Certificate no.:
TAA00003DX

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Fire Detector

with type designation(s)
Multi-Spectral Infrared Flame Detector FL5000

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 / IP66/67**

Issued at **Høvik** on **2024-04-08**
This Certificate is valid until **2029-04-07**.
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.

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.

Product description

FL5000 is a multi-spectral infrared (MSIR) flame detector. It employs infrared (IR) detectors and a flame detection algorithm leveraging an artificial neural network (ANN) based signal processing to produce a system that is highly immune to false alarms caused by lightning, sunlight reflection, arc-welding, hot objects, and other sources of radiation.

FL5000 can see through most smoky type fires. It is certified as explosion proof for use in hazardous locations. It can also be used for general-purpose, non-hazardous applications.

FL5000 is available with the following outputs: 0 to 20 mA signal, INSTANT ALARM (relay), SUSTAINED ALARM (relay), FAULT (relay), RS-485 Modbus, and HART 7 communication. Bluetooth connectivity for device configuration.

Place of manufacture

General Monitors Ireland Ltd.
Ballybrit Business Park
Galway, Ireland

MSA Innovation, LLC
1000 Cranberry Woods Drive,
Cranberry Township, PA 16066
United States

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

FL5000 is approved for use with 24 Vdc power supply of approved type.

FL5000 has Bluetooth connectivity confirming to Radio Equipment Directive (2014/53/EU):
- Radiated power: 8 dBM e.r.p.
- Radio frequency: 2.4000 GHz to 2.4835 GHz

While Bluetooth is active the FL5000 cannot perform its safety operation. Use of Bluetooth is protected by password and the connectivity may also be disabled. Refer to the Operating Manual for safe use of the Bluetooth connectivity.

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to DNV 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, August 2021.
Functional testing according to EN 54-10:2002 including A1:2005.

Marking of product

For identification to this type approval certificate the products shall be marked with:
- manufacturer's name or trade mark
- type designation/model name
- serial number
- power supply ratings

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