

## RF COMMAND AND CONTROL SYSTEM

### OPERATING PROCEDURES

Configuration and operation of the system's devices is easily done with just a few operations:

- A - Connection between the transmitter devices - TX (controls and sensors) with the actuator-receiver devices - RX (radio-frequency and output modules);
- B - Configuration of the single RX receiver device.

The receiver devices - RX have a selector with different positions; the selector must be put on "self-learning" when combining with a transmitter device - TX (Fig. 1). At this point the operation is completed after pressing one of the pushbutton control key - TX (Fig. 2).

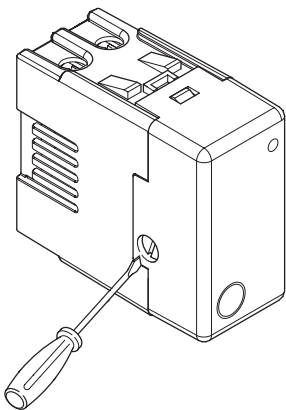
After turning the selector on the desired function (fig. 3) according to system needs (e.g. timer, commutation and/or impulse), the system becomes operational.

A

B

**Fig. 1**  
**1<sup>st</sup> phase: self-learning**

Receiver RX  
e.g. GW 20 980



Selector  
in self-learning position

**Fig. 2**  
**2<sup>nd</sup> phase: transmission**

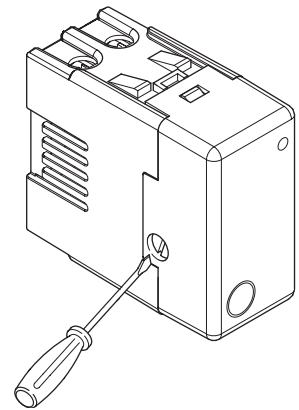
Control panel TX  
e.g. GW 21 992



Pressing the control panel key

**Fig. 3**  
**3<sup>rd</sup> phase: configuration**

Receiver RX  
e.g. GW 20 980



Choice of function  
and positioning  
in the normal condition

Each single RX actuator/receiver can be associated with a maximum of 16 different TX input channels; (e.g. 1 channel of pushbutton control GW 20 991 + 1 channel of an IR movement detector GW 20 990...up to 16).

### DESCRIPTION OF DEVICES

#### COMMON CHARACTERISTICS

All the devices in the range have a 100 m maximum RF radio signal range, in free field (environment free of architectural obstacles and hindrances). The system complies with European Directive R&TTE 1999/5/CE regarding radio devices and meets the following reference standards: EN 60669-2-1; EN 60730-1; EN 60730-2-7; EN 60730-2-9; ETSI EN 301 489-1; ETSI EN 301 489-3; ETSI EN 300 220-1; ETSI EN 300 220-3.

#### RF 1-2-3-4 CHANNEL COMMAND PUSHBUTTON CONTROL

(GW 20 891 - GW 21 891; GW 20 892 - GW 21 892; GW 20 893 - GW 21 893;  
GW 20 894 - GW 21 894)(GW 20 991 - GW 21 991; GW 20 992 - GW 21 992;  
GW 20 993 - GW 21 993; GW 20 994 - GW 21 994)

The TX pushbutton control allows the control of lights, roller shutters, motors, etc., thanks to the RF (wireless) communication towards the RX actuators/receivers (output modules) of the Command and Control system.

The device can be wall-mounted (fixed with plugs) or installed on a 3module flush-mounting box.



Power supply	Battery autonomy	Combinable devices
Battery powered (2 x 1.5V alkaline type AAA)	3 years (with estimated 20 operations a day)	Actuator 1 channel 3A GW 20 980-GW 21 980 Actuator 1 channel 16A GW 20 981-GW 21 981 Motor control actuator GW 20 982-GW 21 982
Installation temperature	Dimensions BxHxD	Protection rating
-5 ÷ 40° C	113x80x10 mm	IP20

#### REMOTE CONTROL 3 CHANNELS (GW 20 963)

The TX remote control allows the control of lights, roller shutters, motors, etc., thanks to the RF (wireless) communication towards the RX actuators/receivers (output modules) of the Command and Control system.

The device is portable.



Power supply	Battery autonomy	Combinable devices	
Battery powered (2 x 1.5V alkaline type AAA)	3 years (with estimated 20 operations a day)	Actuator 1 channel 3A GW 20 980-GW 21 980 Actuator 1 channel 16A GW 20 981-GW 21 981 Motor control actuator GW 20 982-GW 21 982	
Installation temperature	Dimension	Control elements	Protection rating
-5 ÷ 40° C	120x45x20 mm	6 actuation push-buttons (2 per channel)	IP20

### RF COMMAND AND CONTROL SYSTEM

#### RF SUMMER/WINTER WALL-MOUNTING CHRONOTHERMOSTAT (GW 20 970 - GW 20 971 - GW 20 972)

The RF chronothermostat allows automatic control of the temperature and operating times of heating or air conditioning systems on a weekly basis. Some of the product's main operating features are:

- Powered by standard batteries, it commands in radio-frequency (wireless) the actuators - RX (output modules) of the Command and Control system that interface with boilers, zone solenoid valves, circulating pumps, electrical heating elements, fan coil units, etc.
- A telephone dialer can be connected to a two-polar terminal, for remote control of the chronothermostat.
- Time setting on a 24hour basis with 3 different temperature levels;
- Programming of times with resolution of 15 minutes;
- Party function: manual temperature override, adjustable from 1 to 23 hours with automatic return to the previous mode;
- Holiday function: manual temperature override, adjustable from 1 to 99 days with automatic return to the previous mode;
- Several relay actuation modules of the Command and Control system can be "connected" to the chronothermostat;
- Economy/Comfort function: possibility of selecting the system thermal gradient self-learning function. This function optimizes the advance of heating (up to 2 hours) in order to guarantee the set temperature from program start;
- Indication of battery low through the animation of the special icon on the display;
- The device can be wall-mounted (fixed with plugs) or installed on a 3module flush-mounted box.

Power supply	Battery autonomy	Combinable devices	Installation temperature	Measured temp. display range
Battery powered (3 x 1.5V alkaline type AAA)	Minimum 1 year	Actuator 1 channel 3A GW 20 980-GW 21 980 Actuator 1 channel 16A GW 20 981-GW 21 981	-5 ÷ 45° C	0 ÷ 45° C
Temperature adjustment range	Dimension	Protection rating	Cables section for telephone dialer	Measurements accuracy
+2 ÷ +7°C for frost protection; +5 ÷ +40°C for comfort	130x92x23mm	IP20	Max. 0.5 mm <sup>2</sup>	± 0.5° C at 20° C



### IR MOVEMENT DETECTOR WITH PHOTOELECTRIC CELL (GW 20 990 - GW 21 990; GW 20 890 - GW 21 890)

The detector is battery powered and equipped with an IR presence sensor and a photoelectric cell with threshold adjustable by a trimmer. The device allows the electrical loads to be activated and deactivated by the radio transmission of messages to the RX receiver devices present in the Command and Control system.

The device has three freely configurable operating modes:

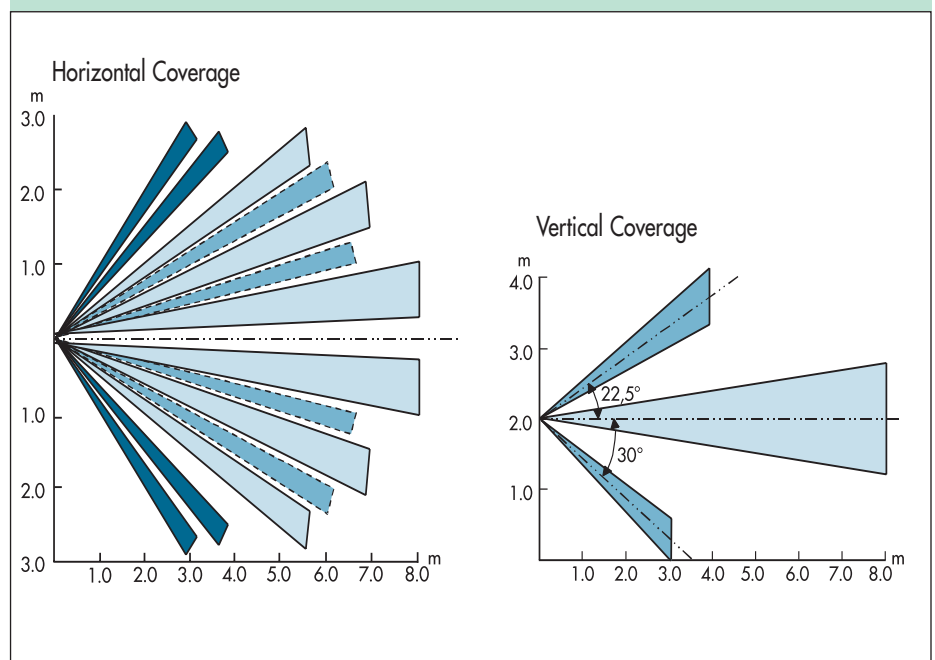
- 1) IR sensor not conditioned by the photoelectric cell;
- 2) IR sensor conditioned by the photoelectric cell;
- 3) photoelectric cell.

This means that it can send differentiated messages to three groups of actuators; e.g. the detector can be used as an IR sensor for managing several RX receivers, and at the same time as an IR sensor with photoelectric cell threshold for managing others.

The device can be wall-mounted (fixed with plugs) or installed on a 3module flush-mounting box.

Power supply		Battery autonomy		Combinable devices		Installation temperature	
Battery powered (3 x 1.5V alkaline type AAA)		3 years		Actuator 1 channel 3A GW 20 980-GW 21 980 Actuator 1 channel 16A GW 20 981-GW 21 981		-5 ÷ 40°C	
Dimensions BxHxD	IR operating range	Vertical detec. angle	Horizontal detec. angle	Photoelectric cell threshold adjustment	Protection rating		
113x80x13 mm	8 m	52.5°	105°	5 ÷ 1000 lux	IP20		

### COVERAGE DIAGRAM



### RF COMMAND AND CONTROL SYSTEM

#### RF MODULE FOR CONVENTIONAL INPUTS (GW 20 966 - GW 21 966)

The 2channel interface module allows 2 on/off or adjustment commands to be sent to relay actuators of the Command and Control system, for controlling electrical loads (lights, motors, roller shutters, doors, gates, curtains, etc.).

The device is fed with mains voltage and reads input signals coming from potential-free contacts of conventional devices (push-buttons, switches, sensors, timers, etc.) and sends commands using the integrated RF transmitter.

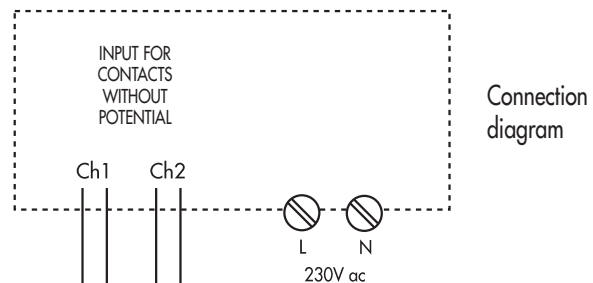
The input signals are connected by two pairs of wires.

With the rotary selector the following function modes can be set:

- 1) Combined inputs (logic identical to pushbutton control or RF remote control, with the two channels connected with the same RX receiver);
- 2) Status (periodical sending of input status)
- 3) Toggle (inversion of relay status)
- 4) Always ON (sending of ON command only)
- 5) Always OFF (sending of OFF command only)

In STATUS, TOGGLE, ALWAYS ON and ALWAYS OFF function modes, both channels follow the same operational logic (both channels work in the same mode) and can be associated with two different actuators.

Power supply	Sec. of supply cables	Combinable devices	
230 V ac	Max. 2.5 mm <sup>2</sup>	Actuator with 1 channel 3A GW 20 980-GW 21 980 Actuator with 1 channel 16A GW 2 0981-GW 21 981 Actuator for motor control GW 20 982-GW 21 982	
Installation temperature	Dimension	Characteristics of input cables	Protection rating
-5 ÷ 40° C	1 System module	Section 0.75 mm <sup>2</sup> length 200 mm	IP20



#### RF OUTPUT MODULES 1 CHANNEL 3A-250V (GW20980 - GW21980)

Combined with a transmitting device (push-button control, remote control, IR sensor + photoelectric cell, interface module with 2 channels, RF chronothermostat) of the Command and Control system, the output module receives commands and actuates electrical loads through the output with relay.

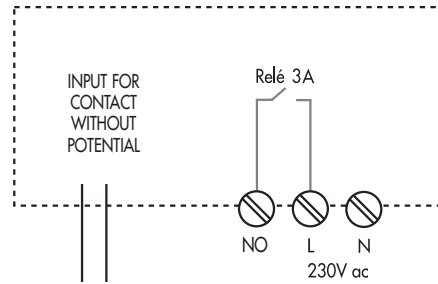
The actuations, selectable using the rotary selector, are of the following types:

- Bistable (e.g. for normal light management);
- Timed (e.g. for stair light);
- Monostable (e.g. for doorbell).

The relay can also be activated by the local key or by an input (two-wire) made available for reading of contact without potential.

Power supply	Output contact capacity		Combinable devices		
230 V ac	3A (AC1) / 2A (AC15) 250V ac		1-2-3-4 key pushbutton controls GW 20 891-GW 21 891-GW 20 892-GW 21 892-GW 20 893-GW 21 893-GW 20 894-GW 21 894 GW 20 991-GW 21 991-GW 20 992-GW 21 992-GW 20 993-GW 21 993-GW 20 994-GW 21 994 Remote control 3 channels GW 20 963 Interface module 2 channels GW 20 966-GW 21 966 Chronothermostat RF GW 20 970-GW 20 971-GW 20 972 IR detector+photoelectric cell GW 20 890-GW 21 890-GW 20 990-GW 21 990		
Installation temperature	Dimension	Section of supply cables	Input cables	Control elements	Protection rating
-5 ÷ 40°C	1 System module	Max. 2.5mm <sup>2</sup>	Sec. 0.75mm <sup>2</sup> Length 200mm	1 relay local control key 1 position rotary selector 10 2 wires (input for voltage-free contact)	IP20

## TECHNICAL CHARACTERISTICS



Connection diagram

### RF OUTPUT MODULES 1 CHANNEL 16A-250V (GW20981 - GW21981)

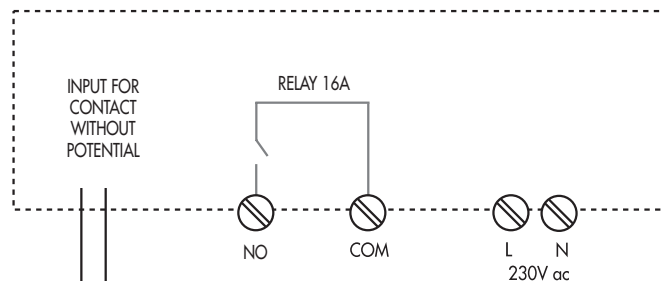
Combined with a transmitting device (push-button control, remote control, IR sensor + photoelectric cell, interface module with 2 channels, RF chronothermostat) of the Command and Control system, the output module receives commands and actuates electrical loads through the output with relay.

The actuations, selectable using the rotary selector, are of the following types:

- Bistable (e.g. for normal light management);
- Timed (e.g. for stair light);
- Monostable (e.g. for doorbell).

The relay can also be activated by the local key or by an input (two-wire) made available for reading of contact without potential.

Power supply	Output contact capacity	Combinable devices			Installation temperature
230 V ac	16A(AC1)/4A(AC15) 250V ac	1-2-3-4 key pushbutton controls GW 20 891-GW 21 891-GW 20 892-GW 21 892-GW 20 893-GW 21 893-GW 20 894-GW 21 894 GW 20 991-GW 21 991-GW 20 992-GW 21 992-GW 20 993-GW 21 993-GW 20 994-GW 21 994 Remote control 3 channels GW 20 963 Interface module 2 channels GW 20 966-GW 21 966 Chronothermostat RF GW 20 970-GW 20 971-GW 20 972 IR detector-photoelectric cell GW 20 890-GW 21 890-GW 20 990-GW 21 990			-5 ÷ 40°C
Dimension	Section of supply cables	Section of load cables	Input cables	Control elements	Protection rating
2 System modules	Max. 2.5mm <sup>2</sup>	Max. 2.5mm <sup>2</sup>	Sec. 0.75mm <sup>2</sup> Length 200mm	1 relay local control key 1 position rotary selector 10 2 wires (input for voltage-free contact)	IP20



Connection diagram

### RF COMMAND AND CONTROL SYSTEM

#### RF OUTPUT MODULES FOR MOTORS CONTROL 2 CHANNELS 8A-250V (GW 20 982 - GW 21 982)

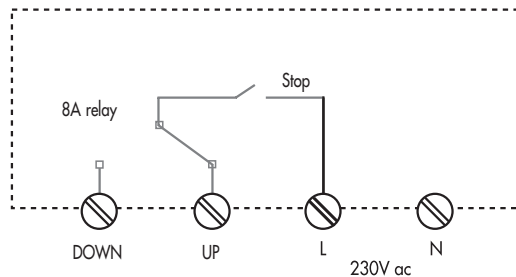
Combined with a transmitting device (push-button control, 2channel interface module) of the Command and Control system, the output module receives commands and carries out actuations with relay for controlling roller shutters, awnings, etc.

The output module provides for three operating states:

- UP position (corresponding to lifting in the case of roller shutters, etc.);
- DOWN position (corresponding to lowering in the case of roller shutters, etc.);
- STOP position (no output fed).

There is an operation time limit during UP and DOWN status (settable by means of the rotary selector), after which the device always goes to STOP status with both outputs not fed.

Power supply	Output contact capacity	Combinable devices		Installation temperature
230V ac	8A(AC1)/2A(AC15) 250V ac	1-2-3-4 key pushbutton controls GW 20 891 - GW 21 891 - GW 20 892 - GW 21 892 GW 20 893 - GW 21 893 - GW 20 894 - GW 21 894 GW 20 991 - GW 21 991 - GW 20 992 - GW 21 992 GW 20 993 - GW 21 993 - GW 20 994 - GW 21 994 Remote control 3 channels GW 20 963 Interface module 2 channels GW 20 966-GW 219 66		-5 ÷ 40° C
Dimension	Section of supply cables	Adjustable timing	Control elements	Protection rating
2 System modules	Max. 2.5mm <sup>2</sup>	30 sec. 60 sec. 90 sec. 120 sec. 180 sec.	2 relay local control keys 1 key for AUTO function 1 position rotary selector10	IP20



Connection diagram

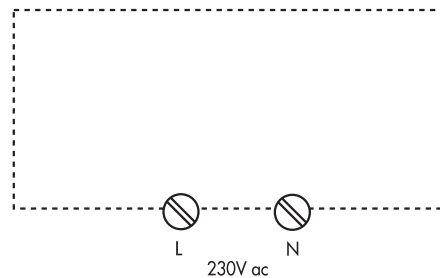
### RF SIGNAL REPEATER (GW 20 985 - GW 21 985)

The RF repeater is used for solving installation problems where direct radio connection between a command and an actuation device cannot be made due to an excessive distance or obstacles (reinforced concrete structures, metal panels, etc.) that limit the radio signal transmission.

In these cases it is advisable to divide the distance into parts of shorter length, or by following a different course, interposing an RF repeater able to receive the messages sent by the command device and send them to the actuation device.

The device can manage up to 8 different radio connections (paths with several repeaters can be executed for covering long distances).

Power supply	Installation temperature	Dimension	Section of supply cables	Control elements	Protection rating
230V ac	-5 ÷ 40°C	2 System modules	Max. 2.5mm <sup>2</sup>	1 key for resending messages in learning phases 1 position rotary selector10	IP20



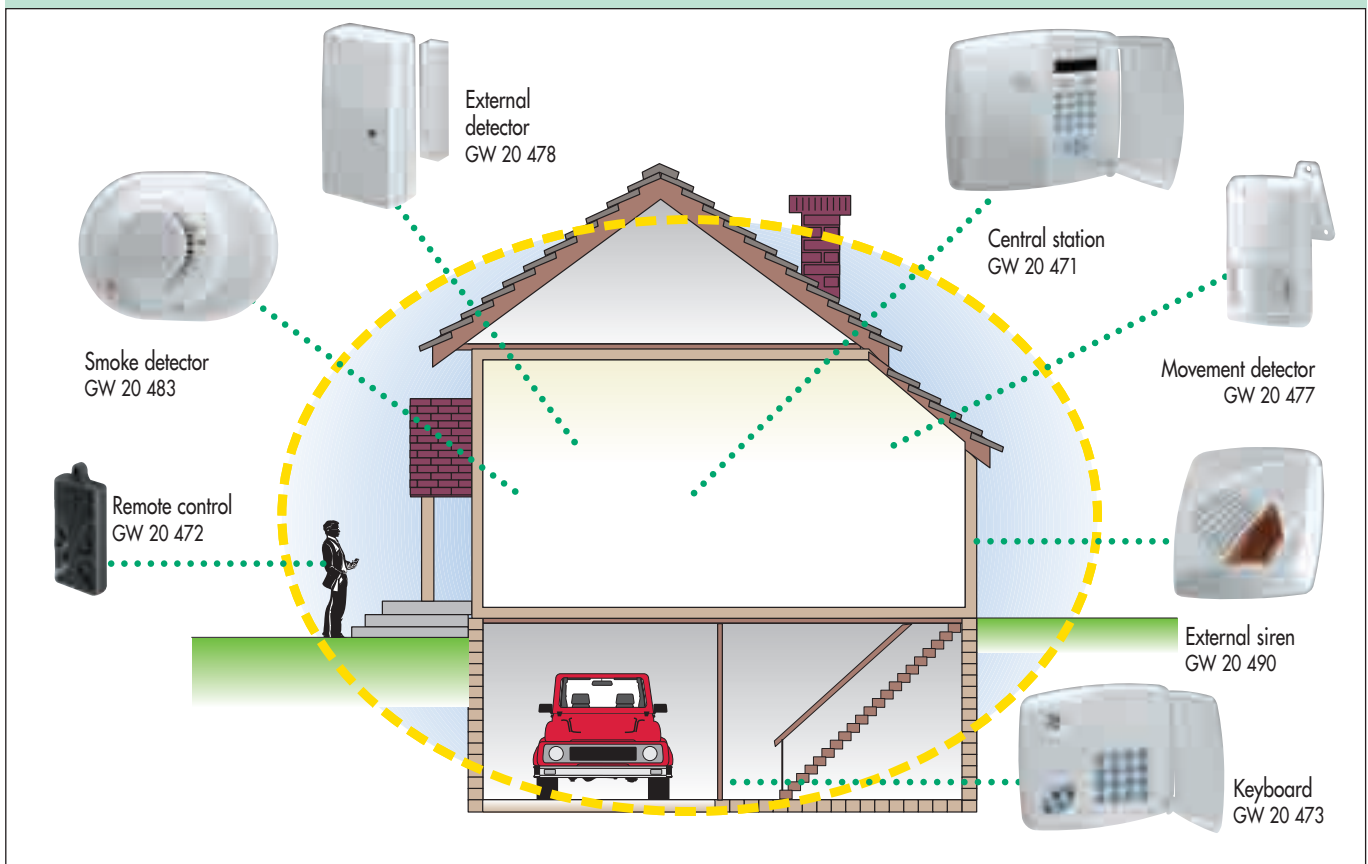
Connection diagram

## RF BURGLAR ALARM SYSTEM

### EXAMPLE OF RADIO BURGLAR ALARM SYSTEM

To execute a radio burglar alarm system, the position of the single devices must necessarily be appraised to guarantee optimum radio signal reception. Before fixing the devices to the walls, the test procedure must be carried out from the station in order to determine the signal intensity. Particular attention must be paid to positioning the station and the siren for optimum coverage; the station must be placed near the centre of gravity of the building, and the siren in a visible zone not too close to metal bodies, such as gutters and garrets, which would screen the radio communication signal.

#### AREA COVERED BY THE STATION



If communication between the devices cannot be guaranteed because of the particular size of the premises to be controlled or the type of building structures, a signal repeater (GW 20 480) can be used. This device enables the coverage range offered by the station to be expanded.

All the system's devices are designed to work on replaceable batteries. The need of battery change is always indicated by the system. Station and siren, the "central elements" of the system, have a buffer battery with specific characteristics: to guarantee high reliability the station houses a rechargeable battery connected to the 230V supply, that has an autonomy of more than 24 hours in case of a power failure; for the siren there is a high performance long-life lithium battery (7.2V - 13Ah type LSH20).

For all the other devices the batteries are of the conventional type, readily available on the market, and very easy to replace (nearly all the batteries used are of the alkaline type), lasting an average of 2-3 years.

### DESCRIPTION OF DEVICES

#### Common characteristics

All the devices in the range provide for a max. signal range of 100 m in free field (environment free of architectural obstacles and hindrances). The system meets following reference standards: EN 50131-1, EN 50131-5-3, EN 300 220, CEI 79-2.

#### Control station (GW 20 470; GW 20 471)

The control station is produced in two models: both are supplied with rechargeable lead battery and have an indoor siren.

**Control station (GW 20 470):** max. eight control devices and sixteen sensors can be configured; all information relevant to "system status" is readable by the lighting of LEDs; the alarm is switched off with the mechanical emergency key.

**Control station for telephone dialer (GW 20 471):** max. sixteen remote control devices and thirty-two sensors can be configured; all information relevant to "system status" is readable on the LCD display; the integrated telephone dialler allows eight phone numbers to be stored; the alarm is deactivated by entering the secret code.

Power supply	Battery	Relay contacts	Internal siren	Operating temperature
230V 50Hz	Pb 6V 1.2 Ah	NO+NC 2A-24V	Acoustic power 90 dB at 3 m.	from +5°C to +40°C
Max. no. of control devices for system (°)	Max. no. sensors for system	Protection rating	Dimensions (BxHxD)	
8 - 16 (°)	16 - 32 (°°)	IP3X	244x204x58mm	

(°) Total of remote control, keyboard, electronic key. (°°) 8 devices for GW 20 470; 16 devices for GW 20 471. (°°°) 16 sensors for GW 20 470; 32 sensors for GW 20 471

#### Remote control (GW 20 472)

The remote control has four keys: two for turning the alarm system on/off and two for partial turning on (e.g.: LIVING area and SLEEPING area). The antipanic function (voluntary alarm activation) is obtained by pressing the system shutting keys at the same time.

No. channels	Max. no. for system	Battery	Average battery duration	Dimensions (BxHxD)
4	8 - 16 (remote controls+keyboards)	Alkaline 12V MN21	2 years	35x68x15 mm

#### Keyboard (GW 20 473)

All the remote control functions are also obtainable with the keyboard, but the system only switches on after entering the security code.

All the operations are supported by a confirmation acoustic signal.

#### Electronic proximity key (GW 20 474)

Bringing the electronic proximity key (transponder technology) near the keyboard avoids having to enter the security code.

Power supply	Max. no. for system	Average battery duration	Operating temperature	Dimensions (BxHxD)
Alkaline battery 9V type 6LR61	16 - 32 (remote controls+keyboards)	2 years	from +5°C to 40°C	166x136x33mm

### RF BURGLAR ALARM SYSTEM

#### External siren (GW 20 490)

Activated by the control station by means of radio pulse between a casing of white plastic material and protection cover of the orange flasher. In addition to the classic functions, such as switching the siren off after a minute in case of fault and/or tampering with the system, it has an external on/off check function and the information is given by the orange flasher.

Power supply	Average duration of batteries	Sound intensity	Sound	Light indicator
Lithium battery 7.2V type LSH20	3 years	92 dB at 3 m	Two-tone	Bright LED
Operating temperature		Protection rating		Dimensions (BxHxD)
from -25°C to +55°C		IP34		253x290x85mm

#### RF signal repeater (GW 20 480)

A secondary radio unit, with Transmitter/Receiver function, used whenever the range of some radio devices is reduced due to environmental disturbance or architectural barriers. It is remotely installed and is connected to the control station by cable.

Power supply	Connection to control station	Max. connection to control station	Connection	Protection rating	Dimensions (BxHxD)
From control station	Cable 2 x 0.75 + 4 x 0.22 mm	100 m.	Cable 2 x 0.75 + 4 x 0.22 mm	IP3x	270x47x30mm

#### External detector (GW 20 478)

A transmitter with built-in detector, used for signalling the opening of doors and windows and equipped with two bulbs with REED contact (one for each side of the circuit) for facilitating magnet positioning. The device transmits when the magnet, fixed to the movable part of the fixture, is moved away of brought near the contact placed on the fixed part of the fixture.

Power supply	Average duration of batteries	Operating magnet	Protection rating	Dimensions (BxHxD)
3 lithium batteries 3V type DL2430	3 years	In plastic case	IP3x	77x40x26mm

#### Detector for conventional row contacts (GW 20 479)

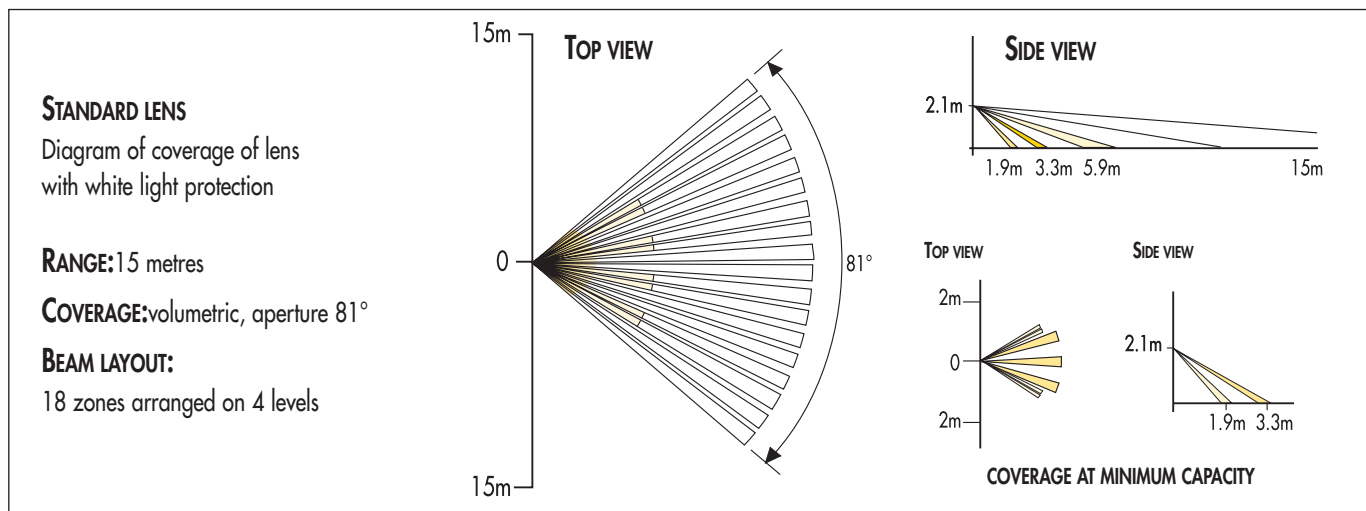
A transmitter with two NC inputs with terminal: one is used for signalling intrusion when doors and windows are opened; the second has a circuit for the connection of wire contacts for roller shutters.

Power supply	Average duration of batteries	Protection rating	No. channels
Alkaline battery 9V type 6LR61	4 years	IP3X	2 independent channels
No. inputs	Type of cable for connections	Max. length	Dimensions (BxHxD)
2 (1 dedicated for roller shutters)	2 x 0.22 mm	100 m for magnetic contacts, 1 m for roller shutters	100x47x30mm

### Infrared volumetric detector (GW 20 477)

Passive infrared volumetric detector, with RF transmitter module, in a white plastic case, suitable for fixed installation, adjustable and angle installation. A special lens, with 18 sectors, divided in four levels, guarantees optimum white light protection and an operating range of 15 metres.

Power supply	Average duration of batteries	Direction adjustment	Stand-by between one signal and the next
Alkaline battery 9V type 6LR61	2.5 years	With articulated bracket supplied	from 30 sec. to 5 min.
Operating temperature		Protection rating	Dimensions (BxHxD)
from -10°C to +45°C		IP3X	64x110x48mm



### Optical smoke detector (GW 20 483)

The smoke detectors work on the reflection of the smoke that enters in the analysis chamber; after a certain threshold is exceeded, the alarm is generated.

Power supply	Average duration of batteries	Operating temperature
3 alkaline batteries 9V type 6LR61	2 years	from -10°C to +50°C
Humidity without condensation	Dimension	Protection rating
from 10 to 93%	104x35mm (base 50)	IP3X

### Display module (GW 20 475)

A module with radio receiver for displaying (LED) the system status; in addition to this function it is possible to manage six supplementary outputs for displaying some of the functions visible from the control station.

Power supply	Supply variation	Absorption when idle	Absorption with all outputs active	Electronic outputs	Dimensions (BxHxD)
12-24Vdc 12-24Vac	from 9 to 36Vdc from 11 to 27Vac	12-24Vdc 13mA 12-24Vac 31mA	12-24Vdc 47mA 12-24Vac 100mA	6x3mA or 2x10mA	47x100x30mm