EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB000039H
Revision No:
4

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 AS under the authority of the Government of Norway.

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, Hyogo Pref, **Japan**

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2022/1157,**
item No. MED/4.41. SOLAS 74 as amended, Regulations V/18, V/19 & X/3, IMO Res. A.694(17), IMO Res. MSC.36(63), IMO Res. MSC.97(73), IMO Res. MSC.116(73), 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 **2025-07-01**.

Issued at **Høvik** on **2023-01-30**

DNV local unit:
Kobe

Approval Engineer:
Frederik Tore Elter

Notified Body
No.: **0575**

for **DNV AS**
Digitally Signed By: Kristensen, Steinar
Location: DNV Høvik, Norway
Signing Date: 08.02.2023 , on behalf of

Sverre Olav Bergli
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, and amended by Decision No 1/2019 dated February 22nd, 2019.

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 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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 GS-100 THD comprises the following components:

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

Application/Limitation

The GS-100 equipment shall be configured as THD and installed in compliance with the instructions of Pub. No OME-72790-L (or later revision).

Type Examination documentation

DNV No.	Document No.	Rev.	Title
60	LIC04-22-0178		Report IEC 60945, LABOTECH Furuno GNSS Antenna Unit, GPA-022S
51	OME-72790-L	APR . 09, 2021	Manual: Furuno, OPERATOR'S MANUAL, SATELLITE SPEED LOG, Model GS-100
50	LIC 12-21-084	2 July 2021	Report: Labotech, IEC 61162-1/-2, Test Report Model: SATELLITE SPEEDLOG, Type: GS-1002
49	LIC 12-21-083	2 July 2021	Report: Labotech, IEC 60945 (Temp., Vibration), Test Report Model: SATELLITE SPEEDLOG, Type: GS-1002
48	LIC 12-21-082	2 July 2021	Report: Labotech, IEC 60945 (CSD), Test Report Model: SATELLITE SPEEDLOG, Type: GS-1002
47	LIC 12-21-081	2 July 2021	Report: Labotech, IEC 60945 (EMC), Test Report Model: SATELLITE SPEEDLOG, Type: GS-1002
46	LIC12-21-046	2 July 2021	Report: Labotech, Reference document for IEC 61162-1/-2
45	K20-19-018		Notification of hardware modification to be implemented on the GS-100
43	LIC 12-20-179	27 November 2020	Report: LABOTECH IEC 61162-450 Furuno Model: SATELLITE SPEED LOG Type: GS-100
42	LIC 01-20-039	27 November 2020	Report: LABOTECH Reference document for IEC 61162-450 test performed by LIC
41	K20-17-1662		Report: FURUNO - Update for IEC62923, IEC61162-450 - DNV type approval testing report Model: Satellite Speed Log, Type:GS-100
40	K20-17-1663	Rev. no.: 1	Report: Furuno - IEC62923 - Testing Report of Bridge Alert Management Model: Satellite Speed Log - Type: GS-100
37	C7202001Z20		Manual: Furuno - Installation Guide Interface Unit Model IF-2550
35	LIC 01-20-021	4 August 2020	Report: Labotech Reference document for IEC 61162-1 -2 - Furuno INTERFACE UNIT IF-2550
34	LIC 12-20-098	29 May 2020	Report: Labotech IEC 61162-1 and IEC 61162-2 - Furuno INTERFACE UNIT IF-2550
33	LIC 12-20-097	4 August 2020	Report: Labotech IEC 60945: 2002 (ed. 4), Clause 6, 13, 14 and 15, - Furuno INTERFACE UNIT IF-2550

DNV No.	Document No.	Rev.	Title
32	LIC 12-20-096	4 August 2020	Report: Labotech IEC 60945: 2002 (ed. 4), Clause 7.1, 8.2, 8.3 and 8.4 - Furuno INTERFACE UNIT IF-2550
31	LIC 12-20-095	7 July 2020	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
30	LIC 12-20-066	29 May 2020	Report: Labotech IEC 60945: 2002 (ed. 4), Clause 8.7, - Furuno INTERFACE UNIT IF-2550
29	LIC 12-20-065	29 May 2020	Report: Labotech IEC 60945: 2002 (ed. 4), Clause 7.2,11.1 and 12.2, - Furuno INTERFACE UNIT IF-2550
28	LIC 12-20-064	29 May 2020	Report: Labotech IEC 60945: 2002 (ed. 4), Clause 11.2, - Furuno INTERFACE UNIT IF-2550
27	K20-17-973		Testing report of Static error test (ISO22090-3 clause 6.4)
26	K20-17-977		Testing report of measurement data (ISO22090-3 & IEC61023)
25	K20-17-828		DNV type approval testing report
24	FLI12-13-146		Compass safe distance test report
23	FLI12-13-145		GS100: IEC62288 Ed.2
21	FLI12-13-139		GS100: IEC61162-450
20	FLI12-13-138		GS100: IEC61162-1/2
19	FLI12-13-125		GS100: IEC60945
18	FLI12-13-124		GS100: IEC60945 EMC
15	K20-17-1502		DNV type approval testing report for pending items
14	K20-17-1478		Testing report of Static Error Test (ISO22090-3 clause 6.4)
12	K20-17-1442		GS-100: test of update of antenna unit GS-1001
8	LIC12-17-116		IEC60945: EMC test report
7	LIC12-17-115		IEC60945: Environment test report
6	LIC12-17-114		IEC60945: EMC test report
5	LIC12-17-113		IEC60945: CSD test report

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 (2014)
- Environmental - IEC 60945(2002)
- BAM - IEC 62923-1 (2018) and IEC 62923-2 (2018)

Marking of product

The designation of Manufacturer and Type shall be fixed in a clearly visible location on the individual equipment. In addition, the 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.