

Replacement of Micro Programmable Controller FX1S With FX3S

■Date of Issue

March 2022

■Relevant Models

MELSEC-F FX1S series

Thank you for your continued support of Mitsubishi Electric micro programmable controllers, MELSEC-F series.

In this technical bulletin, we introduce the recommended alternative models and references. Please use them as a reference when replacing the FX1S series with the FX3S series.

The alternative models in this bulletin are recommended based on the number of I/O points, program capacity, characteristics, and type of I/O terminal (including terminal block type and connector type). Note that, depending on the application and usage conditions, there are cases where the recommended model is not suitable.

Also, due to the release of new models or the improvement of existing models, the recommended model may not be appropriate.

Before replacing discontinued models, please consult your local Mitsubishi representative.

1 RELEVANT MODELS (SERIES)

Current model	Alternative model	Remarks (Be sure to check differences using references shown in Chapter 5.)
FX1S	FX3S	<ul style="list-style-type: none">• FX3S has a larger program capacity.• There are differences in assignment of devices, the supported versions of programming tool, and other specifications.

2 ALTERNATIVE MODELS

Replace the Mitsubishi micro programmable controller FX1S series with the FX3S series.

The alternative models in this bulletin are recommended based on the number of I/O points, program capacity, characteristics, and type of I/O terminal (including terminal block type and connector type). Note that, depending on the application and usage conditions, there are cases where the recommended model is not suitable.

Check the following notes and select the suitable model for your application.

Notes

- The recommended models in the following tables can be used by a single unit.
- The following tables lists the expansion boards and special adapters that can be connected to the FX3S series main units.
- The Special notes in the following tables describe the points to which you should pay particular attention when replacing. Many alternative models, however, have differences in specifications other than description in Special notes, such as smaller external dimensions. Thus, when selecting alternative models, check the relevant manuals as well as Special notes for the details of specifications such as external dimensions and power capacity.
- Even if your model has no recommended alternative model, it may be possible to replace it with other models in the FX3 series depending on the application and system configuration. Check the required functions and features and select a suitable model.

2.1 Replacement of Main Unit

List of recommended models (main unit)

FX1S series		Recommended model	Special notes
Product	Model	Model	
Main unit (AC power supply)	FX1S-10MR	FX3S-10MR/ES ^{*1}	—
	FX1S-10MT	FX3S-10MT/ES ^{*1}	
	FX1S-14MR	FX3S-14MR/ES ^{*1}	
	FX1S-14MT	FX3S-14MT/ES ^{*1}	
	FX1S-20MR	FX3S-20MR/ES ^{*1}	
	FX1S-20MT	FX3S-20MT/ES ^{*1}	
	FX1S-30MR	FX3S-30MR/ES ^{*1}	
	FX1S-30MT	FX3S-30MT/ES ^{*1}	
Main unit (AC power supply) (Sink/source input, relay output)	FX1S-10MR-ES/UL	FX3S-10MR/ES	
	FX1S-14MR-ES/UL	FX3S-14MR/ES	
	FX1S-20MR-ES/UL	FX3S-20MR/ES	
	FX1S-30MR-ES/UL	FX3S-30MR/ES	
Main unit (AC power supply) (Sink/source input, Transistor output (source))	FX1S-10MT-ESS/UL	FX3S-10MT/ESS	
	FX1S-14MT-ESS/UL	FX3S-14MT/ESS	
	FX1S-20MT-ESS/UL	FX3S-20MT/ESS	
	FX1S-30MT-ESS/UL	FX3S-30MT/ESS	
Main unit (24VDC power supply)	FX1S-10MR-D	FX3S-10MR/DS ^{*1}	
	FX1S-10MT-D	FX3S-10MT/DS ^{*1}	
	FX1S-14MR-D	FX3S-14MR/DS ^{*1}	
	FX1S-14MT-D	FX3S-14MT/DS ^{*1}	
	FX1S-20MR-D	FX3S-20MR/DS ^{*1}	
	FX1S-20MT-D	FX3S-20MT/DS ^{*1}	
	FX1S-30MR-D	FX3S-30MR/DS ^{*1}	
	FX1S-30MT-D	FX3S-30MT/DS ^{*1}	
Main unit (24VDC power supply) (Sink/source input, relay output)	FX1S-10MR-DS	FX3S-10MR/DS	
	FX1S-14MR-DS	FX3S-14MR/DS	
	FX1S-20MR-DS	FX3S-20MR/DS	
	FX1S-30MR-DS	FX3S-30MR/DS	
Main unit (24VDC power supply) (Sink/source input, Transistor output (source))	FX1S-10MT-DSS	FX3S-10MT/DSS	
	FX1S-14MT-DSS	FX3S-14MT/DSS	
	FX1S-20MT-DSS	FX3S-20MT/DSS	
	FX1S-30MT-DSS	FX3S-30MT/DSS	

*1 The external wiring is required between S/S terminal and 24V terminal.

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Extension devices and optional devices to be replaced

FX1S series		Recommended model available for the FX3S series	Special notes
Product	Model	Model	
Special adapter (for RS-232C communications)	FX2NC-232ADP	FX3U-232ADP-MB	To connect a recommended model, FX3S-CNV-ADP is required.
Special adapter (for RS-485 communications)	FX2NC-485ADP	FX3U-485ADP-MB	
Expansion board (For connecting a special adapter)	FX1N-CNV-BD	FX3S-CNV-ADP	—
Expansion board (Input board)	FX1N-4EX-BD	FX3G-4EX-BD	
Expansion board (Output board)	FX1N-2EYT-BD	FX3G-2EYT-BD	
Expansion board (Analog input)	FX1N-2AD-BD	FX3G-2AD-BD	
Expansion board (Analog output)	FX1N-1DA-BD	FX3G-1DA-BD	
Expansion board (Analog volume)	FX1N-8AV-BD	FX3G-8AV-BD	
Expansion board (RS-232C communications)	FX1N-232-BD	FX3G-232-BD	
Expansion board (RS-422 communications)	FX1N-422-BD	FX3G-422-BD	
Expansion board (RS-485 communications)	FX1N-485-BD	FX3G-485-BD	
Memory cassette	FX1N-EEPROM-8L	FX3G-EEPROM-32L	
Display module	FX1N-5DM	FX3S-5DM	

Required programming tools

Model available for the FX1S series		Recommended model available for the FX3S series	Special notes
Product	Model	Model	
Handy programming panel	FX-20P-E-SET0	FX-30P	Connect this item using the included cable FX-20P-CAB0.
Programming software	FX-PCS/WIN	GX Developer (Ver.8) ^{*1} (SW8D5C-GPPW-E)	Available by selecting "FX3G". Available for the FX1S series.
		GX Works2 (SW1DNC-GXW2-E)	Available for the FX1S series.
	GX Developer (Ver.7 or earlier)	GX Developer (Ver.8) ^{*1} (SW8D5C-GPPW-E)	Available by selecting "FX3G". Available for the FX1S series.
		GX Works2 (SW1DNC-GXW2-E)	Available for the FX1S series.

To connect a personal computer, the following interfaces and cables are required.

- RS-232C port on the personal computer: RS-232-C/RS422 converter FX-232-AWC(-H) + Cable F2-232CAB-1 + Cable FX-422CAB0
- FX1S USB port on the personal computer: FX-USB-AW (Dedicated cable included)
- FX3S USB port on the personal computer: GT09-C30USB-5P, MR-J3USBL3M

*1 For restrictions and precautions when creating programs using GX Developer, refer to "Restrictions and Precautions When Programming the FX3S Series With GX Developer (FAM-A-0043)".

Extension devices that can be used after replacement of the main unit

There is no available device. Please use new devices.

Extension devices that can be used in the FX3S series

Extension device	Model
Memory cassette with loader function	FX3G-EEPROM-32L
Input/output expansion board	FX3G-4EX-BD, FX3G-2EYT-BD
Analog input adapter/board	FX3U-4AD-ADP*1, FX3G-2AD-BD
Analog output adapter/board	FX3U-4DA-ADP*1, FX3G-1DA-BD
Analog input/output adapter	FX3U-3A-ADP*1
Analog volume expansion board	FX3G-8AV-BD
Temperature sensor	FX3U-4AD-PT-ADP*1, FX3U-4AD-PTW-ADP*1, FX3U-4AD-TC-ADP*1
Display module	FX3S-5DM
Communication/Network device	FX3G-232-BD, FX3G-422-BD, FX3G-485-BD, FX3G-485-BD-RJ, FX3U-232ADP-MB*1, FX3U-485ADP-MB*1, FX3U-ENET-ADP*1

*1 To connect a FX3S series special adapter, FX3S-CNV-ADP is required.

3 REFERENCES

References for FX1S series

References		Description
Item	Manual name (manual number)	
Module	FX1S HARDWARE MANUAL (JY992D83901)	Describes the details of FX1S series, including input/output specifications, wiring, installation, basic instructions, application instructions, and available devices.
Analog input/output	FX1N-2AD-BD USER'S MANUAL (JY992D96201)	Describes the details of FX1N-2AD-BD analog input board, including part names, external dimensions, installation, and specifications.
	FX1N-1DA-BD USER'S MANUAL (JY992D96401)	Describes the details of FX1N-1DA-BD analog output board, including part names, external dimensions, installation, and specifications.
	FX1N-8AV-BD MANUAL (JY992D84601(E))	Describes the details of FX1N-8AV-BD analog volume, including part names, external dimensions, installation, and specifications.
Communications	FX1N-232-BD USER'S GUIDE (JY992D84401(E))	Describes the details of FX1N-232-BD, RS-232C communication expansion board, including part names, external dimensions, installation, and specifications.
	FX1N-422-BD USER'S GUIDE (JY992D84101)	Describes the details of FX1N-422-BD, RS-422 communication expansion board, including part names, external dimensions, installation, and specifications.
	FX1N-485-BD USER'S GUIDE (JY992D84201(E))	Describes the details of FX1N-485-BD, RS-485 communication expansion board, including part names, external dimensions, installation, and specifications.
Program	THE FX SERIES OF PROGRAMMABLE CONTROLLER PROGRAMMING MANUAL (FX0/FX1S/FX1N/FX/FX2NC/FX2N/FX2NC) (JY992D88101)	Describes the details of programs for the FX0/FX1S/FX1N/FX/FX2NC/FX2N/ FX2NC series, including basic instructions, stepladder diagrams, application instructions, and available devices.

References for FX3S series

References		Description
Item	Manual name (manual number)	
Module	FX3S SERIES USER'S MANUAL - Hardware Edition (JY997D48601)	Describes the details of hardware of the FX3S series, including input/output specifications, wiring, and installation.
Input/Output expansion	FX3G-4EX-BD USER'S MANUAL (JY997D51301(E))	Describes the details of FX3G-4EX-BD input expansion board, including part names, external dimensions, installation, and specifications.
	FX3G-2EYT-BD USER'S MANUAL (JY997D51401(E))	Describes the details of FX3G-2EYT-BD output expansion board, including part names, external dimensions, installation, and specifications.
Analog input/output	FX3S/FX3G/FX3GC/FX3U/FX3UC SERIES USER'S MANUAL - Analog Control Edition (JY997D16701)	Describes the details of analog control for the FX3S/FX3G/FX3GC/FX3U/ FX3UC series.
	FX3G-2AD-BD INSTALLATION MANUAL (JY997D33501(E))	Describes the details of FX3G-2AD-BD analog input board, including part names, external dimensions, installation, and specifications.
	FX3G-1DA-BD INSTALLATION MANUAL (JY997D33601(E))	Describes the details of FX3G-1DA-BD analog output board, including part names, external dimensions, installation, and specifications.
	FX3G-8AV-BD INSTALLATION MANUAL (JY997D33701(E))	Describes the details of FX3G-8AV-BD analog volume expansion board, including part names, external dimensions, installation, and specifications.
	FX3U-3A-ADP USER'S MANUAL (JY997D35601(E))	Describes the details of FX3U-3A-ADP analog input/output adapter, including part names, external dimensions, specifications, and handling.
	FX3U-4AD-ADP USER'S MANUAL (JY997D13901(E))	Describes the details of FX3U-4AD-ADP analog input adapter, including part names, external dimensions, specifications, and handling.
	FX3U-4DA-ADP USER'S MANUAL (JY997D14001(E))	Describes the details of FX3U-4DA-ADP analog output adapter, including part names, external dimensions, installation, and specifications.

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References		Description
Item	Manual name (manual number)	
Analog input	FX3U-4AD-PT-ADP USER'S MANUAL (JY997D14701(E))	Describes the details of FX3U-4AD-PT-ADP temperature sensor input adapter, including part names, external dimensions, installation, and specifications.
	FX3U-4AD-PTW-ADP USER'S MANUAL (JY997D29101(E))	Describes the details of FX3U-4AD-PTW-ADP temperature sensor input adapter, including part names, external dimensions, installation, and specifications.
	FX3U-4AD-TC-ADP USER'S MANUAL (JY997D14801(E))	Describes the details of FX3U-4AD-TC-ADP temperature sensor input adapter, including part names, external dimensions, installation, and specifications.
Display module	FX3S-5DM INSTALLATION MANUAL (JY997D51601(E))	Describes the details of FX3S-5DM display module, including part names, external dimensions, installation, and specifications.
Communications	FX SERIES USER'S MANUAL - Data Communication Edition (JY997D16901)	Describes configuration, functions, and program examples for N:N network, parallel link, computer link, inverter communication, non-protocol communication, and programming communication.
	FX3G-232-BD INSTALLATION MANUAL (JY997D32001(E))	Describes the details of FX3G-232-BD, RS-232C communication expansion board, including part names, external dimensions, installation, and specifications.
	FX3G-422-BD INSTALLATION MANUAL (JY997D32101(E))	Describes the details of FX3G-422-BD, RS-422 communication expansion board, including part names, external dimensions, installation, and specifications.
	FX3G-485-BD INSTALLATION MANUAL (JY997D32201(E))	Describes the details of FX3G-485-BD, RS-485 communication expansion board, including part names, external dimensions, installation, and specifications.
	FX3G-485-BD-RJ INSTALLATION MANUAL (JY997D51501(E))	Describes the details of FX3G-485-BD-RJ, RS-485 communication expansion board with RJ45 connector, including part names, external dimensions, installation, and specifications.
	FX3U-232ADP-MB INSTALLATION MANUAL (JY997D26401(E))	Describes the details of FX3U-232ADP-MB, RS-232C communication adapter, including part names, external dimensions, installation, and specifications.
	FX3U-485ADP-MB INSTALLATION MANUAL (JY997D26301(E))	Describes the details of FX3U-485ADP-MB, RS-485 communication adapter, including part names, external dimensions, installation, and specifications.
	FX3U-ENET-ADP INSTALLATION MANUAL (JY997D47401(E))	Describes the details of FX3U-ENET-ADP Ethernet adapter, including part names, external dimensions, installation, and specifications.
Program	FX3S/FX3G/FX3GC/FX3U/FX3UC SERIES PROGRAMMING MANUAL - Basic & Applied Instructions Edition (JY997D16601)	Describes the details of program for the FX3S/FX3G/FX3GC/FX3U/FX3UC series, including basic instructions, stepladder diagrams, application instructions, and available devices.
	FX-30P OPERATION MANUAL (JY997D34401)	Describes the details of program, including basic instructions, stepladder diagrams, and application instructions using list editing.

FAM-A-0042-A

REVISIONS

Version	Date of Issue	Revision
A	March 2022	First edition

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