

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00001Z6
Revision No:
2

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 Heading control system (HCS)

with type designation(s)

NAVIPILOT 4000+, NAVIPILOT 4000+ TRACK

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) 2017/306,**

**item No. MED/4.16. SOLAS 74 as amended, Regulations V/18 & V/19, IMO Res. A.342(IX),
IMO Res. A.694(17), IMO Res. MSC.191(79), IMO Res. MSC.64(67) Annex 3, IMO Res.
MSC.302(87)**

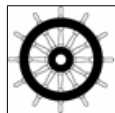
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2021-07-26**.

Issued at **Hamburg** on **2017-09-27**

DNV GL local station:
Hamburg

Approval Engineer:
Jörg Rebel



Notified Body
No.: **0098**

for **DNV GL SE**

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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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

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Product description

The Heading Control System NAVIPILOT 4000+ is available as PID - controlled or self tuning (adaptive) type and consists of the following equipment:

1. Control and Display Unit
Type: 4960 Hardware Rev.: Cx
Software: 020800-0000-000 Rev.: x

And 2.
Steering Control Interface Unit:
Type: 4961 Hardware Rev.: Ax
Software: 020801-0000-000 Rev.: x

And 3.
Product Key NAVIPILOT 4000+
Type: 4960-7000

Or 4.
Product Key NAVIPILOT 4000+ TRACK
Type: 4960-7100

including microcontroller MC68376 and with the following interfaces:

Input

- Heading reference system
 - 2 serial Inputs acc. to IEC 61162-1
 - 1 input for Flux-Gate type 4772 or 4863
- Speed Input
 - Pulse 200p/nm or serial acc. to IEC 61162-1
- External system analog input
 - +/- 10V analog input via an isolation amplifier

Output

- DC Solenoid board for On/Off solenoid valves
Type: 20042 rev. Ax or 20043 rev. Ax
 - or
 - AC Solenoid board for On/Off solenoid valves
Type: 20040 rev. Ax or 20041 rev. Ax
 - or
 - Isolated Proportional Output board +/-10V or 4-20mA , Type 20044 rev. Ax
 - 7 Alarm contacts for: Off Heading, Heading Monitor, System Failure, Primary Power, Backup Power, Deadman, Override
- The Off Heading, System Failure, Primary Power and Backup Power alarms are fixed the other can be configured via Service mode.
- Central Alarm Interface acc. to IEC 61162-1
 - Repeater Output for heading messages acc. to IEC 61162-1
 - 2 Analogue Outputs +/-10V non isolated
 - Navigator Interface bidirectional acc. to IEC 61162-1 for Nav. and Track Control
 - Steering Control Network Interface

5. Feedback Units
Type: 4136, 4968, 4132, 4134, 4137

6. Magnetic Sonde
Type: 4772 , 4863

7. Program Fieldbus Controller Ethernet
Type: 750-841

- Program Fieldbus Controller Ethernet
Type: 750-341
- Power Supply Filter 24VDC
Type: 750-626
- Field Supply Filter 24VDC
Type: 750-624
- Power Supply Module 24 VDC
Type: 750-602
- Power Supply Module 24 VDC
Type: 750-612
- Power Supply Module 24 VDC, fuse
Type: 750-610

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7. (Continuation)

- 2 DO, 125 VAC	Type: 750-514
- 8 DI, 24 VDC, 3ms	Type: 750-430
- 8 DO, 24 VDC, 0,5 A	Type: 750-530
- 8 DO, 24 VDC, 0,5 A	Type: 750-536
- 4 AO, +- 10 VDC, 12 Bit	Type: 750-557
- 4 AI, +- 10 VDC, s.e.	Type: 750-457
- Solid State Relay	Type: PLC-OSP
- Interface serial, RS 485	Type: 750-653
- End Module	Type: 750-600

8. Documentation: NAVIPILOT 4000+ and NAVIPILOT 4000+ HSC Heading Control System Installation and Operation Manual 056382

Application/Limitation

None

Type Examination documentation

Tests carried out

Applicable tests according to ISO 11674 (2006), IEC 60945 (2002) incl. Corrigendum 1 (2008), IEC 61162-1 (2010), IEC 61162-2 (1998) and IEC 62288 Ed. 2 (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