EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00007ZB
Revision No:
1

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)
NAVIGAT 100

Issued to
Northrop Grumman Sperry Marine B.V. - German Branch
Hamburg, **Germany**

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2023/1667,**
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 **2027-03-06**.

Issued at **Hamburg** on **2023-12-01**

DNV local unit:
Hamburg – CMC North/East

Approval Engineer:
Jörg Rebel

Notified Body
No.: **0098**

for **DNV GL SE**

Digitally Signed By:
Christine Mydlak-Röder
Location: DNV GL SE,
Hamburg, Germany

Christine Mydlak-Röder
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 1/2023 dated May 26th, 2023.

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This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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 system NAVIGAT 100 is based on an electronic gyro-compass, that can act as a stand-alone sensor only gyrocompass or may be integrated into a CompassNet Heading Management System by means of a Converter and Amplifier Unit (CAU) or Converter and Amplifier Board (CAB), and comprises of the following equipment necessary for functioning:

Mastercompass:	NAVIGAT 100	P/N: 073518-0000-xxx
with		
Gyrosphere:		P/N: 074829-0000-xxx,
		or P/N: 074831-0000-xxx (HSC)
and		
Gyro Container Mod. 10/4		P/N: 025953-0000-xxx

The following units may be used:

Converter and Amplifier Unit	P/N: 074904-0000-xxx
Converter and Amplifier Board	P/N: 025826-0000-xxx
incl. CAB/CAU Main PCB	P/N: 020760-0000-xxx
Data Distribution Unit (DDU)	P/N: 074907-0001-xxx,
	or P/N: 074907-0002-xxx
DDU Processor Module	P/N: 025786-0001-xxx,
	or P/N: 025786-0002-xxx
NAVITWIN V	P/N: 074902-0000-xxx,
	or P/N: 074902-0001-xxx

One or more of the following rate-of-turn indicators to be used:

Multifunctional NAV Data Repeater	P/N: SM-XDI192N
Multifunctional NAV Data Repeater	P/N: SM-XDI144N
Serial I/O Module	P/N: SM-XDI-NX1
Serial I/O Module	P/N: SM-XDI-NX2
Analogue Extension Module	P/N: SM-XDI-AX1

Options:

Universal Digital Repeater (console mounted)	P/N: 074833-0000-xxx,
Universal Digital Repeater (in Housing with Brackets)	or P/N: 074834-0000-xxx
with	
Terminal Box	P/N: 074837-0000-xxx
RS422 Splitter Box	P/N: 074800-0000-xxx
RS422 Splitter Box	or P/N: 074850-0000-xxx

Software versions:

NAVIGAT 100	Software Version 2.xxx (xxx ≥ 004) CCU Software Version 2.xxx (xxx ≥ 003) CSU
Converter and Amplifier Unit	Software Version 2.xxx
Converter and Amplifier Board	Software Version 2.xxx
Data Distribution Unit	Software Version 2.xxx
DDU Processor Module	Software Version 2.xxx
NAVITWIN V	Software Version 2.xxx

Note:

Heading Management System CompassNet:

The Heading Management System CompassNet is a central control and display device for multi-compass systems for the maritime navigation of vessels. The functionality includes heading source functionality compliant with the requirements of DNV Rules for Ships Pt.6 Ch.3 with regard to distribution of heading information and the following parts are required for compliance:

Data Distribution Unit (DDU)	P/N: 074907-0001-xxx,
	or P/N: 074907-0002-xxx
NAVITWIN V	P/N: 074902-0000-xxx,
	or P/N: 074902-0001-xxx

The CompassNet system offers the possibility to connect other type approved gyro compasses via

Converter and Amplifier Unit	P/N: 074904-0000-xxx
Converter and Amplifier Board	P/N: 025826-0000-xxx

Application/Limitation

The rate-of-turn indicator system NAVIGAT 100 fulfils the carriage requirements according to 2000 HSC Code, 13.

Installation to be performed according to the manufacturers Operation, Installation and Service manual.

The rate-of-turn indicator system NAVIGAT 100 provides serial alert communication fulfilling the requirements of IEC 62923-1 (2018) and IEC 62923-2 (2018). The gyro compass shall be installed on board associated with an alert display compliant with IEC 60945, IEC 61162 series, IEC 62288, and the relevant requirements of IEC 62923-1/-2. According to IEC 62923-1 (2018) a back-up shall be provided for this display.

Type Examination documentation

Test reports:
5026-0141-07 Rev. B, 5017-0141-03 Rev. B, 5026-0141-02 Rev. B, 5026-0141-01 Rev. A,
5017-0141-01 A1, 5019-0141-01 Rev. B, 5026-0141-04 Rev. A, 5026-0141-05 Rev. A,
002 16 V1U, 003-16-V1U, ECL-EMC-TR-16-042-V1.00, ECL-EMC-TR-16-045-V1.00,
5026-0141-03 Rev. A, 5023-0141-02 Rev. B, ECL-EMC-TR-17-010-V02.00 (IEC 60945 EMC),
5026-0141-08 Rev. B (ISO 8728, ISO 20672), TREO 172-17 (ISO 8728, Vibration), 152-20 Issue 2,
005026-0141-26 Rev. C, 5017-0141-17 Rev. C (IEC 62923-1, IEC 62923-2), 5026-0141-27 Rev. C (K60).

Manuals:

Operation, Installation and Service Manual	NAVIGAT 100	056373
Operation, Installation and Service Manual	Repeater Compass System	056376
Operation, Installation and Service Manual	Universal Digital Repeater	056351

Tests carried out

• Environmental and EMC testing:	IEC 60945 (2002) incl. Corrigendum 1 (2008)
• Interface testing:	IEC 61162-1 (2016) and IEC 61162-2 (1998)
• Presentation testing:	IEC 62288 (2021)
• Bridge alert management testing:	IEC 62923-1 (2018) and IEC 62923-2 (2018)
• Performance testing:	ISO 20672 (2022)

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