

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 Rate-of-turn indicator (ROTI)

with type designation(s)
SERANA-Q 144

Issued to

Weigel Meßgeräte GmbH
Nürnberg Bayern, Germany

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2017/306**,
item No. MED/4.9. SOLAS 74 as amended, Regulations V/18, V/19 & X/3, IMO Res. A.526(13), 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)

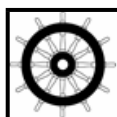
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2023-01-10**.

Issued at **Hamburg** on **2018-01-11**

DNV GL local station:
Augsburg

Approval Engineer:
Jörg Rebel



Notified Body
No.: **0098**

for **DNV GL SE**

Sven Dudszus
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.

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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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



Product description

The rate-of-turn indicator SERANA-Q 144 (Type 210) consists of following equipment:

- Housing: 144 x 144 mm
- Scale design nos.: 10001,10002,10003,10004,10005,10006,10007,10008,10009,10010
- Scales: 30° or 120° or 300°
- Pointer colour: white or yellow
- External dimmer: in integration housing, illuminated P/N: 220.01.00x
(x: 1 = red, 2 = yellow, 3 = white colour) or
for panel mounting P/N: 220.02.001 or
any other approved central dimming panel with DDC protocol according to IEC 61162-1
- Interfaces: 2 x serial data receivers according to IEC 61162-1/-2
1 x input for dimming via external potentiometer (total resistance 1...10 kΩ)
1 x RS485 for dimming via central dimming panel (NMEA protocol) or
service or calibration
1 x CAN V2.0 A and B (1 Mbit/s) for proprietary CAN protocols
1 x Ethernet (optional) (10/100 Mbit/s) for proprietary protocols
- Power supply: 24 V DC (9...36 V DC); power consumption: ≤ 3 VA
- Degree of protection: Category "Exposed" according to IEC 60945,
IP 66 (front panel), IP 20 (rear side)

Application/Limitation

The optional Ethernet interface shall not be used for a data network compliant to IEC 61162-450.

Type Examination documentation

DNV GL No	Documend ID	Rev.	Description
5	9065 17 64672 157	Initial, 2017-12-04	Report: Compliance with MSC.302(87), IEC 62288 and IEC 61162-3 and -450
6	TR-70183-11451-01	Edition 2, 2017-12-11	Report: Environmental tests acc. to IEC 60945
7	17-174	V 01.00, 2017-09-07	Report: EMC tests acc. to IEC 60945
8	984	2017-12-18	Certificate: Compass Safe Distance
9	005/2017 to 012/2017	Initial	Reports: General tests acc. To IEC 60945 (Sects. 6, 13 to 15)
10	013/2017 to 020/2017	Initial	Reports: Tests acc. to ISO 20672
11	021/2017 to 030/2017 and 043/2017	Initial	Reports: Tests acc. to ISO 20673
12	031/2017 to 042/2017	Initial	Reports: Tests acc. To ISO 22554
13	-	2017-12-08	Report: Test Plan Execution - Testsuites for Wheelmark Standards
14	-	2017-12-11	Report: Test Plan Execution - IEC 60945
15	-	2017-12-11	Report: Test Plan Execution - IEC 61162-1
16	-	2017-12-11	Report: Test Plan Execution - IEC 61162-2
17	-	2017-12-12	Report: Test Plan Execution - Firmware
18	418.B.101.03	01/2018	Manual: Operating Manual SERANA-Q96/-Q144

Tests carried out

Job Id: **344.1-006796-8**
Certificate No: **MEDB00002GE**

- Performance testing: ISO 20672 (2005) incl. Corrigendum 1 (2008)
- Environmental testing: IEC 60945 (2002) incl. Corrigendum 1 (2008)
- Serial interface testing: IEC 61162-1 (2010 and 2016), IEC 61162-2 (1998)
- Presentation of navigational information: IEC 62288 (2014)

Marking of product

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

- The wheel mark shall 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.
- The wheel mark shall be affixed at the end of the production phase.
- The wheel mark shall be followed by the identification number of the notified body, where that body is involved in the production control phase, and by the year in which the mark is affixed.
- The identification number of the notified body shall be affixed by the body itself or, under its instructions, by the manufacturer or the manufacturer's authorised representative.

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