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A950GOT-TBD(-M3)/SBD(-M3)/SBD(-M3)-B/LBD(-M3)
A951GOT-QTBD(-M3)/QSBD(-M3)/QSBD(-M3)-B/QLBD(-M3)
A951GOT-TBD(-M3)/SBD(-M3)/SBD(-M3)-B/LBD(-M3)
A953GOT-TBD(-M3)/SBD(-M3)/SBD(-M3)-B/LBD(-M3)
A956GOT-TBD(-M3)/SBD(-M3)/SBD(-M3)-B/LBD(-M3)

User's Manual

(Hardware)

Thank you for choosing the MELSEC-GOT Series.

To ensure correct use of this equipment, please read this manual carefully before operating it.

GOT
MELSEC

Mitsubishi Graphic Operation Terminal

MODEL	A950GOT-U(H/W)
MODEL CODE	1DM101
IB(NA)-0800018-I(0608)MEE	

● 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 "DANGERWARNING" 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 PRECAUTIONS]

⚠ DANGER

- Depending on the GOT main unit, communication module or cable fault, the output from the GOT interface module may remain ON or may remain 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.

[DESIGN PRECAUTIONS]

⚠DANGER

- Do not use the GOT as the warning device that may cause a serious accident.
  An independent and redundant hardware or mechanical interlock is required to configure the device that displays and outputs serious warning.
  Failure to observe this instruction may result in an accident due to incorrect output or malfunction.
- Incorrect operation of the touch switch(s) may lead to a serious accident if the GOT backlight is gone out.
  When the GOT backlight goes out, the display section turns black and causes the monitor screen to appear blank, while the input of the touch switch(s) still remains active.
  This may confuse an operator in thinking that the GOT is in “screensaver” mode, who then tries to release the GOT from this mode by touching the display section, which may cause a touch switch to operate.
  Note that the following occurs on the GOT when the backlight goes out.
  - The monitor screen disappears even when the screensaver is not set.
  - The monitor screen will not come back on by touching the display section, even if the screensaver is set.

⚠ 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 PRECAUTIONS]

⚠ DANGER

- Before installing or removing the GOT main unit to or from an enclosure, always turn the GOT power OFF before installing or removing the GOT main unit to or from an enclosure.
  Not doing so can cause a module failure or malfunction.
- Before loading or unloading the communication module, external I/O interface module or memory card interface module to or from the GOT, always turn the GOT power OFF before loading or unloading the communication module, external I/O interface module or memory card interface module to or from the GOT.
  Not doing so can cause a module failure or malfunction.

[MOUNTING PRECAUTIONS]

⚠ CAUTION

- Use the GOT within the general specifications' environment given in this 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 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.

[WIRING PRECAUTIONS]

⚠ DANGER

- Before starting wiring, always turn the GOT power OFF before starting wiring.
  Not doing so may cause an electric shock, product damage or malfunction.

⚠ CAUTION

- Please make sure to ground FG terminal of the GOT power supply unit by applying Class D Grounding (Class 3 Grounding Method) or higher which is used exclusively for the GOT.
  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.

[WIRING PRECAUTIONS]

⚠ CAUTION

- 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 PRECAUTIONS]

⚠ 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, or system 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 PRECAUTIONS]

⚠ DANGER

- When opening the panel on which the GOT is installed, always power off the GOT.
  Not doing so can cause the GOT to fail or malfunction.
- When power is on, do not touch the terminals.
  Doing so can cause an electric shock or malfunction.
- Do not change the extension number setting switch and I/O slot setting switch setting during power-on.
  Doing so can cause a malfunction.

[STARTUP/MAINTENANCE PRECAUTIONS]

⚠ DANGER
● Before starting cleaning or terminal screw retightening, always turn the power OFF before starting cleaning or terminal screw retightening. 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. ● When touching the GOT, communication unit, and/or option unit, or before touching the panel with the GOT installed, touch a grounded metal object to discharge the static electricity from the human body. Failure to do so may cause the unit to fail or malfunction.

[STARTUP/MAINTENANCE PRECAUTIONS]

⚠ 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.

[BACKLIGHT CHANGING PRECAUTIONS]

⚠ DANGER
● Before changing the backlight, always turn the GOT power OFF (when using a GOT bus connection, also turn OFF the PLC CPU power), and remove the GOT main unit from the panel before changing the backlight. Not switching the power off in all phases may cause an electric shock. Not removing the unit from the enclosure can cause injury due to a drop.

[BACKLIGHT CHANGING PRECAUTIONS]

⚠ CAUTION
● When replacing the backlight, use the gloves. Otherwise, it may cause you to be injured. If you should directly touch the plated area of the main unit case with hand, be sure to wipe off the fingerprint and so on, and install the main unit case. Otherwise, it may cause a trouble or malfunction. ● Start changing the backlight more than 5 minutes after switching the GOT power off. Not doing so can cause a burn due to the heat of the backlight.

[DISPOSAL PRECAUTIONS]

⚠ CAUTION
● When disposing of the product, handle it as industrial waste.

Revisions

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

Print Date	*Manual Number	Revision
MAY, 1999	IB(NA)-0800018-A	First edition
OCT, 1999	IB(NA)-0800018-B	[Partial correction] Section 2.1, Section 3.1, Section 3.2, Section 3.3, Section 5.3 [Partial addition] Section 2.2, Section 2.3 [Addition] Appendix 2, A951GOT-QSBD/QLBD(-M3)
JAN, 2000	IB(NA)-0800018-C	[Partial correction] Section 2.1, Appendix 1 [Partial addition] Section 2.2, Section 3.2 [Models added] A950/951/953/956GOT-(Q)TBD(-M3)
MAY, 2001	IB(NA)-0800018-D	[Partial correction] Section 3.2 [Partial addition] Chapter 2 [Addition] Chapter 6
FEB, 2002	IB(NA)-0800018-E	[Partial correction] SAFETY PRECAUTIONS
MAR, 2002	IB(NA)-0800018-F	[Partial correction] Section 6.2.2, Section 6.2.3 [Partial addition] Section 6.2.1, Section 6.3.1, Section 6.3.3 [Addition] Section 6.2.4
AUG, 2004	IB(NA)-0800018-G	[Model Code change] Change from 13JQ26 to 1DM101. [Partial correction] SAFETY PRECAUTIONS, ABOUT THE MANUALS, Section 6.3.2, Section 6.3.3 [Partial addition] Section 2.3, Section 3.2, Section 6.2.2, Appendix 1, Appendix 2 [Addition] Section 5.4, Section 5.5, Section 5.6, Appendix 3 [Models added] A95*GOT-QSBD(-M3)-B, A95*GOT-SBD(-M3)-B

Print Date	*Manual Number	Revision
DEC, 2005	IB(NA)-0800018-H	Partial correction Section 3.2
AUG, 2006	IB(NA)-0800018-I	Partial correction SAFETY PRECAUTIONS, Section 3.3, Section 6.1.1, Section 6.3.2 Partial addition Section 6.2.5, Section 6.3.1, Section 6.3.2, Section 6.3.3

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ABOUT THE MANUALS

The following manuals are related to this product.
Refer to the following list and request the required manuals.

Detailed Manual

Manual Name	Manual Number (Type Code)
A950GOT/A951GOT/A953GOT/A956GOT User's Manual (Available as an option)	SH-080018 (1DM103)

Relevant Manuals

For relevant manuals, refer to the PDF manual stored within the drawing software.

1.Overview

This user's manual describes the system configuration, specifications, part names, handling and outline dimensions of the A950GOT/A951GOT/A953GOT/ A956GOT Graphic operation terminal (Referred to as GOT, hereafter).

1.1 Packing List

After unpacking, confirm that you have received the following products.

Product	Quantity
GOT main unit	1
Mounting fixture	4
Communication module securing fixture (A956GOT only)	3

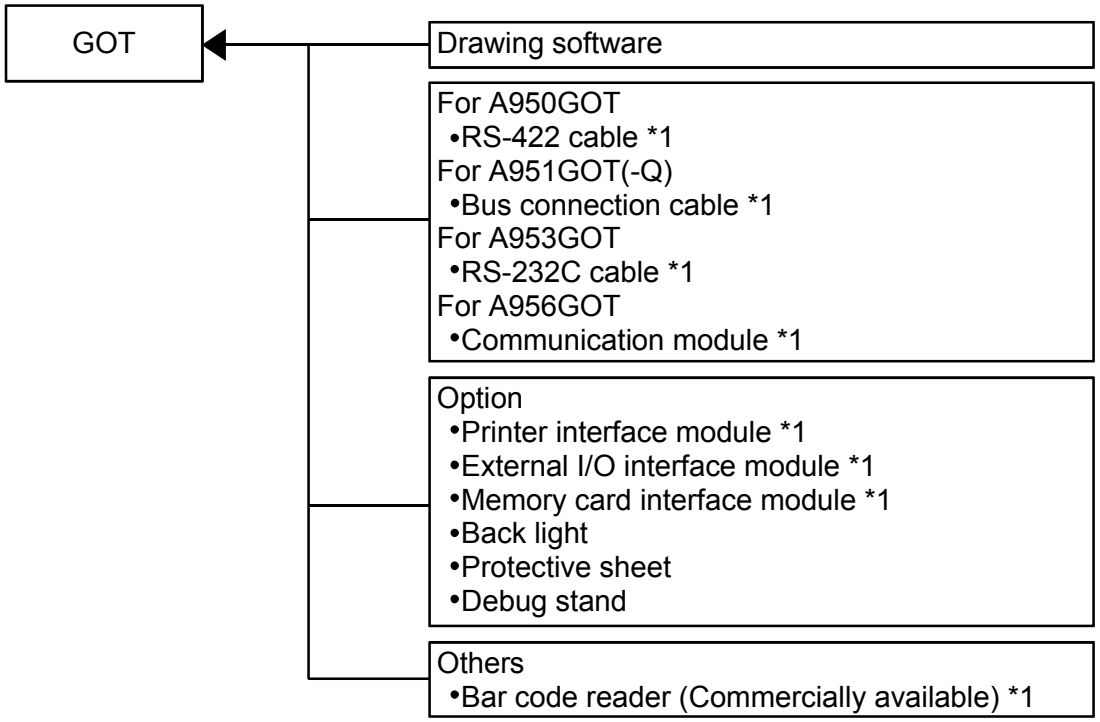
* If the protective sheet needs to be replaced, please obtain the one that is to be purchased separately.

2.System Configuration

POINT

If A95*GOT is applicable to the EMC directive, note that there are restrictions for the GOT used and the connection conditions.
For details, refer to "Chapter 6 About Compatibility with the EMC Directive."

2.1 Overall Configuration



*1: For details of the system configuration, refer to the [GOT-A900 Series User's Manual.(Connection System Manual)]

2.2 System Configuration of the GOT

Each GOT has a different type of built-in interface, and the connection format differs according to the GOT being used. The types of connection formats that can be used with each GOT are shown below.

Item	Bus connection	CPU Direct connection		MELSEC NET connection	Computer link connection		CC-link connection	Ethernet connection
		RS-422	RS-232C		RS-422	RS-232C		
A950GOT	×	○	×	×	○	×	×	×
A951GOT*1	○	×	×	×	×	×	×	×
A953GOT	×	×	○	×	×	○	×	×
A956GOT*2	○	×	×	○	×	×	○	○

○ : Connection possible × : Connection not possible

*1: A951GOT can be connected to different CPUs below according to the model. The CPU which can be connected with the following with each GOT is shown.

Type	CPU which can be connected
A951GOT-Q*BD(-M3)	QCPU (Q mode)
A951GOT-*BD(-M3)	ACPU, QnACPU, Motion controller CPU

*2: The above connections can be used for the A956GOT by mounting the communication module.

*3: For details of each connection configuration, refer to [GOT-A900 Series User's Manual (Connection System Manual)]

2.3 Component List

Item	Type	Description
A950GOT (Built-in RS-422 communication interface)	A950GOT-TBD	High intensity TFT color liquid crystal, 256 colors, 1M built-in memory
	A950GOT-SBD	STN color liquid crystal, 8 colors, 1M built-in memory
	A950GOT-SBD-B	High intensity STN color liquid crystal, 8 colors, 1M built-in memory
	A950GOT-LBD	Monochrome liquid crystal, Monochrome, 1M built-in memory
	A950GOT-TBD-M3	High intensity TFT color liquid crystal, 256 colors, 3M built-in memory, compatible with optional OS
	A950GOT-SBD-M3	STN color liquid crystal, 8 colors, 3M built-in memory, compatible with optional OS
	A950GOT-SBD-M3-B	High intensity STN color liquid crystal, 8 colors, 3M built-in memory, compatible with optional OS
	A950GOT-LBD-M3	Monochrome liquid crystal, Monochrome, 3M built-in memory, compatible with optional OS
A951GOT-Q (Built-in bus communication interface for Q CPU (Q mode))	A951GOT-QTBD	High intensity TFT color liquid crystal, 256 colors, 1M built-in memory
	A951GOT-QSBD	STN color liquid crystal, 8 colors,1M built-in memory
	A951GOT-QSBD-B	High intensity STN color liquid crystal, 8 colors, 1M built-in memory
	A951GOT-QLBD	Monochrome liquid crystal, Monochrome,1M built-in memory
	A951GOT-QTBD-M3	High intensity TFT color liquid crystal, 256 colors, 3M built-in memory, compatible with optional OS
	A951GOT-QSBD-M3	STN color liquid crystal, 8 colors, 3M built-in memory, compatible with optional OS
	A951GOT-QSBD-M3-B	High intensity STN color liquid crystal, 8 colors, 3M built-in memory, compatible with optional OS
	A951GOT-QLBD-M3	Monochrome liquid crystal, Monochrome, 3M built-in memory, compatible with optional OS
A951GOT (Built-in bus communication interface for A/QnA/Motion controller CPU)	A951GOT-TBD	High intensity TFT color liquid crystal, 256 colors, 1M built-in memory
	A951GOT-SBD	STN color liquid crystal, 8 colors,1M built-in memory
	A951GOT-SBD-B	High intensity STN color liquid crystal, 8 colors, 1M built-in memory
	A951GOT-LBD	Monochrome liquid crystal, Monochrome,1M built-in memory
	A951GOT-TBD-M3	High intensity TFT color liquid crystal, 256 colors, 3M built-in memory, compatible with optional OS
	A951GOT-SBD-M3	STN color liquid crystal, 8 colors, 3M built-in memory, compatible with optional OS
	A951GOT-SBD-M3-B	High intensity STN color liquid crystal, 8 colors, 3M built-in memory, compatible with optional OS
	A951GOT-LBD-M3	Monochrome liquid crystal, Monochrome, 3M built-in memory, compatible with optional OS

Item	Type	Description
A953GOT (Built-in RS-232C communication Interface)	A953GOT-TBD	High intensity TFT color liquid crystal, 256 colors, 1M built-in memory
	A953GOT-SBD	STN color liquid crystal, 8 colors,1M built-in memory
	A953GOT-SBD-B	High intensity STN color liquid crystal, 8 colors, 1M built-in memory
	A953GOT-LBD	Monochrome liquid crystal, Monochrome,1M built-in memory
	A953GOT-TBD-M3	High intensity TFT color liquid crystal, 256 colors, 3M built-in memory, compatible with optional OS
	A953GOT-SBD-M3	STN color liquid crystal, 8 colors,3M built-in memory, compatible with optional OS
	A953GOT-SBD-M3-B	High intensity STN color liquid crystal, 8 colors, 3M built-in memory, compatible with optional OS
	A953GOT-LBD-M3	Monochrome liquid crystal, Monochrome,3M built-in memory, compatible with optional OS
A956GOT (Built-in communication module Interface)	A956GOT-TBD	TFT color liquid crystal, 256 colors, 1M built-in memory
	A956GOT-SBD	STN color liquid crystal, 8 colors,1M built-in memory
	A956GOT-SBD-B	High intensity STN color liquid crystal, 8 colors, 1M built-in memory
	A956GOT-LBD	Monochrome liquid crystal, Monochrome,1M built-in memory
	A950GOT-TBD-M3	High intensity TFT color liquid crystal, 256 colors, 3M built-in memory, compatible with optional OS
	A956GOT-SBD-M3	STN color liquid crystal, 8 colors,3M built-in memory, compatible with optional OS
	A956GOT-SBD-M3-B	High intensity STN color liquid crystal, 8 colors, 3M built-in memory, compatible with optional OS
	A956GOT-LBD-M3	Monochrome liquid crystal, Monochrome,3M built-in memory, compatible with optional OS
Backlight	A9GT-50LT	Backlight for A95*GOT-SBD(-M3), A95*GOT-LBD(-M3)
Protective sheet	A9GT-50PSC	Transparent protective sheet for A95*GOT

3.Specifications

3.1 General Specifications

<table>
<tr><th>Item</th><th colspan="6">Specifications</th></tr>
<tr><td rowspan="2">Operating ambient temperature</td><td colspan="3">Display section</td><td colspan="3">0 to 40°C</td></tr>
<tr><td colspan="3">Other than display section</td><td colspan="3">0 to 55°C</td></tr>
<tr><td>Storage ambient temperature</td><td colspan="6">−20 to 60°C</td></tr>
<tr><td>Operating ambient humidity</td><td colspan="6">10 to 90%RH, non-condensing</td></tr>
<tr><td>Storage ambient humidity</td><td colspan="6">10 to 90%RH, non-condensing</td></tr>
<tr><td rowspan="5">Vibration resistance</td><td rowspan="5">Conforms to JIS B3502 and IEC 61131-2.</td><td></td><td>Frequency</td><td>Acceleration</td><td>Amplitude</td><td>Sweep Count</td></tr>
<tr><td rowspan="2">In case of intermittent vibration</td><td>10 to 57Hz</td><td>—</td><td>0.075mm</td><td rowspan="4">10 times in each of X, Y and Z directions (for 80 minutes)</td></tr>
<tr><td>57 to 150Hz</td><td>9.8m/s^2</td><td>—</td></tr>
<tr><td rowspan="2">In case of continuous vibration</td><td>10 to 57Hz</td><td>—</td><td>0.035mm</td></tr>
<tr><td>57 to 150Hz</td><td>4.9m/s^2</td><td>—</td></tr>
<tr><td>Shock resistance</td><td colspan="6">Conforms to JIS B3502 and IEC 61131-2
(147m/s^2 , 3 times in each of X, Y and Z directions)</td></tr>
<tr><td>Operating atmosphere</td><td colspan="6">No corrosive gas</td></tr>
<tr><td>Operating altitude*3</td><td colspan="6">2000m max.</td></tr>
<tr><td>Installation site</td><td colspan="6">Inside control box</td></tr>
<tr><td>Overvoltage category*1</td><td colspan="6">II or less</td></tr>
<tr><td>Contamination level*2</td><td colspan="6">2 or less</td></tr>
</table>

*1: Indicates the element in the distribution system between the public electricity grid and the mechanical equipment inside the premises that the relevant device is assumed to be connected to.
Category II applies to devices such as those that draw their power supply from fixed installations.
The surge voltage withstand capability of devices with ratings up to 300V is 2,500V.

*2: This index gives a measure of the incidence of conductive materials in the environment in which the device is used.
A contamination level of 2 indicates an environment in which there is only contamination by non-conducting materials, but due to occasional condensation, conductivity may occur.

*3: Please do not use or store GOT in an environment with atmospheric pressure greater than the atmospheric pressure at sea level (0m).
There is a possibility errors may occur if this point is not observed.

3.2 Performance Specifications

1) Performance specifications of the A951GOT-Q

Item			Specifications			
			A951GOT-QTBD (-M3)	A951GOT-QSBD(-M3)-B	A951GOT-QSBD(-M3)	A951GOT-QLBD(-M3)
Display section			For details of display specifications, refer to Section 3.2.(3)			
Memory *1	Type		Flash ROM			
	Application		For monitor screen data storage, for OS storage			
	Capacity		1M byte built-in (user area) (-M3 has 3Mbytes and is compatible with optional OS)			
	Reference value for data transmission time (For RS-232C communication)		When installing OS: 640 to 760 seconds (For basic functions, BUS driver and system monitor (approx. 1.3Mbytes)) When downloading screen data: 330 to 570 seconds (For approx. 30 screens (approx. 600kbytes))			
RS-232C Interface			For connection of personal computer, for bar-code reader connection 1 channel			
Option module interface			For option module loading, 1 channel			
Interface built into main unit			Bus communication Interface for Q CPU (Q mode) 1 channel			
Buzzer output			Single tone (tone length adjustable)			
Life*3	Touch key		1 million times or more (operating force 0.98N max.)			
	Built-in memory		Number of write times: 100,000 times			
Environmental protective structure			Front section: Equivalent to IP67/NEMA4 Panel inside: IP2X			
Outline dimensions			TBD(-M3)/SBD(-M3)-B: 164.5 (6.48) (W) × 136 (5.35) (H) × 65 (2.56) (D) mm (inch) SBD(-M3)/LBD(-M3) : 164.5 (6.48) (W) × 136 (5.35) (H) × 57 (2.24) (D) mm (inch)			
Panel cutting dimensions			156 (6.14) (W) × 123.5 (4.86) (H) mm (inch)			
Weight			0.71 (1.56) kg(lb)	0.75 (1.65)kg (lb)	0.67 (1.47) kg (lb)	
Compatible software package		GT Works2 GT Designer2	Supported from the first version (Version 1.00A)	Supported from the SW1D5C-GTWK2-E Version 1.17T or later/SW1D5C-GTD2-E Version 1.17T or later It is due to support from the SW2D5C-GTWK2-E Version 2.04E/ SW2D5C-GTD2-E Version 2.04E.	Supported from the first version (Version 1.00A)	
		GT Works GT Designer	Supported from the SW0D5C-GTWORKS-E Version A or later/SW4D5C-GOTRE-PACK Version A or later	No support	Supported from the SW0D5C-GTWORKS-E Version A or later/SW3D5C-GOTRE-PACK Version C or later	

*1: The built-in FLASH ROM memory allows old data be overwritten by new data. (Data backup power supply is not needed.)

*2: When parts must be changed, consult your sales representative.

2) Performance specifications of the A950/951/953/956GOT

Item			Specifications			
			A950GOT-TBD (-M3) A950GOT-SBD (-M3)-B A950GOT-SBD (-M3) A950GOT-LBD (-M3)	A951GOT-TBD (-M3) A951GOT-SBD (-M3)-B A951GOT-SBD (-M3) A951GOT-LBD (-M3)	A953GOT-TBD (-M3) A953GOT-SBD (-M3)-B A953GOT-SBD (-M3) A953GOT-LBD (-M3)	A956GOT-TBD (-M3) A956GOT-SBD (-M3)-B A956GOT-SBD (-M3) A956GOT-LBD (-M3)
Display section			For details of display specifications, refer to Section 3.2.(3)			
Memory *1	Type		Flash ROM			
	Application		For monitor screen data storage, for OS storage			
	Capacity		1M byte built-in (user area) (-M3 has 3Mbytes and is compatible with optional OS)			
	Reference value for data transmission time (For RS-232C communication)		When installing OS: 640 to 760 seconds (For basic functions, BUS driver and system monitor (approx. 1.3Mbytes)) When downloading screen data: 330 to 570 seconds (For approx. 30 screens (approx. 600kbytes))			
RS-232C Interface			For connection of personal computer, for bar-code reader connection 1 channel			
Option module interface			For option module loading, 1 channel			
Interface built into main unit			For RS-422 communication 1 channel	For bus communication 1 channel	For RS-232C communication 1 channel	For communication module mounting 1 channel
Buzzer output			Single tone (tone length adjustable)			
Life*2	Touch key		1 million times or more (operating force 0.98N max.)			
	Built-in memory		Number of write times: 100,000 times			
Environmental protective structure			Front section: Equivalent to IP67/NEMA4 Panel inside: IP2X			
Outline dimension			TBD(-M3)/SBD(-M3)-B: 164.5 (6.48) (W) × 136 (5.35) (H) × 65 (2.56) (D) mm (inch) SBD(-M3)/LBD(-M3) : 164.5 (6.48) (W) × 136 (5.35) (H) × 57 (2.24) (D) mm (inch)			
Panel cutting dimension			156 (6.14) (W) × 123.5 (4.86) (H) mm (inch)			
Weight			TBD: 0.71 (1.56) kg(lb) SBD(-M3)-B: 0.75 (1.65) kg(lb) SBD/LBD: 0.67 (1.47) kg(lb)			
Compatible software package		GT Works2 GT Designer2	TBD(-M3)/SBD(-M3)/LBD (M-3): Supported from the first version (Version 1.00A) SBD (-M3)-B: Supported from the SW1D5C-GTWK2-E Version 1.17T or later/SW1D5C-GTD2-E Version 1.17T or later It is due to support from the SW2D5C-GTWK2-E Version 2.04E/SW2D5C-GTD2-E Version 2.04E.			
		GT Works GT Designer	TBD(-M3): Supported from the SW0D5C-GTWORKS-E Version A or later/SW4D5C-GOTRE -PACK Version A or later SBD (-M3)-B: No support SBD(-M3)/LBD (M-3): Supported from the SW0D5C-GTWORKS-E Version A or later/SW1D5C-GOTRE -PACK Version H or later			

*1: The built-in FLASH ROM memory allows old data be overwritten by new data. (Data backup power supply is not needed.)

*2: When parts must be changed, consult your sales representative.

3) Display specifications

Item		Specifications			
		A950GOT-TBD (-M3) A951GOT-QTBD (-M3) A951GOT-TBD (-M3) A953GOT-TBD (-M3) A956GOT-TBD (-M3)	A950GOT-SBD (-M3)-B A951GOT-QSBD (-M3)-B A951GOT-SBD(-M3)-B A953GOT-SBD (-M3)-B A956GOT-SBD (-M3)-B	A950GOT-SBD (-M3) A951GOT-QSBD (-M3) A951GOT-SBD (-M3) A953GOT-SBD (-M3) A956GOT-SBD (-M3)	A950GOT-LBD (-M3) A951GOT-QLBD (-M3) A951GOT-LBD (-M3) A953GOT-LBD (-M3) A956GOT-LBD (-M3)
Display	Type	High intensity TFT color liquid crystal	High intensity STN color liquid crystal	STN color liquid crystal	Monochrome liquid crystal
	Screen size	6 type			
	Resolution	320 x 240 pixels			
	Display size	115 (4.5) x 86 (3.4) mm (inch)			
	Display color	256 colors	8 colors		2 monochrome colors
	Intensity	350cd/m2	350cd/m2	110cd/m2	200cd/m2
		(Intensity of liquid crystal only)			
	View angle	Left/Right: 65° Top: 65° Bottom: 40°	Left/Right: 50° Top: 50° Bottom: 60°	Left/Right: 50° Top: 45° Bottom: 60°	Left/Right: 30° Top: 20° Bottom: 30°
Backlight		Cold-cathode tube backlight (Backlight OFF/Screen saving time settings are available.)			
Life *2	Display*3*4	50,000h (Operating ambient temperature: 25°)			
	Backlight *3	50,000h*1	75,000h*1		
		(Time period until the intensity becomes 50%, based on the assumption the GOT operates at 25°.)			

*1: For A95*GOT-(Q)TBD(-M3) and A95*GOT-(Q)SBD(-M3)-B, the backlight needs not be replaced, as they include a backlight of increased life.
*2: When parts must be changed, consult your sales representative.
*3: The screen saving/back light OFF function of GOT is extended, thus reducing burning prevention of the display panel and extending longevity of the back light.
*4: Bright dots (always lit) and dark dots (unlit) may appear on a liquid crystal display panel. It is impossible to completely avoid this symptom, as the liquid crystal display comprises of a great number of display elements. Please note that these dots appear due to its characteristic and are not caused by product defect.

3.3 Power Supply Specifications

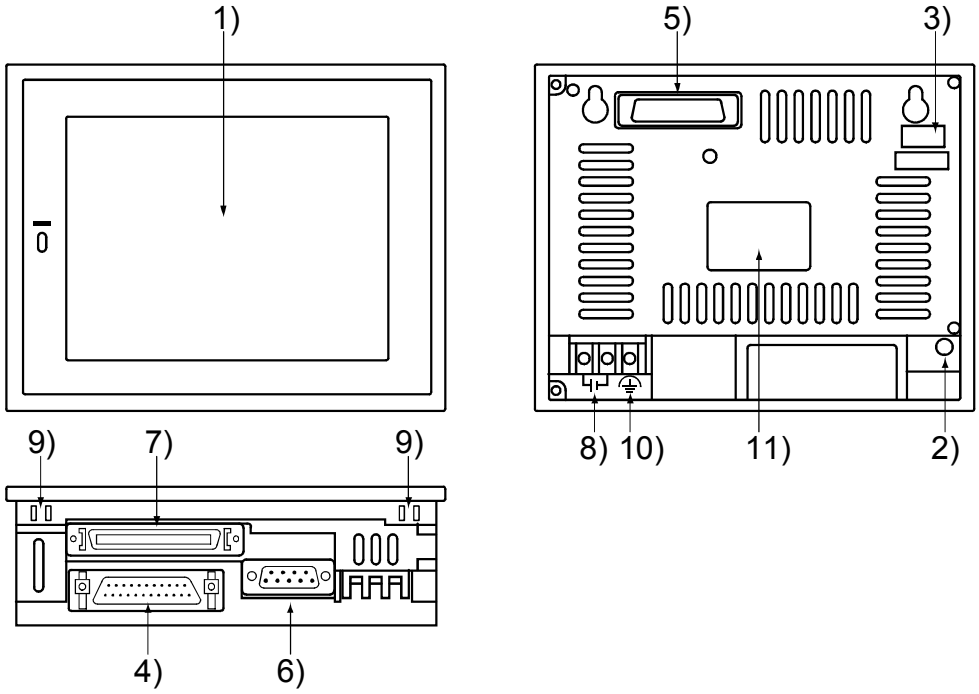
Item	Specifications	
	A950GOT, A951GOT-Q, A951GOT, A953GOT	A956GOT
Input power supply voltage	24VDC(+10%, −15%)	
Input max. power	12W	16W
Inrush current	40Ap max. (26.4VDC, max. load)	
Permissible instantaneous power failure time	1ms (19.2VDC or more)	
Noise immunity	By noise simulator of 500Vp-p noise voltage, 1μs noise width and 25 to 60Hz noise frequency	
Dielectric withstand voltage	500VAC for 1 minute across DC external terminals and earth	
Insulation resistance	10MΩ or larger by insulation resistance tester	
Applicable wire size	0.75 to 2 mm^2	
Applicable solderless terminal	RAV1.25–3, V2–S3.3, V2-N3A, FV2-N3A	
Applicable tightening torque (Terminal block terminal screw)	59 to 88 N•cm	

Remarks

When an instantaneous power failure occurs for the time exceeding the permissible instantaneous power failure time in the 24VDC power supply, the GOT may be reset. In such a case, the GOT will automatically return and start communicating.

As the communication between the GOT and PLC is stopped when an instantaneous power failure occurs, some object functions may not be performed normally.

4.Names of the Parts

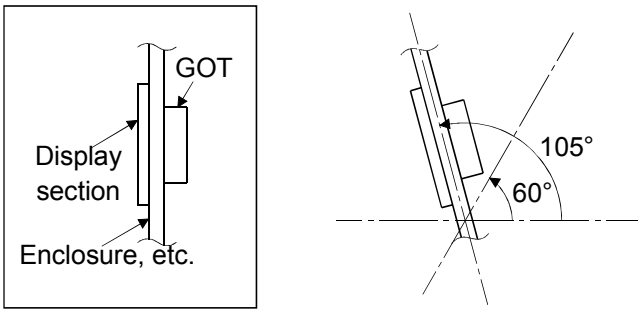


No.	Name	Description
1)	Display section	Shows the screen
2)	Reset button	Used to reset the hardware of the GOT (invalid for bus connection)
3)	Extension number setting switch (A951GOT only)	Used to set the extension number for GOT assignment. 1 to 7 : Extension number 8, 9, 0: Must not be used.
	I/O slot setting switch (A951GOT only)	Used to set the I/O slot number for GOT assignment. 0 to 7: I/O slot number 8, 9 : Must not be used.
4)	RS-422 communication interface (A950GOT only)	For RS-422 communication connection
	Bus communication interface for QCPU (Q mode) (A951GOT-Q only)	For bus connection cable connection (For QCPU (Q mode))
	Bus communication interface (A951GOT only)	For bus connection cable connection (For A/QnA/Motion controller CPU)
	RS-232C communication interface (A953GOT only)	For RS-232C communication cable connection
5)	Communication module interface (A956GOT only)	Interface for loading the communication module
6)	RS-232C interface	For connection of personal computer For connecting the bar code reader
7)	Option module interface	For connection Printer I/F module, Memory card I/F module, External I/O module
8)	Terminal block	For power input
9)	Mounting fixture fitting portion	For mounting fixture fitting
10)	Ground terminal	For earthing (For safety, please make sure to ground this terminal.)
11)	Rating plate	———

5.Handling

5.1 Handling Instructions

When mounting the main unit to a control box or the like, set the display section as shown below.
When the temperature inside the enclosure is 40 to 55°C or less, the mounting angle should be in the range 60 to 105 degrees.



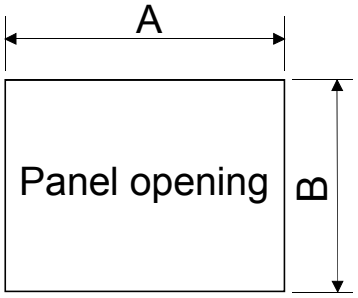
The GOT will be deteriorated earlier if it is used at the mounting angle other than the above. Therefore, the temperature inside the enclosure should be within 40°C.

Tighten the screws in the following specified range.

Screw Location	Tightening Torque Range
Terminal block terminal screw (M3 screw)	59 to 88N•cm
Mounting fixture screw (M4 screw)	36 to 48N•cm
Communication module mounting screw (M3 screw)	
Option module mounting screw (M3 screw)	
Case fixing screw (M3 screw)	
RS-232C connector mounting screw (#4-40 UNC (inch screw))	20 to 28N•cm
Bus connection cable connector mounting screw for QCPU (Q mode)	20N•cm

5.2 Installation Method

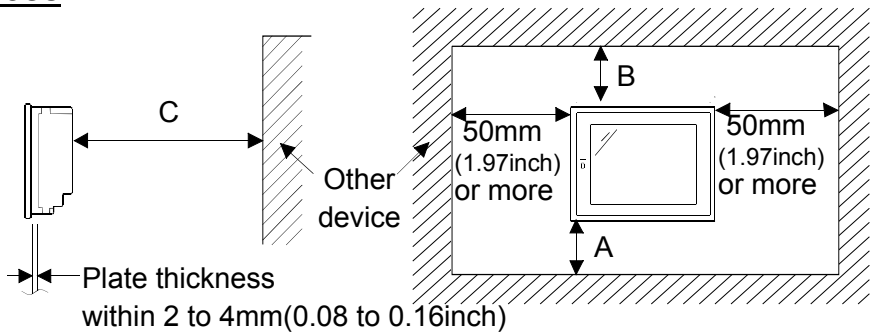
1) Mounting panel cutting dimensions
When mounting the GOT on a control box door, user-made mounting base or the like, the door or mounting base must be cut as indicated below.



Type	A [mm](inch)	B [mm](inch)
A95*GOT	156 (6.14) [+1.0 (0.04), -0 (0)]	123.5 (4.86) [+1.0 (0.04), -0 (0)]

2) Mounting position

When mounting the GOT, the following clearances must be left from the other devices.



Part A size: 130mm (5.12inch) or more is necessary for the GOT coupling cable bending radius.
When using an optical fiber cable for MELSECNET connection, make this spacing 165mm (6.5inch) or more.
When using a cable prepared by user, please consider the connector cover to be used and the bending radius of the cable.
When using a bar code reader, please consider the dimensions of the connector to be used and the bending radius of the cable.

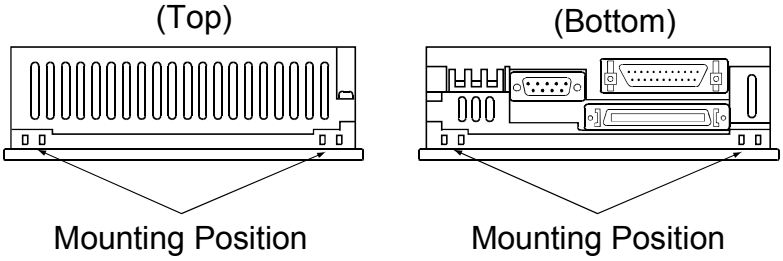
Part B size: Please allow a gap 80mm (3.15inch) or more from the structure and other equipment in the upper part of the unit to often allow good ventilation.

Part C size: When installing devices that generate radiated noise (such as a contactor) or a device that generate heat near the GOT, always leave a clearance of 100mm(3.94inch) or more to the back and 50mm(1.97inch) or more to the left and right to avoid the effects of the noise and heat.

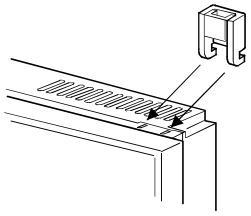
3) Mounting method

a) Put the GOT main unit into the panel opening, with its front facing outward.

b) Mount the GOT in the following four locations on its top and bottom.



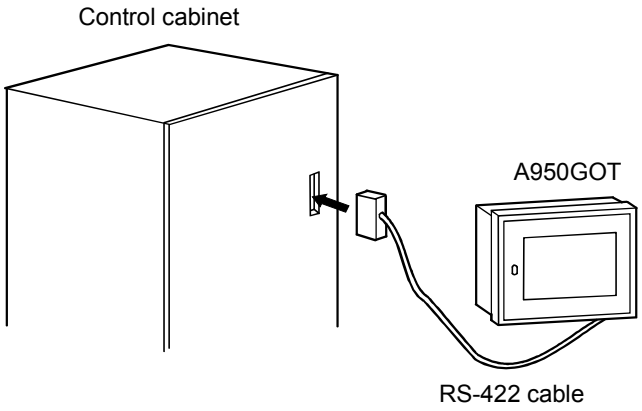
c) How to mount and fix the mounting fixture is given below.



1) Insert the mounting fixture into the fixture fitting portion of the GOT main unit.
2) Tighten and fix the mounting screw within the specified torque range.

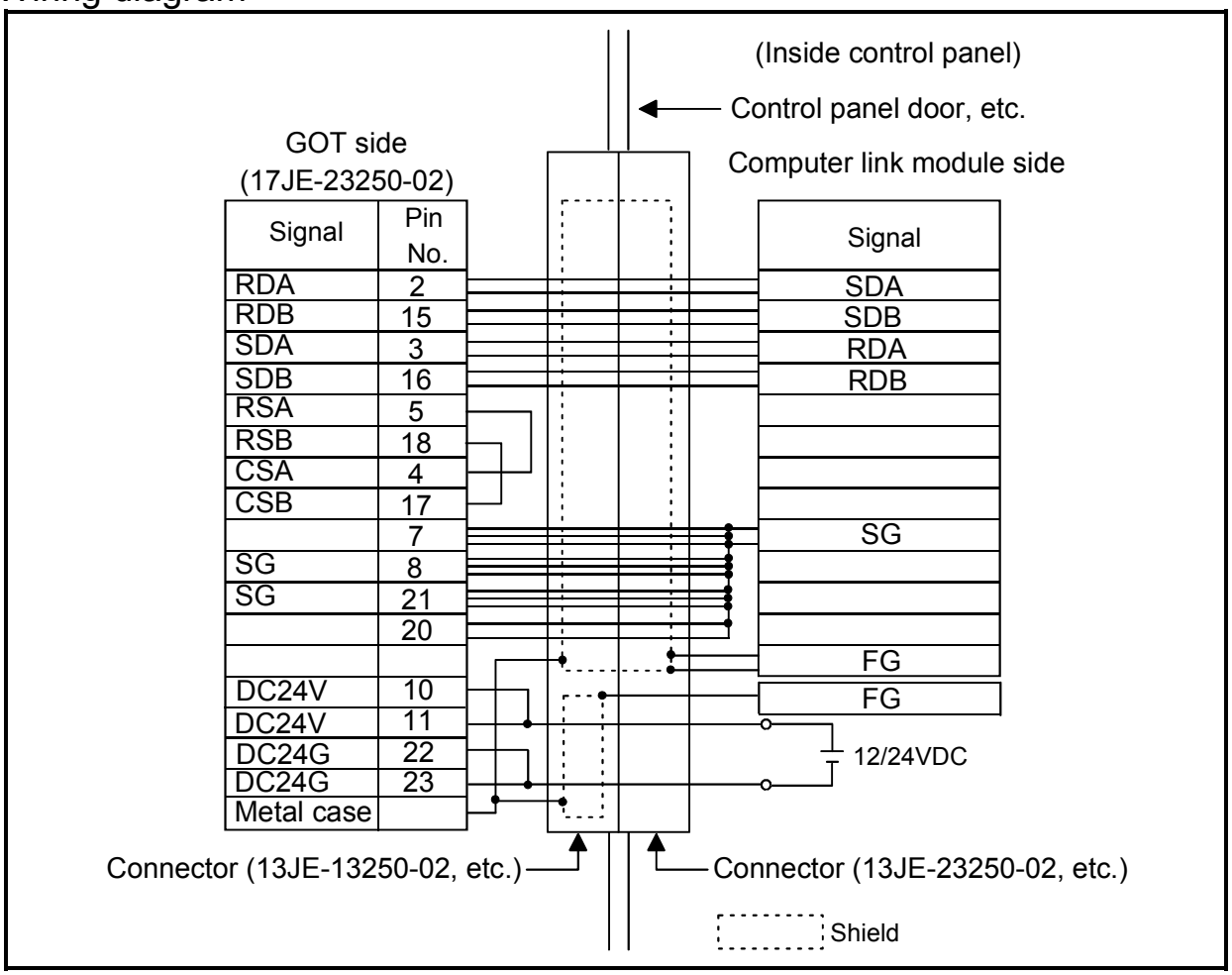
5.3 A950GOT Installation

The A950GOT can be used as a handy type, in addition to the conventional installation method.

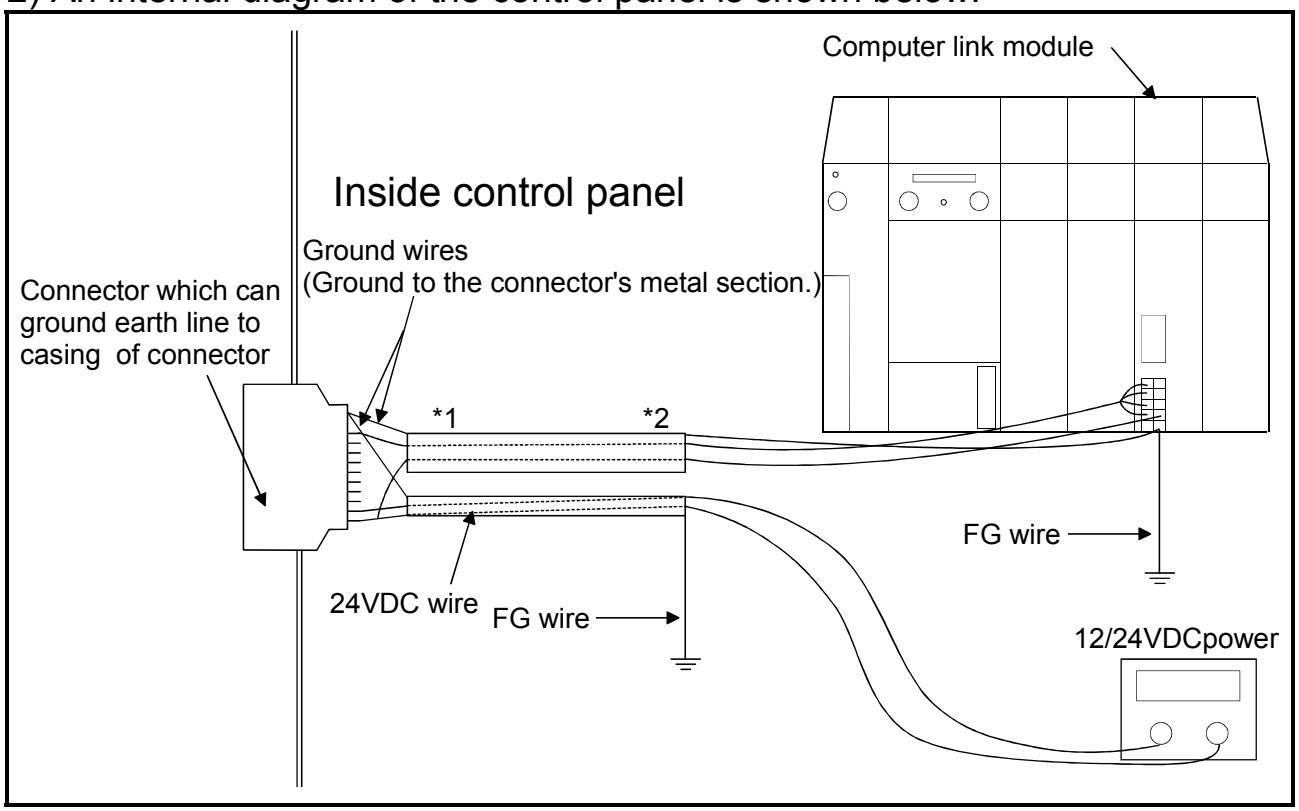


RS-422 cable to connect the GOT and the computer link unit must be prepared by the user.

1) Wiring diagram



2) An internal diagram of the control panel is shown below.



*1: Separately ground the power wire and signal wire.
*2: Power wire and the signal wire must separated by a separate shield and ground to FG.

3) Notes when cable is made.

- The cable must be 200m (7.87 inch) or shorter.
- When branching inside and outside the control panel, use a connector in between.
  The connector used must be able to attach the earthing to the connector casing.
- When the cable is made, the terminal 24VDC of the connector on the GOT side is connected with the 24VDC power supply of the control board.
  Therefore, it should not be connected to the power supply terminal in the back of the main body of GOT.

5.4 The Precautions on the Wiring

⚠ DANGER

- Completely turn off the externally supplied power used in the system when installing or placing wiring. Not completely turning off all power could result in electric shock, damage to the product.

⚠ CAUTION

- Be sure to ground the FG terminal and LG terminal of the GOT power supply section to the protective ground conductor. Not doing so could result in electric shock or erroneous operation.
- When wiring in the GOT power section, be sure that it is done correctly by checking the product's rated voltage and the terminal layout. Connecting a power supply that is different from the rating or incorrectly wiring the product could result in fire or erroneous operation.
- Tighten the terminal screws of the GOT power supply section within the specified torque range.
  If the terminal screws are loose, it could result in short circuits, erroneous operation or erroneous operation.
  Tightening the terminal screws too far may cause damages to the screws and/or the module, resulting in fallout, short circuits, or erroneous operation.
- Be sure there are no foreign substances such as sawdust or wiring debris inside the modle GOT main unit.

• General view of noise countermeasures

There are two types of noise: radiated noise, which is transmitted through the air, and conducted noise, which is transmitted through a connection wire. In noise countermeasures, the both two types of noise should be taken into account. As the noise countermeasures, there are the following three methods.

(1) Block noise
  (a) Keep signal wires away from a possible noise source as power wires or high-power driving circuits.
  (b) Shield signal wires.

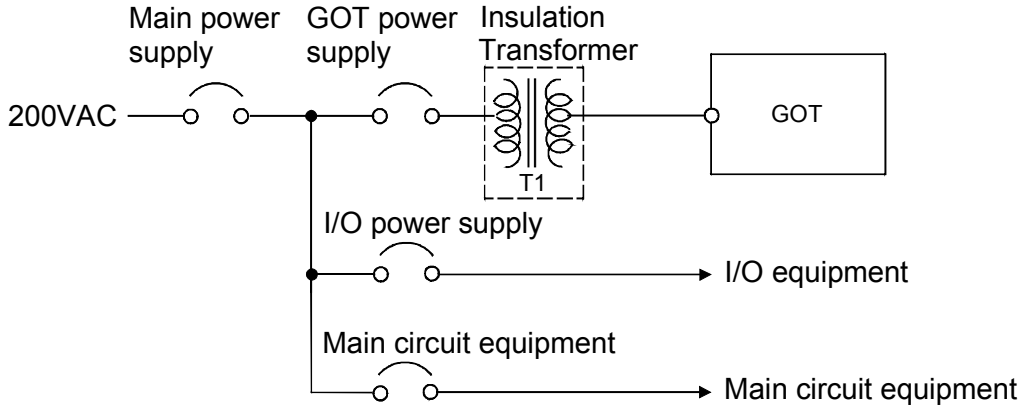
(2) Reduce generated noise
  (a) Reduce the noise generated from high-power motor drive circuits.

(3) Ground noise without fail
  (a) Earth the grounding wire to the ground without fail.
  (b) Use a grounding wire as thick and short as possible to ensure low grounding impedance.
  (c) Separate the grounding between power and control systems.

(1) Power supply wiring

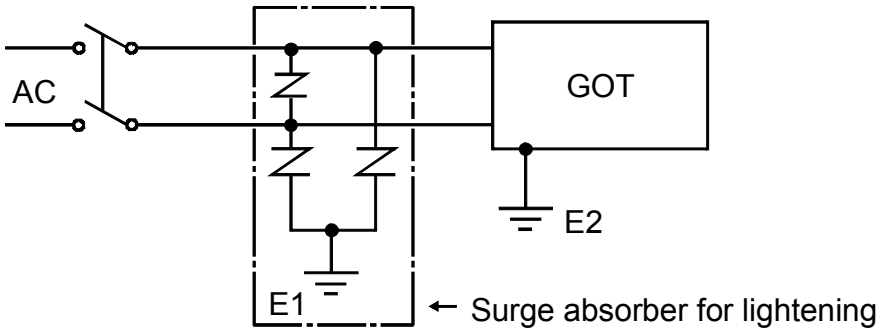
- Separate the GOT's power supply line from the lines for I/O devices and power devices as shown below.
  When there is much noise, connect an insulation transformer.

Power supply wiring diagram



- 100VAC, 200VAC and 24VDC wires should be twisted as dense as possible.
  Connect the modules with the shortest distance.
  Also, to reduce the voltage drop to the minimum, use the thickest wires possible (0.75 to 2mm^2).
  Use a solderless terminal for M3 screw. Also, be sure to tighten the M3 screw within tightening torque 0.55 to 0.88 N•m in order not to cause trouble.
- Do not bundle the 100VAC, 200VAC and 24VDC wires with, or run them close to, the main circuit (high voltage, large current) and I/O signal lines. Reserve a distance of at least 100 mm from adjacent wires.
- As a countermeasure to power surge due to lightening, connect a surge absorber for lightening as shown below.

Lightening surge absorber connection diagram

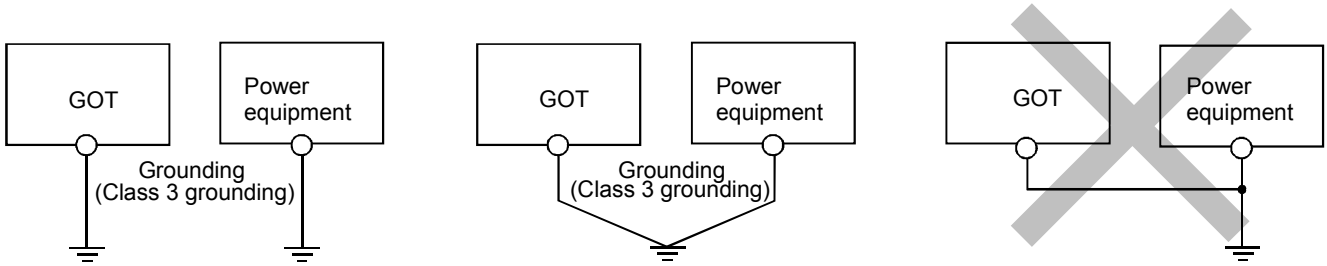


POINT

(1) Separate the ground of the surge absorber for lightening (E1) from that of the GOT (E2).
(2) Select a surge absorber for lightening whose power supply voltage does no exceed the maximum allowable circuit voltage even at the time of maximum power supply voltage elevation.

(2) Grounding

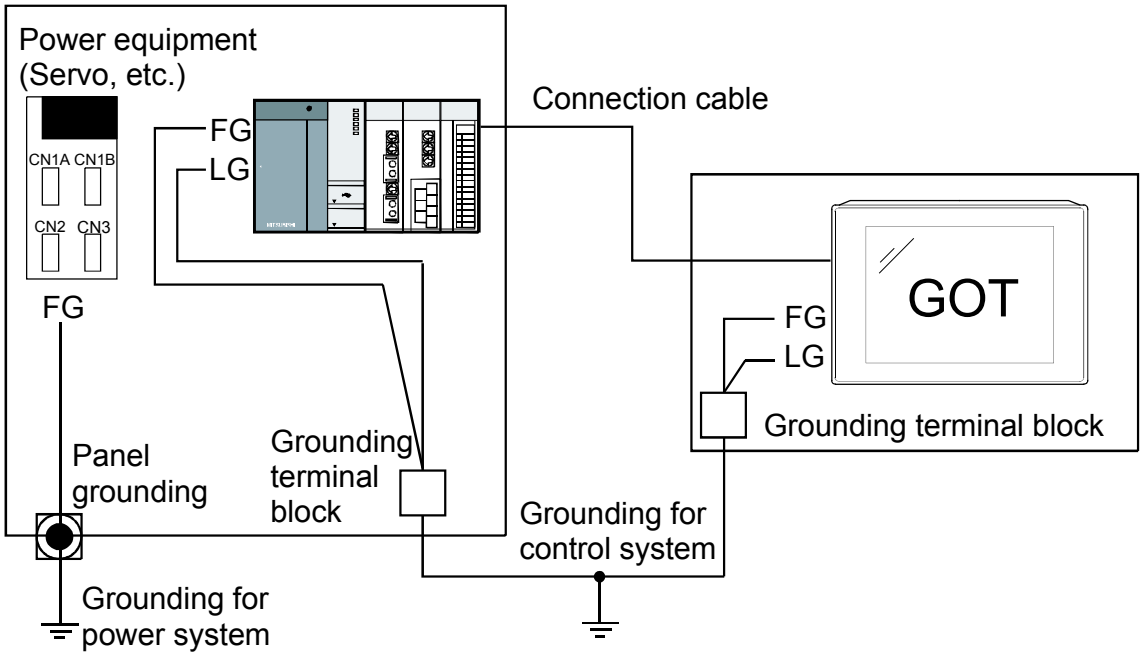
- For grounding, perform the following:
  Use a dedicated grounding wire as far as possible. (Grounding resistance of 100Ω or less.)
- When a dedicated grounding cannot be performed, use (2) Common Grounding shown below.
  Also, be sure to take noise countermeasures other than grounding.



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

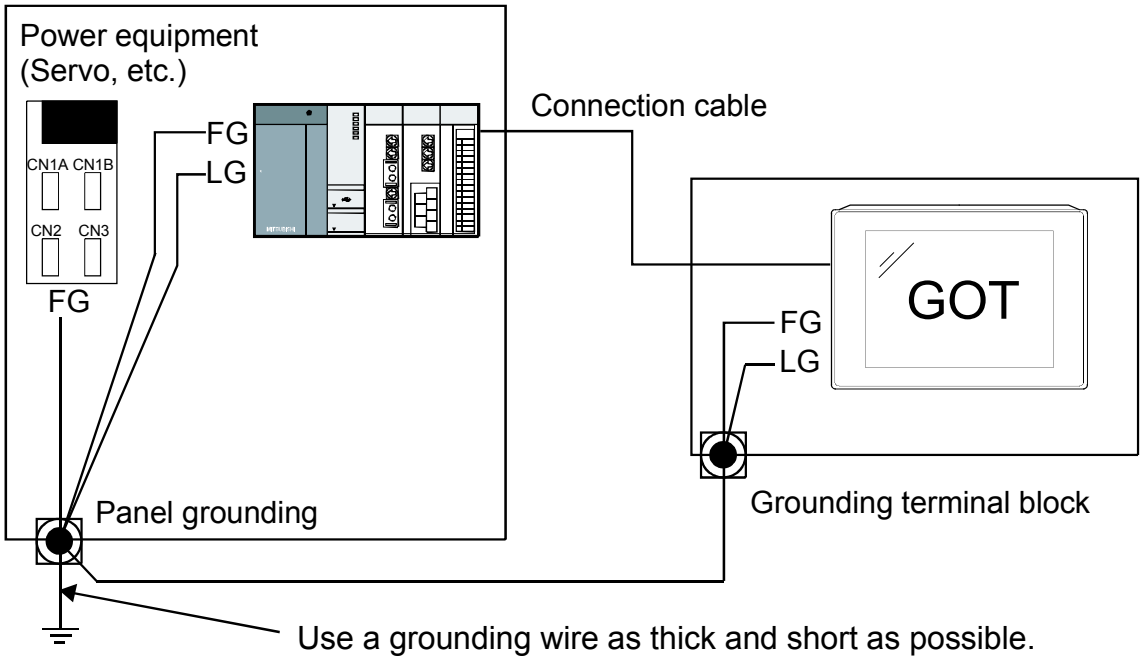
- For grounding a cable, use the cable of 2 mm^2 or more.
  Position the ground-contact point as closely to the sequencer as possible, and reduce the length of the grounding cable as much as possible.

(a) An example of independent grounding



* For control system grounding, apply single-point grounding for one system.
Especially for the devices communicating each other, be sure to earth the grounding wire at one point.

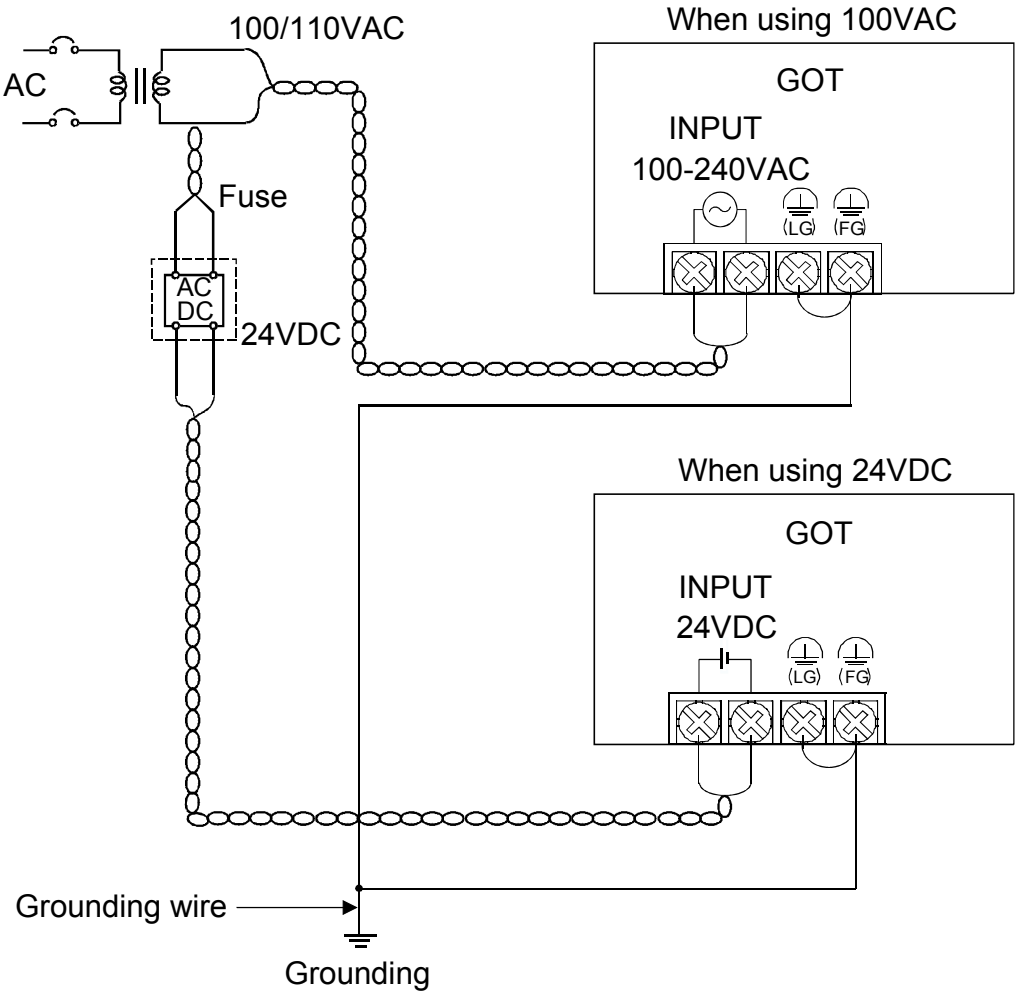
(b) An example of common grounding



* Apply single-point grounding for one system.

5.5 Connecting to the GOT Power Section

The following diagram shows the wiring example of power lines, grounding lines, etc. to the GOT power section.



POINT

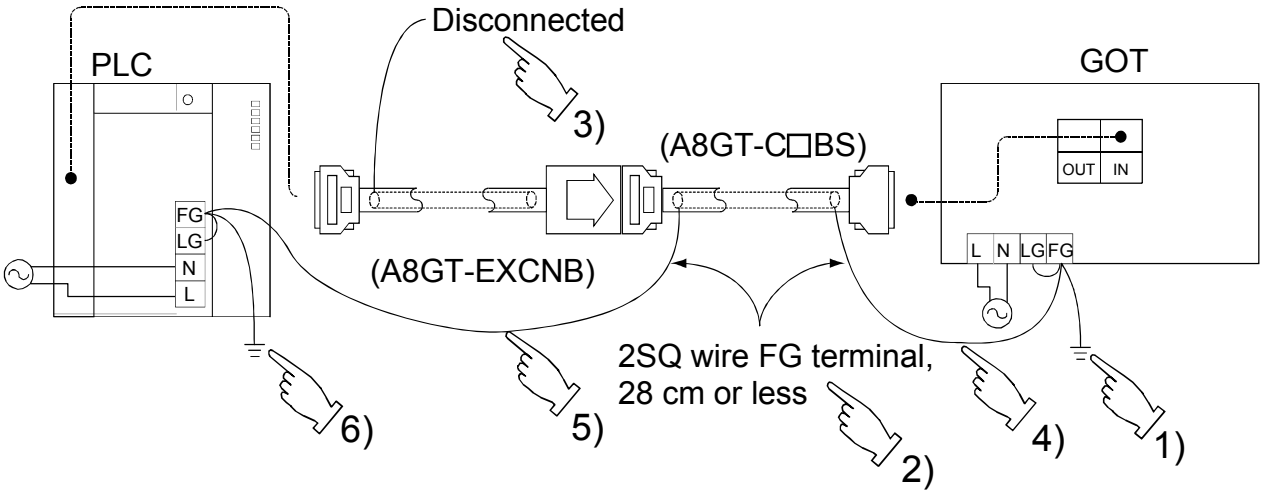
(1) Use the thickest possible (max. 2 mm^2 (14 AWG)) wires for the 100/200 VAC and 24 VDC power cables. Be sure to twist these wires starting at the connection terminals. To prevent a short-circuit should any screws loosen, use solderless terminals with insulation sleeves.

(2) When the LG terminals and FG terminals are connected, be sure to ground the wires. Do not connect the LG terminals and FG terminals to anything other than ground. If LG terminals and FG terminals are connected without grounding the wires, the PLC may be susceptible to noise.
In addition, since the LG terminals have potential, the operator may receive an electric shock when touching metal parts.

5.6 Connection Cable Wiring

- Do not bind connection cables with the main circuit (high voltage, heavy current) or I/O signal cables, or lay them close to each other.
- When using A8GT-C□EXSS-1 or A8GT-C□BS, ground wires as below.

(1) When using A8GT-C□EXSS-1 cable



1) Connect the LG and FG terminals of GOT unit power to the ground through the terminal block with one wire.
2) Use FG wires of 28 cm or less for the A8GT-C□BS cable.
3) Do not connect the FG grounding wire of A8GT-EXCNB cable.
4) Connect the A8GT-C□BS cable's FG wire to FG of the GOT unit power terminal block.
5) Connect the A8GT-C□BS cable's FG wire on the PLC side to FG of the PLC power supply module.
6) Connect the LG and FG terminals of the terminal block on the PLC to ground with one wire.

(2) When using A8GT-C□BS cable
Connect the A8GT-C□BS cable's FG wires on the both sides to the FG terminals on the power terminal block of the both side GOTs.

6. EMC Directive

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

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

6.1 Requirements for Conformance to EMC Directive

The EMC Directive specifies that products placed on the market must "be so constructed that they do not cause excessive electromagnetic interference (emissions) and are not unduly affected by electromagnetic interference (immunity)".
The applicable products are requested to meet these requirements. The sections 6.1.1 through 6.3.3 summarize the precautions on conformance to the EMC Directive of the machinery constructed using the GOT.
The details of these precautions has been prepared based on the requirements and the applicable standards control. However, we will not assure that the overall machinery manufactured according to these details conforms to the above-mentioned directives. The method of conformance to the EMC Directive and the judgment on whether or not the machinery conforms to the EMC Directive must be determined finally by the manufacturer of the machinery.

6.1.1 Standards Applicable to the EMC Directive

Specification	Test item	Test details	Standard value
EN61000-6-4: 2001	EN55011 Radiated noise[*1]	Electromagnetic emissions from the product are measured.	30M-230MHz QP: 30dBμV/m (30m measurement range) [*2,*3] 230M-1000MHz QP: 37dBμV/m (30m measurement range) [*2,*3]
	EN55011 Conducted noise[*1]	Electromagnetic emissions from the product to the power line are measured.	150k-500kHz QP: 79db, Mean: 66dB[*2] 500k-30MHz QP: 73dB, Mean: 60dB[*2]
EN61131-2: 2003	EN61000-4-2 Electrostatic immunity[*1]	Immunity test in which static electricity is applied to the cabinet of the equipment.	±4kV: Contact discharge ±8kV: Aerial discharge
	EN61000-4-3 Radiated field AM modulation[*1]	Immunity test in which field is irradiated to the product.	80-1000MHz: 10V/m 1.4-2GHz: 10V/m 80%AM modulation @ 1kHz
	EN61000-4-4 Fast transient burst noise[*1]	Immunity test in which burst noise is applied to the power line and signal lines.	Power line: 2kV Digital I/O (24V or more): 1kV (Digital I/O (24V or less)) > 250V (Analog I/O, signal lines) > 250V
	EN61000-4-5 Surge immunity[*1]	Immunity test in which lightening surge is applied to the product.	DC power type Power line (between line and ground): ±0.5kV Data communication port: ±0.5kV
	EN61000-4-6 Conducted RF immunity[*1]	Immunity test in which a noise inducted on the power and signal lines is applied.	Power line: 3V Data communication port: 3V
	Instantaneous power failure and voltage dips immunity	Test for checking normal operations at instantaneous power failure	DC power type 10ms (interval 1s or more)
	Radiated RF immunity	Test for checking normal operations when the power supply unit input voltage is fluctuated	DC power type 20.4V, 28.8V
	External power supply fluctuation immunity	Test for checking if the unit becomes faulty with a transient voltage of the internal and external input sides of the power supply unit or unit power supply	DC power type 20.4V, 26.4V

*1 The GOT is an open type device (device installed to another device) and must be installed in a conductive control panel. The above test items are conducted in the condition where the GOT is installed on the conductive control panel and combined with the Mitsubishi PLC.
*2 QP: Quasi-peak value, Mean: Average value
*3 The above test items are conducted in the following conditions.
30-230MHz QP: 40dBμV/m (10m in measurement range)
230-1000MHz QP: 47dBμV/m (10m in measurement range)

6.1.2 Control Cabinet

The GOT is an open type device (device installed to another device) and must be installed in a conductive control panel or cabinet.
It not only assure the safety but also has a large effect to shut down the noise generated from GOT, on the control panel.

1) Control cabinet
   a) Use a conductive control cabinet.

   b) When attaching the control cabinet's top plate or base plate, mask painting and weld so that good surface contact can be made between the cabinet and plate.

   c) To ensure good electrical contact with the control cabinet, mask the paint on the installation bolts of the inner plate in the control cabinet so that contact between surfaces can be ensured over the widest possible area.

   d) Earth the control cabinet with a thick wire so that a low impedance connection to ground can be ensured even at high frequencies. (22mm^2 wire or thicker is recommended.)

   e) Holes made in the control cabinet must be 10 cm (3.94inch) diameter or less. If the holes are 10cm (3.94inch) or larger, radio frequency noise may be emitted.
   In addition, because radio waves leak through a clearance between the control panel door and the main unit, reduce the clearance as much as practicable.
   The leakage of radio waves can be suppressed by the direct application of an EMI gasket on the paint surface.
   Our tests have been carried out on a panel having the damping characteristics of 37 dB max. and 30 dB mean (measured by 3 m method with 30 to 300 MHz).

2) Connection of power and ground wires
   Ground and power supply wires for the GOT must be connected as described below.

   a) Provide an earthing point near the GOT. Earth the power supply's FG terminal (FG: Frame Ground) with the thickest and shortest wire possible. (The wire length must be 30cm (11.18inch) or shorter.)
   The FG terminal function is to pass the noise generated in the GOT to the ground, so an impedance that is as low as possible must be ensured. As the wires are used to relieve the noise, the wire itself carries a large noise content and thus short wiring means that the wire is prevented from acting as an antenna.
   Note) A long conductor will become a more efficient antenna at high frequency.

3) Electrical shock prevention
In order to such as the operators from electric shocks, the control box must have the following functions :

a) The control cabinet must be equipped with a lock so that only skilled or qualified personnel.

b) The control cabinet must be fitted with advice which automatically stops the power supply when the cabinet is opened.

4) Dustproof and waterproof features
The control box also has the dustproof and waterproof functions. Insufficient dustproof and waterproof features lower the insulation withstand voltage, resulting in insulation destruction. The insulation in our GOT is designed to cope with the pollution level 2, so use in an environment with pollution level 2 or better.

Pollution level 1:	An environment where the air is dry and conductive dust does not exist.
Pollution level 2:	An environment where conductive dust does not usually exist, but occasional temporary conductivity occurs due to the accumulated dust. Generally, this is the level for inside the control box equivalent a control room or on the floor of a typical factory.
Pollution level 3:	An environment where conductive dust exits and conductivity may be generated due to the accumulated dust. An environment for a typical factory floor.
Pollution level 4 :	Continuous conductivity may occur due to rain, snow, etc. An outdoor environment.

6.1.3 Grounding

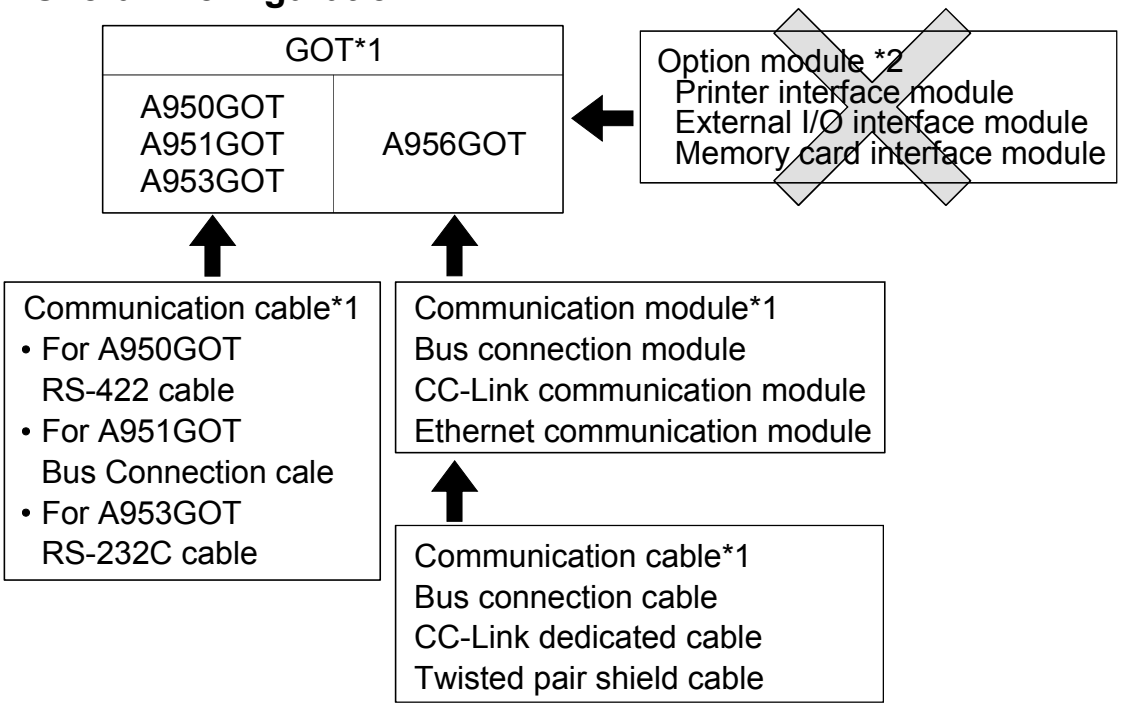
It is necessary to use the GOT grounding terminal only when it is in the grounded condition.
Be sure to ground the grounding for the safety reasons and EMC Directives.

Functional grounding ⏚ : Improves the noise resistance.

6.2 System Configuration when EMC Directive is Applicable

Connection conditions and models where the EMC Directive is applicable are shown below. (Available August, 2006)

6.2.1 Overall Configuration



*1 See section 6.2.3 or section 6.2.4 for information about models and hardware versions that are applicable to the EMC Directive.

*2 EMC Directive is not applicable when using an option module.

6.2.2 About Models Applicable to the EMC Directive

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

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

Item	Type	EMC Directive
A950GOT (Built-in RS-422 communication interface)	A950GOT-TBD(-M3)	×
	A950GOT-SBD(-M3)	○
	A950GOT-SBD(-M3)-B	○
	A950GOT-LBD(-M3)	○
A951GOT-Q (Built-in bus communication interface for Q CPU (Q mode))	A951GOT-QTBD(-M3)	×
	A951GOT-QSBD(-M3)	×
	A951GOT-QSBD(-M3)-B	×
	A951GOT-QLBD(-M3)	×
A951GOT (Built-in bus communication interface for A/QnA/Motion controller CPU)	A951GOT-TBD(-M3)	×
	A951GOT-SBD(-M3)	○
	A951GOT-SBD(-M3)-B	○
	A951GOT-LBD(-M3)	○
A953GOT (Built-in RS-232C communication Interface)	A953GOT-TBD(-M3)	×
	A953GOT-SBD(-M3)	○
	A953GOT-SBD(-M3)-B	○
	A953GOT-LBD(-M3)	○
A956GOT (Built-in communication module Interface)	A956GOT-TBD(-M3)	×
	A956GOT-SBD(-M3)	○
	A956GOT-SBD(-M3)-B	○
	A956GOT-LBD(-M3)	○

*1 Be aware that if using A950GOT after removing the control panel as described in item 5.3, it is not applicable to the EMC Directive.

POINT

If connecting to a PLC not from this company (MELSEC-Q series, MELSEC-QnA series, MELSEC-A series), refer to the manual of the connected device (PLC, microcomputer) for information about the applicability of the EMC Directive.

6.2.3 Connection Format

Connection conditions where the A95*GOT is applicable to the EMC Directive are shown below.

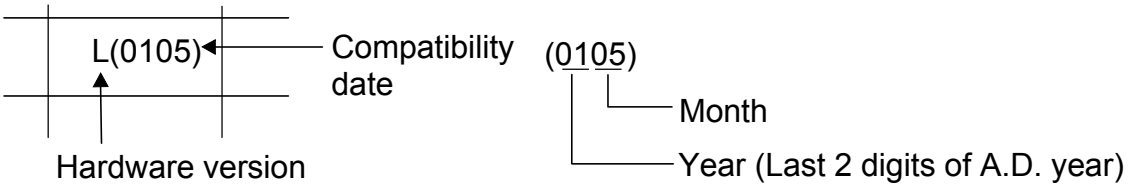
×: Not compliant with EMC Directive -: Connection impossible

Connection format		A950GOT	A951GOT-Q	A951GOT	A953GOT	A956GOT
Bus Connection	QCPU	-	×	-	-	×
	QnA/ACPU	-	-	L(0105)	-	K(0105)
CPU direct connection	QCPU (RS-232C)	-	-	-	L(0105)	-
	QnA/ACPU (RS-422)	L(0105)	-	-	-	-
Computer link connection	RS-232C	-	-	-	L(0105)	-
	RS-422	L(0105)	-	-	-	-
MELSECNET connection		-	-	-	-	×
CC-Link connection	Intelligent device	-	-	-	-	K(0105)
	Remote device station	-	-	-	-	K(0105)
Ethernet connection		-	-	-	-	P(0203)

<How to read the table>

The table indicates the GOT-compatible hardware version for each connection pattern and the compatibility date.

Please use the GOT whose hardware version is later than that described.



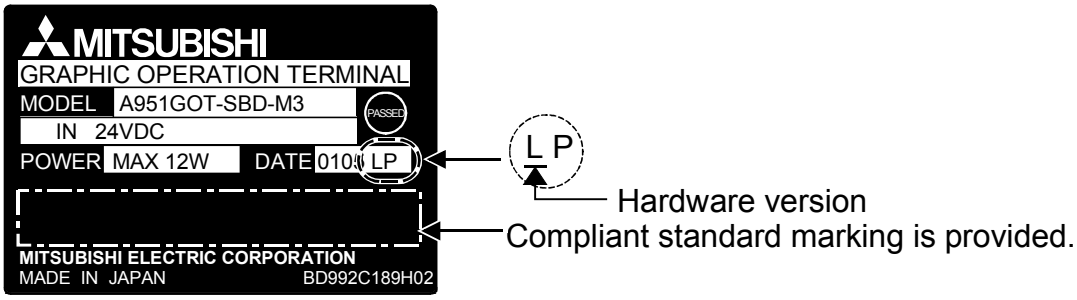
6.2.4 When the Communication Module is Used

Be sure to use the communication modules shown below with A956GOT. If communication modules other than those shown below are used, they are not applicable to the EMC Directive.

Connection format		Communication module
Bus connection (QnA/ACPU)		A9GT-BUSS (Hardware version C or later) A9GT-BUS2S (Hardware version C or later)
CC-Link connection	Intelligent device	A8GT-J61BT13 (Hardware version E or later)
	Remote device	A8GT-J61BT15 (Hardware version C or later)
Ethernet connection		A9GT-J71E71-T (Hardware version C or later)

POINT

Confirm the hardware version with the products rating plate.
(Products that the EMC Directive applies to are marked with the CE mark logo.)



6.2.5 About the Cable Used

If making the GOT applicable to the EMC Directive, be sure to use the cables shown below.

○: EMC Directive applicable ×: EMC Directive not applicable

Connection format		Cable	EMC Directive
Bus connection	A/QnACPU	AC06/12/30/50B, AC12/30/50B-R, A1SC07/12/30/50B, A1SC05/07/30/50NB, A8GT-C12/30/50NB, A370C12/25B, A9GT-J2C10B, A8GT-C100/200/300EXSS, A8GT-C100/200/300BS, A8GT-C100/200/300EXSS-1	○
	QCPU (Q mode)	QC06/12/30/50/100B, A9GT-QC150/200/250/300/350BS	×
CPU direct connection	RS-232C communication	QC30R2	○
	RS-422 communication	AC30/100/300R4-25P	○
Computer link connection	RS-232C communication	User created cable	○
	RS-422 communication	AC30/100/300R4-25P User created cable	○
CC-Link communication		CC-Link dedicated cable	○
Ethernet connection		Category 5 Twisted pair shield cable	○

POINT

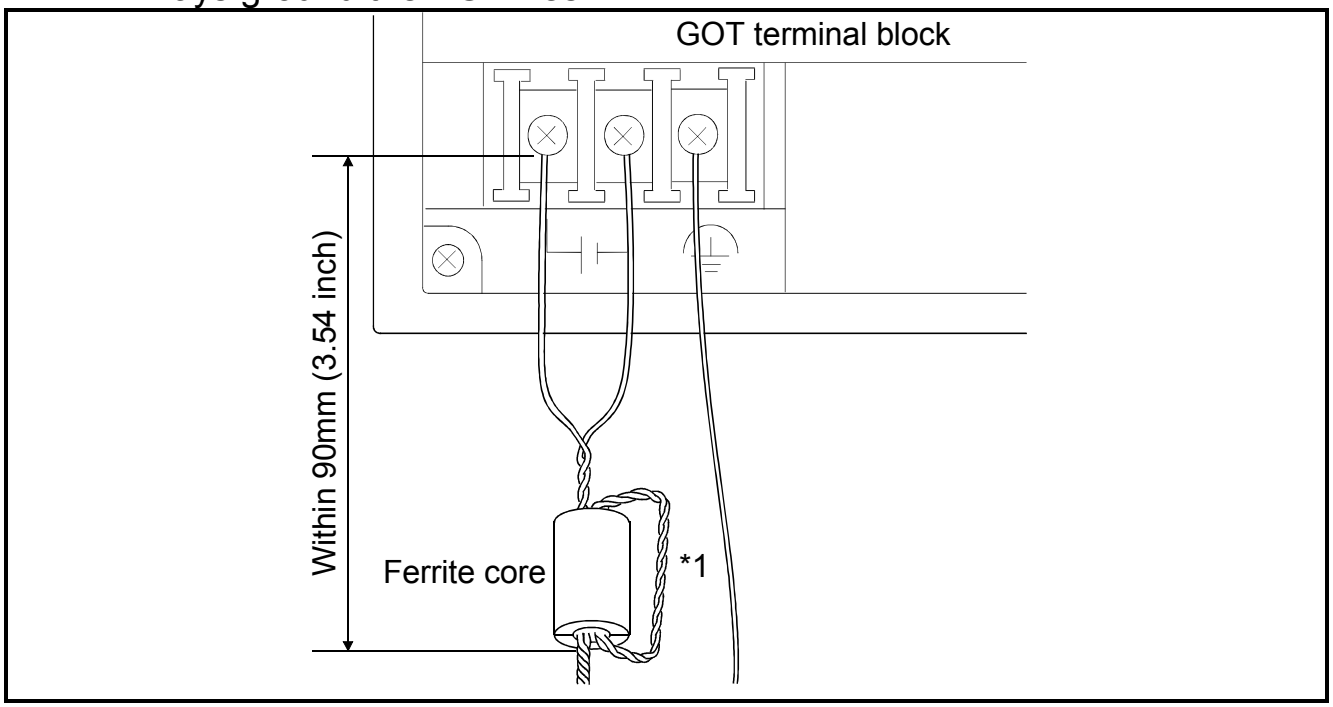
To make applicable to the EMC Directive, each cable (including user created cables) must be manufactured.
Refer to section 6.3.2. for the cable manufacturing method.

6.3 Wiring Precautions the Part which Matches the EMC Directives

Connect and wire GOT equipment as instructed below.
If the GOT equipment is configured in a way that differs from the following instructions then the system will not comply with EMC directives.

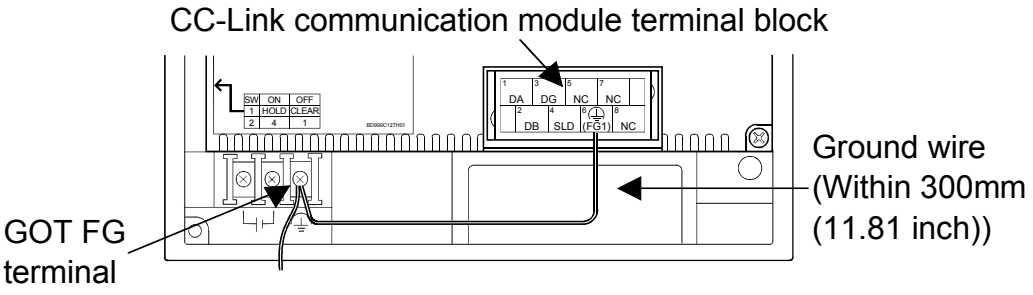
6.3.1 Method to Connect the Power Wire and Ground Wire

(1) With the power wire, be sure to attach the ferrite core (TDK type ZCAT3035-1330) within 90 mm of the GOT terminal module.
Lead the power wire and ground wire as shown in Section 6.1.2 (2).
Always ground the FG wires.



*1 Wrap the power wire around the ferrite core.

(a) When connecting CC-Link, use the grounding wire of the FG1 terminal on the CC-Link communication module to connect to the FG terminal of the GOT power section.
Use a grounding wire of 300 mm or less.



POINT

Use a CE compatible product for 24 V DC external common power source for GOT.
The EMC test run by our company was confirmed with the same panel components as the DENSEI-LAMBDA type JWS 50-24 or DLP120-24-1 installed.

6.3.2 Grounding the Ground Cable

Manufacture the cable used with the GOT with the following method. When manufacturing the cable, a ferrite core, cable clamp and cable shielding material are required.

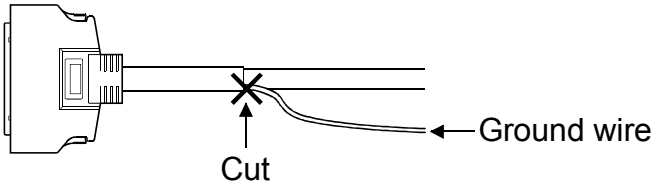
The cable clamp used by Mitsubishi Electric for the EMC specification compatibility test is shown below.

- TDK brand ZCAT3035-1330 Ferrite Core
- Mitsubishi Electric Model AD75CK cable clamp
- Japan Zipper Tubing Co., Ltd. Zipper tube SHNJ type

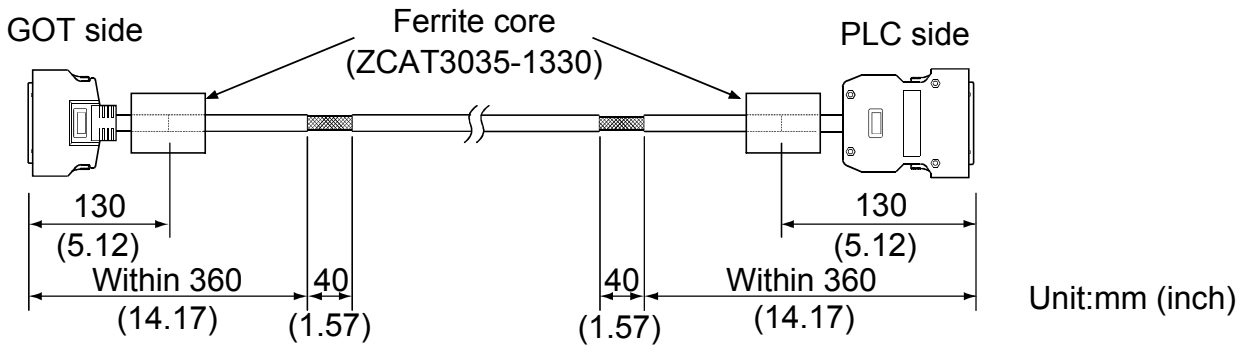
(1) Bus Connection

(a) For A8GT-C100/200/300EXSS

- Cut the ground wire from the core where it protrudes from both ends of the cable.

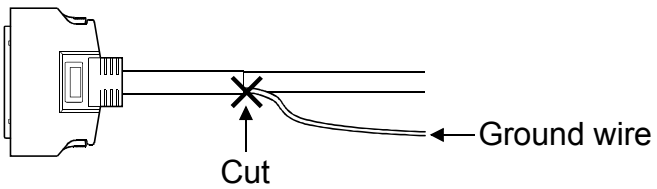


- Peel the sheath (with the length shown below) at both ends of the cable, and expose the shield braided wire for grounding.

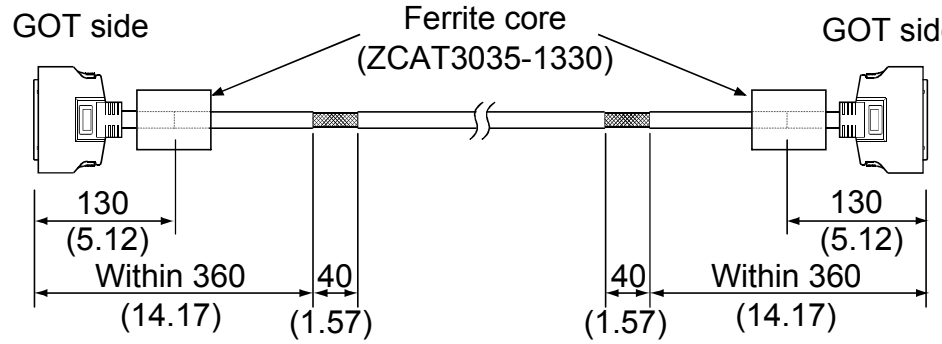


(b) For A8GT-C100/200/300BS

- Cut the ground wire from the core where it protrudes from both ends of the cable.



- Peel the sheath (with the length shown below) at both ends of the cable, and expose the shield braided wire for grounding.



Unit:mm (inch)

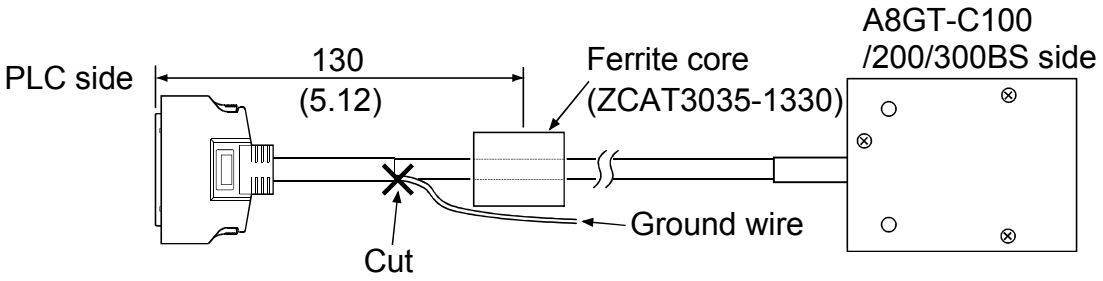
(c) For A8GT-C100/200/300EXSS-1

POINT

The A8GT-C100/200/300EXSS-1 is a combined product of the A8GT-EXCNB and A8GT-C100/200/300BS.

- Cut the ground wire from the core where it protrudes from the A8GT-EXCNB.

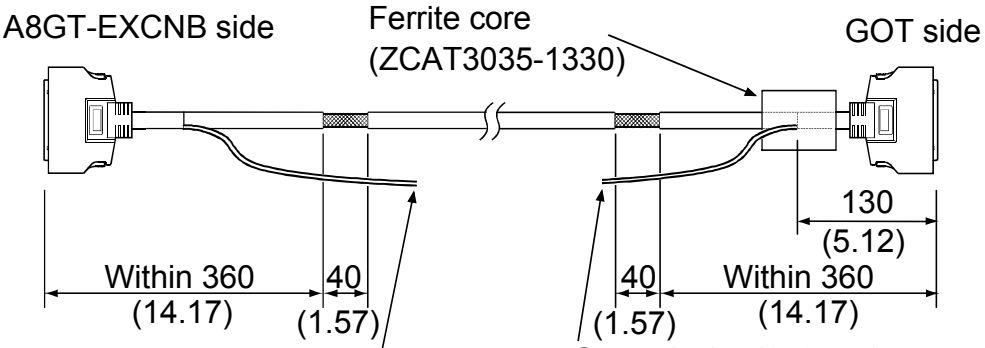
For A8GT-EXCNB



Unit:mm (inch)

- Cut the ground wires protruding from both ends of the A8GT-C100/200/300BS with the length shown below.
- Peel the sheath (with the length shown below) at both ends, and expose the shield braided wire for grounding.

For A8GT-C100/200/300BS



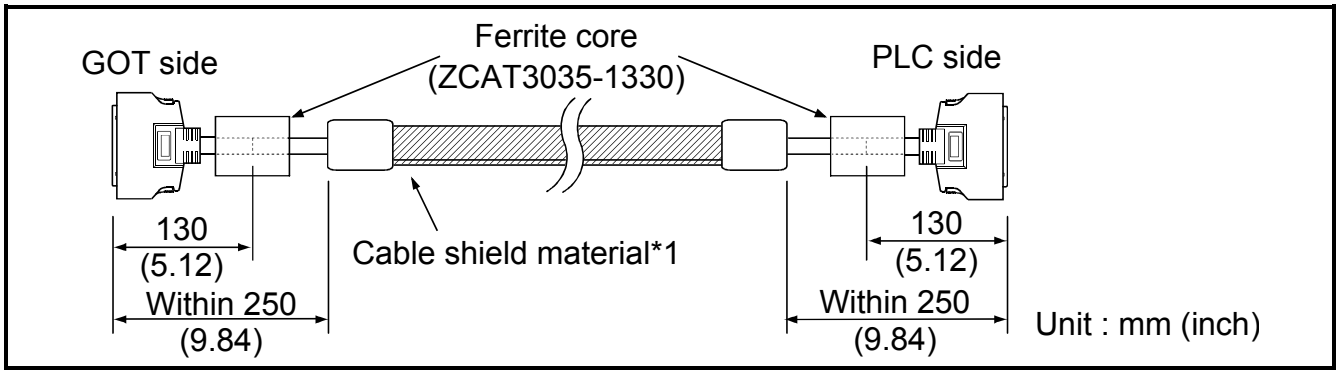
Ground wire (450mm)
Connect to FG of the
PLC power supply module

Ground wire (280mm)
Connect to FG of the GOT main unit
power terminal block

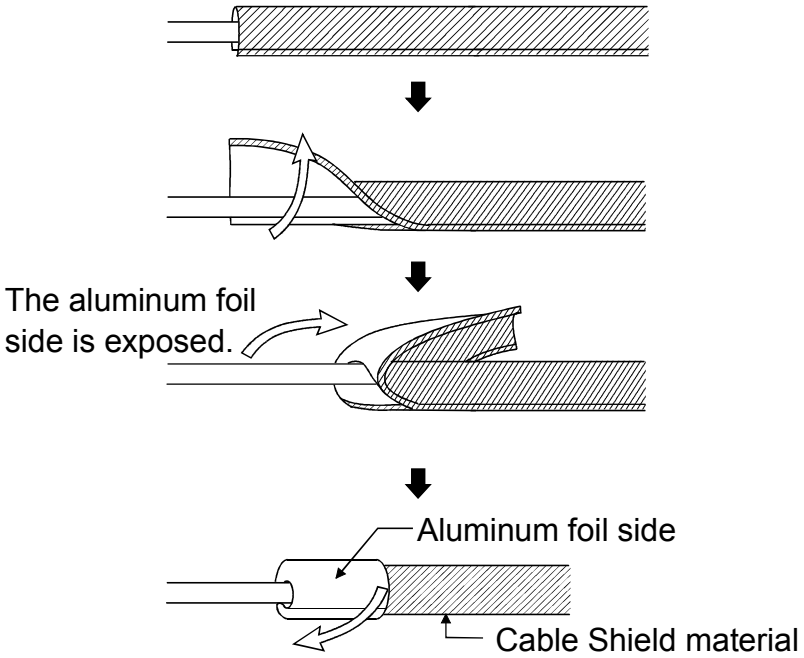
Unit:mm (inch)

(d) For other Bus Connection cables

- Wrap the cable shield material around the cable, so that the back aluminum foil side (shield side) of the cable shield material is exposed at both ends of the cable.



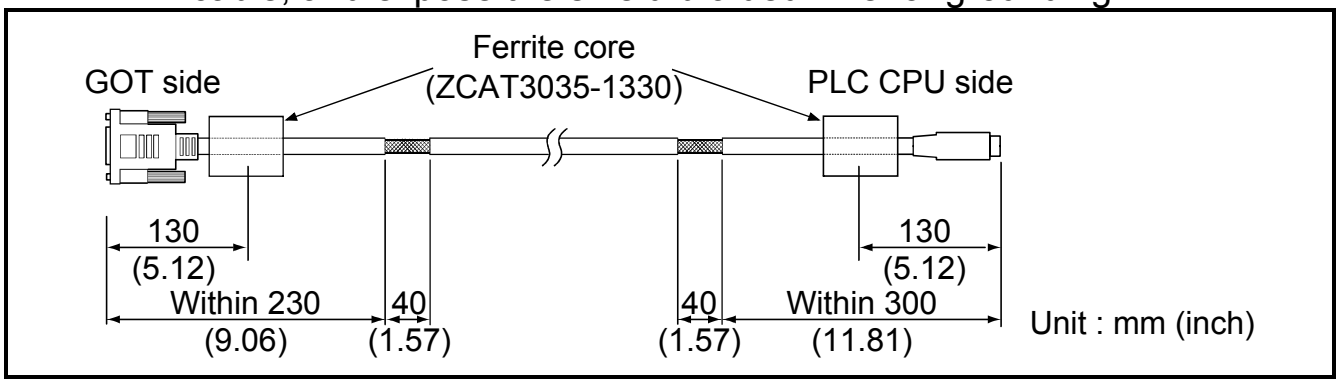
*1 The back aluminum foil side of the cable shield material (shield side) should be exposed.



(2) CPU Direct Connection

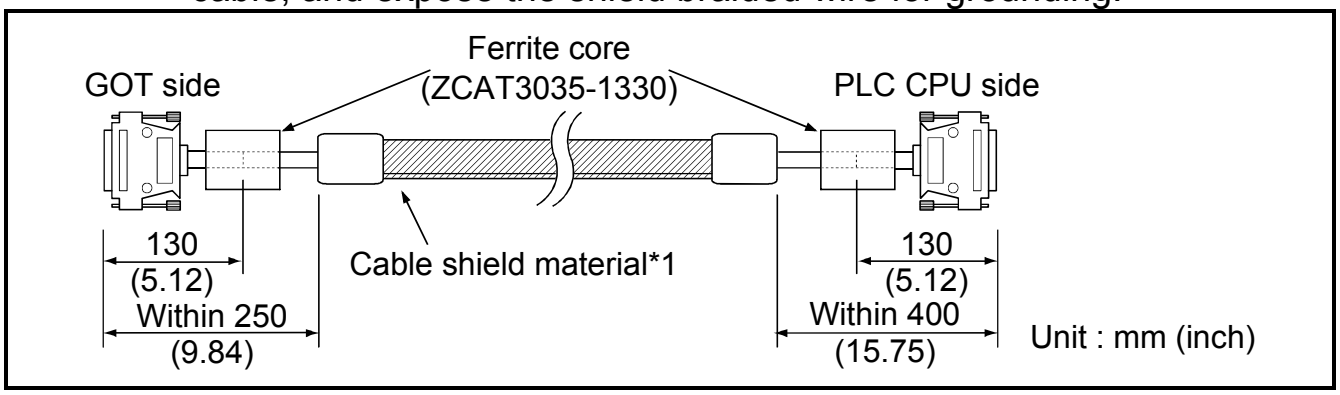
(a) For RS-232C cable (QC30R2)

- Peel the sheath (with the length shown below) at both ends of the cable, and expose the shield braided wire for grounding.



(b) For RS-422 cable (AC30/100/300R4-25P)

- Peel the sheath (with the length shown below) at both ends of the cable, and expose the shield braided wire for grounding.



*1 The back aluminum foil side of the cable shield material (shield side) should be exposed. (Refer to section 6.3.2 (1) (b))

(3) Computer Link Connection

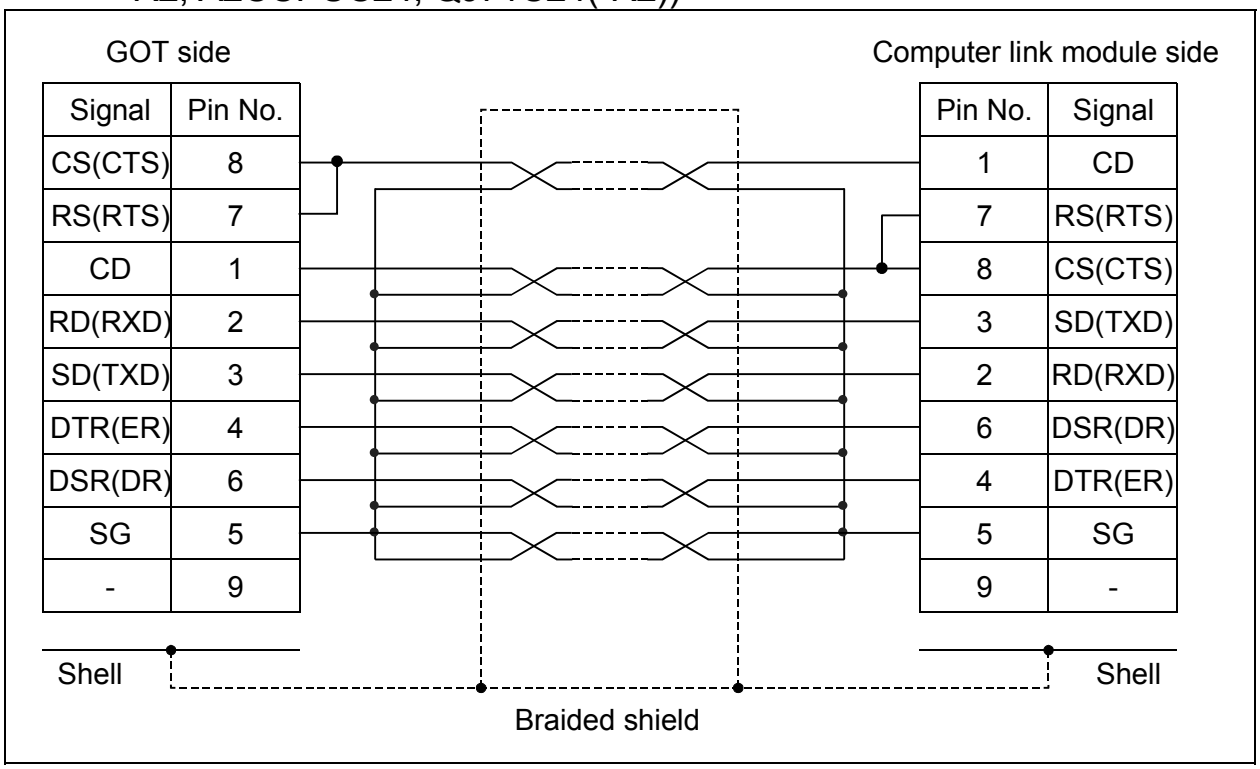
(a) For RS-232C cable

The user needs to fabricate the RS-232C cable which is used to connect the GOT and Computer link unit side (serial communication, computer link module or PLC CPU with computer link function).

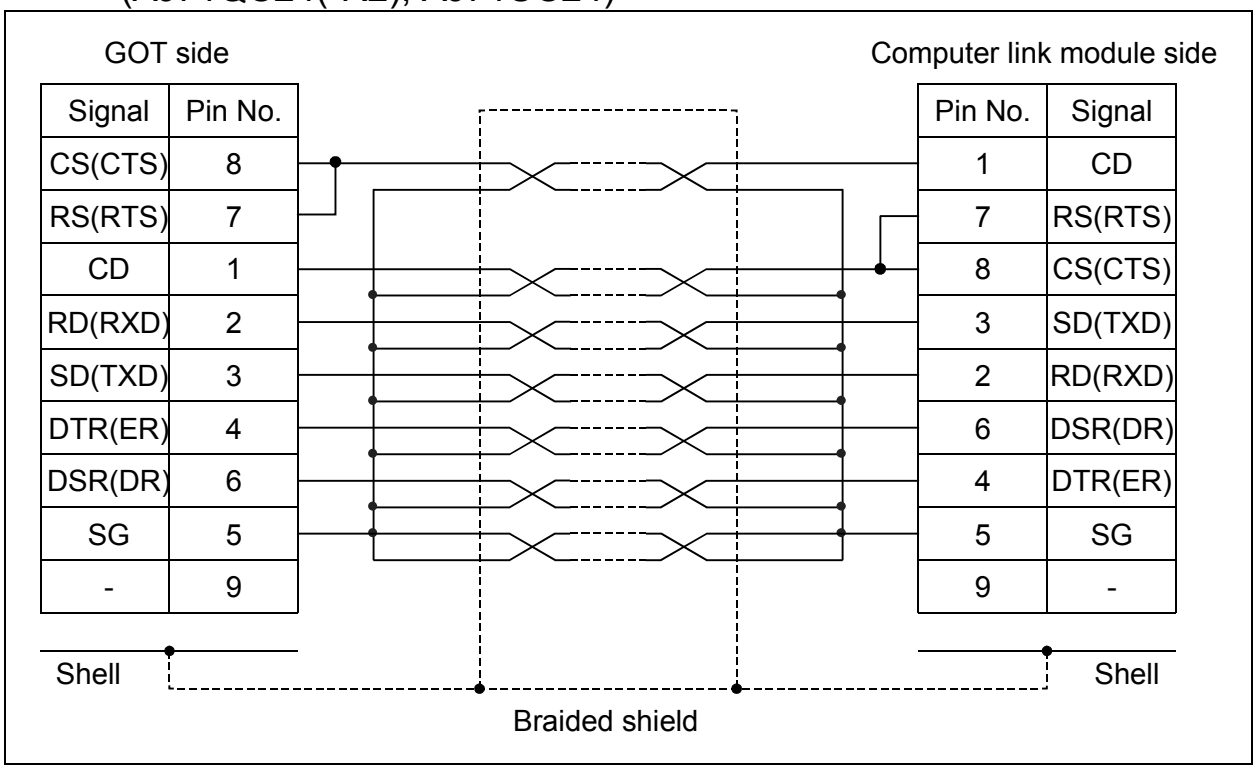
The RS-232C cable connection diagram and the connector are as follows.

1) Connection diagram

- If D-sub 9-pin is used for the connector of the computer link unit. (A1SJ71QC24(-R2), A1SJ71UC24-R2, A1SJ71C24-R2, A1SCPUC24 -R2, A2CCPUC24, QJ71C24(-R2))



- If D-sub 25-pin is used for the connector of the computer link unit. (AJ71QC24(-R2), AJ71UC24)



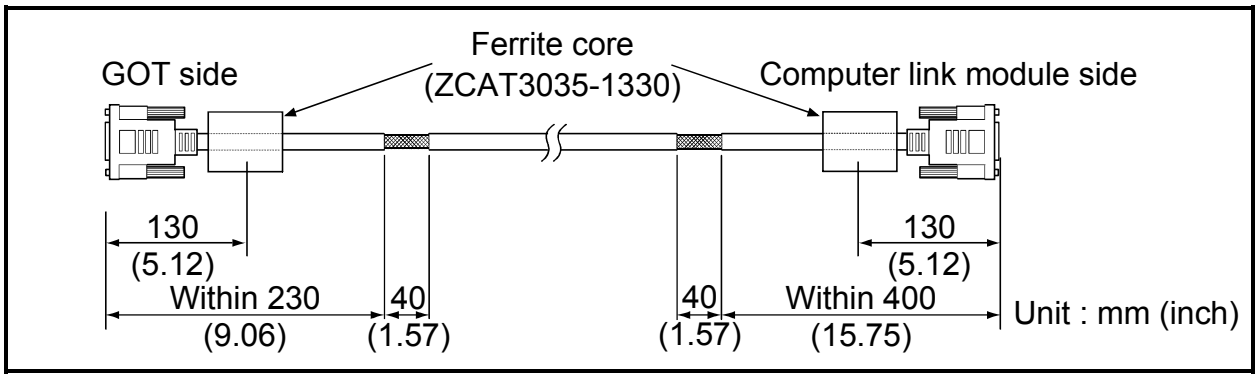
2) Precautions for manufacturing cable
- Make a twisted pair for each signal and SG.
- Connect the braided shield to the connector shell (both ends).
- The cable used for the Mitsubishi EMC Directive compatibility test had the following specifications.

Item	Specification
Cable type	Twisted pair shield cable
Conductor section area (mm^2)	0.2

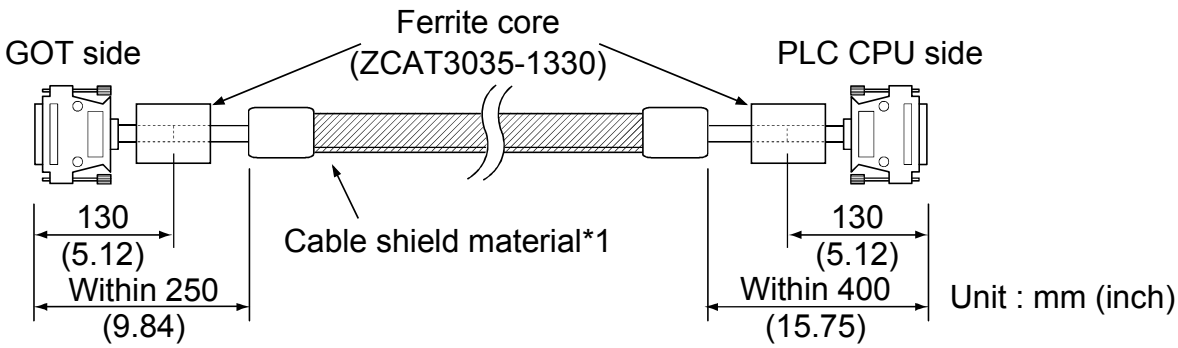
3) Connector (connector cover)
- GOT connector
  Use the connector matching the following model for the GOT.
  9-pin D-sub (male) inch screw type
  manufactured by DDK
  17JE-23090-27 (D3CC)

- Connector of computer link unit
  Refer to the user's manual of the serial communication, computer link module or PLC CPU with computer link function.

4) Cable production method
- Peel the sheath (with the length shown below) at both ends of the cable, and expose the shield braided wire for grounding.
- The cable must be 15m or shorter.



(b) For RS-422 cable (AC30/100/300R4-25P, User created cable)
Refer to the GOT-A900 series User's Manual (Connection System Manual) for information about the cable creation method.
- Wrap the cable shield material around the cable, so that the back aluminum foil side (shield side) of the cable shield material is exposed at both ends of the cable.



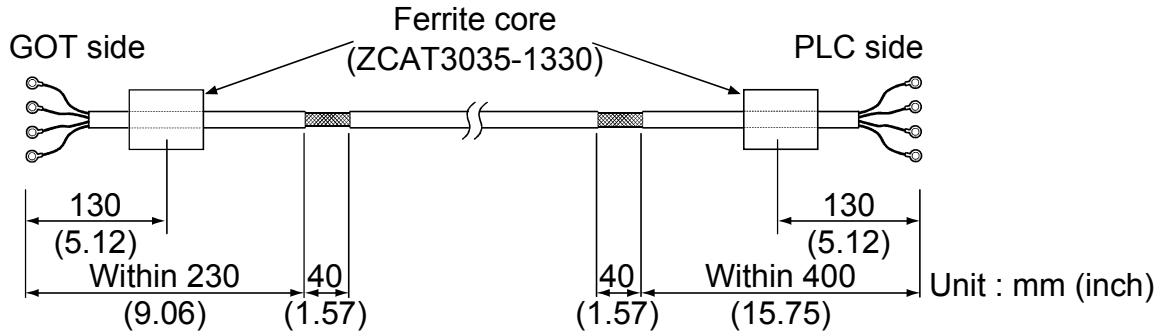
(PLC CPU side connector varies depending on the cable used.)

*1 The back aluminum foil side of the cable shield material (shield side) should be exposed. (Refer to section 6.3.2 (1) (b))

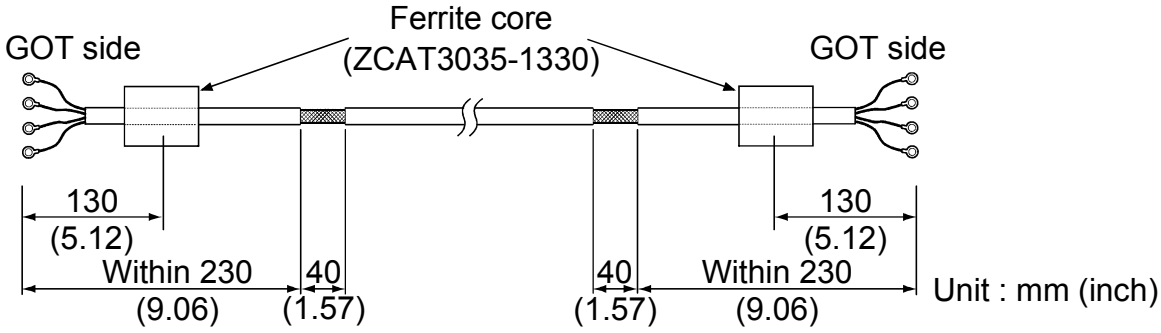
(4) CC-Link Connection (For CC-Link dedicated cable)

- Peel the sheath (with the length shown below) at both ends of the cable, and expose the shield braided wire for grounding.

- When using a CC-Link dedicated cable between GOT and PLC

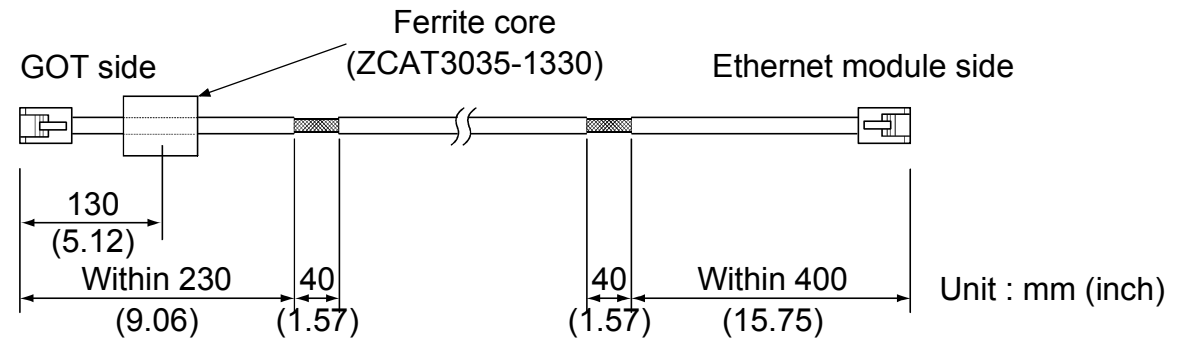


- When using a CC-Link dedicated cable between GOT and GOT



(5) Ethernet Connection (Twisted pair shield cable)

- Peel the sheath (with the length shown below) at both ends of the cable, and expose the shield wire for grounding.



(6) Other PLC and Microcomputer connection

It is necessary for the user to create the cable used to connect GOT with a PLC or a microcomputer from another company (RS-422 cable or RS-232C cable).

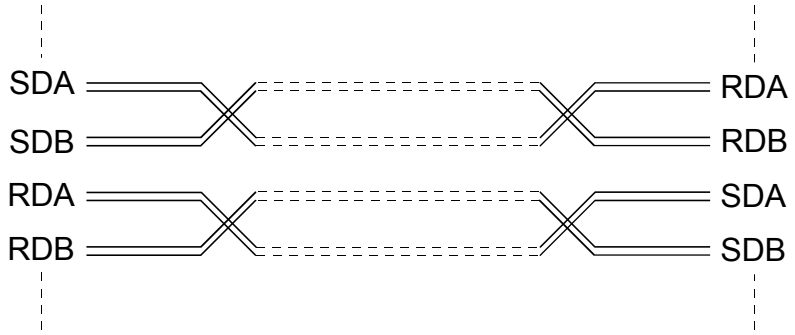
Refer to the GOT-A900 series User's Manual (Connection System Manual) for information about the cable creation method.

POINT

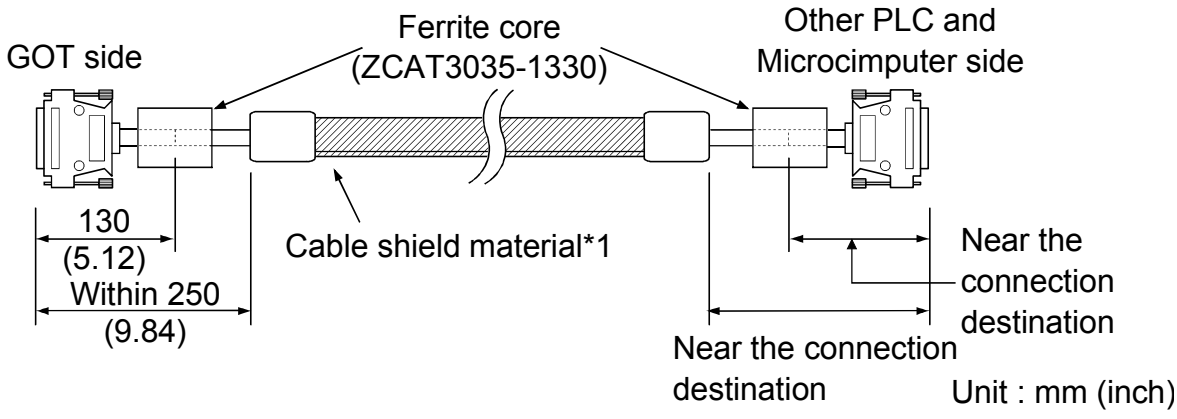
When connecting GOT to a PLC or microcomputer from another company, configure the system so that the EMC Directive specifications from the connection destination are applicable.
The contents shown below are a collection of the contants that should be enforced when made applicable to the EMC Directive; however, the final decision to make the device applicable to the EMC Directive and how to make it applicable must be made by the manufacturer of the machine device.

(a) For RS-422 cable

- Each signal wire (excluding SG and FG) should be made into a two power wires and connected, then twisted.



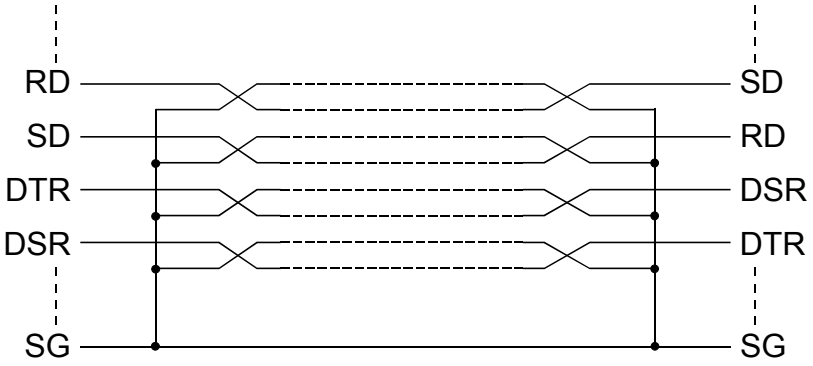
- Make the SG wire more than two wires and connect.
- Wrap the cable shield material around the cable, so that the back aluminum foil side (shield side) of the cable shield material is exposed at both ends of the cable.



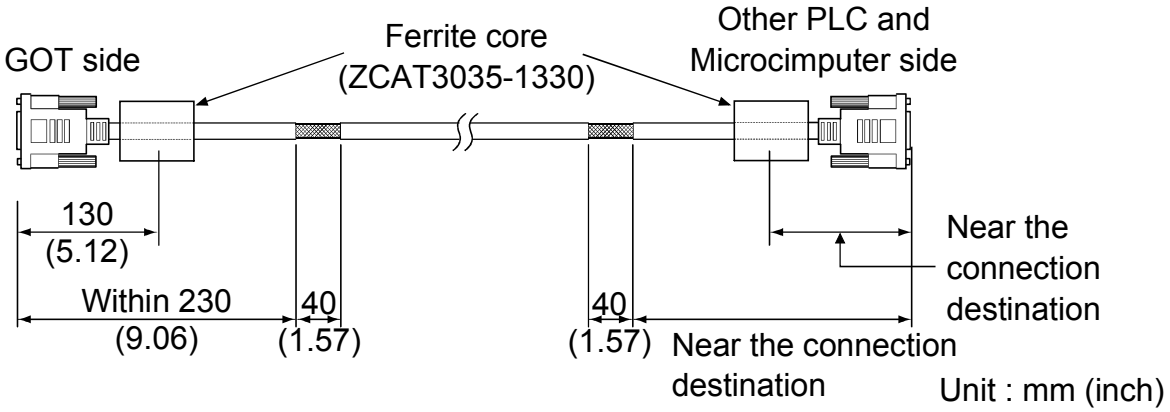
*1 The back aluminum foil side of the cable shield material (shield side) should be exposed. (Refer to section 6.3.2 (1) (b))

(b) For RS-232C cable

- Each signal wire (excluding SG, FG) is twisted with SG.

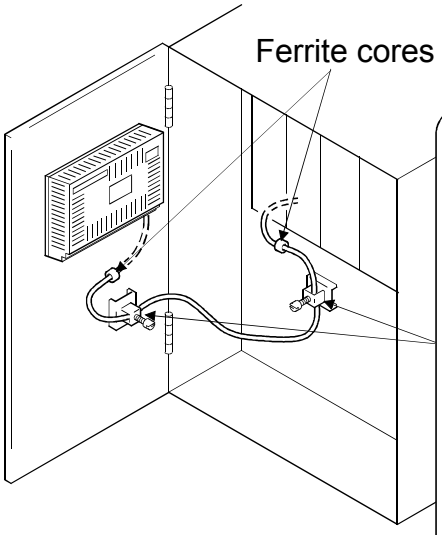


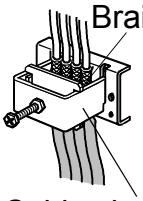
- Peel the sheath (with the length shown below) at both ends of the cable, and expose the shield braided wire for grounding.



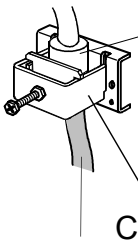
6.3.3 Grounding the Cable

Ground the cable grounding sections and grounding wire to the control panel where the GOT and base unit are grounded.





・For the bus connection cable (in the case of A8GT-C100/200/300EXSS, A8GT-C100/200/300EXSS-1, A8GT-C100/200/300BS), RS-232C cable, CC-Link dedicated cable or shielded twisted-pair cable, ground the braided shield to the control box with the cable clamp (AD75CK).

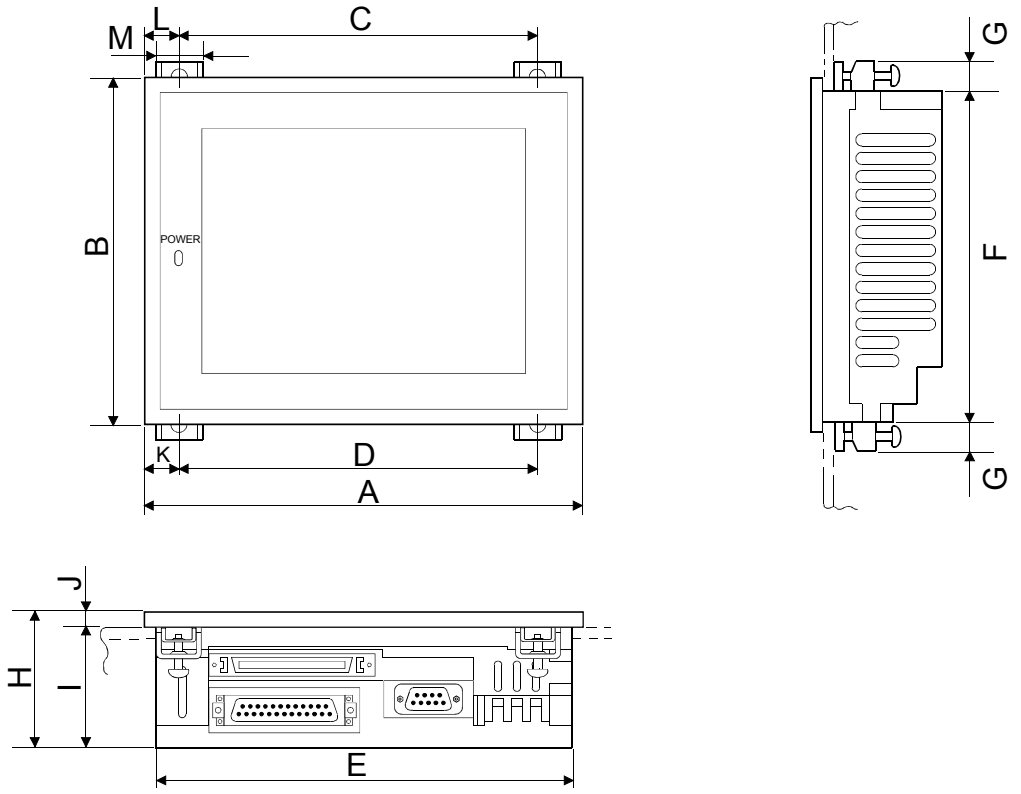


・For the any other bus cable or RS-422 cable, ground the shield surface of the cable shield material to the control box with the cable clamp (AD75CK).

(For the cable clamp attaching details, refer to AD75CK-type Cable Clamping Instruction Manual <IB-68682>.)

Appendices

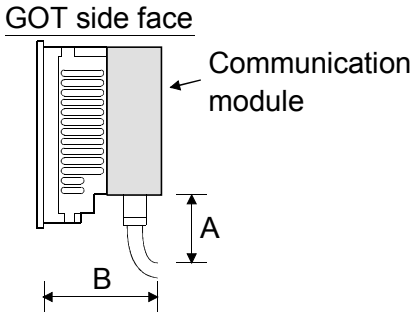
Appendix1 Outline Dimension Drawing



Unit: mm(inch)

Type code	A	B	C	D	E	F	G	H	I	J	K	L	M
A95∗GOT-(Q) TBD(-M3) A95∗GOT-(Q) SBD(-M3)-B	164.5 (6.48)	136 (5.36)	125.5 (4.94)	130.1 (5.13)	155.5 (6.13)	123 (4.85)	10 (0.39)	65 (2.56)	59 (2.32)	6 (0.24)	14.9 (0.59)	19.5 (0.77)	15.4 (0.61)
A95∗GOT-(Q) SBD/LBD(-M3)	164.5 (6.48)	136 (5.36)	125.5 (4.94)	130.1 (5.13)	155.5 (6.13)	123 (4.85)	10 (0.39)	57 (2.25)	51 (2.01)	6 (0.24)	14.9 (0.59)	19.5 (0.77)	15.4 (0.61)

Appendix2 Depth at the Time of Communication Module Loading



(1) For A956GOT-TBD(-M3)/SBD(-M3)-B

Installed communication module	A[mm] (inch)	B[mm] (inch)
A9GT-QBUS2SU, A9GT-BUSSU, A9GT-BUS2SU	105 (4.13)	93 (3.66)
A7GT-BUSS, A7GT-BUS2S	120 (4.72)	93 (3.66)
A9GT-QJ71LP23, A7GT-J71LP23	*1	93 (3.66)
A7GT-J71AP23		
A9GT-QJ71BR13, A7GT-J71BR13	*2	93 (3.66)
A7GT-J71AR23		
A7GT-J71AT23B	—	115 (4.53)
A8GT-J61BT13, A8GT-J61BT15	—	98 (3.86)
A9GT-J71E71-T	—	89.2 (3.51)

(2) For A956GOT-SBD(-M3)/LBD(-M3)

Installed communication module	A[mm] (inch)	B[mm] (inch)
A9GT-QBUS2SU, A9GT-BUSSU, A9GT-BUS2SU	105 (4.13)	85 (3.35)
A7GT-BUSS, A7GT-BUS2S	120 (4.72)	85 (3.35)
A9GT-QJ71LP23, A7GT-J71GT-J71LP23	*1	85 (3.35)
A7GT-J71AP23		
A9GT-QJ71BR13, A7GT-J71BR13	*2	85 (3.35)
A7GT-J71AR23		
A7GT-J71AT23B	—	107 (4.21)
A8GT-J61BT13, A8GT-J61BT15	—	90 (3.54)
A9GT-J71E71-T	—	81.2 (3.2)

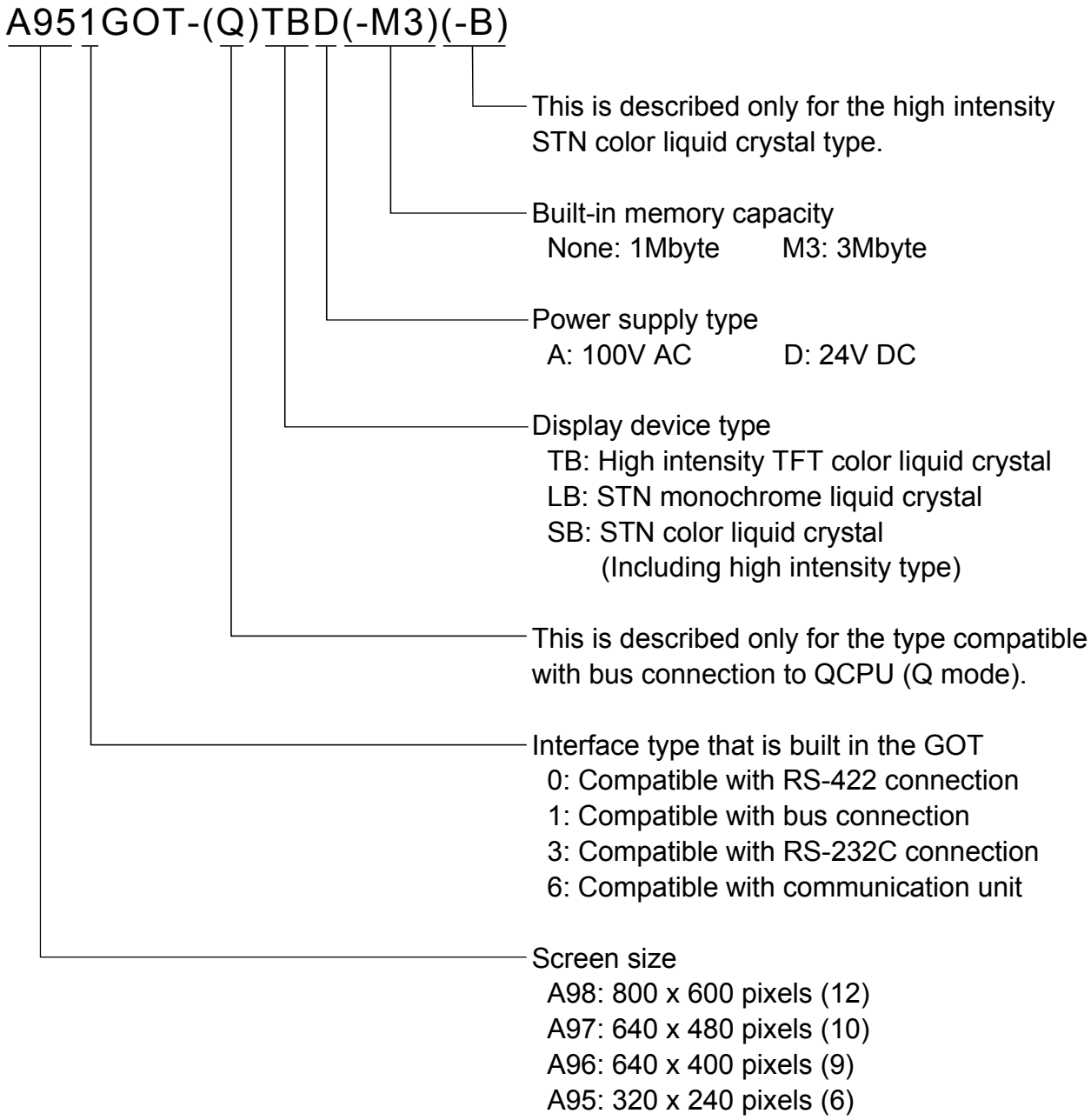
*1: This dimension is between 195mm (7.68) maximum and 80mm (3.15) minimum depending on the optional fiber cable and connector connected.

*2: This dimension is between 80mm (3.15) maximum and 73mm (2.87) minimum depending on the coaxial cable connected.

Appendix 3 GOT Model Name

Each section of A950GOT/ A951GOT/ A953GOT/ A956GOT model name shows the GOT specifications as shown below.

Example) A951GOT-QTBD-M3-B



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