



TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MERB000039C
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 Speed and distance measuring equipment (SDME)

with type designation(s)
GS-100

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/4.7. SOLAS 74 as amended, Regulations V/18, V/19 & X/3, IMO Res. A.694(17), IMO Res. A.824(19), IMO Res. MSC.36(63), IMO Res. MSC.97(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 **2023-09-19.**

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 This certificate remains valid unless suspended, withdrawn, re-called, or cancelled.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



The GS-100 SDME comprises the following components:

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

Application/Limitation

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

Type Examination documentation

DNV No.	Document ID	Rev.	Description
67	OME-72790-L	APR . 09, 2021	Manual: Furuno, OPERATOR'S MANUAL SATELLITE SPEED LOG, Model: GS-100
66	LIC 12-21-084	2 July 2021	Report: Labotech, IEC 61162-1/-2, Test Report Model: SATELLITE SPEEDLOG, Type: GS-1002
65	LIC 12-21-083	2 July 2021	Report: Labotech, IEC 60945 5 (Temp., Vibration), Test Report Model: SATELLITE SPEEDLOG, Type: GS-1002
64	LIC 12-21-082	2 July 2021	Report: Labotech, IEC 60945 (CSD), Test Report Model: SATELLITE SPEEDLOG, Type: GS-1002
63	LIC 12-21-081	2 July 2021	Report: Labotech, IEC 60945 (EMC), Test Report Model: SATELLITE SPEEDLOG, Type: GS-1002
62	LIC12-21-046	2 July 2021	Report: Labotech, Reference document for IEC 61162-1/-2
61			GS-100_Changes List
60	K20-19-018		Notification of hardware modification to be implemented on the GS-100
56	K20-17-1663	Rev. no.: 1	Report: Furuno - IEC62923 - Testing Report of Bridge Alert Management Model: Satellite Speed Log - Type: GS-100
54	LIC 12-20-179	LIC 12-20-179	Report: LABOTECH IEC 61162-450 Furuno Model: SATELLITE SPEED LOG Type: GS-100
53	LIC 01-20-039	27 November 2020	Report: LABOTECH Reference document for IEC 61162-450 test performed by LIC
52	K20-17-1662		Report: FURUNO - Update for IEC62923, IEC61162-450 - DNV type approval testing report Model: Satellite Speed Log, Type:GS-100
49	LIC 12-20-098	29 May 2020	Report: Labotech IEC 61162-1 and IEC 61162-2 - Furuno INTERFACE UNIT IF-2550
48	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
47	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
46	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
45	LIC 12-20-066	29 May 2020	Report: Labotech IEC 60945: 2002 (ed. 4), Clause 8.7, - Furuno INTERFACE UNIT IF-2550
44	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
43	LIC 12-20-064	29 May 2020	Report: Labotech IEC 60945: 2002 (ed. 4), Clause 11.2, - Furuno INTERFACE UNIT IF-2550

DNV No.	Document ID	Rev.	Description
42	LIC 01-20-021	4 August 2020	Report: Labotech Reference document for IEC 61162-1 -2 - Furuno INTERFACE UNIT IF-2550
40	C7202001Z20		Manual: Furuno - Installation Guide Interface Unit Model IF-2550
31	LIC12-17-116		GS-1001: EMC test report
30	LIC12-17-115		GS-1001: Environmental test report
29	LIC12-17-114		GS-1001: EMC test report
28	LIC12-17-113		GS-1001: CSD test report
27	K20-17-1502		Type approval testing report for pending items
26	K20-17-1482		GS-100:IEC61023 Distance run
25	K20-17-1478		GS-100:IOS22090-3 Static error test
24	K20-17-1477		GS-100: IEC61023 Speed $V_{xg}=V_g\cos 30\text{deg}$
23	K20-17-1466		GS-100: IEC61023 Speed reverse mode
22	K20-17-1442	2	GS-100: DNV type approval testing report
15	FLI12-13-124		Test report - IEC60945 emc
14	FLI12-13-125		Test report - IEC60945 tests other than emc
13	FLI12-13-138		Test report - IEC61162-1/2
12	FLI12-13-139		Test report - IEC61162-450
11	FLI12-13-143		Test report - IEC60945
10	FLI12-13-145		Test report - IEC62288 Ed.2 CDV
9	FLI12-13-146		Compass safe distance test report
8	K20-17-828		DNV type approval testing report
7	K20-17-977		Testing report of measurement data -ISO22090-3 & IEC61023
6	K20-17-973		Testing report of static error test
5	K20-17-975		Testing report of indication of distance run
4	K20-17-974		Testing report of indication of speed

Tests carried out

- Performance IEC 61023 (2007)
- 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) incl. Corr.1 (2008)
- Bridge Alert Management 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.