

mitsubishi

MELSECNET/H

Network Module

User's Manual
(Hardware)

QJ71LP21GE
QJ72LP25GE

Thank you for buying the Mitsubishi general-purpose programmable logic controller MELSEC-Q Series

Prior to use, please read both this manual and detailed manual thoroughly and familiarize yourself with the product.

MELSEC-Q

Mitsubishi Programmable
Logic Controller

MODEL	Q-LPGE-U-HW-E
MODEL CODE	13JR34
IB(NA)-0800183-A(0103)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.

Precautionary notes in this manual cover only the installation of this product. For precautions on designing and discarding this product, refer to "Safety Precautions" in the MELSECNET/H Reference Manual.

For safety precautions on the PLC system, refer to the CPU User's Manual.


In this manual, the safety instructions are ranked as "DANGER" and "CAUTION".



Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.



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.

[INSTALLATION PRECAUTIONS]

CAUTION

- Use the PLC in an environment that meets the general specifications contained in CPU module user's manual.
Using this PLC in an environment outside the range of the general specifications may cause electric shock, fire, malfunction, and damage to or deterioration of the product.
- Insert the module's mounting latch into the base unit's mounting cutout while pressing the module's loading lever, which is located at the bottom of the module. Improper installation may result in a malfunction or breakdown, or may cause the module to fall off.
To install the module in a place subject to strong vibration or impact, secure it with mounting.
- Tighten the screw within the range of specified torque.
Loose screws may result in malfunctioning or cause the module to fall off.
If the screws are too tight, it may damage the screws, and as a result the module may malfunction or fall off.
- Switch all phases of the external power supply off when mounting or removing the module.
Not doing so may cause damage of the product.
- Do not directly touch the conductive area or electronic components of the module.
Doing so may cause malfunction or failure in the module.

[WIRING PRECAUTIONS]

DANGER

- Switch all phases of the external power supply of the whole system off when installing or placing wiring.
Not doing so may cause electric shock or damage to the product.

CAUTION

- Solder the coaxial cable's connector properly.
Improper soldering may cause the module to malfunction.
- Be careful not to let foreign matters such as sawdust or wire chips get inside the module.
These may cause fires, failure or malfunction.
- The top surface of the module is covered with protective film to prevent foreign objects such as cable offcuts from entering the module when wiring.
Do not remove this film until the wiring is complete.
Before operating the system, be sure to remove the film to provide adequate heat ventilation.
- Be sure to fix communication cables or power cables leading from the module by placing them in the duct or clamping them.
Cables not placed in the duct or without clamping may hang or shift, allowing them to be accidentally pulled, which may cause a module malfunction and cable damage.
- When removing the communication cable or power cables from the module, do not pull the cable. When removing the cable with a connector, hold the connector on the side that is connected to the module.
When removing the cable connected to the terminal block, first loosen the screws on the terminal block.
Pulling the cable that is still connected to the module may cause malfunction or damage to the module or cable.

About the Manuals

The following manuals are also related to this product.
In necessary, order them by quoting the details in the tables below.

Related Manuals

Manual name	Manual No. (Model code)
Q corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network)	SH-080049 (13JF92)
Q corresponding MELSECNET/H Network System Reference Manual (Remote I/O network)	SH-080124 (13JF96)
Q/QnA/Q4AR corresponding MELSECNET/10 Network System Reference Manual	IB-66690 (13JF78)

Conformation to the EMC Directive and Low Voltage Instruction

For details on making Mitsubishi PLC conform to the EMC directive and low voltage instruction when installing it in your product, please refer to Chapter 3,"EMC Directive and Low Voltage Instruction" of the PLC CPU User's Manual(Hardware).

The CE logo is printed on the rating plate on the main body of the PLC that conforms to the EMC directive and low voltage instruction

1. Overview

This manual explains how to handle the MELSECNET/H network module, model numbers QJ71LP21GE and QJ72LP25GE (hereinafter referred to as the network module).

After unpacking the network module, confirm that the following products are enclosed.

Model number	Description	Quantity
QJ71LP21GE	Model QJ71LP21GE MELSECNET/H network module (optical link type)	1
QJ72LP25GE	Model QJ72LP25GE MELSECNET/H network module (optical link type)	1

2. Performance Specifications

2.1 Performance specifications for the network module.

(1) QJ71LP21GE

Item		Specifications	
Maximum number of link points per network			MELSECNET/H mode *1 (PLC to PLC network/ Remote I/O network)
			MELSECNET/10 mode *1 (PLC to PLC network)
		LX/LY	8192 points
		LB	19383 points
		LW	19383 points
Maximum number of link points per station	PLC to PLC network	$\{(LB + LY) / 2 + LW \times 2\} \leq 2000$ bytes	
	Remote I/O network	Remote master station to Remote I/O station Remote I/O station to Remote Master station $\{(LB + LY) / 2 + LW \times 2\} \leq 1600$ bytes	
Communication speed		10Mbps	
Communication method		Token ring	
Synchronous method		Frame synchronous method	
Transmission path format		Duplex loop	
Maximum number of networks		239	
Maximum number of groups		32	
Number of connected stations	PLC to PLC network	64 stations (control station: 1, normal station: 63)	
	Remote I/O network	65 stations (Remote master station: 1, Remote I/O station: 64)	
Overall distance		30 km (98430 ft.)	
Distance between stations		62.5GII optical cable: 2km (6562 ft.)	
Connection cable		Optical fiber cable (Arranged by user *2)	
Applicable connector		2-core optical connector plug (Arranged by user *2)	
Number of I/O occupied points		32 points (I/O assignment: intelligent 32 points)	
5 VDC current consumption (A)		0.55	
External dimensions (mm (in.))		98 (3.86) (H) × 27.4 (1.08) (W) × 90 (3.54) (D)	
Weight (kg)		0.11	

(2) QJ72LP25GE

Item	Specifications	
Maximum number of link points per network	LX/LY	8192 points
	LB	16383 points
	LW	16383 points
Maximum number of link points per station	Remote master station to Remote I/O station Remote I/O station to Remote Master station $\{(LB + LY) / 2 + LW \times 2\} \leq 1600$ bytes	
Maximum number of link points per station	$X + Y \leq 4096$ point When X/Y number overlaps, only one side becomes the object of the point.	
Communication speed	10Mbps	
Communication method	Token ring	
Synchronous method	Frame synchronous method	
Transmission path format	Duplex loop	
Maximum number of networks	239	
Maximum number of groups	32	
Number of connected stations	65 stations (Remote master station: 1, Remote I/O station: 64)	
Overall distance	30 km (98430 ft.)	
Distance between stations	62.5G optical cable: 2km (6562 ft.)	
Connection cable	Optical fiber cable (Arranged by user *2)	
Applicable connector	2-core optical connector plug (Arranged by user *2)	
Base unit installation position	CPU slot	
5 VDC current consumption (A)	0.89	
External dimensions (mm (in.))	98 (3.86) (H) \times 27.4 (1.08) (W) \times 90 (3.54) (D)	
Weight (kg)	0.15	

*1: Mode selection is performed using network parameters.

*2: Specialised training and specific tools are required to connect the connector to the optical-fiber cable; the connector itself is a custom product. Please contact your nearest Mitsubishi Electric Europe GmbH when purchasing these items.

For general specifications of the network module, refer to the user's manual for the CPU that is to be used.

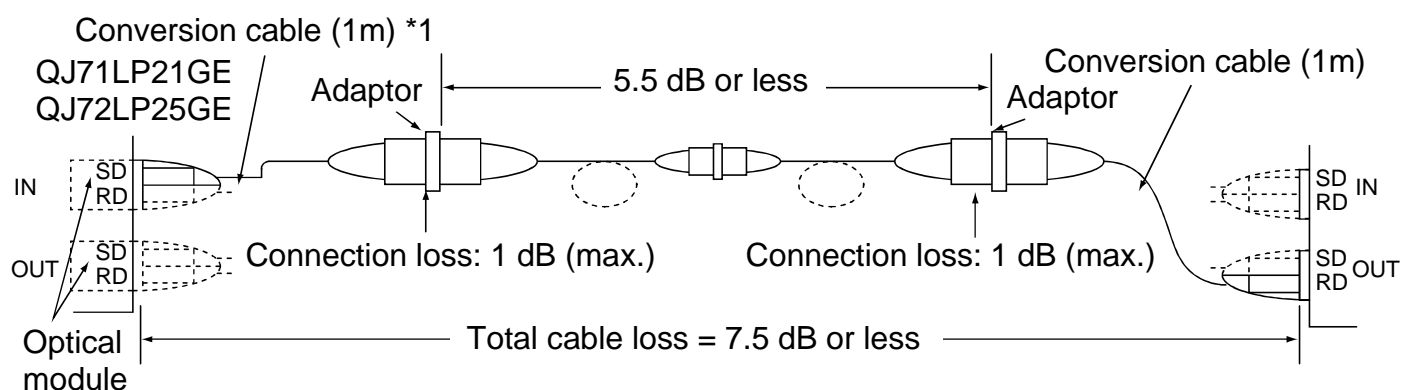
2.2 62.5GII type fiber-optic cable specifications

(1) Applicable cable specifications

- The specifications for the 62.5GII cable are given below.
- If you prepare a 62.5GII cable yourself, it must comply with the specifications indicated below.

Item	Specification
Fiber type	GI (graded index) type multimode quartz glass
Core diameter	62.5μm
Clad diameter	125μm
Transmission loss	3dB/km or less
Wave length	0.85μm
Transmission band	300 MHz km or more

(2) Cable loss



*1: Conversion cable

Conversion Type	Cable
CA type ↔ FC type	AGE-1P-CA/FC1.5M-A
CA type ↔ ST type	AGE-1P-CA/ST1.5M-A
CA type ↔ SMA type	AGE-1P-CA/SMA1.5M-A

Purchased from: Mitsubishi Electric Europe GmbH

3. Handling

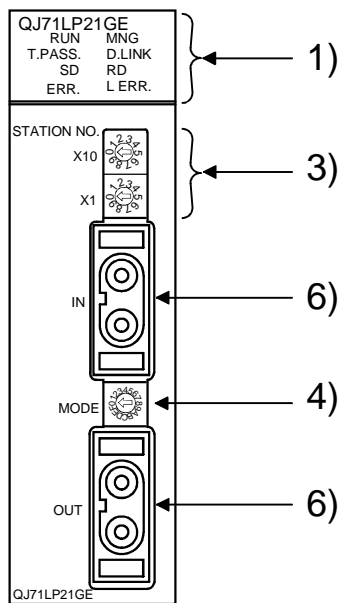
3.1 Handling Precautions

- (1) Since the module case is made of resin, do not drop it or subject it to strong impact.
- (2) The module can easily be secured to the base unit using the hooks located at the top of the module. However, if the module is to be placed in an area that is subject to strong vibration or impact, we recommend that it be secured with module mounting screws (provided by the user). In that case, tighten the module mounting screws within the following range.

Module mounting screws (M3 × 12): The range of clamping torque is 36 to 48 N·cm .

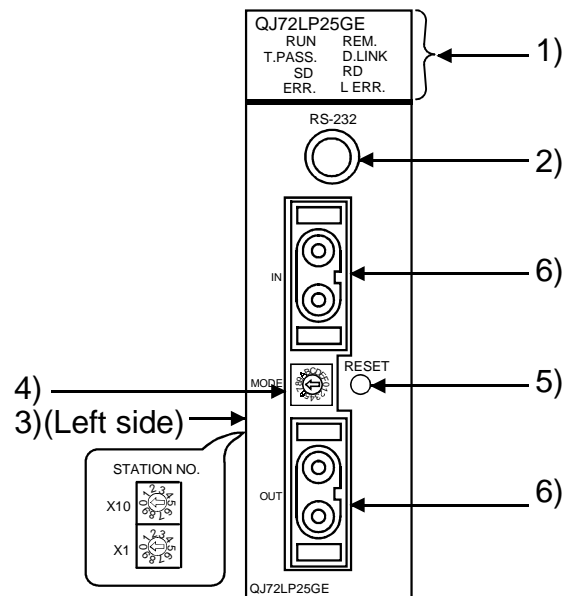
4. Part Identification Names

(a) QJ71LP21GE



Number	Name
1)	Display LED
2)	RS-232 connector
3)	Station number setting switches

(b) QJ72LP25GE



Number	Name
4)	Mode setting switch
5)	RESET switch
6)	Connector

(1) Display contents for LEDs

QJ71LP21GE	
RUN <input type="checkbox"/>	<input type="checkbox"/> MNG
T.PASS <input type="checkbox"/>	<input type="checkbox"/> D.LINK
SD <input type="checkbox"/>	<input type="checkbox"/> RD
ERR. <input type="checkbox"/>	<input type="checkbox"/> L.ERR.

QJ72LP25GE	
RUN <input type="checkbox"/>	<input type="checkbox"/> REM.
T.PASS <input type="checkbox"/>	<input type="checkbox"/> D.LINK
SD <input type="checkbox"/>	<input type="checkbox"/> RD
ERR. <input type="checkbox"/>	<input type="checkbox"/> L.ERR.

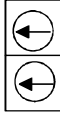
LED name	Display contents
RUN	On: Operating normally Off: WDT error occurred
T. PASS	On: Executing baton pass Flicker: Executing test Off: Baton pass not yet executed (host is disconnecting)
SD	On: Data being transmitted Off: Data not yet transmitting
ERR.	On: Setting error occurred Flicker: Error detected by a test Off: No setting error
MNG	On: Operating as a control station or sub control station Off: Operating as a normal station
REM.	On: Operating normally Flicker: Flash ROM is being written or the device of the parameter is being tested. Off: WDT error, Fuse break off, Unit verify error occurred.
D. LINK	On: Data link being executed Off: Data link not yet executed
RD	On: Data being received Off: Data not yet received
L. ERR.	On: Communication error occurred Off: No communication error

(2) Setting contents for each switch

(a) Station number setting switches

1) QJ71LP21GE

STATION NO.
10s unit → X10
1s unit → X1



Switch name	Setting content	Type	Setting range	Setting at time of shipment
Station number setting switches	Sets the station number	PLC to PLC network	1 to 64 Setting error for other than the above	1
		Remote I/O network	0: Remote master station Setting error for other than the above	

2) QJ72LP25GE

Switch name	Setting content	Setting range	Setting at time of shipment
Station number setting switches	Sets the station number	1 to 64: Remote I/O station Setting error for other than the above	1

(b) Mode setting switch

MODE



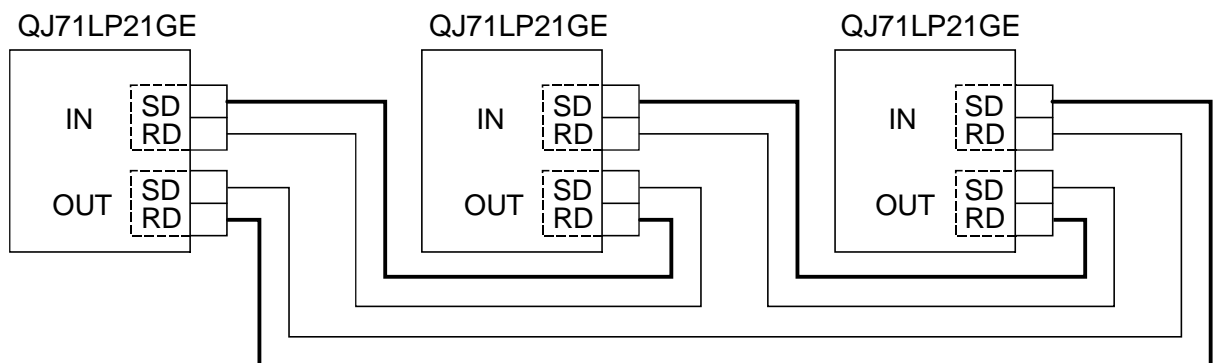
Switch name	Setting content	Type	Setting range	Setting at time of shipment
Mode setting switch *1	Sets the operating mode	PLC to PLC network • Remote I/O network	0: On-line 1: Self-loopback test 2: Internal self-loopback test 3: Hardware test 5 to F: Use prohibited	0

*1: Control station, normal station of PLC to PLC network or remote I/O network when making to online with Mode setting switch remote master station and remote I/O station is made the switch the same set.

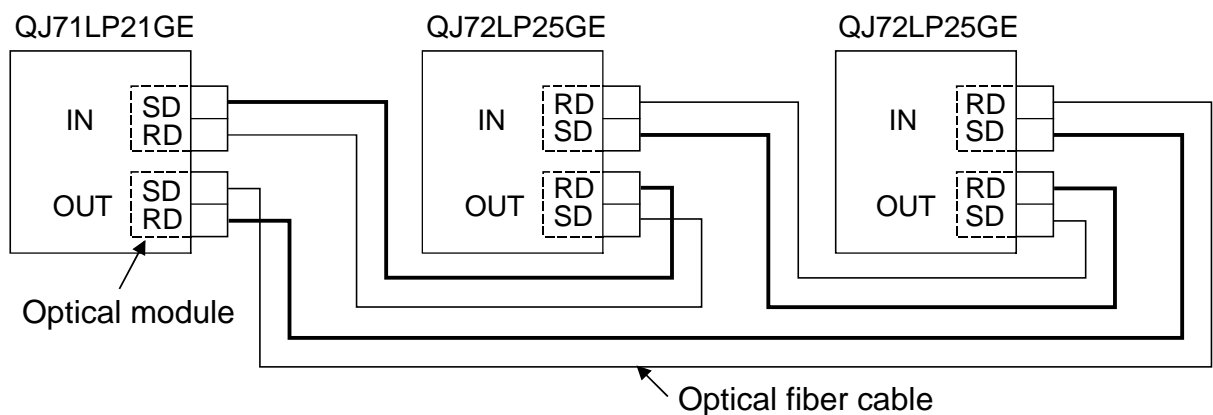
5. External Wiring

5.1 Precautions for Laying Optical Fiber Cables

- (1) When connecting an optical fiber cable, the following restrictions on the bending radius must be observed. Please confirm bending radius of the cable with the cable used.
- (2) Please maintain the optical fiber cable permissible bending radius with a checking tool.
Enquiries for the checking tool for optical fiber cable bending radius maintenance are handled by Mitsubishi Electric Europe GmbH. Please contact Mitsubishi Electric Europe GmbH for detail.
- (3) When laying the optical-fiber cable, do not touch the fiber core of the cable connector or module connector, or let dirt or dust collect on it.
If oil from the hands, dirt or dust should adhere to the core, the transmission loss will increase, causing a malfunction in the data link.
- (4) When attaching or detaching the optical-fiber cable to/from the module, hold the cable connector securely with the hands.
- (5) Connect the cable connector and module connector securely until you hear a "click" sound.
- (6) Connect the optical fiber cables as shown below.
 - (a) QJ71LP21GE-QJ71LP21GE

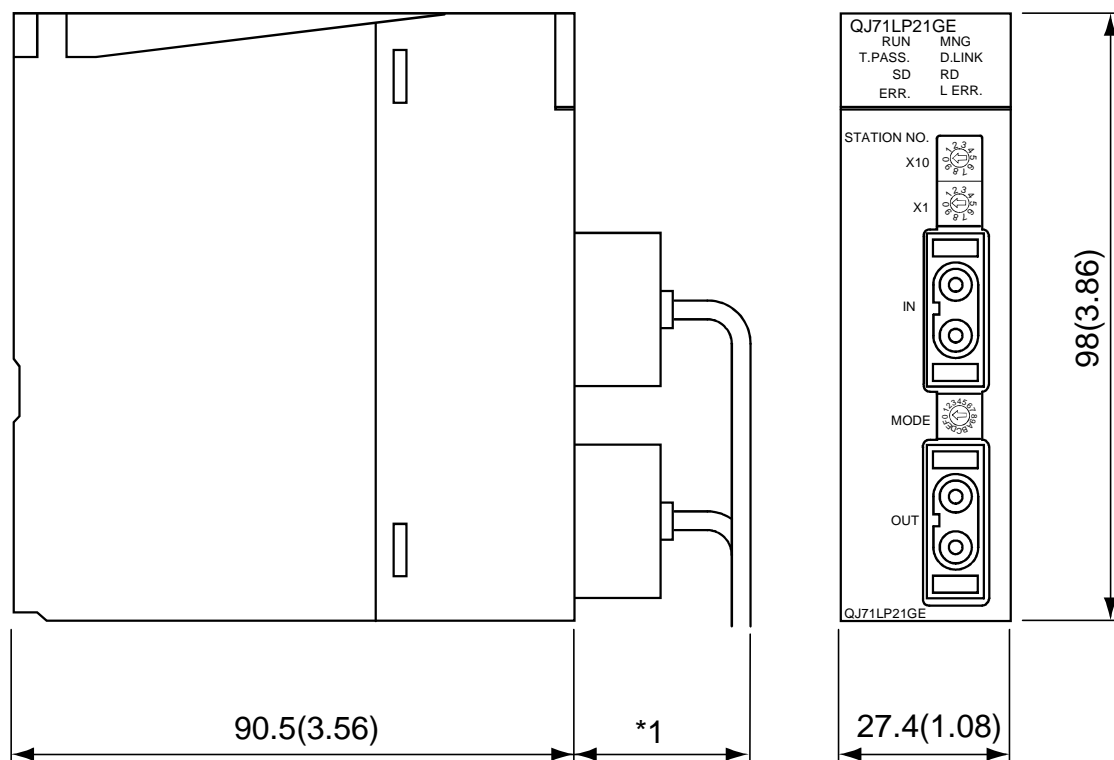


(b) QJ71LP21GE-QJ72LP25GE



6. External Dimensions Diagram

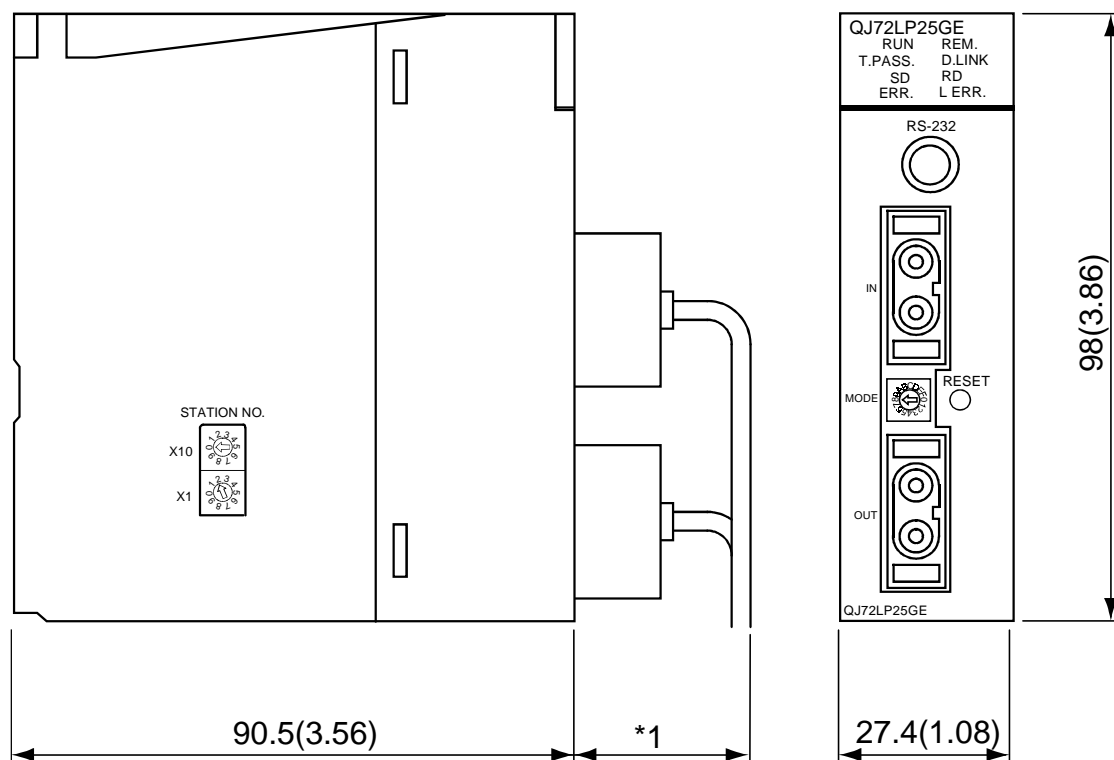
(1) QJ71LP21GE



*1: Please contact Mitsubishi Electric Europe GmbH for detail.

Unit: mm (in.)

(2) QJ72LP25GE



Unit: mm (in.)

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	Country/Region	Sales office/Tel
U.S.A	Mitsubishi Electric Automation Inc. 500 Corporate Woods Parkway Vernon Hills, IL 60061 Tel : 1-847-478-2100	China	Ryoden International Shanghai Ltd. 3F Block5 Building Automation Instrumentation Plaza 103 Cao Bao Rd. Shanghai 200233 China Tel : 86-21-6475-3228
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U.K	Mitsubishi Electric Europe B.V. UK Branch Travellers Lane, Hatfield, Herts., AL10 8XB,UK Tel : 44-1707-276100	Singapore	Mitsubishi Electric Asia Pte, Ltd. 307 ALEXANDRA ROAD #05-01/02, MITSUBISHI ELECTRIC BUILDING SINGAPORE 159943 Tel : 65-473-2480
Italy	Mitsubishi Electric Europe B.V. Italian Branch Centro Dir. Colleoni, Pal. Perseo - Ingr.2 Via Paracelso 12, 20041 Agrate B., Milano, Italy Tel:39-039-6053301	Thailand	F. A. Tech Co.,Ltd. 898/28,29,30 S.V.City Building,Office Tower 2,Floor 17-18 Rama 3 Road, Bangkokpong, Yannawa, Bangkok 10120 Tel : 66-2-682-6522
Spain	Mitsubishi Electric Europe B.V. Spanish Branch Pol. Ind. "Can Magi"- C/.Joan Buscalla, 2-4-A.C.420 08190 Sant Cugat del Valles, Barcelona, Spain Tel:34-935-653135	Indonesia	P.T. Autoteknindo SUMBER MAKMUR Jl. Muara Karang Selatan Block A Utara No.1 Kav. No.11 Kawasan Industri/ Pergudangan Jakarta - Utara 14440 Tel : 62-21-663-0833
South Africa	MSA Manufacturing (Pty) Ltd. P O Box 39733 Bramley 201 8 Johannesburg, South Africa Tel : 27-11-444-8080	India	Messung Systems Put,Ltd. Electronic Sadan NO:111 Unit No15, M.I.D.C BHOSARI,PUNE-411026 Tel : 91-20-7128927
Hong Kong	Ryoden International Ltd. 10th Floor, Manulife Tower, 169 Electric Road, North Point, HongKong Tel : 852-2887-8870	Australia	Mitsubishi Electric Australia Pty. Ltd. 348 Victoria Road, PostalBag, No 2, Rydalmere, N.S.W 2116, Australia Tel : 61-2-9684-7777



MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE:MITSUBISHI DENKI BLDG MARUNOUCHI TOKYO 100-8310 TELEX:J24532 CABLE MELCO TOKYO
NAGOYA WORKS:1-14, YADA-MINAMI 5, HIGASHI-KU, NAGOYA, JAPAN

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