

DET NORSKE VERITAS TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. A-8458 This Certificate consists of 3 pages

This is to certify that the **Programmable Electronic System** with type designation(s) **Melsec FX0, FX0N, FX0S, FX1S, FX1N**

Manufactured by

Mitsubishi Electric Corporation Himeji Works Hyogo Pref. 670-0993, Japan

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

		Applicati	on		
Location classes:					
Туре	Temperature	Humidity	Vibration	EMC	Enclosure
Melsec FX0 and FX0N	B	A	Α	Α	Required protection
Melsec FX0S	В	В	A	A ·	according to the Rules to
Melsec FX1S and FX1N	A	В	Α	В	be provided upon
					installation on board.
Place and date Høvik, 2002-07-11	S SKE		This Certificate is valid until 2005-12-31		
Xer DETNORSKE VERITA	IS AS	E (14) * 1864 *	TAS	ß	1. B. I. his

D. WI Dr MM Birger W. Bulukin

rger W. Bulukin Surveyor

Notice: 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.

Local Office DNV Kobe

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision 'Det Norske Veritas' shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

DET NORSKE VERITAS AS . Form No.: 20.90a Issue: January 98

of Section

VERITASVEIEN 1, 1322 HØVIK, NORWAY

TEL: (+47) 67 57 99 00

FAX: (+47) 67 57 99 11 Page 1 of 3



Cert. No.: A-8458 File No.: 862.50

Product description

Programmable electronic system Melsec FX0, FX0S, FX0N, FX1S and FX1N

Type Approval conditions

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 / MOU Pt.4 Ch.9 Instrumentation and Automation.

Conditions for application functions.

Approval Test of Application Software will be required when the hardware is used in applications to be classed by DNV. The test is to be performed at manufacturer's works according to an approved test program for the actual application in the presence of DNV. The test is only to be performed for the first delivery if there are sister vessels

Type Approval documentation

FX/FX0/FX0N:

Melsec FX/FX0/FX0N series Programmable Controller Programming Manual, JY992D48301 rev. A, December 1994.

Melsec FX0/FX0N series Programmable Controllers Hardware Manual, JY992D47501B, February 1995.

Catalogue K-C3849-A HI-9203, March 1992

Evaluation/test on reliability of FX0 series Micro-Programmable Controller No. BZ-5319, March 1992.

Evaluation/test on reliability of FX0N series Micro-Programmable Controller No. BZ-5352, December 1995.

FX0/FX0S/FX0N/FX:

Melsec FX0/FX0S/FX0N/FX series Programmable Controller Programming Manual, JY992D48301 rev. F, August 1996.

Melsec FX0S Hardware Manual, JY992D55301C, May 1996.

Melsec FX0/FX0S/FX0N/FX series Technical Manual, 59084-A, October 1996.

Evaluation/test on reliability of FX0S series Micro-Programmable Controller No. BZ-5366, date: 97.1.8

FX1N/FX1S:

Melsec FXIN series Programmable Controllers Hardware Manual, JY992D89301F, April 2001.

Melsec FX1s series Programmable Controllers Hardware Manual, JY992D83901E, June 2001.



Cert. No.: A-8458 File No.: 862.50

Technical Catalogue 136744-C, dated 2002/04 Catalogue (Norwegian) BrN-0025A, dated 2001/04 Test reports: BZ-5486, dated 01-10-24 TTI-P-G147/97-30, dated 00-08-21 Drawings as included in ring binder "FX1S/1N Documentation for DNV approval: FX1S-30MR-ES/UL FX1N-8AV-BD FX1S-20MT-DSS FX1N-CNV-BD FX1N-60MR-ES/UL FX1N-4EX-BD2YET-BD FX1N-40MT-DSS FX1N-2AD-BD FX1N-14MR-DS FX1N-1DA-BD FX1N-24MT-ESS/UL FX1N-5DM FX1N-422-BD FX1N-EEPROM-8L FX1N-485-BD

Tests carried out

Applicable tests acc. to S.f.C.2.4

Certificate retention survey

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 no affect the type approval given.
- Ensuring traceability between manufacturer's product type marking and the type approval certificate.

Survey to be performed at renewal of this certificate.

END OF CERTIFICATE

TEL: (+47) 67 57 99 00