

Certificate No:
A-13902
File No:
473.30
Job Id:
262.1-017426-1

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Gas Detector

with type designation(s)

S4000CH Combustible Gas Detector

Issued to

General Monitors Inc Lake Forest, CA, United States

is found to comply with

Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

App	licat	tion :

Location classes:

Temperature	D (*)
Humidity	В
Vibration	Α
EMC	В
Enclosure	C / IP65

(*) Performance test carried out at -40°C

ınıs	Certific	ate is	valia	untii	2018-	12-31.

Issued at Høvik on 2014-09-02

for **DNV GL**

DNV GL local station: Long Beach

Approval Engineer: Andrzej Gdaniec

Odd Magne Nesvåg
Head of Section

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This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

If any person suffers loss or damage which is proven to have been caused by any negligent act or omission of the Society, then the Society shall pay compensation to such person for his proven direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question. The maximum compensation shall never exceed USD 2 million.

times the fee charged for the service in question. The maximum compensation shall never exceed USD 2 million. In this provision the "Society" shall mean DNV GL AS as well as all its direct and indirect owners, affiliates, subsidiaries, directors, officers, employees, agents and any other person or entity acting on behalf of DNV GL AS.

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Product description

The Model S4000CH Intelligent Sensor is a microprocessor-based transmitter designed for use with General Monitors catalytic bead sensors to monitor combustible gases and vapors within the lower explosive limit (LEL) and provide status indication and alarm outputs.

The detector uses a 4-20 mA analog output signal that is proportional to 0 to 100% LEL gas concentration at the sensor. In addition, the Model S4000CH includes warning, alarm, and fault relay contacts that can be used to indicate an alarm or fault condition and dual redundant Modbus or HART communication.

Software No. 32412 Rev.J

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Product certificate

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After the certification the clause for application software control will be put into force.

<u>Ex installations</u> 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.

Ex-certification is not covered by this certificate and the following paragraph, which is for information only, is based on information received from the manufacturer, but not verified by DNV.

Information on Ex-Certification received from manufacturer – Not verified by DNV				
Equipment Certified		Certificate No.		
S4000CH	Ex d IIB+ H_2 T5 Gb (Ta -40°C to +70°C)	IECEx SIR 12.0066X Issue No.0		

Type Approval documentation

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Place of manufacture Tests carried out

Applicable tests according to Standard for Certification No. 2.4, April 2006. Performance tests according to EN 61779-1, EN 61779-4, EN 60079-29-1: 2007.

Marking of product

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

- Manufacturer's name or trade mark
- Model name/type designation
- Serial number

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE

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