



CERTIFICATE NUMBER	23-2403839-PDA
EFFECTIVE DATE	14-Jul-2023
EXPIRY DATE	13-Jul-2028
ABS TECHNICAL OFFICE	Houston ESD - Piping

# CERTIFICATE OF Product Design Assessment

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

## GENERAL MONITORS

located at

16782 VON KARMAN AVE, UNIT 14, , IRVINE, CA, United States,  
92606

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 Detector  
**Model:** Gas Detector S5000, S5000 Junction Box, Digital Sensor, IR400, Passive Sintered Sensor and Passive Screen Sensor  
**Endorsements:**  
**Tier:** 2 - PDA Issued

This Product Design Assessment (PDA) Certificate remains valid until 13/Jul/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

*John Vincent Ulep*

John Vincent Bog-Acon Ulep, Senior Principal Engineer/Consultant

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)

## GENERAL MONITORS

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UNIT 14

IRVINE CA

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**Tier: 2 - PDA Issued**

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**Product:** Gas Detector

**Model:** Gas Detector S5000, S5000 Junction Box, Digital Sensor, IR400, Passive Sintered Sensor and Passive Screen Sensor

**Endorsements:**

**Intended Service:**

Marine & Offshore Application

**Description:**

The S5000 Gas Monitor is a fixed gas detection system for combustible, toxic or oxygen gases.

The System comprises an S5000 transmitter base unit or an optional S5000 Junction Box or JB5000 Junction box fitted with an arrangement of up to a pair of two factory-configured combustible, toxic or oxygen gas sensors.

**Rating:**

Measuring Range:

Input: 24 VDC nominal, 12 to 30 VDC;

Output Relay Contacts: 220 Vac, 30 Vdc, 5.0 A; Signal Outputs: Dual 4-20 mA;

Operating Ambient Temperature: -55° C to +75° C;

Enclosure Rating: NEMA Type 4X, IP66 (Configuration Utilizing Digital Sensors are restricted to an enclosure rating of Type 3X, IP 65);

Hazardous Area Classification:

S5000 Transmitters (as per IECEx FMG 21.0019X)

Cemented Joint version:

Ex db IIC T5 Gb

Ex tb IIIC T85° C Db\*

Ex nA nC IIC T4 Gc

-55° C Ta +75° C

S5000 Junction Box (as per IECEx FMG 21.0019X)

Cemented Joint versions:

Ex db IIC T6 Gb

Ex tb IIIC T85° C Db

Ex nA IIC T6 Gc

-55° C Ta +75° C

Digital Sensor (as per IECEx FMG 21.0019X)

With FRIT

Ex db IIC T5 Gb

Ex tb IIIC T85° C Db

Ex db nA IIC T5 Gc

-55° C Ta +60° C

Flanged Joint Version (as per IECEx FMG 21.0019X)

Ex db IIB+H2 T5 Gb

Ex tb IIIC T85° C Db\*

Ex nA nC IIC T4 Gc

-55° C Ta +75° C

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Flanged Joint Versions (as per IECEx FMG 21.0019X)

Ex db IIB+H2 T6 Gb

Ex tb IIIC T85° C Db\*

Ex nA IIC T6 Gc

-55° C Ta +75° C

Digital Sensor (as per IECEx FMG 21.0019X)

No FRIT

Ex nA IIC T5 Gc

-55° C Ta +60° C

IR400 (as per IECEx CML 23.0018X)

Ex db IIB+H2 T5 Gb

Ex tb IIIC T100° C Db

(Ta = -60° C to +75° C)

Passive Sintered Sensor (as per IECEx CML 23.0017U)

HC & H2S Sensor Heads, Model No. 11159 (HC) and 51457 (H2S)

Ex db IIC Gb

Passive Screen Sensors:

CSA approved Models: 10001-1 and 10058-1, 50445-1, 50445-5, 50445-9 and 50448-1, 50448-5, 50448-9;

Also see the attached CSA Certificate of Compliance 70116279 (LR 025993\_0\_000) covering hazardous area classification for various gas monitor configurations.

Also see attached FM Approval Certificates FM21ATEX0072X and FM21ATEX0070X and product data sheet for further details.

S5000 Series Combustible, Toxic, & Oxygen Gas Detector (as per FM20US0039X)

CL I, Div 1 Group A, B, C, D; T5

CL I, Div 2 Group A, B, C, D; T4

CL II, Div 1,2 Group E, F, G; CL III; T5

CL I, Zone 1 AEx db IIC T5 Gb (cemented window joint)

CL I, Zone 1, AEx db IIB+H2 T5 Gb (flanged window joint)

Zone 21, AEx tb IIIC T85°C Db

CL I, Zone 2 AEX nA nC IIC T4 Gc

Ta = -40°C to +75°C WITH RELAYS

Ta = -50°C to +75°C WITHOUT RELAYS

S5000 Junction Box

CL I, Div 1 Group A, B, C, D; T6

CL I, Div 2 Group A, B, C, D; T6

CL II, Div 1,2 Group E, F, G; CL III; T6

CL I, Zone 1 AEx db IIC T5 Gb (cemented window joint)

CL I, Zone 1, AEx db IIB+H2 T5 Gb (flanged window joint)

Zone 21, AEx tb IIIC T85C Db

CL I, Zone 2 AEX nA IIC T6 Gc

Ta = -50°C to +75°C; Type 4X, IP66

WHEN USING PASSIVE COMBUSTIBLE SENSOR

CL I, Div 1, Group B, C, D; T5

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Ta = -40°C to +75°C

WHEN USING PASSIVE MOS SENSOR

CL I, Div 1, Group B, C, D; T5

Ta = -40°C to +60°C

### Service Restriction:

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.

### Comments:

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

### Notes/Drawing/Documentation:

CofC 70116279 (LR 025993\_0\_000), Certificate of Compliance, Dated: 03-18-2022, Revision: -, Pages: 21;

General Monitors S5000 gas detector data sheet-EN, Date: April 2017, Pages: 2;

IECEX FMG 21.0019X Issue 1, date of issue: 17/08/2022, Pages: 15;

FM Approval Certificate FM21ATEX0070X Date of Issue: 18th August 2022, Pages:10;

FM Approval Certificate FM21ATEX0072X Date of Issue: 18th August 2022, Pages: 9;

FM Approval Certificate FM17US0037, date of issue: 01/12/2022, Pages:3;

IECEX CML 23.0018X Iss 0, date of issue: 06/26/2023, Pages: 6;

CML 23ATEX1038X Issue 0, Pages: 3;

IECEX CML 23.0017U Issue 0, date of issue: 06/27/2023, Pages: 5

CML 23ATEX1037U Issue 0, Pages: 3

Sensor Datasheet, Pages: 4;

### Terms of Validity:

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## STANDARDS

### ABS Rules:

Rules for Conditions of Classification, Part 1- 2023 Marine Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

2023 Marine Vessels Rules: 4-8-3/1.11.1, 4-8-3/1.17.1, 4-8-3/Table 2, 4-8-3/13;

Rules for Conditions of Classification, Part 1- 2023 Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3 which covers the following:

2023 Mobile Offshore Units Rules: 4-3-1/15, 4-3-1/17.1, 4-3-3/Table 1, 4-3-3/9.1;

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**National:**

NA

**International:**

NA

**Government:**

NA

**EUMED:**

NA

**OTHERS:**

NA