MITSUBISHI ELECTRIC

Programmable Controller

MELSEC iQ-F

Side A	JAPANESE
Side B	ENGLISH
Side C	CHINESE

MELSEC iQ-F FX5-30EC, FX5-65EC

Hardware Manual

FX5

Manual Number	JY997D65501
Revision	B
Date	October 2019

This manual describes the dimensions and installation 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.
Store this manual in a safe place so that it can be read whenever necessary. Always forward it to the end user.
Registration:
The company names, system names and product names mentioned in this manual are either registered trademarks or trademarks of their respective companies. In some cases, trademark symbols such as '™' or '®' are not specified in this manual.

Effective October 2019
Specifications are subject to change without notice.
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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.

STARTUP 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 palettes.
  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.

Associated Manuals

Manual name	Manual No.	Description
MELSEC iQ-F FX5-CNV-BC Hardware Manual	JY997D65401	Explains connector conversion adapter.
MELSEC iQ-F FX5UJ User's Manual (Hardware)	SH-082206ENG	Explains FX5UJ CPU module specification details for I/O, wiring, installation, and maintenance.
MELSEC iQ-F FX5U User's Manual (Hardware)	JY997D55301	Explains FX5U CPU module specification details for I/O, wiring, installation, and maintenance.
MELSEC iQ-F FX5UC User's Manual (Hardware)	JY997D61401	Explains FX5UC CPU module specification details for I/O, wiring, installation, and maintenance.

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

Applicable standards
FX5-30EC, FX5-65EC comply with the EC Directive (EMC Directive).
Further information can be found in the following manual.
→ **MELSEC iQ-F FX5UJ User's Manual (Hardware)**
→ **MELSEC iQ-F FX5U User's Manual (Hardware)**
→ **MELSEC iQ-F 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 local Mitsubishi Electric representative.

Attention
This product is designed for use in industrial applications.

1. Outline
The FX5-30EC and FX5-65EC are extended extension cables used to connect an extension module located distantly or on a second stage.

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

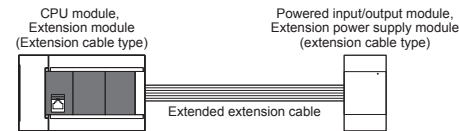| Product | FX5-30EC extended extension cable [30 cm] |
| | FX5-65EC extended extension cable [65 cm] |
| Included items | Hardware manual (This manual) |

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.
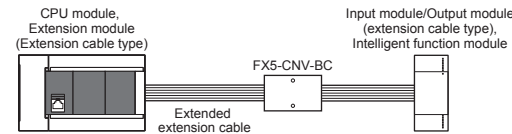
INSTALLATION PRECAUTIONS	⚠CAUTION

• 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.
• Work carefully when using a screwdriver such as installation of the product.
  Failure to do so may cause damage to the product or accidents.
• Connect the extended extension cable, peripheral device cables, input/output cables and battery connecting cable securely to their designated connectors.
  Loose connections may cause malfunctions.
• Turn off the power to the PLC before attaching or detaching the following devices.
  Failure to do so may cause equipment failures or malfunctions.
  - Peripheral devices, expansion board, expansion adapter, and connector conversion adapter
  - Extension modules, bus conversion module, and connector conversion module

2.1 Cable configurations
• For powered input/output module and extension power supply module (extension cable type)

CPU module, Extension module (Extension cable type)   Powered input/output module, Extension power supply module (extension cable type)
Extended extension cable

• For input/output module (extension cable type) and intelligent function module
The FX5-CNV-BC is required when connecting an extended extension cable to an input/output module (extension cable type) or intelligent function module.

CPU module, Extension module (Extension cable type)   Input module/Output module (extension cable type), Intelligent function module
FX5-CNV-BC
Extended extension cable

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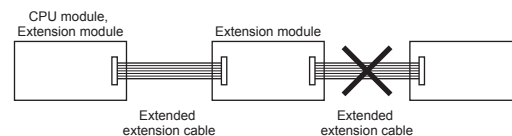→ **MELSEC iQ-F FX5UJ User's Manual (Hardware)**
→ **MELSEC iQ-F FX5U User's Manual (Hardware)**
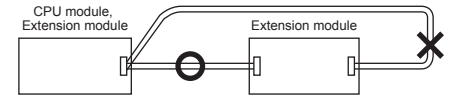→ **MELSEC iQ-F FX5UC User's Manual (Hardware)**

Caution

• Only one extended extension cable can be used for one system.

CPU module, Extension module   Extension module
Extended extension cable   Extended extension cable

• When using the FX5-CNV-BC a half twist will appear in the cable.
• Wire the extension cable for extension with a distance of not less than 50 mm from the output wiring of the PLC and a noise source including the other driving power supply.

• The extension module should not be connected through the right hand expansion port as shown in the following figure.

CPU module, Extension module   Extension module

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.

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE : TOKYO BUILDING, 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN