

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB000025J
Revision No:
4

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 Gyro compass

with type designation(s)
CompassNet (Type 5026)

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) 2020/1170,

**item No. MED/4.3. SOLAS 74 as amended, Regulations V/18, V/19, IMO Res. A.424(XI), IMO Res. A.694(17),
IMO Res. MSC.191(79), IMO Res. MSC.302(87)**

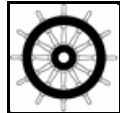
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2021-08-29**.

Issued at **Hamburg** on **2021-04-30**

DNV local station:
Hamburg – CMC North/East

Approval Engineer:
Jörg Rebel



Notified Body
No.: **0098**

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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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

CompassNet is a digital multi-compass Heading Management System to operate compasses in a single or multi-compass configuration. 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: with Gyrosphere:	NAVIGAT 200	Type: 5026 rev. Hx and Jx	
		Type: 4911 rev. Dx or 5000 rev. Dx	
And Container Mod. 10/3 or Container Mod. 10/4		Type: 4991-4000 rev. Fx Type: 5026-4000 rev. Cx	And/Or
Mastercompass: with Gyrosphere:	NAVIGAT 100	Type: 5026-AA rev. Hx and Jx	
		Type: 4911 rev. Dx or 5000 rev. Dx	
And Container Mod. 10/3 or Container Mod. 10/4		Type: 4991-4000 rev. Fx Type: 5026-4000 rev. Cx	And/Or
Mastercompass:	NAVIGAT 2200	Type: 5023 rev. Dx	And/Or
Mastercompass:	NAVIGAT 2500	Type: 5039 rev. Ax	And/Or
Mastercompass:	NAVIGAT 3000	Type: 5021 rev. Ex	And/Or
Mastercompass:	NAVIGAT 3500	Type: 5040 rev. Ax	

The following units may be used:

Converter and Amplifier Unit		Type: 5018 rev. Hx	
Converter and Amplifier Board		Type: 5018-5100 rev. Gx	
Data Distribution Unit		Type: 5017 rev. Gx	
DDU Processor Module		Type: 5017-2000 rev. Gx	
NAVITWIN V		Type: 5019 rev. Dx	

The following repeater may be used:

Steering Repeater (console mounted)		Type: 5016-AA rev. Kx	
Steering Repeater (console mounted)		Type: 4881 rev. Ex	
Steering Repeater (console mounted)		Type: 4881-AA rev. Ex	
Steering Repeater (console mounted)		Type: 5016-AB rev. Kx	
Steering Repeater (console mounted)		Type: 4881-AD rev. Cx	
(Magnetic, only in connection with NAVITWIN)			
Repeater (bulkhead mounted)		Type: 5016-AC rev. Kx	
Repeater (bulkhead mounted)		Type: 4881-AC rev. Dx	
Repeater (bulkhead mounted)		Type: 4881-AK rev. Dx	
Bearing Repeater		Type: 5016 rev. Lx	
Bearing Repeater		Type: 5016-BB rev. Ax	
Bearing Repeater		Type: 4881-AB rev. Fx	
Bearing Repeater		Type: 4881-AM rev. Dx	
with Bearing Repeater Stand		Type: 4622-AB rev. ACx, 4622-AC rev. Fx, 4622-AD rev. Ax	
Bearing Repeater Stand	(Sperry)	Type: 1812783	
Bearing Repeater Bracket		Type: 4890-AB rev. Ex	
Bearing Repeater Bracket	(height adjustable)	Type: 4905-AB rev. Ax	
Terminal Box		Type: 4884-AC rev. Bx	
Terminal Box		Type: 4894-AD rev. Bx	

Options:

Gyro Compass	NAVITGAT X MK1	Type: 4914
Gyro Compass	NAVITGAT 2100	Type: 4913
Compass Monitor	NAVITWIN III	Type: 4923
Heading Management System	NAVITWIN IV	Type: 4994

Voyage Data Printer (only in connection with NAVITWIN)		Type: 4805
Gyro Compass Control Unit		Type: 4926
Fluxgate Coil for Magnetic Compass		Type: 4863
Digital Tape Repeater		Type: DTR 600
Universal Digital Repeater (UDR)		Type: 4891
Multifunction Display	NAVIDATA	Type: 4806-AC
Multifunction Display	NAVIDATA	Type: 4806-AD
Multifunction Display	NAVIDATA	Type: 4806-AE
Switch Over Unit		Type: 4932
RS422 Splitter Box		Type: 4936 or 4992
Optoisolator		Type: 55555
Power Supply		Type: 2568

Software versions:		
NAVIGAT 200	Software Version 1.xx	
NAVIGAT 100	Software Version 1.xx	
NAVIGAT 2200	Software Version 20.x	
NAVIGAT 2500	Software Version FrmWDSP4_INS_v2_x_y; x_y >= 82_21 (DSP) FrmWCINT_INS_v5_x_y; x_y >= 73_36 (CINT)	
NAVIGAT 3000	Software Version 10.x	
NAVIGAT 3500	Software Version FrmWDSP4_INS_v2_x_y; x_y >= 82_21 (DSP) FrmWCINT_INS_v5_x_y; x_y >= 73_36 (CINT)	
Converter and Amplifier Unit	Software Version 1.xx	
Converter and Amplifier Board	Software Version 1.xx	
Data Distribution Unit	Software Version 1.xx	
DDU Processor Module	Software Version 1.xx	
NAVITWIN V	Software Version 1.xx	

Note:

Heading Management System NAVITWIN V:

The Heading Management System NAVITWIN V 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 DNVGL 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	Type: 5017
NAVITWIN V	Type: 5019

The CompassNet system requires at least one (1) gyro compass to be connected. The CompassNet system offers the possibility to connect up to four (4) gyro compasses in total.

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

CAU (Converter and Amplifier Unit)	Type: 5018 and
CAB (Converter and Amplifier Board)	Type: 5018-5100.

Application/Limitation

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

The CompassNet System is examined and found to comply with the standards for interconnections with a Bridge Alert Management System, i.e. IMO resolution MSC.302(87) "Bridge Alert Management" and IEC 61924-2 "Modular structure for INS", Annex K and Annex M.

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), TREO 172-17 (ISO 8728, Vibration), 152-20 Issue 2, 005026-0141-26 Rev. C.

Manuals:

Operation, Installation and Service Manual CompassNet System (including NAVIGAT200, 2200, 3000, 2500, 3500)	056372
Operation, Installation and Service Manual NAVIGAT 100	056373



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Operation, Installation and Service Manual Repeater Compass System	056376
Operation, Installation and Service Manual Switch-Over Unit	056318
Operation, Installation and Service Manual NAVITWIN IV	056360
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 (2014)
- Performance testing: ISO 8728 (2014)

Notes: Further tests passed according to DNVGL Rules for Ships Pt.6 Ch.3 (January 2016), especially: 6.2.3.6 Dual heading input – NAUT(AW) and 6.3.1 Dual compass systems.

Compliance with bridge alert management test standards IEC 62923-1/-2 (2018) still to be tested.

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