

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV GL SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

That the Rudder angle indicator

with type designation(s)

Rudder Angle Indication System

Issued to

Raytheon Anschütz GmbH Kiel, Schleswig-Holstein, Germany

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

Regulation **(EU) 2019/1397,**

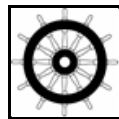
item No. MED/4.20. SOLAS 74 as amended, Regulations V/18, V/19 & X/3, IMO Res. A.694(17), IMO Res. MSC.36(63), IMO Res. MSC.97(73), IMO Res. MSC.191(79), IMO Res. MSC.302(87)

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

This Certificate is valid until **2025-02-23**.

Issued at **Hamburg** on **2020-02-24**

DNV GL local station:
Hamburg CMC



for **DNV GL SE**

Approval Engineer:
Jan Reinecke

Notified Body
No.: **0098**

Gerhard Aulbert
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 European Community and the United States of America on Mutual Recognition of Certificates of Conformity for Marine Equipment", signed February 27th, 2004, and amended by Decision No 1/2018 dated February 18th, 2019.

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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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.



Product description

The Rudder Angle Indication System consists of the following equipment:

- Feedback Unit, Type 101-532 or 101-529
- Signal Calibration Box, Type SCB-RAI 10 (Vers. 1.x) or SCB-RAI 10 E01 (Vers. 2.x)

The following Indicators can be connected to the system:

- Type NB09-066.00-xxx, or
- Type KLPQ-72WP-xxx / KLPQ-96WP-xxx / KLPQ-144WP-xxx / KLPQ-192WP-xxx / BCI-240-96-xxx / BCI-240-144-xxx, or
- NOA-170-xxx / KLPQ-96-xxx, KLPQ-144-xxx,
- in addition: Three face Rudder Angle Indicator, Type 136-065

Application/Limitation

none

Type Examination documentation

DNV GL No	Document Id.	Rev.	Description
7		1.1	GL-Baumusterprüfung RAI Version 1.1_20140703
6	4287.Doc010203	Edition: June 2014	Signal Calibration Box E01 Manual
5	M09.001-2009.7002	2019-02-04	M09.001-2009.7002_Vibration_SCB
4	Certificate no. 590	2009-03-24	Compass safe distance
3	09C00099RPT01	2009-02-10	09C00099RPT01_EM_C_SCB
2	08C01168RPT01	2009-03-05	08C01168RPT01_Climate_SCB

Tests carried out

- Environmental and EMC testing: IEC 60945 (2002) incl. Corrigendum 1 (2008)
- Interface testing: IEC 61162-1 (2016)
- Presentation testing: IEC 62288 Ed. 2.0 (2014)
- Performance testing: ISO 20673:2007

Note: Testing according to IEC 62923-1/-2 (2018) is not required, because the indicators do not present alert information, nor have a bridge alert management interface.

Marking of product

According to IEC 60945, Sect.4.9:

The product to be marked with following information, where practicable:

- Identification of the manufacturer,
- Equipment type number or model identification under which it was type tested,
- Serial number of the unit,
- Compass safe distance.

Alternatively, the marking may be presented on a display at equipment start-up, and in case of fixed equipment compass safe distance may be given in the equipment manual.

According to Article 10 of the Council Directive (MED):

- Wheel mark to be affixed visibly, legibly and indelibly to the product or to its data plate and, where relevant, embedded in its software. Where that is not possible or not warranted on account of the nature of the product, it shall be affixed to the packaging and to the accompanying documents.



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- Wheel mark to be affixed at the end of the production phase.
- For specific products, manufacturers may use an appropriate and reliable form of electronic tag instead of, or in addition to, the wheel mark.

END OF CERTIFICATE