DNV·GL

Certificate No:
TAA000002S

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Programmable Electronic System

with type designation(s)
Melsec FX3G

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 :

Location classes:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Temperature	**B**
Humidity	**B**
Vibration	**A**
EMC	**B**
Enclosure	**Required protection according to Rules to be provided upon installation on board**

This Certificate is valid until **2019-06-30**.

Issued at **Busan** on **2015-09-04**

for **DNV GL**

DNV GL local station: **Kobe**

Approval Engineer: **Hee Jin Song**

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 Electronic system Melsec FX3G series specified in the following:

Unit type	Model name	Input points	Output points	Power supply voltage	Input signal	Output Type	Firm-ware version
Base Units	FX3G-14MR/ES	8	6	100VAC to 240VAC 50/60Hz	24VDC Sink/Source configurable	Relay output	Ver. 1.40
	FX3G-24MR/ES	14	10				
	FX3G-40MR/ES	24	16				
	FX3G-60MR/ES	36	24				
	FX3G-14MR/ES-A	8	6				
	FX3G-24MR/ES-A	14	10				
	FX3G-40MR/ES-A	24	16				
	FX3G-60MR/ES-A	36	24				
	FX3G-14MT/ES	8	6			Transistor output (Sink type)	
	FX3G-24MT/ES	14	10				
	FX3G-40MT/ES	24	16				
	FX3G-60MT/ES	36	24				
	FX3G-14MT/ES-A	8	6				
	FX3G-24MT/ES-A	14	10				
	FX3G-40MT/ES-A	24	16				
	FX3G-60MT/ES-A	36	24				
	FX3G-14MT/ESS	8	6			Transistor output (Source type)	
	FX3G-24MT/ESS	14	10				
	FX3G-40MT/ESS	24	16				
	FX3G-60MT/ESS	36	24				
	FX3G-14MR/DS	8	6	24VDC		Relay output	
	FX3G-24MR/DS	14	10				
	FX3G-40MR/DS	24	16				
	FX3G-60MR/DS	36	24				
	FX3G-14MT/DS	8	6			Transistor output (Sink type)	
	FX3G-24MT/DS	14	10				
	FX3G-40MT/DS	24	16				
	FX3G-60MT/DS	36	24				
	FX3G-14MT/DSS	8	6			Transistor output (Source type)	
	FX3G-24MT/DSS	14	10				
	FX3G-40MT/DSS	24	16				
	FX3G-60MT/DSS	36	24				
Expansion Board	FX3G-232-BD	-	-	(from Base Unit)	-	-	*1
	FX3G-485-BD	-	-		-	-	
	FX3G-422-BD	-	-		-	-	
	FX3G-2AD-BD	2 (Analog)	-		Analog	-	
	FX3G-1DA-BD	-	1(Analog)		-	Analog	
	FX3G-8AV-BD	-	-		Analog	-	
Memory Cassette	FX3G-EEPROM-32L	-	-		-	-	
Display Module	FX3G--5DM	-	-		-	-	
Special Adapters connector	FX3G-CNV-ADP	-	-		-	-	

conversion adapter							

*1: These units are operated by the firmware of base units.

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.
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.

Type Approval documentation

Tests carried out

Applicable tests according to DNV Standard for Certification No.2.4.

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