

# JA-111ST Bus combined smoke and heat detector

The JA-111ST is a component of the JABLOTRON JA-100 alarm system. It is used to detect fire hazards in the interior of residential or commercial buildings. The product is not designed to be installed in industrial premises. The detector is powered via the control panel digital bus (EN 54-7; EN 54-5). When the detector is used with inserted batteries (3x 1.5 V AA) from which it can be powered, it can continue operating as a stand-alone detector when the 12 V power supply is disconnected (EN 14604).

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

The JA-111ST 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.

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, their position 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.

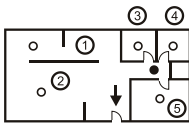


Fig 1

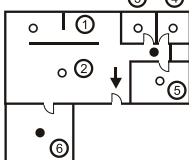


Fig 2

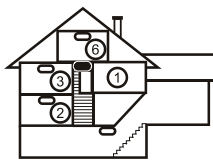


Fig 3

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.

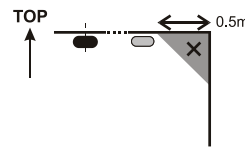


Fig 1

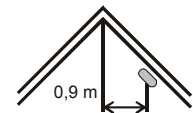


Fig 2

- centre of the room, best location
- acceptable location

### Walls, partitions, barriers and lattice ceilings

The JA-111ST 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 walls, semi partition walls or furniture which do not reach the ceiling, the space is considered as a fully separated if the gap between the top of these and the ceiling does not exceed 0.3 m are performed as a single rooms. 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.

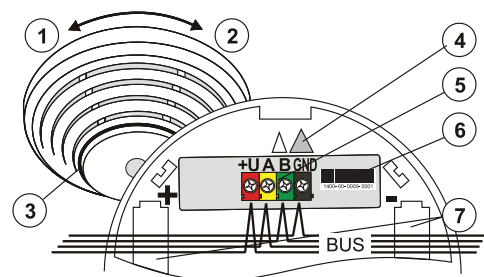


Fig 3: 1 – detector cover opening; 2 – detector cover closing; 3 – optical status signalling; 4 – arrow showing where to insert the detector; 5 – bus terminal; 6 – production code; 7 – battery holders

1. Open the detector cover, by turning it anti-clockwise (1)
2. Push the bus cable through the base and attach the base to the selected place using screws.
3. Connect the bus cable.
4. When the device is switched on, the yellow LED on the PCB inside the detector starts flashing repeatedly to indicate that the detector has not been enrolled into the system.



**When connecting the detector to the system digital bus, always switch the power off.**

# JA-111ST Bus combined smoke and heat detector

Proceed according to the control panel installation manual.

## Basic procedure:

- Go to the **F-Link** program, select the required position in the **Detectors** window and launch enrollment mode by clicking on the Enroll option.
- Insert the detector into the plastic base. The detector can be inserted in the base in one position only. It is marked with arrows (4). Close the detector by turning it clockwise (2). The tamper contact inside the detector is thus triggered and the detector is enrolled. The yellow LED indicator goes off. When inserting the detector, bear in mind that the connecting wires must not restrain the functioning of the testing buttons.

**Warning:** Detector insertion into the base is blocked unless all 3 batteries are inserted! (only if EN 14604 compliance is required).

The mounting base must not be replaced by bases meant for detectors without the test button consisting of pressing the body of the detector.

**Note:** The detector can also be enrolled into the system by entering its production code (5) in the F-Link program (or using a bar code scanner). All numbers stated under the bar code shall be entered (1400-00-0000-0001).

## Detector setting

The detector properties can be set in the Detectors window in the **F-Link** program:

The **Reaction** option in the **Detectors** window allows you to set the type of system reaction to the activation of the enrolled detector.

To set the detector properties use the **internal settings** access button. This opens a window where can be set internal setting and behavior of the detector.

**Alarm memory in the stand-alone mode** determines whether the detector will indicate alarm memory with a LED indicator even when the detector is in a stand-alone mode.

**Reaction** enables setting which impulses the detector should react to:

Smoke	EN 14604, EN 54-7
Temperature	EN 54-5
Smoke or temperature	EN 14604, EN 54-5 EN 54-7
Smoke and temperature at once	

**Acoustic signalling** sets the time for which the detector keeps chirping (applies in the system detector mode only). When in the stand-alone mode, the detector keeps chirping for the whole duration of the alarm (smoke in the room or high temperature). The chirping can be terminated by pressing the detector against the base.

**Batteryless operation.** When this parameter is set, the detector works only as a control panel-powered system detector and the low battery detection is disabled.

When batteryless detector operation is required (EN 54-x), the blocking mechanisms preventing insertion of the detector without inserted batteries should be removed.

The detector does not comply with EN 14604 with this setting.

**Thermal class EN54-5** determines the reaction speed of the detector to temperature increases.

A1 – A fast reaction to temperature changes. It has to react within 1 min 40 sec when the temperature reaches 30 °C/s.

A2 – A slow reaction to temperature changes. It has to react within 2 min 25 sec when the temperature reaches 30 °C/s. These detector settings have a high immunity to false alarms in problematical installations.

## Fire alarm

**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 conditions are met), the detector signals the danger by sounding the siren and quickly flashing of the LED indicator (3). The alarm information is concurrently sent to the system control panel.

**Silencing the siren during an alarm:** The siren can be silenced by pressing the detector body against the base. The siren is inactive for 10 minutes. If the detector still detects smoke or heat after this time, the siren is activated again.

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:** LED indication continues flashing slowly even when the smoke clears or when the temperature decreases. The indication lasts 24 hours unless it is terminated by pressing the detector body.

**Tamper alarm:** When the detector cover is opened, the detector sends a tamper signal to the control panel.

## Detector testing and maintenance

The detector should be tested at least once per month. To test the detector press the detectors body against the base and wait until a LED indicator switches on. The LED flashing signals switchover to the testing mode. The LED is 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 beeps once, the test has been done successfully. If a failure is discovered, the LED flashes and beeps three times. If the battery is low, there is no acoustic signalling but just one flash when the test is completed.

The complete functioning of the optical part of the detector can be tested with a testing spray (e.g. SD-TESTER). The heat sensor can be tested with heated air (e.g. with a hair dryer). If the control panel is not in the SERVICE mode, a fire alarm is triggered.

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

## Fault indication

The detector checks its functioning. If it discovers a fault, it chirps and flashes the LED three times and then flashes shortly three times every 30 s.

A detector test can be carried out when a fault is signalled, see paragraph Detector testing and maintenance. When the detector is fixed the detector beeps once briefly.

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

## Battery replacement

The detector checks the battery status if used and if the batteries are running low, the detector signals that they need replacing by short flashes repeated every 30 s. The information is also sent to the control panel. Replace the batteries as soon as possible. Always replace all three batteries of the same type and manufacturer.

Use only high-quality 1.5 V AA alkaline batteries.

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

## Removal of the detector from the system

The system reports any possible detector loss. If you have removed it on purpose, you also have to erase it from the correspondent address in the control panel memory.

## Technical specifications

Power	9 – 15 V DC/3.5 mA (150 mA during an alarm) 3 pcs of alkaline batteries type LR6 (AA) 1.5 V Please note: Batteries are not included approx. 3 years
Typical lifetime	approx. 3 years
Smoke detection	optical light scattering
Smoke detector sensitivity	$m = 0,11 \pm 0,13$ dB/m pursuant to EN 14604, EN 54-7 class A1 according to EN 54-5
Heat detection	+ 60 °C to +65 °C
Alarm temperature	-10 °C to +65 °C
Operating temperature range	diameter 126 mm, height 52 mm, 150 g
Dimensions, weight	EN 50130-4, EN 55022
Conformity	



1293-CPR-0396

JABLOTRON ALARMS a.s. hereby declares that the JA-111ST is in a compliance with the relevant Union harmonisation legislation: Directives No: 2014/30/EU, 2011/65/EU. The original of the conformity assessment can be found at [www.jablotron.com](http://www.jablotron.com) - Section Downloads.



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