

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00003VB
Revision No:
2

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV AS under the authority of the Government of Norway.

This is to certify:

That the **Fixed oxygen analysis and gas detection equipment**

with type designation(s)
S5000 Gas Monitor

Issued to

General Monitors Inc
Irvine, CA, USA

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2020/1170**,
item No. MED/3.54. SOLAS 74 as amended, Regulation II-2/4 & VI/3 and FSS Code 15

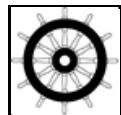
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2025-01-15**.

Issued at **Høvik** on **2021-04-21**

DNV local station:
Long Beach

Approval Engineer:
Nils Jarem



Notified Body
No.: **0575**

for **DNV AS**

Sverre Olav Bergli
Head of Notified Body



The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.
This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.
Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: MED 201.NOR

Revision: 2021-03

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Product description

S5000 Gas Monitor for detection of combustible gases.

S5000 Gas Monitor consisting of S5000 transmitter, S5000 Junction Box, IR400 gas sensor, catalytic point Digital Sensor for combustible gases or electrochemical point Digital Sensors for oxygen. Passive gas sensors with part numbers 11159-1, 11159-2, 11159-8, 11159-1L, 11159-2L, and 11159-8L can also be connected.

The S5000 Gas Monitor supports two Digital Sensors installed either integral to the S5000 transmitter or remotely using the S5000 Junction Box, one IR400 point IR detector and one Digital Sensor installed either integral to the S5000 transmitter or remotely using the S5000 Junction Box, or one passive sensor, combustible catalytic type either integral to the S5000 transmitter or remotely using the S5000 Junction Box.

The S5000 Gas Monitor generates two independent analog outputs; one for each sensor connected to the transmitter. The analog output associated with Sensor 1 also has the digital HART (Highway Addressable Remote Transducer) communication superimposed on the analog signal. If two sensors are connected, the digital HART communication carries information for both sensors. S5000 also has Modbus and Bluetooth communication options. Bluetooth is used for status inquiry and setup.

Place of manufacture

S5000 Transmitter and Junction Box:

General Monitors Ireland Ltd.	MSA – The Safety Company
Ballybrit Business Park	1000 Cranberry Woods Drive
Galway, Ireland	Cranberry Twp, PA. 16066 USA

Passive Sensors:

General Monitors Ireland Ltd.	General Monitors Inc.
Ballybrit Business Park	372 Elizabeth Lane
Galway, Ireland	Corona CA. 92880

IR400 Sensor:

General Monitors Ireland Ltd.
Ballybrit Business Park
Galway, Ireland

Digital Sensors:

General Monitors Ireland Ltd.	MSA – The Safety Company	General Monitors Inc.
Ballybrit Business Park	1000 Cranberry Woods Drive	372 Elizabeth Lane
Galway, Ireland	Cranberry Twp, PA. 16066 USA	Corona CA. 92880

Application/Limitation

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

The equipment are found to comply with following location/application dependent requirements:

Temperature:	TEM-D: Tested at -55°C to +70°C	(ref. IEC 60092-504:2016 table 1 item 6-7)
Vibration:	VIB-A: Tested at $\pm 1\text{mm}/\pm 0.7\text{g}$	(ref. IEC 60092-504:2016 table 1 item 10)
EMC:	EMC-B: Bridge and open deck zone	(ref. IEC 60092-504:2016 table 1 item 13-20)
Enclosure:	ENC-C: (IP66) Open deck	(ref. IEC 60092-201:1994 table 5)
Enclosure Digital Sensor:	ENC-B: (IP65) Engine room	(ref. IEC 60092-201:1994 table 5).

Type Examination documentation

Doc No	Rev	Title
ID 1465-21-MC	2021-03	S5000 Data Sheet
MANS5000	07	S5000 Instruction Manual
70112138	rev. 2 dated 2017-01-26;	Software report - EN 50271:2010
R70141952A	dated 2017-12;	Functional Assessment Report - EN 60079-29-1
PR077992	rev. 2 dated 2018-06-01;	S5000 Environmental tests
D80604Q1	dated 2018-06-04	S5000 EMC testing
D80621S1	rev. 1 dated 2018-07-21	S5000 Additional tests
R80033109A	dated 2021-03	Variation to assessment of the S5000
R80016657	dated 2019-09-19	Software Modification Final Report
D90603Q2	dated 2019-06-09	Test report EMC
PR457663	dated 2021-03-10	FM Approval Report, S5000 Gas Monitor (EN 50104)

Tests carried out

IEC 60092-504:2016,
IEC 60533:2015,
EN 50104:2010,
EN 60079-0:2018 + AC:2020,
EN 60079-29-1:2016,
IMO MSC.1/Circ.1370.

Marking of product

For identification to this type examination certificate the products shall be marked with:

- Manufacturer's name or trademark
- Type designation
- Mark of Conformity (wheel mark), followed by
 - identification number of the NoBo involved in production control (MED D)
 - the year the mark is affixed
 - Example: 0575/2021