

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 Norway.

This is to certify:

That the Rudder angle indicator

with type designation(s)
K-Bridge Multi Indicator

Issued to
Kongsberg Maritime AS
KONGSBERG, Norway

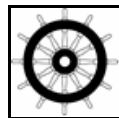
is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2017/306**,
item No. MED/4.20. SOLAS 74 as amended, Regulations V/18, V/19 & X/3, IMO Res. A.694(17), IMO Res. MSC.36(63), IMO Res. MSC.97(73), IMO Res. MSC.191(79), IMO Res. MSC.302(87)

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

This Certificate is valid until **2023-03-21**.

Issued at **Høvik** on **2018-03-22**

DNV GL local station:
Sandefjord



for **DNV GL AS**

Approval Engineer:
Steinar Kristensen

Notified Body
No.: **0575**

Roald Vårheim
Head of Notified Body



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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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: **344.1-006502-2**
Certificate No: **MEDB000026A**

Product description

Kongsberg Maritime K-Bridge Multi Indicator, consisting of:

Equipment type	Description	Model	Comment
Indicator unit	Computer with integrated display unit	As defined in separate certificate*)	
Rudder Angle Transmitter	Rudder Angle Calibrator	Type 5014, SW ver. 1.00 **)	
Interface unit	External NMEA Com module	HT 00262 OPT-A1	4x RS 485/ RS 422 ports
Software module	K-Bridge Multi Indicator SW	As defined in separate certificate*)	
Options			
Network Switches	Moxa Ethernet Switch	EDS-308 or EDS-316	8 or 16 10/100BaseT(X) Ethernet ports

*) Type Examination Certificate for K-Bridge and K-Nav system platforms, see Type Examination documentation below.

**) Indicators may be connected to alternative transmitters with an impedance in the range 2– 5 kΩ, and which meet the requirements for transmitters in ISO 20673.

All units listed above are to be installed in a protected environment, i.e. indoor.

Application/Limitation

- Indicator is to be installed according to instructions in Installation Manual.
- Indicators are to be installed in a redundant configuration with fallback solution in case more than one type of indicator is to be presented on a single display.

Type Examination documentation

DNV GL No	Document ID	Rev.	Description
16	TAA00000FJ	Latest rev.	Certificate: DNVGL, K-Bridge and K-Nav system platforms
15	MEDB00002UG	2017-10-13	Certificate: DNVGL, MED-B certificate for rudder angle indicator system incl. Type 5014 Rudder Angle Calibrator 2017-10-13
11	427973	B	Manual: Kongsberg Maritime, K-Bridge Multi Indicator, Installation Manual
10	424898	D	Manual: Kongsberg Maritime, K-Bridge Multi Indicator, Operator Manual
7	425110	A	Report: Kongsberg Maritime, K-Bridge Multi Indicator Fallback Solution
4	421764	B	Report: Kongsberg Maritime, Electric Rudder Angle indicator - MED Certification Test Report

Tests carried out

- Performance testing: ISO 20673 (2007)
- Environmental testing: IEC 60945 (2002) incl. Corr.1 (2008)
- Presentation of navigation information: IEC 62288 (2014)
- Serial interface testing: IEC 61162-1 (2010) and IEC 61162-1 (2016)



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Marking of product

The type designation and name and contact address of the manufacturer shall be affixed visibly, legibly and indelibly to the product. In addition the product shall be marked with serial number, safe distance to magnetic compass, power consumption and/or supply voltage.