



JAPANESE ENGLISH

Programmable Controller MELSEC iQ-F

MELSEC iQ-F FX5-8AD

Hardware Manual



Manual Number: JY997D73901, Revision: E, Date: October 2023

This manual describes the part names, dimensions, installation, and specifications of the product.

And, store this manual in a safe place so that you can take it out and read it whenever necessary.

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Effective October 2023 Specifications are subject to change without notice. © 2017 MITSUBISHI ELECTRIC CORPORATION

Safety Precautions (Read these precautions before use.)

This manual classifies the safety precautions into two categories:

WARNING and CAUTION.

Table with 2 columns: Symbol (Warning/ Caution) and Description of hazard.

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

Associated Manual

Table with 3 columns: Manual name, Manual No., Description.

How to obtain manuals

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

Applicable standards

FX5-8AD complies with the EU Directive (EMC Directive), UL standards (UL, cUL) and UKCA marking.

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

Attention

This product is designed for use in industrial applications.

1. Outline

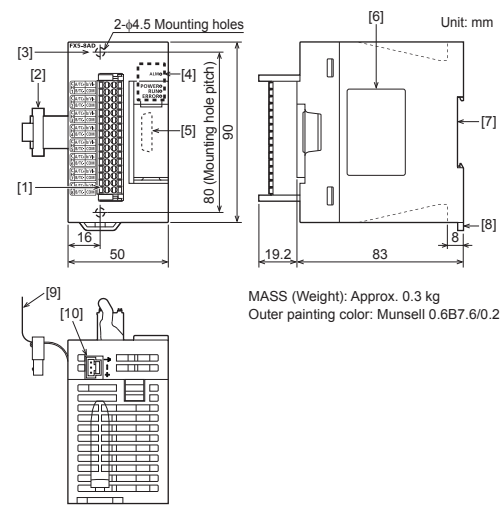
FX5-8AD multiple input module (hereinafter called FX5-8AD) can convert 8 points of analog input values (voltage input, current input, thermocouple and resistance temperature detector) into digital values.

1.1 Incorporated Items

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

Table listing Product (FX5-8AD multiple input module) and Included Items (power cable, dust proof sheet, manuals).

1.2 External Dimensions, Part Names

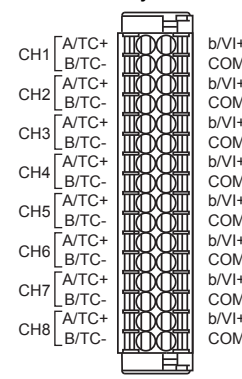


- 1] Terminal block, 2] Extension cable, 3] Direct mounting hole, 4] Operation status display LEDs, 5] Extension connector, 6] Name plate, 7] DIN rail mounting groove, 8] DIN rail mounting hook, 9] Pullout tab, 10] Power connector

1.3 Indications of LEDs

Table with 4 columns: LED display, LED color, Status, Indication.

1.4 Terminal Layout



For further information on terminal, refer to the following manual. → MELSEC iQ-F FX5 Analog Module User's Manual

2. Installation

INSTALLATION PRECAUTIONS WARNING. Make sure to cut off all phases of the power supply externally before attempting installation or wiring work.

INSTALLATION PRECAUTIONS CAUTION. Do not touch the conductive parts of the product directly. Do not enter the ventilation slits of the PLC.

For further information on mounting, 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.

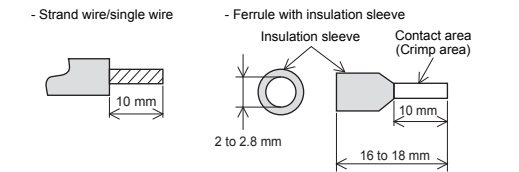
WIRING PRECAUTIONS CAUTION. Make sure to observe the following precautions in order to prevent any damage to the machinery or accidents due to malfunction of the PLC caused by abnormal data written to the PLC due to the effects of noise.

3.1 Applicable Cable

3.1.1 Spring clamp terminal block

Table showing wire size, ferrules with insulation sleeve, and temperature rating for different wire types.

2) Wire end treatment Strip the cable about 10 mm from the tip to connect a wire ferrule at the striped area.



The following table shows wire ferrules and tools for wire ferrules compatible with the terminal block.

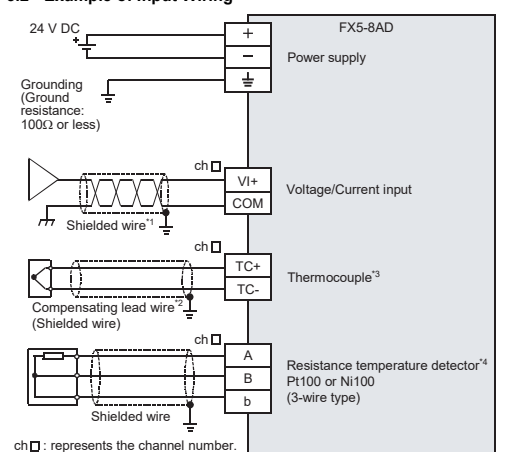
Table listing Manufacturer, Model, Wire size, and Crimp tool for wire ferrules.

3) Connecting a cable When ferrules with insulation sleeve are used Insert a wire with the ferrule with insulation sleeve into the wire insertion opening and push the wire.

Table with 2 columns: Manufacturer, Model.

4) Disconnecting a cable Push the open/close button of the wire to be disconnected with a flathead screwdriver.

3.2 Example of Input Wiring



- *1 For analog input wiring, use shielded twisted-pair cables (double-core type). *2 When using a thermocouple, use specified compensating lead wires. *3 Use insulated thermocouple types. *4 When using a resistance temperature detector, use lead wires of equal, low resistance.

3.2.1 Power connector

For further information on the power supply wiring and power cable, refer to the following manual. → MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)

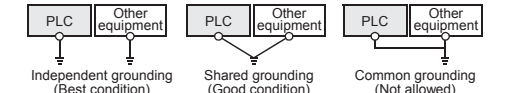


3.3 Grounding

Ground the PLC as stated below.

- Perform class D grounding. (Grounding resistance: 100 Ω or less) • Ground the PLC independently if possible. • If the PLC cannot be grounded independently, perform the "Shared grounding" shown below.

For details, refer to the following manual. → MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)



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

4. Specification

DESIGN PRECAUTIONS WARNING. Make sure to set up the following safety circuits outside the PLC to ensure safe system operation.

DESIGN PRECAUTIONS CAUTION. Simultaneously turn on and off the power supplies of the CPU module and extension modules.

STARTUP AND MAINTENANCE PRECAUTIONS CAUTION. Do not disassemble or modify the PLC. Do not drop the product or exert strong impact to it.

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.

4.1 Applicable CPU module

Table with 2 columns: Model name, Applicability.

*1 FX5-CNV-IFC or FX5-C1PS-5V is necessary to connect FX5-8AD to the FX5UC CPU module.

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

Table with 2 columns: Items, Specifications.

4.3 Power Supply Specifications

Table with 2 columns: Items, Specifications.

4.4 Performance Specifications

Table with 2 columns: Items, Specifications.

*1 In the case of 2CH conversion mode, conversion speed is 1 ms/2ch.

4.5 Voltage/current input specifications

Table with 2 columns: Items, Specifications.

*1 For the input characteristic, refer to the following. → MELSEC iQ-F FX5 Analog Module User's Manual

4.6 Thermocouple input specifications

Table with 2 columns: Items, Specifications.

Table with 2 columns: Items, Specifications.

*1 To stabilize the accuracy, warm-up (supply power) the system for 30 minutes or more after power-on.

4.7 Resistance temperature detector input specifications

Table with 2 columns: Items, Specifications.

*1 Only 3-wire type resistance temperature detectors can be used.

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses.

Warranty Exclusion of loss in opportunity and secondary loss from warranty liability. (1) Damages caused by any cause found not to be the responsibility of Mitsubishi.

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.