SONOTEC

Operating Manual

SONAPHONE Pocket

Ultrasonic Multifunctional Device

Translation of the German Original

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1 Notes on this documentation

1.1 General

Purpose

This documentation constitutes an integral part of the product and contains important advice on safe operation as well as all information on intended and efficient use. Thus, any person using the product needs to have read and understood this documentation.

Accessibility

The staff working with this product has to have constant access to this document to prevent handling errors and guarantee trouble-free operation.

Up-to-dateness

Every effort has been made to ensure that the information contained in this documentation is complete and correct at the time of release. This documentation describes all units and functions known of at the current point of time.

1.2 Representations in this documentation

Illustrations

Illustrations used in this document do not always contain all details or special cases. Ideally, they only provide the essential information.

Tips

Tips are marked as follows:

ⓘ Tips describe specific information or particular features that might not be evident, even for experienced users.
Neglecting a tip poses no direct safety risk. However, it can lead to workflow disruptions.

1.3 Identification of the warning notices

Classes of danger, signal words and colors

This documentation contains warnings regarding hazards of different classifications. These classes are characterized by signal words and colors. They include the following:

⚠ WARNING

Warns of possible immediate danger, which, if ignored, may lead to serious lasting damage to health and/or property.

ATTENTION

Warns of dangers, which, if ignored, may lead to damage to property – including financial losses due to operational interruptions.

2 Safety instructions

2.1 Introduction

Reliable and safe operation of the device depends on the careful handling and execution of operational and setting tasks.

Ignoring these safety instructions and warning information may lead to serious injury with lasting health consequences for personnel as well as damage or destruction of device components.

Mind and follow the safety instructions, warning information and the related codes of practice when using the device. Ensure that all those working with the device are also aware of these instructions.

Generally applicable safety regulations (such as accident prevention and environmental protection regulations, etc.) must also be observed.

2.2 Basic hazards

Definition

Basic hazards are residual risks that remain even with safety-conscious intended use.

State of the art

The device meets the current state of the art and applicable safety rules. All components are tested thoroughly before they leave the factory and are delivered in a condition for safe operation.

⚠ WARNING

Danger of injury!

Improper use of the device may lead to injuries.

- Do not open the device.
- Protect the device against extreme heat (excessive sunlight, storing in overheated vehicle, immediate vicinity of open fire or heating devices) during operation and when charging or storing.
- Avoid sharp impacts that could damage the battery, the display and/or other electronic components.

2.3 Personnel and qualifications

Basic requirements

The device must only be used by operators that have completely read and understood the safety instructions and all documents of the user documentation.

Personnel undergoing training or instructions or persons taking part in general vocational training programs may only operate the device under the continuous supervision of operating or technical personnel.

Responsibility of the operating company

Regarding the personnel authorized and/or trained by the operating company, the operating company carries the following responsibilities:

- The necessary training and instruction of personnel must be guaranteed.
- All personnel's competences and responsibilities must be clearly stated and documented.
- All user information on the product (operating manual, user documentation etc.) must be kept in the immediate vicinity of the product and must be accessible at all times.

2.4 Safety-conscious working practices

Accident prevention and environmental protection

In addition to the instructions in this Operating Manual please mind the generally applicable legal and other regulations on accident prevention and environmental protection.

This may include, for example:

- Handling of hazardous materials
- Wearing the required and mandatory personal protective clothing and safety equipment
- Observing of and complying with all national and regional industrial safety regulations
- Observing of and complying with all internal working, operating and safety regulations

2.5 Use of the product

General use

Improper use of the product may lead to injuries of operating personnel and/or product damage. Damaged components may affect or distort the measurement result quality.

- During use and storage, protect the device against extreme, unusual heat (excessive sunlight, storage in heated cars or immediate vicinity of open fire or heating devices). It is critical to stay within the temperature ranges given in the technical specification.
- Do not use the product and its accessories if they display functional errors and/or visible damage.
- Only connect the product to approved equipment received from SONOTEC GmbH or its sales partners.

- The product adheres to the protection class given in the technical specification and is protected against splash water. Do not submerge the product in liquids.
- Handle the product with care and protect it against major shocks. Use the carrying case to transport and store the product.
- Do not use the product within strong electromagnetic fields.
- Always use the product without distraction. Do not read messages on the display and/or operate the product while walking.

Tests with limited visibility

During detection of ultrasonic signals in areas with low or no visibility, there is a risk of personal injury and/or device/equipment damage.

- Always make sure to keep your hands, the device as well as connected equipment within your field of vision.

Tests on electrical equipment

During detection of ultrasonic signals on electrical equipment, make sure to keep the mandatory safety distance from detected electrical defects.

2.6 Modifications and alterations

No modifications on the product and/or accessories

The product and/or its accessories must not be opened or disassembled. The product does not contain any components to be cleaned, maintained or repaired by operators.

Unauthorized modifications of the product and/or its accessories are prohibited and lead to exclusion of liability by the manufacturer for resulting damage and consequences.

Spare parts and accessories

Spare parts and accessories must comply with the technical requirements specified by SONOTEC GmbH and its suppliers. Whenever original parts are used, compliance is given.

3 Device description and probes

3.1 Intended use

The SONAPHONE Pocket is used to detect ultrasound.

Any use other than the designated use is prohibited and can result in personal injury or damage to property. The SONOTEC GmbH accepts no liability for damage, including damage to third parties, caused by improper handling of the device.

3.2 Prohibited use

Any use not approved by SONOTEC GmbH is prohibited and may lead to injury or damage to property.

SONOTEC GmbH accepts no liability for damage caused by prohibited use of the product.

Prohibited are in particular:

- Use of equipment and/or accessories with visible damage
- Use in wet rooms
- Use in potentially explosive environments
- Use in environmental conditions that do not adhere to the stipulated requirements
- Unauthorized modifications of the equipment, the software and/or accessories
- Use of unauthorized spare parts and/or unauthorized accessories
- Opening the device for any other purpose than disposal.

Operating or using the product incorrectly and/or not in the sense of its intended use may lead to risk of death and personal injury.

3.3 Scope of delivery

Basic package

- SONAPHONE Pocket incl. batteries
- Stereo headphones with connection cable
- transport case medium
- carrying strap
- operating instructions

Accessories for various applications

For leak detection

- Airborne probe L50
- Directional tube with tip (for airborne probe L50)
- Acoustic horn (attachment for airborne probe L50)
- Leak tags (25 pcs.)

Further probes

- Structure-borne sound probe L51 for valve testing
- Structure-borne sound probe L52 with fixed stainless steel tip
- Structure-borne sound probe L54 for bearing wear control and run-out testing
- Flexible airborne sound probe L53 for leaks in pipelines with angular locations
- SONOSPOT L55: Parabolic probe for pinpoint leakage detection over long distances and for localization of electrical partial discharges
- SONAPHONE T: Ultrasonic transmitter with L50 airborne probe
- SONOSPHERE L56: Spherical transmitter with magnetic and suction cup mountings, tripod, carrying case with belt, brief operating instructions

Additional accessories

- Probe extension cable L50
- Transport case large (for additional storage SONOSPOT)
- Leak tags (50 pcs.)

3.4 Measuring method and functioning

Using the SONAPHONE Pocket, faulty components can be localized in different systems and their potential risk for the process can be assessed. It is based on ultrasonic signals which can be caused by friction on defective parts, for example.

Ultrasound can be created during a wide range of processes, including:

- at leaks in compressed air, steam and vacuum systems,
- during the operation of steam traps,
- at leaking valves, gates, barriers or taps in pipe systems,
- during the normal function of rolling bearings
- during cavitation caused by pumps and compressors, as well as
- in the event of flashovers or corona discharges in electrical systems

The ultrasonic signals created during the specified processes are detected with the SONAPHONE Pocket, converted into audible sound and output in their intensity through the headphones. At the same time, the ultrasound level is reported on the display.

The sound pressure is specified as a dB value (relative value). This is calculated from the ratio of the sound pressure to the reference value of the microphone voltage of 1 µV.

The following applies: 1 µV ≙ 0 dBµV

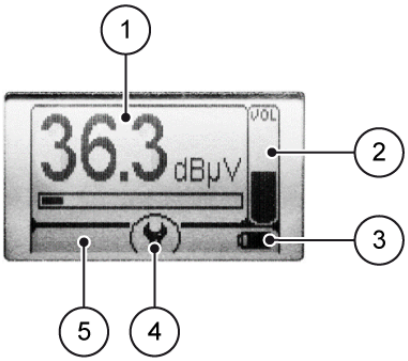
If the measured value is smaller than 1 µV, negative dB values can also be generated. Values below 0 dB are at the detection limit of the device and are unsuitable for reliable evaluations.

3.5 Device construction

No.	Description/function
1	On/Off button
2	Slot for ultrasonic probes
3	Display
4	Operating buttons
5	Headphones port
6	Fastening for strap
7	Battery compartment

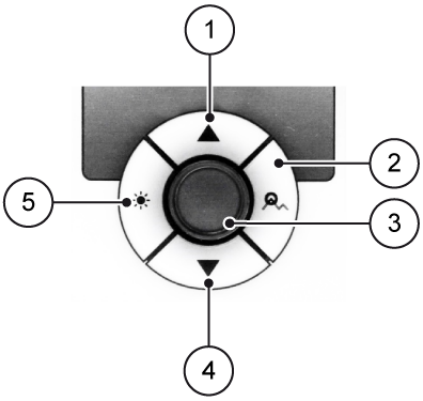
3.6 Display and operating buttons

Display



No.	Description/function
1	Sound level display in dBµV
2	Headphone volume
3	Battery state of charge
4	Function of the enter key in the menu
5	Maximum sound level display: Maximum value detection on: Max xx.x Maximum value detection off: (no display)

Operating buttons

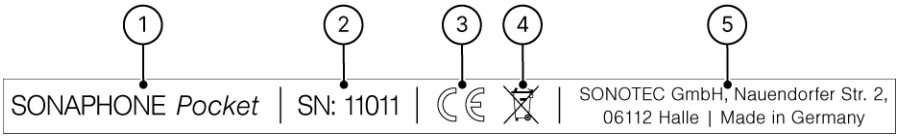


No.	Description/function
1	Increase volume/intensity In menu: navigate upwards
2	Maximum value detection: On/Off In menu: Cancel
3	Enter key: Switch to menu or confirm value
4	Decrease volume/intensity In menu: navigate downwards
5	Display lighting On/Off

3.7 Device labeling

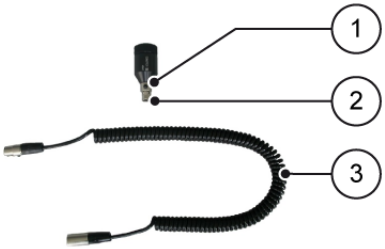
Identification plate

The identification plate is located on the rear of the device. The information on the identification plate must be kept available for servicing.



No.	Identification
1	Device designation
2	Serial number
3	CE marking
4	Disposal symbol
5	Name and address of the manufacturer

3.8 Airborne sound probe L50



No.	Description/function
1	Button for unlocking
2	Connector
3	Probe extension cable (optional)

Article number	100 01 0336
Application	For locating leakages

Directional tube with tip

ATTENTION

Damage to the probe grid during mounting!

When mounting the straightening tube, the probe grid of the L50 may be damaged

- Carefully slip the rubber grommet over the L50
- Do not push on the probe.

Article number	Directional tube: 300 01 0001 Directional tip: 300 01 0029
Application	Attachment for airborne sound probe L50 For precise localization of leakages

Acoustic horn

Article number	500 01 0052
Application	Attachment for airborne sound probe L50

3.9 Leak tags

Article number	500 01 0066 (set of 25 pieces) 500 01 0065 (set of 50 pieces)
Application	Marking of leakages, incl. fixing wire

3.10 Structure-borne sound probe L51

Article number	100 01 0149
Application	Waterproof structure-borne sound probe for valve testing

3.11 Structure-borne sound probe L52

Article number	100 01 0150
Application	For inspection of bearings, steam traps and valves

3.12 Felxible airborne sound probe L53

Article number	100 01 0151
Application	For locating leakages in pipelines that are located at an angle

3.13 SONOSPOT parabolic probe L55

Article number	100 01 0350
Application	For pinpoint location of leakages over greater distances For localizing electrical partial discharges

3.14 Ultrasonic transmitter SONAPHONE T and SONOSPHERE L56 spherical transmitter

Article number	700 01 0143 (set)
Application	For locating defective seals on cabins, climatic cabinets and fire doors

4 Commissioning and installing

4.1 Inserting the batteries

ATTENTION

Observe the installation position of the batteries!

The device may be damaged if the batteries are inserted incorrectly.

- When inserting the batteries, observe the installation position shown on the device.

⇨ Unscrew the battery compartment cover.

⇨ Insert the batteries (2 AA 1.5 V) into the battery compartment according to the illustration on the bottom of the device.

↳ When the device is operational, the battery status (1.5 V) is shown on the display.

Appropriate accumulators can also be used to operate the device. The charge status for the accumulators (1.2 V) is then shown approximately.

4.2 Connecting headphones

ATTENTION

Malfunctions possible!

Incorrect connection of the headphones can lead to malfunctions in the device.

- Connect only stereo headphones.
- When connecting the headphones, make sure that both plugs (on the device and on the headphones) are fully inserted into the socket.

4.3 Connecting probes

ATTENTION

Damage to the device and/or the probe possible!

When connecting a probe, the device and/or the probe can be damaged.

- Observe the correct position of the probe plug.

The slot for probes is provided with a notch which indicates the correct position for insertion.

⇨ Install the required probe in the specified position. You must feel the connector click into place.

↳ The probe is installed and ready to use.

4.4 Disconnecting probes

ATTENTION

Damage to the device and/or the probe possible!

When disconnecting a probe, the device and/or the probe may be damaged.

- Do not turn the probe to disconnect it from the device.

⇨ Press the button to unlock the connector.

⇨ Pull the probe carefully in a straight line to remove it from its slot.

5 Operating the SONAPHONE Pocket

5.1 Switching on and off

⇨ Switch the device on or off by pressing the On/Off button.

↳ During the start-up process, the device displays the current software version for a few seconds. The device then displays the current sound pressure level and is ready for operation.

ⓘ The display can show negative values for the sound pressure level if the microphone voltage falls below the value of 0 dBµV defined in the device.

5.2 Setting the volume

The volume can be varied in regular steps of 2 between -42 dB and 0 dB. The factory setting is -22 dB.

⇨ Press the arrow buttons to increase or decrease the volume .

↳ The current volume is shown on the display.

5.3 Switch on maximum value detection

⇨ Press the button for maximum value detection to switch the function on and off.

↳ The value is displayed on the bottom left of the display.

Max xx.x Maximum value detection on

ⓘ When the maximum value acquisition is switched off and on, the max value is reset.

5.4 Switch on the display lighting

⇨ Press the Light button to switch the display lighting on and off.

The display lighting switches off automatically after the set duration.

5.5 Setting the duration of the display lighting

To increase the battery life, the display lighting can be set to switch off automatically.

The factory setting is 5 seconds. After this period the device switches off automatically.

⇨ Press the Enter key 1x.

⇨ Press the arrow keys to navigate the menu until the symbol shows up on the display.

⇨ Press the Enter key 1x to see the current setting for the display brightness and to choose a different value.

⇨ Press the arrow keys to set the desired lighting duration.

To disable the automatic display lighting, set the value to .

↳ Confirm the value with the Enter key to return to the main menu.

5.6 Adjust display contrast settings

To adapt the view to individual ambient conditions, the display contrast can be altered.

The factory setting is 50 %.

⇨ Press the Enter key 1x to select the contrast.

⇨ Select a contrast value using the arrow keys .

↳ Confirm the value with the Enter key to return to the main menu.

5.7 Setting the automatic shutoff

To increase battery life, the device switches itself off automatically when no longer in use.

The factory setting is 5 minutes. After this period the device switches off automatically.

⇨ Press the Enter key 1x.

⇨ Press the arrow keys to navigate the menu until the symbol shows up on the display.

⇨ Press the Enter key 1x to see the current time set for the automatic shutoff and to choose a different value.

⇨ Press the arrow keys to set the desired value.
To disable auto shutoff, set the value to .

↳ Confirm the value with the Enter key to return to the main menu.

6 Cleaning and care

Guidelines

Do not open the product! The product contains no parts to be cleaned by the operator.

Suitable cleaning products

Only clean the product on the outside with soft, lint-free cloth.

For hard-to-remove dirt and/or fatty deposits, only use cleaning agents approved by the manufacturer.

ATTENTION

Check the compatibility of used cleaning agents!

The compatibility of all cleaning agents with used materials and colors must be confirmed and approved by SONOTEC GmbH or the respective supplier.

Unsuitable cleaning agents

Do not clean the product with:

- scratchy, aggressive, solvent-containing or benzine-containing cleaning agents,
- pressured air, high-pressure cleaner or other kinds of cleaning machine.

After cleaning

After cleaning the device, make sure that:

- cables, connectors and fittings are free of cleaning agents and
- cables, wires, connectors and electrical components are dry.

7 Maintenance and troubleshooting

Guidelines

Do not open the device! The device contains no parts to be maintained or repaired by the operator.

If errors or problems occur, contact the manufacturer. If possible, have the version number of the system ready. The version number is displayed when the device is started up.

8 Technical data

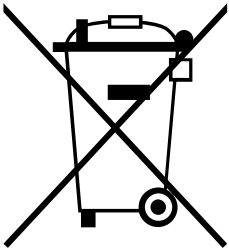
SONAPHONE Pocket, Version 1.0	
Article number	200 01 0277
Operating frequency	About 40 kHz
Functionality	Detection and conversion of ultrasonic signals: Making ultrasound audible Report of sound level on the display Auto Power Off function
Display	Illuminated LC display
Connections	For different ultrasonic probes; Stereo jack plug
Power supply	2 AA batteries or accumulators
Operating voltage	2 × 1.5 V battery or 2 × min. 1.2 V accumulator
Running time	Approx. 24 hours with battery operation
Operating temperature	-10 °C ... +60 °C
Storage temperature	-20 °C ... +60 °C
Protection type	IP54
Dimensions (L × W × H)	130 × 85 × 30 mm
Items supplied	Ultrasonic multifunctional device, probes as specified in the order, stereo headphones, carrying case, user manual

9 Disposal

Recycling and taking back of used equipment

Electrical and electronic devices may pose a risk to health and the environment if disposed of incorrectly. They cannot therefore be disposed of as domestic waste according to WEEE Directive 2012/19/EU (Waste Electrical and Electronic Equipment Directive). Instead they must be taken to designated collecting points or returned to the manufacturer.

The following symbol indicates the legal duty to dispose of electronic devices as stipulated.



They must undergo specified recycling processes (e.g., with respect to batteries or circuit boards) which enable safe, environmentally compatible re-use or separate disposal of different device elements.

The return of used devices is regulated differently in different places. Find out from your local council about the return conditions for commercially used electronic devices. The device, including rechargeable battery, contains no toxic substances requiring separate identification for disposal such as mercury (Hg), cadmium (Cd), lead (Pb) or chrome 6 (e. g., in plated parts or circuit boards).

10 Warranty

Condition at delivery

All products and accessories have been tested thoroughly before they leave the factory, are state-of-the-art products at the time of delivery and adhere to all applicable safety regulations.

Warranty

During the warranty period, SONOTEC GmbH will eliminate all deficiencies caused by material or manufacturing faults free of charge. SONOTEC GmbH will at its own discretion offer warranty by reparation or replacement of faulty products.

Exceptions

Internal accumulators as well as damage caused by unintended use, by wear or by manipulation of the product are exempt from warranty. The warranty also does not cover those faults that affect value or usability of the product to a negligible amount.

Responsibility of the user/operator

It lies within the responsibility of the users to ensure that the product has been installed and set-up properly and is used in a manner that does not impair safe operation.

Operating errors

Operating errors can never be completely ruled out by the manufacturer. SONOTEC GmbH is in no way liable for any direct or indirect damage caused by operating errors (e.g. damage on software and/or hardware, damage by downtime, damage by malfunction as well as damage or loss of measurement and test data).

Quality of captured data

The determination of valid test results, their interpretation and the actions derived therefrom are exclusively subject to the personal responsibility of the users. SONOTEC GmbH does not guarantee the correctness of determined test values and/or test results. SONOTEC GmbH does not assume liability for any faults or damages that might occur due to further use of determined test and measurement values.

11 Manufacturer information

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Certifications and registrations

- Quality management according to ISO 9001:2015 (Certificate Registration No.: 091006014)
- Registration according to ElektroG at the "stiftung elektro-altgeräte register" (ear): WEEE Reg. No. DE 22125904

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E.C. DECLARATION OF CONFORMITY
STANDARD ROUTE TO COMPLIANCE

SONOTEC Ultraschallsensorik Halle GmbH
Nauendorfer Straße 2
06112 Halle (Saale)
Germany

declares under our sole responsibility, that the product

SONAPHONE Pocket

to which this declaration relates is in conformity with the following standards, including the valid changes at time of declaration:

2011/65/EU Restriction of Hazardous Substances (RoHS)

2014/30/EU Electromagnetic Compatibility

in agreement with the following standard:

DIN EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements

The SONAPHONE Pocket is used to detect leakages in compressed air or vacuum systems, to verify steam pipes seals, to seal integrity of fittings and condenser drains and to verify ultrasonic sources.

The correspondence of the product mentioned above with the directives and laws of the EC-directives are guaranteed by means of a quality management system.

Halle, 10th June 2016

Hans-Joachim Münch
Managing Director