MITSUBISHI

# GT15 CC-Link communication unit

## User's Manual

## GT15-75J61BT13-Z

Set of A8GT-J61BT13 and GT15-75IF900

Thank you for purchasing the GOT1000 Series.

Prior to use, please read both this manual and detailed manual thoroughly to fully understand the product.

| | |
|---|---|
| MODEL | GT15-75J61BT13-Z-U |
| MODEL CODE | 1D7M31 |
| IB(NA)-0800316-B(0512)MEE | |

GRAPHIC OPERATION TERMINAL

GOT1000

# ●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 termial of this unit to the protective ground conducter.
  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.<br>Failure to do so may cause the unit to fail.<br>Check if the unit operates correctly after transportation. |

**REVISIONS**

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

| Print Date | *Manual Number | Revision |
|---|---|---|
| Jan., 2005 | IB(NA)-0800316-A | First edition |
| Dec., 2005 | IB(NA)-0800316-B | Description of the front cover is reviewed. |

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

© 2005 MITSUBISHI ELECTRIC CORPORATION

## CONTENTS

## 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.

© 2005 MITSUBISHI ELECTRIC CORPORATION

# 1. Overview

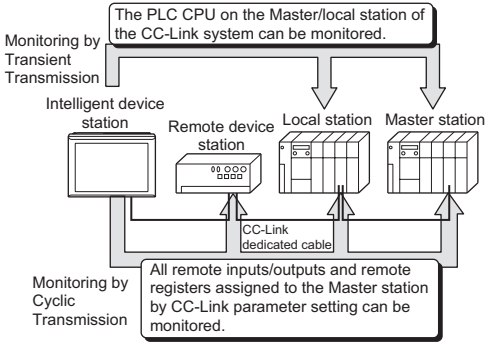
This user's manual introduces the GT15 CC-Link communication unit (hereinafter referred to as GT15-75J61BT13-Z) used in the Control & Communication Link system (hereinafter referred to as CC-Link).

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.<br>1 station : RX/RY 32 points each[*2], RW write area 4 points each/read area all area<br>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))<br>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<br>The max. number of modules connected depends on the configuration of the CC-Link system to be used.<br>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 × 8 screws) |
| Applicable cable size | | 0.75mm$^2$ to 2.00mm$^2$ |
| Applicable crimping terminal | | RAV1.25-3, RAV2-3.5<br>(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 | | | | | |
|---|---|---|---|---|---|---|
| | | | Frequency | Acceleration | Amplitude | Sweep count |
| 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.

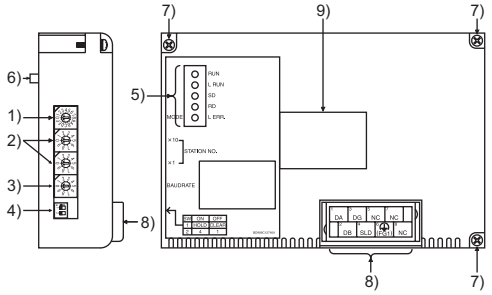
## 3.2 Remote Register Assignment

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.

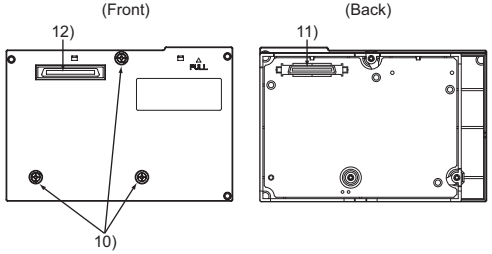
| Transfer Direction | Addresses | | Description | Default Value |
|---|---|---|---|---|
| | Number of occupied stations | | | |
| | 1 station | 4 stations | | |
| Master station ↓ GOT | RWwm to RWwm+3 | RWwm to RWwm+F | User write area | 0 |
| GOT ↓ Master station | RWrn to RWrn+3 | RWrn to RWrn+F |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

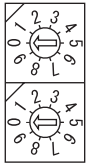
## 4. Part Names and the Settings

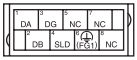
This section provides the names of the A8GT-J61BT13 and GT15-75IF900 parts and how to set the switches.




GT15-75IF900



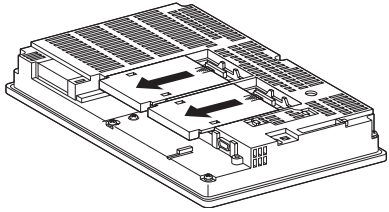
<table>
<tr><th>Number</th><th>Name</th><th>Description</th></tr>
<tr><td>1)</td><td>Mode setting switch<br>  </td><td>Used to set the operating status of the module.<br>(Factory setting:0)
<table>
<tr><th>Number</th><th>Name</th><th>Description</th></tr>
<tr><td>0</td><td>Online</td><td>Data link enabled 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>
</table></td></tr>
<tr><td>2)</td><td>Station number setting switches<br>  </td><td>Used to set the station number of the A8GT-J61BT13 between 1 and 64. (Factory setting: 01)<br>Use "×10" to set the tens.<br>Use "×1" to set the units.</td></tr>
<tr><td>3)</td><td>Transmission baudrate setting switch<br>  </td><td>Used to set the transmission speed of the module.<br>(Factory setting:0)
<table>
<tr><th>Number to be Set</th><th>Transmission Baudrate</th></tr>
<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>
</table></td></tr>
<tr><td>4)</td><td>Condition setting switches<br>  </td><td>Used to set the operational conditions. (Factory setting:OFF)
<table>
<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>
<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>
</table></td></tr>
</table>

<table>
<tr><th>Number</th><th>Name</th><th>Description</th></tr>
<tr><td>5)</td><td>Indicator LEDs<br> 
</td><td>Data link status can be conformed by the on/off statuses of the LEDs.
<table>
<tr><th>LED Name</th><th>Description</th></tr>
<tr><td>RUN LED</td><td>On : Indicates that the module is normal.<br>Off : Indicates a watchdog timer error.</td></tr>
<tr><td>L RUN LED</td><td>On : Indicates that communication is normal.<br>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).<br>Flicker : Indicates that any switch (1 to 4) position was changed while power is on.<br>Off : Indicates that communication is normal.</td></tr>
</table></td></tr>
<tr><td>6)</td><td>Connector</td><td>Connector for connection to the GOT</td></tr>
<tr><td>7)</td><td>Module fixing screws</td><td>Screws for installation to the GOT (M3 × 3 screw)</td></tr>
<tr><td>8)</td><td>Terminal block<br> 
</td><td>Terminal block for cable connection (M3 × 8 screw)</td></tr>
<tr><td>9)</td><td>Rating plate</td><td>-</td></tr>
<tr><td>10)</td><td>Mounting screw</td><td>Mounting screw to be fixed with the GOT main unit</td></tr>
<tr><td>11)</td><td>Interface connector</td><td>Connector connecting to GOT</td></tr>
<tr><td>12)</td><td>Extension connector</td><td>Connector connecting with A8GT-J61BT13</td></tr>
</table>

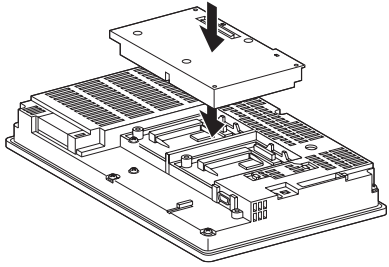
## 5. Installation Procedure

(1) Power off the GOT.

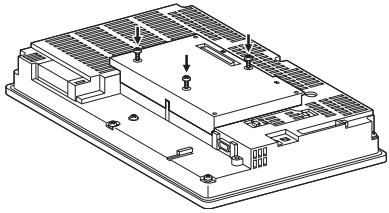
(2) Remove the two extension unit covers of the GOT.



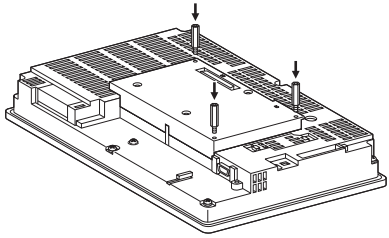
(3) Fit the GT15-75IF900 along the groove of the GOT case.



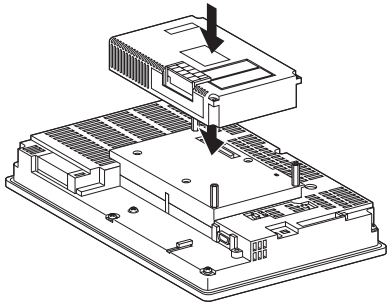
(4) Fasten the GT15-75IF900 by tightening its mounting screws (3 places) with tightening torque 0.36 to 0.48 N•m.



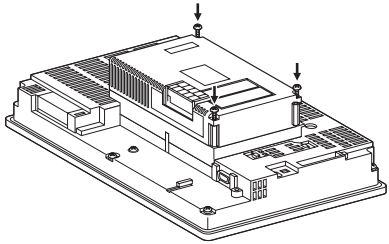
(5) Attach the communication unit fixing brackets (3 places) to GT15-75IF900, then fasten them with tightening torque of 0.36 to 0.48 N•m.



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



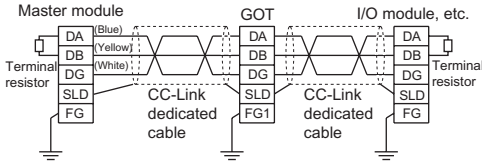
(7) Fasten the unit fixing brackets (3 places) with tightening torque of 0.36 to 0.48N•m.



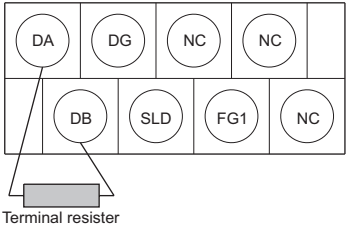
## 6. Wiring Method

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.

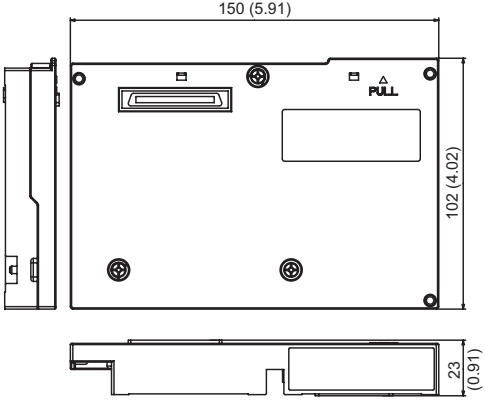



**POINT**

- 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.

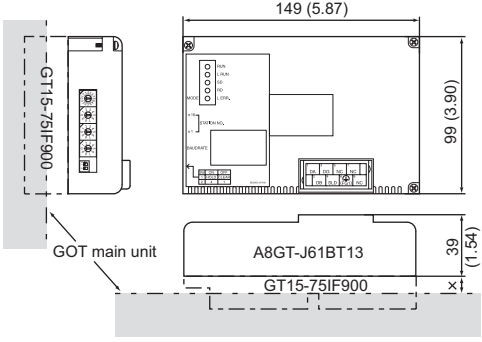
## 7. External Dimensions

(1) GT15-75IF900




Unit:mm (inch)

(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)

## Warranty

Mitsubishi will not be held liable for damage caused by factors found not to be the cause of Mitsubishi; machine damage or lost profits caused by faults in the Mitsubishi products; damage, secondary damage, accident compensation caused by special factors unpredictable by Mitsubishi; damages to products other than Mitsubishi products; and to other duties.

## ⚠For safe use

- This product has been manufactured as a general-purpose part for general industries, and has not been designed or manufactured to be incorporated in a device or system used in purposes related to human life.
- Before using the product for special purposes such as nuclear power, electric power, aerospace, medicine or passenger movement vehicles, consult with Mitsubishi.
- This product has been manufactured under strict quality control. However, when installing the product where major accidents or losses could occur if the product fails, install appropriate backup or failsafe functions in the system.


| Country/Region | Sales office/Tel |
|---|---|
| U.S.A | Mitsubishi Electric Automation Inc.<br>500 Corporate Woods Parkway Vernon Hills, IL 60061<br>Tel : +1-847-478-2100 |
| Brazil | MELCO-TEC Rep. Com.e Assessoria Tecnica Ltda.<br>Rua Correia Dias, 184,<br>Edificio Paraiso Trade Center-8 andar<br>Paraiso, Sao Paulo, SP Brazil<br>Tel : +55-11-5908-8331 |
| Germany | Mitsubishi Electric Europe B.V. German Branch<br>Gothaer Strasse 8 D-40880 Ratingen, GERMANY<br>Tel : +49-2102-486-0 |
| U.K | Mitsubishi Electric Europe B.V. UK Branch<br>Travellers Lane, Hatfield, Herts., AL10 8XB,UK<br>Tel : +44-1707-276100 |
| Italy | Mitsubishi Electric Europe B.V. Italian Branch<br>Centro Dir. Colleoni, Pal. Perseo-Ingr.2<br>Via Paracelso 12, 20041 Agrate B., Milano, Italy<br>Tel : +39-039-6053344 |
| Spain | Mitsubishi Electric Europe B.V. Spanish Branch<br>Carretera de Rubi 76-80<br>08190 Sant Cugat del Valles, Barcelona, Spain<br>Tel : +34-93-565-3131 |
| France | Mitsubishi Electric Europe B.V. French Branch<br>25 Boulevard des Bouvets, F-92741 Nanterre Cedex, France<br>TEL: +33-1-5568-5568 |
| South Africa | Circuit Breaker Industries LTD.<br>Tripswitch Drive, Elandsfontein Gauteng, South Africa<br>Tel : +27-11-928-2000 |

| Country/Region | Sales office/Tel |
|---|---|
| Hong Kong | Ryoden Automation Ltd.<br>10th Floor, Manulife Tower, 169 Electric Road, North Point, HongKong<br>Tel : +852-2887-8870 |
| China | Ryoden Automation Shanghai Ltd.<br>3F Block5 Building Automation Instrumentation Plaza 103 Cao Bao Rd. Shanghai 200233 China<br>Tel : +86-21-6120-0808 |
| Taiwan | Setsuyo Enterprise Co., Ltd.<br>6F,, No.105 Wu-Kung 3rd.RD, Wu-Ku Hsiang, Taipei Hsine, Taiwan<br>Tel : +886-2-2299-2499 |
| Korea | HAN NEUNG TECHNO CO.,LTD.<br>1F Dong Seo Game Channel Bldg., 660-11, Deungchon-dong Kangsec-ku, Seoul, Korea<br>Tel : +82-2-3660-9552 |
| Singapore | Mitsubishi Electric Asia Pte, Ltd.<br>307 Alexandra Road #05-01/02, Mitsubishi Electric Building Singapore 159943<br>Tel : +65-6473-2308 |
| Thailand | F. A. Tech Co.,Ltd.<br>898/28,29,30 S.V.City Building,Office Tower 2, Floor 17-18 Rama 3 Road, Bangkpongpang, Yannawa, Bangkok 10120<br>Tel : +66-2-682-6522 |
| Indonesia | P.T. Autoteknindo SUMBER MAKMUR<br>Jl. Muara Karang Selatan Block a Utara No.1 Kav. No.11 Kawasan Industri/ Pergudangan Jakarta - Utara 14440<br>Tel : +62-21-663-0833 |
| India | Messung Systems Put,Ltd.<br>Electronic Sadan NO:111 Unit No15, M.I.D.C BHOSARI,PUNE-411026, India<br>Tel : +91-20-712-2807 |
| Australia | Mitsubishi Electric Australia Pty. Ltd.<br>348 Victoria Road, PostalBag, No 2, Rydalmere, N.S.W 2116, Australia<br>Tel : +61-2-9684-7777 |

**MITSUBISHI ELECTRIC CORPORATION**

HEAD OFFICE : TOKYO BUILDING, 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
NAGOYA WORKS : 1-14, YADA-MINAMI 5-CHOME, HIGASHI-KU, NAGOYA, JAPAN


When exported from Japan, this manual does not require application to the Ministry of Economy, Trade and Industry for service transaction permission.


Specifications subject to change without notice.
Printed in Japan on recycled paper.