EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00007KS

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 Heading control system (HCS)

with type designation(s)
NT991G MK2

Issued to
Navitron Systems Ltd.
Havant, Hampshire, **United Kingdom**

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2021/1158,**
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 **2026-09-16**.

Issued at **Hamburg** on **2021-09-17**

DNV local station:
Manchester

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), 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 1/2018 dated February 18th, 2019.

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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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 heading control system (HCS) type NT991G MK2 consists of the following components:

Description	*Type designation*	*SW version*
Autopilot Control Unit	NT991G MK2	V7.xx
Digital Display Unit	NT1000 DDU	V1.xx
Input interfaces	2 x IEC 61162-1 Heading (Gyro/THD or magnetic compass)	
	1 x Magnetic heading sensor coil	
	1 x Synchro heading input	
	1 x Rudder feedback unit(s)	
	1 x BAM (IEC 61162-1 or -2)	
	1 x Track control (IEC 61162-1)	
Output interfaces	1 x VDR/Heading (IEC 61162-1)	
	1 x BAM (IEC 61162-1 or -2)	
	1 x BNWAS (IEC 61162-1 or -2)	
	1 x “Bang/Bang” rudder controls	
	1 x Step heading output (5V)	
Power supply	1 x 11-40 V DC (2.5 W + 8.5 W illumination)	

Optional components:

Description	*Type designation*
Magnetic heading sensor coil	HSC2
Non follow-up power steer control	NT920 NFU
Follow-up power steer control	NT990 FU
Heading data interface	NT925 HDI
Analogue steering interface	NT990 ASI
Isolated dual steering interface	NT990 DSI
Digital heading repeater display	NT920 DHR/2
Rudder reference unit	NT920 (D)RRU

Application/Limitation

- A change-over control from automatic to manual steering shall be provided and located easily accessible to the officer of the watch.
- Arrangements and components for main steering is not part of this approval and need separate certification.
- The track control mode shall only be available when the HCS is part of an approved Track Control System.

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)
- Bridge alert management testing: IEC 62923-1 (2018) and IEC 62923-2 (2018)
- Performance testing: ISO 11674 (2019)

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.

Type Examination documentation

DNV No	Document ID	Rev.	Description
14	NT9XXG NT1000 DDU TAR1	2021-09-16	Report: Navitron, Performance tests acc. to ISO 11674 (2019) for NT951G, NT991G MK2 and NT995G with NT1000 DDU
13	NT1000 DDU BAM1	2021-09-16	Report: Navitron, Tests acording. to IEC 62923-1/-2 (2018) for NT951G, NT991G MK2 and NT995G with NT1000 DDU
9	0921/6	2021-09-15	Operating manual for NT991G MK2
8	0921/10	2021-09-15	Installation manual for NT991G MK2
7	-	2020-12-11	Report: Navitron, Tests acc. to IEC62288 (2014), 7.2.3
6	75950565 Report 01	2020-12-03	Report: TÜV Süd, Tests acc. to IEC 62288 (2014), 4.4.1 and 4.5.1 for DigiWise TFT display type 13-043WISB0GA1-S
5	-	2011-10-19	Report: CML (P. Goddard), Inspection to IEC 62288 (2008) for NT951G and NT991G
4	E30877	2021-08-03	Report: Eurofins ETC, EMC tests according to IEC60945, 9, 10 and 11.2 for NT1000 DDU
3	4E11786	2021-08-02	Report: Parc, Environmental tests according to IEC 60945, 8.2 to 8.4 and 8.7 for NT1000 DDU
2	OO613919/01	Issue 1	Certificate of compliance, TÜV BABT, acc. to IEC 60945 (2002), 9.3 and 10.4 (1 to 2 GHz) for NT921G/NT990G
1	DERA/SS/CI/R/TT-25/99-1	Issue 1.0	Report: DERA Fraser, Environmental and EMC tests acc. to IEC 945 (1996), 8.2 to 8.4, 8.7, 9 to 12 and performance tests acc. to ISO FDIS 11674 (2000) for NT921G/NT990G

END OF CERTIFICATE