Confirmation of Product Type Approval

Company Name: DEIF A/S

Address: FRISENBORGVEJ 33 DK-7800 Denmark

Product: Panel Instruments

Model(s): XDi Navigation Indicator

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	20-2013264-PDA	26-AUG-2020	25-AUG-2025
Manufacturing Assessment (MA)	18-EG3574567	25-OCT-2018	27-NOV-2023
Product Quality Assurance (PQA)	NA	NA	NA

Tier
3

Intended Service
For use on ABS classed vessels and offshore facilities in accordance with the listed ABS Rules and International Standards.

Description
XDi Navigation Indicator is a microprocessor based illuminated indicator with graphical display for bridge on ship, where display replaces the mechanical scale and pointer combination.

The XDi exists in 3 sizes XDi 96, XDi 144, XDi 192 and is available with the function to displaying information such as: Rudder Angel, RPM, Pitch, Azimuth and Rate of Turn.

The XDi product range consists of three performance versions: XDi Dual - can handle one or two data inputs and can also handle single indicators and XDi Multi - can handle at least six data inputs and can also handle all single and dual applications as well. XDi Nav can handle all dual and multi applications including NEMA0183 interface.

The XDi can be extended with analogue or digital snap-on modules. The XDi 96 has one extension slot and can be extended with one snap-on module (AX1 or DX1 or Nx1 or NX2) , the XDi 144 and XDi 192 have two slots and can therefore carry two snap-on modules. The data measured by a snap-on module is shared via XDi-net (or CANopen) and can be utilised by other indicators in the CAN network.

Ratings
Main XDi unit:

CAN1 = CAN 2: Two galvanic separated CAN ports, CANopen / XDi-net protocol.

Supply voltage 1 = Supply voltage 2: 24V DC (18.0 - 31.2 V DC)

Extension modules:

AX1:

Analogue input 1 = Analogue input 2:

Current H : 20...0...20 mA (65 Ohm), Current L: 2..0..2 mA, (1k Ohm)

Voltage L :2...0...2 V (1k Ohm), Voltage H1: 7.5...0...7.5V, Voltage H2: 15…0…15V , Voltage H3: 30...0...30 V, (112.5 k Ohm).

Analogue input 3 / Dimmer:

Voltage H1: 7.5...0...7.5V, Voltage H2: 15…0…15V , Voltage H3: 30...0...30 V, (112.5 k Ohm).

Ref. voltage out: 7.3V max. 10mA

DX1:

Digital input- Digital in1 = Digital in 2: 5...32 V

Relay output 1 = Relay output 2:

Switch rating max. 60V DC / 30W

NX1:

Output: Serial data TX1 RS422/NMEA0183

+5V for potential free contact

NX2:

Input: Serial data RX1, RX2, RX3, RS422/NMEA0183

Output: Serial data TX1, TX2, RS422/NMEA 0183

+5V for potential free contact

Service Restrictions
- Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

- Note that this System has been classed a Category I Computer-based System in accordance with the above ABS Rules, and, as such, evidence of Testing and Quality Assurance must be held by the Manufacturer.

Comments
The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

Notes, Drawings and Documentation
Support documentation from previous review:

Drawing No. MEDB00003AS, MED Certificate, DNVGL Germany, Revision A, Date 21.11.2017, Pages: 3

Drawing No. TAA00001GV, MED Certificate, DNVGL Germany, Revision A, Date 21.11.2017, Pages: 3

Drawing No. 421707/421736, Software Quality Plan, Revision A, Date 20.03.2018, Pages: 13

Drawing No. Version log XDi, Software revision log, Date 27.03.2018, Pages: 02

Drawing No. 4189350049B, XDI designer's handbook, Revision B, Date 02.07.2013, Pages: 135

Drawing No. 0679-04 10, Flexible display indicator, Revision A , Pages: 16

Drawing No. IPA0375-01 Summary report IEC60945, DEIF A/S UK, Revision A, Date 15.09.2015, Pages: 14

Drawing No IPA0375-01/A1 Summary Test Data, DEIF A/S UK, Revision A, Date 20.05.2015, Pages: 285

Drawing No. T0001_NX1-2, Test Report, DNVGL, Revision 1.1, Date 30.01.2017, Pages: 20

Drawing No. 4910211100D, EPC 679 XDi Test Data, DEIF A/S UK, Revision A, Date 15.12.2016, Pages: 465

Drawing No. 0679-04 7, 3_XDi handout UK, Revision A, Pages: 8

Drawing No. 421707/421736, Software Quality Plan, Revision A, Date 20.03.2018, Pages: 13

Drawing No. Version log XDi, Software revision log, Date 27.03.2018, Pages: 02

Drawing No. RS 14.10020.262, Type Approval Certificate, Revision A, Date 06.03.2014, Pages: 02

Drawing No. IPA0340-01 Summary report IEC62288, DEIF A/S UK, Revision: 1, Date 24.07.2014, Pages: 14

Drawing No. IPA0340-01 Summary report IEC60945, DEIF A/S UK, Revision 1, Date 27.06.2013, Pages: 14

Drawing No IPA0340-01/A1 Summary report 60945 anex, DEIF A/S UK, Revision 1, Date 22.07.2014, Pages: 09

Drawing No. IPA0340-01 Appendix Type test plan, Date 24.06.2013, Pages: 01

Drawing No. IPA0340-01 Appendix Type Label, Date 02.2014, Pages: 01

Drawing No. IPA0340-01 Instrument list, Revision 1, Date 21.06.2013, Pages: 01

Drawing No. BRIDGE INSTRUMENTATION, Revision: 00, Pages: 08

Drawing No. IPA0340-01 Technical documents, Revision 01, Date 30.04.2013, Pages: 124

Drawing No. IPA0340-01 User documentation, Revision A, Date 02.07.2013, Pages: 82

Drawing No. IPA0340-01/A1 Test Data Sheets, Revision 1, Date 02.07.2014, Pages: 21

Drawing No. IPA0340-01 Test Data Sheets part1, Revision 1, Date 06.03.2013, Pages: 150

Drawing No. IPA0340-01 Test Data Sheets part 2, Revision 1, Date 23.05.2013, Pages: 126

Drawing No. Type Test - XDi 9A Vibration ABS Signed, Date 11.03.2015, Pages: 09

Drawing No. Type Test - XDi 13B Voltage Variations ABS Signed, Date 10.03.2015, Pages: 06

Drawing No. 4910290094B, XDi Declaration of Conformity, Revision B, Date 10.03.2015, Pages: 02

Drawing No. IPA0341-01 MED 9Eds, SUMMARY TEST REPORT, DEIF A/S UK, Revision B, Date 07.04.2015, Pages: 26

Term of Validity

This Product Design Assessment (PDA) Certificate remains valid until 25/Aug/2025 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

ABS Rules
- Rules for Conditions of Classification (2020): 1-1-4/7.7, 1-1-A3 & A4

- Marine Vessels Rules (2020): 4-8-3/1.7, 4-8-3/1.11.1, 4-9-3/5.1.1, 4-9-3/7, 4-9-3/11, 4-9-3/Table 1 (Cat I), 4-9-9/13, 4-9-9/15.7 Tables 1 & 2

- Rules for Conditions of Classification - Offshore Units and Structures (2020): 1-1-4/9.7, 1-1-A2 & A3

- Mobile Offshore Units Rules (2020): 6-1-1/9, 6-1-1/13, 4-3-1/11, 4-3-1/15

- Rules for Conditions of Classification - High-Speed Craft Rules (2020): 1-1-4/11.9, 1-1-A2, 1-1-A3

- High-Speed Craft Rules (2020): 4-6-1/11, 4-6-1/15, 4-7-8/3.1, 4-7-8/7, 4-7-8/9, 4-7-8 Table 1 (Cat I), 4-7-9/15, 4-7-9 Table 9 and Table 10

International Standards
IMO MSC.191(79) (adopted on 6 December 2004), IMO Res. A.694(17) (adopted on 6 November 1991), IMO Res. MSC.36(63) – (1994 HSC code) 13, IMO Res. MSC.97(73) – (2000 HSC code) 13, IMO res. A.526 (13) (adopted on 17 November 1983);

IEC 62288 Ed 2.0: 2014

IEC 61162-1 Ed.5.0: 2016

IEC 61162-2 Ed.1.0: 1998

EU-MED Standards
NA

National Standards
NA

Government Standards
NA

Other Standards
NA

Corporate ABS Programs

ABS has used due diligence in the preparation of this certificate, and it represents the information on the product in the ABS Records as of the date and time the certificate is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

Acceptance of product is limited to the “Intended Service” details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.