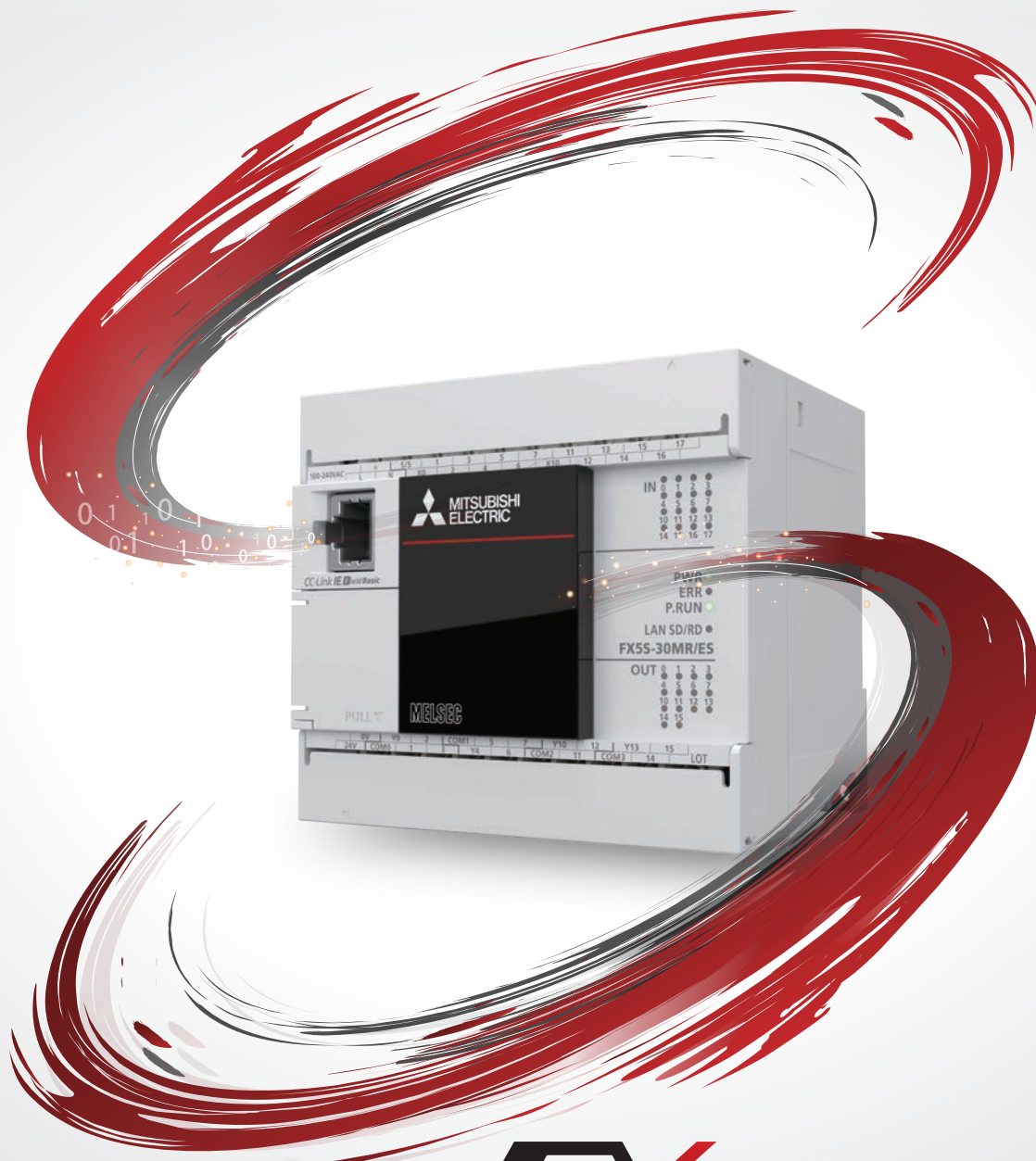FACTORY AUTOMATION

MELSEC iQ-F series

MELSEC iQ-F Series
iQ Platform-compatible PLC
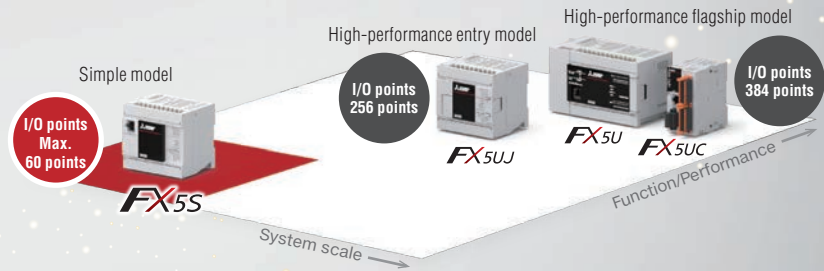
FX5S-30M☐/☐, FX5S-40M☐/☐, FX5S-60M☐/☐

New **FX5S**

MELSEC iQ-F lineup

Abundant lineup for manufacturing site.

Simple model

High-performance entry model

High-performance flagship model

I/O points Max. 60 points — FX5S

I/O points 256 points — FX5UJ

I/O points 384 points — FX5U FX5UC

System scale →

Function/Performance →

System configuration

Expansion adapter and expansion board can be used, aiming for easy and simple configuration.

Expansion adapter — Max. 6 modules in total

Analog adapter*1

Analog input
FX5-4AD-ADP | 4 ch | 14-bit

Analog output
FX5-4DA-ADP | 4 ch | 14-bit

Analog input/output
FX5-4A-ADP | 2 ch | 2 ch | 14-bit

For resistance temperature detector input
FX5-4AD-PT-ADP | 4 ch | 0.1℃

For thermocouple input
FX5-4AD-TC-ADP | 4 ch | 0.1℃ | *3

Max. 4 modules*2

Communication adapter

For RS-232C communication
FX5-232ADP | 1 ch

For RS-485 communication
FX5-485ADP | 1 ch

Max. 2 modules*4

CPU module

Expansion board — Max. 1 module

SD memory card module
FX5-SDCD
NEW

Logging files can be stored in SD memory cards.

Can be used together with other expansion boards.

The cover part can be cut off and mounted on top of another expansion board.

Expansion board

For RS-232C communication
FX5-232-BD | 1 ch

For RS-485 communication
FX5-485-BD | 1 ch

For RS-422 communication
(For GOT connection) | 1 ch
FX5-422-BD-GOT

Max. 1 module

*1: There are restrictions on the order of connection for some models.
 For details, refer to the MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware).
*2: For FX5-4A-ADP, maximum of two modules when the serial number is 223**** or earlier.
*3: When using K, J, or T type thermocouples. Resolution of B, R, and S type thermocouples is 0.1 to 0.3℃.
*4: Maximum of one module when expansion board (for RS-232C/RS-485/RS-422 communication) is
 connected to the CPU module.

Number of input channels   Number of output channels
Minimum resolution   Number of connectable channels

Advantages **2** **Small-scale IoT with simple model**

▮ Strength of FX5S

☑ **The CPU module has a built-in maintenance functions and communication connectivity with various devices necessary for IoT of equipments and machines.**

☑ **Further expansion of IoT functions (data collection, remote monitoring, etc.) is also possible.*1**
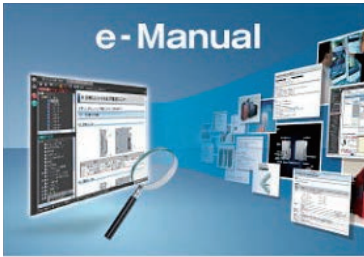
▮ Table of main functions supported by FX5S

(For details, refer to the next page.)

Function		CPU module only	With SD memory card module connected	Number of connectable modules
Communication connection	Simple CPU communication	○		8 modules
	CC-Link IE Field Network Basic	○		8 modules
	MELSOFT connection	○		Total 8 modules
	SLMP	○		
	Predefined protocol support	○		
	Socket communication	○		
	MODBUS/TCP communication	○		
Security	Block password	○		—
	File password	○		—
	Remote password	○		—
	Security key authentication	○		—
	IP filter	○		—
Data collection	Data logging		○	—
	FTP server		○	Total 1 module
	FTP client		○	
Remote monitoring	Web server (System Web page)	○		—
	Web server (User Web page)		○	—
Maintenance	Data flow analysis	○		—
	Real-time monitoring	○		1 module
	Memory dump		○	—
	Backup/restore		○	—
	Event history	○	○*2	—
	Firmware update*3	○	○	—
Others	SNTP client	○		1 module
	File operation instruction		○	—
	Boot operation		○	—

*1: It may be necessary to connect the SD memory card module in some cases. For details, refer to the table above.
*2: When storage location is SD memory card.
*3: Firmware updates can be performed directly using GX Works3 by connecting a PC to the CPU module. Firmware updating can also be performed by storing the firmware update
 file in an SD memory card and inserting it into the SD memory card module.

Use e-Manual to view the manual.

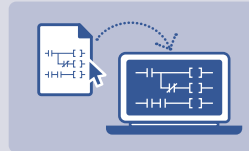**"e-Manual", e-book for users of Mitsubishi Electric FA equipment**

e-Manual is an e-book that lets FA equipment users quickly obtain the information they need, from product lineup, how to use, etc.

Cross-searching of manuals is possible.

You can search all downloaded manuals at one time. Since you can also narrow down the search to an error code, command, etc., you can quickly find the information you want.

Prevents programming input mistakes.

Program samples can be copied with one click and pasted into the engineering tool. This prevents input mistakes.

Please contact your local Mitsubishi Electric sales office or representative.

Compatible with international standards

■ List of compatible products

○: Compliant with standards or self-declaration　□: No need to comply

Model	CE			UL cUL	KC	Ship standards						
	EMC	LVD	RoHS			ABS	DNV	LR	BV	RINA	NK	KR
◆FX5S CPU module												
FX5S-30MR/ES	○	○	○	○	○	–	–	–	–	–	–	–
FX5S-30MT/ES	○	○	○	○	○	–	–	–	–	–	–	–
FX5S-30MT/ESS	○	○	○	○	○	–	–	–	–	–	–	–
FX5S-40MR/ES	○	○	○	○	○	–	–	–	–	–	–	–
FX5S-40MT/ES	○	○	○	○	○	–	–	–	–	–	–	–
FX5S-40MT/ESS	○	○	○	○	○	–	–	–	–	–	–	–
FX5S-60MR/ES	○	○	○	○	○	–	–	–	–	–	–	–
FX5S-60MT/ES	○	○	○	○	○	–	–	–	–	–	–	–
FX5S-60MT/ESS	○	○	○	○	○	–	–	–	–	–	–	–
◆FX5 expansion board												
FX5-SDCD*	○	□	○	–	○	–	–	–	–	–	–	–
FX5-232-BD	○	□	○	–	○	○	○	○	○	○	○	○
FX5-485-BD	○	□	○	–	○	○	○	○	○	○	○	○
FX5-422-BD-GOT	○	□	○	–	○	○	○	○	○	○	○	○
◆FX5 expansion adapter												
FX5-4AD-ADP	○	□	○	○	○	○	○	○	○	○	○	○
FX5-4DA-ADP	○	□	○	○	○	○	○	○	○	○	○	○
FX5-4A-ADP	○	□	○	○	○	–	–	–	–	–	–	–
FX5-4AD-PT-ADP	○	□	○	○	○	○	○	○	○	○	○	○
FX5-4AD-TC-ADP	○	□	○	○	○	○	○	○	○	○	○	○
FX5-232ADP	○	□	○	○	○	○	○	○	○	○	○	○
FX5-485ADP	○	□	○	○	○	○	○	○	○	○	○	○

＊: Can be connected only to the FX5S CPU module.

Specifications

■ External dimensions

Unit: mm

2-φ4.5 mounting hole

82 (Mounting hole pitches)

90

15　W1　W

79　8

Model	W (mm)	W1 (mm) Mounting hole pitches	MASS (Weight): kg
FX5S-30M□/ES(S)	100	81	Approx. 0.45
FX5S-40M□/ES(S)	130	111	Approx. 0.55
FX5S-60M□/ES(S)	175	156	Approx. 0.65

External color Main body: Munsell 0.6B7.6/0.2

51.4

43.6　3.5　11.6

Cut off this part when using together with an expansion board.
(for RS-232C/RS-485/RS-422 communication)

MASS (Weight): Approx. 16 g
External color: Munsell N1.5

PROGRAMMABLE CONTROLLERS
MELSEC iQ-F Series

■ General specifications (For details, refer to the manual.)

Item	Specifications
Operating ambient temperature*[1]	0 to 55°C, non-freezing
Storage ambient temperature	-25 to 75°C, non-freezing
Operating ambient humidity	5 to 95%RH, non-condensing*[2]
Storage ambient humidity	5 to 95%RH, non-condensing

*[1]: For the programmable controllers of the relay output type, there is input/output derating. For details, refer to the manual.
*[2]: When the product is used in a low-temperature environment, use it in an environment with no sudden temperature changes. If there are sudden temperature changes because of opening/closing of the control panel or other reasons, condensation may occur, which may cause a fire, fault, or malfunction. Use an air conditioner in dehumidifier mode to prevent condensation.

■ Power supply specifications

Item	Specifications		
	FX5S-30M□/ES(S)	FX5S-40M□/ES(S)	FX5S-60M□/ES(S)
Rated voltage	100 to 240 V AC		
Voltage fluctuation range	85 to 264 V AC (-15%, +10%)		
Rated frequency	50/60 Hz		
Allowable instantaneous power failure time	Operation can be continued upon occurrence of instantaneous power failure for 10 ms or less.		
Power fuse	250 V 3.15 A time-lag fuse		
Power consumption*[1]	28 W	30 W	33 W
Inrush current	30 A max. 5 ms or less/100 V AC 50 A max. 5 ms or less/200 V AC		
Service power supply (24 V DC) capacity*[2]	400 mA		

*[1]: This item shows the value when all 24 V DC power supplies are used in the maximum configuration connectable to the CPU module. (The current of the input circuit is included.)
*[2]: Use this capacity as a power supply for input devices. (Cannot be used as an external power supply for the expansion adapter.)

■ Input specifications (24 V DC input type)

Item		Specifications		
		FX5S-30M□/ES(S)	FX5S-40M□/ES(S)	FX5S-60M□/ES(S)
Input points		16 points	24 points	36 points
Input signal voltage		24 V DC (+20%, -15%)		
Input impedance	X0 to X7	4.3 kΩ		
	X10 and subsequent	5.6 kΩ		
Input signal current	X0 to X7	5.1 mA/24 V DC		
	X10 and subsequent	4.0 mA/24 V DC		
ON input sensitivity current	X0 to X7	3.5 mA or higher		
	X10 and subsequent	3.0 mA or higher		
OFF input sensitivity current		1.5 mA or less		
Input response time		Refer to MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware).		
Input signal type (Input sensor type)	Sink input	No-voltage contact input NPN open collector transistor		
	Source input	No-voltage contact input PNP open collector transistor		
Input operation display		LED on the panel turns on when input turns on.		

■ Output specifications
Relay output

Item		Specifications		
		FX5S-30MR/ES	FX5S-40MR/ES	FX5S-60MR/ES
Output points		14 points	16 points	24 points
External power supply		30 V DC or less 240 V AC or less (Use 250 V AC or less if an external power supply is not CE, UL, or cUL compliant.)		
Maximum load		2 A/point*		
Minimum load		5 V DC 2 mA (reference value)		
Open circuit leakage current		—		
Response time	OFF ↔ ON	Approx. 10 ms		
Output operation display		LED on the panel turns on when output turns on.		

*: The total load current of resistance loads per common terminal should be the following value.
3 output points/common terminal: 6 A or less
4 output points/common terminal: 8 A or less
For the number of outputs per common terminal, refer to the following manual.
→MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)

Transistor output

Item		Specifications		
		FX5S-30MT/ES(S)	FX5S-40MT/ES(S)	FX5S-60MT/ES(S)
Output points		14 points	16 points	24 points
Output type	FX5S-□MT/ES	Transistor Sink output		
	FX5S-□MT/ESS	Transistor Source output		
External power supply		5 to 30 V DC		
Maximum load		0.5 A/point*		
Minimum load		—		
Circuit leakage current		0.1 mA or less/30 V DC		
Voltage drop at power-on	Y0 to Y3	1.0 V or less		
	Y4 and subsequent	1.5 V or less		
Response time	OFF ↔ ON	Y0 to Y3	5 µs or less/10 mA or more (5 to 24 V DC)	
		Y4 and subsequent	0.2 ms or less/200 mA or more (24 V DC)	
Output operation display		LED on the panel turns on when output turns on.		

*: The total load current of resistance loads per common terminal should be the following value.
3 output points/common terminal: 0.6 A or less
4 output points/common terminal: 0.8 A or less
For the number of outputs per common terminal, refer to the following manual.
→MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)

■ Applicable software package

Software	Applicability
GX Works3	Version 1.080J or later

■ Product list

Types	Model	Rated voltage	Input specifications		Output specifications	
			Point	Input type	Point	Output type
CPU module	FX5S-30MR/ES NEW	100 to 240 V AC	16	24 V DC sink/source	14	Relay
	FX5S-30MT/ES NEW					Transistor/sink
	FX5S-30MT/ESS NEW					Transistor/source
	FX5S-40MR/ES NEW		24		16	Relay
	FX5S-40MT/ES NEW					Transistor/sink
	FX5S-40MT/ESS NEW					Transistor/source
	FX5S-60MR/ES NEW		36		24	Relay
	FX5S-60MT/ES NEW					Transistor/sink
	FX5S-60MT/ESS NEW					Transistor/source
FX5 expansion board	FX5-SDCD* NEW	SD memory card module				
	FX5-232-BD	RS-232C communication expansion board				
	FX5-485-BD	RS-485 communication expansion board				
	FX5-422-BD-GOT	RS-422 communication expansion board (For GOT connection)				
FX5 expansion adapter	FX5-4AD-ADP	4 ch analog input expansion adapter				
	FX5-4DA-ADP	4 ch analog output expansion adapter				
	FX5-4A-ADP	4 ch analog input/output expansion adapter				
	FX5-4AD-PT-ADP	4 ch resistance temperature detector temperature sensor input expansion adapter				
	FX5-4AD-TC-ADP	4 ch thermocouple temperature sensor input expansion adapter				
	FX5-232ADP	RS-232C communication expansion adapter				
	FX5-485ADP	RS-485 communication expansion adapter				
Manual	FX5-U-HW-E	MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware) Model code: 09R584				
	FX5-U-EN-E	MELSEC iQ-F FX5 User's Manual (Ethernet Communication) Model code: 09R543				

*: Can be connected only to the FX5S CPU module.

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
www.MitsubishiElectric.com