

# The JA-111ST-A BUS combined smoke and heat detector

This device is a component of the **JABLOTRON** alarm system. It is used to detect fire hazards in the interior of residential or commercial buildings. The detector is powered by the control panel BUS (EN 54-7; EN 54-5). When the detector is powered by inserted batteries (3x 1.5 V AA) and it loses BUS power or stops communicating with its control panel, it can continue operating as a stand-alone detector when the 12 V BUS power supply is disconnected (EN 14604). Batteries are not included and we recommend buying them with the detector.

The detector indicates a fire risk using the built-in LED indicator and acoustic signalling. The detector can also indicate any other type of alarm in the system such as intrusion or tampering.

The JA-111ST-A 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. The detector works in status mode so it signals both activation and deactivation. The product is not designed to be installed in industrial premises. The product should be installed by a trained technician with a valid certificate issued by an authorised Jablotron distributor.

## Detector placement

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. The detector can only be used in an enclosed interior. It is not suitable for places where smoke can be dispersed or it can get cold (interiors with extremely high ceilings above 5 m) - the smoke would not reach the detector position. It is not suitable to install the detector in an environment containing dust, cigarette smoke and steam. Environments heavy with dust impair the lifespan of the detector. 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.

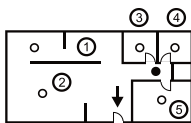


Fig 1

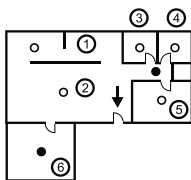


Fig 2

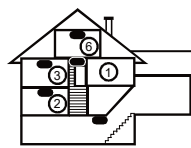


Fig 3

- 1. kitchen,
- 2. living room,
- 3. – 6. bedrooms

- / ■ basic coverage
- recommended coverage

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.

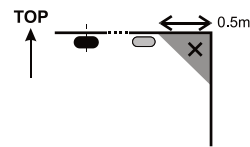


Fig 4

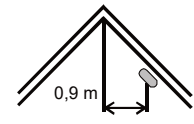


Fig 5

- centre of the room, best location
- acceptable location

### Walls, partitions, barriers and lattice ceilings

The JA-111ST-A 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, then each section must be considered as fully separated room 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 near 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 places:

- 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).
- in areas with lots of small insects which can cause false alarms

**Warning:** Most false alarms are caused by improper detector placement.  
See CEN/TS 54-14 standards for detailed installation guidelines.

## Installation

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

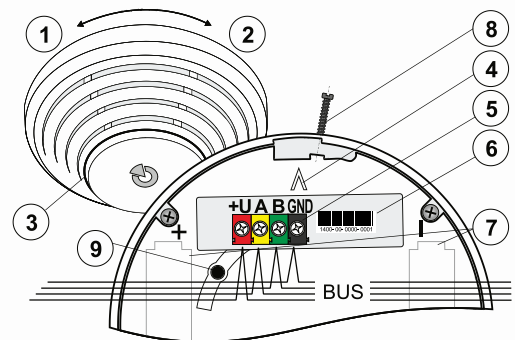


Fig 6: 1 – detector cover opening; 2 – detector cover closing; 3 – optical status signalling; 4 – arrow showing where to insert the detector; 5 – bus terminal; 6 – production code; 7 – battery holders; 8 – locking screw; 9 – button for test

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.**

5. Proceed according to the control panel installation manual.
  - a. Go to the **F-Link** software, select the required position in the **Devices** window and launch enrollment mode by clicking on the **Enroll** option.

# The JA-111ST-A BUS combined smoke and heat detector

- b. Click to the option "**Scan/add new BUS devices**" and select this detector from the offered list and double-click to confirm selection. The yellow LED indicator goes off.
6. Before installation, it is necessary to remove the arresting screw (8) from the plastic base. 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) on both parts of the plastic housing. When inserting the detector, bear in mind that the connecting wires must not restrain the functioning of the test buttons.
7. Pre-set the detector functions according to the chapter *Detector settings*
8. In order to be compliant with regulations it is necessary to lock the detector cover to its bottom part with the use of an arresting screw (8).

## Notes:

- We recommend peeling off the sticker with the production code (6) before you put it onto the mounting base, stick it on a piece of paper and write down the device location for better identification of a specific device when enrolling by F-Link software.
- The detector can also be enrolled by inserting into the mounting base and locking by turning it clockwise when enrollment mode is open.
- The detector can also be enrolled into the system by entering its production code (6) in the F-Link software (or using a bar code scanner). All numbers stated under the bar code should be entered (1400-00-0000-0001).
- The detector can be operated without batteries. When there are no batteries in it, it doesn't comply with the EN14604 norm. Before you insert the detector into the mounting base remove the red blocking tabs from the detector body. The mounting base must be replaced only by the same bases meant for detector which is tested by pressing its body (which then works as testing switch).
- If the yellow LED lights permanently, the detector cannot be enrolled and it indicates a fault with the cabling. We strictly recommend checking the BUS cables.

## Detector setting

The detector properties can be set in the Devices window in the **F-Link** software (default settings marked by the symbol \*):

The **Reaction** option in the **Devices** 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** button. This opens a window where you can set internal settings and behaviours of the detector.

**Reaction:** enables the setting whether the detector should react on smoke only, temperature only, smoke or temperature, smoke and temperature at the same time; see the following table for details:

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	

**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 s when the temperature reaches 30 °C/min.

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

### Fire alarm acoustic indication:

**Source of acoustic indication:** Pre-sets the source of the acoustic indication of a fire alarm signalled by the detector (Switched off, \*Own alarm only, Own and system alarms, System only).

**Time limitation of acoustic indication:** An option which serves for time limitation of acoustic indication of a fire alarm by the detector; optional from 1 to 5 minutes or No limit (\*4 min).

**Fire alarm indication from sections:** Determines from which sections fire alarms will be indicated.

### Other alarm acoustic indication:

**Indicate another type of section alarm:** Selection of the sections for which other alarm types and indications will be signalled.

**Alarm reaction:** Determines when the detector indicates according to the \*IW (Internal warning) or EW (External warning) signal.

**Time limitation of acoustic indication:** No limit, 1, 2, 3,\*4, 5 minutes. When the No limit option is selected, it means the time is taken from the system parameters. Caution: the maximum alarm length in the system is 20 minutes.

**Muting the system sirens by pressing the detector:** This option allows choosing how to react if the acoustic indication of an alarm from

the system sirens can be terminated by pressing the detector against the base of the detector. Select from the following options: \*Switched off, during its own alarm, during a system alarm, Switched on.

**Batteries:** Select the type of batteries used (\*alkaline, lithium) or operating without batteries (the detector doesn't check the status of inserted batteries).

**Test:** By clicking on this button of the detector a self-test (auto test) is performed. The result is indicated by a green or red dot. Green = test OK, red = fault – in this case repeat the test and if you get the same result then the detector should be sent to the service centre.

## Fire alarm

**Optical detector:** When smoke gets into the detecting chamber, an alarm is triggered and indicated optically by a flashing red LED (approx. 8x per second) and if enabled then also by an acoustic signal according to the detector settings. Indication takes place until the space around it or the detecting chamber is ventilated.

**Temperature detector:** When the temperature increases above a defined limit an alarm is triggered and indicated optically by a flashing red LED (approx. 8x per second) and if enabled then also by an acoustic signal according to the detector settings. Indication takes place until the temperature is decreased by ventilation, for instance.

**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 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:** When enabled, LED indication continues flashing slowly (approx. 2x per second) for 24 hours after alarm expiration. Indication is terminated by performing unsetting procedure on already unset section where the alarm was triggered.

**Alarm memory in stand-alone mode** indication can be terminated by pressing the detector body against the wall.

**Tamper alarm:** When the detector cover is opened, the detector sends a tamper signal to the control panel. To avoid tamper alarm triggering enter service mode before opening the detector.

### Note:

- When the detector works in stand-alone mode, an alarm is indicated acoustically and optically with no option to change it.

## Other alarms

The detector can indicate other alarms not just alarms triggered by the detector itself. This includes alarms such as intrusion, tampers, panic, 24 hr and also in relation to IW and EW signals. Settings allow you to choose specific sections and limits of the alarm length.

### Notes:

- The indication of other alarms is influenced by system parameters (i.e. Siren when partially set, Siren IW when tamper triggered.).
- Its own alarm always has a higher priority. When its own alarm is already being indicated then other alarms are not indicated at all.
- A fire alarm has the highest priority. When a tamper alarm, for instance, is triggered and suddenly a fire alarm is triggered then indication of tampering is cancelled and it starts with fire alarm indication immediately.

## 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 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. In this case repeat the test and if you get the same result then the detector should be sent to the service centre. 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 briefly three times every 30 s (a fault is signalled the same way when an auto-test is performed, see the *Installation* chapter). It could be a faulty detection chamber, an

# The JA-111ST-A BUS combined smoke and heat detector

environmental temperature out of the working range (see *Technical specifications*) or some other fault detected in the detector.

A fault caused by a temperature out of range is restored automatically when it gets back within limits.

A detector test can be carried out when a fault is signalled, see the paragraph **Detector testing and maintenance**. During testing all the measured information such as temperature, smoke and dirt in the detector chamber are updated. The measured values can be monitored by **F-Link** software in the **Diagnostics** tab. Hover the cursor over the option **Voltage/Loss** and a tooltip appears with the current status of all measured information.

## 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.


Only use high-quality 1.5 V AA alkaline batteries. FR6 lithium batteries are more appropriate for installation where the temperature is below 5°C long-term or when the detector is simultaneously powered by the system BUS and by batteries (then the batteries have a longer lifetime).

**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, see the control panel installation manual.

## Technical specifications

Power	12 V DC (9–15 V) or 3 alkaline batteries type LR6 (AA) 1.5 V; 2.4 Ah or 3 lithium batteries type FR6 (AA) 1.5 V; 3 Ah Please note: Batteries are not included
Quiescent current consumption	5 mA
Maximal current consumption	150 mA
Low battery voltage	<3.5 V
Typical battery lifetime	approx. 3 years
Smoke detection type	optical light scattering
Smoke detector sensitivity	m = 0.11 ÷ 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 +70 °C
Operating temperature range	75% RH non condensing
Average humidity	diameter 126 mm, height 52 mm, 150 g
Dimensions, weight (w/o batteries)	EN 14604, EN 54-5, EN 54-7, EN 50130-4, EN 55032, EN IEC 63000
In conformity with	4 x  ø 3.5 x 40 mm (countersunk head)
Recommended screw	



**1438-CPR-1008**

JABLOTRON ALARMS a.s. hereby declares that the JA-111ST-A is in a compliance with the relevant Union harmonisation legislation and regulation (EU) no. 305/2011 of the European parliament and of the Council: 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:** 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.