

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

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 GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

That the Rate-of-turn indicator (ROTI)

with type designation(s)
SC-70 and SC-130

Issued to

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

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

Regulation **(EU) 2015/559**,

Annex A.1, item No. A.1/4.9 and Annex B, Module B in the Directive; SOLAS 74 as amended, Regulation V/18, V/19 & X/3, IMO Resolution A.526(13) & A.694(17), IMO Resolution MSC.191 (79) and 2000 HSC Code 13

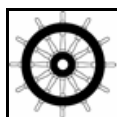
IMO Resolution MSC.302(87) Performance standards for Bridge Alert Management

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

This Certificate is valid until **2022-02-28**.

Issued at **Høvik** on **2017-03-01**

DNV GL local station:
Kobe



for **DNV GL AS**

Approval Engineer:
Olaf Gundersrud

Notified Body
No.: **0575**

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 Directive 2014/90/EU.

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. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.



Job Id: **344.1-005711-1**
Certificate No: **MEDB00001BX**

The SC-70/SC-130 ROTI consists of the following units:

Unit	Location
Antenna unit	Exposed
Display unit	Protected
Junction box	Protected

For details, see Appendix.

Application/Limitation

The SC-70/SC-130 shall be installed and setup as IMO-compliant and commissioned in accordance with the installation instructions of OME-72820-A10 (or later version).

If the RD-50 remote display is installed for compliance with SOLAS regulation V/19.2.9.1 the Device Mode shall be set as ROTI in accordance with the installation instructions of OME-44530-D (or later version).

Type Examination documentation

- See Appendix.

Tests carried out

- ISO20672(2007)
- IEC61162-1(2016)
- IEC61162-2(1998)
- IEC61162-450(2011)
- IEC62288(2014)
- IEC60945(2002)

Marking of product

The designation of Manufacturer and Type to be fixed 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.

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APPENDIX

Product description:

The SC-70/SC-130 ROTI includes the following units and parts:

Unit	Model Name	Remark
Antenna unit	SC-703	SC-70
	SC-1303	SC-130
Display unit	SC-702	
Junction box	SC-701	
Interfaces	IEC61162-1 IEC61162-2 IEC61162-450	4 ports 1 port 1 port
Remote display unit	RD-50	*option
Software versions	20151562-01.xx 20151566-01.xx 20151570-01.xx	SC-701 SC-702 SC-703/SC-1303

Type Examination documentation

NPS No.*	Document No.	Ver.	Document Title
1	K24-17-1258		SC-70/130 DNV type approval testing report
4	OME-72820-A10		Operator's Manual SC-70 / SC-130
5	K20-17-1311		SC-70/130 : Testing report For pending items
6	K20-17-1260		SC-70/130 : Testing report For pending items
7	K20-17-1259		Testing report of Static error test (ISO22090-3)
8	K20-17-1257-0		Testing report of Interferring signal - S band
9	K20-17-1256-0		Testing report of Interferring signal - L band
13	LIC 12-16-065		EMC test report SC-70: IEC60945
14	LIC 12-16-066		Test report SC-70: IEC60945 (environ.)
15	LIC 12-16-067		Test report IEC60945 (other): SC-70
16	LIC 12-16-068		EMC Test report IEC60945: SC-130
17	LIC 12-16-069		Test report IEC60945 (environ.): SC-130
18	LIC 12-16-070		Test report IEC60945 (other): SC-130
19	LIC 12-16-071		CSD test report IEC60945 (other): SC-70/SC-130
20	LIC12-16-072		Test report IEC61162-1/2: SC-70/SC-130
21	LIC12-16-073		Test report IEC61162-450: SC-70/SC-130
22	LIC12-16-074		Test report IEC62288: SC-702
23	FLI12-13-045		Test report IEC61162-1/2: GP-170
25	K20-19-010	1	NMEA and LAN interfaces
26	OME-44530-D		Operator's manual; RD-50 remote display
27	LIC 12-16-075		IEC62288 test report for RD-50

*ref. NPS folder 344.1-005710