



Certificate no.:
TAA00003G1

TYPE APPROVAL CERTIFICATE

This is to certify:

that the **Integrated Navigation Systems (INS)**

with type designation(s)
SYNAPSIS NX INS as part of IBNS (onboard fregate T31)

issued to

Anschütz GmbH
Kiel, Schleswig-Holstein, Germany

is found to comply with

IMO Res. A.694(17) General requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids
IMO Resolution MSC.36(63) Adoption of the international code of safety for high-speed craft, 1994
IMO Resolution MSC.97(73) Adoption of the international code of safety for high-speed craft, 2000 (2000 HSC CODE)
MSC.191(79) Performance standards for presentation of navigation-related information on shipborne navigational displays
IMO Resolution MSC.252(83) Revised Performance Standards for Integrated Navigation Systems (INS)
IMO Resolution MSC.302(87) Performance standards for Bridge Alert Management

Application:

Limited to application as part of Integrated Bridge Navigation System (IBNS) as part of fregate T31.

Issued at **Hamburg** on **2025-06-26**

This Certificate is valid until **2026-10-10**.

for **DNV**

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

Approval Engineer: **Jörg Rebel**

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This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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 Integrated Navigation System SYNOPSIS NX INS as part of IBNS (onboard fregate T31) comprises of the following equipment necessary for functioning:

No.	Designation	Type Designation / Part number (P/N)
1	Transceiver units	NSX S PED 770-003.SA203
	Pedestal / Transceiver CAT 1/2/3	NSX S DOWN MTR 770-004.SA200
	Arrays	12ft. low profile S-Band antenna Type LPR-A1
	Pedestal / Transceiver Pulse Compression CAT 1/2/3	X-Band Down Transceiver Scanter 6002, P/N. 606002-021
		Antenna Control Unit Type ACU, Part No. 659000-214
		Safety switch P/N 1104891-xxx (Castell KSD32)
		12" Compact Antenna Type 12'CO-HP-C, P/N 941070-712
2	Main Processing Unit	
	Computer	Small Marine Computer V2 Type 770-010.NG012
3	Display Units CAT 1, CAT 1H, CAT 1C, CAT 1HC	PPI diameter min. 320mm, may be also used for CAT 2/3
		Monitor TFT 27" Type 07027-016
4	Navigation Computing Environment (NCE)	NCE containing components for redundant data interfacing and distribution
	NCE components	Nautoplex 8plus8LWE Ed.2 Type 138-135.NG007
		Rack Server Type Dell POWEREDGE XR2
		SecureSync Time (NTP Server) Type 2402-403
		Industrial Ethernet Switch Type Cisco IE5000
		EMC Filter Box Type 248-212
		9PX MARINE UPS 3000W Type 9PX3000IRTM
		RUGGED SWITCH Type Cisco IE3200

Software

No.	Designation	Type Designation
1	Baseline Operating System	Embedded Windows 10 IoT Enterprise LTSC
2	Bridge Integration Platform BIP SY02-100.01 Synapsis Service Tool SY02-100.01 with an arbitrary combination of one or several of the following software: Synapsis ECDIS NX SY02-100.01 Synapsis Naval ECDIS NX NX SY02-100.01 Synapsis Radar NX NX SY02-100.01 Synapsis Conning NX NX SY02-100.01 Synapsis Naval Radar NX SY02-100.01	T31SW 01.xx-05.07.yy (xx ≥ 03, yy ≥ 02)

Application/Limitation

- The Integrated Navigation System SYNOPSIS NX INS including alert management and operation and monitoring of Centralized Alert Management HMI (CAM-HMI) is accepted according to IMO MSC.252(83), Module C – Alert Management and IMO SN.1/Circ.288.
- At least the tasks collision avoidance and route monitoring shall be integrated in one of the multifunctional workstations. Minimum configuration consists of at least 3 (three) multifunctional workstations.
- IMO SN.1/Circ.MSC.1/Circ.1503: ECDIS that is not updated for the latest version of IMO Standards may not meet the chart carriage requirements as set out in SOLAS regulation V/19.2.1.4.
- The system supports the display and use of digital chart data in the following formats:
 - S-52 Ed. 6.1 and Pres. Lib. 4.0 (IHO)
 - S-57 Ed.3.1.1 (IHO)
 - S-61 Ed 1.0 (IHO)
 - S-63 Ed.1.2 (IHO)
 - AML Version 2.0, 2.1 and 3.0
 - ARCS (UKHO)
 - BSB (NOAA/NZMariner)
 - DNC (NGA)
 - TOD (NGA)

Type Approval documentation

DNV No.	Document ID	Rev.	Description
1	TTD01-05-25	0	Overview test reports
2	10000002035	002	SYNAPSIS Radar NX
	4428.DOC010302	011	SYNAPSIS Service Tool
	10000002034	002	SYNAPSIS System Manual
	10000001978	001	SYNAPSIS ECDIS NX
	10000002029	001	SYNAPSIS Naval ECDIS NX
	10000001977	001	SYNAPSIS Conning NX
	10000001411	002	SYNAPSIS Naval Radar NX

Tests carried out

- Environmental and EMC testing: IEC 60945 (2002) incl. Corrigendum 1 (2008)
- Interface testing: IEC 61162-1 (2016), IEC 61162-2 (1998) and IEC 61162-450 (2018)
- Presentation testing: IEC 62288 (2021) incl. Amendment 1 (2024)*
- Bridge alert management testing: IEC 62923-1 (2018) and IEC 62923-2 (2018)
- Performance testing: IEC 61924-2 (2012) including Corr.1 (2013)**

* The amendment is for correction of errors included in IEC 62288 (2021).

** The expiry date of the Certificate to be extended to 2027-05-01 after verification of compliance with IEC 61924-2 (2021).

Marking of product

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.

Periodical assessment

This certificate is only valid if required periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>

END OF CERTIFICATE