

[Issue No.] FAM-A-0026-A

[Title] Replacement of micro programmable controllers from FX<sub>2</sub> to FX<sub>3U</sub>

[Date of Issue] September 2021

[Relevant Models] MELSEC-F FX<sub>2</sub>

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Thank you for your continued support of Mitsubishi micro programmable controller, MELSEC-F series. This technical bulletin explains standard alternatives to the models that have already been discontinued and useful references for examining the details.

The alternative models are listed in the following tables based on the number of I/O points, program capacity, and shapes of product and I/O terminals (terminal blocks, connectors, etc.). Note that, depending on your application and usage conditions, anyone other than listed model may be suitable.

Also, suitable models may change due to the release of new models or function improvement.

For details, please consult your local Mitsubishi representative.

## 1 Relevant models (series name)

Discontinued model	Alternative model	Remarks (Be sure to check differences using references.)
FX <sub>2</sub>	FX <sub>3U</sub>	<ul style="list-style-type: none"><li>The program capacity of FX<sub>3U</sub> series is larger than that of FX<sub>2</sub> series.</li><li>Device assignment, supported version of programming tool, etc. are different.</li></ul>

## 2 Date of discontinuation

June 30, 2002

## 3 Repair support

Until June 30, 2009

**4 Discontinued models and alternative models**

It is recommended to replace an FX<sub>2</sub> series model to an FX<sub>3U</sub> series model.

In this technical bulletin, standard alternative models are listed based on the number of I/O points, program capacity, shapes of product and I/O terminals (terminal blocks, connectors, etc.). Note that, depending on your application and usage conditions, anyone other than listed model may be suitable.

Refer to [Points to consider] described below and select a suitable model for your application and usage.

**[Points to consider]**

- (a) The following tables list alternative models which can be used in a stand-alone application for FX<sub>2</sub> series models or available models. Depending on the usage status and system configuration (usage status of extension modules or extension blocks) or smaller number of I/O points used, you can select other models or series than the listed models.
- (b) For extension blocks, extension modules, function extension boards, and built-in batteries, alternative models that can be connected to the FX<sub>3U</sub> series main unit are listed.
- (c) Some special points to be checked are described in the column of "Special notes". However, most alternative models have specification differences other than those mentioned in "Special notes", such as smaller dimensions than the current model. When considering, be sure to check the details of various specifications in the reference manuals as well as "Special notes".
- (d) Based on the above mentioned, if there is no standard alternative model, the words of "No alternative model" are described. In this case, check the required functions and performances and select suitable alternative models for your application and system configuration from the FX<sub>3</sub> series.

**■List of recommended alternative models (main unit)**

Discontinued model		Alternative model	Special notes
Product	Model	Model	
Main unit	FX <sub>2</sub> -16MR	FX <sub>3U</sub> -16MR/ES	
Main unit	FX <sub>2</sub> -16MS	FX <sub>3U</sub> -32MS/ES	
Main unit	FX <sub>2</sub> -16MT	FX <sub>3U</sub> -16MT/ES	
Main unit	FX <sub>2</sub> -24MR	FX <sub>3U</sub> -32MR/ES	
Main unit	FX <sub>2</sub> -24MS	FX <sub>3U</sub> -32MS/ES	
Main unit	FX <sub>2</sub> -24MT	FX <sub>3U</sub> -32MT/ES	
Main unit	FX <sub>2</sub> -32MR	FX <sub>3U</sub> -32MR/ES	
Main unit	FX <sub>2</sub> -32MS	FX <sub>3U</sub> -32MS/ES	
Main unit	FX <sub>2</sub> -32MT	FX <sub>3U</sub> -32MT/ES	
Main unit	FX <sub>2</sub> -48MR	FX <sub>3U</sub> -48MR/ES	
Main unit	FX <sub>2</sub> -48MS	FX <sub>3U</sub> -64MS/ES	
Main unit	FX <sub>2</sub> -48MT	FX <sub>3U</sub> -48MT/ES	
Main unit	FX <sub>2</sub> -64MR	FX <sub>3U</sub> -64MR/ES	
Main unit	FX <sub>2</sub> -64MS	FX <sub>3U</sub> -64MS/ES	
Main unit	FX <sub>2</sub> -64MT	FX <sub>3U</sub> -64MT/ES	
Main unit	FX <sub>2</sub> -80MR	FX <sub>3U</sub> -80MR/ES	
Main unit	FX <sub>2</sub> -80MS	FX <sub>3U</sub> -64MS/ES + FX <sub>2N</sub> -8EX + FX <sub>2N</sub> -16EYS	
Main unit	FX <sub>2</sub> -80MT	FX <sub>3U</sub> -80MT/ES	
Main unit	FX <sub>2</sub> -128MR	FX <sub>3U</sub> -128MR/ES	
Main unit	FX <sub>2</sub> -128MT	FX <sub>3U</sub> -128MT/ES	
Main unit (connector I/O)	FX <sub>2</sub> -32MT-C	No alternative model	Can be replaced with FX <sub>3UC</sub> -32MT/D (24VDC power supply is required).
Main unit (connector I/O)	FX <sub>2</sub> -64MT-C	No alternative model	Can be replaced with FX <sub>3UC</sub> -64MT/D (24VDC power supply is required).
Main unit (24VDC power supply)	FX <sub>2</sub> -24MR-D	FX <sub>3U</sub> -32MR/DS	
Main unit (24VDC power supply)	FX <sub>2</sub> -48MR-D	FX <sub>3U</sub> -48MR/DS	
Main unit (24VDC power supply)	FX <sub>2</sub> -64MR-D	FX <sub>3U</sub> -64MR/DS	
Main unit (24VDC power supply)	FX <sub>2</sub> -80MR-D	FX <sub>3U</sub> -80MR/DS	
Main unit (24VDC power supply)	FX <sub>2</sub> -24MT-D	FX <sub>3U</sub> -32MT/DS	
Main unit (24VDC power supply)	FX <sub>2</sub> -48MT-D	FX <sub>3U</sub> -48MT/DS	
Main unit (24VDC power supply)	FX <sub>2</sub> -64MT-D	FX <sub>3U</sub> -64MT/DS	
Main unit (24VDC power supply)	FX <sub>2</sub> -80MT-D	FX <sub>3U</sub> -80MT/DS	
Main unit (100VAC input)	FX <sub>2</sub> -24MR-A1	FX <sub>3U</sub> -32MR/UA1	
Main unit (100VAC input)	FX <sub>2</sub> -48MR-A1	FX <sub>3U</sub> -64MR/UA1	
Main unit (100VAC input)	FX <sub>2</sub> -64MR-A1	FX <sub>3U</sub> -64MR/UA1	

**■ Extension devices and option devices to be replaced when replacing a main unit from FX<sub>2</sub> series to FX<sub>3U</sub> series**

Discontinued model		Alternative model connectable to FX <sub>3U</sub>	Special notes
Product	Model	Model	
Extension module	FX-32ER	FX <sub>2N</sub> -32ER	
Extension module	FX-48ER	FX <sub>2N</sub> -48ER	
Extension module	FX-48ET	FX <sub>2N</sub> -48ET	
Extension module (24VDC power supply)	FX-48ER-D	FX <sub>2N</sub> -48ER-D	
Extension module (24VDC power supply)	FX-48ET-D	FX <sub>2N</sub> -48ET-D	
Extension module (100VAC input)	FX-48ER-A1	FX <sub>2N</sub> -48ER-UA1/UL	
Extension block	FX-8ER	FX <sub>2N</sub> -8ER	
Extension block	FX-8ET	No alternative model	
Extension block	FX-8EX	FX <sub>2N</sub> -8EX	
Extension block	FX-8EYR	FX <sub>2N</sub> -8EYR	
Extension block	FX-8EYS	FX <sub>2N</sub> -16EYS	
Extension block	FX-8EYT	FX <sub>2N</sub> -8EYT	
Extension block	FX-16EX	FX <sub>2N</sub> -16EX	
Extension block	FX-16EYR	FX <sub>2N</sub> -16EYR	
Extension block	FX-16EYS	FX <sub>2N</sub> -16EYS	
Extension block	FX-16EYT	FX <sub>2N</sub> -16EYT	
Extension block (large current type)	FX-4EYS-H	No alternative model	
Extension block (large current type)	FX-4EYT-H	FX <sub>2N</sub> -8EYT-H	Large capacity type, 1A/1 point (2A/4 points) 5 to 30VDC
Extension block (large current type)	FX-8EYS-H	No alternative model	
Extension block (large current type)	FX-8EYT-H	FX <sub>2N</sub> -8EYT-H	Large capacity type, 1A/1 point (2A/4 points) 5 to 30VDC
Extension block (terminal block input type)	FX-16EX-V	FX <sub>2N</sub> -16EX	
Extension block (connector input)	FX-16EX-C	FX <sub>2N</sub> -16EX-C	
Extension block (output-only, high-density)	FX-16EYR-V	FX <sub>2N</sub> -16EYR	
Extension block (output-only, high-density)	FX-16EYT-V	FX <sub>2N</sub> -16EYT	
Extension block (connector output)	FX-16EYT-C	FX <sub>2N</sub> -16EYT-C	
Extension block (high-speed response input type)	FX-8EX-F	No alternative model	
Extension block (separate common at all points)	FX-8EYR-S	FX <sub>2N</sub> -8EYR-S-ES/UL	
Extension block (5VDC power, for input)	FX-8EX-L	FX <sub>2N</sub> -16EXL-C	Connector terminals are used for the FX <sub>2N</sub> -16EXL-C.
Extension block (100VAC input)	FX-8EX-A1	FX <sub>2N</sub> -8EX-UA1/UL	
Special adapter (Analog volume)	FX-8AV	FX <sub>3U</sub> -8AV-BD	
Special adapter (for optical communication) (interface for M-NET/MINI)	FX-16NP	No alternative model	Configure a system using CC-Link.
Special adapter (for wired communication) (interface for M-NET/MINI)	FX-16NT	No alternative model	Configure a system using CC-Link.

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Discontinued model		Alternative model connectable to FX <sub>3U</sub>	Special notes
Product	Model	Model	
Special block (for connection with F <sub>2</sub> special module)	FX <sub>2</sub> -24EI	No alternative model	Configure a system using FX <sub>3U</sub> series.
Special adapter (for parallel link and wired communication)	FX <sub>2</sub> -40AW	FX <sub>3U</sub> -485ADP	A function extension board is required to connect with an FX <sub>3U</sub> series main unit.
Special adapter (for parallel link and optical communication)	FX <sub>2</sub> -40AP	No alternative model	Configure a system using parallel link through RS-485 communication.
Special adapter (for optical communication) (interface for M-NET/MINI-S3)	FX-16NP-S3	No alternative model	Configure a system using CC-Link.
Special adapter (for wired communication) (interface for M-NET/MINI-S3)	FX-16NT-S3	No alternative model	Configure a system using CC-Link.
Special block (high-speed counter)	FX-1HC	FX <sub>2N</sub> -1HC	
Special block (analog input)	FX-4AD	FX <sub>3U</sub> -4AD	
Special block (analog output)	FX-2DA	FX <sub>3U</sub> -4DA	
Special block (analog output)	FX-4DA	FX <sub>3U</sub> -4DA	
Special block (analog input, thermocouple sensor)	FX-4AD-TC	FX <sub>2N</sub> -4AD-TC	
Special block (analog input, platinum resistance thermometer)	FX-2AD-PT	FX <sub>2N</sub> -4AD-PT	
Special block (pulse output, positioning control)	FX-1PG	FX <sub>2N</sub> -1PG	
Special module (pulse output, positioning control)	FX-1GM	FX <sub>2N</sub> -10GM	
Special module (pulse output, positioning control)	FX-10GM	FX <sub>2N</sub> -10GM	
Special module (pulse output, positioning control)	FX-20GM	FX <sub>2N</sub> -20GM	
Special block (ID system interface)	FX-1DIF	No alternative model	
Special adapter (communication adapter)	FX-232ADP	FX <sub>3U</sub> -232ADP	A function extension board is required to connect with an FX <sub>3U</sub> series main unit.
Special adapter (communication adapter)	FX-485ADP	FX <sub>3U</sub> -485ADP	A function extension board is required to connect with an FX <sub>3U</sub> series main unit.
Email sending module	FX-232DOPA	No alternative model	Can be replaced with DMA-S (Ver.3) (manufactured by HANERON).
DC power supply module (1A/24VDC output)	FX-10PSU	FX <sub>2N</sub> -20PSU	
DC power supply module (2A/24VDC output)	FX-20PSU	FX <sub>2N</sub> -20PSU	

**■ Programming tools to be required when replacing a main unit from FX<sub>2</sub> series to FX<sub>3U</sub> series**

Available model for FX <sub>2</sub> series		Alternative model available for FX <sub>3U</sub> series	Special notes
Product	Model	Model	
Handy programming panel	FX-20P or FX-30P + FX-20P-CAB	FX-30P	FX-20P-CAB (sold separately) is required to connect FX-30P with FX <sub>2</sub> . Connect FX-30P to FX <sub>3U</sub> using FX-20P-CAB0 included.
Programming software	FX-PCS/WIN	GX Developer Ver.8	Connectable to FX <sub>2</sub>
		GX Works2	Connectable to FX <sub>2</sub>
Programming software	GX Developer (Ver.7 or earlier)	GX Developer Ver.8	Connectable to FX <sub>2</sub>
		GX Works2	Connectable to FX <sub>2</sub>

To connect a personal computer with an FX series model, a separate interface and/or cables are required as follows.

- For connection between an FX<sub>2</sub> series model and a personal computer (RS-232C):  
 FX-232-AWC(-H) converter for RS-232-C/RS422 +  
 F<sub>2</sub>-232CAB-1 cable + FX-422CAB cable or FX-422CAB-150 cable
- For connection between an FX<sub>3U</sub> series model and a personal computer (USB):  
 FX-USB-AW converter (included with cables) for USB/RS422

**5 References to be checked for replacement**

**■References for FX<sub>2</sub> series■**

References		Description
Category	Manual (No.)	
Analog I/O	FX-4AD USER'S GUIDE (JY992D52601)	Describes the part names, external dimensions, specifications, and handling for the FX-4AD analog input block.
	FX-2DA USER'S GUIDE (JY992D52801)	Describes the part names, external dimensions, specifications, and handling for the FX-2DA analog output block.
	FX-4DA USER'S GUIDE (JY992D61001)	Describes the part names, external dimensions, specifications, and handling for the FX-4DA analog output block.
Analog input (Temperature control)	FX-2AD-PT USER'S GUIDE (JY992D55701)	Describes the part names, external dimensions, specifications, and handling for the FX-2AD-PT analog input block.
	FX-4AD-TC USER'S GUIDE (JY992D55901)	Describes the part names, external dimensions, specifications, and handling for the FX-4AD-TC analog input block.
High-speed counter	FX-1HC USER'S GUIDE (JY992D53001)	Describes the part names, external dimensions, specifications, and handling for the FX-1HC high-speed counter block.
Positioning module	FX-1PG/FX <sub>2N</sub> -1PG USER'S MANUAL (JY992D65301)	Describes the part names, external dimensions, specifications, and handling for the FX-1PG pulse output block.
	FX-1GM HANDY MANUAL (JY992D36201)	Describes the part names external dimensions, specifications, and positioning programs for the FX-1GM pulse output module and the operating procedure of the F <sub>2</sub> -30TP.
	FX-10GM, FX(E)-20GM HARDWARE/PROGRAMMING MANUAL (JY992D60401)	Describes the part names external dimensions, specifications, and positioning programs for the FX-10GM and FX(E)-20GM positioning module.
	E-20TP TEACHING PANEL OPERATION MANUAL (JY992D44901)	Describes the specifications and operating procedures for the E-20TP teaching panel.
	E-20TP-E SUPPLEMENTARY MANUAL [For JY992D44901A] (JY992D75501)	Describes the version upgrade items for the E-20TP teaching panel (Ver.1.30).
	FX-PCS-VPS/WIN-E SOFTWARE MANUAL (JY992D86801)	Describes the handling and operating procedures of software for the FX-PCS-VPS/WIN positioning module.
Analog input (Temperature control)	FX SERIES USER'S MANUAL - Data Communication Edition (JY997D16901)	Describes the system configuration, functions, and program examples for N:N network, parallel link, computer link, inverter communications, no protocol communication, and programming communications.
	FX-232ADP USER'S GUIDE (JY992D48801)	Describes the part names, external dimensions, and specifications for the RS-232C communication adapter FX-232ADP.
	FX-485PC-IF HARDWARE MANUAL (JY992D81801)	Describes the part names, external dimensions, and specifications for the RS485 interface FX-485PC-IF.
Network	FX-16NP/NT USER'S GUIDE (JY992D56201)	Describes part names, external dimensions, mounting method, handling, and specifications of MELSECNET/MINI interface block FX-16NP/NT.
Program	THE FX SERIES OF PROGRAMMABLE CONTROLLER PROGRAMMING MANUAL (FX <sub>0</sub> /FX <sub>0S</sub> /FX <sub>0N</sub> /FX/FX <sub>2C</sub> /FX <sub>2N</sub> /FX <sub>2NC</sub> ) (JY992D48301)	Describes matters related to programs, such as basic instructions, step ladder diagram instructions, application instructions, and descriptions of devices, for FX <sub>0</sub> /FX <sub>0S</sub> /FX <sub>0N</sub> /FX <sub>1</sub> /FX <sub>2</sub> /FX <sub>2C</sub> series.

■References for FX<sub>3U</sub> series■

References		Description
Category	Manual (No.)	
Main body	FX <sub>3U</sub> SERIES USER'S MANUAL - Hardware Edition (JY997D16501)	Describes matters related to hardware, such as I/O specifications, wiring, and mounting method, for FX <sub>3U</sub> series.
	FX <sub>2N</sub> -CNV-BC USER'S GUIDE (JY992D66601)	Describes the connecting method of system using the connector conversion adapter FX <sub>2N</sub> -CNV-BC.
Analog I/O	FX <sub>3S</sub> /FX <sub>3G</sub> /FX <sub>3GC</sub> /FX <sub>3U</sub> /FX <sub>3UC</sub> SERIES USER'S MANUAL - Analog Control Edition (JY997D16701)	Describes how to handle the analog control for the FX <sub>3G</sub> /FX <sub>3U</sub> /FX <sub>3UC</sub> series.
	FX <sub>3U</sub> -8AV-BD USER'S MANUAL (JY997D40901)	Describes the part names, external dimensions, mounting method, and specifications for the FX <sub>3U</sub> -8AV-BD analog volume extension board.
	FX <sub>3U</sub> -3A-ADP USER'S MANUAL (JY997D35601)	Describes the part names, external dimensions, specifications, and handling for the FX <sub>3U</sub> -3A-ADP analog I/O adapter.
	FX <sub>3U</sub> -4AD-ADP USER'S MANUAL (JY997D13901)	Describes the part names, external dimensions, specifications, and handling for the FX <sub>3U</sub> -4AD-ADP analog input adapter.
	FX <sub>3U</sub> -4DA-ADP USER'S MANUAL (JY997D14001)	Describes the part names, external dimensions, specifications, and handling for the FX <sub>3U</sub> -4DA-ADP analog output adapter.
	FX <sub>3U</sub> -4AD INSTALLATION MANUAL (JY997D20701)	Describes the part names, external dimensions, specifications, and handling for the FX <sub>3U</sub> -4AD analog input block.
	FX <sub>3U</sub> -4DA INSTALLATION MANUAL (JY997D20801)	Describes the part names, external dimensions, specifications, and handling for the FX <sub>3U</sub> -4DA analog output block.
Analog input (Temperature control)	FX <sub>3U</sub> -4AD-PT-ADP USER'S MANUAL (JY997D14701)	Describes the part names, external dimensions, specifications, and handling for the FX <sub>3U</sub> -4AD-PT-ADP temperature sensor input special adapter.
	FX <sub>3U</sub> -4AD-PTW-ADP USER'S MANUAL (JY997D29101)	Describes the part names, external dimensions, specifications, and handling for the FX <sub>3U</sub> -4AD-PTW-ADP temperature sensor input special adapter.
	FX <sub>3U</sub> -4AD-TC-ADP USER'S MANUAL (JY997D14801)	Describes the part names, external dimensions, specifications, and handling for the FX <sub>3U</sub> -4AD-TC-ADP thermocouple thermometer input special adapter.
	FX <sub>3U</sub> -4LC USER'S MANUAL (JY997D39101)	Describes the part names, external dimensions, specifications, and handling for the FX <sub>3U</sub> -4LC analog temperature control block.
High-speed counter	FX <sub>3U</sub> -4HSX-ADP INSTALLATION MANUAL (JY997D16301)	Describes the part names, external dimensions, specifications, and handling for the FX <sub>3U</sub> -4HSX-ADP high-speed counter adapter.
	FX <sub>3U</sub> -2HC USER'S MANUAL (JY997D36701)	Describes the part names, external dimensions, specifications, and handling for the FX <sub>3U</sub> -2HC high-speed counter block.
Positioning module	FX <sub>3S</sub> /FX <sub>3G</sub> /FX <sub>3GC</sub> /FX <sub>3U</sub> /FX <sub>3UC</sub> SERIES USER'S MANUAL - Positioning Control Edition (JY997D16801)	Describes how to handle the positioning control for the FX <sub>3G</sub> /FX <sub>3U</sub> /FX <sub>3UC</sub> series.
	FX <sub>3U</sub> -2HSY-ADP INSTALLATION MANUAL (JY997D16401)	Describes the part names, external dimensions, specifications, and handling for the FX <sub>3U</sub> -2HSY-ADP pulse output adapter.
	FX <sub>3U</sub> -20SSC-H USER'S MANUAL (JY997D21301)	Describes the part names, external dimensions, specifications, and handling for the FX <sub>3U</sub> -20SSC-H control block for SSCNET III.
	FX Configurator-FP OPERATION MANUAL (JY997D21801)	Describes the handling and operating procedures of FX Configurator-FP software for positioning module.



References		Description
Category	Manual (No.)	
Communications	FX SERIES USER'S MANUAL - Data Communication Edition (JY997D16901)	Describes the system configuration, functions, and program examples for N:N network, parallel link, computer link, inverter communications, no protocol communication, and programming communications.
	FX <sub>3U</sub> -232-BD INSTALLATION MANUAL (JY997D12901)	Describes the part names, external dimensions, mounting method, and specifications for the RS-232C communication board FX <sub>3U</sub> -232-BD.
	FX <sub>3U</sub> -422-BD INSTALLATION MANUAL (JY997D13101)	Describes the part names, external dimensions, mounting method, and specifications for the RS-422 communication extension board FX <sub>3U</sub> -422-BD.
	FX <sub>3U</sub> -485-BD INSTALLATION MANUAL (JY997D13001)	Describes the part names, external dimensions, mounting method, and specifications for the RS-485 communication extension board FX <sub>3U</sub> -485-BD.
	FX <sub>3U</sub> -232ADP INSTALLATION MANUAL (JY997D13701)	Describes the part names, external dimensions, mounting method, and specifications for the RS-232C communication adapter FX <sub>3U</sub> -232ADP.
	FX <sub>3U</sub> -485ADP INSTALLATION MANUAL (JY997D13801)	Describes the part names, external dimensions, mounting method, and specifications for the RS-485 communication adapter FX <sub>3U</sub> -485ADP.
Network	FX <sub>3U</sub> -ENET-L USER'S MANUAL (JY997D38001)	Describes the part names, external dimensions, specifications, and handling for the FX <sub>3U</sub> -ENET-L block for Ethernet communications.
	FX Configurator-EN-L OPERATION MANUAL (JY997D38401)	Describes the handling and operating procedures of setting tool for the FX <sub>3U</sub> -ENET-L block for Ethernet communications.
	FX <sub>3U</sub> -64CCL USER'S MANUAL (JY997D30401)	Describes the part names, external dimensions, specifications, and handling for the FX <sub>3U</sub> -64CCL CC-LinkV2 interface block.
Program	FX <sub>3S</sub> /FX <sub>3G</sub> /FX <sub>3GC</sub> /FX <sub>3U</sub> /FX <sub>3UC</sub> SERIES PROGRAMMING MANUAL - Basic & Applied Instructions Edition (JY997D16601)	Describes the matters related to sequence programs, such as basic instructions, step ladder instructions, application instructions, and descriptions of devices, for the FX <sub>3G</sub> /FX <sub>3U</sub> /FX <sub>3UC</sub> series.
	FX-30P OPERATION MANUAL (JY997D34401)	Describes the matters related to sequence programs, such as basic instructions, step ladder instructions, and application instructions using list editing, for the FX series.

- For the specifications of FX<sub>2N</sub> series extension block, refer to each manual of models to be used.

REVISIONS

Version	Date of Issue	Revision
A	September 2021	First edition