TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
MERB000039H
Revision no.:
3

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 **Transmitting heading device THD (GNSS method)**

with type designation(s)
GS-100

issued to
Furuno Electric Co., Ltd.
Nishinomiya, **Japan**

is found to comply with the Regulation **(UK) MSN 1874 Amendment 10** for
Item no. **UK/4.41** (Row **2 of 2**)
according to the following requirements:
SOLAS 74 Reg. V/19, IMO Res. A.694(17), IMO Res. MSC.116(73), IMO Res. MSC.191(79), IMO Res. MSC.302(87), SOLAS 74 Reg. V/18, SOLAS 74 Reg. X/3, IMO Res. MSC.36(63)-(1994 HSC Code) 13, IMO Res. MSC.97(73)-(2000 HSC Code) 13

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

Date of issue: **2025-08-20**

Expiry date: **2028-01-29**

DNV local unit:
Japan CMC

Approval Engineer:
Steinar Kristensen

Approved Body No:: 0097

for **DNV UK Ltd.**

Digitally Signed By:
Christine Mydlak-Röder

Christine Mydlak-Röder
MER Service Responsible

Maritime & Coastguard Agency
UK Approved Body Authorised by the MCA

This certificate will not be valid if the manufacturer makes any changes or modifications to the approved type of equipment, which have not been notified to, and agreed with the approved body named on this certificate.
During the period of validity of this certificate the applicable regulations (international conventions and the relevant resolutions and circulars of the IMO) and testing standards may change, therefore the product conformity may need to be re-assessed by the Approved 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-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. In case limitations of use apply, these should be indicated in the Annex.

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 USD 300 000.

Product description

Please see Appendix: Product Description

Application/Limitation

- The GS-100 equipment shall be configured as THD and installed in compliance with the instructions of Pub. No. OME-72790-P21 (or later version).
- The GS-100 has been tested for Cyber Security requirements according to DNV CS SP1 (Essential) (incorporating IACS UR E27 Ed. Sept. 2023). Cyber secure installation shall be according to DNV Type Approval Certificate TAA00003MX.

Type Examination documentation

Please see Appendix: Type Examination Documentation

Tests carried out

• Performance:	ISO 22090-3 (2014)
• Serial Interface:	IEC 61162-1 (2016)
• Serial Interface:	IEC 61162-2 (1998)
• LAN Interface :	IEC 61162-450 (2018)
• Presentation:	IEC 62288 (2021)
• Environmental:	IEC 60945 (2002)
• BAM:	IEC 62923-1 (2018) and IEC 62923-2 (2018)

Marking of product

The name and contact address of the manufacturer and type designation of the product is to be affixed to the equipment 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.

APPENDIX

Type Examination documentation

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Document No.	Rev.	Title
LIC 12-17-113	2017-10-23	Report: Labotech, GS-1001: CSD test report
LIC 12-17-114	2017-10-23	Report: Labotech, GS-1001: EMC test report
LIC 12-17-115	2017-10-23	Report: Labotech, GS-1001: Environmental test report
LIC 12-17-116	2017-10-23	Report: Labotech, GS-1001: EMC test report
K20-17-1442	2014-03-07	Report: Labotech, Test report - IEC 60945 for GS-100 Satellite Speed Log
K20-17-1478	2018-03-23	Report: Furuno, GS-100: ISO 22090-3 Static error test
K20-17-1502	2018-06-06	Report: Furuno, Type approval testing report for pending items
FLI 12-13-124	2014-02-17	Report: Labotech, Test report - IEC 60945 EMC for GS-100 Satellite Speed Log
FLI 12-13-125	2014-02-17	Report: Labotech, Test report - IEC 60945 environmental tests other than EMC for GS-100 Satellite Speed Log
FLI 12-13-138	2014-03-13	Report: Labotech, Test report - IEC 61162-1/-2 for GS-100 Satellite Speed Log
FLI 12-13-139	2014-03-12	Report: Labotech, Test report - IEC 61162-450 for GS-100 Satellite Speed Log
FLI 12-13-143	2014-03-07	Report: Labotech, Test report - IEC 60945 for GS-100 Satellite Speed Log
FLI 12-13-145	2014-03-14	Report: Labotech, Test report - IEC 62288 Ed.2 CDV for GS-100 Satellite Speed Log
FLI 12-13-146	2014-02-17	Report: Labotech, Compass safe distance test report for GS-100 Satellite Speed Log
K20-17-828	2014-01-18	Report: Furuno, DNV type approval testing report
K20-17-977	2014-01-16	Report: Furuno, Testing report of measurement data, ISO 22090-3 & IEC 61023
K20-17-973	2014-01-14	Report: Furuno, Testing report of static error test
LIC 12-20-064	2020-05-29	Report: Labotech, IEC 60945: 2002 (ed. 4), Clause 11.2, - Furuno INTERFACE UNIT IF-2550
LIC 12-20-065	2020-05-29	Report: Labotech, IEC 60945: 2002 (ed. 4), Clause 7.2,11.1 and 12.2, - Furuno INTERFACE UNIT IF-2550
LIC 12-20-066	2020-05-29	Report: Labotech, IEC 60945: 2002 (ed. 4), Clause 8.7, - Furuno INTERFACE UNIT IF-2550
LIC 12-20-095	2020-07-07	Report: Labotech, IEC 60945: 2002 (ed. 4), Clause 9.2, 9.3, 10.3, 10.4, 10.5, 10.8 and 10.9, - Furuno INTERFACE UNIT IF-2550
LIC 12-20-096	2020-08-04	Report: Labotech. IEC 60945: 2002 (ed. 4), Clause 7.1, 8.2, 8.3 and 8.4 - Furuno INTERFACE UNIT IF-2550
LIC 12-20-097	2020-08-04	Report: Labotech IEC 60945: 2002 (ed. 4), Clause 6, 13, 14 and 15, - Furuno INTERFACE UNIT IF-2550
LIC 12-20-098	2020-05-29	Report: Labotech, IEC 61162-1 and IEC 61162-2 - Furuno INTERFACE UNIT IF-2550
LIC 01-20-021	2020-08-04	Report: Labotech, Reference document for IEC 61162-1 -2 - Furuno INTERFACE UNIT IF-2550
C72-02001-Z20	Z20	Manual: Furuno, Installation Guide Interface Unit Model IF-2550
K20-17-1663	2021-03-08	Report: Furuno, IEC 62923 - Testing Report of Bridge Alert Management for GS-100 Satellite Speed Log

K20-17-1662	2021-03-08	Report: Furuno, DNV type approval testing report for GS-100, Update for IEC62923, IEC61162-450
LIC 01-20-039	2020-11-27	Report: Labotech, Reference document for IEC 61162-450 test performed by LIC
LIC 12-20-179	2020-11-27	Report: Labotech, IEC 61162-450 Furuno Model: SATELLITE SPEED LOG Type: GS-100
LIC 12-21-046	2021-07-02	Report: Labotech, Reference document for IEC 61162-1/-2
LIC 12-21-081	2021-07-02	Report: Labotech, IEC 60945 (EMC), Test Report Model: SATELLITE SPEEDLOG, Type: GS-1002
LIC 12-21-082	2021-07-02	Report: Labotech, IEC 60945 (CSD), Test Report Model: SATELLITE SPEEDLOG, Type: GS-1002
LIC 12-21-083	2021-07-02	Report: Labotech, IEC 60945 5 (Temp., Vibration), Test Report Model: SATELLITE SPEEDLOG, Type: GS-1002
LIC 12-21-084	2021-07-02	Report: Labotech, IEC 61162-1/-2, Test Report Model: SATELLITE SPEEDLOG, Type: GS-1002
LIC 12-22-044	2022-04-21	Report: Labotech, IEC 60945 test report for GNSS Antenna Unit GPA-022S
LIC 12-24-141	2025-01-22	Report: Labotech, IEC 62288 (2021) test report for GS-100 Satellite Speedlog
OME-72790-P21	P21	Manual: Furuno, Operator's Manual for GS-100 Satellite Speed Log

APPENDIX
Product Description

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The GS-100 THD comprises the following components:

Unit	Model Name	Remark	SW Version	Location
Display unit	GS-1002	*Incl. 4 serial ports and 1 LAN port*	2051552-05.xx	Protected
Antenna unit	GS-1001		2051591-01.xx	Exposed
Junction box	GS-1003		-	Protected
Interface unit	IF-2503* or IF-2550*	**optional*	-	Protected