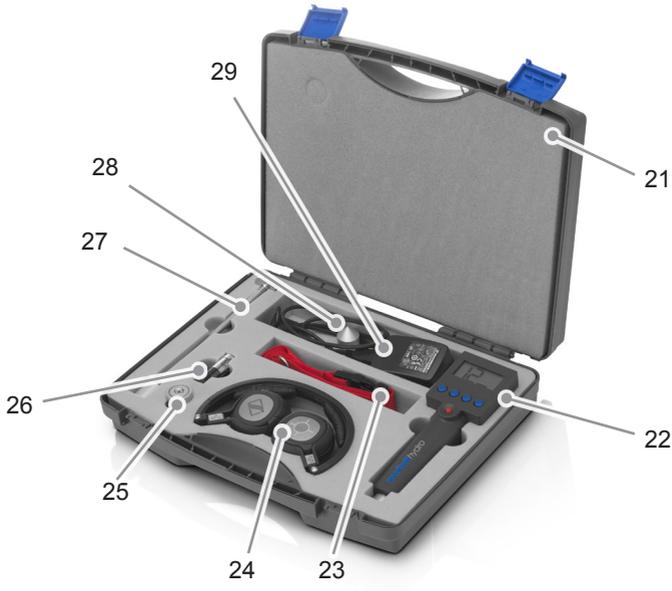
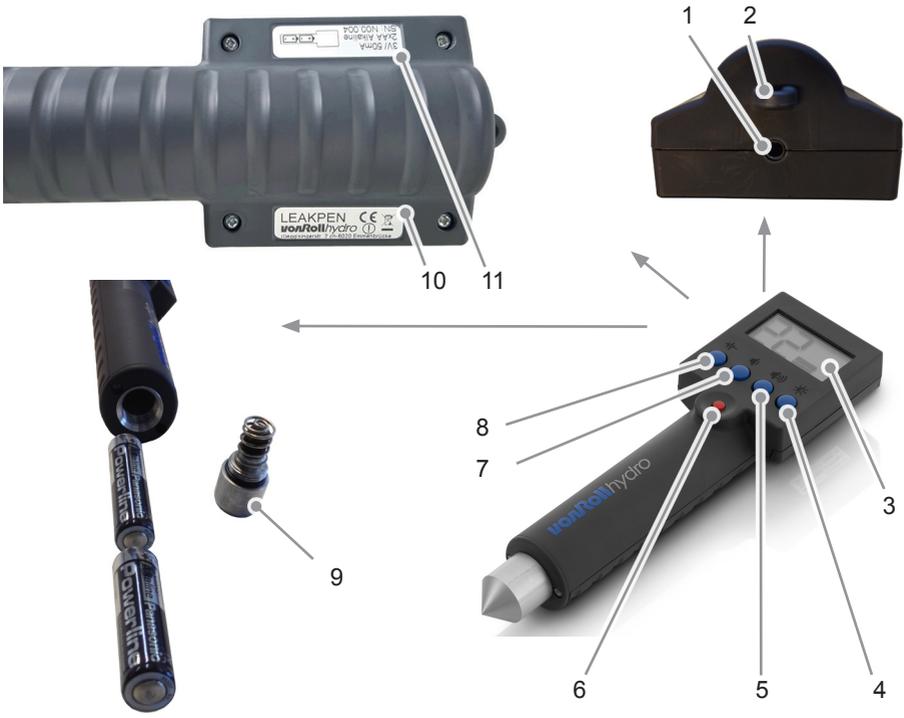


Operating instructions

LEAKPEN







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Dear customer,

Before using the LEAKPEN, hereinafter referred to as the measurement device, please read these operating instructions for information on commissioning, safety, intended use as well as cleaning and maintenance.

The figures referred to in these instructions are the figures on the fold-out pages of the cover.

Keep these operating instructions for future reference and pass them on to subsequent users of the measurement device.

General information

Copyright

This document is protected by copyright. Any duplication, reprint, even in extracts, or reproduction of the figures, even if modified, shall be permitted only with the prior written approval of the manufacturer.

Limitation of liability

All technical information, data and notes in these operating instructions regarding commissioning, operation and maintenance are the most recent at the time of going to print.

The manufacturer assumes no liability for damage caused as a result of failing to follow the instructions, improper use, incorrect repairs, unauthorised changes or the use of non-approved replacement parts, accessories and tools.

Information on disposal



The packaging materials used are recyclable. Dispose of packaging materials no longer required in accordance with local regulations.

 Within the European Union, this product must not be disposed with normal household waste. Dispose of the measurement device in accordance with local regulations.

 The batteries must not be disposed of with household waste. Dispose of the batteries in accordance with local regulations for the disposal of rechargeable batteries/used batteries or special waste.

INFORMATION

- ▶ You can take the measurement device to your nearest service point for correct, environmentally-responsible disposal.

Warnings

The following warnings are used in these operating instructions:

WARNING

A warning of this danger level indicates a potentially hazardous situation.

If the hazardous situation is not avoided, it could result in injury.

- ▶ Follow the instructions in this warning to avoid causing personal injury.

CAUTION

A warning of this danger level indicates possible material damage.

If the situation is not avoided, it could result in material damage.

- ▶ Follow the instructions in this warning to avoid causing material damage.

INFORMATION

- ▶ An information box provides additional information to enable easier use and handling of the measurement device.

Intended use

The measurement device is intended exclusively for the acoustic detection of leaks in pressurised water pipes.

Any other use or use beyond that which is specified does not constitute intended use.

WARNING

Danger due to improper use.

Improper use and/or use of the measurement device other than for the intended use can present a hazard.

- ▶ Always use the measurement device as intended.
- ▶ Follow the procedures described in these operating instructions.

Claims of any kind due to damage caused by improper use are excluded. The operator alone shall bear the risk.

INFORMATION

- ▶ Ensure that accident prevention regulations and the Ordinance on Industrial Safety and Health are complied with if the device is used for commercial purposes.

Safety

WARNING

Observe the following basic safety measures to avoid the risk of fire, injury and material damage.

- Store the measurement device and the accessories in a dry, temperature-controlled location out of the reach of children.
- Do not leave the measurement device outdoors or expose to moisture.
- Keep the measurement device clean, dry and free from oil and grease.
- Wear personal protective equipment in accordance with local guidelines and conditions, in particular when used on busy roads.

Basic safety information

- Do not use the measurement device in a potentially explosive atmosphere.
- Have repairs to the measurement device or to the accessories carried out exclusively by an authorised specialist workshop or by the factory service centre.
- Repairs to the measurement device during the warranty period must be made by a service centre authorised by the manufacturer, otherwise the warranty claim shall be invalid.
- Defective components must be exchanged only for original replacement parts. Only by using these parts can it be guaranteed that the safety requirements are met.

Safety information for batteries

WARNING

If batteries are used incorrectly, there is a risk of fire, explosion and injury.

Proceed in accordance with the following safety information in order to avoid injuring yourself or others:

- ▶ Batteries must not be opened, thrown into a fire, immersed in any liquids or short-circuited.
- ▶ Battery fluid can leak from damaged batteries. If the batteries have leaked, do not let skin, eyes or mucous membranes come into contact with the battery fluid. If contact with battery fluid is made, rinse the affected areas immediately with plenty of clean water and seek medical attention straight away.
- ▶ If batteries are damaged or used incorrectly, vapours can be emitted. Ventilate the area with fresh air and seek medical attention if you feel unwell. The vapours could irritate the respiratory system.

CAUTION

Possible material damage if batteries are used incorrectly.

Proceed in accordance with the following information to avoid material damage:

- ▶ Use only the battery type approved by the manufacturer.
- ▶ Remove leaking batteries immediately from the measurement device. Clean the contacts inside the measurement device before inserting new batteries.

INFORMATION

- ▶ Remove the batteries from the measurement device if the measurement device is not used for an extended period.
- ▶ The batteries must not be disposed of with household waste. For more information on disposal, see the section entitled „Information on disposal“.

Risk of hearing damage

WARNING

Risk as a result of extreme volume levels.

Loud noises can cause hearing damage.

- ▶ Avoid extreme volume levels when using wireless headphones, especially during periods of extended use.

Components/scope of delivery

Device overview

1	Connection socket for headphones and leakage LED
2	Fastening eye for lanyard
3	Display
4	 button
5	 button (increases volume)
6	ON/OFF button (mute)
7	 button (reduces volume)
8	 button
9	Tip of the measurement device = screws into battery compartment
10	Rating plate 1
11	Rating plate 2

Scope of delivery

21	LEAKPEN device case
22	LEAKPEN hand-held device
23	Lanyard
24	Wireless and wired headphones
25	Magnetic adapter (short)
26	2 x LR6 alkaline batteries
27	Magnetic adapter (long)
28	Adapter tip
29	Power supply (for charging the headphones battery) or 230 V AC charger
	Operating instructions
	12 V DC motor vehicle charger
	Charging cable
	Audio cable for headphones
	Protective stopper for jack socket

Display (see picture A)

31	Noise level (numerical)
32	Noise level (bar)
33	Hearing protection active
33 and 34	Mute
35	High-pass filter active
36	Low-pass filter active
37	Battery charge level indicator

Rating plate

The following information can be found on the rating plates (10 and 11):

- Type of measurement device
- Serial number
- Operating voltage
- Typical current consumption
- Information about the batteries
- Manufacturer data

Transport inspection

The measurement device is supplied as standard with the components specified in the section entitled „Scope of delivery“.

INFORMATION

- ▶ Check that the delivery is complete and free from visible damage. Contact your dealer/supplier immediately if your delivery is incomplete or damaged.

Function description

How it works

LEAKPEN is an acoustic measurement device. A vibraphone picks up noises from the water pipes under inspection. The measurement results are shown numerically on the display and transmitted acoustically through headphones.

The measurement device and headphones can be connected via Bluetooth or with a cable.

The loudest noises reveal the location of the leak. Extraneous noises can be cancelled using high- and low-pass filters.

Either disposable batteries or rechargeable batteries can be used to power the measurement device.

Preparations

Setting up the power supply

The measurement device can be operated by means of disposable batteries/rechargeable batteries. For permissible types, see Technical specifications.

CAUTION

Damage to electronic components.

Incorrect set-up of the power supply for the measurement device can cause damage to electronic components and other parts of the device.

- ▶ Only remove disposable batteries/rechargeable batteries once the measurement device has been switched off.
- ▶ Make sure that the polarity is correct when inserting the batteries.

Proceed as follows to insert the batteries:

- Unscrew the tip of the measurement device (9).
- Insert the batteries into the battery compartment and make sure that the polarity is correct (the positive terminal on the battery should always be inserted first).
- Place the tip of the measurement device (9) correctly on the battery compartment and screw it back on.

To remove the batteries:

- Unscrew the tip of the measurement device (9).
- Either pull the batteries out of the measurement device or tap the measurement device lightly on the palm of your hand and shake them out.

Preparing the working area

In order to achieve optimum and reliable measurement results:

- The working area should be free from dirt and contamination. Check the measuring point and vibraphone and clean as necessary.
- There must be enough space in the working area around the measuring point to allow the vibraphone to be positioned correctly with respect to/properly connected to the area under inspection. Check whether there is enough space and adjust if necessary.
- There must be enough space in the operator's working area in order to guarantee safe, optimum operation of the measurement device.

- If used on busy roads, ensure sufficient visibility (warning triangle, reflective vest).

Preparing the measurement device for use

- Switch on the measurement device using the ON/OFF button (6).
- Touch the vibraphone to check that it is working properly. The smallest of vibrations must be shown on the display.

Use

General procedure

The monitoring procedure is used to isolate and pinpoint the leak site:

- For structure-borne sound measurements, place the vibraphone on the measuring point under inspection (pipe, valve, hydrant, etc.). The noise level will be shown on the display (3).
- Repeat the measurement at various locations along the pipe in order to isolate the noise source.
- The louder the measured noise, the closer the leak site.
- If no noise can be heard, it can be assumed that the pipe section under inspection is intact.

Switching the device on and off

To switch on:

- Press the ON/OFF button (6). This switches on the measurement device and the measurement screen will be shown on the display (3).

To switch off:

- Press and hold the ON/OFF button (6). This switches off the measurement device and the display will disappear.

INFORMATION

- ▶ If the measurement device is switched on but then not used, it switches off automatically after 10 minutes.

Using headphones

INFORMATION

- ▶ Read the operating instructions for the headphones.
- ▶ The measurement device and headphones must be paired with each other.
- ▶ The measurement device and the headphones are already paired on delivery.

- Charge the rechargeable batteries in the headphones.
- Switch on the headphones.
- Switch on the measurement device in order to connect the headphones to the measurement device.
- Set the volume using the  and  buttons.

- The measured values are shown on the display and also transmitted as acoustic signals through the headphones. The value on the display is independent of the selected volume.

If the headphones used are not the same as those used for the previous connection, or if the headphones have been connected to another device, then the measurement device and the headphones must be paired again. To do this, see the "Connecting headphones" section.

Setting the volume

- By pressing the ON/OFF button (6), you can switch the sound on and off (mute).
- Press the  or  button to respectively reduce or increase the volume when the measurement screen is on the display.
- When you press the ON/OFF button (6) to switch off the device, your chosen volume is saved.

To protect your hearing in the event of loud noise, the measurement device has a hearing-protection feature. By selecting the protection level, the maximum volume can be set (for more information, refer to the section entitled "Setting the hearing-protection level"). When the hearing-protection feature intervenes, the volume is limited. This is indicated by the hearing-protection symbol (33). The symbol goes out as soon as the volume drops below the set protection level.

Setting the filter

The measurement device can cancel high- or low-frequency interference by activating high- or low-pass filters.

- You can choose the filter you require by pressing the  button on the measurement screen. If the filters are switched on, the filter symbol (35 or 36) will be shown on the display.

The measured value changes depending on the filter settings.

Backlighting

- Press the  button to switch the backlighting/leakage LED on or off.

Torch

- Press and hold the  button to switch the torch feature on or off.

Leakage LED

- Press the  button to switch the leakage LED/backlighting on or off.

The leakage LED provides a visual indication of the noise level in case the display is not visible because the measurement device is being used elsewhere for measuring purposes, e.g. if it is being used in a shaft. The leakage LED is able to indicate three different statuses (see the section entitled „Setting the threshold value for the leakage LED“):

LED off	If the LED is off, this means that the noise level is below the lower threshold value.
LED flashing	If the LED is flashing, this means that the noise level is either equal to the upper or lower threshold value, or lies between these values. The faster the LED flashes, the louder the noise level.
LED continuously lit	If the LED is lit continuously, this means that the noise level is above the upper threshold value.

Configuration

Pairing the headphones

INFORMATION

- ▶ Pairing is always required when the headphones used are not the same as those used for the previous connection or if the headphones have been connected to another device.
- ▶ On delivery, the measurement device and the headphones are already paired.

- Switch off the measurement device or check that it is already switched off.
- Make sure that the headphones are in pairing mode (see the operating instructions for the headphones). As a rule, this is achieved by pressing and holding the ON button and indicated by two-colour flashing.
- Press and hold the  button.
- Switch on the measurement device by pressing the ON/OFF button (6).
- Release the  button.
- The measurement device will now search for new headphones and establish the connection. The search can take up to 30 seconds.

Setting the hearing-protection level

- Switch off the measurement device or check that it is already switched off.
- Press and hold the  button.
- Switch on the measurement device by pressing the ON/OFF button (6).
- Release the  button.
- The current protection level will be displayed.
- Press the volume-reduction  or volume-increase  button to select the "Quiet" (1), "Medium" (2), "Loud" (3) or "Hearing protection off" (4) setting.
- When you press the ON/OFF button (6) to switch off the device, your chosen protection level is saved.

Setting the threshold value for the leakage LED

- Switch off the measurement device or check that it is already switched off.
- Press and hold the  button.
- Switch on the measurement device by pressing the ON/OFF button (6).
- Release the  button.
- The current lower threshold value will be displayed.
- Press the volume-reduction  or volume-increase  button to select the lower threshold value.
- When you press the ON/OFF button (6) to switch off the device, your chosen threshold value is saved.
- Switch off the measurement device or check that it is already switched off.
- Press and hold the  button.
- Switch on the measurement device by pressing the ON/OFF button (6).
- Release the  button.
- The current upper threshold value will be displayed.
- Press the volume-reduction  or volume-increase  button to select the upper threshold value.
- When you press the ON/OFF button (6) to switch off the device, your chosen threshold value is saved.

Cleaning

CAUTION

Damage due to improper cleaning.

Improper cleaning can cause damage to the measurement device.

- ▶ Cleaning must only ever be performed when the device is switched off.
- ▶ Only use a damp cloth for cleaning.
- ▶ Never immerse the measurement device in water or other liquids.

After each use

- Clean the measurement device and the accessories used with a damp cloth.
- Switch off the measurement device and headphones

Maintenance

Visual checks during each use:

- Check the measurement device and the accessories used for any signs of external damage.

Storage

If you do not need the measurement device for an extended period, clean it as described in the "Cleaning" section. Store the measurement device and all accessories in the transport case in a dry, clean and frost-free location.

Technical specifications

Measurement device:	
Dimensions (LxWxH)	203 x 58 x 38 mm
Material of the hand-held device housing	ABS/PA Schulablend
Weight (incl. two batteries)	240 g
Operating temperatures	-10 °C to +50 °C
Humidity	0-99% RH
Protection rating	IP54
Power consumption:	Typ. 80 mA @3 V
Display instrument	LCD segment display incl. backlighting/contrast-optimised for outdoor use
Disposable/rechargeable batteries:	
2 x alkaline, AA LR6 or	1.5 V
2 x NiMH, AA HR6 or	1.2 V
2 x zinc-carbon AA R6 or	1.5 V
2 x lithium AA FR6	1.5 V
Battery life	Approx. 35 hours (with alkaline, typically backlighting off, Bluetooth on)
Case:	
Dimensions (LxWxH)	340 x 275 x 85 mm
Total weight	1.4 kg
Headphones:	
Power supply	Internal rechargeable battery, charging via USB
Operating time	Approx. 30 hours
Frequency range	20 Hz to 8000 Hz
Audio transmission	Interference-free Bluetooth 2.1 wireless technology (class II) Bluetooth headphones that can also be connected using a cable Hearing-protection feature

Customer service

Should you have any questions for the Customer Service department, please contact:

vonRoll hydro (suisse) AG
Rüeggisingerstr. 2
CH-6020 Emmenbrücke
Switzerland

or your sales outlet/dealer.



EC Declaration of Conformity

The manufacturer of the measurement device confirms that the following named measurement device complies with the directives and standards listed below.

Name of the measurement device:

LEAKPEN hand-held device

Directives:

- 2004/108/EC (EMC Directive)
- 1999/5/EC (R&TTE Directive)

Applicable standards

- DIN EN 61326-1
- DIN EN 300 328
- DIN EN 61010-1

Manufacturer:

vonRoll hydro (suisse) AG
vonRoll-Strasse 24
CH-4702 Oensingen
Switzerland

A handwritten signature in blue ink, appearing to read 'Frank Endress', is positioned above a horizontal line.

Frank Endress (Managing Director)
Oensingen, 1st January 2016

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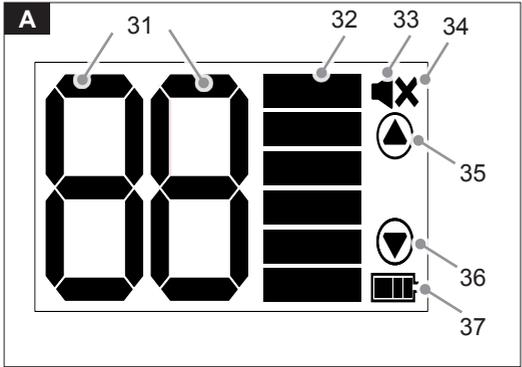
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