Certificate Number: 15-HS1465163-PDA
04/FEB/2016

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 25/JUL/2018. 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 31/JAN/2021 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: Pressure Sensor
Model Name(s): AST43XX, AST44XX, AST45XX, AST46XX, AST53XX, AST54ED and AST54EN

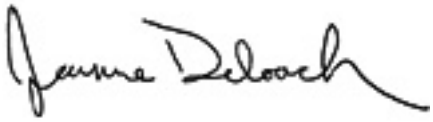
Presented to:
AMERICAN SENSOR TECHNOLOGIES, INC.
450 CLARK DR.
United States

Intended Service:	Marine & Offshore Application - Pressure Sensors for use in Hazardous Areas.
Description:	AST4300, AST4310 and AST43LP are Media Isolated Stainless Steel Pressure Sensors AST4400, AST4410 and AST44LP are Media Isolated Stainless Steel Pressure Sensors with an approved Barrier. AST4500, AST4510 and AST4520 are Submersible Stainless Steel Level Sensor with an approved Barrier. AST4600 & AST46HA , AST46PT, AST46SW are Explosion Proof Pressure Transmitters for use in variety of applications. AST46DS series is Explosion Proof Pressure Transducer AST 53ED, AST53SWa, AST53EN are Explosion Proof Differential Pressure Transducer AST 54ED and Model 54EN Explosion Proof Pressure Transducer For additional product information and data sheets, please refer to the manufacturer's website www.astsensors.com
Ratings:	Models AST4300, AST4310 and AST43LP Pressure Transducers - Hazardous Area: Class I, Div. 2, Groups A, B, C, D; Single Seal; Temperature Code: T4; Class I, Zone 2, AEx nA IIC, T4 Maximum Working pressure for the lowest pressure sensors: 0.34MPa (50 psi) and Maximum Working Pressure for highest pressure sensors: 137.9 MPa (20,000 psi) Ambient Temperature: -40 Deg C to 80 deg C (-40 deg F to 176 degF) Models AST4400, AST4410 and AST44LP Pressure Transducers - Hazardous Area: Class I, Div. 1, Groups C and D; Temperature Code: T4; Class I, Zone 0, AEx ia IIB, T4 Model AST4401 Pressure transducer Hazardous Area: Class I, Div. 1, Groups C and D; Temperature Code: T4; Class I,

	Zone 0, AEx ia IIC, T4 Maximum Working pressure for the lowest pressure sensors: 0.34MPa (50 psi) and Maximum Working Pressure for highest pressure sensors: 137.9 MPa (20,000 psi) Ambient Temperature: -40 Deg C to 80 deg C (-40 deg F to 176 degF) Models AST4500, AST4510, AST4520, AST4530 Pressure Transducers - Hazardous Area: Class I, Div. 1, Groups C and D; Temperature Code: T4; Class I, Zone 0, AEx ia IIB, T4 Maximum Working pressure for the lowest pressure sensors: 0.34MPa (50 psi) and Maximum Working Pressure for highest pressure sensors: 137.9 MPa (20,000 psi) Ambient Temperature: -40 Deg C to 80 deg C (-40 deg F to 176 degF) Model AST4600 and AST46HA , AST46PT, and 46SW Series Explosion proof pressure transducers - Hazardous Area: Class I, Division 1, Groups A, B, C and D ; Class II, Division 1, Groups E, F and G, Temperature Code T5 Class I, Zone 1, AEx d IIC T5 Gb Zone 21, AEx tb IIIC T100 Db Ambient Temperature: -40 Deg C to 85 deg C (-40 deg F to 185 degF) Model AST46DS Series Explosion proof pressure transducers - Hazardous Area: Class I, Division 1, Groups A, B, C and D ; Class II, Division 1, Groups E, F and G, Temperature Code T5 Maximum Working pressure for the lowest pressure sensors: 0.34MPa (50 psi) and Maximum Working Pressure for highest pressure sensors: 137.9 MPa (20,000 psi) Ambient Temperature: -40 Deg C to 85 deg C (-40 deg F to 185 degF) Model AST53ED, AST53SWa, AST53EN Explosion Proof Differential Pressure Transducer Hazardous Area: Class I, Division 1, Groups A, B, C and D ; Class II, Division 1, Groups E, F and G; Class III, Div. 1: Temperature Code T5 Maximum Working pressure : 137.9 MPa (1500 psi) Ambient Temperature: -40 Deg C to 85 deg C (-40 deg F to 185 degF) Temperature Code T5 Model AST54ED Series Explosion Proof Pressure Transducer Hazardous Area: Class I, Division 1, Groups A, B, C and D ; Class II, Division 1, Groups E, F and G; Class III, Div. 1: Temperature Code T5 Maximum Working pressure : 137.9 MPa (20000 psi) Ambient Temperature: -40 Deg C to 85 deg C (-40 deg F to 185 degF) Temperature Code T5 Model AST54EN Series Nonincendive Pressure Transducer Hazardous Area: Class I, Division 1, Groups A, B, C and D ; Temperature Code T5 Maximum Working pressure : 137.9 MPa (20000 psi) Ambient Temperature: -40 Deg C to 85 deg C (-40 deg F to 185 degF) Temperature Code T5 For All Models: Input: 4-20MA or 10Vmax
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. These pressure transducers are suitable for hazardous areas.
Comments:	The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. Any specific installation arrangement is to be approved in conjunction with the relevant application and system.
Notes / Documentation:	Drawing No. Procedure, (A&B) Procedure, Revision: 07 July 2014 Drawing No. AST43, AST44, AST45 CSA Project 2018368 Report, (A) AST43, AST44, AST45 CSA Project 2018368 Report, Revision: 06 Nov 12015 Drawing No. AST46 CSA Project 1393892, (A) AST46 CSA Project 1393892, Revision: 20 Oct 2015 Drawing No. AST46DS CSA Project 2561438 Report, (A) AST46DS CSA Project 2561438 Report, Revision: -, 14 Mar 2014 Drawing No. AST53xx CSA Project 2456841Report, (A) AST53XX CSA Project 2456841Report, Revision: 20 Oct 2014 Drawing No. AST 54xx CSA Project 2734453 Report AST 54ED and AST 54EN Revision 25 Sept 2014
Term of Validity:	This Product Design Assessment (PDA) Certificate 15-HS1465163-PDA, dated 01/Feb/2016 remains valid until 31/Jan/2021 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:	Rules for Conditions of Classification, Part 1 2016 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following: 2016 Steel Vessel 4-8-3/13.3, 4-8-4/27.5.1, 4-8-4/27.7; 2016 Steel Vessel Rules U90M, 4-6-3/11.3 Offshore Support Vessel, 4-8-3/13.3; 4-8-4/29.5 2016 ABS Rules for Conditions of Classification, Part 1 – 2015 Offshore Units and Structures 1-1-4/9.7, 1-1-A2,

	1-1-A3, which covers the following: 2016 Mobile Offshore Drilling Units 4-3-3/9.1.1, 4-3-3/9.3.2
National Standards:	AST44XX and AST45XX: UL 50(11th Ed), UL 508(17th Ed); UL913(6th Ed), ANSI/ISA 60079-0-0:09, ANSI/ISA 60079-11:13 AST43XX: UL 508(17th Ed), UL 1604 (3rd Ed), ANSI/ISA 12.12.01-2007, ANSI/ISA 12.27.01-2003, ANSI/ISA 60079-0:09, ANSI/ISA60079-15:12 AST46XX: UL 508(17 Ed), UL 1203(4th Ed), ANSI/ISA 60079-0:09, ANSI/ISA 60079-1:09, ANSI/ISA 60079-21:20136 AST53XX: ISA S82.02.01 (2nd Ed) (IEC 61010-1 Mod) (2nd Ed), ANSI/ISA 60079-0:09, ANSI/ISA 60079-1:09, ANSI/ISA 60079-15:09, ANSI/ISA 12.27.01-2003. AST54XX: UL 916, UL 508(17 Ed), UL1203 (4th Ed), FM 3600 1998, FM 3615 2006
International Standards:	AST44XX and AST45XX: CAN/CSA-C22.2 No. 0-M91, CAN/CSA-C22.2 No. 94-M91, C22.2 No. 142-M1987, CAN/CSA-C22.2 No. 157-92 AST43XX: CAN/CSA-C22.2 No. 0-M91, C22.2 No. 142-M1987, C22.2 No. 213-M1987, CAN/CSA-C22.2 No. 60079-0:11 AST46XX: C22.2 No. 0-10, C22.2 No. 25-1966(R2009), C22.2 No. 30-M1986(R2012), C22.2 No. 142-M1987(R2009), CAN/CSA-C22.2 No. 60079-0:11, CAN/CSA-C22 No. 60079-1:11, CAN/CSA-C22.2 No. 60079-31:12 AST 53XX: C22.2 No. 0-10, C22.2 No. 25-1966(R2009), CSA Std C22.2 No. 30-M1986, C22.2 No. 142-M1987, C22.2 No. 213-M1987, CAN/CSA-C22.2 No. 60079-0:11, CAN/CSA-C22.2 No. 60079-1:11, CAN/CSA-C22.2 No. 60079-15:12 AST54XX: C22.2 No. 0-10, C22.2 No. 25-1966(R2009), C22.2 No. 30-M1986(R2012), C22.2 No. 142-M1987 (R2009), C22.2, 60079-0:11, C22.2 No. 60079-1:11, C22.2 No. 60079-15:12
Government Authority:	
EUMED:	
Others:	None

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	15-HS1465163-PDA	03/FEB/2016	31/JAN/2021



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.