

Fault Finding:

Smoke Detector Faults in Smoke Detection System SDS-48

1. General Information.....	1
2. Wiring of Smoke Detectors	1
3. Ident (ID) Numbers of Smoke Detectors	1
4. Fault Indication: “FAULT Smoke Detector Line -x-“	1
5. Fault Indication: “FAULT Smoke Detector Dirt in Line -x-“	2
6. Reading out the Actual Response Value of a Smoke Detector	2
7. Prevention of Dirt in the Smoke Detectors	3
8. Prefilters.....	3

1. General Information

Smoke detectors in smoke sampling systems are often subject to getting dirty by dust and other particles transported by the air samples from the cargo hold. The Smoke Detection System SDS-48 has an algorithm, which automatically re-adjusts the diagnoses value (also referenced as “clean air value” and “offset value”) of each smoke detector and in consequence the threshold for fire alarm during smoke occurrence will be kept constant up to a certain value of dirt in the smoke detector. The diagnoses value for a clean smoke detector is “25”. Beyond the values of 5 and 45 a fault indication “FAULT: Dirt in Line -x- “ will be displayed.

The diagnoses value is a long term average value and can be read out by the “Diagnoses” function in the menu. However the diagnoses value should not be read out earlier than 15 minutes after power up of the system or re-inserting the smoke detector.

2. Wiring of Smoke Detectors

Max. 8 smoke detectors are connected in one loop together with the adjacent airflow indicators. The loop is connected via a safety barrier (galvanic isolator for intrinsically safe circuits) to the power supply module in the smoke detection panel.

3. Ident (ID) Numbers of Smoke Detectors

Alarms and fault states of the smoke detector as well as the signals of the airflow indicator will be displayed with the individual ID-nos. of each smoke detector. The ID-nos. are adjusted by the “XPERT”-card, which is inserted in the adjacent socket of the smoke detector.

4. Fault Indication: “FAULT Smoke Detector Line -x-“

Please check the following:

- Smoke detector in line “x” is inserted in its base.
- Smoke detector in line “x” has the correct ID-no.

Fault Finding:

Smoke Detector Faults in Smoke Detection System SDS-48

- The ID-No. of this smoke detector has not been assigned to any other smoke detector in this smoke detection panel / extension unit

5. Fault Indication: “FAULT Smoke Detector Dirt in Line -x-“

The smoke detector in line “x” is dirty. Please refer to the cleaning instruction in the manual.

! *Please also verify the software version of the smoke detection panel. This can be read out on the display during start-up of the smoke detection system. If the version is lower than 1.2.4, the microcontroller of the smoke detection panel should be exchanged. The limits for dirt detection had not been set correctly in earlier software versions and indication of “**FAULT Smoke Detector Dirt in Line -x-**“ might be issued even the diagnoses value of the smoke detector is within the range between 5 and 45. In this case please contact safetec for delivery of a new microcontroller. A detailed instruction will be attached and exchange can be carried out easily.*

6. Reading out the Actual Response Value of a Smoke Detector

If you are uncertain about the function or the state of a smoke detector, the Smoke Detection Panel offers a function to read out the **actual response values** of the smoke detectors additionally to the long term average **diagnoses values**.

! *Please note that during the hereafter described function no fire alarm and no fault alarm will be generated and no connection to the repeater panel will be established ! **This function may only be used for service purposes !***

- Turn the rotary switch on the rear side of the control module to “9”.
- Proceed a reset.
- Now the display shows the values of smoke detector in line no. 1.
The value on the left bottom side is the actual response value of the smoke detector (“Actual:”).
The value on the right bottom side is the long term average diagnoses value of the smoke detector (“Offset:”). The last value is identical with the value read out by the diagnoses function.
The development of both values can be observed. The offset / diagnoses value is always “0” within the first 30 seconds. Afterwards the offset / diagnoses value will be calculated following a complex algorithm.

Values of Smoke Detector Line 1:	
Actual: 28	Offset: 25

Fault Finding:

Smoke Detector Faults in Smoke Detection System SDS-48

- To examine further detection lines, press the button of the Smoke Detection Panel. The values of the smoke detectors will be shown line by line. After showing the highest line number, line no. 1 will be shown again.
- When you are ready, turn rotary switch to “1” again. The normal monitoring program restarts automatically.

7. Prevention of Dirt in the Smoke Detectors

- Switch off the smoke detection system during loading/unloading of dirty/dusty goods.
- Switch off the smoke detection system during paint work, welding and cleaning in the cargo spaces.
- If the vessel is regularly transporting dirty goods, the application of a prefilter should be considered. See below.

8. Prefilters

Can be mounted between 3-way-valves and smoke detection panel / extension units. This filter will keep back most of the dirt and dust particles in the air samples and increases the service intervals and the lifetime of the smoke detectors considerably. Please ask safetec for more details.