

# EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:  
**MEDB0000794**

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV 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)  
**S4v96S, S4v144S, S4v96S/66 and S4v144S/66**

Issued to

**Wabtec Netherlands B.V.**  
**Ede Gld, Gelderland, Netherlands**

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

Regulation (EU) 2020/1170,

**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)**

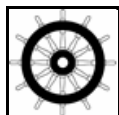
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2026-03-18**.

Issued at **Hamburg** on **2021-03-19**

DNV local station:  
**Netherlands CMC**

Approval Engineer:  
**Jörg Rebel**



Notified Body  
No.: **0098**

for **DNV GL SE**

**Christine Mydlak-Roeder**  
**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) 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

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 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 AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") 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 indicator system comprises a receiver (in the following rudder angle indicators), a signal correction box and a transmitter, the rudder angle feedback unit:

The analogue rudder angle indicators type S4v..S and S4v..S/66 with stepping motor drives have following specifications:

Dimension [mm]	96x96 or 144x144 (S4v..S)
	112x112 (S4v96S/66) or 158x158 (S4v144S/66)
Protection degree (housing)	IP 54 or IP 66 (with suffix /66)
Rotation range	360°
Input signal	Sin/cos potentiometer 18 – 32 V
Power supply	24 V DC (24 V DC for illumination)
Power consumption (illumination)	< 2.5 W (< 1 W for S4v96S and < 2 W for S4v144S)
Software version	V1.0

Note: An RS232 interface is used for calibrating the indicators during installation.

The rudder angle transmitter has following specification:

Type designation	Sakae SFCP 50A 2K5
Protection degree (housing)	IP 56
Output signal	Sin/cos ohmic value
Rotation range	360°
Power supply	24 V DC (18 – 32 V DC)

Note: The rudder angle transmitter is to be type-approved.

## Application/Limitation

If the above described indicator receivers are combined with other rudder angle feedback units, i.e. other rudder angle transmitters, these rudder angle indicator systems needs their own EC-Type Examination certificates.

## Tests carried out

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

Note: The rudder angle indicators type S4v..S and S4v..S/66 do not issue alerts, hence, testing according to IEC 62923-1/-2 is deemed as not being applicable.

The above mentioned rudder angle indicators have no interfaces according to IEC 61162 series, thus, testing according to IEC 61162 series is deemed as not being applicable, as well.

## Type Examination documentation

DNV No	Document ID	Rev.	Description
36	4200509.HAN	1 (01/2021)	Installation incstuctions and manual for S4v-series indicators
34	20210048RPT01	2021-02-17	Report: DARE, EMC tests acc. to IEC 60945, 9.3 (up to 30 MHz) and 10.4 for S4v96S
29	20210001BRF01	2021-01-07	DARE, Comments on EMC test reports for Dv/D3v, RCI-400 and S4v indicators
18	-	2020-12-23	Wabtec NL, Analysis of compliance with ISO 22554 (2015) for analogue indicators
17	-	2020-12-23	Wabtec NL, Analysis of compliance with IEC 62288 (2014) for analogue indicators
16	4209109.TER	2008-05-20	Report: Nieaf-Smitt, Total overview of all test results for S4v..S series according to LR TA 2002 and MED
15	566	2008-04-16	Report: BSH, Compass Safe Distance certificate for S4v..S series according to IEC60945, 11.2

DNV No	Document ID	Rev.	Description
14	08C00082RPT01	2008-03-25	Report: DARE, Humidity test for S4v..S series according to LR TSN 1 (2002), Clause 14
13	M08.001-2008.7006	2008-03-03	Report: Sebert, Vibration test for S4v..S series according to LR TSN 1 (2002), Vib. 1
12	50651328-KPS/MEC 06-8115	2006-02-09	Report: KEMA, Salt mist test for housings BCI-xx-1 and NOA-170 I/II according to IEC60945, 8.12
11	2079118.60 QUA/ESG	2005-01-14	Report: KEMA, Enclosure tests (IP66) for D3v144S/66 according to IEC 60529
10	2079118.59 QUA/ESG	2005-01-14	Report: KEMA, Enclosure tests (IP66) for D3v96S/66 according to IEC 60529
9	08C00067RPT02	2008-03-10	Report: DARE, EMC tests for S4v96S acc. to LR TSN 1 (2002)

### 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.

END OF CERTIFICATE