DNV·GL

Certificate No:
TAA00000A0

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Programmable Electronic System

with type designation(s)
Melsec - FX2N Series, Melsec - FX2NC Series

Issued to
Mitsubishi Electric Corporation, Nagoya Works
NAGOYA AICHI, Japan

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application :

Type	Temperature	Humidity	Vibration	EMC	Enclosure
Melsec - FX2N Series	**B**	**A**	**A**	**A**	**Required protection according to DNV Rules shall be provided upon installation on board**
Melsec - FX2NC Series	**B**	**A**	**A**	**A**	

This Certificate is valid until **2018-12-31**.

Issued at **Busan** on **2016-02-23**

for **DNV GL**

DNV GL local station: **Kobe**

Approval Engineer: **Byoung So Lee**

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.

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Product description

Programmable Electronic System FX2N and FX2NC consisting of:

Model	Power Supply Voltage	Input Signal	Output Type
FX2N PLC Base units:			
FX2N-16/32/48/64/80/128MR-ES/UL	100-240VAC	24VDC Sink/Source	Relay output
FX2N-16/32/48/64/80/128MR	100-240VAC	24VDC Sink	Relay output
FX2N-16/32/48/64/80/128MT-ESS/UL	100-240VAC	24VDC Sink/Source	Transistor output
FX2N-16/32/48/64/80/128MT	100-240VAC	24VDC Sink	Transistor output
FX2N-16/32/48/64/80MR-DS	24VDC	24VDC Sink/Source	Relay output
FX2N-16/32/48/64/80MR-D	24VDC	24VDC Sink	Relay output
FX2N-16/32/48/64/80MT-DSS	24VDC	24VDC Sink/Source	Transistor output
FX2N-16/32/48/64/80MT-D	24VDC	24VDC Sink	Transistor output
FX2N Extension units:			
FX2N-32/48ER-ES/UL	100-240VAC	24VDC Sink/Source	Relay output
FX2N-32/48ET-ESS/UL	100-240VAC	24VDC Sink/Source	Transistor output
FX2N-48ER-DS	24VDC	24VDC Sink/Source	Relay output
FX2N-48ET-DSS	24VDC	24VDC Sink/Source	Transistor output
FX2N Extension blocks (input only):			
FX2N-16EX-ES/UL	-	24VDC Sink/Source	-
FX2N-16EX	-	24VDC Sink	-
FX2N-8EX-ES/UL	-	24VDC Sink/Source	-
(output only):	-		
FX2N-16EYR-ES/UL	-	-	Relay output
FX2N-16EYR	-	-	Relay output
FX2N-16EYT-ESS/UL	-	-	Transistor output
FX2N-16EYT	-	-	Transistor output
FX2N-8EYR-ES/UL	-	-	Relay output
FX2N-8EYT-ES/UL	-	-	Transistor output
(input/output):			
FX2N-8ER-ES/UL	-	24VDC Sink/Source	Relay output
Analogue input:			
FX2N-4AD	24VDC	Analog	-

Model	Power Supply Voltage	Input Signal	Output Type
Analogue output:			
FX2N-4DA	24VDC	-	Analog
PT input:			
FX2N-4AD-PT	24VDC	Analog	-
TC input			
FX2N-4AD-TC	24VDC	Analog	-
High speed counter:			
FX2N-1HC	24VDC	Counter	-
High speed pulse output:			
FX2N-1PG-E	24VDC	-	Pulse
RS-232-C communication:			
FX2N-232IF	-	-	-
Special function block:			
FX2N-64DP-M	24VDC	-	-
FX0N-32NT-DP	24VDC	-	-
Special function unit:			
FX2N-32DP-IF	100-240VAC	-	-
FX2NC PLC Base units:			
FX2NC-16/32/64/96MT-DSS	24VDC	24VDC Sink/Source	Transistor output
FX2NC-16MR-T-DS	24VDC	24VDC Sink/Source	Relay output
FX2NC PLC Extension units:			
FX2NC-16EX-T-DS	24VDC	24VDC Sink/Source	-
FX2NC-16EYR-T-DS	24VDC	-	Relay output
FX2NC-16EX-DS	24VDC	24VDC Sink/Source	-
FX2NC-16EYT-DSS	24VDC	-	Transistor output
FX2NC-32EX-DS	24VDC	24VDC Sink/Source	-
FX2NC-32EYT-DSS	24VDC	-	Transistor output
FX2NC-16EX-T	24VDC	24VDC Sink/Source	-
FX2NC-16EYR-T	24VDC	-	Relay output
FX2NC-16/32EX(-D/UL)	24VDC	24VDC Sink	-
FX2NC-16/32EYT(-D/UL)	24VDC	-	Transistor output
FX2NC-4AD	24VDC	Analog	-
FX2NC-4DA	24VDC	-	Analog
FX2NC-485ADP	-	-	-
FX2NC-232ADP	-	-	-

Approval condition

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
Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The certification test is to be performed at the manufacturer of the application system according to an approved test program before the system is shipped to the yard. 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.

Application/Limitation

Not to be localised in bridge area due to EMC class A.

Type Approval documentation

Tests carried out

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

Periodical assessment

The scope of the retention/renewal survey 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 survey 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

Retention survey is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE