# EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
**MEDB000025M**
Revision No:
**11**

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 Rate-of-turn indicator (ROTI)**

with type designation(s)
**NAVIGAT 200, NAVIGAT 2500, NAVIGAT 3500**

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 **2026-04-29**.

Issued at **Hamburg** on **2024-06-21**

DNV local unit:
**Hamburg – CMC North/East**

Approval Engineer:
**Jörg Rebel**

Notified Body
No.: **0098**

for **DNV SE**

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

**Mydlak-Röder, Christine**
**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 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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 systems NAVIGAT 200, NAVIGAT 2500 and NAVIGAT 3500 are based on an electronic gyro-compass and are connected to the digital multi-compass Heading Management System CompassNet for operating in a single or multi-compass configuration. Up to four (4) gyro-compasses and one (1) magnetic compass can be connected to CompassNet. The system-internal communication is based on a proprietary Ethernet-based redundant ring-bus architecture. The ring-bus is closed and could only be used by the CompassNet units in the Heading Management System for internal communication and comprises of the following equipment necessary for functioning:

| | | |
|---|---|---|
| Mastercompass: | NAVIGAT 200 | P/N: 073517-0000-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 |
| and/or | | |
| Mastercompass: | NAVIGAT 2500 | P/N: 073524-0000-xxx |
| | | or P/N: 073524-0001-xxx |
| and/or | | |
| Mastercompass: | NAVIGAT 3500 | P/N: 073525-0000-xxx |
| | | or P/N: 073525-0001-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:

| | | | |
|---|---|---|---|
| Rate-of-Turn indicator (in housing with bracket) | 192 mm | Range ±30 °/min | P/N: 060402-0000-xxx |
| Rate-of-Turn indicator (console mounted) | 192 mm | Range ±30 °/min | P/N: 060372-0000-xxx |
| Rate-of-Turn indicator (console mounted) | 192 mm | Range ±60 °/min | P/N: 060421-0000-xxx |
| Rate-of-Turn indicator (console mounted) | 192 mm | Range ±90 °/min | P/N: 060379-0000-xxx |
| Rate-of-Turn indicator (console mounted) | 192 mm | Range ±300 °/min | P/N: 060380-0000-xxx |
| Rate-of-Turn indicator (console mounted) | 144 mm | Range ±30 °/min | P/N: 060368-0000-xxx |
| Rate-of-Turn indicator (console mounted) | 144 mm | Range ±60 °/min | P/N: 060393-0000-xxx |
| Rate-of-Turn indicator (console mounted) | 144 mm | Range ±90 °/min | P/N: 060369-0000-xxx |
| Rate-of-Turn indicator (console mounted) | 144 mm | Range ±300 °/min | P/N: 060370-0000-xxx |

| | |
|---|---|
| Terminal Box | P/N: 074859-0000-xxx |
| 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:

| | | |
|---|---|---|
| Gyro-compass | NAVIGAT 100 | P/N: 073518-0000-xxx |
| Universal Digital Repeater (console mounted) | | P/N: 074833-0000-xxx, |
| Universal Digital Repeater (in Housing with Brackets) | | P/N: 074834-0000-xxx |
| with | | |
| Terminal Box | | P/N: 074837-0000-xxx |
| RS422 Splitter Box | | P/N: 074800-0000-xxx |
| | | or P/N: 074850-0000-xxx |

Software versions:

| | |
|---|---|
| NAVIGAT 200 | Software Version 2.xxx (xxx ≥ 004) CCU |
| | Software Version 2.xxx (xxx ≥ 003) CSU |
| NAVIGAT 100 | Software Version 2.xxx (xxx ≥ 004) CCU |
| | Software Version 2.xxx (xxx ≥ 003) CSU |

| | |
|---|---|
| NAVIGAT 2500 P/N 073524-0000-xxx | Software Version FW 2.82.x (x ≥ 21) |
| NAVIGAT 2500 P/N 073524-0001-xxx | Software Version Pack 20.1.x (x ≥ 4) |
| NAVIGAT 3500 P/N 073525-0000-xxx | Software Version FW 2.82.x (x ≥ 21) |
| NAVIGAT 3500 P/N 073525-0001-xxx | Software Version Pack 20.1.x (x ≥ 4) |
| Converter and Amplifier Unit | Software Version 2.xxx (x ≥ 006) |
| Converter and Amplifier Board | Software Version 2.xxx (x ≥ 006) |
| Data Distribution Unit | Software Version 2.xxx (x ≥ 006) |
| DDU Processor Module | Software Version 2.xxx (x ≥ 006) |
| NAVITWIN V | Software Version 2.xxx (x ≥ 006) |

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 CompassNet fulfils the carriage requirements according to 2000 HSC Code, 13.

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

## 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), 5039_5040-0141-02 Rev. A, 00013715 Ed. E, 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), 5017-0141-20 Rev. A3 (LPC54608), 5039_5040-0141-05 Rev. A (NAVIGAT 2500/3500, ISO 8728, ISO 16328, ISO 20672, IEC 60945), 5039_5040-0141-06 Rev. A (NAVIGAT 2500/3500, ISO 20672), 5017-0141-24.Rev. A (Integration of NAVIGAT 2500/3500 into CompassNet), 5017-0141-28 Rev. A (Summary Report for NAVIGAT 2500/3500), 5017-0141-29 Rev. A1 (Sea trials for NAVIGAT 2500/3500), 5017-0141-30 Rev. A1 (Data gap report for NAVIGAT 2500/3500), 5017-0141-31 Rev. A (Integration of NAVIGAT 2500/3500 into CompassNet).

Manuals:

| | |
|---|---|
| Operation, Installation and Service Manual CompassNet System (including NAVIGAT 200, 2200, 3000, 2500, 3500) | 056372 Rev. K2 |
| Operation, Installation and Service Manual NAVIGAT 100 | 056373 Rev. G1 |
| Operation, Installation and Service Manual Repeater Compass System | 056376 Rev. C1 |
| Operation, Installation and Service Manual Switch-Over Unit | 056318 Rev. A |
| Operation, Installation and Service Manual NAVITWIN IV | 056360 Rev. E |
| Operation, Installation and Service Manual Universal Digital Repeater | 056351 Rev. C |

## 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)

Note: Further tests passed according to DNV Rules for Ships Pt.6 Ch.3 (July 2022), especially: 6.2.3.6 Dual heading input – NAUT(AW) and 6.3.1 Dual compass systems.

## 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