

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive (EU) 2015/559, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

That the Speed and distance measuring equipment (SDME)

with type designation(s)
DS-80

Issued to

Furuno Electric Co., Ltd.
Nishinomiya Hyogo Pref, Japan

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

Annex A.1, item No. A.1/4.7 and Annex B, Module B in the Directive; SOLAS 74 as amended, Regulation V/18, V/19 & X/3, IMO Resolution A.694(17) & A.824(19), IMO Resolution MSC. 96 (72) & 191 (79) and 2000 HSC Code 13

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

This Certificate is valid until **2021-08-30**.

Issued at **Høvik** on **2016-08-31**

DNV GL local station:
Høvik Bridge Systems



for **DNV GL AS**

Approval Engineer:
Olaf Gundersrud

Notified Body
No.: **0575**

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Vidar Dolonen
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.

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 Council Directive 96/98/EC, as amended.

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL AS 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.



Product description

The DS-80 Doppler Speed Log consist of the following units:

Unit	Location
Display unit	Protected
Distribution box	Protected
Transceiver unit	Protected
Transducer	Submerged

For details, see Appendix.

Application/Limitation

- The equipment shall be installed and tested onboard in accordance with the Installation Manual IME-72420-T (or later version)

Type Examination documentation

- See Appendix.

Tests carried out

- IEC61023(2007)
- IEC61162-1(2010)
- IEC62288(2014)
- IEC60945(2002) as amended

Marking of product

The manufacturer and Type Designation to be applied to the equipment in a clearly visible location and in addition the equipment shall be marked with serial number, safe distance to magnetic compass, power consumption and/or supply voltage.

APPENDIX

Product description:

The DS-80 Doppler Speed Log comprises the following units:

Unit	Model Name	Remark
Display unit	DS-800	
Terminal box	DS-802	
Distribution box	DS-801	
Transducer unit	DS-820	
Transceiver unit	DS-810	
<i>Software versions</i>		
<i>DS-800</i>	<i>65501010 ver.0x</i>	<i>x = 0,1,2...9</i>
<i>DS-801</i>	<i>65501100 ver.0x</i>	
<i>DS-810</i>	<i>65501200 ver.0x</i>	
Optional units		
Digital speed indicator	DS-830	
Digital distance indicator	DS-840	
Junction box	CI-630	
Remote display	RD-20	
Remote display	RD-50	
Dimmer	MF-22L-n	<i>n=1 or 2</i>

Type Examination documentation:

NPS No.	Document No.	Document Title
1	BSH 6299/063/02	Conformance test of DSME Furuno DS-80
5	FLI 12-05-038	IEC60945(EMC) Test Report for Doppler speed log DS-80
6	FLI 12-07-057	IEC60945(ENV) Test Report for Display unit DS-800
7	FLI 12-10-004	IEC62288 Test Report for Display unit DS-800
8	FLI 12-12-023	IEC61162-1 Test Report for Doppler speed log DS-80
9	IME-72470-T	Installation Manual: Doppler speed log DS-80
10	OME-72470-P	Operator's Manual: Doppler speed log DS-80
11	4581/001/4072565/13	BSH MED certificate
12	BSH/46162/0121508/09	Display RD20 : IEC62288(2008)
13	BSH/46162/0121508/09-1	Display RD20 : IEC61162-1(2007)/ ITU-T v.11
14	BSH/46162/0121509/09	Display RD50 : IEC61162-1(2007)/ ITU-T v.11
15	FLI12-05-067	EMC test report: Alarm Unit AU-12
16	FLI12-99-041	IEC60945: Doppler speed log DS-80