

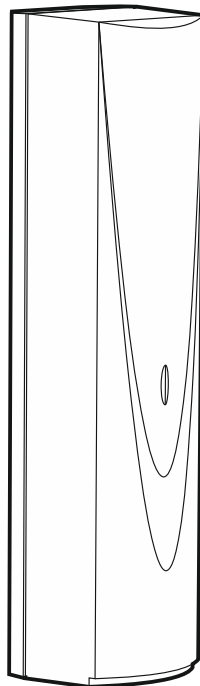
Satel®

MICRA

MXD-300

Wireless multipurpose detector

CE



Firmware version 1.00

mxd-300_en 09/20

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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.

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.

Please visit us at:
<http://support.satel.eu>

Hereby, SATEL sp. z o.o. declares that the radio equipment type MXD-300 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.satel.eu/ce

The following symbols may be used in this manual:



- note;



- caution.

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The MXD-300 detector is designed for operation within the MICRA wireless system. It is a multipurpose device that can be used as:

- magnetic contact,
- magnetic contact with input for roller shutter detector,
- shock detector,
- shock detector and magnetic contact,
- water flood detector.

The detector is identified in the wireless system as MMD-302. The detector is supported by:

- PERFECTA alarm control panel (WRL models),
- VERSA-MCU controller,
- MTX-300 controller,
- MICRA alarm module (firmware version 2.02 or newer).

This manual applies to the detector with firmware version 1.1.

1 Features

- Encrypted radio transmissions in the 433 MHz frequency band.
- Battery status control.
- LED indicator.
- Tamper protection against enclosure opening and removal from mounting surface.
- 2 magnets included (for surface and flush mounting).
- Possibility to select detector type using jumpers.

Magnetic contact

- Detects open door, window, etc.
- Input for connecting an NC type wired detector.

Magnetic contact with input for roller shutter detector

- Detects open door, window, etc.
- Input for connecting a wired roller shutter detector.
- Input for connecting an NC type wired detector.

Shock detector

- Detects shocks and vibrations accompanying attempts to force open a door or window.

Shock detector and magnetic contact

- Detects shocks and vibrations accompanying attempts to force open a door or window.
- Detects open door, window, etc.

Water flood detector

- Detects flooding in spaces provided with plumbing systems.



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

2 Description

Radio transmissions

Every 15 minutes, the detector sends information about its state (periodical transmission). Additional radio transmissions take place as a result of alarm.

Alarms

Described below are circumstances in which the detector reports alarm, depending on the detector type. Irrespective of the detector type, tamper alarm is reported on opening the tamper contact.

Magnetic contact

The detector will report alarm:

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

Magnetic contact with input for roller shutter detector

The detector will report alarm:

- after moving the magnet away from the detector (opening the window or door),
- after opening the NC type input,
- after registering the specified number of pulses within a defined time period by the roller shutter input,
- after opening the roller shutter input (tamper alarm).

Shock detector

The detector will report alarm after detecting a shock caused by impact.

Shock detector and magnetic contact

The detector will report alarm:

- after detecting a shock caused by impact,
- after moving the magnet away from the detector (opening the window or door).

Water flood detector

The detector reports alarm approximately 5 seconds after the water level reaches the height at which the probe contacts are installed. The detector reports end of flooding a few seconds after the water level drops below the height at which the probe contacts are installed.

Operating modes

Normal – each alarm results in a radio transmission.

Energy save – information about the alarm other than tamper alarm is sent not more often than every 3 minutes (the next alarms triggered within 3 minutes from sending the information about the alarm will not result in a radio transmission). Information about tamper alarm is always sent.

You can set the operating mode using the jumper (Fig. 5).

Test mode

For 20 minutes after battery is inserted or tamper switch is opened, the detector operates in a special mode that allows you to test the detector. In the test mode, the LED is enabled and

the detector operates like in the “Normal” mode (regardless of which operating mode was set using the jumper).

LED

The LED is flashing for about 2 seconds from inserting the battery, signaling the warm-up of the detector. The LED is also enabled in the test mode, in which it indicates:

- periodical transmission – short flash (80 milliseconds),
- alarm – ON for 2 seconds.

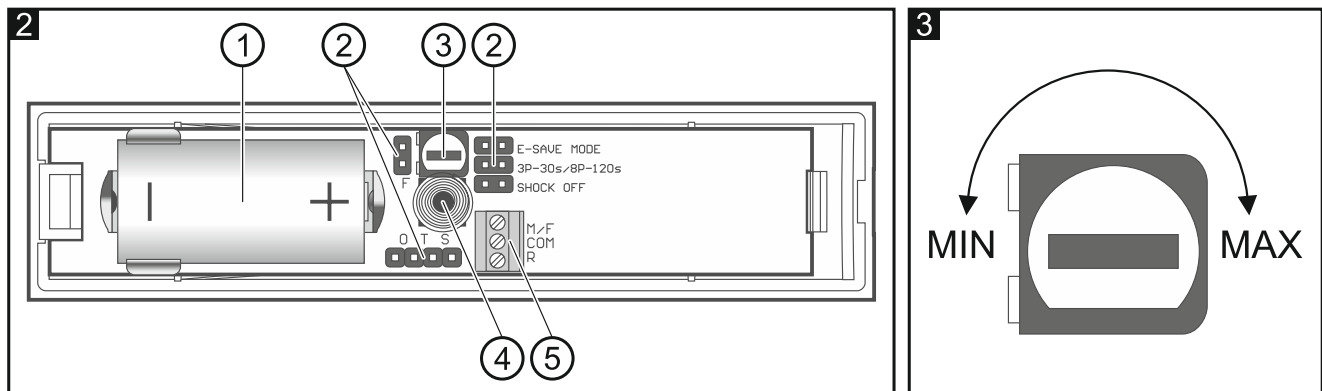
Battery status control

When the battery voltage is below 2.75 V, information about low battery is sent during each transmission.

Electronics board



Do not remove the electronics board from the enclosure to avoid damage to the components on the board.



- ① CR123A lithium battery.
- ② detector configuration pins. For how to configure the detector, see figures 4-8 (see “Selecting detector type”).
- ③ potentiometer for setting the sensitivity of the shock detector (Fig. 3).
- ④ tamper switch activated by enclosure opening and removal from mounting surface.
- ⑤ terminals:
 - COM** - common ground.
 - M/F** - input for connecting an NC type detector or a flood probe.
 - R** - input for connecting a roller shutter detector.

To make the connection, use wires with a cross-section of 0.5-0.75 mm². If no detector or flood probe is connected to the input, the terminal must be connected to common ground.

The LED and reed switches are placed on the other side of the electronics board.

3 Selecting detector type

Detector type	Configuration
Magnetic contact	<ul style="list-style-type: none"> • “OTS” pins – jumper on in “T” or “S” position (Fig. 8). • “SHOCK OFF” pins – jumper on (Fig. 7). • “F” pins – jumper off (Fig. 4). • “R” input – terminal connected to common ground. <p>If no NC type detector is connected to the “M/F” input, the terminal must be connected to common ground.</p>
Magnetic contact with input for roller shutter detector	<ul style="list-style-type: none"> • “OTS” pins – jumper on in “T” or “S” position (Fig. 8). • “SHOCK OFF” pins – jumper on (Fig. 7). • “F” pins – jumper off (Fig. 4). <p>If no NC type detector is connected to the “M/F” input, the terminal must be connected to common ground.</p>
Shock detector	<ul style="list-style-type: none"> • “OTS” pins – jumper on in “O” position (Fig. 8). • “SHOCK OFF” pins – jumper off (Fig. 7). • “F” pins – jumper off (Fig. 4). • “M/F” input – terminal connected to common ground. • “R” input – terminal connected to common ground.
Shock detector and magnetic contact	<ul style="list-style-type: none"> • “OTS” pins – jumper on in “T” or “S” position (Fig. 8). • “SHOCK OFF” pins – jumper off (Fig. 7). • “F” pins – jumper off (Fig. 4). • “M/F” input – terminal connected to common ground. • “R” input – terminal connected to common ground.
Water flood detector	<ul style="list-style-type: none"> • “F” pins – jumper on. • “OTS” pins – jumper on in “O” position (Fig. 8). • “SHOCK OFF” pins – jumper on, • “R” input – terminal connected to common ground.

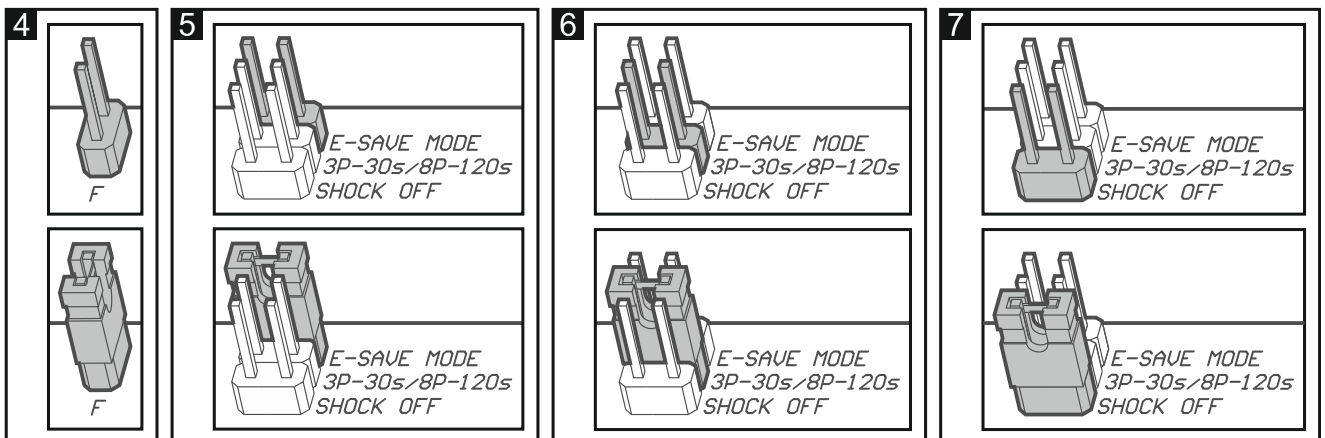


Fig. 4. Selecting the type of device supported by the **M/F** input:
 jumper off – NC type detector,
 jumper on – flood probe.

Fig. 5. Selecting the operating mode:

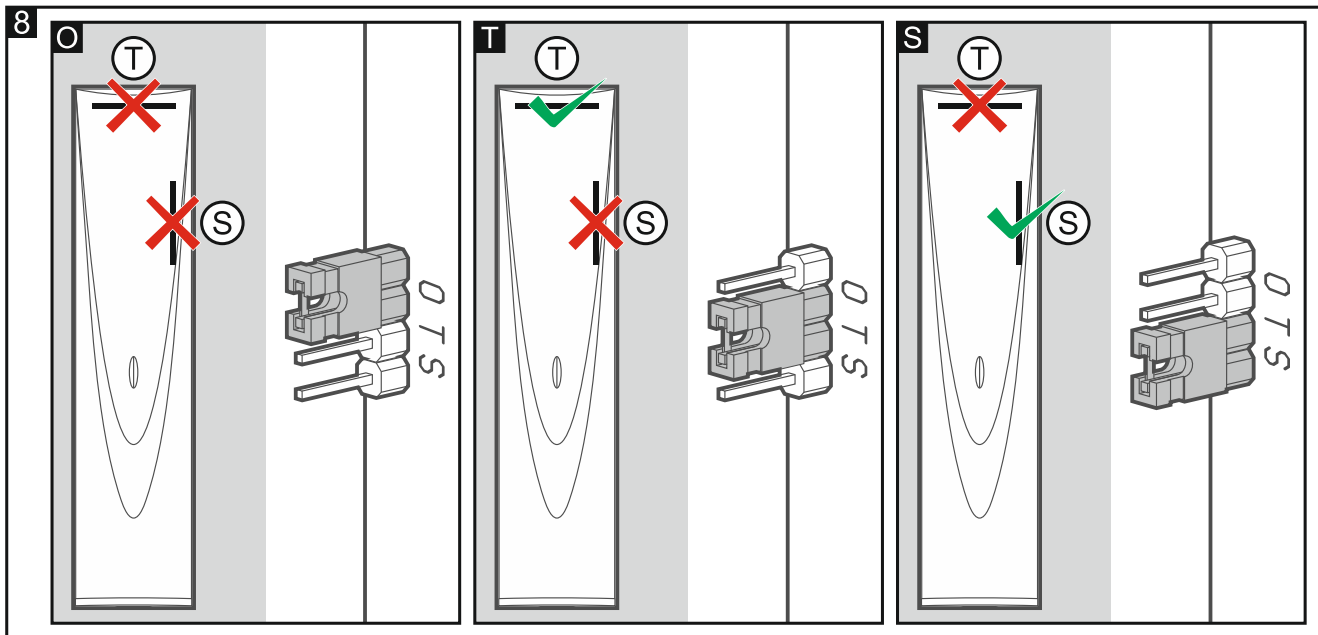
jumper off – normal mode,
jumper on – energy save mode.

Fig. 6. Selecting the sensitivity of the roller shutter input:

jumper off – registering 8 pulses in 120 seconds will trigger alarm,
jumper on – registering 3 pulses in 30 seconds will trigger alarm.

Fig. 7. Turning the shock detector on / off:

jumper off – shock detector on,
jumper on – shock detector off.

**Fig. 8.** Configuring the reed switches:

O – both reed switches are off,
T – upper reed switch (Ⓣ) is on,
S – side reed switch (Ⓢ) is on.

4 Installation



There is a danger of battery explosion when using a different battery than recommended by the manufacturer, or handling the battery improperly.

Be particularly careful during installation and replacement of the battery. The manufacturer is not liable for the consequences of incorrect installation of the battery.

The used batteries must not be discarded, but should be disposed of in accordance with the existing rules for environment protection.

The detector is designed for indoor installation. Installing the detector in close vicinity of electrical systems is not recommended, since it can adversely affect the range of radio signal.

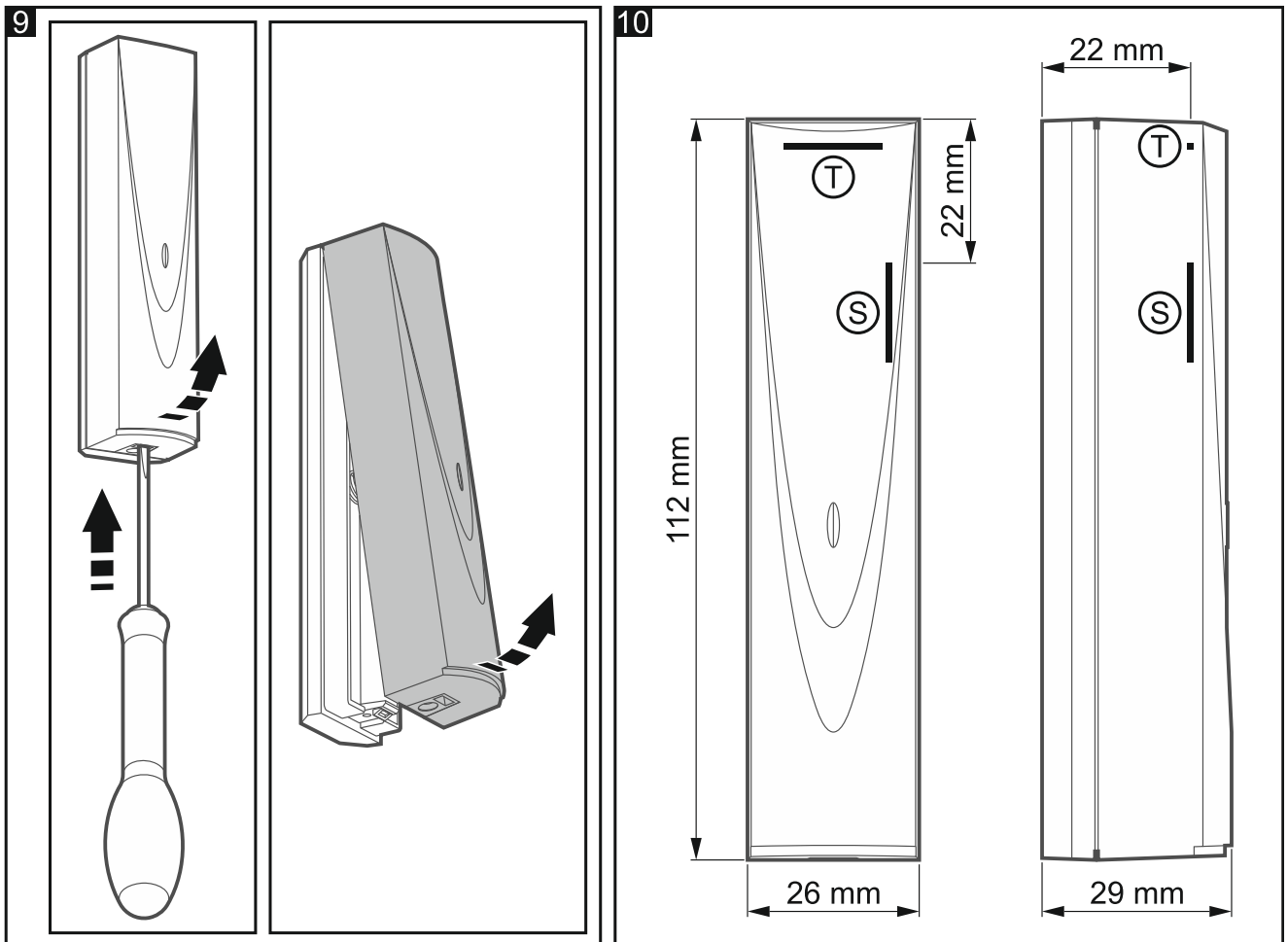
Consider the detector type when selecting the place of installation. Mount the magnetic contact on a fixed surface (window / door frame) and the magnet on a moving surface (window / door). When selecting the place of installation for the shock detector, remember that its detection range depends on the type of mounting surface. It is recommended to

perform a test in order to establish the actual detection range of the detector. Mounting the detector on ferromagnetic surfaces or near to strong magnetic and electrical fields is not advisable, because it can result in malfunctioning 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 accidentally, when the window is partially or fully open.*

You will need the following tools to mount the detector:

- blade screwdriver 1.8 mm,
- Phillips screwdriver,
- precision pliers,
- drill with a set of drill bits.




1. Open the detector enclosure (Fig. 9).
2. Configure the detector using the jumpers and the potentiometer.
3. Install the battery in the detector.
4. Register the detector in the system (see: PERFECTA / VERSA control panel installer manual, MTX-300 controller manual or MICRA module manual).

i | *The detector is identified in the wireless system as MMD-302.*

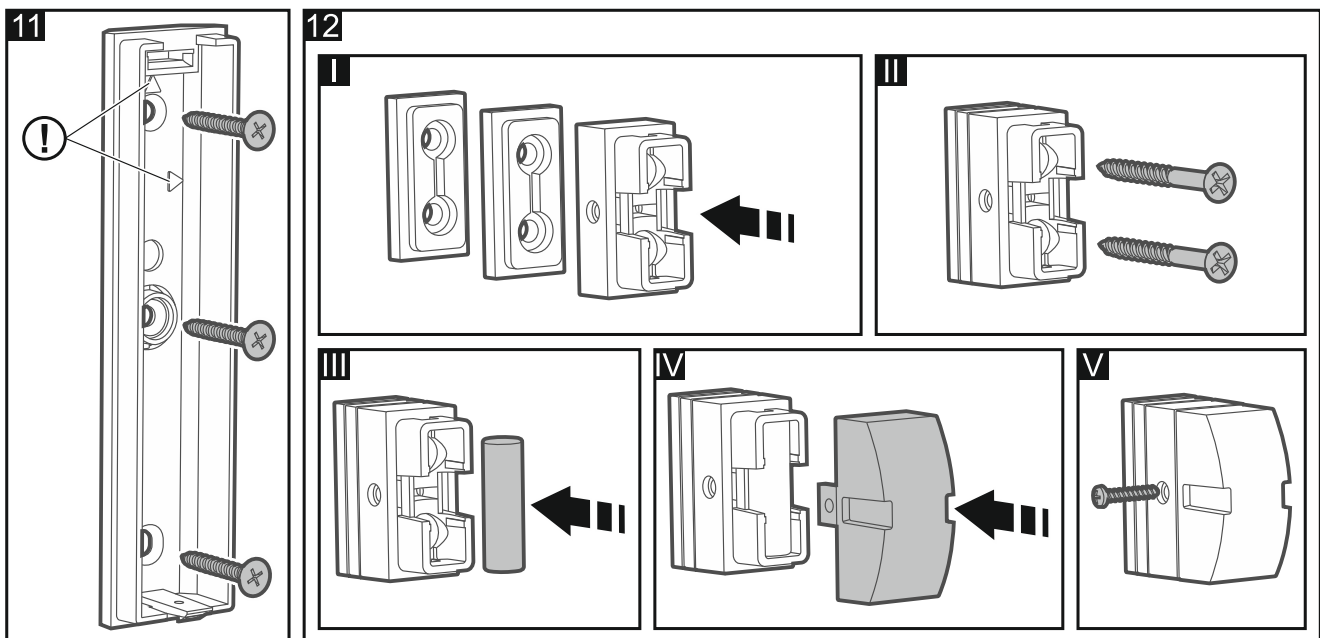
5. Close the detector enclosure.
6. Place the detector at the location of its future installation.
7. Open the enclosure but do not remove the front cover. If the transmission from the detector is received, continue with the installation. If the transmission from the detector is

not received, select a different mounting location and repeat the test. Sometimes, it is sufficient to shift the detector ten or twenty centimeters.

8. Remove the front cover.
9. If detectors or flood probe are to be connected to the input terminals, make a hole in the enclosure base, run wires through the hole and secure them to the terminals.
10. Use wall plugs (anchors) and screws to secure the enclosure base to the mounting surface (Fig. 11 – location of the reed switches is marked with the  symbol). 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.
11. In the case of the magnetic contact, secure the magnet (Fig. 12). taking into account the maximum permissible distance from the reed switch (Fig. 13 and 14). The distance shown applies to the magnet located at the height of the reed switch. Location of the reed switch in the enclosure is shown in Fig. 10.



To make the hole for flush magnet, use the $\varnothing 9$ mm drill bit.



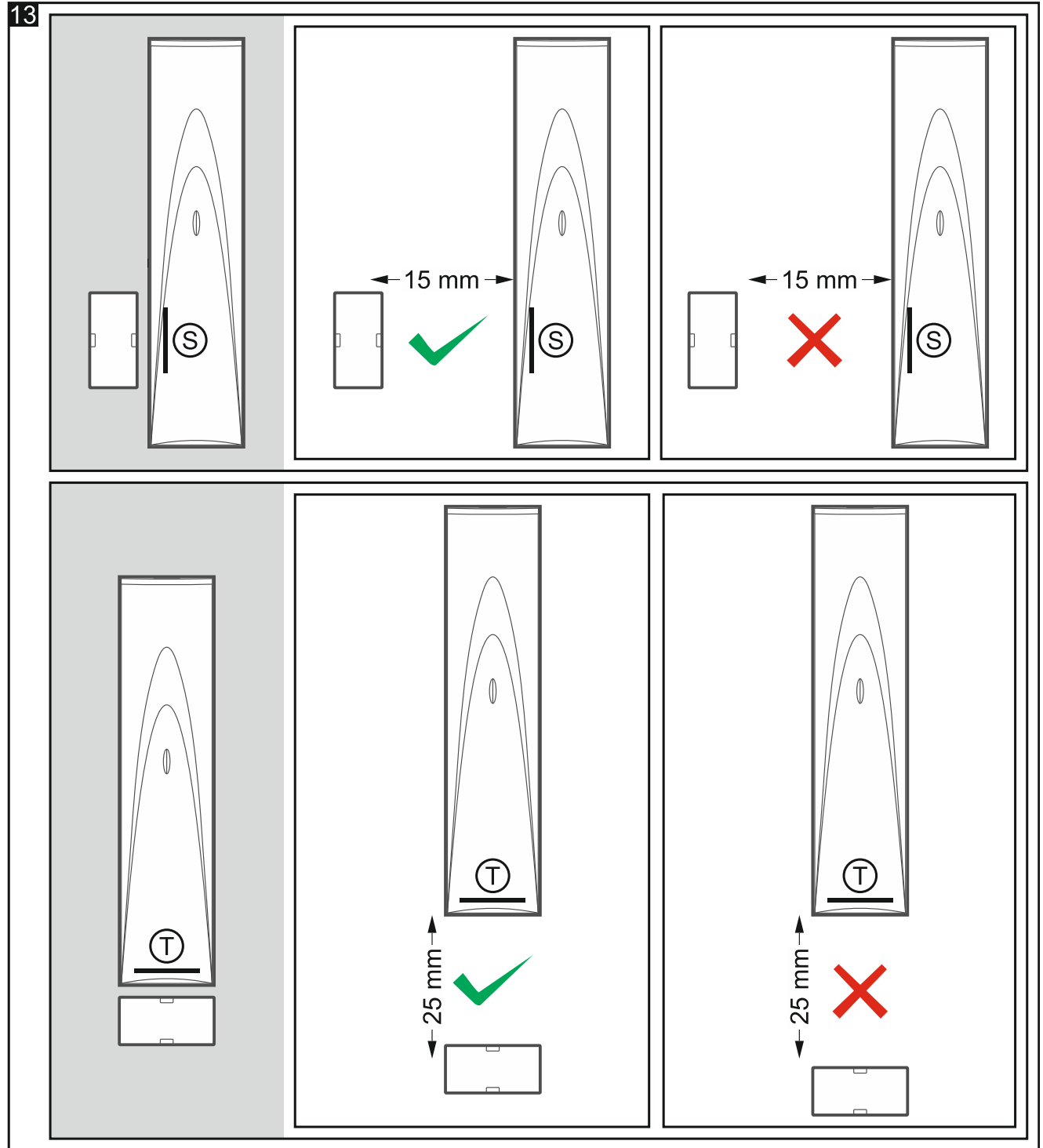
12. Press and release the tamper switch to start the test mode and close the detector enclosure.

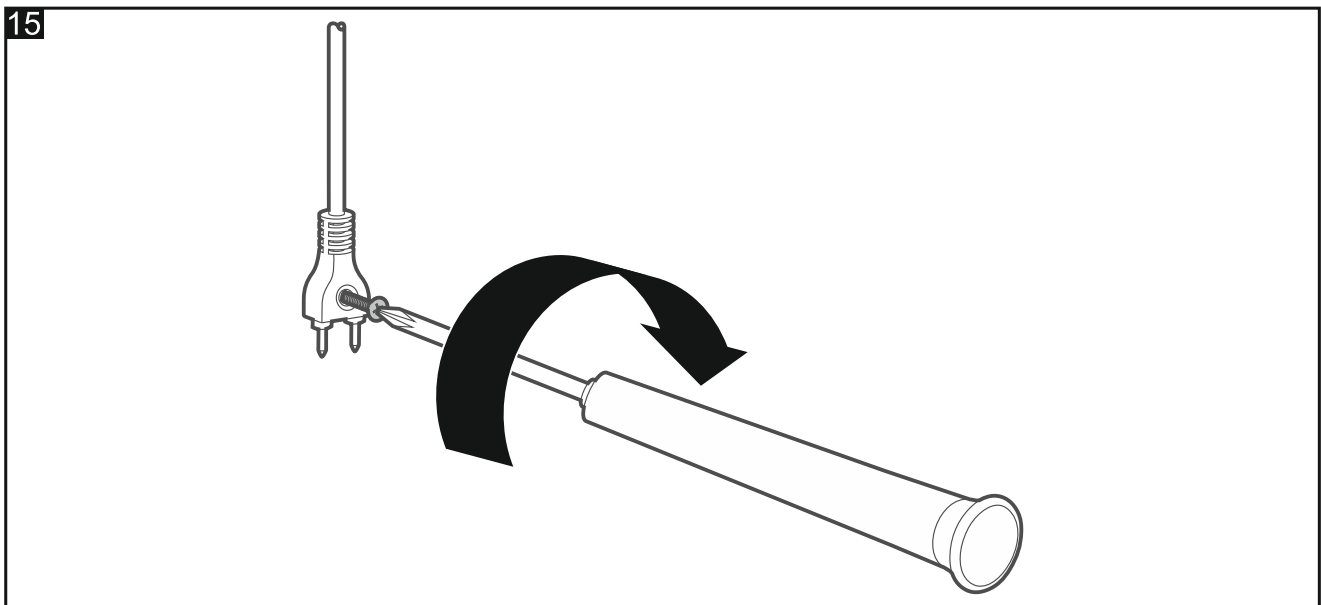
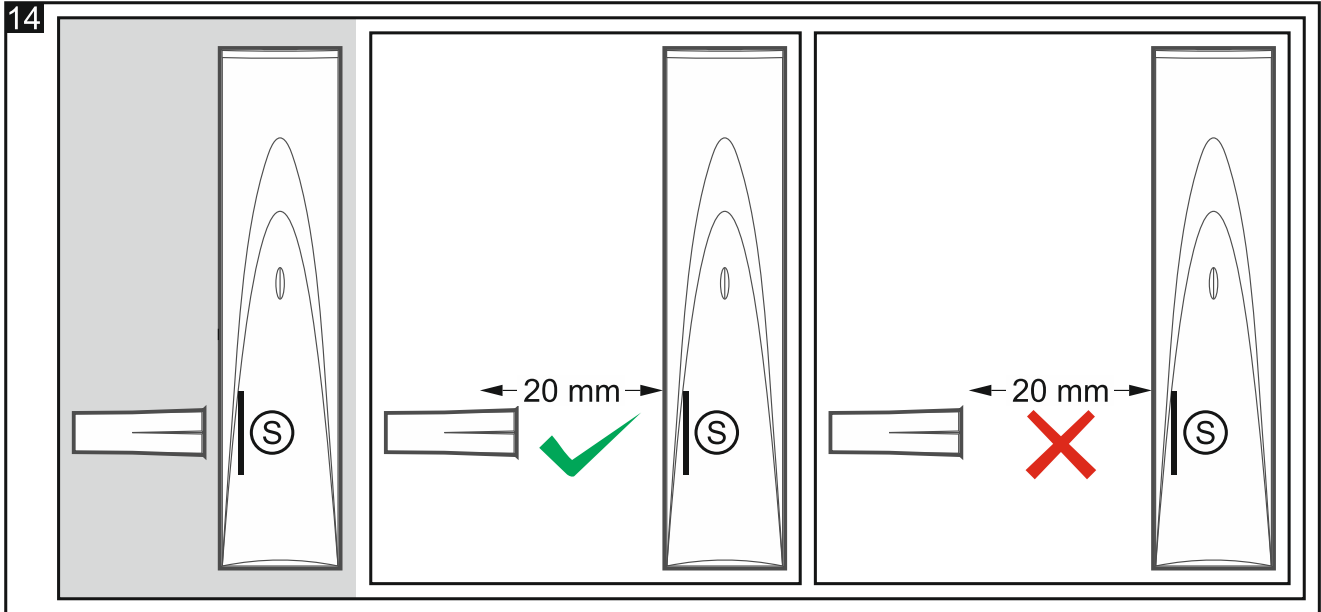
13. Depending on the detector type and configuration, make sure that the LED comes on:

- **Magnetic contact:**
 - after moving the magnet away (opening the window or door),
 - after violating the detector connected to the additional input M.
- **Magnetic contact with input for roller shutter detector:**
 - after moving the magnet away (opening the window or door),
 - after violating the detector connected to the additional input M,
 - after raising / lowering the roller shutters supervised by the roller shutter detector.
- **Shock detector** – after impact against the surface protected by the detector.
- **Shock detector and magnetic contact:**
 - after moving the magnet away (opening the window or door),
 - after impact against the surface protected by the detector.
- **Water flood detector** – after submerging the flood probe contacts in water.

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 range should be determined experimentally after securing the detector to the surface.

14. For the water flood detector, when the test is done, secure the FPX-1 probe as shown in Fig. 15. Secure the probe just above the floor.





5 Specifications

Operating frequency band.....	433.05 ÷ 434.79 MHz
Radio communication range (in open area):	
PERFECTA.....	up to 600 m
VERSA-MCU / MTX-300 / MICRA	up to 500 m
MRU-300.....	up to 300 m
Battery.....	CR123A 3 V
Battery life expectancy	up to 2 years
M/F input sensitivity:	
M – NC input	300 ms
F – NO input.....	1,5 s
Standby current consumption:	
shock detector enabled	72 µA
shock detector disabled	88 µA

Maximum current consumption	22 mA
Complied with standards.....EN 50130-4, EN 50130-5, EN 50131-1, EN 50131-2-6, EN 50131-5-3	
Security grade according to EN50131-2-6	Grade 2
Environmental class according to EN50130-5	II
Operating temperature range.....	-10°C...+55°C
Maximum humidity	93±3%
Enclosure dimensions.....	26 x 112 x 29 mm
Surface mounted magnet enclosure dimensions	26 x 13 x 19 mm
Surface mounted magnet spacer dimensions.....	26 x 13 x 3,5 mm
Flush mounted magnet enclosure dimensions.....	∅10 x 28 mm
Weight.....	77 g

Magnetic contact

Maximum gap for side reed switch:

 surface magnet

15 mm

 flush magnet

20 mm

Maximum gap for upper reed switch:

 surface magnet

25 mm

Shock detector

Detection range (depending on the surface type)

up to 3 m