LE80 Radio Receiver

LE80_UM_EN_V1.1_2021.12_Final

TeleAlarm®
A KATEK Brand

en   User Manual

Table of Contents

1   Safety instructions

1.1   General safety instructions

Installation and initial operation should only be carried out by trained service personnel.

1.2   Environmental conditions

The LE80 Radio Receiver must not be located near a water tap or any other source of water. The electrical safety of the LE80 Radio Receiver is only guaranteed if the electrical installation is in accordance with the national regulations and if this installation works properly. The LE80 Radio Receiver may not be used in buildings prone to fire and explosion hazards.

The LE80 Radio Receiver may not be used under exposure to direct sunlight, to heat, to dust or to an excessive humidity (only use the equipment in a clean environment).

Connect the power adapter in a power outlet near the unit. Make sure that it remains easily accessible.

1.3   Electrostatic Discharge (ESD)

WARNING!

The LE80 Radio Receiver contains highly sensitive electronic components. It should be opened only in an ESD protected environment with respect to the following precautions. Discharge yourself from electrostatic loads by touching a grounded conductive surface before opening the unit. Avoid touching conductive parts inside the LE80 Radio Receiver if not absolutely necessary.

2   Product information

2.1   General description

The LE80 Radio Receiver is designed to receive radio signals from different TeleAlarm radio transmitters at the frequency of 868.8 MHz. After receiving radio signals from either programmed or not programmed wireless transmitters, the LE80 Radio Receiver reacts by switching relay outputs of two relays and by activating its two multi-colors LEDs. The radio network works bidirectionaly, improving radio transmission reliability.

LED 1 (green)
LED 2 (red)
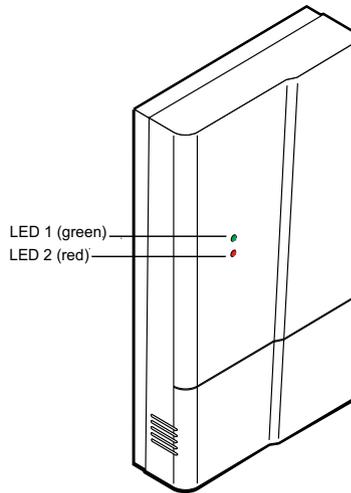
Figure 2.1   Front view of the LE80 Radio Receiver

2.2   Compatible transmitters

All of the following TeleAlarm wireless transmitters are compatible with the LE80 Radio Receiver:
–   S87 Wristband Transmitters
–   S87L Wristband Transmitters with Locating function
–   B80A Wristband Transmitters with Accompany function
–   S85 Pendant Transmitters

- – RAC80 Wireless Contact
- – UPCBA80 Universal Transmitter
- – N86 Wall Transmitters
- – All TA 868.8 MHz peripherals, like smoke detector and other accessories

2.3 Main applications

2.3.1 LE80 Radio Receiver as a small stand-alone call system

After receiving a radio signal from a programmed radio transmitter, the relay output switches can be used to switch a siren or a lamp to indicate locally a wireless call.

2.3.2 LE80 Radio Receiver connected to a nurse call system via relay contact

After receiving a radio signal from a programmed radio transmitter, the relay will be switched. This relay output is connected to a wired nurse call system by wire and hereby a call will be generated or forwarded.

2.3.3 LE80 Radio Receiver as part of a NurseCall dementia system

After receiving a signal from a S87L transmitter, the relay will be activated to close a monitored door or passage, or to generate a call on a wired system.

2.4   Description of the different modes

Mode	Name	Description
1	Normal (default mode)	20 wireless transmitters can be programmed. Calls are indicated by LED 2 and Relay 1. A battery-low signal is indicated by LED 2 and Relay 2. Additionally, the custom output provides predefined voltages for four different predefined calls.
2	LED 2 deactivated at battery-low indication	The same functions as in mode 1 are available, except for the battery-low signal which is not indicated by LED 2, but only by Relay 2. Additionally, the custom output provides predefined voltages for four different predefined calls.
3	Dementia	S87L and B80A wireless transmitters are detected. Relay 1 can be used to lock a monitored door. Relay 2 can be used to interrupt a monitoring device.
4	Dementia with Accompany	This mode allows the LE80 Radio Receiver to be connected to a wired NurseCall system, in which the Accompany function can be implemented. It will wait 10 seconds after receiving a signal from a S87L transmitter. If it detects an B80A transmitter in this lapse of time, then no alarm is generated. If not, then Relay 1 is activated for 2 seconds.
5	Remote control	20 wireless transmitters can be programmed. Per sequence, only the same transmitter can switch on and off the Relay1. A battery-low signal is indicated by LED 2 and Relay 2.

Mode	Name	Description
6	Open receiver	No wireless transmitter needs to be programmed. Any transmitter within reception range of the LE80 Radio Receiver can activate the device.
7	Open receiver with door number	Same functions as in mode 6, but with door position transmission. Any transmitter within reception range of the LE80 Radio Receiver will activate the device, but only if the LE80 receives a datagram (at the exception of a dementia) which contains the door number.
8	Unique N86 transmitter behavior	Behavior is similar to normal mode 1, with certain differences according to the transmitter or call type that is activated. Triggering an alarm on a programmed N86 transmitters will activate the Relay 1 for max. 20 min. The 20 min. cycle can be interrupted by the acknowledgment function of the same N86. The Call type "Assistance" from a programmed transmitter in repetition mode will produce the same effect as a programed N86. Also in this case the 20 min. cycle can be interrupted by the acknowledgment function of the same transmitter.
9	Dual channel receiver	All TeleAlarm wireless transmitters can be programmed. Calls are indicated by Relay 1 or Relay 2, according to the slot in which the wireless transmitter is programmed. A battery-low signal is indicated by the red LED.

NOTICE!

Factory setting is normal mode 8, in which 20 wireless transmitters can be programmed. Calls are indicated by the LED 2 and Relay 1. A battery-low signal is indicated by the LED 2 and Relay 2.

3   Installation

3.1   Unpacking

The LE80 Radio Receiver is carefully packed for transportation. The components contained in the box are protected, but should be handled with care. Store the packaging material for further use (storage or transport). Check that the LE80 Radio Receiver have not been damaged during transportation. In case of defective equipment, do not try to install the LE80 Radio Receiver.
Contact immediately your local representative.

3.2   Wall installation

You can fasten the LE80 Radio Receiver on a smooth wall surface using two screws. Installation cables should be placed inside the cable channels on the bottom of the LE80 Radio Receiver.
A mounting plate for easy mounting preparation as well as to give a certain mobility to the LE80 can be used. The mounting plate works as a bracket. To fix the LE80 it must be attached to the wall bracket and then pull it down slightly. To remove the LE80 from the bracket the underside is raised slightly away from the mounting plate and then pushed up slightly. The mounting plate is only attainable in a set of 10.
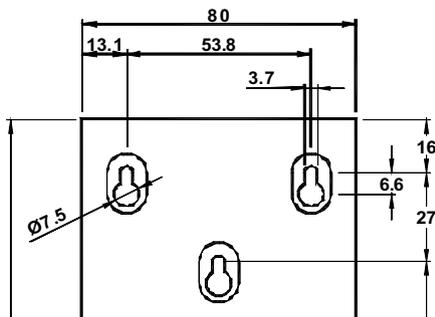
Figure 3.1   Dimensions of the backside of the LE80 Radio Receiver

3.3   Connecting the power supply

There are two different ways to connect the power supply of the LE80 Radio Receiver. After connection, the LE80 Radio Receiver will be in standby mode.

3.3.1   Power supply with the RJ12 power socket

The LE80 Radio Receiver can be powered by an optional obtainable power supply unit (PSU). The PSU should be plugged into the RJ12 socket in the installation compartment and should be easily accessible at any time. See *Section 4.1 Connecting ports, page 13* for access to the socket. See *Section 8 Technical data, page 29* for information about the power supply.

3.3.2   Power supply connected to a wired installation

The LE80 Radio Receiver can be powered by an external power supply connected to the pins cC1 and C2 of the connection board. See *Section 4.1 Connecting ports, page 13* for information about the power supply.

4   Connection compartment

4.1   Connecting ports

To open the device:

–   hold the LE80 Radio Receiver in one hand, facing you, so that you can see the TeleAlarm logo and the two LEDs.

–   pull the connection compartment housing (on the bottom side) downwards.

–   you can now see the connectors as in the following illustration:
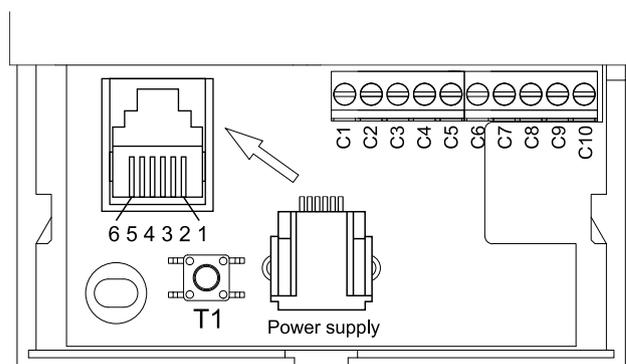
Figure 4.1   LE80 Radio Receiver connection compartment

> **NOTICE!**
> The standby conditions of Relay 1 and Relay 2 are listed in the table below.

4.2   Connectors pinout

Modes 1 to 9 can only be programmed in using the PR80 device, see *Section 5 Programming, Page 15*

Pin	Function
C1	Input analog external power supply: 6-30 VDC, 100 mA min to source
C2	GND (external power supply)
C3	GND (custom output reference)
C4	Custom output (mode 1, 2 and 8), one second pulse, max. 20mA
C5	Relay 1 output NO (open in standby)
C6	Relay 1 output C (common)
C7	Relay 1 output NC (closed in standby)
C8	Relay 2 output NO (open in standby)
C9	Relay 2 output C (common)
C10	Relay 2 output NC (closed in standby)
PS	RJ12 connector to plug the external power supply unit

5   Programming

5.1   LE80 Programming method

The LE80 must be programmed in using the PR80 device
and the NurseCall Configuration Manager (NCCM) software.
The list of parameter is given in the document
"Programming Reference Manual".
The only exception is transmitters programming, which
could also be done in using the button T1 (see below).

5.2   LE80 modes

Modes 1 to 9 can be selected by the NurseCall Configuration
Manager programming tool. See detailed modes description
in *Chapter 2.4*.

Mode	Description
1	Normal mode (default mode)
2	LED 2 deactivated at battery-low indication
3	Dementia
4	Dementia with Accompany
5	Remote control
6	Open receiver
7	Open receiver with door number
8	Unique N86 behavior
9	Dual channel receiver

NOTICE!
Factory setting is mode 8

5.2.1   Reduced radio range

The LE80 can be set to a reduced radio range for all modes,
using a parameter which could be programmed. In this

mode, the triggered transmitters can be received by the
LE80 only in the near distance

5.2.2   Mode indication after power on

When the power supply is connected to the LE80 Radio
Receiver, the LED 2 will blink 1 seconds in different colors,
the LED 1 will light up permanently for 2 seconds.
Afterwards, the device will display the current mode
through the LED, by blinking pink as many times as the
number of the mode. The green LED will then light up
permanently.

Example: In mode 8, the LED will blink pink 8 times.

5.3   Enter manual transmitter's programming mode

To enter manual transmitter's programming mode, press
simply button T1 for one to three seconds. See button location
in *Section 4.1 Connecting ports, page 13*.

(i)   NOTICE!
Before programming the transmitter must be programmed
to send radio messages to the LE80, or to both NurseCall
unit and LE80.

(i)   NOTICE!
Both relays will not be activated in the programming mode.

5.4   Manual programming a transmitter in modes 1, 2, 5, 8 or 9

(i)   NOTICE!
Per manual programming sequence only one transmitter
can be matched. Up to 20 transmitters can be programmed.

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i **NOTICE!**
All programmed transmitters will be deleted only when changing mode 1, 2, 5, 8 and 9 to mode 3, 4, 6 or 7,

To start programming
–   Press button T1 for min. 1 second and max. 3 seconds.

Device behavior
–   LED 1 stays permanently green.
–   LED 2 blinks red slowly for maximum 30 seconds.
Within these 30 seconds, activate the transmitter that you want to match, the following behavior should be observed:
–   LED 1 and LED 2 blink alternating green-red for 6 seconds.
This indication confirms that the transmitter is now programmed.
–   If the transmitter is already programmed, then LED 2 blinks fast red for 6 seconds after activating the transmitter.
–   If 20 transmitters are already programmed, then LED 2 blinks fast red for 10 seconds directly after activating the button T1 between 1 and 3 seconds.

You can repeat the sequence with another transmitter.

5.5   Manual deleting a transmitter

i **NOTICE!**
Per sequence only one transmitter can be deleted.

To start deleting:
–   Press button T1 for min. 5 seconds and max. 10 seconds.

Device behavior
–   LED 1 stays permanently green, then after 5 seconds it
    will blinks fast 5 times. After releasing T1 LED 2 will start
    to blink red for 30 seconds. To delete the transmitter,
    activate its button during this period.
–   At that moment, LED 2 lights up permanently red for 5
    seconds and then turns off.

This indication confirms that the transmitter is deleted.
When no transmitter remains programmed, LED 2 blinks
every 10 seconds three times in a row blue, till at least one
transmitter will be
programmed again.

5.6   Manual deleting all transmitters

To start deleting
–   Press button T1 for minimum 20 seconds and maximum
    40 seconds.

Device behavior
–   LED 1 stays permanently green, then after 5 seconds, it
    will blinks fast 5 times. After 20 seconds, LED 1 will start
    to blink green for 20 seconds. The T1 button must be
    released during this period.
–   At that moment, LED 2 lights up permanently red for 5
    seconds then turns off.

This indication confirms that all transmitters are then
deleted. As a second confirmation LED 2 blinks every 10
seconds three times in a row blue, till at least one
transmitter will be programmed again.

NOTICE!
If button T1 is pressed longer than 40 seconds, then the LE80
Radio Receiver will leave the programming mode.

5.7   Manual programming a door address in modes 3, 4 or 7

You can program a door address stored in a transmitter with Locating function, in modes 3, 4 or 7.

NOTICE!
A door address must be stored beforehand in a transmitter with Locating function. That could also be done using the PR80 and NCCM software.

NOTICE!
Only one door address can be matched in the LE80 Radio Receiver.

To start programming
–   Press button T1 min. 1 second and max. 3 seconds.

Device behavior
–   LED 1 stays permanently green.
–   LED 2 blinks red slow for max. 30 seconds.
–   Activate the transmitter with Locating function, which you desire to match, before the end of the 30 seconds.
–   Upon activating the transmitter, LED 1 and LED 2 blink alternating green-red quick for 6 seconds.

This indication confirms that the door address of the transmitter with Location function is matched in the LE80 Radio Receiver.

CAUTION!
When a new door address stored in a transmitter is programmed, it overwrites the current door address.

5.7.1   Programming in modes 6

It is neither possible nor necessary to program a transmitter in mode 6 (open Receiver).

6   Operation

6.1   Standby mode

The LE80 Radio Receiver enters standby mode when the power supply is connected. Both relays are off. See *Section 5.2.1 Reduced radio range, Page 15*.

6.1.1   Standby with no transmitter programmed

Device behavior
–   LED 1 stays permanently green.
–   LED 2 blinks 3 times blue every 10 seconds.

6.1.2   Standby with at least one transmitter programmed

Device behavior
–   LED 1 stays permanently green.
–   LED 2 stays permanently off.

6.2   Normal mode (modes 1 and 2)

6.2.1   Activation of a transmitter in normal mode

Device behavior
–   LED 1 stays permanently green.
When a matched transmitter is activated:
–   LED 2 lights up permanently red for 2 seconds.
–   Relay 1 switches on for 2 seconds.
–   Relay 2 stays off.
If the same or another matched transmitter is activated within 2 seconds, the alarm will be retriggered and relay 2 will be activated for another 2 seconds (without release).

Device behavior when a transmitter has a low battery
–   LED 1 stays permanently green.
When the transmitter is activated:
–   LED 2 blinks red twice for 2 seconds, then blinks once every 10 seconds.

   –   Relay 1 switches on for 2 seconds.

   –   Relay 2 switches on permanently until the battery is replaced and the transmitter is activated again.

(i) NOTICE!

In normal mode 2, LED 2 is deactivated regarding battery-low indication and will not blink every 10 seconds.

Device behavior when the empty battery is replaced in a transmitter

–   LED 1 stays permanently green.

When the LE80 receive a daily message:

–   LED 2 is switched off.

–   Relay 2 is switched off.

or

–   LED 1 stays permanently green.

When the transmitter is activated:

–   LED 2 stops blinking every 10 seconds, and lights up permanently red for 10 seconds.

–   Relay 1 switches on for 2 seconds.

–   Relay 2 switches off.

6.3   Dementia (mode 3)

6.3.1   Activation of a S87L Transmitter

Device behavior

–   LED 1 stays permanently green.

When a S87L transmitter is activated:

–   LED 2 lights up permanently red for 7 seconds.

–   Relay 1 switches on for 7 seconds.

–   1 second after Relay 1, Relay 2 switches on for 3 seconds.

The procedure is repeated if a S87L transmitter is activated again.

Device behavior when a S87L transmitter has a low battery

–   LED 1 stays permanently green.

When the S87L transmitter is activated:

–   LED 2 blinks red twice for 2 seconds and then lights up
    permanently red for 5 seconds.
–   Relay 1 and Relay 2 behave as above.

6.3.2   Detection of a B80A Accompany Transmitter alone

Device behavior
–   LED 1 stays permanently green.

When a B80A transmitter is detected:
–   LED 2 lights up permanently red for 30 seconds.
–   Relay 1 stays off for 30 seconds.
–   Relay 2 switches on for 25 seconds.

> **(i)**
> **NOTICE!**
> During these 30 seconds, the concerned dementia beacon is
> switched off by the relay 2. This allows a person wearing the
> B80A to cross the monitored area without generating an
> accompany signal.

6.3.3   Detection of a S87L Transmitter with a B80A Accompany Transmitter nearby

Device behavior
–   LED 1 stays permanently green.

When a S87L transmitter and a B80A accompany
transmitter are detected by the monitored area:
–   LED 2 lights up permanently red.
–   Relay 1 switches on until the B80A transmitter is
    detected.
–   1 second after Relay 1, Relay 2 switches on for 3 seconds.

When the B80A accompany transmitter sends its signal:
–   LED 2 lights up permanently red for 30 seconds.
–   Relay 1 switches off for 30 seconds.
–   Relay 2 stays on for another 25 seconds.

NOTICE!

After the detection of the B80A accompany transmitter, the concerned dementia beacon is switched off by the relay 2 during 30 seconds. This allows a person wearing the B80A transmitter to accompany a person wearing the S87L transmitter through the monitored area without generating an accompany signal.

6.4 Dementia with Accompany (mode 4)

6.4.1 Activation of a S87L Transmitter

Device behavior
– LED 1 stays permanently green.

When a S87L transmitter is activated, a 10-second time slot starts.

If, during these 10 seconds, a B80A transmitter is detected:
– There is no change of the LEDs and the relays.

If, during these 10 seconds, no B80A transmitter is detected:
– LED 2 lights up red for 2 seconds.
– Relay 1 switches on for 2 seconds.
– Relay 2 stays off.

NOTICE!

In mode 4, there is no battery-low indication.

6.5 Remote control (mode 5)

6.5.1 Activation of a programmed transmitter

Device behavior
– LED 1 stays permanently green.
– LED 2 lights up red.
– Relay 1 switches on.
– Relay 2 stays off.

When the same transmitter is activated again:
– LED 2 turns off.

– Relay 1 switches off.

NOTICE!

No other transmitter is able to switch the Relay 1 off, when it has been already switched on by a transmitter.

6.5.2 Activation of a programmed transmitter with a battery-low message or with a new battery

The behavior of the device is the same as in *Section 6.2.1 Activation of a transmitter in normal mode, page 20.*

6.6 Open receiver (mode 6)

6.6.1 Activation of a transmitter in the reception range

Device behavior
– LED 1 stays permanently green.
– LED 2 lights up red for 10 seconds.
– Relay 1 switches on for 10 seconds.
– Relay 2 switches on for 2 seconds.

Activation of any transmitter during these 10 seconds will retrigger the procedure.

6.6.2 Activation by a triggered Location number (no Dementia) in the reception range

Device behavior
– LED 1 stays permanently green.
– LED 2 lights up red for 10 seconds.
– Relay 1 switches on for 10 seconds.
– Relay 2 switches on for 2 seconds.

A same Location number (no dementia) received by a LE80 during these 10 seconds will trigger the procedure again.

NOTICE!

In this mode, there is no battery-low indication.

6.7   Daily messages in modes 1, 2 or 5

6.7.1   Daily message with battery-low level signal

Device behavior
–   LED 1 stays permanently green.
Upon receiving a daily message with battery-low signal:
–   LED 2 blinks red every 10 seconds.
–   Relay 1 stays off.
–   Relay 2 switches on, until the battery is changed.
When the battery is changed, LED 2 and Relay 2 switch off if
a daily message or a transmitter activation is detected.

> **(i)**   **NOTICE!**
> In Normal mode 2, LED 2 is deactivated regarding battery-
> low indication and will not show any indication.

6.7.2   Reset of a battery-low indication with button T1

Device behavior
–   LED 1 stays permanently green.
–   LED 2 is already blinking red every 10 seconds.
Upon pressing button T1 min. 1 second, there is a reset of the
battery-low indication:
–   LED 2 turns off.
–   Relay 2 switches off.

> **(i)**   **NOTICE!**
> If you disconnect and reconnect the power supply, the
> battery-low indication will be reset as well.

6.8   Unique N86 behavior (mode 8)

Standby
–   The green LED 1 stays permanently on.
–   The red LED 2 is off.
–   Relay 1 is switched off.
–   Relay 2 is switched off.

When a TeleAlarm transmitter (except a N86) is activated:
–   The green LED 1 stays permanently on.
–   The LED 2 lights up red for 2 seconds.
–   Relay 1 is switched on for 2 seconds.
–   Relay 2 is switched off.

When a N86 transmitter's red or blue button is pressed, or when one of its inputs is activated:
–   The green LED stays permanently on.
–   The LED 2 lights up red and the Relay 1 switch on for 6 minutes or until the green button of the same N86 transmitter is pressed.
–   Relay 2 is switched off.

> **NOTICE!**
> A N86 transmitter in repeated alarm mode extends the behavior of the LE80 Radio Receiver by approximately 26 minutes. If several N86 transmitters are programmed, each activated transmitter stops the sequence and starts its own sequence.

Battery-low indication:
–   Relay 2 switches on for 2 seconds.
–   The LED 2 blinks twice red for 2 seconds, then blinks 1 second every 10 seconds.

For all transmitters, the battery low status is triggered when the transmitter is activated or by the battery low level status sent with the daily message.

6.9   Dual channel receiver (mode 9)

Standby
–   The green LED 1 stays permanently on.
–   The LED 2 is off.
–   Relay 1 is switched off.
–   Relay 2 is switched off.

When a transmitter, that is matched on a odd position (1, 3, 5, etc.), is activated:

– Relay 1 switches on for 2 seconds.
– The LED 2 lights up red for 2 seconds.

When a transmitter, that is matched on a even position (2, 4, 6, etc.), is activated:

– Relay 2 switches on for 2 seconds.
– The LED 2 blinks red, 1 second on, 1 second off, 1 second on.

Battery low indication (until the battery is exchanged)

– The LED 2 blinks twice red for 2 seconds, then flashes 1 second every 10 seconds.

7   Maintenance

7.1   Cleaning

Avoid using cleaning products, cleansers or detergents.
Wipe off your LE80 Radio Receiver occasionally with a dry
cloth.

7.2   Storage conditions

7.2.1   Short term storage
Store the unwrapped LE80 Radio Receiver in a room,
protected against direct sunlight, moisture and dust.

7.2.2   Long term storage
Store the LE80 Radio Receiver in its original packing
material in a storage room, with the power supply removed
and protected against direct sunlight, moisture and dust.

7.3   Disposal

The LE80 Radio Receiver is marked with a crossed-out
wastebasket symbol. This means that, at the end of its useful
lifespan, the product shall be disposed separately from
ordinary household wastes in accordance to the WEEE
Directive 2012/19/EU. The product and its accessories shall
be delivered to an appropriate collection facility that will
permit recycling, treatment and environmentally
compatible disposal. This will prevent negative impact on
the environment and human health and promotes the
recycling of materials.
For more information on available collection facilities,
contact your local waste collection service or your local
representative.

8   Technical data

Dimensions (mm)	133 x 82 x 26
Weight	110 g
Material	ABS
Color	White, similar to RAL 9010
External power supply	8-30 VDC or power supply unit, SAP # T.000.001.671
Current consumption	Transmission: max. 60 mA Reception : max. 30mA
Outputs	2 relays, with max 30V DC or AC, 300mA maximum
Indication	2 tricolor LED
Frequency	868.8 MHz bidirectional
Protection class	IP21
Operating temperature range	-10 °C to 55 °C
Storage temperature	-20 °C to 80 °C

> **(i)** NOTICE!
> IEC 60601 standard must be respected in electrical medical equipment system.

The CE Declaration can be found at the following address:
http://www.telealarm.com/