

A microwave (MW) sensor and a dual pyroelectric element are used in the COBALT detector construction.

An additional feature in the COBALT Plus is the antimasking function, realized by microwave sensor (does not refer to infrared sensor). The COBALT Pro employs an MW sensor and a quad pyro element. The detector is also provided with the antimasking function.

### CONTACTS:

- COM** - common ground (0V)
- 12V** - supply input (9-16V DC)
- NC** - alarm relay (NC)
- WRN** - antimasking relay (NC) - only the COBALT Plus and COBALT Pro detectors
- TMP** - tamper contact (NC)

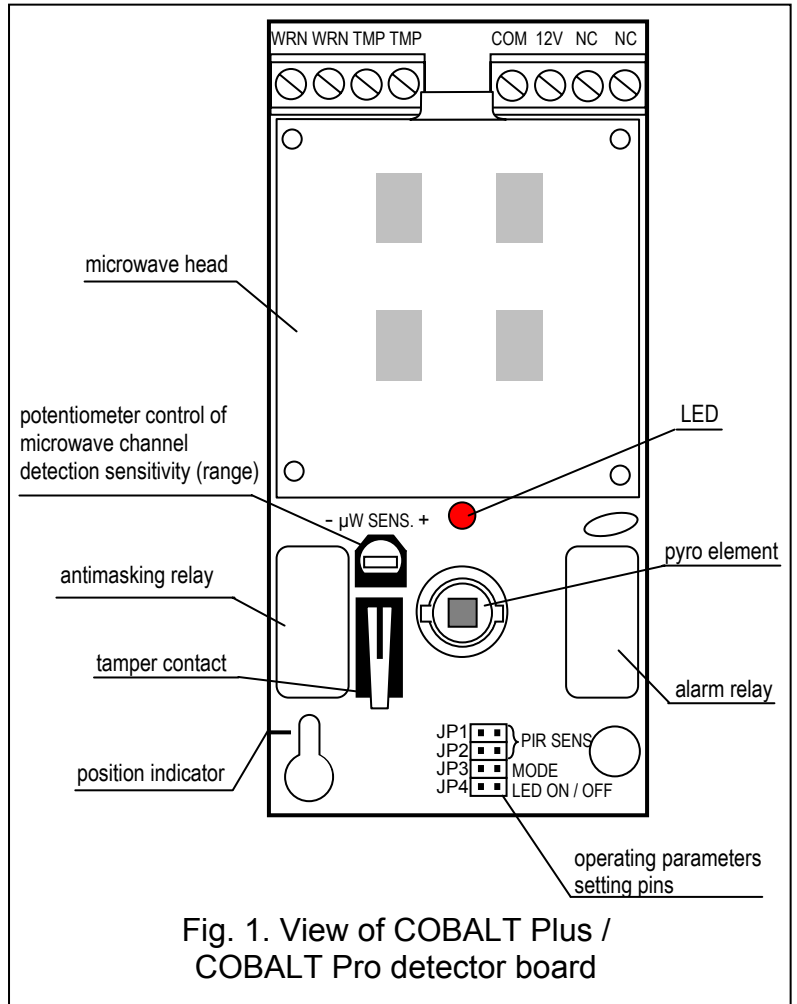


Fig. 1. View of COBALT Plus / COBALT Pro detector board

Four pairs of pins are used for setting the dual detector working parameters (see Table).

The COBALT, COBALT Plus & COBALT Pro dual detectors can operate in two modes: **the basic mode** or **the microwave counting mode** (MW).

In the basic mode the detector will only generate an alarm when motion is detected by both sensors. The first system (infrared or MW) which detects a motion will activate a 10-second time interval, during which the other sensor must also detect motion for the detector to generate an alarm signal. If the other sensor fails to confirm the alarm condition within 10 seconds of the motion being detected by the first sensor, the sensor will generate no alarm.

	JP1	JP2	JP3	JP4
Low sensitivity, PIR system	□ □	□ □		
Medium sensitivity, PIR system	□ □	■ ■		
	■ ■	□ □		
High sensitivity, PIR system	■ ■	■ ■		
Basic mode			■ ■	
MW counting mode			□ □	
LED indicator ON				■ ■
LED indicator OFF				□ □

□ □ - pins open

■ ■ - pins shorted

When in the microwave counting mode (MW), the detector will generate an alarm both in the above mentioned case, upon detection of a motion by both systems, as well as after 16 excitations of the microwave sensor in the time not longer than 30 minutes, with no violation of the PIR sensor.

**NOTE: Remember to set an appropriate sensitivity of microwave channel detection, since the microwaves are capable of penetrating, for example, through gypsum walls, doors, etc., which may cause generation of false alarms.**

The LED allows the installer to check the detector for correct functioning and to approximately determine the protected area:

- the LED lights red – alarm,
- the LED lights green – excitation of PIR or MW system.

For 30 seconds after the power is turned on, the detector remains in a starting state, which is signaled by a rapid blinking of the LED, alternately, green and red. Only then the detector enters its operational readiness state.

The detector monitors the supply voltage. If the voltage drops below 9V ( $\pm 5\%$ ) for more than 2 seconds, the detector will signalize a violation state until a voltage of minimum 9V ( $\pm 5\%$ ) is restored.

## 1. Installation

The detector is designed for indoor installation. It can be mounted on the wall, either directly or on the included holder.

Prior to installation of the detector housing, remove the electronics board and brake out adequate openings for screws and cable in the rear panel of the housing.

**It is advisable that you exercise particular care to prevent the pyro element from getting dirty or damaged during installation.**

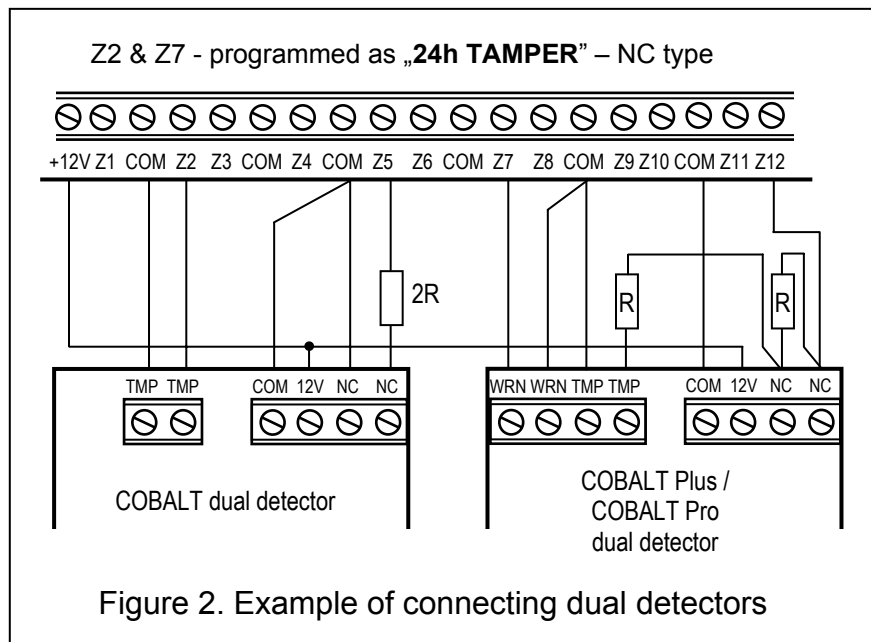


Figure 2 shows typical examples of connecting the detectors in EOL and 2EOL configuration. Resistors should be mounted inside the detector housing.

## 2. Antimasking

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The antimasking function in COBALT detectors is based on detection of objects, which reflect microwaves and move close in front of the detector (up to 10 – 20 centimeters), thus preventing any attempts to cover it. For the protection against consequences of covering detector with the material which does not reflect the microwaves, but isolate from IR radiation, it is necessary to choose the detector microwave counting mode (take off the JP3 jumper).

## 3. Lenses

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In the detector is mounted an extra wide angle lens, however, it is possible to replace it by buying another lens with different characteristics (range, number of beams, angle of view). Lenses are available with the following characteristics:

No	Lens type	Range	Angle of view
1	extra wide angle (EWA)	15m	141.2°
2	long range with access zone monitoring (LR)	30m	main beam - 3m wide (at the end of range)
3	vertical barrier	22.5m	2.2m wide (at the end of range)

**NOTE:** *The detector operating range should be selected to match the size of space where the detector will be installed. The size of the space along the main direction of detector positioning is not to be less than 1/3 the nominal range of the detector. Improper selection of the lens may cause excessive sensitivity and trigger false alarms.*

## 4. Technical data

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Supply voltage .....	9V...16V DC
Nominal supply voltage .....	12V DC
Mean power consumption (±10%).....	24mA
Violation signaling time.....	2s
Range of pyroelectric sensor with standard lens.....	15m
Range of microwave sensor .....	from 3 to 20m
Operating temperature range .....	-10...+50°C
Detectable motion speed .....	up to 3 m/s
Dimensions of housing .....	63x136x49mm
Recommended installation height .....	2.1m

Latest EC declaration of conformity and product approval certificates can be downloaded from our Web site [www.satel.pl](http://www.satel.pl)



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