assume CPU direct connection with the QCPU.
The numbers (1 to 5) given in the system configurations denote the numbers (1 to 5) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 3m	
	Within 30.5m	

(2) System equipment

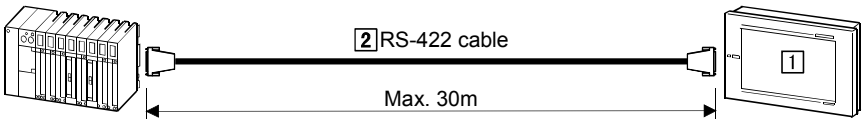
The following table indicates the system equipment needed for connection with the QCPU.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	CPU direct-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	2	CPU direct-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2□A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	3	RS-422 conversion cable between [QCPU] and [RS-422 cable]	FA-CNV2402CBL(0.2m), FA-CNV2405CBL(0.5m)	
	4	RS-422 cable between [RS-422 conversion cable] and [GOT]	AC30R4-25P(3.0m), AC100R4-25P(10.0m), AC300R4-25P(30.0m)	
	5	RS-232C cable between [QCPU] and [GOT]	QC30R2(3.0m)	

4.1.2 Connection with QnACPU or ACPU

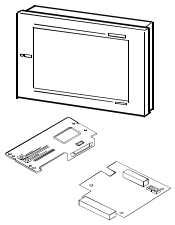
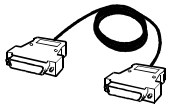
(1) System configurations and connection conditions

The following system configuration and connection conditions assume CPU direct connection with the QnACPU or ACPU.
The numbers (1 to 2) given in the system configurations denote the numbers (1 to 2) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 30m	

(2) System equipment

The following table indicates the system equipment needed for connection with the QnACPU or ACPU.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	CPU direct-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	2	RS-422 cable between [QnACPU, ACPU] and [GOT]	AC30R4-25P(3.0m), AC100R4-25P(10.0m), AC300R4-25P(30.0m)	

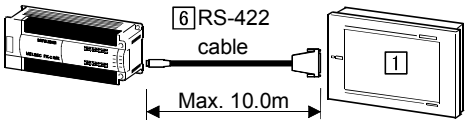
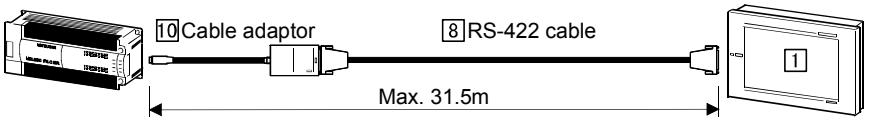
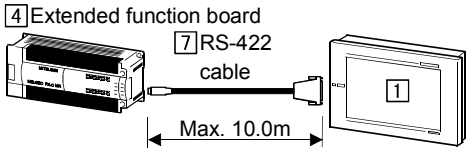
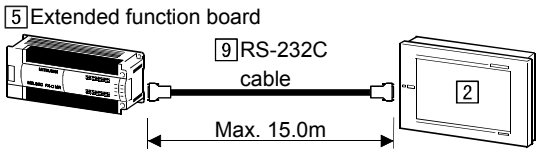
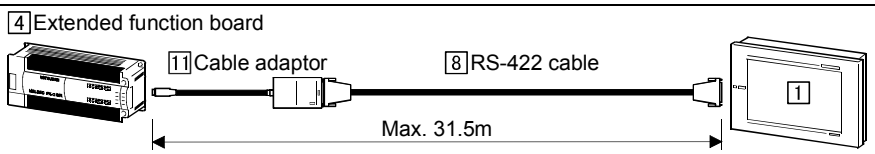
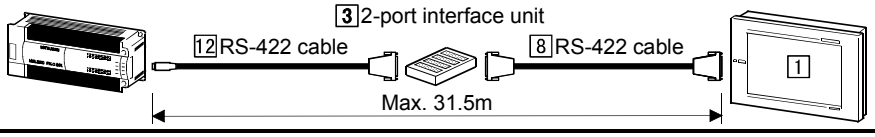
4.1.3 Connection with FXCPU (FX0, FX0N, FX0S, FX1N, FX1NC, FX1S, FX2N, FX2NC series)

(1) System configurations and connection conditions

The following system configurations and connection conditions assume CPU direct connection with the FXCPU (FX0, FX0N, FX0S, FX1N, FX1NC, FX1S, FX2N, FX2NC series).

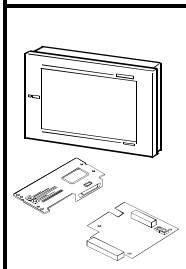
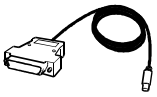
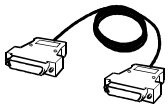
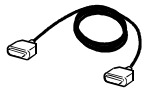
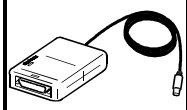
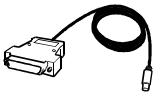
The numbers (1 to 12) given in the system configurations denote the numbers (1 to 12) in "(2) System equipment".

Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 10m	
	Within 31.5m	
	Within 10m	
	Within 15m	
	Within 31.5m	
	Within 31.5m	

(2) System equipment

The following table indicates the system equipment needed for connection with the FXCPU (FX0, FX0N, FX0S, FX1N, FX1S, FX2N, FX2NC series).

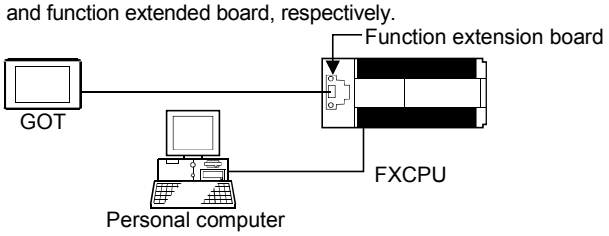
Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	CPU direct-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	2	CPU direct-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	3	Unit for simultaneous connection of GOT and peripheral (e.g. A6GPP, A6PHP, A7GPP, A7PHP) to FXCPU	FX-2PIF *1 *2 *3	
	4	Unit for simultaneous connection of GOT and peripheral (e.g. GX Developer) to FXCPU	FX1N-422-BD,FX2N-422-BD *4 *5	
	5		FX1N-232-BD,FX2N-232-BD *4 *5	
	6	RS-422 cable between [FXCPU] and [GOT]	FX9GT-CAB0-150(1.5m), FX9GT-CAB0(3.0m), FX9GT-CAB0-10M(10.0m)	
	7	RS-422 cable between [FX1N-422-BD, FX2N-422-BD] and [GOT]		
	8	RS-422 cable between [cable adaptor] and [GOT]	AC30R4-25P(3.0m), AC100R4-25P(10.0m), AC300R4-25P(30.0m)	
	9	RS-232C cable between [FX1N-232-BD, FX2N-232-BD] and [GOT]*6	AC30R2-9SS(3.0m), FX-232CAB-1(3.0m)	
	10	Cable adaptor between [FXCPU] and [RS-422 cable]	FX-422AW0(1.5m)	
	11	Cable adaptor between [FX1N-422-BD, FX2N-422-BD] and [RS-422 cable]		
	12	RS-422 cable between [FXCPU] and [2-port interface unit]	FX-422CAB0(1.5m)	

*1 The FX-2PIF is used to connect the GOT and FXCPU peripheral (e.g. A6GPP, A6PHP, A7GPP, A7PHP) simultaneously. Refer to the FXCPU manual for the usable models and system configurations for connection of the FXCPU series peripherals.

*2 When connecting the GOT to the FX2N series via the FX-2PIF, use the FX-2PIF unit of Ver. 3.0 or later.

*3 The FX1N, FX1S and FX2N series accepts the function extended board. (See *4)

*4 When using the function extended board, you can connect one GOT and one peripheral such as GX Developer to the FXCPU and function extended board, respectively.



*5 The function extended board used depends on the type of the FXCPU connected. Use the compatible function extended board given in the following table.

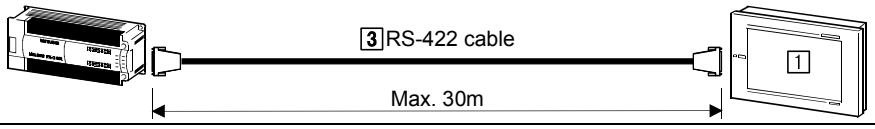
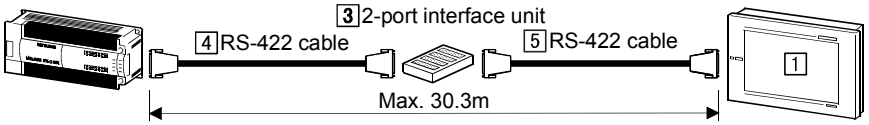
Item	Function Extended Board Used	
	When FX1N, FX1S series is connected	When FX2N series is connected
RS-232C communication	FX1N-232-BD	FX2N-232-BD
RS-422 communication	FX1N-422-BD	FX2N-422-BD

*6 The RS-232C cable can also be fabricated by the user. Refer to Section 4.2 for details of the fabricating method.

4.1.4 Connection with FXCPU (FX1, FX2, FX2C series)

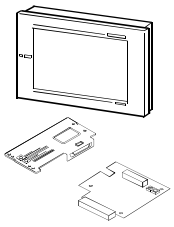
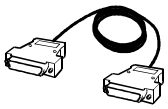
(1) System configurations and connection conditions

The following system configurations and connection conditions assume CPU direct connection with the FXCPU (FX1, FX2, FX2C series).
The numbers (1 to 5) given in the system configurations denote the numbers (1 to 5) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 30m	
	Within 30.3m	

(2) System equipment

The following table indicates the system equipment needed for connection with the FXCPU (FX1, FX2, FX2C series).

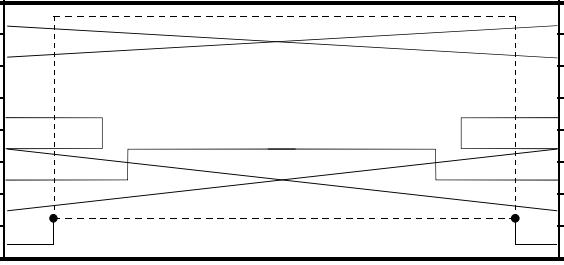
Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	CPU direct-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	2	Unit for simultaneous connection of GOT and peripheral (e.g. A6GPP, A6PHP, A7GPP, A7PHP) to FXCPU	FX-2PIF *1 *2	
	3	RS-422 cable between [FXCPU] and [GOT]	AC30R4-25P(3.0m), AC100R4-25P(10.0m), AC300R4-25P(30.0m)	
	4	RS-422 cable between [FXCPU] and [2-port interface unit]	FX-422CAB(0.3m)	
	5	RS-422 cable between [2-port interface unit] and [GOT]	AC30R4-25P(3.0m), AC100R4-25P(10.0m), AC300R4-25P(30.0m)	

*1 The FX-2PIF is used to connect the GOT and FXCPU peripheral (e.g. A6GPP, A6PHP, A7GPP, A7PHP) simultaneously. Refer to the FXCPU manual for the usable models and system configurations for connection of the FXCPU series peripherals.
*2 When connecting the GOT to the FX2N series via the FX-2PIF, use the FX-2PIF unit of Ver. 3.0 or later.

4.2 Connection Cables

This section gives the connection diagrams and connectors of the RS-232C cables which are used to connect the GOT and function extension board (when the FX1N, FX1S or FX2N series is used).

(1) Connection diagram

Function Extension Board Side		Cable connection and direction of signal	GOT Side	
Signal name	Pin No.		Pin No.	Signal name
RXD	2		2	RXD
TXD	3		3	TXD
RTS	7		7	RTS
CTS	8		8	CTS
DSR	6		6	DSR
SG	5		5	SG
DTR	4		4	DTR
SHELL	—		—	SHELL

(2) Connector and connector cover

• GOT connector

Description	Model	Manufacturer
Connector	HDEB-9S(05)	HIROSE ELECTRIC CO.,LTD
Connector cover	HDE-CTH1(4-40)	HIROSE ELECTRIC CO.,LTD

• Function extension board connector

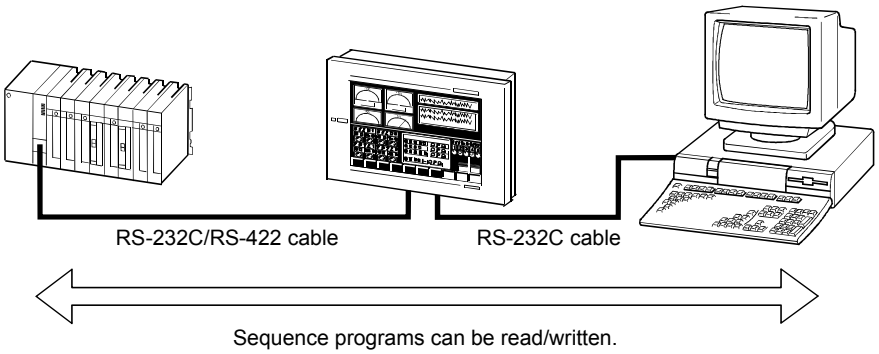
Use the connector compatible with the function extension board.

(3) Precautions for cable preparation

The cable must be 15 m (49.21 feet) or shorter.

4.3 About transparent function (2-port interface function)

When the GOT is connected directly with the Q/QnA/A/FX/motion controller CPU, connecting a peripheral device such as a personal computer allows you to read, write and monitor the sequence programs of the CPU.



*1 When using the transparent function, you cannot use the barcode function.
*2 When the PLC CPU is monitored by a peripheral device such as a personal computer, the display speed of the GOT decreases.

4.3.1 About software used

The software programs usable change with the CPU connected to the GOT.
Refer to the following table and use the software programs compatible with the connected CPU.

Connected PLC CPU	Usable software
QCPU (Q mode)	SW□D5C-GPPW-E, SW□D5F-GPPW-E
QnACPU	SW□D5C-GPPW-E, SW□D5F-GPPW-E, SW□IVD-GPPQ, SW□IWC-MEDOC-E
QCPU (A mode), ACPU	SW□D5C-GPPW-E, SW□D5F-GPPW-E, SW□IVD-GPPA, SW□IWC-MEDOC-E
FXCPU	SW□D5C-GPPW-E, SW□D5F-GPPW-E, SW□PC-FXGP/WIN, SW□IWC-MEDOC-E
Motion controller CPU (A series)	DOS version SW2SRX-GSV13P, SW2SRX-GSV22P, SW2SRX-GSV43P, SW2SRX-GSV51P Windows® version SW3RN-GCV13P, SW3RN-GSV22P, SW3RN-GSV43P, SW3RN-GSV51P
Motion controller CPU (Q series)	SW6RNC-GSVSET, SW6RNC-GSVPRO

4.3.2 Instructions for using the transparent function

(1) Connect a peripheral device such as a personal computer to the RS-232C interface of the GOT.

(2) Only one of the bar code function, servo amplifier monitor function and transparent function can be used.
The following table indicates the priorities of the functions.

High ← Priority → Low

Bar code function	Servo amplifier monitor function	Transparent function
There is bar code setting in the monitor screen data.	The extended function OS for servo amplifier monitor function has been installed in the GOT.	No setting items

The transparent function cannot be used when there is bar code setting in the monitor screen data or the extended function OS for servo amplifier monitor function has been installed in the GOT.
When there is bar code setting, delete the setting using GT Designer.
When the extended function OS for servo amplifier monitor function has been installed, delete the extended function OS.

(3) When connecting the GOT with the QCPU (A mode), refer to the QCPU (A mode) User's Manual for the GPP function software package and the startup-time type setting (PLC type).

(4) A communication error will occur if GT Designer of SW4D5C-GOTR-PACKE Version F or earlier is used to communicate with the GOT where the basic function OS and PLC communication driver of SW5D5C-GOTR-PACKE Version A or later have been installed.
If a communication error occurs, perform the same operation again. (A communication error occurs at the first time only.)

(5) The following cautions should be observed when using transparent function.

(a) Conditions transparent function will not work
The transparent function may not work if the following inoperable conditions are all met and further GX Developer is started with the RS-232C cable connected between the personal computer and GOT.
However, it will work if only one condition has not realized. (For example, it will work when the CPU to be monitored is QCPU.)

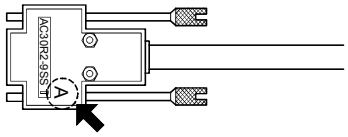
Item	Conditions transparent function will not work	Remarks
CPU module to be monitored	ACPU	Not applicable to QnACPU or QCPU.
RS-232C cable	AC30R2-9SS or AC30R2-9P of Version A or later is used.	Not applicable to AC30R2-9SS or AC30R2-9P of Version A or later.

(b) Countermeasures
Either of the following countermeasures allows transparent function to work normally.

1) Use an RS-232C cable of Version A or later.

2) For the cable whose Version is neither A nor later, reconnect it after disconnecting.

(c) How to verify the cable version
The RS-232C cables of Version A or later have the version number inscribed at the upper right of the model name marked on the connector.



(6) The following cautions items should be observed if the monitor conditions are set by GX Developer.

(a) The GOT monitor will stop.

(b) Operation by a touch switch or input by the numerical/ASCII input function cannot be performed.

(c) "315 Device write error" is displayed in the display field of the alarm list display (system alarm) function.

(d) Do not perform any operation that requires GOT restarting (downloading project data, changing utility or others) while setting a monitor condition.
If any operation above is performed, a system alarm of "402 Communication timeout." may be displayed on restarting the GOT.
In the case that a registered monitor condition for a PLC CPU cannot be canceled, reconnect the GX Developer to the PLC CPU to cancel the monitor condition setting. (An error may occur on canceling a monitor condition setting.)

(e) If the time check period of GX Developer is set to 30 seconds or longer in the monitor condition setting, "402 Communication time-out" is displayed in the display field of the alarm list display (system alarm) function.
In this case, change the time check period of GX Developer to shorter than 30 seconds.

(7) When executing PLC Write to a PLC CPU using the transparent function, the writing may be failed due to a cable disconnection or other reasons.
In the case above, retry PLC Write from the personal computer that has failed the PLC Write or reset the PLC CPU.

(8) If the following GOT functions are used when connecting with a QCPU (Q mode), an error may occur in a GOT or GX Developer.
The following lists the errors that may occur and their handling procedures.

GOT function	Error message of GOT	Handling on GOT side	Error message of GX Developer	Handling on GX Developer side
Execute ladder read with the ladder monitor function.	FILE NOT FOUND	Execute ladder read again when "PLC Read" or "PLC Write" is not being executed by GX Developer.	File access failure. Please try again.	Execute "PLC Read" or "PLC Write" again when ladder read is not being executed with the ladder monitor function of a GOT.
Execute device value read/write by specifying the file register name of the recipe function.	358 File of PLC access failure	Turn ON the trigger device of the recipe function again when "PLC Read" or "PLC Write" is not being executed by GX Developer.	File access failure. Please try again. PLC file system error. Unable to communicate with PLC.	Execute "PLC Read" or "PLC Write" again when the recipe in-process signal in the system information of a GOT is OFF.
Execute TC monitor read with the system monitor function.	The message does not appear. "TC Setting" area is empty.	Execute TC monitor read again when "PLC Read" or "PLC Write" is not being executed by GX Developer.	File access failure. Please try again.	Execute "PLC Read" or "PLC Write" again when the TC monitor screen is not being read.
Execute to read the PC diagnosis monitor screen/unit detailed information screen with the special unit monitor function.	Cannot Communication	Execute to read the PC diagnosis monitor screen/unit detailed information screen again when "PLC Read" or "PLC Write" is not being executed by GX Developer.	File access failure. Please try again.	Execute "PLC Read" or "PLC Write" again when the PC diagnosis monitor screen/unit detailed information screen is not being read with the special unit monitor function.

(9) When the PLC CPU is monitored by a peripheral device such as a personal computer, the display speed of the GOT decreases.

(10) For 45 seconds after exit from GX Developer, the GOT remains at the same monitor speed as during use of the transparent function.

(11) The access range of GX Developer does not change when the transparent function is used.

(12) If the either of following operations, which will stop the monitoring of the GOT, is performed, the transparent function will stop.

(a) Monitor screen data is downloaded or uploaded using GT Designer, or OS or ROM_BIOS is installed. *1

(b) Setup or screen & OS copy is executed on the GOT unit. *1

(c) When no communication request (online monitor, etc.) has been issued from GX Developer for 45 seconds.

*1 A time-out error will occur on GX Developer.
When the option function such as the utility or ladder monitor function is executed, the transparent function will not stop.

(13) When using multiple software run on a personal computer, the communication using the transparent function is enabled for one software only.
Do not perform multiple communications using the transparent function at the same time. (The offline operation is enabled for each software.)
In addition, do not perform communication from the GT Designer to the GOT (downloading project data, etc.) during communication using the transparent function.

(14) When connecting to the FXCPU, set the transmission speed of the GX Developer to 9600bps.
Otherwise, the transparent function will not operate.

4.3.3 Compatible RS-232C cable

Use any of the following types of RS-232C cables for connection of the personal computer and GOT.

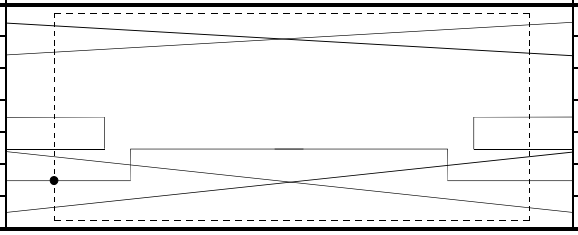
- AC30R2-9SS
- FX-232CAB-1
- AC30R2-9P *1
- F2-232CAB-1 *1

*1 9-25 pin converter (introduced product: D232J31 of Diatrend make) is required.

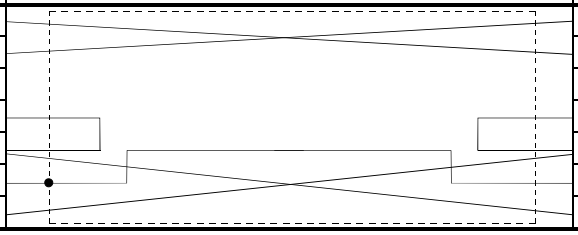
The RS-232C cable for connection of the personal computer and GOT may also be fabricated by the user.
The connection diagrams and connectors for the RS-232C cables are indicated below.

(1) Connection diagram

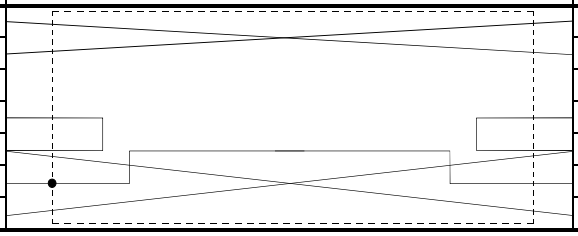
(a) Connection diagram of AC30R2-9SS

Personal computer Side		Cable connection and direction of signal	GOT Side	
Signal name	Pin No.		Pin No.	Signal name
RXD	2		2	RXD
TXD	3		3	TXD
RTS	7		7	RTS
CTS	8		8	CTS
DSR	6		6	DSR
SG	5		5	SG
DTR	4		4	DTR

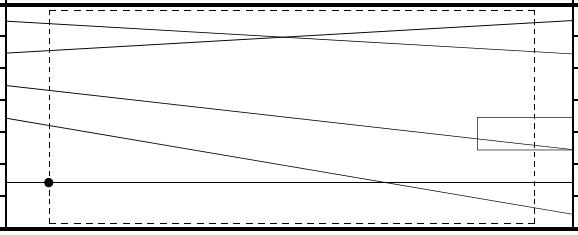
(b) Connection diagram of AC30R2-9P

Personal computer Side		Cable connection and direction of signal	GOT Side	
Signal name	Pin No.		Pin No.	Signal name
RXD	2		2	RXD
TXD	3		3	TXD
RTS	7		7	RTS
CTS	8		8	CTS
DSR	6		6	DSR
SG	5		5	SG
DTR	4		4	DTR

(c) Connection diagram of FX-232CAB-1

Personal computer Side		Cable connection and direction of signal	GOT Side	
Signal name	Pin No.		Pin No.	Signal name
RXD	2		2	RXD
TXD	3		3	TXD
RTS	7		7	RTS
CTS	8		8	CTS
DSR	6		6	DSR
SG	5		5	SG
DTR	4		4	DTR

(d) When using the software (DOS version) for motion controller CPU (A series)

Personal computer Side		Cable connection and direction of signal	GOT Side	
Signal name	Pin No.		Pin No.	Signal name
RXD	2		2	RXD
TXD	3		3	TXD
RTS	7		7	RTS
CTS	8		8	CTS
DSR	6		6	DSR
SG	5		5	SG
DTR	4		4	DTR

*1 This RS-232C cable should not be used to transfer the monitor screen data of GT Designer.

(2) Connector and connector cover

- GOT connector
  Use the screw-in type connector (inch) for the GOT side.

- Personal computer connector
  Use the connector compatible with the Personal computer.

(3) Precautions for cable preparation

The cable must be 15 m (49.21 feet) or shorter.

MEMO

4 - 13

Chapter5 Computer link connection

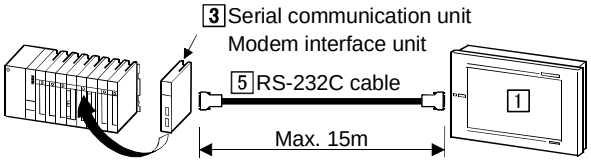
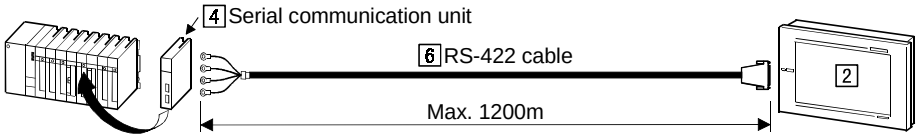
5.1 System configurations

POINT
Connect a termination resistor (330 Ω 1/4W (orange, orange, brown, □) on the computer link unit, serial communication unit or modem interface unit side. On the GOT side, you need not connect the termination resistor since the GOT contains it.

5.1.1 Connection with QCPU (Q mode)

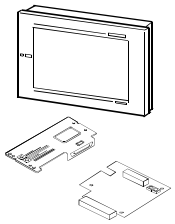
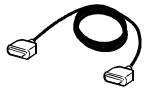
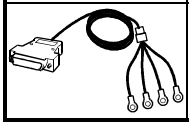
(1) System configurations and connection conditions

The following system configurations and connection conditions assume computer link connection with the QCPU (Q mode). The numbers (1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment". Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	
	Within 1200m	

(2) System equipment

The following table indicates the system equipment needed for connection with the QCPU (Q mode).

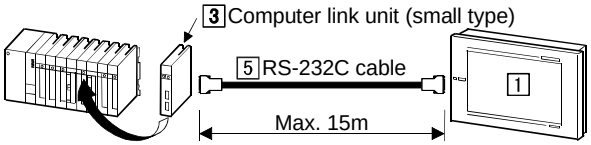
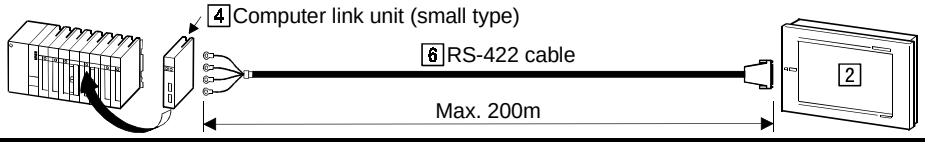
Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Computer link-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Computer link-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Serial communication unit*1	QJ71C24, QJ71C24-R2	
		Modem interface unit	QJ71CMO	
	4	Serial communication unit*1	QJ71C24	
	5	RS-232C cable between [serial communication unit] and [GOT]	(Refer to Section 5.4 and fabricate on user side.)	
	6	RS-422 cable between [serial communication unit] and [GOT]		

*1 For the system configuration on the serial communication unit side, refer to the user's manual of the serial communication unit used.

5.1.2 Connection with QCPU (A mode)

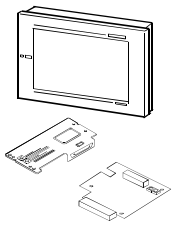
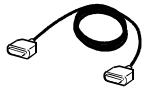
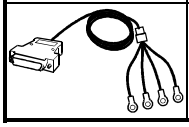
(1) System configurations and connection conditions

The following system configurations and connection conditions assume computer link connection with the QCPU (A mode).
The numbers (1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	
	Within 200m	

(2) System equipment

The following table indicates the system equipment needed for connection with the QCPU (A mode).

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Computer link-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Computer link-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Computer link unit*1	A1SJ71UC24-R2, A1SJ71C24-R2	
	4	Computer link unit*1*2	A1SJ71UC24-R4, A1SJ71C24-R4	
	5	RS-232C cable between [computer link unit] and [GOT]	(Refer to Section 5.4 and fabricate on user side.)	
	6	RS-422 cable between [computer link unit] and [GOT]		

*1 For the system configuration on the serial communication unit side, refer to the user's manual of the serial communication unit used.
*2 When the A1SJ71C24-R4 is used and the connection target PLC CPU is the QCPU (A mode), the monitor able access range is the range of the AnACPU.

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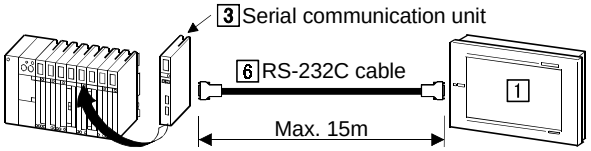
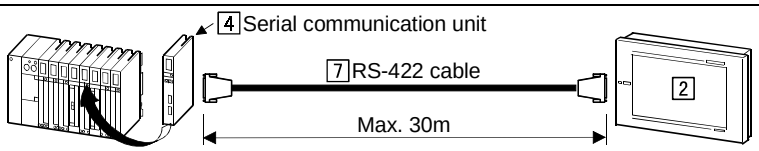
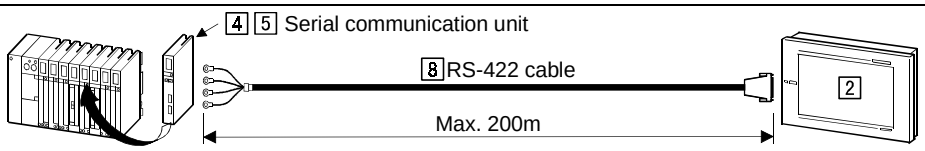
5.1.3 Connection with QnACPU (large type)

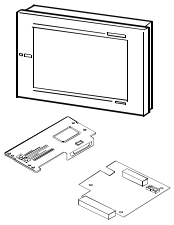
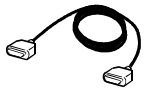
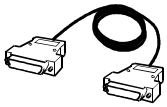
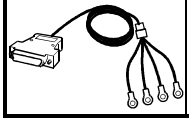
(1) System configurations and connection conditions

The following system configurations and connection conditions assume computer link connection with the QnACPU (large type).The numbers (1 to 8) given in the system configurations denote the numbers (1 to 8) in "(2) System equipment". Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	
	Within 30m	
	Within 200m	

(2) System equipment

The following table indicates the system equipment needed for connection with the QnACPU (large type).

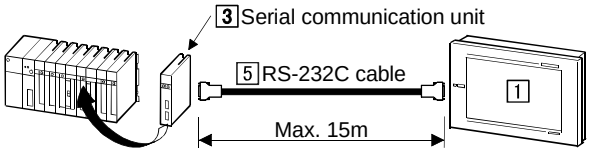
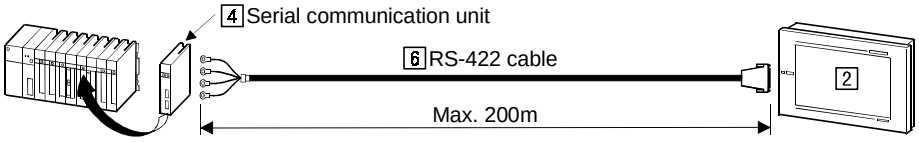
Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Computer link-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Computer link-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Serial communication unit*1	AJ71QC24, AJ71QC24N, AJ71QC24-R2, AJ71QC24N-R2	
	4	Serial communication unit*1	AJ71QC24-R4, AJ71QC24N-R4	
	5	Serial communication unit*1	AJ71QC24, AJ71QC24N	
	6	RS-232C cable between [serial communication unit] and [GOT]	(Refer to Section 5.4 and fabricate on user side.)	
	7	RS-422 cable between [serial communication unit] and [GOT]	AC30R4-25P(3.0m), AC100R4-25P(10.0m), AC300R4-25P(30.0m)	
	8	RS-422 cable between [serial communication unit] and [GOT]	(Refer to Section 5.4 and fabricate on user side.)	

*1 For the system configuration on the serial communication unit side, refer to the user's manual of the serial communication unit used.

5.1.4 Connection with QnACPU (small type)

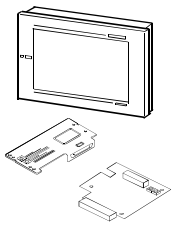
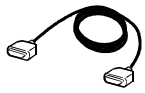
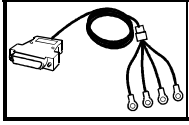
(1) System configurations and connection conditions

The following system configurations and connection conditions assume computer link connection with the QCPU (A mode).
The numbers (1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	
	Within 200m	

(2) System equipment

The following table indicates the system equipment needed for connection with the QnACPU (small type).

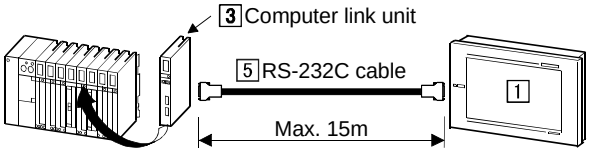
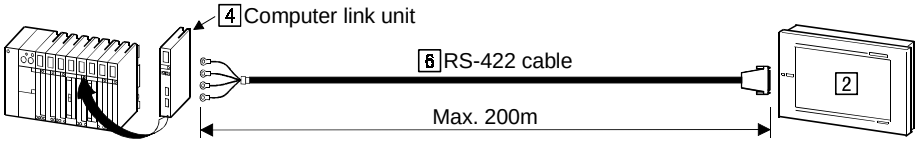
Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Computer link-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Computer link-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Serial communication unit*1	A1SJ71QC24, A1SJ71QC24N, A1SJ71QC24-R2, A1S71QC24N-R2	
	4	Serial communication unit*1	A1SJ71QC24, A1SJ71QC24N	
	5	RS-232C cable between [serial communication unit] and [GOT]	(Refer to Section 5.4 and fabricate on user side.)	
	6	RS-422 cable between [serial communication unit] and [GOT]		

*1 For the system configuration on the serial communication unit side, refer to the user's manual of the serial communication unit used.

5.1.5 Connection with ACPU (large type)

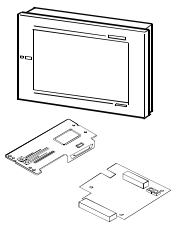
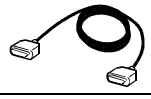
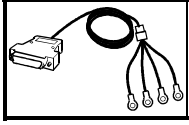
(1) System configurations and connection conditions

The following system configurations and connection conditions assume computer link connection with the ACPU (large type).
The numbers (1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	
	Within 200m	

(2) System equipment

The following table indicates the system equipment needed for connection with the ACPU (large type).

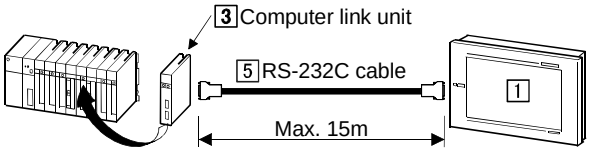
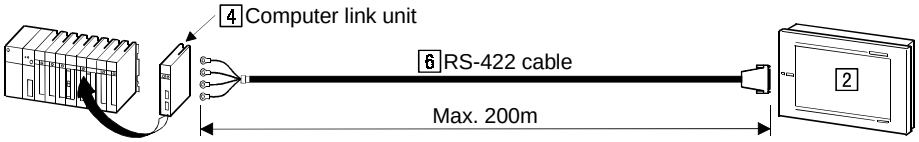
Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Computer link-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Computer link-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Computer link unit*1	AJ71UC24	
	4	Computer link unit*1*2	AJ71UC24, AJ71C24-S8	
	5	RS-232C cable between [computer link unit] and [GOT]	(Refer to Section 5.4 and fabricate on user side.)	
	6	RS-422 cable between [computer link unit] and [GOT]		

*1 For the system configuration on the serial communication unit side, refer to the user's manual of the serial communication unit used.
*2 When the AJ71C24-S8 is used and the connection target PLC CPU is the AnUCPU, the monitorable access range is the range of the AnACPU.

5.1.6 Connection with ACPU (small type)

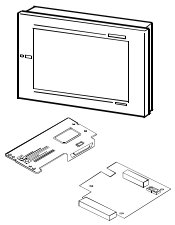
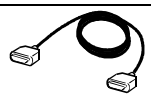
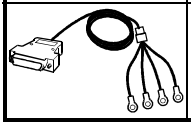
(1) System configurations and connection conditions

The following system configurations and connection conditions assume computer link connection with the ACPU (small type).
The numbers (1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	
	Within 200m	

(2) System equipment

The following table indicates the system equipment needed for connection with the ACPU (small type).

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Computer link-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Computer link-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Computer link unit*1*2	A1SJ71UC24-R2, A1SJ71C24-R2	
	4	Computer link unit*1*2	A1SJ71UC24-R4, A1SJ71C24-R4	
	5	RS-232C cable between [computer link unit] and [GOT]	(Refer to Section 5.4 and fabricate on user side.)	
	6	RS-422 cable between [computer link unit] and [GOT]		

*1 For the system configuration on the serial communication unit side, refer to the user's manual of the serial communication unit used.
*2 When the A1SJ71C24-R2 or A1SJ71C24-R4 is used and the connection target PLC CPU is the AnUCPU, the monitorable access range is the range of the AnACPU.

5.2 Initial settings

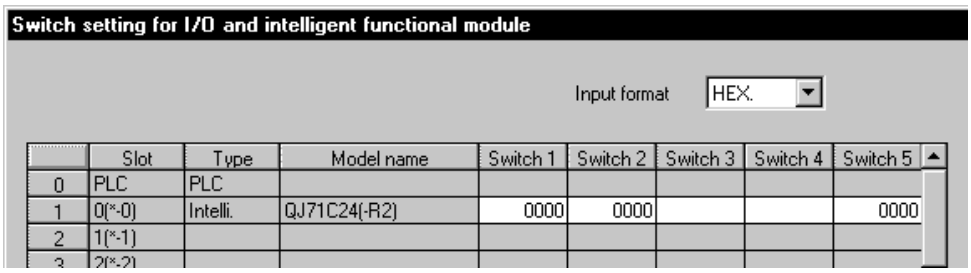
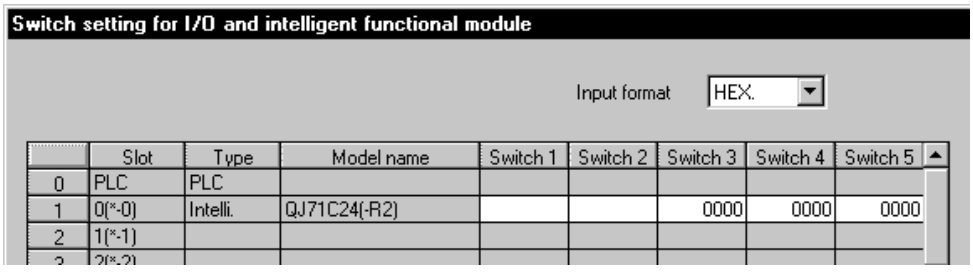
5.2.1 PLC CPU side settings

When connecting the GOT and the computer link unit and serial communication unit and modem interface unit for monitoring, set the switches of the computer link unit and serial communication unit as follows.
The settings vary with the communication status (RS-232C communication/RS-422 communication) of the GOT used.
Refer to the manuals of the used units for details of the computer link unit, serial communication unit and modem interface unit side settings.

(1) When RS-232C communication is made on GOT

(a) When connecting to QJ71C24(-R2), QJ71CMO

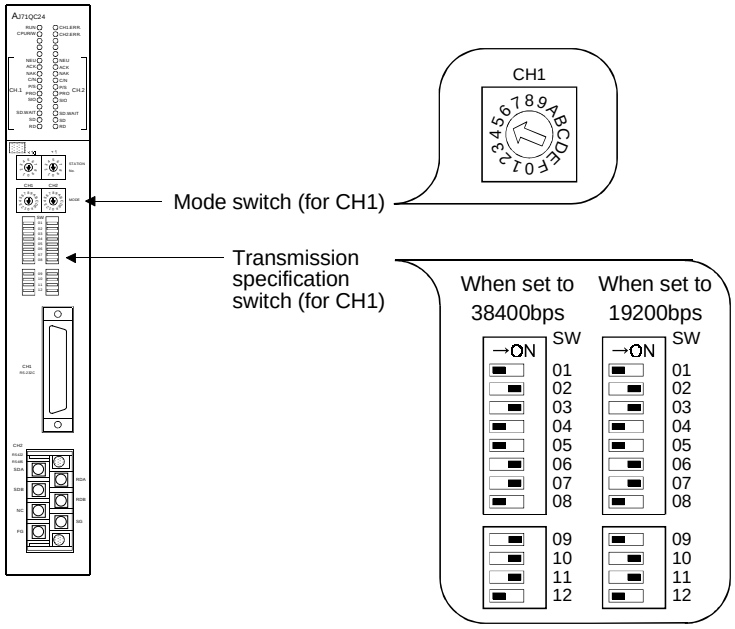
Switch setting for the module is not required. (Monitoring is available without making switch setting in the I/O assignment setting of GX Developer.)
The following settings are also available for monitoring, according to the CH (interface) of the module to be connected with GOT.
However, when the GOT is connected with the QJ71CMO, only CH2 is usable.
For the operation method of GX Developer, refer to the GX Developer Operating Manual.

Channel Where GOT Is Connected	Settings
CH1	
CH2	

POINT

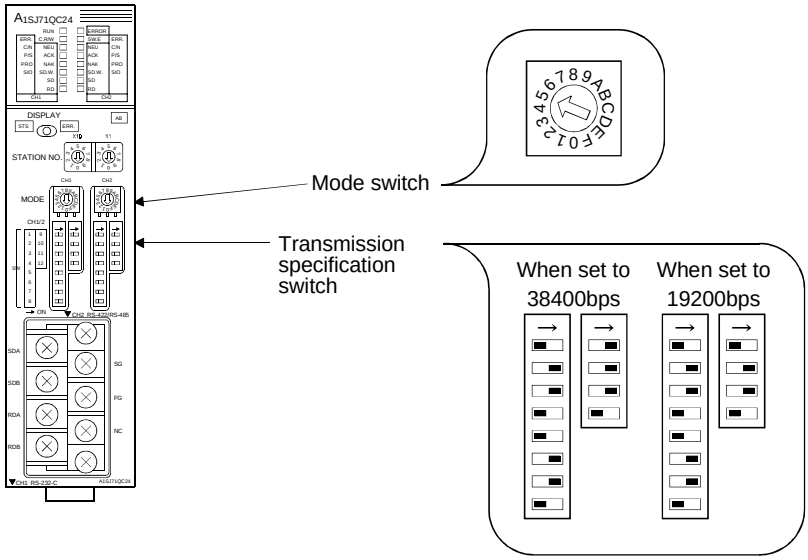
When using the GOT connected to the serial communication unit of function version B, you can use CH1 and CH2 of the serial communication unit together. Hence, you can use the GOT and GX Developer or similar peripheral device or two GOTs connected to one serial communication unit.
Note that only one GOT can be connected to the serial communication module of function version A.

(b) When connecting to AJ71QC24(N)(-R2)



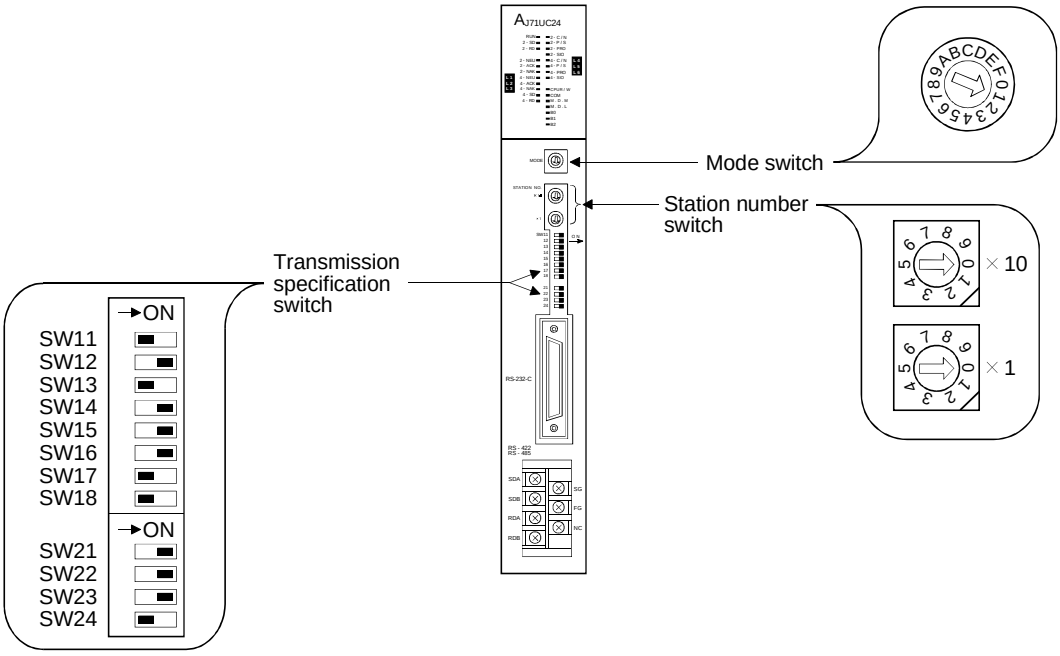
POINT
When the AJ71QC24N(-R2) is used and the transmission speed is set to 38400bps, the GOT side transmission speed must be re-set. For details of the setting method, refer to Section 6.2.2.

(c) When connecting to A1SJ71QC24(-R2)

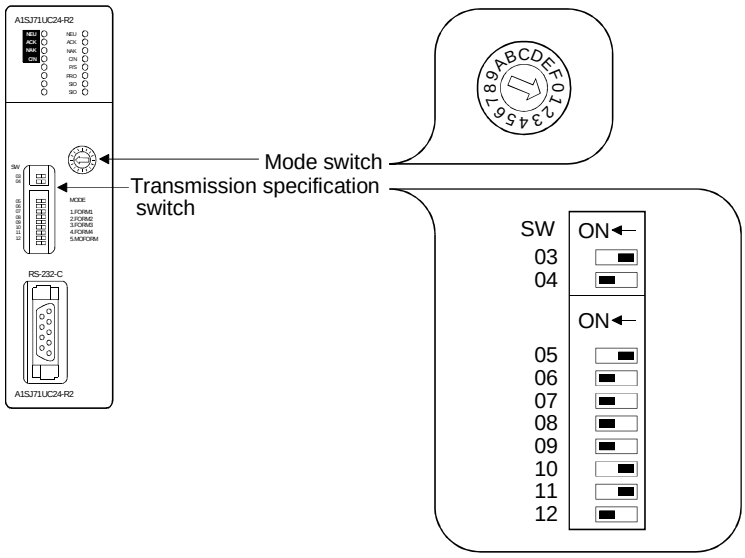


POINT
When the A1SJ71QC24N(-R2) is used and the transmission speed is set to 38400bps, the GOT side transmission speed must be re-set. For details of the setting method, refer to Section 6.2.2.

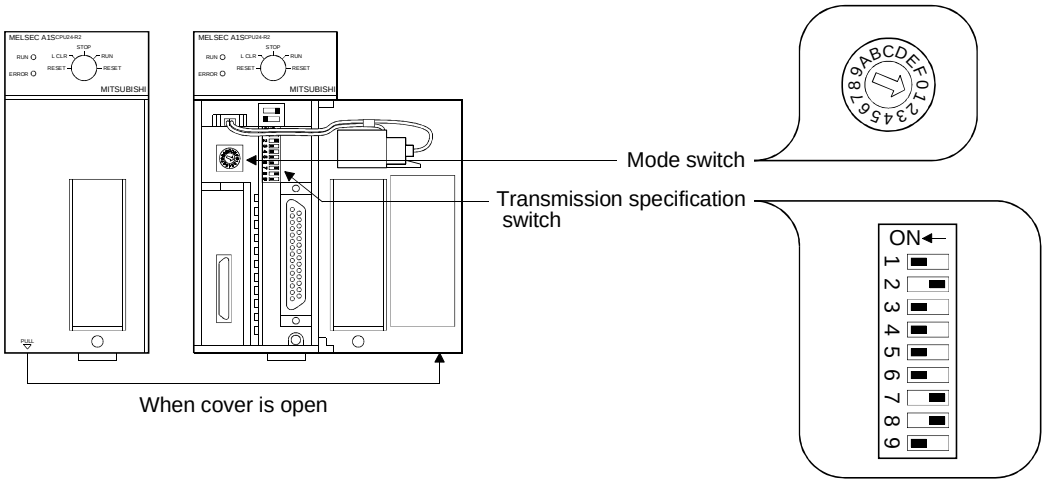
(d) When connecting to AJ71UC24



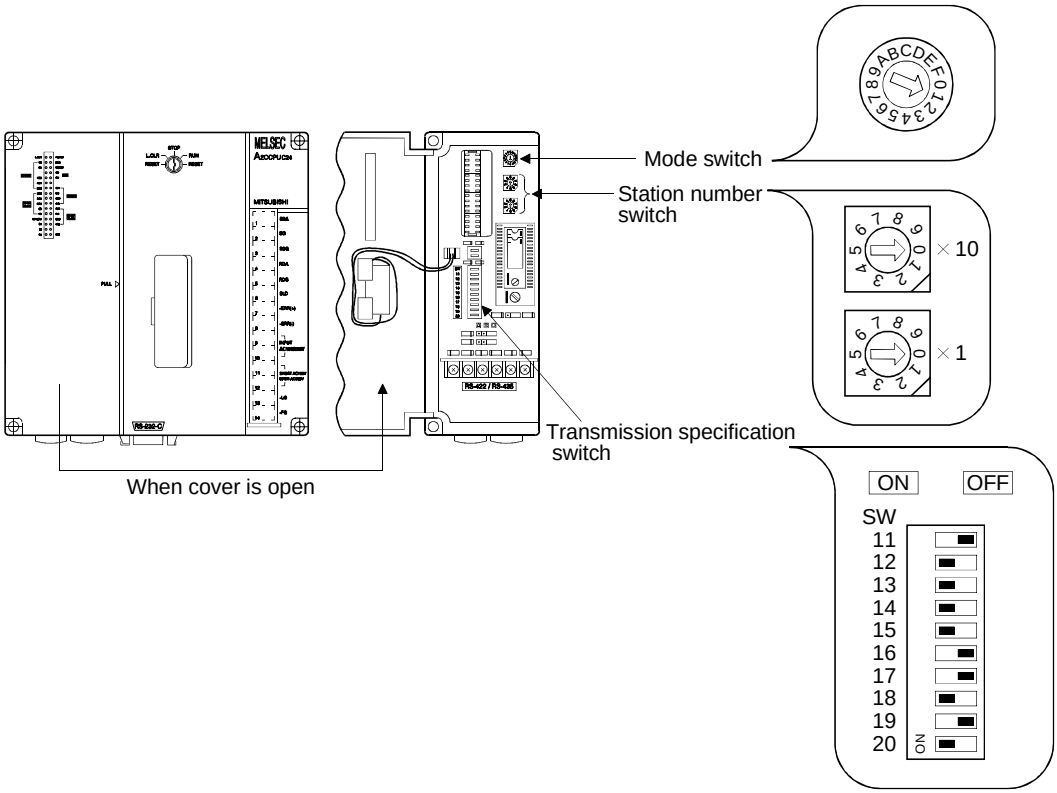
(e) When connecting to A1SJ71UC24-R2, A1SJ71C24-R2



(f) When connecting to A1SCPUC24-R2



(g) When connecting to A2CCPUC24



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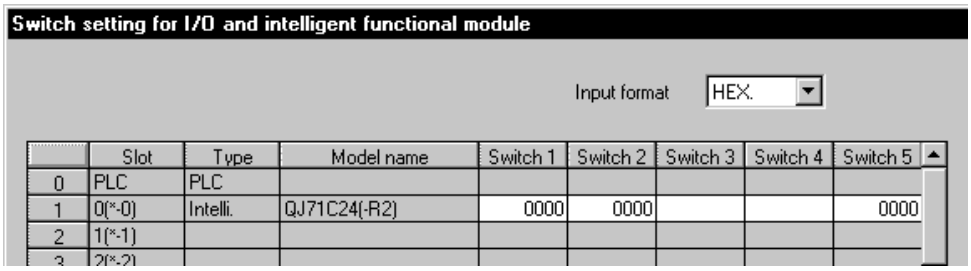
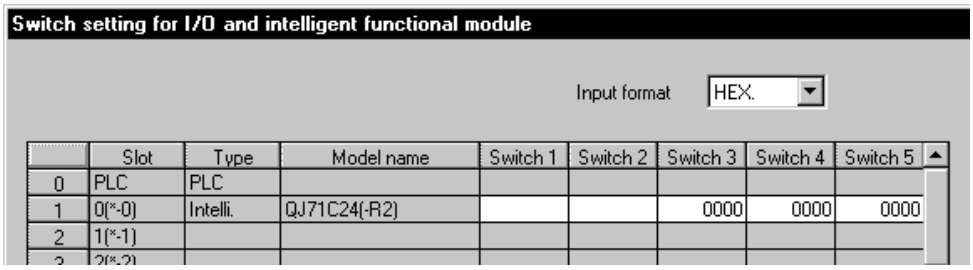
(2) When RS-422 communication is made on GOT

(a) When connecting to QJ71C24

Switch setting for the module is not required. (Monitoring is available without making switch setting in the I/O assignment setting of GX Developer.)

The following settings are also available for monitoring, according to the CH (interface) of the module to be connected with GOT.

For the operation method of GX Developer, refer to the GX Developer Operating Manual.

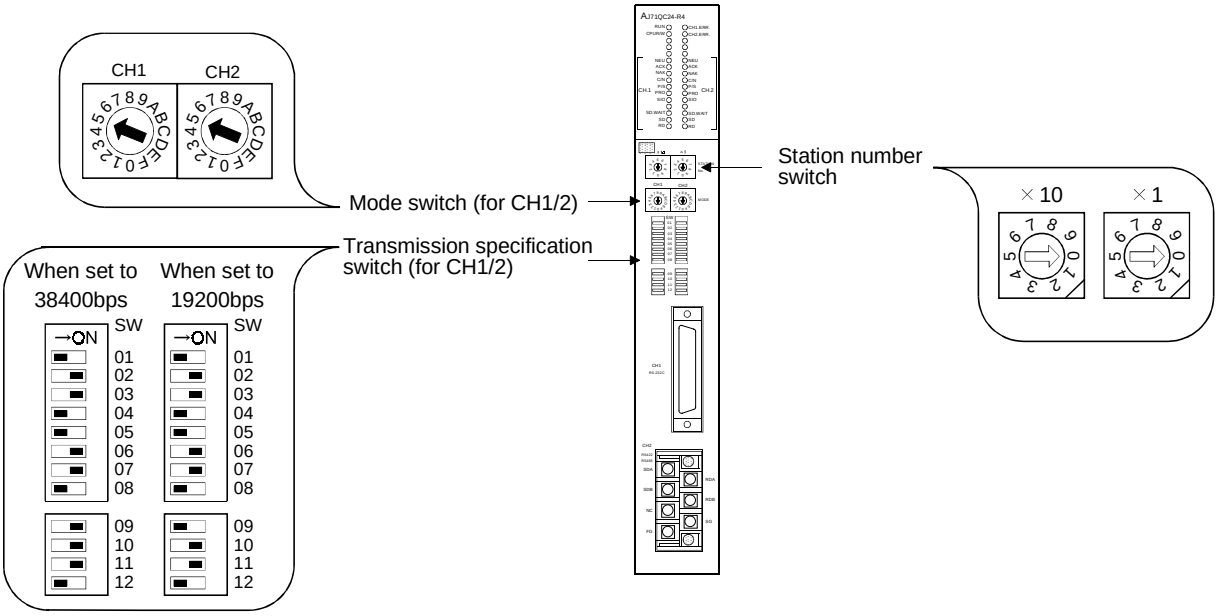
Channel Where GOT Is Connected	Settings
CH1	
CH2	

POINT

When using the GOT connected to the serial communication unit of function version B, you can use CH1 and CH2 of the serial communication unit together. Hence, you can use the GOT and GX Developer or similar peripheral device or two GOTs connected to one serial communication unit.

Note that only one GOT can be connected to the serial communication module of function version A.

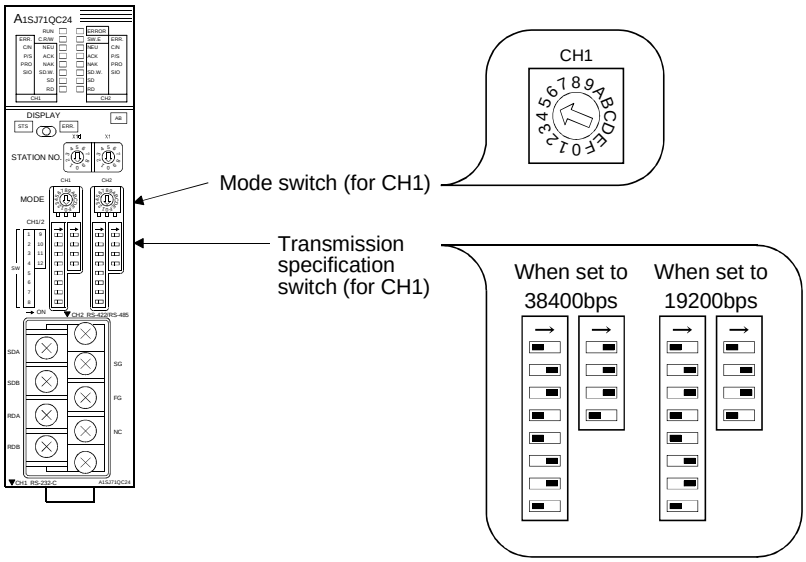
(b) When connecting to AJ71QC24(N)(-R4)



POINT

- The value of the mode switch of an unused channel must be set to the value except 0(Interlocking operation).
- When the AJ71QC24N(-R4) is used and the transmission speed is set to 38400bps, the GOT side transmission speed must be re-set.
  For details of the setting method, refer to Section 5.2.2.

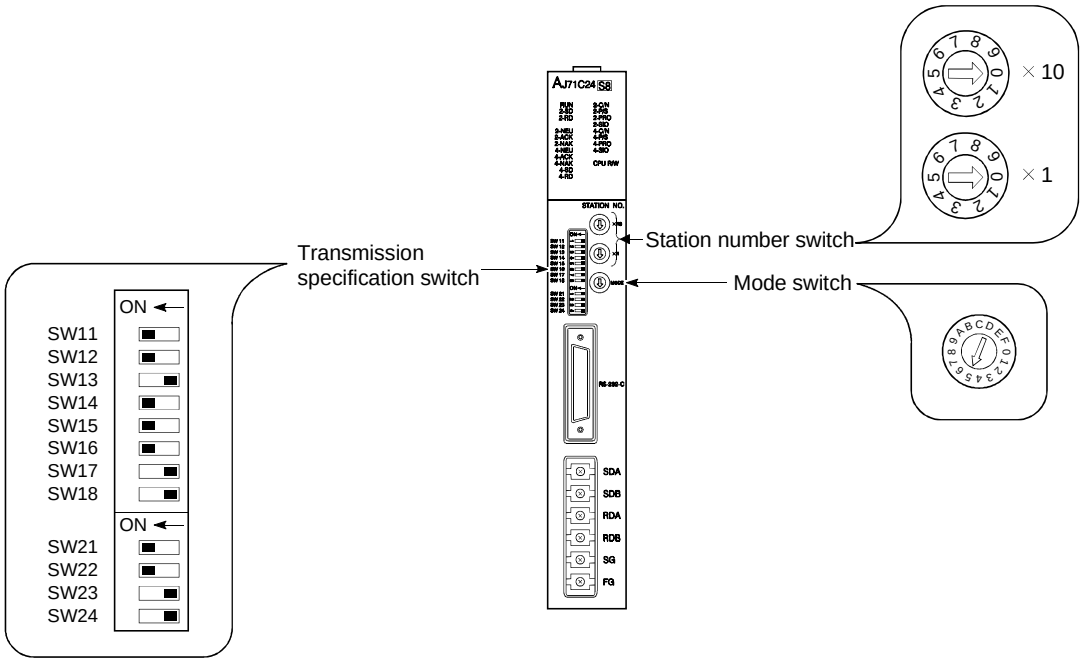
(c) When connecting to A1SJQC24(N)



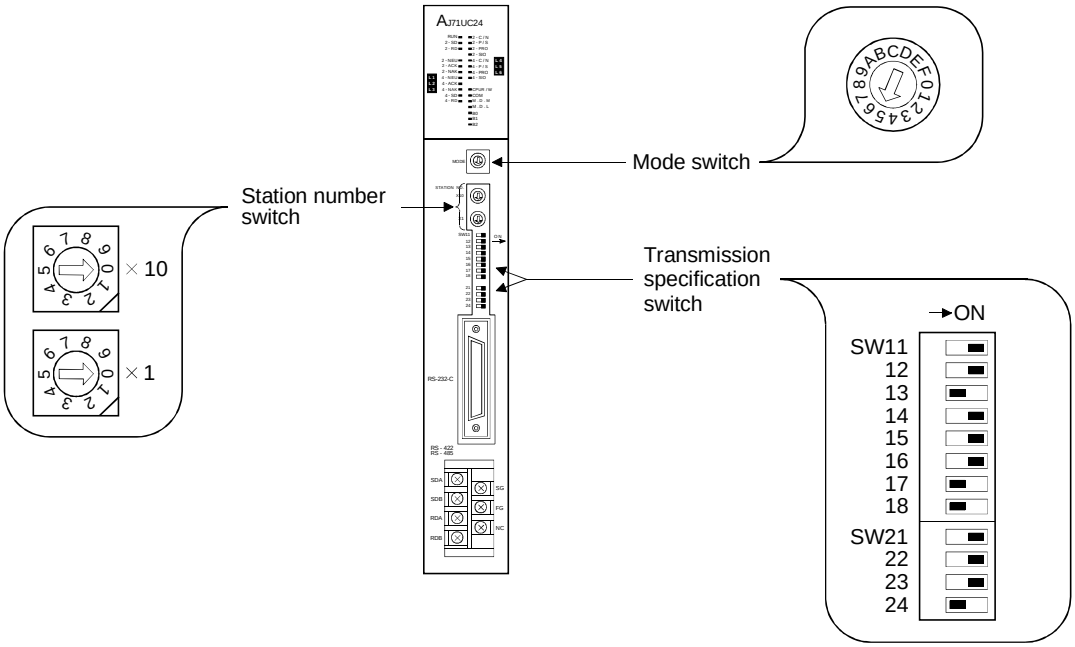
POINT

When the A1SJ71QC24N is used and the transmission speed is set to 38400bps, the GOT side transmission speed must be re-set.
For details of the setting method, refer to Section 5.2.2.

(d) When connecting to AJ71C24-S8



(e) When connecting to AJ71UC24



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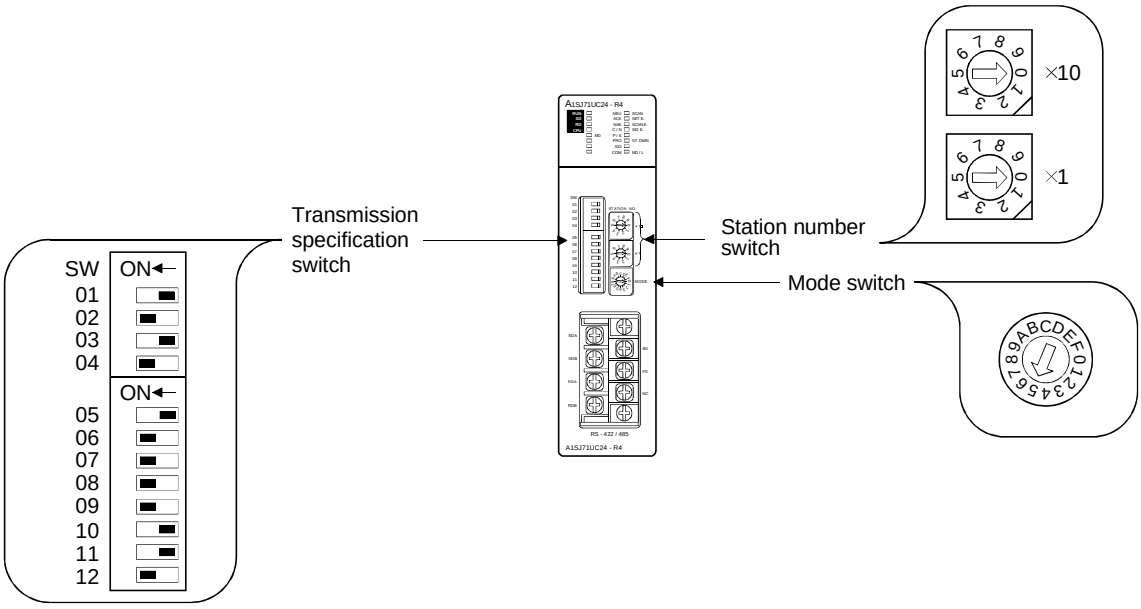
(f) When connecting to A1SJ71UC24-R4, A1SJ71C24-R4



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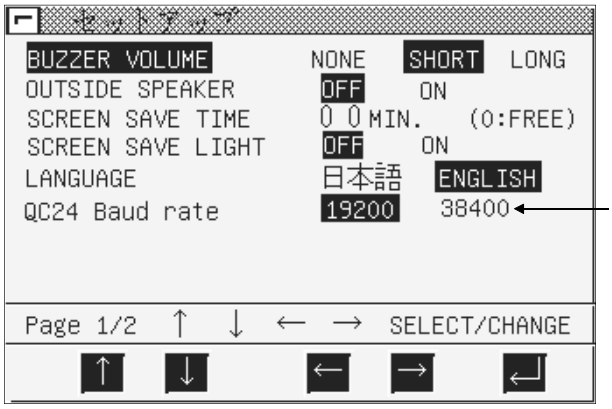
5.2.2 GOT side settings

When the GOT is connected with the computer link module or serial communication module for monitoring, the GOT side settings need not be made basically.
However, when you use the AJ71QC24N(-R4/-R2) or A1SJ71QC24N(-R2) and want to make data transmission of 38400bps, the GOT side settings must be changed.

Set the transmission speed on Setup of the GOT's utility function.
For details of the utility function, refer to the GOT-A900 Series Operating Manual (GT Works Version 5/GT Designer Version 5 Compatible Extended • Option Function Manual).



AJ71QC24N(-R4) and A1SJ71QC24N Baud rate
Choose the transmission speed for connection with AJ71QC24N(-R4) and A1SJ71QC24N.
(Factory-set to 19200bps)

POINT

The utility function can be started by switching power on again after installing the system programs (system OS, communication driver, etc.) into the GOT.
After the utility function has started, touch the [Setup] icon to display the setup screen, and make settings related to computer link connection.

5.3 Transmission specifications

The following transmission specifications apply to the case where communication is made between the GOT and computer link or serial communication module.

Item	Settings		
	Using QJ71C24(-R2)	Using AJ71QC24N(-R4/-R2) or A1SJ71QC24N(-R2)	Using any module other than those indicated on left
Transmission speed	38400bps	19200bps/38400bps	19200bps
Data length	8 bits		
Stop bit	1 bit		
Parity bit	Yes (odd)		
Sum check	Yes		

5.4 Connection cable

The user needs to fabricate the RS-232C cable / the RS-422 cable which is used to connect the GOT and PLC CPU side (serial communication, computer link module or PLC CPU with computer link function).
The RS-232C cable / the RS-422 cable connection diagram, connector and others are indicated below.

(1) RS-232C Cable

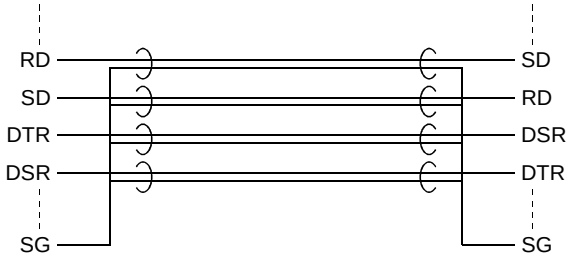
(a) Connection diagram

1) PLC CPU side connector of D-sub 9 pins

(QJ71C24(-R2), A1SJ71QC24(-R2), A1SJ71UC24-R2, A1SJ71C24-R2, A1SCPUC24-R2, A2CCPUC24)

PLC CPU side		Cable connection and direction of signal	GOT(D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
CD	1		1	CD
RD(RXD)	2		2	RD(RXD)
SD(TXD)	3		3	SD(TXD)
DTR(ER)	4		4	DTR(ER)
SG*1	5		5	SG
DSR(DR)	6		6	DSR(DR)
RS(RTS)	7		7	RS(RTS)
CS(CTS)	8		8	CS(CTS)
—	9			—

*1 If monitoring is hindered by external noise in A1SJ71QC24 (-R2) connection, connect each cable for signals other than SG and FG together with the cable for SG.



2) PLC CPU side connector of D-sub 25 pins

(AJ71QC24 (-R2), AJ71UC24)

PLC CPU side		Cable connection and direction of signal	GOT(D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
DSR(DR)	6		6	DSR(DR)
SG	7		7	RS(RTS)
CD	8		8	CS(CTS)
DTR(ER)	20		9	—

(b) Connector and connector cover

• GOT connector

Description	Model	Manufacturer
Connector	HDEB-9S(05)	HIROSE ELECTRIC CO.,LTD
Connector cover	HDE-CTH1(4-40)	HIROSE ELECTRIC CO.,LTD

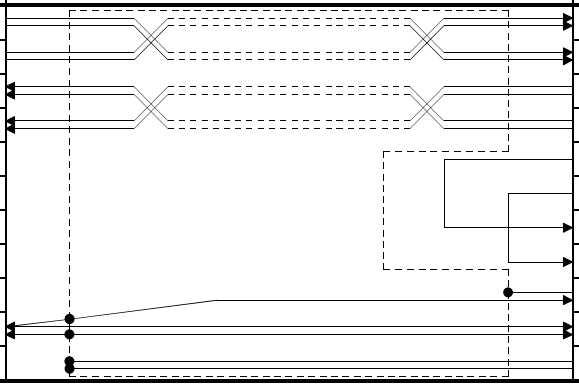
• Connector of Computer link unit
Refer to the user's manual of the computer link unit.

(c) Precautions for cable preparation

The cable must be 15 m (49.21 feet) or shorter.

(1) RS-422 cable

(a) Connection diagram

Computer link unit	Cable connection and direction of signal	GOT (D-sub 25-pin male metric screw type)	
Signal name		Pin No.	Signal name
SDA		2	RDA
SDB		15	RDB
RDA		3	SDA
RDB		16	SDB
		5	RSA
		18	RSB
		4	CSA
		17	CSB
		20	
SG		8	SG
		21	SG (shield)

(b) Connector, crimp terminal and cable

No.	Description	Model	Manufacturer
1)	Connector with cover	17JE-23250-02(D8A6)	DDK
2)	Round-type crimp terminal (recommended part)	V1.25-M4	Nippon Crimping Terminal
3)	20-core shield cable (recommended part)	RF VV-SB 1SB 24×20	Toyokuni Power Cables

(c) Precautions for cable preparation

• The maximum cable length depends on the PLC CPU connected.
Fabricate the cable within the following maximum cable length.

PLC CPU Connected to	Maximum Cable Length (m)
QCPU (Q mode)	1200
QCPU (A mode) QnACPU, ACPU	200

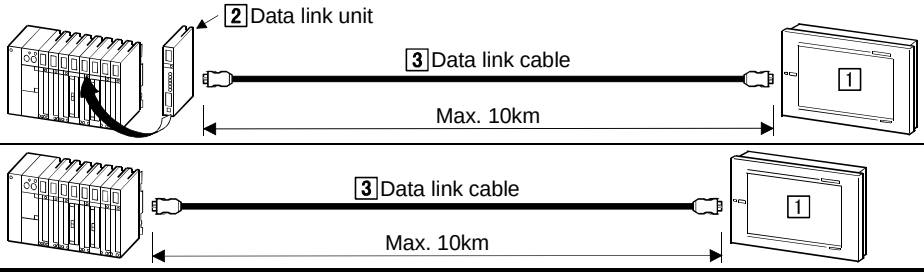
• When using 2) and 3) in the above table for preparing the cable :
If one electric wire is used, the wire may come off the crimp terminal.
Therefore, connect 2 wires as described in connection diagram (1).

CHAPTER6 MELSECNET CONNECTION (DATA LINK SYSTEM)

6.1 System configuration

(1) System configurations and connection conditions

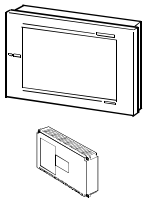
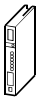
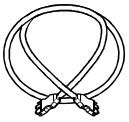
The following system configurations and connection conditions assume MELSECNET connection (data link system) with the PLC CPU.
The numbers (1 to 3) given in the system configurations denote the numbers (1 to 3) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected *1	Installation distance	
64 GOTs (max.)	Within 10km	

*1 The number of GOTs connectable is up to the number of connectable stations in the corresponding data link system.

(2) System equipment

The following table indicates the system equipment needed for connection with the PLC CPU.

Image	No.	Application	Type	
			GOT unit	Data link unit
	1	MELSECNET-connected (data link system) GOT*1	A985GOT(-V), A97*GOT, A960GOT, A956WGOT, A956GOT	A7GT-J71AP23, A7GT-J71AR23, A7GT-J71AT23B
	2	Data link unit	AJ71AP21, AJ71AR21, AJ71AT21B, A1SJ71AP21, A1SJ71AR21, A1SJ71AT21B	
	3	Data link cable*2	(Fiber-optic cable, coaxial cable, twisted pair cable)	

*1 The number of GOTs connectable is up to the number of connectable stations in the corresponding data link system.
*2 For details of the data link cables (fiber-optic cable, coaxial cable, twisted pair cable), refer to the MELSECNET, MELSECNET/B Data Link System Reference Manual.

6.2 Switch setting of data link unit

Describes about switch setting for using the data link unit.

(1) Station number switch

Since the data link unit is for local stations only, set the switch as follows :

MNET(II) : Stations 1 to 64 (0 : master station is not available)
MNET/B : Stations 1 to 31 (0 : master station is not available)

(2) Mode switch

When using the data link, set this switch to ONLINE.

(3) Baud rate switch (only for MNET/B)

Set the baud rate to the same level as designated for the master station.

6.3 Self-diagnosis test

Self-diagnosis test checks the hardware of the data link unit and for breakage of the link cable.
By using the mode switch of the data link unit, the following three modes can be selected.
For test procedures and analysis of the results, refer to the reference manuals of MELSECNET or MELSECNET/B data link system.

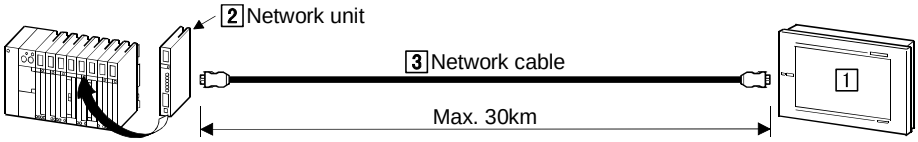
Switch setting	Description	Contents
5	Station-to-station test mode (Main station)	This mode checks the line between 2 stations. The station with more recent number is set as the main station and the one with older number as sub-station.
6	Station-to-station test mode (Sub station)	
7	Self-turning test	This mode checks the hardware including transmission/reception circuit by using a single data link unit.

CHAPTER7 MELSECNET CONNECTION (NETWORK SYSTEM)

7.1 System configuration

(1) System configurations and connection conditions

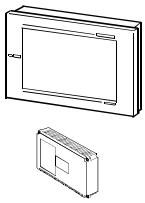
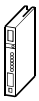
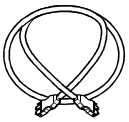
The following system configuration and connection conditions assume MELSECNET connection (network system) with the PLC CPU.
The numbers (1 to 3) given in the system configurations denote the numbers (1 to 3) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
63 GOTs (max.)	Within 30km	

*1 The number of GOTs connectable is up to the number of connectable stations in the corresponding network system.

(2) System equipment

The following table indicates the system equipment needed for connection with the PLC CPU.

Image	No.	Application	Type	
			GOT unit	Network unit
	1	MELSECNET-connected (network system) GOT*1	A985GOT(-V), A97*GOT, A960GOT, A956WGOT, A956GOT	A7GT-J71LP23, A7GT-J71BR13
	2	Network unit	QJ71LP21, QJ71BR11, AJ71LP21, AJ71BR11, A1SJ71LP21, A1SJ71BR11	
	3	Network cable*2	(Fiber-optic cable, coaxial cable, twisted pair cable)	

*1 The number of GOTs connectable is up to the number of connectable stations in the corresponding network system.
*2 For details of the network cables (fiber-optic cable, coaxial cable, twisted pair cable), refer to the MELSECNET/10 Network System Reference Manual.

7.2 Switch setting of network unit

Describes about switch setting for using the data link unit.

(1) Network No. switch

Designates the network number connected to the network unit.

(2) Group No. switch

Designates the desired group number to incorporate the network unit.
If no group is designated, set this switch to 0.

(3) Station number switch

Designates the network unit as follows. Setting differs between optical loop system and coaxial bus system.

Optical loop system (When using A7GT-J71LP23) : Stations 1 to 64
Coaxial bus system (When using A7GT-J71BR13) : Stations 1 to 32

(4) Mode switch

When using network, set this switch to ONLINE.

7.3 Self-diagnosis test

Self-diagnosis test checks the hardware of the data link unit and for breakage of the link cable.
By using the mode switch of the data link unit, the following 10 modes can be selected.
For test procedures and analysis of the results, refer to the reference manual of MELSECNET/10 network system.

Switch setting	Description	Contents
3	Loop test (Main loop)	Checks lines after all stations are connected. Stations other than test object is set to ONLINE before the check. (Only for optical loop system)
4	Loop test (Sub loop)	
5	Station-to-station test mode (Main station)	Checks the line between 2 stations. The station with more recent number is set as the main station and the one with older number as sub-station.
6	Station-to-station test mode (Sub-station)	
7	Self-turning test	Checks the hardware including transmission/reception circuit by using a single network unit.
8	Internal self-turning test	Checks the hardware including transmission/reception circuit by using a single network unit.
9	Hardware test	This mode checks the hardware in the network unit.
D	Network No. confirmation	Confirms the network number, group number, and station number designated for the network.
E	Network No. confirmation	
F	Station No. confirmation	

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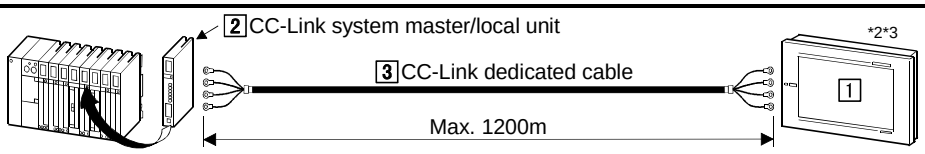
Chapter 8 CC-Link connection (intelligent device station)

8.1 System configuration

(1) System configuration and connection conditions

The following system configuration and connection conditions assume CC-Link connection (intelligent device station) with the PLC CPU.
The numbers (1 to 3) given in the system configuration denote the numbers (1 to 3) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
26 GOTs (Max.)	Within 1200m (Longest)	

*1 The number of connected GOTs varies with the configuration of the CC-Link system, and the installation distance (maximum transmission distance) varies with the transmission speed of the CC-Link system.
For details, refer to the CC-Link System Master/Local Unit User's Manual (Details).

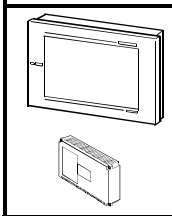
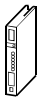
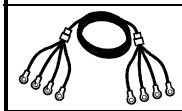
*2 On the CC-Link system, the GOT is handled as a slave station as described below.

Item	Description
CC-Link station type	Intelligent device station
Number of occupied stations	1 station/4 stations (selectable)

*3 A termination resistor is needed to install the GOT at the end of the CC-Link system.

(2) System equipment

The following table indicates the system equipment needed for connection with the PLC CPU.

Image	No.	Application	Type	
			GOT unit	CC-Link communication unit
	1	CC-Link connected (intelligent device station) GOT	A985GOT(-V), A97*GOT, A960GOT, A956WGOT, A956GOT	A8GT-J61BT13
	2	CC-Link system master/local unit	QJ61BT11, QJ61BT11N *1, AJ61QBT11, A1SJ61QBT11, AJ61BT11, A1SJ61BT11	
	3	CC-Link dedicated cable	Refer to the user's manual of the CC-Link master/local unit used.	

*1 Set the station No. that corresponds to the GOT as Ver.1 intelligent device station in the CC-Link parameter settings of GX Developer.

8.2 Monitoring Specification

8.2.1 Monitoring Overview

When the A8GT-J61BT13 is used, the GOT has the following two monitoring methods.

Monitoring Method	Monitoring by Transient Transmission	Monitoring by Cyclic Transmission
Contents	Devices of the PLC CPU on the CC-Link system Master/local station are specified and monitored.	Remote inputs/outputs and remote registers assigned to the Master station by CC-Link parameter setting are specified and monitored.
Advantage	CC-Link parameter setting sequence program*2 is required but GOT communication sequence program*2 is not needed. (For more information, refer to Chapter 5.)	Data communication processing speed*1 is high.
Disadvantage	Data communication processing speed*1 is lower than that of cyclic transmission.	• Write from the GOT (read command from the master station) can be performed to only the remote outputs and remote registers of the master station assigned to the GOT and to the GOT's internal registers. • GOT communication sequence program*2 is necessary.

*1 For details of the data communication processing speed (object display speed), refer to the GT Works Version 5/GT Designer Version 5 Reference Manual.

*2 This program is not needed if the CC-Link parameter setting sequence program and GOT communication sequence program satisfy the following conditions.

- As the PLC CPU of the master station, use the QCPU (Q mode) or QnACPU whose number given in the DATE field of the rating plate is "9707B" or later.
- Use GX Developer or SW2 -GPPW and make CC-Link parameter setting and batch refresh device setting in the CC-Link setting on the package.
  For details of the setting methods, refer to the CC-Link System Master/Local Module User's Manual (Details).

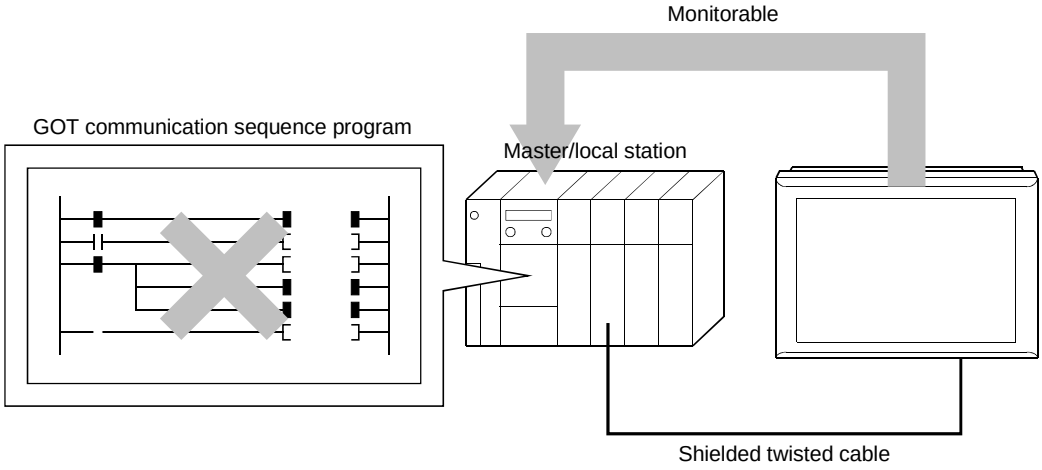
POINT

In transient transmission, connection of several (five or more as a guideline) intelligent device stations (GOTs and intelligent device units) reduces data communication speed.
To raise data communication speed, increase the CC-Link system, for example, and do not connect five or more intelligent device stations to a single CC-Link system.

(1) Monitoring by transient transmission

The devices of the PLC CPU on the CC-Link system Master/local station are specified and monitored.

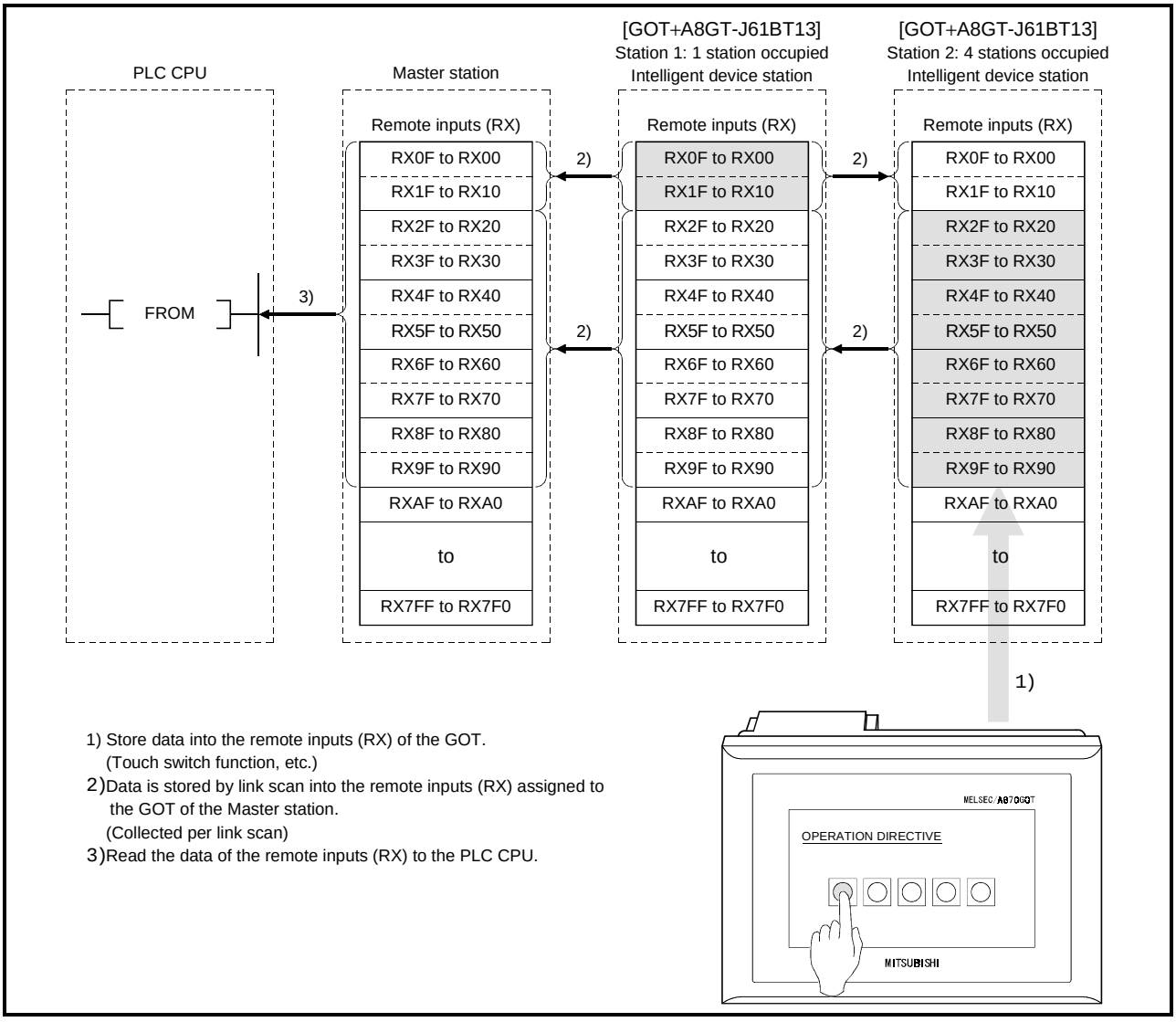
By merely specifying the devices to be monitored on the GOT, those devices can be monitored without creating the GOT communication sequence program.



(2) Monitoring by Cyclic transmission

All remote inputs/outputs and remote registers assigned to the Master station by CC-Link parameter setting can be specified and monitored.
(Not only the area assigned to the GOT in the Master station but also the regions of the other stations can be monitored.)
This section describes the remote inputs, remote outputs, remote registers (write area) and remote registers (read area) separately, but all data can be monitored on the same screen.

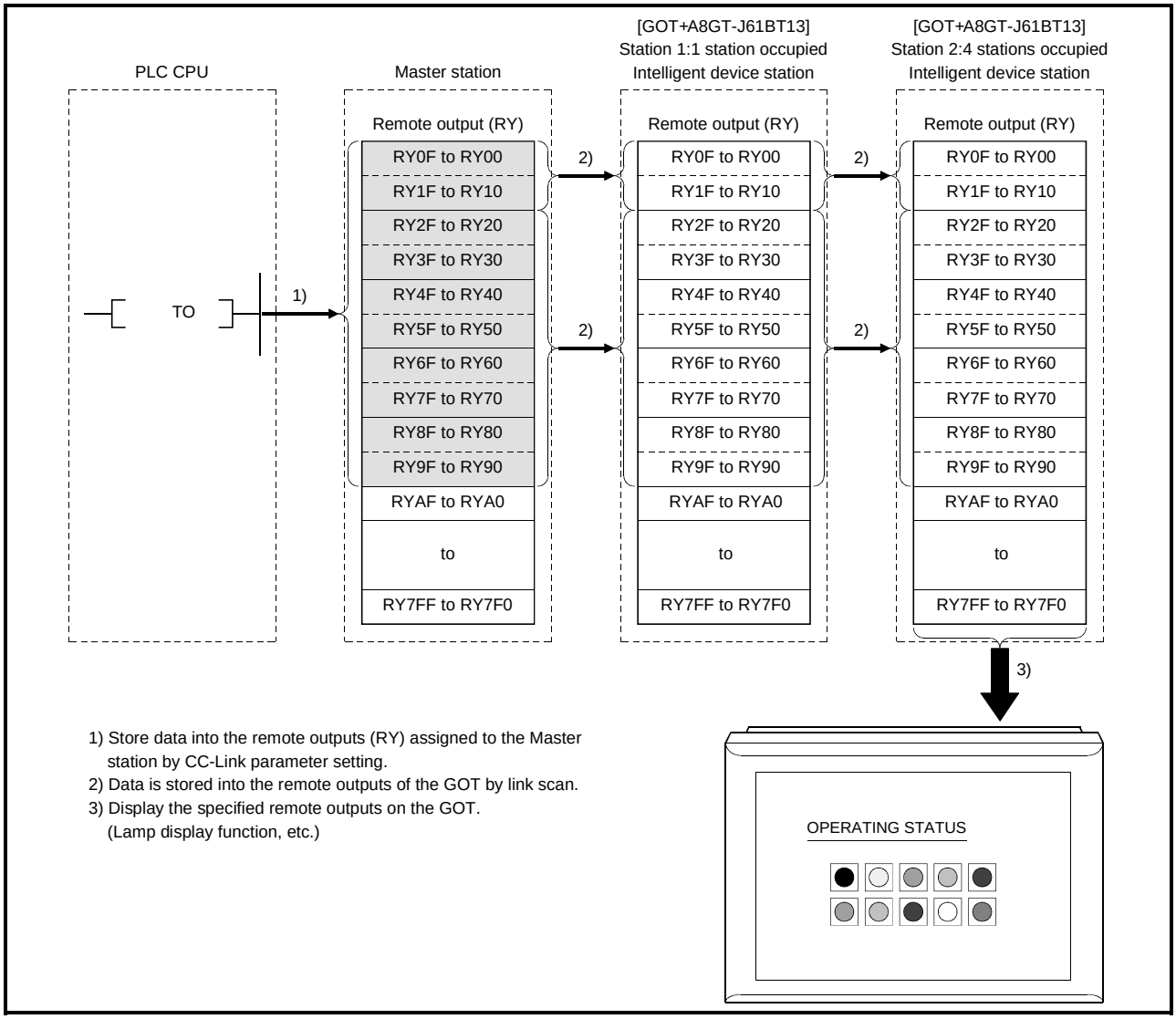
[Remote inputs] ... Input function area of the GOT



POINT

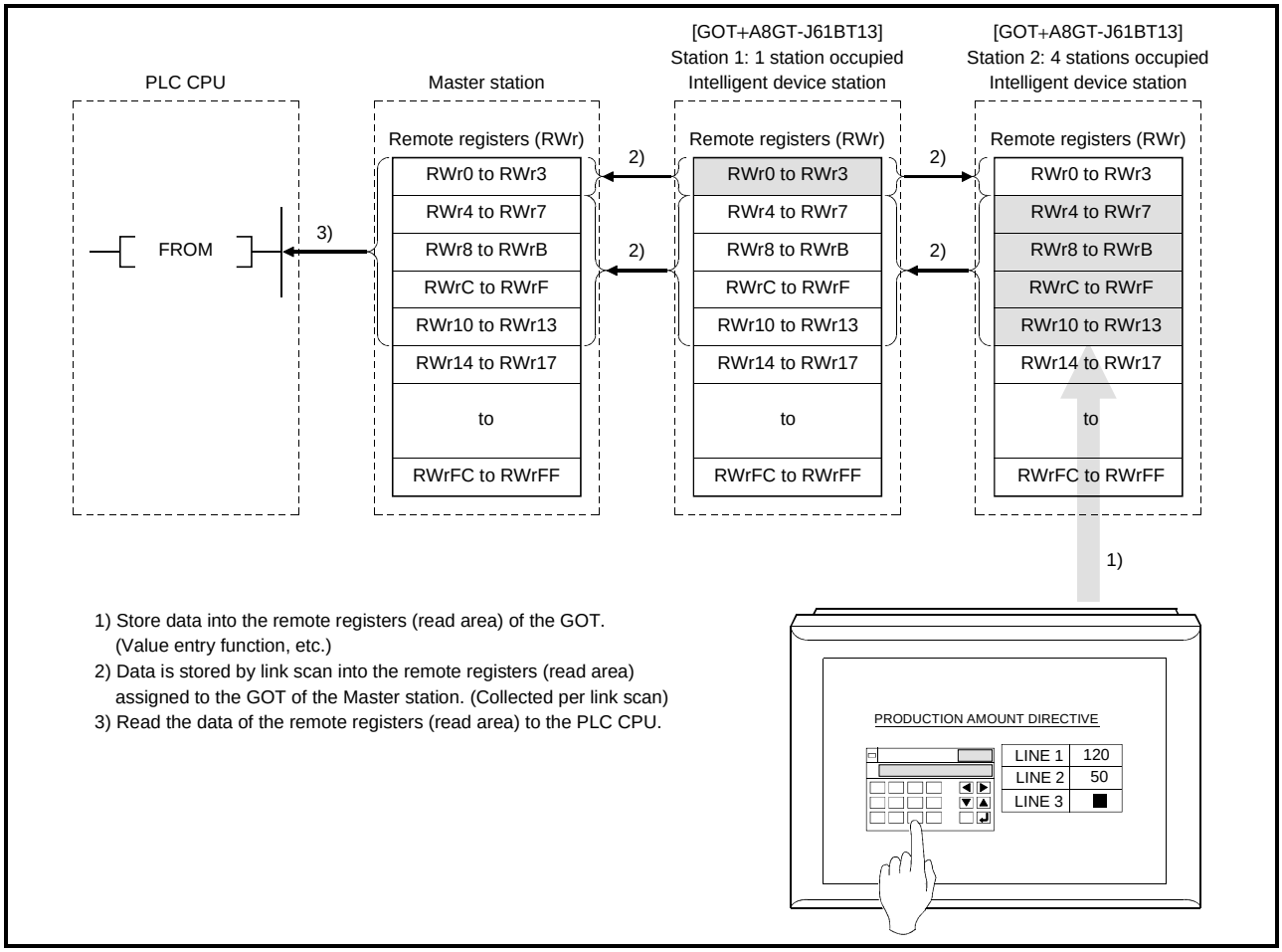
The GOT can enter data (touch switch function, etc.) into the remote inputs (RX) assigned to the GOT of the Master station.
Though the GOT cannot enter data (touch switch function, etc.) into the other remote inputs (RX), it can display data (lamp display function, etc.).

[Remote outputs] ... Display function area of the GOT



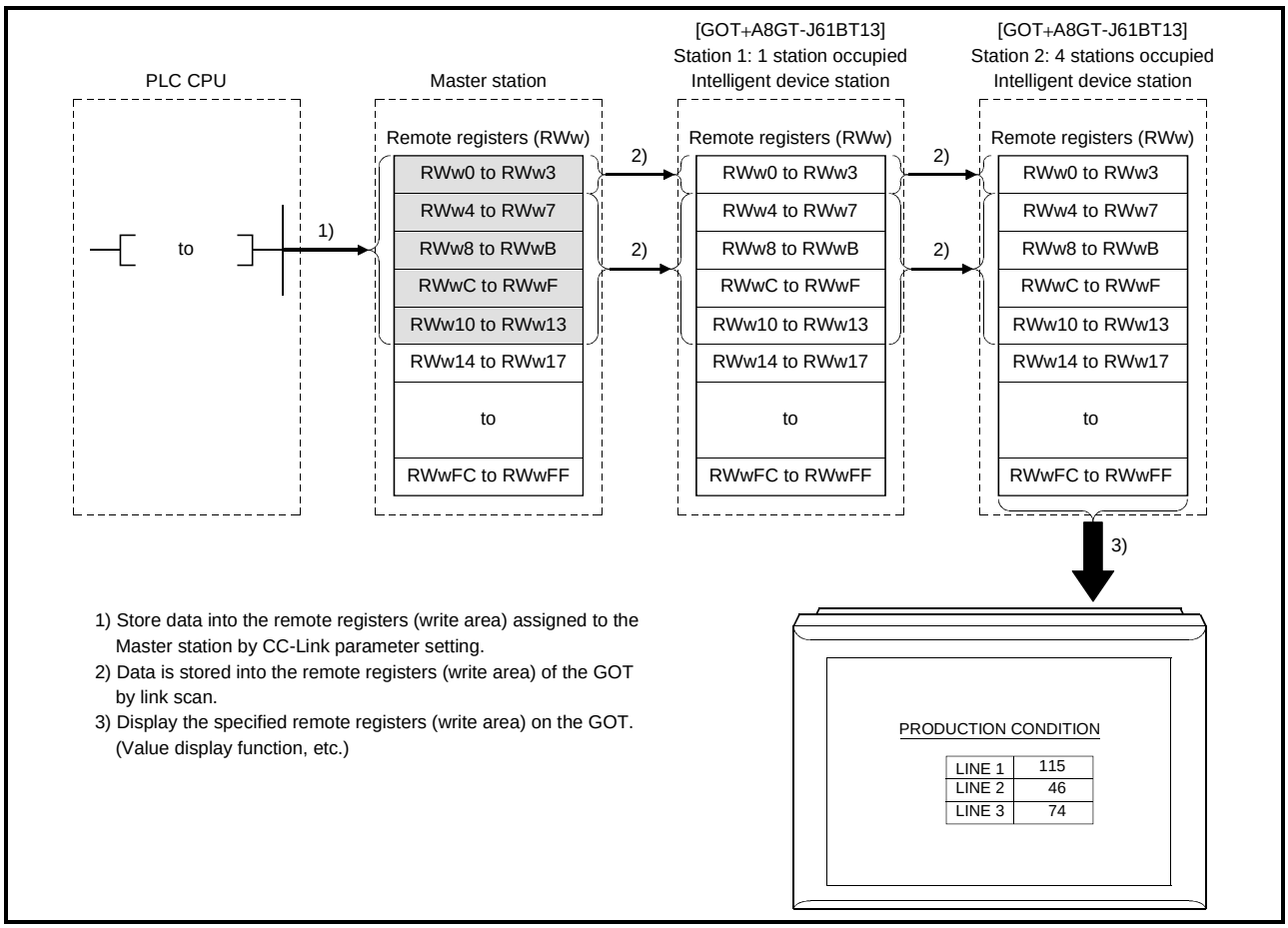
1) Store data into the remote outputs (RY) assigned to the Master station by CC-Link parameter setting.
2) Data is stored into the remote outputs of the GOT by link scan.
3) Display the specified remote outputs on the GOT.
(Lamp display function, etc.)

[Remote registers (read area)] ... Input function area of the GOT



POINT
The GOT can enter data (value entry function, etc.) into the remote registers (read area) assigned to the GOT of the Master station. Though the GOT cannot enter data (value entry function, etc.) into the other remote registers (read area), it can display data (value display function, etc.).

[Remote registers (write area)] ... Display function area of the GOT



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8.2.2 I/O Signals Transfered to/from the Master module

The following table lists the I/O signals assigned to the GOT.
The I/O signals differ according to the set number of occupied stations (1 or 4 stations).
n in the table indicates the address assigned to the Master module by station number setting.

Signal Direction : GOT → Master module			Signal Direction : Master module → GOT		
Device number		Signal name	Device number		Signal name
Number of occupied stations			Number of occupied stations		
1 station	4 stations		1 station	4 stations	
RXn0 to RXnF	RXn0 to RX(n+6)F	User area	RYn0 to RYnF	RYn0 to RY(n+6)F	User area
RX(n+1)0 to RX(n+1)A	RX(n+7)0 to RX(n+7)A	Reserved	RY(n+1)0 to RY(n+1)A	RY(n+7)0 to RY(n+7)A	Reserved
RX(n+1)B	RX(n+7)B	Remote ready flag*1	RY(n+1)B	RY(n+7)B	
RX(n+1)C to RX(n+1)F	RX(n+7)C to RX(n+7)F	Reserved	RY(n+1)C to RY(n+1)F	RY(n+7)C to RY(n+7)F	

*1 The remote ready flag is on during startup of the GOT.
It switches on when GOT power is switched on, hardware reset is made, or the GOT is ready to operate.
If GOT power is on, the remote ready flag is off when offline operation is performed (during OS installation or screen data downloading) or while initial processing is executed.
Use it for the interlock ladder when writing or reading data to or from the CC-Link Master station.

DANGER

- Among the output signals from the Master module to the GOT, do not output the reserved signals.
  Doing so can cause the PLC system to misoperate.

8.2.3 Remote Register Assignment

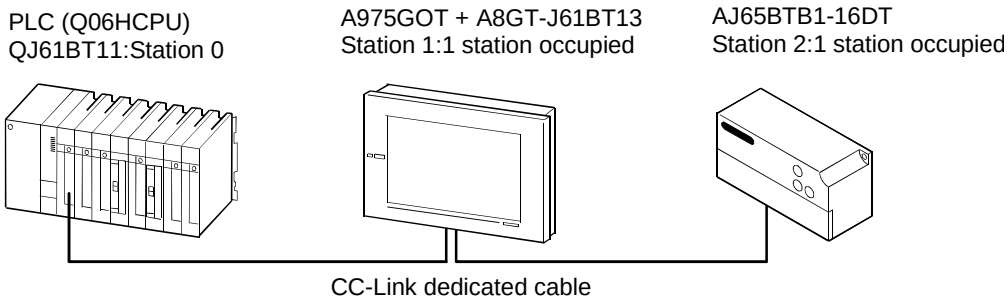
The following is the assignment of the remote registers of the GOT.
The remote registers differ according to the set number of occupied stations (1 or 4 stations).
All areas are use areas.
m and n in the table indicate the addresses assigned to the Master module by station number setting.

Transfer Direction	Addresses		Description	Default Value
	Number of occupied stations			
	1 station	4 stations		
Master station → GOT	RWwm to RWwm+3	RWwm to RWwm+F	User write area	0
GOT → Master station	RWrn to RWrn+3	RWrn to RWrn+F	User read area	0

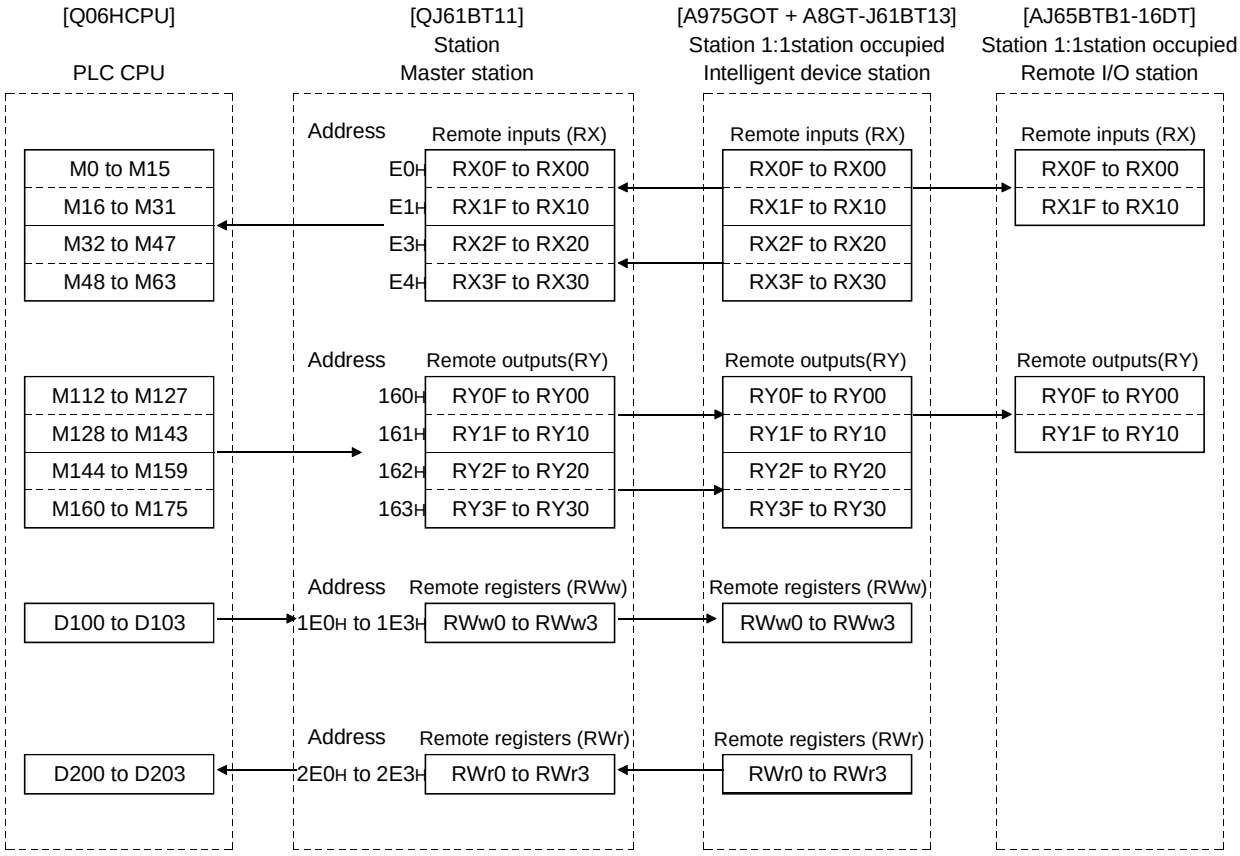
8.3 Programming

The programming example described in this section is designed to make parameter setting to the master module and communication between the GOT and remote I/O station in the following system.
Refer to the CC-Link System Remote I/O Module User's Manual (Details) for the remote I/O station, and to the CC-Link System Master/Local Module User's Manual (Details) for details of the parameter setting made to the master module.

8.3.1 System configuration



8.3.2 Relationships between corresponding devices



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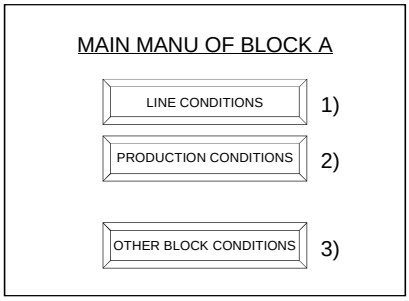
8.3.3 Monitor screen examples

The following are the monitor screen examples of the GOT.
Refer to the help function of GT Designer for the way to set each object.

(1) Common setting

Setting Item	PLC Type	GOT Type	Base Screen Switching Device
Settings	MELSEC-QnA,Q	A97*GOT/GT SoftGOT	D300

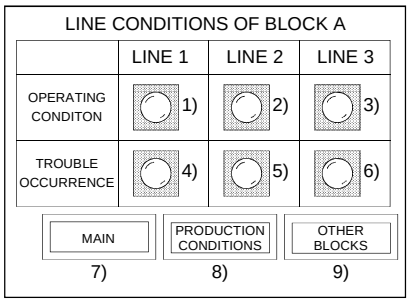
(2) Base screen No. 1 settings



No.	Object Function to Be Set	Setting	Operation
1)	Touch key function	Base screen switching fixed value: 2	Setting made to switch to base screen No. 2.
2)	Touch key function	Base screen switching fixed value: 3	Setting made to switch to base screen No. 3.
3)	Touch key function	Base screen switching fixed value: 4	Setting made to switch to base screen No. 4.

(3) Base screen No. 2 settings

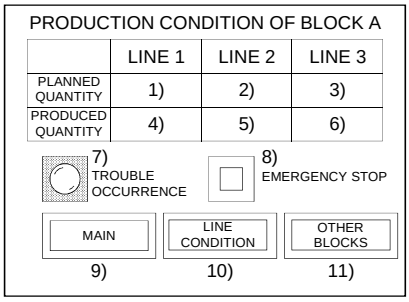
The devices of the master station assigned to the AJ65BTB1-16DT (remote I/O station) are monitored. (Monitor using cyclic transmission)



No.	Object Function to Be Set	Setting	Operation
1)	Lamp display function	Monitor device: X0 (RX0) to M0	Settings made for the remote I/O station to display on the GOT the line operating statuses (ON/OFF) stored in M0 to M3.
2)	Lamp display function	Monitor device: X1 (RX1) to M1	
3)	Lamp display function	Monitor device: X2 (RX2) to M2	
4)	Lamp display function	Monitor device: Y0 (RY0) from M112	Settings made to display on the GOT the fault occurrence information output to the remote I/O station.
5)	Lamp display function	Monitor device: Y1 (RY1) from M113	
6)	Lamp display function	Monitor device: Y2 (RY2) from M114	
7)	Touch key function	Screen switching device: Fixed at 1	Setting made to switch to base screen No. 1.
8)	Touch key function	Screen switching device: Fixed at 3	Setting made to switch to base screen No. 3.
9)	Touch key function	Screen switching device: Fixed at 4	Setting made to switch to base screen No. 4.

(4) Base screen No. 3 settings

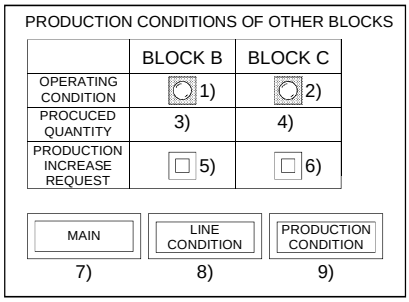
The devices of the master station assigned to the GOT (intelligent device station) are monitored. (Monitor using cyclic transmission)



No.	Object Function to Be Set	Setting	Operation
1)	Numerical input function	Write device Wr4 to D204	Settings made to store the values entered with the numerical input function into D204-D206.
2)	Numerical input function	Write device Wr5 to D205	
3)	Numerical input function	Write device Wr6 to D206	
4)	Numerical display function	Write device Ww4 from 104	Settings made to display the values stored in D104-D106.
5)	Numerical display function	Write device Ww5 from 105	
6)	Numerical display function	Write device Ww6 from 106	
7)	Lamp display function	Monitor device: Y20 (RY20) from M144	Settings made to display on the GOT the fault occurrence information stored in M144.
8)	Touch key function	Bit ALT: X20 (RX20) to M32	Setting made to store the ON/OFF information entered with the touch key function into M32.
9)	Touch key function	Screen switching device: Fixed at 1	Setting made to switch to base screen No. 1.
10)	Touch key function	Screen switching device: Fixed at 2	Setting made to switch to base screen No. 2.
11)	Touch key function	Screen switching device: Fixed at 4	Setting made to switch to base screen No. 4.

(5) Base screen No. 4 settings

The PLC CPU devices of the master station are directly specified and monitored. (Monitor using Transient transmission)



No.	Object Function to Be Set	Setting	Operation
1)	Lamp display function	Monitor device: M200	Settings made to display on the GOT the values stored in M200-M201.
2)	Lamp display function	Monitor device: M201	
3)	Numerical input function	Write device D300	Settings made to store the values entered with the numerical input function into D300-D301.
4)	Numerical input function	Write device D301	
5)	Touch key function	Bit ALT: M202	Settings made to store the ON/OFF information entered with the touch key function into M200-M201.
6)	Touch key function	Bit ALT: M204	
7)	Touch key function	Screen switching device: Fixed at 1	Setting made to switch to base screen No. 1.
8)	Touch key function	Screen switching device: Fixed at 2	Setting made to switch to base screen No. 2.
9)	Touch key function	Screen switching device: Fixed at 3	Setting made to switch to base screen No. 3.

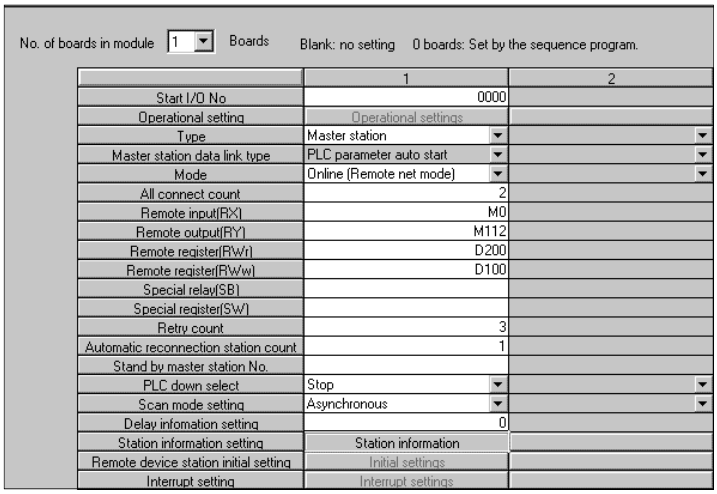
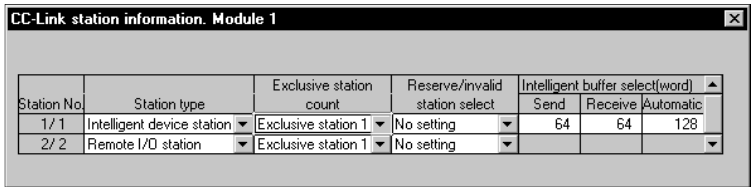
8.3.4 A8GT-J61BT13 switch setting example

The following is an example of setting the A8GT-J61BT13 switches.

Switch Name		Setting	Description
mode setting switch		0	Online (data link enabled and with automatic return)
Station number setting switches	×10	0	Station No. 1
	×1	1	
Transmission baudrate setting switch		0	156kBPS
Condition setting switches	SW1	OFF	Input data state of data link error station: Clear
	SW2	OFF	Number of occupied stations: 1 station

8.3.5 Parameter setting example (setting using GX Developer)

In the network parameter CC-Link list setting, set the first I/O No., total number of stations connected, remote I/O refresh devices, remote register refresh devices, and station information setting.
Setting the items of the following CC-Link list setting and CC-Link station information makes a GOT communication sequence program unnecessary.

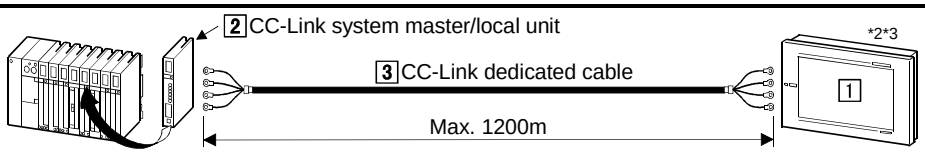
Item	Setting Screen Example
CC-Link list setting	
CC-Link station information	

Chapter 9 CC-Link connection (remote device station)

9.1 System configuration

(1) System configuration and connection conditions

The following system configuration and connection conditions assume CC-Link connection (remote device station) with the PLC CPU.
The numbers (1 to 3) given in the system configuration denote the numbers (1 to 3) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
32 GOTs (Max.)	Within 1200m (Longest)	

*1 The number of connected GOTs varies with the configuration of the CC-Link system, and the installation distance (maximum transmission distance) varies with the transmission speed of the CC-Link system.
For details, refer to the CC-Link System Master/Local Unit User's Manual (Details).

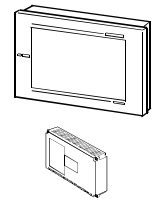
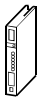
*2 On the CC-Link system, the GOT is handled as a slave station as described below.

Item	Description
CC-Link station type	Remote device station
Number of occupied stations	2 stations/4 stations (selectable)

*3 A termination resistor is needed to install the GOT at the end of the CC-Link system.

(2) System equipment

The following table indicates the system equipment needed for connection with the PLC CPU.

Image	No.	Application	Type	
			GOT unit	CC-Link communication unit
	1	CC-Link connected (remote device station) GOT	A985GOT(-V), A97*GOT, A960GOT, A956WGOT, A956GOT	A8GT-J61BT15
	2	CC-Link system master/local unit	QJ61BT11, QJ61BT11N *1, AJ61QBT11, A1SJ61QBT11, AJ61BT11, A1SJ61BT11	
	3	CC-Link dedicated cable	Refer to the user's manual of the CC-Link master/local unit used.	

*1 Set the station No. that corresponds to the GOT as Ver.1 intelligent device station in the CC-Link parameter settings of GX Developer.

9.2 Monitoring Specification

9.2.1 Monitoring Overview

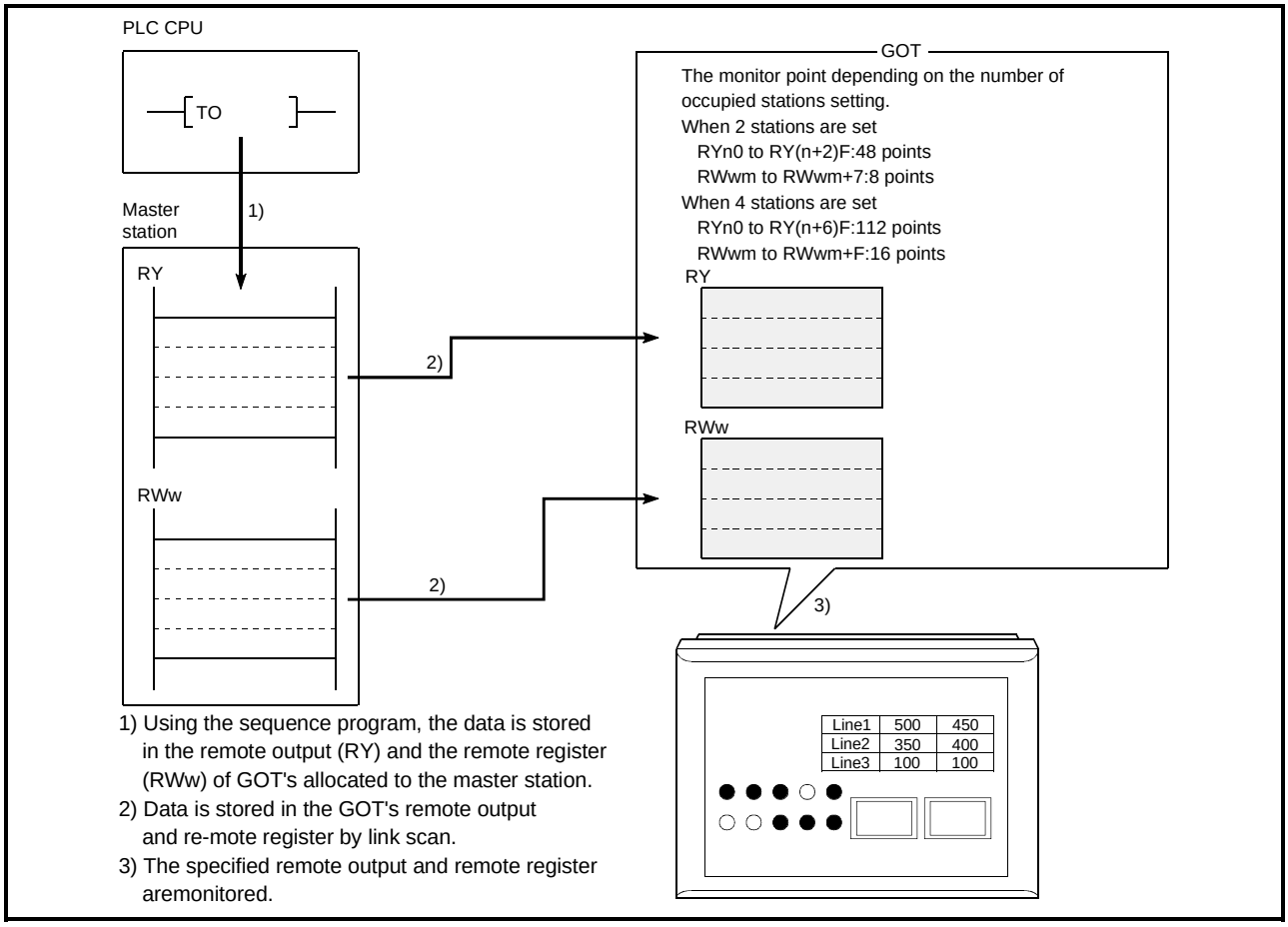
When the A8GT-J61BT15 is used, the GOT has the following two monitoring methods.

Monitor Method	Normal Monitor	Dedicated Command Monitor
Description	The remote inputs/outputs and remote registers of the GOT assigned to the remote device station in the CC-Link parameter setting are specified and monitored.	The remote register area is used as the GOT internal device transfer command area to specify and monitor the GOT internal devices.
Advantage	Data update processing speed is high.	Data update processing speed is high. Since a dedicated command is executed to develop data in the GOT internal word devices (GD0 to GD1023), multiple pieces of information, such as the operating status, production and operation directives, can be monitored within one screen. (The number of devices that can be displayed on one screen is larger than that of normal monitor.)
Disadvantage	As the remote register assignment area of the GOT is small, the number of devices that can be displayed on one screen is small.	A sequence program is needed to execute the dedicated command.

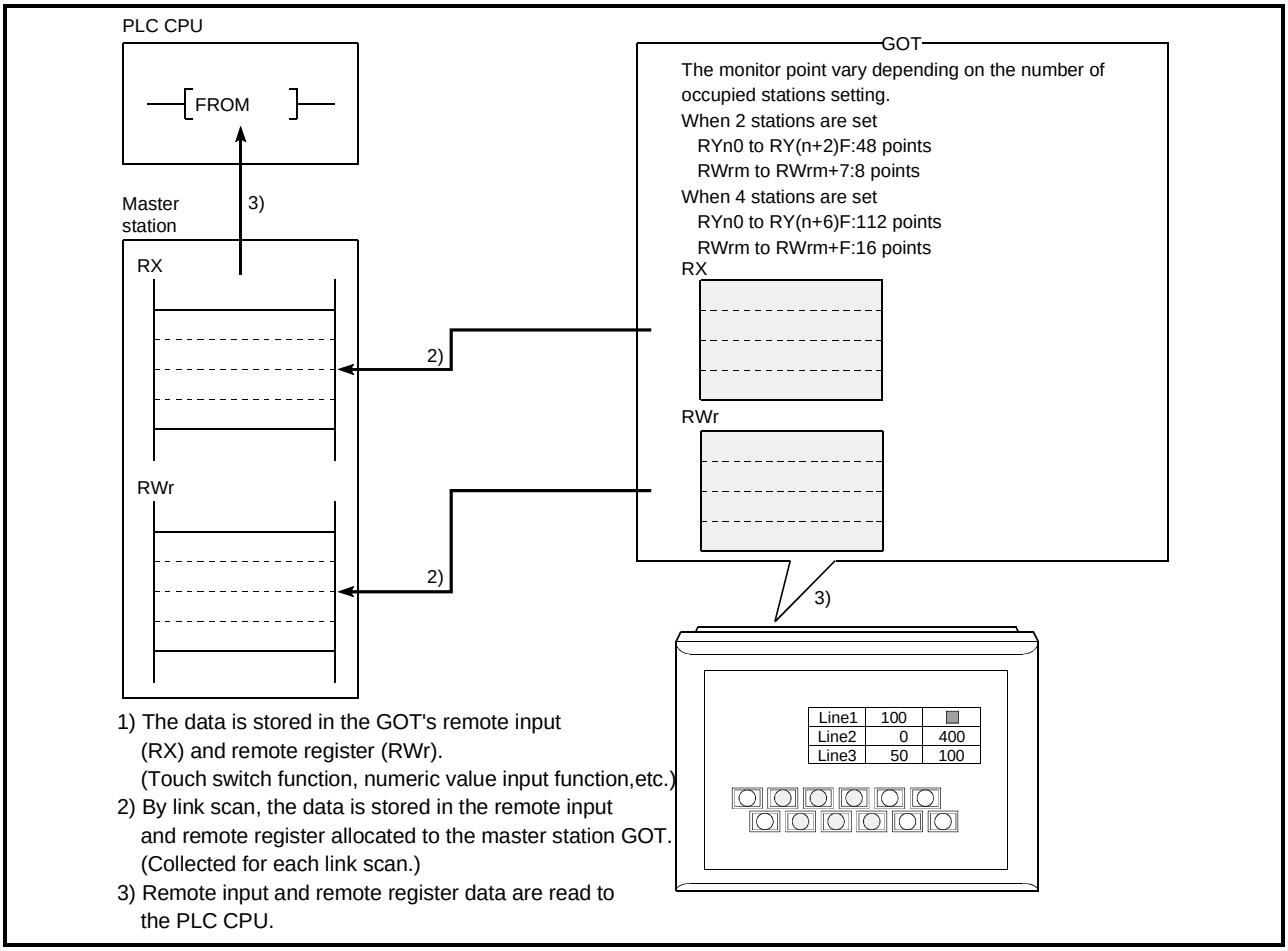
9 - 2

(1) Normal monitor method
In the monitor overview, the remote output and remote register (write area) are described
separately from the remote input and remote register (read area), but all of the information
can be displayed on one screen for monitoring.

Monitor for remote output and remote register (write area)



Monitor (write from GOT) for remote input and remote register (read area)



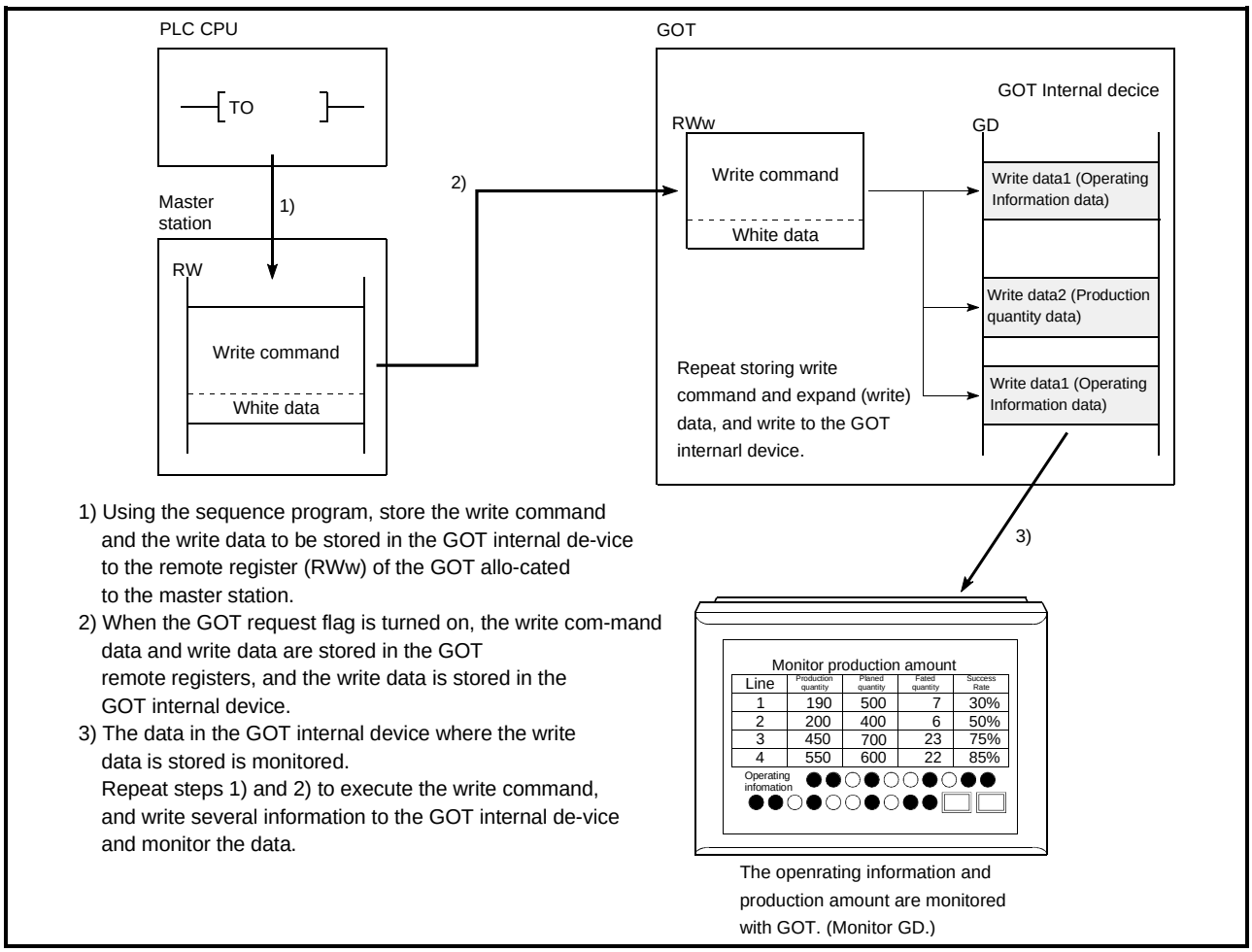
POINT

The GOT can input (e.g. touch key function) data to only the remote inputs (RX) and remote registers (RWr) assigned the master station.
It cannot input (e.g. touch key function) or display (e.g. lamp display function) data to the other remote inputs (RX) and remote registers (RWr).

(2) Dedicated command monitor method

The remote register (write area) data is stored in the GOT internal device using dedicated commands and monitoring is performed.
Refer to Section 9.2.5 for the dedicated commands.

When the GOT internal device write command is executed



1) Using the sequence program, store the write command and the write data to be stored in the GOT internal de-vice to the remote register (RWw) of the GOT allo-cated to the master station.
2) When the GOT request flag is turned on, the write com-mand data and write data are stored in the GOT remote registers, and the write data is stored in the GOT internal device.
3) The data in the GOT internal device where the write data is stored is monitored.
Repeat steps 1) and 2) to execute the write command, and write several information to the GOT internal de-vice and monitor the data.

The openrating information and production amount are monitored with GOT. (Monitor GD.)

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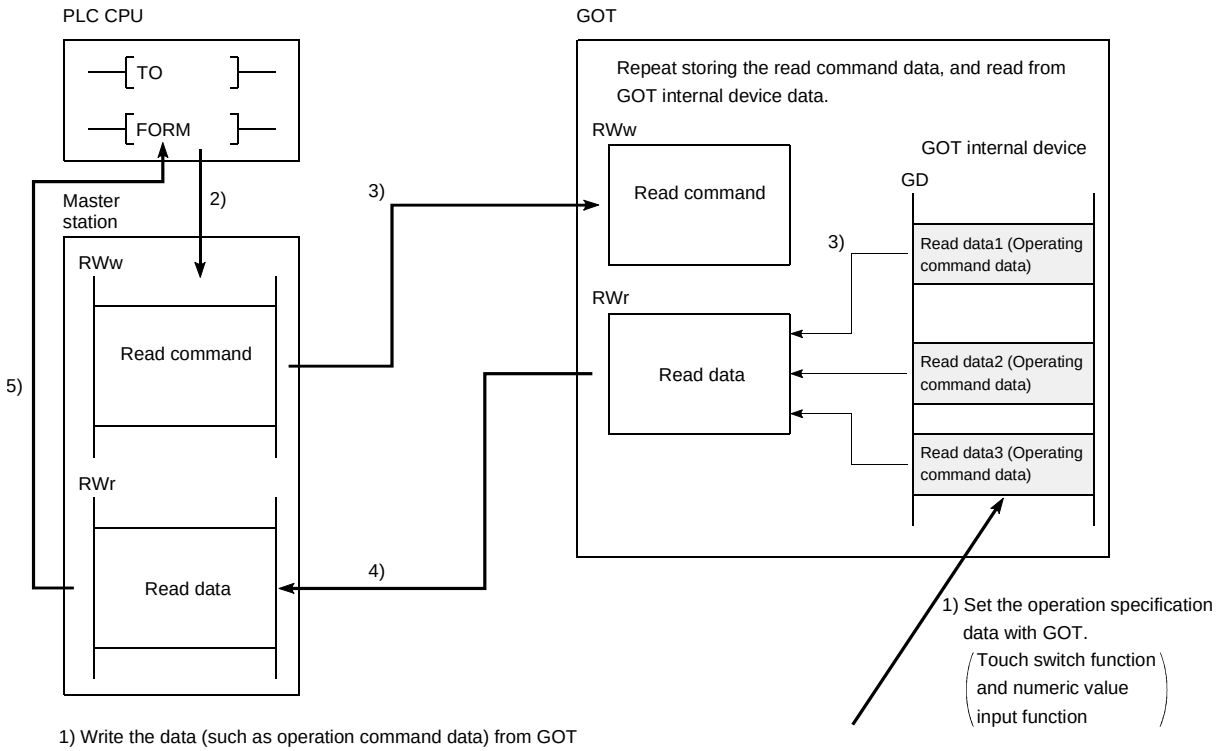
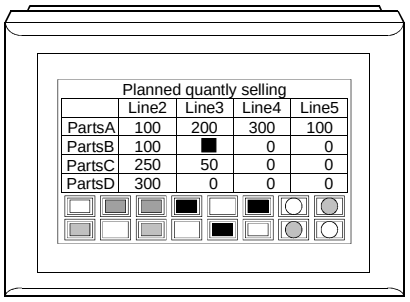
When the GOT internal device read command is executed



1) Write the data (such as operation command data) from GOT to the GOT internal device.
2) Using the sequence program, store the read command data to the remote register (RWw).
3) When the GOT request flag is turned on, the read com-mand data is stored in the GOT remote register(RWw), and the data in the specified GOT internal device is read to the remote device(RWr).
4) By link scan, the data is stored in the remote device(RWr) of the GOT allocated to the master station.
5) Using the sequence program, read the remote device(RWr) data to the PLC CPU.
Repeat the above steps and execute the read commands, then read several information to the PLC CPU.



Planned quantly selling

	Line2	Line3	Line4	Line5
PartsA	100	200	300	100
PartsB	100	■	0	0
PartsC	250	50	0	0
PartsD	300	0	0	0

9.2.2 I/O Signals to the Master Module

(1) List of I/O signals

The I/O signal allocation is shown below.
The I/O signals varies depending on the set number of occupied stations (2 stations or 4 stations).
The "n" in the table indicates the address allocated to the master module by the station number setting.

(a) When monitoring using the normal monitor method

Signal Direction : GOT ⟶ Master module			Signal Direction : Master module ⟶ GOT		
Device number		Signal name	Device number		Signal name
Number of occupied stations			Number of occupied stations		
2 station	4 stations		2 station	4 stations	
RXn0 to RX(n+2)F	RXn0 to RX(n+6)F	User area	RYn0 to RY(n+2)F	RYn0 to RY(n+6)F	User area
RX(n+3)0 to RX(n+3)A	RX(n+7)0 to RX(n+7)A	Unusable	RY(n+3)0 to RY(n+3)F	RY(n+7)0 to RY(n+7)F	Unusable
RX(n+3)B	RX(n+7)B	Remote ready *1			
RX(n+3)B to RX(n+3)F	RX(n+7)B to RX(n+7)F	Unusable			

*1 The remote ready flag turns ON at GOT power-on, at hardware reset, or when the GOT is in an operable state.
If the GOT has been powered on, the flag is OFF during offline operation (OS installation, screen data downloading) or during initial processing execution.
Use this flag in an interlock ladder for write/read performed from the CC-Link master station.

(b) When monitoring using the dedicated monitor method

Signal Direction : GOT ⟶ Master module			Signal Direction : Master module ⟶ GOT		
Device number		Signal name	Device number		Signal name
Number of occupied stations			Number of occupied stations		
2 station	4 stations		2 station	4 stations	
RXn0 to RX(n+2)F	RXn0 to RX(n+6)F	User area	RYn0 to RY(n+2)F	RYn0 to RY(n+6)F	User area
RX(n+3)0	RX(n+7)0	GOT complete flag	RY(n+3)0	RY(n+7)0	GOT request flag
RX(n+3)1 to RX(n+3)8	RX(n+7)1 to RX(n+7)8	Unusable	RY(n+3)1	RY(n+7)1	GOT monitor request flag
			RY(n+3)2	RY(n+7)2	GOT always write request flag
			RY(n+3)3 to RY(n+3)8	RY(n+7)3 to RY(n+7)8	Unusable
RX(n+3)9	RX(n+7)9	Initial data setting complete flag	RY(n+3)9	RY(n+7)9	Initial data setting request flag
RX(n+3)A	RX(n+7)A	Error status flag	RY(n+3)A	RY(n+7)A	Error reset request flag
RX(n+3)B	RX(n+7)B	Remote ready *1	RY(n+3)B	RY(n+7)B	Unusable
RX(n+3)C to RX(n+3)F	RX(n+7)C to RX(n+7)F	Unusable	RY(n+3)C to RY(n+3)F	RY(n+7)C to RY(n+7)F	

*1 The remote ready flag turns ON at GOT power-on, at hardware reset, or when the GOT is in an operable state.
If the GOT has been powered on, the flag is OFF during offline operation (OS installation, screen data downloading) or during initial processing execution.
Use this flag in an interlock ladder for write/read performed from the CC-Link master station.

DANGER

- Do not output the reserved signals among the output signals provided from the master module to the GOT.
  If any of the reserved signals is output, the PLC system may malfunction.

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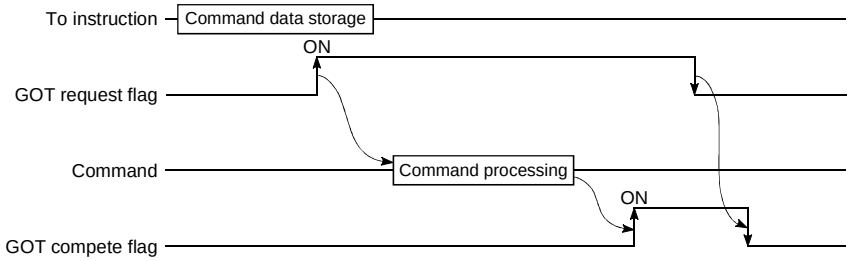
(2) Details of the I/O signals

The function of each I/O signal is described below

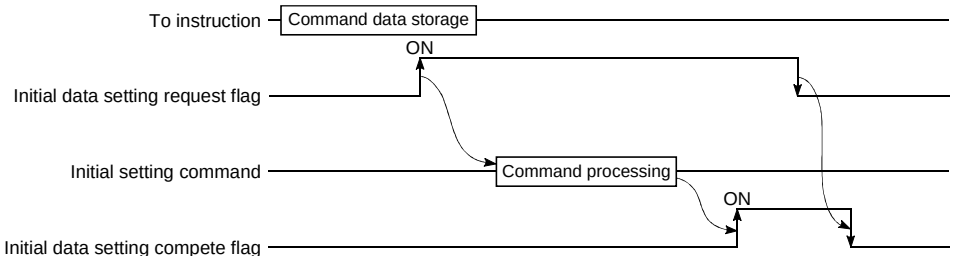
(a) GOT complete flag (RX(n+3)0, RX(n+7)0), and GOT request flag (RY(n+3)0, RY(n+7)0)

By turning on the GOT request flag, each command which uses the GOT internal device to monitor (excluding the initial setting command, monitor request command, and always write request command) is executed.
After each command processing is complete, the GOT complete flag turns on.
When the GOT request flag is turned off, the GOT complete flag turns off as well.



(b) Initial data setting complete flag (RX(n+3)9,RX(n+7)9), and initial data setting request flag (RY(n+3),RY(n+7)9)

By turning on the initial data setting request flag, the initial setting command to monitor using the GOT internal device, is executed.
When the initial setting command processing is complete, the initial data setting complete flag turns on.
When the initial data setting request flag is turned off, the initial data setting complete flag turns off as well.

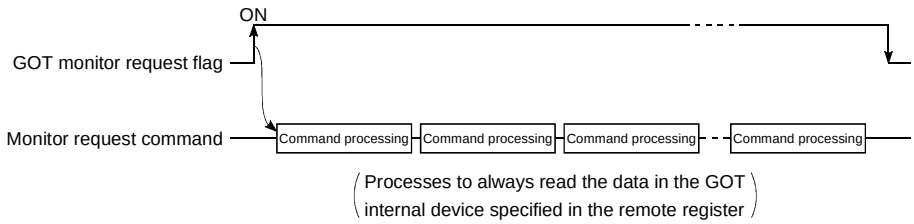


POINT

When performing dedicated command monitor, the initial data setting request flag must be turned ON to execute the initial setting command.
Refer to Section 9.2.5 (1) for the initial setting command.

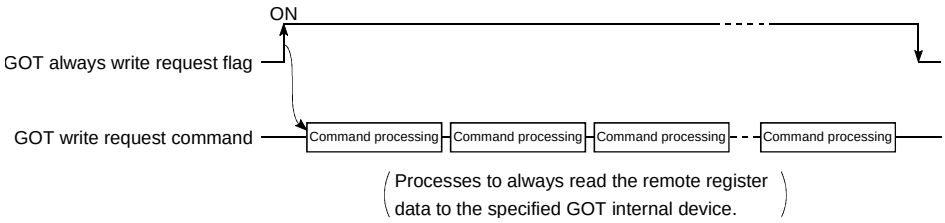
(c) GOT monitor request flag (RY(n+3)1,RY(n+7)1)

When the GOT monitor request flag is on, the data in the GOT internal device registered for monitoring is always read to the remote register.
Refer to (a) when executing the monitor registration command.



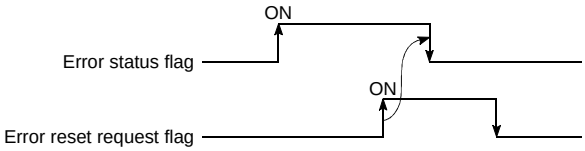
(d) GOT always write request flag (RY(n+3)2,RY(n+7)2)

When the GOT always write request flag is on, the remote device data is always written to the GOT internal device which has been registered for write.
Refer to (a) when executing the always write register command.



(e) Error status flag (RX(n+3)A,RX(n+7)A) and error reset request flag (RY(n+3)A,RY(n+7)A)

If an error occurs during execution of a command when communicating with the GOT internal device, the error status flag turns on.
The error status flag is turned off by turning on the error reset request flag,.



POINT
The error status flag turns ON if the executed dedicated command is wrong or the preset device cannot be monitored (the device is outside the monitor-enabled range).

(f) Remote ready flag (RX(n+3)B,RX(n+7)B)

Turns on during the GOT startup.
Turns off during off-line operations (OS installation and screen data download) and initial processing execution.

9.2.3 Remote Register Allocation

The remote register allocation for GOT is described below.
The usage of the remote registers is different between the normal monitor method and dedicated command monitor method.
The "m" and "n" in the table indicates the address allocated to the master module by the station number setting.

(1) When the normal monitor method

The entire area is used for user region.

Transfer Direction	Addresses		Description	Default Value
	Number of occupied stations			
	2 station	4 stations		
Master station → GOT	RWwm to RWwm+7	RWwm to RWwm+F	User write area	0
GOT → Master station	RWrn to RWrn+7	RWrn to RWrn+F	User read area	0

(2) When the dedicated command monitor method

The entire area is used for the GOT internal device communication commands.
Refer to Section 9.2.4 regarding each command for the GOT internal device communication.

Transfer Direction	Addresses		Description	Default Value
	Number of occupied stations			
	2 station	4 stations		
Master station → GOT	RWwm to RWwm+7	RWwm to RWwm+F	Command execution area to be monitored by using GOT internal device	0
GOT → Master station	RWrn to RWrn+7	RWrn to RWrn+F	Command response area to be monitored by using GOT internal device	0

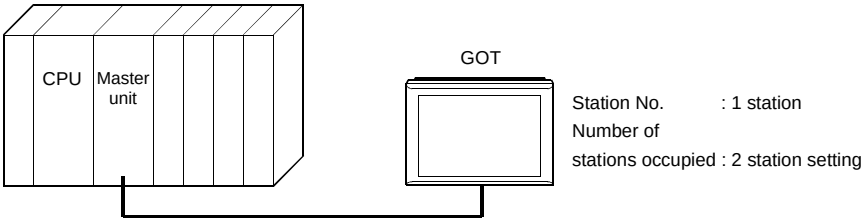
9.2.4 Command List for the Dedicated Command Monitor Method

The command list for the dedicated command monitor is shown below.

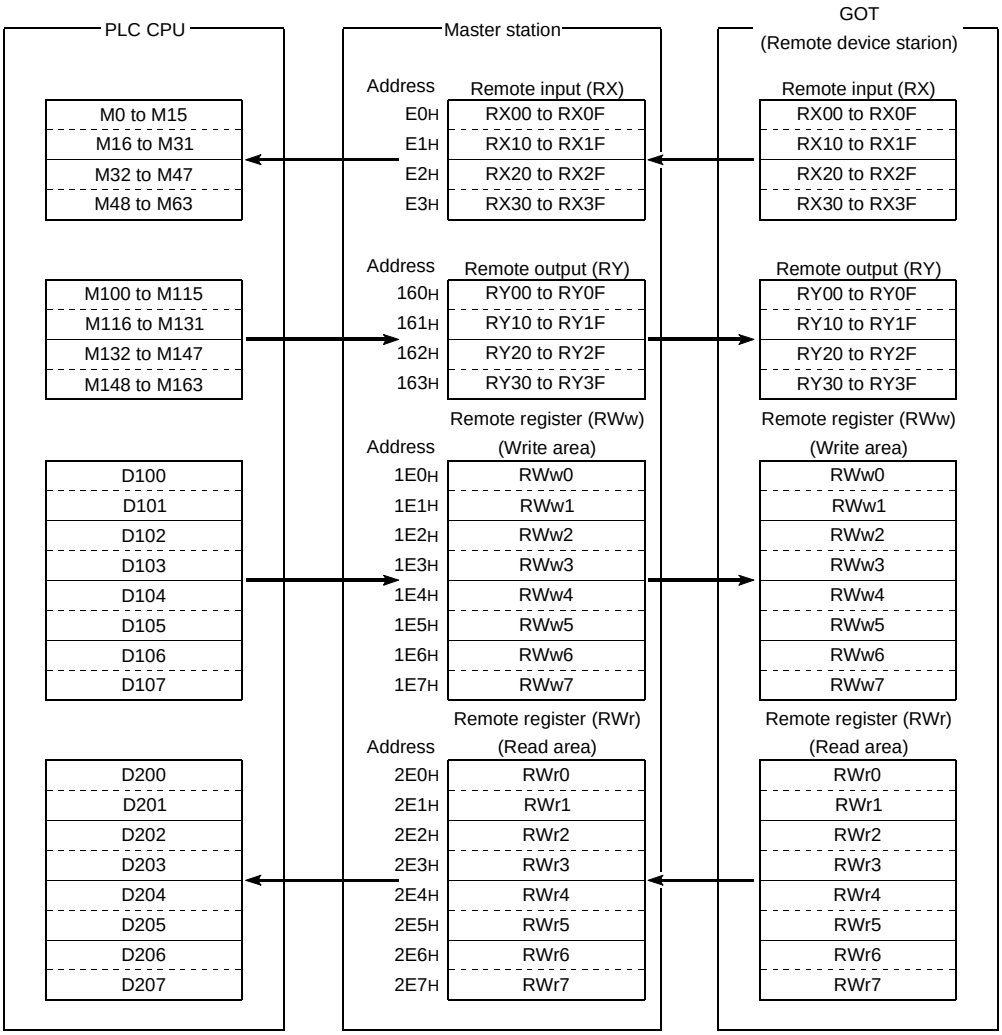
Command name	Contents	Reference Section
Initial setting	Initial setting command when monitoring with dedicated command monitor method (monitoring is performed using the GOT internal device).	Section 9.2.5 (1)
Continuous read	Command to read the specified number of points of data from the specified head GOT internal device to the remote register. Maximum read points When the number of stations is set to 4 stations: 14 points When the number of stations is set to 2 stations: 6 points	Section 9.2.5 (2)
Random read	Command to read data from several different GOT internal devices to the remote register. Maximum read points When the number of stations is set to 4 stations: 14 points When the number of stations is set to 2 stations: 6 points	Section 9.2.5 (3)
Continuous write	Command to write specified number of points of data from the remote register to the specified head GOT internal device. Maximum write points When the number of stations is set to 4 stations: 14 points When the number of stations is set to 2 stations: 6 points	Section 9.2.5 (4)
Random write	Command to write remote register data to several different GOT internal devices. Maximum write points When the number of stations is set to 4 stations: 7 points When the number of stations is set to 2 stations: 3 points	Section 9.2.5 (5)
Monitor register	Command to register the GOT internal device number that performs the always remote register read command. Maximum registration points When the number of stations is set to 4 stations: 14 points When the number of stations is set to 2 stations: 6 points	Section 9.2.5 (6)
Monitor request	Command to always read the GOT internal device data stored by executing the monitor register command to the remote register.	Section 9.2.5 (7)
Always write register	Command to always register the GOT internal device number of the GOT internal device that performs the always remote register data write command. Maximum registration points When the number of stations is set to 4 stations: 14 points When the number of stations is set to 2 stations: 6 points	Section 9.2.5 (8)
Always write request	Command to always write remote register data to the GOT internal device registered by executing the always write register command.	Section 9.2.5 (9)

9.2.5 Details of Each Command

The execution method for each command is described.
The following system example is used to describe the sequence program in this section.
Refer to the CC-Link Master Module User's Manual regarding the sequence program for the entire CC-Link system.



Relationship among the PLC CPU, master station buffer memory, and remote device stations



9 - 13

(1) Initial setting command

(a) Initial setting command

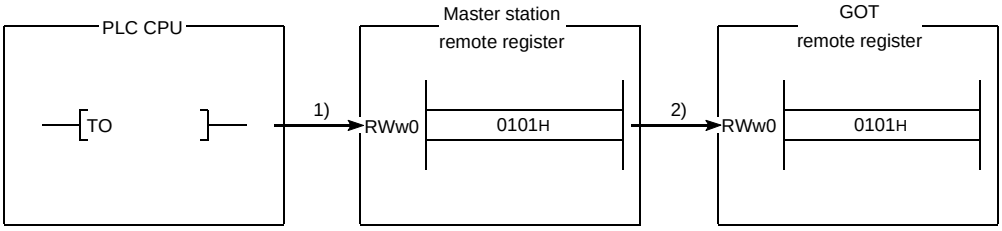
This is the initial setting command for monitoring with the GOT internal device.

Create a sequence program for initial setting command to be processed before the commands described in (2) and after are executed.

(b) Command format

Transfer Direction	Addresses	Write data
Master station → GOT	RWwm (Higher byte)	1: Initial setting
	RWwm (Lower byte)	1: Monitoring by the dedicated command monitor method 2: Switch to the normal monitor method
	RWwm + 1 to RWwm + F	———
GOT → Master station	RWrn to RWrn + F	———

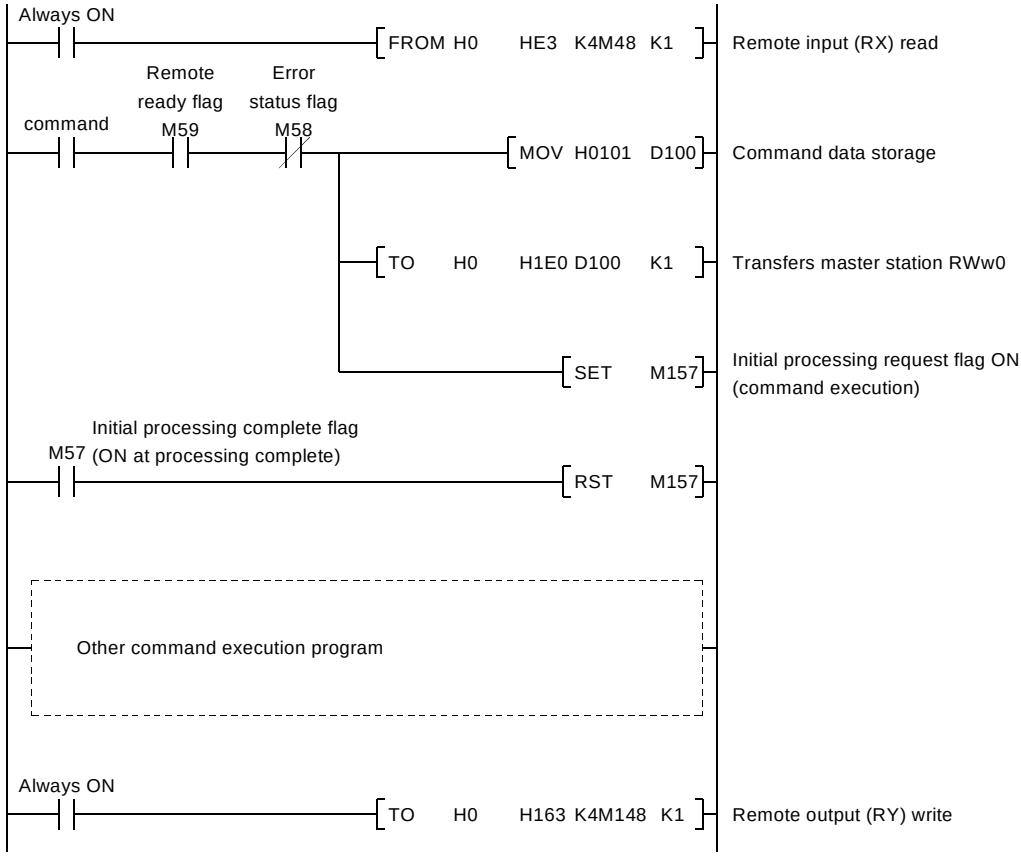
(c) Communication overview



1) Store the initial setting command data in the master station's remote register (RWw).

2) Turn on the initial data setting request flag and store the command data in the GOT remote register (RWw).
(Command execution)
The initial data setting complete flag turns on when the command processing is complete.
By executing this command, the GOT will be in the monitor status with the dedicated command monitor method.

(d) Sequence program example



9 - 15

(2) Continuous read command

(a) Continuous read command

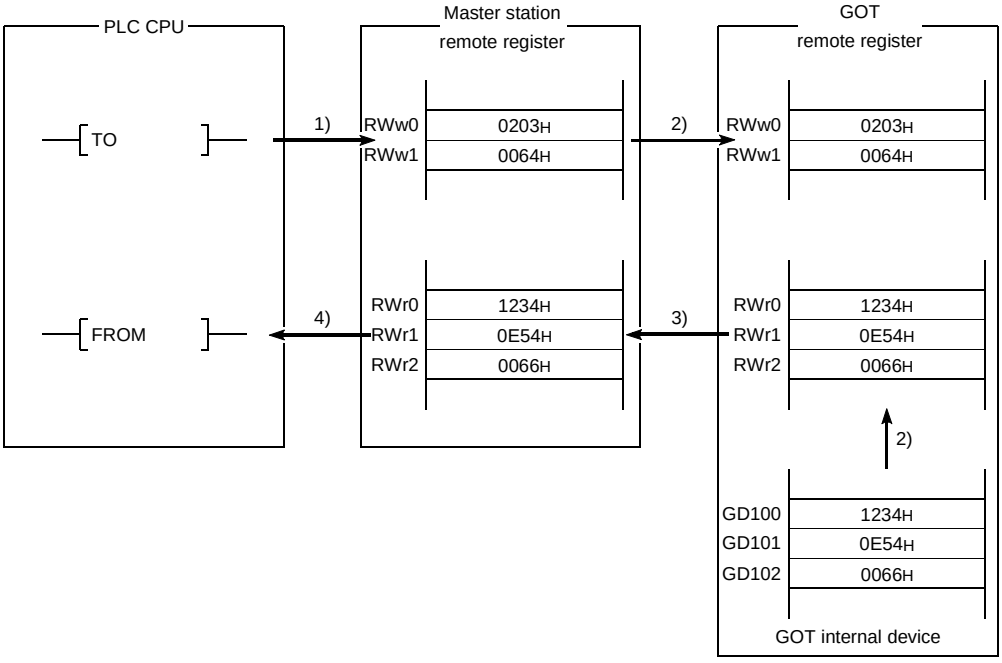
This is a command to read data for a specified number of points from the specified head GOT internal device to the remote register.

(b) Command format

Transfer Direction	Addresses	Write data
Master station → GOT	RWwm (Higher byte)	2: Continuous read setting
	RWwm (Lower byte)	When the occupied points are 2 stations 1 to 6 : GOT internal device point to be read When the occupied points are 4 stations 1 to 14 : GOT internal device point to be read
	RWwm + 1	0 to 1023 : Head GOT internal device numbers to be read
	RWwm + 2 to RWwm + F	———
GOT → Master station	RWrn to RWrn + D	Stores the data to be read from the GOT internal device
	RWrn + E, RWrn + F	———

(c) Communication overview

When reading three points from the GOT internal device GD100 to the remote register (RWr)



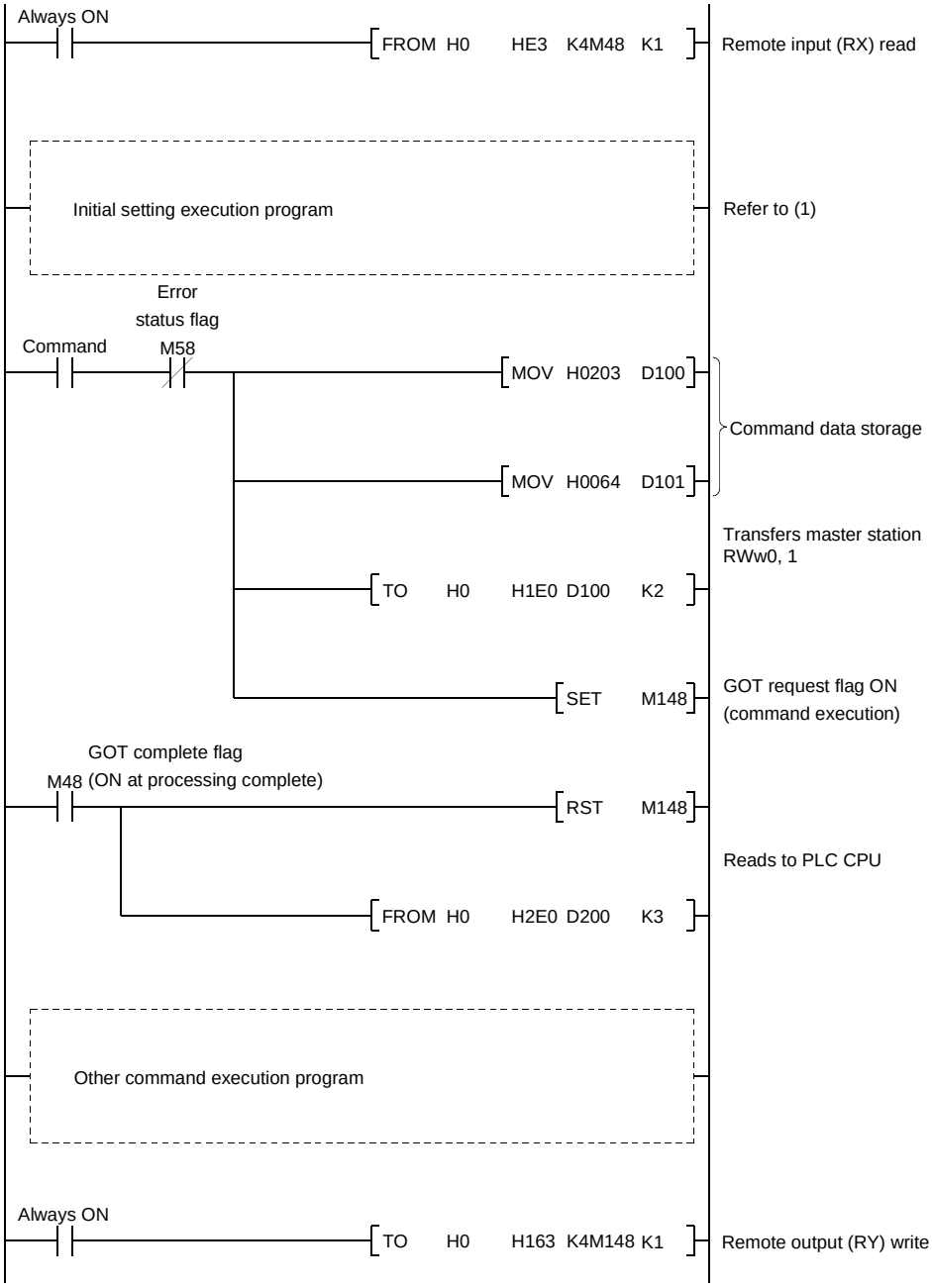
1) Store the continuous read command data in the master station's remote register (RWw).

2) Turn on the GOT request flag, and read the data in GD100 to 102 are read to the remote register (RWr) by storing the command data in the GOT remote register (RWw).
(Command execution)
The GOT complete flag turns on when the command processing is complete.

3) By link scan, the read data is stored in the master station's remote register (RWr).

4) Read the data to the PLC CPU using the FROM instruction, etc.

(d) Sequence program example



9 - 17

(3) Random read command

(a) Random read command

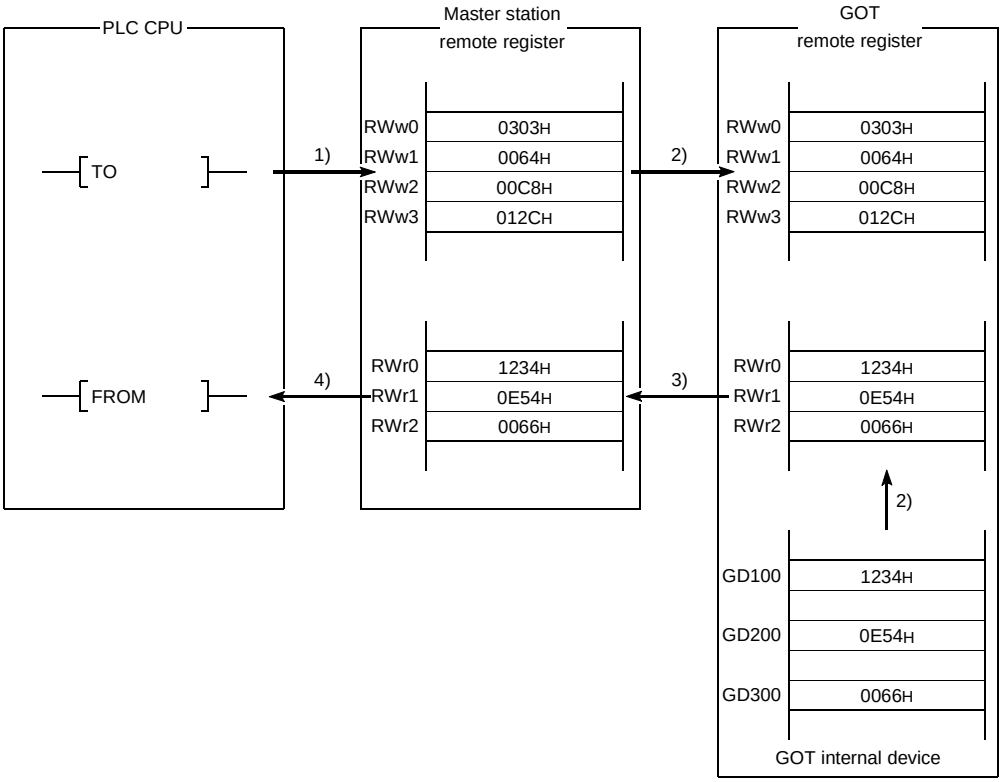
This is a command to read data from several different GOT internal devices to the remote register.

(b) Command format

Transfer Direction	Addresses	Write data
Master station → GOT	RWwm (Higher byte)	3: Random read setting
	RWwm (Lower byte)	When the occupied points are 2 stations 1 to 6 : GOT internal device point to be read When the occupied points are 4 stations 1 to 14 : GOT internal device point to be read
	RWwm + 1 to RWwn + F	0 to 1023 : GOT internal device numbers to be read (Storage for the setting mentioned above)
GOT → Master station	RWrn to RWrn + D	Stores the data to be read from the GOT internal device (Storage for the setting mentioned above)
	RWrn + E, RWrn + F	———

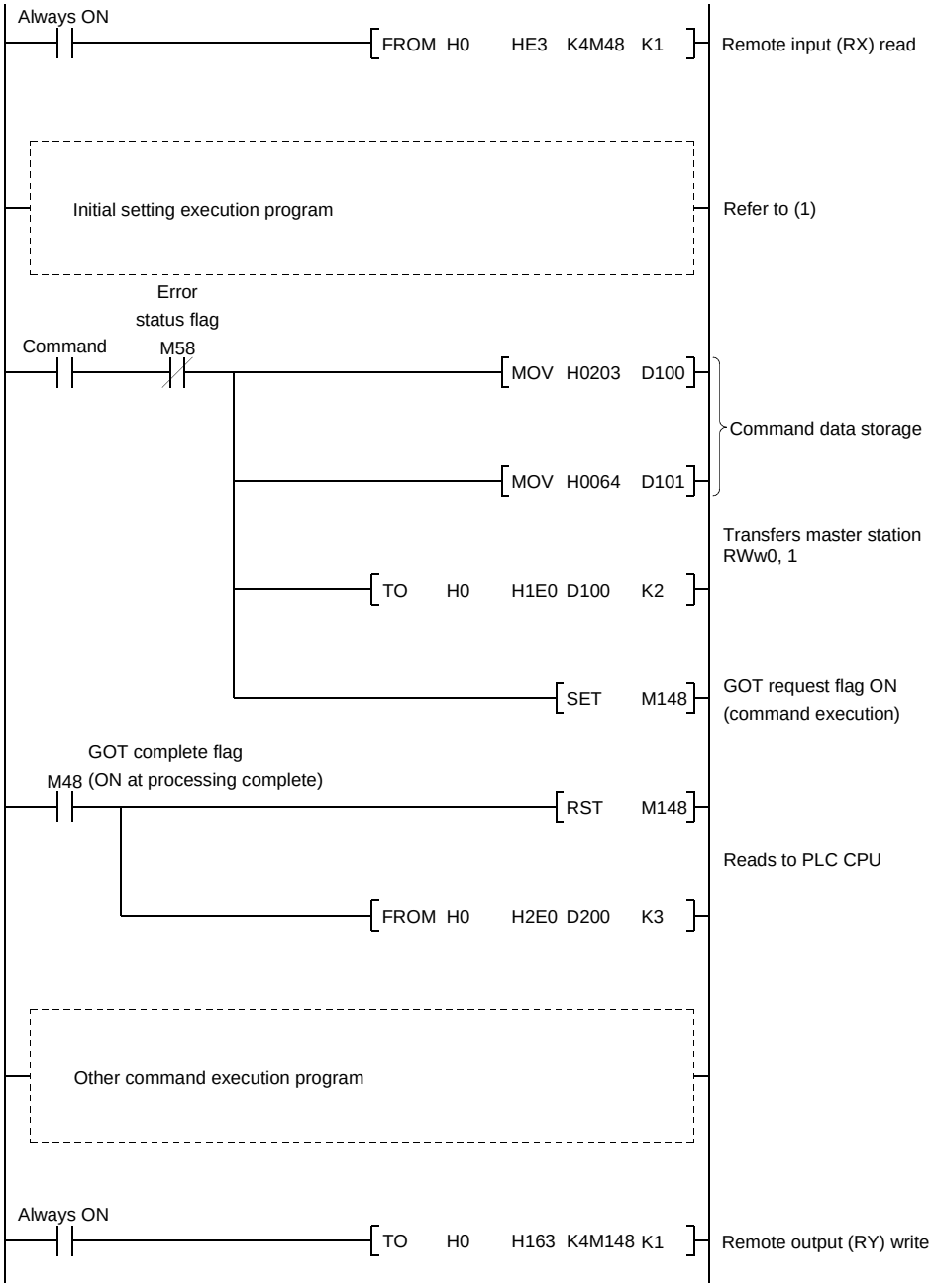
(c) Communication overview

When reading data from the GOT internal device GD100, 200 and 300 to the remote register.



1) Store the continuous read command data in the master station's remote register (RWw).
2) Turn on the GOT request flag, and read the data in GD100, 200,and 300 are read to the remote register (RWr) by storing the command data in the GOT remote register (RWw).
   (Command execution)
   The GOT complete flag turns on when the command processing is complete.
3) By link scan, the read data is stored in the master station's remote register (RWr).
4) Read the data to the PLC CPU using the FROM instruction, etc.

(d) Sequence program example



9 - 19

(4) Continuous write command

(a) Continuous write command

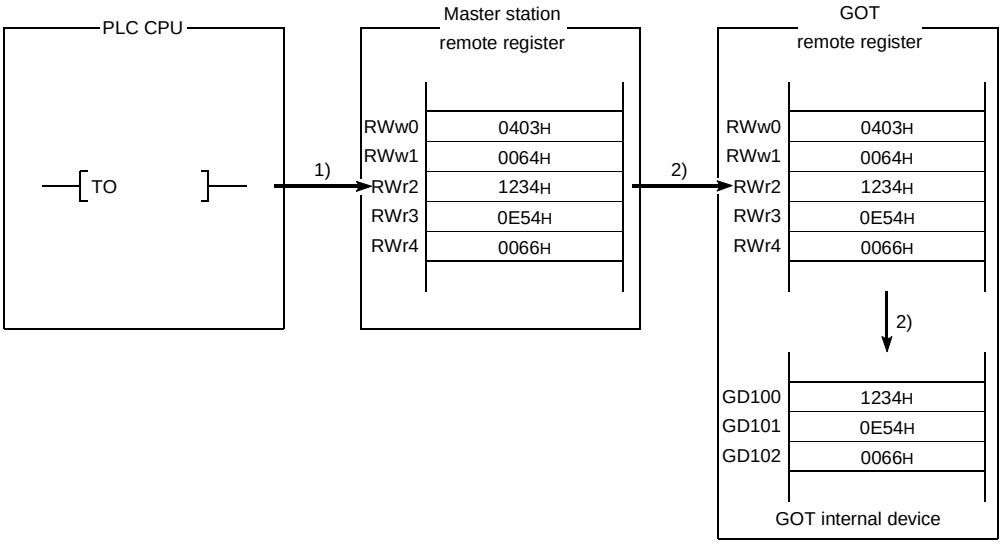
This is a command to write data from a specified number of points of remote registers to the specified head GOT internal device.

(b) Command format

Transfer Direction	Addresses	Write data
Master station → GOT	RWwm (Higher byte)	4: Continuous write setting
	RWwm (Lower byte)	When the occupied points are 2 stations 1 to 6 :Points to be written to the GOT internal device When the occupied points are 4 stations 1 to 14 :Points to be written to the GOT internal device
	RWwm + 1	0 to 1023 :Head GOT internal device numbers to be written
	RWwm + 2 to RWwn + F	Stores the data to be written to the GOT internal device
GOT → Master station	RWrn to RWrn + F	———

(c) Communication overview

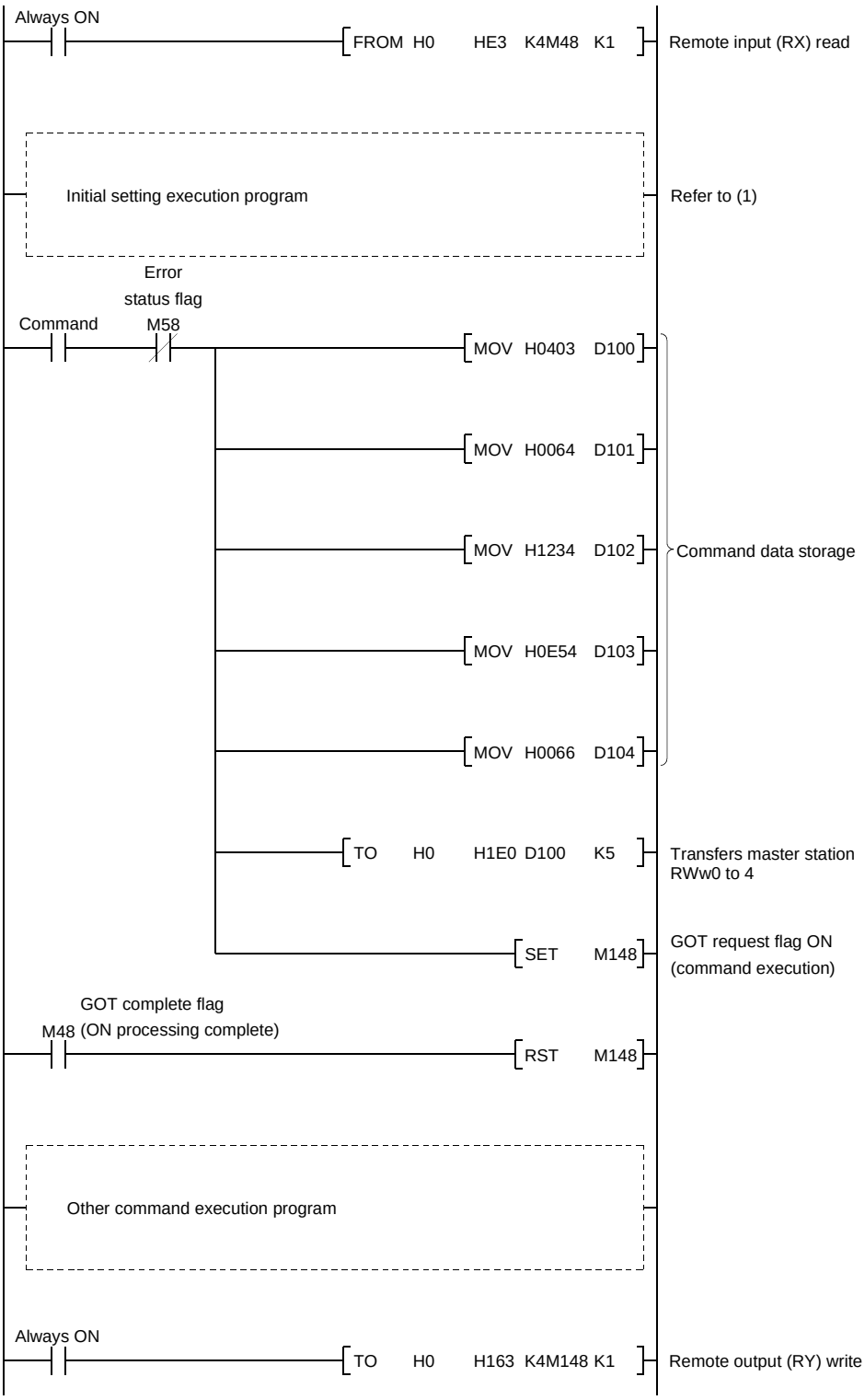
When writing remote register data to the GOT internal device GD100, 101, and 102 (3points)



1) Store the continuous write command data in the master station's remote register (RWw).

2) Turn on the GOT request flag, and store the command data in the GOT remote register (RWw). Store the data in GD100, 101, and 102.
(Command execution)
The GOT complete flag turns on when the command processing is complete.

(d) Sequence program example



9 - 21

(5) Random write command

(a) Random write command

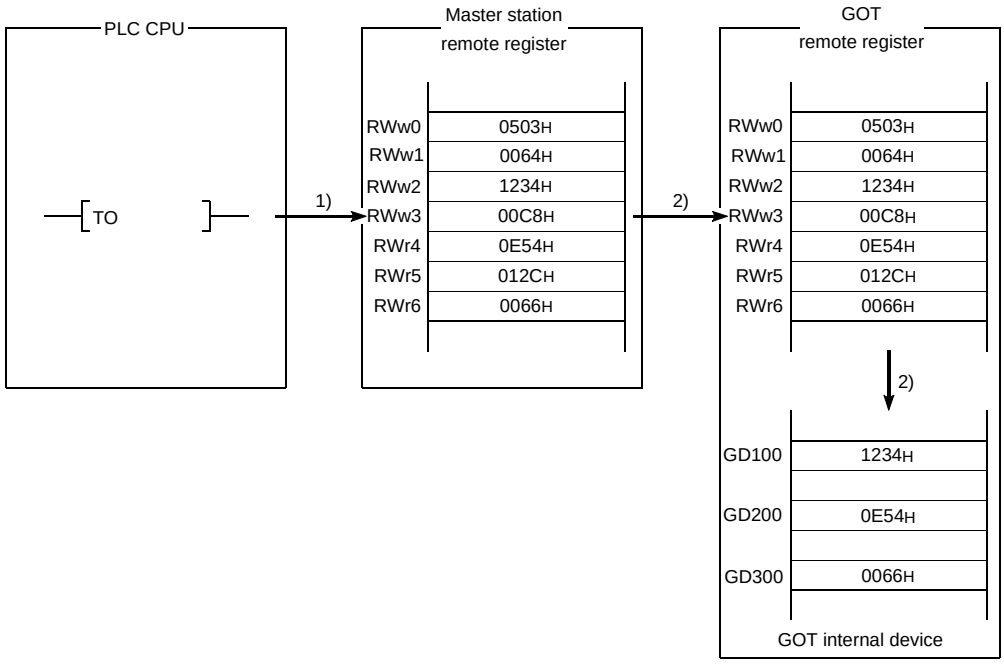
This is a command to write remote register data to several different GOT internal devices.

(b) Command format

Transfer Direction	Addresses	Write data
Master station → GOT	RWwm (Higher byte)	5: Random write setting
	RWwm (Lower byte)	When the occupied points are 2 stations 1 to 3 :Points to be written to the GOT internal device When the occupied points are 4 stations 1 to 7 :Points to be written to the GOT internal device
	RWwm + 1	0 to 1023 : GOT internal device numbers to be written
	RWwm + 2	Stores the data to be written to the GOT internal device described above
	RWwm + 3 to RWwn + E	Stores the data to be written and GOT internal device numbers for the setting points like mentioned above.
	RWwn + F	———
GOT → Master station	RWrn to RWrn + F	———

(c) Communication overview

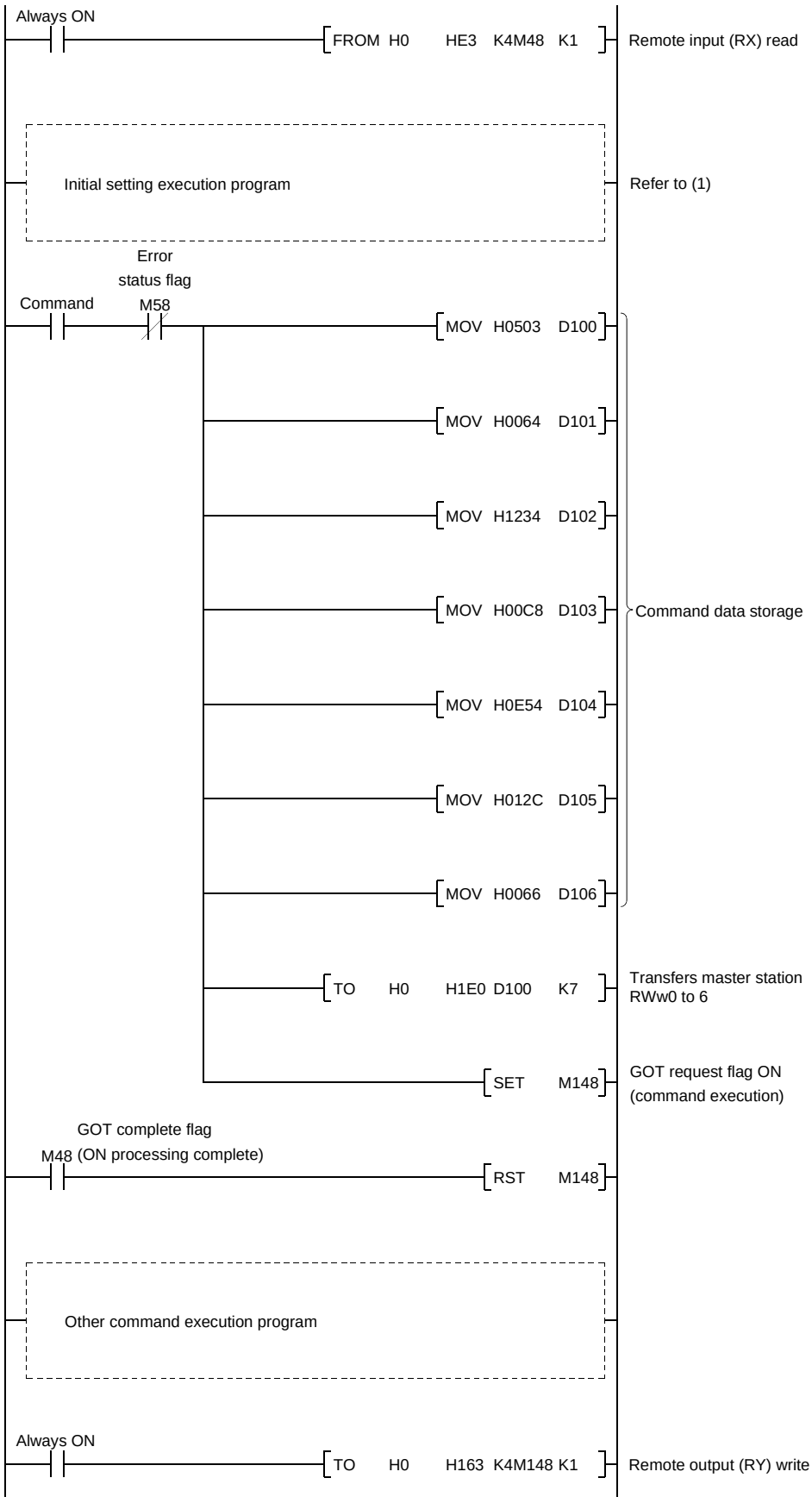
When writing remote register data to the GOT internal device GD100, 200, and 300 (3points)



1) Store the random write command data in the master station's remote register (RWw).

2) Turn on the GOT request flag, and store the command data in the GOT remote register (RWw). Store the write data in GD100, 200, and 300. (Command execution)
The GOT complete flag turns on when the command processing is complete.

(d) Sequence program example



9 - 23

(6) Monitor register command

(a) Monitor register command

This is a command to always register the device number of the GOT internal device which reads the remote register.
After executing the monitor register command, always execute the monitor request command.

(b) Command format

Transfer Direction	Addresses	Write data
Master station → GOT	RWwm (Higher byte)	6: Monitor register setting
	RWwm (Lower byte)	When the occupied points are 2 stations 1 to 6 :Points to be written to the GOT internal device When the occupied points are 4 stations 1 to 14 :Points to be written to the GOT internal device
	RWwm + 1 to RWwn + E	0 to 1023 : GOT internal device numbers to be regis-tered (Storage for the setting mentioned above)
	RWwn + F	———
GOT → Master station	RWrn to RWrn + F	———

(c) Communication overview

Refer to (7).

(7) Monitor request command

(a) Monitor request command

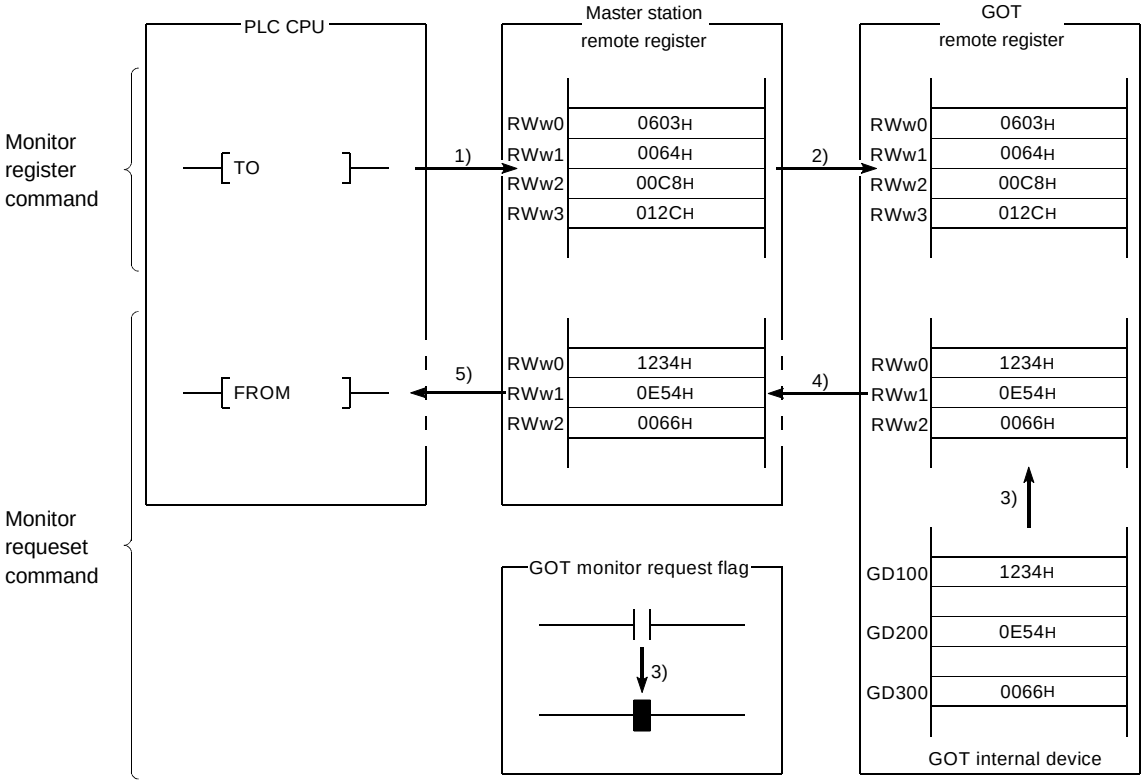
This is a command to always read the data in the GOT internal device registered by the monitor register command execution to the remote register.
Execute the monitor request command after the monitor register command is executed.

(b) Command format

Transfer Direction	Addresses	Write data
Master station → GOT	RWwm + 1 to RWwn + F	———
GOT → Master station	RWrn to RWrn + F	———

(c) Communication overview

When always reading the data in the GOT internal device GD100, 200, and 300 to the remote register.



1) Store the monitor register command data in the master station's remote register (RWw).
2) Turn on the GOT request flag, and store the command data in the GOT remote register (RWw).
   (Command execution)
   The GOT complete flag turns on when the command processing is complete.
3) By turning on the GOT monitor request flag, always read the data in the GD100, 200 and 300 to the remote register (RWr).
4) By link scan, the read data is stored in the master station’s remote register (RWr).
5) Read the data to the PLC CPU using the FROM instruction, etc.

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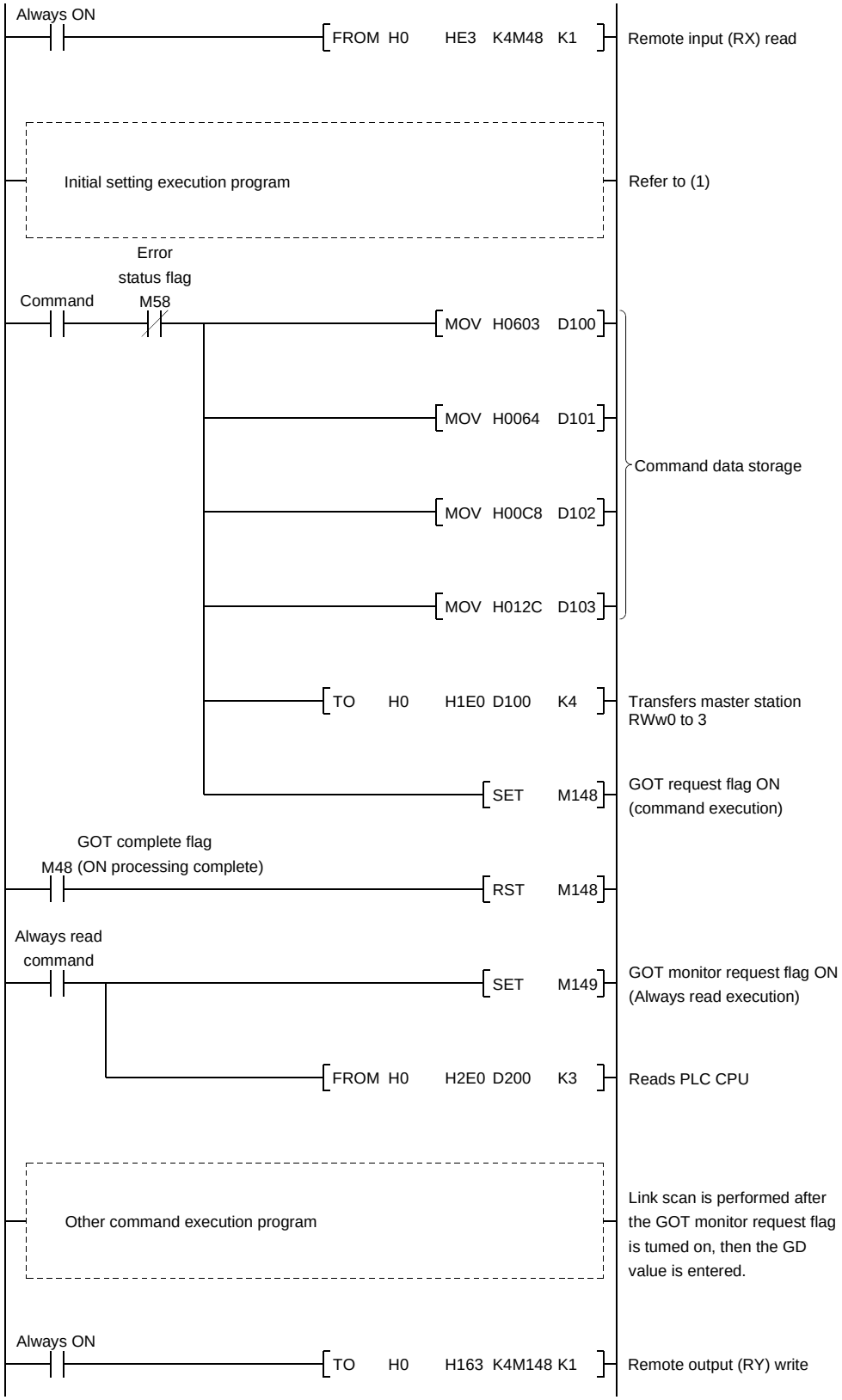
(d) Sequence program example



9 - 26

(8) Always write register command

(a) Always write register command

This is a command to always register the device number of the GOT internal device that performs the remote register data write.
After executing the always write register command, always execute the always write request command.

(b) Command format

Transfer Direction	Addresses	Write data
Master station → GOT	RWwm (Higher byte)	8: Always write register setting
	RWwm (Lower byte)	When the occupied points are 2 stations 1 to 6 :Points to be written to the GOT internal device When the occupied points are 4 stations 1 to 14 :Points to be written to the GOT internal device
	RWwm + 1 to RWwn + E	0 to 1023 : GOT internal device numbers to be regis-tered (Storage for the setting mentioned above)
	RWwn + F	———
GOT → Master station	RWrn to RWrn + F	———

(c) Communication overview

Refer to (9).

(9) Always write request command

(a) Always write request command

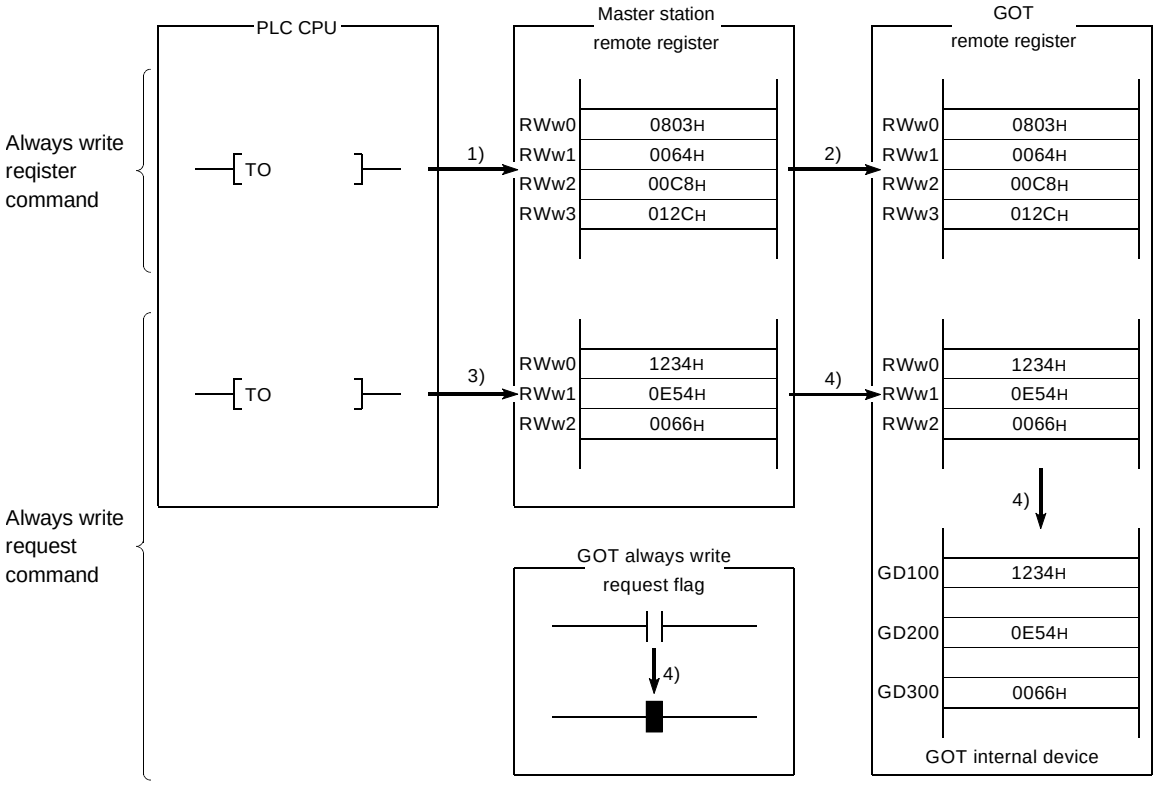
This is a command to always write data in the remote register to the GOT internal device registered by executing the always write register command.
Execute the always write request command after executing the always write register command.

(b) Command format

Transfer Direction	Addresses	Write data
Master station → GOT	RWwm to RWwn + D	Store write data for the number of points registered with the always write register command
	RWwn + E, RWwn + F	———
GOT → Master station	RWrn to RWrn + F	———

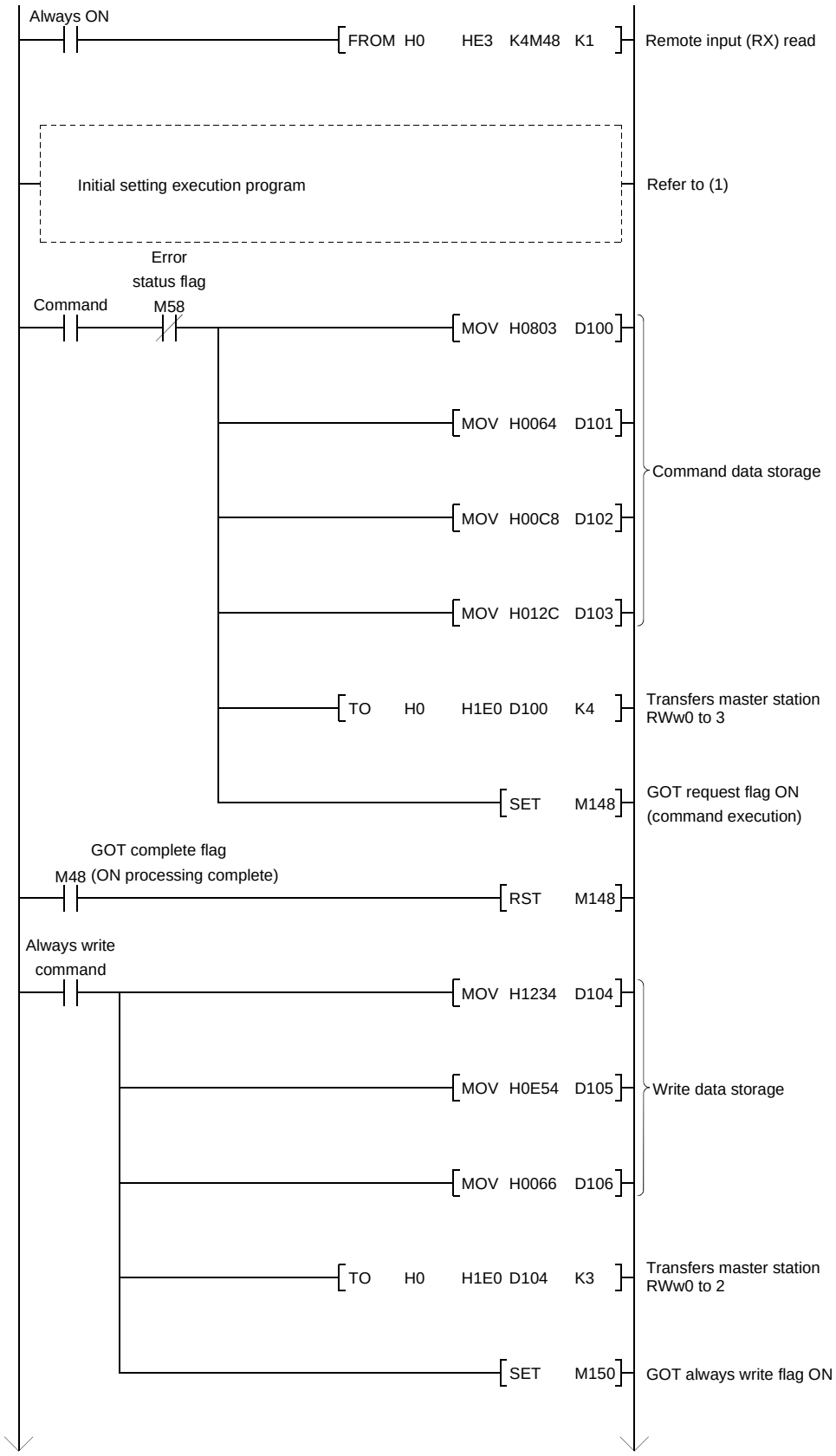
(c) Communication overview

When always writing data in the remote register to the GOT internal device GD100, 110 and 120.



1) Store the always write register command data in the master station's remote register (RWw).
2) Turn on the GOT request flag, and store the command data in the GOT remote register (RWw).
   (Command execution)
   The GOT complete flag turns on when the command processing is complete.
3) Store the always write data in the master station's remote register (RWw).
4) Always write the write data to the GOT internal device GD100, 200, and 300 by turning on the GOT always write request flag.

(d) Sequence program example



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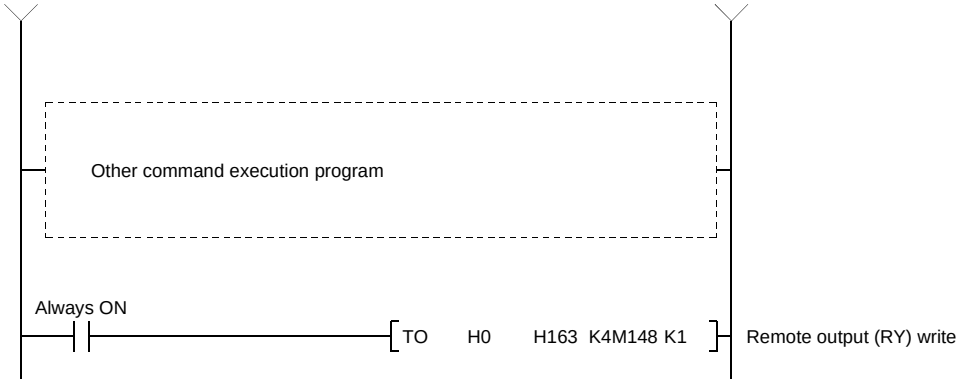
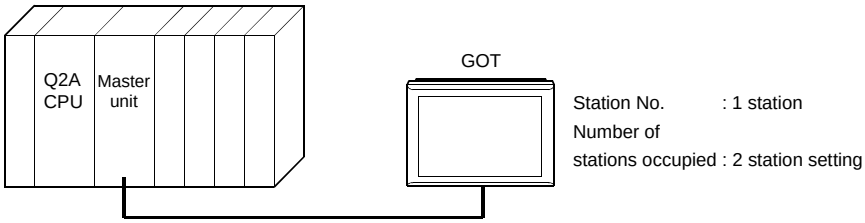

Other command execution program
Always ON
TO H0 H163 K4M148 K1
Remote output (RY) write

9.3 Sequence Program Example

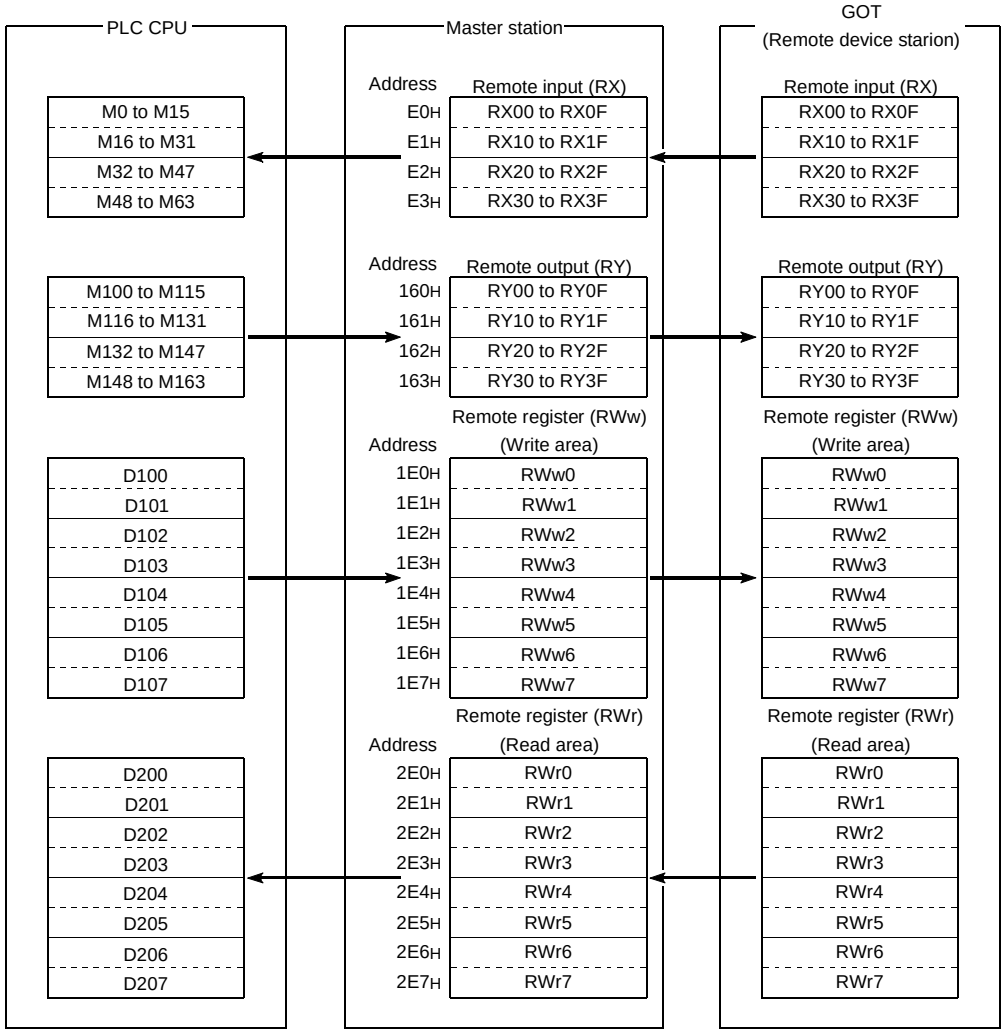
9.3.1 Sequence Program Example When Monitoring Using the Normal Monitor Method

The following system example is used to describe the sequence program in this section. Refer to the CC-Link Master Module User's Manual regarding the sequence program for the entire CC-Link system.

(1) System configuration of the program example



(2) Relationship among the PLC CPU, master station buffer memory, and remote device stations.



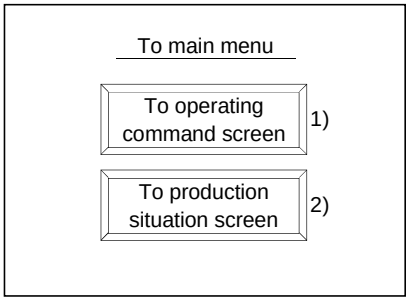
(3) Examples of created monitor screen data

The following are the monitor screen data examples of the A970GOT + A8GT-J61BT15 (remote device station).
Refer to the help function of GT Designer for the way to set each object function.

(a) Common setting

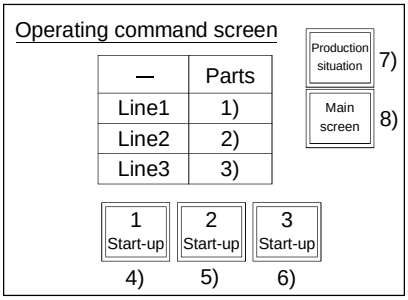
Setting Item	PLC Type	GOT Type	Base Screen Switching Device
Settings	MELSEC-QnA,Q	A97*GOT/GT SoftGOT	Ww0

(b) Base screen No. 1 settings



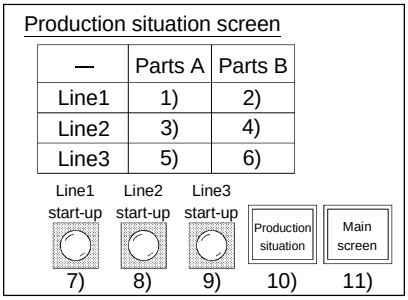
No.	Object Function to Be Set	Setting	Operation
1)	Touch key function	Bit SET: X1 (RX1) to M1 Bit RST: X0 (RX0) to M0 Bit RST: X2 (RX2) to M2	Settings made to switch to base screen No. 2.
2)	Touch key function	Bit SET: X2 (RX2) to M2 Bit RST: X0 (RX0) to M0 Bit RST: X1 (RX1) to M1	Settings made to switch to base screen No. 3.

(c) Base screen No. 2 settings



No.	Object Function to Be Set	Setting	Operation
1)	Numerical input function	Write device Wr0 to D200	Settings made to store the values entered with the numerical input function into D200-D202.
2)	Numerical input function	Write device Wr1 to D201	
3)	Numerical input function	Write device Wr2 to D202	
4)	Touch key function	Bit alternate: X3 (RX3) to M3	Settings made to store the ON/OFF information entered with the touch key function into M200-M201.
5)	Touch key function	Bit alternate: X4 (RX4) to M4	
6)	Touch key function	Bit alternate: X5 (RX5) to M5	
7)	Touch key function	Bit SET: X2 (RX2) to M2 Bit RST: X0 (RX0) to M0 Bit RST: X1 (RX1) to M1	Settings made to switch to base screen No. 3.
8)	Touch key function	Bit SET: X0 (RX0) to M0 Bit RST: X1 (RX1) to M1 Bit RST: X2 (RX2) to M2	Settings made to switch to base screen No. 1.

(d) Base screen No. 3 settings



No.	Object Function to Be Set	Setting	Operation
1)	Numerical display function	Monitor device: Ww1 (RWw1) from D101	Settings made to display the values stored in D101-D106.
2)	Numerical display function	Monitor device: Ww2 (RWw2) from D102	
3)	Numerical display function	Monitor device: Ww3 (RWw3) from D103	
4)	Touch key function	Monitor device: Ww4 (RWw4) from D104	
5)	Touch key function	Monitor device: Ww5 (RWw5) from D105	
6)	Touch key function	Monitor device: Ww6 (RWw6) from D106	
7)	Lamp display function	Monitor device: Y0 (RY0) from M100	Settings made to display on the GOT the line operating statuses (ON/OFF) output to the remote I/O station.
8)	Lamp display function	Monitor device: Y1 (RY1) from M101	
9)	Lamp display function	Monitor device: Y2 (RY2) from M102	
10)	Touch key function	Bit SET: X1 (RX1) to M1 Bit RST: X0 (RX0) to M0 Bit RST: X2 (RX2) to M2	Settings made to switch to base screen No. 2.
11)	Touch key function	Bit SET: X0 (RX0) to M0 Bit RST: X1 (RX1) to M1 Bit RST: X2 (RX2) to M2	Settings made to switch to base screen No. 1.

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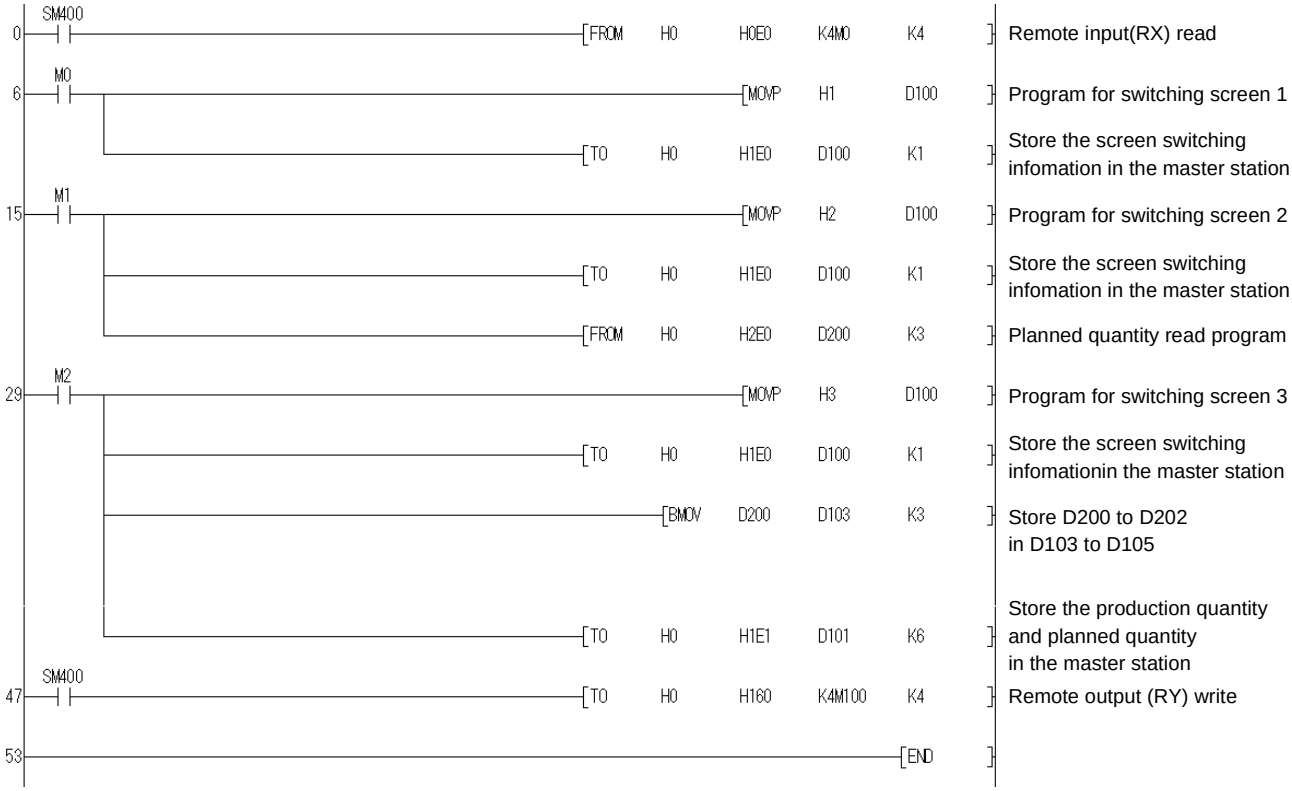
(e) Sequence program example

Refer to the Master Module User's Manual about the program for setting CC-Link parameter.



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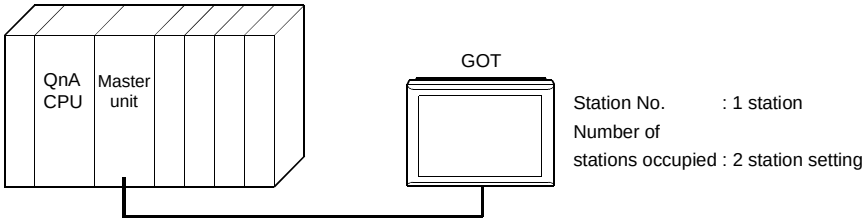
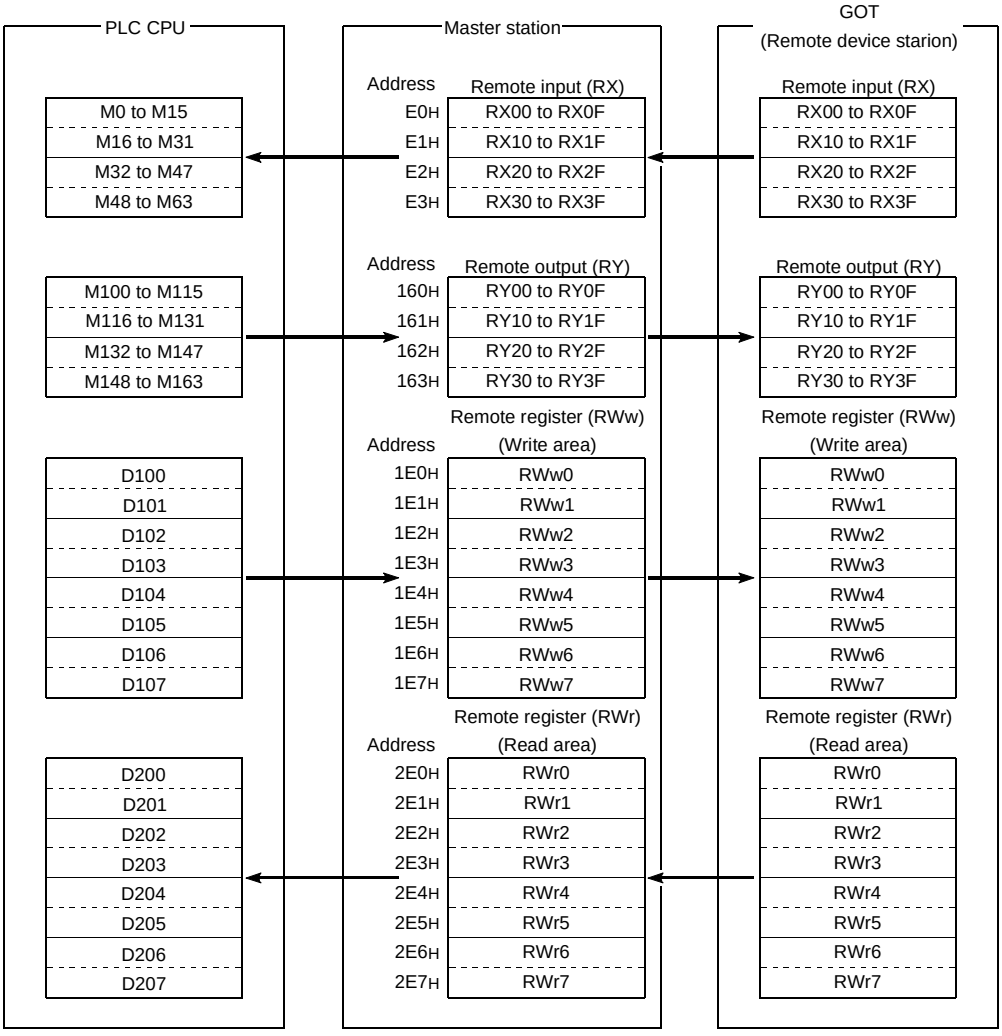
9.3.2 Sequence Program Example When Monitoring Using Dedicated Command Monitor Method

The following system example is used to describe the sequence program in this section. Refer to the CC-Link Master Module User's Manual regarding the sequence program for the entire CC-Link system.

(1) System configuration of the program example



(2) Relationship among the PLC CPU, master station buffer memory, and remote device stations



(3) Examples of created monitor screen data

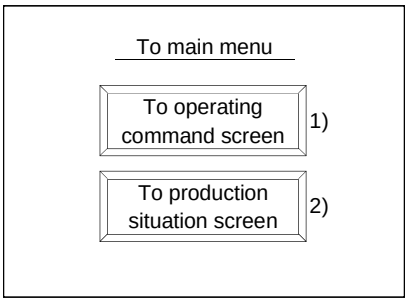
The following are the monitor screen data examples of the A970GOT+A8GT-J61BT15 (remote device station).

Refer to the help function of GT Designer for the way to set each object function.

(a) Common setting

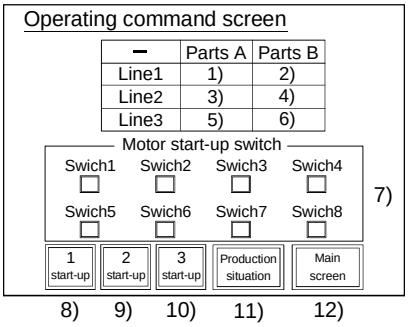
Setting Item	PLC Type	GOT Type	Base Screen Switching Device
Settings	MELSEC-QnA,Q	A97*GOT/GT SoftGOT	GD100

(b) Base screen No. 1 settings



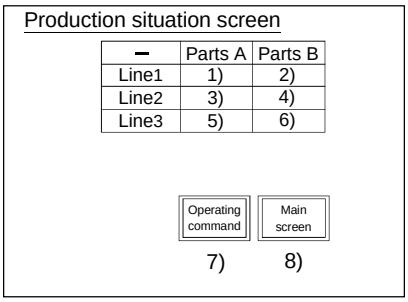
No.	Object Function to Be Set	Setting	Operation
1)	Touch key function	Base screen switching fixed value: 2	Setting made to switch to base screen No. 2.
2)	Touch key function	Base screen switching fixed value: 3	Setting made to switch to base screen No. 3.

(c) Base screen No. 3 settings



No.	Object Function to Be Set	Setting	Operation
1)	Numerical input function	Monitor device: GD200	Settings made to store the values entered with the numerical input function into GD200-GD205.
2)	Numerical input function	Monitor device: GD201	
3)	Numerical input function	Monitor device: GD202	
4)	Numerical input function	Monitor device: GD203	
5)	Numerical input function	Monitor device: GD204	
6)	Numerical input function	Monitor device: GD205	
7)	Touch key function (Switches 1 to 8)	Switch 1: GD250 b0 Switch 2: GD250 b1 Switch 3: GD250 b2 Switch 4: GD250 b3 Switch 5: GD250 b4 Switch 6: GD250 b5 Switch 7: GD250 b6 Switch 8: GD250 b7	Settings made to store the ON/OFF information entered with the touch key function into the specified bits (b0 to b7) of GD250.
8)	Touch key function	Bit alternate: GD255 b0	Settings made to store the ON/OFF information entered with the touch key function into the specified bits (b0 to b2) of GD255.
9)	Touch key function	Bit alternate: GD255 b1	
10)	Touch key function	Bit alternate: GD255 b2	
11)	Touch key function	Base screen switching fixed value: 3	Setting made to switch to base screen No. 3.
12)	Touch key function	Base screen switching fixed value: 1	Setting made to switch to base screen No. 1.

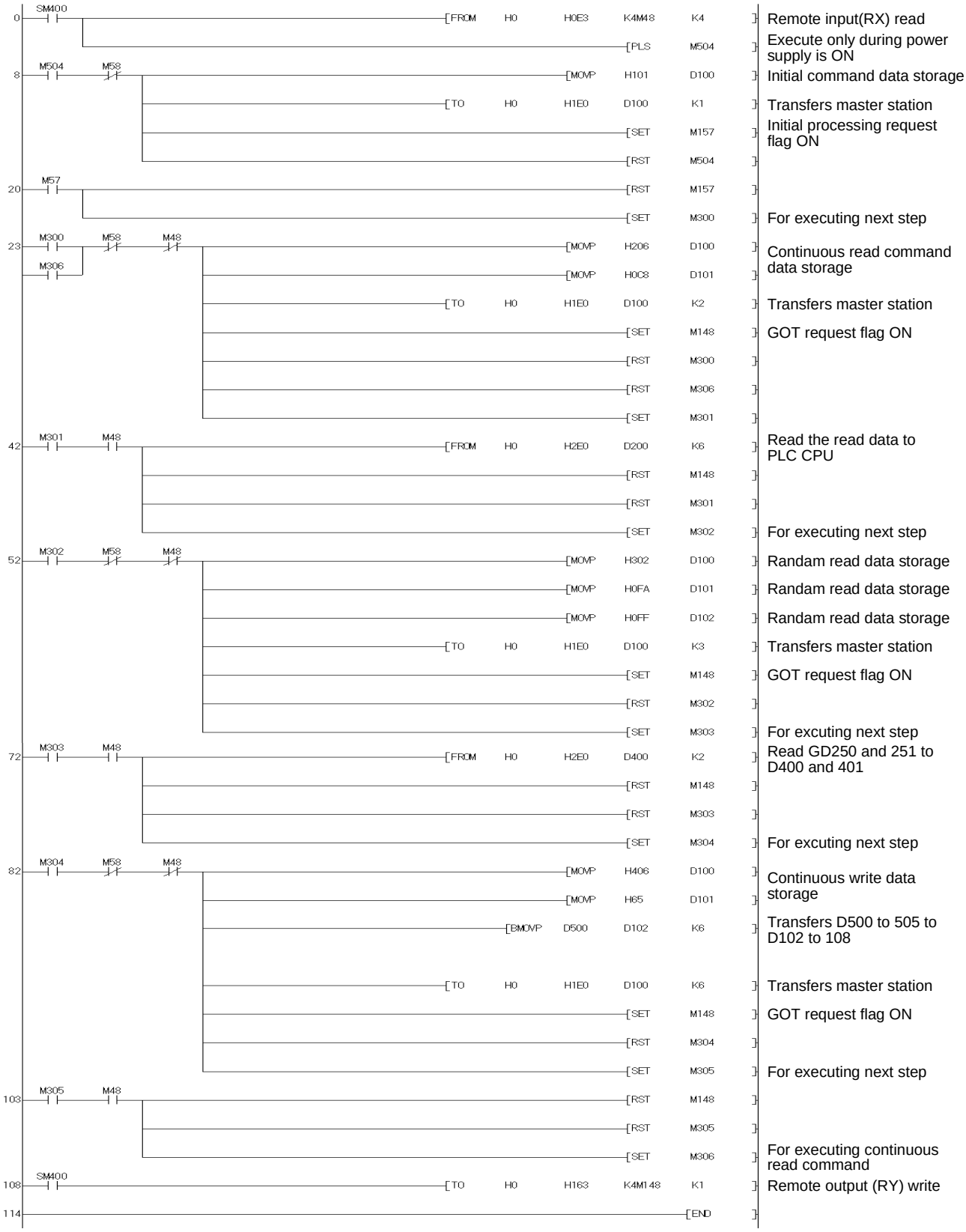
(d) Base screen No. 3 settings



No.	Object Function to Be Set	Setting	Operation
1)	Numerical display function	Monitor device: GD101	Settings made to display the values stored in GD101-GD106.
2)	Numerical display function	Monitor device: GD102	
3)	Numerical display function	Monitor device: GD103	
4)	Numerical display function	Monitor device: GD104	
5)	Numerical display function	Monitor device: GD105	
6)	Numerical display function	Monitor device: GD106	
7)	Touch key function	Base screen switching fixed value: 2	Setting made to switch to base screen No. 2.
8)	Touch key function	Base screen switching fixed value: 1	Setting made to switch to base screen No. 1.

(e) Sequence program example

Refer to the Master Module User's Manual about the program for setting CC-Link parameter.

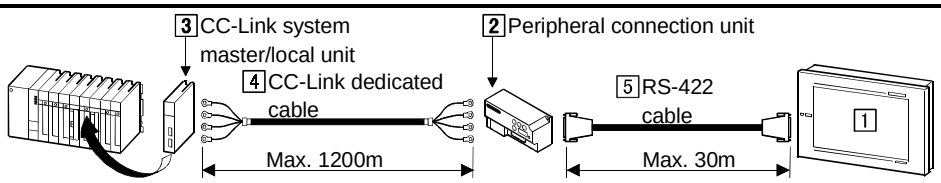


Chapter 10 CC-Link connection (via G4)

10.1 System configuration

(1) System configuration and connection conditions

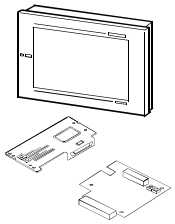
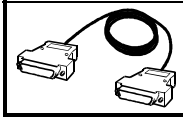
The following system configuration and connection conditions assume CC-Link connection (via G4) with the QCPU (Q mode).
The numbers (1 to 5) given in the system configuration denote the numbers (1 to 5) in "(2) System equipment". Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance *1	
1 GOT	Within 1230m	

*1 The installation distance (maximum transmission distance) varies with the transmission speed of the CC-Link system. For details, refer to the CC-Link System Master/Local Unit User's Manual (Details).

(2) System equipment

The following table indicates the system equipment needed for connection with the QCPU (Q mode).

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	CC-Link connected (via G4) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (With built-in communication interface)	———
	2	Peripheral connection unit	AJ65BT-G4-S3	
	3	CC-Link system master/local unit	QJ61BT11, QJ61BT11N *1	
	4	CC-Link dedicated cable	Refer to the user's manual of the CC-Link master/local unit used.	
	5	RS-422 cable between [Peripheral connection unit] and [GOT]	AC30R4-25P(3.0m), AC100R4-25P(10.0m), AC300R4-25P(30.0m)	

*1 Set the station No. that corresponds to the peripheral connection unit as Ver.1 intelligent device station in the CC-Link parameter settings of GX Developer.

10.2 Initial settings

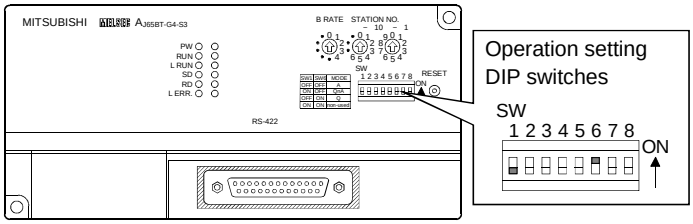
The following settings must be made for monitoring by connection of the GOT and G4.

(1) Settings to be made as CC-Link system

When the GOT is used for monitoring, the CC-Link system integrated with the G4 must have been established.
For the way to make settings as the CC-Link system, refer to the user's manual of the master unit used and the G4 User's Manual.

(2) G4 settings

When the GOT is used for monitoring, the operation mode must be set to the "Q mode" with the operation setting switches of the G4.
Refer to the G4 User's Manual for details of the setting method.



REMARK

The G4 is a unit designed to integrate a GPP function peripheral device onto the CC-Link system.
Hence, the user's manual gives detailed explanation of how to make settings to connect the GPP function peripheral device.
Since the setting method for other than the operation mode is similar to that for use by connection of the GOT, read the description as appropriate.

Chapter 11 Ethernet connection

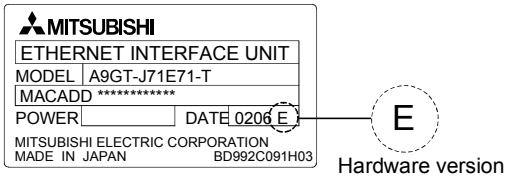
POINT

- Before making Ethernet connection, carefully read the manual of the Ethernet unit used and fully understand the contents.
- During communication with the Ethernet module, do not power off the GOT or disconnect the cable. Doing so can cause COM. ERR in the Ethernet module due to a communication stop.
- The version of the compatible software changes depending on the hardware version of the Ethernet communication module (A9GT-J71E71-T).
  Use the software compatible with the hardware version of the used Ethernet communication module.
  (1) Hardware version of Ethernet communication module
  When using the Ethernet communication module (A9GT-J71E71-T) whose hardware version is E or later, install all the OSs, which are stored on GT Works Version 5 26C or later or GT Designer Version 5 26C or later, into the GOT.

Hardware Version of Ethernet Communication Module	Software Version	
	GT Works Version 5 P to Y GT Designer Version 5 P to Y	GT Works Version 5 26C or later GT Designer Version 5 26C or later
Version D (May, 2002) or earlier	○	○
Version E (June, 2002) or later	×	○

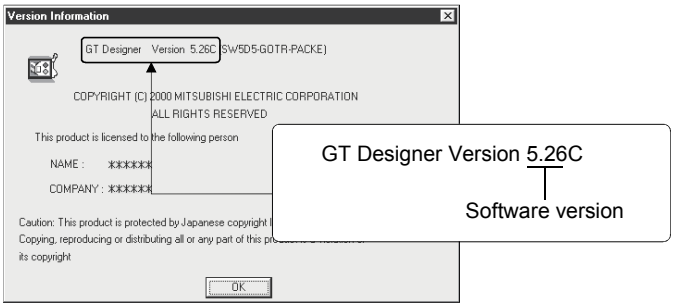
○: Usable ×: Unusable

  (2) How to confirm hardware version
  Confirm the hardware version of the Ethernet communication module on the rating plate of the product.



Rating plate

  (3) How to confirm software version
  Confirm the software version of GT Works Version 5 or GT Designer Version 5 in the [Help] - [About] menu of GT Designer.



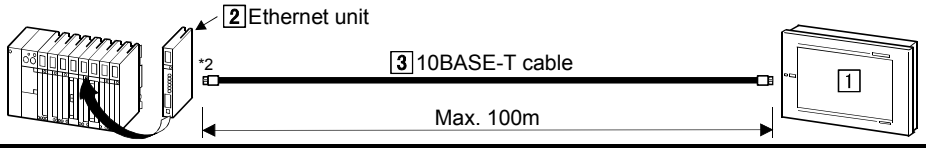
11.1 System configuration

(1) System configuration and connection conditions

The following system configuration and connection conditions assume Ethernet connection with the PLC CPU.

The numbers (1 to 3) given in the system configuration denote the numbers (1 to 3) in "(2) System equipment".

Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected *1 *3	Installation distance *1	
128 GOTs (16 units or less recommended)	Within 100m (Longest)	

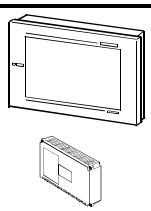
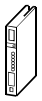
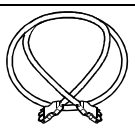
*1 Depends on the specifications of the Ethernet network system where the GOT is connected.
For details, refer to the manual of the Ethernet unit used.

*2 Where the 10BASE-T cable is connected depends on the configuration of the Ethernet network system used.
Connect the cable to the system equipment, e.g. the Ethernet unit, hub or transceiver, according to the Ethernet network system used.

*3 When multiple devices (including GOT) on the network are connected to the same segment, the load on the network increases and the communication performance between the GOTs and PLCs may degrade. The communication performance could be improved by taking the following measures.
- Using a switching hub.
- Using the high speed 100BASE-TX (100Mbps) for PLCs and other devices (except for GOTs).
- Decreasing the monitoring device points of GOT

(2) System equipment

The following table indicates the system equipment needed for connection with the PLC CPU.

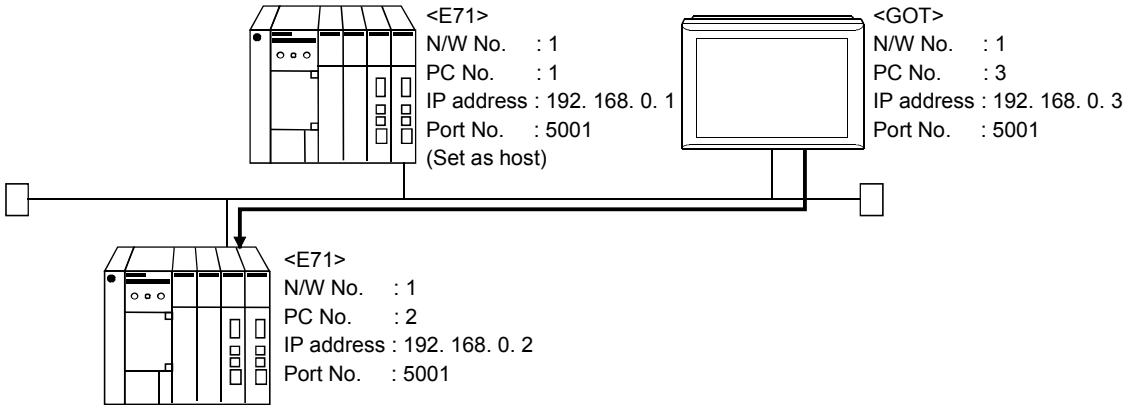
Image	No.	Application	Type	
			GOT unit	Ethernet communication unit
	1	Ethernet-connected GOT	A985GOT(-V), A97*GOT, A960GOT, A956WGOT, A956GOT	A9GT-J71E71-T
	2	Data link unit	QJ71E71, QJ71E71-B2, QJ71E71-100, AJ71QE71, AJ71QE71-B2, AJ71QE71-B5, A1SJ71QE71-B5, AJ71E71-S3, A1SJ71E71-B2-S3, A1SJ71E71-B5-S3, AJ71E71N-B2, AJ71E71N-B5T, A1SJ71E71N-B2, A1SJ71E71N-B5T, AJ71QE71N-B2, AJ71QE71N-B5T, A1SJ71QE71N-B2, A1SJ71QE71N-B5T	
	3	10BASE-T cable*1	Twisted pair cable (UTP)	

*1 The 10BASE-T cable that may be connected to the GOT is a twisted pair cable (UTP).
For details of the cable, refer to the manual of the Ethernet unit used.

11.2 How to set up the Ethernet connection

11.2.1 When using E71

For communication from GOT via the E71, there are the following setting items and precautions. The explanations in this section will be made for the following system configuration.



POINT

- Refer to item (5) in this section for how to set up the Ethernet unit, network number of GOT, personal computer number, IP address, and port number.
- When connecting multiple GOTs in the Ethernet network, set different PLC No. for each GOT. (Refer to Section 11.2.6)

Procedure for communications via E71

Restrictions

Communications cannot be made via the MELSECNET/10, MELSECNET/B, MELSECNET(II).

(1) Compatible models

AJ71E71-S3, A1SJ71E71-B2-S3, A1SJ71E71-B5-S3, AJ71E71N-B2, AJ71E71N-B5T, A1SJ71E71N-B2, A1SJ71E71N-B5T

(2) E71 switch settings

	AJ71E71-S3, AJ71E71N-B2, AJ71E71N-B5T, A1SJ71E71N-B2, A1SJ71E71N-B5T	A1SJ71E71-B2-S3, A1SJ71E71-B5-S3
Operation mode setting switch	0 (online mode)	0 (online mode)
Communications condition setting switch	SW2 OFF (BIN code)	SW2 OFF (BIN code)
CPU communications timing setting switch	SW7 ON (online program correction enabled)	SW3 ON (online program correction enabled)

(3) Sequence programs

Initial processing and communication line open processing sequence programs are needed. Necessary communication parameters and sequence program examples will be given below.

(a) Communication parameters

The following are the communication parameter setting examples.

Setting item	Set value
Application setting*1	100H
IP address of E71	192.168.0.2
E71 port number	5001
IP address of other node	FFFFFFFF
Other node port number	FFFF*2

*1: Value specified for application setting
The user can change the settings of 1), 2) and 3).
4), 5) and 6) are fixed settings.

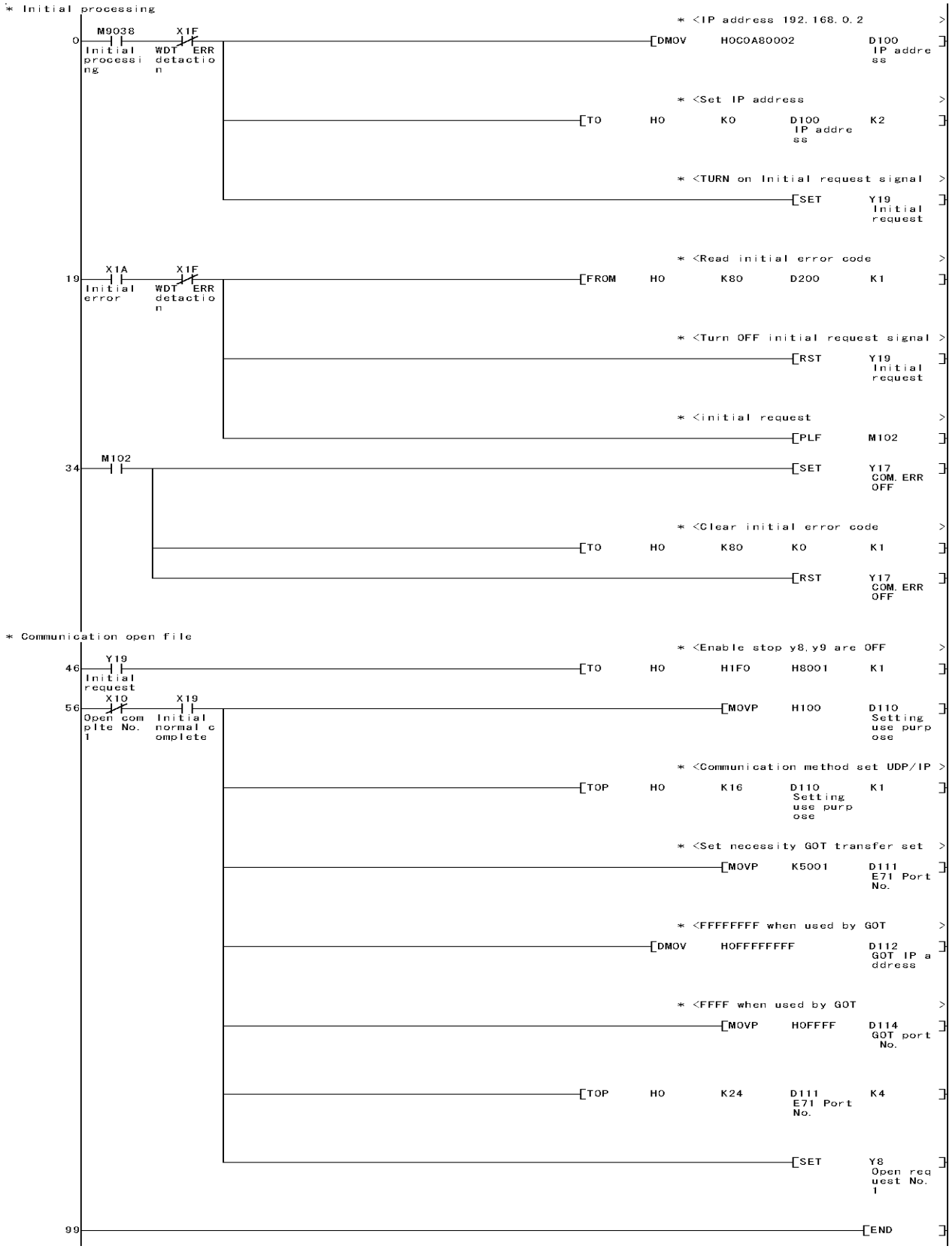
The following shows details of the application setting.

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
6)						5)	4)	3)						2)	1)

1): Fixed buffer application
0: For send/no communication
1: For receive
2): Existence check
0: No
1: Yes
3): Paring open
0: No
1: Yes
4): Communication system (Set to 1: UDP/IP)
5): Fixed buffer communication (Set to 0: With procedure)
0: With procedure
1: Without procedure
6): Open system (Set to 00: Active, UDP/IP)

*2: The other node port number is a fixed setting.
The user can change the other settings.

(b) Sequence program



In a communications-ready status, the E71's RUN LED comes on and RDY LED flickers.

(4) Communications check

When the preparations for communications via the E71 are complete, execute the Ping command in the MS prompt of Windows®.

When connections are OK
C:\>ping 192. 168. 0. 2
Reply from 192. 168. 0. 2:bytes=32 time<10ms TTL=32

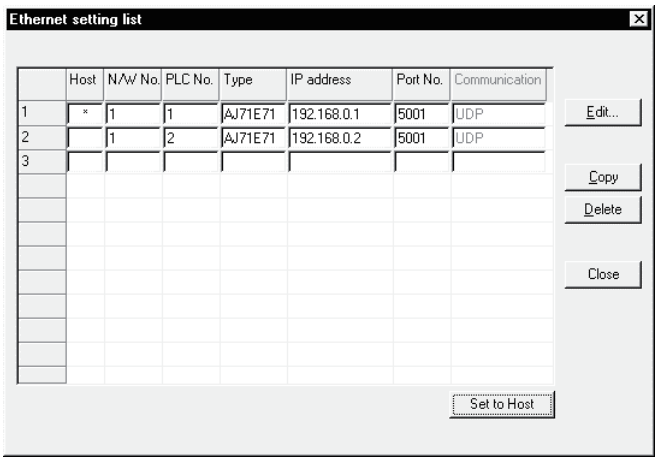
When connections are not good
C:\>ping 192. 168. 0. 2
Request timed out.

If ping does not pass through, check the cable and unit connections and Windows® side IP address and other settings.

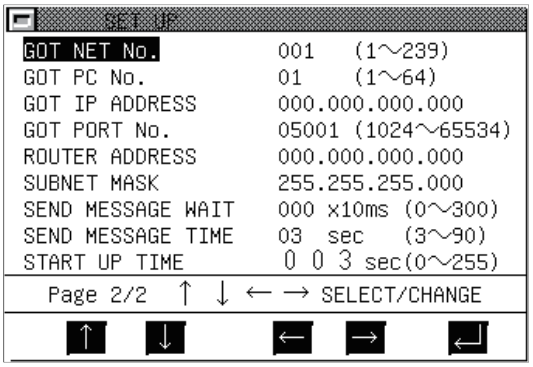
POINT
It is also possible to perform the Ping test using GX Developer Version6 (SW6D5C-GPPW 6.01B or later). Refer to the Operating Manual of GX Developer for more details on the Ping test.

(5) Settings with GT Designer and GOT

(a) Perform the settings of the E71 to be monitored in "Ethernet Setting" of GT Designer.
Set the IP address assigned to the E71 to be connected to.
Set the port number of the E71 to be connected to. It has been defined in a sequence program.
Refer to GT Designer Help function for Ethernet setting.

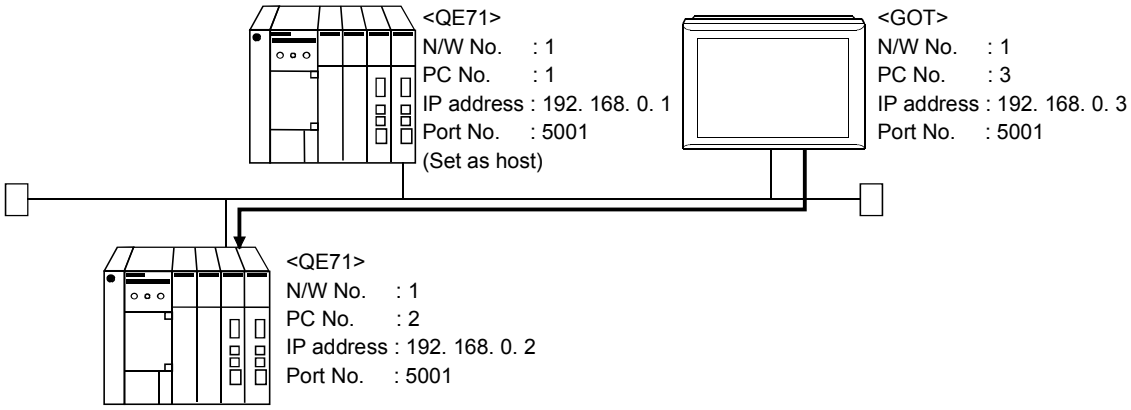


(b) Set the GOT using "Setup" of the GOT.
Refer to Section 11.2.5 for details of the setting.



11.2.2 When using QE71

For communication from GX Developer via the QE71, there are the following setting items and precautions. The explanations in this section will be made for the following system configuration.



POINT

- Refer to item (5) in this section for how to set up the Ethernet unit, network number of GOT, personal computer number, IP address, and port number.
- When connecting multiple GOTs in the Ethernet network, set different PLC No. for each GOT. (Refer to Section 11.2.6)

Procedure for communications via QE71

Restrictions

Communications cannot be made via the MELSECNET/10, MELSECNET/B, MELSECNET(II).

(1) Compatible models

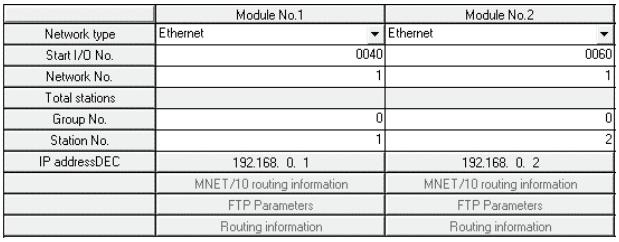
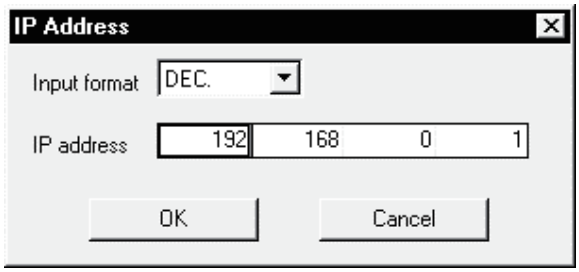
Use the QE71 and PLC whose function version is B or later.

(2) QE71 switch settings

Operation mode setting switch ..... 0 (online)
Automatic start mode ..... SW3 ON
When SW3 is ON, initial processing is performed independently of Y19 (initial processing request). Communications are also enabled if the CPU module is STOPped.
For the way to perform initial processing using Y19 (initial processing request), refer to the AJ71QE71 User's Manual and create an initial processing program.

(3) Parameter setting (Setting with GX Developer)

On the MELSECNET/Ethernet network parameter setting screen, set the network type, starting I/O No., network No., group No., station number and IP address.

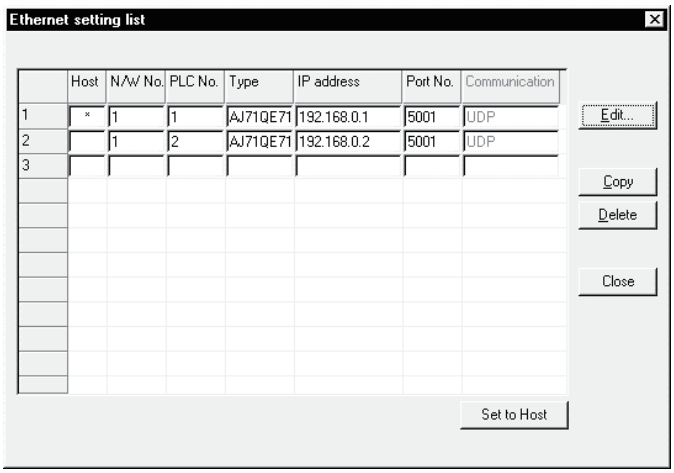
Item	Setting Screen Examples
Ethernet Parameters	
IP Address Setting	

(4) Communications check

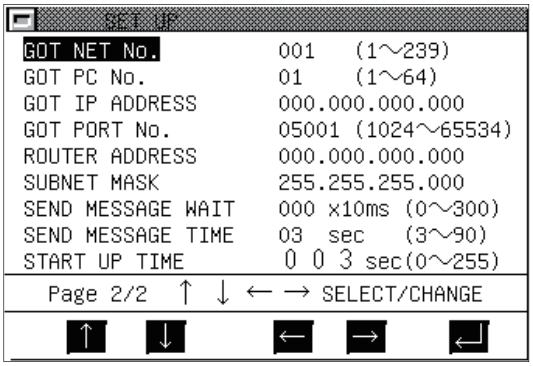
Refer to Section 11.2.1 (4) for communications check.

(5) Settings with GT Designer and GOT

(a) Perform the settings of the QE71 to be monitored in "Ethernet Setting" of GT Designer.
Set the IP address assigned to the QE71 to be connected to.
Refer to GT Designer Help function for Ethernet setting.

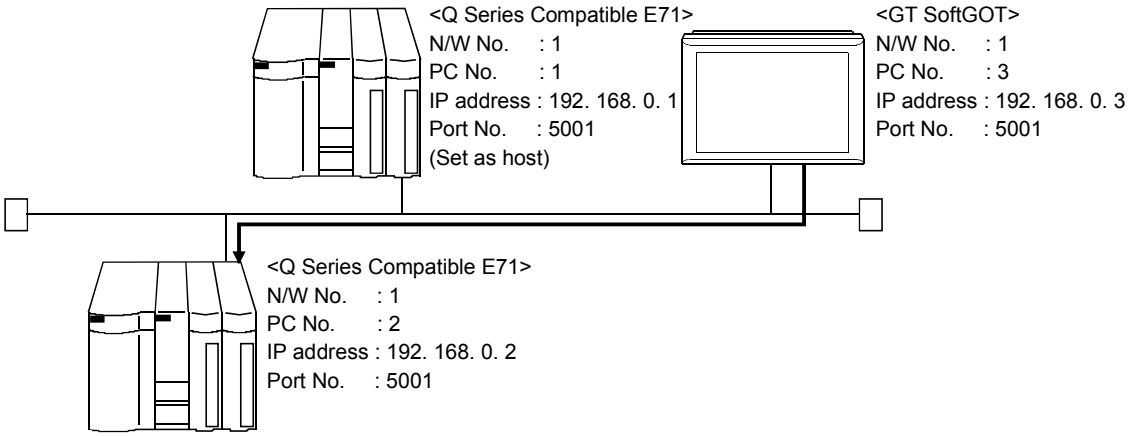


(b) Set the GOT using "Setup" of the GOT.
Refer to Section 11.2.5 for details of the setting.



11.2.3 When using Q Series Compatible E71

For communication from GX Developer via the Q-compatible E71, there are the following setting items and precautions. The explanations in this section will be made for the following system configuration.



POINT

- Refer to item (4) in this section for how to set up the Ethernet unit, network number of GOT, personal computer number, IP address, and port number.
- When connecting multiple GOTs in the Ethernet network, set different PLC No. for each GOT. (Refer to Section 11.2.6)

Procedure for and restrictions on communications via Q-compatible E71

Restrictions

(a) Communications cannot be made via the MELSECNET/10, MELSECNET/B, MELSECNET(II).

(b) The communication is disabled when remote password is set for the Q series E71.
(The system alarm "402 Communication timeout." is displayed.)

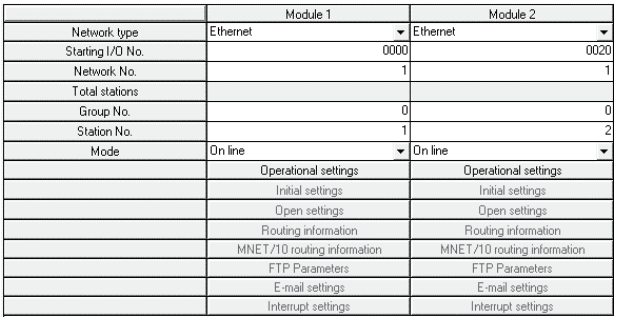
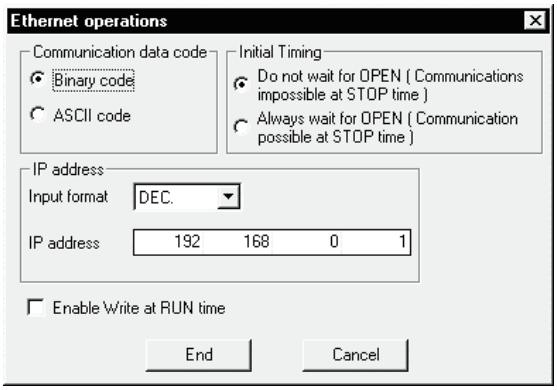
(1) Compatible models

QJ71E71, QJ71E71-B2, QJ71E71-100

(2) Network parameter setting (Setting with GX Developer)

Parameter setting can be made from the MELSECNET/ETHERNET network parameter setting screen.

Set the network type, first I/O No., network No., group No., station number, mode and operation setting.

Item	Setting Screen Examples
Ethernet Parameters	
Operation Setting	

*: Operation settings

To make communications with GX Developer, ask the person in charge of the network about the IP address setting to confirm, and set the IP address.

Since "any" values may be set to the other items, set them according to the specifications of the other node and application connected to the Q series-compatible E71.

The following are the operation setting items that may be set to "any" values on GX Developer.

(1) Communication data code

Either "Binary code" or "ASCII code" may be specified.

(2) Initial Timing

Independently of this setting, communications can be made from GX Developer if the PLC CPU is at a STOP.

(3) Enable Write at RUN time

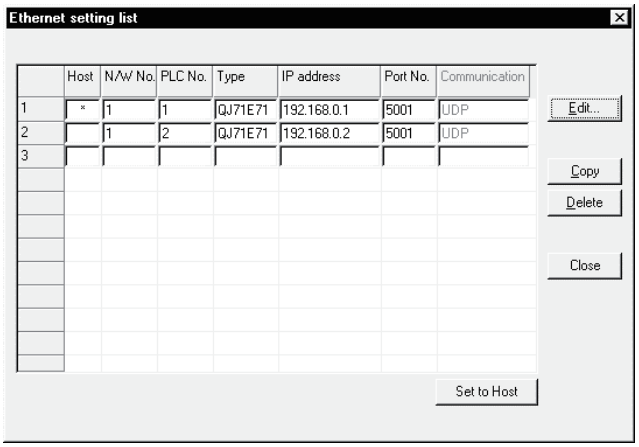
Independently of this setting, online program correction or device test can be performed from GX Developer.

(3) Communications check

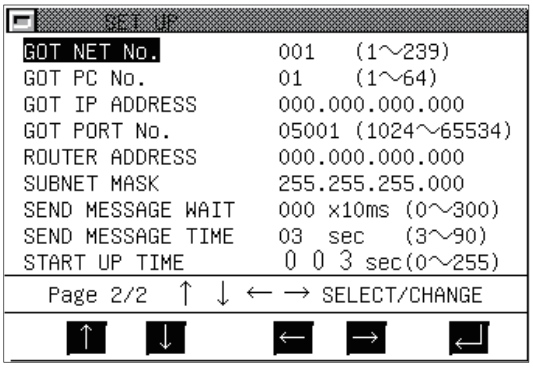
Refer to Section 11.2.1 (5) for communications check.

(4) Settings with GT Designer and GOT

(a) Perform the settings of the Q Series compatible E71 to be monitored in "Ethernet Setting" of GT Designer.
Set the IP address assigned to the Q Series compatible E71 to be connected to.
Refer to GT Designer Help function for Ethernet setting.

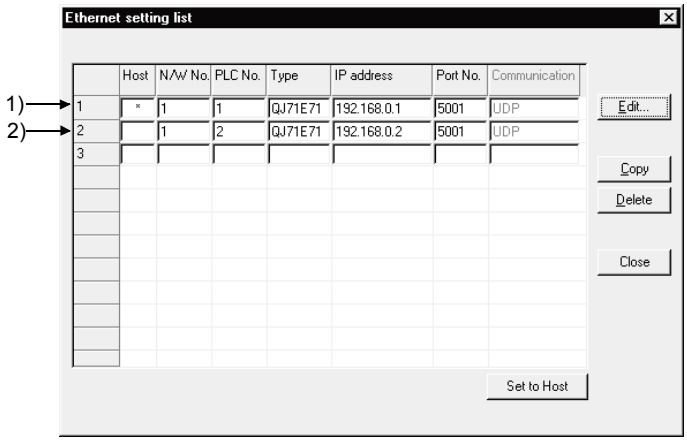


(b) Set the GOT using "Setup" of the GOT.
Refer to Section 11.2.5 for details of the setting.



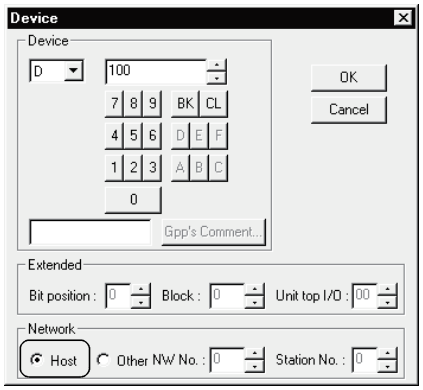
11.2.4 How to Set Devices Using GT Designer

The following explains how to set devices defined with GT Designer when connected via Ethernet.



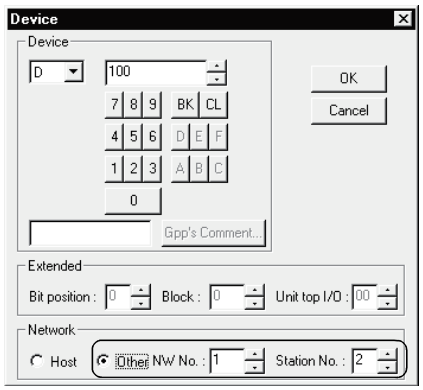
(1) If Ethernet unit 1) (an Ethernet unit set as local station) is monitored by GOT, set the network setting to the local station when the device is set with GT Designer.

<Setting example with GT Designer>



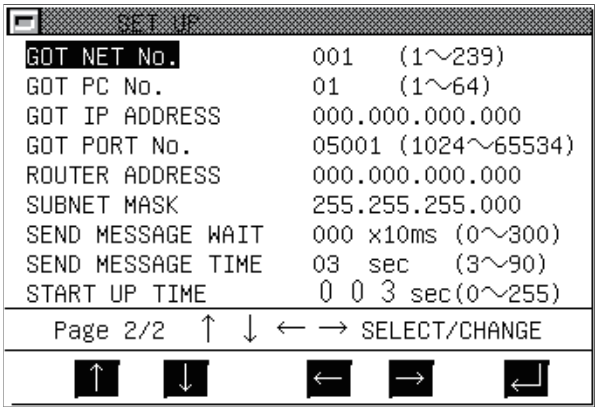
(2) If Ethernet unit 2) (an Ethernet unit that is not set as local station) is monitored by GOT, set the network setting to other station (network No. "1", personal computer station No. "2") when the device is set with GT Designer.

<Setting example with GT Designer>



11.2.5 GOT side settings

When the GOT is connected to the Ethernet network system for monitoring, Ethernet settings must be made to the GOT unit.
Use Setup of the GOT unit's utility functions to make Ethernet settings.
For details of the utility functions, refer to the GOT-A900 Series Operating Manual (GT Works Version 5/GT Designer Version 5 Compatible Extended • Option Function Manual).



Setting item	Description	Factory setting
GOT NET No.	Set the network number of the GOT.	1
GOT PC No.	Set the station number of the GOT. Do not set the same number as the PLC No. of the Ethernet unit to be monitored.	1
GOT IP ADDRESS *1	Set the IP address of the GOT.	000.000.000.000
GOT PORT No.	Set the port number of the GOT.	5001
ROUTER ADDRESS	If the system is connected with the other network by a router, set the router address of the network where the GOT is connected.	000.000.000.000
SUBNET MASK	When the GOT is connected to the Ethernet network controlled by the sub-net, set the sub-net mask commonly set to the networks.	255.255.255.000
SEND MESSAGE WAIT	Set the send wait time to reduce loads on the network and corresponding PLC.	0
SEND MESSAGE TIME *2	Set the time-out period.	3
START UP TIME	Set how many seconds after GOT power-on the communication with the PLC CPU will be started.	3

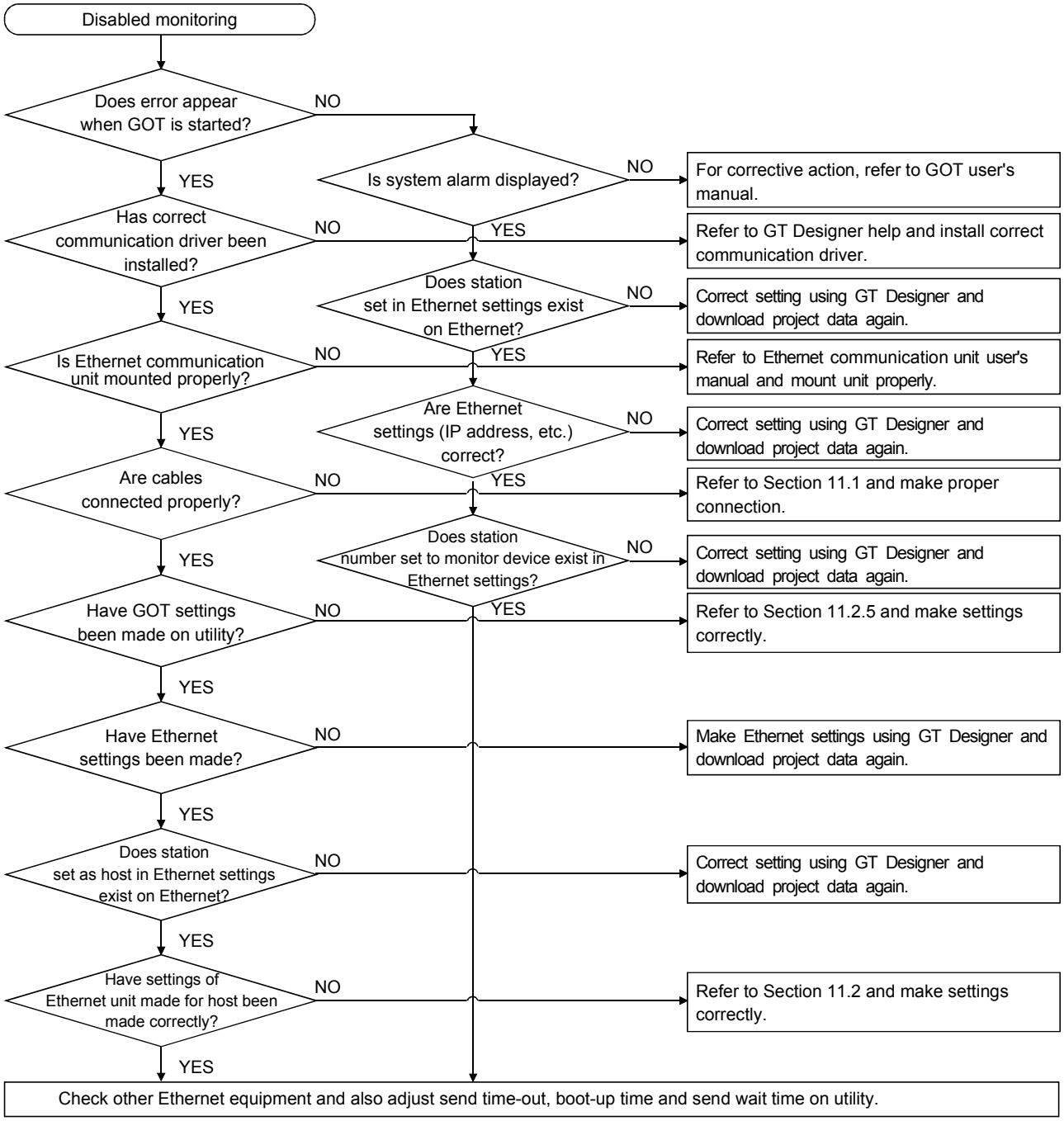
*1 Set the IP address after consulting with the network manager (person who does network planning, IP address management, etc.).
*2 When using the Q series-compatible E71 to make 1:1 communication with the GOT through a 10BASE-T cross cable, set 6 seconds or more as the send time-out period.

POINT

The utility functions can be started by switching power on again after installation of the system programs (Operating System, communication driver, etc.) into the GOT. After the functions have started, touch the [Setup] icon to display the Setup screen, and make settings related to Ethernet connection.

11.3 Troubleshooting for disabled monitoring

The following is the troubleshooting method when the GOT is disabled for monitoring at the time of Ethernet connection.



POINT

If any of the above actions does not enable monitoring, the possible cause is a GOT hardware fault. Consult your sales representative.

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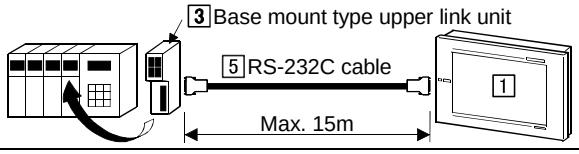
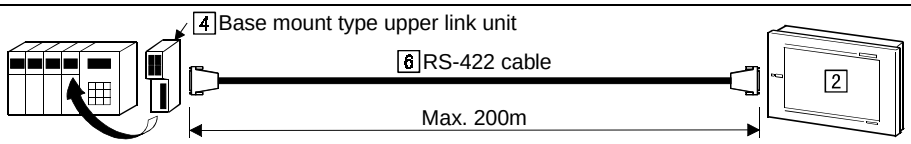
Chapter12 Omron PLC connection

12.1 System configurations

12.1.1 Connection with C200H series

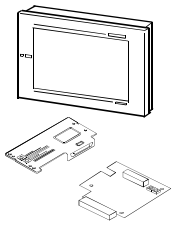
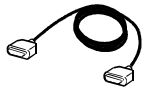
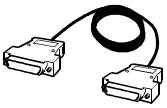
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the C200H series.
The numbers (1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	
	Within 200m	

(2) System equipment

The following table indicates the system equipment needed for connection with the C200H series.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Omron PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Omron PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Base mount type upper link unit	C200H-LK201-V1	
	4	Base mount type upper link unit	C200H-LK202-V1	
	5	RS-232C cable between [upper link unit] and [GOT]	(Refer to Section 12.3 and fabricate on user side.)	
	6	RS-422 cable between [upper link unit] and [GOT]		

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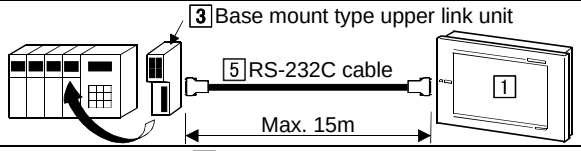
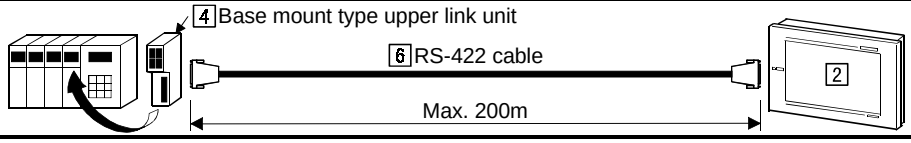
12.1.2 Connection with C200HS series

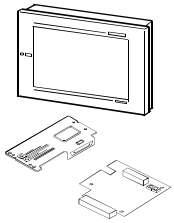
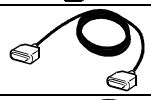
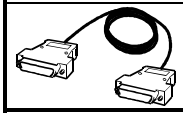
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the C200HS series. The numbers (1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment". Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	
	Within 200m	

(2) System equipment

The following table indicates the system equipment needed for connection with the C200HS series.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Omron PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Omron PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Base mount type upper link unit	C200H-LK201-V1	
	4	Base mount type upper link unit	C200H-LK202-V1	
	5	RS-232C cable between [upper link unit] and [GOT]	(Refer to Section 12.3 and fabricate on user side.)	
	6	RS-422 cable between [upper link unit] and [GOT]		

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12.1.3 Connection with C200Hα series

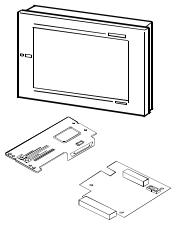
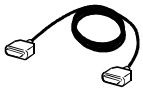
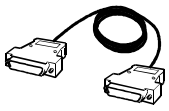
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the C200Hα series.
The numbers (1 to 8) given in the system configurations denote the numbers (1 to 8) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	7 RS-232C cable Max. 15m 1
		3 Base mount type upper link unit 7 RS-232C cable Max. 15m 1
		5 Communication board 7 RS-232C cable Max. 15m 1
	Within 200m	4 Base mount type upper link unit 8 RS-422 cable Max. 200m 2
		6 Communication board 8 RS-422 cable Max. 200m 2

(2) System equipment

The following table indicates the system equipment needed for connection with the C200Hα series.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Omron PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Omron PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Base mount type upper link unit	C200H-LK201-V1	
	4	Base mount type upper link unit	C200H-LK202-V1	
	5	Communication board*1	C200HW-COM02, C200HW-COM05, C200HW-COM06	
	6	Communication board*1	C200HW-COM03, C200HW-COM06	
	7	RS-422 cable beween[CPU] and [GOT]	(Refer to Section 12.3 and fabricate on user side.)	
		RS-232C cable between [upper link unit] and [GOT]		
		RS-232C cable between [communication board] and [GOT]		
	8	RS-422 cable between [upper link unit] and [GOT]		
		RS-422 cable between [communication board] and [GOT]		

*1 The C200HE-CPU11 does not accept the communication board. Fit the board via the upper link unit.

12.1.4 Connection with CQM1

(1) System configurations and connection conditions

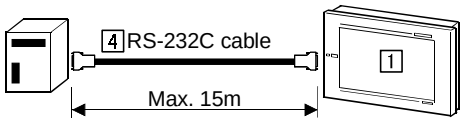
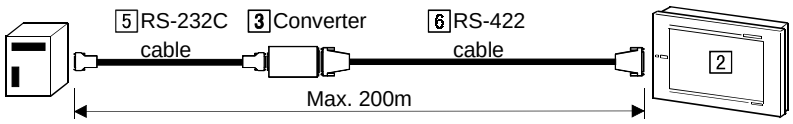
The following system configurations and connection conditions assume connection with the CQM1.

The numbers (1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment".

Refer to these numbers when you want to confirm the types and applications.

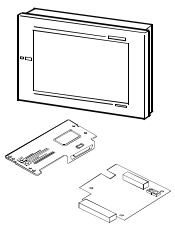
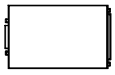
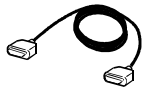
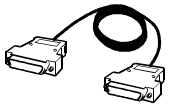
POINT

- Note that the GOT cannot be connected to the CQM1-CPU11, which has no RS-232C interface.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	
	Within 200m	

(2) System equipment

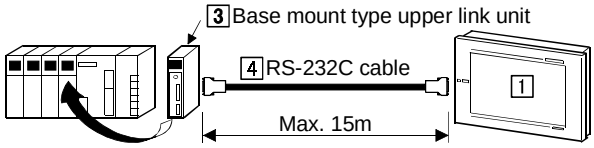
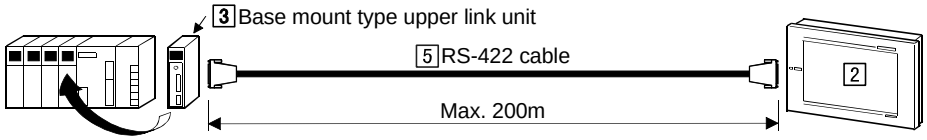
The following table indicates the system equipment needed for connection with the CQM1.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Omron PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Omron PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Converter (recommended product)	EL-LINE-II, KS-10P	
	4	RS-232C cable between [CPU] and [GOT]	(Refer to Section 12.3 and fabricate on user side.)	
	5	RS-232C cable between [CPU] and [converter]		
	6	RS-422 cable between [converter] and [GOT]		

12.1.5 Connection with C1000H or C2000H

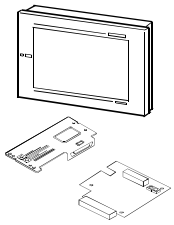
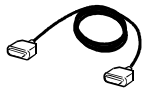
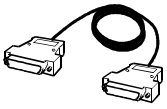
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the C1000H or C2000H.
The numbers (1 to 5) given in the system configurations denote the numbers (1 to 5) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	
	Within 200m	

(2) System equipment

The following table indicates the system equipment needed for connection with the C1000H or C2000H.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Omron PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Omron PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Base mount type upper link unit	C500H-LK201-V1	
	4	RS-232C cable between [upper link unit] and [GOT]	(Refer to Section 12.3 and fabricate on user side.)	
	5	RS-422 cable between [upper link unit] and [GOT]		

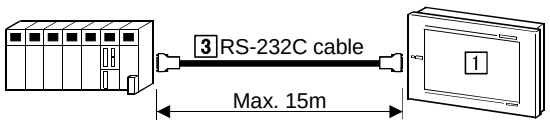
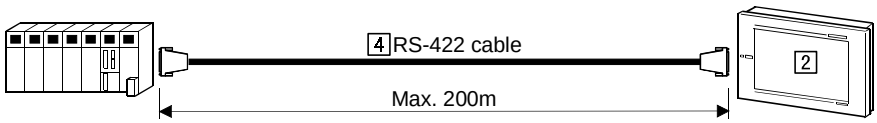
12.1.6 Connection with CV500, CV1000, CV2000, CVM1-CPU01, CVM1-CPU11 or CVM1-CPU21

(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the CV500, CV1000, CV2000, CVM1-CPU01, CVM1-CPU11 or CVM1-CPU21.

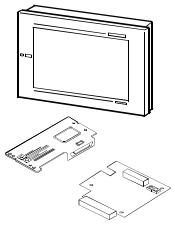
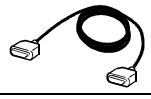
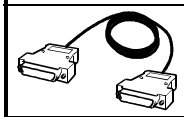
The numbers (1 to 4) given in the system configurations denote the numbers (1 to 4) in "(2) System equipment".

Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	
	Within 200m	

(2) System equipment

The following table indicates the system equipment needed for connection with the CV500, CV1000, CV2000, CVM1-CPU01, CVM1-CPU11 or CVM1-CPU21.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Omron PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Omron PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	RS-232C cable between [CPU] and [GOT]	(Refer to Section 12.3 and fabricate on user side.)	
	4	RS-422 cable between [CPU] and [GOT]		

12.1.7 Connection with CS1

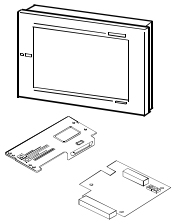
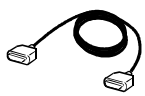
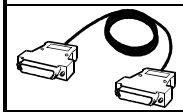
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the CS1. The numbers (1 to 9) given in the system configurations denote the numbers (1 to 9) in "(2) System equipment". Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	6 RS-232C cable, Max. 15m, 1
		3 Communication unit, 7 RS-232C cable, Max. 15m, 1
		4 Communication board, 8 RS-232C cable, Max. 15m, 1
	Within 200m	5 Communication board, 9 RS-422 cable, Max. 200m, 2

(2) System equipment

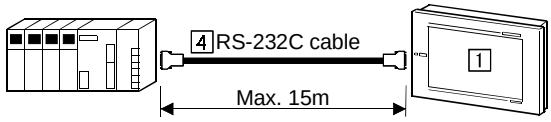
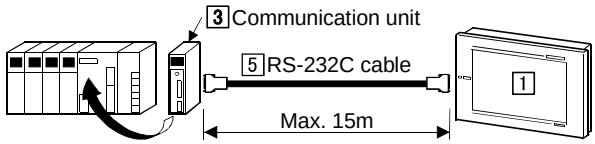
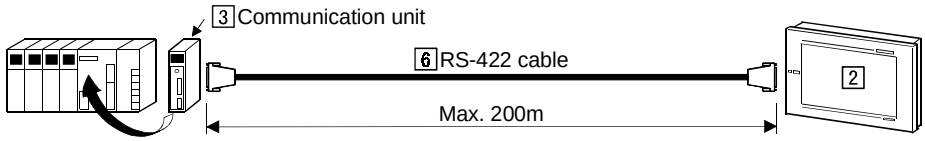
The following table indicates the system equipment needed for connection with the CS1.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Omron PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Omron PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Communication unit	CS1W-SCU21	
	4	Communication board	CS1-SCB21, CS1-SCB41	
	5	Communication board	CS1-SCB41	
	6	RS-232C cable between [CPU] and [GOT]	(Refer to Section 12.3 and fabricate on user side.)	
	7	RS-232C cable between [communication unit] and [GOT]		
	8	RS-232C cable between [communication board] and [GOT]		
	9	RS-422 cable between [communication board] and [GOT]		

12.1.8 Connection with CJ1

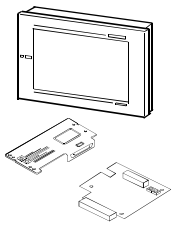
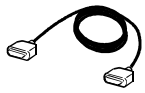
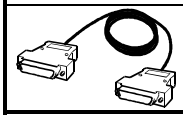
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the CJ1. The numbers (1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment". Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	
		
	Within 200m	

(2) System equipment

The following table indicates the system equipment needed for connection with the CJ1.

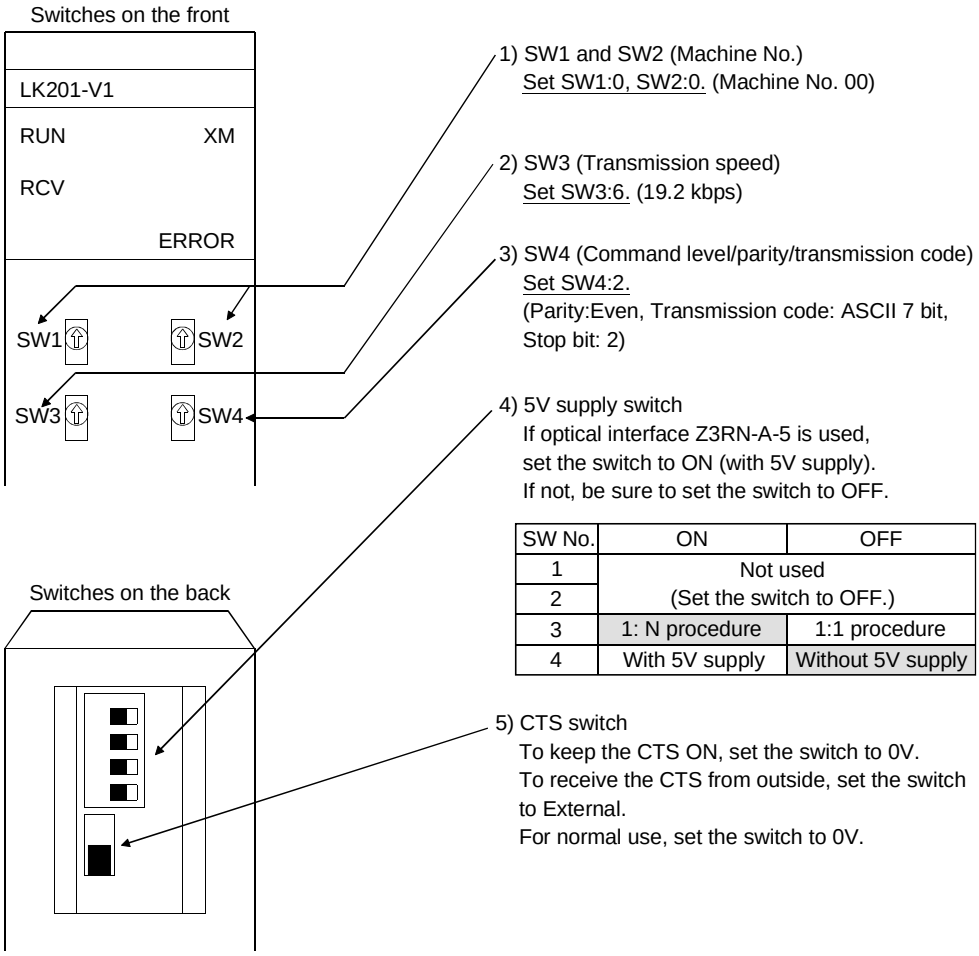
Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Omron PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Omron PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Communication unit	CS1W-SCU41	
	4	RS-232C cable between [CPU] and [GOT]	(Refer to Section 12.3 and fabricate on user side.)	
	5	RS-232C cable between [communication unit] and [GOT]		
	6	RS-422 cable between [communication board] and [GOT]		

12.2 Initial Setting

12.2.1 Switch setting of upper link unit

When using the upper link unit (C200H-LK201-V1, C200H-LK202-V1, C500H-LK201-V1), set the switches as follows.

(1) When using C200H-LK201-V1



SW No.	ON	OFF
1	Not used (Set the switch to OFF.)	
2		
3	1: N procedure	1:1 procedure
4	With 5V supply	Without 5V supply

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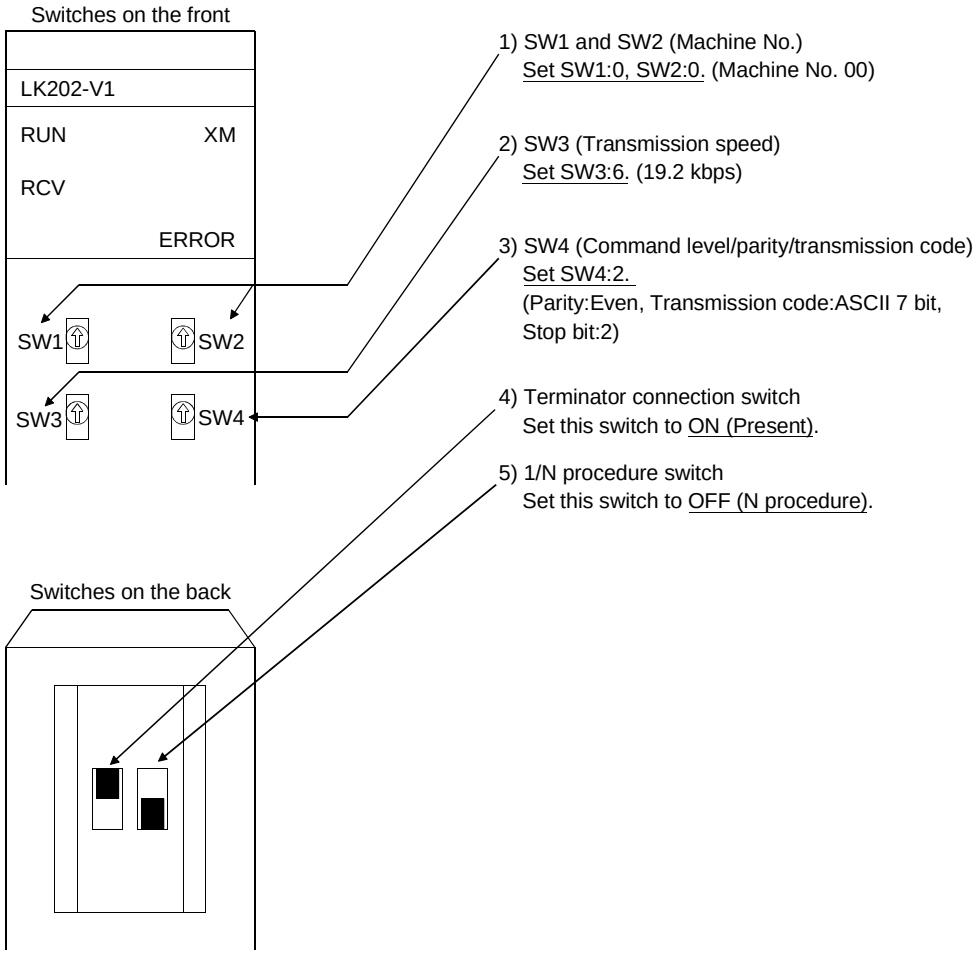
(2) When using C200H-LK202-V1



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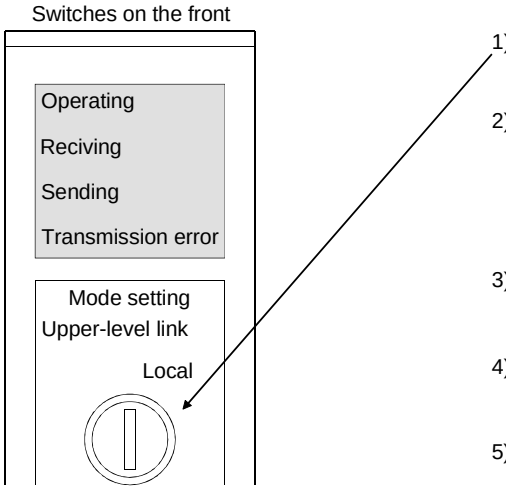
(3) When using C500H-LK201-V1



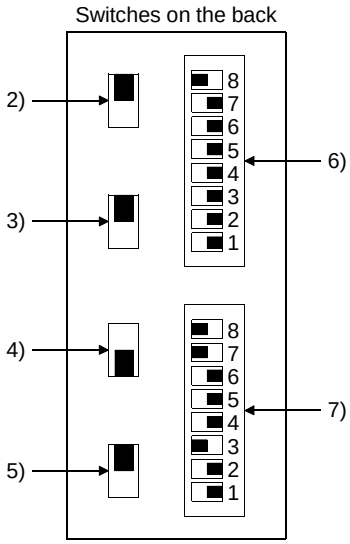
1) Upper link/local switch
Set this switch to Upper link.

2) Switch for RS-232C/RS-422
For RS-422 communication,
set this switch to RS-422 (up).
For RS-232C communication,
set this switch to RS-232C (down).

3) Switch for internal/external clock
Set this switch to Internal (up).

4) Terminator connection switch
Set this switch to Present (down).

5) CTS switch
Set this switch to 0V (up).



6) SW1 (Machine No., ON/OFF of operation)
Set the switches as follows.

1	2	3	4	5	6	7	8
OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON

Machine No.00 — Operation

7) SW2 (Transmission speed, 1/N procedure, Level)

1	2	3	4	5	6	7	8
OFF	OFF	ON	OFF	OFF	OFF	ON	ON

19.2KBPS — Levels 1, 2, and 3 are effective.
1: N procedure

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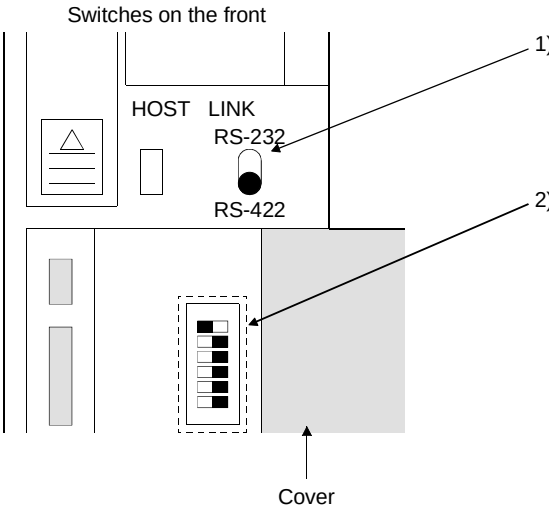
12.2.2 Setting CV500, VC1000, CV2000, CVM1-CPU01, CVM1-CPU11, CVM1-CPU21, CS1,CJ1

(1) Switches

For CPU (CV500, VC1000, CV2000, CVM1-CPU01, CVM1-CPU11, CVM1-CPU21, CS1, CJ1), set the switches as follows.

(a) When CV500, CV1000, CV2000, CVM1-CPU01, CVM1-CPU11 or CVM1-CPU21 is used



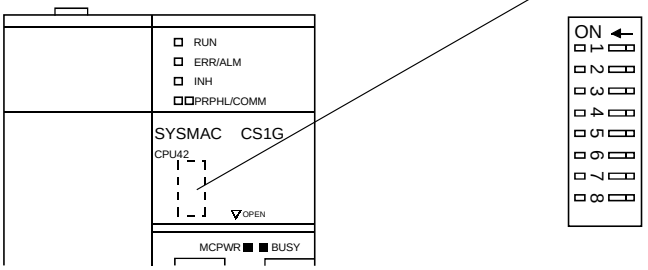
1) Switch for RS-232C/RS-422
For RS-422 communication, set this switch to RS-422 (down).
For RS-232C communication, set this switch to RS-232C (up).

2) Dip switches
Set the switches as follows.

1	2	3	4	5	6
OFF	OFF	OFF	OFF	OFF	ON

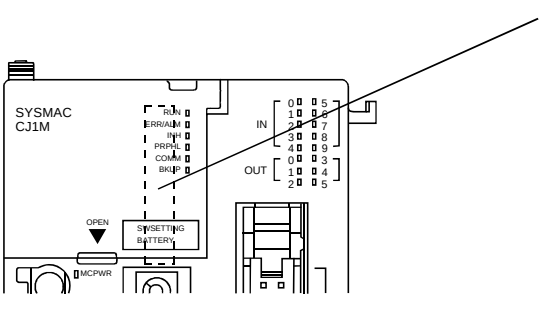
Be sure to set the switches shaded with ▭.

(b) When CS1 is used



Set all DIP switches to OFF.

(c) When CJ1 is used



Set all DIP switches to OFF.

(2) Setting by peripheral tool

Use a peripheral tool to set the CPU (CV500, VC1000, CV2000, CVM1-CPU01, CVM1-CPU11, CVM1-CPU21, CS1, CJ1) as follows.

Item	Set value
Transmission speed	4800bps/9600bps/19200bps/38400bps
Stop bit	2 stop bit
Parity	Even parity
Data length	7 bit
Machine No.	Machine No. 00

12.2.3 Initializing C200Hα series and CQM1

Before using the RS232C port of C200Hα series and CQM1, write values to the devices as follows and initialize the port by using a peripheral tool or the DM monitor.
For further details, refer to the instruction manual of C200Hα series and CQM1.

Device name	Value	Device name	Value
DM6645	0001H	DM6648	0000H
DM6646	0304H	DM6649	0000H
DM6647	0000H		

12.2.4 Initializing communication board

Before using the communication board, write values to the devices as follows and initialize each port of the communication board.
For application of devices and initialization programs, refer to the instruction manual of the communication board.

(1) For C200HW-COM02, C200HW-COM03, C200HW-COM05, C200HW-COM06

Port	Device name	Value	Port	Device name	Value
A	DM6550 to DM6554	Not required	A	DM6557	0000H
	DM6555	0001H		DM6558	0000H
	DM6556	0304H		DM6559	0000H

(2) For CS1W-SCB21, CS1W-SCB41

Port	Device name	Value	Port	Device name	Value
1	DM32000	8500H	2	DM32010	8500H
	DM32001	0005H to 0008H *1		DM32011	0005H to 0008H *1
	DM32002	0000H		DM32012	0000H
	DM32003	0000H		DM32013	0000H
	DM32008	0000H		DM32018	0000H
	DM32009	0096H		DM32019	0096H

*1 Choose the written value according to the set transmission speed.

Transmission speed	Value	Transmission speed	Value
4800bps	0005H	19200bps	0007H
9600bps	0006H	38400bps	0008H

12.2.5 Initializing communication unit

Before using the communication unit, write values to the devices as follows and initialize each port of the communication unit.
For application of devices and initialization programs, refer to the instruction manual of the communication board.

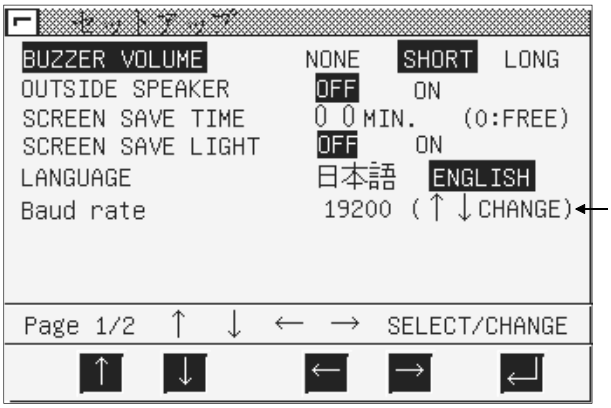
Port	Device name	Value	Port	device name	Value
1	DM30000	8500H	2	DM30010	8500H
	DM30001	0005H to 0008H *2		DM30011	0005H to 0008H *2
	DM30002	0000H		DM30012	0000H
	DM30003	0000H		DM30013	0000H
	DM30008	0000H		DM30018	0000H
	DM30009	0096H		DM30019	0096H

*1 Set the unit number to 00.
*2 Choose the written value according to the set transmission speed.

Transmission speed	Value	Transmission speed	Value
4800bps	0005H	19200bps	0007H
9600bps	0006H	38400bps	0008H

12.2.6 GOT side settings

When connecting the GOT and OMRON PLC, you need to set the transmission speed to the GOT according to the setting of the OMRON PLC used.
Set the transmission speed on Setup of the GOT's utility function.
For details of the utility function, refer to the GOT-A900 Series Operating Manual (GT Works2 Version1/GT Designer2 Version1 Compatible Extended • Option Function Manual).



Baud rate
Choose the GOT side transmission speed.
(Factory-set to 19200bps)

POINT

The utility function can be started by switching power on again after installing the system programs (system OS, communication driver, etc.) into the GOT.
After the utility function has started, touch the [Setup] icon to display the setup screen, and make settings related to OMRON PLC connection.

12.3 Connection cable

12.3.1 RS-422 cable

The connection diagram and connectors for the RS-422 cables between the upper link unit, the communication board/unit, the CPU and the GOT are as follows.

(1) Connection diagram

1) Upper link unit (C200H-LK202-V1)

2) Communication board (C200HW-COM03, C200HW-COM06, CS1W-SCB41)
Communication unit (CS1W-SCU41)

Omron (D-sub 9-pin male metric screw type)				Cable connection and direction of signal	GOT (D-sub 25-pin male metric screw type)	
Signal name		Pin No.			Pin No.	Signal name
1)	2)	1)	2)			
SDB(SDA)		5	2		2	RDA
SDA(SDB)		9	1		15	RDB
RDB(RDA)		1	8		3	SDA
RDA(RDB)		6	6		16	SDB
					5	RSA
					18	RSB
					4	CSA
					17	CSB
					20	
SG	SHELL	3			8	SG
					21	SG(shield)

3) CPU (CV500, CV1000, CV2000, CVM1-CPU01, CVM1-CPU11, CVM1-CPU21)

Omron (D-sub 9-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 25-pin male metric screw type)	
Signal name	Pin No.		Pin No.	Signal name
SDB(SDA)	2		2	RDA
SDA(SDB)	1		15	RDB
RDB(RDA)	8		3	SDA
RDA(RDB)	6		16	SDB
			5	RSA
RS	4		18	RSB
CS	6		4	CSA
			17	CSB
			20	
SHELL			8	SG
			21	SG(shield)

POINT

Note that the signal names of poles A and B are opposite between the GOT and Omron PLC.

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(2) Connector and connector cover

• Connector for GOT

Description	Model	Manufacturer
Connector with cover	17JE-23250-02(D8A6)	DDK

• Connector for Omron

Use connectors attached to the upper link unit, the communication board/unit and the CPU.

(3) Precautions for cable preparation

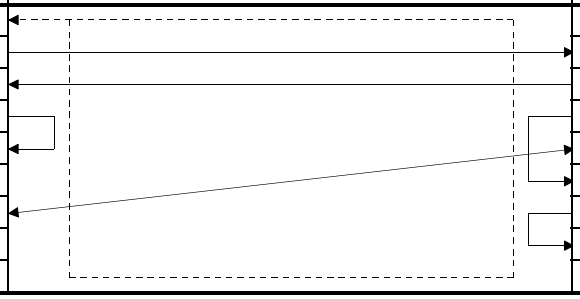
The cable must be 200m(655.74feet) or shorter.

12.3.2 RS-232C cable

The connection diagram and connectors for the RS-232C cables between the upper link unit, the communication board/unit, the CPU and the GOT are as follows.

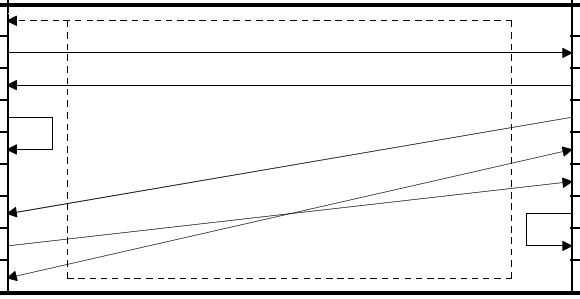
(1) Connection diagram

1) Upper link unit (C200H-LK201-V1, C500-LK201-V1)

Omron (D-sub 25-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
——	6		6	DSR(DR)
SG	7		7	RS(RTS)
——	8		8	CS(CTS)
ER	20		9	——

2) CPU (C200Hα series)

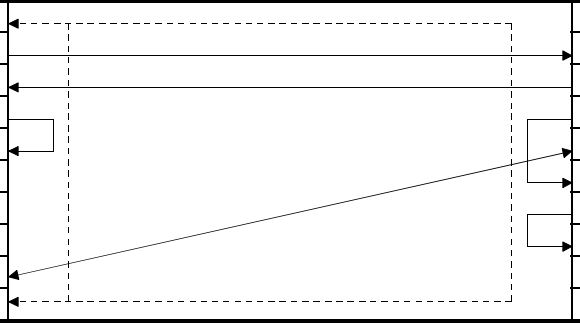
3) Communication board (C200HW-COM02, C200HW-COM05, C200HW-COM06)

Omron (D-sub 25-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
5V	6		6	DSR(DR)
DR(DSR)	7		7	RS(RTS)
ER(DTR)	8		8	CS(CTS)
SG	9		9	——

4) CPU(CV500, CV1000, CV2000, CVM1-CPU01, CVM1-CPU11, CVM1-CPU21, CS1, CJ1)

5) Communication board (CS1W-SCB21, CS1W-SCB41)

6) Communication unit (CS1W-SCU21, CS1W-SCU41)

Omron (D-sub 25-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RSD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
——	6		6	DSR(DR)
CD	7		7	RS(RTS)
——	8		8	CS(CTS)
SG	9		9	——
FG	SHELL		——	——

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(2) Connector and connector cover

• Connector for GOT

Description	Model	Manufacturer
Connector	HDEB-9S(05)	HIROSE ELECTRIC CO.,LTD
Connector cover	HDE-CTH1(4-40)	HIROSE ELECTRIC CO.,LTD

• Connector for Omron side

Use connectors attached to the upper link unit, the communication board, Communication unit and the CPU.

(3) Precautions for cable preparation

The cable must be 15m(49.18feet) or shorter.

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12.3.3 Converter and connection cable used in CQM1

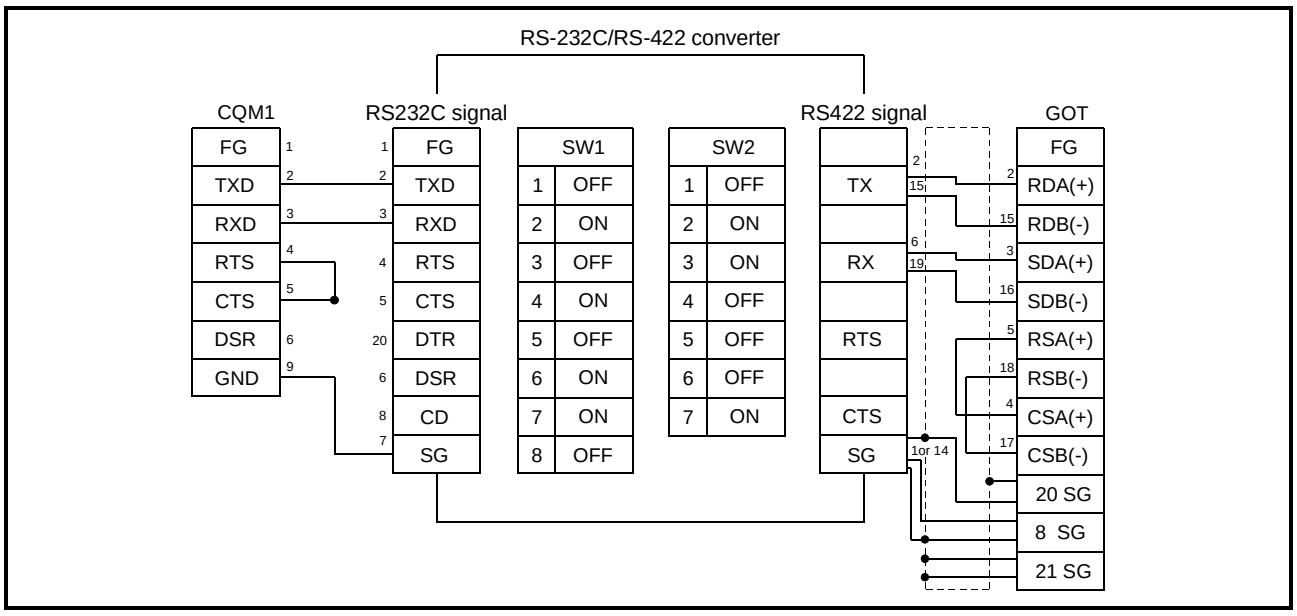
The converters (recommended parts) for connecting the CQM1 and the GOT, and the connection diagram and connectors are as follows.

(1) Available converter

Model name	Manufacturer
EL-LINE-II	EL Engineering
KS-10P	System Sacom

(2) Connection diagram

1) When using EL-LINE-II



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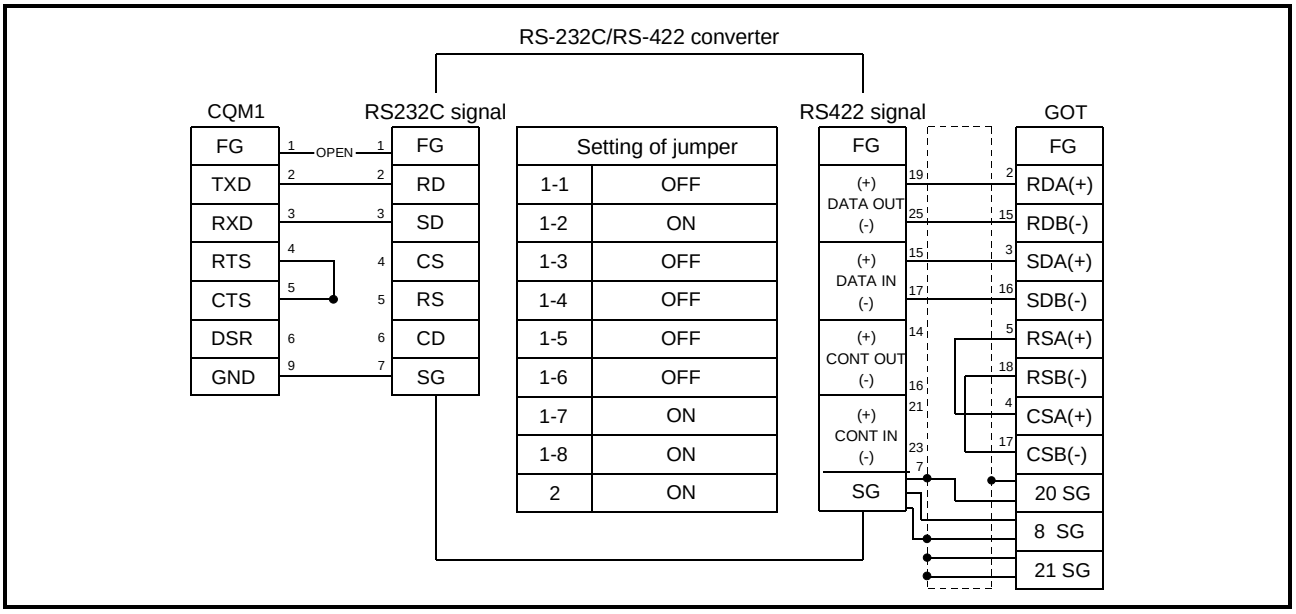
2) When using KS-10P



(3) Connector and connector cover

• Connector for GOT

Description	Model	Manufacturer
Connector with cover	17JE-23250-02(D8A6)	DDK

• Connector for CQM1
Use connector attached to the CQM1.

• When using EL-LINE-II
RS-232C : D-Sub 25-pin male screw type
RS-422 : D-Sub 25-pin female screw type

• When using KS-10P
RS-232C : D-Sub 9-pin male screw type
RS-422 : D-Sub 25-pin female screw type

(4) Precautions for cable preparation

• The cable length (including the converter) must be 200m(655.74feet) or shorter.

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Chapter13 Yaskawa PLC connection

13.1 System configurations

13.1.1 Connection with GL60S, GL60H or GL70H

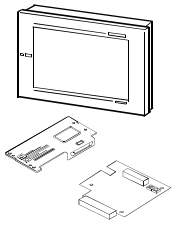
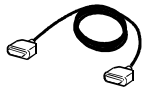
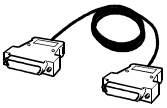
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the GL60S, GL60H or GL70H.
The numbers (1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Changes with the connection target CPU specifications.	3 Memo bus unit 5 RS-232C cable 1 4 Memo bus unit 6 RS-422 cable 2

(2) System equipment

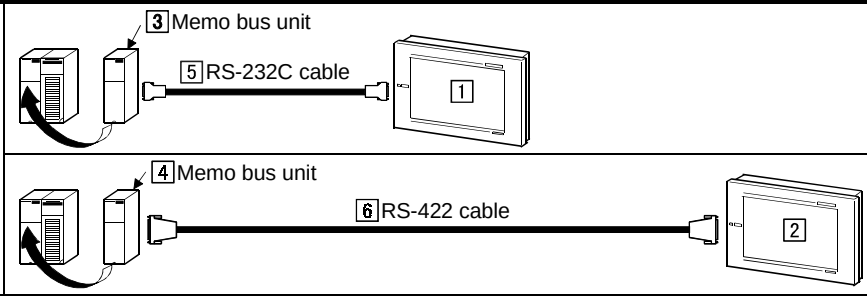
The following table indicates the system equipment needed for connection with the GL60S, GL60H or GL70H.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Yaskawa PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Yaskawa PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Memo bus unit	JAMSC-IF60/61	
	4	Memo bus unit	JAMSC-IF612	
	5	RS-232C cable between [memo bus unit] and [GOT]	(Refer to Section 13.3 and fabricate on user side.)	
	6	RS-422 cable between [memo bus unit] and [GOT]		

13.1.2 Connection with GL120 or GL130

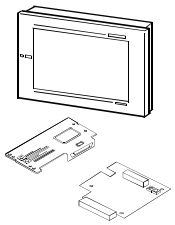
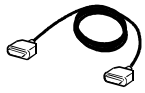
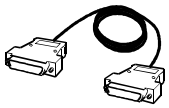
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the GL120 or GL130.
The numbers (1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Changes with the connection target CPU specifications.	

(2) System equipment

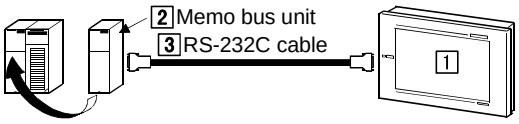
The following table indicates the system equipment needed for connection with the GL120 or GL130.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Yaskawa PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Yaskawa PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Memo bus unit	120 CPU 341 00	
	4	Memo bus unit	120 NOM 271 00	
	5	RS-232C cable between [memo bus unit] and [GOT]	(Refer to Section 13.3 and fabricate on user side.)	
	6	RS-422 cable between [memo bus unit] and [GOT]		

13.1.3 Connection with CP-9200SH

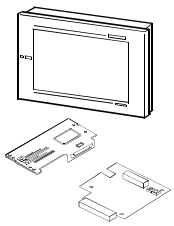
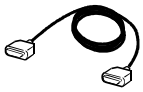
(1) System configurations and connection conditions

The following system configuration and connection conditions assume connection with the CP-9200SH.
The numbers (1 to 3) given in the system configurations denote the numbers (1 to 3) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Changes with the connection target CPU specifications.	

(2) System equipment

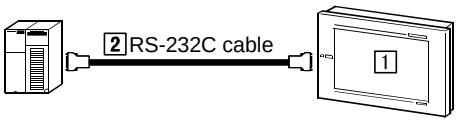
The following table indicates the system equipment needed for connection with the CP-9200SH.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Yaskawa PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Yaskawa PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	2	Memo bus unit	CP-217IF	
	3	RS-232C cable between [memo bus unit] and [GOT]	(Refer to Section 13.3 and fabricate on user side.)	

13.1.4 Connection with MP-920, MP-930, CP-9300MS, CP-9200(H) or PROGIC-8

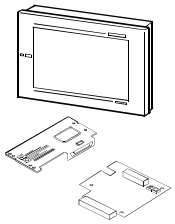
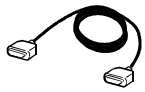
(1) System configurations and connection conditions

The following system configuration and connection conditions assume connection with the MP-920, MP-930, CP-9300MS, CP-9200(H) or PROGIC-8.
The numbers (1 to 2) given in the system configurations denote the numbers (1 to 2) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Changes with the connection target CPU specifications.	

(2) System equipment

The following table indicates the system equipment needed for connection with the MP-920, MP-930, CP-9300MS, CP-9200(H) or PROGIC-8.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Yaskawa PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	RS-232C cable between [CPU] and [GOT]	(Refer to Section 13.3 and fabricate on user side.)	

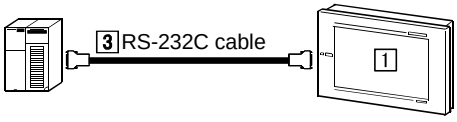
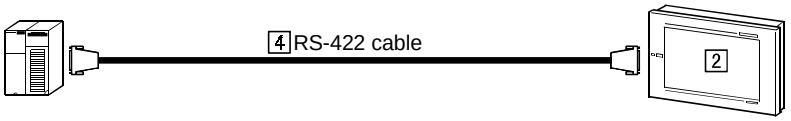
13.1.5 Connection with GL120 or GL130

(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the MP-940.

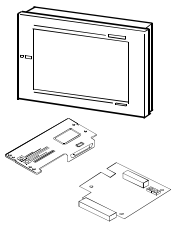
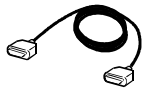
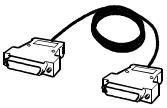
The numbers (1 to 4) given in the system configurations denote the numbers (1 to 4) in "(2) System equipment".

Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Changes with the connection target CPU specifications.	 

(2) System equipment

The following table indicates the system equipment needed for connection with the MP-940.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Yaskawa PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Yaskawa PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	RS-232C cable between [memo bus unit] and [GOT]	(Refer to Section 13.3 and fabricate on user side.)	
	4	RS-422 cable between [memo bus unit] and [GOT]		

13.2 Initial settings

13.2.1 PLC side settings

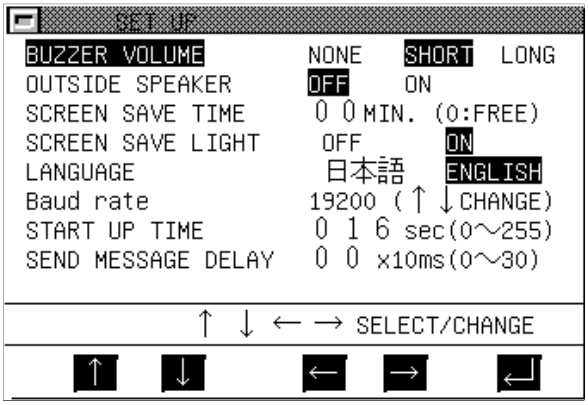
When connecting the GOT and Yaskawa Electric PLC, make the following communication and port settings with the peripheral tool.
For details of the setting method, refer to the instruction manual of the Yaskawa Electric PLC.

Item	Set value
Address	1
Protocol	MEMOBUS
Mode	RTU
Data length	8
Parity	EVEN
Stop	1
Communication speed (transmission speed)*	4800bps/9600bps/19200bps/38400bps

*The upper limit that may be set changes with the Yaskawa Electric PLC used.

13.2.2 GOT side settings

When connecting the GOT and Yaskawa Electric PLC, you need to set the transmission speed to the GOT according to the setting of the Yaskawa Electric PLC used.
Set the transmission speed on Setup of the GOT's utility function.
For details of the utility function, refer to the GOT-A900 Series Operating Manual (GT Works Version 5/GT Designer Version 5 Compatible Extended • Option Function Manual).



Setting item	Description	Factory setting
Baud rate	Choose the transmission speed (4800, 9600, 19200, 38400).	19200
START UP TIME	Set how many seconds after GOT power-on the communication with the PLC CPU will be started.	GL series : 16 Other thanGL series : 1
SEND MESSAGE DELAY	Set the waiting time from when the GOT has received data from the PLC CPU until it sends next data to the PLC CPU.	0

POINT

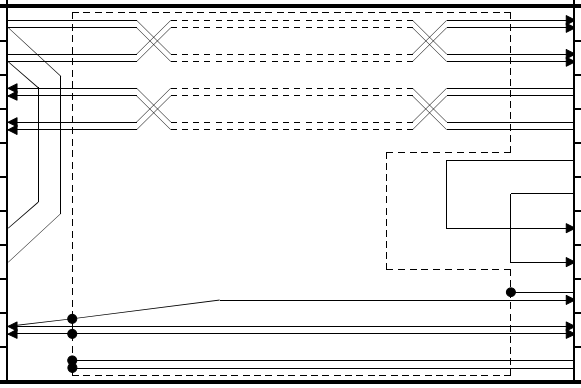
The utility function can be started by switching power on again after installing the system programs (system OS, communication driver, etc.) into the GOT.
After the utility function has started, touch the [Setup] icon to display the setup screen, and make settings related to Yaskawa PLC connection.

13.3 Connection cable

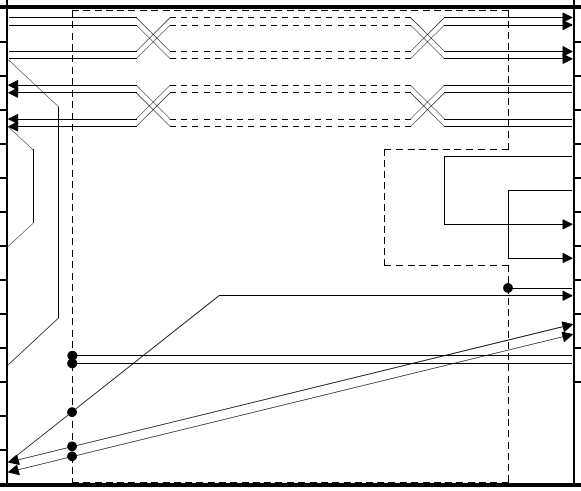
13.3.1 RS-422 cable

(1) Connection diagram

(a) When using GL60S, GL60H, GL70H, GL120 or GL130

Yaskawa PLC (D-sub 9-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 25-pin male metric screw type)	
Signal name	Pin No.		Pin No.	Signal name
SDA	2		2	RDA
SDB	9		15	RDB
RDA	3		3	SDA
RDB	6		16	SDB
			5	RSA
PGND	1		18	RSB
Reception end	4		4	CSA
Reception end	8		17	CSB
			20	
SG	7		8	SG
			21	SG(shield)

(b) When using MP-940

Yaskawa PLC (14 pins)		Cable connection and direction of signal	GOT (D-sub 25-pin male metric screw type)	
Signal name	Pin No.		Pin No.	Signal name
TX+	1		2	RDA
TX-	2		15	RDB
RX+	3		3	SDA
RX-	4		16	SDB
	5		5	RSA
RX-	6		18	RSB
Reception end	7		4	CSA
TX+	8		17	CSB
TX-	9		20	SG
RX+	10		8	SG
Sending end	11		21	SG(shield)
	12			
VCC	13			
GND	14			

(2) Connector and connector cover

• Connector for GOT

Description	Model	Manufacturer
Connector with cover	17JE-23250-02(D8A6)	DDK

• Connector for Yaskawa PLC

Use a connector matching the memo bus unit.

(3) Precautions for cable preparation

Maximum cable length depends on the specifications of the memo bus unit.
For further details, refer to the instruction manual of the memo bus unit.

13.3.2 RS-232C cable

(1) Connection diagram

(a) When using GL60S, GL60H, GL70H, GL120, GL130, MP-920, MP-930, CP-9200(H) or PROGIC-8 (when using D-sub 9-pin port)

Yaskawa PLC (D-sub 9-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
TXD	2		2	RD(RXD)
RXD	3		3	SD(TXD)
RTS	4		4	DTR(ER)
CTS	5		5	SG
DSR	6		6	DSR(DR)
GND	7		7	RS(RTS)
EST	8		8	CS(CTS)
DTR	9		9	——

(b) When using CP-9200SH

Yaskawa PLC (D-sub 25-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
TXD	2		2	RD(RXD)
RXD	3		3	SD(TXD)
RS	4		4	DTR(ER)
CS	5		5	SG
DSR	6		6	DSR(DR)
SG	7		7	RS(RTS)
CD	8		8	CS(CTS)
DTR	20		9	——

(c) When using CP-9300MS

Yaskawa PLC (D-sub 9-pin male metric screw type)			Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name		Pin No.		Pin No.	Signal name
CN2	CN3				
FG	——	1		1	CD
TXD		2		2	RD(RXD)
RXD		3		3	SD(TXD)
RTS		4		4	DTR(ER)
OP	CTS	5		5	SG
DSR	——	6		6	DSR(DR)
GND		7		7	RS(RTS)
PWR	——	8		8	CS(CTS)
DTR	——	9		9	——

(d) When using PROGIC-8 (when using D-sub 15-pin port)

Yaskawa PLC side (D-sub 15-pin male metric screw type)		Cable connection and signal direction	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
TXD	2		2	RD(RXD)
RXD	3		3	SD(TXD)
RTS	4		4	DTR(ER)
CTS	5		5	SG
DSR	6		6	DSR(DR)
GND	7		7	RS(RTS)
EST	8		8	CS(CTS)
DTR	9		9	——

(e) When using MP-940

Yaskawa PLC (14 pins)		Cable connection and signal direction	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
TXD	1		1	CD
	2		2	RD(RXD)
RXD	3		3	SD(TXD)
CTS	6		4	DTR(ER)
RTS	12		5	SG
			6	DSR(DR)
GND	14		7	RS(RTS)
			8	CS(CTS)
*			9	

* Clamped to the hood

(2) Connector and connector cover

• Connector for GOT

Description	Model	Manufacturer
Connector	HDEB-9S(05)	HIROSE ELECTRIC CO.,LTD
Connector cover	HDE-CTH1(4-40)	HIROSE ELECTRIC CO.,LTD

• Connector for Yaskawa PLC

Use connectors matching the Yaskawa PLC.

(3) Precautions for cable preparation

The maximum cable length depends on the specifications of the Yaskawa PLC.
For further details, refer to the instruction manuals of the Yaskawa PLC.

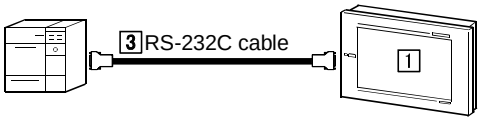
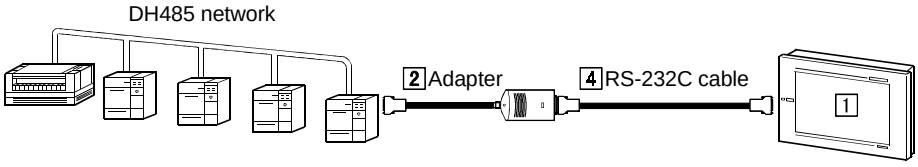
Chapter14 Allen-Bradley PLC connection

14.1 System configurations

14.1.1 Connection with SLC500 series

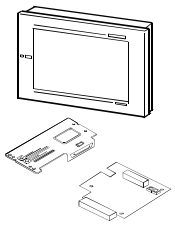
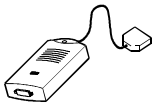
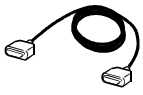
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the SLC500 series.
The numbers (1 to 4) given in the system configurations denote the numbers (1 to 4) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Changes with the connection target CPU specifications.	
		

(2) System equipment

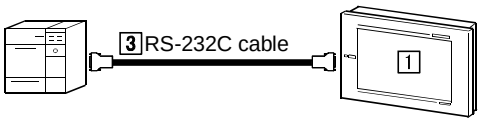
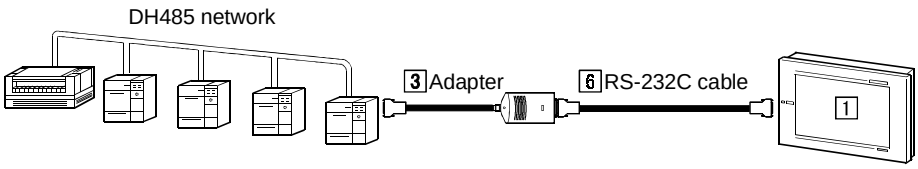
The following table indicates the system equipment needed for connection with the SLC500 series.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Allen-Bradley PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Adaptor (Allen-Bradley make)	1770-KF3	
	3	RS-232C cable between [CPU] and [GOT]	(Refer to Section 14.4 and fabricate on user side.)	
	4	RS-232C cable between [adaptor] and [GOT]		

14.1.2 Connection with MicroLogix 1000 series or MicroLogix 1500 series

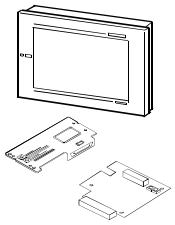
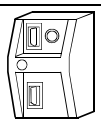
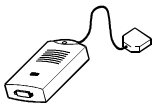
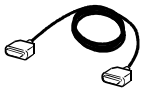
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the MicroLogix 1000 series or MicroLogix 1500 series.
The numbers (1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Changes with the connection target CPU specifications.	
		

(2) stem equipment

The following table indicates the system equipment needed for connection with the MicroLogix 1000 series or MicroLogix 1500 series.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Allen-Bradley PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Converter (Allen-Bradley make)	1761-NET-AIC	
	3	Adaptor (Allen-Bradley make)	1770-KF3	
	4	RS-232C cable between [CPU] and [converter]	1761-CBL-AM00	
	5	RS-232C cable between [converter] and [GOT]*1	1761-CBL-AC00(C)	
	6	RS-232C cable between [adaptor] and [GOT]	(Refer to Section 14.4 and fabricate on user side.)	

*1 The connection cable may also be fabricated on user side. Refer to Section 14.4 for details of the fabrication method.

14.2 Initial settings

14.2.1 PLC side settings

For monitoring with connection to the GOT, make the communication settings and the port settings with the peripheral tool as follows.
For details, refer to the operation manual of the Allen-Bradley PLC.

(1) When connecting one CPU

Setting of Allen-Bradley PLC	
Band Rate	4800bps/9600bps/19200bps/38400bps*1
Parity	SLC500 series: EVEN MicroLogix1000 series: NONE MicroLogix1500 series: NONE
Communication Driver	DF1 HALF-DUPLEX SLAVE
Duplicate Packet Detection	DISABLE
Error Detection	BCC
control Line	NO HANDSHAKING
Station Address	0

*1 The SLC500 series does not support 38400bps.

(2) When connecting multiple CPUs

Setting of Adpter	
Band Rate	4800bps/9600bps/19200bps
Parity	EVEN
Flow Control	Disable (No Handshaking)
DF1 Device Category	DF1 half-duplex slave, local mode
Error Detection	BCC
DH-485 Baud Rate	19200bps
Maximum Node Address	1 to 31*1
DH-485 Node Address	0 to 31*2

*1 For the maximum node address, set the same address as the maximum node address on the DH-485 network.

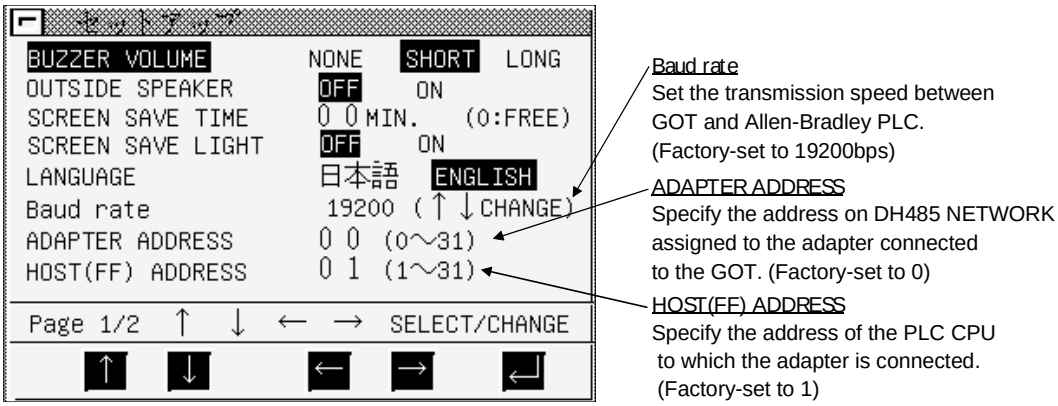
*2 Set the same address as the adaptor address which is set in the setup of the GOT's utility function. Set the DH-485 node address carefully so that it does not overlap the node address of the PLC on the DH-485 network.

14.2.2 GOT side settings

When connecting the GOT and Allen-Bradley PLC, you need to make the following settings on Setup of the GOT's utility function.

• Baud rate
Set the transmission speed between GOT and Allen-Bradley PLC.
(Factory-set to 19200bps)
• ADAPTER ADDRESS
Specify the address on DH485 NETWORK assigned to the Adapter connected to the GOT. Set the same address as the DH-485 node address specified for the adaptor. Set the DH-485 node address carefully so that it does not overlap the node address of the PLC on the DH-485 network.
(Setting is needed only when multiple CPUs are connected Factory-set to 0)
• HOST (FF) ADDRESS
Specify the address on DH485 NETWORK assigned to the PLC CPU to which the Adapter is connected.
The specified PLC CPU is the "host" when monitor device setting is made on the GT Designer.
For details of monitor device setting, refer to the help function of GT Designer.
(Factory-set to 1)

For details of the utility function, refer to the GOT-A900 Series Operating Manual (GT Works Version 5/GT Designer Version 5 Compatible Extended • Option Function Manual).



POINT

The utility function can be started by switching power on again after installing the system programs (system OS, communication driver, etc.) into the GOT.
After the utility function has started, touch the [Setup] icon to display the setup screen, and make settings related to Allen-Bradley PLC connection.

14.3 Transmission specification

Transmission specification for communication between the GOT and the Allen-Bradley PLC is as follows:

(1) When connecting one CPU

Item	Setting details
Transmission speed	4800bps/9600bps/19200bps/38400bps*1
Data length	8 bit
Stop bit	1 bit
Parity bit	SLC500 series: EVEN MicroLogix1000 series: NONE MicroLogix1500 series: NONE
Control method	None

*1 The SLC500 series does not support 38400bps.

(2) When connecting multiple CPUs

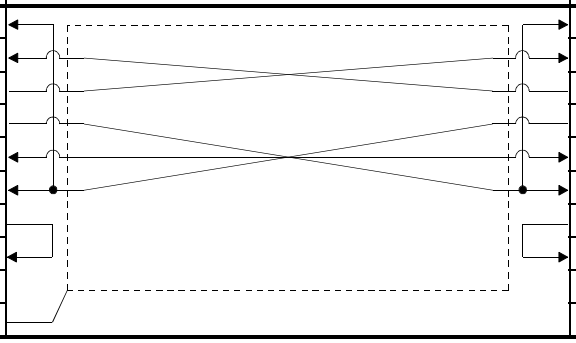
Item	Setting details
Transmission speed	4800bps/9600bps/19200bps
Data length	8 bit
Stop bit	1 bit
Parity bit	EVEN
Control method	None

14.4 Connection cable

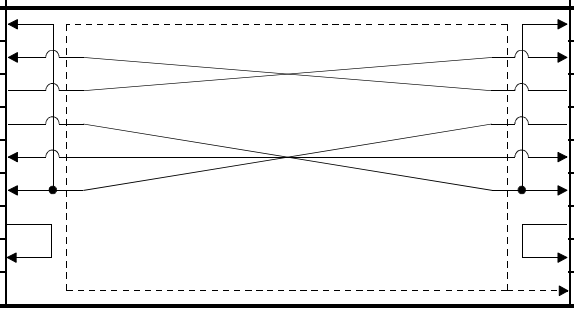
The connection diagram and connectors for the RS-232C cables between the CPU (SLC500 Series), the Converter (1761-NET-AIC), the Adapter (1770-KF3) and the GOT are as follows.

(1) Connection diagram

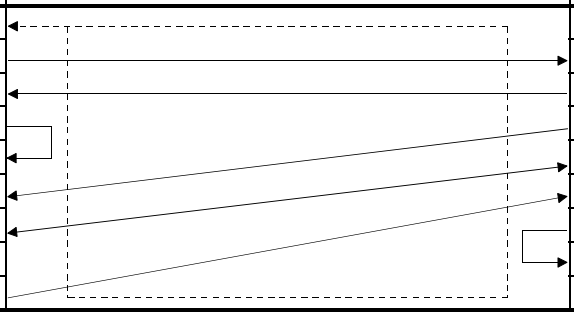
1) CPU (SLC500 Series)

Allen-Bradley (D-sub 9-pin female metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
CD	1		1	CD
RD	2		2	RD(RXD)
SD	3		3	SD(TXD)
DTR	4		4	DTR(ER)
SG	5		5	SG
DSR(DR)	6		6	DSR(DR)
RS(RTS)	7		7	RS(RTS)
CS(CTS)	8		8	CS(CTS)
NC	9		9	——
shell	——			

2) Converter (1761-NET-AIC)

Allen-Bradley (D-sub 9-pin female metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
CD	1		1	CD
RD	2		2	RD(RXD)
SD	3		3	SD(TXD)
DTR	4		4	DTR(ER)
SG	5		5	SG
DSR(DR)	6		6	DSR(DR)
RS(RTS)	7		7	RS(RTS)
CS(CTS)	8		8	CS(CTS)
NC	9		9	——

3) Adapter (1770-KF3)

Allen-Bradley (D-sub 9-pin female metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD	2		2	RD(RXD)
RD	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
DSR(DR)	6		6	DSR(DR)
SG	7		7	RS(RTS)
CD	8		8	CS(CTS)
DTR	20		9	——

(2) Connector and connector cover to be used

• GOT connector

Description	Model	Manufacturer
Connector	HDEB-9S(05)	HIROSE ELECTRIC CO.,LTD
Connector cover	HDE-CTH1(4-40)	HIROSE ELECTRIC CO.,LTD

• Connector for Allen-Bradley PLC, Converter, Adapter

Use the connector that matches the Allen-Bradley PLC, Converter, Adapter.

(3) Precautions for preparation of connector

The maximum cable length may vary depending on the specification of the Allen-Bradley PLC specification

For details, refer to the Allen-Bradley PLC operation manual.

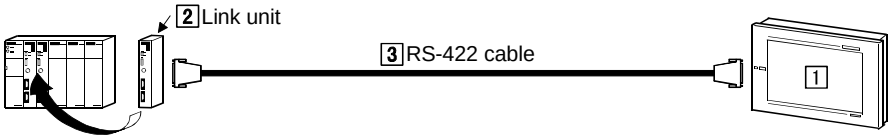
Chapter15 Sharp PLC connection

15.1 System configurations

15.1.1 Connection with JW-21CU or JW-31CUH

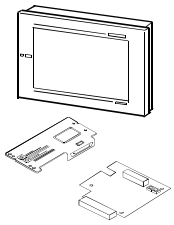
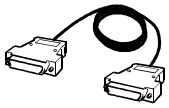
(1) System configurations and connection conditions

The following system configuration and connection conditions assume connection with the JW-21CU or JW-31CUH.
The numbers (1 to 3) given in the system configurations denote the numbers (1 to 3) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Changes with the connection target CPU specifications.	

(2) System equipment

The following table indicates the system equipment needed for connection with the JW-21CU or JW-31CUH.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Sharp PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	2	Link unit	JW-21CM	
	3	RS-422 cable between [link unit] and [GOT]	(Refer to Section 15.4 and fabricate on user side.)	

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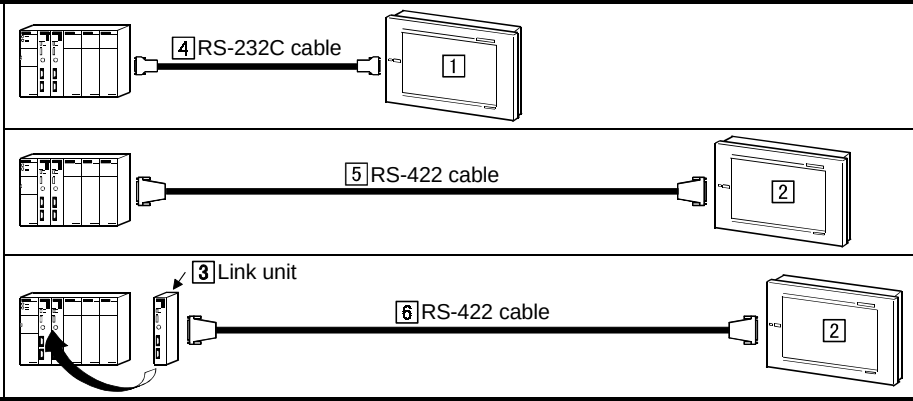
15.1.2 Connection with JW-22CU, JW-32CUH or JW-33CUH

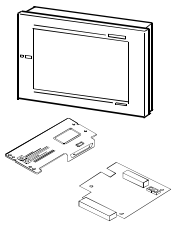
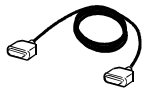
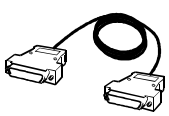
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the JW-22CU, JW-32CUH or JW-33CUH.
The numbers (1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Changes with the connection target CPU specifications.	

(2) System equipment

The following table indicates the system equipment needed for connection with the JW-22CU, JW-32CUH or JW-33CUH.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Sharp PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Sharp PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Link unit	JW-21CM	
	4	RS-232C cable between [CPU] and [GOT]	(Refer to Section 15.4 and fabricate on user side.)	
	5	RS-422 cable between [CPU] and [GOT]		
	6	RS-422 cable between [link unit] and [GOT]		

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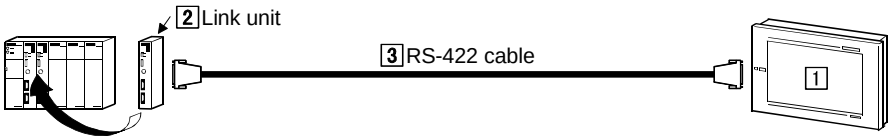
15.1.3 Connection with JW-50CUH

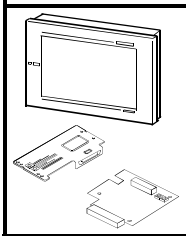
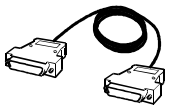
(1) System configurations and connection conditions

The following system configuration and connection conditions assume connection with the JW-50CUH.
The numbers (1 to 3) given in the system configurations denote the numbers (1 to 3) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Changes with the connection target CPU specifications.	

(2) System equipment

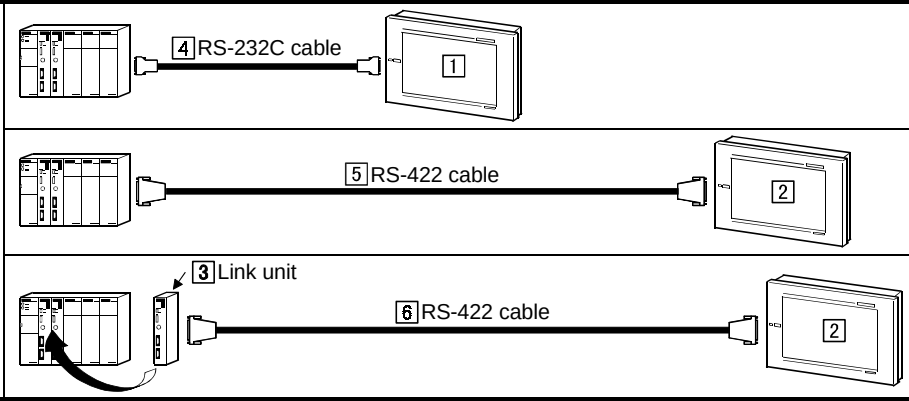
The following table indicates the system equipment needed for connection with the JW-50CUH.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Sharp PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	2	Link unit	JW-10CM, ZW-10CM	
	3	RS-422 cable between [link unit] and [GOT]	(Refer to Section 15.4 and fabricate on user side.)	

15.1.4 Connection with JW-70CUH or JW-100CUH

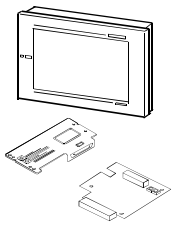
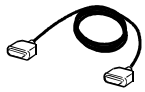
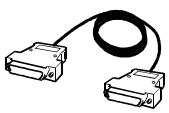
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the JW-70CUH or JW-100CUH.
The numbers (1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Changes with the connection target CPU specifications.	

(2) System equipment

The following table indicates the system equipment needed for connection with the JW-70CUH or JW-100CUH.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Sharp PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Sharp PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Link unit	JW-10CM,ZW-10CM	
	4	RS-232C cable between [CPU] and [GOT]	(Refer to Section 15.4 and fabricate on user side.)	
	5	RS-422 cable between [CPU] and [GOT]		
	6	RS-422 cable between [link unit] and [GOT]		

15.2 Initial setting

15.2.1 Connecting directly to the PLC CPU

To connect the GOT to the PLC CPU directly, it is necessary to make initial settings of the communication port.
Set the system memory of the PLC CPU with the peripheral tool as follows.
For details of the setting method, refer to the operation manual of the Sharp PLC.

(1) When using JW-22CUH, JW-70CUH and JW-100CUH

Setting item	System memory address	Setting details
Setting of communication port	#236	Set the transmission speed, the parity and the stop bit to the bit of D0 to D5 as follows : D7 D6 D5 D4 D3 D2 D1 D0 #236 - - 1 1 0 0 0 1 Transmission specification (9600bps) Parity (even number) Stop bit (2 bit)
	#237	Set the station number as follows : #237 1 Station No. (1)

(2) When using JW-32CUH and JW-33CUH

Setting item	System memory address	Setting details
Setting of communication port 1	#234	Set the transmission speed, the parity and the stop bit to the bit of D0 to D5 as follows : D7 D6 D5 D4 D3 D2 D1 D0 #234 - - 1 1 0 0 0 0 Transmission specification (19200bps) Parity (even number) Stop bit (2 bit)
	#235	Set the station number as follows : #235 1 Station No. (1)
Setting of communication port 2	#236	Set the transmission speed, the parity and the stop bit to the bit of D0 to D5 as follows : D7 D6 D5 D4 D3 D2 D1 D0 #236 - - 1 1 0 0 0 0 Transmission specification (19200bps) Parity (even number) Stop bit (2 bit)
	#237	Set the station number as follows : #237 1 Station No. (1)

15.2.2 Connecting to the link unit

To connect the GOT to the link unit, it is necessary to make settings for initial communication.
Set the switches on the link unit as follows.
For details of the setting method, refer to the operation manual of the link unit.

Switch No.		Setting item	Set value
SW3	2	2 wire /4 wire	ON (4 wire)
	4	Parity	ON (even number)
SW4		Setting of transmission speed	0 (19200 bit/s)

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15.3 Connection cable

15.3.1 RS-422 cable

The RS-422 cable connection diagram and the connector for the PLC CPU and the link unit are as follows :

(1) Connection diagram

(a) PLC CPU (JW-22CU, JW-70CUH, JW-100CUH)

Sharp (D-sub 15-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 25-pin male metric screw type)	
Signal name	Pin No.		Pin No.	Signal name
SD(+)	10	→	2	RDA
SD(-)	11	→	15	RDB
RD(+)	12	←	3	SDA
RD(-)	13	←	16	SDB
			5	RSA
			18	RSB
		→	4	CSA
		→	17	CSB
FG	1		7	
		→	8	SG
SG	7	←	20	
			21	SG (shield)

(b) PLC CPU (JW-32CUH, JW-33CUH)

Sharp (D-sub 15-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 25-pin male metric screw type)	
Signal name	Pin No.		Pin No.	Signal name
SD(+)	3	→	2	RDA
SD(-)	11	→	15	RDB
RD(+)	9	←	3	SDA
RD(-)	10	←	16	SDB
			5	RSA
			18	RSB
		→	4	CSA
		→	17	CSB
FG	1		7	
SG	6	↔	8	SG
SG	7		20	
			21	SG (shield)

(c) Link unit (JW-21CM, JW-10CM, ZW-10CM)

Sharp (D-sub 15-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 25-pin male metric screw type)	
Signal name	Pin No.		Pin No.	Signal name
SD(+)	L1		2	RDA
SD(-)	L2		15	RDB
RD(+)	L3		3	SDA
RD(-)	L4		16	SDB
			5	RSA
			18	RSB
			4	CSA
			17	CSB
SHIELD	SHIELD		7	
FG	FG		8	SG
			20	
			21	SG (shield)

(2) Connector and connector cover to be used

• GOT connector

Name	Type	Manufacturer
Connector with cover	17JE-23250-02(D8A6)	DDK

• Connector at Sharp PLC

Use the connector matching the Sharp PLC.

(3) Precautions for preparation of connector

The maximum cable length may vary depending on the specification of the Sharp PLC specification.

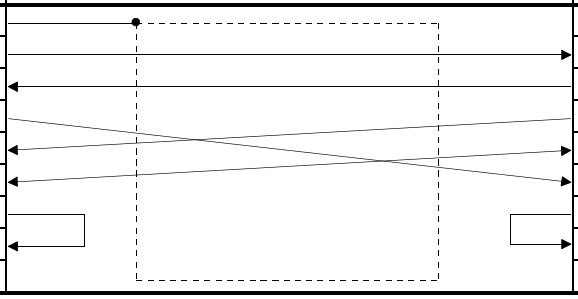
For details, refer to the Sharp PLC operation manual.

15.3.2 RS-232C cable

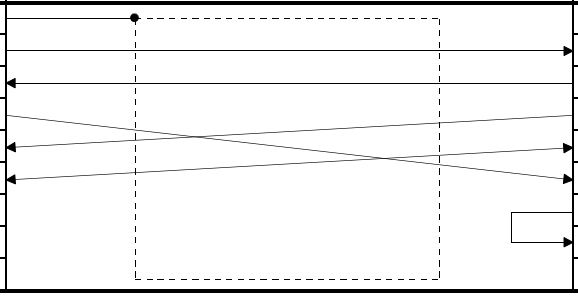
The RS-232C cable connection diagram and the connector for the PLC CPU and the GOT are as follows :

(1) Connection diagram

(a) PLC CPU (JW-22CU, JW-70CUH, JW-100CUH)

Sharp (D-sub 15-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
SG	7		6	DSR(DR)
	12		7	RS(RTS)
	14		8	CS(CTS)
			9	—

(b) PLC CPU (JW-32CUH, JW-33CUH)

Sharp (D-sub 15-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	4		3	SD(TXD)
RS(RTS)	8		4	DTR(ER)
CS(CTS)	12		5	SG
SG	7		6	DSR(DR)
			7	RS(RTS)
			8	CS(CTS)
			9	—

(2) Connector and connector cover to be used

• GOT connector

Description	Model	Manufacturer
Connector	HDEB-9S(05)	HIROSE ELECTRIC CO.,LTD
Connector cover	HDE-CTH1(4-40)	HIROSE ELECTRIC CO.,LTD

• Connector for Sharp PLC

Use the connector that matches the Sharp PLC.

(3) Precautions for preparation of connector

The maximum cable length may vary depending on the specification of the Sharp PLC specification.

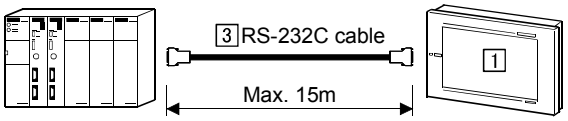
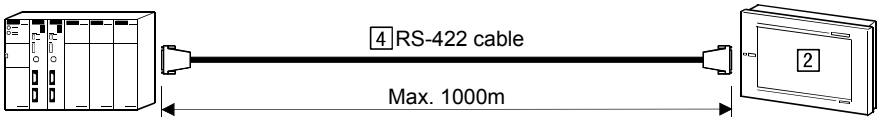
For details, refer to the Sharp PLC operation manual.

Chapter16 Toshiba PLC connection

16.1 System configuration

(1) System configurations and connection conditions

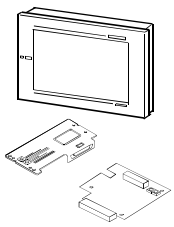
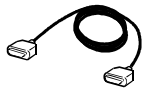
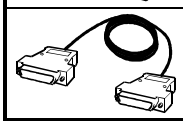
The following system configuration and connection conditions assume connection with the PROSEC T series or PROSEC V series.
The numbers (1 to 4) given in the system configurations denote the numbers (1 to 4) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	
	Within 1000m	

*1 RS232C communication can be made with the T2E and T2N only.

(2) System equipment

The following table indicates the system equipment needed for connection with the PROSEC T series or PROSEC V series.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Toshiba PLC-connected (RS-232C commination) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Toshiba PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	RS-232 cable between [CPU] and [GOT]	(Refer to Section 16.3 and fabricate on user side.)	
	4	RS-422 cable between [CPU] and [GOT]		

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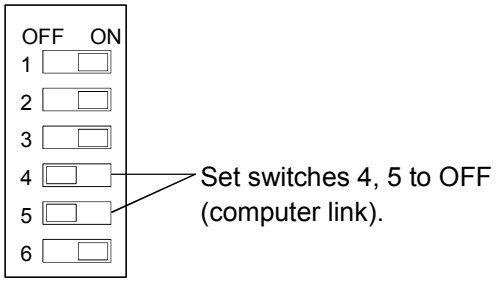
16.2 Initial settings

16.2.1 Switch settings of the T2 series (T2 (PU224), T2E, T2N)

When using the T2 series, make the following switch settings.

(1) Operation mode setting switches (T2 (PU224), T2E, T2N)

Set the switches as follows.



(2) DIP switch on module board (T2N only)

When using the T2N, move the DIP switch No. 1 on the T2NCPU module board to select the communication system.

DIP Switch: No. 1	Communication system
OFF	RS-485 (RS-422)
ON	RS-232C

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16.2.2 PLC side settings

For monitoring by connection to the GOT, the following transmission parameters must be set to the Toshiba PLC using the peripheral software.
For details of how to make this setting, refer to the instruction manual of the Toshiba PLC.

Setting item	Setting
Station No.	1
Baudrate	19200bps
Parity	Even
Data length	7bit
Stop bit	2bit

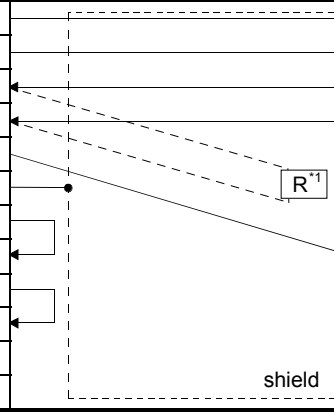
16.3 Connection cable

16.3.1 RS-422 cable

(1) Connection diagram

(a) T3(H), T2(PU224 type), model3000(S3)

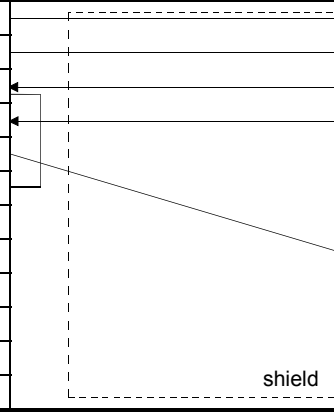
Toshiba PLC side (D-sub 15-pin male millimeter screw type)		Cable connection and direction of signal	GOT side (D-sub 25-pin male millimeter screw type)	
Signal name	Pin No.		Pin No.	Signal name
TXA	3		2	RDA
TXB	11		15	RDB
RXA	2		3	SDA
RXB	10		16	SDB
SG	7		5	RSA
FG	1		18	RSB
RTSA	5		4	CSA
CTSA	4		17	CSB
RTSB	13		7	
CTSB	12		8	SG
			20	
		shield	21	SG(shield)



*1 A 1/2W-120Ω resistor must be connected between RXA and RXB on the Toshiba PLC side.

(b) T2E(CM231E)

Toshiba PLC side	Cable connection and direction of signal	GOT side (D-sub 25-pin male millimeter screw type)	
Signal name		Pin No.	Signal name
TXA		2	RDA
TXB		15	RDB
RXA		3	SDA
RXB		16	SDB
SG		5	RSA
TERM		18	RSB
		4	CSA
		17	CSB
		7	—
		8	SG
		20	SG
	shield	21	SG(shield)



*1.RXA and TERM on the Toshiba PLC side must be shorted. (Connect to the terminator resistor.)

(C) T2N

Toshiba PLC side (D-sub 15-pin male millimeter screw type)		Cable connection and direction of signal	GOT side (D-sub 25-pin male millimeter screw type)	
Signal name	Pin No.		Pin No.	Signal name
TXA	3		2	RDA
TXB	11		15	RDB
RXA	2		3	SDA
RXB	10		16	SDB
FG	8		5	RSA
		R*1	18	RSB
			4	CSA
			17	CSB
			7	—
			8	SG
			20	SG
		shield	21	SG(shield)

*1 A 1/2W-120Ω resistor must be connected between RXA and RXB on the Toshiba PLC side.

(2) Connector and connector cover to be used

• Connector for GOT

Description	Model	Manufacturer
Connector with cover	17JE-23250-02(D8A6)	DDK

• Connector for TOSHIBA PLC

(a) T3(H), T2(PU224 type), model3000(S3), (c) T2

Description	Model	Manufacturer
Connector	DAC-15P-F0	Japan Aviation Electronics Industry, Ltd.
	DA-15-P-N	
Cover	DA-110963-2	
	GM-15LK	HONDA TSUSHIN KOGYO CO., LTD.

(b) T2E

Bar type bare crimping terminal (refer to the manual of the Toshiba PLC for details.)

(3) Precautions for preparation of connector

The cable to be fabricated should be within 1000m long.

16.3.2 RS-232C cable

The connection diagram and connectors for the RS-232C cables between the Toshiba PLC and the GOT are as follows.

(1) Connection diagram

(a) T2E(CM232E)

Toshiba PLC side (D-sub 9-pin male millimeter screw type)		Cable connection and direction of signal	GOT side (D-sub 25-pin male millimeter screw type)	
Signal name	Pin No.		Pin No.	Signal name
SG	1		1	CD
RXD	2		2	RD(RXD)
TXD	3		3	SD(TXD)
	4		4	DTR(ER)
SG	5		5	SG
5V	6		6	DSR(DR)
RTS	7		7	RS(RTS)
	8	shield	8	CS(CTS)
5V	9		9	—

(b) T2N

Toshiba PLC side (D-sub 15-pin male millimeter screw type)		Cable connection and direction of signal	GOT side (D-sub 25-pin male millimeter screw type)	
Signal name	Pin No.		Pin No.	Signal name
	1		1	CD
RXD	12		2	RD(RXD)
TXD	5		3	SD(TXD)
SG	7		4	DTR(ER)
SG	8		5	SG
G	15		6	DSR(DR)
RTS	6		7	RS(RTS)
CTS	14		8	CS(CTS)
	13		9	—

(2) Connector and connector cover

• GOT connector

Description	Model	Manufacturer
Connector	HDEB-9S(05)	HIROSE ELECTRIC CO.,LTD
Connector cover	HDE-CTH1(4-40)	HIROSE ELECTRIC CO.,LTD

• Toshiba PLC connector

(a) T2E(CM232E)

Name	Type	Manufacturer
Connector with cover	17JE-23090-02(D8C)	DDK

(b)T2N

Name	Type	Manufacturer
Connector	DAC-15P-F0	Japan Aviation Electronics:cs Industry, Ltd
	DA-15-P-N	
Cover	DA-110963-2	
	GM-15LK	HONDA TSUSHIN KOGYO CO., LTD.

(3) Precautions for preparation of connector

The cable to be fabricated should be within 15m long.

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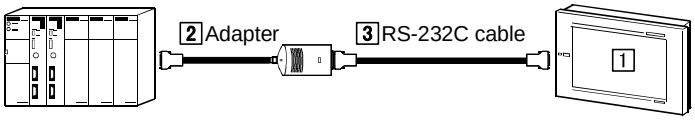
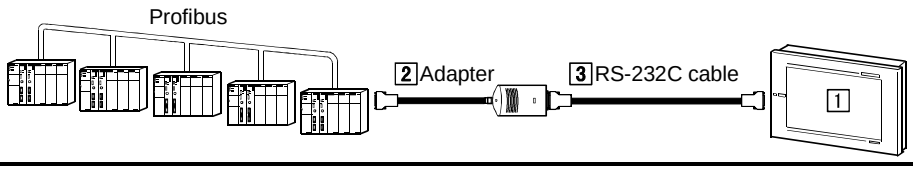
Chapter17 SIEMENS PLC connection

17.1 System configuration

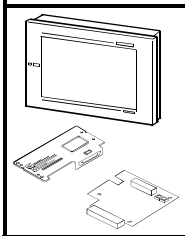
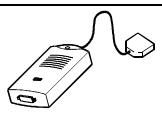
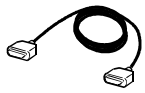
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the SIMATIC S7-300 series or SIMATIC S7-400 series.
The numbers (1 to 3) given in the system configurations denote the numbers (1 to 3) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Changes with the connection target CPU specifications.	
		

(2) System equipment

The following table indicates the system equipment needed for connection with the SIMATIC S7-300 series or SIMATIC S7-400 series.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	SIEMENS PLC-connected (RS-232C communication) GOT*1*2*3*4	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	HMI adaptor (SIEMENS make)	MLFB:6ES7 972-0CA11-0XA0	
	3	RS-232C cable between [HMI adaptor] and [GOT]	(Refer to Section 17.3 and fabricate on user side.)	

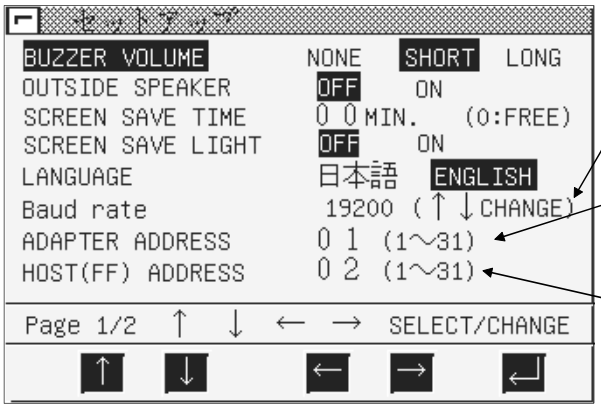
*1 The GOT can monitor the PLC CPU side error information using the alarm list (system alarm) function. Note that when connected with the SIEMENS PLC, however, it cannot monitor error information.
Refer to the GT Designer help function for details of the alarm list (system alarm) function.
*2 The GOT requires the PLC CPU where the HMI adaptor is connected to be set to "Host".
Refer to Section 17.2 for details of the setting method.
*3 When starting the system (switching power on), first power on all PLC CPUs, then power on the GOT. If you power on the PLC CPUs later, you need to restart the GOT.
*4 If you power off the other station PLC CPU (PLC CPU where the HMI adaptor is not connected) during system operation, the GOT will stop monitoring.
The GOT will not resume monitoring if you power on the PLC CPU again.
To resume the monitoring of the GOT, you must restart the GOT.

17.2 Initial settings

When connecting the GOT and SIEMENS PLC, you need to make the following settings on Setup of the GOT's utility function.

- Baud rate
  Set the transmission speed between GOT and SIEMENS PLC.
  (Factory-set to 19200bps)
- ADAPTER ADDRESS
  Specify the MPI address on PROFIBUS assigned to the HMI adapter connected to the GOT. (Factory-set to 1)
- HOST (FF) ADDRESS
  Specify the MPI address on PROFIBUS assigned to the PLC CPU to which the HMI adapter is connected.
  The specified PLC CPU is the "host" when monitor device setting is made on the drawing software.
  For details of monitor device setting, refer to the help function of GT Designer.
  (Factory-set to 2)

For details of the utility function, refer to the GOT-A900 Series Operating Manual (GT Works Version 5/GT Designer Version 5 Compatible Extended • Option Function Manual).



Baud rate
Set the transmission speed between GOT and SIEMENS PLC.
(Factory-set to 19200bps)

ADAPTER ADDRESS
Specify the MPI address on PROFIBUS assigned to the HMI adapter connected to the GOT. (Factory-set to 1)

HOST(FF) ADDRESS
Specify the MPI address of the PLC CPU to which the HMI adapter is connected.
(Factory-set to 2)

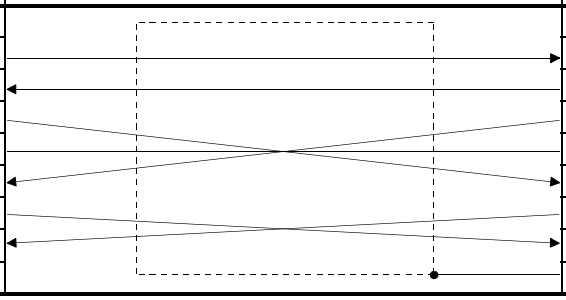
POINT

The utility function can be started by switching power on again after installing the system programs (system OS, communication driver, etc.) into the GOT.
After the utility function has started, touch the [Setup] icon to display the setup screen, and make settings related to SIEMENS PLC connection.

17.3 Connection cable

The following connection diagram and connectors are used to connect the HMI adapter and GOT.

(1) Connection diagram

HMI adapter side (D-sub 9-pin male inch screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
CD	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	3		3	SD(TXD)
DTR(ER)	4		4	DTR(ER)
SG	5		5	SG
DSR(DR)	6		6	DSR(DR)
RS(RTS)	7		7	RS(RTS)
CS(CTS)	8		8	CS(CTS)
FG	9		9	FG

(2) Connector and connector cover

• Connector for GOT

Description	Model	Manufacturer
Connector	HDEB-9S(05)	HIROSE ELECTRIC CO.,LTD
Connector cover	HDE-CTH1(4-40)	HIROSE ELECTRIC CO.,LTD

• Connector for HMI adapter side

Use the connector compatible with the HMI adapter.

(3) Precaution for cable fabrication

The maximum cable length changes with the specifications of the SIEMENS PLC used.

For details, refer to the instruction manual of the SIEMENS PLC.

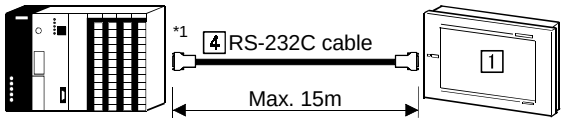
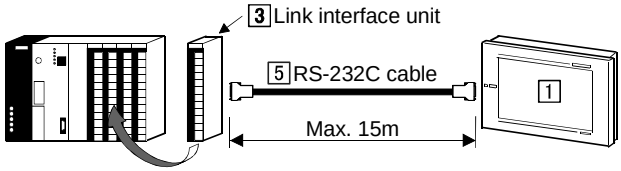
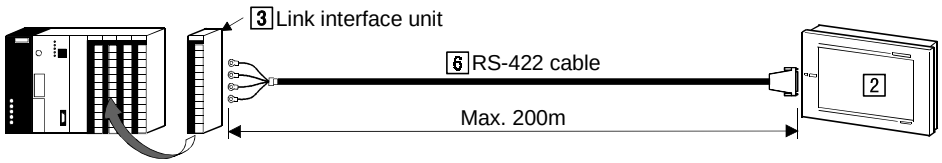
Chapter18 Hitachi PLC connection

18.1 System configurations

18.1.1 Connection with large H series

(1) System configurations and connection conditions

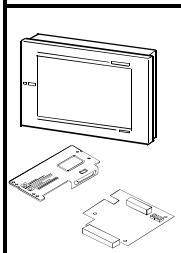
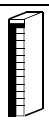
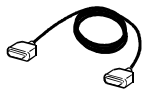
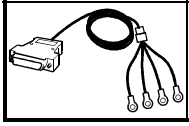
The following system configurations and connection conditions assume connection with the large H series. The numbers (1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment". Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	
		
	Within 200m	

*1 When plugging the connection cable into the large H series, connect it to the peripheral port of the CPU module.

(2) System equipment

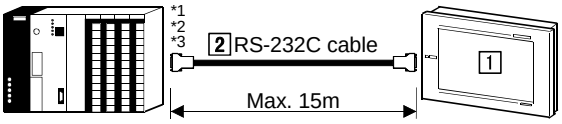
The following table indicates the system equipment needed for connection with the large H series.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Hitachi PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Hitachi PLC-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	Link interface unit	COMM-H, COMM-2H	
	4	RS-232C cable between [CPU] and [GOT]	(Refer to Section 18.3 and fabricate on user side.)	
	5	RS-232C cable between [link interface unit] and [GOT]		
	6	RS-422 cable between [link interface unit] and [GOT]		

18.1.2 Connection with H-200 to 252 series, H series board type or EH-150 series

(1) System configurations and connection conditions

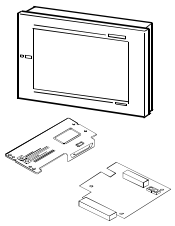
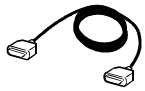
The following system configuration and connection conditions assume connection with the H-200 to 252 series, H series board type or EH-150 series.
The numbers (1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	

*1 When plugging the connection cable into the H-200 to 252 series, connect it to the peripheral port of the CPU module.
*2 When plugging the connection cable into the EH-150 series, connect it to the serial port of the CPU module.
*3 Plugging the connection cable into the serial port 2 of the H252C (CPU22-02HC, CPE22-02HC) requires the round connector (8 pins)/D-sub connector (15 pins) conversion cable (Hitachi, Ltd. make: CNCOM-05).

(2) System equipment

The following table indicates the system equipment needed for connection with the H-200 to 252 series, H series board type or EH-150 series.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Hitachi PLC-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	RS-232C cable between [CPU] and [GOT]	(Refer to Section 18.3 and fabricate on user side.)	

18.2 Initial settings

18.2.1 PLC side settings

For monitoring with connection to the GOT, make the communication settings and the port settings with the peripheral tool as follows.
For details, refer to the operation manual of the HITACHI PLC.

(1) CPU direct connection

Item	Set value
Transmission speed	4800bps/9600bps/19200bps/38400bps*
Station No.	0
Data length	7
Stop bit	1
Parity bit	Even
Control method	DTR control
Communication method	RS-232C
Sum check	Yes
Protocol	Transmission control protocol 1

* The upper limit of the transmission speed that may be set changes with the Hitachi PLC used.

(2) Link interface unit connection

(a) For transmission control protocol 1

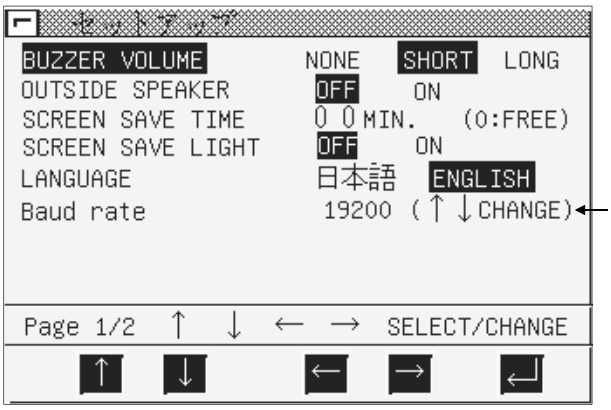
Item	Set value
Transmission speed	19200bps
Station No.	0
Data length	7
Stop bit	1
Parity bit	Even
Control method	No
Communication method	RS-232C communication: RS-232C MODE switch 2 RS-422 communication: RS-422 MODE switch 2
Sum check	Yes

(b) For transmission control protocol 2

Item	Set value
Transmission speed	19200bps
Station No.	0
Data length	7
Stop bit	1
Parity bit	Even
Control method	No
Communication method	RS-232C communication: RS-232C MODE switch 9 RS-422 communication: RS-422 MODE switch 9
Sum check	Yes

18.2.2 GOT side settings

When connecting the GOT and HITACHI PLC, you need to set the transmission speed to the GOT according to the setting of the HITACHI PLC used.
Set the transmission speed on Setup of the GOT's utility function.
For details of the utility function, refer to the GOT-A900 Series Operating Manual (GT Works Version 5/GT Designer Version 5 Compatible Extended • Option Function Manual).



Baud rate
Choose the GOT side transmission speed.
(Factory-set to 19200bps)

POINT

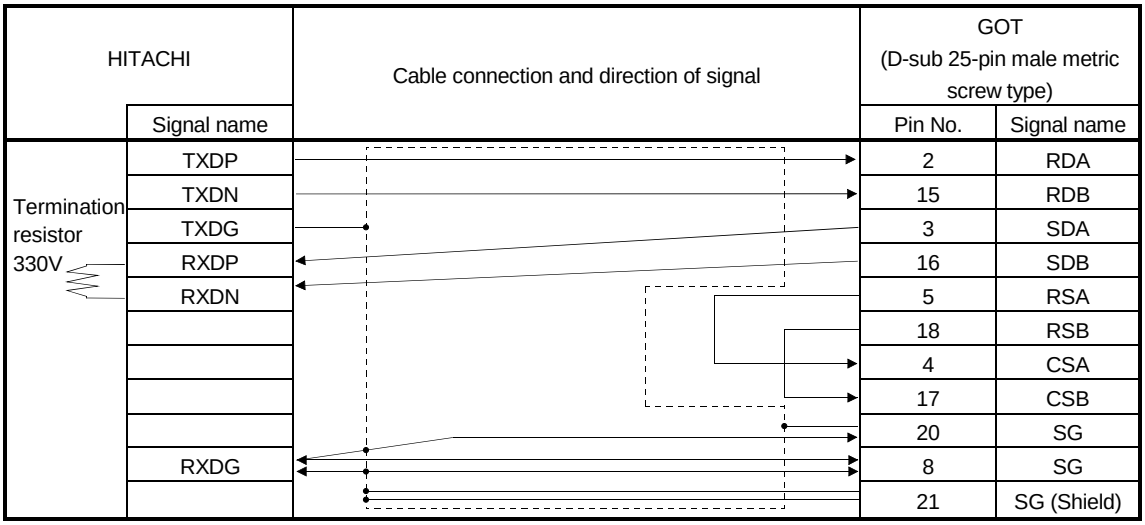
The utility function can be started by switching power on again after installing the system programs (system OS, communication driver, etc.) into the GOT.
After the utility function has started, touch the [Setup] icon to display the setup screen, and make settings related to HITACHI PLC connection.

18.3 Connection cable

18.3.1 RS-422 cable

The connection diagram and connectors for the RS-422 cables between the Link interface unit and the GOT are as follows.

(1) Connection diagram



(2) Connector, crimp terminal and cable

No.	Description	Model	Manufacturer
1)	Connector with cover	17JE-23250-02(D8A6)	DDK
2)	Round-type crimp terminal (recommended part)	V1.25-M4	Nippon Crimping Terminal
3)	20-core shield cable (recommended part)	SRF PVV 1SB 24×20	Toyokuni Power Cables

(3) Precautions for cable preparation

The cable must be 200m (655.74 feet) or shorter

18.3.2 RS-232C cable

The connection diagram and connectors for the RS-422 cables between the HITACHI PLC, the Link interface unit and the GOT are as follows.

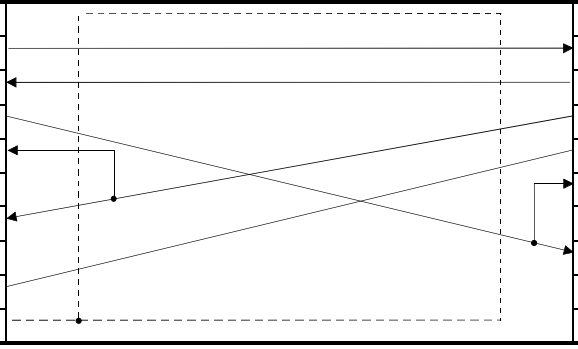
In the following cases, note that the connection diagram of the cable used changes with the set transmission speed.

POINT

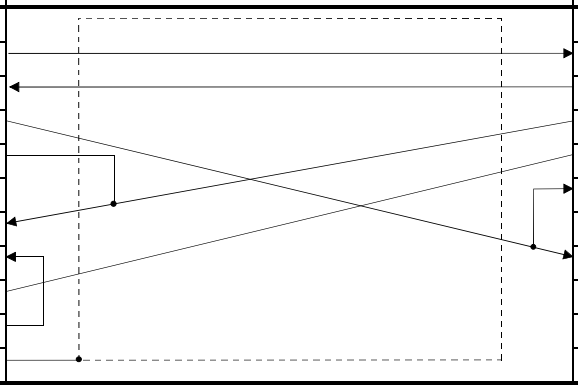
- When using the H-4010 (CPU3-40H) or H-252C (CPU22-02HC, CPE22-02HC)
  - 4800bps: Use the connection diagram in (a).
  - 19200bps: Use the connection diagram in (b).
  - Other than above: Either of the connection diagrams in (a) and (b) may be used.
- When connecting the cable to the serial port 2 of the EH-CPU104, EH-CPU208, EH-CPU308 or EH-CPU316
  - 19200bps, 38400bps: Use the connection diagram in (b).
  - Other than above: Either of the connection diagrams in (a) and (b) may be used.
- When setting No. 3 and No. 4 of the DIP switch 1 to OFF using the CPU software revision version J or later of the H-4010
  - 38400bps: Use the connection diagram in (b).
  - Other than above: Either of the connection diagrams in (a) and (b) may be used.

(1) Connection diagram

(a) PLC, Link interface unit

HITACHI (D-sub 15-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
NC	1		1	CD
SD	2		2	RD(RXD)
RD	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
RV1	6		6	DSR(DR)
RV2	7		7	RS(RTS)
PHL	8		8	CS(CTS)
SG	9		9	—
FG	—		—	—

(b) PLC

HITACHI (D-sub 15-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Signal name	Pin No.
NC	1		1	CD
SD	2		2	RD(RXD)
RD	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
RV1	6		6	DSR(DR)
RV2	7		7	RS(RTS)
PHL	8		8	CS(CTS)
SG	9		9	—
ER	14		—	—
FG	—		—	—

(2) Connector and connector cover

• Connector for GOT

Description	Model	Manufacturer
Connector	HDEB-9S(05)	HIROSE ELECTRIC CO.,LTD
Connector cover	HDE-CTH1(4-40)	HIROSE ELECTRIC CO.,LTD

• Connector for HITACHI PLC, Link interface unit

Use connectors attached to the HITACHI PLC and the Link interface unit.

(3) Precautions for cable preparation

The cable must be 15m(49.18feet) or shorter.

Chapter 19 Matsushita Electric Works PLC

19.1 System configurations

19.1.1 Connection with FP0-C16CT or FP0-C32CT

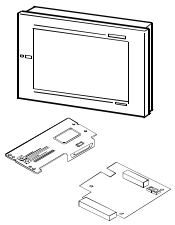
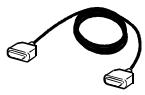
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the FP0-C16CT or FP0-C32CT.
The numbers (1 to 3) given in the system configuration denote the numbers (1 to 3) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 3m	Connected to TOOL port 2 RS-232C cable Max. 3m 1
	Within 15m	Connected to COM port 3 RS-232C cable Max. 15m 1

(2) System equipment

The following table indicates the system equipment needed for connection with the FP0-C16CT or FP0-C32CT.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Matsushita Electric Works PLC-connected GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	3	RS-232C cable between [TOOL port of PLC CPU] and [GOT]	AFC8503 (3m)	
	4	RS-232C cable between [COM port of PLC CPU] and [GOT]	(Refer to Section 19.3 and fabricate on user side. (User-fabricated cable 4))	

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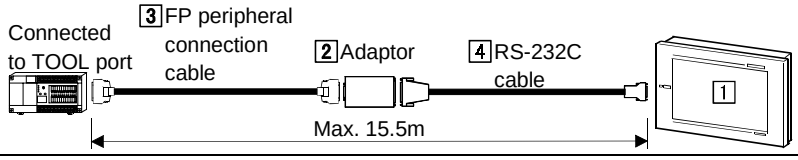
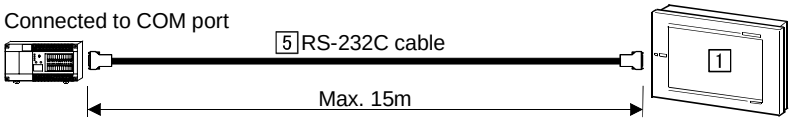
19.1.2 Connection with FP1-C24C or FP1-C40C

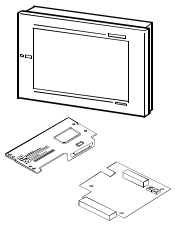
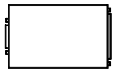
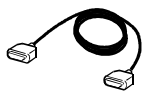
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the FP1-C24C or FP1-C40C.
The numbers (1 to 5) given in the system configuration denote the numbers (1 to 5) in "(2) System equipment". Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15.5m	
	Within 15m	

(2) System equipment

The following table indicates the system equipment needed for connection with the FP1-C24C or FP1-C40C.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Matsushita Electric Works PLC-connected GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Adaptor	AFP8550	
	3	FP peripheral connection cable between [TOOL port of PLC CPU] and [adaptor]	AFP15205 (0.5m)	
	4	RS-232C cable between [adaptor] and [GOT]	(Refer to Section 19.3 and fabricate on the user side. (User-fabricated cable 1))	
	5	RS-232C cable between [COM port of PLC CPU] and [GOT]	(Refer to Section 19.3 and fabricate on the user side. (User-fabricated cable 3))	

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19.1.3 Connection with FP2

(1) System configurations and connection conditions

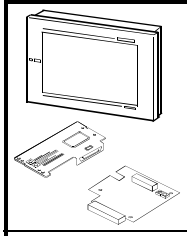
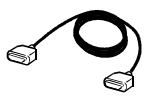
The following system configurations and connection conditions assume connection with the FP2.

The numbers (1 to 5) given in the system configuration denote the numbers (1 to 5) in "(2) System equipment". Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 3m	Connected to TOOL port 3 RS-232C cable Max. 3m 1
	Within 15m	Connected to COM port 4 RS-232C cable Max. 15m 1
		2 Link interface unit 5 RS-232C cable Max. 15m 1

(2) System equipment

The following table indicates the system equipment needed for connection with the FP2.

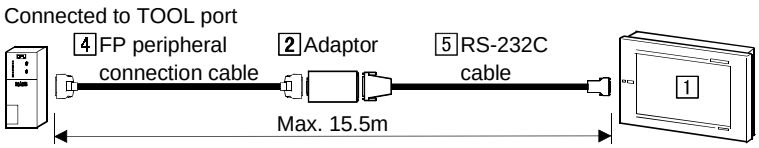
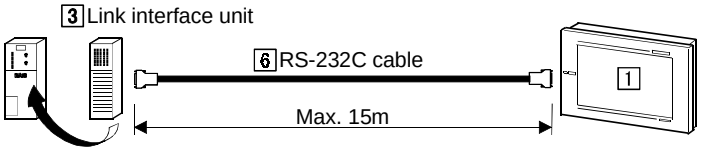
Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Matsushita Electric Works PLC-connected GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Link interface unit	AFP2462	
	3	RS-232C cable between [TOOL port of PLC CPU] and [GOT]	AFC8503 (3m)	
	4	RS-232C cable between [COM port of PLC CPU] and [GOT]*1	AFC85853 (3m)	
	5	RS-232C cable between [link interface unit] and [GOT]*1		

*1 The RS-232C cable can be user-fabricated. Refer to Section 19.3 for details of the fabricating method. (User-fabricated cable 2))

19.1.4 Connection with FP3

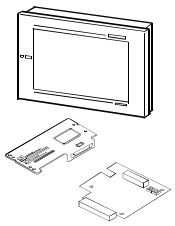
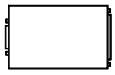
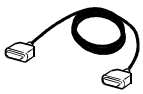
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the FP3.
The numbers (1 to 6) given in the system configuration denote the numbers (1 to 6) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15.5m	
	Within 15m	

(2) System equipment

The following table indicates the system equipment needed for connection with the FP3.

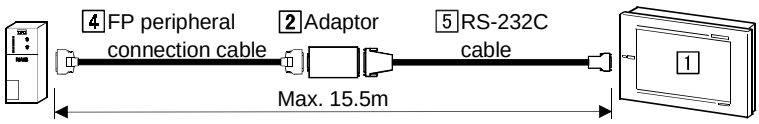
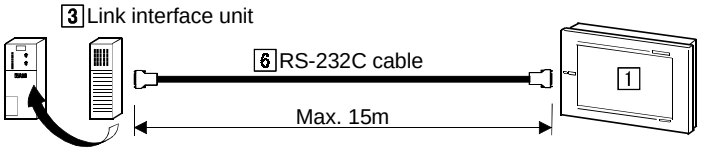
Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Matsushita Electric Works PLC-connected GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Adaptor	AFP8550	
	3	Link interface unit	AFP3462	
	4	FP peripheral connection cable between [TOOL port of PLC CPU] and [adaptor]	AFP5520 (0.5m)	
	5	RS-232C cable between [adaptor] and [GOT]	(Refer to Section 19.3 and fabricate on the user side. (User-fabricated cable 1))	
	6	RS-232C cable between [link interface unit] and [GOT]*1	AFC85853 (3m)	

*1 The RS-232C cable can be user-fabricated. Refer to Section 19.3 for details of the fabricating method. (User-fabricated cable 2))

19.1.5 Connection with FP5

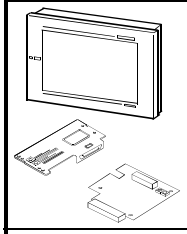
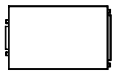
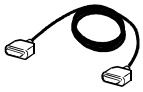
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the FP5.
The numbers (1 to 6) given in the system configuration denote the numbers (1 to 6) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15.5m	Connected to TOOL port 
	Within 15m	

(2) System equipment

The following table indicates the system equipment needed for connection with the FP5.

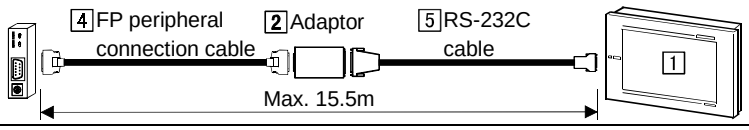
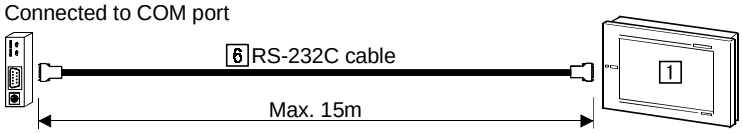
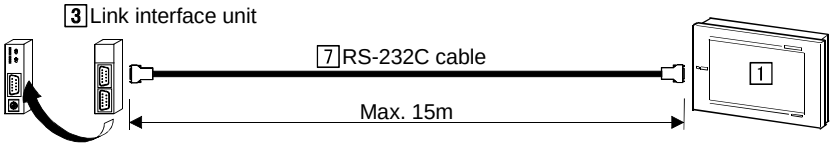
Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Matsushita Electric Works PLC-connected GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Adaptor	AFP8550	
	3	Link interface unit	AFP5462	
	4	FP peripheral connection cable between [TOOL port of PLC CPU] and [adaptor]	AFP5520 (0.5m)	
	5	RS-232C cable between [adaptor] and [GOT]	(Refer to Section 19.3 and fabricate on the user side. (User-fabricated cable 1))	
	6	RS-232C cable between [link interface unit] and [GOT]*1	AFC85853 (3m)	

*1 The RS-232C cable can be user-fabricated. Refer to Section 19.3 for details of the fabricating method. (User-fabricated cable 2))

19.1.6 Connection with FP10(S)

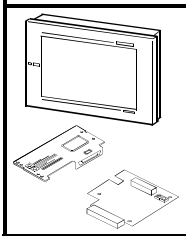
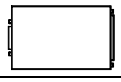
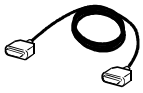
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the FP10(S).
The numbers (1 to 7) given in the system configuration denote the numbers (1 to 7) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15.5m	Connected to TOOL port 
	Within 15m	Connected to COM port 
		3 Link interface unit 

(2) System equipment

The following table indicates the system equipment needed for connection with the FP10(S).

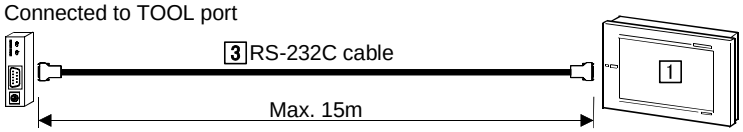
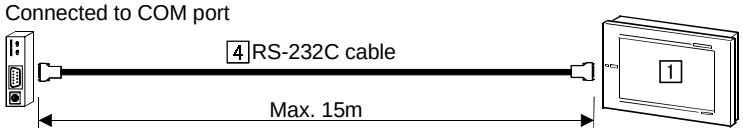
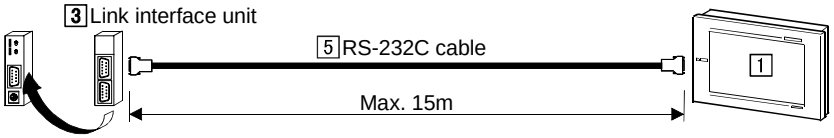
Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Matsushita Electric Works PLC-connected GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Adaptor	AFP8550	
	3	Link interface unit	AFP3462	
	4	FP peripheral connection cable between [TOOL port of PLC CPU] and [adaptor]	AFP5520 (0.5m)	
	5	RS-232C cable between [adaptor] and [GOT]	(Refer to Section 19.3 and fabricate on the user side. (User-fabricated cable 1))	
	6	RS-232C cable between [COM port of PLC CPU] and [GOT]*1	AFC85853 (3m)	
	7	RS-232C cable between [link interface unit] and [GOT]*1		

*1 The RS-232C cable can be user-fabricated. Refer to Section 19.3 for details of the fabricating method.(User-fabricated cable 2))

19.1.7 Connection with FP10SH

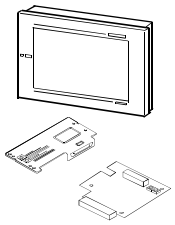
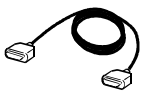
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the FP10SH.
The numbers (1 to 5) given in the system configuration denote the numbers (1 to 5) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 15m	Connected to TOOL port 
		Connected to COM port 
		

(2) System equipment

The following table indicates the system equipment needed for connection with the FP10SH.

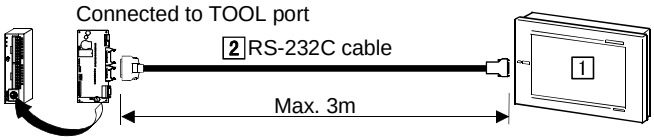
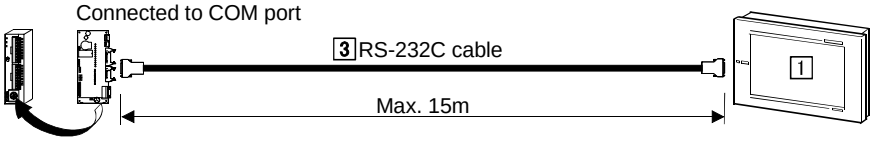
Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Matsushita Electric Works PLC-connected GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Link interface unit	AFP3462	
	3	RS-232C cable between [TOOL port of PLC CPU] and [GOT]*1	AFC85853 (3m)	
	4	RS-232C cable between [COM port of PLC CPU] and [GOT]*1		
	5	RS-232C cable between [link interface unit] and [GOT]*1		

*1 The RS-232C cable can be user-fabricated. Refer to Section 19.3 for details of the fabricating method.(User-fabricated cable 2))

19.1.8 Connection with FP-M(C20TC) or FP-M(C32TC)

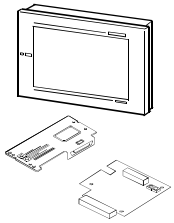
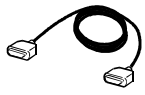
(1) System configurations and connection conditions

The following system configurations and connection conditions assume connection with the FP-M(C20TC) or FP-M(C32TC).
The numbers (1 to 3) given in the system configuration denote the numbers (1 to 3) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Within 3m	
	Within 15m	

(2) System equipment

The following table indicates the system equipment needed for connection with the FP-M(C20TC) or FP-M(C32TC).

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Matsushita Electric Works PLC-connected GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	RS-232C cable between [TOOL port of PLC CPU] and [GOT]	AFC8503(3m)	
	3	RS-232C cable between [COM port of PLC CPU] and [GOT]*1	AFC85853(3m)	

*1 The RS-232C cable can be user-fabricated. Refer to Section 19.3 for details of the fabricating method.(User-fabricated cable 2))

19.2 Initial settings

19.2.1 PLC CPU side settings

When connecting the GOT and Matsushita Electric Works PLC, make the following settings on the PLC CPU side. For details of the setting method, refer to the manual of the Matsushita Electric Works PLC.

(1) When connecting to TOOL port of PLC CPU

Make the following settings to the connected PLC CPU.

(a) When using FP0-C16CT, FP0-C32CT, FP1-C24C, FP1-C40C, FP3, FP10(S), FP-M(C20TC) or FP-M(C32TC)

Item	Set value
Transmission speed	9600bps/19200bps
Data length	8bit
Stop bit	———
Parity bit	———
Modem connection	No
Unit No.	1

(b) When using FP2 or FP10SH

Item	Set value
Transmission speed	4800bps *1/9600bps/19200bps/38400bps *1 *2
Data length	8bit
Stop bit	———
Parity bit	———
Operation mode setting switch	SW1 : OFF *1 *2
Modem connection	No
Unit No.	1

*1 Setting SW1 to ON fixes the transmission speed at 9600bps.

*2 For the FP10SH, set SW1 on the lower side of the operation mode switches.

(2) When connecting to COM port of PLC CPU

Item	Set value
Transmission speed	4800bps *1/9600bps/19200bps/38400bps *1 *2
Data length	8bit
Stop bit	1bit
Parity bit	Odd
Modem connection	No
Serial port operation selection	1 (Computer link)
Unit No.	1

*1 This setting cannot be made when the FP10(S) is used.

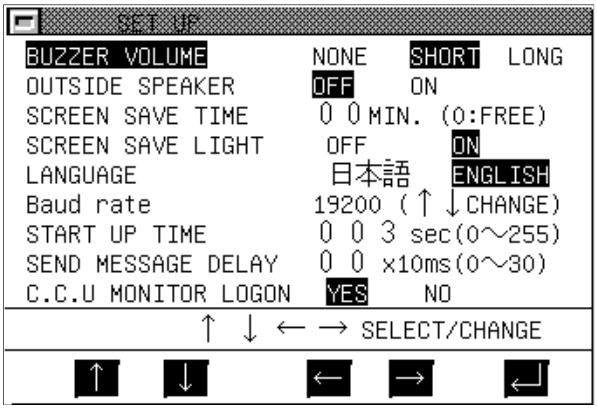
*2 This setting cannot be made when the FP0-C16CT, FP0-C32CT, FP1-C24C, FP1-C40C, FP-M(C20TC) or FP-M(C32TC) is used.

(3) When connecting to link interface unit

Item	Set value
Transmission speed	4800bps *1/9600bps/19200bps/38400bps *1 *2
Data length	8bit
Stop bit	1bit
Parity bit	Odd
Parity check	Yes
Control signal	Make CS and CD invalid

19.2.2 GOT side settings

When the GOT is connected to the Matsushita Electric Works PLC for monitoring, GOT side settings must be changed to meet the connected PLC settings.
Use Setup of the GOT unit's utility functions to set the transmission speed.
For details of the utility functions, refer to the GOT-A900 Series Operating Manual (GT Works Version 5/GT Designer Version 5 Compatible Extended Functions/Optional Functions).



Setting item	Description	Factory setting
Baud rato	Choose the transmission speed (4800, 9600, 19200, 38400). Make the same setting as for the PLC CPU used.	19200
START UP TIME	Set how many seconds after GOT power-on the communication with the PLC CPU will be started.	3
SEND MESSAGE DELAY	Set the waiting time from when the GOT has received data from the PLC CPU until it sends data to the PLC CPU.	0
C.C.U MONITOR LOGON	Select whether C.C.U. monitor registration is made or not. Choosing "Yes" for C.C.U. monitor registration registers the device set on the GOT screen to the PLC CPU, increasing the GOT monitor speed.	Yes

POINT

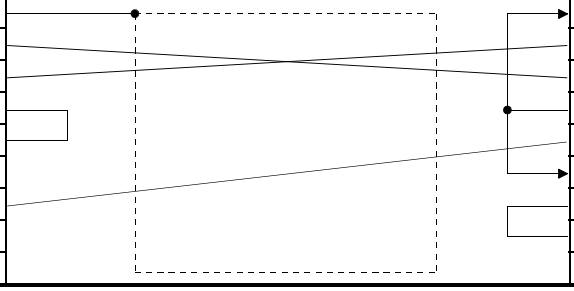
- The utility functions can be started by switching power on again after installation of the system programs (Operating System, communication driver, etc.) into the GOT.
  After the functions have started, touch the [Setup] icon to display the Setup screen, and make settings related to Matsushita Electric Works PLC.
- When multiple GOTs/peripheral devices are connected to a single PLC CPU via the C.C.U. (Computer Communication Unit), there are the following restrictions on the number of units that allow "Yes" to be selected for C.C.U. monitor registration.
  When other than FP10SH is used : 1 unit
  When FP10SH is used : 5 units
  Choose "No" when the number of GOTs/peripheral devices used is greater than the above.

19.3 Connection cables

The methods of fabricating the RS-232C cables for connection of the GOT and PLC CPU (cable connection diagrams and connectors) are given below.

(1) User-fabricated cable 1)

(a) Connection diagram

AFP8550 converter adaptor (D-sub 25-pin male)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
RD	2		2	RD(RXD)
SD	3		3	SD(TXD)
DTR	4		4	DTR(ER)
SG	5		5	SG
DSR	6		6	DSR(DR)
RTS	7		7	RS(RTS)
CTS	8		8	CS(CTS)
——	20		9	——

(b) Connector and connector cover

• Connector for GOT

Description	Model	Manufacturer
Connector	HDEB-9S(05)	HIROSE ELECTRIC CO.,LTD
Connector cover	HDE-CTH1(4-40)	HIROSE ELECTRIC CO.,LTD

• AFP8550 converter adaptor side connector
D-sub 25-pin female connector

(c) Precautions for cable preparation

Fabricate the cable within the length of 15m(49.18feet).

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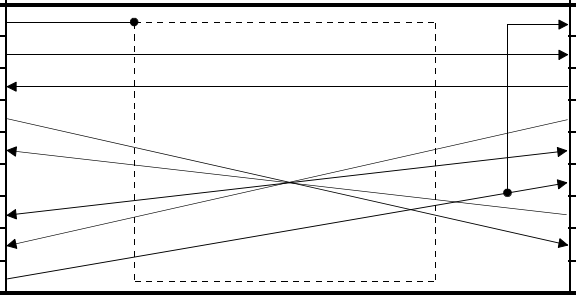
(2) User-fabricated cable 2)

(a) Connection diagram

PLC CPU (D-sub 9-pin male)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD	2		2	RD(RXD)
RD	3		3	SD(TXD)
RS	4		4	DTR(ER)
CS	5		5	SG
RI	6		6	DSR(DR)
SG	7		7	RS(RTS)
CD	8		8	CS(CTS)
ER	9		9	——

(b) Connector and connector cover

• Connector for GOT

Description	Model	Manufacturer
Connector	HDEB-9S(05)	HIROSE ELECTRIC CO.,LTD
Connector cover	HDE-CTH1(4-40)	HIROSE ELECTRIC CO.,LTD

• PLC CPU side connector
D-sub 9-pin male connector

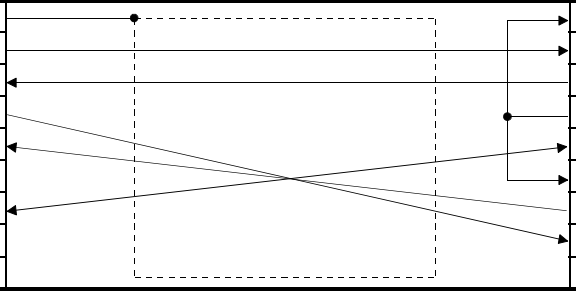
(c) Precautions for cable preparation

Fabricate the cable within the length of 15m(49.18feet) .
However, fabricate it within 3m when the GOT-PLC CPU transmission speed used is 38400bps.

(3) User-fabricated cable 3)

(a) Connection diagram

PLC CPU (D-sub 9-pin male)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD	2		2	RD(RXD)
RD	3		3	SD(TXD)
RS	4		4	DTR(ER)
CS	5		5	SG
——	6		6	DSR(DR)
SG	7		7	RS(RTS)
——	8		8	CS(CTS)
——	9		9	——



(b) Connector and connector cover

• Connector for GOT

Description	Model	Manufacturer
Connector	HDEB-9S(05)	HIROSE ELECTRIC CO.,LTD
Connector cover	HDE-CTH1(4-40)	HIROSE ELECTRIC CO.,LTD

• PLC CPU side connector

D-sub 9-pin female connector (secured by M2.6 screw)

(c) Precautions for cable preparation

Fabricate the cable within the length of 15m(49.18feet).

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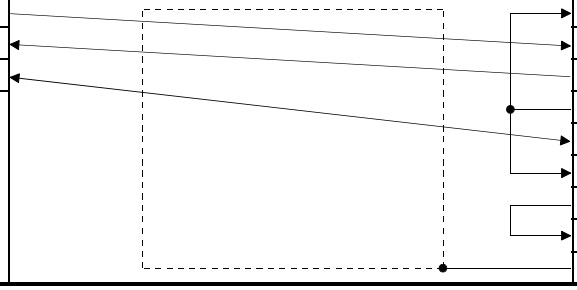
(4) User-fabricated cable 4)

(a) Connection diagram

AFP8550 converter adaptor (D-sub 25-pin male)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
SD	S		1	CD
RD	R		2	RD(RXD)
SG	G		3	SD(TXD)
			4	DTR(ER)
			5	SG
			6	DSR(DR)
			7	RS(RTS)
			8	CS(CTS)
			9	——



(b) Connector and connector cover

• Connector for GOT

Description	Model	Manufacturer
Connector	HDEB-9S(05)	HIROSE ELECTRIC CO.,LTD
Connector cover	HDE-CTH1(4-40)	HIROSE ELECTRIC CO.,LTD

• PLC CPU side connector
3-pin terminal block
Manufactured by Phoenix Contact
MKDS1/3-3.5

(c) Precautions for cable preparation

Fabricate the cable within the length of 15m(49.18feet).

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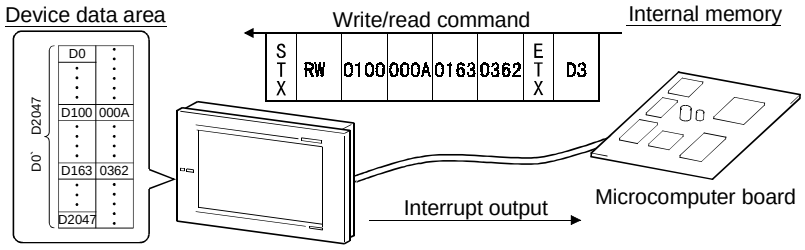
Chapter20 Microcomputer connection

Microcomputer connection allows the virtual devices (D) of the GOT to be monitored from a personal computer, microcomputer board, PLC or like (hereafter referred to as the host) by data transfer.



REMARK

Refer to the system configuration example (which uses the sample program contained in GT Works Version 5/GT Designer Version 5) given in Appendices.

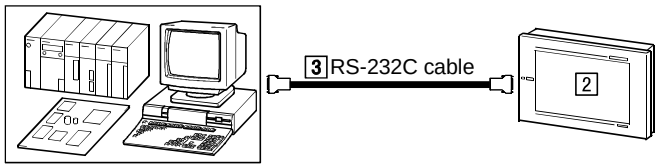
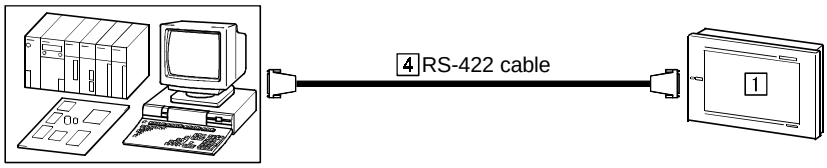
20.1 System configuration

(1) System configurations and connection conditions

The following system configurations and connection conditions assume microcomputer connection.

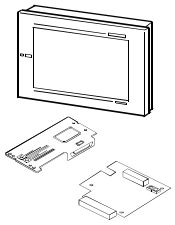
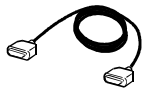
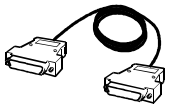
The numbers (1 to 4) given in the system configurations denote the numbers (1 to 4) in "(2) System equipment".

Refer to these numbers when you want to confirm the types and applications.

Connection Conditions		System Configuration
Number of connected	Installation distance	
1 GOT	Changes with the host side specifications.	
		

(2) System equipment

The following table indicates the system equipment needed for microcomputer connection.

Image	No.	Application	Type	
			GOT unit	Serial communication board
	1	Microcomputer-connected (RS-232C communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS2, A9GT-RS2T
			A956WGOT	A9GT-50WRS2
			A953GOT (with built-in communication interface)	———
	2	Microcomputer-connected (RS-422 communication) GOT	A985GOT(-V), A97*GOT, A960GOT	A9GT-RS4
			A956WGOT	A9GT-50WRS4
			A950GOT (with built-in communication interface)	———
	3	RS-232C cable between [host] and [GOT]	(Refer to Section 20.2 and fabricate on user side.)	
	4	RS-422 cable between [host] and [GOT]		

*1 Using the A9GT-RS2T which contains a clock component allows use of the function which can display the GOT time-of-day.

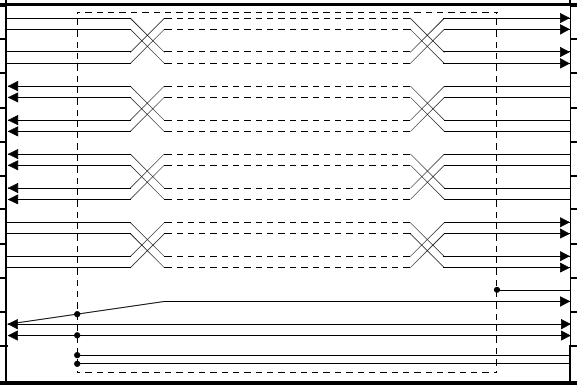
20.2 Connecting cable

20.2.1 With connection to DTR

The cable connection diagram and the connector with connection to DTR signals are described below.

(1) When using RS-422 communication

(a) Connection diagram

Host	Cable connection and direction of signal	GOT (D-sub 25-pin male metric screw type)	
Signal name		Pin No.	Signal name
SDA		2	RDA
SDB		15	RDB
RDA		3	SDA
RDB		16	SDB
DSR+		5	RSA
DSR-		18	RSB
DTR+		4	CSA
DTR-		17	CSB
		20	
SG		8	SG
		21	SG(shield)

DSR signal ··· If this signal is OFF, data is not transmitted from the GOT to the host. Normally, send signals from the host so that the DSR is always ON.
DTR signal ··· This signal is turned ON when the GOT is ready to receive data.

(b) Connector and connector cover

• Connector for GOT

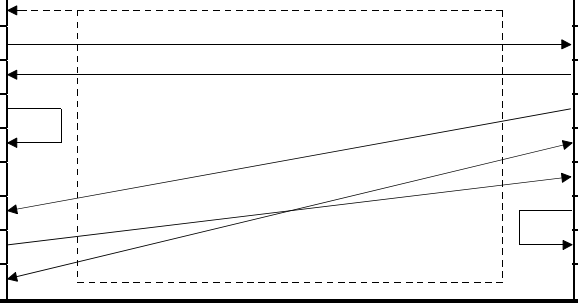
Description	Model	Manufacturer
Connector with cover	17JE-23250-02(D8A6)	DDK

• Connector for host

Use a connector matching the host.

(2) When using RS-232C communication

(a) Connection diagram

Host		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
5V	6		6	DSR(DR)
DR(DSR)	7		7	RS(RTS)
ER(DTR)	8		8	CS(CTS)
SG	9		9	——

Note) The pin numbers for the host in the above diagram are for reference.
Use pin numbers according to the specification of the host.

(b) Connector and connector cover

• Connector for GOT

Description	Model	Manufacturer
Connector	HDEB-9S(05)	HIROSE ELECTRIC CO.,LTD
Connector cover	HDE-CTH1(4-40)	HIROSE ELECTRIC CO.,LTD

• Connector for host

Use connectors matching the host.

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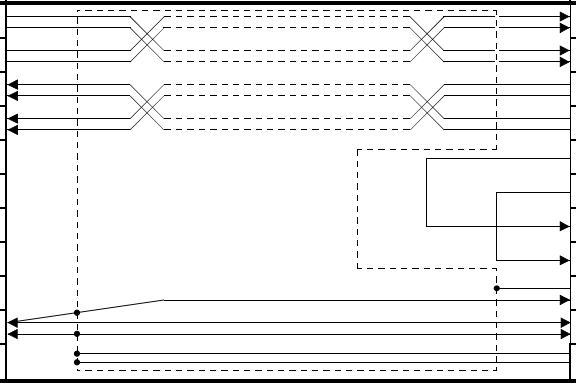
20.2.2 Without connection to DTR

The cable connection diagram and the connector without connection to DTR signals are described below.

(1) When using RS-422 communication

(a) Connection diagram

Host	Cable connection and direction of signal	GOT (D-sub 25-pin male metric screw type)	
Signal name		Pin No.	Signal name
SDA		2	RDA
SDB		15	RDB
RDA		3	SDA
RDB		16	SDB
		5	RSA
		18	RSB
		4	CSA
		17	CSB
		20	
SHELL		8	SG
		21	SG(shield)

(b) Connector and connector cover

• Connector for GOT

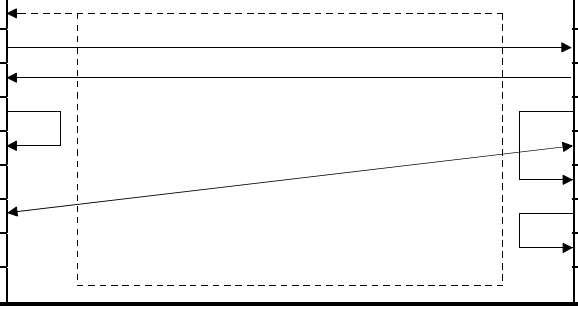
Description	Model	Manufacturer
Connector with cover	17JE-23250-02(D8A6)	DDK

• Connector for host

Use a connector matching the host.

(2) For RS-232C communication

(a) Connection diagram

Host *1		Cable connection and signal direction	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
——	6		6	DSR(DR)
SG	7		7	RS(RTS)
——	8		8	CS(CTS)
ER	20		9	——

*1 Pin numbers at the host side are only for reference.
They are not defined.
Use the appropriate number according to the host specification.

(b) Connector and connector cover

• Connector for GOT

Description	Model	Manufacturer
Connector	HDEB-9S(05)	HIROSE ELECTRIC CO.,LTD
Connector cover	HDE-CTH1(4-40)	HIROSE ELECTRIC CO.,LTD

• Connector for host

Use a connector matching the host.

20.3 Transmission specification

Transmission specification for communication between the GOT and the host is as follows.

Item	Setting details
Data bit	7 bit
Parity bit	Yes (even number)
Stop bit	1 bit
Sum check	Yes
Transmission speed	4800/9600/19200bps (default 19200bps)

20.4 Device data area

The data area, virtual device of the GOT, is shown below.

<table>
<tr><th>Address (decimal) *1</th><th>Details</th></tr>
<tr><td>D0 to D2</td><td>Not used</td></tr>
<tr><td>D3 *2</td><td>Communication error status
Error varies depending on the error status of the GOT communication driver.
<table>
<tr><th>Bit</th><th>Not used</th></tr>
<tr><td>0 to 3</td><td>Not used</td></tr>
<tr><td>4</td><td>SIO framing error</td></tr>
<tr><td>5</td><td>SIO parity error</td></tr>
<tr><td>6</td><td>SIO overrun error</td></tr>
<tr><td>7</td><td>Communication time error</td></tr>
<tr><td>8</td><td>Cable removal error</td></tr>
<tr><td>9 to 15</td><td>Not used</td></tr>
</table></td></tr>
<tr><td>D4 *2</td><td>Clock data (year)
<table>
<tr><th colspan="2">Bit</th></tr>
<tr><td>15 to 8</td><td>7 to 0</td></tr>
<tr><td>Not used</td><td>Store last 2 digit data of the year in BCD 2 digits.</td></tr>
</table></td><td rowspan="8">Clock data (year, month, day, hour, minute) is stored in BCD 2 digits to each address (0 to 7 bit).

(Example)
18:02:30, Thursday, June 10, 1999
<table>
<tr><th rowspan="2">Address</th><th colspan="2">Bit</th></tr>
<tr><th>15 to 8</th><th>7 to 0</th></tr>
<tr><td>D4</td><td>00</td><td>99</td></tr>
<tr><td>D5</td><td>00</td><td>06</td></tr>
<tr><td>D6</td><td>00</td><td>10</td></tr>
<tr><td>D7</td><td>00</td><td>18</td></tr>
<tr><td>D8</td><td>00</td><td>02</td></tr>
<tr><td>D9</td><td>00</td><td>30</td></tr>
<tr><td>D10</td><td>00</td><td>04</td></tr>
</table></td></tr>
<tr><td>D5 *2</td><td>Clock data (month)
<table>
<tr><th colspan="2">Bit</th></tr>
<tr><td>15 to 8</td><td>7 to 0</td></tr>
<tr><td>Not used</td><td>Store month data from 01 to 12 in BCD 2 digits.</td></tr>
</table></td></tr>
<tr><td>D6 *2</td><td>Clock data (day)
<table>
<tr><th colspan="2">Bit</th></tr>
<tr><td>15 to 8</td><td>7 to 0</td></tr>
<tr><td>Not used</td><td>Store day data from 01 to 31 in BCD 2 digits.</td></tr>
</table></td></tr>
<tr><td>D7 *2</td><td>Clock data (hour)
<table>
<tr><th colspan="2">Bit</th></tr>
<tr><td>15 to 8</td><td>7 to 0</td></tr>
<tr><td>Not used</td><td>Store hour data from 00 to 23 in BCD 2 digits.</td></tr>
</table></td></tr>
<tr><td>D8 *2</td><td>Clock data (minute)
<table>
<tr><th colspan="2">Bit</th></tr>
<tr><td>15 to 8</td><td>7 to 0</td></tr>
<tr><td>Not used</td><td>Store minute data from 00 to 59 in BCD 2 digits..</td></tr>
</table></td></tr>
<tr><td>D9 *2*3</td><td>Clock data (second)
<table>
<tr><th colspan="2">Bit</th></tr>
<tr><td>15 to 8</td><td>7 to 0</td></tr>
<tr><td>Not used</td><td>Store second data from 00 to 59 in BCD 2 digits..</td></tr>
</table></td></tr>
<tr><td>D10 *2*3</td><td>Clock data (day of week)
<table>
<tr><th colspan="2">Bit</th></tr>
<tr><td>15 to 8</td><td>7 to 0</td></tr>
<tr><td>Not used</td><td>Store day-of-week data from 00 to 06 in BCD 2 digits..</td></tr>
</table>
Day-of-week data
00: Sunday 03: Wednesday 06: Saturday
01: Monday 04: Thursday
02: Tuesday 05: Friday</td></tr>
</table>

Address (decimal) *1	Details
D11 to D12	Not used
D13	Interrupt output Write data and lower level 7 bit details are output as interrupt code.
D14 to D19	Not used
D20 to D2031	User area
D2032 to D2034	Not used
D2035	1 second binary counter Counting increases every second after the power is turned on. The data is binary.
D2036 to D2047	Not used

*1 “D****” indicated in this chapter indicates a virtual device of the GOT and is not the data register of the PLC.

*2 It can be used only when the A9GT-RS2T with built-in clock element is connected.

*3 SW4D5C-GOTR-PACKE version C or later is compatible with (second) and (day of week) of the clock data.

20.5 Communication commands

This section describes commands for communication.

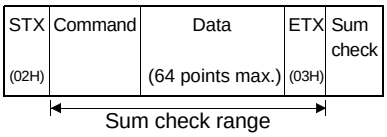
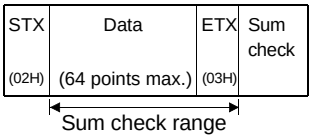
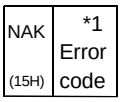
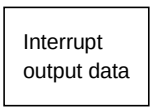
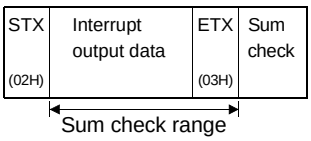
20.5.1 Command list

Commands used for data transmission between the GOT and the host are shown below.

Command	Command name	Details
RD	Batch read command	Designated amount of data is continuously read from the designated device.
WD	Batch write command	Designated amount of data is continuously written into the designated device.
RR	Random read	Data is read from multiple different device addresses.
RW	Random write	Data is written into multiple different device addresses.

20.5.2 Data communication type

2 types of data communication are available in using commands.
Each data communication type is explained below.
Data communication type is switched with the utility function of the GOT.
Refer to GOT-A900 series Operating Manual (GT Works Version 5/GT Designer Version 5 compatible Extended • Option Functions Manual) for details of the utility function.

<table>
<tr><th colspan="2">Protocol for selection</th><th>Type 1</th><th>Type 2</th></tr>
<tr><td colspan="2">Data communication type (host→GOT)</td><td> 
</td><td rowspan="2"></td></tr>
<tr><td rowspan="2">Response data type in normal operation (GOT→host)</td><td>Read command in (RD, RR) transmission</td><td> 
</td></tr>
<tr><td>Write command in (WD, RW) transmission</td><td> 
</td></tr>
<tr><td colspan="2">Response data type in error (GOT→host)</td><td> 
</td><td> 
</td></tr>
<tr><td colspan="2">Interrupt output type (GOT→host)</td><td> 
</td><td> 
</td></tr>
</table>

*1 When type 2 is used, the error code is stored for interrupt output.
Each error code is shown below in detail.

Error code	Error details	Action
06H	Sum check error An error has occurred at the sum check after receipt of communication packet.	Check the communication line and the transmission packet.
10H	Command error Request command which is not supported was used.	Check the request command data which was transmitted.
11H	Data length error The data volume exceeded the upper limit of the reception buffer.	Check if the total number of bytes in the transmission data packet is within 518 bytes.

Error code	Error details	Action
7BH	Point excess error The allowance of read/write device was exceeded.	Check the range of the designated device
7AH	Address error Top address of read/write device is not within the range.	Check the top address of the designated device.
12H	Communication data error When the communication data is received, this error occurs if EXT is not found before the upper limit of the reception buffer is exceeded.	Check the communication data.

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20.5.3 Precautions for use

The sum check code is the last 1 byte (8bit) value of the result (sum) from addition of binary data in the range of the sum check.

(Example) Reading RD command with D100 to D101

STX	R	D	Address				Point		ETX	Sum check	
			0	1	0	0	0	2		B	C
02H	52H	44H	30H	31H	30H	30H	30H	32H	03H	42H	43H

Sum check range

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

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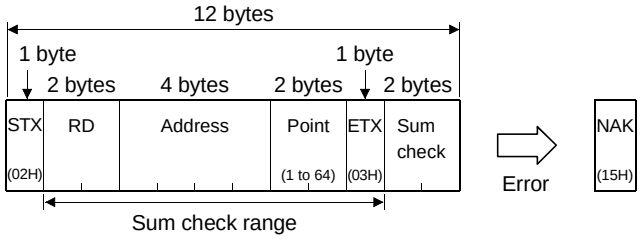
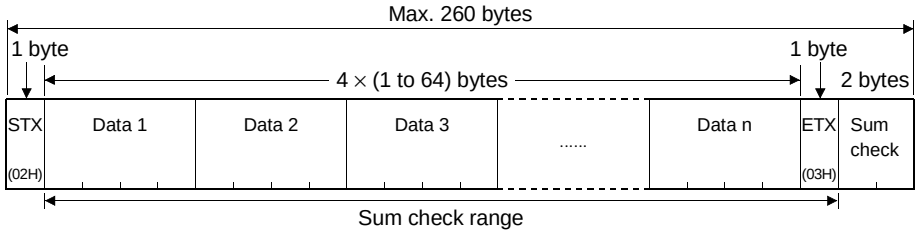
20.5.4 Batch read command (RD)

Batch read command details are shown below.

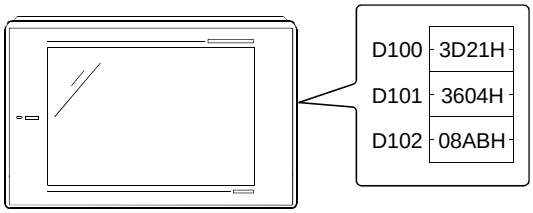


Normal end



Example of use

When D100 to D102 are read from the GOT virtual device



STX	R	D	Address				Point		ETX	Sum check	
			0	1	0	0	0	3		B	D
(02H)			H	MH	ML	L	H	L	(03H)	H	L

Transmission from host to GOT

Normal end

STX	D100				D101				D102				ETX	Sum check	
	3	D	2	1	3	6	0	4	0	8	A	B		9	5
(02H)	H	MH	ML	L	H	MH	ML	L	H	MH	ML	L	(03H)	H	L

Transmission from GOT to host

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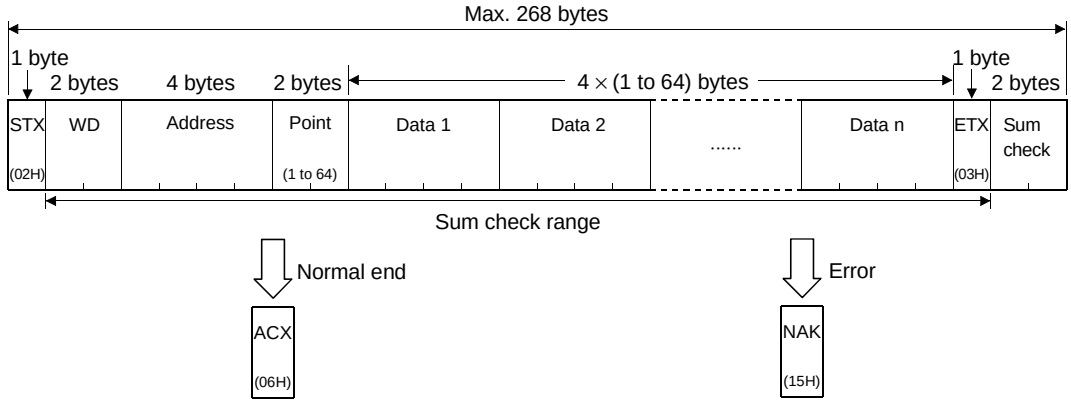
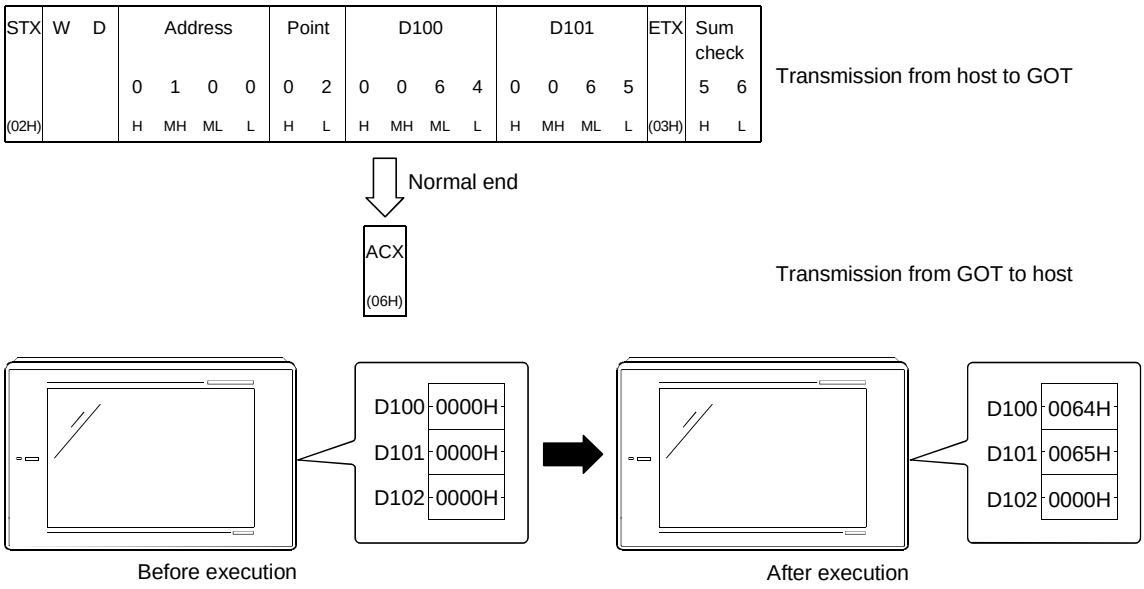
20.5.5 Batch write command (WD)

Batch write command details are shown below.



Example of use

When 64H and 65H are written in D100 to D101 of the GOT virtual device



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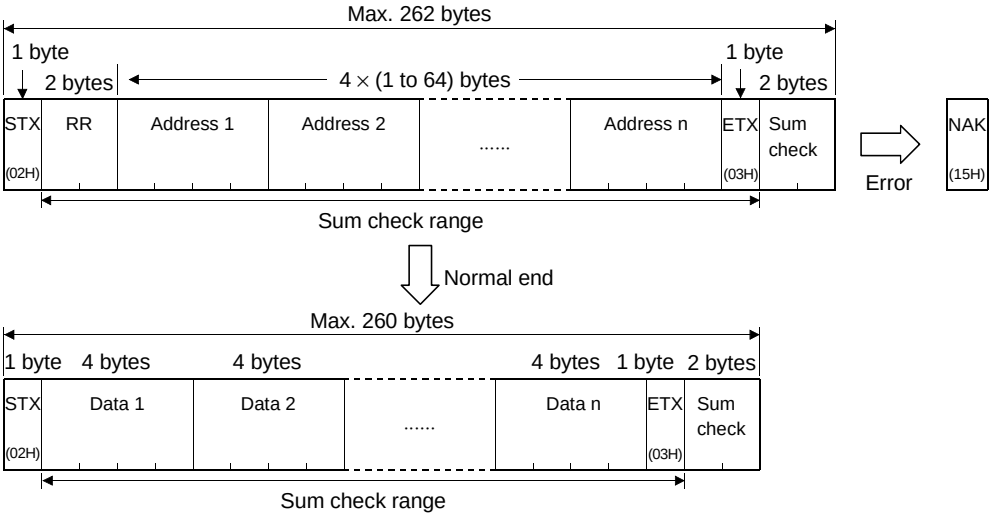
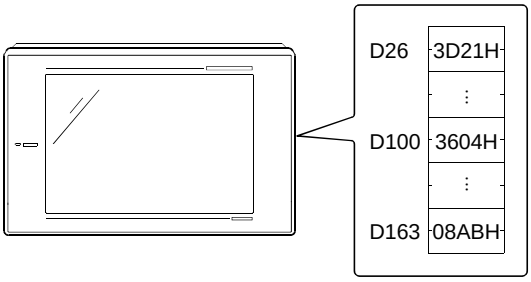
20.5.6 Random read command (RR)

Random read command details are shown below.



Example of use

When D100, D26 and D163 are read from the GOT virtual device



STX	R	R	D100				D26				D163				ETX	Sum check	
			0	1	0	0	0	0	2	6	0	1	6	3		F	A
(02H)			H	MH	ML	L	H	MH	ML	L	H	MH	ML	L	(03H)	H	L

Transmission from host to GOT

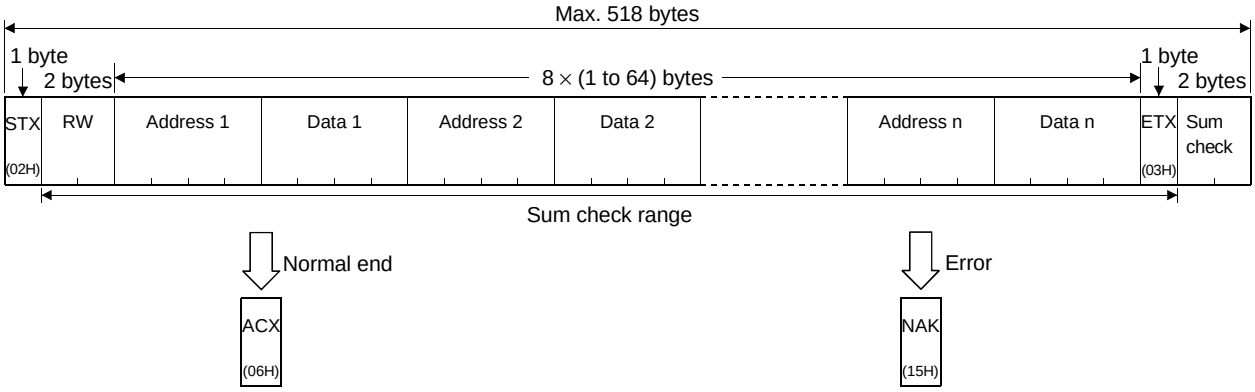
Normal end

STX	Details of D100				Details of D26				Details of D163				ETX	Sum check	
	3	6	0	4	3	D	2	1	0	8	A	B		9	9
(02H)	H	L	H	L	H	L	H	L	H	L	H	L	(03H)	H	L

Transmission from GOT to host

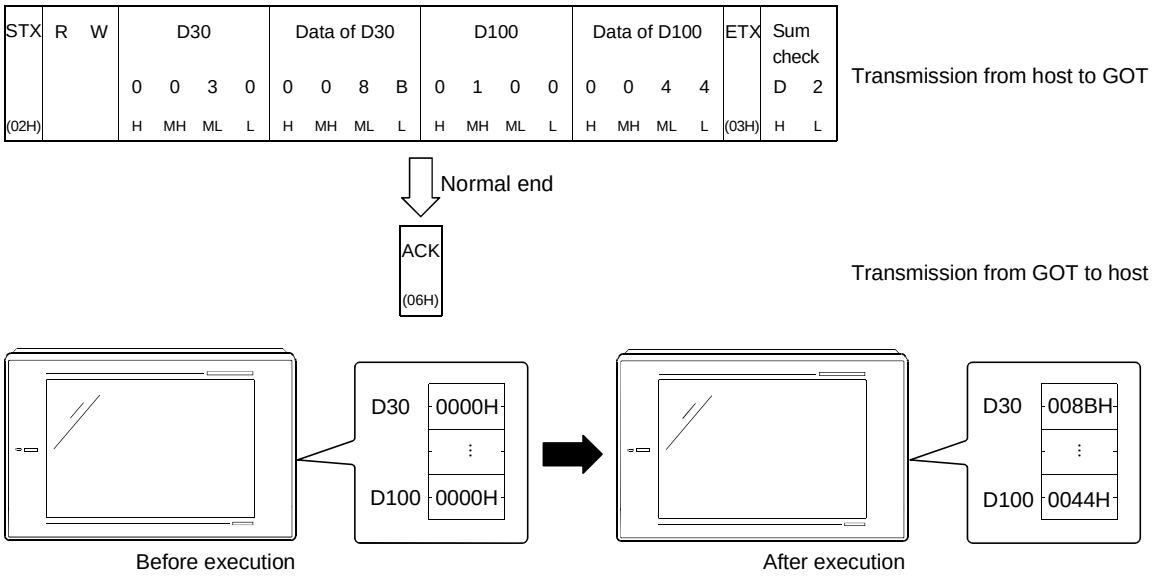
20.5.7 Random write command (RW)

Random write command details are shown below.



Example of use

When 8BH is written into D30 and 44H is written into D100 of the GOT virtual device



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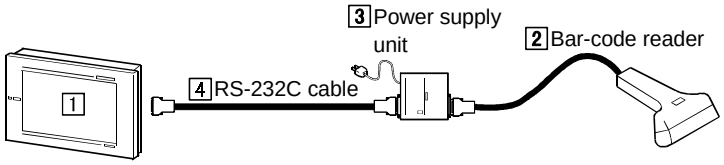
Chapter21 Optional equipment connection

21.1 Bar-code reader

21.1.1 System configuration

(1) System configuration

The following system configuration assumes connection of a bar-code reader.
The numbers (1 to 4) given in the system configurations denote the numbers (1 to 4) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

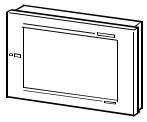
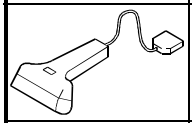
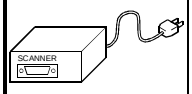
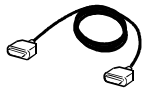


POINT

- When using the transparent function, you cannot connect a bar-code reader. Refer to Section 4.3 for details of the transparent function.
- Refer to the technical bulletin "List of valid devices applicable for GOT900 Series" (T10-0028) for details of the bar-code readers and communication settings usable with the GOT.
  The above technical bulletin can also be browsed on the Mitsubishi Electric FA Equipment Technical Information Service MELFANSweb home page.
  (MELFANSweb home page: http://www.MitsubishiElectric.co.jp/melfansweb)

(2) System equipment

The following table indicates the system equipment needed for connection of a bar-code reader.

Image	No.	Application	Type
	1	Bar-code reader-connected GOT	GOT
	2	Bar-code reader which reads bar codes and write them to PLC*1	(Refer to List of valid devices applicable for GOT900 Series for the connectable bar-code readers, power supply units and cables)
	3	Power supply unit for supplying power to bar-code reader*1*2	
	4	RS-232C cable between [power supply unit] and [GOT] *2	

*1 The bar-code reader must be supplied with power (5VDC) from the AC-DC adaptor and compatible power supply unit.
*2 Not needed depending on the bar-code reader used.

21.2 Printer

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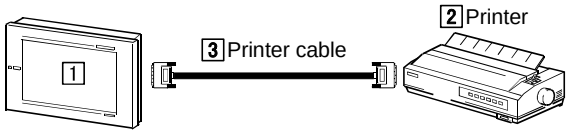
21.2.1 System configuration

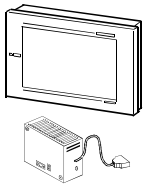
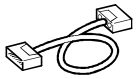
(1) System configuration

The following system configuration assumes connection of a printer.
The numbers (1 to 3) given in the system configurations denote the numbers (1 to 3) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.



(2) System equipment

The following table indicates the system equipment needed for connection of a printer.

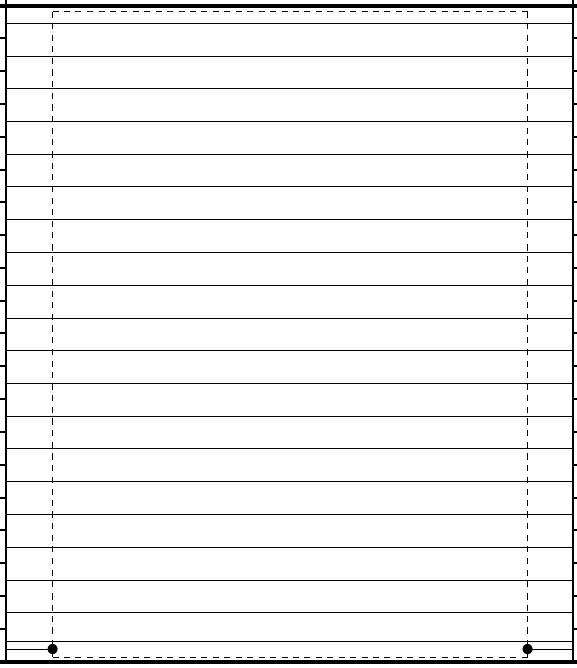
Image	No.	Application	Type	
			GOT unit	Printer interface unit
	1	Printer-connected GOT	A985GOT(-V), A97*GOT, A960GOT (with built-in printer interface)	———
			A956WGOT, A95*GOT	A9GT-50PRF
	2	Printer for outputting reports, hard copies, etc.	ESP/P24-J84 grade printer (ESC/P command ready), Hewlett Packard make printer (PCL command ready), Chinese (GB, BIG5) printer (ESC/P command ready)	
	3	Printer cable between [GOT] and [printer]*1	AC30PIO-20P(3m)	

*1 The printer cable may also be fabricated on user side. Refer to Section 21.2.2 for details of the fabricating method.

21.2.2 Connection cable

Connection diagram and connectors of the printer cable between the GOT and the printer are shown below.

(1) Connection diagram

Printer side		Cable connection and signal direction	GOT side	
Signal name	Pin No.		Pin No.	Signal name
CHASIS GND	17		1	CHASIS GND
ACKNLG	10		2	ACKNLG
DATA6	7		3	DATA6
DATA5	6		4	DATA5
DATA4	5		5	DATA4
NC	36		6	NC
INIT	31		7	INIT
DATA1	2		8	DATA1
STROBE	1		9	STROBE
BUSY	11		10	BUSY
DATA8	9		11	DATA8
DATA7	8		12	DATA7
PE	12		13	PE
SLCT	13		14	SLCT
GND	22		15	GND
DATA3	4		16	DATA3
DATA2	3		17	DATA2
GND	24		18	GND
ERROR	32		19	ERROR
GND	19		20	GND

(2) Connector to be used

• GOT connector

Name	Model	Manufacturer
Connector cover	10320-3210-000	Sumitomo 3M Ltd.
Connector	10120-6000EL	

• Printer connector

Use the connector applicable to the printer to be used.

(3) Precautions for cable preparation

Prepare the cable of a length within 3 m (9.84 feet) or the within the specification range of the printer to be used.

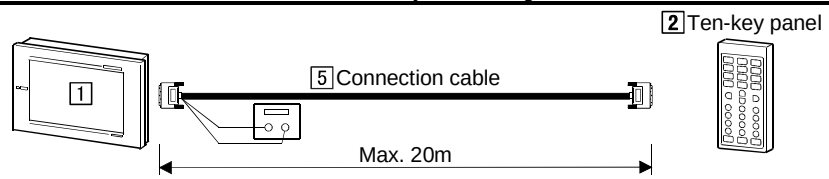
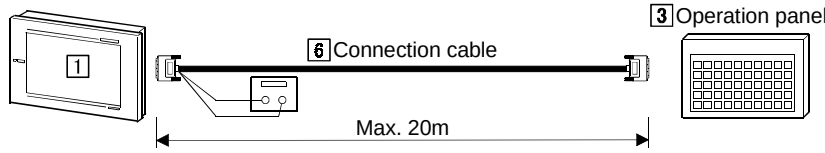
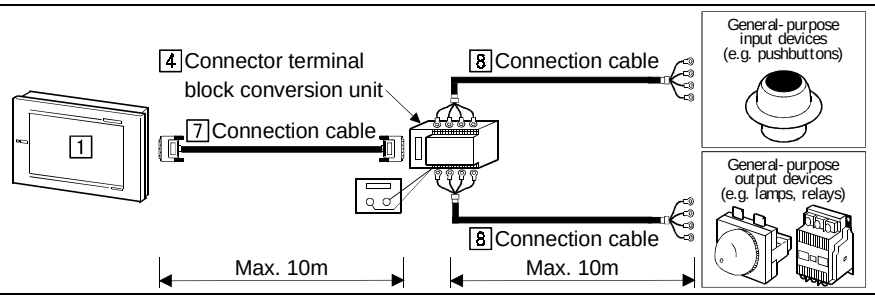
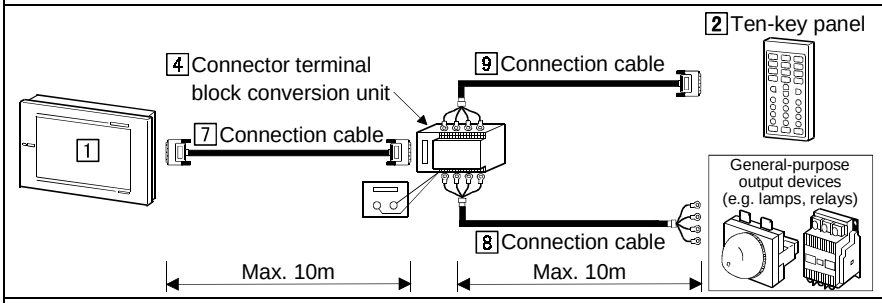
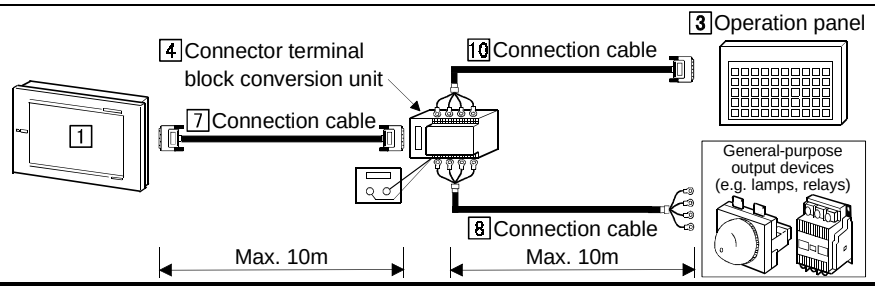
21.3 External I/O equipment

21.3.1 System configurations

The system configuration differs between when an external I/O unit is used for input only and when external I/O units are used for I/O.

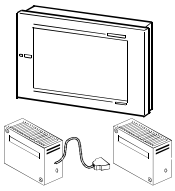
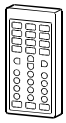
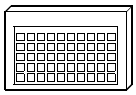
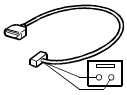
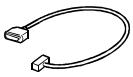
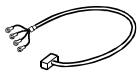
(1) System configurations and connection conditions

The following system configuration assumes connection of a printer.
The numbers (1 to 10) given in the system configurations denote the numbers (1 to 10) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

<table>
<tr><th>Connection Conditions</th><th>System Configuration</th></tr>
<tr><td rowspan="2">For input only</td><td> 
</td></tr>
<tr><td> 
</td></tr>
<tr><td rowspan="3">For I/O</td><td> 
</td></tr>
<tr><td> 
</td></tr>
<tr><td> 
</td></tr>
</table>

(2) System equipment

The following table indicates the system equipment needed for connection of external I/O equipment.

Image	No.	Application	Type	
			GOT unit	External I/O interface unit
	1	External I/O equipment-connected GOT	A985GOT, A97*GOT, A960GOT	A9GT-70KBF
			A956WGOT, A95*GOT	A8GT-50KBF
	2	Ten-key panel	A8GT-TK	
	3	Operation panel*1*2	FP5-MD41-A (Kanaden Corp. make), FP5-MD41-B (Kanaden Corp. make)	
	4	Connector terminal block conversion unit*3	A6TBY36-E, A6TBY54-E	
	5	Connection cable between [GOT] and [ten-key panel]*3*4	A8GT-C05TK(0.5m)	
	6	Connection cable between [GOT] and [operation panel]*1*2*3*6	Connection cable (Kanaden Corp. make)	
	7	Connection cable between [GOT] and [connector terminal block conversion unit]*3*5	A8GT-C30TB(3m)	
	8	Connection cable between [connector terminal block conversion unit] and [general-purpose I/O equipment]	(Refer to Section 21.3.3 and fabricate on user side.)	
	9	Connection cable between [connector terminal block conversion unit] and [ten-key panel]	(Refer to A8GT-TK Ten-Key Panel User's Manual and fabricate on user side.)	
	10	Connection cable between [connector terminal block conversion unit] and [operation panel]*1*6	Connection cable (Kanaden Corp. make)	

*1 The operation panels and connection cables made by Kanaden Corp. are available from Kanaden Corp.
Refer to Section 21.3.4 for contact details.

*2 The operation panel and cable for input only may also be fabricated on user side.
Refer to Section 21.3.2 for details of the fabricating method.

*3 12/24VDC power must be supplied for external I/O units.
If power supplied to the external I/O unit is lost midway, the operation panel will not operate.
When using the operation panel again, supply power to the external I/O unit and then reset the GOT.

*4 The connection cable may also be fabricated on user side.
Refer to the A8GT-TK Ten-Key Panel User's Manual for details of the fabricating method.

*5 The connection cable may also be fabricated on user side. Refer to Section 21.3.2 for details of the fabricating method.

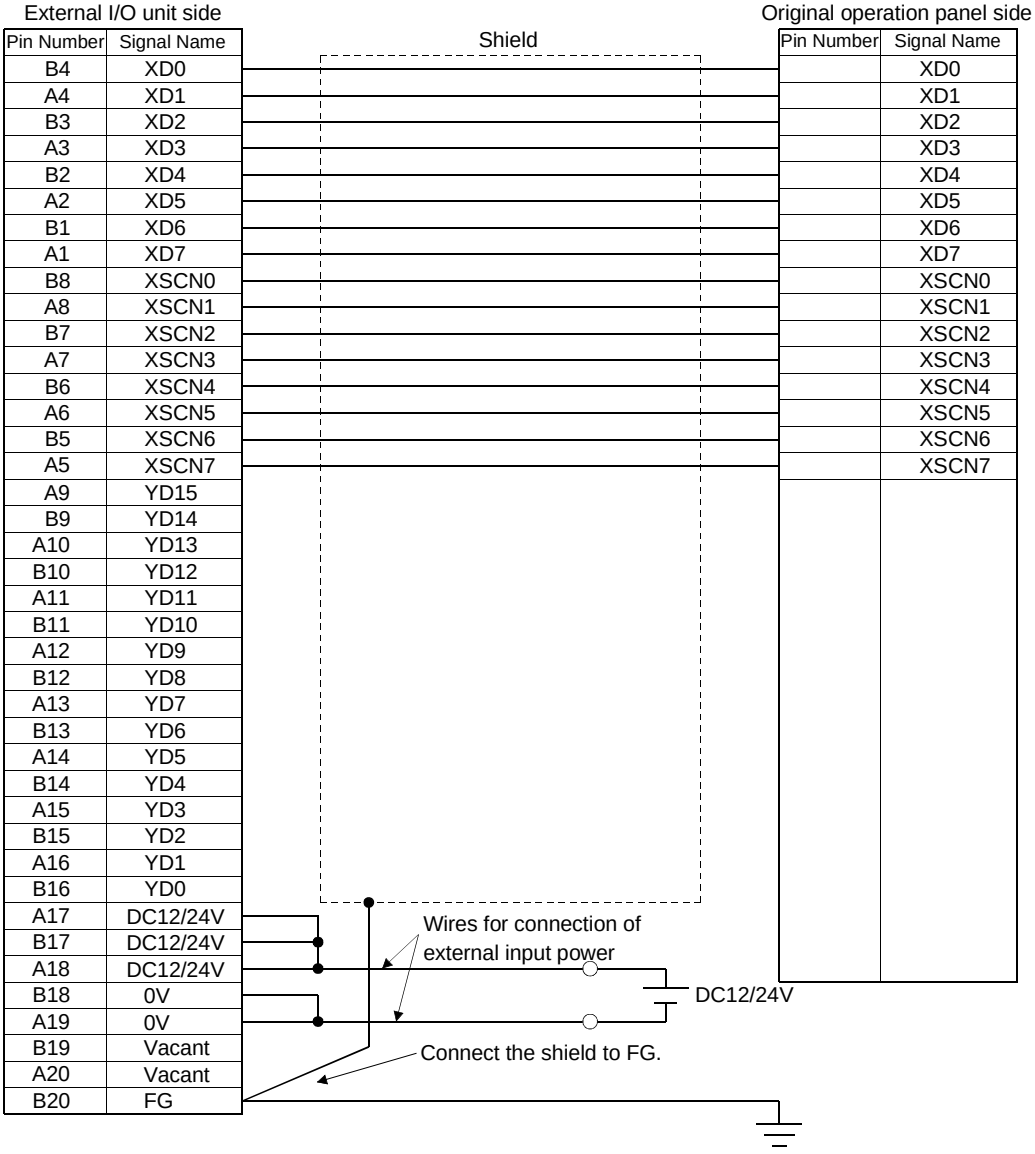
*6 The operation panel and cables for I/O may also be fabricated on user side.
Refer to Section 21.3.3 for details of the fabricating method.

21.3.2 Connection cables

(1) Connection cable for use between external I/O unit and user-made original operation panel

Fabricate the connection cable for use between the external I/O unit and user-made original operation panel on the user side by referring to the following.

(a) Connection diagram



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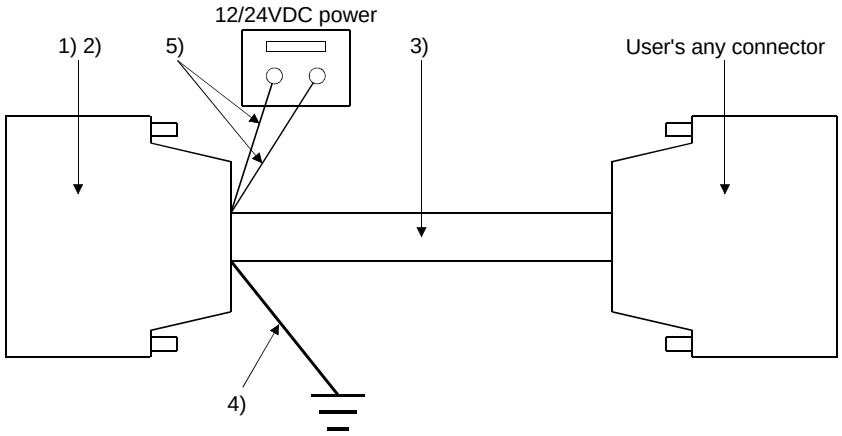
(b) Connector and connector cover used



Number	Name	Type	Maker
1) 2)	Connector (with cover)	A6CON1	Mitsubishi Electric
1)	Connector	FCN-361JO40-AU	Fujitsu
2)	Connector cover	FCN-360CO40-B	
3)	Pair shielded cable	UL 2464 AWG26 or equivalent	———
4)	FG wire	UL 1015 AWG14 or equivalent	
5)	Wires for connection of external input power	UL 1007 AWG24 or equivalent	

(c) Precaution for cable fabrication

The cable fabricated should be within 20m long.

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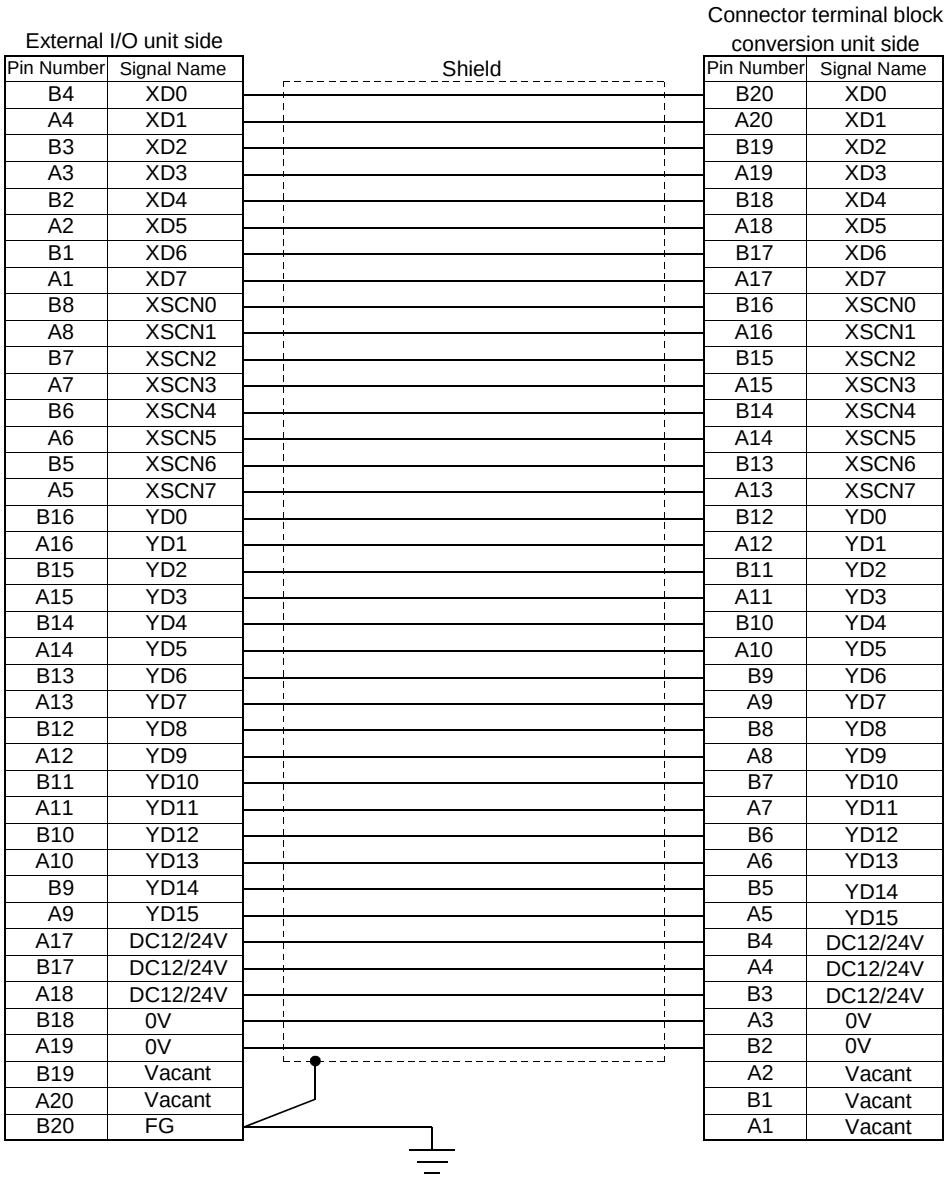
(2) Connection cable for use between external I/O unit and connector terminal block conversion unit

Instead of using the dedicated cable (A8GT-C30TB), the user can fabricate the connection cable for use between the external I/O unit and connector terminal block conversion unit. When fabricating the connection cable, refer to the following.

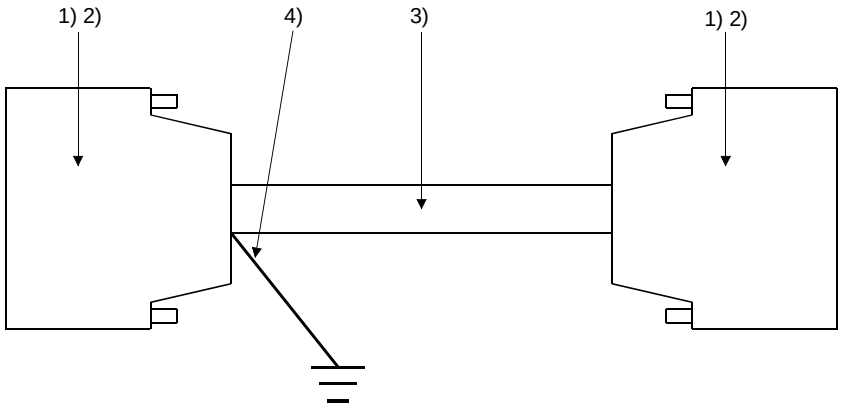
(a) Connection diagram



Pin Number	Signal Name
B4	XD0
A4	XD1
B3	XD2
A3	XD3
B2	XD4
A2	XD5
B1	XD6
A1	XD7
B8	XSCN0
A8	XSCN1
B7	XSCN2
A7	XSCN3
B6	XSCN4
A6	XSCN5
B5	XSCN6
A5	XSCN7
B16	YD0
A16	YD1
B15	YD2
A15	YD3
B14	YD4
A14	YD5
B13	YD6
A13	YD7
B12	YD8
A12	YD9
B11	YD10
A11	YD11
B10	YD12
A10	YD13
B9	YD14
A9	YD15
A17	DC12/24V
B17	DC12/24V
A18	DC12/24V
B18	0V
A19	0V
B19	Vacant
A20	Vacant
B20	FG

Pin Number	Signal Name
B20	XD0
A20	XD1
B19	XD2
A19	XD3
B18	XD4
A18	XD5
B17	XD6
A17	XD7
B16	XSCN0
A16	XSCN1
B15	XSCN2
A15	XSCN3
B14	XSCN4
A14	XSCN5
B13	XSCN6
A13	XSCN7
B12	YD0
A12	YD1
B11	YD2
A11	YD3
B10	YD4
A10	YD5
B9	YD6
A9	YD7
B8	YD8
A8	YD9
B7	YD10
A7	YD11
B6	YD12
A6	YD13
B5	YD14
A5	YD15
B4	DC12/24V
A4	DC12/24V
B3	DC12/24V
A3	0V
B2	0V
A2	Vacant
B1	Vacant
A1	Vacant

(b) Connectors and connector covers used



Number	Name	Type	Maker
1) 2)	Connector (with cover)	A6CON1	Mitsubishi Electric
1)	Connector	FCN-361JO40-AU	Fujitsu
2)	Connector cover	FCN-360CO40-B	
3)	Pair shielded cable	UL 2464 AWG26 or equivalent	———
4)	FG wire	UL 1015 AWG14 or equivalent	

(c) Precaution for cable fabrication

The cable fabricated should be within 10m long.

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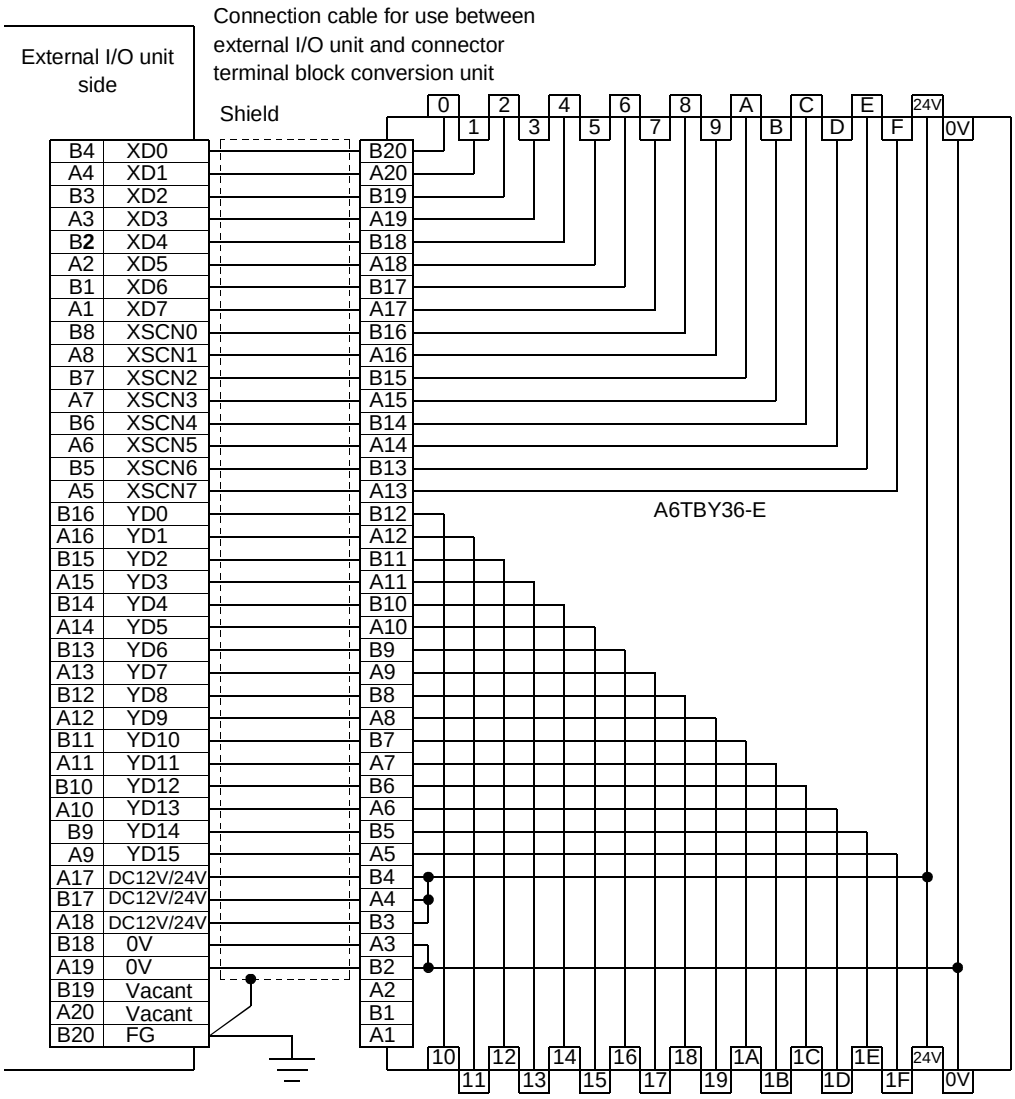
21.3.3 Wiring diagrams

(1) Wiring diagram for use between external I/O unit and connector terminal block conversion unit

(a) For use of A6TBY36-E type connector terminal block conversion unit



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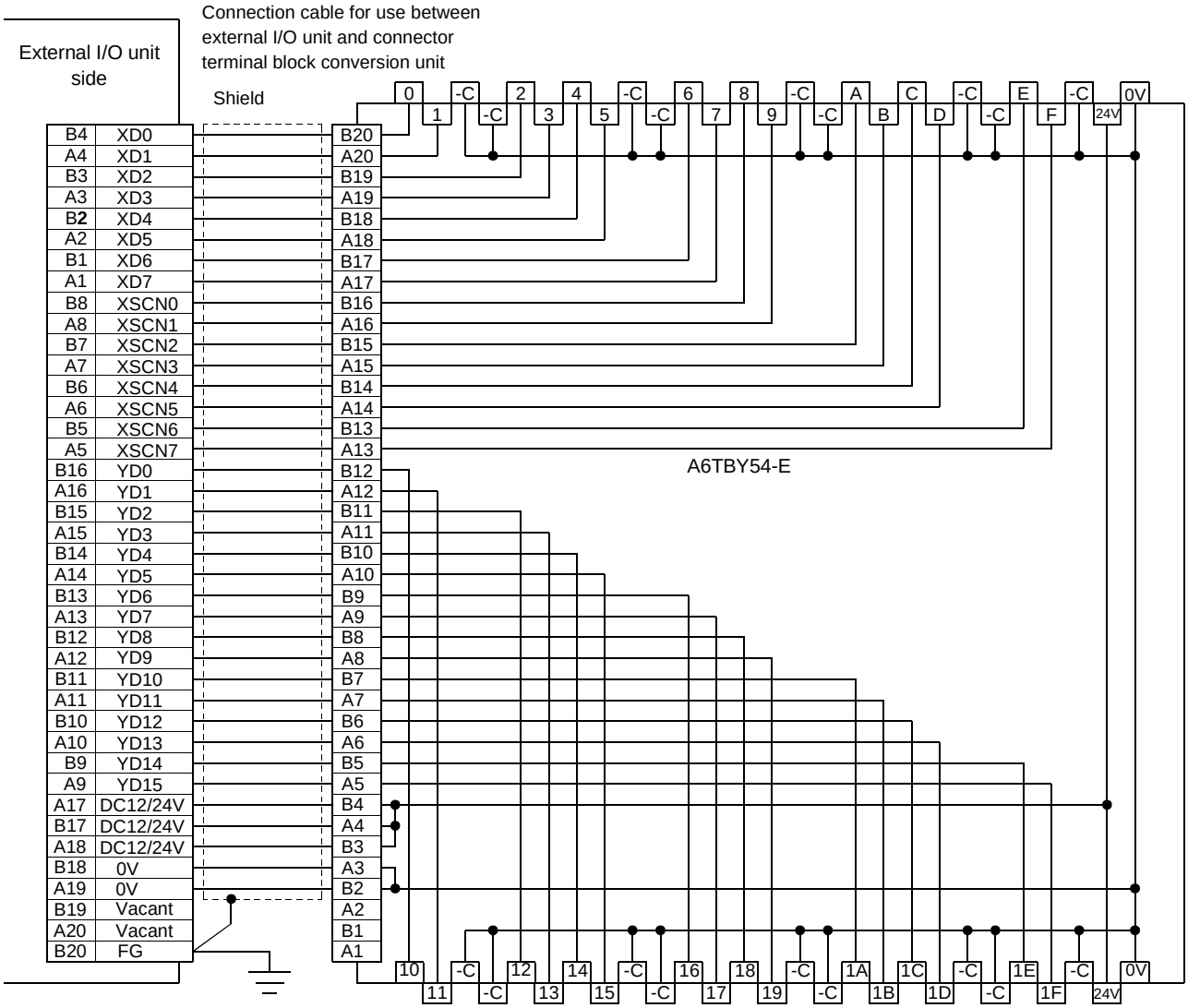
(b) For use of A6TBY54-E type connector terminal block conversion unit



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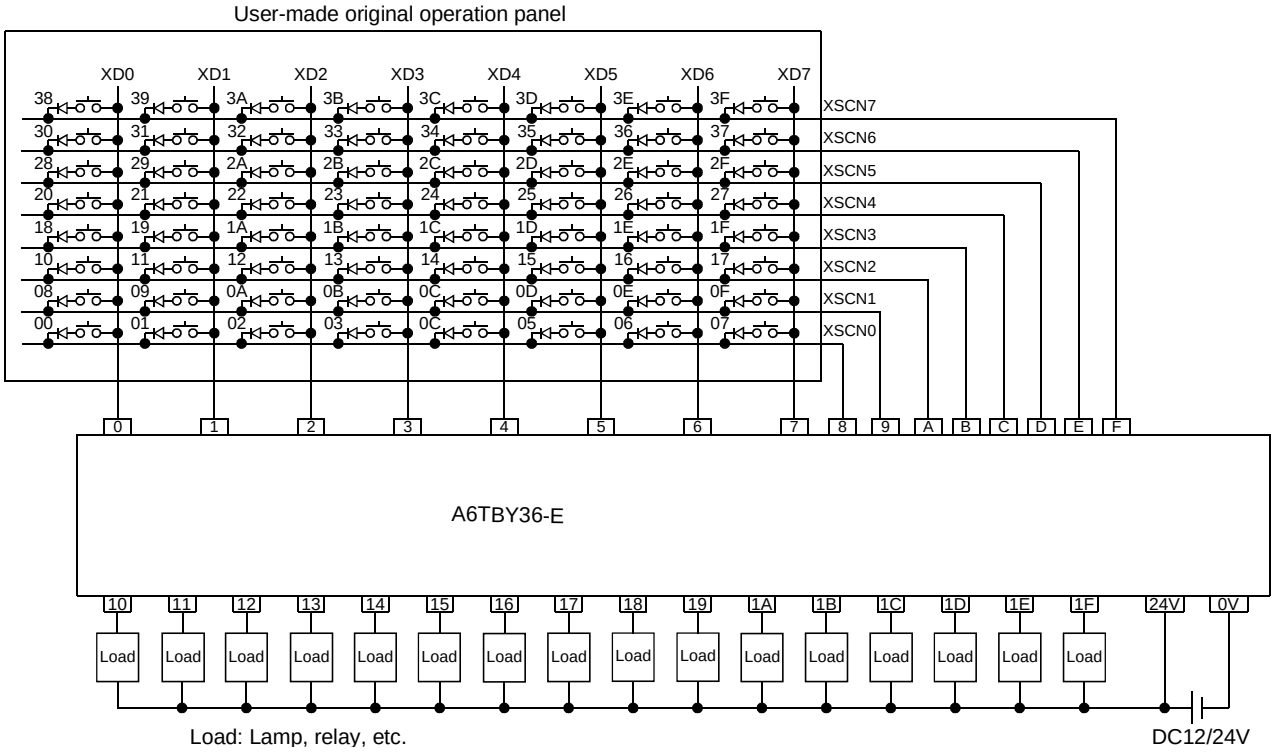
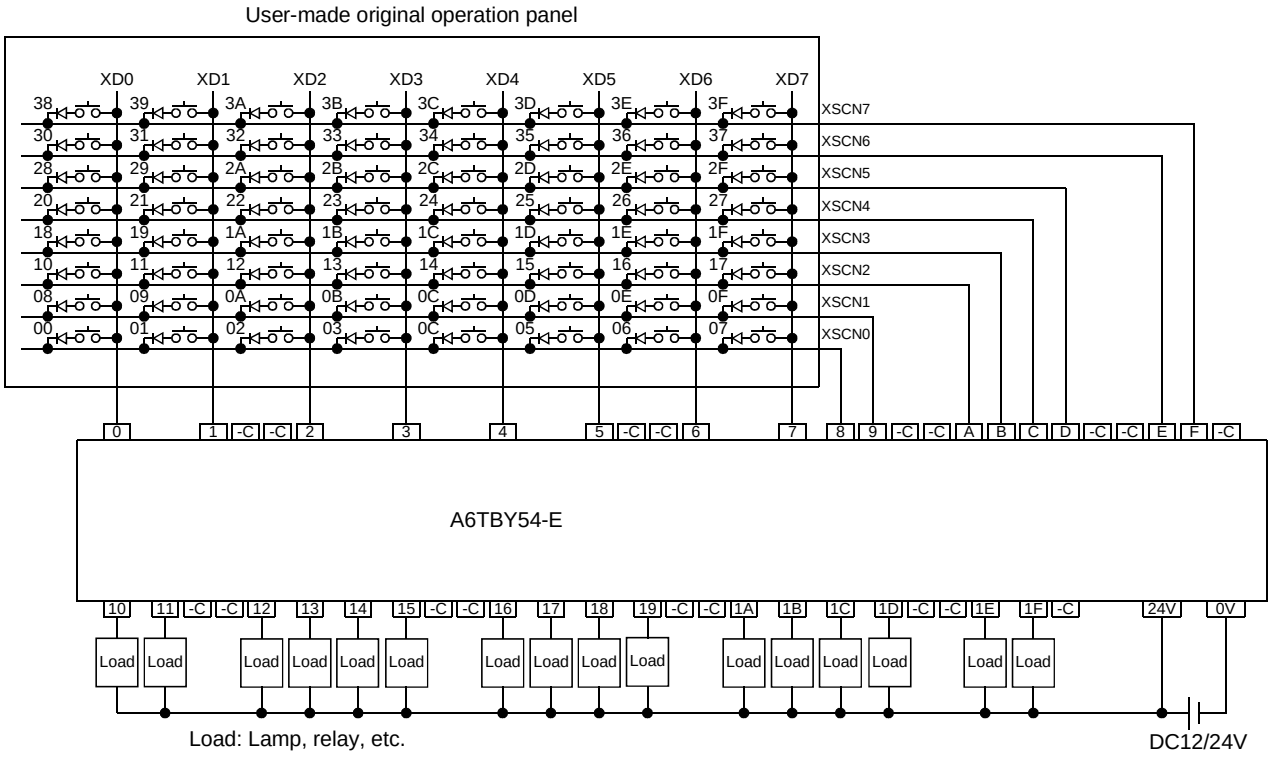
(2) Wiring diagram for use between connector terminal block conversion unit and user-made original operation panel

(a) For use of A6TBY36-E type connector terminal block conversion unit



(b) For use of A6TBY54-E type connector terminal block conversion unit



21.3.4 Recommended user-prepared articles and how to prepare them

(1) Type

Maker	Type	Remarks
Kanaden Corp.	FP5-MD41-A	Operation panel (desktop type)
	FP5-MD41-B	Operation panel (enclosure-mounted type)

(2) Order and inquiry

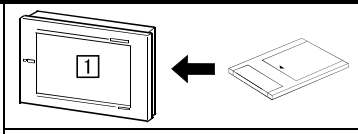
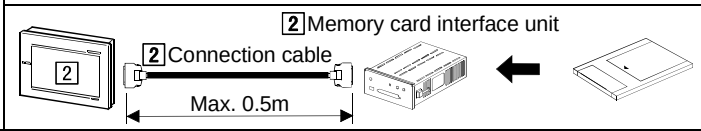
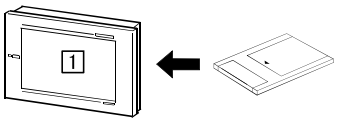
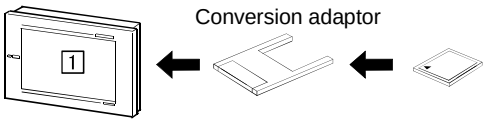
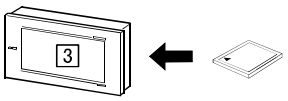
Orders and inquiries for the operation panel should be made to your shop.

21.4 PC card

21.4.1 System configurations

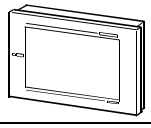
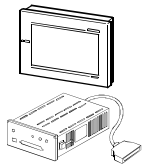
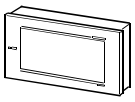
(1) System configurations and connection conditions

The following system configurations assume loading of a PC card.
The numbers (1 to 3) given in the system configurations denote the numbers (1 to 3) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions	System Configuration
When SRAM type PC card is used	
	
When flash PC card is used	
When compact flash PC card is used	
	

(2) System equipment

The following table indicates the system equipment needed for loading of a PC card.

Image	No.	Application	Type	
			GOT unit	Memory card interface unit
	1	PC card-loaded GOT	A985GOT(-V), A97*GOT, A960GOT (with built-in memory card interface)	———
	2	PC card-loaded GOT	A956WGOT, A95*GOT	A1SD59J-MIF (The cable (A85GT-C05H (0.5m)) for connection of the A1S-D57J-MIF and GOT is separately required.)
	3	PC card-loaded GOT	A956WGOT (with built-in memory card interface)	———

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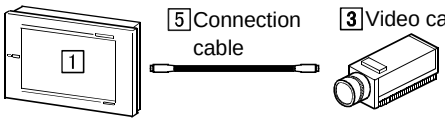
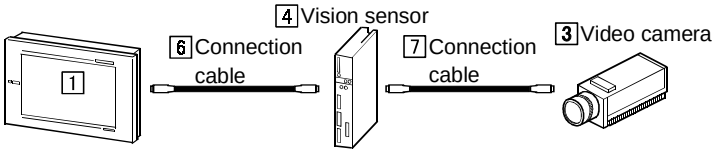
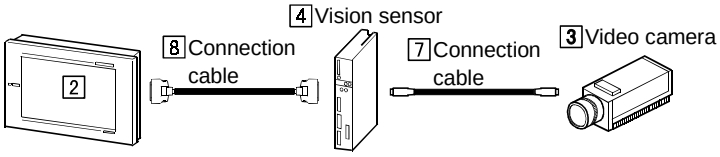
21.5 Video camera

21.5.1 System configurations

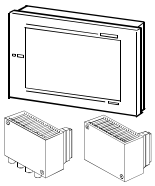
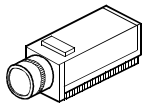
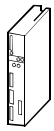
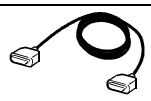
(1) System configurations and connection conditions

The following system configurations assume loading of a PC card.
The numbers (1 to 8) given in the system configurations denote the numbers (1 to 8) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.

Connection Conditions	System Configuration
For video input	
	
For RGB input	

(2) System equipment

The following table indicates the system equipment needed for connection of a video camera.

Image	No.	Application	Type	
			GOT unit	Input interface unit
	1	Video-input GOT	A985GOT-V	A9GT-80V4 (video), A9GT-80V4R1 (video/RGB)
	2	RGB-input GOT	A985GOT-V	A9GT-80R1 (RGB), A9GT-80V4R1 (video/RGB)
	3	Video camera	Products on the market	
	4	Vision sensor		
	5	Coaxial cable between [GOT] and [video camera]	(Refer to Section 21.5.2 and fabricate on user side.)	
	6	Coaxial cable between [GOT] and [vision sensor]		
	7	Coaxial cable between [vision sensor] and [video camera]	(Refer to manuals of video camera and vision sensor and prepare on user side.)	
	8	Connection cable between [vision sensor] and [video camera]	(Refer to Section 21.5.3 and fabricate on user side.)	

POINT

- When using the A9GT-80V4R1 with the A985GOT-TBA-V, use the A985GOT-TBA-V of hardware version L (January, 2002) or later.
  When the A9GT-80V4R1 is used, depending on the video camera type, noise entering from the power supply cable of the camera may cause the PLC and/or GOT to malfunction.
  Supply power to the camera from the power supply that differs from the one for the PLC or GOT. (Do not supply power from the same receptacle.)
  If power cannot be supplied from a different power supply, install the following line filter to the power supply line of the camera.
  Recommended line filter: TDK make ZHC2203-11 (or equivalent)
- Using the video camera via some vision sensor type requires a power supply unit.
- Some video camera or system allows video signals to be output from both the power supply unit and video camera.
  If video signals are output from both the video camera and power supply unit, the voltage levels of the signals may become low and pictures may not be displayed properly. In such a case, signals should be output from the video camera only.
- In any environment where noise may cause a malfunction, we recommend you to ground the camera system and GOT separately.

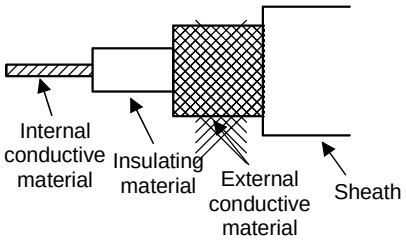
21.5.2 Coaxial cable

The following are the specifications, connectors and fabricating method of the coaxial cable used to connect the GOT, video camera and vision sensor.

(1) Coaxial cable used

As the coaxial cable, use "3C-2V" or "5C-2V" (JIS C 3501 conformance) of a high-frequency coaxial cable.

The following are coaxial cable specifications.

Item	3C-2V	5C-2V
Construction		
Cable diameter	5.4mm (0.21in)	7.4mm (0.29in)
Allowable bending redius	22mm (0.87in) or more	30mm (1.18in) or more
Internal conductive material diameter	0.5mm (0.02 in) (Annealed copper wire)	0.8mm (0.08in) (Annealed copper wire)
Insulating material diameter	3.1mm (0.12in) (Polyethy lene)	4.9mm (0.19in) (Polyethy lene)
Extermnal conductive material diameter	3.8mm (0.15in) (Single annealed copper wire mesh)	5.6mm (0.22in) (Single annealed copper wire mesh)
Applicable connector plug	connector plug for 3C-2V (BNC-P-3-Ni-CAU is recommended.)	connector plug for 5C-2V (BNC-P-5-Ni-CAU is recommended.)

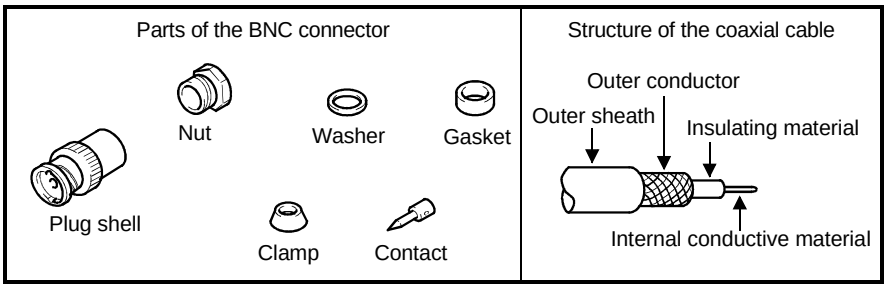
(2) Connector and connector cover

• GOT connector

Use the BNC connector as the GOT connector.

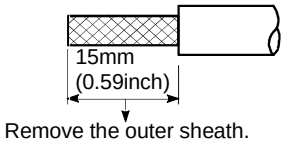
The following is how to connect the BNC connector and coaxial cable.

(a) Structures of BNC connector and coaxial cable

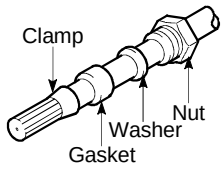


(b) Connecting the BNC connector with the coaxial cable

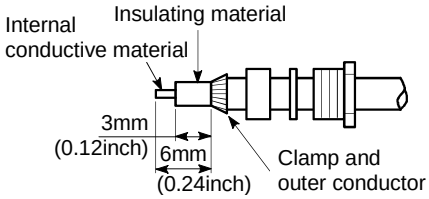
1) Remove the outer sheath of the end of the coaxial cable as shiown below.



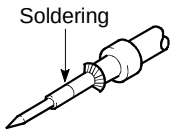
2) Slip a nut, a washer, a gasket, and a clamp on the coaxial cable as shown below, and loosen the outer conductor.



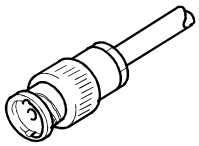
3) Cut the outer conductor, insulating material, and internal conductive material to specified dimensions shown below.
Cut the outer conductor and extend it over the end of the clamp.



4) Solder the contact to the tip of the internal conductive material.



5) Insert the contact assembly in plug shell, and engage the plug shell with the nut.



*1 Soldered part must not have excess solder mound.
*2 The tail end of the contact must come into close contact with the cut end of the insulating material. The contact must not be cutting in the insulating material.
*3 Apply solder quickly so that the insulating material may not be deformed by heat.

• Connector at the video camera and the vision sensor
Use the connector applicable to the video camera and the vision sensor

(3) Precautions for cable preparation

The cable length depends on the specifications of the video camera used.
Fabricate the cable within the range of the video camera specifications.

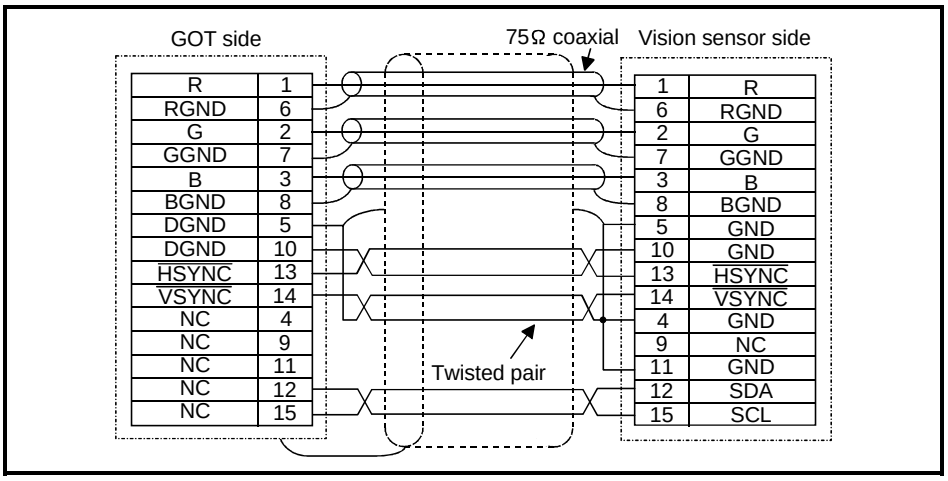
21.5.3 Connection cable

The following are the specifications, connection diagram and connectors of the cable used to connect the GOT and RGB output type vision sensor.

(1) Cable specifications

Item	Specifications
Applicable cable	SP23-23352A UL20276-SB or equivalent
Applicable cable size	9-core composite cable (recommended)

(2) Connection diagram



(3) Connector and connector cover

• GOT connector

Use the connector matching the following model for the GOT.

15-pin D-sub (male) inch screw type

Manufactured by DDK

17HE-R13150-73MC2

• Connector at the vision sensor

Use the connector applicable to the vision sensor.

(4) Precautions for cable preparation

Maximum cable length depends on the specifications of the vision sensor

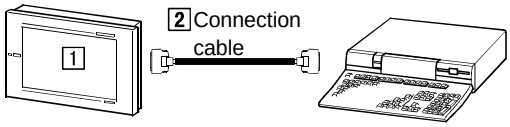
Fabricate the cable within the range of the vision sensor specifications.

21.6 Personal computer (when RGB screen is displayed)

21.6.1 System configuration

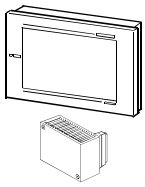
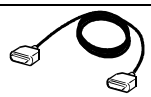
(1) System configuration

The following system configuration assumes connection of a personal computer (when RGB screen is displayed).
The numbers (1 to 2) given in the system configurations denote the numbers (1 to 2) in "(2) System equipment".
Refer to these numbers when you want to confirm the types and applications.



(2) System equipment

The following table indicates the system equipment needed for connection of a personal computer (when RGB screen is displayed).

Image	No.	Application	Type	
			GOT unit	RGB input interface unit
	1	RGB-input GOT	A985GOT-V	A9GT-80R1(RGB), A9GT-80V4R1(video/RGB)
	2	Connection cable between [GOT] and [personal computer]	(Refer to Section 21.6.2 and fabricate on user side.)	

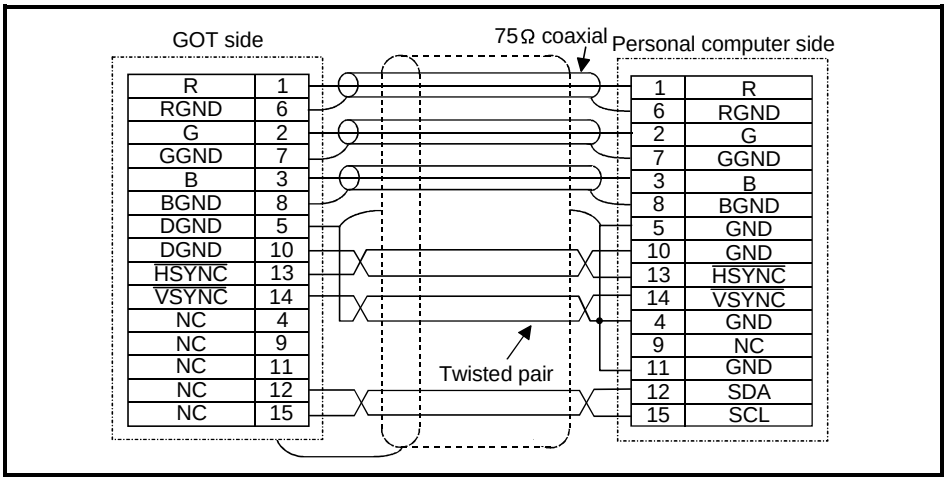
21.6.2 Connect cable

The following are the specifications, connection diagram and connectors of the cable used to connect the GOT and personal computer.

(1) Cable specifications

Item	Specifications
Applicable cable	SP23-23352A UL20276-SB or equivalent
Applicable cable size	9-core composite cable (recommended)

(2) Connection diagram



(3) Connector and connector cover

• GOT connector

Use the connector matching the following model for the GOT.

15-pin D-sub (male) inch screw type

Manufactured by DDK

17HE-R13150-73MC2

• Personal computer connector

Use the connector applicable to the personal computer used.

(4) Precautions for cable preparation

The cable length depends on the specifications of the personal computer used. Fabricate the cable within the range of the personal computer specifications.

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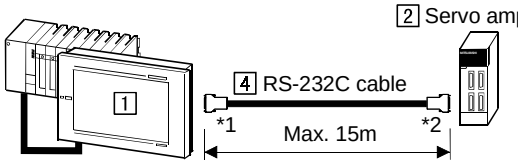
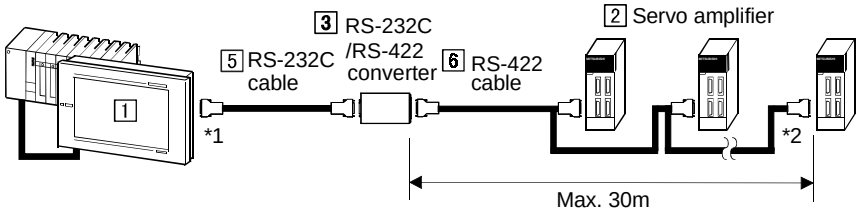
21.7 Servo Amplifier

21.7.1 System configuration

(1) System configuration

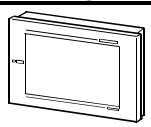
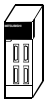
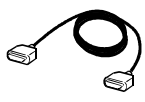
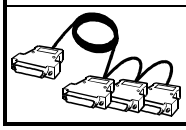
The following system configurations assume connection of servo amplifiers.
The numbers 1 to 6) given in the system configurations denote the numbers (1 to 6) in "(2) System equipment". Refer to these numbers when you want to confirm the types and applications.

Connection Conditions	System Configuration
When only one servo amplifier is connected	
When multiple servo amplifiers *3 (2 to 32) are connected	

*1 Connect the GOT side connector of the cable to the RS-232C interface at the bottom of the GOT used for downloading the monitor screen data.
*2 Connect the servo amplifier side connector of the cable to CN3.
*3 As the servo amplifier to be monitored, select one from the 32 servo amplifiers.

(2) System equipment

The following table indicates the system equipment needed for connection of servo amplifiers.

Image	No.	Application	Type
	1	GOT connected with servo amplifier	GOT
	2	Servo amplifier	MR-J2S-□A, MR-J2S-□CP, MR-J2M A series
	3	RS-232C/RS-422 converter	Commercially available product
	4	RS-232C cable *1 between [servo amplifier] and [GOT]	MR-CPCATCBL3M (3.0m)
	5	RS-232C cable between [GOT] and [converter]	(Use the cable that matches the used RS-232C/RS-422 converter.)
	6	RS-422 cable between [converter] and [servo amplifier]	(Refer to Section 21.7.3 and fabricate on user side.)

*1 The RS-232C cable can also be fabricated on the user side. Refer to Section 21.7.3 for details of the fabricating method.

21.7.2 Initial setting (only when RS-422 communication function is used)

When using the RS-422 communication function (multidrop communication), change the parameter setting of the servo amplifier for that of the RS-422 communication function.
For details of how to change the parameter setting, refer to the manual of the connected servo amplifier.

21.7.3 Connection cables

(1) RS-232C cable

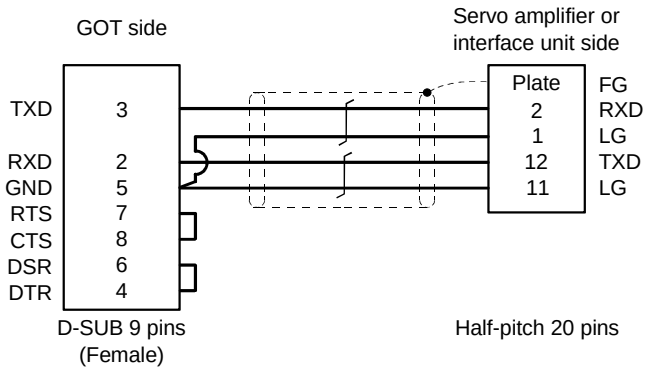
Use the following cable for connection of the GOT and servo amplifier by the RS-232C communication function.

• MR-CPCATCBL3M (3.0m)

Connector: DE-9SF-N Case: DE-C1-J6-S6 (Japan Aviation Electronics Industry)	Connector: 10120-6000EL Shell kit: 10320-3210-000 (3M or equivalent)

The above cable can also be fabricated on the user side.
The connection diagram and connectors of the RS-232C cable are shown below.

(a) Connection diagram



(b) Used connectors and connector covers

- GOT side connector

Name	Model	Manufacturer
Connector	10120-6000EL	Sumitomo 3M Ltd.
Shell kit	10320-3210-000	

- Servo amplifier/interface unit side connector

Name	Model	Manufacturer
Connector	DE-9SF-N	Japan Aviation Electronics Industry
Case	DE-C1-J6-S6	

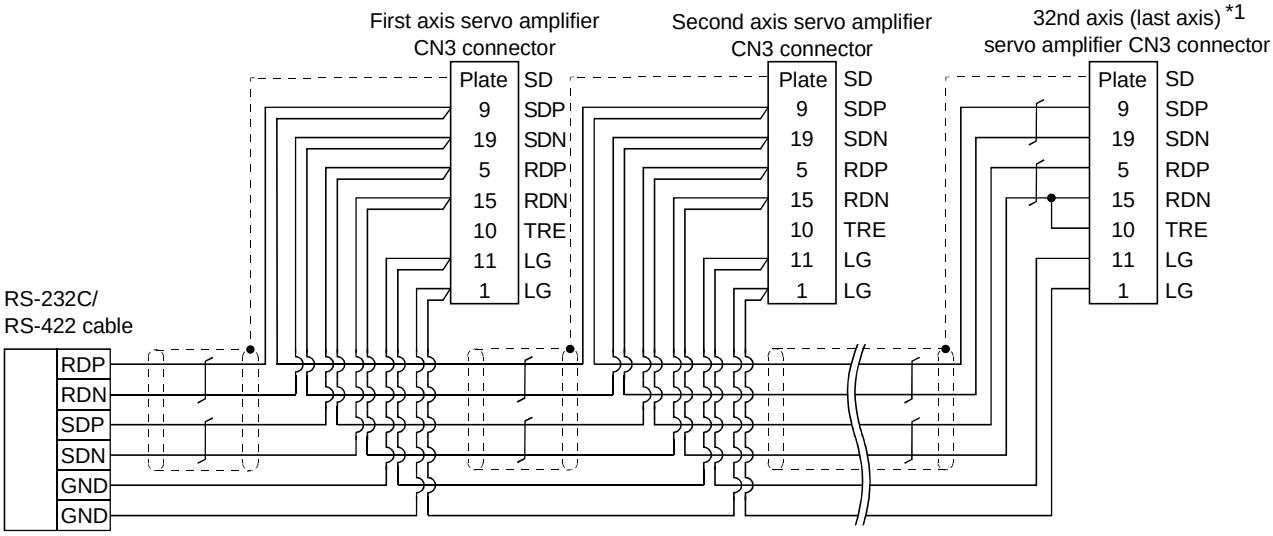
(c) Fabricating instruction

- Always use a shielded multi-core cable and connect the shield with FG securely.
- Fabricate the cable within a 15m length.

(2) RS-422 cable

How to fabricate the cables for connection of the RS-232C/RS-422 converter and servo amplifiers is shown below.

(a) Connection diagram



*1 At the last axis, connect TRE and RDN.

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(b) Used connectors and connector covers

- RS-232C/RS-422 converter side connector

Name	Model	Manufacturer
Covered connector	17JE-23250-02 (D8A6)	DDK

- Servo amplifier/interface unit side connector

Name		Model	Manufacturer
Connector set		MR-J2CN1	Sumitomo 3M Ltd.
	Connector	10120-3000VE	
	Shell kit	10320-52F0-008	

(c) Fabricating instruction

- Fabricate the cable within a 30m length.

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Appendices

Appendix 1 System configuration example for microcomputer connection

The following system configuration example is given for microcomputer connection.
Refer to this section when configuring a microcomputer connection system.

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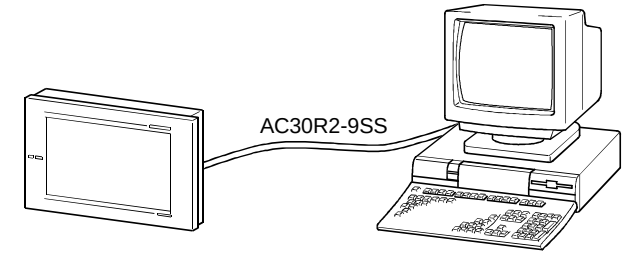
Appendix 1.1 System configuration

The system shown below was used in this system configuration example.



A975GOT + A9GT-RS2

IBM PC/AT or 100%compatible
(Microsoft Visual C++ Ver.5.0)

Appendix 1.2 GOT side communication setting and monitor screen setting details

(1) Communication setting

The communication setting of the GOT unit is indicated below.
Use the utility function (setup) to make communication setting for microcomputer connection.

Setting item	Setting
Microcomputer connection transmission speed	19200bps
Microcomputer connection protocol	Format 1

(2) Monitor screen setting details

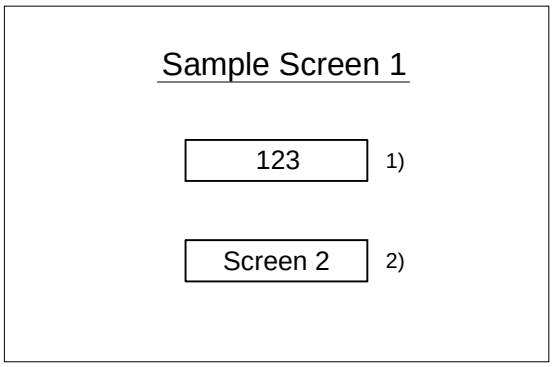
The monitor screen setting details are indicated below.

(a) Common setting

Screen switching device (base screen): D20

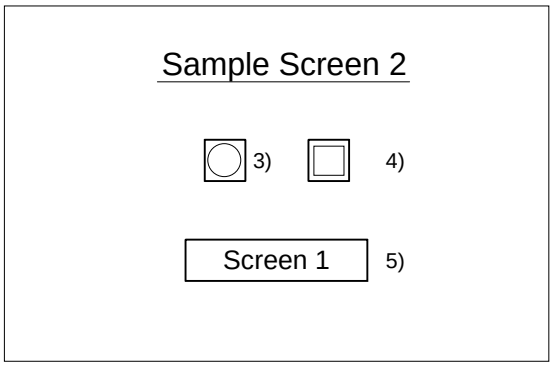
(b) Monitor screen images

Base screen 1



1) Numerical display function
   Numerical display setting for monitoring the device value of D21.
   The device value is incremented only while "Sample Screen 1" is being displayed.
2) Touch key 1
   Key used to switch the screen to "Sample Screen 2".
   Touching this key switches the base screen to "Sample Screen 2".

Base screen 2



3) Lamp indication function
   Indicates the device status of D22.b0 with the lamp.
4) Touch key 2
   Alternate key which changes the status of D22.b0.
5) Touch key 3
   Key used to switch the screen to "Sample Screen 1".
   Touching this key switches the base screen to "Sample Screen 1".

(c) Numerical display function

Number	Basic	Form		
	Device	Format	Size	Digits
1)	D21, unsigned BIN, 16 bit	Unsigned 16 bit	Any	4

(d) Touch key function

Number	Basic	Case	Action				
			Action	Switched to	Device	Data format	Operation type
2)	Any	Any	Base	Fixed value 2	—	—	—
			Word	—	D13	Signed BIN	Fixed value 01
4)	Any	Any	Bit	—	D22.b0	—	Bit ALT
5)	Any	Any	Base	Fixed value 1	—	—	—
			Word	—	D13	Signed BIN	Fixed value 255

(e) Lamp indication function

Number	Basic		Case (bit)	
	Device	Shape	At ON	At OFF
3)	D22.B0, bit	Basic figure	Any	Any

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Appendix 1.3 Host side sample program

The host side sample program (C language) is contained in GT Works Version 5/GT Designer Version 5.
The sample program is installed when GT Designer is installed.

Appendix 1.4 System operation overview

System operations will be explained in relation to the host side processing, GOT side display/processing and data communication packets.

<table>
<tr><th>Processing item</th><th colspan="2">Host side processing details</th><th>Packet used for data communication</th><th>GOT side display/processing details</th></tr>
<tr><td rowspan="5">Initial processing</td><td colspan="2">Port open processing is performed.</td><td>—</td><td>—</td></tr>
<tr><td colspan="2">"1" is written to screen switching device (D20).</td><td>Screen 1 switching batch write packet *1</td><td>Base screen 1 is displayed.</td></tr>
<tr><td colspan="2">Reply from GOT is received.</td><td>—</td><td>—</td></tr>
<tr><td colspan="2">Judgment is made as to whether reply from GOT is in error or not.</td><td>—</td><td>—</td></tr>
<tr><td colspan="2">Initial value is written to device (D21).</td><td>Numerical display batch write packet *2</td><td>"0" is shown in numerical display of base screen 1.</td></tr>
<tr><td rowspan="6">Reply/interrupt receipt from GOT</td><td>When reply to write to device (D21) is received from GOT.</td><td>Device (D21) current value acquisition request is given.</td><td>Numerical display batch read packet *3</td><td rowspan="4">Numerical display of base screen 1i s incremented.
(As long as base screen 1 is displayed, host side repeats processing given on left.)</td></tr>
<tr><td rowspan="3">When reply to read of device (D21) is received from GOT.</td><td>Next device value (D21) is created.</td><td>—</td></tr>
<tr><td>Sumcheck calculation of send packet is made.</td><td>—</td></tr>
<tr><td>Device (D21) update request is given.</td><td>Numerical display batch write packet *2</td></tr>
<tr><td>When interrupt of switching request from base screen 1 to base screen 2 is received.</td><td>Base screen status is set to base screen 2.</td><td>Interrupt receipt packet *6</td><td>Touch touch key 1 to switch to base screen 2. Host is notified by interrupt.</td></tr>
<tr><td>When interrupt of switching request from base screen 2 to base screen 1 is received.</td><td>Base screen status is set to base screen 1.</td><td>Interrupt receipt packet *6</td><td>Touch touch key 3 to switch to base screen 1. Host is notified by interrupt.</td></tr>
<tr><td>Termination processing (Only when error reply is received)</td><td colspan="2">Port close processing is performed.</td><td>—</td><td>—</td></tr>
</table>

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*1 Send packet structure of screen 1switching batch write packet is indicated.

Item	STX	WD		Address				points		Data				ETX	Sumcheck	
Stored value	0x02	0x57	0x44	0x30	0x30	0x32	0x30	0x30	0x31	0x30	0x30	0x30	0x31	0x03	0x38	0x32
Contents	—	"w" "D"		D20				1 point		1				—	"8" "2"	

*2 Send packet structure of numerical display batch write packet is indicated.

Item	STX	WD		Address				points		Data				ETX	Sumcheck	
Stored value	0x02	0x57	0x44	0x30	0x30	0x32	0x31	0x30	0x31	—	—	—	—	0x03	—	—
Contents	—	"w" "D"		D21				1 point		—				—	—	

*3 Send packet structure of numerical display batch read packet is indicated.

Item	STX	WD		Address				points		ETX	Sumcheck	
Stored value	0x02	0x52	0x44	0x30	0x30	0x32	0x31	0x30	0x31	0x03	0x38	0x32
Contents	—	"R" "D"		D21				1 point		—	"B" "D"	

*4 Receive packet structure of batch write reply packet is indicated.

When normal

Item	STX
Stored value	0x02
Contents	—

When error occurs

STX	STX
0x02	0x02
—	—

*5 Receive packet structure of batch read reply packet is indicated.

When normal

Item	STX	Data				STX	Sumcheck	
Stored value	0x02	—	—	—	—	0x03	—	—
Contents	—	—				—	—	

When error occurs

Item	STX
Stored value	0x15
Contents	—

*6 Receive packet structure of interrupt receive packet is indicated.

Item	Data
Stored value	—
Contents	Interrupt data

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WARRANTY

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

1. Gratis Warranty Term and Gratis Warranty Range

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

[Gratis Warranty Term]

The gratis warranty term of the product shall be for one year after the date of purchase or delivery to a designated place.
Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

[Gratis Warranty Range]

(1) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.
(2) Even within the gratis warranty term, repairs shall be charged for in the following cases.
1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
2. Failure caused by unapproved modifications, etc., to the product by the user.
3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
4. Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
5. Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
7. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

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

3. Overseas service

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

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

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation of damages caused by any cause found not to be the responsibility of Mitsubishi, loss in opportunity, lost profits incurred to the user 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 MELSEC programmable logic controller, 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 programmable logic controller device, and that backup and fail-safe functions are systematically provided outside of the device for any problem or fault.
(2) The Mitsubishi programmable logic controller 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 programmable logic controller 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 programmable logic controller range of applications.
However, in certain cases, some applications may be possible, providing the user consults their local Mitsubishi representative outlining the special requirements of the project, and providing that all parties concerned agree to the special circumstances, solely at the users discretion.

GOT-A900 Series User's Manual

(GT Works Version5/GT Designer Version5 compatible Connection System Manual)

MODEL	SW5-GOTR-U(CON)-E
MODEL CODE	1DM189
SH(NA)-080119-L(0601)MEE	

MITSUBISHI ELECTRIC CORPORATION

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NAGOYA WORKS : 1-14 , YADA-MINAMI 5-CHOME , HIGASHI-KU, NAGOYA , JAPAN