LE10 Radio Receiver

CRS-URE-0100 | F.01U.278.517 | V2.0 | 2012.11

BOSCH

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 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.

LED 1 (green)
LED 2 (red)

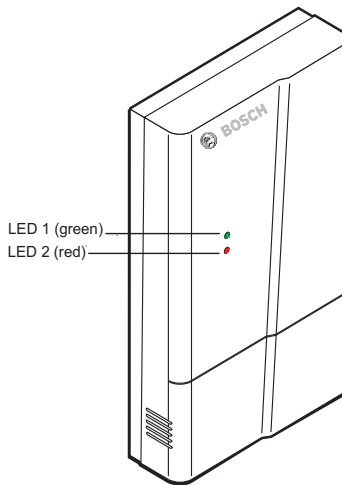**Figure 2.1** Front view of the LE10 Radio Receiver

2.2 Compatible transmitters

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

– MIYS37 Wristband Transmitters
– MIYS37L Wristband Transmitters with Locating function
– MIYS37E Wristband Transmitters with Accompany function
– MIYS35 Pendant Transmitters
– MIYMD ManDown Sensors
– MIYRAC Wireless Contact

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 emergency 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 emergency call system by wire and hereby a call will be generated or forwarded.

LE10 Radio Receiver as part of a Resident Alert System monitoring dementia
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 the red LED and Relay 1. A battery-low signal is indicated by the red LED and Relay 2.
2	Normal, with red LED 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 the red LED, but only by Relay 2.
3	Dementia	The MIYS37L and MIYS37E 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 to connect the LE10 Radio Receiver to a wired emergency call system, in which the Accompany function can be implemented. It will wait 10 seconds after receiving a signal from a MIYS37L transmitter. If it detects a MIYS37E transmitter in this lapse of time, no alarm is generated. If not, 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 the red LED 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.
8	Extended MIYN46 transmitter programming (only with SW 1.10)	Additional MIYN46 transmitters can be programmed. Behavior is similar to normal mode 1, with certain differences according to the transmitter that is activated.
9	Dual channel receiver (only with SW 1.10)	Only MIYS37 wireless transmitters can be programmed. Calls are indicated by Relay 1 or Relay 2, according to the slot in which the MIYS37 wireless transmitter is programmed. A battery-low signal is indicated by the red LED.

NOTICE!

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

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 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.

3.2.1 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 11* for access to the socket. See *Section 7 Technical data, page 23* for information about the power supply.

3.2.2 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 11* for information about the power supply.

3.3 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.
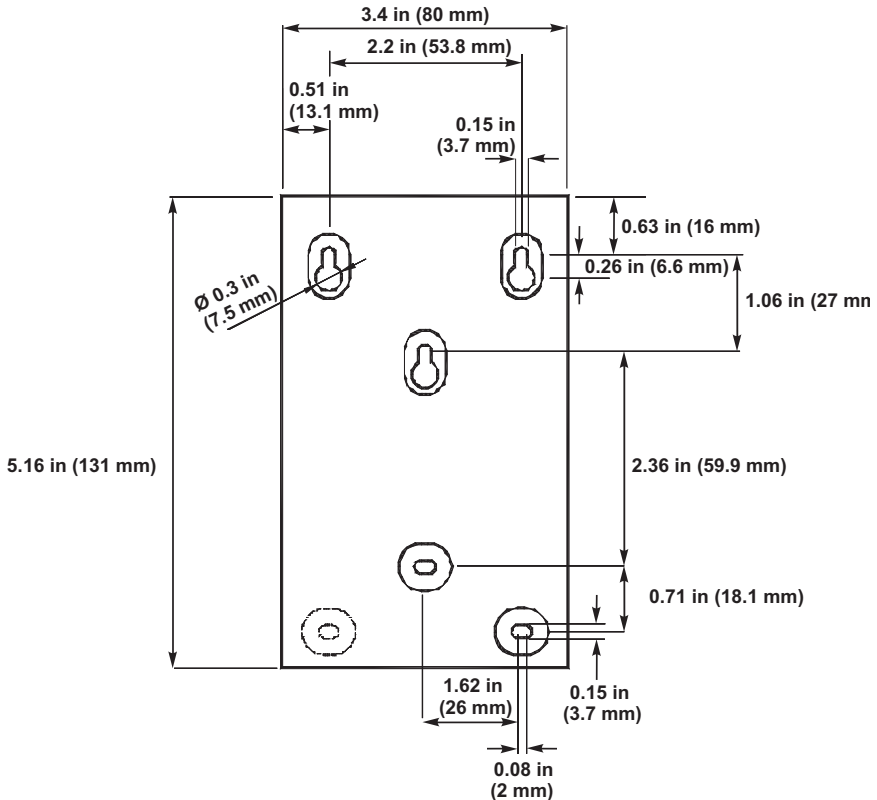
Figure 3.1 Dimensions of the backside of the LE10 Radio Receiver

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

(i) NOTICE!

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

4.2 Mode selection

Modes 1 to 9 can be selected by operating switches 1 to 5 of the 5-digits micro switch S3.

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

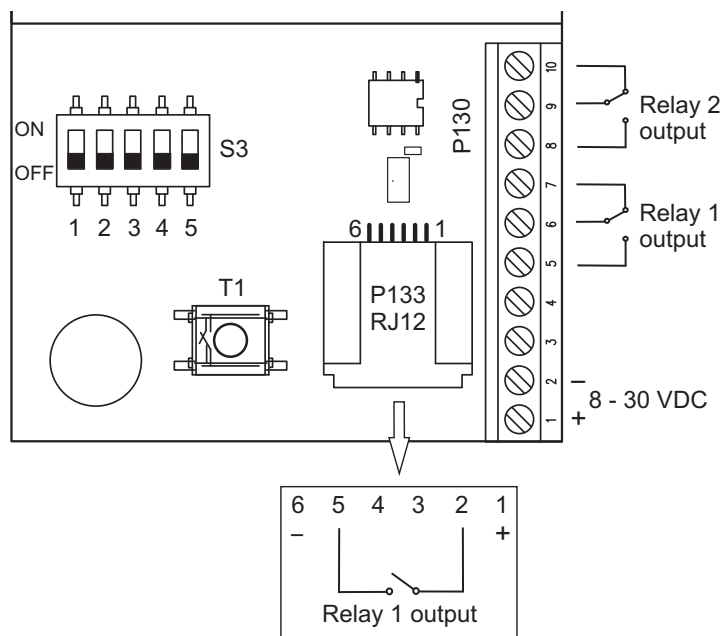| Mode	Description	Switch number				
		1	**2**	**3**	**4**	**5**
1	Normal mode	off	off	off	off	off
2	Normal mode, with the red LED deactivated at battery-low indication	on	off	off	off	off
3	Dementia mode	off	on	off	off	off
4	Dementia with Accompany mode	on	on	off	off	off
5	Remote control	off	off	on	off	off
6	Open receiver	on	off	on	off	off
7	Open receiver with reduced range	off	on	on	off	off
8	Extended N46 (only with SW 1.10)	on	on	on	off	off
9	Dual channel receiver (only with SW 1.10)	off	off	off	on	off

ⓘ **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 green LED will light up permanently for 2 seconds. Afterwards, the device will display the current mode through the green LED, by blinking as many times as the number of the mode. The green LED will then light up permanently.
Example: In mode 8, the green LED will blink 8 times.
– When changing the mode, all programmed transmitters will be deleted.

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 11*.

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

5.2   Program a transmitter in modes 1, 2 or 5

> **(i)** **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
– The green LED stays permanently on.
– The red LED blinks slowly for maximum 30 seconds.

Within these 30 seconds, activate the transmitter that you want to match, the following behavior should be observed:
– The green LED and the red LED blink alternating for 6 seconds.

This indication confirms that the transmitter is programmed.
– If the transmitter is already programmed, then the red LED blinks fast for 6 seconds after activating the transmitter.
– If 20 transmitters are already programmed, then the red LED 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

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
–   The green LED stays permanently on, then after 5 seconds
     blinks fast 5 times.
–   The red LED 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:
–   The green LED stays permanently on.
–   The red LED stays permanently on 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
–   The green LED stays permanently on, then after 5 seconds,
     blinks fast 5 times. After 20 seconds, the green LED will
     blink for 20 seconds.
–   At that moment, the red LED lights up permanently for 5
     seconds then turns off.
This indication confirms that all transmitters are then deleted.

i **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 MIYS37L Wristband Transmitter with Locating function, in modes 3 or 4.

> **NOTICE!**
> A door address must be stored beforehand in a MIYS37L Wristband Transmitter with Locating function.

> **NOTICE!**
> Only one door address of a MIYS37L 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
– The green LED stays permanently on.
– The red LED blinks 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, the green LED and the red LED blink alternating quick for 6 seconds.

This indication confirms that the door address in the MIYS37L Wristband Transmitter is matched in the LE10 Radio Receiver.

> **CAUTION!**
> When a new door address stored in a MIYS37L 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 12*.

6.1.1   Standby with no transmitter programmed

Device behavior
–   The green LED stays permanently on.
–   The red LED blinks 3 times every 10 seconds.

6.1.2   Standby with at least one transmitter programmed

Device behavior
–   The green LED stays permanently on.
–   The red LED stays permanently off.

6.2   Normal mode (modes 1 and 2)

6.2.1   Activation of a transmitter in normal mode

Device behavior
–   The green LED stays permanently on.
When a matched transmitter is activated:
–   The red LED lights up permanently 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
–   The green LED stays permanently on.
When the transmitter is activated:
–   The red LED blinks 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, the red LED is deactivated regarding battery-low indication and will not blink every 10 seconds.

Device behavior when the battery is replaced in a transmitter
– The green LED stays permanently on.
When the transmitter is activated:
– The red LED stops blinking every 10 seconds, and lights up permanently 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 MIYS37L Wristband Transmitter

Device behavior
– The green LED stays permanently on.
When a MIYS37L transmitter is activated:
– The red LED lights up permanently 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 MIYS37L transmitter is activated again.

Device behavior when a MIYS37L transmitter has a low battery
– The green LED stays permanently on.
When the MIYS37L transmitter is activated:
– The red LED blinks 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 MIYS37E Wristband Transmitter alone

Device behavior

– The green LED stays permanently on.

When a MIYS37E transmitter is detected:

– The red LED lights up permanently 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 MIYS37E to cross the monitored area without generating an accompany signal.

6.3.3   Detection of a MIYS37L Wristband Transmitter with a MIYS37E Wristband Transmitter nearby

Device behavior

– The green LED stays permanently on.

When a MIYS37L transmitter and a MIYS37E transmitter are detected by the monitored area:

– The red LED lights up permanently.
– Relay 1 switches on until the MIYS37E transmitter is detected.
– 1 second after Relay 1, Relay 2 switches on for 3 seconds.

When the MIYS37E transmitter sends its signal (approx. 4 seconds after the MIYS37L):

– The red LED lights up permanently for 30 seconds.
– Relay 1 switches off for 30 seconds.
– Relay 2 stays on for another 25 seconds.

After the detection of the MIYS37E transmitter, all radio reception is fully blocked during 30 seconds. This allows a person wearing the MIYS37E transmitter to accompany a person wearing the MIYS37L transmitter through the monitored area without generating an accompany signal.

6.4 Dementia with Accompany (mode 4)

6.4.1 Activation of a MIYS37L Wristband Transmitter

Device behavior
– The green LED stays permanently on.

When a MIYS37L transmitter is activated, a 10-second time slot starts.

If, during these 10 seconds, a MIYS37E transmitter is detected:
– There is no change of the LEDs and the relays.

If, during these 10 seconds, no MIYS37E transmitter is detected:
– The red LED lights up 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
– The green LED stays permanently on.
– The red LED lights up.
– Relay 1 switches on.
– Relay 2 stays off.

When the same transmitter is activated again:
– The red LED 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 16.

6.6 Open receiver (modes 6 and 7)

6.6.1 Activation of a transmitter in the reception range

Device behavior
– The green LED stays permanently on.
– The red LED lights up 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 modes 6 and 7, 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
– The green LED stays permanently on.

Upon receiving a daily message with battery-low signal:
– The red LED blinks every 10 seconds.
– Relay 1 stays off.
– Relay 2 switches on, until the battery is changed.

When the battery is changed, the red LED and Relay 2 switch off if a daily message or a transmitter activation is detected.

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

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

6.8   Extended MIYN46 (mode 8, only with SW 1.10)

Programming and deleting of transmitters is done as in Mode 1.

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

When a MIYS37 transmitter, MIYS35 transmitter, MIYRAC contact, MIYMD ManDown Sensor are activated:
–   The green LED stays permanently on.
–   The red LED turns on for 2 seconds.
–   Relay 1 is switched on for 2 seconds.
–   Relay 2 is switched off.

When a MIYN46 transmitter's red or blue button is pressed, or when one of its inputs is activated:
–   The green LED stays permanently on.
–   The red LED and Relay 1 switch on for 6 minutes or until the green button of the MIYN46 transmitter is pressed.
–   Relay 2 is switched off.

NOTICE!
A MIYN46 transmitter in repeated alarm mode extends the behavior of the LE10 by approximately 26 minutes. If several MIYN46 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 red LED flashes for 2 seconds, then blinks 1 second every 10 seconds.

For all MIYS35 and MIYS37 transmitters, the battery low status is triggered when the transmitter is activated or with the daily message. For all MIYN46 transmitters, the battery low status is triggered only with the daily message.

6.9   Dual channel receiver (mode 9, only with SW 1.10)

Programming and deleting of transmitters is done as in Mode 1.

Standby
–   The green LED stays permanently on.
–   The red LED 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 red LED turns on 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 red LED blinks 1 second on, 1 second off, 1 second on.

Battery low indication (until the battery is exchanged)
–   The red LED flashes during 2 seconds, then flashes 1 second every 10 seconds.

7   Technical data

Dimensions	5.3 x 3.2 x 1.0 inches (133 x 82 x 26 mm)
Weight	3.9 oz (110 g)
Material	ABS
Color	Top: white, similar to RAL 9010 Bottom: charcoal
External power supply	8-30 VDC
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	32°F - 113°F (0°C - 45 °C)

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