

EN

OPERATING MANUAL
ULTRASONIC DETECTOR



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Notes regarding the operating manual


Symbols


 **Warning of electrical voltage**
This symbol indicates dangers to the life and health of persons due to electrical voltage.

 **Warning**
This signal word indicates a hazard with an average risk level which, if not avoided, can result in serious injury or death.

 **Caution**
This signal word indicates a hazard with a low risk level which, if not avoided, can result in minor or moderate injury.

Note
This signal word indicates important information (e.g. material damage), but does not indicate hazards.

 **Info**
Information marked with this symbol helps you to carry out your tasks quickly and safely.

 **Follow the manual**
Information marked with this symbol indicates that the operating manual must be observed.

You can download the current version of the operating manual and the EU declaration of conformity via the following link:




SL800-SET



<https://hub.trotec.com/?id=43700>

Safety

Read this manual carefully before starting or using the device. Always store the manual in the immediate vicinity of the device or its site of use.

-  **Warning**
Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. **Save all warnings and instructions for future reference.**
Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- Do not use the device in potentially explosive rooms or areas and do not install it there.
 - Do not use the device in aggressive atmosphere.
 - Do not immerse the device in water. Do not allow liquids to penetrate into the device.
 - The device may only be used in dry surroundings and must not be used in the rain or at a relative humidity exceeding the operating conditions.
 - Protect the device from permanent direct sunlight.
 - Do not expose the device to strong vibrations.
 - Do not remove any safety signs, stickers or labels from the device. Keep all safety signs, stickers and labels in legible condition.
 - Do not open the device.
 - Only use the device, if sufficient safety precautions were taken at the surveyed location (e.g. when performing measurements along public roads, on building sites etc.). Otherwise do not use the device.
 - Observe the storage and operating conditions (see Technical data).
 - Do not expose the device to directly squirting water.
 - Check accessories and connection parts for possible damage prior to every use of the device. Do not use any defective devices or device parts.

Intended use

Only use the device for the detection of irregularities in the ultrasound spectrum within the measuring range specified in the technical data.

To use the device for its intended use, only use accessories and spare parts which have been approved by Trotec.

Foreseeable misuse

Do not use the device in potentially explosive atmospheres, for measurements in liquids and at live parts.

Any unauthorised changes, modifications or alterations to the device are forbidden.

Personnel qualifications

People who use this device must:

- have read and understood the operating manual, especially the Safety chapter.

Residual risks



Warning of electrical voltage

There is a risk of a short-circuit due to liquids penetrating the housing!

Do not immerse the device and the accessories in water. Make sure that no water or other liquids can enter the housing.



Warning of electrical voltage

Work on the electrical components must only be carried out by an authorised specialist company!



Warning

Risk of hearing damage!

Ensure sufficient ear protection when there are sources of loud sound. There is a danger of hearing damage.



Warning

Risk of suffocation!

Do not leave the packaging lying around. Children may use it as a dangerous toy.



Warning

The device is not a toy and does not belong in the hands of children.



Warning

Dangers can occur at the device when it is used by untrained people in an unprofessional or improper way! Observe the personnel qualifications!



Caution

Keep a sufficient distance from heat sources.

Note

To prevent damages to the device, do not expose it to extreme temperatures, extreme humidity or moisture.

Note

Do not use abrasive cleaners or solvents to clean the device.

Information about the device

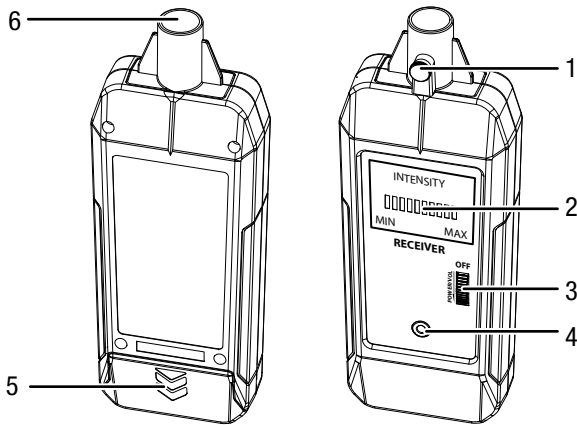
Device description

The measuring device serves the purpose of detecting the slightest irregularities in the ultrasound spectrum caused by e.g.:

- leakages in pressure tanks, vacuum systems, tanks, compressed-air system lines, valves
- cavitation processes in supply lines for liquids and gases
- electrical discharges due to insulation failure, short circuits, arcing
- mechanical wear in roller / ball bearings, valves, gears etc.
- leakages in the pneumatic brakes of trucks and trains
- insulation faults at untight door frames, window reveals and room seals

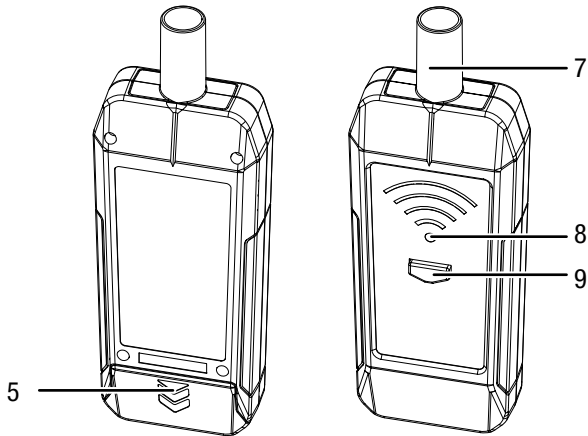
Device depiction

Receiver



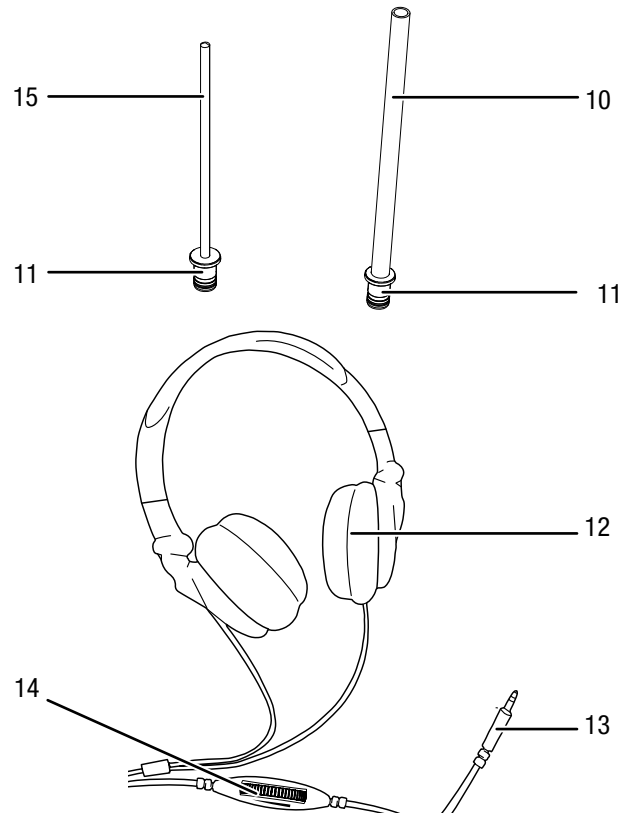
No.	Designation
1	Locking screw for probes
2	LED bar graph (intensity MIN to MAX via 10 LEDs)
3	On/Off thumbwheel and volume control
4	Connection socket for headphones
5	Battery compartment with cover
6	Signal input and connection for probe

SL800T (ultrasonic transmitter)



No.	Designation
5	Battery compartment with cover
7	Transmitter for ultrasonic signal (40 kHz)
8	Operating control lamp
9	On/off switch

Accessories



No.	Designation
10	Airborne sound probe
11	Adapter
12	Headphones
13	Jack plug
14	Volume control for headphones
15	Structure-borne sound probe

Technical data

Parameter	Value
Signal input connection	Airborne sound probe, structure-borne sound probe
Display of the ultrasonic intensity	LED bar graph, 10 levels
Acoustic rendition	Soundproof headphones, high attenuation of ambient sounds
Frequency range	36 kHz to 44 kHz
Power supply	9 V IEC 6F22
Operating conditions	0 to 40 °C, < 75 % RH
Dimensions (length x width x height)	197 x 73 x 33 mm (SL800R) / 203 x 73 x 33 mm (SL800T)
Weight (incl. battery, without probes)	180 g (SL800R), 160 g (SL800T)

Scope of delivery

- 1 x Receiver SL800R
- 1 x Transmitter SL800T
- 1 x Headphones
- 1 x Structure-borne sound probe for SL800R
- 1 x Airborne sound probe for SL800R
- 1 x Transport case
- 2 x 9 V battery
- 1 x Quick guide

Transport and storage

Note

If you store or transport the device improperly, the device may be damaged.

Note the information regarding transport and storage of the device.

Transport

For transporting the device, use the transport case included in the scope of delivery in order to protect the device from external influences.

Storage

When the device is not being used, observe the following storage conditions:

- dry and protected from frost and heat
- protected from dust and direct sunlight
- For storing the device, use the transport case included in the scope of delivery in order to protect the device from external influences.
- the storage temperature complies with the values specified in the Technical data

- Remove the batteries from the device.

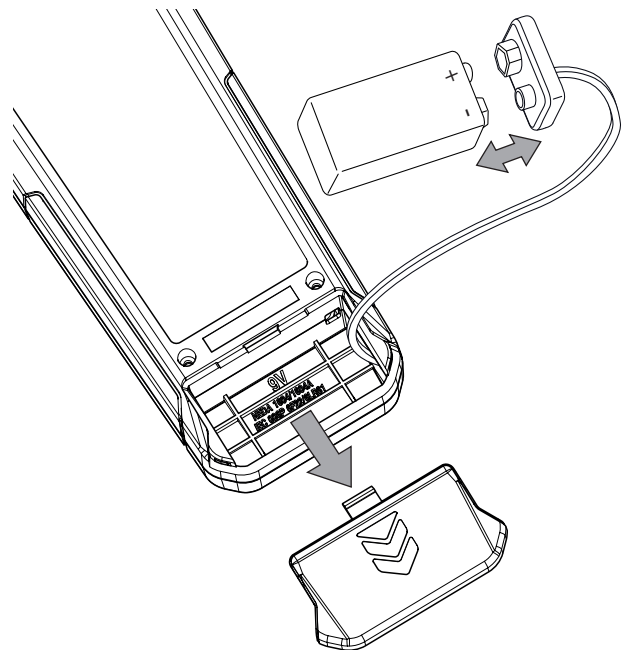
Operation

Inserting the battery

Insert the supplied battery in the SL800R and the SL800T before first use.

Note

Make sure that the surface of the device is dry and the device is switched off.



1. Open the battery compartment at the rear of the device by sliding down the cover.
2. Use the battery clip to connect the 9 V battery with correct polarity.
3. Place the battery with the battery clip into the battery compartment.
4. Slide the cover back onto the battery compartment until it locks in place.

Inserting / exchanging the probe

The SL800R can be equipped with various probes.

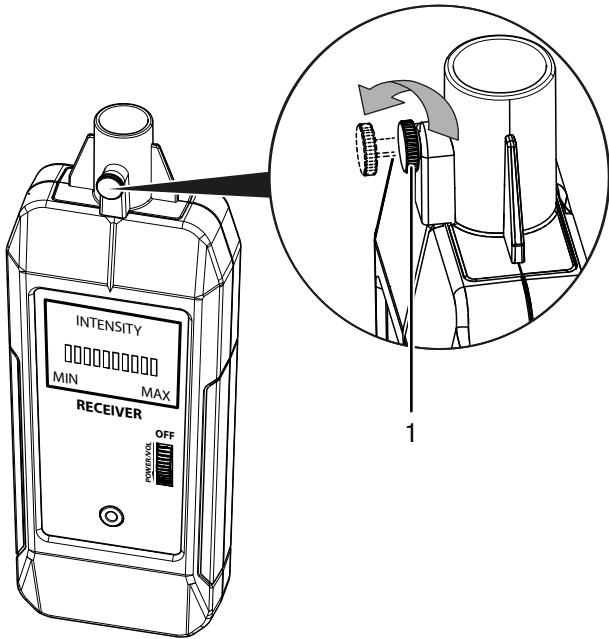
The scope of delivery includes a structure-borne and an airborne sound probe.

The structure-borne sound probe serves the purpose of detecting material-borne ultrasonic frequencies via direct contact of the object to be examined (e.g. a ball bearing).

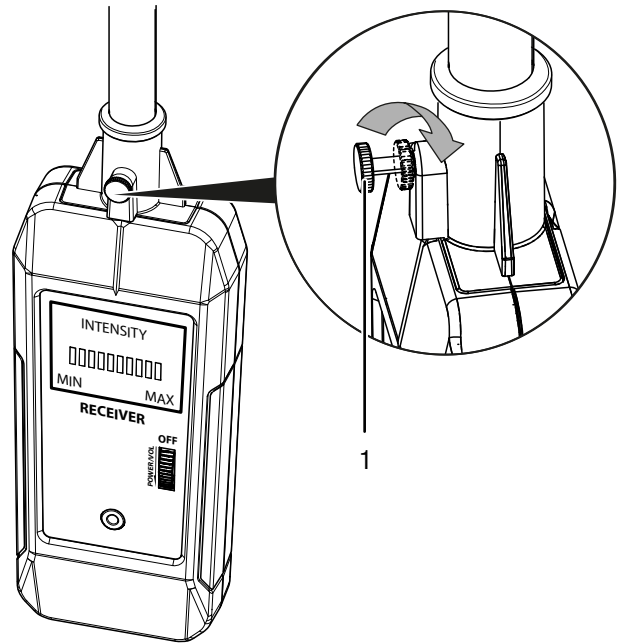
The airborne sound probe serves the purpose of detecting airborne ultrasonic frequencies even at a distance of up to several metres.

In order to assemble or exchange a probe, please proceed as follows:

1. Loosen the locking screw (1) at the SL800R.

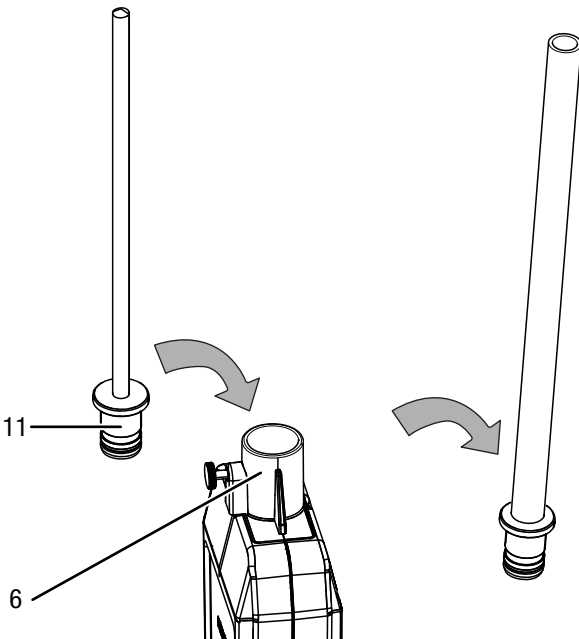


4. Retighten the locking screw (1).



5. Check the probe for tight fit.

2. If applicable, remove the probe.
3. Put the probe adapter (11) into the holder (6) at the SL800R.



Connecting the headphones

It is recommended to connect the supplied headphones to the SL800R at all times. Human hearing already perceives very subtle signal changes with regard to its volume and intensity, so in addition to the LED indication you are provided with a valuable acoustic component for a yet more precise detection of ultrasound sources.



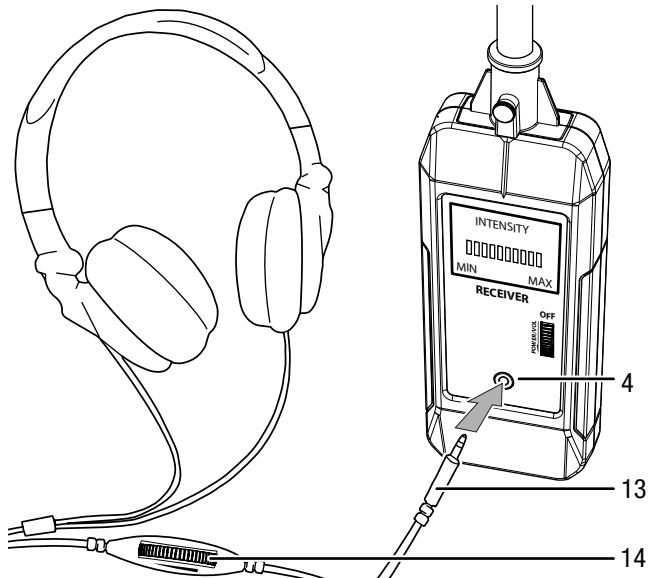
Warning

Risk of hearing damage due to unknown, intense ultrasound sources.

The sound spectrum perceptible by human ears lies in the frequency range between 16 Hz and 20,000 Hz. Hence, ultrasound is clearly outside of this range. As a result potential, more or less intense ultrasound sources in the immediate measuring environment go unnoticed without technical aids. Nonetheless, they can inadvertently lead to hearing damage if the auditory system is suddenly faced with the high-intensity ultrasound rendered audible by use of these aids. For that reason always set the volume control at the headphones to minimum before starting a measurement (narrow end of the wedge at the volume control). Increase the volume only slowly. If necessary, reduce the volume when approaching a potential ultrasound source.

Please proceed as follows to connect the headphones to the SL800R:

- ✓ Both the SL800T and the SL800R are switched off.
- 1. Set the volume control (14) at the headphones to the minimum (narrow end of the wedge at the volume control).



- 2. Plug the jack plug (13) into the connection socket (4) of the SL800R.

General information regarding the work with the ultrasonic detector



Info

Note that moving from a cold area to a warm area can lead to condensation forming on the devices' circuit board. This physical and unavoidable effect can falsify the detection result. In this case, the device emits either no signals or they are incorrect. Wait for a few minutes until the devices have become adjusted to the changed conditions before using the devices.



Info

Please note that the measurement of an ultrasound source always has to be carried out directly. There must be no objects or persons located between the airborne sound probe and the ultrasound source, for this would hamper the detection process.

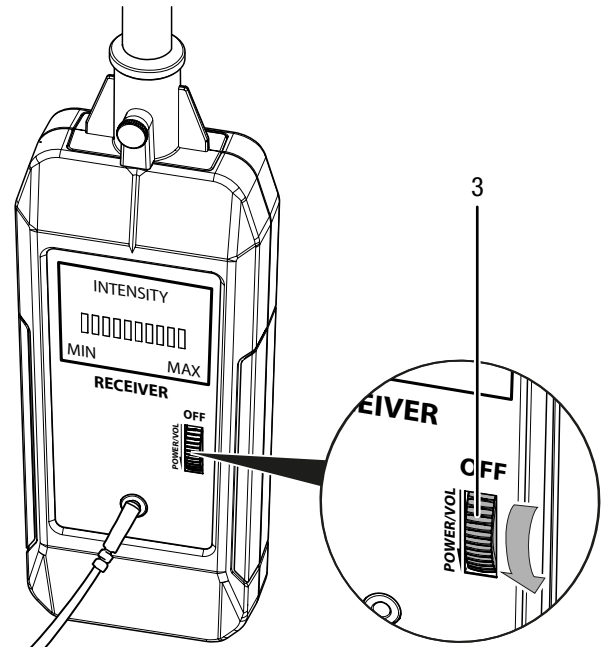


Info

In case of very weak ultrasound sources the bar graph might not indicate a change despite full intensity. If so, use headphones to work with the acoustic component.

Switching on the SL800R

- ✓ A probe is assembled.
- ✓ The headphones are possibly connected.
- 1. Slowly turn down the thumbwheel (3) until it clicks into place.



- ⇒ The LEDs at the bar graph light up briefly from MAX to MIN.
- ⇒ The LED next to MIN is permanently illuminated.
- ⇒ The SL800R is switched on.

Using the SL800R with airborne sound probe

The airborne sound probe is suitable for the following fields of application:

- Leak detection at exposed lines and pipes
- Proving the leakage-related loss at gas-filled supply networks also during operation
- Leak detection at high-pressure steam installations
- Localization of cracks, poor weld seams or worn flange connections
- Leak detection at all accessible fittings and connecting elements where processes take place in a vacuum or at high pressure

- ✓ The airborne sound probe is assembled.
- ✓ The SL800R is switched on.
- ✓ The volume control at the headphones is set to minimum.
- 1. Put on the headphones.
- 2. Test the volume by rubbing the fingertips of thumb and index finger against one another at a distance of approx. 50 cm from the airborne sound probe.

3. Carefully increase the intensity via the thumbwheel (3) until there is a deflection on the bar graph (2).
⇒ The receiver is now set to high sensitivity!
4. Carefully increase the volume at the headphones (14) until you can hear a sound.
5. Now move the airborne sound probe towards the ultrasound source.
6. Since the intensity of the ultrasound source to be detected is initially unknown, down-regulate the volume at the headphones as appropriate when approaching the source of ultrasound.
7. Whilst approaching the source, the sound grows louder and the number of illuminated LEDs on the bar graph increases.
8. If required, adjust the intensity via the thumbwheel (3).

Using the SL800R with structure-borne sound probe

The structure-borne sound probe utilizes structure-borne sound as bearer of inner states and processes. Hence, the device combination works like an electronic stethoscope.

The structure-borne sound probe is suitable for the following fields of application:

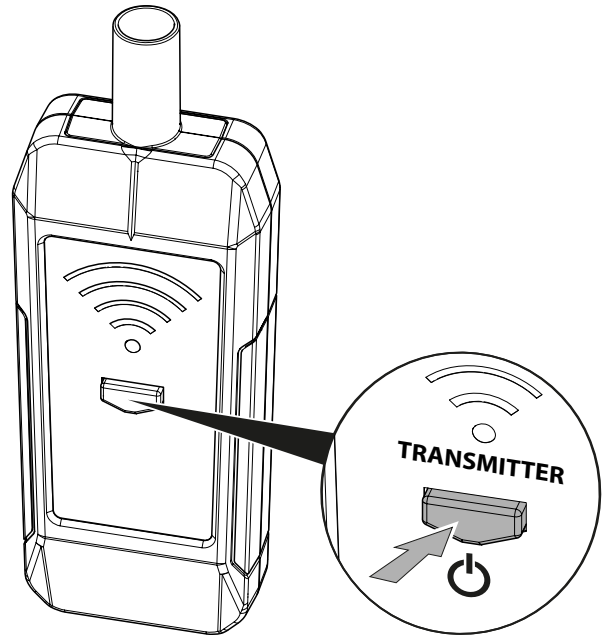
- Early detection of wear at ball, roller or slide bearings
- Checking centrifugal pumps for cavitation
- Tightness tests of fittings
- Continuity testing or functional check of steam traps

- ✓ The structure-borne sound probe is assembled.
 - ✓ The SL800R is switched on.
 - ✓ The volume control at the headphones is set to minimum.
1. Put on the headphones.
 2. Hold the probe to the test object.
 3. Carefully increase the intensity via the thumbwheel (3) until there is a deflection on the bar graph (2).
 4. Carefully increase the volume at the headphones (14) until you can hear a sound.
 5. Move the probe towards the ultrasound source.
 6. Down-regulate the volume at the headphones when approaching the source of ultrasound.
 7. Whilst approaching the source, the sound grows louder and the number of illuminated LEDs on the bar graph increases.
 8. If required, adjust the intensity via the thumbwheel (3).

Switching on the SL800T

The SL800T emits an acoustic signal in the ultrasonic range (40 kHz) of unvarying intensity.

1. Press the Power button (9).



- ⇒ The operating control lamp (8) is illuminated.
- ⇒ The SL800T is switched on and emits the ultrasonic signal.

Using the SL800T with SL800R and airborne sound probe

Use the SL800T with the airborne sound probe for the following fields of application:

- Tightness testing to determine the cause of energetic defects, e.g. at doors or windows
- Checking containers, housings or climatic chambers for tightness
- Subjecting tanks or containers to ultrasound so as to test sealing components

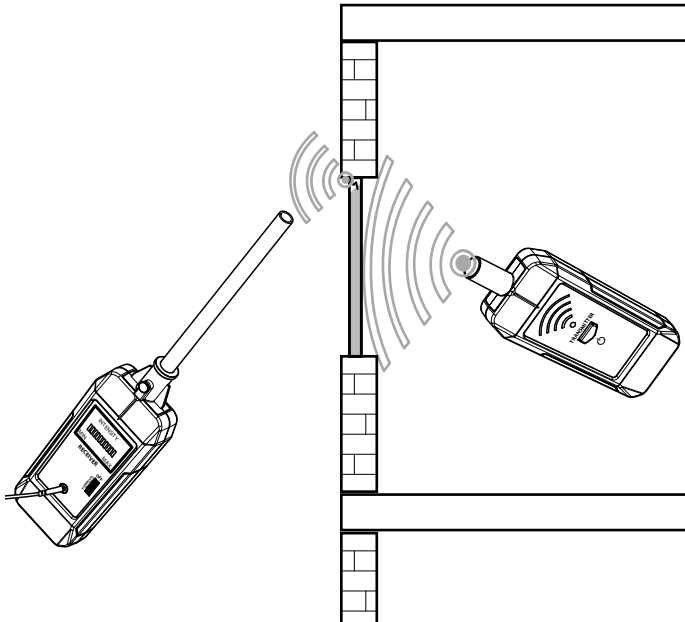


Info

In case of larger rooms the SL800T should be positioned near potential weak spots so as to make it easier for them to be detected.

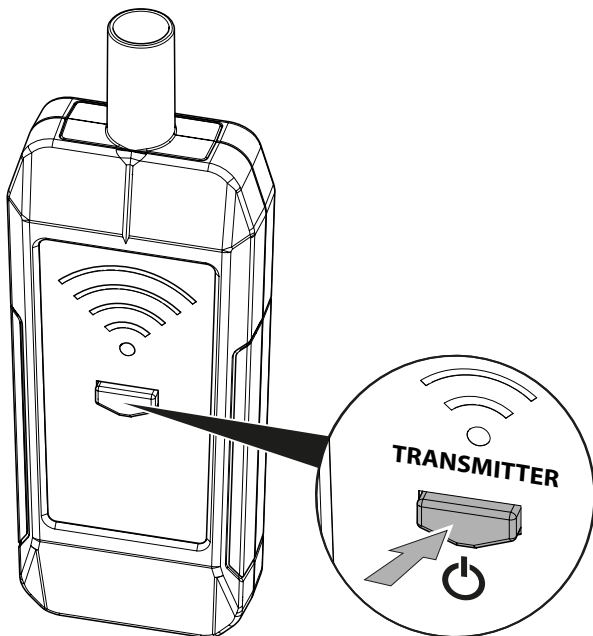
- ✓ The airborne sound probe is mounted to the SL800R.
 - ✓ The volume control at the headphones is set to minimum.
1. Position the SL800T at the place to be inspected (e.g. behind a door or window) or within the object to be examined (e.g. a tank).
 2. Press the Power button (9) on the SL800T.
 3. Shut the object properly.
 4. Switch on the SL800R using the thumbwheel (3).
 5. Put on the headphones.

6. Check the surroundings of the object to be examined for tightness.
7. A leak is indicated by a deflection of the bar graph and by a changed acoustic signal through the headphones.



Switching off the SL800T

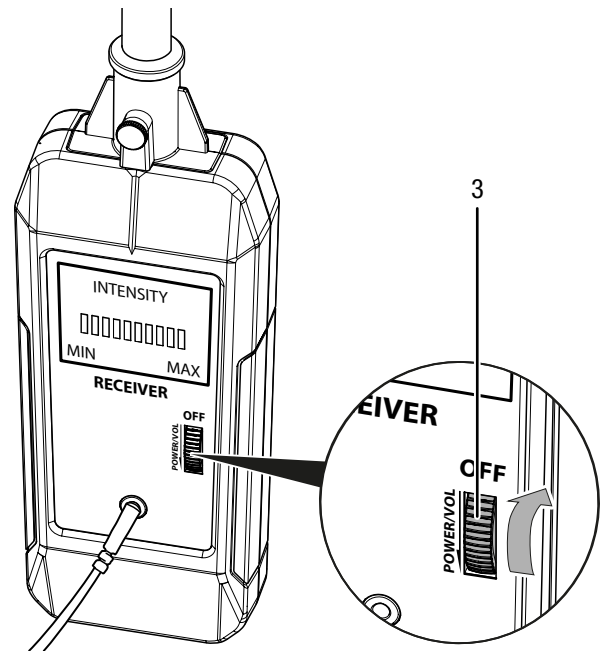
1. Press the Power button (8).



- ⇒ The operating control lamp (8) goes out.
- ⇒ The SL800T is switched off.

Switching off the SL800R

1. Switch the SL800R off by turning the thumbwheel (3) towards *OFF* until it clicks into place.



- ⇒ The LED (2) at the bar graph goes out.
- ⇒ The SL800R is switched off.

Errors and faults

The device has been checked for proper functioning several times during production. If malfunctions occur nonetheless, check the device according to the following list.

The device is not working:

- The battery might be empty. Replace it with a new one.

Signal from transmitter is not received:

- The battery might be empty. Replace it with a new one.
- Transmitter or receiver are not switched on or the distance is too large. Reduce the distance from the transmitter that is not received.
- The ultrasonic locating function of the SL800 strongly depends on the direction. Check whether the signal input of the receiver is facing the ultrasonic source or the potential leak.
- In addition, carefully increase the volume at the receiver (if necessary).

Maintenance and repair

Cleaning

Clean the device with a soft, damp and lint-free cloth. Make sure that no moisture enters the housing. Do not use any sprays, solvents, alcohol-based cleaning agents or abrasive cleaners, but only clean water to moisten the cloth.

The device and its components are **not** dishwasher-safe.

Repair

Do not modify the device or install any spare parts. For repairs or device testing, contact the manufacturer.

Battery change

A battery change is required when the battery status indication flashes or the device can no longer be switched on (see chapter Inserting the batteries).

Disposal



The icon with the crossed-out waste bin on waste electrical or electronic equipment stipulates that this equipment must not be disposed of with the household waste at the end of its life. You will find collection points for free return of waste electrical and electronic equipment in your vicinity. The addresses can be obtained from your municipality or local administration. You can also find out about other return options that apply for many EU countries on the website <https://hub.trotec.com/?id=45090>. Otherwise, please contact an official recycling centre for electronic and electrical equipment authorised for your country.

The separate collection of waste electrical and electronic equipment aims to enable the re-use, recycling and other forms of recovery of waste equipment as well as to prevent negative effects for the environment and human health caused by the disposal of hazardous substances potentially contained in the equipment.

You are responsible for deleting any personal data stored on the waste equipment to be disposed of.



In the European Union, batteries and accumulators must not be treated as domestic waste, but must be disposed of professionally in accordance with Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators. Please dispose of batteries and accumulators according to the relevant legal requirements.

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