



Marine & Offshore

Certificate number: 19860/D1 BV

File number: AP 3848

Product code: 4501H

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

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## TYPE APPROVAL CERTIFICATE

*This certificate is issued to*

**MITSUBISHI ELECTRIC CORPORATION Nagoya Works**  
Nagoya - JAPAN

*for the type of product*

**PROGRAMMABLE LOGIC CONTROL UNITS**  
FX3U Series

**Requirements:**

Bureau Veritas Rules for the Classification of Steel Ships

EC Code: 31/ 31B

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 12 May 2027**

**For Bureau Veritas Marine & Offshore,**

At BV KOBE, on 21 Oct 2022,

Shinichi Takemoto

***This certificate was created electronically and is valid without signature***



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 4 page(s)

## THE SCHEDULE OF APPROVAL

### **1. PRODUCT DESCRIPTION:**

FX3U series are modular programmable logic controller for DIN rail mounting.

#### **1.1 - Base Units:**

Model	Input Points	Output Points	Power Supply Voltage	Input Signal	Output Type	FW Version
FX3U-16MR/ES	8	8	100V AC to 240V AC	24V DC	Relay output	V3.2x
FX3U-32MR/ES	16	16				V3.2x
FX3U-48MR/ES	24	24				V3.2x
FX3U-64MR/ES	32	32				V3.2x
FX3U-80MR/ES	40	40				V3.2x
FX3U-128MR/ES	64	64				V3.2x
FX3U-16MT/ES	8	8			Transistor output (Sink type)	V3.2x
FX3U-32MT/ES	16	16				V3.2x
FX3U-48MT/ES	24	24				V3.2x
FX3U-64MT/ES	32	32				V3.2x
FX3U-80MT/ES	40	40				V3.2x
FX3U-128MT/ES	64	64				V3.2x
FX3U-16MT/ESS	8	8			Transistor output (Source type)	V3.2x
FX3U-32MT/ESS	16	16				V3.2x
FX3U-48MT/ESS	24	24	V3.2x			
FX3U-64MT/ESS	32	32	V3.2x			
FX3U-80MT/ESS	40	40	V3.2x			
FX3U-128MT/ESS	64	64	V3.2x			
FX3U-16MR/DS	8	8	24V DC	Relay output	V3.2x	
FX3U-32MR/DS	16	16			V3.2x	
FX3U-48MR/DS	24	24			V3.2x	
FX3U-64MR/DS	32	32			V3.2x	
FX3U-80MR/DS	40	40			V3.2x	
FX3U-16MT/DS	8	8			Transistor output (Sink type)	V3.2x
FX3U-32MT/DS	16	16		V3.2x		
FX3U-48MT/DS	24	24		V3.2x		
FX3U-64MT/DS	32	32		V3.2x		
FX3U-80MT/DS	40	40		V3.2x		
FX3U-16MT/DSS	8	8		Transistor output (Source type)		V3.2x
FX3U-32MT/DSS	16	16			V3.2x	
FX3U-48MT/DSS	24	24			V3.2x	
FX3U-64MT/DSS	32	32			V3.2x	
FX3U-80MT/DSS	40	40	V3.2x			

#### **1.2 - Special Adapter:**

Model	Input Points	Output Points	Power Supply Voltage	Input Signal	Output Type	FW Version	
FX3U-232ADP-MB	-	-	(from Base Unit)	-	-	-	
FX3U-232ADP-MBH	-	-		-	-	-	
FX3U-485ADP-MB	-	-		-	-	-	
FX3U-485ADP-MBH	-	-		-	-	-	
FX3U-CAN	-	-		-	-	-	V1.1x
FX3U-J1939	-	-		-	-	-	V1.1x
FX3U-4AD-ADP	4AI	-		-	Analogue	-	-
FX3U-4AD-PT-ADP	4AI	-		-	Analogue	-	-
FX3U-4AD-TC-ADP	4AI	-	-	Analogue	-	-	
FX3U-4DA-ADP	-	4AI	-	-	Analogue	-	
FX3U-4HSX-ADP	4	-	-	Differential	-	-	
FX3U-2HSY-ADP	-	2	-	-	Differential	-	

**1.3 - Function Board:**

Model	Input Points	Output Points	Power Supply Voltage	Input Signal	Output Type	FW Version
FX3U-USB-BD	-	-	(from Base Unit)	-	-	-
FX3U-232-BD	-	-		-	-	-
FX3U-485-BD	-	-		-	-	-
FX3U-422-BD	-	-		-	-	-
FX3U-CNV-BD	-	-		-	-	-

**1.4 - Memory Cassette:**

Model	Input Points	Output Points	Power Supply Voltage	Input Signal	Output Type	FW Version
FX3U-FLROM-16	-	-	(from Base Unit)	-	-	-
FX3U-FLROM-64	-	-		-	-	-
FX3U-FLROM-64L	-	-		-	-	-

**1.5 - Display Module:**

Model	Input Points	Output Points	Power Supply Voltage	Input Signal	Output Type	FW Version
FX3U-7DM	-	-	(from Base Unit)	-	-	-

**2. DOCUMENTS AND DRAWINGS:**

- Y006T35971 Rev. D dated 12.10.03; Y006T36071 Rev. D dated 12.10.03; Y335T76571 Rev. D dated 12.10.03;
- Y335T76572 Rev. B dated 12.10.03; Y335T76671 Rev. C dated 12.10.03; JY997D43001B dated May 2012;
- JY997D43201A dated April 2012; Hardware/Firmware list dated 07.11.2012
- BCN-Q91Y00-0255, dated 2018/1/15 ; SANKI-131003J, undated ; Firmware Update list, dated 2017/10.

**For D0 version:**

- Test specification No. BCN-Q9ZYL0-0052, dated 13 July 2021.
- Drawing No. BD119C694, dated 21/06/15.
- Type Approval Application, Test specification for FX3U series, No. BCN-Q9ZYL0-0145, dated 2021/12/21.
- Software development plan No. BS-1694, dated 2016/12/15.
- Software development plan No. BS-1646, dated 2016/06/08.
- Software development plan No. BS-1647, dated 2016/10/06.

**For D1 version:**

- Type Approval Test Specification No. BCN-Q9ZYL0-0245 dated 25 May 2022

**3. TEST REPORTS:****AKUVIB Engineering and Testing GmbH:**

- 2012-0317-VU dated August 6, 2012

**CETECOM GmbH:**

- 2-0034-12-4-1a dated 2012-03-15

**du.tronic Consulting & Engineering:**

- 220-11e Rev. 2.0 dated 26.10.2011

**Mitsubishi Electric Europe B.V.:**

- 310441 Rev. B dated 16.02.2012

**Mitsubishi Electric Corporation Himeji Works:**

- BZ-5534 dated 03/06/2007; BZ-5536 dated 03/06/2007

**UL.APEX Co., Ltd.:**

- 26BE0092-YW-1 dated 21/10/2005; 26BE0092-YW-2 dated 21/10/2005;
- 25IE0018-YW-1 to 6 dated 20/05/2005; 26EE0017-YW-1 to 4 dated 19/01/2006; 27EE0148-YW-A dated 21/02/2007;
- 27EE0148-YW-B dated 21/02/2007; 27KE0093-YW dated 06/07/2007

**For D0 version:**

- Test Report No. KL05210114, dated 2022-02-17.
- Test Report No. KL80210699, dated January 11, 2022.
- Test Report No. 50-10026, dated May 13, 2021.

**For D1 version:**

- Test Report No. KL80220224 dated July 20, 2022
- Test Report No. KL05220038 dated 2022-9-2.

**4. APPLICATION/LIMITATION:**

- 4.1 - Bureau Veritas Rules for the Classification of Steel Ships.
- 4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS, AUT-CCS, AUT-PORT** and **AUT-IMS**.
- 4.3 - Bureau Veritas Environmental Category, **EC Code: 31 / 31B**.
- 4.4 - The equipment fulfils the EMC requirements for installation in General Power Distribution Zone, Bridge and Deck Zone.
- 4.5 - Only Hardware and Firmware / Software successfully tested together in compliance with the regulations as referred to in cover page, according to the declaration of the manufacturer are covered by this certificate.
- 4.6 - Any modification of the hardware, firmware or software having an impact on the product performance or functionality has to be validated with type testing.
- 4.7 - In accordance with IACS UR E22 and as applicable to programmable devices for computer based systems of Category II or III, for each ship application:
- Ship specific documentation is to be submitted including software documentation and categorization of the computer based system.
  - Inspection and testing before installation onboard is to be performed under the surveillance of the Society.
- 4.8 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev7.

**5. PRODUCTION SURVEY REQUIREMENTS:**

- 5.1 - The above mentioned products are to be supplied by **Mitsubishi Electric Europe B.V.** in compliance with the type described in this certificate.
- 5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.
- 5.3 - **Mitsubishi Electric Europe B.V.** has to make the necessary arrangements to have its works recognized by Bureau Veritas in compliance with the requirements of NR320 for HBV products:

**Mitsubishi Electric Corporation Nagoya Works**  
**5-1-14, Yada-Minami, Higashi-ku**  
**461-8670 Nagoya**  
**JAPAN**

- 5.4 - Equipment is to be supplied with manual(s) for installation, use and maintenance.

**6. MARKING OF PRODUCT:**

- Maker's name or trademark.
- Equipment type or model identification under which it was type tested.
- Date of manufacture and/or serial number.
- For each application title and version of each software element included in the installed software system shall be either marked on the equipment or displayed on a panel on command.

**7. OTHERS:**

- 7.1 - It is **Mitsubishi Electric Europe B.V.**, responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.
- 7.2 - This certificate supersedes the Type Approval Certificate No. 19860/D0 BV issued on 12 May 2022 by the society.

\*\*\* END OF CERTIFICATE \*\*\*