

FLY2K, FLY82K

**Ceiling-mount DT wireless detectors for
NG-TRX intrusion detection systems**



Addressee for this information: User | Installer

1 DESCRIPTION

FLY2K is a NG-TRX series ceiling-mount dual-technology wireless detector.

The two detector sections work in AND mode.

InfraRed Section (IR): two-channel digital PIR sensor with ceiling lens and silicon filter for white light protection. Anti-blinding protection.

Microwave section (MW): DRO planar antenna 10,525GHz (available also 9,9GHz version).

Red, green, and blue LED indicators provide information on IR and MW sections status and working mode.

FLY2K can be programmed using BrowserOne software.

The detector is available in two versions:

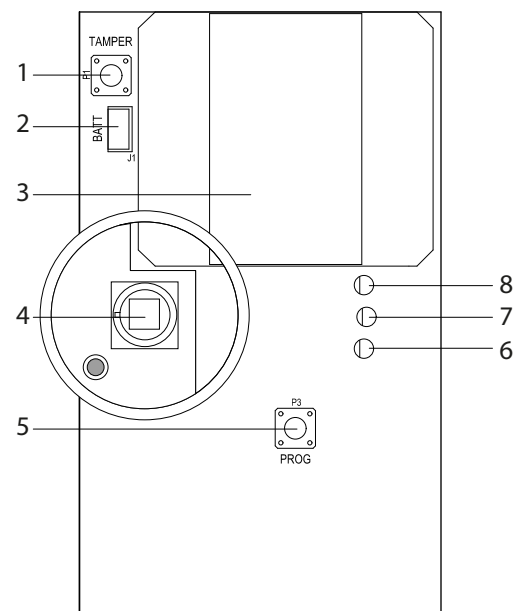
- FLY2K with lens for installation at 4 m height;
- FLY82K with lens for installation at 8 m height.

For side-by-side mounting, differentiated frequencies can be used.

FLY82K is compatible with Villeggio NG-TRX, Pregio and Proxima series control units. Connection to Pregio and Proxima control units requires use of GATEWAY2K.

Control unit	FLY2K	FLY82K
PREGIO series	2.6.1.0 or above	2.6.1.0 or above
VILLEGGIO NG-TRX series	8.4.1.0 or above	8.4.1.0 or above
PROXIMA series	1.0.2 or above	1.0.2 or above

2 PCB



- 1 Tamper button (TAMPER)
- 2 Battery connector (BATT)
- 3 MW antenna
- 4 PIR sensor
- 5 Learning button (PROG)
- 6 MW LED (blue)
- 7 Red LED
- 8 IR LED (green)

3 TECHNICAL DATA



Model	FLY2K	FLY82K	
Identification			
Technology	IR + MW		
Coverage type	Volumetric, conic-shaped sectors		
IR section			
PIR sensors number	1		
Max range	4	8	m
Pulse count	10		s
Pre-alarm time	5		s
No. of IR sensitive zones	55 over 6 conic sectors	19 over 3 conic sectors	
MW section			
MW max range	4	8	m
Pulse count	5 / 10 (1)		s
Pre-alarm time	5		s
General features			
Operating voltage	Power supply	7,2	V
	Minimum power supply	4,5	V
	Compatible battery	2ER14505 7V2 2.7Ah	
	Discharged battery threshold	4,9	V
	Battery restore threshold	5,6	V
Consumption at power voltage	Power on in progress	1,3	mA
	Inactive mode	29,0	µA
	Transmitting	24,0	mA

(1) dynamic selection

Model	FLY2K	FLY82K	
General features			
Operating times	Power-on stand-by	30	s
	Post-alarm inhibition time	walk test mode: 5s; system test mode: 5s; operating with system armed: 5s; operating with system disarmed: to be set via BrowserOne (1)	
	Supervision	240	min
	IR fault detection	2	s
Radio connection range	nominal	800	m
	maximum	1200	m
Autonomy	2 (2)		years
Transmission frequencies	868,120 / 868,820 / 869,525		MHz
Working temperature	-10 / +55		°C
Conformity	EN 50131-2-2: grade 2; EN50131-5-3 (3)		
Environmental class	2		
Protection class	IP3x		
Dimensions and weight	L151 × H159 × P36 mm, 206 g		
Parts supplied	Screws, inserts, S4 screw and insert for microswitch against removal, technical manual		

- (1) when operating with system armed, inhibition time is 5 secs for the first 3 alarms after arming, for the following alarms it will be as per time set
- (2) calculated with device set to default settings and 20 minute supervision time. Settings that cause duration variation: inhibition 30s = -60%; disabled LED = +5%; anti-blind active = -5%
- (3) 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 supervisiione time equal to or below 20 minutes

4 PRECAUTIONS BEFORE DEVICE MOUNTING



! General warnings are at the end of this manual.

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

4.1 General considerations

- Avoid installation nearby oscillating or vibrating metal items (e.g. refrigerating units).
- Avoid installation near heat sources or drafts.
- Do not touch the PIR sensor with your fingers.
- In case of installation of two sensors at a distance of less than 5 m, the second must be a differentiated-frequency model.

	Standard freq. (10,525 GHz) model code	Differentiated frequency (9,9 GHz) model code
FLY2K	RWRDTMS003#00	RWRDTMS004#00
FLY82K	RWRDTMS005#00	RWRDTMS006#00

- 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 both during installation and maintenance.

4.2 Definition of installation position

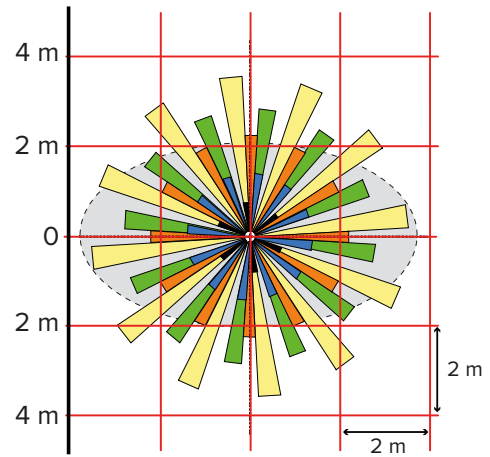
Choose installation position taking into account the IR and MW cover ranges shown in the following diagrams.

• FLY2K

(cod. RWRDTMS003#00 / RWRDTMS004#00)

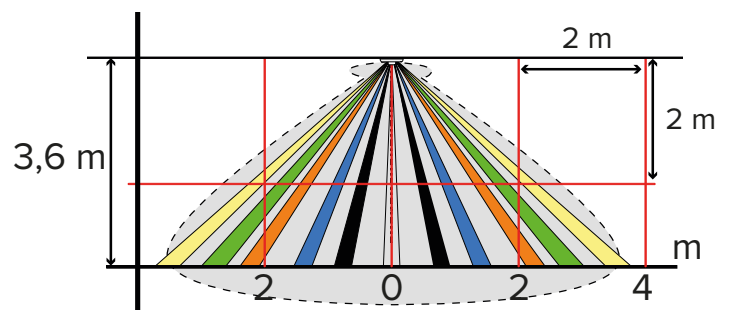
Diagrams refer to detectors mounted at 3.6 m height.

Top view:



Dashed line: MW section

Side view:

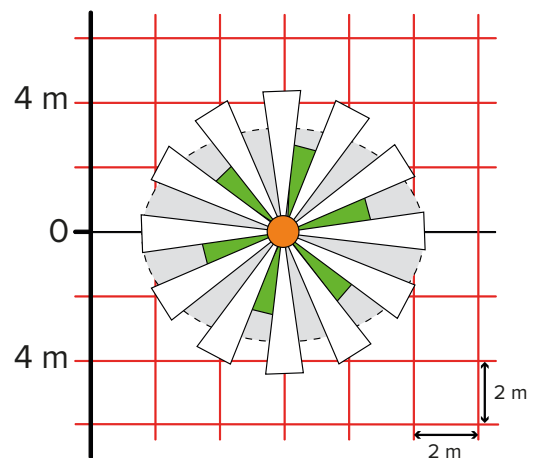


Dashed line: MW section

• FLY82K

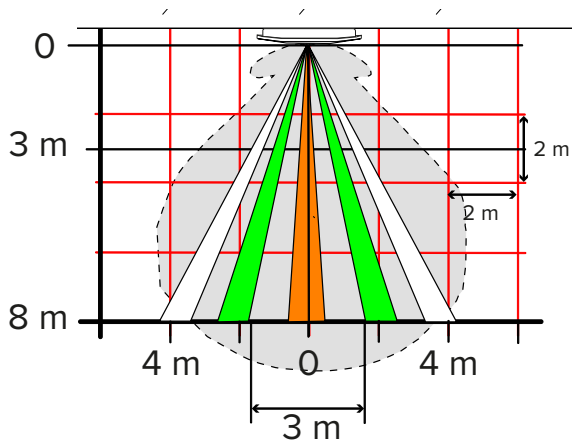
(cod. RWRDTMS005#00 / RWRDTMS006#00)

Top view:



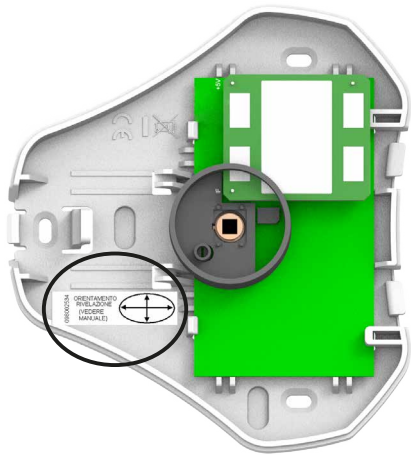
Dashed line: MW section

Side view:



Dashed line: MW section

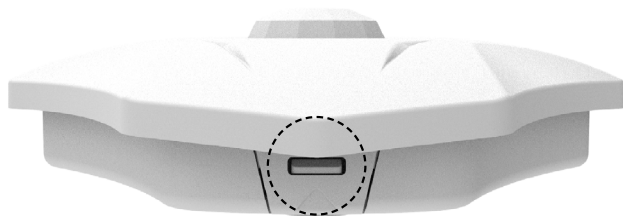
! The label on the inner side of the detector base shows the detection orientation.



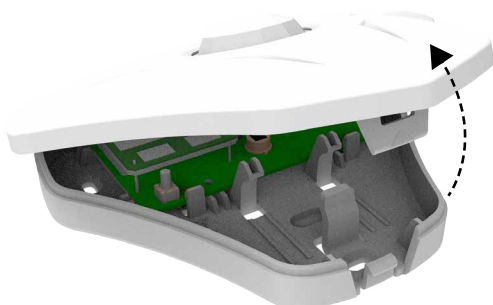
5 DEVICE MOUNTING



• Opening the housing

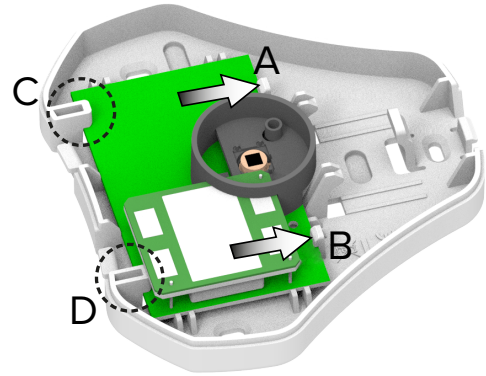


– press the hook on the cover rim



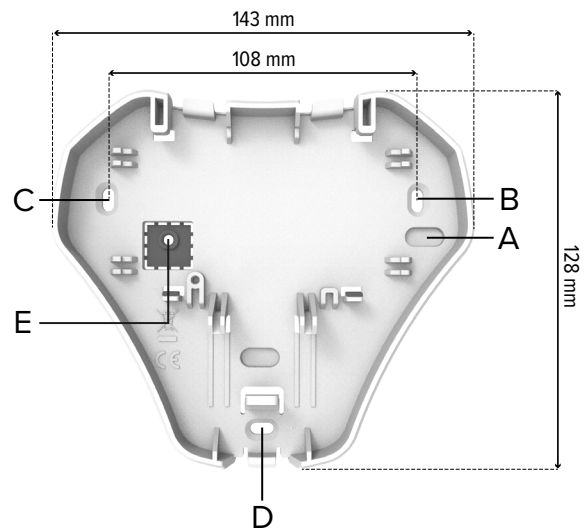
– rotate cover upward and remove it

• Removing the electronic board



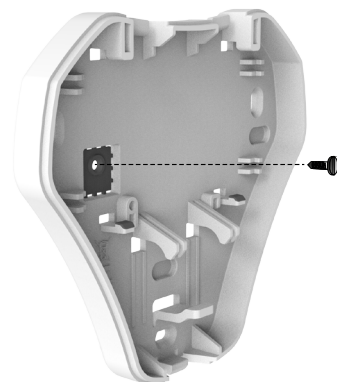
– press on fixing supports A, B
 – remove the board from A, B supports
 – remove the board from C, D supports

• Fixing the base to the ceiling



– fix the base to the ceiling with screws and dowels using holes B, C, D

Protection against removal from wall



– insert a screw with the supplied S4 dowel into the hole E

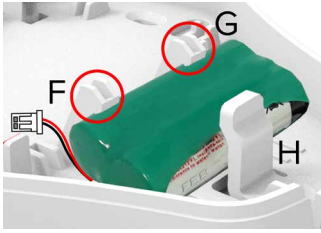
• Reinstallation of the board

With ref. to image at **Removing the electronic board**:

– insert the board under C, D supports

- push the board in place under A, B supports

- **Battery wiring**



- position the battery under F, G supports
- push the battery in place under H support
- wire the battery cable connector to **BATT** connector on the board

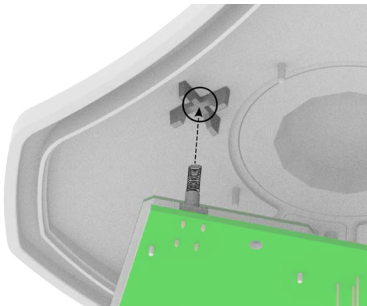
- **Device setup**


Proceed with detector setup (see following chapter).

- **Closing the housing**



- position the cover on the two hooks on the base
- lower the cover until it closes



 *Verify that the spring protecting against housing opening is positioned correctly.*

6 STARTING THE DEVICE

6.1 First power up


- open the cover and position the battery as illustrated in the mounting procedure
- 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 learn key PROG.

 *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 the device will be learned.
- press **OK**
- press key 1 (saved to control unit)
- go to the detector
- press and hold detector learn key (PROG) for 3 seconds: the detector has entered learning mode when the device blue LED blinks twice and buzzer beeps twice
- if the detector is not learned correctly, the unit will not confirm the procedure; the detector will emit an error beep and its LED will remain off: restart the procedure
- if the detector is learned correctly, the unit will beep twice and the detector blue LED will switch on for 1 second
- exit control unit setup menu. When required, press **OK** to save the setup

When a device is learned, the unit will receive information about its model and firmware version.

7 SETUP VIA BROWSERONE

The device can be set using BrowserOne v3.7.0 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**

Zones		Areas	Outputs	Users	Telephone Dialler	System Options
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

Use this section to set detector parameters common to all its 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 FLY2K detector options

Use this section to set specific parameters of FLY2K device.

▼ Enable Led

If disabled, LED indicators will not blink in case of alarm/tamper (they will continue working in walk test or learning mode).

▼ Antidazzle

Enable/disable anti-blind function (default: disabled). If enabled, in case of blinding attempts, a fault event will be sent together with a tamper or alarm event according to options selected in drop-down menu **Antidazzle Echo**.

▼ Removal from the

Enable/disable removal protection (default: disabled).

▼ Time inhibition

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

▼ Range

Select device detection range (25% - 50% - 75% - 100%).

▼ Sensitivity IR

Select IR pulse number to be counted for the detector to enter alarm mode (1-2 pulses).

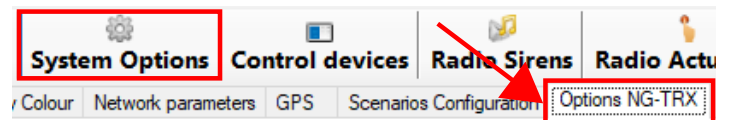
▼ Sensitivity MW

Select MW pulse number to be counted for the detector to enter alarm mode (4-6-8 pulses).

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 FLY2K at the first valid transmission and the device will beep to confirm the operation.*



The detectors detects movements inside covered area.

8.1 Operating sequence

1. Stabilisation

After power on, the device will take around 30 seconds for stabilisation.

2. Walk test

The device remains in walk test mode for 8 minutes.

The green LED will signal IR pulses detected by channel 1, red LED will signal IR pulses detected by channel 2.

When IR section detects the number of IR pulses set, it enters pre-alarm mode for 5s.

If within this time interval the set number of MW pulses is counted (each signalled by the blue LED) the device will generate and send an alarm event, 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. power off and back on the device, wait for the stabilisation to end
2. on control unit keypad, enter installer code and select **SYSTEM TEST > ZONES TEST**

8.2 Anti-blinding function

FLY2K features anti-blinding function.

The function detects blinding attempts made by placing a reflective body before the lens.

The function can be activated via BrowserOne.

When the device enters a "blinded" condition, the green LED will start blinking slowly.

When the reflective body is removed, the standard operating mode will be restored.

Condition		Red LED	Green LED	Blue LED
Power on	Carrier emission			Fixed 2 s
	Stabilisation	Fixed 25 s		
Learning OK				ON 1 s
Walk test	IR pulse (channel 1)		Single blinking	
	IR pulse (channel 2)	Single blinking		
	MW pulse			Single blinking
	Pre-alarm IR		ON steady	
	Pre-alarm MW			ON steady
	Alarm transmission		ON 1.5 s	ON 1.5 s
	Send / reset tamper	ON 1 s		
Operating	Alarm transmission			ON 0.5 s
	PIR fault		Fast blinking	
	Blinding		Slow blinking	
	Tamper / Reset tamper	ON 1 s		



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.

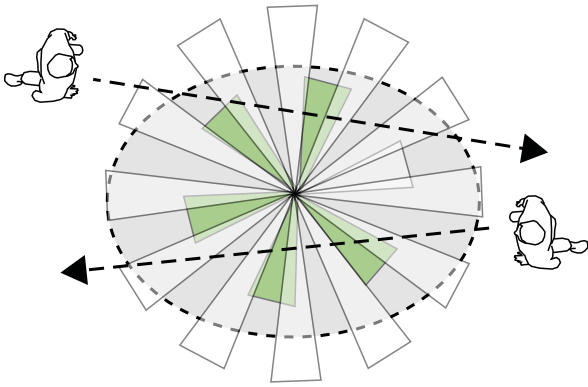
The detector will enter detector test status only after the first valid transmission is done, it could take up to 5 min (default) from the start of ZONES TEST mode of the control unit.



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.



- enter ZONE TEST (see paragraph 9.1 p. 7)
- walk through the area covered by the detector, in both directions

Detector LED indicator shall respond as shown in the table LED indications.

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 battery connector. Remove discharged battery.
- Press and release 3-4 times Tamper button to discharge any capacitor that may still be charged.
- 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.

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EU DECLARATION OF CONFORMITY

Hereby, EL.MO. Spa declares that the radio equipment FLY2K, FLY82K 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:

Ceiling-mount DT wireless detectors 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...)

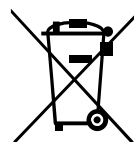
MAIN SAFETY RULES

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.