

**OPTICAL SMOKE DETECTOR**  
Model: **SPD-3.1M**



**USER'S  
MANUAL**



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07  
EC-certificate of conformity  
No: 1438/CPD/0077

EN 54-7

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## 1. FUNCTIONS

1.1 The SPD-3.1M smoke optical point detector is designed to detect smoky fires indoors, and to transmit alarm signal to fire alarm control panels.

1.2 The SPD-3.1M is counted on the continuous 24-hours operation in connection with fire alarm & fire-intruder control panels in DC or alternating 2-wire fire alarm loops with the 12/24V rated supply voltage.

1.3 The detectors have functions:

- Indication of the standby mode (LED periodical flashing);
- Indication of the alarm mode (LED steady light).

The detector complies with EN 54-7.

## 2. TECHNICAL SPECIFICATIONS

- 2.1 Supply voltage range, V..... 10-30  
2.2 Way of output signal issue .....non-contact  
2.3 Wiring to control panel.....2-wire  
2.4 Standby current consumption, mA.....≤0,095  
2.5 Alarm current consumption, mA.....6-30  
2.6 Internal resistance in alarm mode at 20 mA, Ohm... ≤500  
2.7 Reverse current at -30V, μA.....≤5  
2.8 Dimensions, mm. ....Ø100 x 48  
2.9 Weight, g .....150  
2.10 Operating temperature range, °C .....from - 10 to + 55  
2.11 Average lifespan, years. ....≥10

## 3. ITEMS SUPPLIED WITH THE DETECTOR

Name	Quantity	Note
SPD-3.1M smoke photoelectric detector	up to 25 pcs.	B103-02 base including
Manual	1 pc.	per a package
Package	1 pc.	per 25 detectors

For installation of the detectors on suspended ceilings you can separately order the K-4 mounting rings.

## 4. DESIGN AND PRINCIPLES OF OPERATION

4.1 The principle of detector's operation is based on the control of optical medium density.

4.2 The detector consists of the detector itself and the base. The optical system, the signal processing electronic unit and LED control circuit are in the plastic housing of the detector. The detector is connected to the base with a 4-contact joint.

4.3 If there is no smoke in the sensitive zone of the optical system, the detector connected to the control panel shall be in standby mode, the red LED periodical pulsing indicates about.

4.4 When smoke appears in the sensitive zone of the optical system, the electronic circuit issues the alarm signal by intermittent change of internal resistance that leads to current growth in alarm loop. When in alarm mode the red LED switches on and is steadily lit.

4.5 The reset of detectors to the standby mode occurs when the mains supply switches off for not less than 3 s with the following energizing.

## 5. PLACEMENT AND INSTALLATION

5.1 You should position detectors in places with the following conditions:

- minimal vibrations of constructions;
- minimal illumination intensity;
- maximum distance from sources of electrical-magnetic interferences (electric wiring etc.), infra-red radiation (heat devices);
- elimination of water ingress on the case and penetration out of the base;
- no gas, steam, aerosol emission that can cause corrosion.

5.2 Detectors are connected to the loop with the help of bases. Bases should be secured onto the detectors' place of mounting using two  $\varnothing 6 \times 25$  mm expansion bolts and two  $\varnothing 3 \times 30$  mm screws. The center-to-center distance between mounting holes of the base is  $70 \pm 0,2$  mm.

5.3 It is possible to connect up to 3 wires of section  $\leq 0,5$  mm<sup>2</sup> to one screw joint of the base.

5.4 There is an auxiliary free contact (screw joint) "5" on the base. The contact is meant for convenience of fitting EOL and limiting resistors. The view of the base is shown in Figure 1.

5.5 The wiring diagram for detectors to control panels is shown in Figure 2- Figure 3.

## 6. PREPARATION FOR OPERATING AND SEQUENCE OF OPERATIONS

6.1 Open the package after receiving detectors, check contents.

**ATTENTION! If detectors were in below 0° C temperature conditions before opening the package, allow them to acclimatize inside the structure for at least 4 hours.**

6.2 Test detectors for proper operating.

6.2.1 Connect the detector to a DC power source of 20-30 V and the load current  $\geq 50$  mA ("plus" connect to the contact "5", between contacts "5" and "2" connect the  $1 \text{ k}\Omega \pm 5\%$  current limiting resistor, "minus" – to the contact "3").

6.2.2 Switch on the mains supply and in not less than 10 s introduce into the test hole on the detector's cover (plastic or metal pin  $\varnothing 1-1,2$  mm, 4-5 mm long) and simultaneously switch the stopwatch on.

6.2.3. When the LED is on, stop the stopwatch and determine the response time (lag) that should be  $\leq 10$ s.

6.3 The resetting to standby mode is made by turning off the mains supply for at least 3 s.

## 7. MAINTENANCE

7.1 Vacuum at least every six months to keep the unit working efficiently by firstly turning off the mains supply and vacuuming through the vents during one minute using a soft brush attachment or using another compressor of 0,5-3 kg/cm<sup>2</sup>.

7.2 Then test detectors for proper operating. If the detector is detached from the base then the test should be made according to p.6.2.

7.3 The test should be made by inserting a tester-pin into the hole on the detector's cover. The red LED will be lit when the detector operates properly, and the control panel will issue the alarm signal.

## 8. GUARANTEE

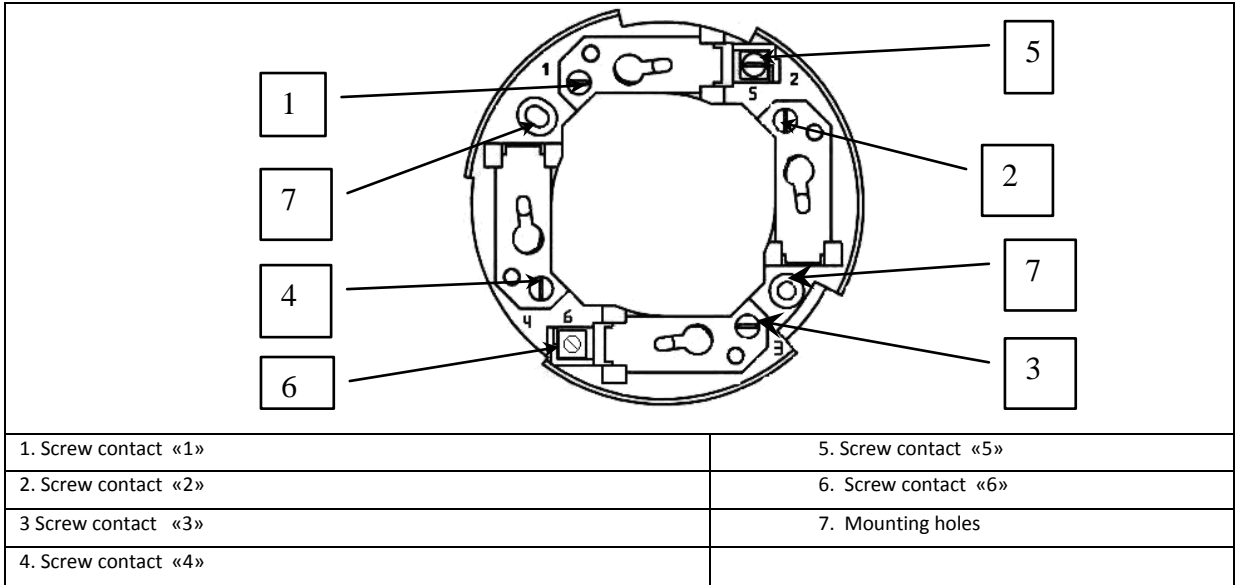
8.1 The detector is warranted by the manufacturer for 18 months upon the date of the detector's commissioning but not longer than for 30 months from the date of approval by the manufacturer's quality control department.

8.2 The manufacturer shall repair or replace detectors within the guarantee term provided that the rules of installation, timely maintenance, transportation and storage of detectors have been kept.

8.3 In the case faults according to a reclamation have been removed the guarantee term is prolonged for the time the detectors were not in use because of faults.

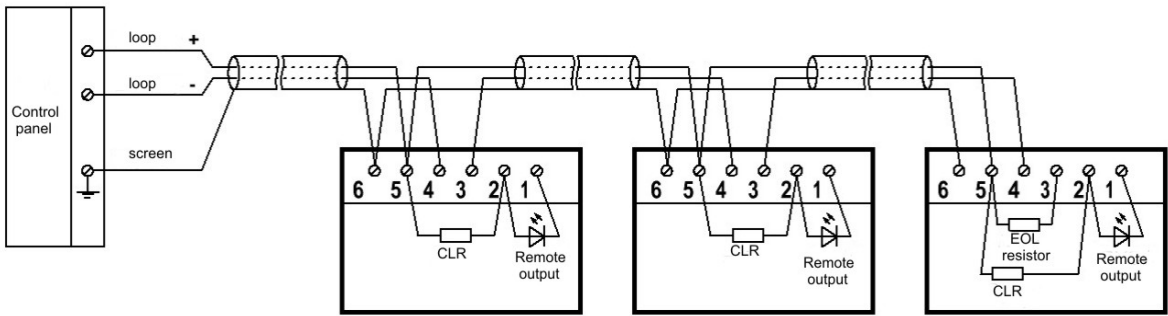
**Figure 1**

**B103-02 BASE**



**Figure 2**

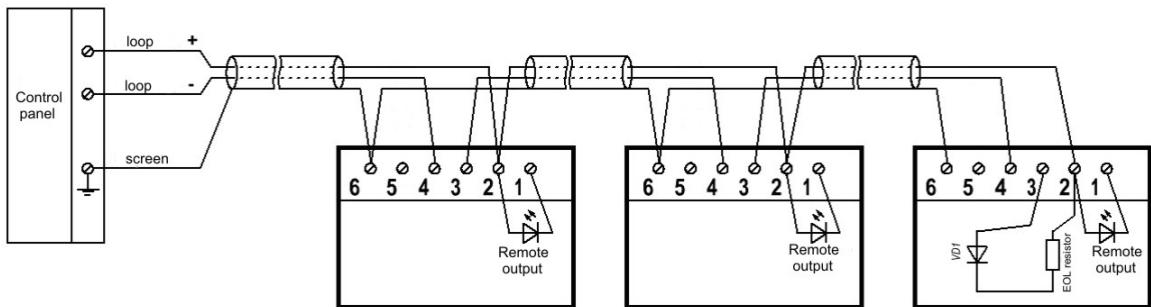
**WIRING DIAGRAM FOR SPD-3.1M DETECTORS TO DC CONTROL PANEL**



EOL resistor and CLR are specified by control panel specifications

**Figure 3**

**WIRING DIAGRAM FOR SPD-3.1M DETECTORS TO DC CONTROL PANEL**



EOL resistor is specified by control panel specifications

**QUALITY AND PACKING CERTIFICATE**

Optical smoke detector, model SPD-3.1M, serial numbers:


\_\_\_\_\_pieces

\_\_\_\_\_pieces

Compliant with EN 54-7

Packed in compliance with the factory rules

Manufacturing date \_\_\_\_\_.\_\_\_\_.201\_\_

Packing date \_\_\_\_\_.\_\_\_\_.201\_\_

Quality control mark\_\_\_\_\_