



## AQUA S

DIGITAL PASSIVE INFRARED DETECTOR



aqua\_s\_e 03/06

The microprocessor-based, fully digital AQUA S detector is characterized by high sensitivity and interference resistance. A dual pyroelectric element is used in the detector. AQUA S can be supplied with AC or DC 24V voltage.

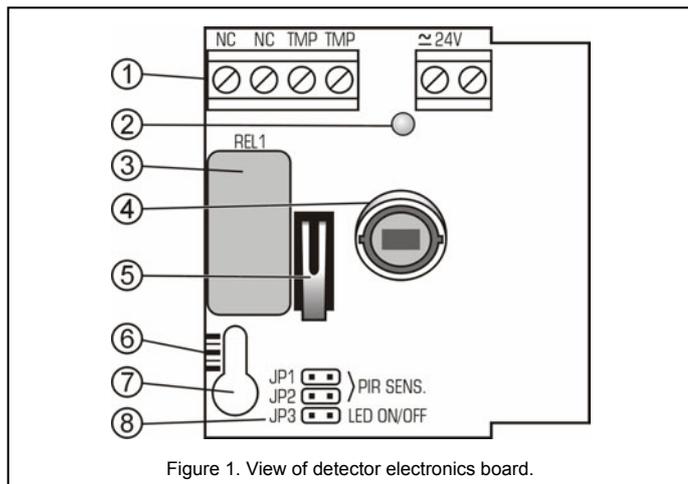


Figure 1. View of detector electronics board.

Explanations to Fig. 1:

1 – terminals:

- NC** – relay (NC)
- TMP** – tamper contact
- ≈24V** – supply input (AC/DC)

- 2 – LED indicator. It lights red for approx. 2 seconds after movement is sensed by the detector and the alarm relay activated (opening of the NC contacts). This allows the installer to check the detector for correct functioning and to approximately determine the protected area.
- 3 – alarm relay.
- 4 – pyroelement.
- 5 – tamper contact.
- 6 – scale for positioning of pyroelement against the lens (see Table 2 and Figure 4).
- 7 – fixing screw hole.
- 8 – pins for setting detector operating parameters (see Table 1).

The detector is provided with a **prealarm feature**. The prealarm is indicated by a short flash of the LED for approx. 120ms, but does not activate the relay. Activation of the prealarm takes place when the detector registered disturbances in the environment, which do not meet the alarm criterion. The prealarm sensitivity do not depend on what sensitivity is set on the detector pins.

For 30 seconds after the power-up, the detector remains in the **starting state**, which is signaled by a rapid LED blinking. Only then the detector enters its operational readiness state.

|                    | Pins |     |     |                                       |
|--------------------|------|-----|-----|---------------------------------------|
|                    | JP1  | JP2 | JP3 |                                       |
| Low sensitivity    | ■ ■  | ■ ■ |     | ■ ■ - pins shorted<br>□ □ - pins open |
| Medium sensitivity | ■ ■  | ■ ■ |     |                                       |
| High sensitivity   | ■ ■  | ■ ■ |     |                                       |
| LED indicator ON   |      |     | ■ ■ |                                       |
| LED indicator OFF  |      |     | □ □ |                                       |

Table 1. Programming of working parameters.

## Installation

The detector is designed for indoor installation. It can be mounted on the wall, either directly or on the included holder.



**Be careful so as not to soil or damage the pyroelement in the process of installation.**

1. Open the housing as shown on Fig. 2.

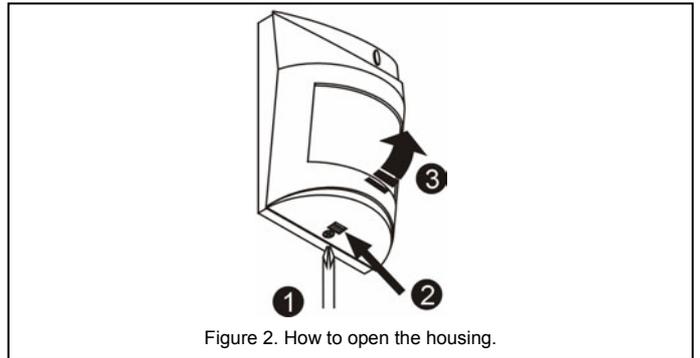


Figure 2. How to open the housing.

2. Remove the electronics board.
3. Make suitable openings for screws and cable in the rear panel of the housing.
4. Pass the cable through the prepared opening.
5. Fix the rear housing panel to the wall or to the attached holder.

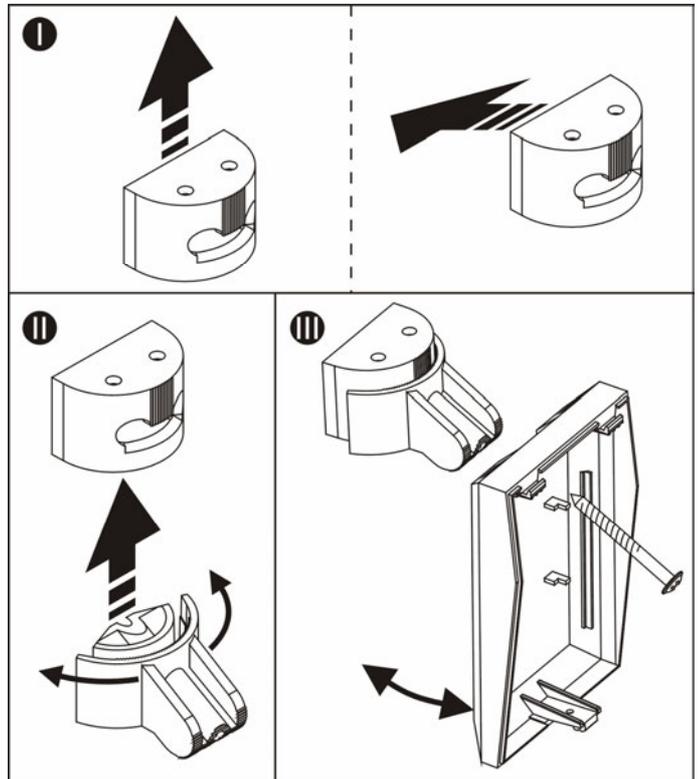


Figure 3. Mounting the detector on the holder.

6. Fasten the electronics board, taking into consideration the height of detector installation (see Table 2 and Figure 4).

| Detector installation height | Scale position in relation to housing indicator     |
|------------------------------|---|
| more than 2,1m               | center scale mark above the indicator               |
| <b>2,1m</b>                  | <b>center scale mark in line with the indicator</b> |
| less than 2,1m               | center scale mark below the indicator               |

Table 2. Positioning of pyroelement in relation to the lens.

7. Connect the leads to the corresponding terminals.
8. Using jumpers, set the working parameters of the detector (see Table 1).
9. Close the detector housing.

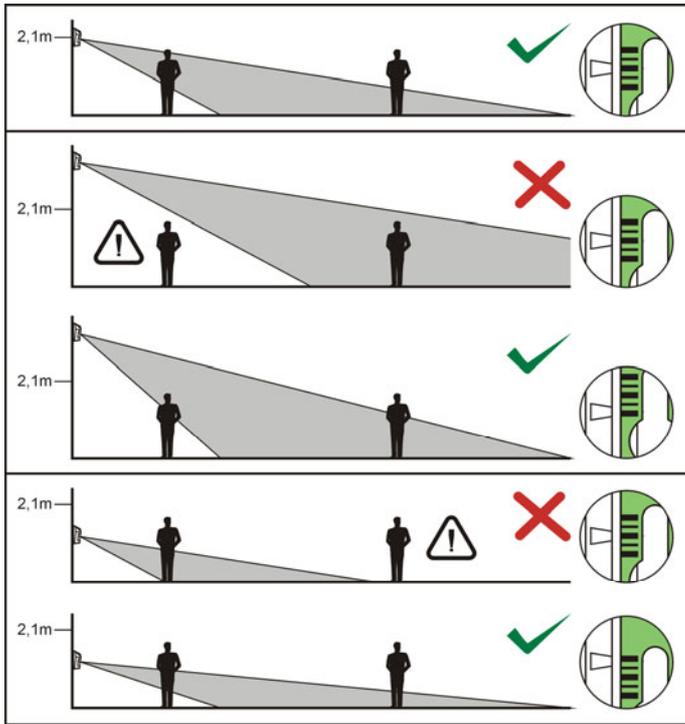


Figure 4. Impact of the detector installation height on the controlled area and positioning of pyroelement in relation to the lens for the optimal setting.

### Start-up

1. Switch the detector power on. The LED will start blinking (if the JP3 pins are shorted).
2. When the detector enters the ready state (the LED will stop blinking), carry out the detector range test, i.e. check that movement within the supervised area will activate the alarm relay and lighting of the LED.
3. If necessary, change the detector sensitivity (pins JP1 & JP2).

### Lenses

An extra wide angle (EWA) lens is installed in the detector, however, it is possible to replace it by another lens with different characteristics (range, number of beams, angle of view). The available lenses are described in Table 3.

| Lens type                                   | Range | Angle of view                             |
|---|-------|---|
| extra wide angle (EWA)                      | 15m   | 141,2°                                    |
| long range with access zone monitoring (LR) | 30m   | main beam – 3m wide (at the end of range) |
| vertical barrier (VB)                       | 22,5m | 2.2m wide (at the end of range)           |

Table 3. Available lenses for AQUA S detectors.

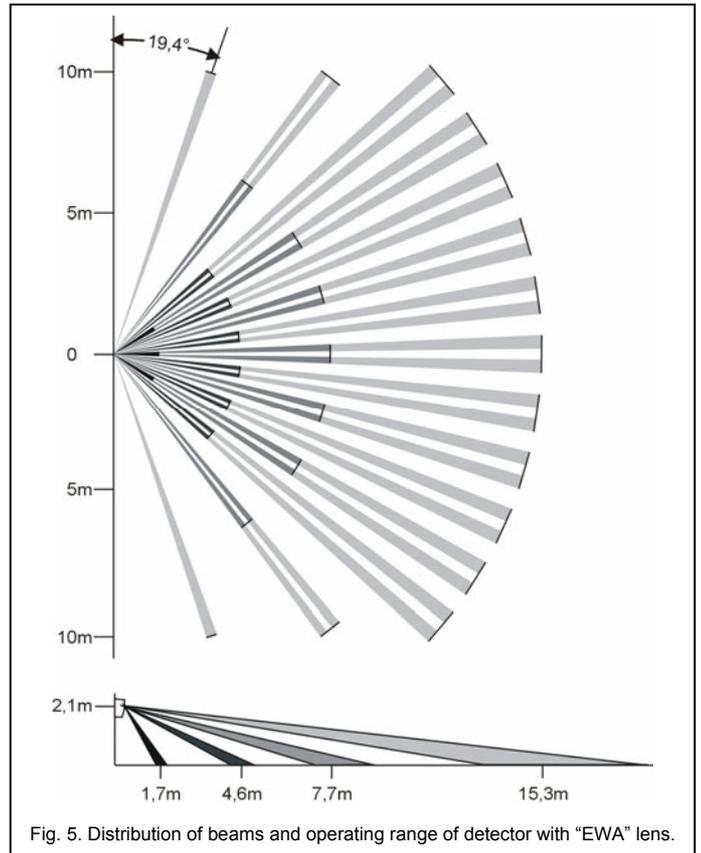


Fig. 5. Distribution of beams and operating range of detector with "EWA" lens.

### Technical data

Nominal supply voltage .....24V AC/DC  
 Max. current consumption (±10%) ..... 27mA for 24V AC  
 ..... 14mA for 24V DC  
 Violation signaling time..... 2s  
 Operating temperature range ..... -10...+50°C  
 Detectable motion speed..... up to 3 m/s  
 Dimensions.....63x96x49mm  
 Recommended installation height.....2,1m

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