



Programmable Controller  
MELSEC iQ-F

## MELSEC iQ-F FX5-EIP Hardware Manual

FX5

|               |                |
|---------------|----------------|
| Manual number | IB(NA)-0800723 |
| Revision      | A              |
| Revision date | October 2025   |

This manual describes the part names, dimensions, installation, and specifications of the product. Before use, read this manual and manuals of relevant products fully to acquire proficiency in handling and operating the product. Make sure to learn all the product information, safety information, and precautions.

And, store this manual in a safe place so that you can take it out and read it whenever necessary. Always forward it to the end user.

Registration:

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## SAFETY PRECAUTIONS

(Read these precautions before use.)

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

This manual classifies the safety precautions into two categories: [ ⚠ WARNING ] and [ ⚡ CAUTION ].

|                  |                                                                                                                             |
|------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>⚠ WARNING</b> | Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.                      |
| <b>⚡ CAUTION</b> | Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage. |

Depending on the circumstances, procedures indicated by [ ⚡ CAUTION ] may also cause severe injury.  
It is important to follow all precautions for personal safety.

## RELEVANT MANUALS

| Relevant manuals                                                                      |               |                                                                                                                                       |
|---------------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Manual name                                                                           | Manual number | Description                                                                                                                           |
| MELSEC iQ-F FX5 User's Manual (Communication)                                         | SH-082625ENG  | Describes the communication function of the built-in CPU module and the Ethernet module.                                              |
| MELSEC iQ-F FX5-EIP EtherNet/IP Module User's Manual                                  | SH-082709ENG  | Describes the functions of the FX5-EIP.                                                                                               |
| MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)                            | SH-082452ENG  | Describes the details of hardware of the FX5 CPU module, including performance specifications, wiring, installation, and maintenance. |
| MELSEC iQ-F FX5 Programming Manual (Instructions, Standard Functions/Function Blocks) | JY997D55801   | Describes the specifications of instructions and functions that can be used in programs.                                              |

For the necessary product manuals or documents, consult with your local Mitsubishi Electric representative. Or, download the manual from the following URL.  
www.mitsubishielectric.com/fa/ref/ref.html?kisyu=plc&manual=download\_all

## APPLICABLE STANDARDS

The FX5-EIP EtherNet/IP module (hereinafter referred to as FX5-EIP) complies with the EU Directive (EMC Directive), UL standards (UL, cUL), and UKCA marking. Use an external power supply that satisfies the Safety Extra Low Voltage (SELV) and is compliant with Limited Energy Circuit (LIM) or UL 1310 Class 2.  
For details, refer to the following manual.  
└─JIMELSEC iQ-F FX5-EIP EtherNet/IP Module User's Manual  
For the standards that relate to the CPU modules, refer to the product catalog or consult your local Mitsubishi representative.

### Caution

Use this product under a general industrial environment.

### 1. Outline

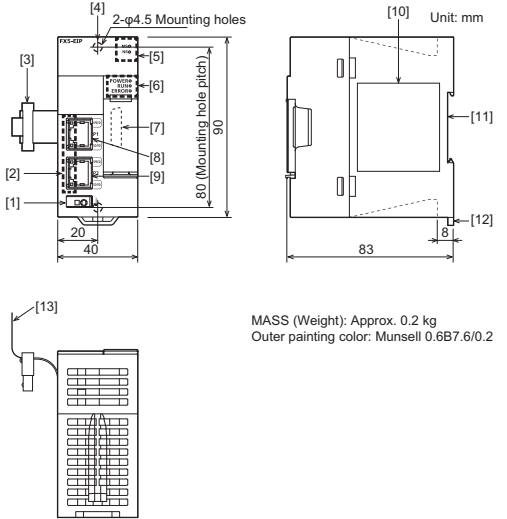
The FX5-EIP is an intelligent function module for connecting to an EtherNet/IP network and general-purpose Ethernet.

#### 1.1 Incorporated items

Check that the following product and items are included in the package:

| Product                     | Quantity |
|-----------------------------|----------|
| FX5-EIP EtherNet/IP module  | 1        |
| Dust proof protection sheet | 1        |
| Safety Guidelines           | 1        |

#### 1.2 External dimensions, part names



| No.  | Name                                                                                        |
|------|---------------------------------------------------------------------------------------------|
| [1]  | Ground terminal block (spring clamp terminal block)*1                                       |
| [2]  | Link status display LEDs                                                                    |
| [3]  | Extension cable                                                                             |
| [4]  | Direct mounting hole (2-φ4.5, mounting screw: M4 screw, tightening torque: 0.83 to 1.11N·m) |
| [5]  | Module/network status display LEDs                                                          |
| [6]  | Operation status display LEDs                                                               |
| [7]  | Extension connector (for next module)                                                       |
| [8]  | Modular jack for P1 (RJ-45) (with cap)                                                      |
| [9]  | Modular jack for P2 (RJ-45) (with cap)                                                      |
| [10] | Name plate*2                                                                                |
| [11] | DIN rail mounting groove (DIN rail: DIN 46277, 35mm wide)                                   |
| [12] | DIN rail mounting hook                                                                      |
| [13] | Pullout tab                                                                                 |

\*1 indicates the functional ground terminal.

\*2 The mark indicates that the more detailed product information can be obtained from the following manuals.  
└─JIMELSEC iQ-F FX5-EIP EtherNet/IP Module User's Manual  
└─JIMELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)  
Download the manuals from the following URL.  
www.mitsubishielectric.com/fa/ref/ref.html?kisyu=plc&manual=download\_all

### 1.3 Indications of LEDs

| LED display | LED color | Status   | Indication                          |
|-------------|-----------|----------|-------------------------------------|
| MS          | Green     | On       | Data communication possible         |
|             |           | Flashing | No parameter setting                |
|             | Red       | On       | Moderate error or major error       |
| NS          | Green     | On       | Data communications being performed |
|             |           | Flashing | Failed to establish connection      |
|             | Red       | Flashing | Connection time out                 |
| POWER       | Green     | On       | Power on                            |
|             |           | Off      | Power off or hardware failure       |
|             | Green     | On       | Normal operation                    |
| RUN         | Green     | On       | Normal operation                    |
|             |           | Off      | Error                               |
|             | Red       | On       | Minor error or major error          |
| ERROR       | Flashing  | Flashing | Moderate error or major error       |
|             |           | Off      | Normal operation                    |
|             | Green     | On       | Link-up (100Mbps)                   |
| P1, P2      | SPEED     | Green    | Link-up (100Mbps)                   |
|             |           | Off      | Link-up (10Mbps)                    |
|             | SD/RD     | Green    | Data being transmitted or received  |
|             | Flashing  | Flashing | Data not transmitted or received    |
|             |           | Off      |                                     |

MS shows the error status of the EtherNet/IP device.

NS shows the network status for EtherNet/IP.

### 2. Installation

#### [INSTALLATION PRECAUTIONS]

##### ⚠ WARNING

- Make sure to cut off all phases of the power supply externally before attempting installation or wiring work. Failure to do so may cause electric shock or damage to the product.
- Use the product within the generic environment specifications described in the User's Manual (Hardware) for the CPU module used. Never use the product in areas with excessive dust, oily smoke, conductive dusts, corrosive gas (salt air, Cl<sub>2</sub>, H<sub>2</sub>S, SO<sub>2</sub> or NO<sub>2</sub>), flammable gas, vibration or impacts, or expose it to high temperature, condensation, or rain and wind. If the product is used in such conditions, electric shock, fire, malfunctions, deterioration or damage may occur.

#### [INSTALLATION PRECAUTIONS]

##### ⚠ CAUTION

- Do not touch the conductive parts of the product directly. Doing so may cause device failures or malfunctions.
- When drilling screw holes or wiring, make sure that cutting and wiring debris do not enter the ventilation slits of the programmable controller. Failure to do so may cause fire, equipment failures or malfunctions.
- The dust proof sheet should be affixed to the ventilation slits before installation and wiring work to block foreign objects such as cutting and wiring debris. However, when the installation work is completed, make sure to remove the sheet to provide adequate ventilation. Failure to do so may cause fire, equipment failures or malfunctions.
- Install the product on a flat surface. If the mounting surface is rough, undue force will be applied to the PC board, thereby causing nonconformities.
- Install the product securely using a DIN rail or mounting screws.
- Connect the extension cables securely to their designated connectors. Loose connections may cause malfunctions.
- Connect this product to the extension connector on the CPU module or on a module connected to the CPU module.

For further information on mounting, refer to the following manual.

└─JIMELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)

### 4. Specifications

#### [DESIGN PRECAUTIONS]

##### ⚠ WARNING

- Make sure to set up the following safety circuits outside the programmable controller to ensure safe system operation even during external power supply problems or programmable controller failure. Otherwise, malfunctions may cause serious accidents.
  - Emergency stop circuits, protection circuits, and protective interlock circuits for conflicting operations (such as forward/reverse rotations or upper/lower limit positioning) must be configured external to the programmable controller.
  - Note that when the CPU module detects an error, such as a watchdog timer error, during self-diagnosis, all outputs are turned off. Also, when an error that cannot be detected by the CPU module occurs in an input/output control block, output control may be disabled. External circuits and mechanisms should be designed to ensure safe machinery operation in such a case.
- For the operating status of each station after a communication failure, refer to manuals relevant to the network. Incorrect output or malfunction due to a communication failure may result in an accident.
- Construct an interlock circuit in the program so that the whole system always operates on the safe side before executing the control (for data change) of the programmable controller in operation.  
Read the manual thoroughly and ensure complete safety before executing other controls (for program change, parameter change, forced output and operation status change) of the programmable controller in operation. Otherwise, the machine may be damaged and accidents may occur due to erroneous operations.
- Especially, when a remote programmable controller is controlled by an external device, immediate action cannot be taken if a problem occurs in the programmable controller due to a communication failure. To prevent this, configure an interlock circuit in the program, and determine corrective actions to be taken between the external device and CPU module in case of a communication failure.
- If a communication cable is disconnected, the network may be unstable, resulting in a communication failure of multiple stations. Configure an interlock circuit in the program to ensure that the entire system will always operate safely even if communications fail. Failure to do so may result in an accident due to an incorrect output or malfunction.

#### [DESIGN PRECAUTIONS]

##### ⚠ CAUTION

- Simultaneously turn on and off the power supplies of the CPU module and extension modules.

#### [SECURITY PRECAUTIONS]

##### ⚠ WARNING

- To maintain the security (confidentiality, integrity, and availability) of the programmable controller and the system against unauthorized access, denial-of-service (DoS) attacks, computer viruses, and other cyberattacks from unreliable networks and devices via network, take appropriate measures such as firewalls, virtual private networks (VPNs), and antivirus solutions.

#### [STARTUP AND MAINTENANCE PRECAUTIONS]

##### ⚠ CAUTION

- Do not disassemble or modify the programmable controller. Doing so may cause fire, equipment failures, or malfunctions.  
For repair, contact your local Mitsubishi Electric representative.
- Do not drop the product or exert strong impact to it.  
Doing so may cause damage.

#### [DISPOSAL PRECAUTIONS]

##### ⚠ CAUTION

- Please contact a certified electronic waste disposal company for the environmentally safe recycling and disposal of your device.

#### [TRANSPORTATION PRECAUTIONS]

##### ⚠ CAUTION

- The product is a precision instrument. During transportation, avoid impacts larger than those specified in the general specifications by using dedicated packaging boxes and shock-absorbing pallettes.  
Failure to do so may cause failures in the product.  
After transportation, verify operation of the product and check for damage of the mounting part, etc.

#### 4.1 Applicable CPU module

For the versions of the compatible CPU modules and controllers, refer to the user's manual for the CPU module or controller used.

#### 4.2 Applicable software package

| Software  | Availability                                                      |
|-----------|-------------------------------------------------------------------|
| GX Works3 | Refer to the user's manual for the CPU module or controller used. |

### 3. Wiring

#### [WIRING PRECAUTIONS]

##### ⚠ WARNING

- Make sure to cut off all phases of the power supply externally before attempting installation or wiring work. Failure to do so may cause electric shock or damage to the product.
- The temperature rating of the cable should be 80°C or more.
- Make sure to properly wire to the spring clamp terminal block in accordance with the following precautions.  
Failure to do so may cause electric shock, equipment failures, a short-circuit, wire breakage, malfunctions, or damage to the product.
  - The disposal size of the cable end should follow the dimensions described in the manual.
  - Twist the ends of stranded wires and make sure that there are no loose wires.
  - Do not solder-plate the electric wire ends.
  - Do not connect more than the specified number of wires or electric wires of unspecified size.
  - Affix the electric wires so that neither the terminal block nor the connected parts are directly stressed.

#### [WIRING PRECAUTIONS]

##### ⚠ CAUTION

- Make sure to observe the following precautions in order to prevent any damage to the machinery or accidents due to malfunction of the programmable controller caused by abnormal data written to the programmable controller due to the effects of noise.
  - Do not bundle the communication cables together with or lay them close to the main circuit, high-voltage line, load line or power line. As a guideline, lay the power line and communication cables at least 100mm away from the main circuit, high-voltage line, load line or power line.
- Install module so that excessive force will not be applied to terminal blocks, or communication cables.  
Failure to do so may result in wire damage/breakage or programmable controller failure.

#### 3.1 Connector and cable to be used

##### Connector pin layout

The pin layout of the 10BASE-T/100BASE-TX connectors (RJ-45 type modular jack) of the FX5-EIP is as follows:

| Pin | Signal name | Content                            |
|-----|-------------|------------------------------------|
| 1   | TP0+        | Sends and receives data 0 (+ side) |
| 2   | TP0-        | Sends and receives data 0 (- side) |
| 3   | TP1+        | Sends and receives data 1 (+ side) |
| 4   | TP2+        | Sends and receives data 2 (+ side) |
| 5   | TP2-        | Sends and receives data 2 (- side) |
| 6   | TP1-        | Sends and receives data 1 (- side) |
| 7   | TP3+        | Sends and receives data 3 (+ side) |
| 8   | TP3-        | Sends and receives data 3 (- side) |

##### Cables to be used

Use Ethernet cables that meet the following standards.

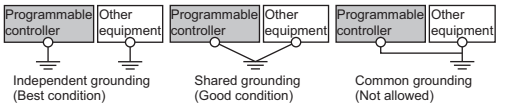
| Ethernet standard | Specifications                                      |
|-------------------|-----------------------------------------------------|
| 100BASE-TX        | Category 5 or higher (STP cable <sup>*1</sup> )     |
| 10BASE-T          | Category 3 or higher (STP/UTP cable <sup>*1</sup> ) |

\*1 Shielded twisted pair cable  
A straight/cross cable can be used.

#### 3.2 Grounding

Ground the programmable controller as follows:

- Provide a ground resistance of 100 Ω or less.
- Ground the programmable controller independently if possible.  
If the programmable controller cannot be grounded independently, provide "Shared grounding" shown below.  
For details, refer to the following manual.  
└─JIMELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)



- Bring the grounding point close to the programmable controller as much as possible so that the ground cable can be shortened.

#### 4.3 General specifications

The items other than the following are equivalent to those of the CPU module.  
For the general specification, refer to the following manual.  
└─JIMELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)

| Item                  | Specifications                                        |                                           |
|-----------------------|-------------------------------------------------------|-------------------------------------------|
| Withstand voltage     | 500VAC for 1 minute                                   | Between all terminals and ground terminal |
| Insulation resistance | 10MΩ or higher by 500VDC insulation resistance tester |                                           |

#### 4.4 Power supply specifications

| Item                  |                      | Specifications |
|-----------------------|----------------------|----------------|
| Internal power supply | Power supply voltage | 24VDC          |
|                       | Current consumption  | 110mA          |

#### 4.5 Performance specifications

For the performance specifications other than below, refer to the MELSEC iQ-F FX5-EIP EtherNet/IP Module User's Manual.

| Item                          | Specifications                                                                                                                  |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Protocol type                 | EtherNet/IP communication<br>MELSOFT connection<br>SLMP client (3E frame)<br>SLMP server (3E/1E frames)<br>Socket communication |
| Number of ports               | 2 <sup>*1</sup>                                                                                                                 |
| Number of occupied I/O points | 8 points                                                                                                                        |
| Number of connectable units   | 1 module                                                                                                                        |

\*1 Since the IP address is shared by two ports, only one address can be set.

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.

#### Warranty

Exclusion of loss in opportunity and secondary loss from warranty liability  
Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation to:  
(1) Damages caused by any cause found not to be the responsibility of Mitsubishi.  
(2) Loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products.  
(3) Special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products.  
(4) Replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

#### ⚠ 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 Electric.
- 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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