The SD-280 fire detector

This device is designed to detect the presence of fire inside residential or commercial buildings. It should not be installed in industrial premises.

The detector has a built-in local warning siren combined with a red LED indicator. It is powered by Type A or B external uninterruptible power sources in conformity with EN 50131-6, or a security alarm system control panel.

The alarm signal output for these control panels is provided by an electronic relay via the **OUT** terminals. A signal concerning detector removal from the holder is available via the **TMP** terminals.

The SD-280 detector combines an optical smoke sensor with a heat sensor. Both sensors have their outgoing signals processed digitally, resulting in higher false alarm immunity. The optical sensor works using a light diffusion principle and is very sensitive to the presence of large-sized particles which are characteristic of dense smokes. By contrast, the sensor is less sensitive to small-sized particles which are typical of cleanly burning fires. In particular, the smoke sensor is not capable of detecting the by-products of cleanly-burning fluids such as alcohols, for instance. This deficiency is compensated for by the built-in heat sensor. This sensor provides a slower reaction when compared to the smoke sensor, but is much better at reacting to fires with rapidly rising heat producing only a little smoke.

Detection range, detector positioning

Exposing fire conditions to the smoke and heat sensors requires some level of air circulation. It is therefore necessary to install the detector in such a place on the ceiling that (in the case of fire) smoke masses are forced to go in the direction of the detector's position. This can usually be achieved in most buildings. However, the detector is not suitable for installation in outdoor spaces or interiors with an extremely high ceiling where fire by-products would not reach the detector position.

The following table shows the detector's working range in relation to the height of the ceiling on which the detector is installed. The range is expressed as the radius of the circular fire detection area for a detector installed on a ceiling directly above:

	Ceiling height (m)					
	< 4,5	4,5÷6	6÷8	8÷11	11÷25	> 25
Smoke detection	7,5* m	7,5* m	7,5* m	7,5* m	*Not suitable*	*Not applicable*
Heat detection	5* m	5* m	5* m	*Not suitable*	*Not applicable*	*Not applicable*

Not applicable – meant for a particular ceiling height range
Not suitable –not usually used in such cases
* – the radius of the detection area below the detector

● **Installation on a horizontal level ceiling**

Due to the possible occurrence of a cold air layer right under the ceiling, the **detectors must not be imbedded into the ceiling**. The distance between any point to be protected and an imaginary vertical line from the nearest SD-280 detector down to the floor must not exceed the radius indicated in the table.

● **Installation on a sloping ceiling**

If the SD-280 is installed just under an apex formed by the joining of two sloping ceilings the values indicated in the table can be increased by 1% for every degree of slope up to a **maximum of 25%.** If the space to be protected is under a **saw-tooth type of roof,** SD-280 detectors should be installed **under each apex**. However, a roof with a shallow saw-tooth form can be acceptable if the height difference between the highest and lowest parts of the ceiling does not exceed 5% of the total ceiling height

● **Walls, partitions, obstacles, and trussed ceilings**

The SD-280 **must not be installed closer than 0.5 m from any wall or partition**. A narrow room with a width of less than 1.2m requires the detector(s) to be placed at a distance of at least one third of the room's width away. In the case of separating walls (partitions, warehouse objects) which do not reach the ceiling, the space is **considered to be fully separated if the gap between the top of the separating wall and the ceiling does not exceed 0.3 m**. A free space of at least 0.5m is required under the detector. Irregularities in ceiling shape which do not exceed 5% of ceiling height are considered insignificant – the ceiling can be regarded as being even and limits from the table are applicable. **However, any irregularity (including beams) exceeding 5% of the ceiling height is considered to be a wall with the consequences stated above**.

● **Ventilation and air circulation**

The detectors must not be installed directly by a fresh air inlet, e.g. air conditioning vents. In the case of air being supplied through a perforated ceiling, each detector must be placed so that no perforation hole occurs within 0.6m of the detector.

● **Avoid installing the detector in the following locations:**

● Places with poor air circulation (niches, corners, apexes of A-shaped roofs).
● Places exposed to dust, cigarette smoke or steam.
● Places with over-intense air circulation (close to ventilators, heat sources or air conditioning outlets).
● Kitchens and other cooking places (because steam, smoke or oily fumes can reduce detector sensitivity).

Caution: The most common reason for the detector to be accidentally triggered is improper detector location.
See CEN/TS 54-14 standards for detailed installation guidelines.

Installation

1. Open the detector by turning the rear cover to the left
2. **Screw the rear cover** onto the desired location
3. connect the OUT and TMP terminals – consult the control panel manual before connecting wires to the detector terminal board

4. **Set the required function** via the jumpers – see the table below
5. Connect the power supply to the 12V terminals – regardless of polarity
6. After installing the detector, allow approx. 20 seconds for stabilisation. This period is indicated by the LED being continuously lit and is **followed by an auto-test**. Successful performance of the auto-test is **confirmed acoustically**

TEST
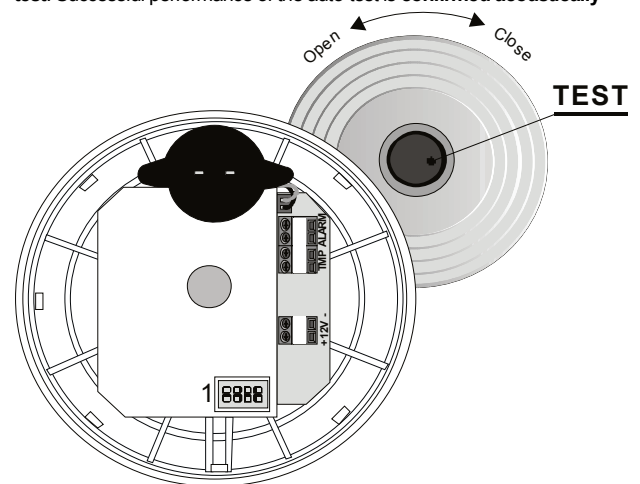
1	ON	NO closing contact	3	OFF	Smoke (EN 14064) or heat (EN 54-5)
	OFF	NC break contact	4	OFF	
2	ON	Memory ON	3	ON	Only smoke (EN 14604) (heat indifferent)
	OFF	Memory OFF	4	OFF	
			3	OFF	Only heat (EN 54-5) (smoke indifferent)
			4	ON	
			3	ON	Smoke and heat (both simultaneously)
			4	ON	

Testing the detector is automatically performed up to 10 secs after powering up. New settings are saved directly afterwards.

Fire alarm

Optical smoke sensor: Smoke entry into the detector is indicated as a pre-alarm state by the LED flashing. If the smoke threshold density is exceeded, a siren sound is generated, gradually increasing in volume.

Heat sensor: indication logic is equal to that of the smoke sensor.

Alarm memory: It is switched ON/OFF via DIP 2 as shown in the table. If the event memory is armed at the time of alarm, alarm LED indication continues even if normal conditions are restored. The indication can be stopped by pressing the button.

Silencing the siren during an alarm: During a fire alarm, the detector LED flashes 2 times briefly and the built-in siren sounds (at a higher intensity than during a test). Under these conditions the siren can be silenced by pressing the test button for approx. 3sec. However, if normal conditions are not restored within approx. 10 minutes (the smoke does not clear from the room or the temperature does not drop), the siren re-activates.

Testing the detector

Testing the detector is automatically performed up to 10 secs after powering up the detector or after changing the settings on the jumpers. The functioning of the detector can be tested by pressing and holding the test button for approx. 3 seconds. A properly functioning detector responds with one beep and a short flash. The output is concurrently switched ON / OFF (see the table)

A fault is indicated by 4 beeps and the LED permanently flashing. In this case, disconnect the power for 1 minute. If the fault indication occurs again (the LED starts permanently flashing after about 1 minute), consult the installer company.

The detector should be tested this way at least once in every 30 days.

Warning: Never start a fire in a building to test the detector. Instead, use smoke-simulating aerosols for realistic testing.

Specification

Voltage	9 – 15 V DC / 2,5 mA (100mA during alarm)
	(Type A or B source pursuant to EN 50131-6)
Outputs - alarm - OUT	60 V/ 100 mA max.
- sabotage (failure) TMP	R = 68 Ω (protection)
Smoke detection	optical, light dispersion
Smoke sensor sensitivity	m = 0.11 - 0.13 dB/m pursuant to EN 14 604
Temperature detection	A2 class pursuant to EN 54-5
Fire-alarm temperature	+60 °C to + 70 °C
Acoustic power of the built-in siren	min. 85dB / 3 m
Operational temperature range	-10 to +70 °C
Dimensions	diameter 126 mm, height 65 mm
Complies with	EN 14 604, A2 EN 54-5, EN 50130-4, EN 55022

CE 1293-CPD-0262 JABLOTRON ALARMS a.s. hereby declares that the SD-280 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. The original of the conformity assessment can be found on the web site www.jablotron.com, Technical Support section

Note: Although this product does not contain any harmful materials we suggest you return the product to the dealer or directly to the manufacturer after use.