

GOT Series

Human Machine Interface

User's Manual

GT15-75J61BT13-Z

●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. 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 accident according to the circumstances.

Always follow the precautions 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

- Some faults of this unit may keep the outputs on or off. An external monitoring circuit should therefore be provided to check for output signals which may lead to a serious accident.
Not doing so can cause an accident due to mis-output or misoperation.
- If a communication error (including cable disconnection) occurs during monitoring with the GOT, communication between the GOT and master station is interrupted, disabling operation.
When using the GOT to configure a system, assume that a GOT communication error will occur and configure a system in which switches used to perform significant operation for the system are provided on any device other than the GOT.
Not doing so can cause an accident due to mis-output or misoperation.

CAUTION

- Do not bunch the control wires or communication cables with the main circuit or power wires, or lay them close to each other.
As a guide, separate the lines by a distance of at least 100 mm (3.94 inch) otherwise malfunctions may occur due to noise.

[INSTALLATION PRECAUTIONS]

DANGER

- Be sure to shut off all phases of the external power supply used by the system before mounting or removing this unit to/from the GOT.
Not doing so can cause a unit failure or misoperation.

[INSTALLATION PRECAUTIONS]

CAUTION

- Use this unit in the environment given in the general specifications of the GT15 User's Manual.
Not doing so can cause an electric shock, fire, malfunction or product damage or deterioration.
- When installing this unit to the GOT, 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 screw or unit damage.

[WIRING PRECAUTIONS]

DANGER

- Be sure to shut off all phases of the external power supply used by the system before wiring.
Not doing so can cause an electric shock, product damage or misoperation.

CAUTION

- When switching power on or starting operation after mounting, wiring or other work, always fit the terminal cover supplied to the product.
Not doing so can cause an electric shock, short circuit or failure.
- Always ground the FG terminal of the GOT power supply and the FG1 terminal of this unit to the protective ground conductor.
Be sure to ground the GOT and this unit separately.
Not doing so may cause an electric shock or misoperation.
- Before wiring the unit, confirm the rated voltage and terminal arrangement of the product.
A fire or failure can occur if the power supply connected is different from the rating or wiring is incorrect.
- Use applicable solderless terminals and tighten them with the specified torque. If any solderless spade terminal is used, it may be disconnected when the terminal screw comes loose, resulting in failure.

[WIRING PRECAUTIONS]

CAUTION

- Be sure to tighten any unused terminal screws within a tightening torque range (0.36 to 0.48•Nm).
Failure to do so may cause a short circuit due to contact with a solderless terminal.
- Tighten the terminal screws within the specified torque range.
Undertightening can cause a short circuit or misoperation.
Overtightening can cause a short circuit or misoperation due to damaged screws or unit.
- Ensure that foreign matters such as chips and wire off-cuts do not enter the unit.
They can cause a fire, failure or misoperation.
- Be sure to fix the wires or cables by ducts or clamps when connecting them to the unit.
Not doing so can damage the unit or cables due to dangling, moved or accidentally pulled cables or can cause misoperation due to cable contact fault.
- Do not install the control lines together with the communication cables, or bring them close to each other.
Failure to do so may cause malfunctions due to noise.
- When disconnecting a communication or power supply cable from the unit, do not pull on the cable itself.
Disconnect cables fitted with connectors by holding and pulling the cable connector. Disconnect cables not fitted with a connector by removing the screws from the part connected to the unit.
Pulling on a cable that is connected to the unit can cause damage to the unit or cable, or malfunction due to cable connection faults.

[TEST OPERATION PRECAUTIONS]

DANGER

- Do not output (switch on) any reserved signal among the output signals provided from the master unit to the GOT.
Doing so can cause the PLC system to misoperate.

[STARTUP AND MAINTENANCE PRECAUTIONS]

DANGER

- Do not touch the terminals while power is on.
Doing so can cause an electric shock or misoperation.
- Before starting cleaning or terminal screw retightening, always switch power off externally in all phases.
Not doing so can cause a unit failure or misoperation.
Undertightening can cause a drop, short circuit or misoperation.
Overtightening can cause a drop, short circuit or misoperation due to damaged screws or unit.

CAUTION

- Do not disassemble or modify the unit.
Doing so can cause a failure, misoperation, injury or fire.
- Do not touch the conductive areas and electronic parts of the unit.
Doing so can cause the unit to misoperate or fail.
- Do not change any switch setting while power is on.
Doing so can cause a failure or misoperation.
- Do not drop the unit or subject it to strong impact.
Doing so can damage the unit.
- Always make sure to touch the grounded metal to discharge the electricity charged in the body, etc., before touching the unit.
Failure to do so may cause a failure or malfunctions of the unit.

[DISPOSAL PRECAUTIONS]

CAUTION

- Dispose of this product as industrial waste.

[TRANSPORTATION PRECAUTIONS]

CAUTION

- Make sure to transport the GOT main unit and/or relevant unit(s) in the manner they will not be exposed to the impact exceeding the impact resistance described in the general specifications of the GT15 User's Manual, as they are precision devices.
Failure to do so may cause the unit to fail.
Check if the unit operates correctly after transportation.

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Manuals

The following shows manuals relevant to this product.

Detailed Manual

Manual name	
GT15 User's Manual	(Option)
GOT1000 Connection Manual	(Option)

Relevant Manuals

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

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1. Overview

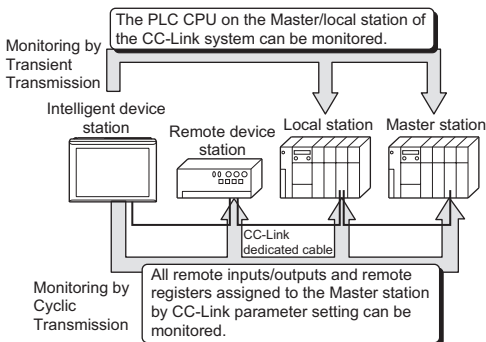
This user's manual introduces the GT15 CC-Link communication unit (hereinafter referred to as GT15-75J61BT13-Z) used in the Control & Communication Link system (hereinafter referred to as CC-Link).

GT15-75J61BT13-Z is configured with the A8GT-J61BT13 CC-Link communication unit (hereinafter referred to as A8GT-J61BT13) and interface converter unit (hereinafter referred to as GT15-75IF900).

After unpacking the box of GT15-75J61BT13-Z, please check if the following items are contained.

Product name	Model name	Quantity
CC-Link communication unit	(A8GT-J61BT13)	1
Interface converter unit	(GT15-75IF900)	1
Fixing bracket for communication unit	-	3

The A8GT-J61BT13 can be connected to the GOT with the GT15-75IF900, which can perform monitoring as an intelligent device station (number of occupied stations selectable from 1 station / 4 stations) in the CC-Link system.



2. Performance Specifications

The following is the performance specification of CC-Link communication unit. For the general specifications of CC-Link communication unit, refer to the GT15 User's Manual.^{*1}

Item		Specifications
CC-Link station type		Intelligent device station
Number of stations occupied		May be selected between 1 and 4. 1 station : RX/Ry 32 points each ^{*2} , RW write area 4 points each/read area all area 4 stations : RX/Ry 128 points each ^{*2} , RW write area 16 points each /read area all area
Monitor device	Monitoring by cyclic transmission	Write from GOT : RX, RWs assigned to the GOT (depending on the number of stations occupied (Refer to upper)) Read to GOT : RX/Ry (2048 points), RWw/RWr (512points)
	Monitoring by transient transmission	All devices of the PLC CPU on the Master/local station.
Transmission speed		156kbps/625kbps/2.5Mbps/5Mbps/10Mbps
Max. transmission distance		Depends on the transmission speed.
Max. number of modules connected		26 The max. number of modules connected depends on the configuration of the CC-Link system to be used. For more details on the max. number of modules connected, refer to the CC-Link System Master-Local Module User's Manual.
Connection cable		CC-Link dedicated cable
Terminal block		8-pin terminal block (M3 x 8 screws)
Applicable cable size		0.75mm ² to 2.00mm ²
Applicable crimping terminal		RAV1.25-3, RAV2-3.5 (conforming to JIS C2805)
Internal current consumption (DC5V)		0.27A in total with GT15-75IF900
Weight		0.36kg (0.79lb) in total with GT15-75IF900

*1 : The vibration resistance of the CC-Link communication unit is as follows. (Differs with the GT15.)

Item	Specifications					
Vibration resistance	Conforming to JIS B 3502, IEC 61131-2	Under intermittent vibration	10 to 57Hz	---	0.075mm (0.003inch)	10 times each in X, Y, Z directions (for 80 minch)
			57 to 150Hz	9.8m/s ²	---	
		Under continuous vibration	10 to 57Hz	---	0.035mm (0.001inch)	
			57 to 150Hz	4.9m/s ²	---	

*2 : Each of the I/O signals (RX, RY) occupies 16 points of a system area within device points.

For more details on the I/O signals, refer to Section 3.1.

3. I/O Signals and Remote Register Assignment

3.1 I/O Signals Transferred 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.

3.2 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).

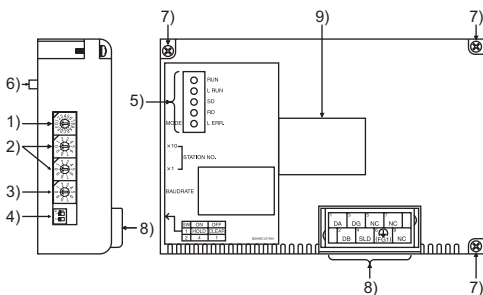
All areas are use areas.

m and n in the table indicate the addresses assigned to the Master module by station number setting.

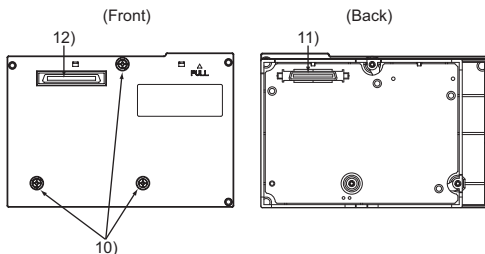
Transfer Direction	Addresses		Description	Default Value
	Number of occupied stations			
	1 station	4 stations		
Master station ↓ GOT	RWwm to RWwm+3	RWwm to RWwm+F	User write area	0
GOT ↓ Master station	RWrn to RWrn+3	RWrn to RWrn+F	User read area	0


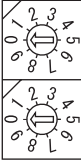


4. Part Names and the Settings

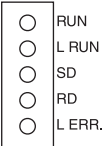
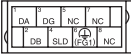
This section provides the names of the A8GT-J61BT13 and GT15-75IF900 parts and how to set the switches.



GT15-75IF900

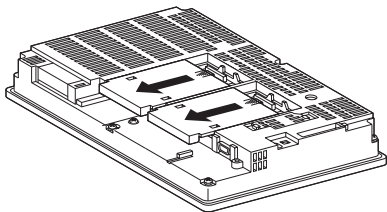


Number	Name	Description															
1)	Mode setting switch 	Used to set the operating status of the module. (Factory setting:0)															
		<table border="1"> <thead> <tr> <th>Number</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Online</td> <td>Data link enabled and automatic return made</td> </tr> <tr> <td>1</td> <td>(Reserved)</td> <td>-</td> </tr> <tr> <td>2</td> <td>Offline</td> <td>Disconnected from data link</td> </tr> <tr> <td>3 to F</td> <td>(Reserved)</td> <td>-</td> </tr> </tbody> </table>	Number	Name	Description	0	Online	Data link enabled and automatic return made	1	(Reserved)	-	2	Offline	Disconnected from data link	3 to F	(Reserved)	-
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		1	(Reserved)	-													
2	Offline	Disconnected from data link															
3 to F	(Reserved)	-															
2)	Station number setting switches 	Used to set the station number of the A8GT-J61BT13 between 1 and 64. (Factory setting: 01) Use "× 10" to set the tens. Use "× 1" to set the units.															
3)	Transmission baudrate setting switch 	Used to set the transmission speed of the module. (Factory setting:0)															
		<table border="1"> <thead> <tr> <th>Number to be Set</th> <th>Transmission Baudrate</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>156kbps</td> </tr> <tr> <td>1</td> <td>625kbps</td> </tr> <tr> <td>2</td> <td>2.5Mbps</td> </tr> <tr> <td>3</td> <td>5Mbps</td> </tr> <tr> <td>4</td> <td>10Mbps</td> </tr> <tr> <td>5 to 9</td> <td>Reserved (If the value you set is 5 to 9, the L.ERR LED is lit to indicate a communication error.)</td> </tr> </tbody> </table>	Number to be Set	Transmission Baudrate	0	156kbps	1	625kbps	2	2.5Mbps	3	5Mbps	4	10Mbps	5 to 9	Reserved (If the value you set is 5 to 9, the L.ERR LED is lit to indicate a communication error.)	
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4)	Condition setting switches 	Used to set the operational conditions. (Factory setting:OFF)															
		<table border="1"> <thead> <tr> <th rowspan="2">Number</th> <th rowspan="2">Setting Item</th> <th colspan="2">Switch Position</th> </tr> <tr> <th>ON</th> <th>OFF</th> </tr> </thead> <tbody> <tr> <td>SW1</td> <td>Input data status of faulty data link station</td> <td>Held</td> <td>Cleared</td> </tr> <tr> <td>SW2</td> <td>Number of occupied stations</td> <td>4 stations</td> <td>1 station</td> </tr> </tbody> </table>	Number	Setting Item	Switch Position		ON	OFF	SW1	Input data status of faulty data link station	Held	Cleared	SW2	Number of occupied stations	4 stations	1 station	
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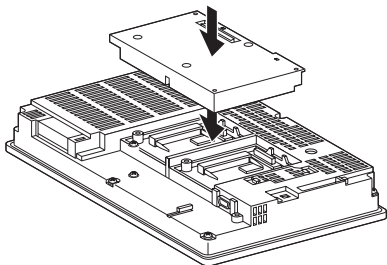
Number	Name	Description												
5)	Indicator LEDs 	Data link status can be conformed by the on/off statuses of the LEDs. <table border="1" data-bbox="373 165 935 569"> <thead> <tr> <th>LED Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>RUN LED</td> <td>On : Indicates that the module is normal. Off : Indicates a watchdog timer error.</td> </tr> <tr> <td>L RUN LED</td> <td>On : Indicates that communication is normal. Off : Indicates a communication break (time excess error).</td> </tr> <tr> <td>SD LED</td> <td>On : Indicates data transmission.</td> </tr> <tr> <td>RD LED</td> <td>On : Indicates data receive.</td> </tr> <tr> <td>L ERR. LED</td> <td>On : Indicates a communication data error (CRC error). Flicker : Indicates that any switch (1 to 4) position was changed while power is on. Off : Indicates that communication is normal.</td> </tr> </tbody> </table>	LED Name	Description	RUN LED	On : Indicates that the module is normal. Off : Indicates a watchdog timer error.	L RUN LED	On : Indicates that communication is normal. Off : Indicates a communication break (time excess error).	SD LED	On : Indicates data transmission.	RD LED	On : Indicates data receive.	L ERR. LED	On : Indicates a communication data error (CRC error). Flicker : Indicates that any switch (1 to 4) position was changed while power is on. Off : Indicates that communication is normal.
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6)	Connector	Connector for connection to the GOT												
7)	Module fixing screws	Screws for installation to the GOT (M3 × 3 screw)												
8)	Terminal block 	Terminal block for cable connection (M3 × 8 screw)												
9)	Rating plate	-												
10)	Mounting screw	Mounting screw to be fixed with the GOT main unit												
11)	Interface connector	Connector connecting to GOT												
12)	Extension connector	Connector connecting with A8GT-J61BT13												

5. Installation Procedure

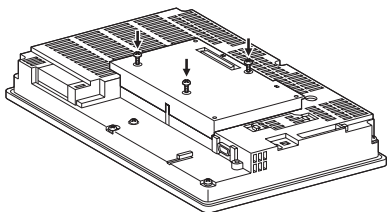
- (1) Power off the GOT.
- (2) Remove the two extension unit covers of the GOT.



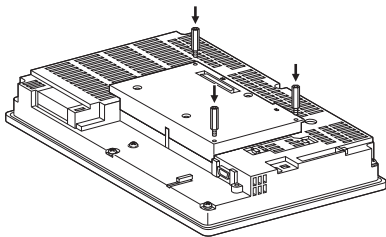
- (3) Fit the GT15-75IF900 along the groove of the GOT case.



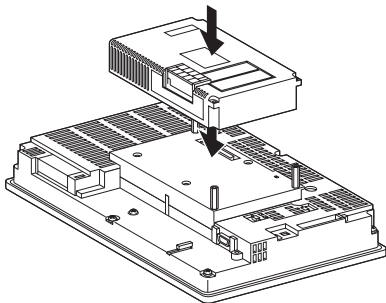
- (4) Fasten the GT15-75IF900 by tightening its mounting screws (3 places) with tightening torque 0.36 to 0.48 N•m.



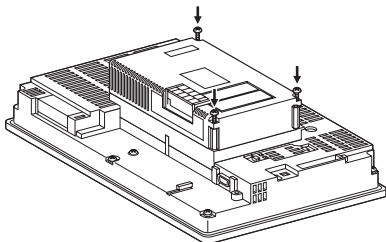
- (5) Attach the communication unit fixing brackets (3 places) to GT15-75IF900, then fasten them with tightening torque of 0.36 to 0.48 N•m.



- (6) Mount the A8GT-J61BT13 to GT15-75IF900.



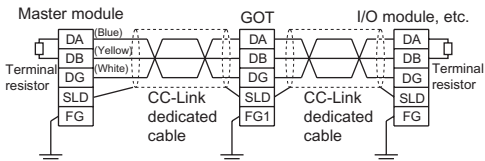
- (7) Fasten the unit fixing brackets (3 places) with tightening torque of 0.36 to 0.48N•m.



6. Wiring Method

The following diagram shows how to wire the GOT and CC-Link system modules.

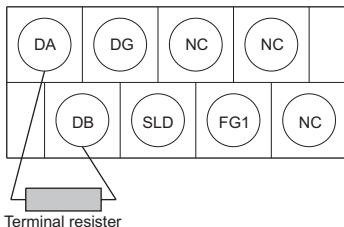
- (1) Wiring the GOT and CC-Link system modules by CC-Link dedicated cable



- (2) Connection of terminal resistor to the GOT

When connecting a terminal resistor to the GOT, always connect it in the following position.

The terminal resistor is contained in the package of the Master module.

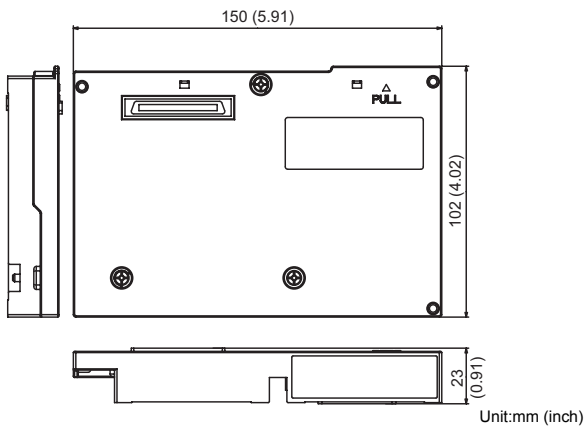


POINT

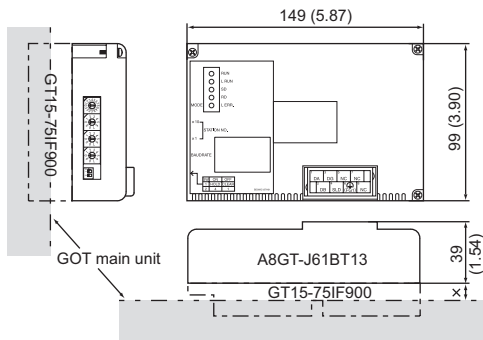
- Tighten terminal block terminal screws (M3 screw) with the tightening torque of 0.36 to 0.48N•m.
- Tighten terminal block mounting screws (M3.5 screw) with the tightening torque of 0.59 to 0.88N•m.
- The "terminal resistors" supplied with the Master module must be connected to the modules at both ends of data link. (Connect them across DA-DB.)
- Connect the shield wire of the CC-Link dedicated cable to "SLD" of each module.
Since "SLD" is connected to "FG/FG1" internally, always ground the FG terminal and FG1 terminal to the protective ground conductor.
- The FG terminal of the GOT power supply and the FG1 terminal of the A8GT-J61BT13 must be connected separately.

7. External Dimensions

(1) GT15-75IF900



(2) A8GT-J61BT13



Dimensions of X when mounted to the GOT.

8.4"	15.5 (0.61)
10.4", 12.1"	13.5 (0.53)

Unit:mm (inch)

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