

**TYPE APPROVAL CERTIFICATE****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**  
**Lüneburg, Germany**is found to comply with  
**DNV GL rules for classification – Ships****Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**

<b>Temperature</b>	<b>B</b>
<b>Humidity</b>	<b>A</b>
<b>Vibration</b>	<b>A</b>
<b>EMC</b>	<b>B</b>
<b>Enclosure</b>	<b>Required protection according to the Rules shall be provided upon installation on board.</b>

Issued at **Hamburg** on **2018-05-03**for **DNV GL**This Certificate is valid until **2022-06-20**.DNV GL local station: **Hamburg**Approval Engineer: **Heinz Scheffler**

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**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.



Job Id: **262.1-025191-2**  
Certificate No: **TAA0000188**  
Revision No: **1**

## 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 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 passage way 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 or SDSA-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 passage way	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

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Type	Name	Typical Location	Remark
SDS-3216	Extension panel	CO2 room	13-16 detection lines
SDS-3300	Smoke detection unit (SDU)	CO2 room or passage way	1 detection line for pipes up to DN150
SDS-3500	Remote Panel	bridge or fire control station	flush mount / wall mount
SDS-3600	junction box	passage way	for SDS-M460
SDS-3700	junction box	safe area	for SDS-3300 (SDU)
SDS-3800	3/2-way flap	CO2 room or passage	for fan module SDS-M0460
SDS-M440	fan unit	CO2 room or passage	2 fans on a frame, 230V~
SDS-M441	fan unit	CO2 room or passage	2 fans on a frame, 110V~
SDS-M460	fan module	CO2 room or passage	1 fan

#### Software

- Firmware: CM3100A-01.01.000; CM3100B-01.00.000
- Application configuration is part of the project.

#### Application/Limitation

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 – Control and monitoring systems.

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

- Reference to this type approval certificate
- Application software configuration
- System Block diagram
- Electrical diagram with interfaces
- Power Supply arrangement (may be part of the System block diagram)
- Arrangement drawings showing location of suction points, fans and central units.
- Manuals

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 GL for evaluation and approval before implemented on board.

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

Test Report: 16185-1-R01; 16185-2-R00 ; 16185-3-R00 ; 15012-3-R01(1) ; 320-16 (Issue 3); 058-16 (Issue 3); 15-7421; DOK22.002 (Rev.1); 17228-1-R01; 313-17.

Documentation: System Manual No. DOK02.140 Rev.6; Installation and Operation Instructions no. DOK02.055 Rev.6; List of Submitted Documents (Rev.2).

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

### Marking of product

For identification to this type examination 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