

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Compass repeaters**

with type designation(s)

MD67HR, MD68HR, MD68HRB, MD69BR, MD69BRX, MD71HR, MD71MFD, MD73HR, MD73HR/W, MD74HR, MD74HR/W, MD77HR and MD77HRB

Issued to

**Marine Data Systems Ltd.
Newport, IW, United Kingdom**

is found to comply with

**DNV GL rules for classification – Ships, offshore units, and high speed and light craft
Performance standards for gyro-compasses (IMO Res. A.424(XI))****Performance standards for gyro-compasses for high-speed craft(IMO Res. A.821(19))****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****Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed
by DNV GL.****Equipment category according to IEC 60945:****See Product description**Issued at **Hamburg** on **2020-03-09**This Certificate is valid until **2025-03-08**.DNV GL local station: **Manchester**for **DNV GL**Approval Engineer: **Jörg Rebel**

**Arne Schaarmann
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.



Product description

The following repeaters may be used to indicate ships heading from different heading sources:

Type designation	Description	Fascia dimensions	Remarks
MD67HR	Dial compass repeater	160mm x 160 mm	Watertight
MD68HR	Dual scale steering repeater	192mm x 192mm	Up/down dimmer control
MD68HRB	Dual scale steering repeater	192mm x 192mm	Rotary dimmer control
MD69BR	Bearing compass repeater	Body Ø246mm	Dual scale 36:1
MD69BRX	Bearing compass repeater	Body Ø246mm	As MD69BR, universal fitting
MD71HR	Digital heading repeater	96mm x 96mm	Display 128 x 64 pixel
MD71MFD	Digital multi-function display	96mm x 96mm	Several displays selectable
MD73HR	Tape compass repeater	235mm x 85mm	Tape resolution 4mm/deg.
MD73HR/W	Tape compass repeater	235mm x 85mm	As MD73HR, watertight
MD74HR	Digital heading repeater	192mm x 97mm	With turn indicator
MD74HR/W	Digital heading repeater	192mm x 97mm	As MD74HR, watertight
MD77HR	Dial compass repeater	144mm x 144mm	Up/down dimmer control
MD77HRB	Dial compass repeater	144mm x 144mm	Rotary dimmer control

Note:

1. MD71MFD provide functions for displaying heading, rate-of-turn, position and ship's pitch & roll.
2. MD73HR is designed for serial input according to IEC 61162-1 (2016) with only 4800 baud.
3. All digital repeaters and all tape repeaters in the above list are not compliant with the requirements of IMO Res. A.382(X) and A.424(XI).

Equipment category according to IEC 60945:

MD67HR, MD69BR, MD69BRX, MD73HR/W and MD74HR/W: Exposed
All other repeaters covered by this certificate: Protected

Approval conditions

The following documentation of the actual application is to be submitted for approval in each case:

- Reference to this Type Approval Certificate
- Power supply arrangement (may be part of the System block diagram)

The Type Approval covers hardware listed under Product description, with firmware as defined within the test report MDSL-E191219 listed under Type Approval documentation, DNV GL No. 26.

Product certificate

As long as the units are covered by the Type Approval, a product certificate according to Pt.4 Ch.9 Sec.1 will not be required. Correct configuration and set up for each delivery to be tested during commissioning after installation.

Software control

All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV GL for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

Type Approval documentation

DNV GL No	Document ID	Rev.	Description
26	MDSL-E191219	Issue 2	Report: Marine Data, Tests acc. to IEC 60945, IEC 61162-1, IEC 62288, ISO 8728 and ISO 16328
24	75943841 Report 01	Issue 1	Report: TÜV SÜD, Environmental tests for MD74RDI/W acc. to IEC 60945, Clause 8.8

DNV GL No	Document ID	Rev.	Description
23	75943048-02	Issue 1	Report: TÜV SÜD, Compass safe distance tests acc. to IEC 60945, Clause 11.2
22	75943048-01	Issue 1	Report: TÜV SÜD, Compass safe distance tests acc. to IEC 60945, Clause 11.2
20	75932839 Report 03	Issue 1	Report: TÜV SÜD, Environmental tests acc. to IEC 60945, Clauses 8.2 to 8.4, 8.7 and 8.8
18	75910069 Report 07	Issue 2	Report: TÜV SÜD, Environmental tests acc. to IEC 60945, Clauses 8.2 to 8.4, 8.7, 8.8, 9, 10 and 12.1
17	75910069 Report 01	Issue 2	Report: TÜV SÜD, Environmental tests acc. to IEC 60945, Clauses 8.2 to 8.4, 8.7, 8.8, 9, 10 and 12.1
16	MD77HRB-MA-v06r01	2019-11-19	User manual: MD77HRB
15	MD77HR-MA-v06r01	2019-11-19	User manual: MD77HR
14	MD74HR-W-MA-v06r01	2019-12-09	User manual: MD74HR/W
13	MD74HR-MA-v06r01	2019-12-09	User manual: MD74HR
12	MD73HR-W-MA-v06r02	2020-01-20	User manual: MD73HR/W
11	MD73HR-MA-v06r02	2020-01-20	User manual: MD73HR
10	MD71MFD-MA-v06r01	2019-12-09	User manual: MD71MFD
9	MD71HR-MA-v06r01	2019-12-06	User manual: MD71HR
8	MD69BRX-MA-v06r01	2019-11-19	User manual: MD69BRX
7	MD69BR-MA-v06r01	2019-11-19	User manual: MD69BR
6	MD68HRB-MA-v06r01	2019-11-19	User manual: MD68HRB
5	MD68HR-MA-v06r01	2019-11-19	User manual: MD68HR
4	MD67HR-MA-v06r01	2019-11-19	User manual: MD67HR
3	-	2014-05-20	Report: GL, Tests acc. to ISO 8728 (1997), IEC 60945 (6, 11.1, 13 to 15), IEC 61162-1 (2010) and IEC 62288 (2008)
1	-	Issue 1.0	Report: Marine Data Systems, Tests acc. to IEC 61162-1 (2010) and ISO 16328 (2001)

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)
- Performance testing: ISO 8728 (2014) and ISO 16328 (2014)

Marking of product

The products to be marked with:

- Manufacturer name
- Type designation
- Serial number
- Compass safe distance

Periodical assessment



Job Id: **262.1-028575-1**
Certificate No: **TAA00002J0**

Periodical assessment is granted by the annual MED module-D audits to be carried out for maintaining the certificate MEDD00001GH in its latest revision, for the relevant revision see also <https://approvalfinder.dnvgl.com/>.

END OF CERTIFICATE