

**EC TYPE EXAMINATION (MODULE B) CERTIFICATE
(EC-US MRA)**No. **03-002064/031753****THIS IS TO CERTIFY:**

That Croatian Register of Shipping did undertake the relevant type approval procedures for the equipment identified below which was found to be in compliance with requirements of Marine Equipment Directive (MED) 2014/90/EU, subject to any conditions in the schedule attached hereto.

TYPE AND DESCRIPTION OF PRODUCT**Heading Control System (HCS)**with type designation **AP70 MK2****NUMBER AND ITEM DESIGNATION** (in accordance with Annex of Regulation (EU) 2024/1975)

MED/4.16 – Heading Control System (HCS)

MANUFACTURER:**Electronica Lowrance de Mexico S.A. de C.V.****Av. Reforma 1648 Fraccionamiento Valle Verde, 22839 Ensenada, Baja California, MEXICO**

Place of production (if different from above):

REGULATIONS AND STANDARDS

(in accordance with Annex of Regulation (EU) 2024/1975, row 1 of 2 of the MED item)

SOLAS 1974 as amended, Reg. V/18, Reg. V/19.

IMO Res.A.342(IX), IMO Res.A.694(17), IMO Res.MSC.191(79), IMO Res.MSC.64(67) Annex 3 and IMO Res.MSC.302(87).

USCG Module B number: 165.110/EC2489/03-002064**NOTICE:**

1. Further details of the product and conditions for certification are given overleaf.
2. This certificate will not be valid if the manufacturer makes any changes or modifications to the approved equipment, which have not been notified to, and agreed with the notified body named on this certificate.
3. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply.
4. 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 Annex II of the Directive is fully complied with and controlled by a written inspection agreement with a notified body.
5. In case limitations of use apply, these should be indicated of in the Schedule of Approval.
6. This product has been assigned **U.S. Coast Guard Module B number** in accordance with the European Council Decision 2004/425/EC dated 21 April 2004 on the conclusion of an Agreement between the European Community and the United States of America on Mutual Recognition of Certificates of Conformity for Marine Equipment, as amended by Decision No.1/2018 of the Joint Committee established by the Agreement of the European Community and the United States of America of 18 February 2019.



Issued by Croatian Register of Shipping, notified body number 2489.

This certificate is valid until: **2025-07-01**Place and date: Split, 2024-11-04

Seal

Signature

Marinko Popović, dipl.ing.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

AP70 MK2 Heading control system consists of the following components:

| | Item name | Description | SW ver. | Location |
|----|---|---|--|---|
| 1. | Operator unit: AP70 MK2 | Control Unit | 2.1.x | Exposed |
| 2. | Remote operator units: QS80 (optional) FU80 (optional) NF80 (optional) R3000X (optional) JS10 (optional) S35 (optional) S9 (optional) | Non follow up quick stick lever Follow up lever Non follow up lever Portable remote control Non follow up lever Non follow up lever Non follow up lever | 1.3.xx 1.3.xx 1.3.xx NA NA NA NA | Exposed Exposed Exposed Portable Protected Exposed Exposed |
| 3. | Computers: AC80A or AC80S or AC85 and with max 5** optional computers of any combination below AC80A AC80S AD80 SD80 SG05 PRO *** AC85 | With AD80 and SI80 board With SD80 and SI80 board With SI80 and optional boards * With AD80 and SI80 board With SD80 and SI board With AD80 board With SD80 board Network gateway (Simnet/CAN for steering system) With SI80 and optional boards* | 1.3.xx 1.3.xx 1.3.xx 1.3.xx 1.3.xx 1.3.xx 1.3.xx 1.3.xx 1.3.xx | Protected Protected Protected Protected Protected Protected Protected Protected Protected |
| 4. | Interface units: CZone SI80 | Network interface (Simnet) With SI80 interface board (serial) | 2.x 1.4.x | Protected Protected |

NOTE * - AC85 may have any combination of optional boards – AD80 (max 3) / SD80 (max 3) / AC70 (max2),

NOTE ** - Max 2 if SG05 PRO is installed,

NOTE*** - Max 1.

2. APPLICATION/LIMITATION OF USE

HCS AP70MK2 is tested for compliance with BAM requirements – IMO Res.MSC.302(87).
System is to be installed in a protected environment.

3. DESIGN DRAWINGS AND SPECIFICATIONS

AP70 MK2 – System Block Diagram, item number-AP70MK2-SYS-001;
AP70MK2 – Concept Freeze, item number-AP70MK2-MEC-001;
AP70 MK2 – Operator Manual, item number - 988-12375-003;
AP70 MK2 – Installation Manual, item number - 988-12374-003;
FU80, NF80, QS80 – User Guide, item number - 988-10199-004;
RF70N Rudder Feedback – Instruction, item number - 988-10617-001;
Simrad G151 Gyro Interface – Manual, item number - 20221594/Cb;
Simrad Precision-9 Compass, item number – 985-11190-001.

4. TYPE TEST RECORDS/LABORATORY RECOGNITION STATUS

*Environmental testing – IEC 60945(2002) including Corrigendum 1 (2008);
 Serial interface testing – IEC 61162-1(2016) & IEC 61162-2 (1998);
 NMEA 2000 standard – IEC61162-3(2008);
 Presentation of navigation information – IEC 62288 Ed.2 (2014-07);
 Performance testing – ISO 11674 (2006);
 Performance testing, Heading repeater – ISO 8728 (2014) sec. 4.3-4.5 & 6.8;
 CRS letter of approval – 274/TSE/VB/031380 dated 2019-02-01.
 Bridge alert management – IEC 62923-1 (2018) & IEC 62923-2 (2018);
 CRS letter of approval – 1466/TSE/NP/031516 dated 2021-07-12.
 Performance testing – ISO 11674 (2019);
 CRS letter of approval – 41/TSE/NP/031632 dated 2023-01-05.*

5. MATERIALS OR COMPONENTS REQUIRED TO BE TYPE APPROVED OR TYPE TESTED

This approval remains valid for subsequent minor software amendments, as allowed by the 2.1.x format (x=a numeral), where written details of any such modification have been submitted to and accepted by the approvals authority.

6. OTHER MATERIALS AND/OR COMPONENT

There are several optional units for course detection as well as for rudder feedback as stated in product description table.

7. PRODUCTION SURVEY REQUIREMENTS

The HCS AP70 MK2 shall be supplied by 12 / 24VDC in accordance with Installation Manual.

8. ONBOARD INSTALLATION AND MAINTENANCE REQUIREMENTS

The installation on board shall be verified and tested according to Installation & Operation Manual.

9. MARKING AND IDENTIFICATION



Subject to compliance with the conditions in this Schedule of Approval which forms part of certificate, and those of Articles 9, 10 and 15 of the Directive, the Manufacturer is allowed to affix the “Mark of Conformity” to the Product described herein.

xxxx/yy
 xxxx - the number of the Notified Body undertaking surveillance module(2489 in case of CRS)
 yy - the last two digits of year mark affixed

This product has been assigned US Coast Guard Module B number **165.110/EC2489/03-002064**. In those instances where the Notified Body conducting the conformity assessment in accordance with either Module D, E or F of the Marine Equipment Directive is not CRS, such Notified Body would use the above U.S. Coast Guard Module B number to provide the manufacturer with the U.S. Coast Guard approval number by noting it on the Certificate of Conformity, thereby authorizing the manufacturer to mark the product accordingly.

10. OTHER

OPTIONAL EQUIPMENT:

| | <i>Item name</i> | <i>Description</i> | <i>SW ver.</i> | <i>Location</i> |
|----|----------------------------|---|----------------|------------------|
| 1. | <i>Sensors (optional):</i> | | | |
| | <i>RC42N</i> | <i>Monitor compass (not for steering)</i> | <i>1.3.xx</i> | <i>Protected</i> |
| | <i>CD100A</i> | <i>Course detector</i> | <i>NA</i> | <i>Exposed</i> |
| | <i>CDI80</i> | <i>Course detector</i> | <i>1.1.xx</i> | <i>Protected</i> |
| | <i>GI51</i> | <i>Gyro compass interface</i> | <i>1.2.xx</i> | <i>Protected</i> |
| | <i>RF300</i> | <i>Rudder feedback unit</i> | <i>NA</i> | <i>Exposed</i> |
| | <i>RF45X</i> | <i>Rudder feedback unit</i> | <i>NA</i> | <i>Exposed</i> |
| | <i>RF14XU</i> | <i>Rudder feedback unit</i> | <i>NA</i> | <i>Exposed</i> |
| | <i>RF25N</i> | <i>Rudder feedback unit</i> | <i>1.2.xx</i> | <i>Exposed</i> |
| | <i>RF70N</i> | <i>Rudder feedback unit</i> | <i>1.2.xx</i> | <i>Exposed</i> |
| | <i>Precision 9</i> | <i>Compass</i> | <i>2.0.xx</i> | <i>Exposed</i> |

APPENDIX – TYPE EXAMINATION DOCUMENTATION

| | <i>Document title</i> | <i>Identification number</i> | <i>Revision index</i> |
|-----|---|--|-----------------------|
| 1. | <i>Autopilot Control Head – AP70 MKII, NEMKO Test Report on IEC60945:2002 + Cor1:2008</i> | <i>E18292.00</i> | <i>2019-01-25</i> |
| 2. | <i>Environmental testing of AP70/80 Autopilot System, DnV Technical Report</i> | <i>2012-3214 rev. 02</i> | <i>2012-05-29</i> |
| 3. | <i>Simrad AP70 MK2 Autopilot system, Applica , IEC62288 Ed. 2.0 – Display Optical Test</i> | <i>21486 rev. 01</i> | <i>2019-01-14</i> |
| 4. | <i>AP70/AP80 Autopilot system, DnV – ISO performance tests</i> | <i>TNP20120601-01</i> | <i>24/04/2012</i> |
| 5. | <i>AP70/AP80 Autopilot system, FMEA NAVICO HOLDING</i> | <i>TNQ20120601-01</i> | <i>12/06/2012</i> |
| 6. | <i>Degrees of Protection Provided by Enclosures (IP Code), AUSTEST Laboratories</i> | <i>AS 60529-2004</i> | <i>22/02/2013</i> |
| 7. | <i>Simrad Presision 9 Compass, NAVICO – EMC Addendum</i> | <i>-</i> | <i>30/11/2015</i> |
| 8. | <i>GPS receiver antennas – Point1, GS25, GS70 and ZG100, HARVEST Laboratories, Equipment Conformance Test Rep.</i> | <i>0222NAV-POINT1-GS25-GS70-ZG100_EN95</i> | <i>14/02/2013</i> |
| 9. | <i>Simrad GS25 & GS70/B&G ZG100 GPS Receiver/Compass, EMC Technologies – EMC Test Report</i> | <i>120905.1</i> | <i>13/02/2013</i> |
| 10. | <i>Simrad GS25 & GS70/B&G ZG100 GPS Receiver/Compass, EMC Technologies - ETSI EN 300 440-2, V1.4.1, 2010</i> | <i>120905.2</i> | <i>13/02/2013</i> |
| 11. | <i>Simrad SI80 & SD80 Autopilot System, EMC Technologies – EMC test</i> | <i>120414.1</i> | <i>06/06/2012</i> |
| 12. | <i>Simrad FU80, QS80 & NF80 Autopilot Remotes, EMC Technologies – EMC test</i> | <i>120507.1</i> | <i>17/05/2012</i> |
| 13. | <i>Simrad FU80, NF80 & QS80 Autopilot Remotes, EMC Technologies – EN60945:2002</i> | <i>160525.1</i> | <i>08/07/2016</i> |
| 14. | <i>Simrad/CZone RF25N + SG05 Autopilot System, EMC Technologies – Test Report on EMC</i> | <i>120622.1</i> | <i>30/08/2012</i> |
| 15. | <i>NAVICO – Test Report on IEC 61162-1(2016) BAM - Alert Management, CRS witnessed, 2019-01-09</i> | <i>NAVICO SQA TestLink</i> | <i>09/01/2019</i> |
| 16. | <i>NAVICO – Test Report on IEC 62288 Ed. 2.0(2014-07) Display presentations, CRS witnessed, 2019-01-09</i> | <i>NAVICO SQA TestLink</i> | <i>10/01/2019</i> |
| 17. | <i>NAVICO – Test Report on IEC 62923-1 (2018) & IEC 62923-2(2018), Bridge alert management (BAM), CRS witnessed, 2021-04-28</i> | <i>Navico Test Report - Testrail</i> | <i>28/04/2021</i> |
| 18. | <i>NAVICO – Test Report on ISO 11674 (2019), Heading control systems, CRS witnessed, 2022-12-01</i> | <i>Navico Test Report - Testrail</i> | <i>04/01/2023</i> |

- END OF CERTIFICATE -