The JA-151ST-A Wireless combined smoke and heat detector

*The JA-151ST-A is a component of the **JABLOTRON 100** alarm system. It is used to detect fire hazards in the interior of residential or commercial buildings. The detector is powered by three LR6 type alkaline AA batteries which are not included. We recommend buying them with the detector. The detector indicates a fire hazard visually using the built-in LED indicator and acoustic signalling.*

The JA-151ST-A can acoustically indicate any other alarm such as intrusion or tampering. The detector consists of an optical smoke detector and a heat detector. The optical smoke 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 capable of detecting fire with a small amount of smoke. The detector has a status reaction (reports triggering and switching to stand-by mode). The product is not designed to be installed in industrial premises. The detector should be installed by a trained technician with a valid manufacturer's certificate.

Detector location

The smoke detector must be installed in places where smoke can easily drift into the detector owing to natural thermal circulation (usually towards the ceiling). The detector can be used only in enclosed interiors. It is not suitable for areas where smoke can disperse and cool down (for example rooms with high ceilings above 5 m) – the smoke would not reach the detector position.

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^2, installation of an additional detector in some other suitable place is required, see **Fig.2**.

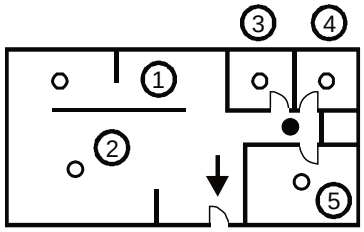

Fig. 1

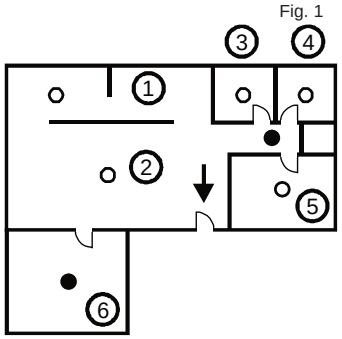

Fig. 2

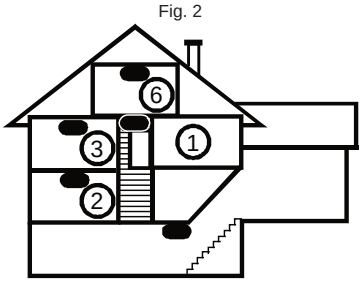

Fig. 3

In multi-storey flats and family houses the detector should be installed above the stairs. It is recommended to place additional detectors in all 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 warm layer of air on the ceiling. **Never place the detector in the corner of the room**, there is an insufficient circulation of air. Always install the detector at least 0.5 m distance from the corner, see Fig 4.*

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.

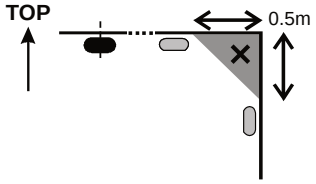

Fig 4

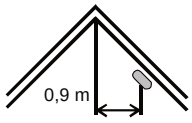

Fig 5

- center of the room, the most suitable location.
- acceptable location

Walls, partitions, barriers and lattice ceilings

The detector must be installed at least 0.5 m away from any wall or partition. A narrow room with a width of less than 1.2 m requires the detector(s) to be placed in the middle third of its width. If 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 limitations mentioned above 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, there must be no perforation within the 0.6 m radius of the detector in all directions.

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 humid areas (because steam, smoke or oily fumes can cause false alarms or reduce detector sensitivity).
- In areas with lots of small insects, which may cause false alarms

Warning: Most false alarms are caused by improper detector location.
See the CEN/TS 54-14 standard for detailed installation guidelines.

Installation

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

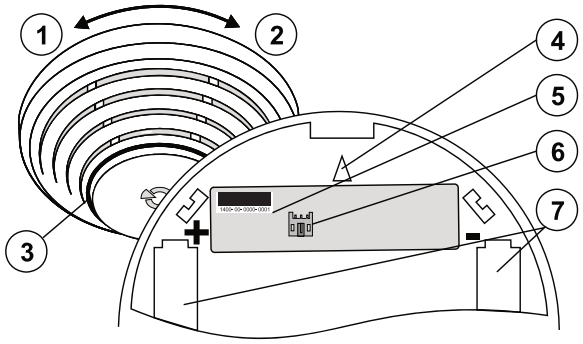

Fig 6: 1– opening the detector cover; 2 – closing the detector cover; 3 – optical status indication; 4 – arrow showing where to insert the detector; 5 – production code; 6 –external antenna connector; 7 – battery holders;

1. **Open the detector cover**, by turning it anti-clockwise (1)
2. **Attach the plastic base** to the selected place using screws
3. **Proceed according to the control panel installation manual**.

   Basic procedure:
   a. Go to the ***F-Link*** program, select the required position in the ***Devices*** window and launch enrollment mode by clicking on the Enroll option.

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b. When you insert all batteries into the detector, an enrollment code is sent to the system which is confirmed with a short flash of the LED indicator (3).

4. **Insert the detector into the plastic base.** The detector can be inserted into the plastic base in one position only. It is marked with arrows (4) on both plastic parts. Close the detector cover by turning it clockwise (2).
5. Set the detector according to the *Detector setting* chapter.

Note:

- In order to perform enrollment via F-Link easier, we recommend removing the production code sticker, placing it on some paper and writing down the location before installing the detector
- The detector can also be enrolled into the system by entering its serial number (6) in the F-Link program. All numbers stated under the bar code shall be entered (for example: 1400-00-0000-0001).
- When necessary, the AN-868 external antenna can be connected to the detector to boost communication.

Detector setting

The detector properties can be set up in the ***Devices*** window in the ***F-Link*** program (*indicates factory settings).

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

To set the detector's behaviour, click on the **Internal settings** button which will open up a dialogue window.

Reaction: Determines whether the detector will react to Smoke only, Heat only, Smoke or heat, Smoke and heat simultaneously, see the following table.

Smoke only	EN 14604; EN 54-7
Heat only	EN 54-5
***Smoke or heat**	EN 14604; EN 54-5; EN 54-7
Smoke and heat simultaneously	

Temperature class EN-54-5: Determines the detector response speed to an increase of temperature depending on time.

***A1 Fast response:** The detector responds very fast to temperature changes. It must respond within 1 min 40 sec at 30 °C/s.

***A2 Slow response:** The detector responds more slowly to temperature changes and is therefore more resistant to false alarms. It must react within 2 min 23 sec at 30 °C/s.

Fire alarm acoustic indication

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

Length limitation of acoustic indication: limits the duration of the acoustic fire alarm indication of the detector (can be set from 1 to 5 minutes or to *No limit)

Fire alarm indication from sections: Determines which sections will indicate a fire alarm via this detector.

Acoustic indication of other types of alarms:

Indicate another type of section alarm: Selection determines which sections will indicate other types of alarm via the detector

Alarm reaction: Determines whether detector indication will be dependent on a EW (External Warning) or *IW (Internal Warning) signal.

Time limitation of acoustic section: *No limit, 1,2,3*,4,5 minutes. "No limit" means that it will correspond to the alarm length set in the control panel parameters Warning: the maximum alarm length of the control panel is 20 minutes.

Muting the system sirens by pressing the detector: when activated, pressing the detector against its base will cancel acoustic indication of the system sirens. Options: Switched off, During its own alarm, During a system alarm, *Switched on.

Batteries: it's possible to choose the type of batteries used in the detector (*alkaline, lithium).

Test: Pressing this button will trigger an automatic detector test. The result of the test will be indicated by showing a green or red circle. The green circle indicates a successful test. The red circle indicates a fault, in this case repeat the test. If the fault keeps appearing, then it's necessary to send the detector to the manufacturer's service centre.

Fire alarm

Optical detector: When smoke enters the detector, it triggers an alarm, the red LED starts flashing fast (8x/s approximately) and alternatively triggers acoustic indication, depending on the detector settings. Indication lasts until the premises (the detector's detection chambers) are aired out.

Heat detector: The temperature increasing above the fixed limit triggers an alarm, the red LED starts flashing fast (8x/s approximately) and alternatively triggers acoustic indication, depending on the detector settings. Indication lasts until the temperature is decreased, for example by airing out the premises.

Muting the siren during an alarm: The integrated siren can be muted by pressing the detector's body against its base. The siren is inactive for 10 minutes. If the detector still detects smoke or heat then, the siren will be activated again.

When the need arises (e.g. in the case of 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 muting the siren. When the detector beeps, you have to release the pressure within 1 s. The switchover to postponed siren mode is confirmed with 5 beeps. The detector LED flashes all the time during the postponement.

Alarm memory: If enabled, the LED indication continues flashing slowly (2x/s) to indicate a triggered detector for 24 hours after the alarm has ended. Indication can be cancelled by unsetting the section where the alarm had been triggered.

Tamper alarm: If the control panel isn't switched to Service mode, the detector will send a tamper signal to the control panel when the detector's body is removed from its base.

Note:

If the detector is used in autonomous mode, any emerging danger is indicated acoustically and visually. This cannot be changed

Another type of alarm

The detector is capable of indicating other types of alarms apart from alarms triggered by the detector itself. They can be alarms (intrusion, tamper, panic, 24h, etc) of both the IW and EW type. This can be configured for particular sections, the alarm length can also be limited.

Notes:

- The indication of other types of alarm is also affected by the settings parameters of the control panel (siren when partially set, siren (IW output) when a tamper is triggered, etc.
- When this detector triggers its own alarm it has a higher indication priority. It will not indicate other alarms until its own triggered alarm expires.
- A fire alarm is always superior to other alarms. For example, when a tampering alarm is in progress and a fire alarm is triggered, the detector will stop indicating the first alarm and instead it will start indicating the fire alarm immediately.

Detector testing and maintenance

The detector should be tested at least once per month. To test the detector press the detector against the base and wait until an LED indicator switches on. The LED flashing signals switchover to the test 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 fault is discovered, the detector beeps 3 times and the LED flashes 3 times. In this case, repeat the test. If the fault still appears, send this detector to a service centre. If the battery is low, there is no acoustic indication, but just one flash when the test is completed.

The complete functioning of the optical part of the detector can be tested with a test 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 switched to Service mode, a fire alarm is triggered.

Warning: Never test the detector by starting a fire in the premises.

Fault indication

The detector checks its own functionality. If it discovers a fault, the LED flashes and beeps 3 times and then flashes briefly 3 times every 30 seconds (a fault found during the automatic functionality test is indicated the same way, see the *Installation* chapter). The fault can be a malfunctioning detection chamber, the surrounding temperature out of the operating temperature range (see *Technical specifications)* and other detector faults.

An operating temperature fault will disappear when the surrounding temperature returns to normal.

You can perform the detector test when it indicates a fault (see the Detector *testing and maintenance* chapter) by refreshing information about the measured temperature, smoke and dust particles in the chamber. The measured data can be accessed in the **F-link** software, **Diagnostics** tab. When the cursor hovers above the **Status** of the detector a tooltip with the current information will appear.

Battery replacement

The detector checks the battery status, whether they are in use and if the batteries are running low. The detector signals that they need to be replaced by short flashes (3) repeated every 30 s. The information is also sent to the control panel. Replace the batteries as soon as possible with batteries of the same type and from the same manufacturer.

Alkaline batteries are suitable for normal use. FR6 lithium batteries are more suitable for installations, where the temperature is usually lower than 5°C in the long term (batteries then have a shorter lifetime).

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

Removal of the detector from the system

The system reports any possible loss of connection with the detector. If you have physically removed it on purpose, you also have to erase it from the corresponding position in the control panel, *see the control panel installation manual*.

Detector reset

This device can also be reset by a user. Resetting will revert it back to factory default settings including erasing the control panel from the detector's internal memory.

A reset can only performed immediately after the batteries have been inserted into the detector. A reset is done by pressing a button 5 times, however the first press must happen within one second of the yellow LED lighting up. It is visible through a grill on the detector. Each press is confirmed by a beep and a successful reset will be confirmed by 5 brief beeps at the end of the whole cycle.

Using an external antenna

It is possible to connect an external antenna (AN-868) to the detector in order to increase communication stability between the control panel and the detector. Insert the antenna into the connector (6) on the detector's PCB. The antenna will be detected when the detector is closed (the tamper contact is in standby mode). When the external antenna is detected, RF transmission will be directed to it and the detector will regularly check whether it is connected to the detector. The moment the antenna is torn off or short-circuited, the RF transmission will be switched to the internal antenna and a tamper signal will be sent to the control panel. If the detector has been closed without an external antenna connected, the RF transmission will be permanently switched to the internal antenna.

Technical specifications

Power	3 x Alkaline battery type LR6 (AA) 1.5 V/2.4 Ah 3 x Lithium battery type FR6 (AA) 1.5 V/3.0 Ah *Please note: Batteries are not included*
Typical lifetime	≥ 3 years
Communication band	868.1 MHz, Jablotron protocol
Communication range	approx. 300 m (open area)
Dimensions	diameter 126 mm, height 50 mm
Weight	150 g
Smoke detection	optical light scattering
Smoke detector sensitivity	m = 0.11 - 0.13 dB/m pursuant to EN 14604:2005, EN 54-7
Heat detection	class A1 according to EN 54-5
Alarm temperature	+ 60 °C to +65 °C
Operating temperature range	-10 °C to +70 °C
Complies with	EN 54-5, EN-54-7, EN-25
Also complies with	ETSI EN 300 220-2, EN 50130-4, EN 55022 and EN 60950-1
Can be operated according to	ERC REC 70-03

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JABLOTRON ALARMS a.s. hereby declares that the JA-151ST-A is in a compliance with the relevant European Union harmonisation legislation: Directives No: 2014/53/EU, 2014/35/EU, 2014/30/EU, 2011/65/EU. The original of the conformity assessment can be found at www.jablotron.com - Downloads Section.

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.

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