Satel®

GRAPHITE

Digital passive infrared detector
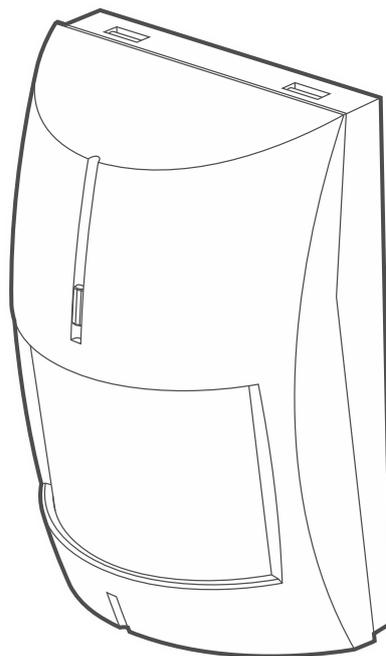
$C\,\epsilon$

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.

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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:

- note,

- caution.

CONTENTS

The GRAPHITE detector detects motion in the protected area. This manual applies to the detector with electronics version H.

1. Features

- Motion detection with passive infrared sensor (PIR).
- Adjustable detection sensitivity.
- Digital motion detection algorithm.
- Digital temperature compensation.
- Pet immunity up to 15 kg.
- Built-in end-of-line resistors (2EOL: 2 x 1.1 kΩ).
- LED indicator.
- Remote LED enable / disable.
- Alarm memory.
- Supervision of motion detection system and supply voltage.
- Tamper protection against enclosure opening.
- Adjustable mounting bracket included.

2. Description

The alarm output will turn on for 2 seconds when the infrared sensor (PIR) detects motion.

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 turning on and the LED lighting up. Signaling will continue as long as the trouble exists.

LED indicator

The LED indicates:

- warm-up – flashing for about 30 seconds,
- alarm memory – flashing rapidly,
- alarm – ON for 2 seconds,
- trouble – ON for entire duration of the trouble.

Enabling the LED by using a jumper

If you put a jumper across the LED pins as shown in Fig. 4, the LED will be enabled, i.e. it will indicate the events described above (the LED cannot be enabled / disabled remotely). If you put a jumper across the LED pins as shown in Fig. 5, the LED will be disabled, i.e. it will only indicate warm-up and trouble (but the LED can be enabled / disabled remotely).

Remote LED enable / disable

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

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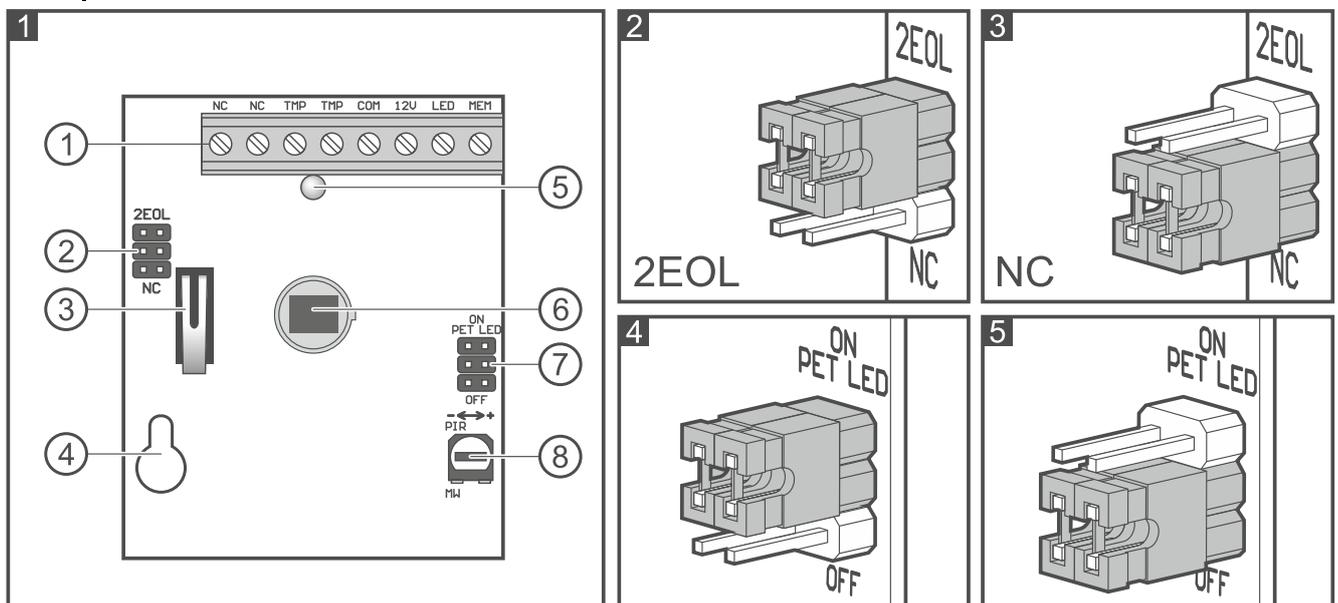
Alarm memory

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 common ground. The alarm memory is disabled, when the terminal is disconnected from common ground. If the alarm memory is enabled and an alarm occurs, the LED will start flashing. Indication of the alarm memory will continue until the alarm memory is enabled again (the MEM terminal is connected to common ground). Disabling the alarm memory will not stop the alarm memory indication.

If the detector is used in the INTEGRA / INTEGRA Plus alarm system, you can connect to the MEM terminal the OC type control panel output programmed e.g. as "Armed status".

3. Electronics board

⚠ **Do not touch the pyroelectric sensor, so as not to soil it.**

① terminals:

    NC - alarm output (NC relay).

    TMP - tamper output (NC).

    COM - common ground.

    12V - power input.

    LED - LED enable / disable.

    MEM - alarm memory enable / disable.

② pins for configuration of the detector outputs. Available settings are shown in the figures:

    2 – built-in resistors are used – connect the detector outputs as shown in Fig. 11.

    3 – built-in resistors are not used – connect the detector outputs as shown in Fig. 12.

③ tamper switch.

④ fixing screw hole.

⑤ red LED indicator.

⑥ PIR sensor (dual element pyrosensor).

⑦ pins for configuration of the detector:

 PET – enable / disable the pet immunity option:
    jumper in ON position – option enabled (Fig. 4).
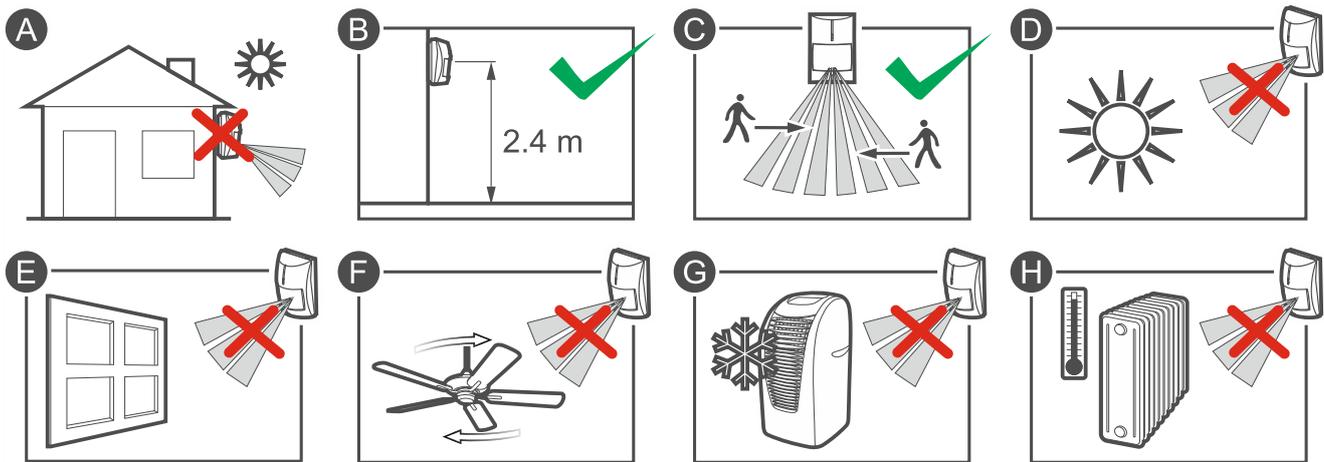   jumper in OFF position – option disabled (Fig. 5).

 LED – enable / disable the LED:
    jumper in ON position – LED enabled (Fig. 4).
    jumper in OFF position – LED disabled (Fig. 5).

⑧ potentiometer for sensitivity adjustment.

4. Selecting a mounting location

- Do not install the detector outdoors (A).
- Install the detector at the recommended height (B).
- 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).

5. Installation

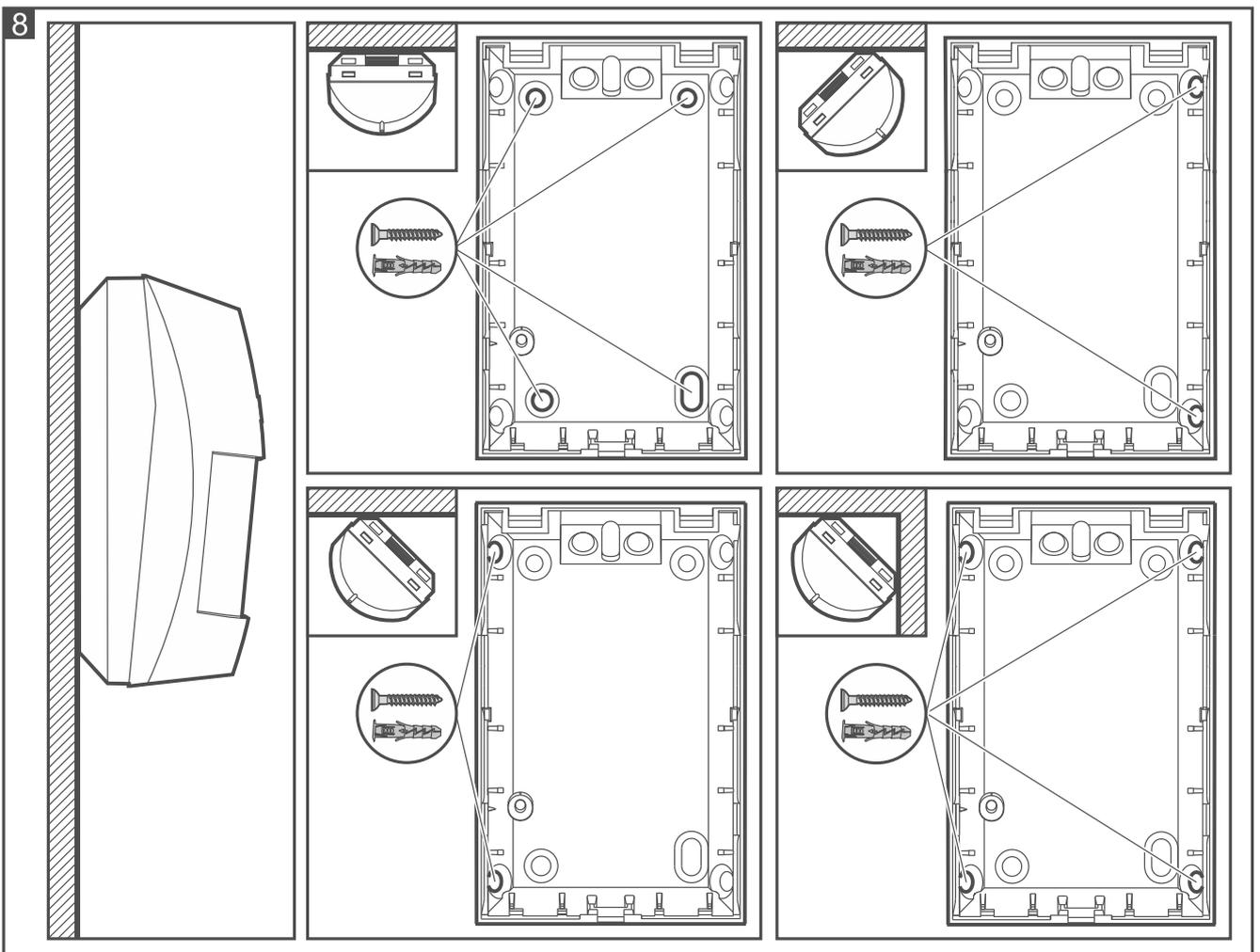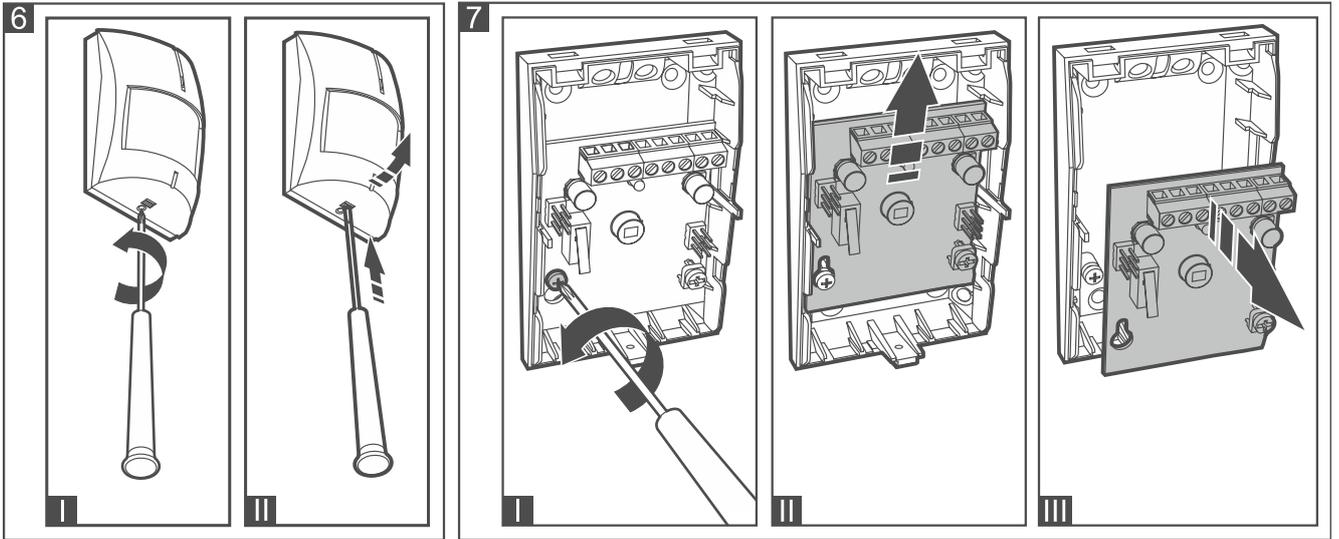⚠ **Disconnect power before making any electrical connections.**

If the detector is to be pet immune, it must not be mounted on the bracket and must be installed at a height of 2.4 m with no inclination from the vertical.

1. Remove the front cover (Fig. 6).
2. Remove the electronics board (Fig. 7).
3. Make the openings for screws (Fig. 8 and 9) and cable (Fig. 10) in the enclosure base.
4. Pass the cable through the prepared opening (Fig. 10).
5. Secure the enclosure base directly to the wall (Fig. 8) or a bracket fastened with screws to the wall or ceiling (Fig. 9).

ℹ *Do not mount the detector on the bracket if the detector is to meet the requirements of EN50131-2-2.*

6. Fasten the electronics board.
7. Connect the wires to the corresponding terminals.
8. Configure the detector settings.
9. Replace the cover.

9

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11 NC

Z1	COM	Z2	COM

NC	NC	TMP	TMP	COM	12V	LED	MEM

GRAPHITE

12 2EOL

Z1	COM

NC	NC	TMP	TMP	COM	12V	LED	MEM

GRAPHITE
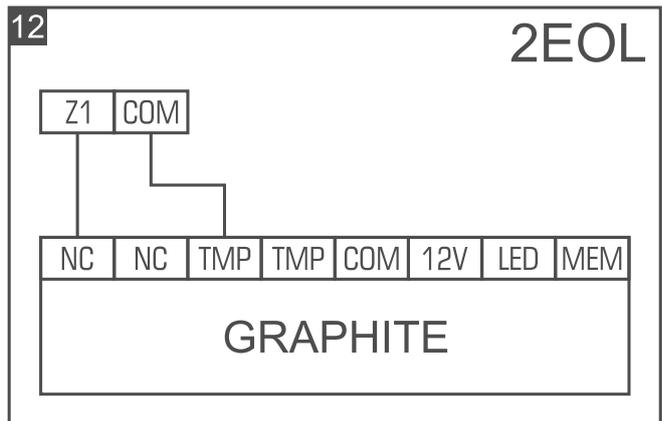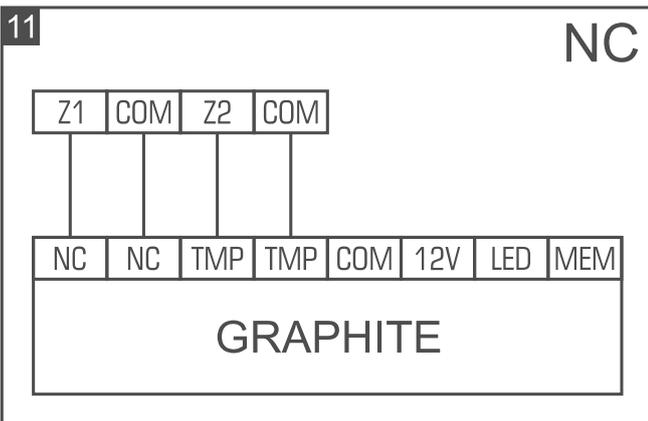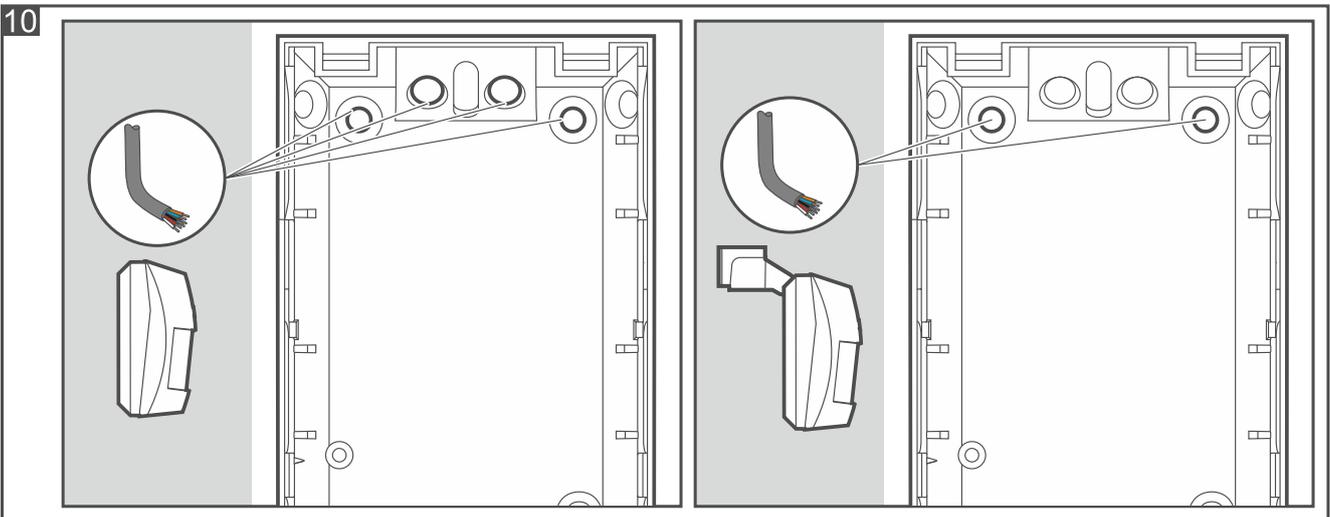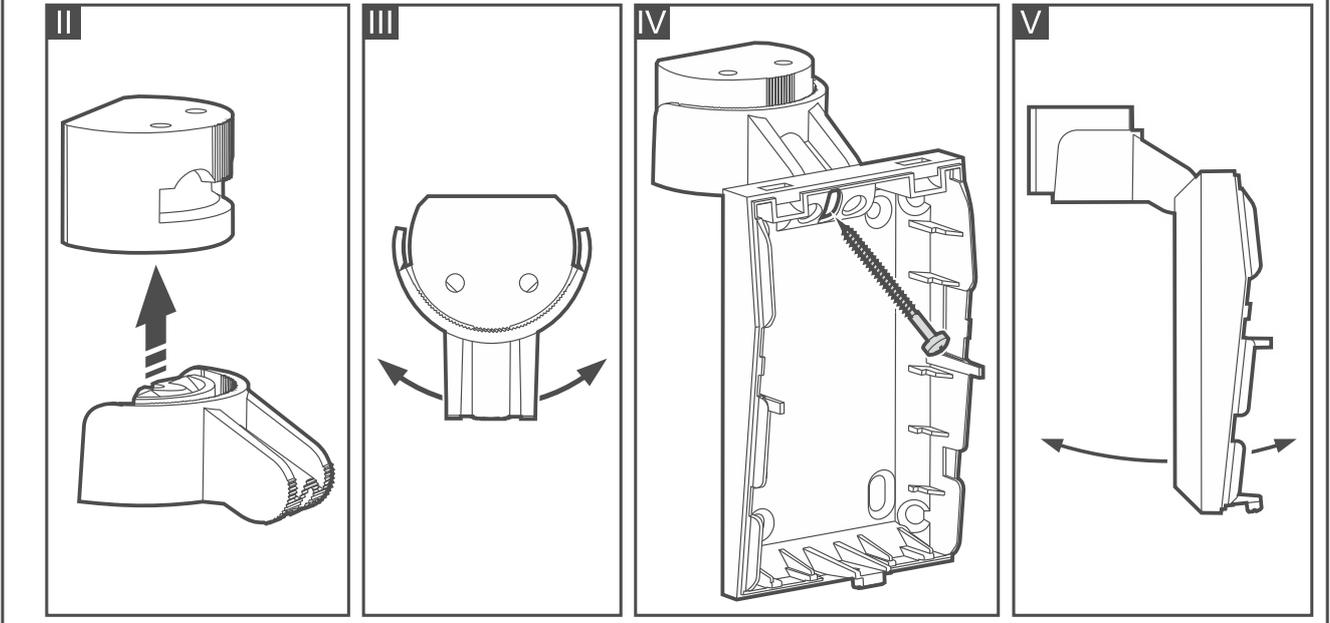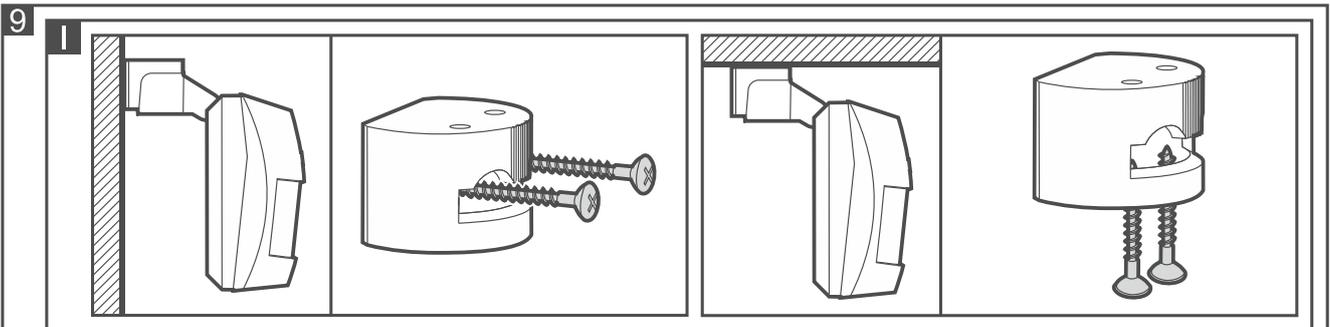
6. Start-up and walk test

i | *The LED indicator should be enabled during the walk test (see "LED indicator").*

1. Power on the detector. The LED will be flashing for 30 seconds to indicate warm-up of the detector.

2. When the LED stops flashing, check if moving within the detector coverage area will make the LED to light up. Figures 13 and 14 show the maximum coverage area of a detector installed at a height of 2.4 m (Fig. 13 – pet immunity option disabled, Fig. 14 – pet immunity option enabled).
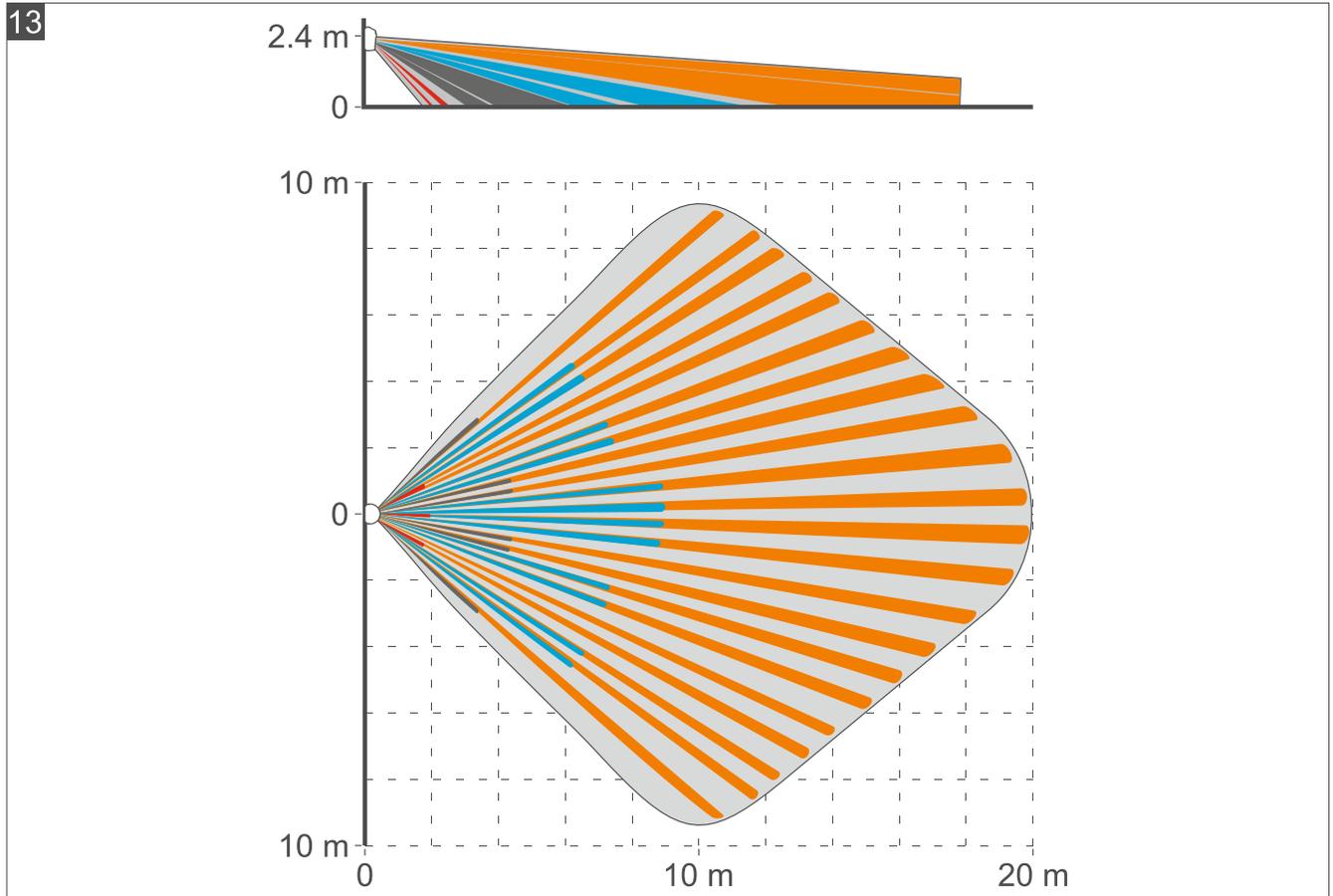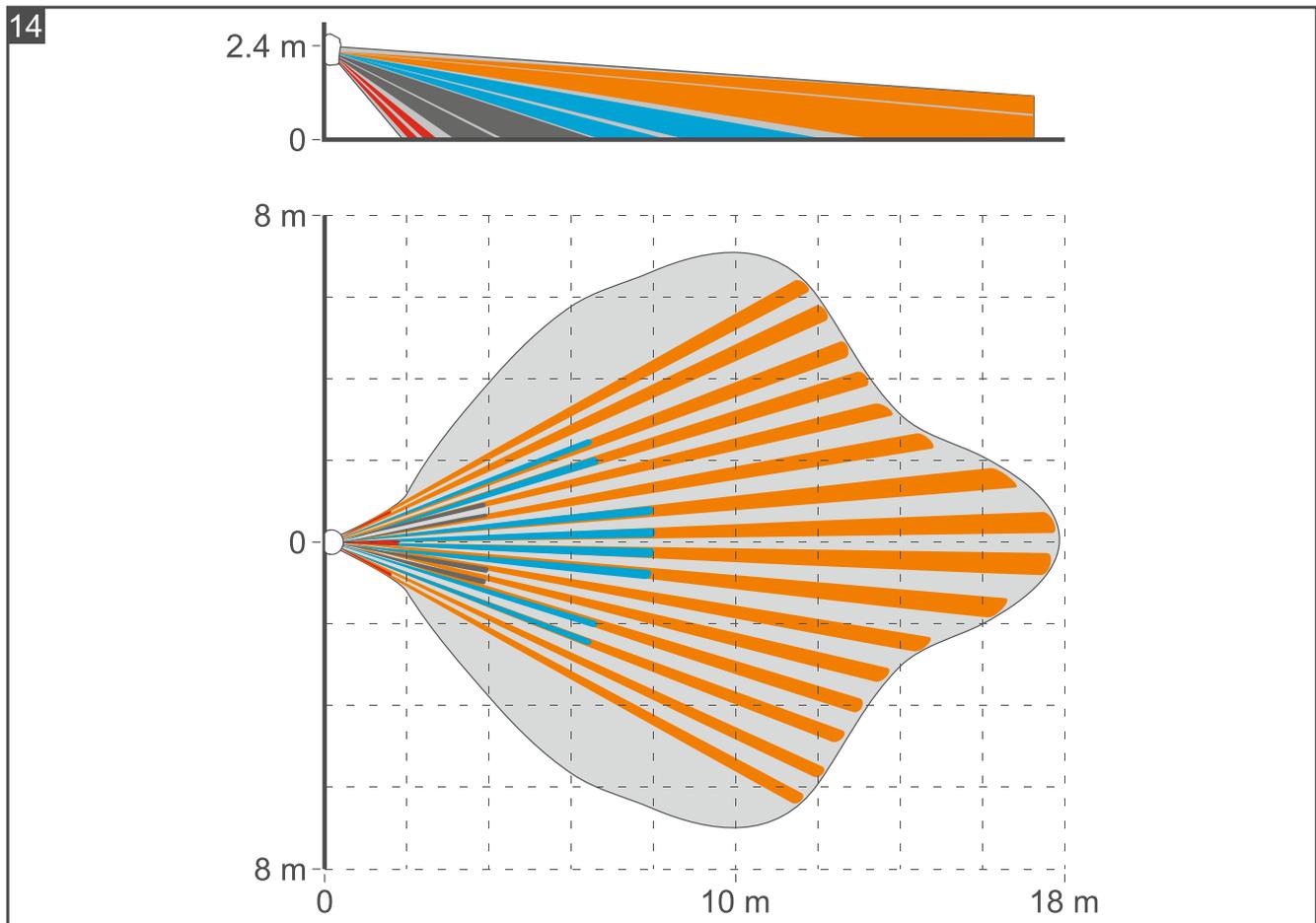
7. Specifications

Supply voltage .... 12 VDC ±15%

Standby current consumption ....10 mA

Maximum current consumption ....13 mA

EOL resistors ....2 x 1.1 kΩ

Outputs

    alarm (NC relay, resistive load)... 40 mA / 24 VDC

    tamper (NC) .... 100 mA / 30 VDC

Relay contact resistance .... 34 Ω

Detectable speed .... 0.3...3 m/s

Alarm signaling period.. 2 s

Warm-up period .... 30 s

Recommended installation height ....2.4 m

Coverage area

    PET enabled.. 18 m x 14 m 84°

    PET disabled ....20 m x 18 m 92°

Security grade according to EN 50131-2-2 .... Grade 2

Standards complied with ....EN 50131-1, EN 50131-2-2, EN 50130-4, EN 50130-5

Environmental class according to EN 50130-5 II

Operating temperature range..-30°C...+55°C

Maximum humidity ....93±3%

Dimensions ....63 x 96 x 49 mm

Weight... 94 g