

The JA-80S wireless fire detector

The JA-80S is a component of Jablotron's Oasis 80 alarm system. It is designed to detect the presence of fire inside residential or commercial buildings. It should not be installed in industrial premises. The battery-powered detector communicates via OASIS radio protocol and has a built-in local warning siren.

The 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.

Exposing fire conditions to the smoke and heat sensors requires some level of air circulation. It is therefore necessary to install the JA-80S detectors 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 JA-80 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.

Detection range, detector positioning

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 detector down to the floor must not exceed the radius indicated in the table.

Installation on a sloping ceiling

If the JA-80S 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**, JA-80S 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 JA-80S **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.**

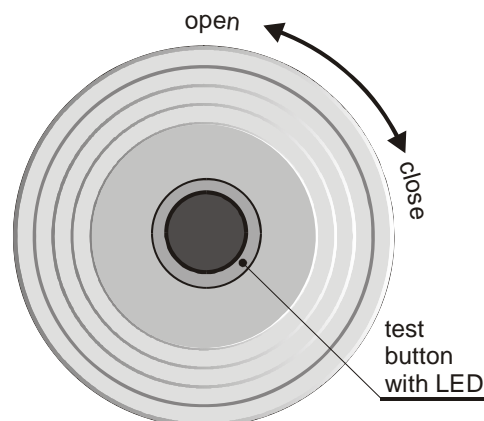
Ventilation and air circulation

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).
- Places close to metal objects (which can cause radio communication screening).

Caution: The most common reason for the detector to be accidentally triggered is improper detector location.



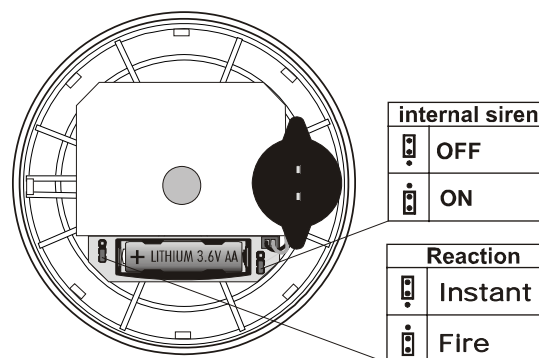
Installation

Take the following steps:

1. **Open the detector** (rotate the rear cover)
2. **Screw the rear cover** onto the desired location
3. **Leave the battery disconnected and the cover open** and then follow the control panel or receiver manual.
4. The basics of enrollment are:
 1. Enter enrollment mode on the control panel by keying in "1" in Service mode.
 2. Install a battery into the detector to activate enrollment and self-calibration (20 secs) which should be done in clean air without smoke or fumes at a temperature of about +20°C.
 3. Exit enrollment mode by pressing "#".
 4. *To enroll a detector after having already connected a battery, first disconnect the battery, and press and release the test button to discharge any remaining charge to ready the device for enrollment.*
 5. **After closing the detector**, check that the two halves of the housing are securely together.

After installing a battery into the detector, allow one minute for stabilisation. During this minute the LED is continuously lit.

Jumpers



SIREN ON / OFF allows the **built-in siren** to be disabled (OFF = disabled)

FIRE / INST selects what the **natural reaction** of the control panel to the detector signal will be.

Jumper position = FIRE = the control panel responds with a fire alarm, no matter if the system is armed or not.

Jumper position = INST = the control panel responds with a fire alarm only if the system is armed. The alarm is **not indicated** by an **internal LED**. This feature is useful if the user wishes to allow smoke in a room from e.g. smoking or a fireplace, while the control panel is disarmed when authorized people are present in the building.

Warning: In the **INST** position, while the system is disarmed, it is not protecting against fire. The **FIRE / INST** jumper only has an effect if the detector has a natural reaction assigned to its address in the Oasis control panel. It also has no effect when used with a UC-8x or AC-8x receiver. Whenever the detector cover is opened, a tamper signal is sent.

Testing the detector

The functioning of the detector can be tested by pressing and holding the test button (e.g. for 1 sec). This activates the siren and the LED flashes (LED only if the fire reaction is set). The strength and quality of detector signals can be measured by the control panel in Service mode. During testing by the test button, the detector transmits signals which can not trigger fire alarms in the control panel.

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

Silencing the siren during an alarm

During a fire alarm, the detector LED flashes (if the fire reaction is set) and the built-in siren sounds. Under these conditions the siren can be silenced by pressing the test button, but the LED will continue to flash until the smoke clears from the room.

Alarm memory in the detector

Normally the detector's fire-alarm condition lasts until the smoke clears from the room and the fire-alarm information is stored in the control panel's memory. If desired and the fire reaction is set, a local memory in the detector can be enabled by pressing and holding the test button during battery installation. If this function is enabled, after detecting fire, the detector's fire alarm mode continues until the test button is pressed.

Fault indication

The detector performs regular self-testing. If a fault is detected in the detector, its LED will start to flash rapidly. In such a case, disconnect the battery from the detector, and after about 20 secs, re-connect it. If after a minute the LED still flashes, then send the detector off for repair.

Battery replacement

The detector monitors its battery voltage and if too low, a transmission is sent to the control panel to inform the installer or user. The detector

continues to function but with a short LED flash every minute. Battery replacement should not be delayed by more than two weeks. This should be done by a qualified technician with the control panel in Service mode.

After battery replacement, test the functioning of the detector using its test button. Expired batteries should not be thrown into the garbage, but disposed of according to local regulations.

Removing the detector from the system

If a detector is removed, the control panel announces the removal. The detector has to be deleted in the control panel before intentional removal.

Technical parameters

Voltage:	Lithium battery type or LST14500 (AA 3.6V)
Typical battery lifetime	approx. 3 years
Communication band	868 MHz, Oasis protocol
Smoke detection	optical, light dispersion
Smoke sensor sensitivity	$m = 0.11 \div 0.13$ dB/m to EN 54-7
Temperature detection	class A2 to EN 54-5
Fire-alarm temperature	+60 °C to +70 °C
Acoustic power of the built-in siren	80 dB/m A
Operational temperature range	-10°C to +80 °C
Dimensions	diameter: 126 mm, height: 65 mm
Complies with	EN 54-7, EN 54-5 class A2, prEN 54-25, ETSI EN 300220, EN 50130-4, EN 55022, EN 60950-1
Can be operated according to	ERC REC 70-03
FCC ID:	VL6JA80S

CE 1293-CPD-0043

Jablotron Ltd. hereby declares that the JA-80S is in compliance with the essential requirements and other relevant provisions of Directives 1999/5/EC and 1989/106/EC and complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications not expressly approved by Jablotron could void the user's authority to operate the equipment. The original of the conformity assessment can be found at 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 producer after use.



Pod Skalkou 33
466 01 Jablonec nad Nisou
Czech Republic
Tel.: +420 483 559 999
fax: +420 483 559 993
Internet: www.jablotron.cz