



CERTIFICATE NUMBER	23-2445598-PDA
EFFECTIVE DATE	27-Sep-2023
EXPIRY DATE	26-Sep-2028
ABS TECHNICAL OFFICE	Houston ESD - Electrical

CERTIFICATE OF Product Design Assessment

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

MSA INNOVATION, LLC

located at

**1000 CRANBERRY WOODS DR., , CRANBERRY TOWNSHIP, PA,
United States, 16066**

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
Endorsements:
Tier: 2 - PDA Issued

This Product Design Assessment (PDA) Certificate remains valid until 26/Sep/2028 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.

American Bureau Of Shipping

Soheni Haque

Soheni Haque, Sr. Managing Principal Engineer

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

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Tier: 2 - PDA Issued

Product: Gas Monitor
Model: PrimaX® IR
Endorsements:

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.: IECEX_FMG 21-0033X, IECEX Certificate Infrared Gas Monitor - Gas Detector Controller PrimaX IR, Revision: 1, issue Date: 2023-05-17, Pages: 7

Document No.: FM20US0151, FM Certificate for PrimaX IR Gas Monitor, Revision 02, Issue Date: 2023-05-17, Pages: 3.

Document No.: FM20CA0074, FM Certificate for PrimaX IR Gas Monitor, Revision 02, Issue Date: 2023-05-17, Pages: 3.

Documents in historical Certificate: 18-HS1771584-PDA

Document No. 07-1807-MC Prima XIR Bulletin - EN, Revision: -, Pages: 6

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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. 1000063564_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 - 2023 Marine Vessel Rules 1-1-4/7.7; 1-1-4A3, 1-1-A4, which covers the following:

2023 Marine Vessels: 4-8-3/13, 4-8-4/27.5, 5C-1-7/17.1.4; 5C-1-7/203.1(a), 5C-1-7/31.9, 5C-8-13/6.3, 5C-8-A5/15, 5C-8-A6/17, 5C-8-A8/11.9, 5C-13-6/A3.17, 5C-13-8/6, 5C-13-10/A1.11.9, 5C-13-15/8.5, 5D-2-3/9.25, 5D-6-4/17.5, 5D-7-5/9, 5D-10-3/5.13.3, 5D-10-4/5.13.5, 5D-11-3/7.1, 5D-12-3/15.11

Rules for Conditions of Classification, Part 1 - 2023 Offshore Units and Structures 1-14/9.7, 1-1-A2, 1-1-A3, which covers the following:

2023 Mobile Offshore Units: 4-3-3/9.3, 6-1-8/9, 8-2-1/11.11,
2023 Facilities on Offshore Installations: 3-3/13.3.3, 3-8/7.7, 4-8/7

National:

FM 3600 (2022), 3615 (2022), 3810 (2021), 6320 (2018)
ANSI/FM 60079-29-1: 2019
ANSI/NEMA 250 (1991),
CAN/CSA Std. C22.2 No. 0.4 (R2009), No. 0.5 (R2008), No. 25 (2009), No. 30 (R2016), No. 0-M91 (2006), No.157-92, No. 61010-1 (2015), No.60079-1 (2017)
UL 61010 (2015), UL Std. 913 (7th ed.)

International:

IEC 60079-0:Ed. 7.0, 2017,
IEC 60079-1:Ed. 7.0, 2014,
IEC 60079-29-1:Ed. 2.0, 2016
IEC 60079-31:Ed. 2, 2013

Government:

NA

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EUMED:
NA

OTHERS:
NA