



Programmable Controller
MELSEC iQ-F

Side A JAPANESE
Side B ENGLISH
Side C CHINESE

MELSEC iQ-F FX5-C1PS-5V

Hardware Manual



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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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Effective April 2022

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Safety Precautions (Read these precautions before use.)

This manual classifies the safety precautions into two categories:

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.

Depending on the circumstances, procedures indicated by **CAUTION** may also cause severe injury.

It is important to follow all precautions for personal safety.

Associated Manuals

Manual name	Manual No.	Description
MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)	SH-082452ENG	Describes the details of hardware of the CPU module, including performance specifications, wiring, installation, and maintenance.

How to obtain manuals

For the necessary product manuals or documents, consult with your local Mitsubishi Electric representative.

Applicable standards

FX5-C1PS-5V complies with the EC Directive (EMC Directive), UL standards (UL, cUL) and UKCA marking. Further information can be found in the following manual.

→ MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)

Regarding the standards that relate to the CPU module, please refer to either the product catalog or consult with your nearest Mitsubishi product provider.

Attention

This product is designed for use in industrial applications.

1. Outline

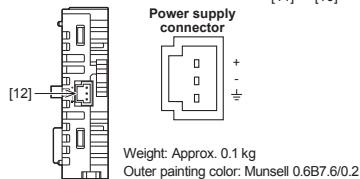
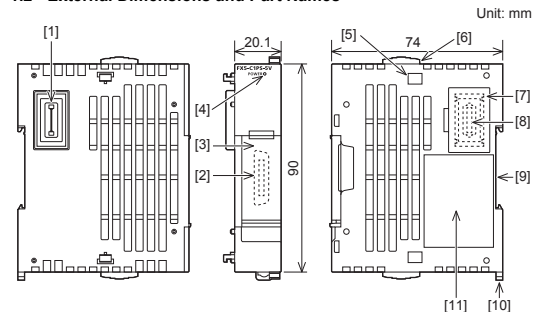
When the FX5U CPU module (DC power supply type) or FX5UC CPU module internal power is insufficient for powering the I/O modules or intelligent function modules, the FX5-C1PS-5V is available. Moreover, when connecting a module of extension cable type to FX5UC CPU module, the FX5-C1PS-5V also acts as a conversion module. Up to two FX5-C1PS-5V units can be used for one system. For details on installation and wiring, and system configuration with the FX5U CPU module (DC power supply type) or FX5UC CPU module including the FX5-C1PS-5V, refer to the following manual.

→ MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)

1.1 Incorporated Items

Product	FX5-C1PS-5V extension power supply module
Included Items	FX2NC-100MPCB power cable Hardware manual (This manual)

1.2 External Dimensions and Part Names



- [1] Extension connector (for preceding module)
- [2] Extension connector (for next module of extension cable type)
- [3] Extension connector cover
- [4] POWER LED (green)
- [5] Extension module fixing hole
- [6] Extension module fixing hook
- [7] Extension connector cover
- [8] Extension connector (for next module of extension cable type)
- [9] DIN rail mounting groove (DIN rail: DIN46277, 35 mm wide)
- [10] DIN rail mounting hook
- [11] Nameplate
- [12] Power supply connector

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) of the CPU module used. Never use the product in areas with excessive dust, oily smoke, conductive dusts, corrosive gas (salt air, Cl₂, H₂S, SO₂ or NO₂), 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 PLC. Failure to do so may cause fire, equipment failures or malfunctions.

INSTALLATION PRECAUTIONS **CAUTION**

- 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 power supply module securely to their designated connectors. Loose connections may cause malfunctions.

For the installation, refer to the following manual.

→ MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)

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.

WIRING PRECAUTIONS **CAUTION**

- Connect the power supply wiring to the dedicated terminals described in this manual. If an AC power supply is connected to a DC input/output terminal or DC power supply terminal, the PLC will burn out.

3.1 Installation and removal of the power cable

For installation and removal of the power cable, refer to the following manual.

→ MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)

4. Specification

DESIGN PRECAUTIONS **WARNING**

- Make sure to set up the following safety circuits outside the PLC to ensure safe system operation even during external power supply problems or PLC failure. Otherwise, malfunctions may cause serious accidents.
 - Most importantly, set up the following: an emergency stop circuit, a protection circuit, an interlock circuit for opposite movements (such as normal vs. reverse rotation), and an interlock circuit (to prevent damage to the equipment at the upper and lower positioning limits).
- 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.
- Note that when an error occurs in a relay, transistor or triac of an output circuit, the output might stay on or off. For output signals that may lead to serious accidents, external circuits and mechanisms should be designed to ensure safe machinery operation in such a case.

STANDUP AND MAINTENANCE PRECAUTIONS **CAUTION**

- Do not disassemble or modify the PLC. 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

Model name	Applicability
FX5U CPU module (DC power supply type)	From first production
FX5UC CPU module	

4.2 General Specifications

The items other than the following are equivalent to those of the CPU module. For general specifications, refer to the following manual.

→ MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)

Item	Specification	
Dielectric withstand voltage	500 V AC for one minute	Between power supply terminal (24 V DC) and ground terminal
Insulation resistance	10 MΩ or higher by 500 V DC insulation resistance tester	

4.3 Power Supply Specification

Item	Specification	
Power supply voltage	24 V DC	
Voltage fluctuation range	+20%, -15%	
Allowable instantaneous power failure time	Operation can be continued upon occurrence of instantaneous power failure for 5 ms or less.	
Power fuse	125 V, 3.15 A Time-lag fuse	
Rush current	35 A max. 0.5 ms or less/24 V DC	
Power consumption	30 W ²	
Output current*1	1200 mA/5 V DC ³ 625 mA/24 V DC ³	

*1 Supply for extension modules connected after this module.

*2 Voltage fluctuation range is included.

*3 Maximum output current depends on the ambient temperature. For details, refer to the following manual.

→ MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)

5. Connection Precautions

FX5-C1PS-5V is equipped with the connector for extension cable type, and the connector for extension connector type. However, it cannot be used for both simultaneously. Only one can be used at a time.

For details on connection, refer to the following manual.

→ MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)

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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.