

4.8.4 Display Smoke Detector Diagnosis Report (Display Diagnoses ...)

The smoke detectors automatically self-correct their alarm threshold as they become dirty in order to have a uniform response sensitivity. If they become too dirty, a corresponding fault warning will occur. The current condition of each detector can be read out at any time, in order that, for instance, preventative measures can be carried out during maintenance. The read-out takes place with the help of the special function “Diagnoses Smoke Detectors”. After selecting this function, the following appears:

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DIAGNOSES SMOKE DETECTORS (Line:Value)
01:25   02:25   03:25   04:25   05:25
    
```

The number before the colon gives the line number for the smoke detector while the number after the colon gives its diagnosis value. The diagnosis values must be interpreted as follows:

| Diagnosis value | Meaning |
|-----------------|---|
| 0 - 4 | The smoke detector is dirty and must be cleaned. A fault warning FAULT: Dirt in Line -x- is issued. |
| 5 - 17 | The smoke detector is slightly dirty and should be cleaned during maintenance. The smoke detector is still operational. |
| 18 - 32 | The smoke detector is operational and clean. |
| 33 - 45 | The smoke detector is slightly dirty and should be cleaned during maintenance. The smoke detector is still operational. |
| 46 - 127 | The smoke detector is dirty and must be cleaned. A fault warning FAULT: Dirt in Line -x is issued. |

4.8.5 Turn On / Turn Off Smoke Detector and Airflow Sensors Line by Line (Select On- / Offline)

Each detection line is displayed one after the other with their status “ON” or “OFF”:

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Line -1- ON   Switch over Line ?
If yes, press button again !
    
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By pressing the button, the current detection line is switched over from “ON” to “OFF” respectively from “OFF” to “ON”. After displaying the last detection line the normal monitoring program is automatically turned on.

If one or more of the detection lines are switched off, the fault relay goes into the “fault” position and the yellow lamp turns on to indicate that one ore more detection lines are turned off and at the same time a fault warning appears on the LCD showing the line number that has been turned off. If, for instance, detection line no. 3 is turned off, the message states:

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OFF: Line -3-
ON: Fan -1-
    
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5.2 Display of Fault Warnings

Nearly all possible system faults of the smoke detection system SDS-48 will be indicated on the display. Please find hereafter a description of all possible fault indications.

5.2.1 Airflow Fault

If the airflow in detection line is too weak, the following fault warning will be issued:

FAULT: Airflow Line -x-

Possible causes:

- Pipe of detection line no. x is blocked and must be cleaned.
- 3-way-valve of detection line no. x is in position “CO2-extinguishing system”.
- Pressure switch of detection line no. x is defective.

For fault finding please proceed as follows:

- Remove the flexible hose from the appropriate detection line. If now the airflow fault indication for this detection line disappears, the pipe of this detection line must be cleaned. Refer to section 5.3.9.
- If the fault is still present, open the housing in which the pressure switch of the detection line is located. Disconnect the cable from the pressure switch at the sensor connection module in the middle of the housing. Connect a small wire instead of the cable at the sensor connection module (short circuit). If the airflow fault indication for this detection line disappears now, the pressure switch must be replaced. Refer to section 5.3.1.

5.2.2 Polluted Smoke Detector

If a smoke detector is so dirty that its diagnosis value is outside the range for clean smoke detectors (less than 5 or more than 45), the following fault warning will be issued:

FAULT: Dirt in Line -x-

To ensure proper functioning of the smoke detection line, the pipe of the detection line and the appropriate smoke detector should be cleaned as soon as possible. See sections 5.3.2, 5.3.3 and 5.3.9.

5.2.3 Defective Smoke Detector

If the smoke detection panel cannot get in contact with the smoke detector in detection line no. x, the following fault warning will be issued:

FAULT: Smoke Detector Line -x-

Possible causes:

- smoke detector of detection line no. x is missing.
- smoke detector of detection line no. x is defective.

To correct the fault, exchange the smoke detector.

5.2.4 Data Transfer Fault

If the smoke detection panel cannot get in contact with the repeater panel or relay box at address -x-, the following fault warning will be issued:

FAULT: Data Transfer Address -x-

Possible causes:

- Repeater panel or relay box at address no. x not connected or defective.
- Repeater panel or relay box not set to address -x- (refer to section 6).
- RS-485-bus cable at repeater panel or relay box not connected correctly.

In case of a repeater panel at address no. x, this repeater panel will issue following fault warning:

FAULT: Data Transfer
(Checksum Faults: xxx)

„xxx“ indicates the cumulative number of checksum faults (data transmission failures). If the number of checksum faults „xxx“ increases rapidly, the wires of bus the cable on terminals 19 and 20 are reversed.

If the adjusted address no of a repeater panel is higher than the highest address-no. which has been adjusted during the system configuration, the repeater panel issues for example the following fault warning (this warning will not be issued on other devices):

FAULT: Local address exceeds range of 4

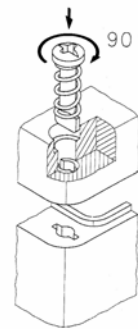
In this example the highest permissible address no. in the system configuration is 4. Consequently the adjusted address no. of the repeater panel is higher than 4. To settle the fault, adjust the correct address no. at the repeater panel (refer to section 6.1).

5.3 Repairing and Replacing Defective Parts

5.3.1 Replacing a Pressure Switch

1. Open the lower door of the smoke detection panel and turn the smoke detection system off. (Remove transformer fuse F1 on power supply module).
2. Open the upper door of the smoke detection panel.
3. Unscrew the black plug connection on top and remove it from the pressure switch.
4. Open the cover of the detector box (quick-release screws, see illustration).
5. Unscrew the pressure switch.
6. Install the new pressure switch again in reverse order. Turn the smoke detection system on again and close the doors of the smoke detection panel.

Securing the cover for the detector box with quick-release screws:



5.3.2 Replacing a Smoke Detector

1. Open the lower door of the smoke detection panel and turn the smoke detection system off. (Remove transformer fuse f1 on power supply module).
2. Open the upper door of the smoke detection panel and open the cover on the detector box by pushing down the quick-release screws and turning anti-clockwise (see illustration).
3. Remove the smoke detector by turning it anti-clockwise out of the socket.
4. Clean the smoke detector (see section 5.3.3) or replace it.
5. Install the smoke detector in the socket by turning it clockwise.
6. Fasten the cover of the detector box again (see illustration).
7. Turn the smoke detection system on again and close the doors to the smoke detection panel.

5.3.3 Cleaning a Smoke Detector

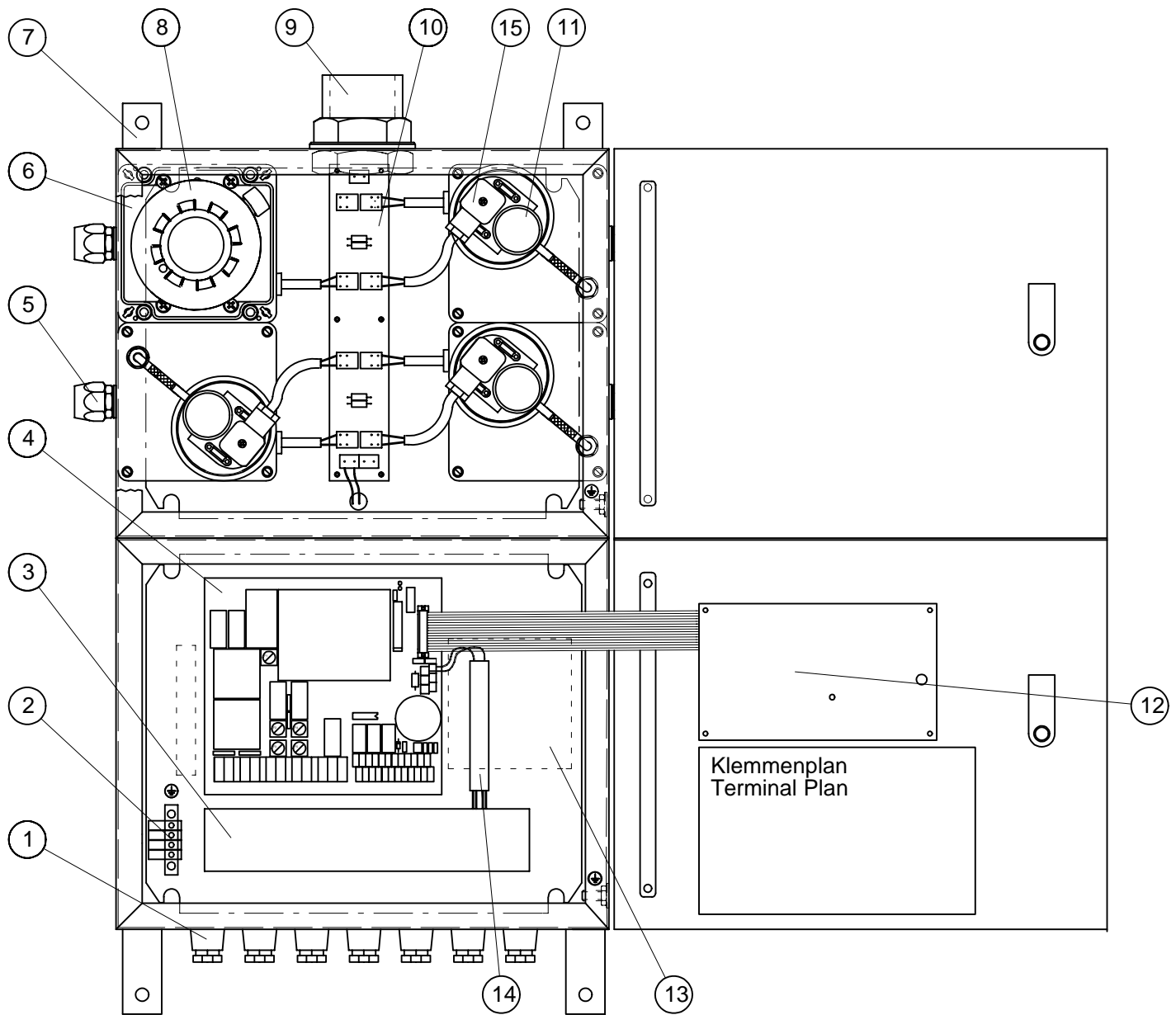
1. Undo both Phillips screws on the lower part of the smoke detector and lift off the white cover of the smoke detector. You are now looking at the black optical chamber with the insect guard.
2. Hold the smoke detector firmly in one hand, turn the optical chamber anti-clockwise with the other hand and lift it from the lower part of the detector. **Under no circumstances is the optical chamber to be switched with other smoke detectors !**
3. Clean the optical chamber inside and out with a vacuum cleaner or with compressed air. The labyrinth can be cleaned with a brush. Be sure that the insect guard does not get damaged in the process.
4. Insert the optical chamber back onto the lower part of the detector and turn it clockwise until it engages.
5. Screw the white cover tight again and set the smoke detector in its socket.
6. Perform a function test. The diagnostic value of the smoke detector should lie between 15 and 35.
7. If the diagnostic value lies outside of this range after cleaning, it must be replaced with a new smoke detector. The old one can be sent to the manufacturer for cleaning and later reuse.

5.3.8 Replacing the Fan Unit SDS-M0440

1. Turn off the main and emergency power supply for the smoke detection system at the main and emergency switchboards for the ship.
2. Undo the connecting cable in the terminal block at the motor.
3. Remove the cover plate along with both motors from the unit (8 nuts M8).
4. Remove the fan wheel of the corresponding motor.
5. Remove the motor mounting nuts (4 nuts M8).
6. Pull the motor upward.
Note: Check condition of the fan shaft gasket.
7. Install the new motor in reverse order.

5.3.9 Cleaning the Suction Pipelines

1. Open the lower door of the smoke detection panel and turn the smoke detection system off. (Remove transformer fuse F1 on the power supply module).
2. **Loosen the hose fitting and pull off the hose from the smoke detection panel to the detection line to be cleaned.** (Note: Removing the hoses should prevent residual air pressure, such as can occur inside the 3-way valve after the cleaning, from damaging the sensitive pressure switches for monitoring air pressure when the valves are reset. As long as the connection to the smoke detection panel is closed off with a shut-off valve and it can be ensured that the shut-off valve will remain closed until after the 3-way valves have been reset, the hoses need not be pulled off).
3. Bring the 3-way valve to the position “CO2-extinguishing system”.
4. Connect a compressed air source to the connections provided for it.
5. Clean the pipeline with compressed air.
6. When the pipeline has been cleaned, put the smoke detection panel back into its operational state in the reverse order. Only reconnect the detection line hose at the smoke detection panel after the 3-way valve has been brought to the position “smoke detection system”.



| No. | Bezeichnung | Description | Art. No. |
|-----|--|--|----------|
| 1 | Kabelverschraubung | Cable Gland | |
| 2 | Anschluss Potentialausgleich | Earthbar | |
| 3 | Kabelkanal | Cable Duct | |
| 4 | Stromversorgungsmodul | Power Supply Module | BG02.600 |
| 5 | Schlauchverschraubung Lufteintritt | Adapter Nipple for Detection Line | Z01.001 |
| 6 | geöffnete Detektorbox | open Detector Box | |
| 7 | Befestigungswinkel | Mounting Strap | |
| 8 | Rauchmelder XP95 I.S. | Smoke Detector XP95 I.S. | E20.002 |
| 9 | Anschlussnippel für Absaugung | Adapter Nipple for Fan Unit Connection | |
| 10a | Detektoranschlussmodul für max. 4 Kanäle | Detector Connection Module for max 4 Lines | BG02.810 |
| 10b | Detektoranschlussmodul für max. 8 Kanäle | Detector Connection Module for max 8 Lines | BG02.820 |
| 11 | Druckschalter für Luftstromüberwachung | Pressure Switch for Airflow Monitoring | E01.003 |
| 12 | Steuermodul | Control Module | BG02.500 |
| 13 | Relaismodul (optional) | Relay Module (optional) | BG02.908 |
| 14a | 1-Kanal-Trennwandler EEx i | Galvanic Isolator EEx i, 1 Channel | E06.101 |
| 14b | 2-Kanal-Trennwandler EEx i | Galvanic Isolator EEx i, 2 Channels | E06.102 |
| 15 | Stecker mit Leitung für E01.003 | plug and cable for E01.003 | BG02.090 |

Hinweis:

Wenn ein optionales Relaismodul eingesetzt wird, wird dieses rechts neben der Stromversorgungseinheit montiert. Der Trennwandler wird dann links von der Stromversorgungseinheit montiert (Positionen gestrichelt gezeichnet).

Remark:

If a optional relay module will be mounted, this will be placed right from the power supply module. The galvanic isolator will then be mounted left from the power supply module (positions are shown dotted).

| Rev. | Datum | PeEi | Maßstab |
|--------|----------|------|---------|
| Rev. 3 | 06.10.04 | PeEi | 1:5 |
| Gepr. | 11.10.01 | kb | |
| Bearb. | 26.04.00 | HZ | |

safetec

Teile in Rauchmeldezentrale SDS-4
Components in Smoke Detection Panel SDS-4

SDS02.021.tcd