

TYPE APPROVAL CERTIFICATE

Certificate No:
TAA0000188
Revision No:
4

This is to certify:

That the **Automatic Smoke Detection System for Cargo Hold**

with type designation(s)
SDS-72

Issued to

safetec Brandes und Niehoff GmbH
Scharnebeck, Germany

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 **B**

Humidity **A**

Vibration **A**

EMC **B**

Enclosure **Required protection according to the Rules shall be provided upon installation on board.**

Issued at **Hamburg** on **2023-09-01**

This Certificate is valid until **2027-08-08**.

for **DNV**

DNV local unit: **Hamburg**

Approval Engineer: **Heinz Scheffler**

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.

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

The smoke detection system SDS-72 is a sample extraction smoke detection system for up to 72 detection lines for cargo holds onboard ships.

The main features of the system are:

- Simultaneously monitoring of air samples for smoke via sampling pipes
- Separate detection loop for smoke detectors monitoring exhaust ventilation ducts
- Using the CO2 extinguishing pipes up to DN150 for smoke sampling
- Possibility to connect the smoke detection panel to the remote panels with two redundant data and power bus cables
- Interface to voyage data recorder according to IEC 61162-1 and potential free signals to the Machinery Alarm System
- Flexible configuration settings, including on site configuration via configuration menu
- Self-monitoring features

The smoke detection system SDS-72 is available in three main variants configured to the below listed hardware:

- Variant A: The sampling pipes for all cargo holds run separately into the CO2 room, where they are connected via 3/2-way-valves to the smoke detection panel. It is recommended for sampling pipe diameters of max. DN20/DN25.
- Variant B: The sampling pipes for all cargo holds run separately into the CO2 room, where they are connected via valves to the smoke detection unit. The smoke detection unit(s) is / are connected with the smoke detection panel. It is recommended for sampling pipe diameters of max. DN150.
- Variant C: The sampling pipes for all cargo holds run separately into the suitable passageway beneath the cargo holds, where they are connected via valves to the smoke detection unit. The smoke detection unit is connected via loop isolator with the smoke detection panel. It is recommended for sampling pipe diameters of max. DN150.

Fan unit SDS-M0440 / SDS-M0441 / SDS-M450 or SDS-M0460 is to be used in variants A...C according to the airflow volume requirements of the project.

Hardware:

| Type | Name | Typical Location | Remark |
|-----------|--------------------------------|--------------------------------|--|
| ADP-3500 | Adapter module | near Remote Panel | required for Remote Panel |
| SDS-3000 | Smoke detection panel | CO2 room or passageway | without integrated detection lines |
| SDS-3104 | Smoke detection panel | CO2 room | 1-4 detection lines integrated |
| SDS-3108 | Smoke detection panel | CO2 room | 5-8 detection lines integrated |
| SDS-3112 | Smoke detection panel | CO2 room | 9-12 detection lines integrated |
| SDS-3208 | Extension panel | CO2 room | 5-8 detection lines |
| SDS-3212 | Extension panel | CO2 room | 9-12 detection lines |
| SDS-3216 | Extension panel | CO2 room | 13-16 detection lines |
| SDS-3300 | Smoke detection unit (SDU) | CO2 room or passageway | 1 detection line for pipes up to DN150 |
| SDS-3350 | Smoke detection unit (SDU-EVD) | Cargo holds or passageway | Monitoring of air samples at the exhaust ventilation ducts |
| SDS-3500 | Remote Panel | bridge or fire control station | flush mount / wall mount |
| SDS-3600 | junction box | passageway | for SDS-M460 |
| SDS-3700 | junction box | safe area | for SDS-3300 (SDU) |
| SDS-3800 | 3/2-way flap | CO2 room or passageway | for fan module SDS-M0460 |
| SDS-M0440 | fan unit | CO2 room or passageway | 2 fans on a frame, 230V~ |
| SDS-M0441 | fan unit | CO2 room or passageway | 2 fans on a frame, 110V~ |
| SDS-M0450 | fan unit | CO2 room or passageway | 2 fans on a frame, 230V~ |
| SDS-M0460 | fan module | CO2 room or passageway | 1 fan |

Software

- Firmware: CM3100A-01.02.XXX; CM3100B-01.02.XXX

Approval conditions

As long as the System or components are covered by the Type Approval, no Product Certificate will be required according to Pt.4 Ch.9 Sec.1- Control and monitoring systems.

The following documentation of the actual application is to be submitted from the supplier for approval in each case:

- Reference to this type approval certificate
- Functional description (incl. description of functions covered by software)
- Application software configuration and Software release
- System Block diagram
- User interface description
- Electrical diagram with interfaces (incl. List of control and monitored points)
- Power Supply arrangement (may be part of the System block diagram)
- Arrangement drawings showing location of suction points, fans and central units
- Test program for application software at manufacturer

Clause for application software control

All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV for evaluation and approval before implemented on board.

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. Certification of modified functionality may be required for the particular vessel.

Type Approval documentation

Test Report and Documentation: DL1 List of Documents Rev 5, dated 21.08.2023.

Tests carried out

MSC.98(73) - (FSS- Code) 10; EN 54-2 (1997) including AC (1999) and A1(2006); EN 54-4 (1997) including AC (1999), A1(2002) and A2(2006); EN 54-20 (2006) including AC (2008); IEC 60092-504 (2016); IEC 60533 (2015), EN IEC 60079-0 (2018), IACS UR-F29 Rev.6.

Applicable tests according to class guideline DNV-CG-0339, August 2021.

Marking of product

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

- Manufacturer's name
- Type designation with device type
- 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