MITSUBISHI

MELSECNET/10 Network Module

User's Manual

(Hardware)

AJ72LP25GE

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

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

MODEL	AJ72LP25GE-U-E
MODEL CODE	13J814
IB(NA)-66591-D(1112)MEE	

● SAFETY PRECAUTIONS ●

(Always read before starting use.)

Before using this product, please read this manual and the relevant manuals introduced in this manual carefully and pay full attention to safety to handle the product correctly.
The instructions given in this manual are concerned with this product. For the safety instructions of the programmable controller system, please read the CPU module user's manual.

In this manual, the safety precautions are classified into two levels: "⚠WARNING" and "⚠CAUTION".

⚠WARNING	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 minor or moderate injury or property damage.

Under some circumstances, failure to observe the precautions given under "⚠CAUTION" may lead to serious consequences.
Observe the precautions of both levels because they are important for personal and system safety.
Make sure that the end users read this manual and then keep the manual in a safe place for future reference.

[DESIGN PRECAUTIONS]

⚠WARNING

- When the data link results in a communication error, the faulty station will be in the following status.
  Using the communication status data, make an interlock circuit in the sequence program to operate the system safety.
  Failure to do so may cause an accident due to a mis-output or malfunction.
  (1) The data prior to the error is retained.
  (2) The outputs from the remote I/O station all turn off.

⚠CAUTION

- Do not bundle the control wires and communication cables with the main circuit or power wires, or install them close to each other. They should be installed at least 100 mm (3.94 inches) away from each other. Failure to do so may generate noise that may cause malfunctions.

[INSTALLATION PRECAUTIONS]

⚠CAUTION

- Use the programmable controller in an environment that meets the general specifications contained in CPU module user's manual. 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.
- Fully insert the projection on the bottom of the module into the hole in the base unit and press the module into position. Not installing the module correctly could result in malfunction, damage, or drop of some pieces of the product.
  If using the product in a vibratory environment, tighten the module with the screws.
  Always tighten the module fixing screws within the specified torque range.
  Loose tightening could result in drop of some pieces of the product, short- circuit, and malfunction.
  Tightening the screws too much could result in drop of some pieces of the product, short- circuit, or malfunction due to the breakage of a screw or the module.
- Do not directly touch the printed circuit board, the conducting parts and electronic parts of the module. It may cause damage or erroneous operation.
- Before handling the module, touch a grounded metal object to discharge the static electricity from the human body. Failure to do so may cause malfunction or failure of the 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.

[WIRING PRECAUTIONS]

⚠WARNING

- Before wiring, be sure to shut off all phases of the external power supply used by the system. Failure to do so may cause electric shocks or damage the product.

⚠CAUTION

- 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.
- Make sure to place the communication and power cables into a duct or fasten them using a clamp.
  Cables not placed in the duct or not clamped may hang or shift, allowing them to be accidentally pulled, which may cause a module malfunction and cable damage.

[WIRING PRECAUTIONS]

⚠CAUTION

- 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.

[STARTUP AND MAINTENANCE PRECAUTIONS]

⚠WARNING

- Do not touch terminals while the power in ON. This will cause malfunctions.

⚠CAUTION

- Please read this manual thoroughly and confirm the safety before starting online operations (especially, program modifications, forced outputs, and operating status modifications), which are performed by connecting the GX Developer via the MELSECNET/10 network system to a running CPU module of other station. Performing incorrect online operations may damage the machinery or result in accidents.
- When using a wireless communication device such as a mobile phone, keep a distance of 25cm (9.84inches) or more from the programmable controller in all directions.
  Failure to do so may cause malfunctions.
- Completely turn off the externally supplied power used in the system before mounting or removing the module. Failure to do so may damage the module or result in malfunctions.
- Be sure to shut off all phases of the external power supply used by the system before cleaning or retightening the terminal screws or module mounting screws. Failure to completely shut off all phases of the external power supply may cause module breakdowns and malfunctions. If the screws are loose, it may cause the module to short-circuit, malfunction or fall off. If the screws are tightened excessively, it may damage the screws and cause the module to short circuit, malfunction or fall off.
- Before handling the module, always touch grounded metal, etc. to discharge static electricity from the human body. Failure to do so can cause the module to fail or malfunction.

[DISPOSAL PRECAUTIONS]

⚠CAUTION

- When disposing of this product, treat it as industrial waste.

●安全注意事项●

（使用之前请务必阅读）

在使用本产品之前，应仔细阅读本手册以及本手册中所介绍的相关手册，同时在充分注意安全的前提下正确操作。
本手册中的注意事项仅记载与本产品有关的内容。关于可编程控制器系统方面的安全注意事项，请参阅所使用的CPU模块的用户手册。
在“安全注意事项”中，安全注意事项被分为“⚠ 警告”和“⚠ 注意”两个等级。

⚠警告	表示错误操作可能造成危险后果，导致死亡或重伤事故。
⚠注意	表示错误操作可能造成危险后果，导致中度伤害、轻伤或财产损失。

此外，根据情况不同，即使标注为“⚠ 注意”的事项也有可能会引发严重后果。这两个等级的注意事项记载的均为重要内容，请务必遵守。
请妥善保管本手册以备需要时取阅，并将本手册交给最终用户。

【设计注意事项】

⚠警告

- 数据链接出现通信异常时，通信异常站会变为以下状态。
  应使用通信状态信息，在顺控程序上配置互锁电路，以保证系统能安全运行。否则可能由于误输出、误动作而导致事故发生。
  (1) 保持通信异常前的数据。
  (2) 来自远程I/O站的输出为全点OFF。

⚠注意

- 请勿将控制线及通信电缆与主电路及动力线等捆扎在一起或相互靠得太近。应相距大约100㎜以上距离。因为噪声有可能导致误动作。

【安装注意事项】

⚠注意

- 应在所使用的CPU模块的用户手册记载的一般规格环境下使用可编程控制器。如果在一般规格范围以外的环境中使用可编程控制器，可能导致触电、火灾、误动作、产品损坏或性能劣化。
- 应将模块下部的模块固定用凸起部切实插入基板的固定孔中，以模块固定孔为支点进行安装。如果模块未正确安装，有可能造成误动作、故障或掉落。在振动较多的环境下使用时，应使用螺栓固定模块。应在规定的扭矩范围内拧紧螺栓。如果螺栓拧得过松，有可能导致掉落、短路或误动作。如果螺栓拧得过紧，有可能造成螺栓及模块破损从而导致掉落、短路或误动作。
- 请勿直接触碰模块的基板、导电部分及电子部件。
  否则可能导致模块误动作、故障。
- 在触碰模块之前，必须先触碰已接地的金属等，释放掉人体等所携带的静电。如果不释放掉静电，有可能导致模块故障或误动作。
- 在拆装模块时，必须将系统使用的外部供应电源全部断开后再进行操作。如果未全部断开，有可能导致产品损坏。

【配线注意事项】

⚠警告

- 在配线作业等时，必须将系统使用的外部供应电源全部断开后再进行操作。如果未全部断开，有可能导致触电或产品损坏。

⚠注意

- 应注意防止切屑及配线头等异物掉入模块内。否则有可能导致火灾、故障或误动作。
- 与模块相连接的通信电缆必须收入套管中，或者用夹具进行固定处理。
  如果未将电缆收入套管或未用夹具进行固定处理，可能由于电缆的晃动及移动、不经意的拉拽等造成模块及电缆破损、电缆接触不良而导致误动作。
- 在拆卸与模块相连接的通信电缆时，请勿用手拉扯电缆部分。
  带接口的电缆应握住与模块相连接部分的接口进行拆卸。
  如果在与模块相连接的状态下拉扯电缆，可能导致模块及电缆破损、电缆接触不良而导致误动作。

【启动 / 维护注意事项】

⚠警告

- 在通电状态下请勿触摸接口。否则可能导致误动作。

⚠注意

- 通过外围设备对其他站点在运行中的CPU模块进行在线操作（特别是程序更改、强制输出、运行状态的更改）前，应仔细阅读手册，在充分确认安全的基础上进行操作。否则操作错误有可能导致机械破损或事故发生。
- 便携电话或PHS等无线通信设备应在距离可编程控制器本体（各个方向）25cm以上的地方使用。否则可能导致误动作。
- 在拆装模块时，必须将系统使用的外部供应电源全部断开后再进行操作。如果未全部断开，有可能导致模块故障或误动作。
- 在重新紧固端子螺栓、模块安装螺栓及清洁模块时，必须将系统使用的外部供应电源从外部全部断开后再进行操作。如果未全部断开，有可能导致模块故障或误动作。如果螺栓拧得过松，有可能导致掉落、短路或误动作。如果螺栓拧得过紧，有可能造成螺栓及模块破损从而导致掉落、短路或误动作。
- 在触碰模块之前，必须先触碰已接地的金属等，释放掉人体等所携带的静电。如果不释放掉静电，有可能导致模块故障或误动作。

【报废处理注意事项】

⚠注意

- 本产品报废时，应当作工业废物处理。

● CONDITIONS OF USE FOR THE PRODUCT ●

(1) Mitsubishi programmable controller ("the PRODUCT") shall be used in conditions;
i) where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and
ii) where the backup and fail-safe function are systematically or automatically provided outside of the PRODUCT for the case of any problem, fault or failure occurring in the PRODUCT.

(2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.
MITSUBISHI SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT THAT ARE OPERATED OR USED IN APPLICATION NOT INTENDED OR EXCLUDED BY INSTRUCTIONS, PRECAUTIONS, OR WARNING CONTAINED IN MITSUBISHI'S USER, INSTRUCTION AND/OR SAFETY MANUALS, TECHNICAL BULLETINS AND GUIDELINES FOR the PRODUCT.
("Prohibited Application")
Prohibited Applications include, but not limited to, the use of the PRODUCT in;

- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.
- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.
- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

Notwithstanding the above, restrictions Mitsubishi may in its sole discretion, authorize use of the PRODUCT in one or more of the Prohibited Applications, provided that the usage of the PRODUCT is limited only for the specific applications agreed to by Mitsubishi and provided further that no special quality assurance or fail-safe, redundant or other safety features which exceed the general specifications of the PRODUCTs are required. For details, please contact the Mitsubishi representative in your region.

About the Manuals

The following product manuals are available. Please use this table as a reference to request the appropriate manual as necessary.

Detailed Manual

Manual name	Manual No. (Model code)
Type MELSECNET/10 Network System (Remote I/O network) Reference Manual	SH-3509 (13JE72)

Before use of this module, be sure to read the Type MELSECNET/10 Network System (Remote I/O network) Reference Manual

COMPLIANCE WITH EMC AND LOW VOLTAGE DIRECTIVES

(1) Method of ensuring compliance

To ensure that Mitsubishi programmable controllers maintain EMC and Low Voltage Directives when incorporated into other machinery or equipment, certain measures may be necessary. Please refer to one of the following manuals.

- User's manual for the CPU module used
- User's manual (hardware) for the CPU module or base unit used

The CE mark on the side of the programmable controller indicates compliance with EMC and Low Voltage Directives.

(2) Additional measures

To ensure that this product maintains EMC and Low Voltage Directives, please refer to one of the manuals listed under (1).

1. Overview

This manual explains the specifications and part names of the AJ72LP25GE model MELSECNET/10 network modules (abbreviated as Network Modules) which are used to construct remote I/O systems on MELSEC-A series MELSECNET/10 network systems.

(1) The use, cable used and installation position of the Network Modules are indicated on the following chart.

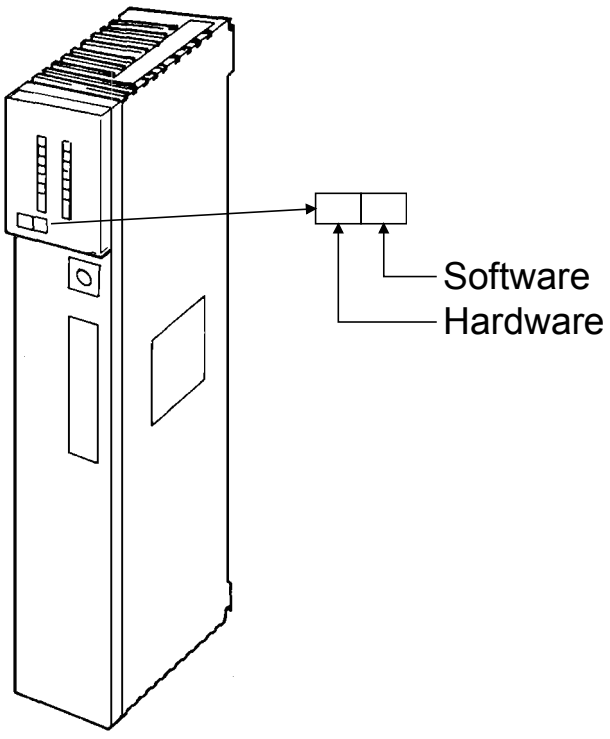
	Application	Cable used		Position
		Optical fiber cable	Coaxial cable	
AJ72LP25GE	For remote I/O station of MELSECNET/10	O (GI-62.5/125 cables)	-	Main base CPU slot

(2) After unpacking the Network Modules, confirm that any of the following products is enclosed.

Model	Description	Quantity
AJ72LP25GE	Model AJ72LP25GE MELSECNET/10 network module (optical loop type)	1

(3) When applying the remote I/O network, make sure to use the following software version for the CPU module and the network module.

Master Station Module	Model	Software Version
CPU module	A2UCPU(S1) A3UCPU A4UCPU	"N" or later
	A2USCPU(S1)	"D" or later
	A2USHCPU-S1	"A" or later
Network module	AJ71LP21GE	"A" or later



2. Performance Specifications

2.1 Performance Specifications for the network module

The performance specifications for Network Modules are indicated as follows.

Item		Specifications
Maximum link points per network	X/Y	8192 points
	B	8192 points
	W	8192 points
Maximum link points per station		• Remote master station → Remote I/O station $\left\{\frac{Y+B}{8}+(2\times W)\right\} \leq$ 1600 bytes • Remote I/O station → Remote master station $\left\{\frac{X+B}{8}+(2\times W)\right\} \leq$ 1600 bytes
Maximum number of I/O points per remote I/O station		X+Y ≤ 2048
Communication speed		10Mbps (equivalent to 20Mbps for multiple transmission)
Communication method		Token ring
Synchronization method		Frame synchronization
Encoding method		NRZI encoding (Non Return to Zero Inverterd)
Transmission route format		Duplex optical loop
Transmission format		Conform to HDLC (frame format)
Maximum number of networks		255
Number of stations for connection per network		65 stations (Remote master station: 1; Remote I/O stations: 64)
Overall distance (Station-to-station distance)		30km (2km)
Error control method		Retry by CRC ($X^{16}+X^{12}+X^5+1$) and overtime
RAS function		• Loop back function due to abnormality detection and cable disconnection • Diagnostic function for local link circuit check • Abnormality detection by link special relay, resistor • Network monitor, each type of diagnostic function
Transient transmission		Monitoring with peripheral device, program up/download
Connection cable		GI-62.5/125 optical fiber cable (Arranged by user *1)
Applicable connector		1-core optical connector plug (Arranged by user *1)
5VDC current consumption		0.80A
Weight		0.53kg

*1: 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 System Service Corporation when purchasing these items.

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

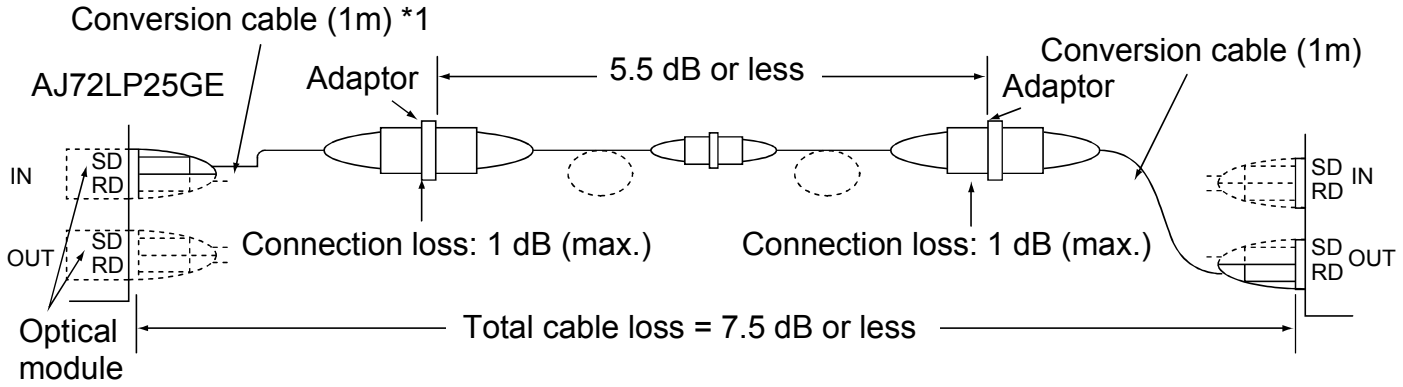
2.2 GI-62.5/125 optical fiber cable specifications

(1) Applicable cable specifications

- The specifications for the GI-62.5/125 cable are given below.
- If you prepare a GI-62.5/125 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 Cable length restrictions between stations

(1) The main modules case is made of plastic, so do not drop it or subject it to strong impacts.

(2) Do not dismount the printed wiring board from the case. It may damage the module.

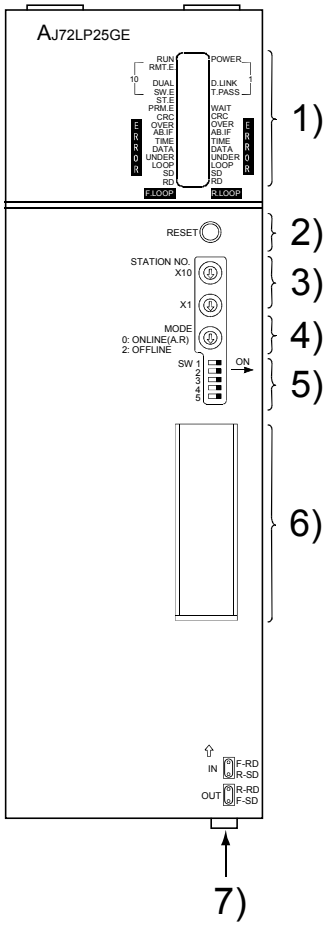
(3) When wiring, be careful never to let foreign matter from the above module such as wiring scraps get inside the module. If something goes in, get rid of it.

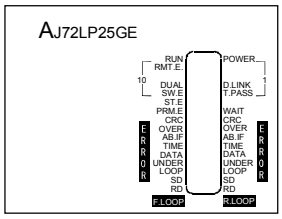
(4) The module installation screw should be kept within the following range.

Screw Locations	Tightening Torque Range
Module installation screws (M4 screws)	78 to 118N•cm

4. The Name and Setting of Each Part

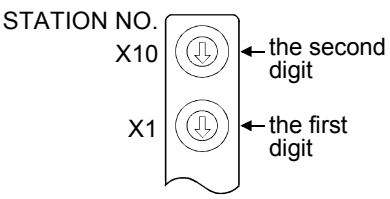
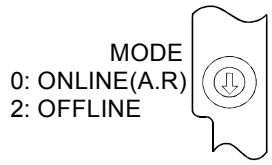
Indicates the name and setting of each part of Network Modules.



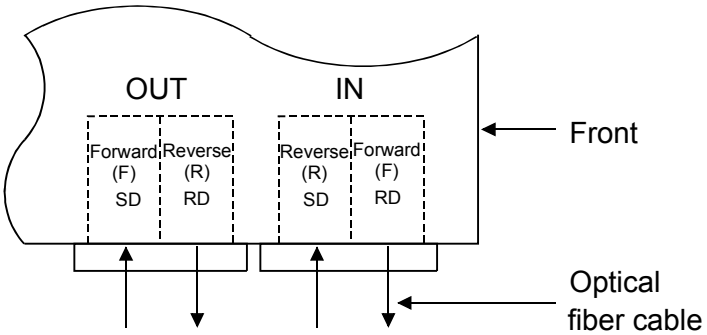
No.	Name	Contents		
1)	LED  	Name	Status	Contents
		RUN	ON	Normal state
			OFF	WDT error, SP. UNIT ERROR
		RMT.E.	ON	When a blown fuse or I/O check error occurs. (Host station)
		DUAL		Multiplex transfer in execution (OFF: Multiplex transfer not executed)
		SW.E.		Incorrect setting of switches 3) to 4)
		ST.E.		Station number status is duplicated on the same network.
		PRM.E.		• When I/O allocation is abnormal. • When the number of LB/LW points is insufficient. (special-function module) • When the parameters received from the remote master station are abnormal.
		POWER		Power being supplied (OFF: No power being supplied)
		D.LINK		Data link being performed (OFF: Data link stopped)
		T.PASS		Participating in token passing (Transient transmission is available.)
		WAIT		When waiting for communication with special-function module.
		CRC		Error detected in code check of receive data <Cause> Timing at which station sending data to target station is disconnected from network, hardware failure, cable fault, noise, etc.
		OVER		Error occurred when receive data processing is delayed <Cause> Hardware failure, cable fault, noise, etc.
		AB.IF		• Consecutive 1s exceeding the specified number were received. • Length of received data is too short. <Cause> Timing at which station sending data to target station is disconnected from network, too short monitoring time, cable fault, noise, etc.
		TIME		Data link WDT times out. <Cause> Monitoring time too short, cable fault, noise, etc.
		DATA		Abnormal data larger than 2 kbytes are received. <Cause> Cable fault, noise, etc.
		UNDER		Internal send data processing is not done at fixed intervals. <Cause> Hardware failure
		LOOP		Forward/reverse loop (F.LOOP/R.LOOP) is faulty. <Cause> Power-off of adjacent station, cable disconnection, no connection, etc.
		SD	Dimly ON	Data being sent
		RD		Data being received

Caution

Do not change the setting of the DIP switch on the printed circuit board at the side face of the module.

<table>
<tr><th>No.</th><th>Name</th><th colspan="3">Contents</th></tr>
<tr><td>2)</td><td>Reset switch
  </td><td colspan="3">Resets the host station hardware.</td></tr>
<tr><td>3)
*1</td><td>Station number setting switch
  </td><td colspan="3">Station number setting (factory setting at time of shipping: 1)
<Setting range>
1 to 64 : Station number
Other than 1 to 64 : Setting error (The SW.E. LED turns ON)</td></tr>
<tr><td>4)
*1</td><td>Mode setting switch
  </td><td colspan="3">Mode setting (factory setting at time of shipping: 0)</td></tr>
<tr><td></td><td></td><td>Mode</td><td>Name</td><td>Contents</td></tr>
<tr><td></td><td></td><td>0</td><td>Online (automatic online return effective)</td><td>Data link with automatic online return effective</td></tr>
<tr><td></td><td></td><td>1</td><td colspan="2">Not used (Setting to this turns on the SW.E. LED.)</td></tr>
<tr><td></td><td></td><td>2</td><td>Offline</td><td>Disconnects the host station.</td></tr>
<tr><td></td><td></td><td>3</td><td>Forward loop test</td><td>Checks the forward loop of the whole network system.</td></tr>
<tr><td></td><td></td><td>4</td><td>Reverse loop test</td><td>Checks the reverse loop of the whole network system.</td></tr>
<tr><td></td><td></td><td>5</td><td>Station-to-station test (master station)</td><td rowspan="2">The mode for a line check between two stations, in which the station with the smaller number is regarded as the master station and the other is considered the slave station.</td></tr>
<tr><td></td><td></td><td>6</td><td>Station-to-station test (slave station)</td></tr>
<tr><td></td><td></td><td>7</td><td>Self-loopback test</td><td>Check the hardware of a module in isolation, including the communication circuit and cables of the transmission system.</td></tr>
<tr><td></td><td></td><td>8</td><td>Internal self-loopback test</td><td>Check the hardware of a module in isolation, including the communication circuit of the transmission system.</td></tr>
<tr><td></td><td></td><td>9</td><td>Hardware test</td><td>Check the hardware inside the network module.</td></tr>
<tr><td></td><td></td><td>A to E</td><td>Not used</td><td>(Do not set the mode.)</td></tr>
<tr><td></td><td></td><td>F</td><td>Station number check</td><td>Checks the number using LEDs</td></tr>
<tr><td>5)</td><td>DIP switches</td><td colspan="3">Always off.</td></tr>
<tr><td>6)</td><td>RS-422 interface</td><td colspan="3">Connects the peripheral device</td></tr>
</table>

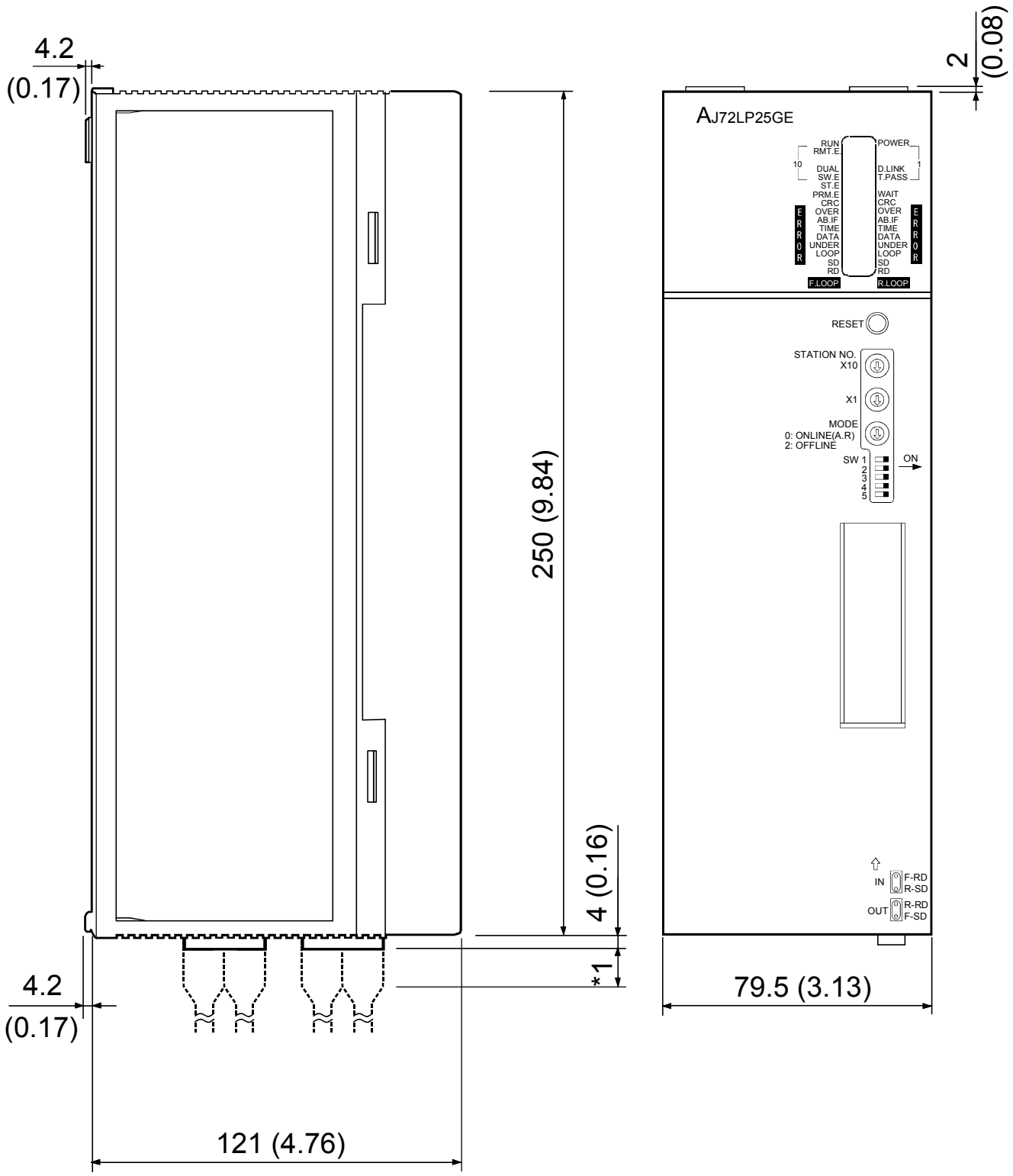
*1: When the setting is changed while the power supply is ON, reset using the reset switch in 2).
When the mode setting switch in 4) is set "F", reset is unnecessary.

No.	Name	Contents
7)	Connector	Connect the optical fiber cable. 

5. Wiring

Please refer to the reference manual of used master module for the wiring for network system.
Please wire IN/OUT or SD/RD 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



Unit: mm (in.)

*1: Please confirm details to Mitsubishi Electric System Service Corporation.

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.

Country/Region	Sales office/Tel
U.S.A	Mitsubishi Electric Automation Inc. 500 Corporate Woods Parkway Vernon Hills, IL 60061, U.S.A. Tel : +1-847-478-2100
Brazil	MELCO-TEC Rep. Com.e Assessoria Tecnica Ltda. Rua Correia Dias, 184, Edificio Paraiso Trade Center-8 andar Paraiso, Sao Paulo, SP Brazil Tel : +55-11-5908-8331
Germany	Mitsubishi Electric Europe B.V. German Branch Gothaer Strasse 8 D-40880 Ratingen, GERMANY Tel : +49-2102-486-0
U.K	Mitsubishi Electric Europe B.V. UK Branch Travellers Lane, Hatfield, Hertfordshire., AL10 8XB, U.K. Tel : +44-1707-276100
Italy	Mitsubishi Electric Europe B.V. Italian Branch Centro Dir. Colleoni, Pal. Perseo-Ingr.2 Via Paracelso 12, I-20041 Agrate Brianza., Milano, Italy Tel : +39-039-60531
Spain	Mitsubishi Electric Europe B.V. Spanish Branch Carretera de Rubi 76-80, E-08190 Sant Cugat del Valles, Barcelona, Spain Tel : +34-93-565-3131
France	Mitsubishi Electric Europe B.V. French Branch 25, Boulevard des Bouvets, F-92741 Nanterre Cedex, France Tel : +33-1-5568-5568
South Africa	Circuit Breaker Industries Ltd. Private Bag 2016, ZA-1600 Isando, South Africa Tel : +27-11-928-2000

Country/Region	Sales office/Tel
China	Mitsubishi Electric Automation (China) Ltd. 4/F Zhi Fu Plazz, No.80 Xin Chang Road, Shanghai 200003, China Tel : +86-21-6120-0808
Taiwan	Setsuyo Enterprise Co., Ltd. 6F No.105 Wu-Kung 3rd.Rd, Wu-Ku Hsiang, Taipei Hsine, Taiwan Tel : +886-2-2299-2499
Korea	Mitsubishi Electric Automation Korea Co., Ltd. 1480-6, Gayang-dong, Gangseo-ku Seoul 157-200, Korea Tel : +82-2-3660-9552
Singapore	Mitsubishi Electric Asia Pte, Ltd. 307 Alexandra Road #05-01/02, Mitsubishi Electric Building, Singapore 159943 Tel : +65-6470-2480
Thailand	Mitsubishi Electric Automation (Thailand) Co., Ltd. Bang-Chan Industrial Estate No.111 Moo 4, Serithai Rd, T.Kannayao, A.Kannayao, Bangkok 10230 Thailand Tel : +66-2-517-1326
Indonesia	P.T. Autoteknindo Sumber Makmur Muara Karang Selatan, Block A/Utara No.1 Kav. No.11 Kawasan Industri Pergudangan Jakarta - Utara 14440, P.O.Box 5045 Jakarta, 11050 Indonesia Tel : +62-21-6630833
India	Messung Systems Pvt, Ltd. Electronic Sadan NO:III Unit No15, M.I.D.C Bhosari, Pune-411026, India Tel : +91-20-2712-3130
Australia	Mitsubishi Electric Australia Pty. Ltd. 348 Victoria Road, Rydalmere, N.S.W 2116, Australia 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.