

TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
MERB00005J4
Revision no.:
5

This Certificate is issued by DNV UK Limited based on authorisation of the Maritime & Coast Guard Agency (MCA) as an UK Approved Body to undertake conformity assessments on marine equipment in accordance with the requirements of the Merchant Shipping (Marine Equipment) Regulations 2016 as amended.

This is to certify:

that the **Voyage data recorder (VDR)**

with type designation(s)

DM100 VDR G2 (trade name Sperry Marine Voyage Master IV VDR G2, Wärtsilä VDR 4380); DM100 VDR G3 (trade name Sperry Marine Voyage Master IV VDR G3, NACOS Marine VDR 4380)

issued to

Danelec Marine A/S
Farum, Denmark

is found to comply with the Regulation (UK) **MSN 1874 Amendment 10** for
Item no. **UK/4.29 (Row 2 of 2)**

according to the following requirements:

SOLAS 74 Reg. V/20, IMO Res. A.694(17), IMO Res. MSC.191(79), IMO Res. MSC.302(87), IMO Res. MSC.333(90), SOLAS 74 Reg. V/18, SOLAS 74 Reg. X/3, IMO Res. MSC.36(63)-(1994 HSC Code) 13, IMO Res. MSC.97(73)-(2000 HSC Code) 13

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

Date of issue: **2025-08-13**

Expiry date: **2026-06-20**

DNV local unit:
Denmark CMC

Approval Engineer:
Steinar Kristensen



Approved Body No.: 0097



for **DNV UK Ltd.**

Digitally Signed By:
Christine Mydlak-Röder

Christine Mydlak-Röder
MER Service Responsible



**Maritime &
Coastguard
Agency**

UK Approved Body Authorised
by the MCA

This certificate will not be valid if the manufacturer makes any changes or modifications to the approved type of equipment, which have not been notified to, and agreed with the approved body named on this certificate.

During the period of validity of this certificate the applicable regulations (international conventions and the relevant resolutions and circulars of the IMO) and testing standards may change, therefore the product conformity may need to be re-assessed by the Approved Body.

"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-control phase module (D, E or F) of Schedule 2 of the Merchant Shipping (Marine Equipment) Regulations 2016, as amended is fully complied with and controlled by a written inspection agreement with an approved body. In case limitations of use apply, these should be indicated in the Annex.

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 USD 300 000.

Product description

Please see Appendix: Product Description

Application/Limitation

- The VDR:
 - is to be installed in accordance with installation documentation.
 - supports connection of 25 ECDIS or RADAR stations.
 - supports receiving images using binary file transfer according to IEC 61162-450 ed.1 (2011), IEC 61162-450 ed.2 (2018), IEC 61162-450 ed.3 (2024) and IEC 62388, Annex H.4.
 - may support up to 4 Remote Video Interfaces with 2 inputs each.
 - may support up to 36 serial line interfaces.
 - may support MODBUS over TCP/UDP.
 - may support Serial MODBUS RTU.
 - is in compliance with IMO Res. MSC.333(90), as amended by Res. MSC.494(104), when installed with Float Free MK2 or Float free MK2-HB
 - has been tested for cyber security requirements according to IEC 61162-460 (2024) (460-Node) and DNV CS Sp1 (Essential) (incorporating IACS UR E27 Ed.Sept. 2023). Cyber secure installation shall be according to DNV Type Approval Certificate TAA00003D4.
- Float free MK2 and MK2-HB are tested for compliance with IEC 61996-1 (2013) +A1(2021) using a Galileo GNSS receiver in accordance with IEC 61108-3 (2010)

Type Examination documentation

Please see Appendix: Type Examination Documentation

Tests carried out

- Performance testing: IEC 61996-1 (2013) + A1 (2021)
- Environmental testing: IEC 60945 (2002) incl. Corr. 1 (2008)
- Interface testing: IEC 61162-1 (2016), IEC 61162-1 (2024), IEC 61162-2 (1998), IEC 61162-2 (2024), IEC 61162-450 ed.2 (2018), IEC 61162-450 ed.3 (2024)
- Presentation testing: IEC 62288 (2021)
- Alert Management: IEC 62923-1 (2018), IEC 62923-2 (2018)
- Security testing: IEC 61162-460 (2024) (According to 460-Node requirements)
- Security testing: DNV CS SP1 (Essential) (incorporating IACS UR E27 Ed.Sept. 2023)

Marking of product

The type designation and name and contact address of the manufacturer shall be affixed visibly, legibly and indelibly to at least one part of the product. In addition, the various equipment shall be marked with serial number. Safe distance to magnetic compass and power consumption and/or supply voltage may be stated in the individual installation manuals.

APPENDIX

Type Examination documentation

Certificate no.:
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Document No.	Rev.	Title
DBS10704-12	1.2	Manual: Installation Manual for DM100/DM400 VDR compact Sensor Interface Unit
DBS10919-10	1.0	Manual: Installation Manual for Remote Video Interface RVI 02-004 and RVI 02-004D for DM100
DBS00327-31	3.1	Manual: Installation Manual for DM100/DM400 modular Sensor Interface Unit
DBS00331-31	3.1	Manual: Installation Manual for Remote Video Interface for DM200, DM300, DM400, DM500
DOC11110-10	1.0	Waiver of corrosion test on Data Protective Capsule MK4
DOC11111-10	1.0	Waiver of corrosion test on VDR Bridge Control Panel
DOC11112-10	1.0	Waiver of corrosion test on BMU-003 and BMU-004
GWD11334-10	1.0	Waiver of corrosion test on Remote Audio Interface 4ch and 8ch (RAI 04-001, RAI 08-001)
DOC11027-10 (Signed)	1.0	Waiver of corrosion test on NAS 01-001
DOC11096-10	1.0	Waiver of corrosion test on DM100 Data Acquisition Unit (DAU)
BSH/4543/001/429 2887/15	2015-03-06	Report: IEC 61996-1 (2013) BSH, Voyage Data Recorder, VDR DM100-2014
L102733-4387	01	Report: DELTA - IEC 62288 Temporal stability Bridge Control Panel
DANAK-19/14068	1	Report: DELTA - IEC 61996-1 (2013), Test for Approval of Capsule MK4
DANAK-19/13648	2	Report: DELTA - IEC 60945 (2002), Test for Marine Type Approval of DM100 system
DANAK-19/14081	A	Report: DELTA - IEC 60945 (2002), Test for Marine Type Approval of DM100 (2014). BCP, BMU-003 and BMU-004
BSH/4542/002/012 3036/16	2016-04-22	Report: BSH - IEC 62288 (2014) sections 4 and 7, VDR Display - Bridge Control Panel - BCP
BSH/4543/001/429 2645/13-1	2014-06-18	Report: BSH - IEC 60945 (2002) sections 6, 11.1, 13-15 - VDR DM100-2014
BSH/4543/001/429 2645/13-2	2014-06-18	Report: BSH - IEC 61162-450 (2011) - VDR DM100-2014
BSH/4543/001/429 245/13	2014-06-20	Report: BSH - IEC 61996-1(2013), IEC 61162-1 (2010), IEC 61162-2 (1998) - VDR DM100-2014
-	2013-11-17	Waiver related to IEC 61996-1 ed 2.0 section 6.2.2.6.1 - suppression of low frequency out of band noise
BSH/4543/001/429 2887/15	2015-03-06	Report: BSH IEC19961-1 Ed.2 Voyage data recorder (audio module)
BSH/4543/001/429 2980/15	2015-12-14	Report: BSH IEC 61996-1 Ed.2 Voyage data recorder (NAS, 4 VGA, 4 DVI, 36 serial)
BSH/4543/001/429 2980/15-1	2015-12-15	Report: BSH IEC62388 Ed.2 (section Annex H.4)
DANAK-19/16500	2016-05-30	Report: DELTA Vibration test of DM100 DAU-R19 according to IEC60945
DANAK-19/16011	2015-12-22	Report: IEC 60945 DELTA Test Report, Test for Marine Type Approval of RDI 08-001A Remote Data Interface, Analog

DANAK-19/16012	2015-12-22	Report: IEC 60945 DELTA Test Report, Test for Marine Type Approval of RDI 24-001D Remote Data Interface, Digital
MAN11641-11	1.1	Manual: Installation Manual for RDI 08-001A, remote analog data interface
MAN11620-11	1.1	Manual: Installation Manual for RDI 24-001D, remote digital data interface
DANAK-19/16106	2016-01-28	Report: DELTA IEC 60945: Danelec Marine A/S - RDI 08-001S Remote Data Interface, Serial
MAN11614-13	1.3	Manual: Installation Manual for RDI 08-001S and RDI 08-001SJ, remote serial interface
DANAK-19/17917	2017-06-01	Report: DELTA IEC 61162-1/2 Interface tests of RDI 08-001S Remote Data Interface, Serial
0800S3-454.VDR/Danelec/DM100		Report: BSH, IEC61162-450 Ed.2.0
APP13759-12	1.2	Report: Danelec, DM100 IEC 62923 compliance test report
GWD13959-10		Danelec: IEC 60945 Waiver of corrosion test on Data Protective Capsule MK4 C64
120-22519-1	Rev. 1	Report: FORCE, IEC 60945: Test for marine type approval of DM100 VDR G2 DAU and Capsule MK4 C64
DBS11010-30	3.0	Manual: Danelec, Inspector's and Authorities' Manual - For DM100 VDR, DM100 VDR G2 and DM100 S-VDR G2
BSH/454.VDR/Danelec DM100 VDR G2/1-2	11 March. 2022	Report: BSH, IEC61162-450 Ed.2.0 Testreport DM100 VDR G2
BSH/454.VDR/Danelec DM100 VDR G2/1-1	11 March 2022	Report: BSH, IEC61996-1 Ed.2 Testreport DM100 VDR G2
E21187.00	2022-02-10	Report: NEMKO IEC 61996-1:2013 + AMD1:2021 – Partial test, Tron 40VDR AIS (COSPAS-SARSAT 406 MHz Satellite Emergency Position-Indicating RadioBeacon (EPIRB) with attached Voyager Data Recorder (VDR))
BSH/454.GNSS/TU VSUDLtd/6	8th February 2022	Report: BSH, IEC 61108-3:2010, 4.3.8 and 5.6.9
75950873-02	Issue 01	Report: TÜV, IEC 60945, ETSI EN 301 489-1 and ETSI EN 301 489-19 Model: Tron 40VDR AIS
75950873-07	Issue 03	Report: TÜV, IEC 612097-2 Model: Tron 40VDR AIS EPIRB
75950873-08	Issue 03	Report: TÜV, IEC 61108-3 Model: Tron 40VDR AIS
75950873-09	Issue 01	Report: TÜV, IEC 61097-2 (Annex D: 121.5 MHz Homing transmitter) Model: Tron 40VDR AIS
Certificate Number: 354	4 February 2022	Certificate: COSPAS SARSAT, TYPE APPROVAL CERTIFICATE For a 406 Megahertz Distress Beacon for use with the Cospas-Sarsat Satellite System, Model: EPIRB Float Free Tron 40VDR AIS
Certificate Number: 1354	4 February 2022	Certificate: COSPAS SARSAT, TYPE APPROVAL CERTIFICATE For a 406 Megahertz Distress Beacon for use with the Cospas-Sarsat Satellite System, Model: EPIRB Float Free Tron 40VDR AIS
	Rev. A	Manual: Jotron, Tron 40VDR AIS Installation Manual
DBS14627-10	1.0	Report: (Internal) Test report for IEC 62288 ed.3.0 (Section 4 and 7) evaluation of DM100 VDR
DBS14746-11	1.1	Doc: Danelec, Type approval specification (IACS UR E27 / IEC 61162-460 ed.3) for DM100
DBS14890-11	1.1	Doc: Danelec, Test Specification for DM100 VDR as IEC 61162-460 ed. 3 node / IACS UR E27 equipment
DBS15004-10	1.0	Report: Danelec, Test Report for DM100 VDR as IEC 61162-460 ed.3 node / IACS UR E27 equipment
DBS10956	3.5	Manual: Danelec, Installation Manual for DM100 VDR G2 and DM100 S-VDR G2

122-33533-1	1	Report: Force Technology, IEC 60945 Test report of Capsule MK4
125-20563-1	1	Report: Force Technology, EMC and environmental test report for DM100 VDR G3 DAU, BMU 003 V2, BMU 005, BMU 006 and VDR BCP V2
BSH/454.VDR/011/00001	2025-06-04	Report: BSH, IEC 61996-1 Ed.2 and IEC 61996-2 Ed.2 test report for DM100 VDR/S-VDR G3
BSH/454.VDR/011/00001-1	2025-06-17	Report: BSH, IEC 61162-450 Ed.3.0 test report for DM100 VDR/S-VDR G3
	G	Manual: Jotron, Tron 40VDR AIS Float-free EPIRB with VDR storage, User manual
DBS00294	5.0	Manual: Danelec, User Manual for VDR Explorer
125-20563-2	2	Report: Force Technology, Digital interfaces test report of DM100 VDR G3 DAU according to IEC 61162-1 (2024) and IEC 61162-2 (2024)
RD15008-12	1.2	Description: Danelec, Secure Development Lifecycle for embedded products
MAN14904	1.1	Manual: Danelec, Installation manual for DM100, Cybersecurity addendum
MAN15872	1.0	Manual: Danelec, Operator's Manual for DM100 VDR G1, G2, G3 and DM100 S-VDR G2, G3
MAN15690	1.0	Manual: Danelec, Installation Manual for DM100 VDR G3 and DM100 S-VDR G3
TAA000006N	5	Certificate: DNV, Type Approval certificate for EDS series Ethernet Switches
MAN16167	1.0	Manual: Danelec, Installation Manual for DM100 VDR G3 utilizing optical fiber connections

APPENDIX

Product Description

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DM100 VDR G2 with trade names Sperry Marine Voyage Master IV VDR G2 and Wärtsilä VDR 4380
and
DM100 VDR G3 with trade name Sperry Marine Voyage Master IV VDR G3 and NACOS Marine VDR 4380
consist of the components below:

Components necessary for operation:

Component	Designation	Type designation		
		Danelec	Sperry	Wärtsilä/ NACOS Marine
Data Acquisition Unit G2 ¹⁾ or, Data Acquisition Unit G2 for 19" Rack ¹⁾ Data Acquisition Unit G3 ^{2) 3)} or, Data Acquisition Unit G3 for 19" Rack ²⁾	DAU G2 DAU-R19 G2 DAU G3 DAU-R19 G3	1305085 1305469 1306355 1306512	1305461 N/A 1306520 N/A	1305428 N/A 1306505 N/A
Bridge Control Panel	BCP	1302379	1302380	1305430
Bridge Microphone Unit	Indoor: BMU-003	1302646	1302646	1302646
	Outdoor: BMU-004	1302647	1302647	1302647
	Indoor: BMU-005	1306433	N/A	N/A
	Outdoor: BMU-006	1306311	1306311	1306311
Data Protective Capsule MK4 64 GB ⁴⁾	Capsule MK4 C64	1305078	1305078	1305431
Float free MK2 ^{4) 5)} or, Float free MK2-HB ^{4) 5)} (Heated bracket)	Float-free MK2 Float-free MK2-HB	1305474 1305475	1305474 1305475	1305474 1305475
90 Days Underwater Locating Beacon	AUB-90	2302841	2302841	2302841

- 1) Wärtsilä VDR 4380 is to be installed with DAU G2.
- 2) DM100 VDR G3 is to be installed with either DAU G3 or DAU-R19 G3.
- 3) Sperry Marine Voyage Master IV VDR G3 and NACOS Marine VDR 4380 are to be installed with DAU G3.
- 4) VDR installations shall include Protective Capsule MK4 and one Float-free capsule (MK2 or MK2-HB).
- 5) Separate certificates are required for EPIRB where the Float free is to be used to comply with carriage requirements for EPIRB.

Optional components:

Component	Designation	Type designation		
		Danelec	Sperry	Wärtsilä/ NACOS Marine
Modular Sensor Interface Unit	SIU	1000717	1000609	N/A
Compact Sensor Interface Unit	CSIU	1301871	1301871	1305496
Remote Video Interface with PoE – BNC	RVI-PoE	1302358	1302358	1302358
Remote Video Interface with PoE – DVI-I	RVI-PoE	1302365	1302365	1302365
Remote Audio Interface (8Ch) with PoE	RAI	1302859	1302859	1302859
Remote Serial Data Interface	RDI 08-001S	1303223	1303223	1303223
Ext. Extended Backup Disk (NAS 01-001)	NAS	1302370	1302370	1302370
Remote Digital Data Interface	RDI 24-001D	1303220	1303220	1303220
Remote Analog Data Interface	RDI 08-001A	1303222	1303222	1303222
Fiber optical Ethernet switch	EDS-208A-MM-SC-T	EDS-208A-MM-SC-T		

Software version: 3.xx