DNV·GL

Certificate No:
TAA000026T

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Flame safeguard for the supervision of oil and gas flames

with type designation(s)
LFS1.11A2; LFS1.21A2; LFS1.11A1; LFS1.21A1

Issued to
Siemens AG
Rastatt, Germany

is found to comply with
DNV GL rules for classification – Ships and offshore units

Application :

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

Temperature	**A**
Humidity	**B**
EMC	**A**
Vibration	**A**
Enclosure	**A**

Issued at **Hamburg** on **2019-03-15**
This Certificate is valid until **2024-03-14**.
DNV GL local station: **Augsburg**

Approval Engineer: **Didier Girardin**

for **DNV GL**

Joannis Papanuskas
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.

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Product description

Microprocessor-based flame safeguards LFS1 units are designed for the superivison of oil burners and gas burners in combination with a control unit, burner control untie or with programmable logic controllers.

Type overview LFS1... flame detectors and accessories

LFS1.11A1	RAR9 [1]	120 V AC	(firing on oil)
LFS1.11A2	RAR9	230 V AC	(firing on oil)
LFS1.21A1	ionization probe [2]	120 V AC	(firing on Gas / Oil)
LFS1.21A2	ionization probe	230 V AC	(firing on Gas / Oil)
LFS1.21A1	QRA...[3]	120 V AC	(firing on Gas / Oil)
LFS1.21A2	QRA...	230 V AC	(firing on Gas / Oil)
AZL21.00A9 AZL23.00A9	Display and operating units		
AGK30 [4]	additional module for connection of QRA2M and QRA10M		

1) Photocell detector
2) Ionization probe Supplied by customer
3) UV flame detors:
   Normal sensivity: QRA2, QRA2(1), QRA2(2), QRA2.9, QRA4.U, QRA4M.U, QRA10.C
   High sensivity: QRA2M, QRA4 / QRA4M, QRA10 QRA10M [4]
   It is possible to connect an ionization probe and a UV flame detector QRA to the LFS1.2... at the same time
4) Connection of UV flame detectors QRA2M and QRA10M is only permitted if additional module AGK30 (Art. N° S55856-Z301-A100) is used

Flame safeguards LFS1… are suitable to replace the flame safeguards LAE10…, LFE10… by same interfaces and application

Degree of protection IP40 (Mounted)[5]

5) To be ensured through adequate mounting according Siemens mounting notes as per DIN EN 60 529

Approval conditions

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.

Type Approval documentation

Hidden

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016

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
- 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