

mitsubishi

MELSECNET/H

Network Module

User's Manual
(Hardware)

QJ72LP25-25, QJ72LP25G
QJ72BR15

Thank you for purchasing the Mitsubishi programmable 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
Controller

MODEL	NET/H-R-U-H
MODEL CODE	13JT17
IB(NA)-0800145-I(0809)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 programmable controller 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 programmable controller in the operating environment that meets the general specifications given in the CPU module used.
Using this programmable controller in an environment outside the range of the general specifications could result in electric shock, fire, erroneous operation, and damage to or deterioration of the product.
- While pressing the installation lever located at the bottom of module, insert the module fixing tab into the fixing hole in the base unit until it stops. Then, securely mount the module with the fixing hole as a supporting point.
Incorrect loading of the module can cause a malfunction, failure or drop.
When using the programmable controller in the environment of much vibration, tighten the module with a screw.
Tighten the screw 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 damage to the screw or module.
- Completely turn off the externally supplied power used in the system before mounting or removing the module.
Not doing so could result in damage to the product.
- For remote I/O stations of function version D or later, online module change can be performed. However, the modules which can be replaced online are limited, and replacement procedures are determined for each module.
For details, refer to the Q Corresponding MELSECNET/H Network System Reference Manual (Remote I/O network).
- Do not directly touch the module's conductive parts or electronic components.
Touching the conductive parts could cause an operation failure or give damage to the module.
- Before touching the module, always touch grounded metal, etc. to discharge static electricity from human body, etc. Not doing so can cause the module to fail or malfunction.

[Wiring Precautions]

DANGER

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

CAUTION

- Solder coaxial cable connectors properly. Incomplete soldering may result in malfunction.
- Be sure there are no foreign substances such as sawdust or wiring debris inside the module. Such debris could cause fires, damage, or erroneous operation.
- The module has an ingress prevention label on its top to prevent foreign matter, such as wire offcuts, from entering the module during wiring. Do not peel this label during wiring. Before starting system operation, be sure to peel this label because of heat dissipation.
- Make sure to place the communication and power cables to be connected to the module in a duct or fasten them using a clamp. If the cables are not placed in a duct or not fastened with a clamp, their positions may become unstable and may move, or they may be pulled inadvertently. This may damage the module and the cables or cause the module to malfunction because of faulty cable connections.
- When disconnecting a communication cable, do not pull it by holding the cable part.
To disconnect the cable, hold its connector that is plugged into the module. Pulling the cable part with the cable still connected to the module may damage the module and/or cable, or cause malfunctions due to poor cable contact.
- Install our programmable controller in a control panel for use. Wire the main power supply to the power supply module installed in a control panel through a distribution terminal block. Furthermore, the wiring and replacement of a power supply module have to be performed by a maintenance worker who acquainted with shock protection. (For the wiring methods, refer to QCPU User's Manual (Hardware Design, Maintenance and Inspection).)

Revisions

*The manual number is noted at the lower right of the top cover.

Print Date	*Manual Number	Revision
Sep., 2000	IB(NA)-0800145-A	First edition
Mar., 2001	IB(NA)-0800145-B	Model addition QJ72LP25G
May, 2004	IB(NA)-0800145-C	Partial correction SAFETY PRECAUTIONS, Compliance with the EMC Directive and the Low Voltage Directive, Chapter 2, Section 3.1, Chapter 4 (a), (b), (1), Chapter 5, 6
Aug., 2004	IB(NA)-0800145-D	Partial correction SAFETY PRECAUTIONS, Chapter 1, 2, 3, 4, 5, 6
Jan., 2005	IB(NA)-0800145-E	Partial correction Compliance with the EMC Directive and the Low Voltage Directive, Chapter 1, 2, 3, 6
Nov., 2005	IB(NA)-0800145-F	Partial correction Compliance with the EMC Directive and the Low Voltage Directive, Chapter 4
Mar., 2006	IB(NA)-0800145-G	Partial correction Chapter 2, 4
Mar., 2007	IB(NA)-0800145-H	Change of a term "PLC" was changed to "Programmable controller" Partial correction SAFETY PRECAUTIONS, Chapter 3, 4, 5
Sep., 2008	IB(NA)-0800145-I	Partial correction SAFETY PRECAUTIONS, Compliance with the EMC Directive and the Low Voltage Directive, Chapter 2, 4, 5, 6

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About 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 (Remote I/O network)	SH-080124 (13JF96)
Q corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network)	SH-080049 (13JF92)

Compliance with the EMC and Low Voltage Directives

(1) For programmable controller system

To configure a system meeting the requirements of the EMC and Low Voltage Directives when incorporating the Mitsubishi programmable controller (EMC and Low Voltage Directives compliant) into other machinery or equipment, refer to Chapter 9 "EMC AND LOW VOLTAGE DIRECTIVES" of the QCPU User's Manual (Hardware Design, Maintenance and Inspection).

The CE mark, indicating compliance with the EMC and Low Voltage Directives, is printed on the rating plate of the programmable controller.

(2) For the product

For the compliance of this product with the EMC and Low Voltage Directives, refer to Section 9.1.3 "Cables" in Chapter 9 "EMC AND LOW VOLTAGE DIRECTIVES" of the QCPU User's Manual (Hardware Design, Maintenance and Inspection).

1. Overview

This manual explains how to handle the MELSECNET/H network module, model numbers QJ72LP25-25, QJ72LP25G and QJ72BR15 (hereinafter referred to as the network module).

This network module is used as a remote I/O station of a remote I/O network in the MELSECNET/H network system, not in a PLC to PLC network.

After unpacking the network module, confirm that any of the following products is enclosed.

Model name	Part name	Quantity
QJ72LP25-25	QJ72LP25-25 MELSECNET/H Network Module (optical loop type)	1
QJ72LP25G	QJ72LP25G MELSECNET/H Network Module (optical loop type)	1
QJ72BR15	QJ72BR15 MELSECNET/H Network Module (coaxial cable bus type)	1
	F-type connector (A6RCON-F)	1

Important

The coaxial bus-type network system requires terminal resistors at both terminal stations of the network. Terminal resistors are not included with the QJ72BR15; they must be purchased separately.

* Terminal resistor (75 Ω)

- A6RCON-R75

2. Performance Specifications

If the X/Y numbers are duplicate, only one side is taken into consideration. The following table shows the performance specifications for the network module:

Item		Specifications	
		QJ72LP25-25	QJ72LP25G
Maximum number of links per network	LX/LY	8192 points	
	LB	16384 points $\left(\begin{array}{l} \text{Remote master station} \rightarrow \text{remote sub-master,} \\ \text{remote I/O station: 8192 points} \\ \text{Remote sub-master, remote I/O station} \rightarrow \\ \text{remote master station: 8192 points} \end{array} \right)$	
	LW	16384 points $\left(\begin{array}{l} \text{Remote master station} \rightarrow \text{remote sub-master,} \\ \text{remote I/O station: 8192 points} \\ \text{Remote sub-master, remote I/O station} \rightarrow \\ \text{remote master station: 8192 points} \end{array} \right)$	
Maximum number of links per station	<ul style="list-style-type: none"> Remote master station \rightarrow Remote I/O station *1 $\{(LY + LB) / 8 + (2 \times LW)\} \leq 1600$ bytes Remote I/O station \rightarrow Remote master station *1 $\{(LX + LB) / 8 + (2 \times LW)\} \leq 1600$ bytes Multiplexed remote master station \leftrightarrow Multiplexed remote sub-master station $\{(LY + LB) / 8 + (2 \times LW)\} \leq 2000$ bytes 		
Maximum I/O points per remote I/O station	$X + Y \leq 4096$ points If the X/Y numbers are duplicate, only one side is taken into consideration.		
Communication speed	25Mbps/10Mbps (selected with MODE switch)		10Mbps
Communication method	Token ring		
Synchronization method	Frame synchronization		
Transmission path format	Duplex loop		
Maximum number of networks	239		
Number of stations per network	65 stations (Remote master stations: 1, Remote I/O stations: 64) *2		
Overall distance	30 km		
Distance between stations *3	10Mbps	SI optical cable: 500 m H-PCF optical cable: 1 km Broad-band H-PCF optical cable: 1 km QSI optical cable: 1 km	GI-50/125optical cable: 2 km
	25Mbps	SI optical cable: 200 m H-PCF optical cable: 400m Broad-band H-PCF optical cable: 1 km QSI optical cable: 1 km	-
Network cable	Optical fiber cable (procured by user *4)		
Applicable connector	2-core optical connector plug (procured by user *4)		
Base unit installation position	CPU slot		
5 VDC internal current consumption	0.89A		
External dimensions	98 (3.86) (H) \times 27.4 (1.08) (W) \times 90 (3.54) (D) [mm(inch)]		
Weight	0.15kg		

- *1: The remote master station includes the multiplexed remote master station and multiplexed remote sub-master station.
- *2: On a multiplexed remote I/O network, one of 64 remote I/O stations works as a multiplexed remote sub-master station.
- *3: There are restrictions on the distance between stations, being determined according to the type of cable. Refer to the Q Corresponding MELSECNET/H Network System Reference Manual (Remote I/O network) for details.
- *4: Specialized skill 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 System Service Corporation 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.

Item		Specifications	
		QJ72BR15	
Maximum number of links per network	LX/LY	8192 points	
	LB	16384 points (Remote master station → remote sub-master station, remote I/O station: 8192 points Remote sub-master station, remote I/O station → remote master station: 8192 points)	
	LW	16384 points (Remote master station → remote sub-master station, remote I/O station: 8192 points Remote sub-master, remote I/O station → remote master station: 8192 points)	
Maximum number of links per station		<ul style="list-style-type: none"> • Remote master station → Remote I/O station *1 $\{(LY + LB) / 8 + (2 \times LW)\} \leq 1600$ bytes • Remote I/O station → Remote master station *1 $\{(LX + LB) / 8 + (2 \times LW)\} \leq 1600$ bytes • Multiplexed remote master station ↔ Multiplexed remote sub-master station $\{(LY + LB) / 8 + (2 \times LW)\} \leq 2000$ bytes 	
Maximum I/O points per remote I/O station		$X + Y \leq 4096$ points If the X/Y numbers are duplicate, only one side is taken into consideration.	
Communication speed		10 Mbps	
Communication method		Token bus	
Synchronization method		Frame synchronization	
Transmission path format		Single layer bus	
Maximum number of networks		239	
Number of stations per network		33 stations (Remote master station: 1, Remote I/O stations: 32) *2	
Overall distance		500 m(Between stations 500 m) (5C-2V) 300 m(Between stations 300 m) (3C-2V) Can be extended up to 2.5 km with the use of a repeater (A6BR10,A6BR10-DC)	
Distance between stations *3		500 m (5C-2V) 300 m (3C-2V)	
Connection cable		Coaxial cable Equivalent to 3C-2V, 5C-2V *4 (Arranged by user)	
Applicable connector		BNC-P-3-NiCAu (For 3C-2V), BNC-P-5- NiCAu (For 5C-2V) Equivalent to (DDK) (Arranged by user)	
Base unit installation position		CPU slot	
5 VDC internal current consumption		1.10A	
External dimensions		98 (3.86) (H) × 27.4 (1.08) (W) × 90 (3.54) (D) [mm(inch)]	
Weight		0.16kg	

- *1: The remote master station includes the multiplexed remote master station and multiplexed remote sub-master station.
- *2: On a multiplexed remote I/O network, one of 32 remote I/O stations works as a multiplexed remote sub-master station.
- *3: There are restrictions on the distance between stations, being determined according to the type of cable and number of stations. Refer to the Q Corresponding MELSECNET/H Network System Reference Manual (Remote I/O network) for details.
- *4: When creating a multiplexed remote I/O network supporting the redundant system, use double-shielded coaxial cables. Refer to the Q Corresponding MELSECNET/H Network System Reference Manual (Remote I/O network) for details.

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

3. Handling

CAUTION

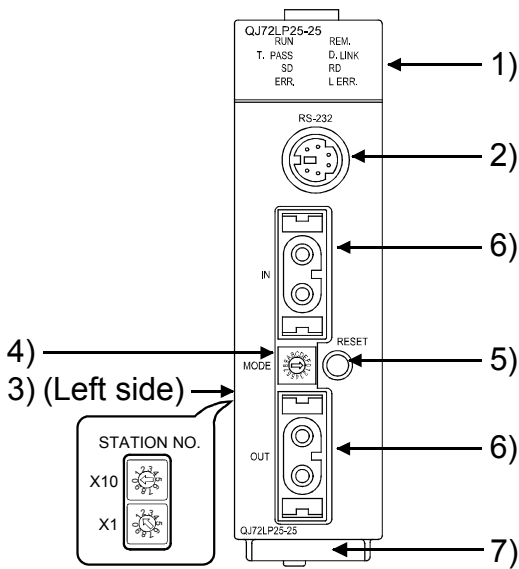
- Use the programmable controller in the operating environment that meets the general specifications given in the user's manual of the CPU module. Using this programmable controller in an environment outside the range of the general specifications could result in electric shock, fire, erroneous operation, and damage to or deterioration of the product.
- While pressing the installation lever located at the bottom of module, insert the module fixing tab into the fixing hole in the base unit until it stops. Then, securely mount the module with the fixing hole as a supporting point. Incorrect loading of the module can cause a malfunction, failure or drop. When using the programmable controller in the environment of much vibration, tighten the module with a screw. Tighten the screw 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 damage to the screw or module.
- Completely turn off the externally supplied power used in the system before mounting or removing the module. Not doing so could result in damage to the product.
- Do not directly touch the module's conductive parts or electronic components. Touching the conductive parts could cause an operation failure or give damage to the module.

3.1 Module Handling Precautions

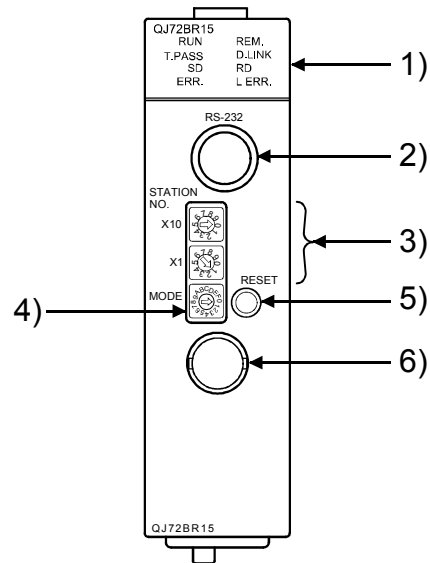
- (1) Since the module case is made of resin, do not drop it or subject it to strong impact.
- (2) The module can be easily fixed onto the base unit using the hook at the top of the module. However, it is recommended to secure the module with the module fixing screw if the module is subject to significant vibration or shock. In this case, tighten the module fixing screws within the following clamping torque range.
Module fixing screws (M3): clamping torque ranging from 0.36 to 0.48 N•m

4. Part Identification Names

QJ72LP25-25, QJ72LP25G



QJ72BR15



Number	Name	Reference Section	Number	Name	Reference Section
1)	LED indicator section	(1) in this chapter	5)	RESET switch *1	—
2)	RS-232 connector	—	6)	Coaxial connector	(3) in this chapter
3)	Station number setting switches	(2)(a) in this chapter	7)	Serial number plate *2	—
4)	Mode setting switch	(2)(b) in this chapter			

*1: When resetting the system, press and hold the RESET switch for a second or more. If the pressing time is too short, the system may not be reset normally. If the system is not reset normally, try reset operation again.

*2: Indicates the serial No. of the network module. (QJ72LP25-25 only)

(1) LED displays

QJ72LP25-25
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	Description
RUN	On: Module operating normally Off: Watchdog timer error occurred (hardware error)
T. PASS	On: Executing baton pass Flashing: Executing test Off: Baton pass not yet executed (host is disconnecting)
SD	On: Data being sent Off: Data not yet sent
ERR. *2	On: Setting error occurred Flashing: • Error detected by a test • The mode setting switch or the station number setting switch was changed during operation *1 Off: No setting error
REM. *2	On: Module operating normally Flicker: Parameters being written to flash ROM or device is in test mode. Off: In remote initialization, watchdog timer 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: A communication error occurred Off: No communication error

*1: The ERR. LED flashes on the QJ72LP25-25 and QJ72BR15 whose first five digits of the serial number is "02112" or later.

*2: When a remote I/O module is used in a redundant power supply system, the REM. LED and ERR. LED indicate errors as follows according to the failure causes of the power supply module.

Power supply module	Failure cause	REM. LED	ERR. LED
Failure of only one module	Input power supply off, fuse blown	Off	On
	Internal failure	Off	On
On		Off	
Failure of both the two modules	Input power supply off, fuse blown	Off	Off
	Internal failure (Both the LEDs are off or on depending on the failure part.)	Off	Off
		Off	On
On	Off	Off	

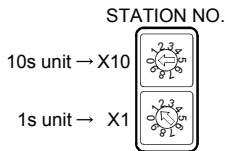
When a remote I/O module of function version C or later is used, the ERR. LED remains off even if one or two power supply modules fail.

Confirm the failure of the power supply module on the LED of the module. If the power supply module is mounted on an extension base unit, the error can also be confirmed by the ERR contact of the power supply module. (For the specification of the LED of the power supply module, refer to QCPU User's Manual (Hardware Design, Maintenance and Inspection).)

(2) Setting of each switch

(a) Station number setting switches

Set a station number. (Factory setting: 1)



Setting range
1 to 64: Station number *1
Other than 1 to 64: Setting error (The red ERR. LED turns ON.)

*1: When using the QJ72BR15, setting any of 33 to 64 will result in a setting error. However, the red ERR. LED will not turn ON.

(b) Mode setting switch

Set the operating mode. (Factory setting: 0)



1) QJ72LP25-25 *1

Setting range	
0: Online	10Mbps used
1: Self return test	
2: Internal self return test	
3: Hardware test	
4: Online	25Mbps used
5: Self return test	
6: Internal self return test	
7: Hardware test	
8 to F: Prohibited	

2) QJ72LP25G, QJ72BR15

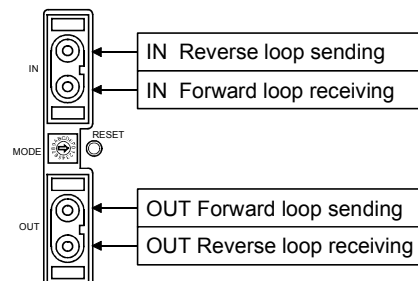
Setting range
0: Online
1: Self return test
2: Internal self return test
3: Hardware test
4 to F: Prohibited

*1: When setting it to online with the Mode setting switch, the same setting must be made for remote master station and remote I/O stations of remote I/O network.

(3) Connector

(a) IN/OUT connector

For connector for optical fiber.



(b) Coaxial connector

For connecting F-type connector for coaxial cable.

5. Wiring

DANGER

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

CAUTION

- Solder coaxial cable connectors properly. Incomplete soldering may result in malfunction.
- Be sure there are no foreign substances such as sawdust or wiring debris inside the module.
Such debris could cause fires, damage, or erroneous operation.
- The module has an ingress prevention label on its top to prevent foreign matter, such as wire offcuts, from entering the module during wiring.
Do not peel this label during wiring.
Before starting system operation, be sure to peel this label because of heat dissipation.
- Make sure to place the communication and power cables to be connected to the module in a duct or fasten them using a clamp. If the cables are not placed in a duct or not fastened with a clamp, their positions may become unstable and may move, or they may be pulled inadvertently. This may damage the module and the cables or cause the module to malfunction because of faulty cable connections.
- When disconnecting a communication cable, do not pull it by holding the cable part.
To disconnect the cable, hold its connector that is plugged into the module. Pulling the cable part with the cable still connected to the module may damage the module and/or cable, or cause malfunctions due to poor cable contact.
- Install our programmable controller in a control panel for use. Wire the main power supply to the power supply module installed in a control panel through a distribution terminal block. Furthermore, the wiring and replacement of a power supply module have to be performed by a maintenance worker who acquainted with shock protection. (For the wiring methods, refer to QCPU User's Manual (Hardware Design, Maintenance and Inspection).)

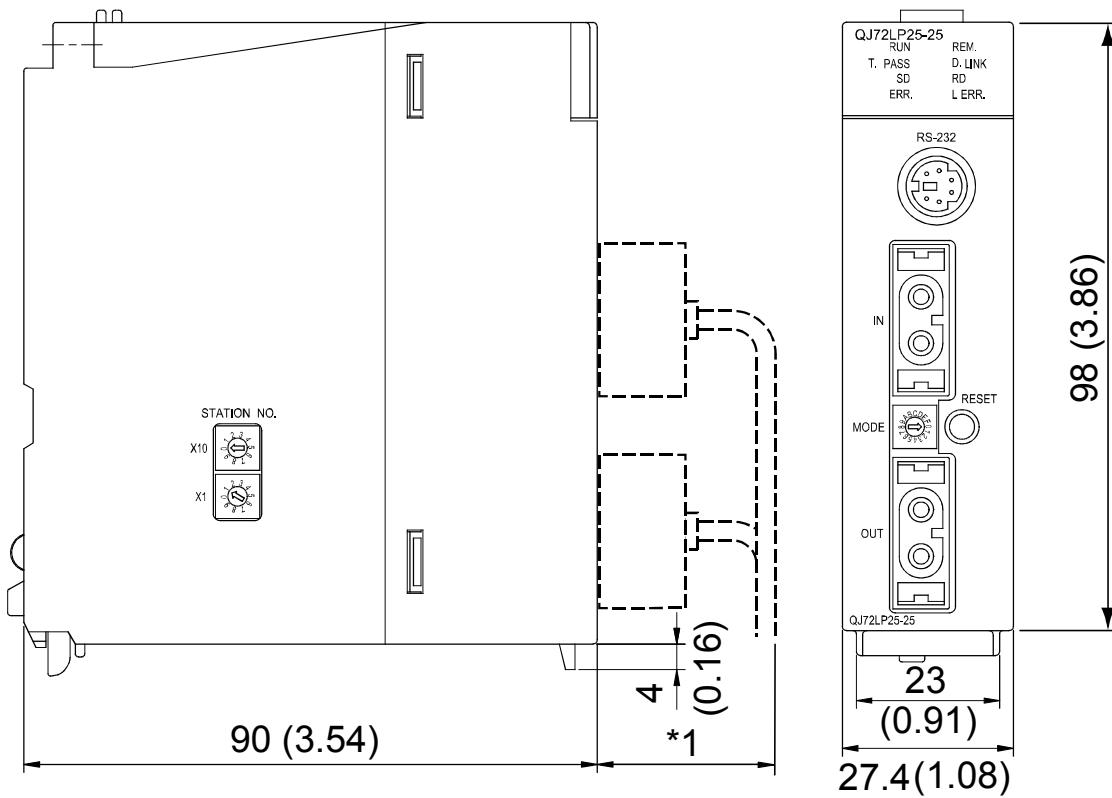
Please refer to the user's manual of connected master module for the wiring for network system.

Please wire IN/OUT of the connector for the cable correctly.

Please do loopback test, the set confirmation test, and the bureau order confirmation test after wiring. It might be generated that a baton abnormal passing cannot be generated when miswiring and the downed bureau which cannot do the loopback of an arbitrary bureau do the row again even by the reclosing of the power supply.

6. External Dimensions

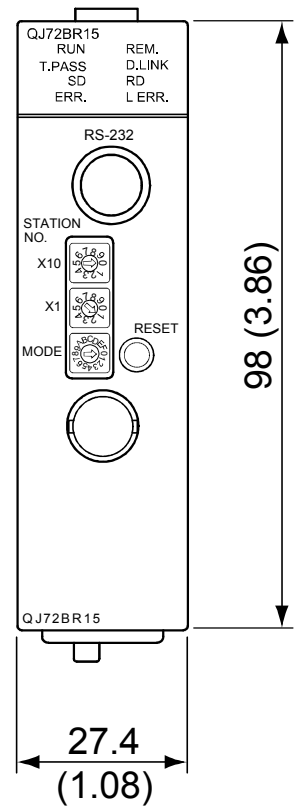
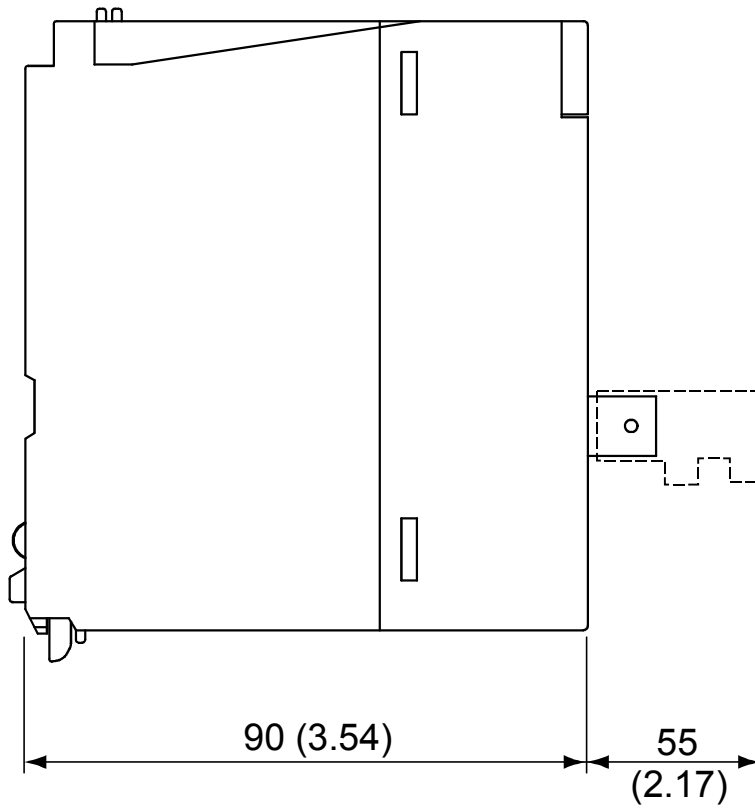
(1) QJ72LP25-25, QJ72LP25G



*1: Please contact your nearest Mitsubishi Electric System Service Corporation for detail.

Unit: mm (in.)

(2) QJ72BR15



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.

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