

## AQUA LUNA

DIGITAL PASSIVE INFRARED DETECTOR  
WITH BACKLIGHT FEATURE



aqua\_luna\_en 08/08

The microprocessor-based, fully digital AQUA LUNA detector is characterized by high sensitivity and interference resistance. Due to an advanced digital temperature compensation feature, the device can work in a wide temperature range. A dual pyroelectric element is used in the detector. The processor performs two-way signal analysis, based on value and quantity. Additionally, the detector is provided with a set of LEDs, which are used for backlighting. The backlight is remotely controlled.

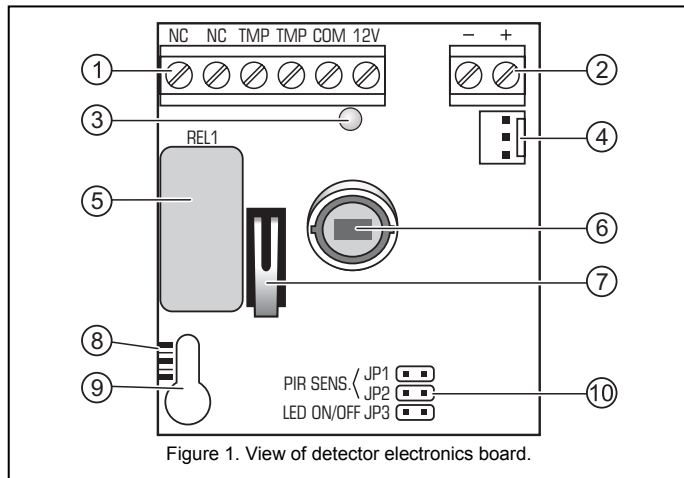


Figure 1. View of detector electronics board.

Explanations to Fig. 1:

- 1 – detector terminals:  
**NC** – relay (NC).  
**TMP** – tamper contact.  
**COM** – common ground.  
**12V** – supply input.
- 2 – terminals for connecting the backlight control signal. If low-current, OC type outputs are used for backlight control, connect +12V voltage to the “+” terminal, and output signal to the “-” terminal (a single OC type output can control backlight in up to two detectors). If high-current outputs are used for backlight control, connect output signal to the “+” terminal, and common ground to the “-” terminal. The control output can be programmed as e.g. MONO SWITCH (the output is activated for a preset time after violation of the detector) or TIMER (the output is timer controlled).
- 3 – 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.
- 4 – socket for connection of LEDs to provide backlight feature.
- 5 – alarm relay.
- 6 – pyroelement.
- 7 – tamper contact.
- 8 – scale for positioning of pyroelement against the lens (see Table 2 and Figure 4).
- 9 – fixing screw hole.
- 10 – 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 depends on what sensitivity is set on the detector pins. Frequently occurring prealarms may cause activation of the alarm relay.

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

The detector monitors the supply voltage. If the voltage drops below 9V (±5%) for more than 2 seconds, the detector will signal a trouble by activation of the alarm relay and by steady light of the LED indicator. Restoration of a minimum 9V (±5%) voltage will turn the signaling off.

	Pins		
	JP1	JP2	JP3
Low sensitivity	□ □	□ □	
Medium sensitivity	□ □	■ ■	
High sensitivity	■ ■	□ □	
LED indicator ON			■ ■
LED indicator OFF			□ □

■ ■ – pins shorted

□ □ – pins open

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 (the manufacturer recommends mounting on the holder).



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

**Be careful during installation not to turn the detector towards heat sources and air-conditioning outlets, as well as objects exposed to strong solar radiation.**

1. Open the housing as shown on Fig. 2 and disconnect the LED backlight from its socket on electronics board.
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.
6. Fasten the electronics board, taking into consideration the height of detector installation (see Table 2 and Figure 4).

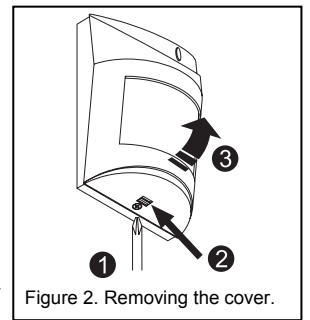


Figure 2. Removing the cover.

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.

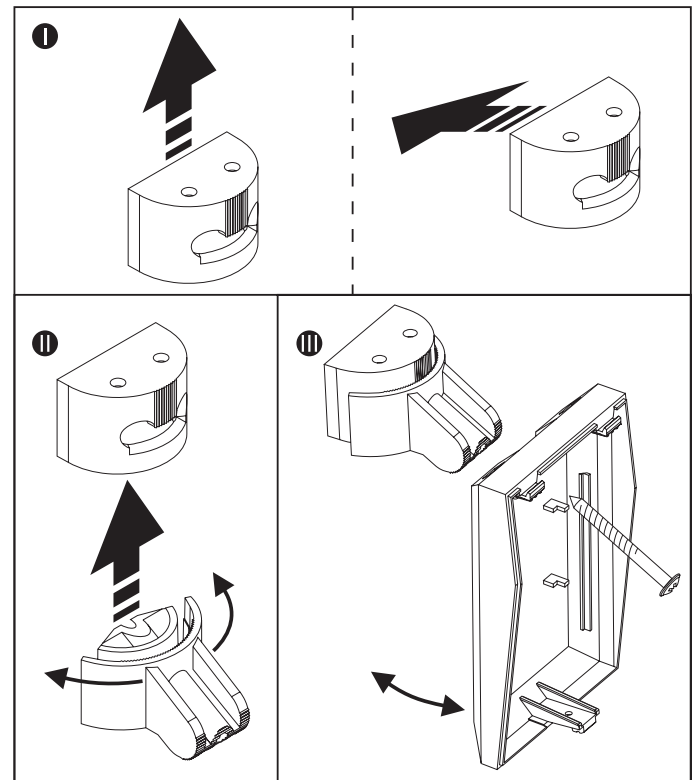


Figure 3. Mounting the detector on the holder.

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

9. Connect the LED backlight to its socket on electronics board and close the detector housing.

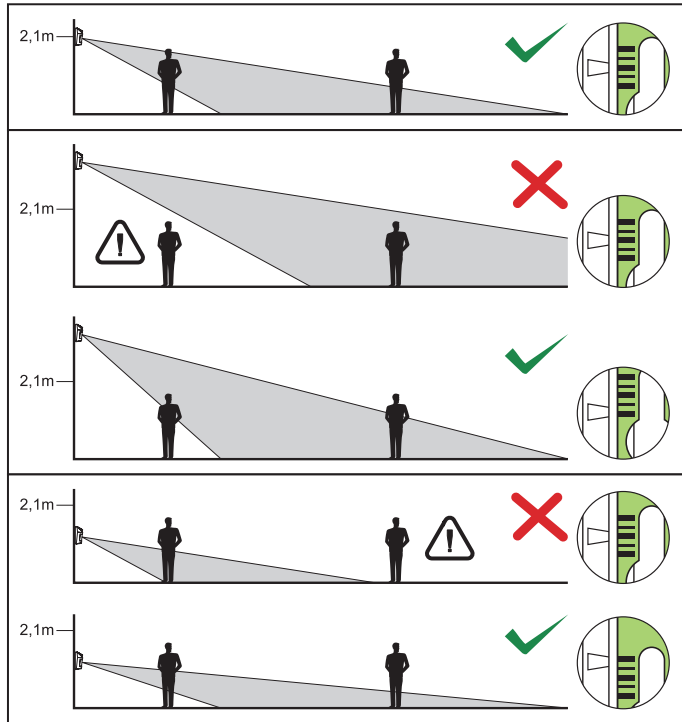


Figure 4. The controlled area depending on the detector installation height and positioning of pyroelement in relation to the lens for the optimal setting.

### 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 LUNA detectors.

**Note:** The detector operating range should be selected to match the size of space where the detector will be installed. The size of the space along the main direction of detector positioning is not to be less than 1/3 the nominal range of the detector. Improper selection of the lens may cause excessive sensitivity and trigger false alarms.

### Technical data

Nominal supply voltage (±15%)	12 V DC
Average detector current consumption (±10%)	9.5 mA
Maximum backlight current consumption	25 mA
Violation signaling time	2 s
Operating temperature range	-10...+55 °C
Detectable motion speed	up to 3 m/s
Dimensions	63x96x49 mm
Recommended installation height	2.4 m
Weight	92 g

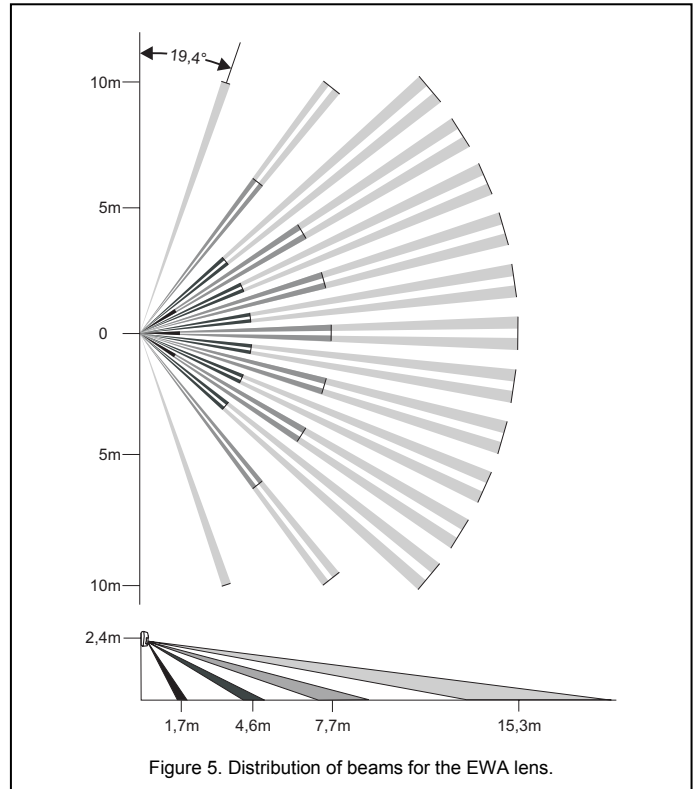


Figure 5. Distribution of beams for the EWA lens.

**Note:** The effective operating range of the detector can differ from the one, which is shown at the figure.

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