# TYPE APPROVAL CERTIFICATE

Certificate no.:
**TAA00001EY**
Revision No:
**3**

## This is to certify:

**that the Gas Detector**

with type designation(s)
**IR 400 & IR 4000S Combustible Gas Detector**

issued to
**General Monitors, Inc.**
**Irvine, CA, USA**

is found to comply with
**DNV rules for classification – Ships, offshore units, and high speed and light craft**

## Application:

**Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.**

**Location classes:**

| | |
|---|---|
| **Temperature** | **D (*)** |
| **Humidity** | **B** |
| **Vibration** | **A** |
| **EMC** | **B** |
| **Enclosure** | **C / IP66** |

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

Issued at **Høvik** on **2024-03-21**
This Certificate is valid until **2028-12-31**.
DNV local unit: **Certification & Inspection Services**

for **DNV**

Approval Engineer: **Ståle Sneen**

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.

## Product description
The Model IR400 infrared (IR) point detector is a microprocessor-based combustible gas detector that continuously monitors combustible gases in the lower explosive limit (LEL) range and provides a 4 to 20 mA analog signal proportional to the 0 to 100% LEL concentration. The detector also monitors other conditions such as supply voltage and optical path integrity.
The Model IR4000S is a Single-Point Monitor with LED display and user interface to the Model IR400 point IR gas detector. The monitor allows local calibration and displays gas concentration and is housed in an explosion-proof junction box enclosure that can be installed in hazardous locations adjacent to the detectors.

## Place of manufacture

## Approval conditions
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 classification of ships Pt.4 Ch.9 Control and monitoring systems.

## 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.

## Type Approval documentation

## Tests carried out
Applicable tests according to class guideline DNV-CG-0339, December 2021.
- EN 60079-29-1:2016

## Marking of product
The products to be marked with:
- model name
- manufacturer name
- 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 after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE