

# TECHNICAL MANUAL



## **VIRGOEXT - VIRGOEXTM**

Compact perimeter transmitters for wireless intrusion detection systems

090040473



IT08020000001624





## FOREWORD

### FOR INSTALLERS

Please follow carefully the specifications about electric and security systems realization further to the manufacturer's prescriptions indicated in the manual provided.

Provide the user the necessary indication for use and system's limitations, specifying that there exist precise specifications and different safety performance levels that should be proportioned to the user needs. Have the user read carefully the instructions provided in this document.

### FOR USERS

Carefully check the system functionality at regular intervals making sure all enabling and disabling operations were made correctly.

Have skilled personnel make the periodic system's maintenance. Contact the installer to verify correct system operation in case its conditions have changed (e.g.: variations in the areas to protect due to extension, change of the access modes, etc.)

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This device has been designed, assembled and tested with the maximum care, adopting control procedures in accordance with the laws in force. The full correspondence to the functional characteristics is given exclusively when it is used for the purpose it was projected for, which is as follows:

### **Compact perimeter transmitters for wireless intrusion detection systems**

Any use other than the one mentioned above has not been forecast and therefore it is not possible to guarantee the correct functioning of the device. Similarly, any other use of this technical manual other than the one it has been compiled for - that is: to illustrate the devices technical features and operating mode - is expressly prohibited.

The manufacturing process is carefully controlled in order to prevent defaults and bad functioning. Nevertheless, an extremely low percentage of the components used is subjected to faults just as any other electronic or mechanic product.

As this item is meant to protect both property and people, we invite the user to proportion the level of protection that the system offers to the actual risk (also taking into account the possibility that the system was operated in a degraded manner because of faults and the like), as well reminding that there are precise laws for the design and assemblage of the systems destined to these kind of applications.

**The system's operator is hereby advised to see regularly to the periodic maintenance of the system, at least in accordance with the provisions of current legislation, as well as to carry out checks on the correct running of said system on as regular a basis as the risk involved requires, with particular reference to the control unit, sensors, sounders, dialler(s) and any other device connected. The user must let the installer know how well the system seems to be operating, based on the results of periodic checks, without delay.**

Design, installation and servicing of systems which include this product, should be made by skilled staff with the necessary knowledge to operate in safe conditions in order to prevent accidents. These systems' installation must be made in accordance with the laws in force. Some equipment's inner parts are connected to electric main and therefore electrocution may occur if servicing was made before switching off the main and emergency power. Some products incorporate rechargeable or non rechargeable batteries as emergency power supply. Their wrong connection may damage the product, properties and the operator's safety (burst and fire).

## DISPOSAL INSTRUCTIONS - USER INFORMATIONS



According to Directive 2012/19/EU on the Waste of Electric and Electronic Equipment (WEEE), it is here specified that this Electrical-Electromechanical Device started to be commercialized after 13th August 2005, and it shall be disposed of separately from ordinary waste products.

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## 1. GENERALS

VIRGOEXT is a compact transmitter used for the control of fixtures or perimetral protections belonging to wireless systems with HELIOS, Villeggio or other compatible control unit models. Its main features are:

- Plastic housing with features that make the outdoor installation possible but in line with current style trends, therefore suitable for installation in sophisticated environments.
- Built-in magnetic contact. The device transmits every time that the magnet, attached to the leaf of the fixture, is moved away (fixture opens) and brought near (fixture closes).
- Transmits low battery and tampering statuses; a supervision transmission is generated every 25 minutes (not modifiable)
- The frontal blue LED shows the transmission status.
- It is powered by a 3.6 V Lithium battery (Lithium - Thionyl Chloride) for a 4-years operating autonomy.
- Preset identification code from a base of more than 2 billion combinations ( $2^{31}$ ).
- Transmission on frequency for low power applications (LPD).
- 150 meters operating range in open field, the effective range can be altered due to installation and operating conditions.
- The wireless signal is compatible with Helios and Villeggio control units and other compatible models.
- The Helios/Villeggio transmission protocol is selectable with an internal jumper.
- The VIRGOEXTM model has a brown housing.

## 2. TECHNICAL FEATURES

<b>Model:</b>	<b>VIRGOEXT - VIRGOEXTM</b>
<b>Protection class:</b>	IP55 with mandatory use of the supplied sealing washers.
<b>Performance level:</b>	I level CEI 79-2, grade 1 EN50131-5-3.
<b>Power supply:</b>	from 3.6 V 1.2 Ah 1/2AA ER14250 or LS14250 type lithium battery.
<b>Low battery threshold:</b>	2.65 V; 2.3 V minimum voltage operation
<b>Max. and min. voltage operation:</b>	2.4 V → 3.7 V
<b>Power consumption:</b>	4.5 $\mu$ A idle, 17 mA transmission peak.
<b>TX frequency:</b>	digital transmission on frequencies for LPD (Low Power Devices).
<b>Average autonomy:</b>	4 years with ER14250 battery (20 total daily transmission and supervision every 25min).
<b>TX coding:</b>	provided with an identification code, combination number > 2 billion ( $2^{31}$ ).
<b>Transmission for:</b>	status transmission of the incorporated magnetic sensor, with generation of the restore status. Low battery status treated as code appended to the first useful transmission. Periodic supervision transmission preset every 25 min - Tampering for housing opening.
<b>Display:</b>	Blue front light for TX activity, a single switching on for each transmission.
<b>Operating range:</b>	150 metres in open field without limitations due to operating conditions.
<b>Operating temperature:</b>	-10 / +45 °C — 93% r.h.
<b>Dimensions:</b>	W 90 × H 29 × D 32 mm (magnet W 48 × H 16 × D 16 mm).
<b>Weight:</b>	58 g with magnet.
<b>Parts supplied:</b>	4 × 4 mm screws and dowels, 2 caps for front screws closing, 2 seals for screws, 3.6 V ER14250 battery, magnet, technical manual.



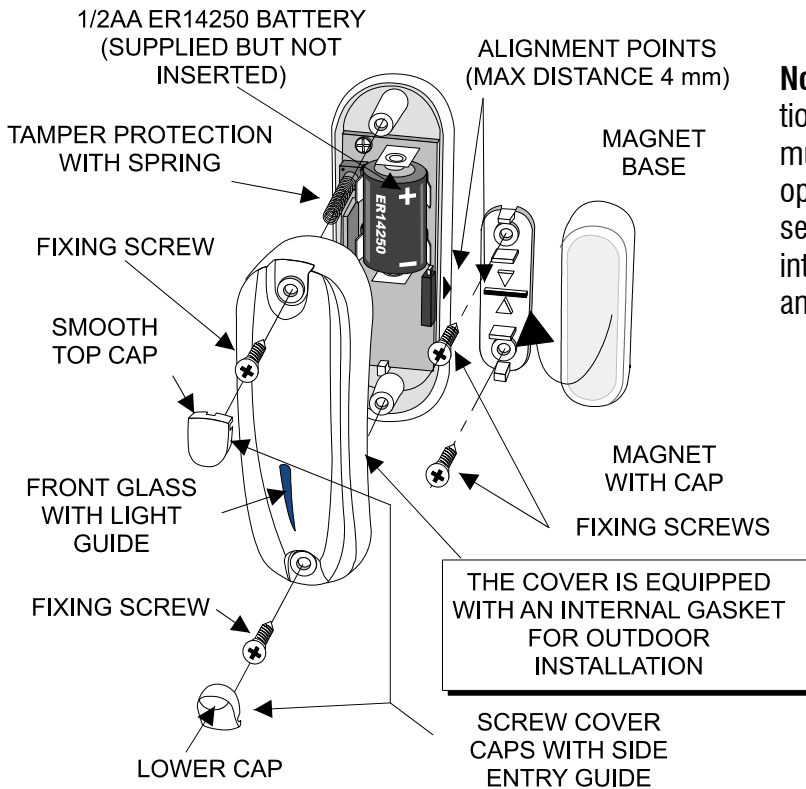
The VIRGOEXT transmitter is a component of wireless intrusion detection systems based on HELIOS or Villeggio control units and on other compatible devices.

VIRGOEXT is compliant with the EN50131-2-6 grade 1 and EN50131-5-3+A1 grade 1 standards and comes with a Document of Performance that can be consulted at the end of this manual and is downloadable from www.elmospa.com

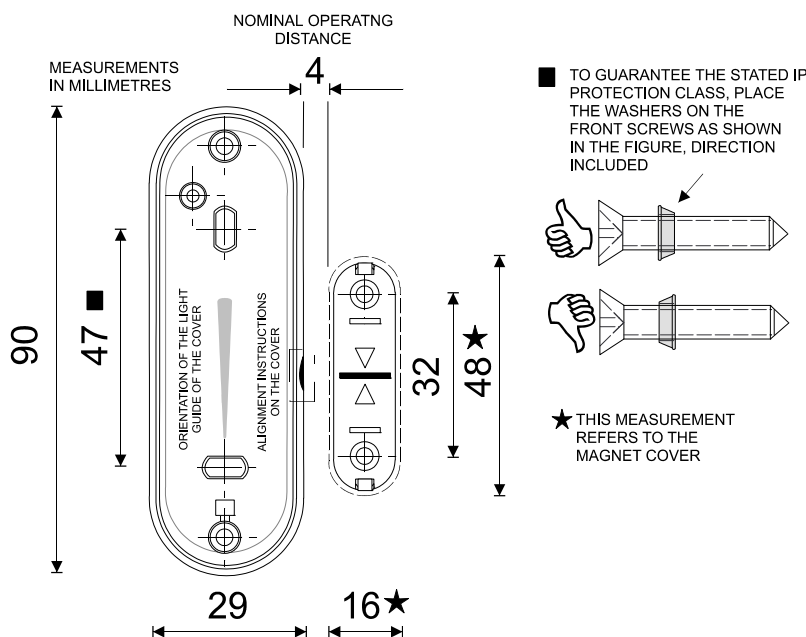
**Note:** for Villeggio control units equipped with firmware previous to the 5.0.0 version, select the HELIOS protocol (open S2 jumper), the Villeggio protocol is only supported by Villeggio control units with firmware 5.0.0 or higher and other compatible devices.

### 3. MECHANICAL FEATURES

Exploded view of the VIRGOEXT transmitter and fixing measures.



**Note:** the figure suggests the best orientation for the transmitter to obtain the maximum wireless signal. It is possible to optimise the transmission position by observing the indications of wireless signal intensity displayed by a control unit or by another compatible receiver.



**ATTENTION**

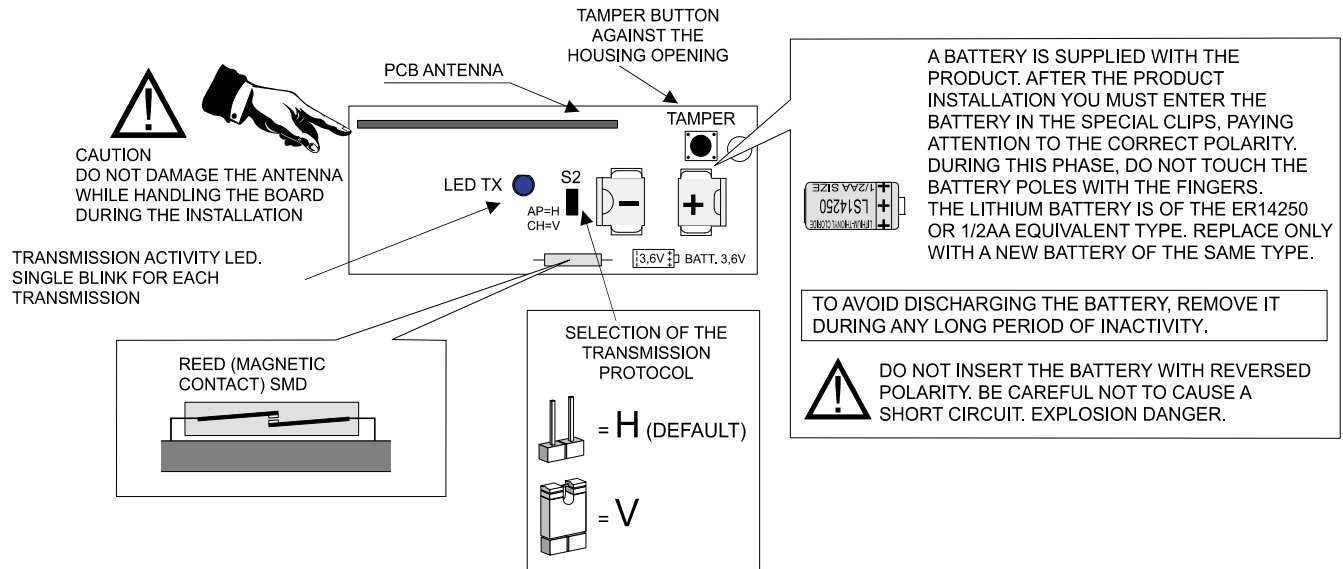
**The VIRGOEXT transmitter is also suitable for outdoor installation if installed with indicated seals.**

**In any case, a line of silicone around the mounting holes can increase the seal.**



## 4. BOARD

View of the VIRGOEXT transmitter board:



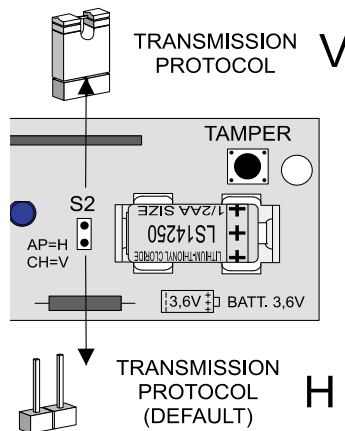
## 5. SETUP PROCEDURE

### 5.1 Setting of the communication protocol

VIRGOEXT is an accessory component of wireless systems based on HELIOS or Villeggio control units or other compatible devices.

In order to successfully send the codes of the generated events is necessary to correctly set the communication protocol.

Use the **S2** selection jumper indicated in the adjacent drawing.



**Note:** use with Villeggio control units equipped with firmware 5.0.0 version or higher and with other compatible devices.

**Note:** also use for Villeggio control units equipped with firmware lower than the 5.0.0 version.

**CAUTION:** the wrong position of the jumper will not allow the intelligible transmission with the compatible control unit.

**Note:** the use of the “V” protocol (only with compatible devices) improves the reliability of communication and battery life.



## 6. FIRST POWER-ON

The VIRGOEXT transmitter requires extra care during the first time it is powered. The correct procedure is summarized here:

- 1) Insert the battery, making sure that the polarity is correct as shown in the previous figures.
- 2) Press and release the Tamper button 3-4 times.
- 3) Reset any low battery memories at the control unit or at the compatible receiver device.

**CAUTION:** a new battery, or a battery that has not been used for a long time, can sometimes provoke a low battery alarm on its first activations. This is due to the chemical properties of the **Thionyl Chloride Lithium** batteries and it can be solved by running the aforementioned operations. If the battery has been exposed to low temperatures, it is suggested to keep it at room temperature for a while before installing it.

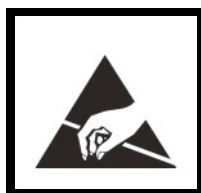
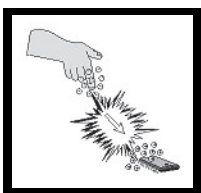
## 7. CODE STORING

### 7.1 Procedure of VIRGOEXT storing with compatible control unit

- A. Open the plastic cover.
- B. Check the battery presence.
- C. Enter the programming menus of the compatible control unit and browse to the acquisition menu to start the code learning procedure.
- D. Cause a transmission by pressing and holding the Tamper button, once stored the transmission code move to the specialization phase of the attributes related to the device in question.
- E. Install the transmitter in any allowed position, (consult the drawings in the "INSTALLATION" chapter, checking the proper operation with the test transmissions).
- F. Close the cover on the transmitter, making sure that the Tamper button is correctly pressed.

**ATTENTION:** to position the Tamper button **incorrectly** while closing the cover may cause a Tamper circuit anomaly, which in turn queues a tamper alarm to **every supervision transmission** and after every opening/closing transmission of the magnetic contact.

## 8. INSTALLATION

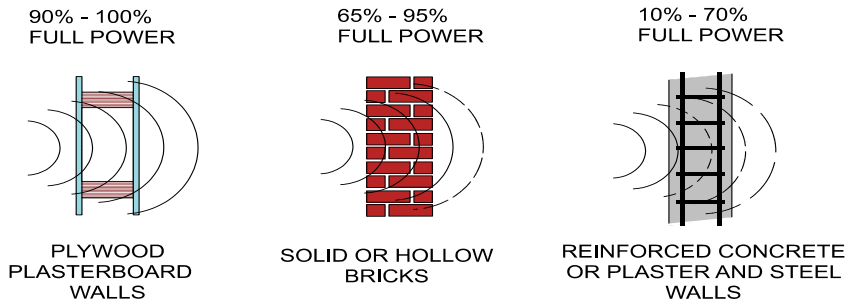


The electronic board can be damaged by electrostatic discharge. The installer shall free himself of electrostatic charges before opening the housing and he shall keep free from electrostatic charges during the whole installation or maintenance process.

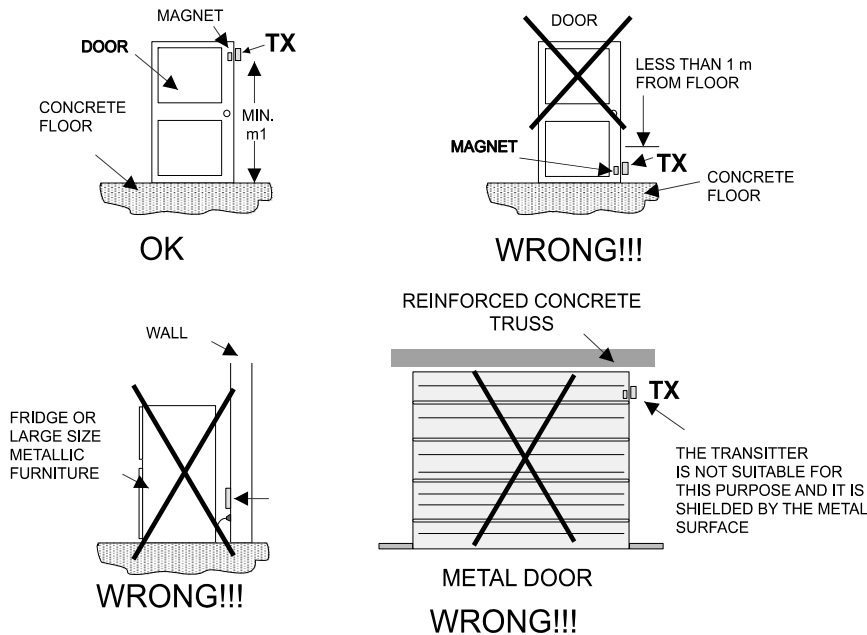
The installation of the transmitter has to abide by some rules in order to avoid performance reductions caused by bad positioning. Indeed, it is very important to carefully analyse the operative area where the wireless receiver is installed, the real area covered by the detectors and the proper installation position in relation to the materials used for the construction of the building. The drawings below show correct and wrong installation position, items that can interfere with the RF signal and materials that can weaken it.



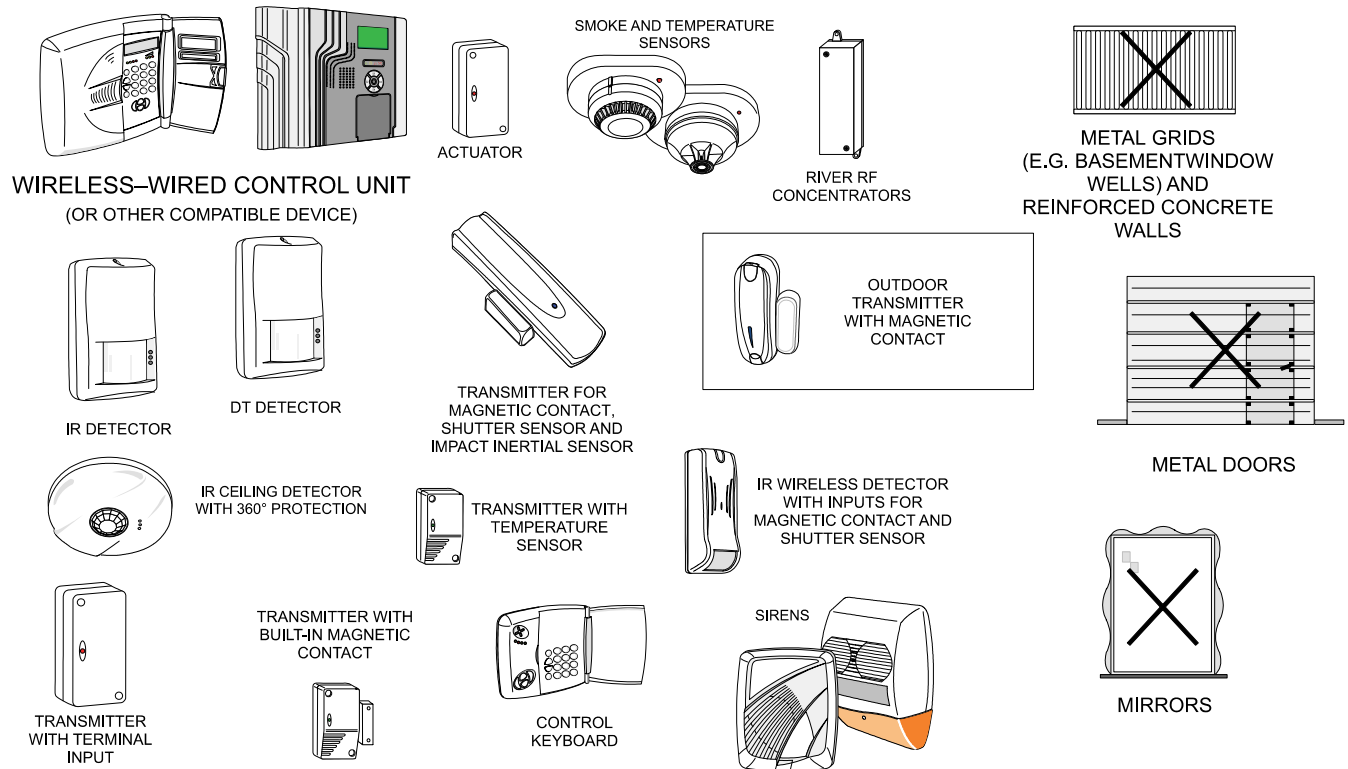
### Radio signal weakening due to typical construction materials.



### Correct or wrong installation positions.



### Details and items that can lessen the wireless range.



## 9. REPLACEMENT AND DISPOSAL OF THE BATTERY

The VIRGOEXT transmitter uses an ER14250 or LS1425 (1/2AA) 1.2 Ah 3.6 V lithium battery. Replace it with a new, same model battery only. While replacing it, strictly follow the instructions below:  
Remove the dead battery.

1. Press and release the Tamper button 3-4 times to discharge any charged capacitor.
2. Insert the new battery, making sure the polarity is correct.
3. Press and release the Tamper button 3-4 times.
4. Reset any low battery alarms in the control unit or in the compatible receiving device.

Dispose of the dead battery according to the regulations in force, using the special containers.

## 10. CE DECLARATION OF CONFORMITY



**DICHIARAZIONE  
DI CONFORMITA'**



**DECLARATION OF  
CONFORMITY**

**EL.MO. spa**

dichiara sotto la propria responsabilità che il prodotto / declares that the product:

**VIRGOEXT / VIRGOEXTM**

**Sensore via radio / Wireless detector**

al quale questa dichiarazione si riferisce, è conforme alle seguenti norme:

to which this declaration is referred to is in conformity with the following:

EN 50130-4 2011-06	Sistemi d'allarme Parte 4: Compatibilità elettromagnetica Norma per famiglia di prodotto: Requisiti di immunità per componenti di sistemi antincendio, antintrusione e di allarme personale. Alarm systems Part 4: Electromagnetic compatibility Product family standard: Immunity requirements for components of fire, intruder and social alarm systems
EN61000-6-3 2007-01 +A1 2011-03	Compatibilità elettromagnetica(EMC), Parte 6-3: Norme generiche – Emissione per gli ambienti residenziali, commerciali e dell'industria leggera. Electromagnetic compatibility (EMC), Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments.
CEI EN60950-1 2006-04 +A11 2009-03 +A1 2010-03 +A12 2011-02	Apparecchiature per la tecnologia dell'informazione - Sicurezza. Parte 1:Requisiti generali Information technology equipment – Safety, Part 1: General requirements
ETSI EN 300220-2 2007-06	Apparati radio e sistemi. Dispositivi a corto raggio. Caratteristiche tecniche e metodi di prova per apparati radio da utilizzarsi da 25 a 1000 MHz con livelli di potenza fino a 500 mW. Radio equipment and systems. Short range devices. Technical characteristics and test methods for radio equipment to be used in the 25 to 1000 MHz frequency range with power levels ranging up to 500 mW.
ETSI EN 301 489-3 2002 ETSI EN 301-489-1 2008	Apparati radio e sistemi a corto raggio operanti nella gamma di frequenza tra 9KHz e 25GHz. Radio equipment and systems. Short range devices.
EN50131-5-3 2005 +A1 2008 Grado Sicurezza 1 Security grade 1 Classe Ambientale II Environmental class II	Sistemi antintrusione:parte 5-3, requisiti per interconnessioni di apparati in radiofrequenza Alarm systems. Intrusion systems. Requirements for interconnections equipment using radio frequency techniques
EN 50131-2-6 2009 Grado Sicurezza 1 Security grade 1 Classe Ambientale II Environmental class II	Sistemi di allarme – Sistemi di allarme intrusione e rapina. Parte 2-6:Contatti (magnetici) Alarm systems – Intrusion and hold-up systems. Part 2-6: Opening contacts (magnetic)

e quindi rispondente ai requisiti essenziali delle direttive:  
and then in accordance with the following directives:

<input checked="" type="checkbox"/> 2004/108/CE Compatibilità elettromagnetica Electromagnetic compatibility	<input checked="" type="checkbox"/> 2006/95/CE Sicurezza di bassa tensione Low voltage security
<input checked="" type="checkbox"/> 1999/5/CE (R&TTE)	Direttiva Europea apparati radio e apparecchiature terminali di telecomunicazione. European Directive wireless equipment and telecommunication apparatus.
<input checked="" type="checkbox"/> 2002/95/CE (RoHS)	Direttiva Europea sulla restrizione dell'uso di determinate sostanze pericolose nelle apparecchiature elettriche ed elettroniche European Directive Reduction of Hazardous Substances

Campodarsego 10/09/2013

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Product specifications as described above do not bind the manufacturer and may be altered without prior notice.

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