

# TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:  
**MERB00003HC**  
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 R-A**

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 **2027-10-19.**

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 This certificate remains valid unless suspended, withdrawn, re-called, or cancelled.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.



## Product description

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

- ECDIS FMD-3200/3200-BB/3300 manufactured by Furuno Electric Co., Ltd.
- HCS, NautoPilot 5400 manufactured by Raytheon Anschutz GmbH,

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 <sup>1</sup> or 026 <sup>2</sup>      | <sup>1)</sup> ECDIS control unit<br><sup>2)</sup> Trackball control unit |
| Sensor adapter                             | MC-30x0n                                      | $x = \{0, 1, 2, 3 \text{ and } n = \{S, A, D\}$                          |
| Network switch                             | HUB-100 <sup>3</sup> or HUB-3000 <sup>4</sup> | <sup>3)</sup> Switching HUB<br><sup>4)</sup> Intelligent HUB             |
|  | Software Versions                             | FMD-3x00: 05.xx<br>Linux Kernel 5.4 ver. 5.xx<br>C-MAP: SDK 6.0          |

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<br>IU ver. E0.1.xx |  |

## 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

| DNV No. | Document ID      | Rev. | Description                             |
|---------|------------------|------|---|
| 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        |

| DNV No. | Document ID                | Rev.                 | Description   |
|---------|----------------------------|----------------------|---|
| 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   |
| 83      | DNVGL cert.no. MEDB00001AV | 8                    | ECDIS FMD-3200/3200-BB and FMD-3300   |
| 109     | OME-44730-P10              | P10 : FEB . 08, 2021 | Manual: Furuno: OPERATOR'S MANUAL ECDIS Model: FMD-3200/FMD-3200-BB/FMD-3300  |
| 118     | DNVGL cert.no. MEDB00003BV | Rev. 4               | Certificate: MED-B NautoPilot 5000 Series HCS   |
| 119     | 10000001053                | Ed. 006              | Manual: NautoPilot 5000 Series Service Manual   |
| 120     | K24-17-1090                | 20 Jul. 2022         | Report: IEC 62923-1/-2 DNVGL type approval testing report, Appendix, Model: Track Control System, Type: TC-3001 R-A |
| 121     | K24-17-1044                | 20 Jul. 2022         | Report: IEC 62923-1/-2 DNVGL type approval testing report, Appendix, Model: Track Control System, Type: TC-3001 R-A |

\*Documentation stored on 344.1-002251

### Tests carried out

- Performance: IEC 62065 (2014)
- Environmental: IEC 60945 (2002) incl. Corr.1 (2008)
- Serial Interface: IEC 61162-1 (2016)
- Serial Interface: IEC 61162-2 (1998)
- Presentation: IEC 62288 (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 at least one part of the product. In addition the various equipment shall be marked with serial number. Safe distance to magnetic compass and power consumption and/or supply voltage may be stated in the individual installation manuals.