CERTIFICAT ◆ CERTIFICADO ◆ СЕРТИФИКАТ ◆ 認證證書 ◆ CERTIFICATE ◆ ZERTIFIKAT

DANAK
PROD Reg.No. 7035
Member of EA MLA

TÜV SÜD
Danmark

Marine Equipment Directive
EC Type Examination Module B Certificate

This is to certify that TÜV SÜD DANMARK ApS did undertake the relevant type approval procedures for the equipment identified below, which was found to be in compliance with the Marine Equipment Directive (2014/90/EU) requirements, under the following Implementing Regulation for the listed types of equipment

Implementing Regulation	**(EU)2023/1667**
Certificate Holder and Manufacturer	**Kelvin Hughes Ltd. Voltage Mollison Avenue Enfield Middlesex, EN3 7XQ United Kingdom**
EC Representative	**Kelvin Hughes (Nederland) B.V. Klompenmakerstraat 64 3194 DE Hoogvliet Rotterdam The Netherlands**
Product(s)	**ECDIS Navigation System (ZM-2300)**
Product Sector	**Navigation Equipment**
Product Type	**MED/4.30 Electronic chart display and information system (ECDIS) with backup**

and on the basis of the Technical Data and information detailed in the Annex to this certificate.

T. J. Twynam

Valid from: 19 August 2024 (Thomas J.Twynam) Expiry Date: 26 August 2026

This certificate has been issued in accordance with the TÜV SÜD Testing, Certification Validation and Verification Regulations and constitutes page 1 of the combined Certificate and Annex.
The Conditions for the validity of this certificate are listed in the Annex.
For further details, related to this certification please contact BABT@tuvsud.com

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1 Equipment Description

ECDIS Navigation Display

1.1 Models

Model
ECDIS Navigation System (ZM-2300)

1.1.1 System Components

Model	Description
MDC-A27-1 Note 2	27" Panel PC (Navigation Display)
MDC-A26-1 Note 2	26" Panel PC (Navigation Display)
MDC-A24-1 Note 2	24" Panel PC (Navigation Display)
MDC-A22-1 Note 2	22" Panel PC (Navigation Display)
MDC-A200	Serial Network Convertor
MDC-A201-1 Note 1	Managed Network Switch
MDC-A201-2 Note 1	Managed Network Switch
MDC-A201-3 Note 1	Managed Network Switch
MDC-A202-1	Desktop Keyboard with Trackerball Assembly
MDC-A202	Console Keyboard with Trackerball Assembly
MDC-A203	Console Keyboard Assembly
MDC-A204	Console Trackerball Assembly
17610398 Note 3	Keyboard and Trackerball Assembly
MDC-A100-22	22" Desktop Stand
MDC-A100-26	26" Desktop Stand
MDC-A100-27	MDC-A24-1 and MDC-A27-1 Desktop Stand

1.2 Software Note 4

Identity	Version	Description
ZM-2300	3.13	Navigation Software
Windows 10 IoT Enterprise 2019 LTSC		Baseline Operating System

2 Assessed Requirements

2.1 Implementing Regulation (EU)2023/1667

2.2 Compliance Requirements for MED/4.30 Row 2 of 2

Performance Requirements	International Testing Standards	
Resolution MSC.232(82)	IEC 61174 (2015)	Maritime navigation and radiocommunication equipment and systems — Electronic chart display and information system (ECDIS)
		IHO Publication S-64 Edition 3.0.1

Performance Requirements	International Testing Standards	
Resolution MSC.191(79) Resolution MSC.302(87)	IEC 62288 (2021)	Maritime navigation and radiocommunication equipment and systems — Presentation of navigation-related information on shipborne navigational displays
Resolution A.694(17)	IEC 60945 (2002) incl. IEC 60945 Corr. 1 (2008)	Maritime navigation and radiocommunication equipment and systems — General requirements
	IEC 61162-1 (2016)	Maritime navigation and radiocommunication equipment and systems — Digital interfaces Part 1: Single talker and multiple listeners
	IEC 61162-2 (1998)	Maritime navigation and radiocommunication equipment and systems — Digital interfaces Part 2: Single talker and multiple listeners, high-speed transmission
	IEC 61162-450 (2018)	Maritime navigation and radiocommunication equipment and systems — Digital interfaces Part 450: Multiple talkers and multiple listeners — Ethernet interconnection
Resolution MSC.302(87)	IEC 62923-1 (2018)Note 7	Maritime navigation and radiocommunication equipment and systems – Bridge alert management Part 1: Operational and performance requirements, methods of testing and required test results
	IEC 62923-2 (2018)	Maritime navigation and radiocommunication equipment and systems – Bridge alert management Part 2: Alert and cluster identifiers and other additional features

3 Technical Documentation

3.1 Declaration of Conformity

Declaration of Conformity, DOC-2107 Revision 12

3.2 User Guide

Kelvin Hughes Navigation Display Operators Handbook, HBK-2300-1, Revision 12
Kelvin Hughes Navigation Display Installation & Commissioning, HBK-2300-2, Revision 11
Kelvin Hughes Navigation Display ECDIS Operators Handbook, HBK-2300-7, Revision 7

3.3 Technical Documentation

Technical Document File Indexes:

MDC-K22-1 Revision 2, 2019-09-12
MDC-K26-1 Revision 2, 2019-09-12
MDC-K200 Revision 2, 2016-11-17
MDC-K201-1 Revision 2, 2016-11-17
MDC-K201-2 Revision 1, 2022-09-13
MDC-K24-1 Revision 1, 2023-11-24
MDC-K201-3 Revision 1, 2022-09-13
MDC-K202 Revision 2, 2016-11-17
45-975-0731-001-TDF Revision 1, 2018-09-27
ZM-2300-TDF Revision 10, 2024-08-19
MDC-K27-1 Revision 1, 2023-11-24
MDC-K100-27 Revision 1, 2023-11-24

The above being comprehensive listings of documentation relevant to type examination including test reports and details of approved hardware defining overall build level and including circuit diagrams, technical drawings and parts listings (BoM).

3.4 Notes

Note 1 In line with current IEC 61162-460 regulations, any IEC 61162-450 approved VDR or sensor may be connected to Port 7 of the MDC-A201-1 or Port G07 or G08 of the MDC-A201-2 or MDC-A201-3 Managed Network Switches without contacting Kelvin Hughes. Connection to unprotected networks must be via an IEC 61162-460 secure gateway.

Note 2 Each display must be connected to a Trackerball assembly; the use of a keyboard is optional.

Note 3 Keyboard and Trackerball is Keytouch Technology AS Part No. 17610398 and may also be identified by Kelvin Hughes Part No. 45-975-0731-001.

Note 4 This approval remains valid for equipment including subsequent minor software amendments which have been formally accepted in accordance with the Testing, Certification, Validation and Verification Regulation.

Note 5 May form a back-up ECDIS (via the Kelvin Hughes navigation network) with a second Kelvin Hughes ECDIS Navigation System running software as listed above.

Note 6 This ECDIS only supports IHO S-57 ENC and C-Map S-57 SENC charts and does not support RCDS format chart display. Use of vector charts other than the above will revert the status to a non-SOLAS ECS display.

Note 7 This system meets the requirements of IEC 62923-1 for EUT function type P.

4 U.S. Coast Guard Number

This product has been assigned U.S. Coast Guard Module B number

165.123/EC2443

To note type approval to Module B only as it pertains to obtaining US Coastguard approval as allowed by the "Agreement between the European Community and the United States of America on Mutual Recognition of Certificates of Conformity for Marine Equipment", Decision No. 1/2023 signed May 26th, 2023.

5 Conditions of Validity

This certificate ceases to 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 TÜV SÜD DANMARK ApS or a person appointed by TÜV SÜD DANMARK ApS to perform that role.

During the period of validity of this certificate the applicable regulations (international conventions and relevant resolutions and circulars of the IMO) and testing standards of the Commission Implementing Regulation may change, therefore the product conformity may need to be re-assessed by TÜV SÜD DANMARK ApS.

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 the directive is fully complied with and controlled by a written inspection agreement with a notified body.

Signature: T. J. Twynam Date: 2024-08-19

(Thomas J. Twynam)

On behalf of TÜV SÜD DANMARK ApS