

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of Norway.

This is to certify:

That the Track control system (TCS)

with type designation(s)
TC-3001 R-A

Issued to

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

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2017/306,**

**item No. MED/4.33. SOLAS 74 as amended, Regulations V/18 & V/19, IMO Res A.694(17),
IMO Res MSC.74(69), IMO Res MSC.191(79), IMO Res MSC.302(87)**

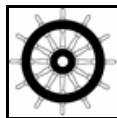
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2022-11-28.**

Issued at **Høvik** on **2017-11-29**

DNV GL local station:
Kobe

Approval Engineer:
Olaf Gundersrud



Notified Body
No.: **0575**

for **DNV GL AS**

Vidar Dolonen
Head of Notified Body

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005.

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 Directive 2014/90/EU.

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. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.

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 TC-3001 R-A track control system consists of combinations of the following sub-systems:

<i>Equipment</i>	<i>Location</i>
• ECDIS FMD-3200/3200-BB/3300 manufactured by Furuno Electric Co., Ltd.	Protected
• HCS, NautoPilot 5400 manufactured by Raytheon Anschütz GmbH,	Protected

For details, see Appendix

Application/Limitation

- The track control system complies with the IMO requirements for Category C track control system.
- The equipment identified under production description shall hold valid type examination certificates.
- The track control system shall be installed with an alarm transfer system for transfer of back-up navigator alarms.
- The track control system shall be installed with dual compass' for heading monitoring.
- The steering mode selector switch or override facility shall be installed at the workstation in command of track control (the conning position).
- The track control system shall be installed incorporating a safety system either embedded in the steering gear system or by installing a separate analog memory device in accordance with the manufacturer's installation instructions.
- The LAN interface of the ECDIS Processing Unit may interconnect with other Furuno Processing Units only.
- The track control installation shall be verified and tested onboard according to manufacturer's installation instructions.

Type Examination documentation

- See Appendix

Tests carried out

- Performance – IEC62065 (2014)
- Environmental – IEC60945 (2002)
- Serial Interface – IEC61162-1 (2010)
- Serial Interface – IEC61162-2 (1998)
- Presentation – IEC62288 (2014)

Marking of product

The designation of Manufacturer and Type shall be fixed in a clearly visible location. In addition the equipment shall be marked with serial number, safe distance to magnetic compass, power consumption and/or supply voltage.

USCG Approval

The product has been assigned a **U.S. Coast Guard Module B number** 165.112/EC0575 to note type approval to Module B only as it pertains to obtaining US Coast Guard approval as allowed by the "Agreement between the United States of America and the EEA EFTA states on the Mutual Recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005

APPENDIX

Product Description

The TC-3001 R-A track control system consists of the following equipment:

ECDIS FMD-3200/-3200-BB/-3300 comprising :		comment
Processor unit	EC-3000	
VDU	Ref. ECDIS certificate	
	RCU-024 ¹ or 026 ²	1) ECDIS control unit 2) Trackball control unit
Sensor adapter	MC-30x0n	$x = \{ 0, 1, 2, 3 \}$ and $n = \{ S, A, D \}$
Network switch	HUB-100 ³ or HUB-3000 ⁴	3) Switching HUB 4) Intelligent HUB
Software Versions	Linux: ver. 3.2 C-MAP SDK: ver.6.0 FMD3x00: ver.03.xx	

and

Heading Control System NautoPilot 5400 comprising:		
Operator Unit	102-890 NG001/002	
Interface Unit	102-890 NG001	
Licence key	NP5400	
Software versions	OU ver. E03.xx IU ver. E0.1.xx	

Type Examination documentation

DNV No.	Document no.	Rev.	Title
5	K24-17-491 rev.2		DNV type approval testing report
21*	K24-20-047		Technical Manual for TCS
24	K24-17-529		DNV type approval testing report
33	K24-17-561		DNV type approval testing report
47	K24-17-681		Internal test report of HCR sentence
55	K24-17-715		DNV type approval test report - TC-3001
68	K24-17-769	1.2	TCS TA Test Procedure for NP5400
69	K24-17-821		Appendix of TA Test Procedure for NP5400
70	K24-17-822	1.2	Internal test report of improved software for pending items
72	OME-44730-J9		Operator's manual - FMD-3200/3200BB/3300
74	4002.DOC010102	2016	Operator Manual: NAUTOPILOT 5000 series
75	IME-44730-H12		Installation Manual: FMD-3200/FMD-3300/FMD-3200-BB
76	Raytheon Anschutz	1,1	Autopilot NP5000 as part of Track Control System
77	NP5000	01	Interface Test NP5000

Job Id: **344.1-003620-12**
Certificate No: **MEDB00003HC**

APPENDIX

Type Examination documentation cont.

DNV No.	Document no.	Rev.	Title
78	4002.DOC010302	2016	Service Manual: NAUTOPILOT 5000 series
	DNVGL cert.no. MEDB00001AV	1	ECDIS FMD-3200/3200-BB and FMD-3300

**Documentation stored on 344.1-002251*