



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00000DH
Revision No:
12

This is to certify:

That the Conning Display

with type designation(s)
VisionMaster FT, VisionMaster Net

Issued to

Northrop Grumman Sperry Marine B.V. - UK Branch
New Malden, Surrey, United Kingdom

is found to comply with

DNV rules for classification – Ships
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
MSC.191(79) Performance standards for presentation of navigation-related information on shipborne navigational displays

Application :

See page 2.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2023-03-09**

for **DNV**

This Certificate is valid until **2025-07-01**.

DNV local unit: **Southampton**

Approval Engineer: **Steinar Kristensen**

Frederik Tore Elter
Head of Section

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

VisionMaster FT and VisionMaster Net Conning Displays are available either as a part of a Multi Function Display (MFD) or as a dedicated Conning Display, consisting of the below modules:

VisionMaster FT Hardware modules, alternative 1:

Unit	Description	Type Number	Comment
Computer	Processor unit	65901AX	<i>X= C or E or F or N or P or T or U</i>
Display	LED display unit 26"	65926X	<i>X= H or L or P</i>
Interface Unit	PCIO Interface Unit	65900AX	<i>X= A or B</i> 9x RS422/RS232 inputs 6x RS422/RS232 outputs ¹⁾
Control Panel	Control panel with trackball only or trackball + keyboard (Integrated or Kit)	65903AX or 65903KX	<i>X=F or G or H</i> 2x USB, 1x PS2 connectors

VisionMaster FT Hardware modules, alternative 2:

Unit	Description	Type Number	Comment
Computer & Display	26" Panel PC	65926AA or 65926AB	
Interface Unit	PCIO Interface Unit	65900AX	<i>X= A or B</i> 9x RS422/RS232 inputs 6x RS422/RS232 outputs ¹⁾
Control Panel	Control panel trackball + keyboard (Integrated or Kit)	67003AH or 67003KH	3x USB connectors

VisionMaster Net Hardware modules:

Unit	Description	Type Number	Comment
Computer & Display	26" Panel PC	67026AA or 67026AB	
Interface Unit	PCIO Interface Unit	65900AX	<i>X= A or B</i> 9x RS422/RS232 inputs 6x RS422/RS232 outputs ¹⁾
Control Panel	Control panel trackball + keyboard (Integrated or Kit)	67003AH or 67003KH	3x USB connectors

¹⁾ Transmission of NMEA messages is not a feature within the Conning Display

All units listed above are to be installed in a protected environment, i.e. indoor.

Software modules

	Version
• Operating System:	Windows 10 IoT Enterprise LTSC, Version: 1809
• VisionMaster FT:	15.3.x
• VisionMaster Net:	3.0.x

Application/Limitation

- The system is to be installed as specified in equipment manuals.
- The "Ownship" view in the VisionMaster FT and VisionMaster Net Conning Displays are found to comply with requirements for Conning Information Display for the additional class notations NAUT(AW) and NAUT(OSV) as specified in the DNV Rules Pt.6, Ch.3, Sec.3 and Sec.5 (July 2022, as amended).
- The VisionMaster FT and VisionMaster Net Conning Displays have been tested in a MFD system with functions for ECDIS and Radar.
- The VisionMaster FT and VisionMaster Net Conning Displays do not issue alerts, hence testing according to IEC 62923-1 and IEC 62923-2 is deemed as not being applicable.

Tests carried out

- Environmental testing: IEC 60945 (2002) incl. Corr.1 (2008)
- Serial interface testing: IEC 61162-1 (2016) and IEC 61162-2 (1998)
- Presentation of navigation information: IEC 62288 (2014)
- Performance testing: DNV Type Approval program 847.60 for Conning Display

Type Approval documentation

DNV No	Document ID	Rev.	Description
109	P22-0126	1	Report: EKTOS, EMC and environmental test report for PCM4-Q170
106	67000011V1	3	Manual: NGSM, VM Net Ship's Manual Volume 1
105	67000012V2	3	Manual: NGSM, VM Net ECDIS User Guide Volume 2 for Software version 3.0
104	67000012V1	3	Manual: NGSM, VM Net ECDIS User Guide Volume 1 for Software version 3.0
103	67000011V2	3	Manual: NGSM, VM Net Ship's Manual Volume 2
102	TR-V3.0.0-VMNet-108	2	Report: NGSM, CID and CAM-HMI comparison to VMFT for VisionMaster NET Release 3.0.0
101	TR-V3.0.0-VMNet-101	1	Report: NGSM, System Performance Test Report for VisionMaster NET Display Software Release V3.0.0
95	P21-0035-2	2021-06-24	Report: EKTOS, Supplementary IEC60945 test report for PCM4-Q87 computer
82	5P03620	1	Report: SP, EMC and environmental test report for DuraPanel 24 Glass and DuraPanel 26 Glass
81	P19-0152-1	2019-09-03	Report: EKTOS, EMC and environmental test report for Slim line 25,5" Panel PC
72	362879	2018-11-06	Report: Nemko, Display performance tests for Visionmaster Net 26" Panel PC
71	8P06394 CSD	2018-08-27	Report: RISE, Compass Safe Distance test of Panel PC
70	P18-0055-1	2018-12-04	Report: EKTOS, EMC and environmental test report for VisionMaster Net 26" Panel PC
64	6P03819-2	2016-09-13	Report: SP, EMC and environmental test report of PCM4-Q87 Marine Computer
59	298985-5	2016-02-25	Report: Nemko, Display performance test for DuraMON 26 Classic display (65926P)
58	103230862LHD-001 Climatic and Vibration	1	Report: Intertek, Environmental test report of VisionMaster 340 Pedestal Console (65926P)
57	103230862LHD-001	4	Report: Intertek, EMC test report of VisionMaster 340 Pedestal Console (65926P)
56	DOC102351-1	2	Report: Hatteland Display, Minimum brightness test of GDCX keypad controller Rev 4 (65926H)
55	DOC102352-4	2	Report: Hatteland Display, Conformance test report for HD 26T22 MMD-MA1-FAGA-ES display (65926H)
54	21009	0	Report: Applica, EMC and environmental test report of HD 26T22 MMD-MA1-FAGP-ES (65926H)
53	65900012	18	Manual: NGSM, Vision Master FT ECDIS User Guide
52	65900011V2	23	Manual: Northrop Grumman Sperry Marine, VisionMaster FT Ships Manual- Vol 2
51	65900011V1	23	Manual: Northrop Grumman Sperry Marine, VisionMaster FT Ships Manual- Vol 1
40	NML61162RPT	1	Report: NGSM, Test report for IEC 61162 Interface Tests
37	75931934	1	Report: Tüv Süd, Environmental test report for PCM4-Q87 Marine Computer in VMFT 340 Console
36	5P05969-1	1	Report: SP, IEC 60945 test report for PCM4-Q87 Marine Computer
31		1	Report: NGSM, Conning Information Display Test Report
28	TSTR1201598	2012-07-03	Report: QinetiQ, EMC and environmental test report for ISIC 25,5 Inch Monitor
27	TSTR1102226	2011-08-22	Report: QinetiQ, IEC 61174 (2008), IEC 62388 (2008), IEC 60945 (2002) and IEC 62288 (2008) test report for DuraMON26WS display
24	TSTR1001283	2010-04-26	Report: QinetiQ, IEC 61174 (2008) and IEC62288 (2008) test report for VisionMaster FT ECDIS with 26" Monitor
23	TSTR1000308	2010-10-22	Report: QinetiQ, Environmental test report for VisionMaster FT Client Server Radar
21	TSTR0900216	1	Report: QinetiQ, IEC 62288 (2008) test report for VisionMaster FT ECDIS
19	TC0905317	2	Report: QinetiQ, VisionMaster Vibration test report for G43 Processor and 25.5 Display

DNV No	Document ID	Rev.	Description
18	E12140.01	2012-08-01	Report: Nemko, Color verification test report for MD 26 KM05 monitor
14	DANAK-1910681-B	2010-01-25	Report: Delta, EMC and environmental test report for PCM4-G43 marine computer
12	DANAK-1912564	2012-11-02	Report: Delta, EMC and environmental test report for PCM4-H77 marine computer
11	DANAK-1911472	2011-07-18	Report: Delta, EMC and environmental test report for DuraMON 26 WS monitor
9	CR0607592-1.0	2006-12-06	Report: QinetiQ, EMC and Environmental test report for VisionMaster FT Radar
8	75906944	1	Report: TÜV SÜD, EMC test report for MRD26 26" LCD Marine Monitor
3	5006934	2	Report: Northrop Grumman Sperry Marine, ECDIS Monitor LCD Test Procedure and Report- ISIC 26in Monitor

Marking of product

The Manufacturer and Type Designation to be applied to the equipment in a clearly visible location. In addition the equipment shall be marked with serial number, safe distance to magnetic compass, power consumption and/or supply voltage.

Periodical assessment

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

The scope of the periodical/renewal assessment is to verify that the production quality conditions stipulated for the type approval are complied with and that no alterations are made to the product design or its components and/or materials without appraisal by the Society.

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>