

Replacement of Micro Programmable Controller FX With FX3U

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■Relevant Models

MELSEC-F FX 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 discontinued models.

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)

Discontinued model	Alternative model	Remarks (Be sure to check differences using references shown in Chapter 5.)
FX	FX3U	<ul style="list-style-type: none">FX3U has a larger program capacity.There are differences in assignment of devices, the supported versions of programming tool, and other specifications.

2 PRODUCTION DISCONTINUATION DATE

June 30, 2002

3 REPAIR SUPPORT

Until June 30, 2009

4 ALTERNATIVE MODELS

Replace the Mitsubishi micro programmable controller FX series with the FX3U 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. Depending on the usage status and system configuration (use of extension modules or extension blocks), other models or series may be suitable. When the number of I/O points actually used is small, you can select a model with the smaller number of I/O points than the recommended model.
- The following tables lists the extension blocks, extension modules, extension boards, and batteries that can be connected to the FX3U 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.

4.1 Replacement of Main Unit

List of recommended models (main unit)

Discontinued model		Recommended model	Special notes
Product	Model	Model	
Main unit	FX-16MR-ES/UL	FX3U-16MR/ES	—
	FX-24MR-ES/UL	FX3U-32MR/ES	
	FX-32MR-ES/UL	FX3U-32MR/ES	
	FX-48MR-ES/UL	FX3U-48MR/ES	
	FX-64MR-ES/UL	FX3U-64MR/ES	
	FX-80MR-ES/UL	FX3U-80MR/ES	
	FX-128MR-ES/UL	FX3U-128MR/ES	
	FX-16MT-ESS/UL	FX3U-16MT/ESS	
	FX-24MT-ESS/UL	FX3U-32MT/ESS	
	FX-32MT-ESS/UL	FX3U-32MT/ESS	
	FX-48MT-ESS/UL	FX3U-48MT/ESS	
	FX-64MT-ESS/UL	FX3U-64MT/ESS	
	FX-80MT-ESS/UL	FX3U-80MT/ESS	
	FX-128MT-ESS/UL	FX3U-128MT/ESS	
Main unit (24VDC power supply)	FX-24MR-DS	FX3U-32MR/DS	
	FX-48MR-DS	FX3U-48MR/DS	
	FX-64MR-DS	FX3U-64MR/DS	
	FX-80MR-DS	FX3U-80MR/DS	
Main unit (100VAC input)	FX-24MR-UA1/UL	FX3U-32MR/UA1	
	FX-48MR-UA1/UL	FX3U-64MR/UA1	
	FX-64MR-UA1/UL	FX3U-64MR/UA1	

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Extension devices and optional devices to be replaced

Discontinued model		Recommended models available for the FX3U series	Special notes
Product	Model	Model	
Extension module (24VDC power supply)	FX-48ER-D	FX2N-48ER-D	—
	FX-48ET-D	FX2N-48ET-D	
Extension module (100VAC input)	FX-48ER-A1	FX2N-48ER-UA1/UL	
Extension module	FX-32ER-ES/UL	FX2N-32ER-ES/UL	
	FX-48ER-ES/UL	FX2N-48ER-ES/UL	
	FX-48ET-ESS/UL	FX2N-48ET-ESS/UL	
Extension module (24VDC power supply)	FX-48ER-DS	FX2N-48ER-DS	
	FX-48ET-DSS	FX2N-48ET-DSS	
Extension module (100VAC input)	FX-48ER-UA1/UL	FX2N-48ER-UA1/UL	
Extension block (input and output)	FX-8ER	FX2N-8ER	
	FX-8ET	No alternative model	
Extension block (large current type)	FX-4EYT-H	FX2N-8EYT-H	
	FX-4EYS-H	No alternative model	
Extension block	FX-8EX	FX2N-8EX	
	FX-8EX-L	FX2N-16EXL-C	FX2N-16EXL-C has connector terminals.
	FX-8EX-F	No alternative model	—
	FX-8EYR	FX2N-8EYR	
	FX-8EYR-S	FX2N-8EYR-S-ES/UL	
	FX-8EYS	FX2N-16EYS	
Extension block (large current type)	FX-8EYS-H	No alternative model	
Extension block	FX-8EYT	FX2N-8EYT	
Extension block (large current type)	FX-8EYT-H	FX2N-8EYT-H	
Extension block	FX-16EX	FX2N-16EX	
	FX-16EX-C	FX2N-16EX-C	
	FX-16EX-V	FX2N-16EX	
	FX-16EYR	FX2N-16EYR	
	FX-16EYR-V		
	FX-16EYS	FX2N-16EYS	
	FX-16EYT	FX2N-16EYT	
	FX-16EYT-C	FX2N-16EYT-C	
	FX-16EYT-V	FX2N-16EYT	
Extension block (input and output)	FX-8ER-ES/UL	FX2N-8ER-ES/UL	
Extension block	FX-8EX-ES/UL	FX2N-8EX-ES/UL	
	FX-8EYR-ES/UL	FX2N-8EYR-ES/UL	
	FX-8EYS-ES/UL	FX2N-16EYS	Conforms only to UL Standards. (Not conform to CE and other ship standards.)
	FX-8EYT-ESS/UL	FX2N-8EYT-ESS/UL	—
	FX-16EX-ES/UL	FX2N-16EX-ES/UL	
	FX-16EYR-ES/UL	FX2N-16EYR-ES/UL	
	FX-16EYS-ES/UL	FX2N-16EYS	Conforms only to UL Standards. (Not conform to CE and other ship standards.)
FX-16EYT-ESS/UL	FX2N-16EYT-ESS/UL	—	
Extension block (100VAC input)	FX-8EX-A1	FX2N-8EX-UA1/UL	Conforms only to UL Standards. (Not conform to CE and other ship standards.)
	FX-8EX-UA1/UL		
Special adapter (analog volume)	FX-8AV	FX3U-8AV-BD	—
Special block (analog output)	FX-2DA	FX3U-4DA	When the analog output range is from 0 to 10V and from 4 to 20mA, the FX2N-2DA can be used.

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Discontinued model		Recommended models available for the FX3U series	Special notes	
Product	Model	Model		
Special block (analog output)	FX-4AD	FX3U-4AD	—	
Special block (analog output)	FX-4DA	FX3U-4DA		
Special block (analog input, thermocouple sensor)	FX-4AD-TC	FX2N-4AD-TC		
Special block (analog input, platinum resistance thermometer)	FX-2AD-PT	FX2N-4AD-PT		
Special block (high-speed counter)	FX-1HC	FX2N-1HC		
Special block (pulse output, positioning control)	FX-1PG-E	FX2N-1PG-E		
Special module (pulse output, positioning control)	FX-1GM	FX2N-10GM		
Special module (pulse output, positioning control)	FX-10GM	FX2N-10GM		
	FX-20GM	FX2N-20GM		
Special adapter (RS-232C communication adapter)	FX-232ADP	FX3U-232ADP		An extension board is required for connection with the FX3U series.
Special adapter (RS-485 communication adapter)	FX-485ADP	FX3U-485ADP		
Special adapter (for optical communication) (interface for M-NET/MINI)	FX-16NP	No alternative model		Use the CC-Link system.
Special adapter (for optical communication) (interface for M-NET/MINI-S3)	FX-16NP-S3			
Special adapter (for wire communication) (interface for M-NET/MINI)	FX-16NT			
Special adapter (for wire communication) (interface for M-NET/MINI-S3)	FX-16NT-S3			
memory	F-MEM-128KA	FX3U-FLROM-16	—	
RUN switch	FX-RUN-SW	No alternative model	The RUN terminal input function in the FX3 series can be used with parameter settings.	
Simulated input switch	FX-24-SW FX-32-SW FX-48-SW FX-64-SW FX-80-SW			
Programming panel	FX-10P-SET0	FX-30P	—	
Programming panel	FX-10P-E			

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Required programming tools

Models available for the FX series		Models available for the FX3U series	Special notes
Product	Model	Model	
Handy programming panel	FX-20P or FX-30P + FX-20P-CAB	FX-30P	To connect the FX-30P to the FX series, an FX-20P-CAB sold separately is required. To connect the FX-30P to the FX3U series, use the FX-20P-CAB0 bundled.
Programming software	FX-PCS/WIN	GX Developer (Ver.8)	
		GX Works2	
	GX Developer (Ver.7 or earlier)	GX Developer (Ver.8)	
		GX Works2	

To connect the FX series to a personal computer, the following interfaces and cables sold separately are required.

- RS-232C on the personal computer: RS-232C/RS-422 converter FX-232-AWC(-H) + Cable F2-232CAB-1 + Cable FX-422CAB0
- FX3S USB port on the personal computer: USB/RS422 converter FX-USB-AW (Dedicated cable included)

5 REFERENCES

References for FX series		
References		Description
Item	Manual name (manual number)	
Module	FX SERIES PROGRAMMABLE CONTROLLERS HARDWARE MANUAL [FX/FX2C] (JY992D47401)	Describes the details of FX series, including input/output specifications, wiring, installation, basic instructions, application instructions, and available devices.
Analog input/output	FX-4AD USER'S GUIDE (JY992D52601)	Describes the details of FX-4AD analog input blocks, including part names, external dimensions, specifications, and handling.
	FX-2DA USER'S GUIDE (JY992D52801)	Describes the details of FX-2DA analog output blocks, including part names, external dimensions, specifications, and handling.
	FX-4DA USER'S GUIDE (JY992D61001)	Describes the details of FX-4DA analog output blocks, including part names, external dimensions, specifications, and handling.
Analog input (Temperature control)	FX-2AD-PT USER'S GUIDE (JY992D55701)	Describes the details of FX-2AD-PT analog input blocks, including part names, external dimensions, specifications, and handling.
	FX-4AD-TC USER'S GUIDE (JY992D55901)	Describes the details of FX-4AD-TC analog input blocks, including part names, external dimensions, specifications, and handling.
High-speed counter	FX-1HC USER'S MANUAL (JY992D52901(E))	Describes the details of FX-1HC high-speed counter blocks, including part names, external dimensions, specifications, and handling.
Positioning	FX/FX2N-1PG-E USER'S MANUAL (JY992D65301)	Describes the details of FX-1PG-E/FX2N-1PG-E pulse output blocks, including part names, external dimensions, specifications, and handling.
	FX-1GM HANDY MANUAL (JY992D27401)	Describes the details of FX-1GM pulse output module including part names, external dimensions, specifications, and handling, and the operation of F2-30TP teaching panel.
	FX-10GM, FX(E)-20GM HARDWARE/ PROGRAMMING MANUAL (JY992D60401)	Describes the details of FX-10GM and FX(E)-20GM positioning module, including part names, external dimensions, specifications, and programs.
	E-20TP TEACHING PANEL OPERATION MANUAL (JY992D39201)	Describes the specifications and operation of E-20TP teaching panel.
	E-20TP-E SUPPLEMENTARY MANUAL [For JY992D44901A] (JY992D75501)	Describes the version update of E-20TP teaching panel. (Ver.1.30)
	FX-PCS-VPS/WIN-E SOFTWARE MANUAL (JY992D86801)	Describes the handling and operation of software for the FX-PCS-VPS/WIN positioning module.
Communications	FX SERIES USER'S MANUAL [Data Communication Edition] (JY997D16901)	Describes N:N network, parallel link, computer link, inverter communication, non-protocol communication, programming communication, configuration, functions, and program examples.
	FX-232ADP USER'S GUIDE (JY992D48801)	Describes the details of FX-232ADP, RS-232C communication adapter, including part names, external dimensions, and specifications.
	FX-485PC-IF HARDWARE MANUAL (JY992D81801)	Describes the details of FX-485PC-IF, RS485 interface, including part names, external dimensions, and specifications.
Network	FX-16NP/NT USER'S GUIDE (JY992D56201)	Describes the details of FX-16NP/NT interface block for MELSECNET/MINI, including names, external dimensions, installation, handling, and specifications.
Program	THE FX SERIES OF PROGRAMMABLE CONTROLLER PROGRAMMING MANUAL (FX0/FX0S/FX0N/FX/FX2C/FX2N/FX2NC) (JY992D48301)	Describes the details of sequence program for the FX0/FX0S/FX0N/FX/FX2C/FX2N/FX2NC series, including basic instructions, stepladder diagrams, application instructions, and available devices.

References for FX3U series

References		Description
Item	Manual name (manual number)	
Module	FX3U SERIES USER'S MANUAL - Hardware Edition (JY997D19801)	Describes the details of hardware of the FX3U series, including input/output specifications, wiring, and installation.
	FX2N-CNV-BC USER'S GUIDE (JY992D66601(E))	Describes the system configuration and connection procedure of the FX2N-CNV-BC cable adapter.
Analog input/output	FX3S/FX3G/FX3GC/FX3U/FX3UC SERIES USER'S MANUAL [Analog Control Edition] (JY997D16701)	Describes the details of analog control for the FX3G/FX3U/FX3UC series.
	FX3U-8AV-BD INSTALLATION MANUAL (JY997D40901(E))	Describes the details of FX3U-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, specifications, and handling.
	FX3U-4AD INSTALLATION MANUAL (JY997D20701(E))	Describes the details of FX3U-4AD analog input blocks, including part names, external dimensions, specifications, and handling.
	FX3U-4DA INSTALLATION MANUAL (JY997D20801(E))	Describes the details of FX3U-4DA analog output blocks, including part names, external dimensions, specifications, and handling.
Analog input (Temperature control)	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, specifications, and handling.
	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, specifications, and handling.
	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, specifications, and handling.
	FX3U-4LC USER'S MANUAL (JY997D39101)	Describes the details of FX3U-4LC analog temperature control blocks, including part names, external dimensions, specifications, and handling.
High-speed counter	FX3U-4HSX-ADP INSTALLATION MANUAL (JY997D16301(E))	Describes the details of FX3U-4HSX-ADP high-speed counter adapter, including part names, external dimensions, specifications, and handling.
	FX3U-2HC USER'S MANUAL (JY997D36701)	Describes the details of FX3U-2HC high-speed counter blocks, including part names, external dimensions, specifications, and handling.
Positioning	FX3S/FX3G/FX3GC/FX3U/FX3UC SERIES USER'S MANUAL [Positioning Control Edition] (JY997D16801)	Describes the details of positioning control for the FX3G/FX3U/FX3UC series.
	FX3U-2HSY-ADP INSTALLATION MANUAL (JY997D16401(E))	Describes the details of FX3U-2HSY-ADP pulse output adapter, including part names, external dimensions, specifications, and handling.
	FX3U-20SSC-H USER'S MANUAL (JY997D21301)	Describes the details of FX3U-20SSC-H SSCNETII control blocks, including part names, external dimensions, specifications, and handling.
	FX Configurator-FP OPERATION MANUAL (JY997D21801)	Describes the handling and operation of software for the FX Configurator-FP positioning module.

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References		Description
Item	Manual name (manual number)	
Communications	FX SERIES USER'S MANUAL [Data Communication Edition] (JY997D16901)	Describes N:N network, parallel link, computer link, inverter communication, non-protocol communication, configuration for programming communication, functions, and program examples.
	FX3U-232-BD INSTALLATION MANUAL (JY997D12901(E))	Describes the details of FX3U-232-BD, RS-232C communication expansion board, including part names, external dimensions, installation, and specifications.
	FX2N-422-BD USER'S GUIDE (JY992D66101)	Describes the details of FX3U-422-BD, RS-422 communication expansion board, including part names, external dimensions, installation, and specifications.
	FX3U-485-BD INSTALLATION MANUAL (JY997D13001(E))	Describes the details of FX3U-485-BD, RS-485 communication expansion board, including part names, external dimensions, installation, and specifications.
	FX3U-232ADP INSTALLATION MANUAL (JY997D13701(E))	Describes the details of FX3U-232ADP, RS-232C communication adapter, including part names, external dimensions, installation, and specifications.
	FX3U-485ADP INSTALLATION MANUAL (JY997D13801(E))	Describes the details of FX3U-485ADP, RS-485 communication adapter, including part names, external dimensions, installation, and specifications.
Network	FX3U-ENET-L USER'S MANUAL (JY997D38001)	Describes the details of FX3U-ENET-L Ethernet communication blocks, including part names, external dimensions, specifications, and handling.
	FX Configurator-EN-L OPERATION MANUAL (JY997D38401)	Describes the details of the FX3U-ENET-L Ethernet communication blocks, including handling and operation of the configuration tool.
	FX3U-64CCL USER'S MANUAL (JY997D30401)	Describes the details of FX3U-64CCL CC-Link V2 interface blocks, including part names, external dimensions, specifications, and handling.
Program	FX3S/FX3G/FX3GC/FX3U/FX3UC SERIES PROGRAMMING [Basic & Applied Instructions Edition] (JY997D16601)	Describes the details of sequence program for the FX3G/FX3U/FX3UC series, including basic instructions, stepladder diagrams, application instructions, and available devices.
	FX-30P OPERATION MANUAL (JY997D34401)	Describes the details of sequence program for the FX series, including basic instructions, stepladder diagrams, and application instructions.

- For the specifications of the FX2N series extension blocks, refer to the manuals of each model.

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REVISIONS

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