

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Flame Detector**

with type designation(s)
FV421i IS Flame Detectors

Issued to

Tyco Fire & Security GmbH
Schaffhausen, Switzerland

is found to comply with

DNV GL 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 GL.

Location classes:

Temperature A; Tested to -10°C
Humidity B
Vibration A
EMC B
Enclosure C/IP56

Issued at **Høvik** on **2018-12-04**

This Certificate is valid until **2023-12-03**.

DNV GL local station: **Southampton**

for **DNV GL**

Approval Engineer: **Nils Jarem**

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Jan Tore Grimsrud
Head of Section

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 FV421i detector is an advanced, high technology triple IR flame detector that provides reliable wide area flame detection of burning hydrocarbon fuels. They also offer excellent false alarm immunity. The FV421i detector has the following outputs to connect to the external monitoring equipment:

- 4-20 mA Current Loop
- MX Loop
- MODBUS (RS485)
- Conventional Interface

The detector is housed in rugged stainless steel housing suitable for external use in harsh environments.

Nominal voltage: 24V DC.

Place of manufacture

Tyco Fire & Security Czech Republic s.r.o.
Osvobození 363, Ráječko, 679 02 Rájec – Jestřebí
Czech Republic; CZ 679 02

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, 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 GL 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 DNVGL-CG-0339, November 2016.
Functional testing in accordance with EN 54-10:2002 + A1:2005.

Marking of product

The products to be marked with:

- manufacturer name
- 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



Job Id: **262.1-029846-1**
Certificate No: **TAA000021H**

- 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