User manual
LS901

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Warning and safety instructions:

- The battery in this product complies with the relevant IEC safety standards for batteries.

- Please read the safety instructions on the power supply before use.

- The power supply unit must meet the relevant IEC safety standards.

- The battery must not be replaced, and the product must be sent for repair.

- The product must not be disassembled. Risk of electric shock!

- Read the intended use before putting into service.

- The product is not water-resistant unless noted in product specification.

Contraindications

In general, the product cannot be used if:

- The disabled client/patient is mentally ill.
- The disabled client/patient is critically ill.
- The client/patient is unable to use the transmitters.

Lifetime after mounting of the device

The battery, if applies, must be replaced when the battery replacement information appears on the display and according to the user manual.

Lifetime is evaluated in relation to the pressure button. This is made according to the supplier's specification.

Lifetime battery (products using battery, only)

KNOP calculates the life of the batteries. See specification in the user manual.

Intended use

In general, the different variants of the medical device (transmitters/receiver system from KNOP Elektronik) are made as assistive aid for impaired/disabled patients to be able to call for assistance.

The various variants of the medical equipment consist of a combination of products (transmitter and receiver) designed to call for help to impaired/disabled patients; The transmitter-receiver system can be activated in different ways:

- For example, patients who actively do this and are aware that they are calling for help, such as e.g., people with walking difficulties who need help going to the toilet.
- Or disabled patients who are not aware that they are inadvertently putting pressure on the sendere.g. during a seizure.

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- Or patients with intellectual and cognitive deficits who are not aware that a receiver is receiving a signal from their transmitter when they leave a house or room.

The system is not designed for critically or mentally ill persons.

General product description

The products manufactured by KNOP elektronik consist of several variants of transmitters and receivers that can be combined with each other. In addition, these products are used in combination with positioning and repeater systems.

These products are medical devices intended to call for assistance and are used for disabled/mobile people, such as those with walking difficulties who need help going to the toilet. The transmitters are activated, for example, by a sound or by pressure (e.g. by pressure with a finger or a breath through the mouth). The recipient is supervised by health care personnel or lay people in private homes.

The system is not designed for critically or mentally ill people.

Part of product	Function in the product system
Transmitter	The transmitter can send the signal obtained from the patient to the receiver monitored by the healthcare personnel or lay person. The transmitter products can be activated by button, sound, blow or movements.
Receiver	The transmitters can be coded into all the receivers and to several receivers at the same time. Some receivers also have a summon button for calling assistance from their coworkers.
Repeatersystem	If it is needed to cover a more comprehensive and larger area a repeater system is used. The repeater system also gives an increased functionality as e.g. that an alarm automatically is received at first at the healthcare person closest to the client.
Positionsystem	If a sender is equipped with a position receiver it can be used in connection with a Position system. Not all product variants include position receivers. Typically, it is seen in connection with nursing homes and security for patients with dementia. The receivers can be portable or stationary.

Product description

LS901 is a light source that can help minimize fall injuries. For example, it can switch on the light when a person leaves the bed or when he or she presses the wristband transmitter.

LS901 has a built-in backup battery, so it will work even in the event of a power failure.

The product is designed to work together with other products in the KNOP 901 series.

It is possible to program up to five different transmitters to activate the light and how long the light should stay on.

Commissioning

LS901 only needs to be connected to a power outlet. There are no additional connection options.

It switches on automatically when the power is turned on.

We recommend that the product is updated with the latest software version to ensure that all functions work as described.

The LED

The LED shows the status of the product.

Green: Everything is OK.
Flashing green: Encoding active.
Red: Battery operation.

Programming

To program the device, simultaneously press [icon] [icon] until the LED flashes green.
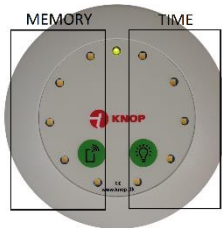
On the left side, there is a dim light where there is already a coded transmitter. The selected memory location is displayed with flashing. If an already encoded memory location is selected, it is overwritten.

On the right side, the time the light is on for the current memory location is displayed.
Choose between 30 seconds (lower part), 2, 5, 10, and 30 minutes (upper part).

- First, select the memory you want to use by pressing [icon]

- Then activate the transmitter to be encoded.

- Then select with [icon] button for how long the light should stay on.

If more codings are desired, this can be done afterward by repeating the procedure.

Programming is automatically terminated if the buttons are not pressed again after one minute. Alternatively, both buttons can be held down for 3 seconds.

Deletion

Remove all encodings:

- At the same time, press [icon] [icon] until the LED flashes green to enter programming.

- Press again [icon] [icon] until the LED flashes red after about 6 seconds.

Restart

It is possible to restart the product by pressing and holding [icon] until the LED goes out - about 20-30 seconds.

If the product is unplugged, it switches off afterward.

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Turn off

To switch off the product, unplug it from the wall socket. Then press and hold until the LED flashes red. You can switch the product on again by plugging it into the main socket.

Maintenance

Update of LS901
It is possible to update the software of LS901. For further description please refer to KNOPtool.

Check the coverage area

One person activates the product at short intervals, while another person systematically walks around the area and marks on a sketch the building and the area where there is coverage. The map is placed in the office so that anyone who needs to use the system can see where there is coverage. Outside the coverage area, alarms cannot be received.

Contact your retailer for more information.

Cleaning

The product can be cleaned with a moist cloth or a wet wipe.

Spare parts and accessories

Spare parts and accessories can be ordered from Knop Elektronik A/S at www.knop.dk.

Technical data

Frequency HF:	869.2125 MHz
Range:	Up to 1500 meters between LS901 and TX901 [1]
Power supply:	230VAC
Usage:	<1W (st.by) max 5W
Plug:	2-pole EURO
Battery backup:	Approx. 15 hours without light, about 3 hours with light.
Charging time:	Approx. 1-day
Surrounding environment:	Indoor use. ≤ 90% non-condensing
Ambient temperature:	0°C to +40°C
Cabinet type:	Color RAL9001 ABS
Cabinet dimensions:	W: mm, H: mm, D: mm.
Density:	IP40
Weight:	135g

The right to make changes is reserved.

[1] Measured outdoors with unobstructed view between transmitter and receiver. In buildings the range is reduced.

Explanation of symbols and approvals

CE	**This product complies with:** Directive 2017/745/EU MDR Directive 1907/2006/EU REACH Directive 2011/65/EU RoHS Directive 2012/19/EU WEEE ISO 14971:2019 Risk Management for Medical devices EN 301 498-1 V2.2.3 Electro Magnetic Compatibility EN 301 489-3 V3.1.1 Electro Magnetic Compatibility EN 50130-4:2011 + 2014 Immunity alarm systems EN 300 220-1 V3.1.1 Short Range Devices EN 300 220-2 V3.1.1 Short Range Devices EN 300 220-3 V2.1.1 Short Range Devices EN 60601-1-2:2014 + 2015 Electromagnetic compatibility (Medical) EN 62368-1:2020 Electrical safety EN 50581:2012 Hazardous substances
(symbol)	The product must not be used if the packaging is damaged.
MD	**Medical Device** Class 1, rule 1
(symbol)	**Manufacturer** KNOP Elektronik A/S, Fabriksvej 20, DK-7600 Struer, Denmark
(symbol)	Read the manual(s) before installation and commissioning at www.knop.dk.
(((•)))	Interference may occur in an environment with equipment marked with this symbol.
(symbol)	Must be protected against liquids.
(symbol)	0 °C to +40 °C, temperature limit for transport/storage and use.
(symbol)	The product must not be disposed of with normal household waste.
SRN	**Single Registration Number** DK-MF-000025631
UDI	**Unique Device Identifier** 05744002850427
REF	**Product reference** LS901 Light Guide
SN	**Serial number** Placed on the product
IP	**Ingress Protection Code** IP40