

SCORPIO2K

Indoor wireless IR detector for NG-TRX intrusion detection systems



Addressee for this information: User | Installer

1 DESCRIPTION

SCORPIO2K is a passive infrared wireless detector. The device detects IR energy change generated by the passage of a person inside the controlled area.

Infrared section (IR): digital PIR sensor with temperature compensation and lens with white light protection.

LEDs indicate device working activity.

SCORPIO2K can be programmed using BrowserOne software.

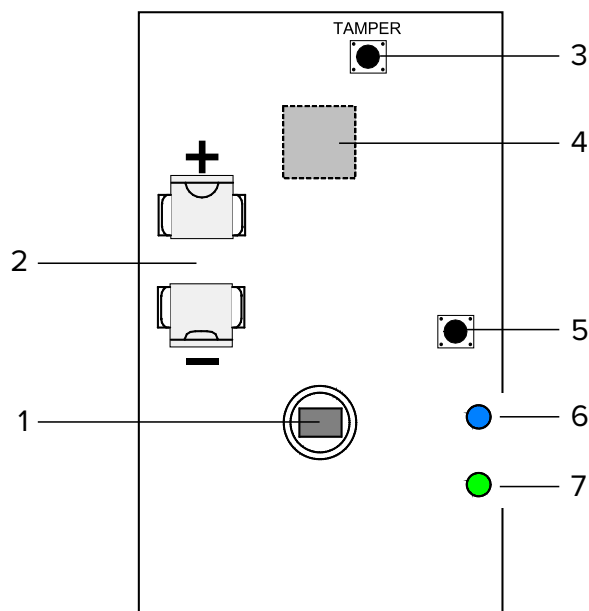
Optional joint available.

SCORPIO2K is compatible with Villeggio NG-TRX, Pregio and Proxima series control units. Connection to Pregio and Proxima control units requires use of GATEWAY2K.

Compatible control unit	Firmware Version
VILLEGGIO NG-TRX Series	8.2.0 or above
PREGIO Series	2.3.0 or above
PROXIMA series	1.0.2 or above

SCORPIO2K is certified IMQ - Security Systems.

2 PCB



- 1 PIR sensor
- 2 Battery position
- 3 Tamper button
- 4 Buzzer (on the rear panel)
- 5 Learning button
- 6 Blue LED
- 7 Green LED

3 TECHNICAL DATA



Model		SCORPIO2K	
Identification			
Technology	IR		
Coverage type	Volumetric		
IR section			
PIR sensors number	1		
Max range	15 (1)	m	
Pulse count	10		s
Opening	81° (1)		°
No. of IR sensitive zones	18 on 4 levels (1)		
General features			
Operating voltage	Power supply	3,6	V
	Compatible battery	3,6V 1,2Ah 1/2AA type ER14250 or LS14250	
	Minimum power supply	2,4	V
Operating times	Power-on stand-by	10	s
	Walk test	8	min
	Post-alarm inhibition time	In walk test mode: 5 s; in operating mode when armed: 5 min (adjustable)	
	Supervision	240 (2)	min
Consumption at power voltage	Inactive mode	7,8	µA
	Transmitting	23,0	mA
Radio connection range	maximum	1900	m
	nominal	1000	m
Max power in transmission mode	25		mW
Transmission frequencies	868,120 - 868,820 - 869,525		MHz
Autonomy	3.5 years (with 5 min inhibition); 1.5 years (with 30 s inhibition) (3)		years
Working temperature	-10 / +55		°C
Humidity	93% r.h.		
Protection class	IP3X		
IMQ certified	EN 50131-2-2: grade 2; EN 50131-5-3 (4)		

Model	SCORPIO2K	
Environmental class	2	
Dimensions and weight	W65 × H111 × D48 mm, 120g with battery	

- (1) with standard lens SML/15
- (2) adjustable via BrowserOne
- (3) with tx superv. 20 min
- (4) to comply with EN50131-5-3 grade 1, set supervision time equal to or below 60 minutes; to comply with EN50131-5-3 grade 2, set supervision time equal to or below 20 minutes

Parts supplied

Screws, inserts, S4 screw and insert for microswitch against removal, ER14250 battery, technical manual

Optional accessories

SN/D99 joint.

- (1) with standard lens SML/15
- (2) adjustable via BrowserOne
- (3) with tx superv. 20 min
- (4) to comply with EN50131-5-3 grade 1, set supervision time equal to or below 60 minutes; to comply with EN50131-5-3 grade 2, set supervision time equal to or below 20 minutes

4 PRECAUTIONS BEFORE DEVICE MOUNTING



! The table of contents and general warnings are at the end of this manual.

Before installing the product, please read the following indications carefully.

4.1 General considerations

- Make sure the device operating field is free and devoid of zones darkened by obstacles.
- Do not install the device near swaying or vibrating metal objects (ex. fridge/refrigerators groups, window blinds, metal roller shutters).
- Avoid installation near heat sources or drafts.
- Do not touch PIR sensor silicon filter.
- In case of detector installation in places with high frequency of people passage with disarmed system, set inhibition time to 5 minutes to limit the number of transmissions and prevent premature battery depletion.

! The electronic board of the detector may be damaged by electrostatic discharges. The installer must completely avoid any presence of electrostatic discharges.

4.2 Environment limits

The use of some building materials may reduce the detector wireless signal strength.

Example:

- plywood and honeycomb walls: 90-100% of full strength;
- solid / hollow brick walls 65-95% of full strength;
- concrete walls or metal sheet and plaster: 0-70% of full strength.

Metal grids, metal gates, and glasses may also affect (i.e. diminish) detector strength.

4.3 Definition of installation position

Choose installation position taking into account coverage ranges shown in the following diagrams.

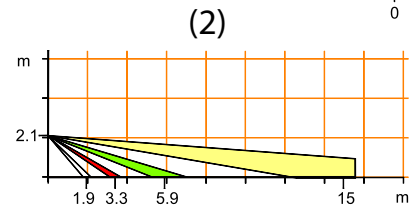
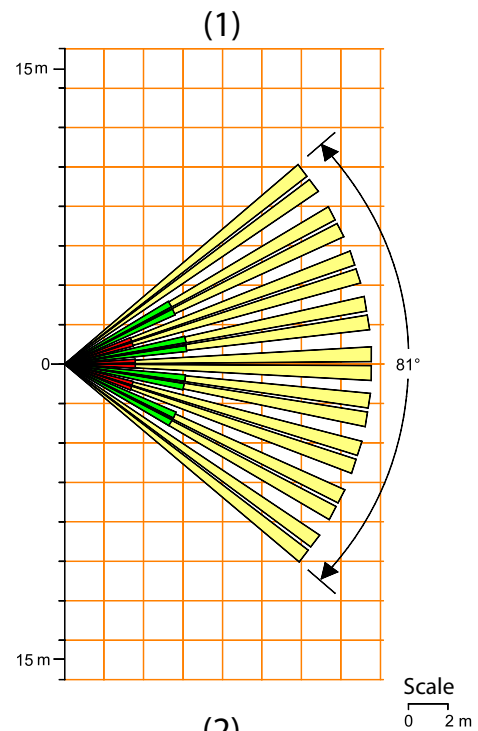
• Standard lens SML/15

Diagrams refer to detectors mounted at 2.1m height.

Range: 15 metres

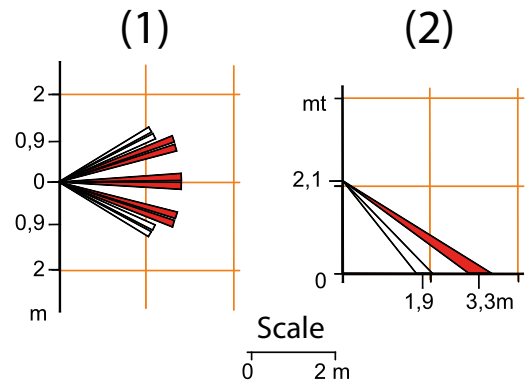
Coverage: volumetric, aperture 81°

Beams arrangement: 18 zones on 4 levels



- 1 Top view
- 2 Side view

Details



- 1 Top view
- 2 Side view

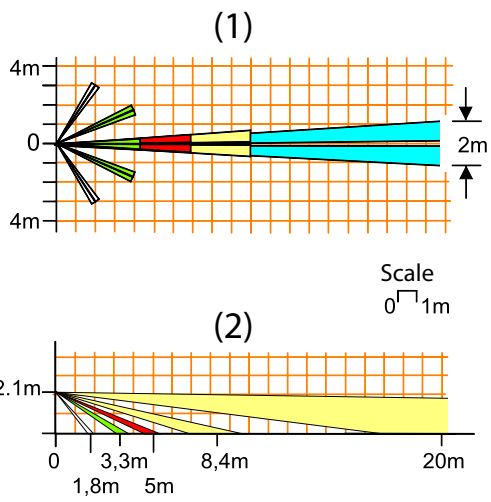
• Optional lens SML/20

Diagrams refer to detectors mounted at 2.1m height.

Range: 20 metres

Coverage: long distance

Beams arrangement: 10 zones on 5 levels



- 1 Top view
- 2 Side view

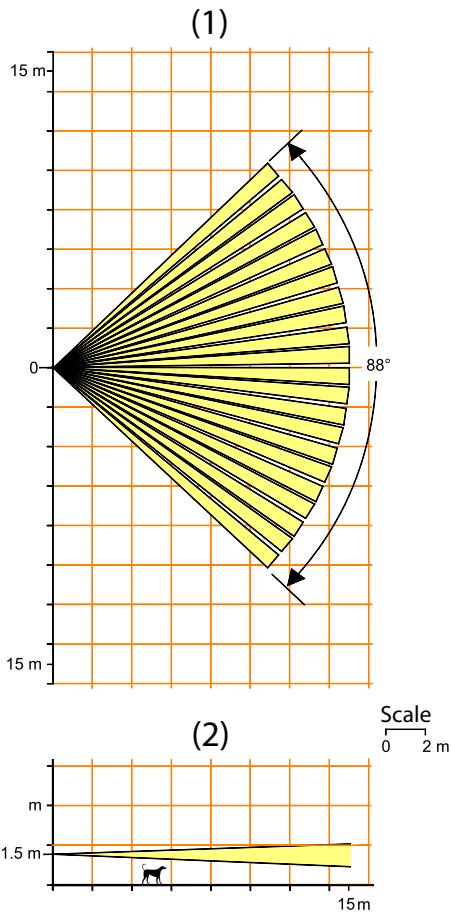
• **Optional lens SML/TO**

Diagrams refer to detectors mounted at 1.5m height.
Set detector height according to protection to realise.

Range: 15 metres

Coverage: aperture 88°

Beams arrangement: horizontal curtain



- 1 Top view
- 2 Side view

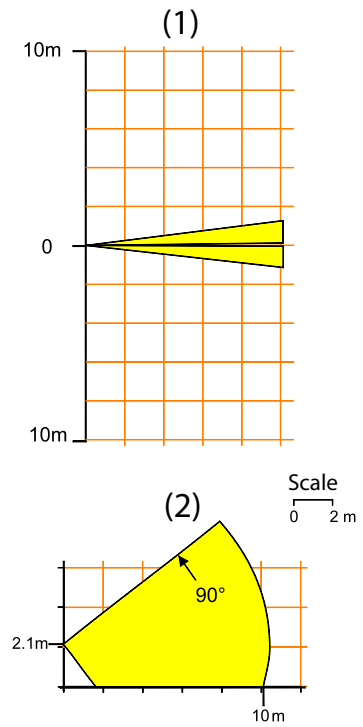
• **Optional lens SML/PP**

Diagrams refer to detectors mounted at 2.1m height.

Range: 10 metres

Coverage: aperture 90°

Beams arrangement: vertical curtain

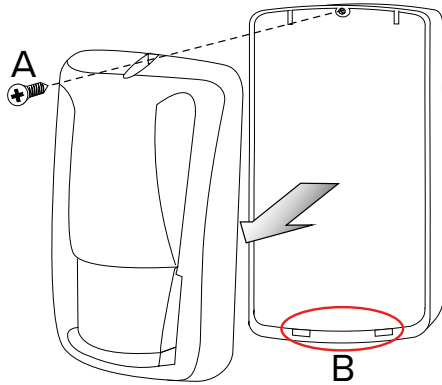


- 1 Top view
- 2 Side view



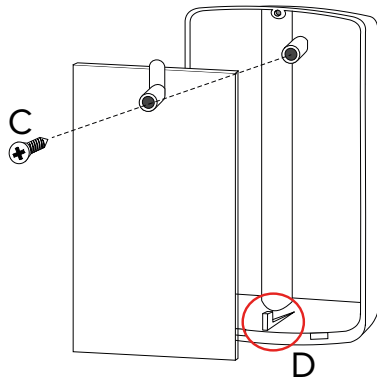
! The lever is not active in case of mounting onto the optional joint. Disable the tear-protection function via BrowserOne as indicated in the following chapter.

• **Opening the housing**



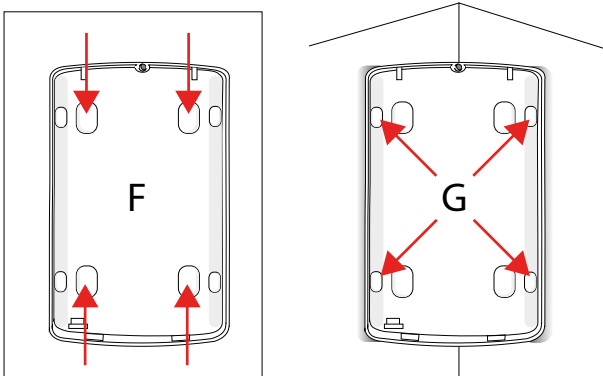
- unscrew cover fixing screw
- separate the front cover by pulling it away from the stops (B)

• **Removing the electronic board**



- remove the screw fixing the board to the base (C)
- remove the board from the lower hook (D)

• **Base wall mount**



- using a screwdriver, open the 4 pre-drilled areas of the support suitable for flat mount (F) or corner (G) mount
- In case of corner mount, move the lever against removal from wall as indicated in paragraph 5.1 p. 5
- insert a screw with the supplied S4 dowel where the microswitch against removal is located
- adjust the depth level of the screw so that the lever will keep the switch pressed

- fix the base to the surface using screws and dowels

! In case of corner mount, to ensure the right value of max range, it is necessary to tilt the detector suitably by inserting a 2-3mm-thick shim under the two upper fixing holes.

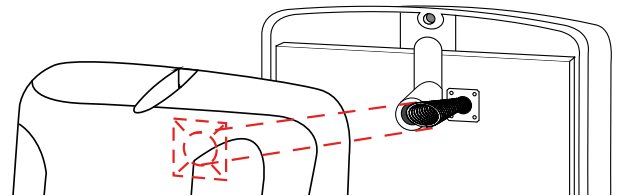
• **Board positioning**

Disconnect the battery following the steps above in reverse order: position the electronic board under the lower hook then fix it with the screw.

• **Device setup**

Now proceed with detector setup (see following chapter).

• **Closing the housing**



- position the front cover on the base making sure the tamper protection spring fits correctly to its place

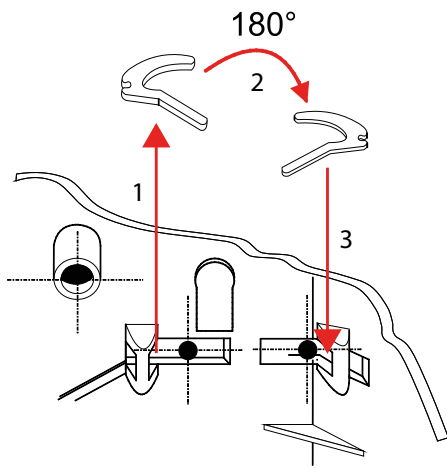
! The wrong housing closing will trigger a tamper alarm for all supervision transmissions.

- hook the cover to base stops again
- fix the cover with the screw

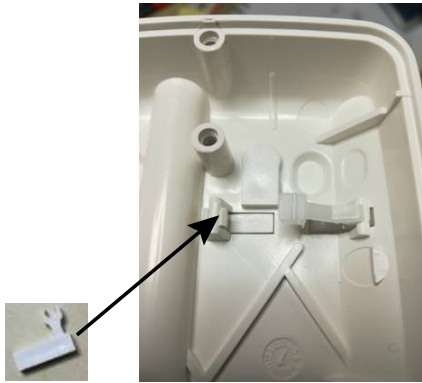
5.1 Protection against removal for corner mount



In case of corner mount, in order to ensure protection against removal from wall, move H lever (acting on the microswitch on the rear of the board) to the position of the plastic plug I that closes the detector angle. Proceed as follows (images show the internal view of the detector base):



- detach the lever from the rotation pin
- detach the plastic plug that closes the detector angle
- rotate the lever by 180°
- insert the lever where the plug was, firmly attaching it to the pin



You can close the gap where the lever was before using the second plastic plug provided.

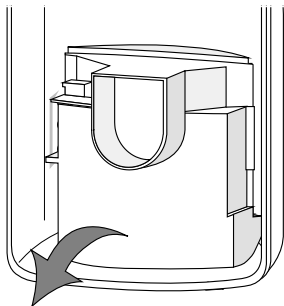
5.2 Lens replacement

To replace the lens, follow this procedure.

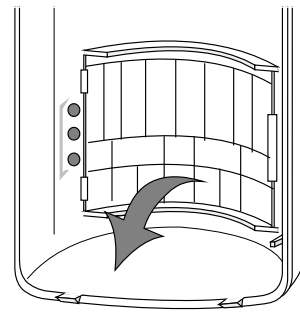
! *SCORPIO2K is EN 50131- grade 2 certified with SML/15 lens.*

Following images show the internal side of the detector cover.

• Lens removal

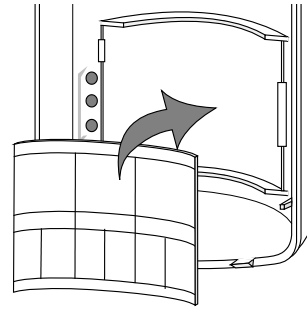


- unhook side slots
- remove the protective cap

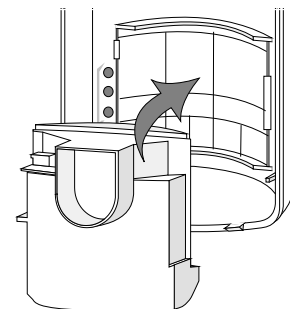


- remove LEDs guide and keep it in a safe place
- remove the lens to be replaced

• Lens positioning



- place the lens with the rough side towards the internal side of the cover and placing it in place with the largest number of sectors face up
- position LEDs guide



- put the protective cap back in place

6 STARTING THE DEVICE



6.1 First power up

- open the cover as illustrated in the mounting procedure
- fit the battery
- press and release 3-4 times Tamper button
- reset any discharged battery memory on control unit or compatible receiving device

! *If the battery is new or has not been used for long time, a wrong message of discharged battery may be displayed. Such problem depends on Lithium Thionyl Chloride battery chemical specifications and can be solved by carrying out the procedure illustrated above. If the battery has been exposed to low temperature, it is advisable to keep it at room temperature before installation.*

6.2 Device learning to NG-TRX control unit

Before starting learning procedure, remove the front cover (as illustrated in mounting procedure) to be able to access Learning button.

! *Verify that the battery is charged otherwise the device will not be learnt.*

Device learning procedure:

- on control unit keypad, enter installer code followed by **OK** to go to setup menu
- use arrow keys **↑** or **↓** to go to LEARN RADIO DET. option
- press **OK**
- use arrow keys to go to the zone to which learn the device
- press **OK**
- press key 1 (saved to control unit)
- go to the detector
- press and hold device learn key (P2) for 3 seconds
- in case of wrong learning procedure, the unit will not confirm the procedure, the detector will beep once to signal error and the device blue LED will remain OFF: restart the procedure
- in case of correct learning procedure, the unit and detector buzzers will beep twice and the device blue LED will switch on
- exit control unit setup menu; when required, press **OK** to save the setup

7 SETUP VIA BROWSERONE



The device can be set using BrowserOne v3.4.7 or above.

- load the latest module available for the control unit in use
- start control unit connection
- select **Read setup** key to read control unit setup
- select the grid row corresponding to the zone used to

learn the device

- select tab **Radio Devices NG-TRX**

Zone Name		NG-TRX
07	Zone 7	Yes
08	Zone 8	Yes

General Assign Area/Sector Radio Devices Cable Devices **Radio Devices NG-TRX**

7.1 NG-TRX options

Detectors parameters common to all channels. For detailed information, please see programming manual of the control unit in use.

Buzzer activation Buzzer disabled

Performance tuner Automatic

Supervision interval 5 min

Delay supervision anomaly

Tx Boost

▼ Buzzer activation

Enable device buzzer for alarm/reset.

▼ Performance tuner

Adjust balance between consumption and power used for data transmission.

▼ Supervision interval

Set time intervals for control unit data transmission in order to check device presence and proper working.

▼ Delay supervision anomaly

If enabled, the anomaly caused by lack of supervision will be signalled with a delay equal to 6 times the supervision time.

▼ Tx Boost

Option increasing transmission range (by 10÷30%, effective increase); it may affect battery lifetime at the same time.

7.2 SCORPIO2K detector options

Use this section to set specific parameters of SCORPIO2K device.

▼ Enable Led

If disabled, LED indicators will be disabled. LED indicators will continue working in walk test or learning mode.

▼ Time inhibition

Time interval during which the detector will remain inhibited after an alarm transmission.

▼ Range

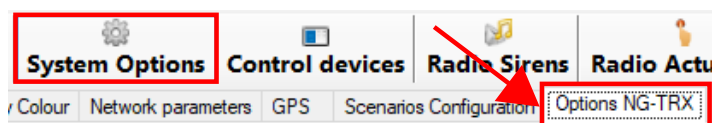
Select detection range of the device.

- ▼ **Sensitivity**
Number of IR pulses to be detected before entering the alarm condition (1, 2, 3).
- ▼ **Removal from the**
Enable/disable removal protection (default: disabled).

7.3 Options for communication to control unit

To configure communication between NG-TRX devices and control unit:

- on BrowserOne main page, select **System Options**
- select tab **Options NG-TRX**




- ▼ **Receiving multichannel**
When active, the control unit receives on three channels simultaneously; when deactivated, the control unit receives on one channel only (preset/preferred). We recommend to keep it non active only if a channel has disturbances.

- ▼ **Default channel**
This is the channel used by the control unit to receive data in case of no interference (default: channel 1). In case of interference, the unit defines a channel (even different from the preset one) according to interference level and uses it for data reception.

- ▼ **Supervision interval**
It defines supervision time interval common to all system devices: such interval will be valid for all devices that has no specific interval selected (default).

Select **Enable detection RF interference** to allow the control unit to detect any interference on the three radio channels.

For further information about this option and other in this menu, please see programming manual of the control unit in use.

 *Once all changes have been done, write the new setup to the control unit. It will be sent to the device at the first valid transmission to the unit.*

8 OPERATING MODE

The detector detects motion inside the covered area.

8.1 Operating sequence

1. Stabilisation

After power on, the device takes around 10 s to stabilize.

2. Walk test

The device remains in walk test mode for 8 minutes. The green LED will signal IR pulses detected and if it receives the number of pulses set as **Sensitivity** within 10 seconds it will generate an alarm transmission, otherwise it will go back to standby mode.

After an alarm event is transmitted in walk test mode the device will remain inhibited for 5 seconds.

3. Standard operating mode

When walk test is finished (8 minutes) the device enters operating mode.

Detection mode is the same as in walk test, except that pulses are not signalled and blue LED will switch on only when the general alarm is transmitted.

When operating, after an alarm transmission, the device will remain inhibited

- for 5 s if the detector belongs to armed sectors (only for the first 3 alarms received in an arming cycle);
- for the time set if the detector belongs to sectors disarmed (or from the fourth alarm received in the same arming cycle).

- When in operation, there are two ways to restart walk test:
1. switching the detector off and on, waiting until it is stabilized
 2. on control unit keypad, enter installer code and select SYSTEM TEST > ZONES TEST

8.2 LED indications

Condition		Green LED	Blue LED
Power on	Stabilisation	Fixed 10 s	Fixed 10 s
Walk test	IR pulse	Single blinking	
	Alarm/tamper		ON
Operating	Alarm/tamper		ON


9 MAINTENANCE

9.1 System test mode

To start this function, go to unit menu **SYSTEM TEST > ZONE TEST**.

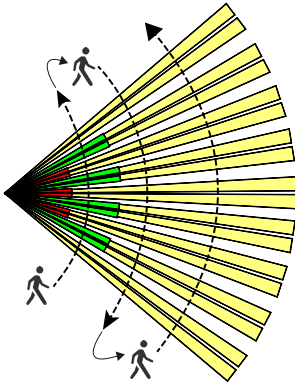
Device operating mode is the same as in walk test, except that device buzzer is activated upon any alarm.

The detector will pass to “detector test” mode only after the first correct transmission has been performed; it could take up to 5 min (default) from ZONES TEST start.

 *A long permanence in zones test mode may reduce battery lifetime.*

9.2 Periodic test

Carry out a simple test regularly to verify the functionality and the coverage limits of the detector.



- set the device in system test mode (see above)
- taking detector position as the point of reference, make half-circle movements from opposite directions to check coverage from both sides

Detector LED indicators shall respond as shown in the table of 8.2 p. 8 paragraph.

9.3 Battery replacement

Replace the battery with a new one of the same type only. Follow this procedure:

- Open the housing (see mounting procedure).
- Remove the discharged battery.
- Press and release 3-4 times Tamper button to discharge any capacitor that may still be charged.
- Verify that the distance between the two battery hooks is around 25 mm; if greater, slightly press towards the internal side. The correct position of the battery ensures the right electrical contact and prevents false discharged battery signals.
- position the new battery (see mounting procedure).
- Reset any discharged battery memory on control unit or compatible receiving device.

Discharged batteries shall be disposed of according to current laws and using specific containers.

Materials used are very harmful and polluting if dispersed in the environment.

Table of contents

1	DESCRIPTION.....	P. 1
2	PCB.....	P. 1
3	TECHNICAL DATA.....	P. 2
4	PRECAUTIONS BEFORE DEVICE MOUNTING	
	P. 3
4.1	General considerations.....	<i>p. 3</i>
4.2	Environment limits.....	<i>p. 3</i>
4.3	Definition of installation position.....	<i>p. 3</i>
5	DEVICE MOUNTING.....	P. 5
5.1	Protection against removal for corner mount....	<i>p. 5</i>
5.2	Lens replacement.....	<i>p. 6</i>
6	STARTING THE DEVICE.....	P. 7
6.1	First power up.....	<i>p. 7</i>
6.2	Device learning to NG-TRX control unit.....	<i>p. 7</i>
7	SETUP VIA BROWSERONE.....	P. 7
7.1	NG-TRX options.....	<i>p. 7</i>
7.2	SCORPIO2K detector options.....	<i>p. 7</i>
7.3	Options for communication to control unit.....	<i>p. 8</i>
8	OPERATING MODE.....	P. 8
8.1	Operating sequence.....	<i>p. 8</i>
8.2	LED indications.....	<i>p. 8</i>
9	MAINTENANCE.....	P. 8
9.1	System test mode.....	<i>p. 8</i>
9.2	Periodic test.....	<i>p. 9</i>
9.3	Battery replacement.....	<i>p. 9</i>
	EU DECLARATION OF CONFORMITY.....	P. 12
	GENERAL WARNINGS.....	P. 12
	INSTALLER WARNINGS.....	P. 12
	USER WARNINGS.....	P. 12
	MAIN SAFETY RULES.....	P. 12
	DISPOSAL WARNINGS.....	P. 12

EU DECLARATION OF CONFORMITY

Hereby, EL.MO. Spa declares that the radio equipment SCORPIO2K 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.elmospa.com – registration is quick and easy.



GENERAL WARNINGS



This device has been designed, built and tested with the utmost care and attention, adopting test and inspection procedures in compliance with current legislation. Full compliance of the working specifications is only achieved in the event the device is used solely for its intended purpose, namely:

Indoor wireless IR detector for NG-TRX intrusion detection systems.

The device is not intended for any use other than the above and hence its correct functioning in such cases cannot be assured. Consequently, any use of the manual in your possession for any purpose other than those for which it was compiled - namely for the purpose of explaining the product's technical features and operating procedures - is strictly prohibited.

Production processes are closely monitored in order to prevent faults and malfunctions. However, the components adopted are subject to an extremely modest percentage of faults, which is nonetheless the case with any electronic or mechanical product.

Given the intended use of this item (protection of property and people), we invite you to adapt the level of protection offered by the system to suit the actual situation of risk (allowing for the possibility of impaired system operation due to faults or other problems), while reminding you that there are specific standards for the design and production of systems intended for this kind of application.

We hereby advise you (the system's operator) to see that the system receives regular routine maintenance, at least in accordance with the provisions of current legislation, and also check on as regular a basis as the risk involved requires that the system in question is operating properly, with particular reference to the control unit, sensors, sounders, dialler(s) and any other device connected. You must let the installer know how well the system seems to be operating, based on the results of periodic checks, without delay.

Work involved in the design, installation and maintenance of systems incorporating this product should be performed only by personnel with suitable skills and knowledge required to work safely so as to prevent any accidents. It is vital that systems be installed in accordance with current legislation. The internal parts of certain equipment are connected to the mains and therefore there is a risk of electrocution when maintenance work is performed inside without first disconnecting the primary and emergency power supplies. Certain products include batteries, rechargeable or otherwise, as an emergency backup power supply.

If connected incorrectly, they may cause damage to the product or property, and may endanger the operator (explosion and fire).

INSTALLER WARNINGS



Comply strictly with current standards governing the installation of electrical systems and security systems, and with the manufacturer's directions given in the manuals supplied with the products.

Provide the user with full information on using the system installed and

on its limitations, pointing out that there are different levels of security performance that will need to suit the user's requirements within the constraints of the specific applicable standards. See that the user looks through the warnings given herein.

Work involved in the design, installation and maintenance of systems incorporating this product should be performed only by personnel with suitable skills and knowledge required to work safely so as to prevent any accidents. It is vital that systems be installed in accordance with current legislation. The internal parts of certain equipment are connected to the mains and therefore there is a risk of electrocution when maintenance work is performed inside without first disconnecting the primary and emergency power supplies. Certain products include batteries, rechargeable or otherwise, as an emergency backup power supply. If connected incorrectly, they may cause damage to the product or property, and may endanger the operator (explosion and fire).

USER WARNINGS



Check the system's operation thoroughly at regular intervals, making sure the equipment can be armed and disarmed properly.

Make sure the system receives proper routine maintenance, employing the services of specialist personnel who meet the requirements prescribed by current regulations.

Ask your installer to check that the system suits changing operating conditions (e.g. changes in the extent of the areas to be protected, change in access methods, etc...)

MAIN SAFETY RULES

The use of the device is forbidden for children and unassisted disabled individuals.

Do not touch the device when bare footed, or with wet body parts. Do not directly spray or throw water on the device.

Do not pull, remove or twist the electric cables protruding from the device even if the same is disconnected from the power source.

DISPOSAL WARNINGS



IT08020000001624

In accordance with Directive 2012/19/EU on waste electrical and electronic equipment (WEEE), please be advised that the EEE was placed on the market after 13 August 2005 and must be disposed of separately from normal household waste.

This product needs batteries for correct functioning. Exhausted batteries have to be delivered to dumping grounds authorized for battery collection. The materials used for this product are very harmful and polluting if dispersed in the environment.