

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB000014A
Revision No:
5

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

That the Voyage data recorder (VDR)

with type designation(s)
DM100 VDR, Sperry Marine VoyageMaster IV VDR

Issued to
Danelec Marine A/S
Birkerød, Denmark

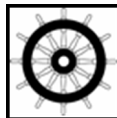
is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2017/306**,
item No. MED/4.29. SOLAS 74 as amended, Regulations V/18, V/20 & X/3, IMO Res. A.694(17), IMO Res. MSC.36(63), IMO Res. MSC.97(73), IMO Res. MSC.191(79), IMO Res. MSC.302(87), IMO Res. MSC.333(90)

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

This Certificate is valid until **2021-06-02**.

Issued at **Høvik** on **2017-07-03**

DNV GL local station:
Copenhagen



for **DNV GL AS**

Approval Engineer:
Frederik Tore Elter

Notified Body
No.: **0575**

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Vidar Dolonen
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 United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005.

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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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

DM100 VDR with trade names DM100 VDR and Sperry Marine VoyageMaster IV VDR, consisting of below listed components:

Description main components	Type Designation	Type designation (Danelec) DM100-2014 VDR	Type designation (Sperry) VoyageMaster IV VDR
Data Acquisition Unit or Data Acquisition Unit for 19" Rack	DAU DAU-R19	1302641 1303793	1302765 NA
Bridge Control Panel	BCP	1302379	1302380
Bridge Microphone Unit Indoor	BMU-003	1302646	1302646
Bridge Microphone Unit Indoor Outdoor	BMU-004	1302647	1302647
Data Protective Capsule MK4	Capsule MK4	1302373	1302385
90 Days Underwater Locating Beacon (AUB-90)	AUB-90	2302841	2302841
Float-Free MK1*	Float-Free MK1	1302389	1302389
Float-Free MK1-HB (Heated bracket)*	Float-Free MK1-HB	1304076	1304076

*Note: One of marked units to be installed.

DM100 VDR installation may include following optional components:

Description optional components	Type Designation	Part no. (Danelec) DM100-2014 VDR	Part no. (Sperry) VoyageMaster IV VDR
Remote Video Interface - BNC	RVI	1000723	1000658
Remote Video Interface - DVI-I	RVI	1302152	1302153
Remote Video Interface with PoE - BNC	RVI-PoE	1302358	1302383
Remote Video Interface with PoE - DVI-I	RVI-PoE	1302365	1302382
Modular Sensor Interface Unit	SIU	1000717	1000609
Compact Sensor Interface Unit	CSIU	1301871	1302111
Remote Audio Interface (4Ch) with PoE	RAI	1302858	1302992
Remote Audio Interface (8Ch) with PoE	RAI	1302859	1302993
Ext. Extended Backup Disk (NAS 01-001)	NAS	1302370	1302370
RDI 24-001D, remote digital data interface	RDI 24-001D	1303220	1303220
RDI 08-001A, remote analog data interface	RDI 08-001A	1303222	1303222
RDI 08-001S, remote serial interface	RDI 08-001S	1303223	1303223

VDR Software: v1.xx

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Application/Limitation

- Installation of DM100 VDR is to be in accordance with installation documentation.
 - LAN image transfer is limited to maximum total of 25 ECDIS or RADAR stations.
 - DM100 VDR supports both UDP and TCP/IP based image transfer on LAN.
 - DM100 VDR may support up to 4 Remote Video Interfaces with 2 inputs each.
 - DM100 VDR may support up to 36 serial channels.
 - DM100 VDR may support MODBUS over TCP/UDP.
 - DM100 VDR may interface to:
 - RDI 24-001D, remote digital data interface and/or,
 - RDI 08-001A, remote analog data interface and/or,
 - RDI 08-001S, remote serial interface.
- RDI 24-001D, RDI 08-001A and RDI 08-001S are to be installed in accordance with unit's installation documentation.

Tests carried out

- Performance testing, IEC 61996-1 (2013)
- Environmental testing, IEC 60945 (2002)
- Serial interface testing, IEC 61162-1 (2010) and IEC 61162-1 (2016)
- Serial interface testing high speed, IEC 61162-2 (1998)
- LAN interface testing, IEC 61162-450 (2011)
- Presentation of navigation information, IEC 62288 (2014)

Note: System has been tested for image transfer over LAN according to IEC 62388 (2013) Annex H.4 (TCP/IP based) and IEC61162-450 (2011) (UDP based)

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Type Examination documentation

DNV GL No	Title	Document No	Rev.
64	Report: DELTA IEC 61162-1/2 Interface tests of RDI 08-001S Remote Data Interface, Serial	DELTA-18/117-27236	
61	Manual: Installation Manual for RDI 08-001S, remote serial interface	MAN11614-10	
60	Certificate: Nemko: 406 MHz EPIRB (COSPAS-SARSAT) TRON 40VDR	MED-B-16251	
59	Technical specification FBH-40VDR	19327-DS-6202	Rev.04
58	Report: DELTA IEC 60945: Danelec Marine A/S - RDI 08-001S Remote Data Interface, Serial	T211385-3 - DANAK1916106	
50	Report IEC 60945: DELTA Test Report, Test for Marine Type Approval of RDI 24-001D Remote Data Interface, Digital	T211385-2 - DANAK 1916012	
49	Report IEC 60945: DELTA Test Report, Test for Marine Type Approval of RDI 08-001A Remote Data Interface, Analog	T211385-1 - DANAK 1916011	
48	Manual: Installation Manual for RDI 08-001A, remote analog data interface	MAN11641-11	1.1
47	Manual: Installation Manual for RDI 24-001D, remote digital data interface	MAN11620-11	1.1
46	Manual: Operator's Manual for the DM100-2014 VDR	DBS11011-13	1.2
45	Report: DELTA Vibration test of DM100 DAU-R19 according to IEC60945	T220815 - DANAK-19/16500	
44	Report: BSH IEC62388 Ed.2 (section Annex H.4)	BSH/4543/001/4292980/15-1	
43	Report: BSH IEC19961-1 Ed.2 Voyage data recorder	BSH/4543/001/4292980/15	
42	Report: BSH IEC19961-1 Ed.2 Voyage data recorder	BSH/4543/001/4292887/15	
35	Report: BSH - IEC 61996-1(2013), IEC 61162-1 (2010), IEC 61162-2 (1998) - VDR DM100-2014	BSH/4543/001/429245/13	
34	Report: BSH - IEC 61162-450 (2011) - VDR DM100-2014	BSH/4543/001/4292645/13-2	
33	Report: BSH - IEC 60945 (2002) sections 5, 11.1, 13-15 - VDR DM100-2014	BSH/4543/001/4292645/13-1	
32	Report: BSH - IEC 62288 (2014) sections 4 and 7, VDR Display - Bridge Control Panel - BCP	BSH/4542/002/0123036/16	
31	Report: DELTA - IEC 60945 (2002), Test for Marine Type Approval of DM100 (2014). BCP, BMU-003 and BMU-004	T207410 - DANAK 1914081	Rev A
30	Report: DELTA - IEC 60945 (2002), Test for Marine Type Approval of DM100 system	T205850 - DANAK 1913648	Rev 2
29	Report: DELTA - IEC 611996-1 (2013), Test for Approval of Capsule MK4	T205825 - DANAK 1914068	Rev 1
28	Manual: Notes on data retention for Hitachi THNSNH512GBST 512GB SSD in the DM100 DPU	RD11104-10	
27	Manual: Inspector's and Authorities Quick Start Guide	PDF11095-11	
26	Report: DELTA - IEC 62288 Temporal stability Bridge Control Panel	L102733-4387	rev01

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23	Report: IEC 611996-1 (2013) BSH, Voyage Data Recorder, VDR DM100-2014	BSH 4543/001/4292887/15	
22	Report: Nemko, EPIRB with attached Voyage Data Recorder	E13261.04	4
21	Notes on data retention for Kingston KE4CN6C6A 64GB eMMC flash in the Capsule MK4	DOC11107-10	
14	Manual: Tron 40VDR FF Capsule Manual-PA		
13	Manual: Installation manual For Remote Video Interface for DM200, DM300, DM400, DM500	DBS00331-31	3.1
12	Manual: Installation Manual For DM100/DM400 modular Sensor Interface Unit	DBS00327-31	3.1
11	Manual: User Manual for VDR Explorer	DBS00294-31	3.1
9	Manual: Inspector's and Authorities' Manual For the DM100-2014 VDR	DBS11010-13	1.3
8	Manual: Installation Manual for DM100-2014 VDR	DBS10956-13	1.3
7	Manual: Installation manual For Remote Video Interface RVI 02-004 and RVI 02-004D for DM100	DBS10919-10	1
6	Manual: Installation Manual For DM100/DM400 VDR compact Sensor Interface Unit	DBS10704-12	1.2