



SILVER

DIGITAL DUAL TECHNOLOGY MOTION DETECTOR

silver_en 01/15

The SILVER detector allows detection of motion in the protected area. This manual applies to the detector with electronics version G (or newer).

1. Features

- Passive infrared (PIR) sensor and microwave sensor.
- Adjustable detection sensitivity of both sensors.
- Digital motion detection algorithm.
- Digital temperature compensation.
- Selectable operation modes: basic or advanced.
- Microwave based anti-mask feature
- Built-in EOL resistors (Double EOL).
- Bi-color LED to indicate motion detection / alarm status.
- Remote LED enable/disable.
- Alarm memory.
- Capability of separate sensor testing.
- Supervision of detector signal path and supply voltage.
- Tamper protection against cover removal.

2. Description

Operation modes

Basic – the detector indicates an alarm if both sensors detect motion within a time period shorter than 3 seconds.

Advanced – the detector indicates an alarm if:

- both sensors detect motion within a time period shorter than 3 seconds,
- within a time interval less than 3 seconds, the microwave sensor detects motion and the PIR sensor detects some changes in coverage area, insufficient however to be recognized as motion,
- within 15 minutes' period, the microwave sensor detects motion 16 times, but PIR sensor does not detect any changes in coverage area.

Anti-mask feature

Detection by the microwave sensor of an object moving at a distance of 10-20 centimeters from the detector is interpreted as an attempt to mask the detector and results in activation of anti-masking relay for two seconds. Objects permeable to microwaves, but isolating the infrared radiation are not detected by the anti-mask feature.

Supervision features

In the event of the voltage drop below 9 V ($\pm 5\%$) for more than 2 seconds or the signal path failure, the detector will signal a trouble. The trouble is indicated by the activation of alarm relay and the steady red light of LED indicator. The trouble signaling will continue as long as the trouble persists.

Remote LED enable/disable

The LED can be enabled/disabled remotely when the LED is not enabled by means of the LED pins. The LED terminal is provided to allow remote LED enable/disable. The LED is enabled, when the terminal is connected to the common ground, and disabled, when the terminal is disconnected from the common ground. You can connect to the LED terminal an OC type control panel output programmed e.g. as the SERVICE MODE STATUS, BI SWITCH or ZONE TEST STATUS.

Alarm memory

If the LED is enabled, the detector can signal the alarm memory. The MEM terminal is provided to allow the alarm memory enable/disable. The alarm memory is enabled, when the terminal is connected to the common

ground. The alarm memory is disabled, when the terminal is disconnected from the common ground. If the alarm memory is enabled and an alarm occurs, the LED will start blinking red. Indication of the alarm memory will continue until the alarm memory is enabled again (the MEM terminal is connected to the common ground). Disabling the alarm memory will not stop the alarm memory indication. You can connect to the MEM terminal an OC type control panel output programmed e.g. as the ARMED STATUS.

3. Electronics board

① terminals:

- WRN** - anti-masking output (NC relay).
- TMP** - tamper output (NC).
- COM** - common ground.
- 12V** - power input.
- NC** - alarm output (NC relay).
- LED** - remote LED control.
- MEM** - alarm memory control.

② configuration pins for detector outputs:

the built-in resistors are to be used – place the jumpers as shown in Fig. 2 (connect the outputs as shown in Fig. 12),

the built-in resistors are not to be used – place the jumpers as shown in Fig. 3 (connect the outputs as shown in Fig. 11).

③ microwave sensor.

④ bi-color LED to indicate:

- alarm – the LED lights red for 2 seconds,
- alarm memory – the LED is blinking red,
- motion detected by one of the sensors – the LED lights green for 2 seconds,
- trouble – the LED lights red,
- warm-up – the LED is blinking alternately red and green.

⑤ detector configuration pins:

MODE - selecting the detector operation mode:

basic mode – place the jumper as shown in Fig. 4,

advanced mode – place the jumper as shown in Fig. 5.

- ##### **LED** - enable/disable the LED indicator. If the LED is to be enabled, place the jumper as shown in Fig. 6 (the remote LED enable/disable is not available then).

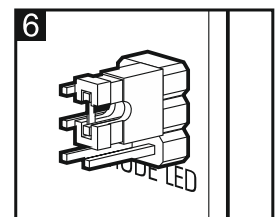
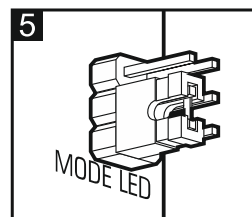
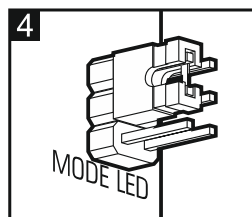
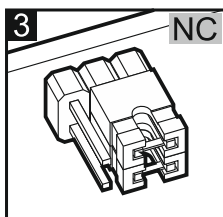
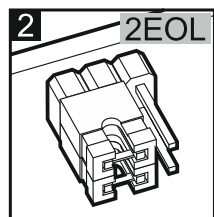
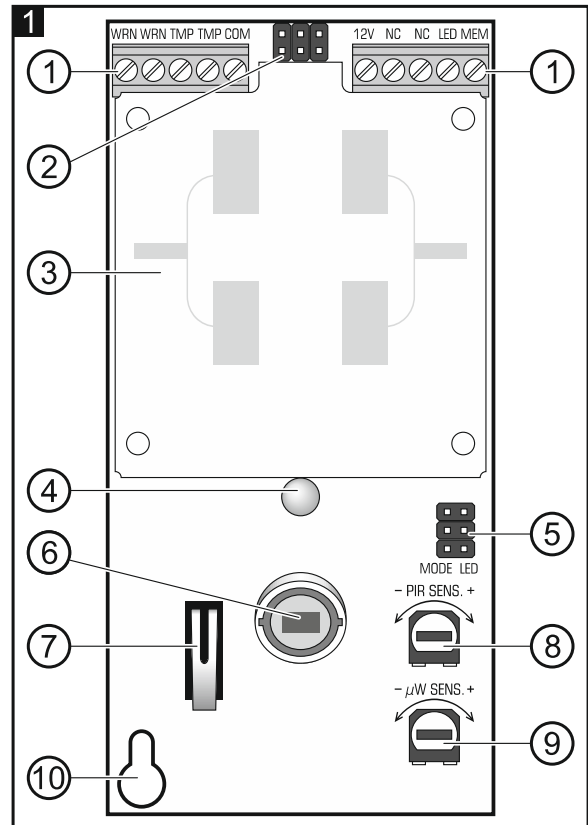
⑥ dual element pyrosensor. **Do not touch the pyroelectric sensor, so as not to soil it.**

⑦ tamper switch.

⑧ potentiometer for adjustment of PIR sensor sensitivity.

⑨ potentiometer for adjustment of the microwave sensor sensitivity. Please bear in mind that microwaves can penetrate e.g. glass, gypsum walls, non-metallic doors, etc.

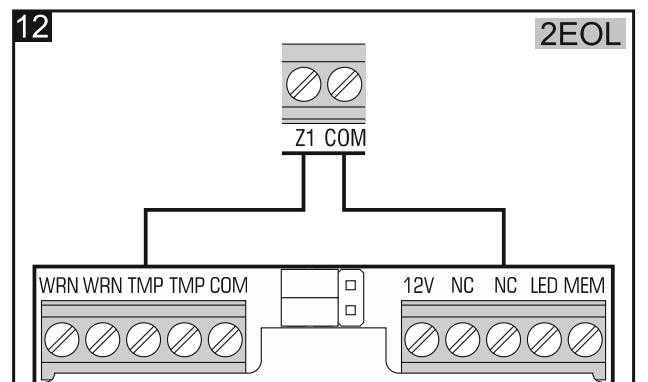
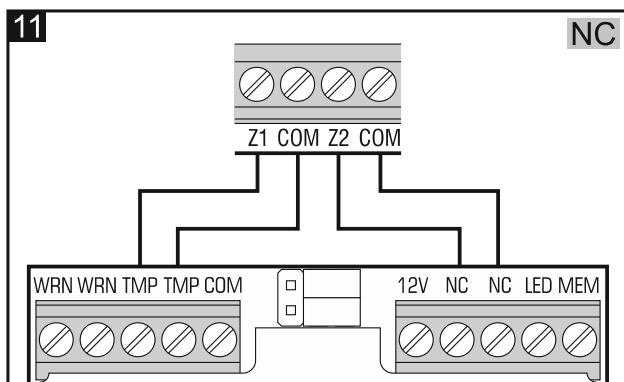
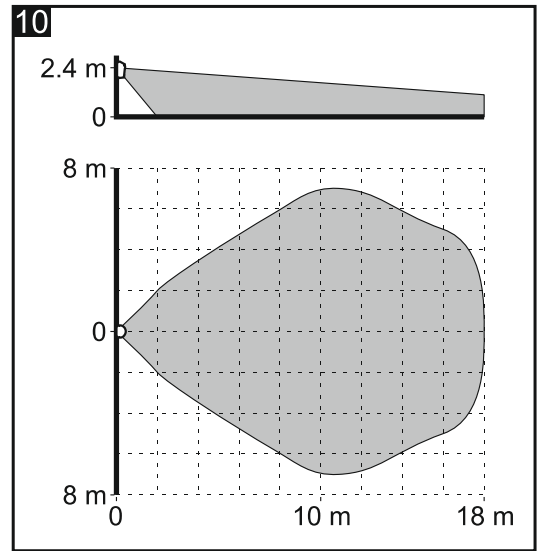
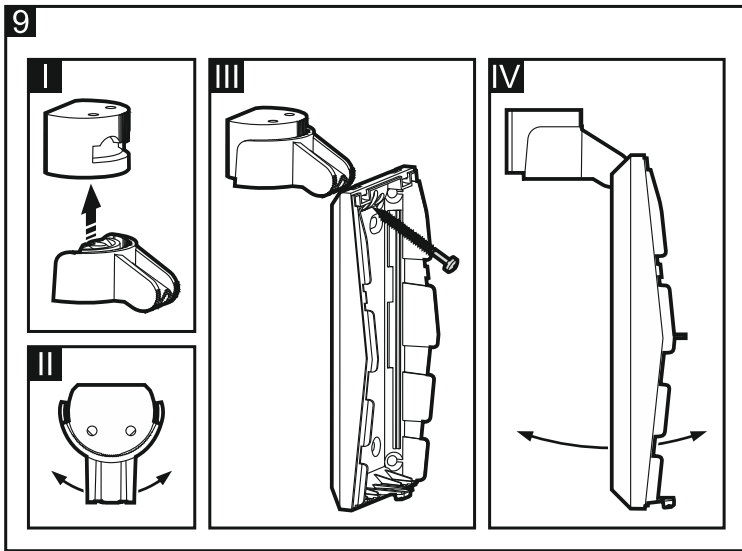
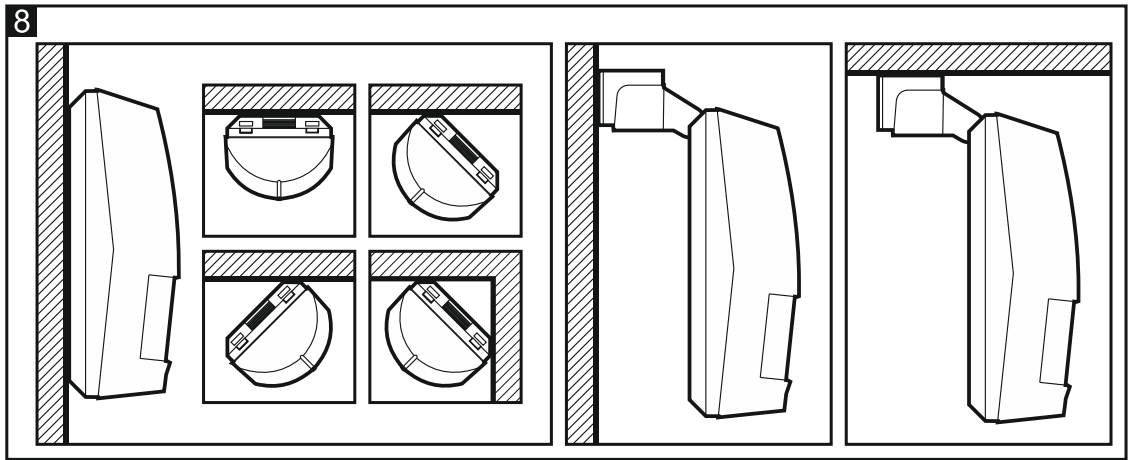
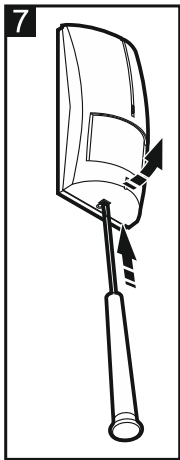
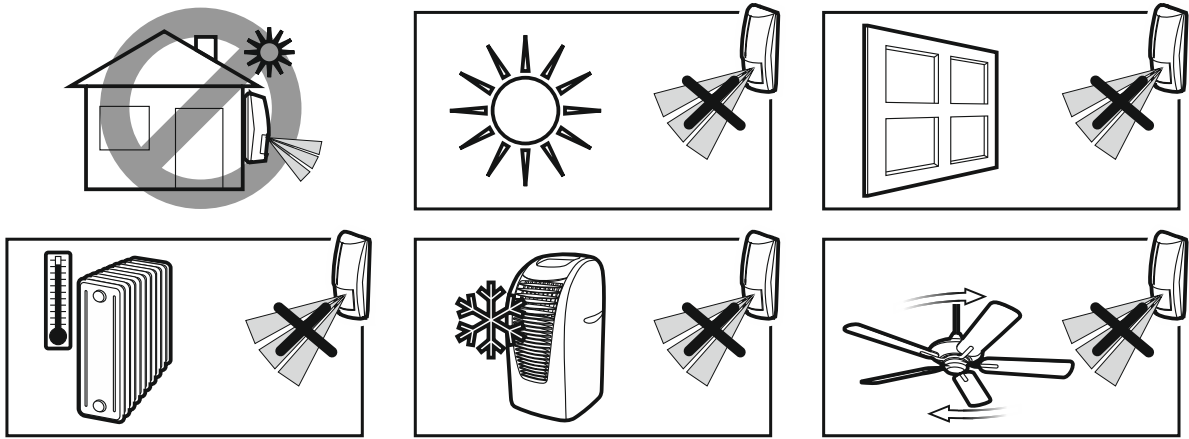
⑩ fixing screw hole.



4. Installation

1. Remove the front cover (Fig. 7).
2. Remove the electronics board.

3. Make the openings for screws and cable in the enclosure base.



4. Pass the cable through the prepared opening.
5. Fix the enclosure base to the wall or to the attached bracket (Fig. 8 i 9).
6. Fasten the electronics board.
7. Connect the wires to the corresponding terminals.
8. Using potentiometers and jumpers, set the detector working parameters.
9. Replace the cover.

5. Start-up and walk test

Note: When testing the detector, the LED should be enabled.

1. Power-up the detector. The LED will begin alternately blinking red and green, which indicates the detector warm-up.
2. When the LED stops blinking, check that moving within the coverage area will activate the alarm relay and make the LED light up red. Fig. 10 shows the maximum coverage area (maximum sensitivity).

Separate testing of sensors

To test the microwave sensor, do the following:

1. Before you power-up the detector, place the jumper across the MODE pins as shown in Fig. 4.
2. Power-up the detector and, during the warm-up period, remove the jumper from the MODE pins. After completion of the warm-up, the LED should flash green every 3 seconds.
3. Check that moving within the coverage area will activate the alarm relay and make the LED light up green.

To test the PIR sensor, do the following:

1. Before you power-up the detector, remove the jumper from the MODE pins.
2. Power-up the detector and, during the warm-up period, place the jumper across the MODE pins as shown in Fig. 4. After completion of the warm-up, the LED should flash red every 3 seconds.
3. Check that moving within the coverage area will activate the alarm relay and make the LED light up red.

Note: The sensor separate testing mode is automatically exited after 20 minutes.

6. Specifications

Supply voltage	12 V DC \pm 15%
Standby current consumption	18 mA
Maximum current consumption.....	25 mA
EOL resistors	2 x 1.1 k Ω
Relay contacts rating (resistive load).....	40 mA / 16 V DC
Microwave frequency	10.525 GHz
Detectable speed	0.3...3 m/s
Alarm signaling period	2 s
Warm-up period	30 s
Recommended installation height.....	2.4 m
Security grade according to EN50131-2-4	Grade 2
Standards complied with.....	EN50131-1, EN50131-2-4, EN50130-4, EN50130-5
Environmental class according to EN50130-5.....	II
Operating temperature range	-30...+55 °C
Maximum humidity	93 \pm 3%
Dimensions	62 x 136 x 49 mm
Weight.....	126 g

The declaration of conformity may be consulted at www.satel.eu/ce