

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Programmable Electronic System**with type designation(s)
Programmable Logic Controller, FX3U - Series

Issued to

Mitsubishi Electric Corporation, Nagoya Works
NAGOYA AICHI, Japanis found to comply with
Det Norske Veritas' Rules for Classification of Ships and High Speed and Light Craft
Det Norske Veritas' Offshore Standards**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Location classes:**

Temperature	A
Humidity	B
Vibration	A
EMC	A/B (See page 2)
Enclosure	Required protection according to DNV Rules shall be provided upon installation onboard

This Certificate is valid until **2019-06-30**.Issued at **Busan** on **2015-08-24**DNV GL local station: **Kobe**Approval Engineer: **Sang Bum Park**for **DNV GL**

Baeg Soon Choi
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Product description

Programmable Logic Controller FX3U series units as specified in the following.

Note: modules marked with (*) have EMC class A, while the others have EMC class B.

Base Units (100 – 240VAC):

FX3U-16MR/ES	FX3U-16MT/ES	FX3U-16MT/ESS
FX3U-32MR/ES	FX3U-32MT/ES	FX3U-32MT/ESS
FX3U-48MR/ES	FX3U-48MT/ES	FX3U-48MT/ESS
FX3U-64MR/ES	FX3U-64MT/ES	FX3U-64MT/ESS
FX3U-80MR/ES	FX3U-80MT/ES	FX3U-80MT/ESS
FX3U-128MR/ES	FX3U-128MT/ES	FX3U-128MT/ESS

Base Units (24VDC):

FX3U-16MR/DS	FX3U-16MT/DS	FX3U-16MT/DSS
FX3U-32MR/DS	FX3U-32MT/DS	FX3U-32MT/DSS
FX3U-48MR/DS	FX3U-48MT/DS	FX3U-48MT/DSS
FX3U-64MR/DS	FX3U-64MT/DS	FX3U-64MT/DSS
FX3U-80MR/DS	FX3U-80MT/DS	FX3U-80MT/DSS

Special Adapters:

FX3U-232ADP
FX3U-232ADP-MB
FX3U-232ADP-MBH
FX3U-485ADP
FX3U-485ADP-MB
FX3U-485ADP-MBH
FX3U-4AD-ADP
FX3U-4DA-ADP
FX3U-4AD-PT-ADP
FX3U-4AD-TC-ADP
FX3U-4HSX-ADP
FX3U-2HSY-ADP

Special Function Block:

FX3U-ENET (*)
FX3U-64DP-M (*)
FX3U-ENET-P502(*)
FX3U-32DP (*)
FX3U-CAN (*)
FX3U-J1939 (*)

Function Boards:

FX3U-USB-BD
FX3U-232-BD
FX3U-485-BD
FX3U-422-BD
FX3U-CNV-BD

Memory Cassettes:

FX3U-FLROM-16
FX3U-FLROM-64
FX3U-FLROM-64L

Display Module:

FX3U-7DM

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Product certificate

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After the certification the clause for application software control will be put into force.

Clause for application software control

All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV for evaluation and approval. Major changes in the software are to be approved before being installed in the computer. A Certification of Application Functions may be required for the particular vessel.

Type Approval documentation

Tests carried out

Applicable tests according to Standard for Certification No. 2.4, April 2006.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE