

# The SD-503ST Stand-alone combined smoke and heat detector

The SD-503ST is used to detect fire hazards in the interior of residential or commercial buildings. The detector can be installed in mobile homes or caravans. The product is not designed to be installed in industrial premises.

The detector indicates a fire hazard using the built-in LED indicator and acoustic signalling.

The SD-503ST consists of two independent detectors – an optical smoke detector and a heat detector. The optical smoke detector works on the principle of scattered light. It is very sensitive to large dust particles which are present in dense smoke. It is less sensitive to smaller particles generated by the combustion of liquids such as alcohol. That is why the fire detector also contains a built-in heat detector which has a slower reaction but is much better at detecting fire which generates only a small amount of smoke.

## Detector range and location

The smoke detector must be installed so that any smoke easily drifts into the detector owing to natural thermal currents, e.g. on the ceiling. It is suitable for residential buildings but not suitable for free spaces, outdoor environments or interiors with extremely high ceilings (above 5 m) where fire by-products can disperse over a large area – the smoke would not reach the detector position. Do not install the detector in an environment exposed to dust, cigarette smoke and steam. Dusty environments shorten the detector's lifespan.

The detectors should be installed by a trained technician with a valid manufacturer's certificate.

Detectors should be installed in the building according to the project documentation. If such documentation is not available, the detector positions should comply with the effective standards for fire alarm signalling systems.

The detector must always be placed in the section leading to the exit of the building (escape route), see Fig. 1. If the building has a floor area greater than 150 m<sup>2</sup>, installation of an additional detector in some other suitable place is required, see Fig. 2.

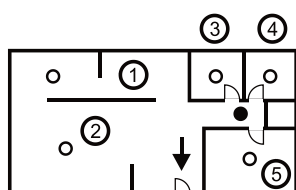


Fig 1

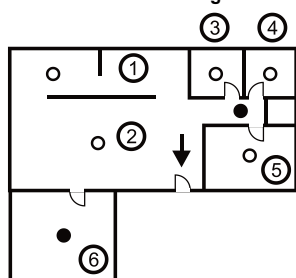


Fig 2

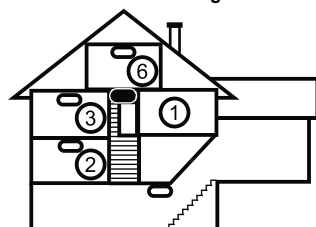


Fig 3

In multi-storey flats and family houses the detector should be installed above the stairs. It is recommended to place additional detectors in rooms where people sleep. See Fig. 3.

## Installation on level ceilings

Place the detector in the centre of the room if possible. **The detector must not be recessed into the ceiling** due to the possible existence of a cool air layer on the ceiling. **Never place the detector in the corner of the room** (always keep at least 0.5 m distance from the corner - see Fig. 4). There is an insufficient circulation of air in the corners.

## Installation on sloping ceilings

If the ceiling is not suitable for mounting on a level surface (e.g. a room under a roof ridge), the detector can be installed as in Fig. 5.

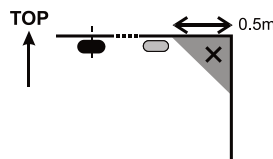


Fig. 4

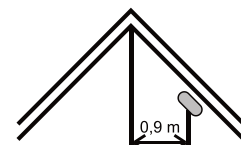


Fig. 5

- / ■ centre of the room, best location
- / □ acceptable location

## Walls, partitions, barriers and lattice ceilings

**The SD-503ST detector must not be installed closer than 0.5 m from any wall or partition.** A narrow room with a width of less than 1.2 m requires the detector(s) to be placed at a distance of at least one third of the room's width away. In a case when a room is separated into sections with furniture, racks or semi partition walls which do not reach the ceiling, the space is considered to be fully separated if the gap between the top of these and the ceiling does not exceed 0.3 m. A free space of at least 0.5 m is required under and around the detector. Any irregularities of the ceiling (e.g. girders) exceeding 5 % of the ceiling height should be considered a wall and the above mentioned limitations should apply.

## Ventilation and air circulation

**The detectors must not be installed directly by ventilation or 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 0.6 m of the detector.

## • Avoid installing the detector in the following locations:

- places with poor air circulation (niches, corners, apexes of A-shaped roofs, etc.)
- places exposed to dust, cigarette smoke or steam
- places with over-intense air circulation (close to ventilators, heat sources, air conditioning outlets, etc.)
- in kitchens and other cooking places (because steam, smoke or oily fumes can cause false alarms or reduce detector sensitivity).
- beside fluorescent lights or energy-saving light bulbs (electrical interference can cause a false alarm)
- in areas with lots of small insects

**Warning:** Most false alarms are caused by improper detector location.

See CEN/TS 54-14 standards for detailed installation guidelines.

## Installation

When installing the detector, abide by the procedures recommended in the previous paragraphs.

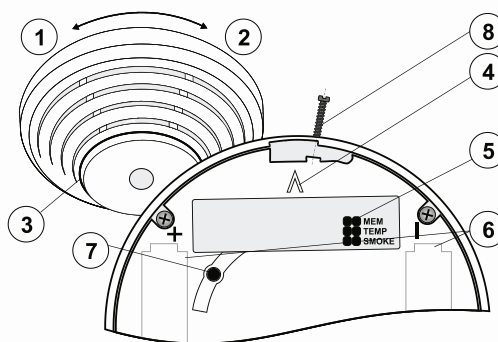


Fig. 6: 1 – detector cover opening; 2 – detector cover closing; 3 – optical status signalling (red LED); 4 – arrow showing where to insert the detector; 5 – configuration terminals; 6 – battery holders; 7 – button for test; 8 – locking screw;

1. Open the detector cover, by turning it anti-clockwise (1)
2. Attach the plastic base to the selected place using screws
3. Use the terminals (5) to set the required detector function – see the table below

|                            |                                                                                                    |                 |   |     |                                                                |
|----------------------------|----------------------------------------------------------------------------------------------------|-----------------|---|-----|----------------------------------------------------------------|
| 1                          | ON                                                                                                 | Memory disabled | 2 | OFF | Smoke (EN 14604) or heat (EN 54-5)                             |
|                            | OFF                                                                                                | Memory enabled  | 3 | OFF |                                                                |
| 1 MEM<br>2 TEMP<br>3 SMOKE | <br>ON<br><br>OFF |                 | 2 | ON  | Heat only (EN 54-5) (no smoke)                                 |
|                            |                                                                                                    |                 | 3 | OFF |                                                                |
|                            |                                                                                                    |                 | 2 | OFF | Smoke only (EN 14604) (no heat)                                |
|                            |                                                                                                    |                 | 3 | ON  |                                                                |
|                            |                                                                                                    |                 | 2 | ON  | Smoke and heat at the same time (both conditions concurrently) |
|                            |                                                                                                    |                 | 3 | ON  |                                                                |

When the detector is installed in caravan trailers, use only the "smoke only" or "both smoke and heat" settings.

**4. Insert the batteries (3 X AA, alkaline 1.5 V)**

**5. Close the detector cover.** The detector can be inserted into the plastic base in one position only. The correct position is marked with arrows on both plastic parts (4).

**6.** In order to be fully compliant with regulations, it is necessary to lock the cover with the use of an (8) arresting screw.

**Note:** Detector cover closing is blocked unless all 3 batteries are inserted!

The mounting base must not be replaced by bases meant for older detectors, which do not provide the option to install an arresting screw.

## Fire alarm

A fire alarm is signalled both acoustically and optically.

When the conditions for fire alarm triggering are met (smoke is detected in the room, the alarm temperature is reached, or both), the detector signals the danger by sounding the siren and quickly flashing the LED indicator (3).

**Silencing the siren during an alarm:** The siren can be silenced by pressing the detector body against the base. The siren is then silent for 10 minutes. If the detector still detects smoke or heat then, the siren is reactivated.

When the need arises (e.g. in the case of a detector failure), it is possible to postpone siren reactivation by up to 12 hours. This can be done by pressing the detector again for 5 s after silencing the siren. When the detector chirps, you have to release the pressure within 1 s. The switchover to the postponed siren mode is confirmed with 5 chirps. The detector LED flashes all the time during the postponement.

**Alarm memory:** If it is enabled, alarm indication continues even when the smoke clears or when the temperature decreases. The slow-flashing indication lasts 24 hours unless it is terminated by pressing the detector body.

## Detector testing

**The detector should be tested at least once per month.** To test the detector press its body against the base and wait until the LED indicator starts flashing. The LED flashing signals switchover to test mode. The LED flashes for the whole duration of the test. When the test is complete, the LED switches off. The detector then signals the result. If the detector chirps once, no problems have been detected. If a fault is discovered, the LED flashes three times. The detector flashes once without acoustic indication if the test is finished and a low battery is detected. If the battery is low, there is no acoustic signalling.

The complete function of the detector can be tested with a testing spray (e.g. SD-TESTER) or hot air (e.g. a hair dryer).

**Warning: never test the detector with fire.**

## Fault indication

The detector checks its functioning. If it discovers a fault, it beeps and flashes three times simultaneously, and then flashes three times every 30 s.

A detector test can be carried out when a fault is signalled. To test the detector, press its whole body against the base. During test the detector checks whether the fault still exists. The LED flashes during the testing. When the test is completed, the LED stops flashing and then signals the result. A persistent fault is signalled by 3 flashes and 3 beeps. If the fault has been removed, the detector chirps briefly.

If you have not managed to repair the fault, the detector must be sent to a service centre.

## Battery replacement

The detector checks the battery status and if the batteries are running low, the detector signals that they need replacing by short flashes every 30 s. Replace the batteries as soon as possible. Always replace all three batteries with the same type and manufacturer.

**Note:** For the best possible operation we strongly recommend using only batteries supplied by Jablotron's authorized distribution (avoid usage of so called no-name batteries).

**Do not throw used batteries into ordinary household waste. Deposit them at authorized collection points.**

## Technical specifications

**Power** 3 x alkaline batteries AA (LR6) 1.5 V/2.4 Ah  
Please note: Batteries are not included

**Typical battery lifetime** approx. 3 years

**Quiescent current consumption** 22 µA

**Maximal current consumption** 17 mA

**Low battery voltage** 3.3 V

**Smoke detection** optical light scattering

**Smoke detector sensitivity**  $m = 0.11 \div 0.13 \text{ dB/m}$

according to EN 14604

**Heat detection** class A1 according to EN 54-5

**Alarm temperature range** +60 °C to +65 °C

**Operating temperature range** -10 °C to +70 °C

**Average operating humidity** 75%, non-condensation

**Dimensions,** diameter 126 mm, height 52 mm

**Weight (without batteries)** 150 g

**In compliance with** EN 14604, EN 54-5, EN 50130-4, EN 55032,

EN 50581

**Recommended screw** 4 x  Ø 3.5 x 40 mm (countersunk head)

CE<sub>14</sub>

**1293-CPR-0721**

JABLOTRON ALARMS a.s. hereby declares that the SD-503ST detector is in compliance with the essential requirements and other relevant provisions of Regulation 2014/30/EU and 2011/65/EU. The original of the conformity assessment can be found at [www.jablotron.com](http://www.jablotron.com) - Technical Support section



**Note:** Disposing of this product correctly will help save valuable resources and prevent any potential negative effects on human health and the environment, which could otherwise arise from inappropriate waste handling. Please return the product to the dealer or contact your local authority for further details of your nearest designated collection point.

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