Satel®

SLIM-PIR-PRO

Digital passive infrared detector
with anti-mask

$C\,E$
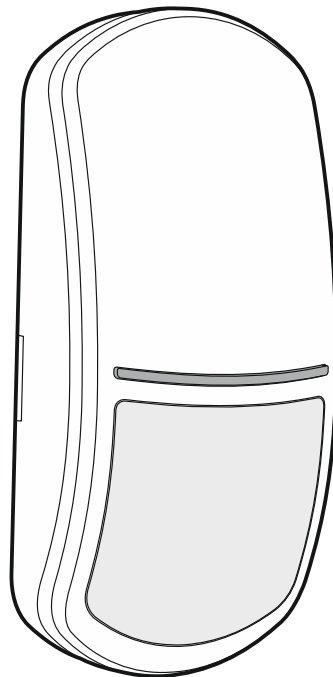
IMPORTANT

The device should be installed by qualified personnel.

Prior to installation, please read carefully this manual.

Changes, modifications or repairs not authorized by the manufacturer shall void your rights under the warranty.

SATEL aims to continually improve the quality of its products, which may result in changes in their technical specifications and software. Current information about the changes being introduced is available on our website.
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The declaration of conformity may be consulted at www.satel.eu/ce

The following symbols may be used in this manual:

i - note,

⚠ - caution.

CONTENTS

The SLIM-PIR-PRO detector detects movement in the protected area. This manual applies to the detector with electronics version D.

i   *The detector meets requirements of the EN 50131-2-2 standard for Grade 3.*

1. Features

- Motion detection with passive infrared sensor (PIR).
- Adjustable detection sensitivity.
- Digital motion detection algorithm.
- Digital temperature compensation.
- Option to enable / disable the creep zone protection.
- Wide-angle lens designed specially for SLIM detectors.
- Option to replace the lens with a curtain or long range one.
- Active IR anti-mask, compliant with EN 50131-2-2 requirements for Grade 3.
- Ability to configure the detector settings using the OPT-1 keyfob.
- Built-in end-of-line resistors (2EOL: 2 x 1.1 kΩ / 2 x 4.7 kΩ / 2 x 5.6 kΩ).
- LED indicators.
- Selectable color of LED indicators light (7 colors available).
- Remote LED indicators enable/disable.
- Remote configuration mode enable/disable.
- Supervision of motion detection system and supply voltage.
- Tamper protection against enclosure opening and removal from mounting surface.
- Adjustable mounting bracket included.

2. Description

The detector will report alarm when the infrared sensor (PIR) detects motion.

Active IR anti-mask

The active anti-mask feature detects attempts to cover the detector or paint over the lens. The detector emits infrared radiation and measures the amount of radiation received. A change in the level of received infrared radiation activates the anti-mask output and optionally causes the LEDs to flash. The output will remain on / the LEDs will keep flashing as long as the detector detects masking.

i   *The active anti-mask feature meets the EN 50131-2-2 requirements.*

You can enable / disable the anti-mask feature while configuring the detector (see "Configuring the detector").

Anti-mask delay

The detector with factory default settings will report masking if it receives a wrong amount of infrared radiation for 1 second. You can delay the anti-mask activation (see "Configuring the detector"). The detector will report masking if it is covered for 60 seconds.

i   *If you delay the anti-mask activation, it will not meet the requirements of EN 50131-2-2 for Grade 3.*

Supervision features

In the event of the voltage drop below 9 V (±5%) for more than 2 seconds or the motion detection system failure, the detector will signal a trouble. The trouble is indicated by the alarm output activation and the LED indicators coming on. Signaling will continue as long as the trouble exists.

LED indicators

The LEDs indicate:

- warm-up – flashing alternately different colors for about 30 seconds;
- alarm – ON for 2 seconds (default color: blue);
- masking – flashing when the detector is masked (the same color of lighting as in case of alarm);
- trouble – steady ON for entire duration of the trouble (the same color of lighting as in case of alarm).

You can change the color. You can select one of seven available colors and enable/disable the indication of masking (see "Configuring the detector").

You can enable / disable the LEDs. When disabled, the LEDs will not indicate the states described above (except the indication of masking which you can enable / disable while configuring the detector).

Enabling the LEDs by using a jumper

If you put a jumper across the LED pins, the LEDs will be enabled, i.e. they will indicate the above described events (the LED indicators can't be enabled/disabled remotely). If you do not put a jumper across the pins, the LEDs will be disabled, but they can be enabled/disabled remotely.

Remote LEDs enable/disable

The LED terminal is provided to allow remote LEDs enable/disable. When the terminal is connected to common ground, the LEDs are enabled. When the terminal is disconnected from common ground, the LEDs are disabled.

If the detector is used in the INTEGRA / INTEGRA Plus alarm system, you can connect to the terminal an OC type control panel output programmed e.g. as "Zone test status" or "BI switch".

Remote configuration mode enable/disable

The SRVC terminal is provided to allow remote configuration mode enable / disable. The configuration mode is enabled, when the terminal is connected to the common ground.

If the detector is working in the INTEGRA / INTEGRA Plus alarm system, you can connect to the terminal the control panel OC type output programmed e.g. as "Service mode status" or "BI switch".
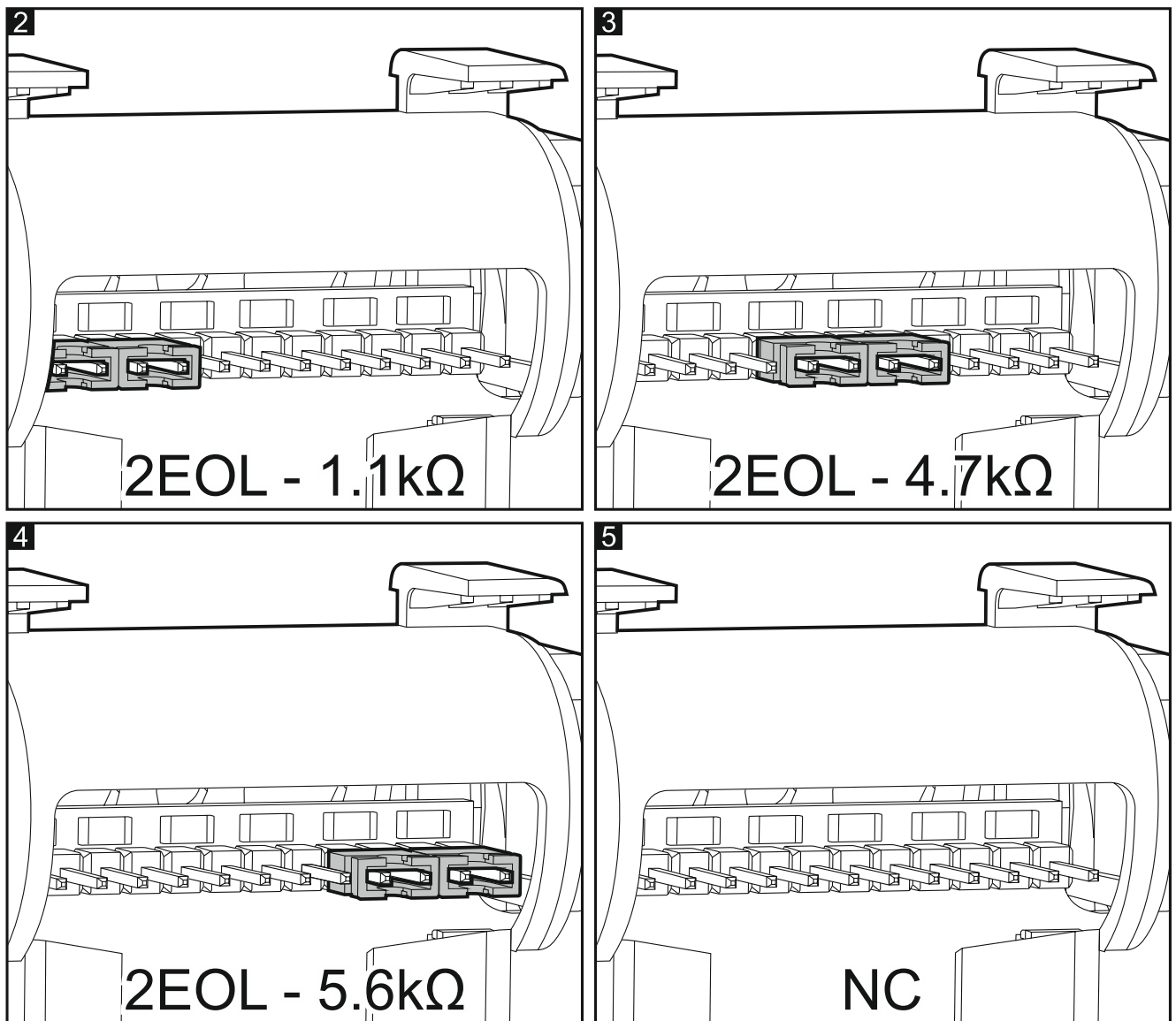
3. Electronics module

⚠️ **Do not remove the plastic cover from the circuit board to prevent damage to the components located on the board.**

Do not touch the pyroelectric sensor, so as not to soil it.
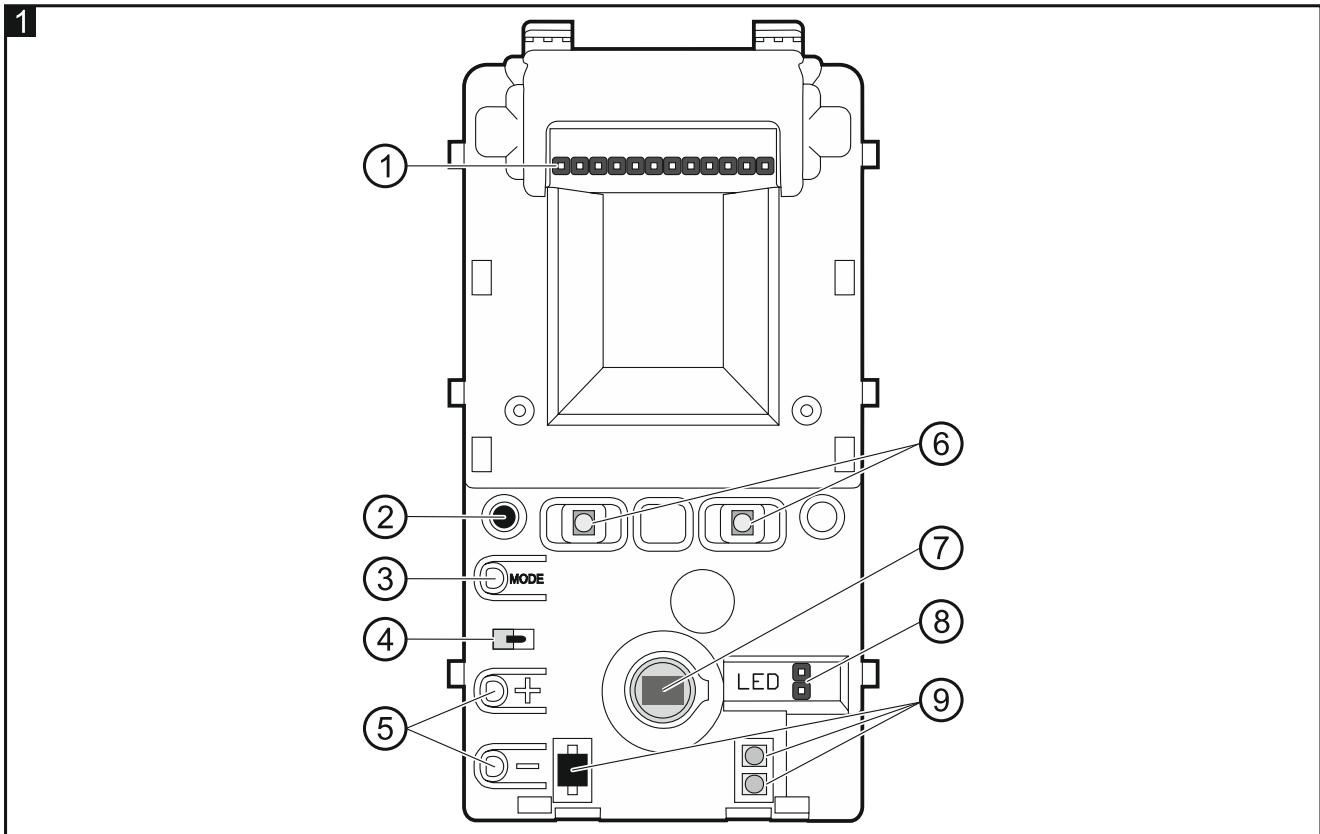
① pins for configuration of the detector outputs. Available settings are shown in the figures:

    2 – 2 x 1.1 kΩ resistors are used,

    3 – 2 x 4.7 kΩ resistors are used,

    4 – 2 x 5.6 kΩ resistors are used,

    5 – built-in resistors are not used.

If the built-in resistors are used, connect the detector outputs as shown in Fig. 15 or Fig. 17 (mounting on wall) / Fig. 16 or Fig. 18 (mounting on bracket). When the built-in resistors are not used, connect the detector outputs as shown in Fig. 13 (mounting on wall) or Fig. 14 (mounting on bracket).

② infrared receiver allowing to configure the detector by means of OPT-1 keyfob. The keyfob is available in SATEL's product range.

③ MODE button used for configuring the detector (see "Configuring the detector").

④ tamper switch activated by cover removal.

⑤ buttons used for configuring the detector (see "Configuring the detector").

⑥ LED indicators.

⑦ PIR sensor (dual element pyrosensor).

⑧ pins to enable/disable the LED indicators.

⑨ anti-mask system LEDs.

On the other side of the electronics module is a tamper switch activated by removing the detector from the wall.

4. Terminal block

The terminal block is located on the enclosure base (Fig. 6). To get access to the terminals, you must remove the electronics module (Fig. 8).

AM   -   anti-mask output (NC relay).

TMP   -   tamper output (NC relay).

NC   -   alarm output (NC relay).

COM   -   common ground.

+12V -   power input.

LED   -   enable/disable the LED indicators.

SRVC -   enable/disable the detector configuration mode.
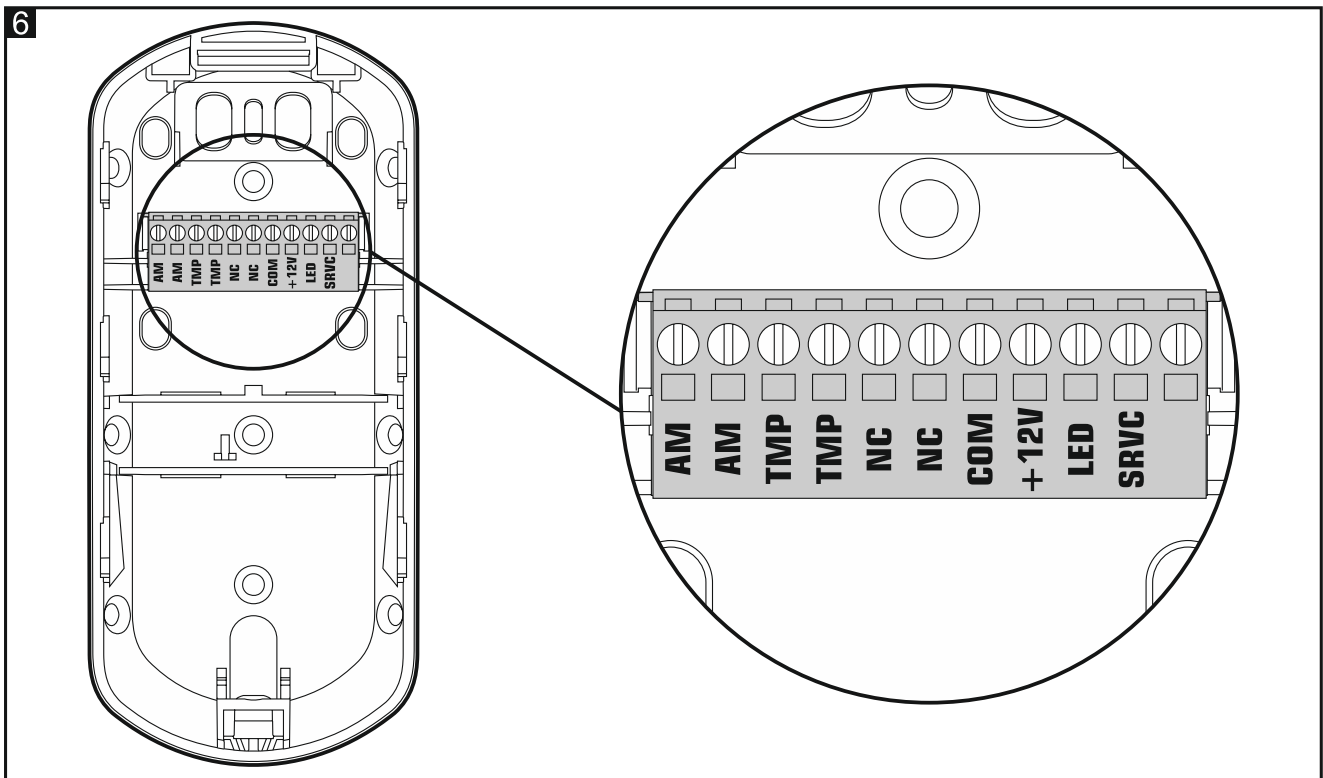
5. Selecting a mounting location
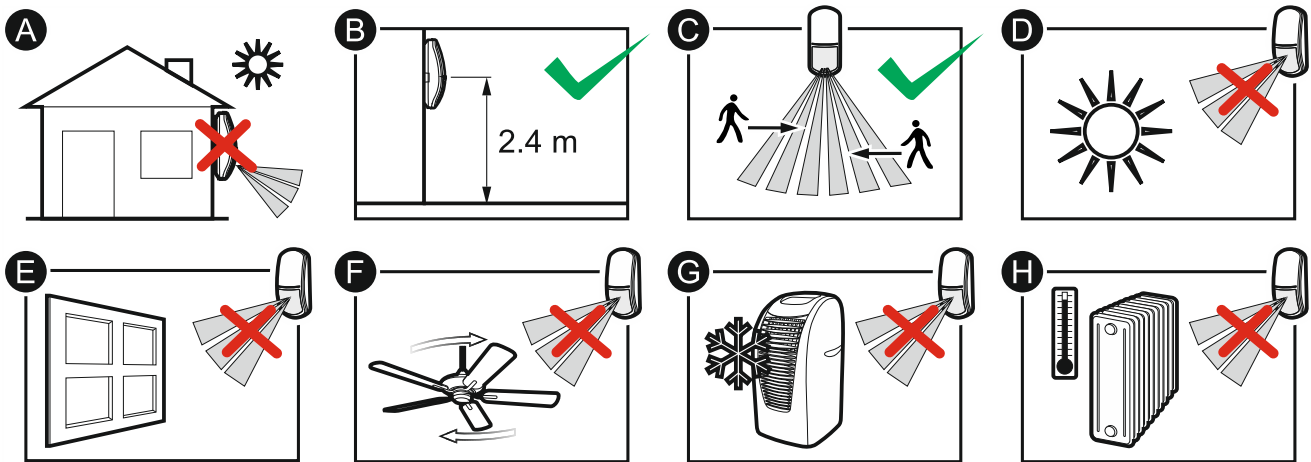
- Do not install the detector outdoors (A).
- Install the detector at the recommended height (B). The detector installed at the recommended height meets requirements of the EN 50131-2-2 standard for Grade 3.

i | *If you choose to install the detector at a height other than the recommended (permissible installation height: up to 4 m), test the coverage area of the detector. You may need to install the detector on a bracket and tilt it in order to achieve the optimal coverage area.*

- When choosing the installation location, keep in mind that the detector performance will be the best where the expected direction of the intruder movement will be across the coverage pattern (C).
- Do not install the detector in places where it will be exposed to direct sunlight (D) or light reflected from other objects (E).
- Do not point the detector towards fans (F), air conditioners (G) or heat sources (H).

6. Installation

⚠️ **Disconnect power before making any electrical connections.**

1. Remove the front cover (Fig. 7).
2. Move the electronics module down to unlock it, and then remove it from the enclosure base (Fig. 8).
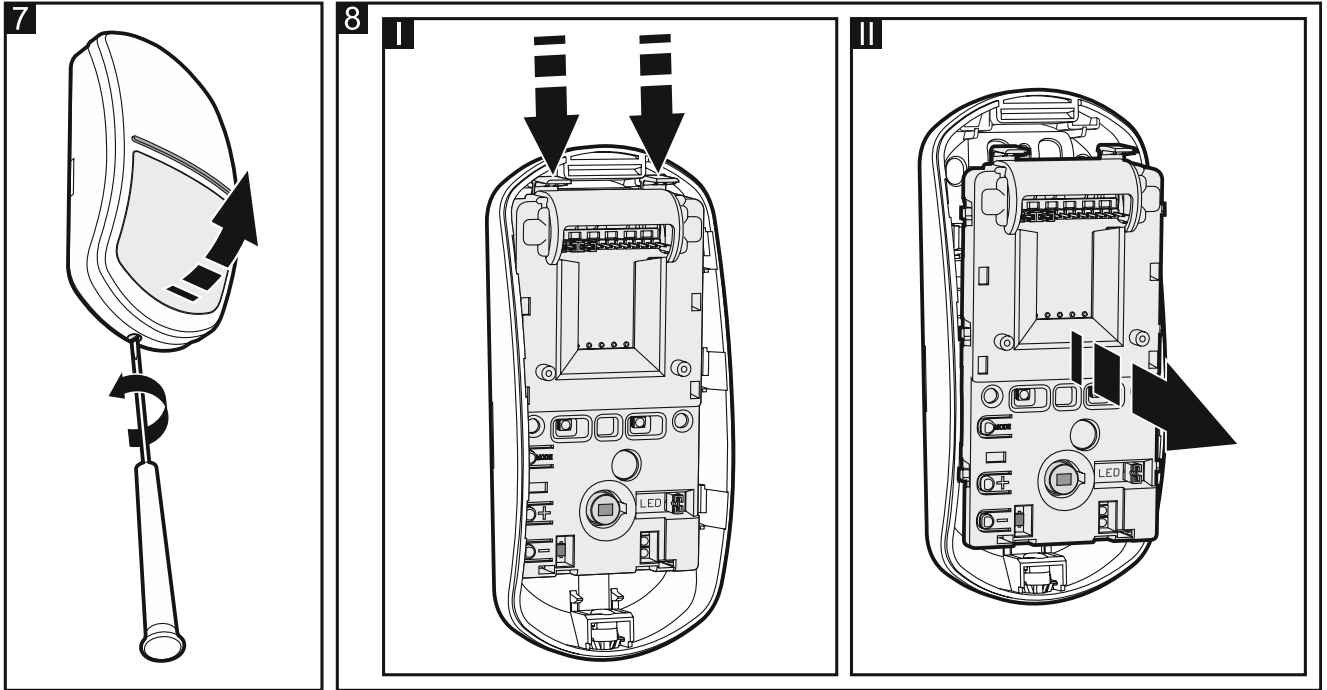
3. Make the openings for screws (Fig. 9 or Fig. 10) and cable (Fig. 11) in the enclosure base. If the detector is to be mounted directly on the wall, make a screw hole in the tamper protection element. The place in which to make the opening is indicated with the ⓘ sign in Fig. 9.
4. Pass the cable through the prepared opening. If the detector is to be mounted on the bracket, run the cable and the wires of tamper switch located in the bracket as shown in Fig. 10.
5. Secure the enclosure base to the wall (Fig. 9) or a bracket fastened with screws to the wall or ceiling (Fig. 10). The wall plugs (anchors) delivered with the device are intended for concrete, brick, etc. For other types of surface (drywall, styrofoam), use the appropriately selected wall plugs.
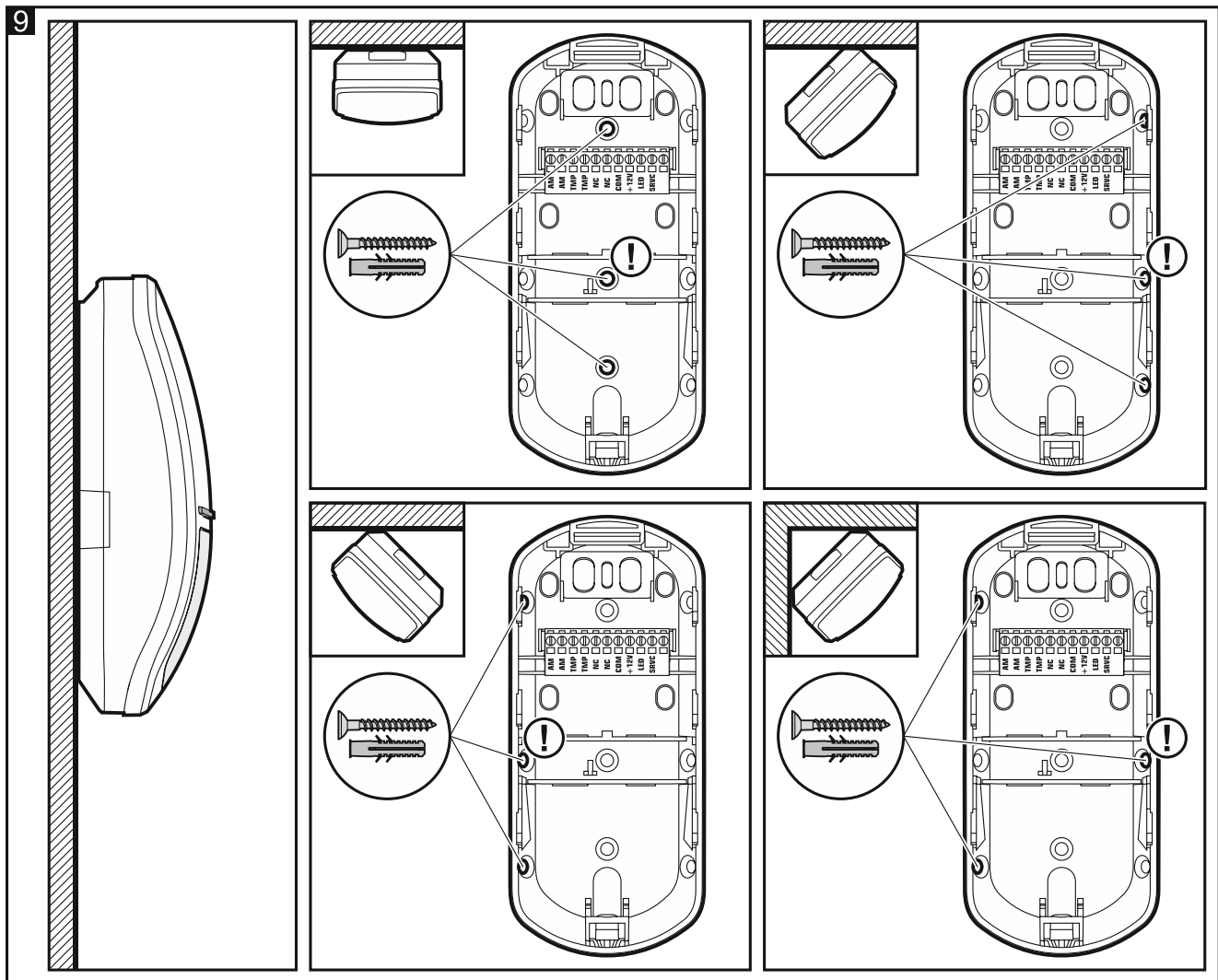
6. Connect the wires to the corresponding terminals. If the detector is mounted on the bracket, connect the tamper switch in series with the detector tamper output. The way of connecting the tamper switch is shown in Fig. 14 (NC configuration), Fig. 16 (2EOL configuration) and Fig. 18 (3EOL configuration).

7. Place the electronics module in the enclosure base and then move it up to lock it.

8. Configure the detector (see "Configuring the detector").

9. If the detector is to protect the creep zone, the knob located on the inner side of the enclosure cover is to be set in position shown in Fig. 12-A. If the detector is NOT to protect the creep zone, set the knob to the position shown in Fig. 12-B.

10. Replace the cover.
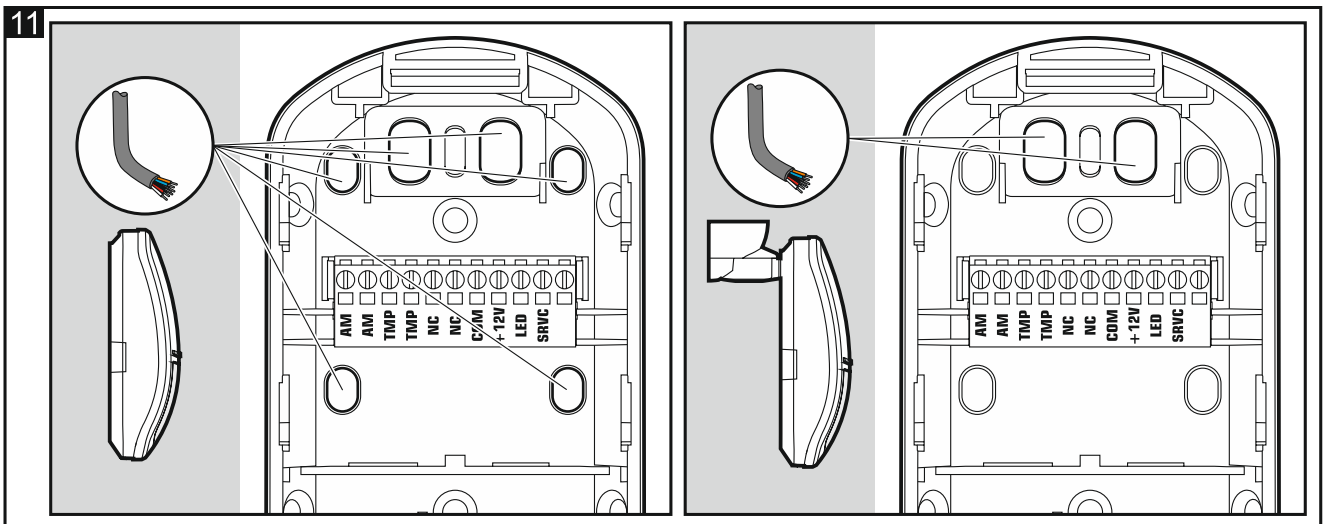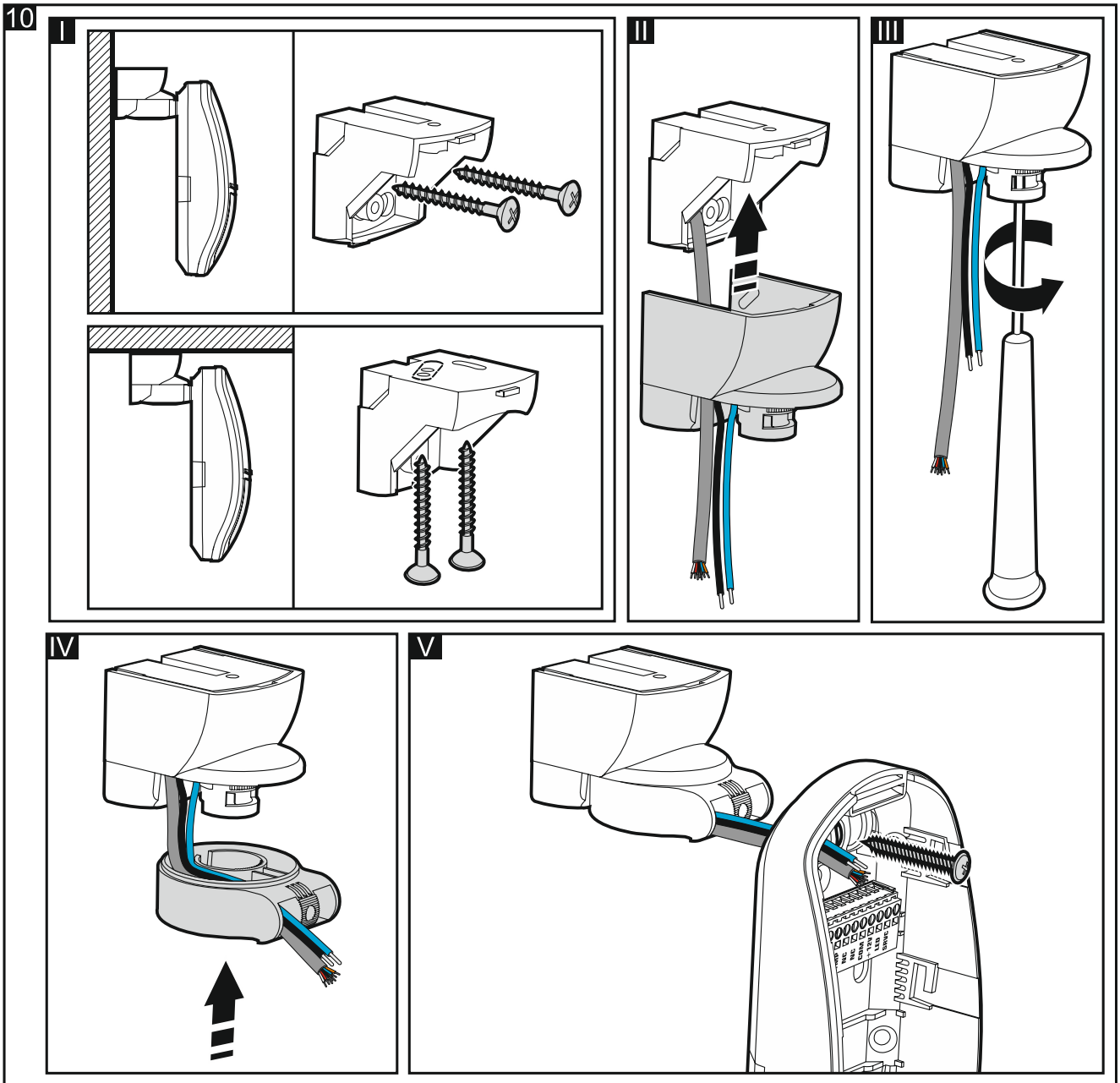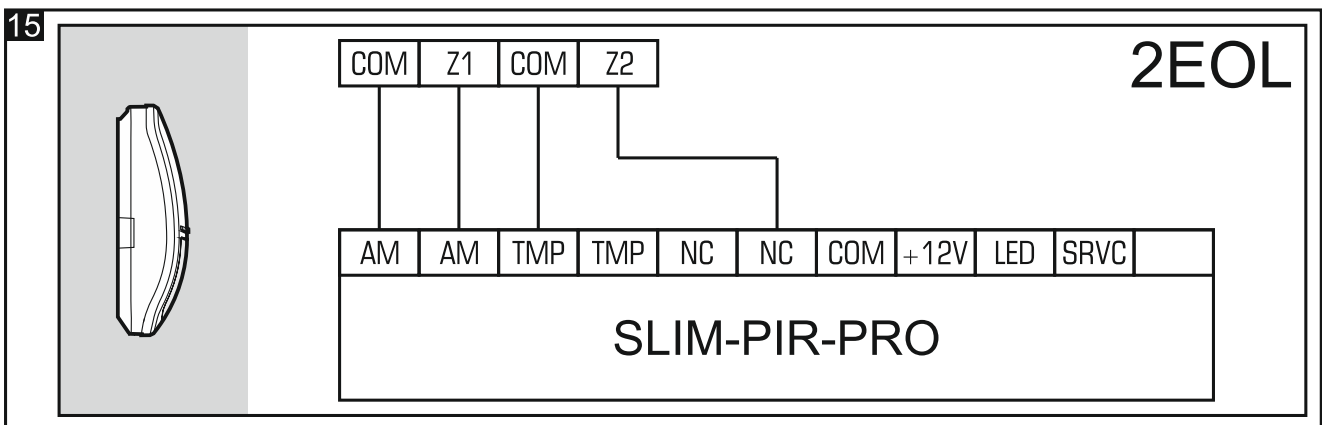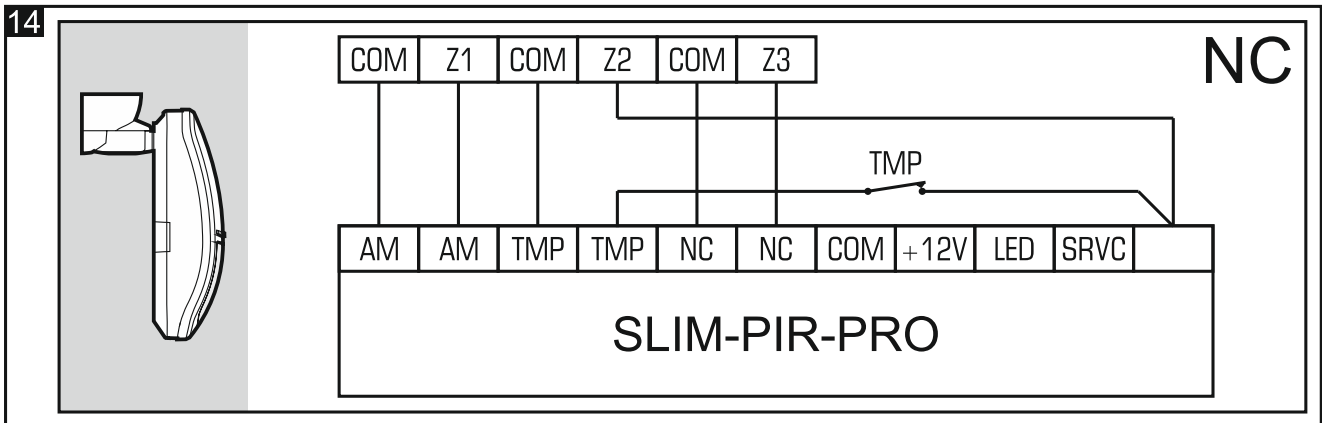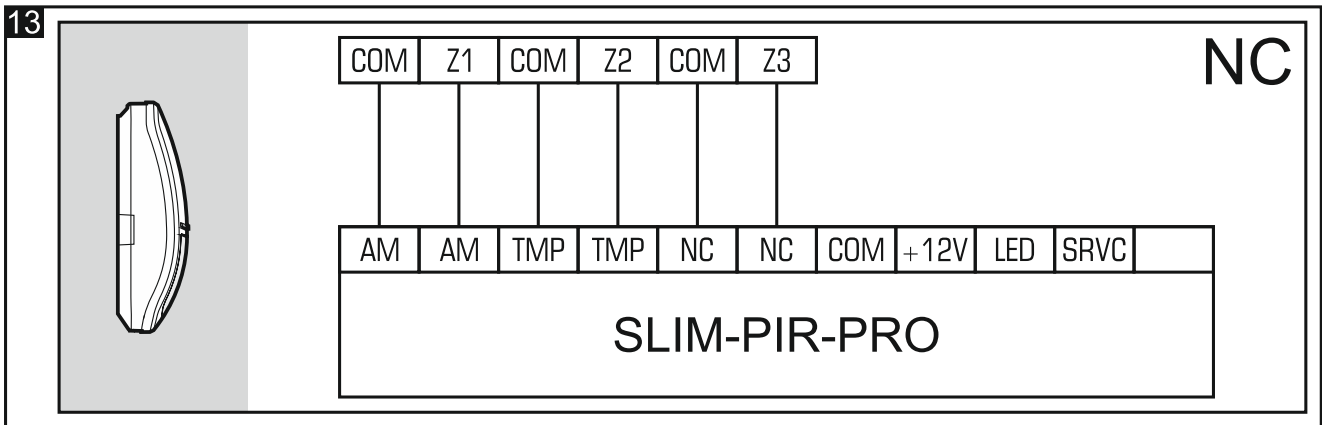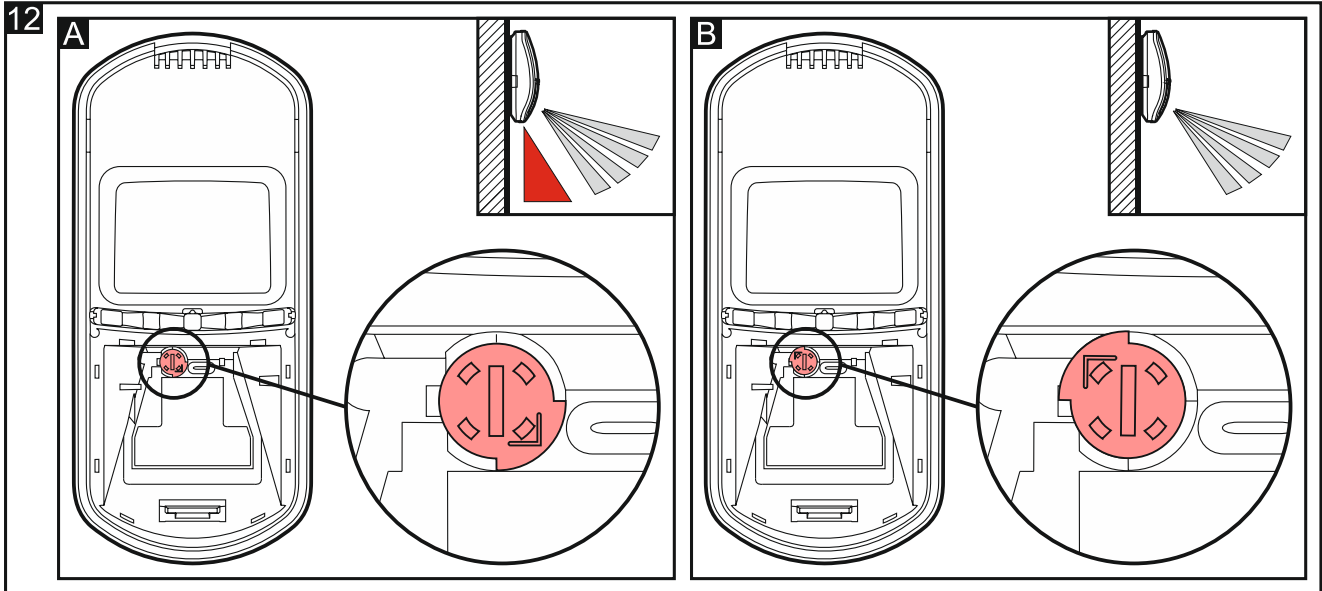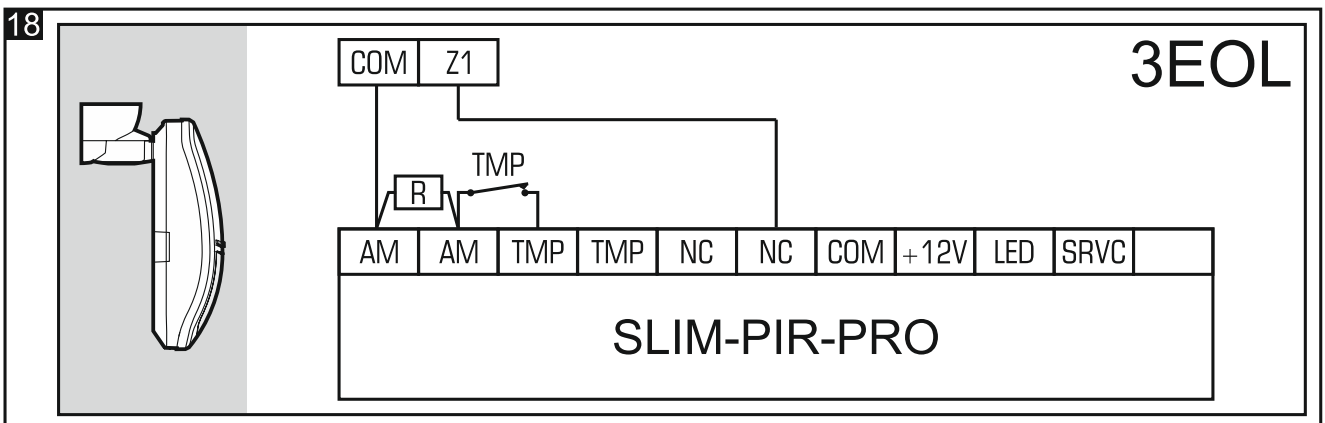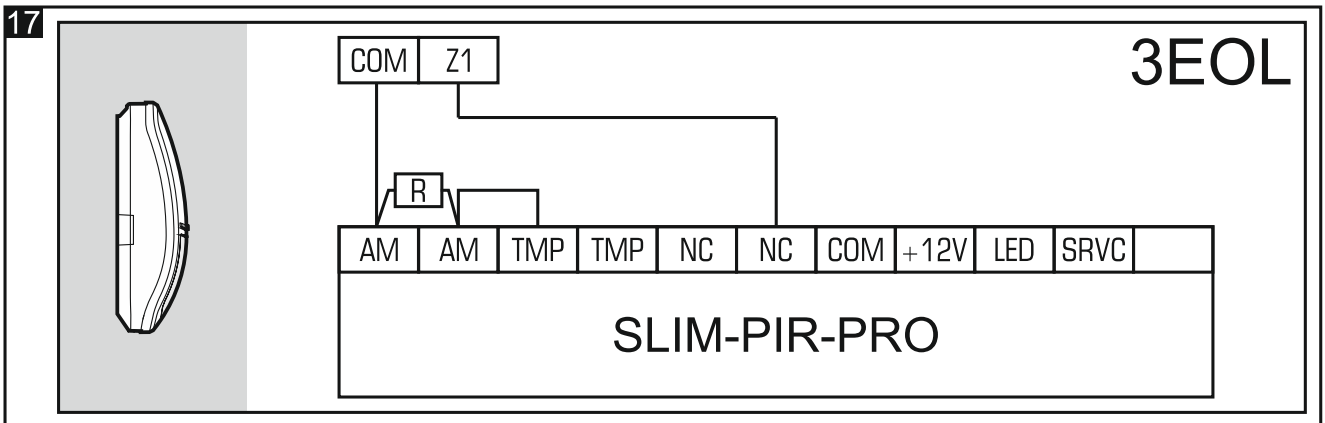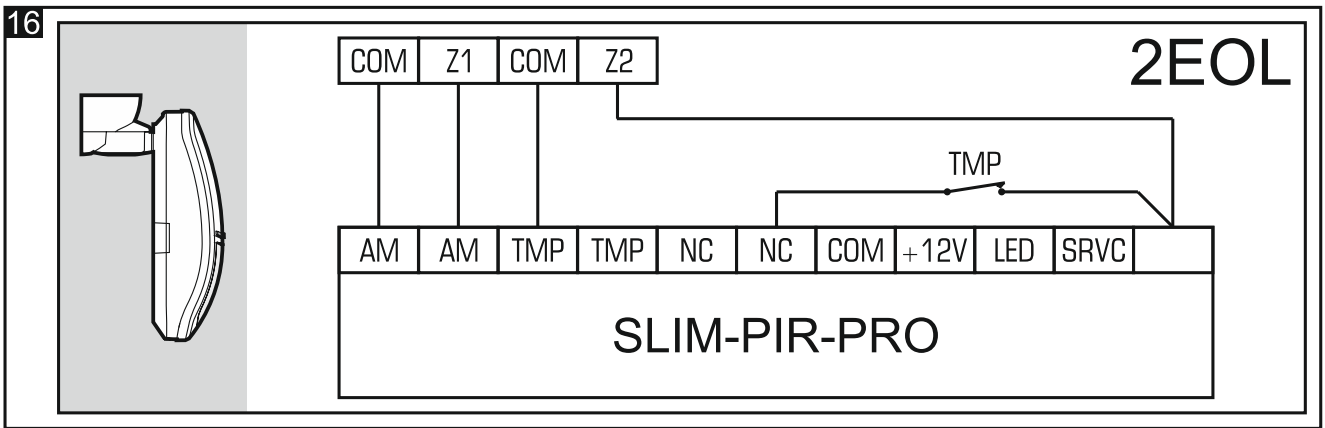
7. Configuring the detector

To configure the detector, you can use the buttons on the electronics module or the OPT-1 keyfob.

i   *The OPT-1 keyfob is available in SATEL's product range.*

Starting configuration mode

Press the MODE button on the detector electronics module for 3 seconds or connect the SRVC terminal to common ground. After starting the configuration mode, the LEDs will start flashing red. The number of flashes means the number of function you can run (see Table 1).

i   *Pressing and holding down the - and + buttons simultaneously for 3 seconds in the configuration mode will restore the factory default settings of the detector.*

Running functions and configuring parameters

1. Use the buttons on the electronics module (**+** - next function; **-** - previous function) or the keyfob keys (○ - next function; ● - previous function) to find a function you want to run.
2. Press the MODE button on the electronics module or the ▲ key on the keyfob to run a function. After starting the function, the LEDs will start flashing green. The number of flashes means the value currently set for the parameter being configured (see Table 1).
3. Use the buttons on the electronics module (**+** - next value; **-** - previous value) or the keyfob keys (○ - next value; ● - previous value) to configure the selected parameter.
4. Press the MODE button on the electronics module or the ▲ key on the keyfob to save the changes. When the new parameter value is saved, the LEDs will start flashing red to inform you that you have returned to the function list.

Function number	Description of parameter to be programmed
1	**PIR sensor sensitivity** You can program from **1** to **16** (1 - minimum; 16 – maximum). By default: **8**. When the function is running, detection of motion by the PIR sensor is indicated by the LEDs coming on red for 2 seconds. This enables the PIR sensor coverage area to be tested for the selected sensitivity.
2	**LED indicators light color when indicating alarm / masking / trouble** You can program from **1** to **7** (1-7 – color). By default: **3** (blue). In addition to the presentation of value (flashing green), the LEDs show the color assigned to that value (for 2 seconds).
3	**Anti-mask delay** You can program **1** (1 s) or **2** (60 s). By default: **1** (1 s).
4	**Indication of masking by means of the LEDs** You can program **1** (indication disabled) or **2** (indication enabled). By default: **2** (enabled).
5	**Active IR anti-mask** You can program **1** (enabled) or **2** (disabled). By default: **1** (enabled).

Table 1

i

The color of LED light has an impact on the current consumption by the detector. The red, green and blue colors ensure the lowest current consumption. Selecting other colors will increase the current consumption by as much as several milliamperes.

Masking will be indicated even when the LEDs are disabled (there is no jumper across the LED pins and the LED terminal is disconnected from common ground).

Ending configuration mode

Press the MODE button on the electronics module for 3 seconds or disconnect the SRVC terminal from common ground.

i *If you started the configuration mode by using the MODE button, the configuration mode will be ended automatically 20 minutes after the last operation performed by the user.*
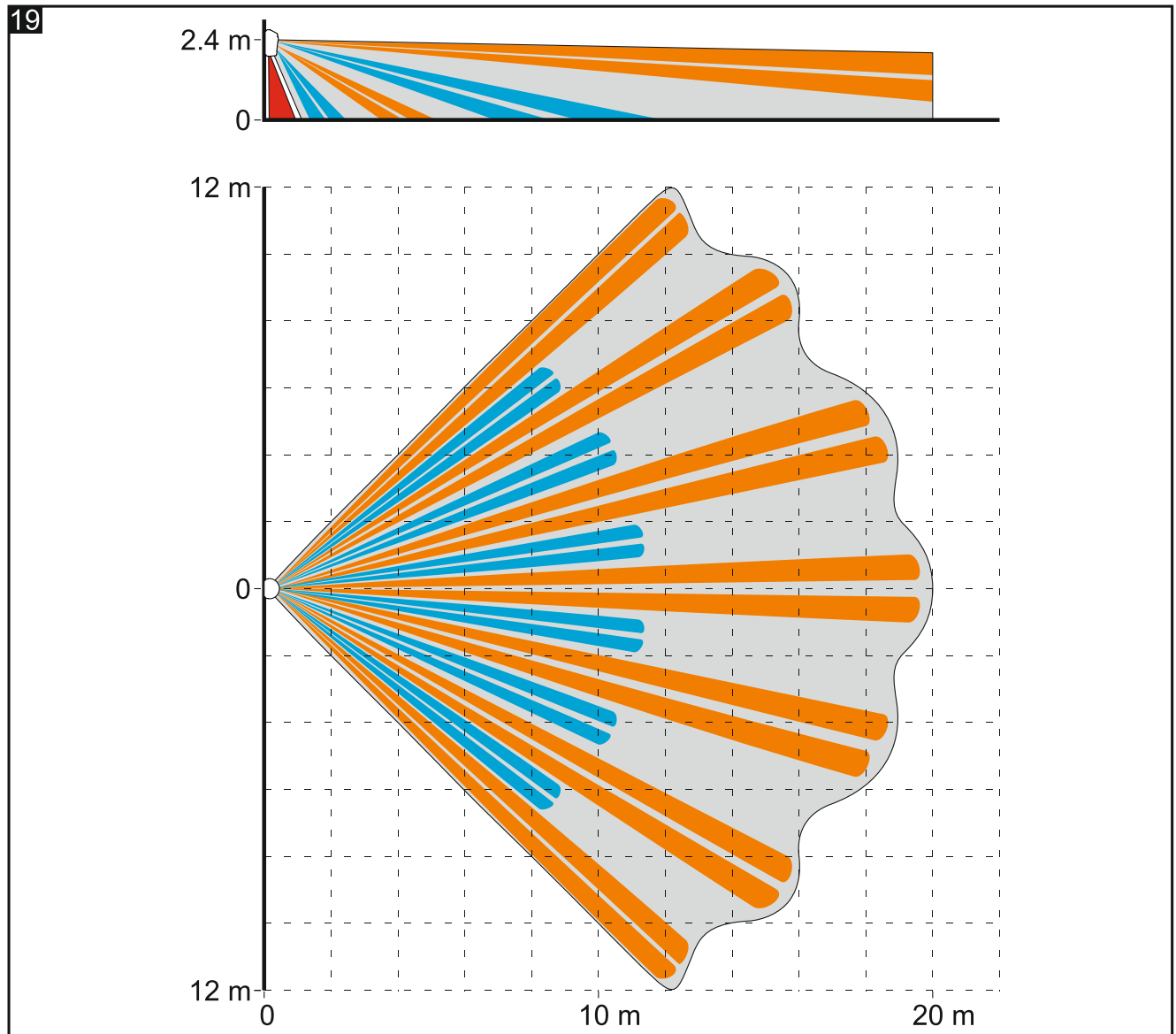
8. Start-up and walk test

i *When starting the detector, the enclosure must be closed for the anti-mask feature to work properly. After power on, the detector analyzes the environment in which it has been installed and adjusts the anti-mask system working parameters to it (for 30 seconds). During that time, no object should be located within 1 m of the detector unless the object is intended to remain there.*

The LED indicators should be enabled during the walk test (see "LED indicators").

1. Power on the detector. The LEDs will flash alternately different colors for 30 seconds to indicate warm-up of the detector.

2. When the LEDs stop flashing, check that moving within the detector coverage area will make the LEDs to turn on. Figure 19 shows the maximum coverage area ☐ and the creep zone 🟥 of a detector installed at a height of 2.4 m.

i | *Figure 19 shows the coverage area of the SLIM-PIR-PRO detector with a wide-angle lens (WD), which is installed in the detector by default. You can use the enclosure cover with another lens. The SATEL product range includes covers with a curtain lens (CT) and a long-range lens (LR).*

9. Specifications

Supply voltage .... 12 VDC ±15%
Standby current consumption ....20 mA
Maximum current consumption ....82 mA
EOL resistors .... 2 x 1.1 kΩ / 2 x 4.7 kΩ / 2 x 5.6 kΩ,
Outputs
  alarm (NC relay, resistive load)... 40 mA / 24 VDC
  anti-mask (NC relay, resistive load) .... 40 mA / 24 VDC
  tamper (NC relay, resistive load) .... 40 mA / 24 VDC
Relay contact resistance
  alarm output.. 26 Ω
  anti-mask output .... 26 Ω
  tamper output.. 26 Ω
Detectable speed .... 0.2...3 m/s
Alarm signaling period.. 2 s
Warm-up period .... 30 s
Recommended installation height ....2.4 m
Permissible installation height... up to 4 m
Coverage area (installation at 2.4 m) ....20 m x 24 m, 90°
Security grade according to EN 50131-2-2 .... Grade 3
Compliance with standards...................EN 50131-1, EN 50131-2-2, EN 50130-4, EN 50130-5
Environmental class according to EN 50130-5 II
Operating temperature range..-10°C...+55°C
Maximum humidity ....93±3%
Dimensions .... 62 x 137 x 42 mm
Weight.. 142 g

5 year warranty from date of manufacture