

CE



ODI100H

Dual PIR detector for outdoor use

Installation and programming manual



GameOver

inim[®]
ELECTRONICS

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Informative notice regarding the disposal of electrical and electronic equipment (applicable in countries with differentiated waste collection systems)

The crossed-out bin symbol on the equipment or on its packaging indicates that the product must be disposed of correctly at the end of its working life and should never be disposed of together with general household waste.

The user, therefore, must take the equipment that has reached the end of its working life to the appropriate civic amenities site designated to the differentiated collection of electrical and electronic waste.

As an alternative to the autonomous-management of electrical and electronic waste, you can hand over the equipment you wish to dispose of to a dealer when purchasing new equipment of the same type. You are also entitled to convey for disposal small electronic-waste products with dimensions of less than 25cm to the premises of electronic retail outlets with sales areas of at least 400m², free of charge and without any obligation to buy.

Appropriate differentiated waste collection for the subsequent recycling of the discarded equipment, its treatment and its environmentally compatible disposal helps to avoid possible negative effects on the environment and on health and favours the re-use and/or recycling of the materials it is made of.

WEEE



GENERAL INFORMATION 1

About this manual 1-1

Double technology detector for outdoor use (IN09) installation manual	DESCRIPTION
DCMIINIEODI100H	MANUAL CODE
1.40	VERSION

Manufacturer's details 1-2

Manufacturer:	INIM ELECTRONICS S.R.L.
Production plant:	Centobuchi, via Dei Lavoratori 10 63076, Montepandone (AP), Italy
Tel.:	+39 0735 705007
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Web:	www.inim.biz

The persons authorized by the manufacturer to repair or replace the parts of this system, hold authorization to work on INIM Electronics brand devices only.

Description of the product 1-3

- Double technology detector for outdoor use
- Two PIR programmable sensors
- Low consumption infrared sensors double element with UV filter
- Programmable infrared sensitivity
- Low PIR beam precision adjustment (patented system)
- AND/OR selectable function
- Mechanism for horizontal coverage adjustment
- UV rays resistant Fresnel lens
- UV resistant polycarbonate case
- Stainless steel wall fixing bracket
- Stainless steel pole fixing brackets (available on request)
- 3 signalling LEDs
- Active infrared anti-masking (two pairs protection for each lens portion)
- Anti solar blinding through mechanical with high efficiency filters
- "Test" function to signalling each alarm by LED blinking; auto power off after 4 minutes
- Anti-tamper and anti-dislodgement system

Table 1: ODI 100H technical features

Power-supply	from 10 to 15 V $\overline{\text{DC}}$
Maximum current	20mA
Detection range	from 3 to 18m
Horizontal coverage angle	85°
Horizontal coverage adjustment	+/- 45°
Alarm, masking contacts	MOS FET relay 100 mA 35 V, 2 Ohm max
Alarm time	1 s
Antimasking	2 levels active IR
IP protection degree	IP44
Security grade	3
Environmental class	IV
Working temperature	from -25° to 55°C
Dimensions	189x81x70 mm
Weight (with wall fixing bracket)	370g

Table 2: Mechanical parts description

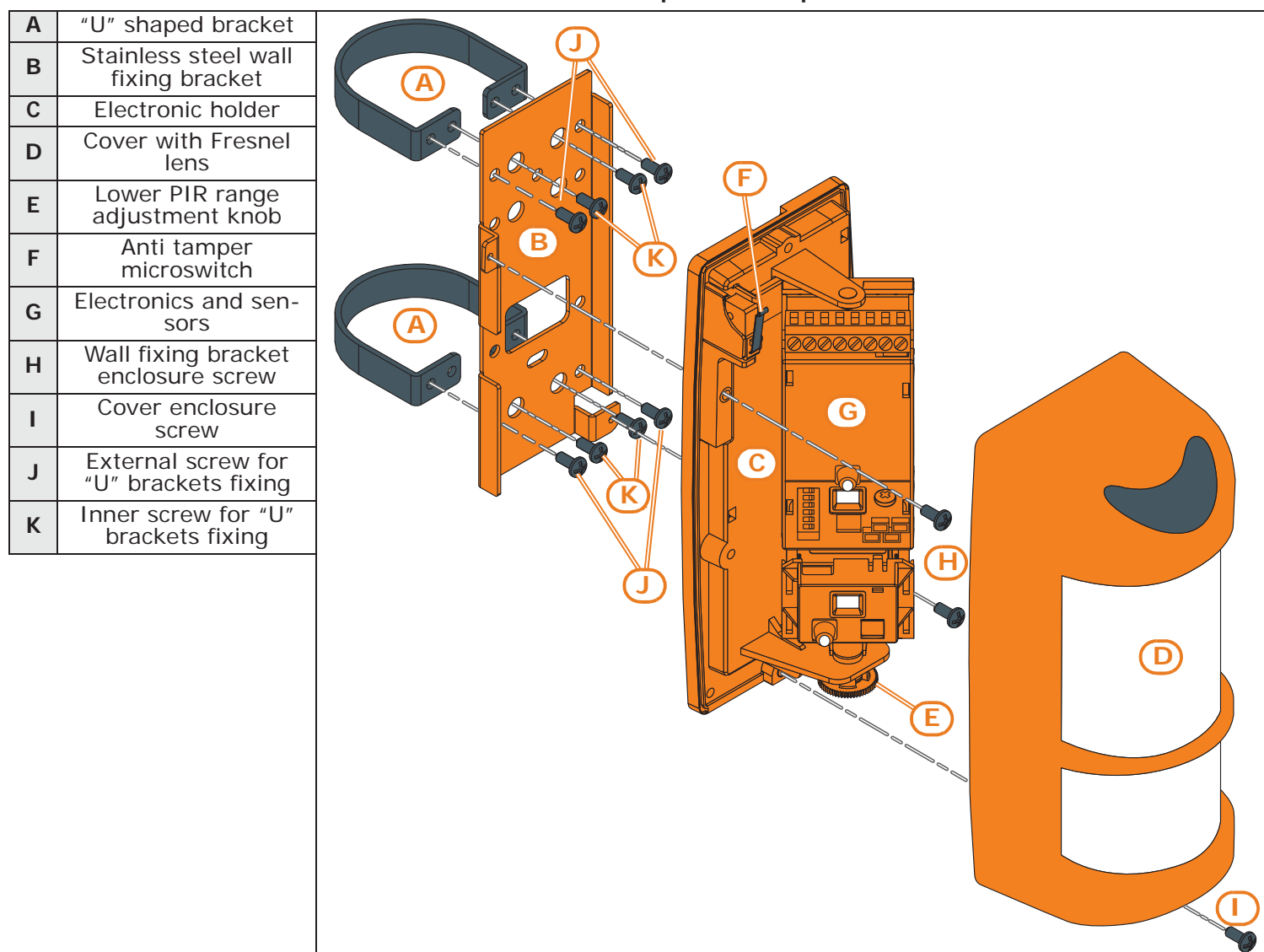


Table 3: Electronic part description

L	Terminal board for wire connection
M	Red LED 1 for general alarm
N	Green LED 2 for higher PIR detection
O	Green LED 3 for lower PIR detection
P	Higher infrared sensor (PIR 1)
Q	Lower infrared sensor (PIR 2)
R	DIP switches
S	Anti-masking LED
T	PIR 2 marked positions

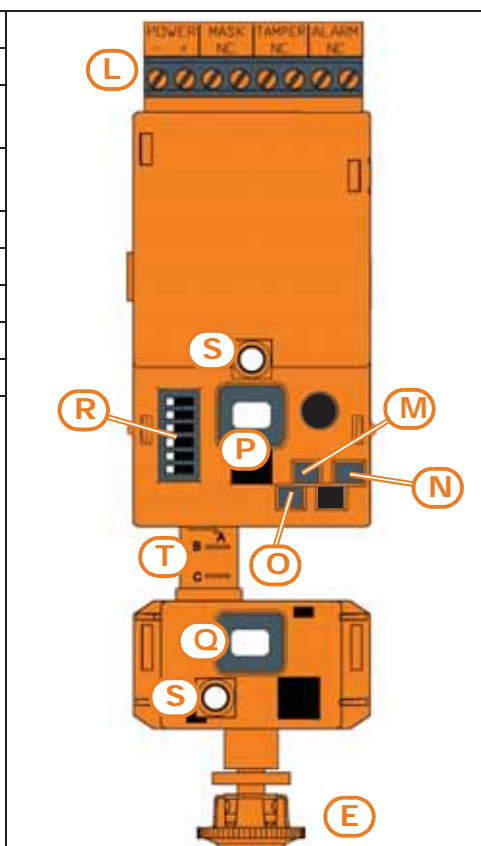


Table 4: Terminal board

POWER	+	Power supply 12 V _{DC} (from 10 to 15 V)	Normally closed contact in standby
	-		
MASK	NC	Anti-mask output	
TAMPER	NC	24 h anti tamper output	
ALARM	NC	Alarm output	

Package contents 1-4

Inside the package you will find:

- ODI100H detector
- Stainless steel wall fixing bracket
- Installing manual (this)
- Plastic bag containing:
 - 2 stainless steel metric screw M3 x 8
 - 2 anchor screws and plugs for wall mounting

“U” shaped brackets are not included in the package (accessory items to be purchased separately).

FUNCTIONING

2

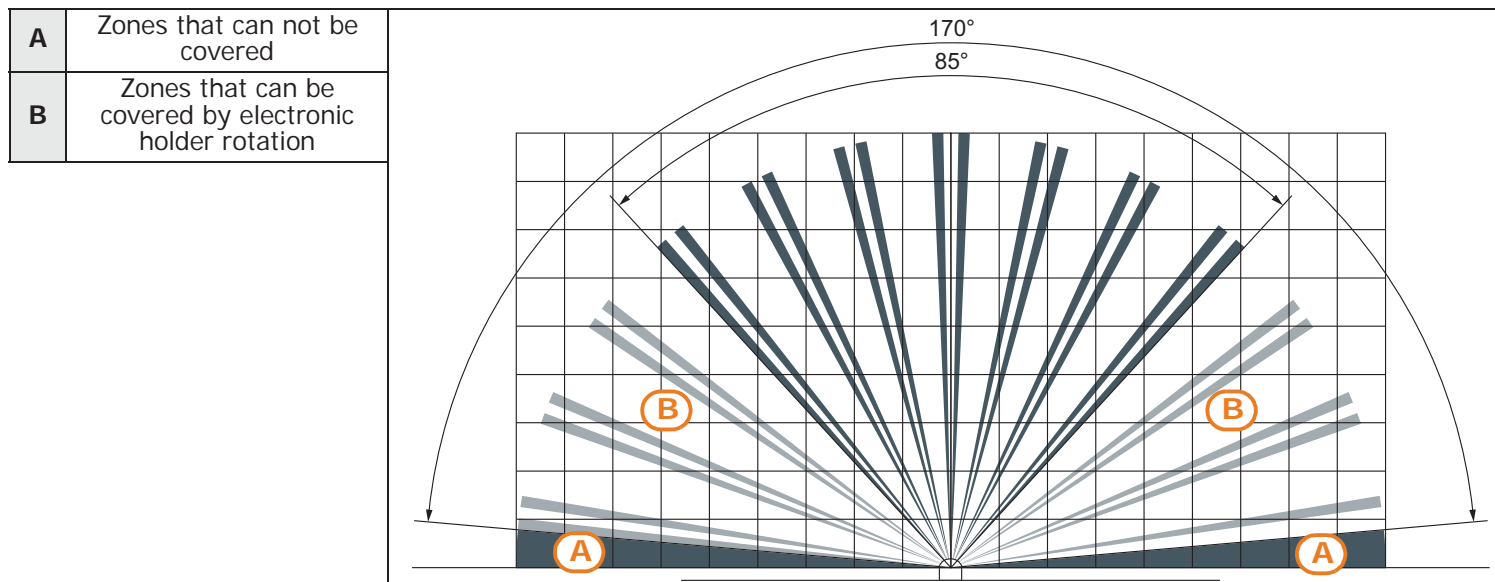
Detection range

2-1

The maximum detection range is 18 m (at 120 cm from the ground) with covered area of about 85°, (25°C, 75% relative humidity).

Particular conditions may increase or decrease the detection range.

Table 5: Top view

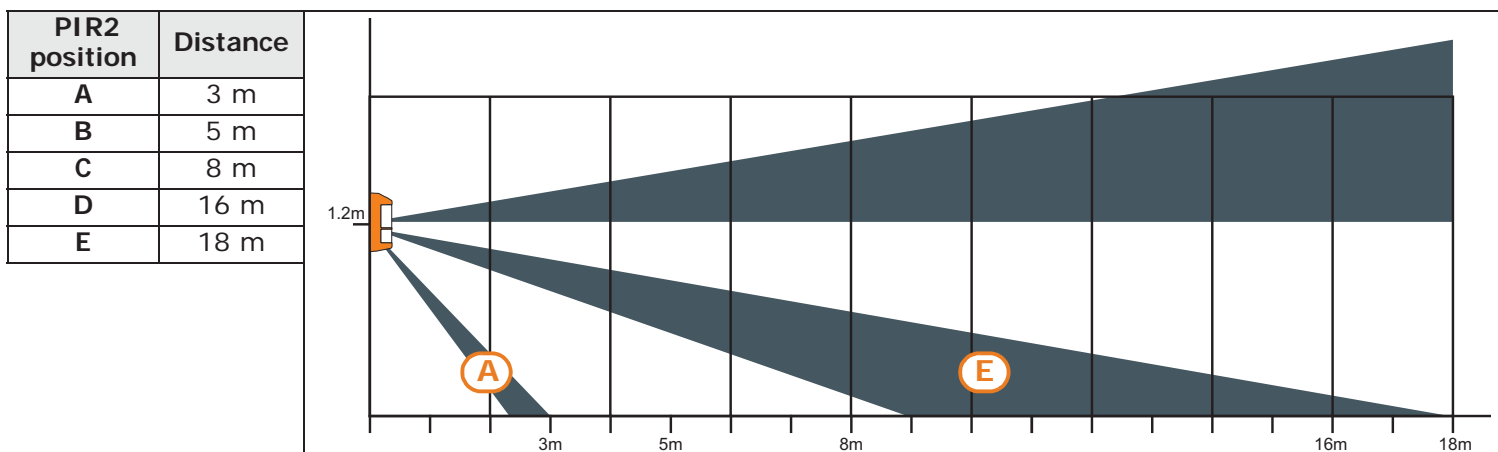


By using the knob (table 2, E) it is possible to move the PIR2 (lower) in order to obtain different ranges from 3m to 18m.

ADJUSTMENT

The knob moves vertically the RIP along the marked positions on the holder (table 3, T). Each position corresponds to a distance:

Table 6: Side view



These distances are reached when the detector is installed at about 120cm (height).

If the object in motion is very large (for example a car) there is possibility that the detector can detect its presence even if it's farther than 18 m.

Operating principles 2-2

The detector works on the combined action of two PIRs sensors. The detector can work both in AND or in OR configuration for PIRs.

The figures below refer to AND set-up of the PIRs (see *table 9 - Sensor programming*, DIP switches 3 and 4 in ON position). Different configurations of the PIRs activate alarm signal.

Table 7: Working examples

A	Detector	
B	Protected area limit	
C	The pet is detected by one of the two sensors (lower PIR).	No alarm
D	The person is detected by all sensors (upper and lower PIR).	Alarm
E	The person is detected by one of the two sensors (upper PIR).	No alarm
F	If the detector is installed on a tilted wall, or pole, the detection range will be reduced. Both, upward as downward.	Uncorrected installation No alarm

“Antimasking” function 2-3

The detector is equipped with an active IR anti-masking function to protect the PIR. It emits a tampering signal within 3 minutes.

The output of this function is the **MASK** terminal block.

In a standard configuration, this terminal block can be connected to a 24h active line or to a control unit input appropriately programmed to send fault messages. When the detector identifies a masking attempt, the LEDs flash simultaneously until the masking condition is resolved.

To enable the correct operation of the masking detection system (Anti-masking), allow the detector to study and analyse the environmental conditions of the area to be protected. This procedure is mandatory to guarantee the correct operation of the anti-masking channel.

Anti-masking sensitivity can be adjusted through the DIP switch 5 (*table 3, R*):

- “OFF”, low sensitivity
- “ON”, high sensitivity

Follow the procedure below:

1. Make the connections to the detector terminal box, leaving the DIP switch 5 set to OFF.

2. Once powered, close the cover and run all the detection tests required.
3. Open the cover and set the anti-masking sensitivity via the DIP switch 5.
4. Close the cover immediately (maximum within 10 seconds).
5. Stay at least 1 meter from the front part of the detector for at least 4 minutes.

LEDs enabling 2-4

LED signalling activations can be enabled via the DIP switch 6 (*table 3, R*):

- OFF set - LEDs enabled
- ON set - LED disabled

INSTALLATION 3

- The wall does not have any pronounced depressions or protrusions.
- Install the detector on rigid surfaces, free of vibrations.
- Avoid to fix the detectors near to heat sources or at direct sunlight.
- Avoid electromagnetic energy reflection on wide surfaces such as mirrors, metal walls, etc.
- Avoid to fix the detector in front of fluorescent lamps or in proximity of them.
- Connections shielded cable is suggested and one cable per detector is preferred.
- Separate the alarm system cables from the mains cables.

WARNING

The detector can be installed outdoors (according to the Class IV EN 50131-1).

- Avoid to direct the detector towards moving objects or, if impossible, please take care in adjusting the detector in order to avoid false alarms.
- Be sure to install the cover with Fresnel lens before the detector testing. Without cover, the detector doesn't work.

Placement 3-1

Environmental conditions are important elements to be evaluated during the installation. Bump, bottomland or slops can modify the performances of the detector.

If into the detection area any medium size animal can walk, it is suggested to choose carefully the installation height in order to avoid false alarms.

Installation height must be between 100 and 130 cm (not tilted ground).

The maximum coverage range, 18m, is reached when the detector is installed at about 120cm (height).

Do not obscure partially or completely the detector's field of view.

Note

Once the detector has been powered, wait 3-4 minutes before running the coverage test (the IR sensors need to be stabilised).

In order to obtain a real simulation, free the protected area, preventing more people from moving inside the same area.

After 30-40 seconds of quiet, try to access the detection area by moving perpendicularly to the beams, thus avoiding a frontal approach.

Check the operation of the two PIRs with the two green LEDs and the operation of the microwave with the yellow LED.

Run the operation test, making sure to break the IR beams (*table 5 - Top view e table 6 - Side view*) by moving perpendicularly to them.

Once detection has been achieved, wait for at least 7-8 seconds before trying to be detected again.

COVERAGE TESTS

Mounting 3-2

1. Unscrew the screw for the cover enclosure (*table 2, I*).

2. Remove the cover with lens (table 2, D).
3. Set up for the steel bracket fixing (table 2, B) on the wall, or on a pole (be sure the pole is stable and ripple free).
4. Position the two "U" (table 2, A) shaped bracket around the pole.
5. Block them with the inner screws (table 2, K) and the external screws (table 2, J).
6. Perforate the wall in correspondence of the holes on the casing.
7. Insert the wall plugs into the holes.
8. Pull the wires through the wire entry on the steel bracket.
9. Fix the steel bracket on the wall or on the pole.

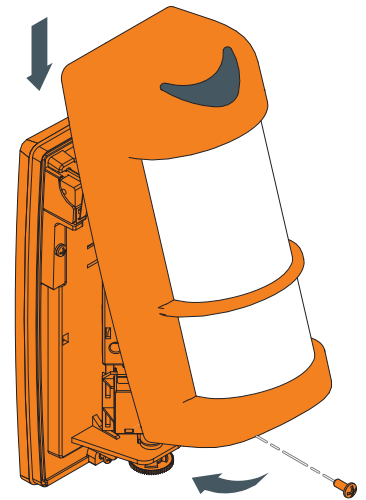
POLE FIXING

WALL FIXING

Fix the metallic support on the wall perpendicularly to the ground.

10. Pull the wires trough the entry on the electronic holder (table 2, C). Perforate the cable passage knockout using a sharp point tool, as a screwdriver or similar.
11. Locate the detector body on the metallic support and slide it down.
12. Screw up the detector body on the support using the 2 provided screws (table 2, H).
13. Connect the wires to the terminals (table 3, L).
14. Run the range settings (PIR 2 position adjustment, PIRs sensitivity). See paragraph 2-1 Detection range.
15. Close the detector with the front cover with Fresnel lens as shown opposite.
16. Screw up the metric screw (table 2, I).

Note



PROGRAMMING

4

In order to make the detector suitable for outdoor applications, a single sensor adjustment system has been implemented.

In the tables below are shown the DIP switch configurations (table 3, R):

Table 8: Infrared sensitivity adjustment

		DIP 1	
		OFF	ON
DIP 2	OFF	High sensitivity	Medium-low sensitivity
	ON	Medium-high sensitivity	Low sensitivity

Table 9: Sensor programming

		DIP 3	
		OFF	ON
DIP 4	OFF	PIR 1 AND PIR 2	PIR 1 (PIR 2 bypassed)
		Alarm output active only when all sensors detect the presence. It can be used in most outdoor installations.	Alarm output active when PIR 1 detect a presence. Not recommended in particularly hostile environments.
	ON	PIR 2 (PIR 1 bypassed)	PIR 1 AND PIR 2
		Alarm output active when PIR 2 detect a presence. Not recommended in particularly hostile environments.	Alarm output active only when all sensors detect the presence. It can be used in most outdoor installations.

If the detector is set in AND (DIP 3 and DIP 4 in OFF position) configuration, the maximum distance of detection is the one setted through the adjustment of the PIR 2.

Table 10: Antimasking and LEDs

	OFF	ON
DIP 5	Low anti-masking sensitivity	High anti-masking sensitivity
DIP 6	LEDs enabled	LEDs disabled

TROUBLE SHOOTING

5

Table 11: Possible solutions

Trouble	Solution
LEDs fail to switch on	Check wiring connection.
	Check the presence of current and if the voltage is between 9.5 and 16 V.
	Make sure that DIP switch 6 is set to OFF.
False alarms	The detector is not perpendicular to the ground.
	Check if the lower detection area is wider than your planning.
	Check if there are objects in movement in the detection area.
No detection, sometimes	The lower PIR is not properly adjusted.
Continuous alarms of MASK output	Medium-sized obstacles close to the detector.
	Open the cover, disconnect the detector (wait about 5 seconds), re-power and close the cover immediately (within 10 seconds), go out of range for 4 minutes.
Red LED blinking	Verify that the detector's power supply.

MAINTENANCE AND PERIODIC CHECKS

6

Keep the lens clean to guarantee proper operation of the detector.

A lens which is not perfectly clean may cause detection problems and/or problems to the anti-mask function.

The cleaning must be done when necessary or when clearly dirty.

Clean the lid and the lens with a cloth dampened with water.

Wipe with a dry cloth.

Do not use chlorine-based or abrasive products or alcohol to remove particularly noticeable dirt.

CLEANING PROCEDURE

ATTENTION!

DISPOSAL AND SCRAPPING

7

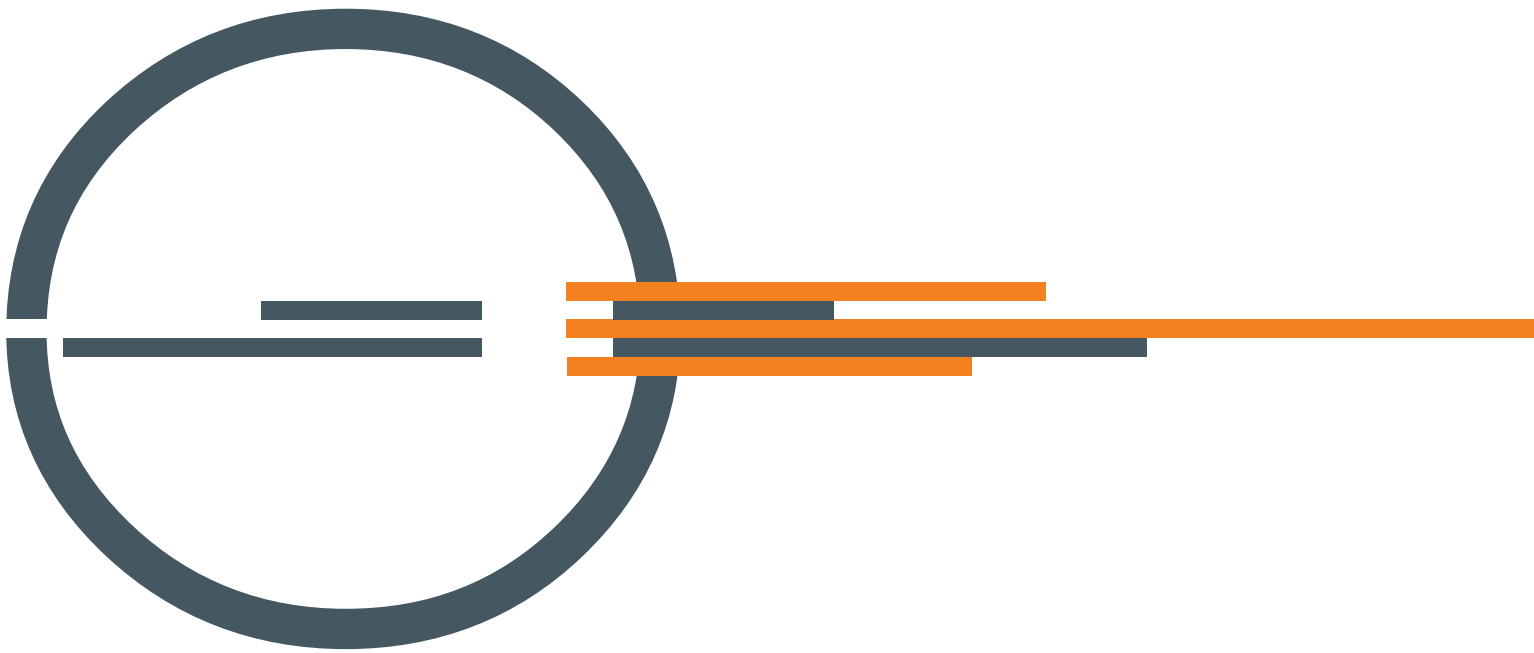
1. Unscrew the screws that fasten the front lid and remove it.
2. Disconnect the detector; disconnect all the terminals on the terminal block.
3. Divide the parts by type and dispose of them in accordance with applicable laws.

DISMANTLING

Do not dispose of the components or any other product material in the environment. Seek the assistance of companies authorised to dispose of and recycle waste materials.

ATTENTION!

Notes



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ISO 9001 Quality Management
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