Multipurpose detector

XD-2L EN

Firmware version 1.00
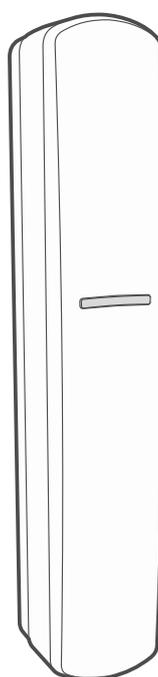
C E

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.

The rating plate of the device is located on the enclosure base.

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Please visit us at:
http://support.satel.pl

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

The following symbols may be used in this manual:

- *i* - note;

- ⚠ - caution.

CONTENTS

The XD-2L detector can work as:

- magnetic contact,
- shock detector,
- shock detector and magnetic contact,
- water flood detector.

This manual applies to the detector with electronics version 1.1.

1. Features

- Detector type selected with DIP switches.
- Selectable alarm output type:
  - 2EOL/NC,
  - NC.
- Selectable end-of-line resistors for 2EOL configuration:
  - alarm: 1.1 kΩ / 2.2 kΩ / 4.7 kΩ / 5.6 kΩ / 6.8 kΩ,
  - tamper: 1.1 kΩ / 2.2 kΩ / 4.7 kΩ / 5.6 kΩ.
- LED indicator.
- Remote LED enable / disable.
- Supply voltage control.
- Tamper protection against enclosure opening.
- 2 magnets included (for surface and flush mounting).

Magnetic contact

- Detects open door, window, etc.
- Input for connecting an NC type wired detector (e.g. other magnetic contact).
- 1 alarm output.

Shock detector

- Detects shocks and vibrations accompanying attempts to force open a door or window.
- Input for connecting an NC type wired detector (e.g. other magnetic contact).
- 1 alarm output.

Shock detector and magnetic contact

- Detects shocks and vibrations accompanying attempts to force open a door or window.
- Detects open door, window, etc.
- Input for connecting an NC type wired detector (e.g. other magnetic contact).
- 1 or 2 alarm outputs.

Water flood detector

- Detects flooding in spaces provided with plumbing systems.
- 1 alarm output.

i | *Flood probe is not included with the detector. The FPX-1 probe is offered by SATEL.*

2. Description

Alarm output

You can configure the EOL alarm output as:

- 2EOL/NC (built-in resistors are used) – the output indicates alarm and tamper,
- NC (built-in resistors are not used) – the output indicates alarm only.

You can select the type of alarm output and the value of EOL resistors using DIP-switches (see "Setting up the alarm output").

Alarms

The circumstances in which an alarm is generated depend on the type of detector.

Magnetic contact

The alarm is generated after:

- moving the magnet away from the detector (opening the window or door),
- opening the Z1 input.

Shock detector

The alarm is generated after:

- detecting a shock caused by a single strong impact,
- detecting a defined number of minor shocks caused by a series of light impacts,
- opening the Z1 input.

Shock detector and magnetic contact

The alarm is generated after:

- detecting a shock caused by a single strong impact,
- detecting a defined number of minor shocks caused by a series of slight impacts,
- moving the magnet away from the detector (opening the window or door),
- opening the Z1 input.

Water flood detector

The alarm is generated approximately 1 second after the water level reaches the height at which the probe contacts are installed. The alarm will stop a few seconds after the water level drops below the height at which the probe contacts are installed.

Tamper alarm

Opening of the tamper switch is indicated by the EOL alarm output only for 2EOL/NC configuration.

Additional alarm output

When the detector works as a shock detector and magnetic contact, you can use 1 or 2 alarm outputs. If you enable the two output mode:

- the EOL output will indicate alarms from the magnetic sensor and the Z1 input,
- the S output will indicate alarms from the shock sensor.

When the two output mode is disabled, all alarms will be indicated by the EOL output.

You can enable / disable the two output mode by using the DIP switch (see: "Two output mode enable / disable").

Supply voltage control

A voltage drop below 9 V (±5%) for more than 2 seconds will cause a trouble condition. When the trouble condition is present, the LED indicator is ON. The trouble condition is indicated in the same way as an alarm condition by the EOL output or the EOL and S outputs (two output mode). The trouble is indicated for as long as the condition is present.

LED indicator

The red LED indicates:

- minor shock detected (does not reach the sensitivity threshold) – short flash,
- alarm triggered by a shock – ON for 2 seconds,
- alarm triggered by opening the window or door / opening the Z1 input / detecting water flooding – ON for as long as the condition that triggered the alarm is present,
- trouble – ON for as long as the trouble condition is present.

The LED is also used during adjustment of the shock detector (see: "Shock detector adjustment").

You can enable / disable the LED. When disabled, the LED will not indicate the events described above, except for the trouble condition.

Enabling the LED with a DIP switch

If you enable the LED with a DIP switch (by setting the switch to LED position), the LED will indicate events but remote LED enable / disable will be impossible. Disable the LED with the switch if you want to enable / disable the LED 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 an OC type control panel output programmed e.g. as "Zone test status" or "BI switch".

3. Electronics board

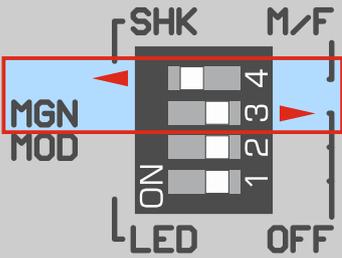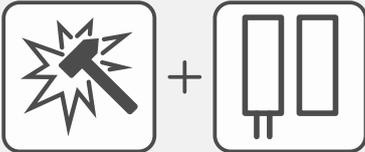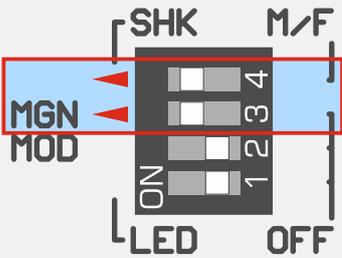**⚠ Do not remove the electronics board from the enclosure to avoid damage to the components on the board.**
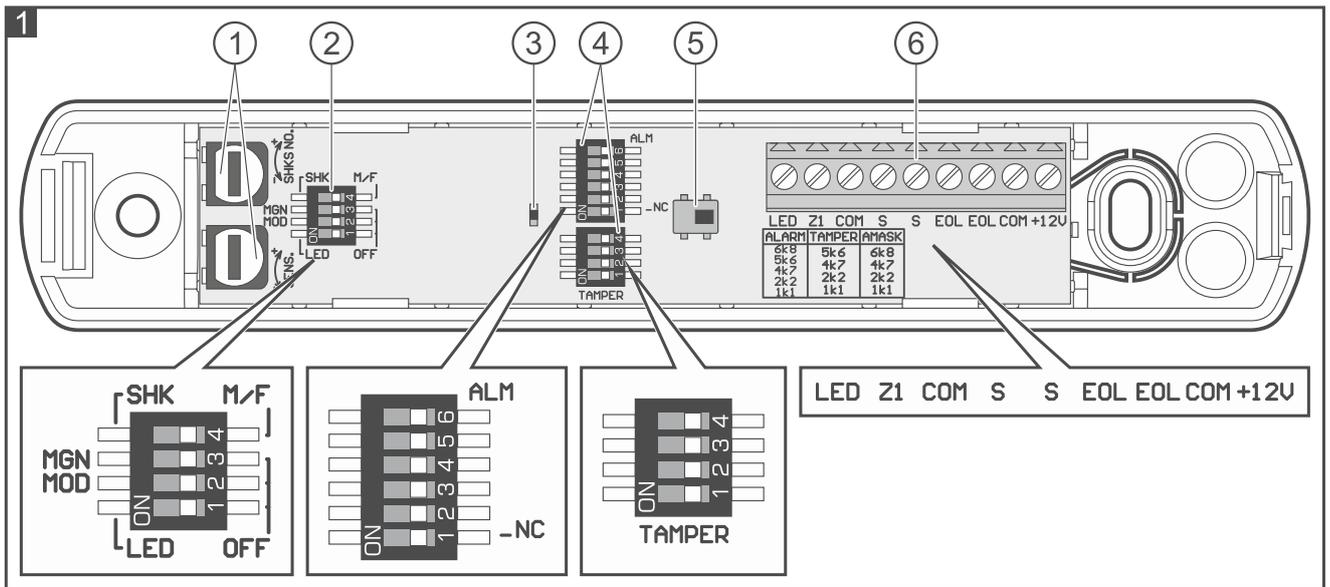
① potentiometers for shock detector adjustment (see "Shock detector adjustment").

② DIP switches for setting up the detector (see "Setting up the detector").

③ LED indicator.

④ DIP-switches for setting up the alarm output (see "Setting up the alarm output").

⑤ tamper switch activated by enclosure opening.

⑥ terminals:

LED - enable / disable the LED indicator.

Z1 - input for connecting an NC type detector (e.g. magnetic contact) or a flood probe. Cable length may not exceed 3 m. If no detector or flood probe is connected to the **Z1** input, the terminal must be connected to common ground.

S - alarm output (NC relay) used when the two output mode is enabled (see: "Two output mode enable / disable").

EOL - alarm output. It can operate as 2EOL/NC or NC (see "Setting up the alarm output").
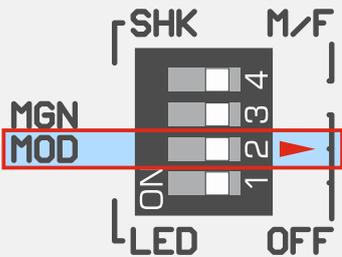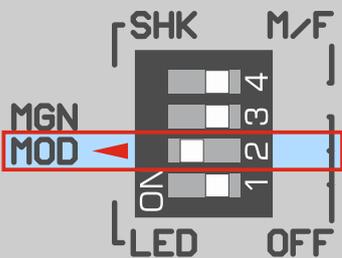
COM - common ground.

+12V - power input.

4. Setting up the detector

Selecting the detector type

Detector type	Switch setting
Magnetic contact	
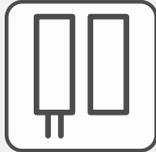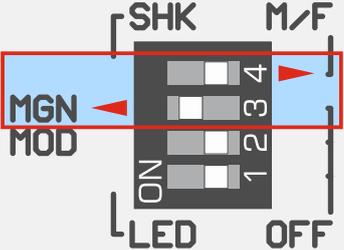
Detector type		Switch setting
Shock detector		
Shock detector and magnetic contact		
Water flood detector		
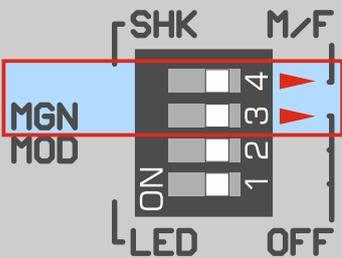
Two output mode enable / disable

Two output mode		Switch setting
Disabled		
Enabled		

LED enable / disable

LED	Switch setting
Disabled	
Enabled	
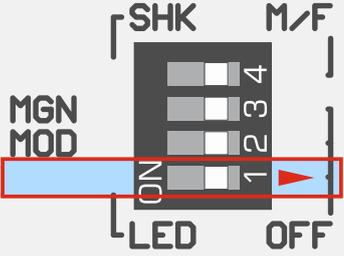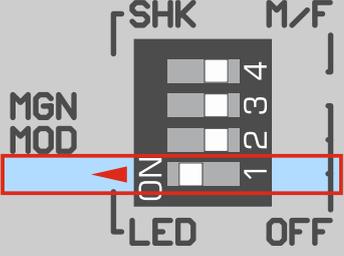
Setting up the alarm output

Selecting the alarm output type

Alarm output type	Switch setting
2EOL/NC	
NC	
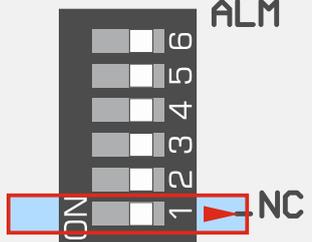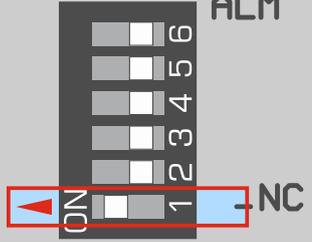
i *The 2EOL/NC output uses built-in end-of-line resistors. To select the end-of-line resistor values use the ALM and TAMPER switches.*

Selecting the end-of-line resistor values

Alarm	
Resistor	**Switch setting**
6.8 kΩ	ALM / NC
5.6 kΩ	ALM / NC
4.7 kΩ	ALM / NC
2.2 kΩ	ALM / NC
1.1 kΩ	ALM / NC
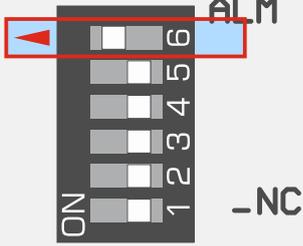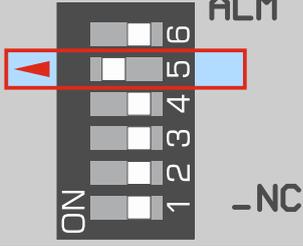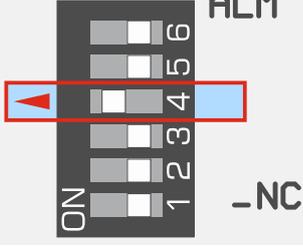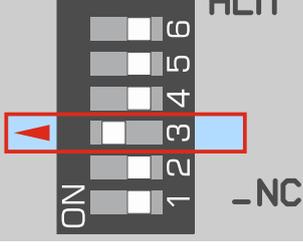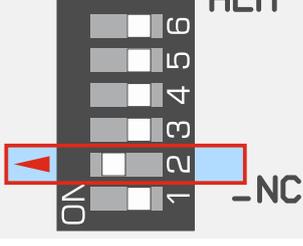
Tamper	
Resistor	**Switch setting**
5.6 kΩ	TAMPER
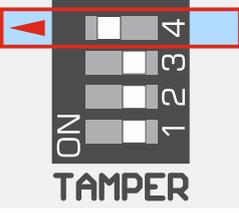
Tamper	
Resistor	**Switch setting**
4.7 kΩ	◀ TAMPER
2.2 kΩ	◀ TAMPER
1.1 kΩ	◀ TAMPER
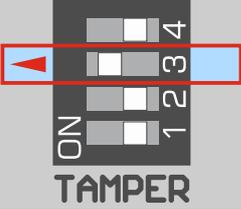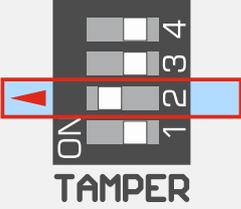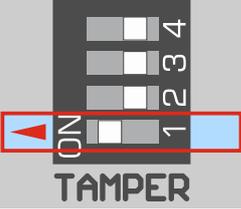
Shock detector adjustment
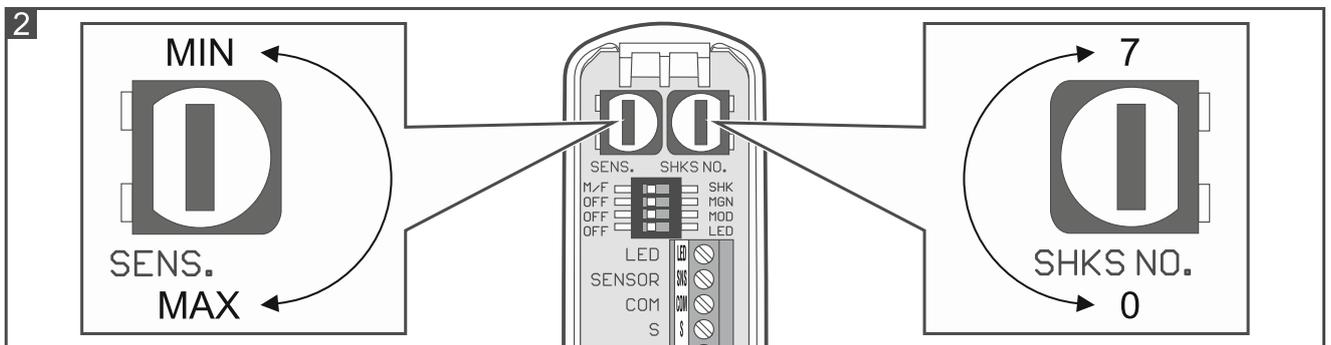
Use the "**SENS.**" potentiometer to set the sensitivity of the shock detector (Fig. 2). When a single shock is registered and it reaches the sensitivity threshold, alarm will be triggered.

Use the "**SHKS NO.**" potentiometer to set the number of shocks that will trigger alarm if they are registered within 30 seconds (Fig. 2). The shocks do not need to reach the sensitivity threshold. You can set 0-7 shocks. If you set 0, alarm will be triggered only by a shock that reached the sensitivity threshold. After the settings are changed, the new value will be demonstrated by the LED (the number of flashes corresponds to the number of shocks).

The sensitivity and the number of shocks are analyzed independently. Alarm will be triggered by a single strong shock caused by a hard impact, or several minor shocks caused by a series of light impacts.

5. Installation

Disconnect power before making any electrical connections.

The detector is designed for indoor installation. Consider the detector type when selecting the place of installation. Mount the magnetic contact on a fixed surface (window / door frame)

and the magnet on a moving surface (window / door). When selecting the place of installation for the shock detector, remember that its detection range depends on the type of mounting surface. Mounting the detector on ferromagnetic surfaces or near strong magnetic and electrical fields is not advisable, because it can result in malfunction of the detector.

i *If the detector is to be installed on the window frame, select the upper part of the frame for this purpose. This will reduce the probability of the detector being flooded by accident, when the window is partially or fully open.*

Prepare the cables for making connections and run them to the location where the device will be installed. The cabling should not be run in close vicinity of low-voltage electrical system wires, and especially of power wires for high-power equipment (such as electric motors).

You will need the following tools to mount the detector:

- blade screwdriver 1.8 mm,
- Philips screwdriver,
- precision pliers,
- drill with a set of drill bits.
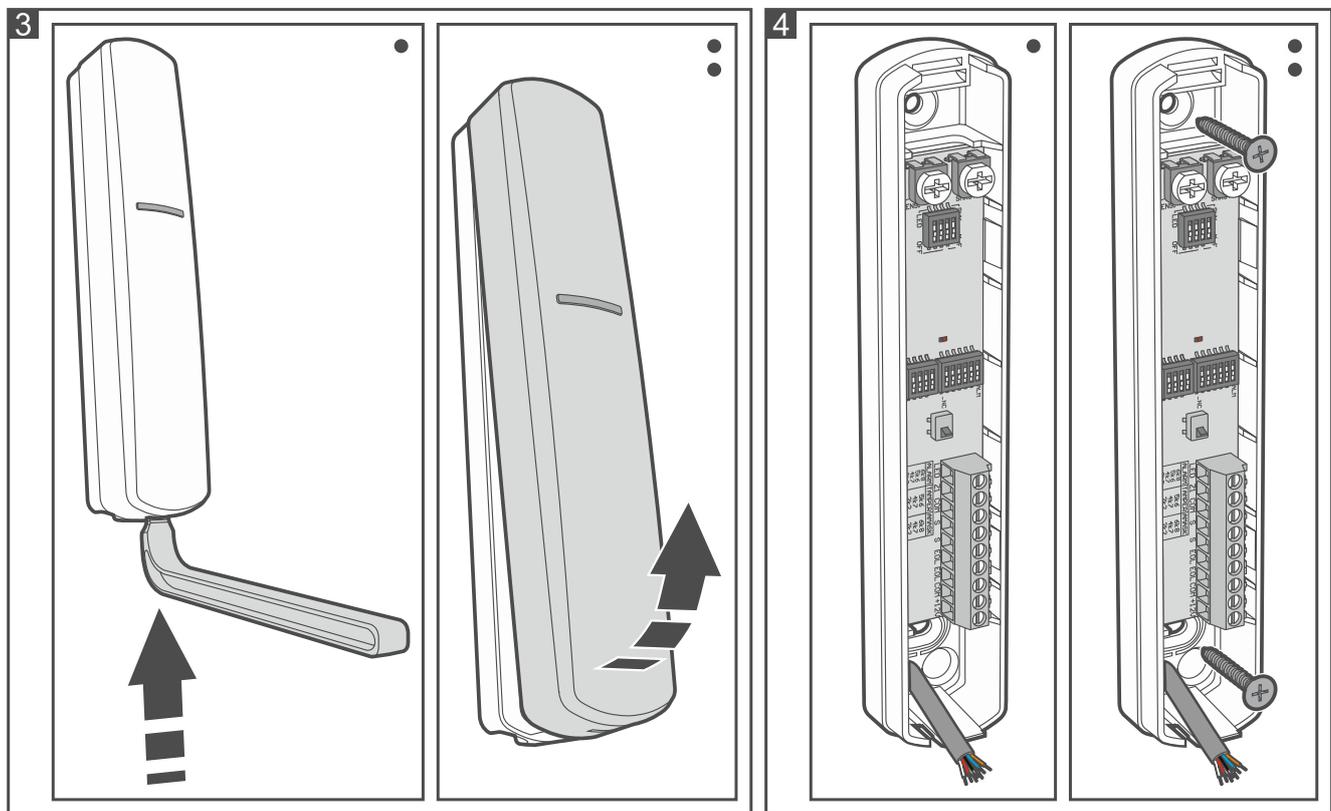
1. Open the detector enclosure (Fig. 3). The enclosure opening tool, shown in the illustration, is delivered with the detector.
2. Configure the detector (see "Setting up the detector").
3. Make the opening for cable in the enclosure base.
4. Run the cable through the opening (Fig. 4).
5. Using wall plugs (anchors) and screws, secure the enclosure base to the mounting surface (Fig. 4). The wall plugs 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 appropriate terminals.
7. Close the detector enclosure.

8. For the magnetic contact, install the magnet (Fig. 5), taking into account the maximum permissible distance from the magnetic sensor (Fig. 6 and 7). The shown distance applies to the magnet located at the height of the sensor. Location of the sensor in the enclosure is shown in Fig. 8.

9. Power up the detector.

10. Test the detector (see: "Detector test").

11. For the water flood detector, when the test is done, install the FPX-1 probe as shown in Fig. 9. Install the probe just above the floor.
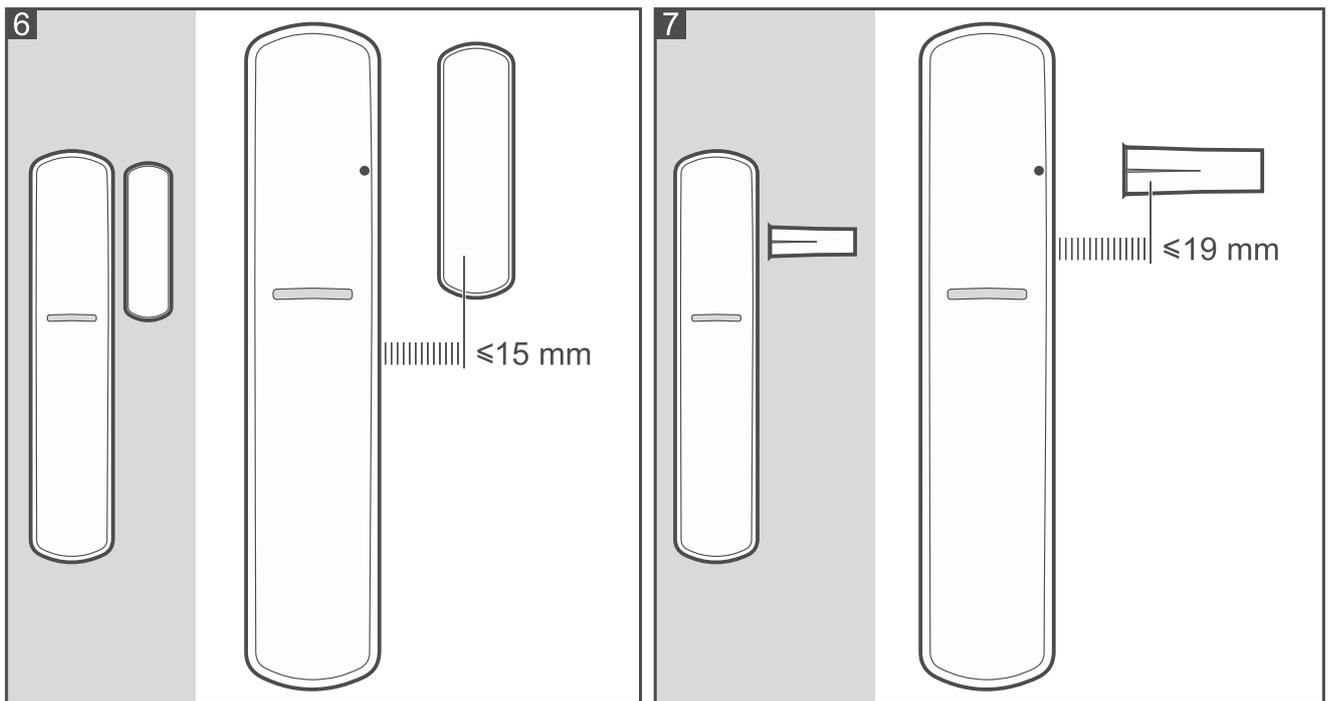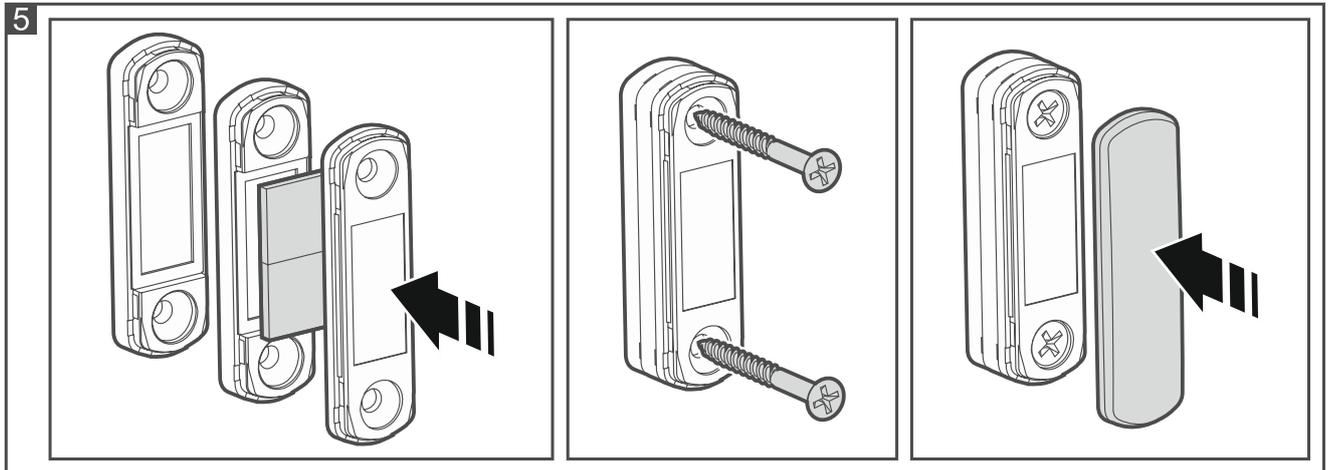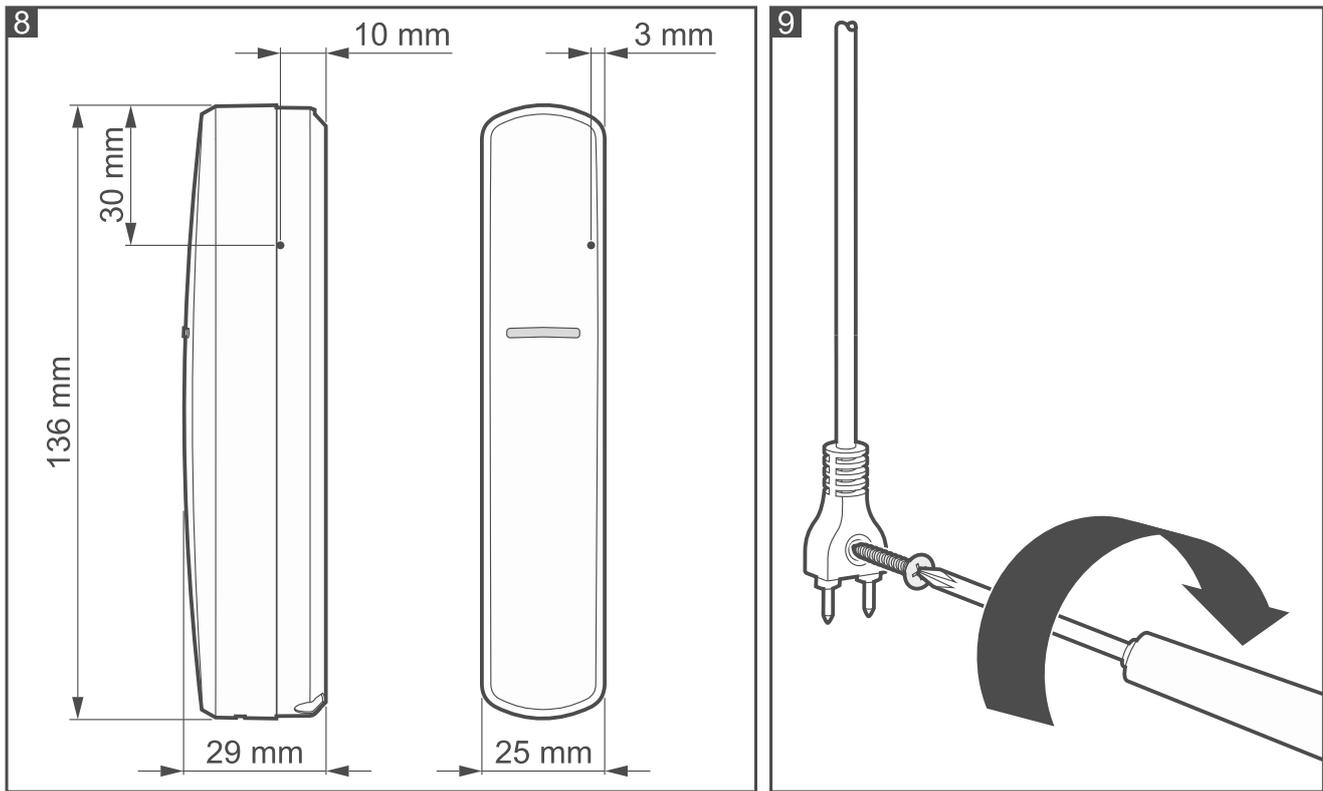
6. Detector test

i   *Make sure the LED is enabled, before you test the detector.*

Check if the LED turns ON:

- magnetic contact: after moving the magnet away from the detector (opening the window or door),

- shock detector: after impact against the surface protected by the detector,

i   *The shock detector range depends on the type of surface on which the detector is installed. The specified detection range (up to 3 m) should be considered an approximate value. The actual detection range should be tested.*

- water flood detector: after submerging the flood probe contacts in water.

If a detector is connected to the Z1 input, check if the LED on the XD-2L detector will turn ON when that detector is violated.

7. Specifications

Supply voltage .... 12 VDC ±25%
Standby current consumption ....11.5 mA
Maximum current consumption ....15 mA
Outputs
   EOL alarm (NC relay, resistive load) .... 40 mA / 24 VDC
   S alarm (NC relay, resistive load) .... 40 mA / 24 VDC
Relay contact resistance
   EOL alarm output... 16 Ω
   S alarm output .... 26 Ω

Z1 input sensitivity:

    NC type detector.. 150 ms

    flood probe.. 1 s

Complied with standards........................EN 50130-4, EN 50130-5, EN 50131-1, EN 50131-2-6

Security grade according to EN 50131-2-6 .... Grade 2

Environmental class according to EN 50130-5 II

Operating temperature range...-10°C...+55°C

Maximum humidity ....93±3%

Enclosure dimensions..25 x 136 x 29 mm

Surface mounted magnet enclosure dimensions ....15 x 52 x 6 mm

Surface mounted magnet spacer dimensions..15 x 52 x 6 mm

Flush mounted magnet enclosure dimensions..ø10 x 28 mm

Weight... 46 g

Magnetic contact

Gap (max.):

        surface magnet .... 15 mm

        flush magnet .... 19 mm

Shock detector

Detection range (depending on the surface type) .... up to 3 m