Certificate Number: 17-HS1700449-PDA
03/MAY/2018

# *Confirmation of Product Type Approval*

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product.

This certificate reflects the information on the product in the ABS Records as of the date and time the certificate is printed.

Pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) with expiration date of 27-DEC-2022. The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And; a Product Design Assessment (PDA) valid until subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

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.

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.

## Product Name: Engine Monitoring System
## Model Name(s): DIO I/O, RTD8, TC20

**Presented to:**
AXIOMATIC TECHNOLOGIES CORPORATION
5915 WALLACE ST
ON L4Z1Z8
Canada

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| **Intended Service:** | Marine and Offshore Applications Alarm & Monitoring System for Vessels with ACC, ACCU or ABCU Class notations. |
| **Description:** | DIO I/O Module: Discrete I/O Control P/N: 234-0275 RTD8: RTD Temperature Scanner: P/N: 234-1645 TC20: Thermocouple (TC) Temperature Scanner: P/N: 234-1644 |
| **Tier:** | 3 |
| **Ratings:** | DIO I/O: Supply Voltage: 9 Vdc -32 Vdc(Nominal: 12 Vdc & 24 Vdc); Up to 12 Inputs, 8 Outputs; Operating Temperature: -40°C to 85°C ( -40°F TO 185°F); Enclosure: IP 56 RTD8: Supply Voltage: 9 Vdc -32 Vdc(Nominal: 12 Vdc & 24 Vdc); Inrush current not to exceed 800 mA; Up to 8 Channels; Operating Temperature: -40°C to 85°C ( -40°F TO 185°F); Enclosure: IP 56 TC20 Supply Voltage: 9 Vdc -32 Vdc(Nominal: 12 Vdc & 24 Vdc); Up to 20 Channels; Operating Temperature: -40°C to 85°C ( -40°F TO 185°F); Enclosure: IP 56 |
| **Service Restrictions:** | 1. Unit Certification is not required for this product if certified as part of the main propulsion system and functional testing can be performed during engine shop testing. 2. The equipment is to be installed outside of rooms containing navigation and radio equipment , as it does not meet the "Bridge and Deck Zone" requirements for radiated and conducted emissions, and therefore may only be installed in "General Power Distribution Zone" area. 3. Test and approval are for hardware only. |

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| **Comments:** | The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. |
| **Notes / Documentation:** | Supporting Data: * User Manual UM2341645A, Resistive Temperature Detector (RTD) Module, Version 1.0.1A; * User Manual 2341644A, Thermocouple (TC) Module, Version 1.0.1A; * User Manual 2340275, Discrete I/O (DIO) Module, Version 1.0.0; * UL File E247103 dated 2012/03/20 - Models DIO, RTD8,TC20: * 20 Channel Thermal Couple Schematic, Sht 4 of 14, dated 16 April 2012; Dwg No. 234-1644-05, Control AS ( Thermocouple Module); Dwg No. 234-1645-06, Control AS ( RTD Module), Dwg No. 234-0275-03, Control AS ( Discrete I/O Module) * RTD Power Board, dated 28 MAY 2012, 5 shts, Main, Power 1 & 2, Connector & Notes . * Discrete I/O Module, dated 10 Feb 2012, 11 shts, Main Block, Power Supplies 1 & 2, Connector Transformer Data, Microcontroller, Inputs, Can-Interface, RS232 Communication, Outputs, Connector & Notes. EC-29 Test Plan dated May 14,2012 Elite Engineering Test Report No: 1201612-01, EM Compatibility Tests for Thermocouple Units; Elite Engineering Test Report No: 1201612-02, EM Compatibility Tests for RTD Module; Elite Engineering Test Report No: 1201612-03, EM Compatibility Tests for Discrete I/O; Elite Engineering Test Report No: 1201614-01,Environmental Tests |
| **Term of Validity:** | This Product Design Assessment (PDA) Certificate 17-HS1700449-PDA, dated 28/Dec/2017 remains valid until 27/Dec/2022 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product. Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA. Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client. |
| **ABS Rules:** | ABS Rules for Conditions of Classification (2017) 1-1-4/7.7, 1-1-A3 and A4, which covers the following: ABS Steel Vessel Rules (2017): 4-9-3/Table 1 (Cat. II), 4-9-8/3 & 13; ABS Offshore Support Vessel Rules (2017): 4-9-3/Table 1 (Cat. II), 4-9-8/3 & 13; ABS Steel Vessel Rules Under 90 Meters in Length (2017): 4-7-2/17; ABS Rules for Conditions of Classification – High Speed Craft (2017) 1-1-4/11.9, 1-1-A2 and A3, 4-7-8/Table 1(Cat.II), 4-7-9/15 |
| **National Standards:** | SAE J1939 dated 01 June 2012, UL 508 |
| **International Standards:** | CSA C22.2 No 14-10 dated 01 February 2010 |
| **Government Authority:** | |
| **EUMED:** | |
| **Others:** | |

| Model Certificate | Model Certificate No | Issue Date | Expiry Date |
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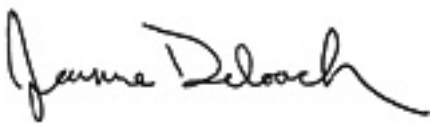
| PDA | 17-HS1700449-PDA | 28-DEC-2017 | 27-DEC-2022 |



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 was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. 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.