

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive (EU) 2015/559, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

That the Electronic chart display and information system (ECDIS)

with type designation(s)
FMD-3200/3200-BB/FMD-3300

Issued to
Furuno Electric Co., Ltd.
Nishinomiya Hyogo Pref, Japan

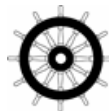
is found to comply with the requirements in the following Regulations/Standards:
Annex A.1, item No. A.1/4.30 and Annex B, Module B in the Directive. IMO Resolutions A.694(17), MSC.191(79) & MSC.232(82)
IMO Resolution MSC.302(87) Performance standards for Bridge Alert Management

Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2021-07-12**.

Issued at **Høvik** on **2016-07-13**

DNV GL local station:
Kobe



for **DNV GL AS**

Approval Engineer:
Olaf Gundersrud

Notified Body
No.: **0575**

Vidar Dolonen
Head of Notified Body



The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Council Directive 96/98/EC, as amended.

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL AS of any changes to the approved equipment.

Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

Product description

The FMD-3200/3200-BB/FMD-3300 consist of the following units:

Unit	Location
Main Computer(s)	Protected
Display(s) (VDUs)	Protected
Operation Panel(s) (control unit)	Protected
Data interface(s)	Protected

For details, see Appendix.

Application/Limitation

- DVI port(s) shall be used for video signal interface between Main Computer Unit and VDU.
- The ECDIS may be configured as a single workstation or a system of multiple workstations.
- A dual installation of the Furuno ECDIS 3000-series may comply with the SOLAS requirements for ECDIS with Back-up arrangements.
- The ECDIS may be operated in RCDS mode of operation using HCRF chart data format.
- The ECDIS may be interfaced with RADAR.
- The ECDIS may be interfaced with NAVTEX.
- The ECDIS may be interfaced with VDR via Ethernet in accordance with IEC61996-1 annex G.
- The ECDIS shall be installed and tested in accordance with the Installation Manual FMD-3200/3200- BB/3300

Note:

The ECDIS may optionally support MFD including an alarm management system (AMS) and conning information display(CID). Appropriate installation drawings and alert list shall be submitted for approval as requested.

Type Examination documentation

- See Appendix.

Tests carried out

- IEC61174(2015)
- IEC61162-1(2010)
- IEC61162-2(1998)
- IEC61162-450(2011)
- IEC62288(2014)
- IEC60945(2002)

Marking of product

The manufacturer and Type Designation to be applied to the equipment in a clearly visible location and in addition the equipment shall be marked with serial number, safe distance to magnetic compass, power consumption and/or supply voltage.

APPENDIX

Product description

The ECDIS FMD-3200/3200-BB/FMD-3300 comprises combinations of the following components:

Unit	Model Name	Components	Remark
Main Computer Unit	EC-3000	Mother board: ADP-555-02 I Radeon E4690 SSD 64GB (SDG2A64 GMDFBWSZ-SSJA) DVD-drive (iHAS324-27B) USB-port	
Monitor Unit (VDU)	MU-190 or MU-231or MU-201CE or MU-231CE or MU-270W or JH19T14FUD or JH20T17FUD or JH23T12FUD or JH23T14FUD or HD26T21 MMD-MA4		
Operation panel	RCU-024		Selectable RCU-024 or RCU-026
Trackball control panel	RCU-026		Selectable RCU-024 or RCU-026
Ethernet controller (interface)	REALTEK and INTEL	2 Tj45 ports	IEC61162-450
Interface Unit (Sensor Adapter)	MC-3000S		Optionally
Interface Unit (Sensor Adapter)	MC-3010A		Optionally
Interface Unit (Sensor Adapter)	MC-3020D		Optionally
Interface Unit (Sensor Adapter)	MC-3030D		Optionally
Network switch/switching HUB	HUB-100		
Network switch/intelligent HUB	HUB-3000		
<i>Software</i>			
Application version	01.xx		
PresLib version	3.4		
C-MAP SDK ver.	5.0		

Type Examination documentation

DNV No.	Dwg. No.	Rev.	Title
7	BSH/46162/0071829/11		Conformance Test Report - ECDIS-Monitor MU-231
8	BSH/46162/0071828/11		Conformance Test Report - ECDIS-Monitor - MU-190
11	BSH/4612/4341824/11		Approval of TFT Displays for Radar FAR-2XX7 Series
14	FLI 12-11-111		Environmental Test Report ECDIS FMD-3200/-3200-BB/-3300

APPENDIX

Type Examination documentation (cont.)

DNV No.	Dwg. No.	Rev.	Title
15	FLI 12-11-112		Test Report page 2-14 ECDIS - FMD-3200/-3200-BB/-3300
18	K24-17-473		Test Report for Pending Items - FMD-3000 Series ECDIS
19	K24-17-391		DNV type approval test report
20			Monitor color testing
21	K24-17-467		Testing report For Pending Item-FMD-3000 Series ECDIS
22			Appendix 1- Encrypted ENC testing, IEC 61174 Ed3
30			Color Calibration method in ECDIS and Radar
31	BSH/46162/0071224/09		Conformance test report of 23.1 TFT
32	BSH/46162/0071223/09		Conformance test report of 20.1 TFT
33	BSH/4612/4302098/12		Assessment report for JH23T14FUD
35	BSH/4612/4301921/11		Type certificate attachement
36	BSH/46162/0071146/10		Envirommental test report
37	BSH/46162/0071145/10		Environmental test report
38	BSH/46162/0071144/10		Environmental test report
42	DNV 2012-3362	0	EMC & env. Test report 26T21MMD-MA1-FAGA
41	HD DOC101183-1		Conformance Test Report of 26T21MMD for use in ECDIS
44	IME-44730-B0		Installation Manual - FMD-3200/3200-BB/3300
75	K24-17-717		DNV Type approval testing report IEC62288: FMD-3000 series
76	E42-01204-F10		Instruction Manual: Settings and adjustments FMD-3x00, FCR2xx9
77	E42-01311-C10		Instruction manual settings and adjustments: FMD-3100
78	OME-44840-C2		Operator's manual:ECDIS FMD-3100
79	OME-44730-F4		Operator's manual:ECDIS FMD-3200/-3200-BB/-3300
80	K24-17-765		DNV type approval testing report: FMD-3000 series
81	K24-17-787		testing report of improved software: pending items part 2
82	LIC 12-15-059		Test report: IEC61162-450 for Sensor Adaptor MC-3000S
83	K2417-791		Test report: Addition of NAVTEX function
84	K24-17-748		Test report for MSC302(87): FMD-3000 series ECDIS
86	K26-17-224-0		MU-270W Display presentation data: IEC61174, IEC62288
87	FLI 12-14-035		Test report IEC61162-450: FMD-3200/3200-BB/3300
88	OMC-44930-Z4		Operator's manual: Marine display model MU-270W
89	LIC 12-16-009/010/011		Monitor MU-270W test reports IEC60945 env/emc/csd
90	LIC 12-16-012		Monitor MU-270W test report IEC62288