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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 LE10 Radio Receiver must not be located near a water tap or any other source of water. The electrical safety of the LE10 Radio Receiver is only guaranteed if the electrical installation is in accordance with the national regulations and if this installation works properly. The LE10 Radio Receiver may not be used in buildings prone to fire and explosion hazards.
The LE10 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).

1.3 Electrostatic Discharge (ESD)

WARNING!
The LE10 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 LE10 Radio Receiver if not absolutely necessary.

2 Product information

2.1 General description

The LE10 Radio Receiver is designed to receive radio signals from different Bosch radio transmitters at the frequency of 434.01 MHz. After receiving radio signals from either programmed or not programmed wireless transmitters, the LE10 Radio Receiver reacts by activating its two green and red LEDs and by switching relay outputs of two relays.

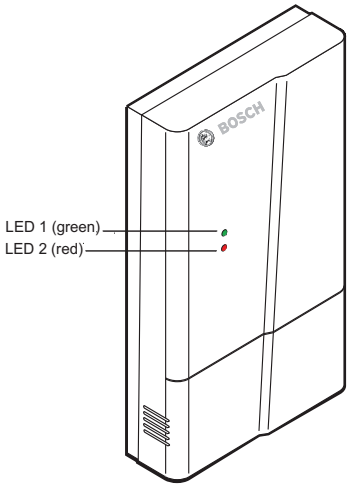

Figure 2.1 Front view of the LE10 Radio Receiver

2.2 Compatible transmitters

All of the following Bosch wireless transmitters are compatible with the LE10 Radio Receiver:

- S37 Wristband Transmitters
- S37L Wristband Transmitters with Locating function
- S37E Wristband Transmitters with Accompany function
- S35 Pendant Transmitters
- ManDown Detectors
- RAC Wireless Contact
- Wireless Smoke Detectors

2.3 Main applications

LE10 Radio Receiver as small stand alone call system
After receiving a radio signal from a programmed radio transmitter, the relay output switches a siren or a lamp to indicate locally a wireless call.

LE10 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.

LE10 Radio Receiver as part of a NurseCall dementia system
After receiving a signal from a dementia transmitter, the relay will be activated to close a monitored door.

2.4 Description of the different modes

Mode	Name	Description
1	Normal	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.
2	Normal, with 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.
3	Dementia	The S37L and S37E wireless transmitters are detected. Relay 1 can be used to lock a monitored door. Relay 2 can be used to interrupt a monitoring loop.

Mode	Name	Description
4	Dementia with Accompany	This mode allows the LE10 Radio Receiver to be connected to a wired NurseCall system, in which the Accompany function can be implemented. Here the LE10 Radio Receiver will wait 10 seconds after receiving a signal from a S37L transmitter. If it detects a S37E 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.
6	Open receiver	No wireless transmitter needs to be programmed. Any transmitter within reception range of the LE10 Radio Receiver can activate the device.
7	Open receiver with reduced range	Same functions as in mode 6, but with reduced range. This functionality is designed to improve reception of transmitters located closer to the LE10 Radio Receiver.

NOTICE!
Factory setting is Normal mode 1.

3 Installation

3.1 Unpacking

The LE10 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). In case of defective or missing equipment, do not try to install the LE10 Radio Receiver. Contact immediately your local representative.

1. Take all components out of the box and place the LE10 Radio Receiver on the working space.
2. Check that the following accessories are delivered: the fixings (2 screws and 2 screw anchors) and this user manual.
3. Check that the LE10 Radio Receiver and its accessories have not been damaged during transportation.

3.2 Wall installation

You can fasten the LE10 Radio Receiver on a smooth wall surface using two screws. Installation cables should be placed inside the cable channels on the bottom of the LE10 Radio Receiver.

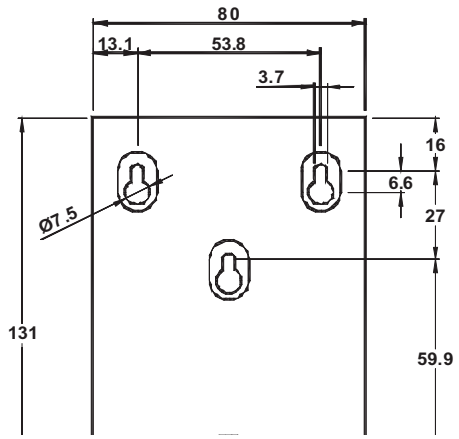

Figure 3.1 Dimensions of the backside of the LE10 Radio Receiver

3.3 Connecting the power supply

There are two different ways to connect the power supply of the LE10 Radio Receiver. After connection, the LE10 Radio Receiver will be in standby mode.

3.3.1 Power supply with the RJ12 power socket

The LE10 Radio Receiver can be powered by a power supply unit (PSU). The PSU should be plugged in the RJ12 socket on the rear side of the unit and should be easily accessible at any time. See *Section 4.1 Connecting ports, page 35* for access to the socket. See *Section 8 Technical data, page 46* for information about the power supply.

3.3.2 Power supply connected to a wired installation

The LE10 Radio Receiver can be powered by connecting a wired input into poles 1 and 2 of the connection board. See *Section 4.1 Connecting ports, page 35* for information about the power supply.

4 Connection compartment

4.1 Connecting ports

To open the device:

– hold the LE10 Radio Receiver in one hand, facing you, so that you can see the Bosch logo and the two LEDs.
– grab the connection compartment housing with the other hand and slide it towards you.
– you can now see the components as in the following illustration:

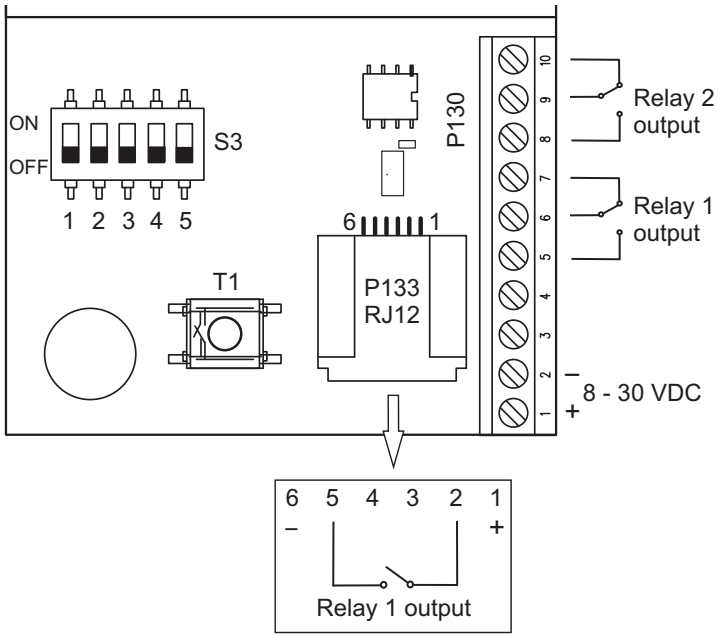

Figure 4.1 LE10 Radio Receiver connection compartment

NOTICE!
The standby conditions of Relay 1 and Relay 2 are as shown in this illustration.

4.2 Mode selection

Modes 1 to 7 can be selected by operating switches 1 to 3 of the 5-digits micro switch S3. Switches 4 and 5 must be set to **off**.

CAUTION!
After selecting the mode, disconnect the power supply and connect it again.

Mode	Description	Switch 1	Switch 2	Switch 3
1	Normal mode	off	off	off
2	Normal mode, with LED 2 deactivated at battery-low indication	on	off	off
3	Dementia mode	off	on	off
4	Dementia with Accompany mode	on	on	off
5	Remote control	off	off	on
6	Open receiver	on	off	on
7	Open receiver with reduced range	off	on	on

NOTICE!
Factory setting is all switches set to **off**.

4.2.1 Mode indication after power on

When the power supply is connected to the LE10 Radio Receiver, the LED 1 will light up permanently for 2 seconds. Afterwards, the device will display the current mode through the LED 1, by blinking as many times as the number of the mode. LED 1 will then light up permanently.
For example, in mode 2, the LED 1 will blink green twice.

5 Programming

5.1 Enter programming mode

To enter programming mode, press simply button T1 for the desired time. See *Section 4.1 Connecting ports, page 35*.

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

5.2 Program a transmitter in modes 1, 2 or 5

NOTICE!
Per programming sequence only one transmitter can be matched. You can program up to 20 transmitters.

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 programmed.

– If the transmitter is already programmed, then LED 2 blinks fast for 6 seconds after activating the transmitter.
– If 20 transmitters are already programmed, then LED 2 blinks fast for 10 seconds directly after activating the button T1 between 1 and 3 seconds.

You can repeat the sequence with another transmitter.

5.3 Delete a transmitter

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 blinks fast 5 times.
– LED 2 stays off and then blinks for 30 seconds.

Within these 30 seconds, activate the transmitter that you want to delete, the following behavior should be observed:

– LED 1 stays permanently green.
– LED 2 stays permanently red for 5 seconds and then turns off.

This indication confirms that the transmitter is deleted. You can repeat the sequence with another transmitter.

5.4 Delete 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, blinks fast 5 times. After 20 seconds, LED 1 will blink for 20 seconds.
– At that moment, LED 2 lights up permanently red for 5 seconds then turns off.

This indication confirms that all transmitters are then deleted.

NOTICE!
If button T1 is pressed longer than 40 seconds, then the LE10 Radio Receiver will jump out of the programming mode.

5.5 Program a door address in modes 3 or 4

You can program a door address stored in a S37L Wristband Transmitter with Locating function, in modes 3 or 4.

NOTICE!
A door address must be stored beforehand in a S37L Wristband Transmitter with Locating function.

NOTICE!
Only one door address of a S37L Wristband Transmitter with Locating function can be matched in the LE10 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 S37L Wristband Transmitter, 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 in S37L Wristband Transmitter is matched in the LE10 Radio Receiver.

CAUTION!
When a new door address stored in a S37L Wristband Transmitter is programmed, it overwrites the current door address.

5.5.1 Programming in modes 6 or 7

It is neither possible nor necessary to program a transmitter in modes 6 or 7 (Open Receiver).

6 Operation

6.1 Standby mode

The LE10 Radio Receiver enters standby mode when the power supply is connected. Both relays are off. See *Section 4.2.1 Mode indication after power on, page 36*.

6.1.1 Standby with no transmitter programmed

Device behavior

– LED 1 stays permanently green.
– LED 2 blinks 3 times red 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 10 seconds.
– Relay 1 switches on for 10 seconds.
– Relay 2 stays off.

If the same or another matched transmitter is activated within 10 seconds, the alarm will be retriggered for 10 seconds.

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 lights up permanently for 8 seconds. It then blinks once every 10 seconds.
– Relay 1 switches on for 10 seconds.

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

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

Device behavior when the battery is replaced in a transmitter

– 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 10 seconds.
– Relay 2 switches off.

6.3 Dementia (mode 3)

6.3.1 Activation of a S37L Wristband Transmitter

Device behavior

– LED 1 stays permanently green.

When a S37L 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 S37L transmitter is activated again.

Device behavior when a S37L transmitter has a low battery

– LED 1 stays permanently green.

When the S37L 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 S37E Wristband Transmitter alone

Device behavior

– LED 1 stays permanently green.

When a S37E 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.

During these 30 seconds, all radio reception is fully blocked. This allows a person wearing the S37E to cross the monitored area without generating an accompany signal.

6.3.3 Detection of a S37L Wristband Transmitter with a S37E Wristband Transmitter nearby

Device behavior

– LED 1 stays permanently green.

When a S37L transmitter and a S37E transmitter are detected by the monitored area:
– LED 2 lights up permanently red.
– Relay 1 switches on until the S37E transmitter is detected.
– 1 second after Relay 1, Relay 2 switches on for 3 seconds.

When the S37E transmitter sends its signal (approx. 4 seconds after the S37L):
– LED 2 lights up permanently red for 30 seconds.
– Relay 1 switches off for 30 seconds.
– Relay 2 stays on for another 25 seconds.

After the detection of the S37E transmitter, all radio reception is fully blocked during 30 seconds. This allows a person wearing the S37E transmitter to accompany a person wearing the S37L transmitter through the monitored area without generating an accompany signal.

6.4 Dementia with Accompany (mode 4)

6.4.1 Activation of a S37L Wristband Transmitter

Device behavior

– LED 1 stays permanently green.

When a S37L transmitter is activated, a 10-second time slot starts.

If, during these 10 seconds, a S37E transmitter is detected:
– There is no change of the LEDs and the relays.

If, during these 10 seconds, no S37E 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 40.

6.6 Open receiver (modes 6 and 7)

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.

NOTICE!

In these two modes, there is no battery-low indication.

6.7 Daily messages in modes 1, 2 or 5

6.7.1 Daily message with battery-low 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.

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.

NOTICE!

If you disconnect and reconnect the power supply, the battery-low indication will be reset as well.

7 Maintenance

7.1 Cleaning

Avoid using cleaning products, cleansers or detergents.
Wipe off your LE10 Radio Receiver occasionally with a dry cloth.

7.2 Storage conditions

7.2.1 Short term storage

Store the unwrapped LE10 Radio Receiver in a room, protected against direct sunlight, moisture and dust.

7.2.2 Long term storage

Store the LE10 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 LE10 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 EU Directive 2002/96/EC. 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	Top: white, similar to RAL 9010 Bottom: charcoal
External power supply	8-30 VDC or power supply unit, SAP # 4.998.026.581
Current consumption	< 25 mA
Outputs	2 relays, with max 28 V DC or AC, 250 mA maximum
Indication	2 LEDs, one green, one red
Frequency	434.01 MHz
Protection class	IP21
Operating temperature range	0°C to 45 °C