



## **DRACOG2**

Wireless temperature  
detector for HELIOS series II  
systems

090000143





## FOREWORD

### FOR THE INSTALLER:

Please follow carefully the specifications relative to 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 performances levels that should be proportioned to the user needs.

Have the user view the directions indicated in this document.

### FOR THE USER:

Periodically check carefully the system functionality making sure all enabling and disabling operations were made correctly. Have skilled personnel make the periodic system's maintenance. Contact the installer for verifying the correct system operation in case its conditions 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 projected, 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:

### **Wireless temperature detector for HELIOS series II systems**

Any use other than the one mentioned above has not been forecasted and therefore it is not possible to guarantee its correct operativeness.

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).

### EU DECLARATION OF CONFORMITY

Hereby, EL.MO. Spa declares that the radio equipment DRACOG2 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following Internet address: [elmospa.com](http://elmospa.com) – registration is quick and easy.



## 1. GENERALS

DRACOG2 is a wireless temperature detector that makes installation in hardly accessible locations easier. Its features make it suitable for use in combination with wireless control unit **HELIOS version II** that allows building advanced intrusion and fire detection systems.

The detector is mechanically hooked to a socket with assisted release, that is in turn joined to a slightly longer plastic base containing the radio control circuitry and three alkaline 9V batteries for power supply.

This detector intervenes when ambient temperature reaches calibration value; the corresponding value in degrees is indicated by a coloured mark and by sensor suffix:

**Yellow mark on base, G2 suffix = intervention temperature 66°C**

Detector alarm condition is indicated by the LED on detector body - that turns on for some seconds - and then by the red LED on greater base - that flashes to indicate ongoing alarm code transmission.

The control electronic board automatically performs actions such as memory reset, correct reactivation of the detector, constant control against removal, supervision transmission and control of battery status.

For identification of the device, a digital code is transmitted at a frequency for low power applications (LPD).

Code generation occurs during device installation: a random code chosen among a high number of combinations is transmitted. While receiving, an anti-collision process is activated in order to increase system security.

**The operating range of these devices is 80 m evaluated in open field, without obstacles. In some indoor applications with peculiar features, the effective range may be lower.**

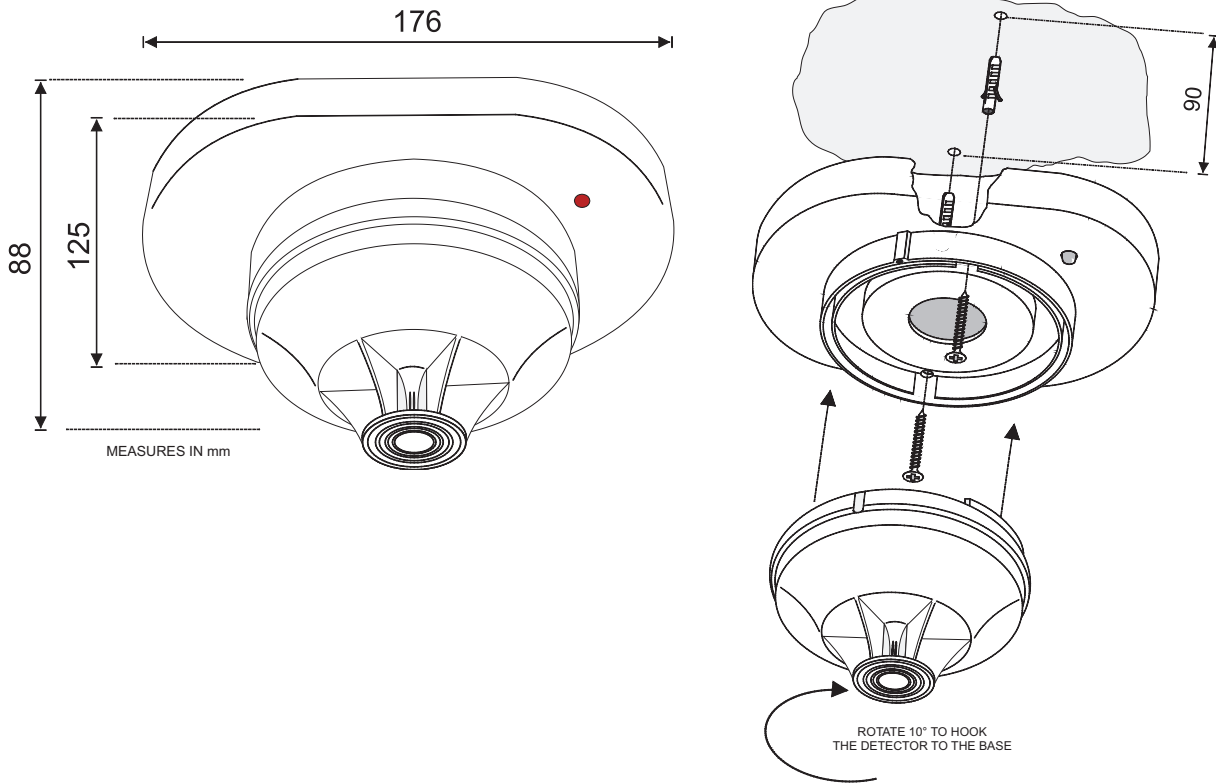
## 2. TECHNICAL FEATURES

<b>Model:</b>	<b>DRACOG2</b>	<b>Modulation:</b>	FM with +/- 7KHz deviation.
<b>Operation:</b>	Photoelectronic detector with control circuit and radio transmitter.	<b>TX sequences:</b>	3 code frames for 1.5 s.
<b>Operating voltage:</b>	18 V supplied by two alkaline batteries for the sensor, 9 V supplied by alkaline battery for control and radio section.	<b>Operating range:</b>	80 m in free space (restrictions may occur due to environmental conditions).
<b>Current draw:</b>	20 $\mu$ A @18V idle, 50 mA max. for 1.5 s in alarm	<b>Pause at first powering:</b>	20".
<b>Transmission time:</b>	1.5 s	<b>Sensor reset after alarm:</b>	Settable, from 20" to 3'.
<b>Battery average lifetime:</b>	1 year.	<b>Operating temperature:</b>	-10°C / +50 - 93% R.h.
<b>TX code:</b>	Random code generation and memorization to control unit.	<b>Weight:</b>	460 g with batteries.
<b>Transmissions for:</b>	Fire alarm, fault for detector removal, tamper due to wrong setup with <b>S1</b> jumper closed, low batteries.	<b>Parts supplied:</b>	Technical manual, screws, dowels, 3 $\times$ 9V alkaline batteries (6LR61).
<b>Indicating LEDs:</b>	LED on sensor for alarm status signalling, LED on base for code transmission and generation signalling.		
<b>TX frequency:</b>	For LPD devices.		
<b>TX power:</b>	2 mW.		

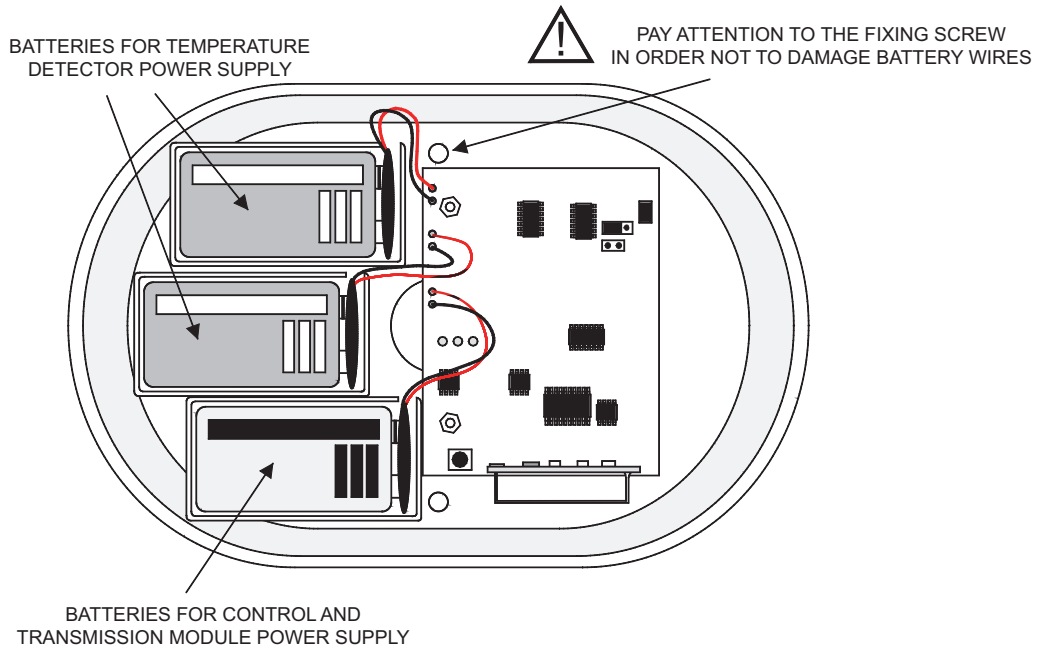


### 3. MECHANICAL FEATURES

Detector view:



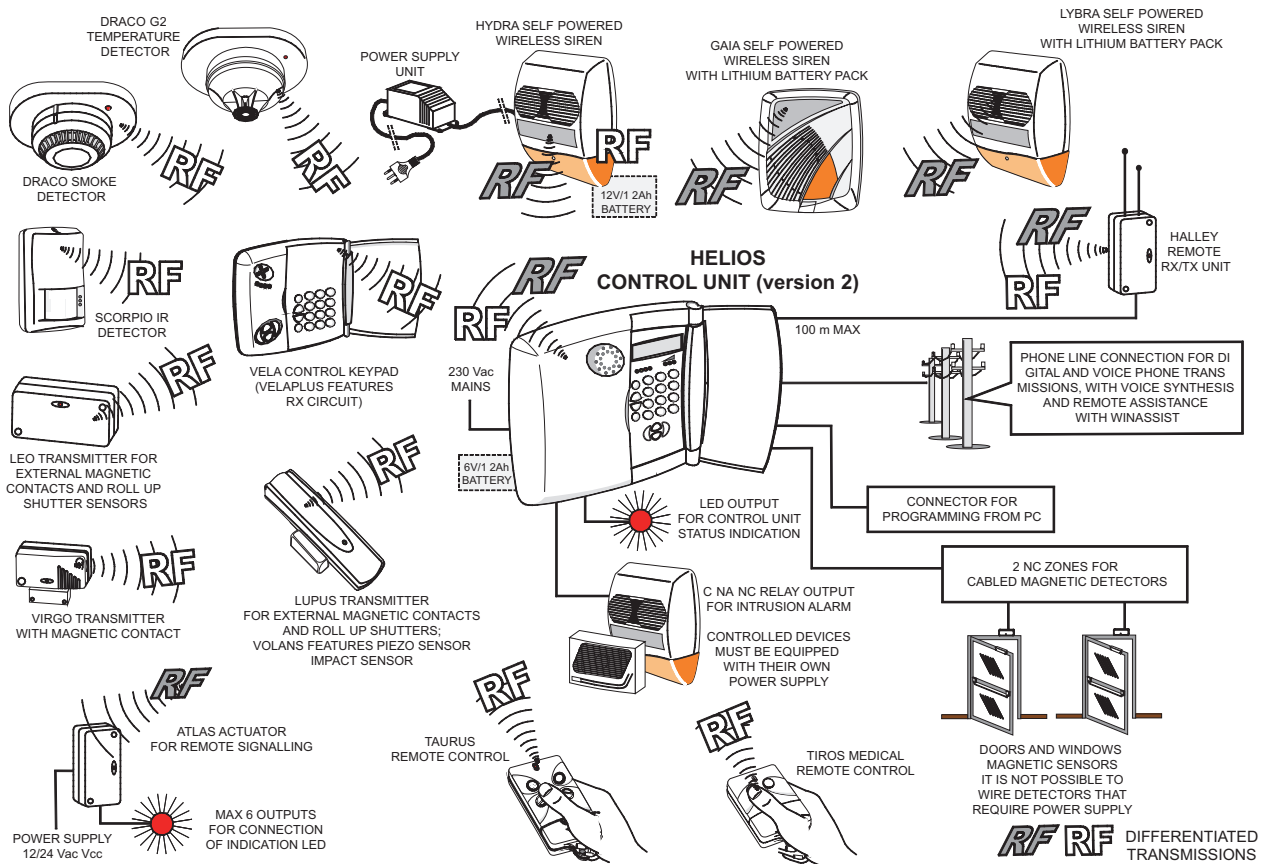
### 4. ELECTRICAL WIRING





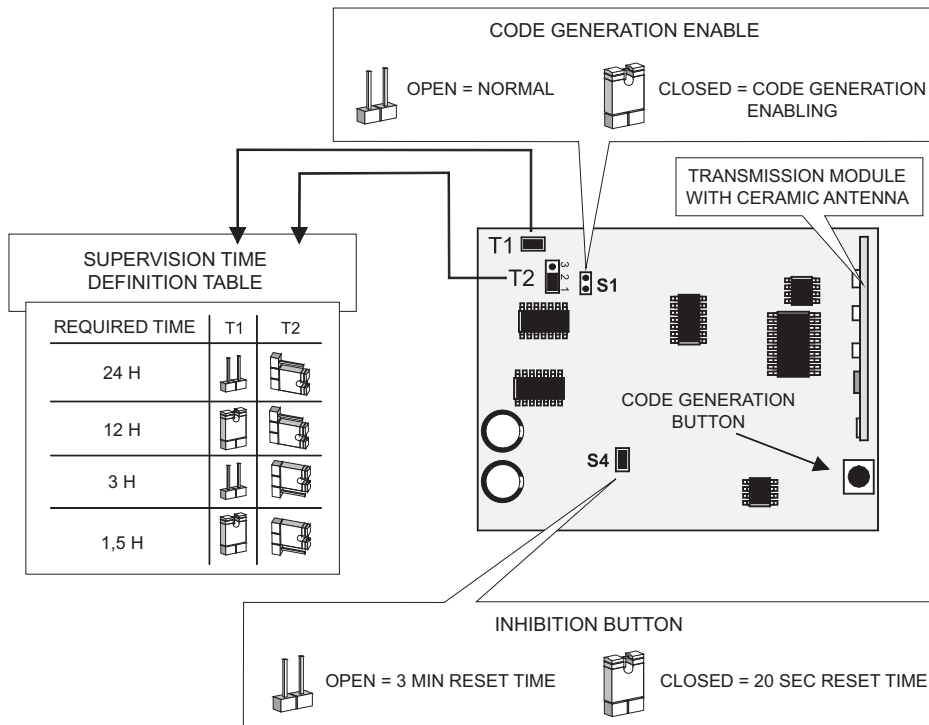
## 5. EXAMPLE SCHEME WITH HELIOS SYSTEM

View of a system that includes DRACOG2 managed by HELIOS control unit.



## 6. INTERNAL SELECTIONS

View of the internal jumpers on control board.





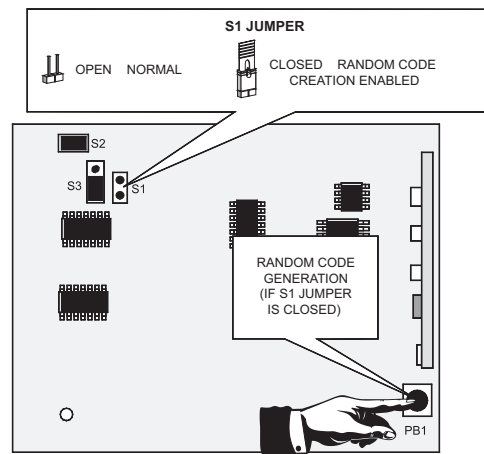
## 7. CODE GENERATION

DRACOG2 code generation procedure:

- **A** = Check the three power supply batteries are properly positioned.
- **B** = Press and hold "CODE GENERATION" button.
- **C** = Close S1 jumper to enable random code generation.
- **D** = Press and hold "CODE GENERATION" button for three more seconds until the red LED on greater base flashes, then release the button.
- **E** = Open S1 jumper.

**This condition is compulsory, otherwise the device will generate tamper alarm.**

- **F** = Key programming code on control unit and enter sensor learning menu, then perform sensor code self-learning procedure.
- **G** = Cause a valid transmission removing the detector from the base (slightly rotate it and move it away): the red LED will flash slowly three times. Check code reception and registration to control unit memory.
- **H** = Install the detector where possible: see pictures in following chapter. Check correct operation using test transmissions.



## 8. OPERATION

In case of alarm, DRACOG2's LED turns on for 5 s and transfers information to the control section that activates radio section to transmit to the control unit.

Once transmission has been performed, the control board switches the detector off for 3 minutes and then on again to attempt reset: if temperature is too high, it switches the detector off for 3 minutes and then it tries again, otherwise it sends RESET transmission to the control units.

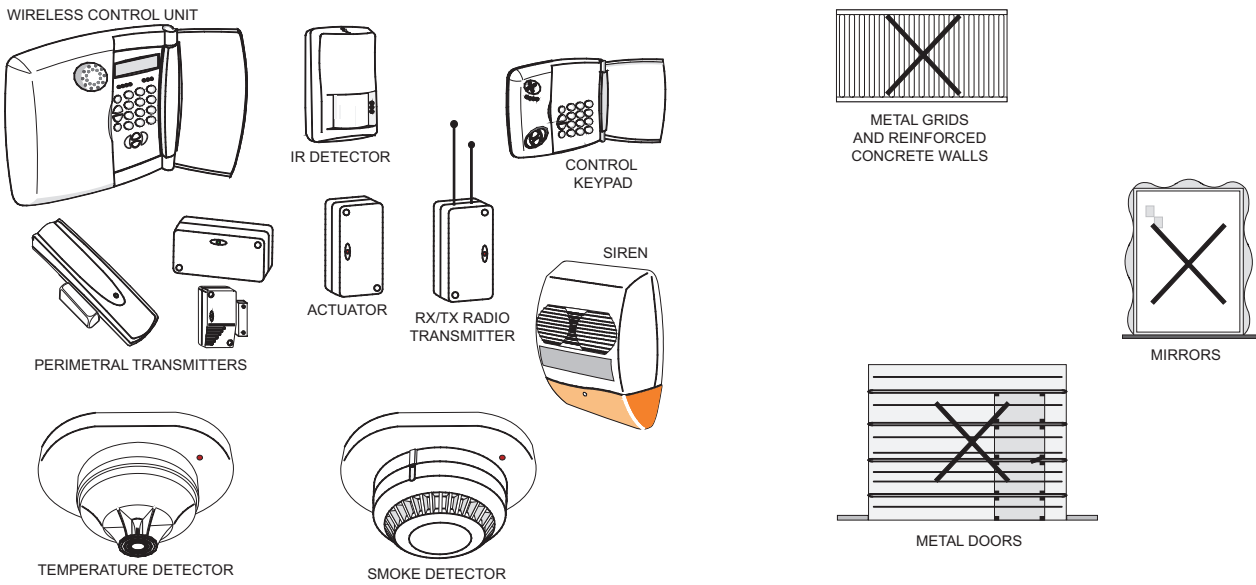
The control section activates the transmitter for the following transmissions:

- Fire **ALARM**.
- **SUPERVISION**: a specific code is cyclically sent according to the times defined in the specific table.
- **RESET** after the re-powering automatic sequence after alarms.
- **TAMPER** event generated when S1 jumper is left accidentally closed.
- **FAULT** due to removal of the temperature detector from greater base. **WARNING**: to reset fault signal, it is necessary to insert the detector on the socket again and cause an alarm.
- **BATTERY ALARM** when detector batteries or radio section batteries are low.

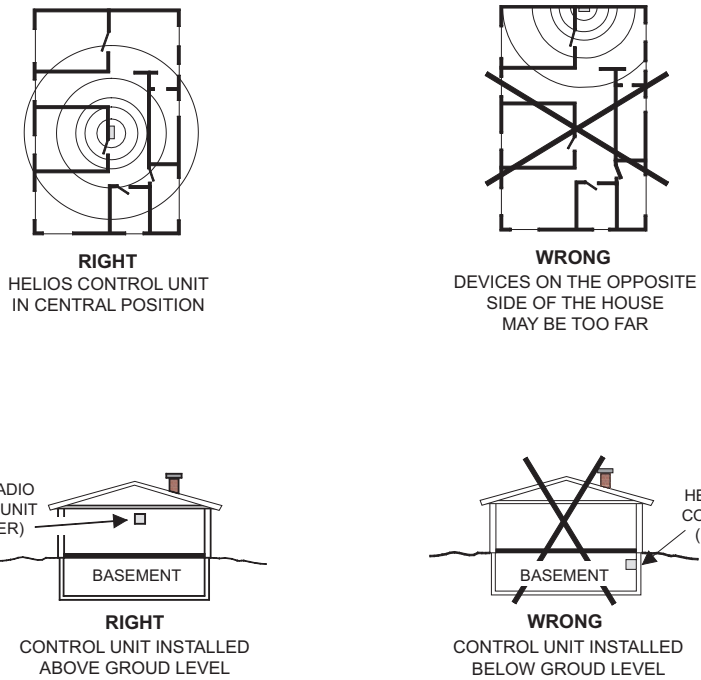


## 9. CRITICAL CONDITIONS

Installation conditions that may drastically reduce detector range or disturb its transmissions:



Detector positioning in the location to protect:



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.

## 10. NOTES

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The following table shows detector classification according to intervention temperature:

<b>Intervention temperature</b>	<b>Mark colour</b>	<b>Suffix</b>	<b>Availability</b>
<b>58°C</b>	<b>Green</b>	<b>G1</b>	-----
<b>66°C</b>	<b>Yellow</b>	<b>G2</b>	<b>Standard</b>
<b>74°C</b>	<b>Red</b>	<b>G3</b>	-----

The sensitivity tests have been carried out according to BS5445/EN54 part 5.

## 11. DISPOSAL WARNINGS

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DRACOG2 must be disposed of according to municipal rules in force and conferred to an authorised dump for disposal of electronic products; in case of necessity, ask local authority for information.

### **Warning for batteries**

DRACOG2 requires usage of 6LR61 batteries for proper operation. Once these have been replaced, they must be conferred to an authorised dump for battery disposal.

The materials used for this product are very harmful and polluting.

Do not disperse them in the environment.