CERTIFICATE NUMBER
18-HS1771584-PDA

DATE
20 Aug 2018

ABS TECHNICAL OFFICE
Houston ESD - Offshore Equipment

CERTIFICATE OF
Design Assessment

This is to certify that a representative of this Bureau did, at the request of

MINE SAFETY APPLIANCE-MSA

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product: **Gas Monitor**
Model: **PrimaX® IR**

This Product Design Assessment (PDA) Certificate 18-HS1771584-PDA, dated 20/Aug/2018 remains valid until 19/Aug/2023 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.

AMERICAN BUREAU OF SHIPPING
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Tier: 2 - PDA Issued

Product: **Gas Monitor**
Model: **PrimaX® IR**
Intended Service:
Marine & Offshore Applications - Provide continuous monitoring with indication of the presence and levels of hydrocarbon gas concentrations at the installed location (enclosed spaces or open work areas).

Description:
PrimaX® IR is a stationary gas monitor consisting of infrared sensor and transmitter. The signals from detectors are amplified, fed into a microprocessor for processing, an output signal proportional to the concentration of gas in air is produced for display, alarm and/or control action. A redundant IR source is incorporated into the design for increasing reliable continuous monitoring.
PrimaX® IR includes a male 3/4 NPT connection for field installation, and accessories (stainless steel junction box kit, calibration cap, flow cap, environmental guard), provides a 4-20mA analog output signal with HART (Highway Addressable Remote Transducer) communication.

Rating:
Gas Types and Ranges: Hydrocarbon gases & vapors; 0-100% LEL
Operating Temperature: -50°C to +75°C (-58°F to 167°F)
Humidity: 15%-95% RH, Non-condensing;
Power Input: 18-32 VDC, 5 watts (-40°C to 75°C IP67) (-40°F to 167°F)
Signal Output: 4-20mA, 3-wire current source with HART protocol
Physical: 316 stainless steel
Ingress Protection: IP67
Hazardous Area Approval Ratings: Class I, Division 1, Groups A, B, C and D, T4A Ta= -50°C to +75°C;
(FM Approval) Class II, Division 1, Groups E, F and G, T4A Ta = -50°C to +75°C

Service Restriction:
1) 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.
2) Where communicator and/or other connecting devices, which are outside of the scope covered in this PDA and located in classified area, are to be certified for the hazardous classification.
3) Where the remote calibration option by using HART digital interface is chosen, the approved calibration kit and explosion-proof accessories are to be used for applications where access to the HART signal is needed in hazardous areas.

Comments:
1) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
2) Calibration is to be carried out with approved accessories and in accordance with the approved procedures as detailed in the manufacturer's Operating Manual.

Notes/Drawing/Documentation:
Document No. 07-1807-MC Prima XIR Bulletin - EN, Revision: -, Pages: 6
Document No. 10115992/00, Operating Manual - PrimaX IR Infrared Gas Monitor, Pages 146
Document No. 130628_FM_3036837, FM Certification, Approval granted: 28 June 2013, Pages: 2
Document No. 130628_FM_3036837C, FM Certification, Approval granted: 28 June 2013, Pages: 2
Document No. 2229924 (LR 64969), CSA Certificate for PrimaX IR calibration cap, portable, battery operated used in Hazardous Locations, issued 20 October 2010, Pages: 2
Document No. 10000063564_01 EU Declaration of Conformity for PrimaX IR 2017-06-30_en, Pages: 1
Document No. MSA Declaration of Conformity, 24 July 2018, Pages: 1

Terms of Validity:
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STANDARDS

ABS Rules:
Rules for Conditions of Classification, Part 1 - 2018 Steel Vessel Rules 1-1-4/7.7; 1-1-4A3, 1-1-A4, which covers the following:
2018 Steel Vessels: 4-8-4/27, 5C-1-7/17.1.4; 5C-1-7/20, 5C-1-7/31.9, 5C-8-13/6, 5C-5-A5/15, 5C-8-A6/17, 5C-8/A8/11.9, 5C-13-6/A3.17, 5C-13-8/6 5C-13-10/A11.9, 5C-13-15/8
2018 Offshore Support Vessels: 4-8-4/27, 5-2-3/9.25, 5-6-4/17.5, 5-7-5/9, 5-10-3/3.13.2, 5-10-4/5.13.7, 5-11-3/7.1, 5-11-3/15.11, 5-12-1/9
2018 Marine Vessels: 4-8-4/27, 5C-1-7/17.1.4; 5C-1-7/20, 5C-1-7/31.9, 5C-8-13/6, 5C-5-A5/15, 5C-8-A6/17, 5C-8/A8/11.9, 5C-13-6/A3.17, 5C-13-8/6 5C-13-10/A11.9, 5C-13-15/8, 5-2-3/9.25, 5-6-4/17.5, 5-7-5/9, 5-10-3/3.13.2, 5D-10-4/5.13.7, 5D-11-3/7.1, 5D-11-3/15.11, 5D-12-1/9

Rules for Conditions of Classification, Part 1 - 2018 Offshore Units and Structures 1-14/9.7, 1-1-A2, 1-1-A3, which covers the following:
2018 Mobile Offshore Drilling Units: 4-1-1/1.1.2, 5-2-5/3, 6-1-8/9, 7-1-8/15, 7-1-9/11.27
2018 Facilities on Offshore Installations: 3-3/13.3.3, 3-4/5.7 ii), 3-5/5.7 ii), 3-8/7.7, 4-8/7, 5-1/7.1.4 ii)
2018 Mobile Offshore Units: 4-1-1/1.1.2, 6-1-8/9, 7-1-8/15, 7-1-9/11.27, 8-2-1/11.11,

National:
FM 3600 (2011), 3615 (2006), 3810 (2005), 6320 (2000)
ANSI/NEMA 250 (1991)
CAN/CSA Std. C22.2 No. 0.4 (R2009), No. 0.5 (R2008), No. 25 (2009), No. 30 (R2012), No. 0-M91 (2006), No. 152 (R2006), No. 157-92 (R2012), No. 1010.1 (2004)
UL Std. No. 913 (7th ed.)

International:
NA

Government:
NA

EUMED:
NA

OTHERS:
NA