Side B

MITSUBISHI ELECTRIC

Side A JAPANESE

Side B ENGLISH

Programmable Controller
MELSEC iQ-F

TRANSLATION OF THE ORIGINAL INSTRUCTIONS

MELSEC iQ-F FX5 Simple Motion Module

Hardware Manual

FX5

Manual Number	BCN-B62008-337
Revision	J
Date	February 2026

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.
Trademarks:
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Effective February 2026
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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 ⚠WARNING

- Do not touch any terminal while the PLC's power is on.
  Doing so may cause electric shock or malfunctions.
- Before cleaning or retightening terminals, cut off all phases of the power supply externally. Failure to do so in the power ON status may cause electric shock.
- Before modifying the program in mid-operation, forcing output, running or stopping the PLC, read through this manual carefully, and ensure complete safety.
  An operation error may damage the machinery or cause accidents.
- Do not change the program in the PLC from two or more peripheral equipment devices at the same time. (i.e. from an engineering tool and a GOT)
  Doing so may cause destruction or malfunction of the PLC program.

STARTUP AND MAINTENANCE PRECAUTIONS ⚠CAUTION

- Use a clean and dry cloth to wipe off dirt on the module.

Relevant Manuals

Manual name	Manual No.	Description
MELSEC iQ-F FX5 Motion Module/Simple Motion Module User's Manual (Startup)	IB-0300251ENG	Explains Motion module/Simple Motion module specifications, functions list and wiring.
MELSEC iQ-F FX5 Motion Module/Simple Motion Module User's Manual (Application)	IB-0300253ENG	Explains Motion module/Simple Motion module functions, programming and troubleshooting.
MELSEC iQ-F FX5 Motion Module/Simple Motion Module User's Manual (Advanced Synchronous Control)	IB-0300255ENG	Functions, programming and buffer memory for the synchronous control of the Motion module/Simple Motion module.
MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)	SH-082452ENG	Explains the details of hardware of the FX5 CPU module, including performance specifications, wiring, installation, and maintenance.
GX Works3 Operating Manual	SH-081215ENG	System configuration, parameter settings, and online operations (common to simple project and structured project) of GX Works3.

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

Standards

FX5-40SSC-S or FX5-80SSC-S is compliant with the EC Directive (EMC Directive), UL standards (UL, cUL), and UKCA marking.

For further information, refer to the following manual.
→ **MELSEC iQ-F FX5 Motion Module/Simple Motion Module User's Manual (Startup)**

For the standards that relate to the CPU modules, refer to the product catalog or consult your local Mitsubishi representative.

Attention
This product is designed for use in industrial applications.
Use an external power supply that satisfies the Safety Extra Low Voltage (SELV) and is compliant with Limited Energy Circuit (LIM) or UL 1310 Class2.

1. Overview

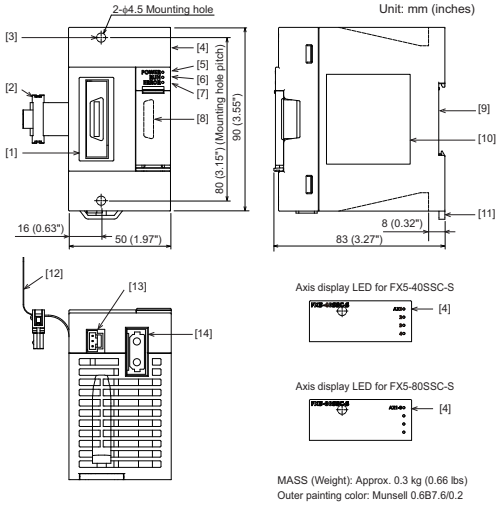
FX5-40SSC-S or FX5-80SSC-S type Simple Motion module (hereinafter referred to as FX5SSC) is an intelligent function module applicable to SSCNETIII(/H).
FX5SSC can perform positioning control by servo motor via SSCNETIII(/H) applied servo amplifier.
For positioning control, refer to the following manual.
→ **MELSEC iQ-F FX5 Motion Module/Simple Motion Module User's Manual (Startup)**
→ **MELSEC iQ-F FX5 Motion Module/Simple Motion Module User's Manual (Application)**
For synchronous control, refer to the following manual.
→ **MELSEC iQ-F FX5 Motion Module/Simple Motion Module User's Manual (Advanced Synchronous Control)**

1.1 Packing list

Check that the following module and accessories are included in the package:

Product	Module
Accessories	• FX2NC-100MPCB Power supply cable (1 m) × 1 cable • Dust proof sheet × 1 sheet • Hardware manual [Japanese/English] (This manual) • Hardware manual [Chinese]

1.2 External dimensions and part names



MASS (Weight): Approx. 0.3 kg (0.66 lbs)
Outer painting color: Munsell 0.6B7.6/0.2

[1] External input connection connector
[2] Extension cable
[3] Direct mounting hole: 2 holes of ϕ4.5 (0.18") (mounting screw: M4 screw)
[4] Axis display LED
[5] POWER LED
[6] RUN LED
[7] ERROR LED
[8] Extension connector
[9] DIN rail mounting groove (DIN rail: DIN46277, 35 mm (1.38") wide)
[10] Rating plate
[11] DIN rail mounting hook
[12] Pullout tab
[13] Power supply connector
[14] SSCNETIII cable connector

1.3 Power and status LED

□: OFF, ■: ON, ◆: Flashing
(Flashing interval ON: 200 ms/OFF: 200 ms)

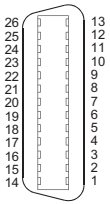
LED display		Description
POWER LED is OFF	FX5-40SSC-S: AX1□, AX2□, AX3□, AX4□ FX5-80SSC-S: AX1-8□	Power of Simple Motion module is OFF
	POWER□, RUN□, ERROR□	
RUN LED is ON ERROR LED is OFF AX LED is OFF	FX5-40SSC-S: AX1□, AX2□, AX3□, AX4□*1 FX5-80SSC-S: AX1-8□*2	The axes stopped The axes on standby
	POWER■, RUN■, ERROR□	
AX LED is ON	FX5-40SSC-S: AX1■, AX2□, AX3□, AX4□*3 FX5-80SSC-S: AX1-8■*4	The axis in operation
	POWER■, RUN■, ERROR□	
ERROR LED is ON AX LED is Flashing	FX5-40SSC-S: AX1◆, AX2□, AX3□, AXD□*5 FX5-80SSC-S: AX1-8◆*6	Minor error
	POWER■, RUN■, ERROR■	
ERROR LED is Flashing	FX5-40SSC-S: AX1□, AX2□, AX3□, AX4□ FX5-80SSC-S: AX1-8□	Moderate error Watchdog timer error
	POWER■, RUN■, ERROR◆	

*1 The stop or standby AX LED is OFF.
*2 When all axes are stopped or on standby, the AX LED turns OFF.
*3 The operating AX LED is ON.
*4 When any of the axes is in operation, the AX LED turns ON.
*5 The AX LED in which error occurred is flashing.
*6 When an error occurs in any of the axes, the AX LED is flashing.

1.4 Signal layout for external input connection connector

For further information on the input wiring and input cable, refer to the following manual.

→ **MELSEC iQ-F FX5 Motion Module/Simple Motion Module User's Manual (Startup)**



Front view of the module

Pin No.	Signal name		Pin No.	Signal name	
1	No connect		14	No connect	
2	SG	Signal ground	15	SG	Signal ground
3	HA	Manual pulse generator/ Incremental synchronous encoder A-phase/PULSE*1	16	HB	Manual pulse generator/ Incremental synchronous encoder B-phase/SIGN*1
4	HAH	Manual pulse generator/ Incremental synchronous encoder A-phase/PULSE*2	17	HBH	Manual pulse generator/ Incremental synchronous encoder B-phase/SIGN*2
5	HAL		18	HBL	
6 to 9	No connect		19 to 22	No connect	
10	EMI	Forced stop input signal	23	EMI. COM	Forced stop input signal common
11	DI1	External command/ Switching signal	24	DI2	External command/ Switching signal
12	DI3		25	DI4	
13	COM	Common (COM)	26	COM	Common (COM)

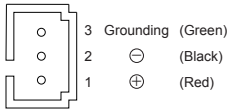
*1 Voltage-output/open-collector type

*2 Differential-output type

1.5 Power supply connector

For further information on the power supply wiring and power cable, refer to the following manual.

→ **MELSEC iQ-F FX5 Motion Module/Simple Motion Module User's Manual (Startup)**



2. Installation

INSTALLATION PRECAUTIONS ⚠WARNING

- Completely turn off the externally supplied power used in the system before installing or removing the module. Not doing so could result in electric shocks, an operation failure or damage to the module.

INSTALLATION PRECAUTIONS ⚠CAUTION

- Never try to disassemble or modify the modules. It may cause product failure, operation failure, injury or fire.
- Use the programmable controller in an environment that meets the general specifications in the manual supplied with the CPU module. Using the programmable controller in an environment outside the range could result in electric shock, fire, operation failure, and damage to or deterioration of the product.
- Do not directly touch the module's conductive parts and electronic components. Doing so may could cause an operation failure or give damage to the module.
- Lock the control panel and prevent access to those who are not certified to handle or install electric equipment.

2.1 Installation location

The product connects on the right side of CPU module or extension module.

For further information of installation arrangements, refer to the following manual.

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

2.2 Installation

The product is mounted by the following method.

- Installing directly (with M4 screws)
- DIN rail mounting

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

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

3. Specification

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 external devices via the network, take appropriate measures such as firewalls, virtual private networks (VPNs), and antivirus solutions.

DISPOSAL PRECAUTIONS ⚠CAUTION

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

TRANSPORTATION AND STORAGE PRECAUTIONS ⚠CAUTION

- The product is a precision instrument. During transportation, avoid any impacts. Failure to do so may cause failures in the product.

3.1 Applicable CPU module

Model name	Applicability
FX5U CPU module	FX5-40SSC-S: Ver. 1.000 or later (from first production) FX5-80SSC-S: Ver. 1.014 or later
FX5UC CPU module	FX5-40SSC-S: Ver. 1.000 or later (from first production) FX5-80SSC-S: Ver. 1.014 or later

3.2 General specifications

General specifications other than the following are same as those of a CPU module to be connected.

For the general specification of the CPU modules, refer to the following manual.

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

Items	Specifications	
Operating ambient temperature	0 to 55 °C	
Dielectric withstand voltage	500 V AC for 1 minute	Between all terminals and ground terminal
Insulation resistance	10 MΩ or higher by 500 V DC insulation resistance tester	

3.3 Power supply specifications

Items		Specifications
External power supply	Power supply voltage	24 V DC +20% -15%
	Allowable instantaneous power failure time	Operation continues when the instantaneous power failure is shorter than 5 ms.
	Power consumption	6 W
	Power fuse	1 A
Internal power supply	PLC power supply	Not used.

3.4 Performance specifications

Items		Specifications
Number of controlled axes		FX5-40SSC-S: 4 axes FX5-80SSC-S: 8 axes
Operation cycle		0.888 ms/1.777 ms
External wiring connection system		26-pin connector
Applicable wire size		AWG30 to 24 (0.05 to 0.2 mm^2)*1
External input wiring connector		LD77MHIOCON
SSCNETIII cable	MR-J3BUS_M*2	• FX5SSC ⇔MR-J4(W)-B/MR-JE-B(F)/MR-J3(W)-B • MR-J4(W)-B/MR-JE-B(F)/MR-J3(W)-B ⇔MR-J4(W)-B/MR-JE-B(F)/MR-J3(W)-B • Standard cord for inside panel 0.15 m (0.49 ft.), 0.3 m (0.98 ft.), 0.5 m (1.64 ft.), 1 m (3.28 ft.), 3 m (9.84 ft.)
	MR-J3BUS_M-A*2	• FX5SSC ⇔MR-J4(W)-B/MR-JE-B(F)/MR-J3(W)-B • MR-J4(W)-B/MR-JE-B(F)/MR-J3(W)-B ⇔MR-J4(W)-B/MR-JE-B(F)/MR-J3(W)-B • Standard cable for outside panel 5 m (16.40 ft.), 10 m (32.81 ft.), 20 m (65.62 ft.)
	MR-J3BUS_M-B*2*3	• FX5SSC ⇔MR-J4(W)-B/MR-JE-B(F)/MR-J3(W)-B • MR-J4(W)-B/MR-JE-B(F)/MR-J3(W)-B ⇔MR-J4(W)-B/MR-JE-B(F)/MR-J3(W)-B • Long distance cable 30 m (98.43 ft.), 40 m (131.23 ft.), 50 m (164.04 ft.)
Flash memory (Flash ROM) write count		Up to 100000 times
Number of occupied I/O points		8 points

*1 AWG24 (0.2 mm^2) is recommended.

*2 _ = Cable length (015: 0.15 m (0.49 ft.), 03: 0.3 m (0.98 ft.), 05: 0.5 m (1.64 ft.), 1: 1 m (3.28 ft.), 3: 3 m (9.84 ft.), 5: 5 m (16.40 ft.), 10: 10 m (32.81 ft.), 20: 20 m (65.62 ft.), 30: 30 m (98.43 ft.), 40: 40 m (131.23 ft.), 50: 50 m (164.04 ft.))

*3 For the cable of less than 30 m (98.43 ft.), contact your nearest Mitsubishi sales representative.

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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FX5SSC-U-HW