

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 Echo-sounding equipment

with type designation(s)
Skipper ESN100

Issued to

Skipper Electronics AS
Oslo, Norway

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2017/306**,
item No. MED/4.6. SOLAS 74 as amended, Regulations V/18, V/19 & X/3, IMO Res. A.224(VII), IMO Res. A.694(17), IMO Res. MSC.36(63), IMO Res. MSC.74(69), IMO Res. MSC.97(73), IMO Res. MSC.191(79), IMO Res. MSC.302(87)

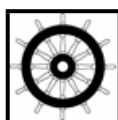
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2022-10-16**.

Issued at **Høvik** on **2017-10-17**

DNV GL local station:
Station Oslo Maritime and CAP

Approval Engineer:
Rolf Heger



Notified Body
No.: **0575**

for **DNV GL AS**

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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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



Product description

The ESN100 system consists of the following modules

Hardware module	Model name	SW version	location
Display	ESN100-XB *	1.0.Y**	Protected
	CU-M001-XB *	1.0.Y**	Protected
Process Unit	JB50E1-XA *	1.0.0	Protected
Transducer	ETN50	---	Submerged
	ETN200	---	Submerged
	ETN200S	---	Submerged
	ETS50200	---	Submerged
	ETS050	---	Submerged
	ETS200	---	Submerged
Optional Features			
Remote dimming control	IR31DIM-XA*	1.Y**	Protected
Digital depth repeater	IR301	2.Y**	Protected
	UDD SAM4900	---	Protected
Digital multi repeater	CD 401 MR	1.Y**	Protected

*Where X is a undefined letter that will change based on customer

**Where Y is a number representing minor software modifications

Application/Limitation

- Installation to be performed in accordance with manufacturer's installation manuals.

Type Examination documentation

DNV GL No.	Doc. ref.	Rev.	Description
13	DM-G003-1725 ESN100 manual	10.05.2017	Manual: Skipper, ESN100 Manual
11	-	07.06.2017	Report: DNV GL, Report from Sea test of ESN100
26	-	04.09.2017	Report: DNV GL, Signed Performance test for ESN100 Single channel echo sounder
21	E.14223.01	01	Report: Nemko, Environmental test report DL2-Multi Dual axis speed sensor and DL21 Dual Axis and STW speed sensor
9	E.17051.00	0	Report: Nemko, Environmental test report ESN100 Single Channel Navigation Echo Sounder System

Job Id: **344.1-006264-1**
Certificate No: **MEDB00001YG**

Tests carried out

- Environmental Tests, EN 60945 (2002)
- Performance Tests, ISO 9875 (2000)
- Serial Interface Tests, IEC 61162-1 (2010)
- Serial Interface Tests, IEC 61162-1 (2016)
- Serial Interface Tests, IEC 61162-450 (2011)
- Performance Tests, IEC 62288 (2014)

Marking of product

The Manufacturer and Type Designation to be applied 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