



TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MERB000045U
Revision No:
0

This Certificate is issued by DNV UK Limited based on authorisation of the Maritime & Coast Guard Agency (MCA) as an UK Approved Body to undertake conformity assessments on marine equipment in accordance with the requirements of the Merchant Shipping (Marine Equipment) Regulations 2016 as amended.

This is to certify:

That the Track control system (TCS)

with type designation(s)
TC-3001 TKC

Issued to

Furuno Electric Co., Ltd.
Nishinomiya, Japan

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

Regulation **MSN 1874 Amendment 6,**
item No. UK/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 **2027-04-26.**

Issued at **London** on **2022-12-28**

DNV local unit:
Kobe



for **DNV UK Ltd.**

Approval Engineer:
Frederik Tore Elter

Approved Body No.: **0097**

Christine Mydlak-Röder
MER Service Responsible



**Maritime &
Coastguard
Agency**

UK Approved Body Authorised
by the MCA

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-control phase module (D, E or F) of Schedule 2 of the Merchant Shipping (Marine Equipment) Regulations 2016, as amended is fully complied with and controlled by a written inspection agreement with an approved body. The product liability rests with the manufacturer or his representative in accordance with the Merchant Shipping (Marine Equipment) Regulations 2016.

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV UK Ltd. 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. This certificate remains valid unless suspended, withdrawn, re-called, or cancelled.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: MER 201.GBR

Revision: 2022-09

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Product description

The TC-3001 TKC track control system consists of combinations of the following equipment:

<i>Equipment</i>	<i>Location</i>
• ECDIS FMD-3200/3200-BB/3300 manufactured by Furuno Electric Co., Ltd.	Protected
• Heading Control System, HCS-9000 manufactured by Tokyo Keiki,	Protected

For details, see Appendix

Application/Limitation

- The system complies with the IMO requirements for Category C track control system.
- The equipment identified in the production description shall hold a valid type approval certificate.
- The system shall be connected to an alarm transfer system for transferring of back-up navigator alarms.
- The LAN interface of the Main Processing Unit may be interconnecting other Furuno Main Processing Units only.
- The installation shall be verified and tested onboard according to manufacturers installation instructions

Type Examination documentation

- See Appendix

Tests carried out

- | | |
|---------------------------------|---|
| • Performance | IEC62065 (2014) |
| • Environmental | IEC60945 (2002) incl. Corr.1 (2008) |
| • Serial Interface | IEC61162-1 (2016) |
| • Serial Interface | IEC61162-2 (1998) |
| • Presentation | IEC62288 (2014) |
| • Bridge Alert Management (BAM) | IEC 62923-1 (2018) and IEC 62923-2 (2018) |

Marking of product

The type designation and name and contact address of the manufacturer shall be affixed visibly, legibly and indelibly to the product. In addition the product shall be marked with serial number, safe distance to magnetic compass, power consumption and/or supply voltage.

APPENDIX

Product Description

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

ECDIS FMD-3200/3200-BB/3300 comprising:		comment
Processor unit	EC-3000	
Control unit	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 (optional)	HUB-100 ³ or HUB-3000 ⁴	³⁾ Switching HUB; dedicated for proprietary network ⁴⁾ Intelligent HUB; used as IEC 61162-450 compliant network as well as interswitch network
Software Versions	FMD-3x00: 05.xx Linux Kernel 5.4 ver. 5.xx C-MAP: SDK 6.0	Application version Operation System IHO Presentation library

and

Heading Control System HCS-9000 comprising:		comment
Heading Control unit	HCU-92	
Heading Control Interface unit	HCIFU-92	
Heading Control Terminal unit	HCTU-93	
Heading Control Switch unit	HCSWU-91	
Repeater unit	UD-100	
Software versions	HCCPU V.2.xx ADNCT2 V.1.xx HCIFU V.2.xx	

Type Examination documentation

DNV No.	Document ID	Description
108	OME-44730-P10	Manual: Furuno: OPERATOR'S MANUAL ECDIS Model: FMD-3200/FMD-3200-BB/FMD-3300
102	E11-3163	Manual: Tokyo Keiki, Heading Control System HCS-9000-xx, Operator's Manual
101	K24-17-1043	Report: Furuno, IEC 62923-1 (2018); IEC 62923-2 (2018), DNVGL type approval testing report, Model: Track Control System, Type: TC-3001 TKC
100	K24-17-1069	Report: Furuno, IEC 62923-1 (2018); IEC 62923-2 (2018), DNVGL type approval testing report Appendix, Model: Track Control System, Type: TC-3001 TKC
99	MEDB00003NC	Certificate: Tokyo Keiki, HCS-9000 Series
98	E11-3164	Manual: Tokyo Keiki, Heading Control System HCS-9000-xx-zz, Operator's Manual
81	K24-17-864	Internal test report for IEC62288 ed.2
48	K24-17-664	Appendix of Test Procedure
47	K24-17-681	Test report of HCR sentence
44	K24-17-671	Type approval testing report of improved software
43	K24-17-616	Type approval testing report TC-3001 TKC
8	BSH/4612/4330516/08	Conformance test report TC1000-Y
21*	K24-20-047	Technical Manual for TCS
10	K24-17-513	DNV Type approval testing report TC-3000 TKC
	DNV cert. no. MEDB00003NC	Heading Control System HCS-9000
	DNV cert. no. MEDB00001AV	ECDIS FMD-3200/3200-BB and FMD-3300

*Documentation stored on 344.1-00225