

# RXMULTI2K

**64-channel radio receiver with relay outputs**



Addressee for this information:  User |  Installer

## 1 DESCRIPTION

RXMULTI2K can receive alarm, anomaly and tamper events from various wireless devices and will activate its outputs according to programmable logic mode.

It is compatible with all NG-TRX series remote controls and sensors, except VISIO2K.

In particular:

- with SMR2K and SMCOR2K, starting from RXMULTI2K firmware version 1.2.0;
- with ELISEOMULTI2K, starting from RXMULTI2K firmware version 1.3.0.

RXMULTI2K can manage up to 64 wireless channels, divided among the various connected devices.

Relay outputs are:

- Two programmable outputs with electromechanical relays (max 3 A @ 24 V).
- Six programmable outputs with solid-state relay (max 100 mA @ 24 V).
- One NO anomaly output.
- One NC tamper output.

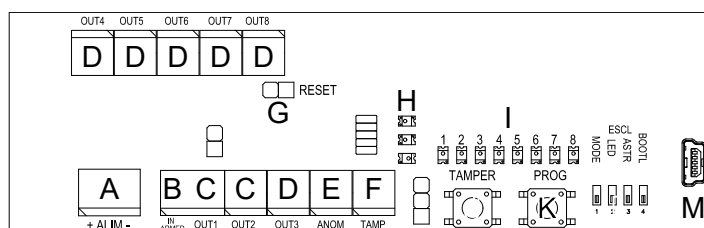
RXMULTI2K can be configured using BrowserOne software, tamper button and setup keys.

The LEDs indicate outputs status, wireless signal strength and tamper protection status.

The device is supplied with a plastic housing protected against cover opening and removal from wall.

The device is suitable for indoor installations.

## 2 PCB



- A** Power terminals
- B** Status terminal (armed/disarmed)
- C** Outputs with electromechanical relay
- D** Outputs with solid-state relay
- E** Outputs with anomaly relay
- F** Outputs with tamper relay
- G** "reset" Jumper
- H** LED indicator
- I** Outputs status LED
- J** Tamper button
- K** Setup button
- L** Dip switch selectors
- M** USB mini-B port

### 3 TECHNICAL DATA



Model		RXMULTI2K	
<b>General features</b>			
Protection class		1	
Environmental class		II	
Operating voltage	Power supply	12	V
	Maximum operating voltage	15,0	V
	Minimum power supply	11,0	V
Consumption at power voltage	Idle mode	35	mA
	Alarm mode	80,0	mA
Working temperature		-10 ÷ +55	°C
Humidity		93% r.h.	
Dimensions		W 130 × H 35 × D 46	mm
Weight		90	g

Parts supplied:

- two 2.9 × 6.5 mm screws for board fixing
- screws and inserts for protection against removal and case fixing
- side fixing hinges (not mounted)
- technical manual

### 4 PRECAUTIONS BEFORE DEVICE MOUNTING



*General warnings are at the end of this manual.*

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

- It is advisable to position the device at 1 m height from floor minimum.
- It is advisable to flush mount the device or use a plastic housing. A mounting recessed into the wall may affect performances negatively. Do avoid installing the device inside a metal housing.

#### Environment limits

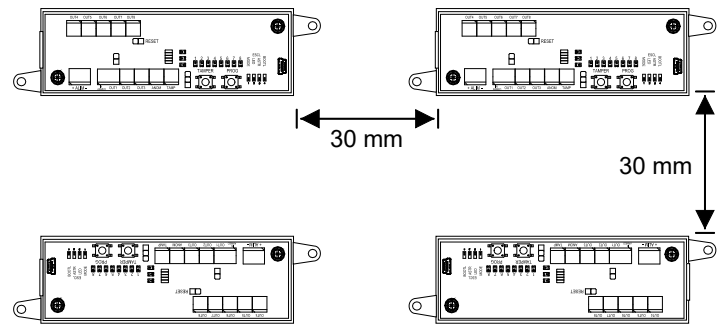
The use of some building materials may reduce the detector wireless signal strength.

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 gratings, large metal doors and gates, reinforced-concrete walls and mirrors may affect the operating range negatively.

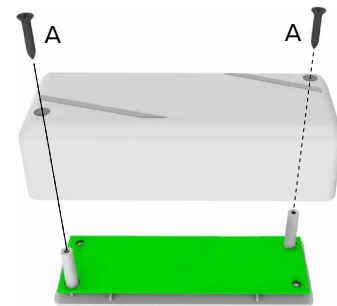
If necessary, do install wireless receivers one next to the other, positioned in reversed direction and at the distance indicated in the diagram.



### 5 DEVICE MOUNTING



#### • Opening the housing



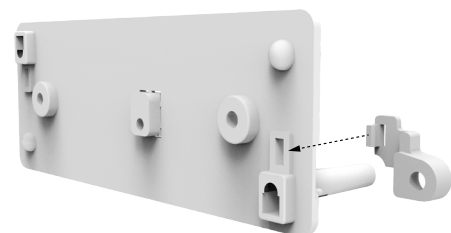
- unscrew cover fixing screws (A)
- remove the cover

#### • Removing the electronic board



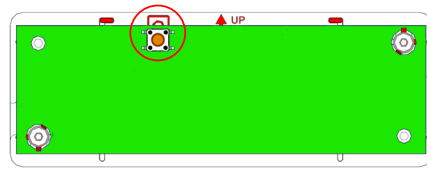
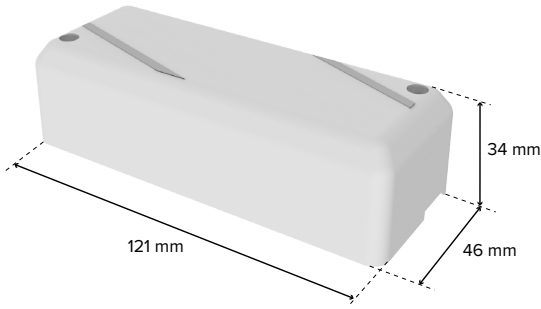
- unscrew board fixing screws (B)
- extract the board from the supports

#### • Side hinges mounting (optional)



- insert hinges in the suitable base holes
- push until they click in place

• **Base wall mount**



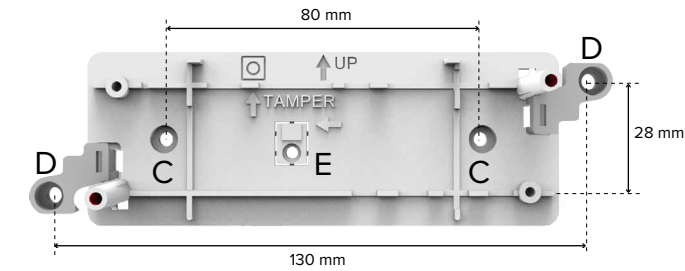
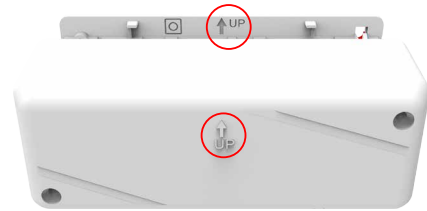
Make sure the switch for protection against opening (on board top) is on the upper side as indicated by the symbol on case base.

Make sure the button protecting against removal remains pressed: position the board so that such button (P3) position corresponds to the base elevated support

- fix the board with the screws

• **Closing the housing**

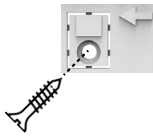
- position the cover on the base



- install the base on the mounting surface with screws and inserts using central holes (C) or side hinges holes (D)

⚠ *Make sure the UP arrow is on the upper side.*

**Protection against removal from the mounting surface**



- insert a countersunk screw suitable for S4 plug into hole E

• **Cables passage**



- remove plastic from one of the indicated points to let the cables into the housing

• **Wirings**

Connect the terminals (see chapter 6 p. 3).

• **Device setup**

Proceed with device setup (see chapter 7 p. 4).

• **Board positioning**

- position the electronic board between the supports

Make sure the arrow on cover is on the upper side, like the one on the base.



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

- fix the cover with the screws

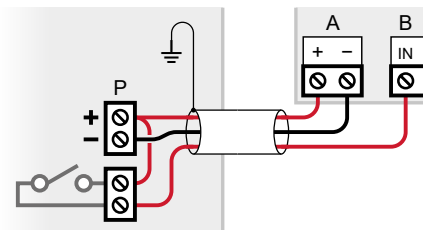
**6 WIRINGS**



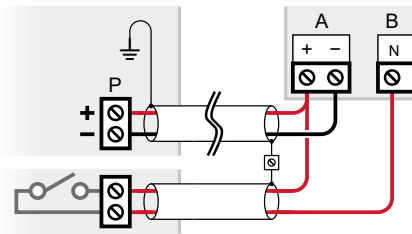
Use cables with the following section: 2 × 0.75 mm<sup>2</sup> (power) + 2 × 0.22 mm<sup>2</sup> (signal).

⚠ *Connect also cables sheath as indicated in the diagrams.*

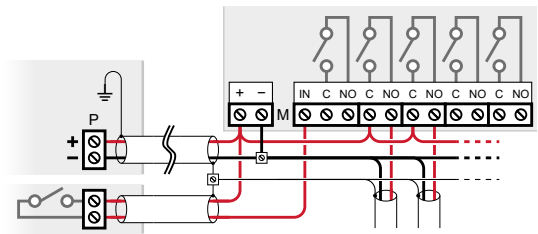
**Wiring of power line and system status input**



A- 12 Vdc power terminals  
 B- system status input  
 P- control unit power supply unit



A- 12 Vdc power terminals  
 B- system status input  
 P- power supply unit



M- RXMULTI2K terminal board  
 P- 12 V power supply unit

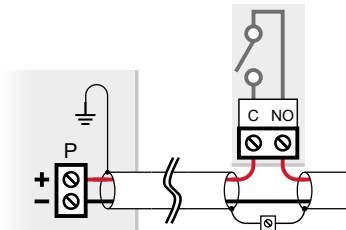
The system status input (IN terminal) can be wired to an intrusion detection control unit output.

This output shall be set in order to switch according to the control unit arming status.

RXMULTI2K will transmit system status to wireless devices some of which will operate differently when the system is armed.

### Outputs wiring

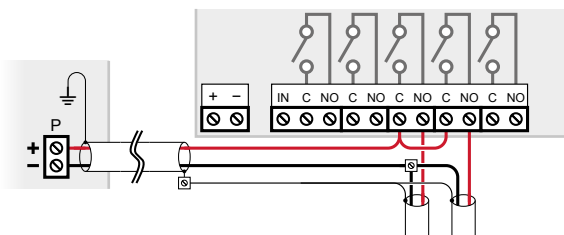
These outputs are non supervised and are wired according to the diagram below.



The wire from the terminal is to be wired to a control unit, an actuator, a siren or other similar devices.

For a correct wiring, please see the device instruction manual.

One or more outputs can be wired to the same power supply unit:



Such outputs can be wired to different power units; it is important to keep circuits and cable sheaths of different power units separated.

The power unit can be the same that supplies power to RXMULTI2K.

## 7 STARTING THE DEVICE



### 7.1 DIP switch settings

Some detector functions can be set using board DIP switch. To access it, open the cover as illustrated in the mounting procedure.

#### • Switches indications

DIP	Indication	ON	OFF
MODE	Mode	Setup	Operating
ESCL. LED	LED exclusion	LEDs active only in setup mode	LEDs always active
ESCL. ASTR	Protection against removal excluded	Protection against removal OFF	Protection against removal ON
BOOTL	Bootloader	Set to ON only when required by the firmware update procedure.	

#### ▼ Mode

In normal operating mode, RXMULTI2K outputs will activate/deactivate according to signals received from wireless devices learned.

In setup mode, wireless signals of learned devices will be ignored, outputs will be deactivated and new wireless devices can be learned.

#### ▼ Bootloader

See paragraph 9.1 p. 7.

### 7.2 Wireless devices learning

#### Input in setup mode

- move DIP switch 1 (MODE) to ON
- Red and green LED indicators will blink slowly. Status LEDs of outputs to which a radio channel has been assigned will light on (fixed). Status LED of selected output will blink slowly.

#### Select the output to assign the device to.

**Note:** some devices operate on several different alarm wireless channels.

During a device learning, all its wireless channels will be assigned to the selected output.

Use BrowserOne software to change the output assigned to a wireless channel.

– to change the selected output, press TAMPER button

**Note:** the pressing of TAMPER button will be recorded only when the button against removal under the board is either pressed or disabled (DIP switch 3 ON).

Two or more radio channels can be assigned to the same output.

### Device learning

– keep and hold PROG button for 2 seconds until you hear beeping

Red and green LED indicators will blink quickly.

– press setup button of the device to be learned within 30 seconds

The device transmits a wireless signal recognisable by RXMULTI2K.

The following situations can occur:

- The device is learned correctly (success).
- The device has already been learned (error).
- 30 seconds pass without RXMULTI2K detecting a valid signal (error).
- RXMULTI2K does not have enough free inputs for all wireless channels of the device to be learned (error).

**Note:** RXMULTI2K has 64 inputs.

If it is successful, RXMULTI2K will beep twice shortly.

In case of error RXMULTI2K will emit a long beep.

Red and green LED indicators will blink slowly.

To learn a new wireless device, repeat the procedure.

### Exit from setup mode

– move DIP switch 1 (MODE) to OFF

**Note:** if the button against removal was disabled, enable it again (DIP switch 3 OFF).

## 7.3 Reset to default settings

- open the housing to access the board
- check DIP switch 1 (MODE) is set to OFF
- keep PROG and TAMPER buttons pressed for 6 seconds simultaneously

**Note:** the pressing of TAMPER button will be recorded only when the button against removal under the board is either pressed or disabled (DIP switch 3 ON).

You will hear two feeble beeps for confirmation.

**Note:** if the button against removal is deactivated, remind to activate it again (DIP switch 3 OFF).

## 7.4 Setup via BrowserOne

The device can be set using BrowserOne 3.5.0 or above.

- load module RXMULTI2K
- click on **RXMULTI2K** button to start connecting with Connect to...
- click on **RXMULTI2K** button to read Read setup configuration

### When setup is finished:

- write the setup to RXMULTI2K memory by clicking on **Write setup** key

### 7.4.1 Zones

Set on this page the parameters of the wireless devices learned.

To learn a new wireless device, see chapter 7.2 p. 4.

Each row corresponds to a radio channel of a device.

#### Board General

▼ <b>Zone name</b>	Assign a name to the wireless channel (max 16 char.).
▼ <b>Connected</b>	Select Connected to allow the radio channel to affect outputs status.
▼ <b>Model and Version</b>	These non-editable fields show learned module version and model. Both data are reported also in <b>Radio Code on Internal Receiver</b> field.
▼ <b>Delete Radio Code</b>	Press the button to remove from RXMULTI2K memory the selected device (all its wireless channels). Inputs fields will be filled in when the next devices are learned.
▼ <b>Outputs</b>	Before setting such parameters, set the <b>Type</b> of all programmable outputs (chapter 7.4.2 p. 6). All drop-down menus in the area show only outputs with corresponding <b>Type</b> . For each wireless channel, select from drop-down menu the output to be activated when RXMULTI2K receives a signal of such type from the selected device. Alarm output can be set for each wireless channel individually. Anomaly and Tamper outputs set for a wireless channel will apply to all wireless channels of the same device.

#### Board Options NG-TRX

This page contains the menu pages of devices connected and described on the relevant manuals individually.

#### Remote controls learning

Remote controls will be managed as 6-channel devices, one per key.

The first 4 channels will activate the output to which they have been assigned; such output will be reset after 5 seconds.

By default, channels 5 and 6 (corresponding to keys "1" and "2" of the remote control) work this way:

- Channel 5 activates the assigned output
- Channel 6 resets the same output

The **System Options** page (ch. 7.4.3 p. 6) has a checkbox that makes all channels work like the first 4.

## 7.4.2 Outputs

Set here the 8 programmable relay outputs settings.

### ▼ Type

All wireless channels can send to the receiver alarm, tamper and anomaly events.

Select from drop-down menu signals that will activate the output.

### ▼ Status

Select from drop-down menu the output operating mode: normally close or normally open.

## 7.4.3 Options

Set here parameters for RXMULTI2K general operating mode.

### Board General

#### ▼ Reverse panel arm input logic

To check system armed status, RXMULTI2K will verify the status of a control unit relay output (open or closed).

Select and deselect this option will allow RXMULTI2K to operate both with NO relay and NC relay.

#### ▼ Activateimpulsivemodeforkeys1and2oftheremotecontrols

Check this option to have channels 5 and 6 of the remote control (corresponding to buttons "1" and "2") activate the chosen output and reset after 5 seconds, just like it already is for channels 1 to 4.

Otherwise, channel 5 activates the chosen output and channel 6 resets it.

#### ▼ Tamper output

Select from drop-down menu tamper output activation mode: upon wireless devices tamper, upon RXMULTI2K tamper, or in both cases.

#### ▼ Anomaly output

Select from drop-down menu anomaly output activation mode: upon wireless devices anomaly, upon RXMULTI2K anomaly, or in both cases.

#### ▼ Installer Code

Use this menu to change the 8-digit code that BrowserOne user shall key in to connect to RXMULTI2K (default 88888888).

### Board Options NG-TRX

#### ▼ Receiving multichannel

If active, RXMULTI2K will receive on all three channels simultaneously, if not active, RXMULTI2K will receive on a single channel at a time (predefined/preferred). It is advisable to deactivate reception in case of disturbances over a channel.

#### ▼ Default channel

Select RXMULTI2K receiving channel when there are

no disturbances (default: channel 1).

If there are disturbances, RXMULTI2K will set a preferred channel considering the disturbance level (possibly different from the predefined one) and will receive on it.

#### ▼ Supervision interval

The set supervision interval will apply to all devices learned by RXMULTI2K that have no supervision intervals set.

To comply with EN50131 grade 1 standard, set a supervision interval of max 60 minutes.

To comply with EN50131 grade 2 standard, set a supervision interval of max 20 minutes.

Supervision transmissions and 'no supervision' alerts cannot be disabled.

The interval selected will directly affect wireless devices battery duration.

#### ▼ Delay supervision anomaly

When this option is set, 'no supervision' alerts will be delayed by 6 times the supervision interval set.

When this option is set, set supervision time to 10 minutes max to comply with EN50131-1 standard.

#### ▼ Enable two-factor authentication for Remote Controls

Remote controls comply with the highest standards for protection against interception.

When active, this option ensures also protection against wireless signal cloning attempts.

Such protection will be active against external devices that might try and use a preset code to disarm a system or a part of it with malicious intent.

The activation of such option will double commands sent and received by the remote control and will increase response time but will also diminish battery life.

#### ▼ Delay low battery signaling

If such option is set, the wireless devices will proceed with further controls before sending battery status alerts.

#### ▼ Enable detection RF interference

If such option is set, RXMULTI2K will detect disturbances on the three 868 MHz wireless channels.

If two disturbances are detected on the preferred channel within 48H interval, such channel will be changed.

Activate this option in order to comply with EN50131-1 standard.

#### ▼ NG-TRX remote range

In order to avoid activation commands to reach undesired devices/systems, remote controls range can be reduced to a few metres.

## 7.4.4 Status

This page will be displayed only if RXMULTI2K is connected. On inputs page:

- Red LEDs indicate alarm, fault, tamper or anomaly conditions.
- LEDs OFF (grey) indicate the normal operating mode.

On outputs page:

- Green LEDs indicate outputs activated.
- Red LEDs indicate tamper or anomaly conditions.
- LEDs OFF (grey) indicate the normal operating mode.

When there is a LED ON in the tables, column heading will have the same colour.

In this way is possible to spot LEDs on in rows different from the ones displayed.

Start system test button allows testing wireless devices connected.

The test can be started only when the control unit is disarmed.

During the test, connected wireless devices will beep when they detect an alarm condition.

The test will be stopped if the control unit is armed.

To interrupt test procedure manually, press Stop system test button.

## 8 OPERATING MODE

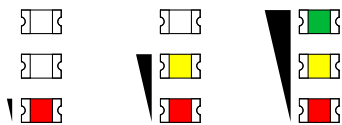
 *Disconnecting RXMULTI2K from its power source opens all contacts.*

When restoring the power supply, all outputs will go back to their idle state as defined during configuration.

### 8.1 LED indications

#### Signal strength

LEDs indicate received signal level.



In the following cases the indication of signal level will be interrupted in favour of others:

Condition	Indication
Start up sequence at power on or after a reset.	Power on in sequence: Red LED - Green LED - Red LED
Tamper	Yellow LED blinking

#### Outputs activation

Outputs status LEDs will activate when the corresponding output gets activated.

## 9 MAINTENANCE

### 9.1 Firmware update

Update RXMULTI2K regularly to benefit from new functions

and boost firmware performance.

- use a USB-MiniB cable to connect RXMULTI2K to a PC with BrowserOne software
- start BrowserOne and update it to the latest version available
- select **Firmware update device** in **Tools** menu
- select "USB" then press **Next**
- in the window displayed select the device to be updated: in drop-down menu select "RXMULTI2K"

Select the update file in the displayed window.

Select the download path:

- select **Sync with online archive** to download the file from a network archive (selection recommended): in the window displayed, select the update file then click on **Ok**
- click on **Browse** to select an update file already stored on the PC: find it and select **Open**
- click on **Next** to continue
- a summary window will open: select **Next**
- select Virtual COM serial port to which USB Mini-B cable is connected to (if such port is not listed, select update icon) then select **Next**
- set the device to "Firmware Update" mode: set DIP 4 to ON, then use metal tweezers to briefly short the RESET pads (G)
- once done, select **Next**
- the communication will start and the device will be updated: select **Next**
- set the device to operating mode again: set DIP 4 to OFF, then use metal tweezers to briefly short the RESET pads (G)
- follow displayed instructions until the confirmation message pops up, then press **End**

### 9.2 Parts cleaning

Clean the product with a damp cloth, using non-corrosive cleansers suitable for electronic appliances.

Do not spray any liquid substance directly on the case.

## EU DECLARATION OF CONFORMITY

Hereby, EL.MO. Spa declares that the radio equipment RXMULTI2K 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](http://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:

### Wireless receiver with 64 channels and relay outputs.

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

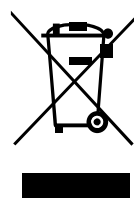


The use of the device is forbidden for children and unassisted disabled individuals.

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.