User Manual

Acoustic leak detection system

HL 7000

Mess- und Ortungstechnik
Measuring and Locating Technologies

Elektrizitätsnetze
Power Networks

Kommunikationsnetze
Communication Networks

Rohrleitungsnetze
Water Networks

Abwassernetze
Sewer Systems

Leitungsortung
Line Locating

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Article number: 86357

Consultation with SebaKMT

The present system manual has been designed as an operating guide and for reference. It is meant to answer your questions and solve your problems in as fast and easy a way as possible. Please start with referring to this manual should any trouble occur.

In doing so, make use of the table of contents and read the relevant paragraph with great attention. Furthermore, check all terminals and connections of the instruments involved.

Should any question remain unanswered or should you need the help of an authorized service station, please contact:

Seba Dynatronic **Mess- und Ortungstechnik GmbH**	**Hagenuk KMT** **Kabelmesstechnik GmbH**
Dr.-Herbert-Iann-Str. 6 D - 96148 Baunach Phone: +49 / 9544 / 68 – 0 Fax: +49 / 9544 / 22 73	Röderaue 41 D - 01471 Radeburg / Dresden Phone: +49 / 35208 / 84 – 0 Fax: +49 / 35208 / 84 249

E-Mail: sales@sebakmt.com
http://www.sebakmt.com

Terms of Warranty

SebaKMT accept responsibility for a claim under warranty brought forward by a customer for a product sold by SebaKMT under the terms stated below.

SebaKMT warrant that at the time of delivery SebaKMT products are free from manufacturing or material defects which might considerably reduce their value or usability. This warranty does not apply to faults in the software supplied. During the period of warranty, SebaKMT agree to repair faulty parts or replace them with new parts or parts as new (with the same usability and life as new parts) according to their choice.

This warranty does not cover wear parts, lamps, fuses, batteries and accumulators.

SebaKMT reject all further claims under warranty, in particular those from consequential damage. Each component and product replaced in accordance with this warranty becomes the property of SebaKMT.

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Each measure to remedy a claim under warranty shall exclusively be carried out by SebaKMT or an authorized service station.

This warranty does not apply to any fault or damage caused by exposing a product to conditions not in accordance with this specification, by storing, transporting, or using it improperly, or having it serviced or installed by a workshop not authorized by SebaKMT. All responsibility is disclaimed for damage due to wear, will of God, or connection to foreign components.

For damage resulting from a violation of their duty to repair or re-supply items, SebaKMT can be made liable only in case of severe negligence or intention. Any liability for slight negligence is disclaimed.

Since some states do not allow the exclusion or limitation of an implied warranty or of consequential damage, the limitations of liability described above perhaps may not apply to you.

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1 Safety Instructions

1.1 General Safety Instructions and Warnings

	• Do not drop the device / the system's components or subject it / them to strong impacts or mechanical shocks. • The limits described under Technical Data may not be exceeded. • The device / system must be in a technically perfect condition for measurement. • The indicated degree of protection can only be ensured if plugs or the provided protection caps are put in all sockets of the device. • The plugs of the supplied connection cables are only compliant to the indicated degree of protection as long as they are plugged in. Plugs which are not connected or which are connected in a wrong way are not protected from water and dust ingress. • The transport cases of the system have electrical components. Therefore, the cases must be protected from water and moisture.

1.2 General Notes

Safety precautions

This manual contains basic instructions for the commissioning and operation of the device / system. For this reason, it is important to ensure that the manual is always available to the authorised and trained operator. He needs to read the manual thoroughly. The manufacturer is not liable for damage to material or humans due to non-observance of the instructions and safety advices provided by this manual.

Locally applying regulations have to be observed!

Labelling of safety instructions

The following signal words and symbols are used in this manual and on the product itself:

Signal word / symbol	Description
CAUTION	Indicates a potential hazard which may result in moderate or minor injury if not avoided.
NOTICE	Indicates a potential hazard which may result in material damage if not avoided.
	Serves to highlight warnings and safety instructions. As a warning label on the product it is used to draw attention to potential hazards which have to be avoided by reading the manual.
	Serves to highlight important information and useful tips on the operation of the device/system. Failure to observe may lead to unusable measurement results.
	Serves to highlight important information which are meant to protect the device/system of water or moisture.

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Check contents

Check the contents of the package for completeness and visible damage right after receipt. In the case of visible damage, the device must under no circumstances be taken into operation. If something is missing or damaged, please contact your local sales representative.

Working with products from SebaKMT

It is important to observe the generally applicable regulations of the country in which the device will be operated, as well as the current national accident prevention regulations and internal company directives (work, operating and safety regulations).

Use genuine accessories to ensure system safety and reliable operation. The use of other parts is not permitted and invalidates the warranty.

Repair and maintenance

Repair and maintenance work has to be carried out by SebaKMT or authorised service partners using original spare parts only. SebaKMT recommends having the system tested and maintained at a SebaKMT service centre once a year.

SebaKMT also offers its customers on-site service. Please contact your service centre if needed.

Electromagnetic radiation

This device is designed for industrial use. When used at home it could cause interference to other equipment, such as the radio or television.

The interference level from the line complies with the limit curve B (living area), the radiation level complies with the limit curve A (industrial area) according to EN 55011. Given that living areas are sufficiently far away from the planned area of operation (industrial area), equipment in living areas will not be impaired.

Special transportation requirements

The lithium batteries of the device are dangerous goods. The transport of the batteries itselves and of devices which contain such batteries is subject to regulations based on the UN Model Regulations “Transport of Dangerous Goods” (ST/SG/AC.10-1).

Please inform yourself about the transportation requirements and follow them when shipping the device.

2 Technical data & scope of delivery

2.1 Technical data

HL 7000 system These parameters apply to the entire system:

Frequency analysis	0 - 4000 Hz
Audio sample rate	16 kHz
Operating time	> 10 hours
Operating temperature	-20 °C to +60 °C
Storage temperature	-25 °C to +70 °C
Communication	*Bluetooth* ® USB cable Microphone cable

HLE 7000 These parameters apply to the HLE 7000 control unit:

Screen	4.3" colour display with touch function
Input	Touch display On/off button Favourites button 3 navigation buttons Mute button
LEDs	On/off Charge control
Storage	min. 100 measurements including audio recordings (wav files)
Power supply	internal lithium-ion battery, (3.6 V / 10 Ah)
Operating time	> 10 hours
Charge	5 V / 1.5 A
Charging time	Approx. 8 hours
Dimensions	200 x 95 x 45 mm
Weight	0.6 kg
Protection class	IP 65
GPS	internal receiver and antenna
Wireless	2 internal Bluetooth modules

CS-7 carrying pole These parameters apply to the CS-7 carrying pole:

LEDs	On/off Mute active Radio active Battery status (3 LEDs) Ground light
Buttons	On/off Muting Ground light
Interfaces	Bluetooth universal sensor connection Charging socket

Power supply	internal lithium-ion battery, (3.6 V / 3.35 Ah)
Charge	5 V / 0.45 A
Charging time	Approx. 8 hours
Dimensions	220 x 80 x 650 mm
Weight (without sensor)	0.7 kg
Protection class	IP 65
Wireless	internal Bluetooth module

Ground microphone PAM W-7

These parameters apply to the ground microphone:

Sensor	active piezo microphone
Dimensions	Ø 230 mm x 175 mm
Weight	2.7 kg
Protection class	IP 67
Adapter	Measuring tip, three-point foot adapter

Sensor rod microphone PAM T-7

These parameters apply to the sensor rod microphone:

Sensor	active piezo microphone
Dimensions	Ø 54 mm x 143 mm
Weight	0.8 kg
Protection class	IP 67
Adapter	Sensor rod

Universal microphone PAM Corr-2

These parameters apply to the universal microphone:

Sensor	active piezo microphone
Dimensions	Ø 49 mm x 103 mm
Weight	0.4 kg
Protection class	IP 68
Connection	Cables
Adapter	Magnetic adapter

Tracer gas sensor PAM H-7

These parameters apply to the H_2 sensor:

Sensor	H_2 sensor
Dimensions	Ø 85 mm x 190 mm
Weight	0.32 kg
Protection class	IP 54

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2.2 Included in delivery

Basic set The HL 7000 basic set includes the following parts:

Part	Description	Serial no.
HLE 7000	Hydrolux receiving and operating unit	1009672
Bluetooth headphones		90019021
CS-7	Carrying pole with operating buttons	1009674
PAM W-7	Wind-protected ground microphone	1009673
Mains supply unit SM-SNG FW8000USB	Power adapter 5V/2.2A	90025102
VK 130	Connection and charging cable	90022223
TP W-7	Three-point foot adapter	2010837
HL-7000-K	Complete case for HL 7000	2010797
USB stick, HydroluxView HL 7000 PC-SW	USB data storage with PC software HydroluxView-3	1011008
Bracket, HL 7000	Holder for HLE 7000	90025467
Mounting set bracket, HL 7000		2011128
Mounting set belt clip, HL 7000		2011129
Manual	Operating manual	

Optional The following accessories are optionally available:

Part	Description	Serial no.
PAM T-7	Sensor rod microphone	1010396
Foot traverse, PAM T-3	Foot piece for PAM T-3 / T-7	820018811
PAM H-7	Tracer gas sensor	1010671
PAM CORR-2	Active universal microphone for direct connection to the HLE 7000 control panel	820019615

3 Technical description

3.1 HL 7000 system

Function and structure

The Hydrolux HL 7000 is used for acoustic leak location on pipelines. It consists of an operating unit, a universal carrying pole, various microphones and Bluetooth® headphones.

By connecting different sensors to the carrying pole, the acoustic recording of ground noise, direct listening to the pipe and leak detection with the help of tracer gas are possible.

Communication

The transmission of the detected leak noise or the recorded measured values takes place wirelessly via a Bluetooth connection.

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3.2 HLE 7000 operating unit

3.2.1 Function and structure

The HLE 7000 device is the operating unit of the HL 7000 system. It is the communication hub between the CS-7 sensor carrying pole and the headphones. On the screen, the recorded measured values are displayed. At the same time, the touch-sensitive screen is used to enter all commands and operating steps.

Design On the HLE 7000 you will find the following operating elements, lights and connection sockets:

Element	Description
1	**On/Off/Home button & LED** Short press … Switches on the device or opens the home screen Long press … Switches the device off LED lights up green … The device is switched on LED turns red … Battery is being charged LED flashes red … Error during charging
2	**Mute button** Button for starting/stopping the measurement
3	**Microphone jack** For connecting the PAM CORR-2 microphone (optional)
4	**USB port** • For connecting the charging cable in the case • For connecting the connection cable for data transfer
5	**Touch display** Touch-sensitive screen for display of measured data and operation of the device
6	**3 buttons for the screen navigation**
7	**Quick selection button** Short press … Opens a certain menu or performs a specific action Long press … Defines the opened measurement type as a quick selection option

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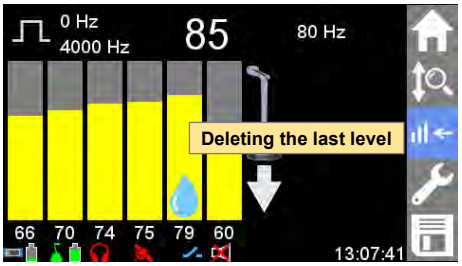
3.2.2 Operation

Touch display The screen of the HLE 7000 is touch sensitive.
The device is operated by tapping the displayed buttons on the screen.

Tooltip If you hold down a button for a long time, a field appears next to the area with a brief explanation of the function of this button (referred to as a tooltip).



Keep button pressed!

Navigation buttons Next to the screen you will find three buttons, which can also be used to operate the device.

Use the two cursor keys to move from button to button in the screen.
Press the OK button to open the selected button.

Quick selection button When the quick-selection button  is briefly pressed, the screen goes directly to a specific menu or a specific action is performed. Which menu or action this is can be set in the system settings of the HLE 7000 (see page 62).

If the quick-selection button is pressed and held (for about 3 seconds) while a measurement type is currently open on the screen, then this mode is set as the new quick-selection function.

Example: If you go to the Pinpointing menu and then press the quick-selection button for 3 seconds, the pinpointing measurement is set as favourite. From now on, when you press the quick-selection button, Pinpointing menu will open directly.

3.2.3 Power supply

The device is equipped with an internal lithium-ion battery. At full charge, the average operating time is approximately 10 hours, depending on actual usage.

Battery status The current battery level is displayed at the bottom left of the screen.

As soon as the battery of the device has reached a minimum, a message appears on the screen. The device should then be charged as soon as possible.

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Charging in the transport case

The device can be charged in the transport case, provided the case is connected to a mains supply.

Take one of the charging cables in the case with a round plug and connect it to the USB port ❺ of the HLE 7000. Note the marking. You must feel the plug engage.

Charging on the mains

The device can also be connected to the mains for charging. Use the supplied power adapter and the VK 130 connection cable.

Connect the round plug of the cable to the USB socket ❺ of the HLE 7000. Plug the other end of the cable into the power adapter and the power adapter into an electrical outlet.

Duration

When charging in the case or when using the included power adapter, the charging time is about 8 hours. If a third-party power supply unit with less than 1.5 A charge current is used, the charging time increases considerably.

LED

During charging, the I/O LED on the device will turn solid red. The red light goes out as soon as the battery is fully charged.

The LED flashes red when an error occurs during charging. The charging process is aborted in this case.

USB

While the HLE 7000 is connected to a computer, charge current flows from the computer to the device via the USB connection. The I/O LED on the device turns red. However, the charge current is too low to charge the battery noticeably.

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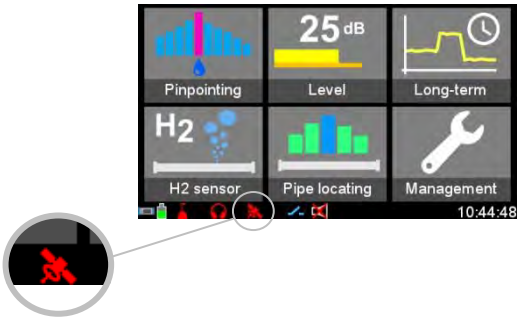
3.2.4 GPS

The HLE 7000 operating unit has a standard integrated GPS module. The GPS module will start a signal search immediately after the HLE 7000 is switched on.

A **GPS icon** is shown in the info bar at the bottom of the screen.



The colour of the icon indicates whether GPS is available.

Red … No GPS reception
Green … GPS reception is good, position determination is possible

As soon as a measurement is made, the position, time and date of the measurement are determined and stored in the device, together with the measurement result.

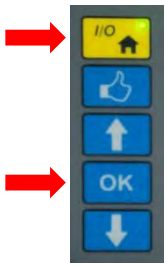
3.2.5 Automatic switch off

The HLE 7000 operating unit switches itself off if no Bluetooth contact has taken place for a certain period of time and no input has been made. The length of this time span can be specified in the system settings (see page 62).

3.2.6 Force shutdown (RESET)

If necessary, you can force the device to switch off.

Simultaneously press the **I/O button** and the **OK button** until the green LED turns off.



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3.3 CS-7 carrying pole

3.3.1 Function and structure

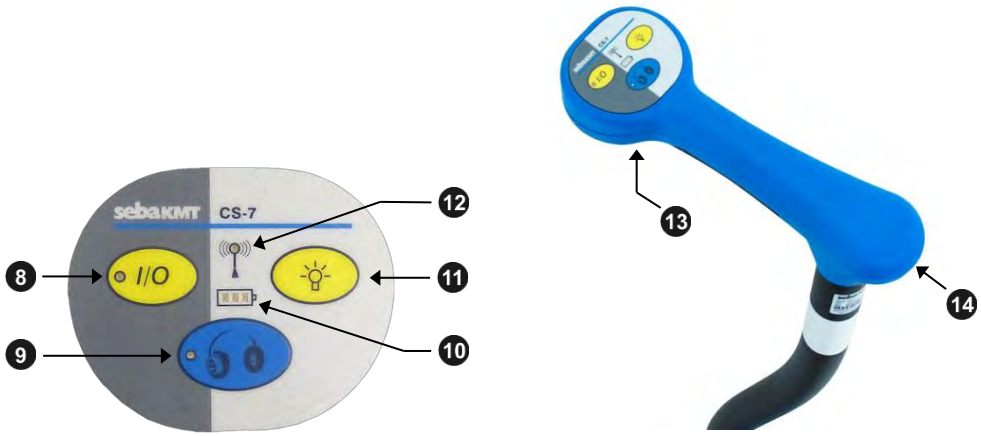
“CS-7” is the sensor carrying pole of the HL 7000 system.

At the lower end of the carrying pole, the various microphones or the gas sensor of the set can be mounted.

In the handle of the carrying pole there is an electronics unit and a Bluetooth module for the transmission of recorded data to the HLE 7000 operating unit.

The internal battery supplies the device itself and the installed microphone with power.

On the handle you will find a charging socket and the following buttons and LEDs:



Element	Description
8	**I/O button & LED** Button for switching device on/off. The LED lights up as long as the device is switched on.
9	**Mute button & LED** Button for starting/stopping the measurement. The LED lights up as long as a measurement is running. LED goes on … Measurement in progress; Headphones reproduce the recorded noise; Screen displays current measured values LED does not go on … Measurement is interrupted; Headphones are muted; Screen is frozen
10	**Battery status display** Three LEDs are lit … Battery fully charged Two LEDs are lit … Battery level good One LED is lit … Low battery Flashing … The rechargeable battery is being charged
11	**Light button** To turn on the floor light
12	**Wireless LED (blue)** Indicates that there is an active Bluetooth connection
13	**Floor LED (white)** A white LED lights down at the push of the light button
14	**Connection socket for charging cable**

3.3.2 Communication

Communication between the CS-7 carrying pole and the HLE 7000 operating unit takes place via Bluetooth.

Pairing The carrying pole is already paired with the operating unit at the factory, which means that the Bluetooth connection is always established automatically when the two devices are switched on.

If a situation occurs in which the pairing needs to be performed again (for example, after the HLE 7000 has been reset to factory defaults), proceed as follows:

Step	Description
1	In the Start menu of the HLE 7000, tap **Management** >> **Settings** >> **Paired microphone**.
2	Simultaneously press the On/Off button on the CS-7 carrying pole ❽ and the mute button ❾ until the red and blue LEDs flash alternating.
3	On the HLE 7000 screen, tap the button  .
	Result: The search for Bluetooth devices in the area begins. A bar indicates the progress. After a successful search, the name of the found Bluetooth device is displayed. If no device or the wrong device has been found, repeat the search.
4	Tap on the button. 
	Result: The CS-7 carrying pole and the HLE 7000 are paired. When finished, the screen returns to the Settings menu. The CS-7 carrying pole is now automatically detected by the HLE 7000 when switched on.

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3.3.3 Power supply

The CS-7 carrying pole is equipped with an internal lithium-ion battery, which supplies power to the device itself and the mounted sensor.

Battery status

The current battery level is indicated by the three green LEDs ⑩ shown on the handle. If only one LED remains lit, the battery should be charged. As soon as the battery is empty, the device switches off without any warning.

The battery level is also displayed in the info bar of the HLE 7000 screen.

Charging in the transport case

The CS-7 carrying pole can be charged in the transport case, provided the case is connected to a power supply (see page 26).

Take one of the charging cables in the case with a round plug and connect it to the charging socket ⑭ on the carrying pole. Note the marking. You must feel the plug engage.

Charging on the mains

The carrying pole can also be connected to the mains for charging. Use the supplied power adapter and the VK 130 connection cable.

Insert the round plug of the cable into the charging socket ⑭ on the carrying pole. Plug the other end of the cable into the power adapter and the power adapter into an electrical outlet.

Behaviour when charging

Immediately after being connected, the device turns on and charging starts.

During charging, the battery indicator on the device will flash. The number of flashing LEDs indicates the progress of the operation.

Once the battery is fully charged, the flashing of the three LEDs turns solid and the I/O LED starts flashing red.

A full charge cycle takes about 8 hours.

The device will remain on even after charging is complete. It does not switch off until the connection to the power supply is disconnected.

3.3.4 Automatic switch off

The CS-7 carrying pole switches off automatically if, for 30 minutes, no Bluetooth contact has been made and no button has been pressed.

3.3.5 Force shutdown (RESET)

If necessary, you can force the device to switch off.

Simultaneously press the light button ⓫ and the mute button ❾ until all LEDs on the carrying pole go out.

3.4 Headphones

3.4.1 Introduction

The HL 7000 set comes with Bluetooth headphones to playback the recorded sound. Usually this is this model:

MARMITEK BoomBoom 560

All information given below refers to this headphone model.

However, it is possible that your HL 7000 set is accompanied by a different headphone model than the one mentioned above.

In addition, you have the option of using a different Bluetooth headset instead of the included headphones.

In these cases, please refer to the specific user manual of these headphones for questions concerning their use.

3.4.2 Switching on/off

To switch on, press the I/O button on the headphones for about 3 seconds. A beep sounds. The status LED on the headphones flashes alternating blue/red while the Bluetooth connection to the HLE 7000 is established. Then, a regular blue flashing indicates that the headphones are connected and ready.

To switch them off, press the I/O button on the headphones for about 3 seconds. A beep sounds. The status LED on the headphones turns red. Then the headphones turn off.

3.4.3 Pairing

The supplied headphones are already paired with the HLE 7000 at the factory, which means that the Bluetooth connection is always established automatically when the two devices are switched on.

If a situation occurs in which the pairing needs to be performed again (for example, after the HLE 7000 has been reset to factory defaults), or a different headphone model needs to be paired, proceed as follows:

Step	Description
1	In the Start menu of the HLE 7000, tap **Management** >> **Settings** >> **Paired headphone**.
2	Switch the headphones on. (Third-party headphones may need to be put into pairing mode in some other way. Please consult the corresponding operating manual.)
	Result: The LED on the headphones flashes alternately blue/red.
3	On the HLE 7000 screen, tap the button.
	Result: The search for Bluetooth devices in the area begins. A bar indicates the progress. After a successful search, the name of the headphones is displayed on the screen. If no device or the wrong device has been found, repeat the search.
4	Tap the name of the headphones. 
	Result: The HLE 7000 and the headphones are paired. When finished, the screen returns to the Settings menu. The headphones (here: BoomBoom 560) is automatically detected from now on when switched on.

3.4.4 Volume

You can adjust the volume directly on the headphones, or via the volume menu on the HLE 7000 screen.

On the headphones, you will find the **V +** and **V-** buttons to increase or decrease the volume.

When making or displaying a measurement, you will find various tool buttons on the right edge of the screen of the HLE 7000. With the headphones button open a menu to adjust the headphone volume.

3.4.5 Power supply

The headphones are equipped with an internal lithium-ion battery. At full charge, an operating time of approximately 8 hours is available, depending on the intensity of the usage.

The current battery level of the headphones is displayed in the lower left corner of the screen of the HLE 7000. When the battery is low, a beep will sound.

The headphones can be charged via the micro-USB cable in the transport case, provided the case is connected to a mains supply (see page 26).

The headphones can also be charged with any other 5 V micro-USB charger.

A charging cycle takes about 3 to 4 hours.

During charging, the LED on the headphones will turn solid red. If the Bluetooth connection is lost, the headphones cannot be used.

As soon as the battery is fully charged, the LED on the headphones turns blue.

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3.5 Transport case

3.5.1 Safety instructions

Protection from water

CAUTION

Risk of fire due to short circuit!

The case must always be stored dry and protected from rain.

The case has protection class IP00, which means that there is no special protection against water. Ingress of water can lead to a short circuit in the electrical components.

Protection against overheating

NOTE

Keep the lid of the case open at high ambient temperatures during charging to prevent heat build-up.

Charging the equipment generates heat. The charging devices in the case have temperature switches. If too much heat is generated, the charging devices switch off automatically. They turn on again when the temperature in the suitcase has dropped below a certain level.

Repair

NOTE

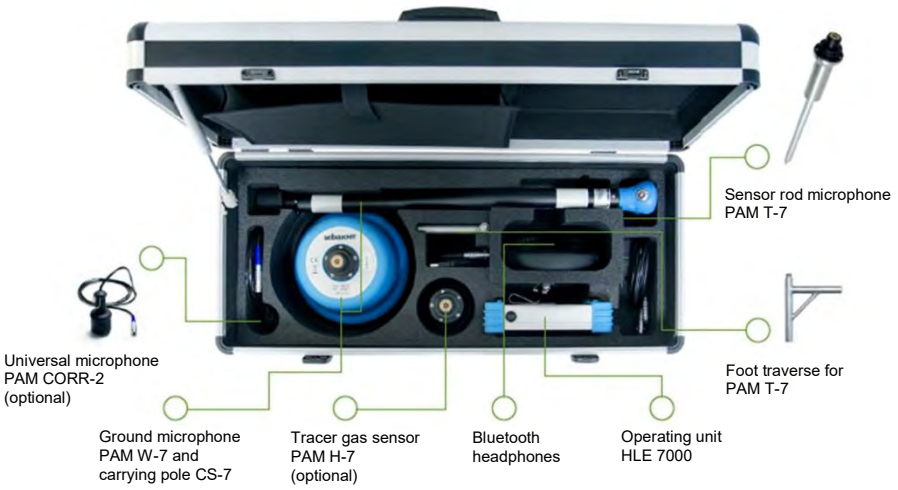
All work on the electrical components of the case must be carried out by an authorised service workshop.

If you have any problems with the electrical components of the case, please contact your SebaKMT service partner.

3.5.2 Design

The scope of delivery of the HL 7000 system includes a transport case.

The case offers numerous compartments for storing the individual components of the set and for optional accessories.



3.5.3 Power connection

The transport case can be used as a charging station. For this purpose, it must be connected to the public mains or to the electrical system of a car.

Element	Description
15	**5 V connection socket**
16	**3 charging cables in the case** Inside the case you will find the ends of a total of three cables which are connected to the 5 V socket and which can be used to charge the devices in the case: • 2 cables with round plug for charging the HLE 7000 and CS-7 devices • 1 cable with micro-USB plug for charging the headphones 

Connecting to the public mains

To connect the case to the public 230 V mains, use the supplied connecting cable VK 130 and the power adapter. Insert the round plug of the cable into the 5 V socket 15 on the case. Observe the guide on the plug and socket. The plug must audibly click into place. Plug the other end of the cable into the power adapter and then the power adapter into an electrical outlet.

Disconnecting

To disconnect the case from the power supply, always remove the plug from the power supply socket first. Then you can disconnect the connector from the case.

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Connecting to the vehicle electrical system

Using the VK 130 connection cable and a suitable car charger, the case can be connected to the electrical system of a motor vehicle.

You need a car charger with the following parameters:

Input: 12 V / 24 V, plug for cigarette lighter socket

Output: 5 V, ≥ 1500 mA, USB socket

Insert the round plug of the cable into the 5 V socket ⓯ on the case. Observe the guide on the plug and socket. The plug must audibly click into place. Plug the other end of the cable into the car charger and plug it into the vehicle power outlet.

⚠	**NOTE** **As soon as the case is connected to the vehicle electrical system, it is powered by the vehicle battery, even when the vehicle is not in operation. This can cause the vehicle battery to discharge completely.** Disconnect the transport case from the vehicle electrical system when you leave the vehicle.

3.6 Carrying and attachment options

Carrying belt

The HLE 7000 is equipped with a standard carrying strap, with which the device can be worn around the neck.

Installation on the carrying pole

The HLE 7000 operating unit can be screwed onto the CS-7 carrying pole.

The scope of delivery includes a large and a small carrier plate, with the corresponding screws, for this purpose.

Screw the large holder to the back of the HLE 7000 and the small holder to the bottom of the support rod as shown in the drawings. Both devices have matching threaded holes.

Caution: Do not cross-thread or overtighten the screws!

In the next step, the operating unit can be screwed to the underside of the carrying pole.

Belt clip The supplied “belt clip” can be attached to the HLE 7000. This allows the device to be worn on the belt or waistband, etc.

The clip and its screws are part of the HL 7000 set.

Screw the clip to the back of the HLE 7000. Matching threaded holes are provided on the device.

Caution: Do not cross-thread or overtighten the screws!

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4 Start-up

4.1 Connecting a sensor

4.1.1 Mounting a microphone or gas sensor on the CS-7 carrying pole

In order to install the ground microphone on the CS-7 carrying pole, simply place the carrying pole onto the microphone and tighten the black union nut clockwise.

Caution: Do not cross-thread or overtighten!

The sensor rod microphone and gas sensor from the HL 7000 set are installed on the carrying pole in the same way.

Note

The CS-7 carrying pole cannot be turned on when no sensor is mounted.

The carrying pole switches itself off when the mounted sensor is removed.

4.1.2 Connecting a wired microphone to the HLE 7000

It is possible to connect the PAM CORR-2 universal microphone directly to the HLE 7000 operating unit.

Procedure Insert the plug of the PAM CORR-2 cable into the microphone connecting socket ❹ on the HLE 7000. Observe the marking. You must feel the plug engage.

As soon as the microphone has been recognised by the HLE 7000, this symbol  appears in the info bar at the bottom of the screen.

Note
When the PAM CORR-2 is connected to the HLE 7000, no Bluetooth connection is established between the HLE 7000 and the CS-7 carrying pole.

4.2 Switching on

The individual devices of the system can be switched on in any order.

Switching on the HLE 7000

Switch the HLE 7000 on using the I/O button ❶.

The device starts up. The I/O LED starts to light up. The device name appears on the screen. After starting up, the main menu will appear on the screen. The device is ready now.

In the info bar, at the bottom of the screen, you will see a pictogram of the HLE 7000 device. The battery symbol to the right indicates the current battery level of the HLE 7000.

Switching on the CS-7 carrying pole

Switch the CS-7 carrying pole on using the I/O button ❽.

All LEDs on the carrying pole light up for about three seconds, after which the device is ready.

> If no sensor (ground microphone, sensor rod or gas sensor) is screwed on, the carrying pole switches off immediately.

In the info bar, at the bottom of the screen, you will see a pictogram of a ground microphone. This pictogram turns green once the Bluetooth connection between the HLE 7000 and the carrying pole is established.

The battery symbol to the right indicates the current battery level of the carrying pole.

If the sensor rod microphone is mounted on the CS-7, you will see this pictogram: 

If the gas sensor is mounted on the CS-7, you will see this pictogram: 

Switching on the headphones

Switch the headphones on.

In the info bar of the screen, you will see a pictogram of headphones. This pictogram turns green once the Bluetooth connection between the HLE 7000 and the headphones is established. The battery symbol to the right indicates the current battery level of the headphones.

4.3 Checking the basic settings

Before the measurement, you should check the most important basic settings of the HLE 7000.

4.3.1 Mute button

In the middle of the info bar, at the bottom of the screen, a pictogram indicates the current mute button functionality:

Symbol	Function	Meaning
	**Switch**	Press button → Measurement starts Press key again → Measurement stops
	**Push button**	Press and hold the button → Measurement starts and runs Release the button → Measurement stops

If you want to change the functionality, tap **Management** >> **Settings** >> **Muting**.

More information can be found in the chapter “System settings”.

4.3.2 System time

The internal time of the HLE 7000 can be seen in the lower right corner of the screen.
To set the clock, tap **Management** >> **Settings** >> **Time**.

Also check the internal date, time zone and daylight saving time settings.
To do so, tap **Management** >> **Settings** and look in the list for:

Date

Time zone

Daylight saving time

If the information is incorrect, tap the button to change the value or setting.

Note
If the daylight savings setting is not correct, the internal time of the HLE 7000 deviates by one hour from the correct time. This is true even if the internal time is determined by GPS.

More information can be found in the chapter “System settings”.

4.3.3 Hearing protection

Find out whether or not the headphone volume is automatically limited by the HLE 7000. The automatic limitation is intended to prevent hearing damage.

Tap **Management** >> **Settings** and look in the list for **Hearing protection**.

Selected setting	Meaning
Active	Headphone volume is limited
Inactive	No limit

If you want to change the setting, tap the **Hearing protection** button.

Caution

The hearing protection function of the HLE 7000 is only possible in conjunction with the included headphones. If other Bluetooth headphones are used, there is no hearing protection, even if the function has been activated in the system settings.

More information can be found in the chapter “System settings”.

4.4 Switching off

To switch off the HLE 7000 operating unit, press the I/O button until the screen goes out. The device will now shut down. Once the green I/O LED also goes off, the device is switched off.

5 Performing measurements

5.1 Level measurement

5.1.1 Introduction

Measurement of the noise level. Playback of the sound through the headphones. Display of level and frequency on the screen. Start/stop the measurement with the mute button.

5.1.2 Procedure

Connect the desired microphone and switch on all participating devices.

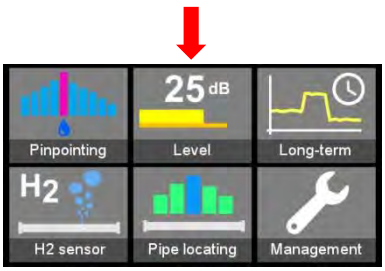
In the status bar of the screen, a pictogram indicates which mode of operation is currently set for the mute button:

 Mute button works as a “switch”

 Mute button works as a “push button”

If necessary, change the mode of operation in the system settings (see page 62).

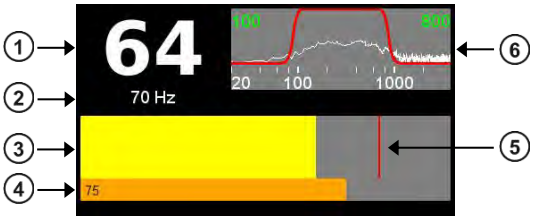
Then proceed as follows:

Step	Description
1	In the HLE 7000 Start menu, tap the **Level** button. 
	Result: The menu for the level measurement opens. Muting is active. In the status bar you will see this symbol  , meaning that there is still no noise measurement.
2	Set the microphone at the desired measuring point.
3	Use the mute button on the HLE 7000 or the CS-7 to start the measurement.
	Result: Muting is switched off. The recorded sound is played through the headphones and the measured values are shown on the display at the same time.
4	The mute button interrupts the measurement.
	Result: The headphones are muted. The screen freezes with the last displayed values.
5	Set the microphone at the next measuring point. You can then continue the measurement with the mute button and interrupt it again later.

5.1.3 Display

The information in this section refers to the standard level measurement display. If the description does not match the display on your device, in the system settings, check which display details are actually enabled (see page 38).

The display area contains the following information:



Element	Description
1	**Minimum level** Lowest noise level of the current measurement.
2	**Minimum frequency** Frequency of the quietest sound of the current measurement.
3	**Minimum level** (as bar graph) The length of the bar indicates the lowest level of the current measurement. The colour of the bar represents the frequency of the sound. **blue**  **yellow** **0 Hz** **4000 Hz**
4	**Instantaneous value** Current level as a bar and numeric value.
5	**Maximum level** The red vertical line shows the highest level of the last 10 seconds.
6	**Frequency spectrum** The white curve represents the frequency spectrum. The red curve represents the set frequency filter.

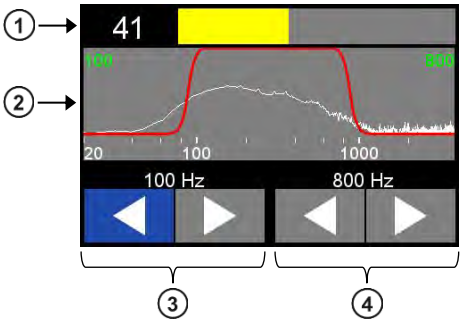
5.1.4 Tools

The buttons on the right edge of the screen provide the following tools:

Setting the frequency filter

You can restrict the evaluated frequency range while the measurement is ongoing.

Tap on the button. The Frequency Filter menu appears on the screen.



1	Current level of the ongoing measurement
2	Frequency spectrum of the ongoing measurement. The red curve represents the set filter.
3	Buttons for setting the lower frequency limit
4	Buttons for setting the upper frequency limit

Use the cursor keys to set the lower and upper frequency limits.
The frequency range between these two limits is evaluated.

Note

The filter boundaries include a certain amount of flexibility, meaning that the filtered noise may contain sounds that are outside the filter range but close to the filter boundary.

When you tap this button, the HLE 7000 sets a default filter that suppresses very low and very high frequencies.

Tapping this button will reset the current frequency filter.

The button ✓ applies the displayed filter and returns you to the level measurement. The measurement curve is updated. The lower and upper frequency limits of the filter are displayed in the upper left corner of the image.

Changing the microphone gain

You can adjust the microphone gain during the measurement.

Tap on the button. The menu for the microphone gain opens. Select the desired level of gain. The ✓ button applies the new setting. The screen returns to the level measurement.

Changing the headphone volume

You can adjust the headphone volume during the measurement.

Tap on the button. The volume menu opens. Select the desired volume. The button applies the new setting. The screen returns to the level measurement.

Save measurement

You can save the displayed measured data in the HLE 7000 so that it will not be lost when you return to the Start menu. Together with the minimum value, a 10-second sound recording and the GPS position of the measuring point are stored (if GPS data could be determined).

Tap on the button. A new screen opens. Enter a name for this measurement.

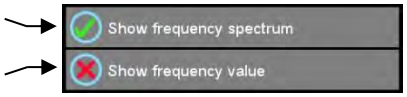
Confirm with the button.

This level measurement is now permanently stored in the HLE 7000 and can be recalled at any time. The data can also be transferred to the computer and further processed.

5.1.5 Customising the display

In the system settings of the HLE 7000, you have the option of adjusting the level measurement display to your needs. This means that you can hide certain details from the view or add them to the view.

Procedure Proceed as follows:

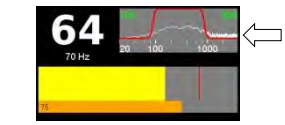
Step	Description
1	Open the Start menu and tap **Management** >> **Settings** >> **Customize**.
	Result: The menu for adjusting the **Level measurement** appears.
2	Tap to activate/deactivate the individual options in the list.  Only the activated specifications can be found when making a measurement on the screen.
3	The ✓ button, on the right of the screen, applies the new setting.

Setting options These specifications can be activated/deactivated in the list:

Show frequency spectrum

✓ The current frequency spectrum is displayed.

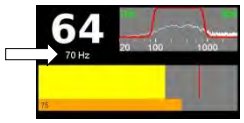
✗ The spectrum is not displayed.



Show frequency value

✓ The current frequency is displayed.

✗ The frequency is not displayed.



Show maximum level

✓ The maximum level (red vertical line) is displayed.

✗ The maximum level is not displayed.

Use colour for the level bar

✓ The level bar is always displayed yellow.

✗ The colour of the level bar represents the current frequency.

blue  **yellow**

0 Hz **4000 Hz**

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5.2 Long-term measurement

This feature allows you to run a measurement over a long period of time, displaying the history of the recorded noise level as a graph on the screen.

5.2.1 Procedure

Connect the desired microphone and switch on all participating devices.

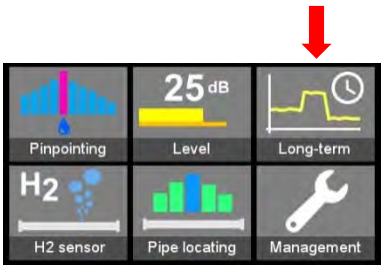
In the status bar of the screen, a pictogram indicates which mode of operation is currently set for the mute button:

 Mute button works as a “switch”

 Mute button works as a “push button”

For long-term measurements, it makes sense to use the mute button as a “switch”. To change it, open the Start menu and tap **Management** >> **Settings** >> **Muting** >> **Switch** >> ☑.

Then proceed as follows:

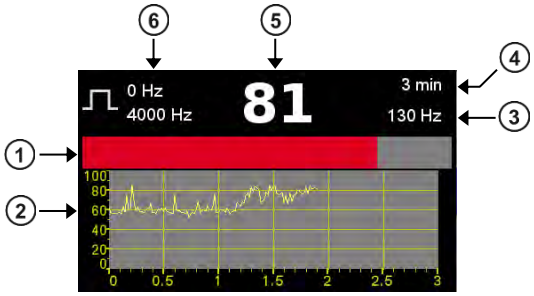
Step	Description
1	In the HL 7000 Start menu, tap the **Long-term** button. 
	Result: The menu for the long-term measurement opens. Muting is active. In the status bar you will see this symbol  , meaning that there is still no noise measurement.
2	Set the microphone at the desired measuring point.
3	Use the mute button on the HLE 7000 or the CS-7 to start the measurement.
	Result: Muting is switched off. The recorded sound is played through the headphones. At the same time, the measured level is continuously displayed on the screen.

You can pause and resume the current measurement at any time with the mute button.

5.2.2 Display

The information in this section refers to the standard long-term measurement display. If the description does not match the display on your device, in the system settings, check which display details are actually enabled (see page 43).

The display area contains the following information:



Element	Description
1	**Current level** (as bar graph) The length of the bar indicates the current level. The colour of the bar represents the frequency of the sound. **blue** **yellow** **0 Hz** **4000 Hz**
2	**Performing the measurement** X-axis: Time in minutes Y-axis: Level
3	**Current frequency**
4	**Total running time of the measurement**
5	**Current level**
6	**Frequency filter** Lower and upper limit of the evaluated frequency range

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5.2.3 Tools

The buttons on the right edge of the screen provide the following tools:

Changing the time range

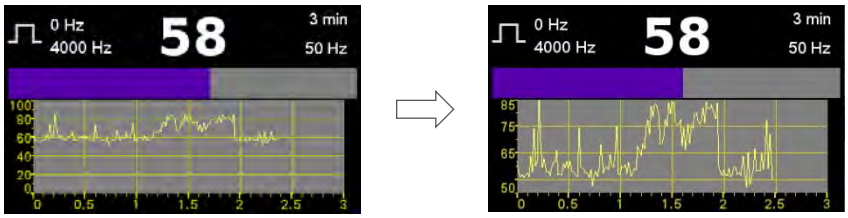
This button allows you to set the timeline of the graph to a maximum of 3, 10, or 30 minutes.

If you change the setting during an ongoing measurement, the measurement is stopped and a new measurement is automatically started. The previously recorded data are no longer displayed and can no longer be saved.

If a measurement takes longer than can be shown in the diagram, the representation of the values starts again at the left edge of the image. The existing curve is then overwritten by the new curve.

Scaling the measurement curve

This button allows you to enlarge representation of the measurement curve in the diagram area.

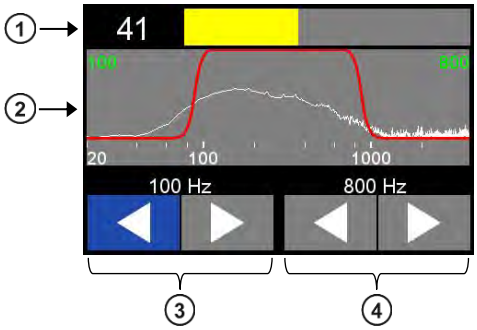


Tap the button again to cancel the magnification.

Setting the frequency filter

You can restrict the evaluated frequency range while the measurement is ongoing.

Tap on the buttons. The Frequency Filter menu appears on the screen.



1	Current level of the ongoing measurement
2	Frequency spectrum of the ongoing measurement. The red curve represents the set filter.
3	Buttons for setting the lower frequency limit
4	Buttons for setting the upper frequency limit

Use the cursor keys to set the lower and upper frequency limits.
The frequency range between these two limits is evaluated.

Note
The filter boundaries include a certain amount of flexibility, meaning that the filtered noise may contain sounds that are outside the filter range but close to the filter boundary.

When you tap this button, the HL 7000 sets a default filter that suppresses very low and very high frequencies.

Tapping this button will reset the current frequency filter.

The button applies the displayed filter and returns you to the long-term measurement. The measurement curve is updated.

⇨ **Changing the microphone gain**

You can adjust the microphone gain during the measurement.

Tap on the button. The menu for the microphone gain opens. Select the desired level of gain. The button applies the new setting. The screen returns to the long-term measurement function.

⇨ **Changing the headphone volume**

You can adjust the headphone volume during the measurement.

Tap on the button. The volume menu opens. Select the desired volume. The button applies the new setting. The screen returns to the long-term measurement function.

Save measurement

You can save the stopped or finished measurement in the HLE 7000 so that it will not be lost when you return to the Start menu.

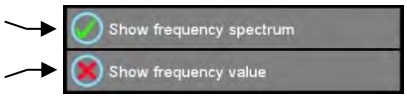
Tap on the button. A new screen opens. Enter a name for this measurement. Confirm with the button.

The measurement is now permanently stored in the HLE 7000 and can be recalled at any time. The data can also be transferred to the computer and further processed.

5.2.4 Customising the display

In the system settings of the HLE 7000 you have the option of adjusting the long-term measurement display to your needs. This means that you can hide certain details from the view or add them to the view.

Procedure Proceed as follows:

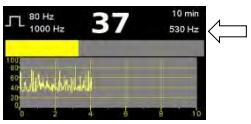
Step	Description
1	Open the Start menu and tap **Management** >> **Settings** >> **Customize**.
	Result: The menu for adjusting the **Level measurement** appears.
2	Use the cursor keys on the right edge of the screen to go to the **Long-term** measurement menu.
3	Tap to activate/deactivate the individual options in the list.  Only the activated specifications can be found when making a measurement on the screen.
4	The ✓ button, on the right of the screen, applies the new setting.

Setting options These specifications can be activated/deactivated in the list:

Show frequency value

✓ The current frequency is displayed.

✗ The frequency is not displayed.



Use colour for the level bar

✓ The level bar is always displayed yellow.

✗ The colour of the level bar represents the current frequency.

blue  **yellow**

0 Hz **4000 Hz**

Show grid

✓ The curve view is saved with a grid as an aid.

✗ No grid.

Show filter adjustments

✓ Lower and upper limit of the set frequency filter range are displayed.

✗ Filter range is not displayed.

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5.3 Pinpoint location

5.3.1 Introduction

This application primarily serves to pinpoint a pre-located leak.

In addition, the application is always useful when noise measurements are to be made at a number of measuring points and the minimum levels compared to one another.

Requirements To mark the loudest measuring points, suitable objects or marking spray should be available.

5.3.2 Procedure

Introduction There are different ways to proceed with the pinpointing. The choice of method depends on the accuracy with which the leak could be pre-located and whether the path of the pipeline is known.

two possible variants:

“10-point search”	**“Free search”**
Before the measurement, the user sets 10 evenly spaced measuring points along a certain section. During pinpointing, ten individual measurements are taken successively at these points. At the end, the results are compared on the screen and the loudest measuring point is marked. Then the search can be narrowed to the area around the marked point and repeated.	The user does not define the individual measuring points in advance, but always selects the next measuring point freely after starting pinpointing.

Procedure Connect the desired microphone and switch on all participating devices.

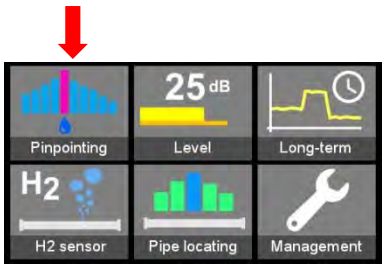
In the status bar of the screen, a pictogram indicates which mode of operation is currently set for the mute button:

 Mute button works as a “switch”

 Mute button works as a “push button”

If necessary, change the mode of operation in the system settings (see page 62).

Then proceed as follows:

Step	Description
1	In the HLE 7000 Start menu, tap the **Pinpointing** button. 

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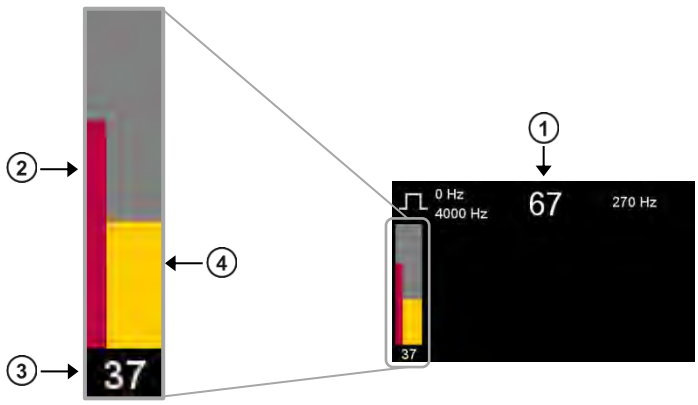
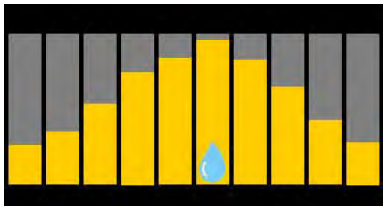
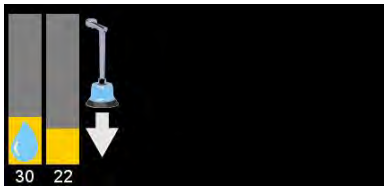
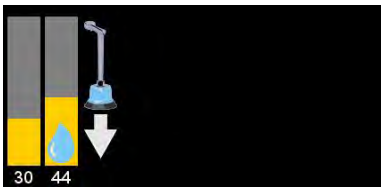
Step	Description
	Result: The pinpointing menu opens. Muting is active. In the status bar you will see this symbol , meaning that there is still no noise measurement.
2	Go to the first measurement point and place the microphone.
3	Start the measurement with the mute button on the HLE 7000 or the CS-7.
	Result: Muting is switched off. The recorded sound is played through the headphones. At the same time, the measured level is displayed on the screen.  ① + ② **Current level** ③ + ④ **Minimum level** Lowest level of the current measurement. The colour of the bar represents the respective frequency of the sound. **blue**  **yellow** **0 Hz** **4000 Hz**
	Wait until the minimum level has settled at a constant level. It is useful to measure for at least 10 seconds or more, as the audio file recorded during each measurement is 10 seconds by default.
	The mute button interrupts the measurement.
	Result: The headphones are muted. The screen freezes with the last displayed values. If GPS reception is available, the GPS coordinates of this measurement point are automatically stored together with the minimum level in the HLE 7000.
4	Go to the next measuring point and carry out the next measurement there.
	Result: The screen will display the new minimum level to the right of the previously recorded minimum level.

Step	Description
	For 10-point search Perform measurements at all other measuring points. **Result:** Finally, the minimum values of the ten measurements are displayed side by side on the screen.  The drop icon indicates the highest value.
	For free search If the new value is lower than the previous one, delete it with the button.  If the new value is higher than the previous value, keep it on the display and mark the measuring point.  Find a new measurement point for the next measurement, etc. **Result:** In this way, you will gradually approach the point where the leak noise can be heard loudest.

10 values can be displayed

There is room for a maximum of 10 measurements in the display area, after which the oldest measurement falls out of the view as soon as a new measurement is added.

Audio recording

The last ten seconds of each individual measurement are automatically buffered as an audio file together with the minimum level of this measurement in the HLE 7000.

After ending and saving the pinpointing procedure, the audio files of the ten saved measurements can then be recalled and played back.

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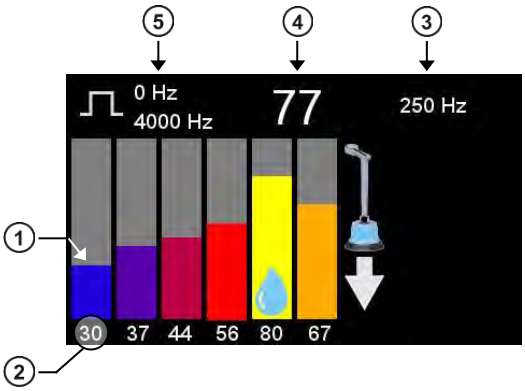
5.3.3 Display

The information in this section refers to the standard pinpointing display. If the description does not match the display on your device, in the system settings, check which display details are actually enabled (see page 50).

Each bar in the display area represents a measurement taken.
The drop icon marks the measurement with the loudest minimum level.



Element	Description
1 + 2	**Minimum level** Lowest level of the measurement. The colour of the bar represents the frequency of the sound. **blue** **yellow** **0 Hz** **4000 Hz**
3	**Minimum frequency of the last measurement** Frequency at lowest level
4	**Last measured level**
5	**Frequency filter** Lower and upper limit of the evaluated frequency range

5.3.4 Tools

The buttons on the right edge of the screen provide the following tools:

Delete

Use this button to clear the last minimum level in the display area.

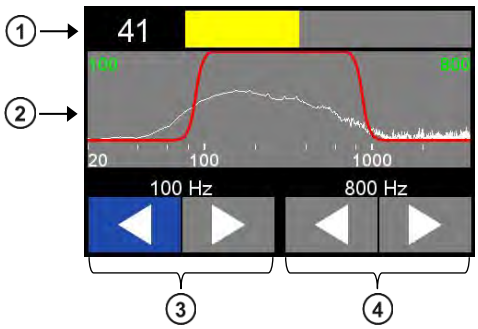
Scaling

With this button you can “scale” the height of the bars in the display area.
This means that tall bars are displayed larger, low bars are displayed smaller.

In this way, the difference between the individual values is graphically highlighted. This can be helpful if the measured values actually differ only slightly.
Tap the button again to cancel the scaling.

Setting the frequency filter

You can restrict the evaluated frequency range while the measurement is ongoing.
Tap on the buttons. The Frequency Filter menu appears on the screen.



1	Current level of the ongoing measurement
2	Frequency spectrum of the ongoing measurement. The red curve represents the set filter.
3	Buttons for setting the lower frequency limit
4	Buttons for setting the upper frequency limit

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Use the cursor keys at the bottom of the screen to set the lower and upper frequency limits. The frequency range between these two limits is evaluated.

Note

The filter boundaries include a certain amount of flexibility, meaning that the filtered noise may contain sounds that are outside the filter range but close to the filter boundary.

When you tap this button, the HLE 7000 sets a default filter that suppresses very low and very high frequencies.

Tapping this button will reset the current frequency filter.

The button applies the displayed filter and returns you to the pinpointing function. The measurement display is updated.

⇨ **Changing the microphone gain**

You can adjust the microphone gain during the measurement.

Tap on the buttons. The menu for the microphone gain opens. Select the desired level of gain. The button applies the new setting. The screen returns to the pinpointing function.

⇨ **Changing the headphone volume**

You can adjust the headphone volume during the measurement.

Tap on the buttons. The volume menu opens. Select the desired volume.

The button applies the new setting. The screen returns to the pinpointing function.

Save measurement

You can save the displayed measured data in the HLE 7000 so that it will not be lost when you return to the Start menu. Together with the individual minimum values, the individual sound recordings and the GPS data of the measuring points are stored (if GPS data could be determined).

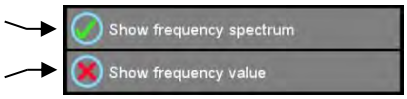
Tap on the button. A new screen opens. Enter a name for this measurement. Confirm with the button.

This pinpointing session is now permanently stored in the HLE 7000 and can be recalled at any time. The data can also be transferred to the computer and further processed.

5.3.5 Customising the display

In the system settings of the HLE 7000 you have the option of adjusting the pinpointing display to your needs. This means that you can hide certain details from the view or add them to the view.

Procedure Proceed as follows:

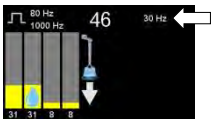
Step	Description
1	Open the Start menu and tap **Management** >> **Settings** >> **Customize**.
	Result: The menu for adjusting the **Level measurement** appears.
2	Use the cursor keys on the right edge of the screen to go to the **Pinpointing** menu.
3	Tap to activate/deactivate the individual options in the list.  Only the activated specifications can be found when making a measurement on the screen.
4	The ✓ button, on the right of the screen, applies the new setting.

Setting options These specifications can be activated/deactivated in the list:

Show frequency value

✓ The current frequency is displayed.

✗ The frequency is not displayed.



Use colour for the level bar

✓ The level bar is always displayed yellow.

✗ The colour of the level bar represents the current frequency.

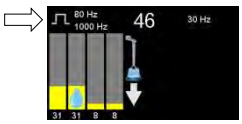
blue  **yellow**

0 Hz **4000 Hz**

Show filter adjustments

✓ Lower and upper limit of the set frequency filter range are displayed.

✗ Filter range is not displayed.



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5.4 Pipe locating

5.4.1 Introduction

This application is primarily used for acoustic pipe location and pipe path location. During this process, a defined acoustic signal is transmitted to the pipe at an accessible location, for example using the “RSP-3” device from SebaKMT. The HL 7000 records this signal at the surface of the earth.

In addition, the application is always useful when noise measurements are to be made at a number of measuring points and the maximum levels compared to one another.

Requirements To mark the loudest measuring points, suitable objects or marking spray should be available.

5.4.2 Procedure

Introduction There are different ways to proceed with the pipe location.

two possible variants:

“10-point search”	**“Free search”**
Before the measurement, the user sets 10 evenly spaced measuring points along an intended section. During pipe location, ten individual measurements are taken successively at these points. At the end, the results can be compared on the screen and the loudest measuring point is marked. The user performs another 10-point search. Ideally, the sum of the marked, loudest measuring points indicates the course of the pipe in question.	The user does not define the individual measuring points in advance, but always selects the next measuring point freely after starting pipe location.

Procedure Connect the desired microphone and switch on all participating devices.

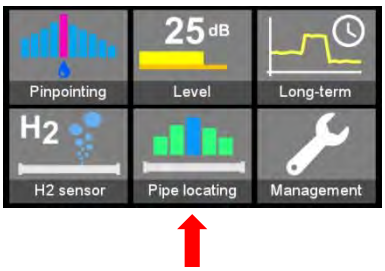
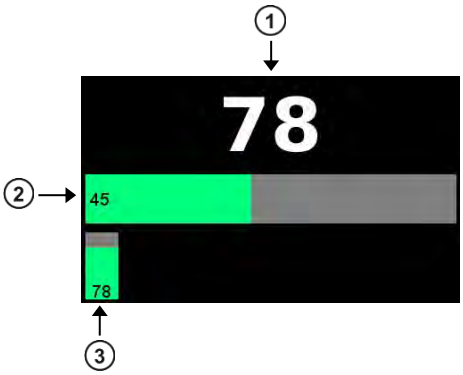
In the status bar of the screen, a pictogram indicates which mode of operation is currently set for the mute button:

 Mute button works as a “switch”

 Mute button works as a “push button”

If necessary, change the mode of operation in the system settings (see page 62).

Then proceed as follows:

Step	Description
1	In the HLE 7000 Start menu, tap the **Pipe location** button. 
	Result: The menu for pipe location opens. Muting is active. In the status bar you will see this symbol  , meaning that there is still no noise measurement.
2	Go to the first measurement point and place the microphone.
3	Start the measurement with the mute button on the HLE 7000 or the CS-7.
	Result: Muting is switched off. The recorded sound is played through the headphones. At the same time, the measured level is displayed on the screen.  ① + ③ **Maximum level** Highest noise level of the last 3 seconds. ② **Current level**
	Wait until the maximum level has settled at a constant level.
	The mute button interrupts the measurement.
	Result: The headphones are muted. The screen freezes with the last displayed values. If GPS reception is available, the GPS coordinates of this measurement point are automatically stored together with the maximum level in the HLE 7000.
4	Go to the next measuring point and carry out the next measurement there.
	Result: The new maximum level is displayed to the right of the previously recorded maximum level.

Step	Description	
	for 10-point search	**for free search**
	Perform measurements at all remaining measuring points. **Result:** Finally, the maximum values of the ten measurements are displayed side by side on the screen. The pipe symbol ▬ indicates the highest value.	Is the new value higher than the previous one? If “yes”, then mark the current measuring point and remove the marking at the old measuring point. Find a new measurement point for the next measurement, etc. **Result:** In this way, you will gradually approach the point where the acoustic signal can be heard loudest.

10 values can be displayed

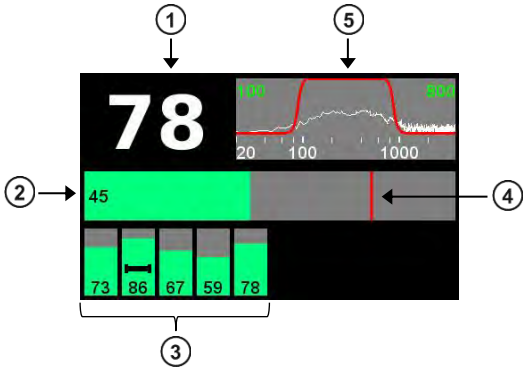
There is room for a maximum of 10 measurements in the display area, after which the oldest measurement falls out of the view as soon as a new measurement is added.

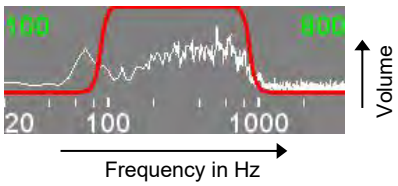
5.4.3 Display

Display with frequency spectrum

The information in this section refers to the standard pipe location display. If the description does not match the display on your device, in the system settings, check which display details are actually enabled (see page 57).

The display area contains the following information:



Element	Description
1	**Maximum level** • during ongoing measurement: Highest noise level of the last 3 seconds • for interrupted measurement: Highest level of the last measurement
2	**Current level** The height of the bar and the numerical value within the bar show • during ongoing measurement: Current level • for interrupted measurement: Last measured level
3	**The maximum values of the individual measurements** Each individual bar represents a performed measurement. Bar height and number indicate the maximum level of the measurement. The pipe symbol ▬ marks the measurement with the highest maximum level.
4	**Drag pointer** (red vertical line) Marks the highest bar level of the last 3 seconds.
5	**Frequency spectrum** The diagram shows the total measurable frequency spectrum of the current noise. If a **frequency filter** is set, the restricted frequency range is represented by the red graph. The two green digits indicate the lower and upper limits of the filter in Hz. 

Display without frequency spectrum

In the display variant without frequency spectrum, you will find this information in addition to the level values:

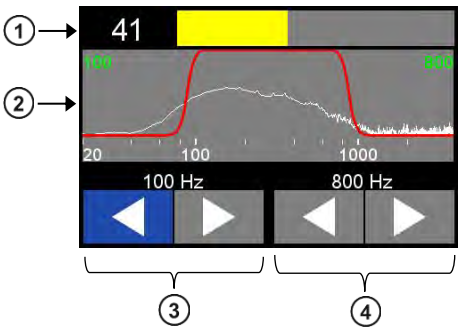
Element	Description
6	**Frequency filter** Lower and upper limit of the evaluated frequency range.
7	**Current frequency** • during ongoing measurement: Frequency of the current noise • for interrupted measurement: Frequency of the last recorded noise

5.4.4 Tools

The buttons on the right edge of the screen provide the following tools:

Setting the frequency filter

You can restrict the evaluated frequency range while the measurement is ongoing. Tap on the button. The Frequency Filter menu appears on the screen.



1	Current level of the ongoing measurement
2	Frequency spectrum of the ongoing measurement. The red curve represents the set filter.
3	Buttons for setting the lower frequency limit
4	Buttons for setting the upper frequency limit

Use the cursor keys at the bottom of the screen to set the lower and upper frequency limits. The frequency range between these two limits is evaluated.

Note

The filter boundaries include a certain amount of flexibility, meaning that the filtered noise may contain sounds that are outside the filter range but close to the filter boundary.

When you tap this button, the HLE 7000 sets a default filter that suppresses very low and very high frequencies.

Tapping this button will reset the current frequency filter.

The button applies the displayed filter and returns you to the pipe location function. The measurement display is updated.

Changing the microphone gain

You can adjust the microphone gain during the measurement.

Tap on the button. The menu for the microphone gain opens. Select the desired level of gain. The button applies the new setting. The screen returns to the pipe location function.

Changing the headphone volume

You can adjust the headphone volume during the measurement.

Tap on the button. The volume menu opens. Select the desired volume. The button applies the new setting. The screen returns to the pipe location function.

Save measurement

You can save the displayed measured data in the HLE 7000 so that it will not be lost when you return to the Start menu. The GPS data of the measuring points is saved (if GPS data could be determined) together with the individual maximum values.

Tap on the button. A new screen opens. Enter a name for this measurement. Confirm with the button.

This pipe location is now permanently stored in the HLE 7000 and can be recalled at any time. The data can also be transferred to the computer and further processed.

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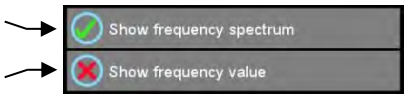
5.4.5 Customising the display

In the system settings of the HLE 7000 you have the option of adjusting the pipe location display to your needs. This means that you can hide certain details from the view or add them to the view.

Procedure Proceed as follows:

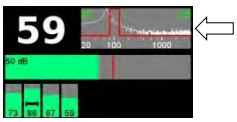
Step	Description
1	Open the Start menu and tap **Management** >> **Settings** >> **Customize**.
	Result: The menu for adjusting the **Level measurement** appears.
2	Use the cursor keys on the right edge of the screen to go to the **Pipe location** menu.
3	Tap to activate/deactivate the individual options in the list.  Only the activated specifications can be found later on the screen, when performing a pipe location operation.
4	The ✓ button, on the right of the screen, applies the new setting.

Setting options These specifications can be activated/deactivated in the list:

Show frequency spectrum

✓ The current frequency spectrum is displayed.

✗ The spectrum is not displayed.



Show frequency value

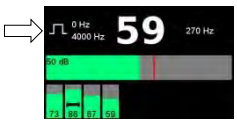
✓ The current frequency is displayed.

✗ The frequency is not displayed.

Show filter adjustments

✓ Lower and upper limit of the set frequency filter range are displayed.

✗ Filter range is not displayed.



Use colour for the level bar

✓ The level bar is always displayed green.

✗ The colour of the level bar represents the current frequency.

blue  **yellow**

0 Hz **4000 Hz**

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5.5 Tracer gas detection (H2 sensor)

5.5.1 Introduction

With a connected gas sensor, the HL 7000 system can be used for leak detection with a tracer gas.

In this location method, at an accessible point in the damaged pipe, tracer gas that contains H_2 is introduced. The gas escapes from the line at the leak and emerges above the leak. The user performs a series of individual measurements, one after the other, in the area of the pre-located leak or along the pipeline. Here, the H_2 concentration of the air near the ground is determined. At the location of the highest measured gas concentration, the leak is suspected.

5.5.2 Procedure

Mount the H_2 sensor on the CS-7 carrying pole and switch on all involved devices.

Note that the **PAM H-7** gas sensor requires a warm-up period of 10 minutes after switching on before reliable measurements are possible.

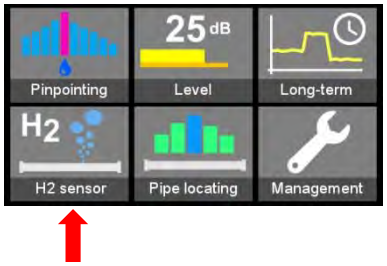
In the status bar of the screen, a pictogram indicates which mode of operation is currently set for the mute button:

 Mute button works as a “switch”

 Mute button works as a “push button”

If necessary, change the mode of operation in the system settings (see page 62).

Then proceed as follows:

Step	Description
1	In the HLE 7000 Start menu, tap the **H2 sensor** button. 
	Result: The menu for tracer gas location opens. Muting is active, meaning that there is still no measurement.
2	Start the measurement with the mute button on the HLE 7000 or the CS-7.
	Result: Muting is switched off. The measured H_2 concentration is displayed on the screen.
	Perform a zero point reference calibration: ➢Make sure that the gas sensor is calibrated in “clean” air without tracer gas. ➢In the screen, tap the ↓0 button.

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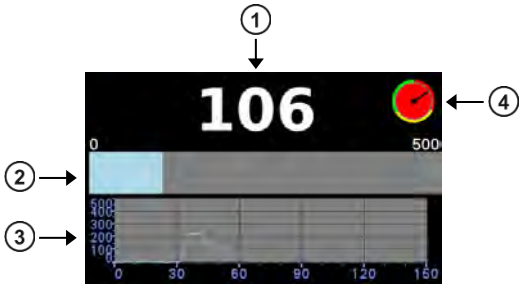
Step	Description
	Result: The device adjusts to the natural, local H_2 concentration. The displayed value should be close to zero. The zero point calibration remains valid until it is cancelled with the button or the menu is closed.
	The mute button interrupts the measurement.
3	Go to the first measuring point. Mark the measuring point with an object.
4	Use the mute button to resume measurement. Swing the gas sensor slowly to the left and to the right just above the ground.
	Result: The measured H_2 concentration is displayed on the screen. At the same time, the gas concentration is indicated acoustically by a rising or falling tone on the headphones. In the histogram, the course of the measurement is recorded as a curve.
	Wait until the displayed value has settled at a constant level.
	The mute button interrupts the measurement.
	Result: The headphones are muted. The screen freezes.
5	Go to the next measuring point. Use the mute button to resume the paused measurement. Swing the sensor slowly to the left and to the right just above the ground.
	Result: The measured gas concentration is displayed. The measurement curve is continued.
	Use the mute button to interrupt measurement again.
6	Take further measurements.

In this way, you gradually approach the point where the greatest quantity of the tracer gas escapes from the ground. You have found the leak position as soon as no higher value can be measured.

5.5.3 Display

The information in this section refers to the standard gas location display. If the description does not match the display on your device, in the system settings, check which display details are actually enabled (see page 61).

The display area contains the following information:



Element	Description
1 + 2	**H_2 concentration** The displayed value is dimensionless. The default is a scale from 0 to 1000. Smaller scales can be set.
3	**Histogram** In the diagram, the recorded values of the measurement are displayed as a continuous curve. X-axis … time in s Y-axis … H_2 concentration
4	**Warm-up time** This timer shows how much time has elapsed since the start of the measurement and whether the measurement results can already be considered reliable.

5.5.4 Tools

The buttons on the right edge of the screen provide the following tools:

Zero point calibration

When you tap this button, a zero point calibration is performed.

Zeroing the device adapts it to the naturally occurring H_2 concentration in the air at the site. During the measurement, this concentration is then subtracted from the recorded values. As a result, the displayed H_2 values are “adjusted” and comparable.

The button turns off the zero point calibration function.

Scaling

With this button you can gradually reduce the displayed area. This can be helpful to make low values in the bar graph and histogram more visible.

The following scale ranges are possible: 0-1000 / 0-500 / 0-250 / 0-125 / 0-62

Changing the headphone volume

You can adjust the headphone volume during the measurement.

Tap on the button. The volume menu opens. Select the desired volume. The button applies the new setting. The screen returns to the H_2 measurement function.

Save measurement

You can save the displayed measured data in the HLE 7000 so that it will not be lost when you return to the Start manu.

Tap on the button. A new screen opens. Enter a name for this measurement. Confirm with the button.

This H_2 measurement is now permanently stored in the HLE 7000 and can be recalled at any time. The data can also be transferred to the computer and further processed.

5.5.5 Customising the display

In the system settings of the HLE 7000 you have the option of adjusting the gas location display to your needs. This means that you can hide certain details from the view or add them to the view.

Procedure Proceed as follows:

Step	Description
1	Open the Start menu and tap **Management** >> **Settings** >> **Customize**.
	Result: The menu for personalising the **Level measurement** appears.
2	Use the cursor keys on the right edge of the screen to go to the **H2 measurement** menu.
3	Tap to activate/deactivate the individual options in the list.  Only the activated specifications can be found later on the screen, when performing an H_2 measurement.
4	The button, on the right of the screen, applies the new setting.

Setting options These specifications can be activated/deactivated in the list:

Show histogram

- The histogram with the measurement curve (3) is displayed.
- The histogram is hidden.

Show grid

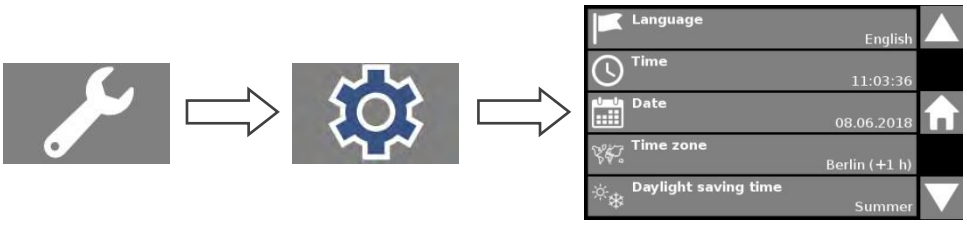
- Within the histogram, a grid is drawn as an aid.
- The grid is hidden.

6 System settings

6.1 Introduction

In the Settings menu, various basic settings can be defined that are necessary for the functioning of the HL 7000 system. It also provides options to customise individual menu views and information about current device status.

Open menu To get to the system settings from the Start menu:



The Settings menu lists all adjustable parameters.

Within the individual buttons, you can see what is currently set at the bottom right.

Use the two cursor keys on the right edge of the screen to scroll through the available parameters.

Edit settings To change a parameter, tap on its button in the list.

A new menu opens in which the desired settings can be defined.

6.2 Overview of the adjustable parameters

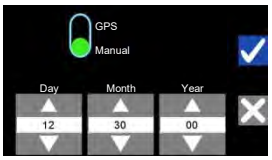
The following parameters are listed in the system settings:

Language

Here you can change the language of the user interface.

Time

Here you can set the internal time of the device.



If you set the green button to **GPS**, the time is synchronised with the GPS time as soon as GPS reception is available.

If you set the button to **Manual**, you can set the time yourself with the cursor keys at the bottom of the screen.

The button applies the new setting.

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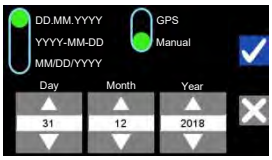
Date

Here you can set the internal date of the device.



If you set the green button to **GPS**, the date is synchronised with the GPS time as soon as GPS reception is available.

If you set the button to **Manual**, you can set the date yourself with the cursor keys at the bottom of the screen.

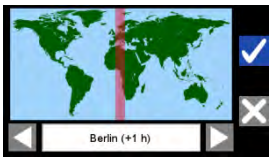
With the second green button, you can select the date format.

Option	Meaning
DD.MM.YYYY	Day.Month.Year
YYYY-MM-DD	Year-Month-Day
MM/DD/YYYY	Month/Day/Year

The ✓ button applies the new setting.

Time zone

Set the time zone in which you are currently located.



Use the two cursor keys at the bottom of the screen to select a time zone or tap directly on the map.

The ✓ button applies the new setting.

Daylight saving time

Use the green button to set whether it is daylight savings time or standard time.

The ✓ button applies the new setting.

Muting

Here you can set what should happen when you press the mute button (on the HLE 7000 or on the CS-7).

Select one of the two functions with the green button.

Function	Effect
Switch	Pressing the mute button once starts the measurement. Pressing it again interrupts the measurement.
Push button	Pressing and holding the mute button starts the measurement. Releasing the button interrupts the measurement.

The ✓ button applies the new setting.

Hearing protection

Here you can set whether the maximum possible headphone volume should be limited by the HLE 7000. This can be useful to protect the user's hearing from sudden volume swings.

Select one of the options with the green button.

Option	Effect
Active	The maximum headphone volume is limited.
Inactive	The headphone volume is not limited.

The button applies the new setting.

NOTE

The hearing protection function of the HLE 7000 is only possible in conjunction with the included headphones. If other Bluetooth headphones are used, there is no hearing protection, even if the function has been activated in the system settings.

Customize

Here you can set which information will be displayed on the screen during a measurement and which information will not.

This setting can be made separately for each measurement method (level measurement, long-term measurement, pinpointing, etc.).

You will find detailed information in the sections “Customising the display”.

Paired headphone

At the bottom right within this button, you will see the name of the Bluetooth headphones that are currently paired with the HLE 7000.

If you tap the button, you can re-pair the included headphones or other Bluetooth headphones with the HLE 7000.

Only one Bluetooth headphones can be connected, not several at the same time.

Paired microphone

At the bottom right within this button, you will see the name of the Bluetooth microphone that is currently paired with the HLE 7000. This is typically the CS-7 carrying pole.

If you tap the button, you can re-pair the CS-7 carrying pole or another Bluetooth microphone with the HLE 7000.

Only one Bluetooth microphone can be connected, not several at the same time.

Brightness

Here you can adjust the brightness of the screen.

Select one of the possible brightness levels with the green button.

The ✓ button applies the new setting.

Power saving

Here you can set the time until the screen is automatically switched off and the duration until the device switches itself off.

Under **Backlight off**, you can set how much time should pass after the last input before the screen goes out. If you select the option **Never**, the screen will stay on permanently.

Under **Power off**, you can set how much time should pass after the last input before the HLE 7000 shuts itself down. If you select the option **Never**, the device will stay on permanently.

The ✓ button applies the new setting.

Favourite button

Here you can set what should happen when the quick-selection button ❼ is (briefly) pressed.

Option	Effect
Level measurement	Pressing the quick-selection button will open the level measurement menu.
Pinpoint location	Pressing the quick-selection button will open the pinpointing menu.
Long-term measurement	Pressing the quick-selection button will open the long-term measurement menu.
H2 sensor	Pressing the quick-selection button will open the tracer gas location menu.
Pipe locating	Pressing the quick-selection button will open the line location menu.
Screenshot	Pressing the quick-selection button will take a screenshot of the current screen and save it. (After connecting the HLE 7000 to the computer, you will find the image file in the “Screenshots” folder.)

The ✓ button applies the new setting.

System information

At the bottom right of this button you can see the version number of the currently used firmware of the HLE 7000 device.

When you tap the button, the following information is displayed:

- Firmware version (HLE 7000)
- Hardware version (HLE 7000)
- Bluetooth ID TX (HLE 7000 ↔ headphones)
- Bluetooth ID RX (HLE 7000 ↔ CS-7)
- Serial number (HLE 7000)
- Production date (HLE 7000)

Reset

With this button, you can reset the HLE 7000 to the factory settings.

All configurations (for example, operating language, Bluetooth connections, etc.) are replaced by the factory settings.

The measured data stored in the device are retained and can be accessed as usual after the reset.

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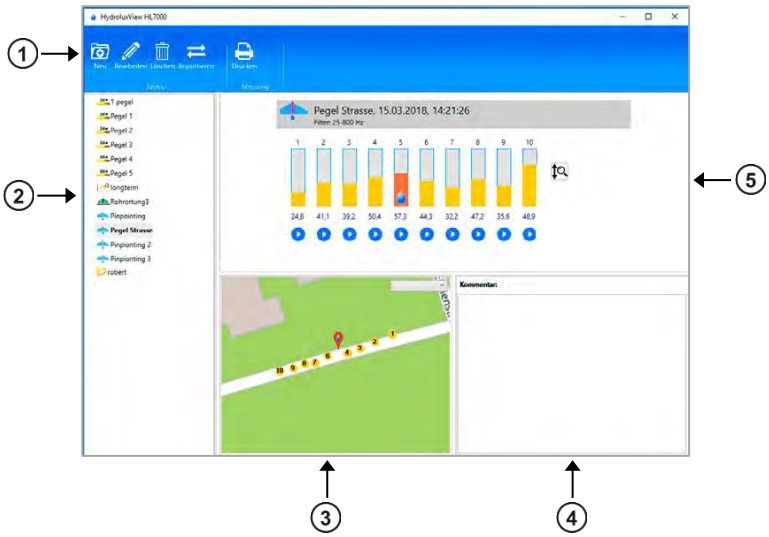
7 HydroluxView software

HydroluxView is the measured data analysis software for the HL 7000 system.

With the aid of the software, the measured data, together with the GPS positions and audio recordings, can be transferred from the HLE 7000 to the computer via a USB cable and then displayed and analysed there. Working documentation can be created and printed digitally. The leak noises can be played back.



Element	Description
1	**Menu bar**
2	**Archive** Directory structure for managing the measurements
3	**Map** Here, the measurement points are displayed on a map.
4	**Comment** Here, information about the measurement can be entered or edited.
5	**Measurement** Area for displaying and analysing the measured data

Manage measurements

To create a new directory in the archive, click **New** in the menu bar.

To change the name of a directory or measurement, highlight it and click **Edit** in the menu bar.

To remove a directory or a measurement from the archive, highlight it and click **Delete** in the menu bar.

Map

The computer must be connected to the Internet to display the map.

The measurement points are automatically displayed on the map. For this to take place, it is necessary that their GPS coordinates were recorded by the HLE 7000 during the measurement and then saved.

Measurement data display

The display of the values in the software is similar to the display on the screen of the HLE 7000. Various buttons and functions that you are familiar with from working with the HLE 7000 can be found here as well.

With this button you can play the audio recording of a measurement.

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Import measurement

To import measured data from the HLE 7000 into the HydroluxView software, proceed as follows:

Step	Description
1	Connect the HLE 7000 device to the computer. (to do so, connect the connecting cable and on the HLE 7000 tap **Management** >> **Backup** >> **Connect**)
2	In the HydroluxView archive, mark the directory in which the measured datarecord is to be stored.
3	Click **Import**.
	Result: An Explorer window opens.
4	Under **HL7000**, go to the directory **meas**, select the desired measurement and click **OK**.
	Result: The measured data is transferred to the computer and displayed in the archive of the HydroluxView.
5	Disconnect the HLE 7000 from the computer.

8 Data transfer

The HLE 7000 operating unit can be connected to a computer via the VK 130 connection cable.

This connection allows measured data and audio files to be transferred to the computer and into the HydroluxView software. In the other direction, firmware update files are imported into the HLE 7000, for example.

Procedure To connect the HLE 7000 to the computer, proceed as follows.

Step	Description
1	Use the supplied connection cable VK 130. Insert the round connector of the cable into the USB socket ❹ on the HLE 7000. Observe the guide on the connector and socket. You must feel the plug engage. Plug the other end of the cable into a USB port on the computer.
2	On the screen of HLE 7000, from the Start menu, tap **Management** >> **Backup** >> **Connect**.
	Result: The HLE 7000 is recognised by the computer as a disk.

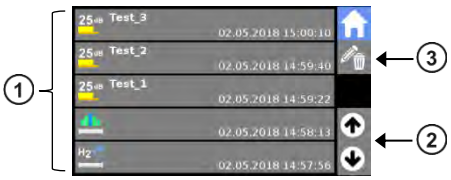
To end the connection, tap **Disconnect** on the HLE 7000 screen. The connection cable can then be removed again.

9 Saved measurements

9.1 Open menu

All measurements that were saved in the HLE 7000 after using the button are listed in the **Measurements** menu.

To open this menu, tap **Management** >> **Measurements** from the Start screen.



Element	Description
1	**List of measurements** Name of the measurement Test_3 02.05.2018 15:00:10 Time of saving (date/time)
2	**up / down** Use the two cursor keys to move up/down in the list. The list is sorted chronologically, with the latest measurement at the top.
3	**Edit / delete** With this button, you make the list editable (see below).

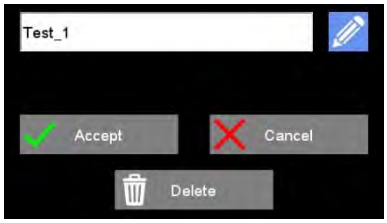
9.2 Show measurement

To open a measurement, simply tap on the corresponding measurement in the list.

9.3 Change name

You can change the name of a measurement.

Proceed as follows:

Step	Description
1	Tap on the button.
2	Tap on the corresponding measurement in the list.
	Result: The menu for editing the measurement appears. 
3	Tap on the button.
	Result: An input screen appears.
4	Enter the desired name and confirm with the button.
	Result: The screen returns to the previous menu.
5	Tap **Accept**.
	Result: The screen returns to the Measurements menu. In the list of saved measurements, the relevant measurement is now displayed with the changed name.
6	Tap the button again.

9.4 Delete measurement

You can delete a measurement from storage of the HLE 7000.

Proceed as follows:

Step	Description
1	Tap on the button.
2	Tap on the corresponding measurement in the list.
	Result: The menu for editing the measurement appears.
3	Tap **Delete**.
	Result: The measurement is deleted immediate, along with all values, audio files and GPS data.
4	Tap the button again.

10 Updating the firmware

Both the HLE 7000 operating unit and the CS-7 carrying pole should always be operated with the latest firmware. SebaKMT provides improved versions of the firmware in the download area of *www.sebakmt.com* on a regular basis.

Identifying the firmware version

To find out which firmware version a device is currently working on, proceed as follows:

HLE 7000

From the Start menu, tap **Management** >> **Settings** >> **System information**.

CS-7 carrying pole

Turn on the carrying pole, then tap **Management** >> **Configuration** on the HLE 7000.

The number of the version used is displayed in the **Firmware version** field.

Requirements

The following requirements must be fulfilled in order to be able to carry out a firmware update:

- You need a computer with internet access.
- You need the supplied VK 130 connection cable.
- The battery level of the affected device must be good. If in doubt, charge it up.

Procedure

To perform a firmware update, proceed as follows:

Step	Description
1	Visit the website *www.sebakmt.com*. In the download area you will find the firmware update files for the HLE 7000 operating unit and for the CS-7 carrying pole. Download the files to your computer.
2	Connect the HLE 7000 to the computer. (to do so, connect the connecting cable and on the HLE 7000 tap **Management** >> **Backup** >> **Connect**)
	Result: The HLE 7000 is recognised by the computer as a disk.
3	Copy the update files from the computer into the main directory of the HLE 7000.
4	Disconnect the HLE 7000 from the computer.
5	On the HLE 7000, from the Start menu, tap **Management** >> **Update**.
6	On the screen, select the device that you want to update. To do so, tap on **HLE 7000** or **CS-7**.
	Result: In the next menu you will see again the version number of the used firmware and the number of the new firmware.

Step	Description
7	Tap **Confirm** to start the firmware update. **Note** During the update process and during the subsequent device restart, no entries must be made on the device. Wait for both processes to complete.
	Result: The firmware update is executed. Progress of the procedure is displayed on the screen. At the end, a success message appears. The updated device then automatically restarts. This only takes a few seconds. After restarting, the device can be used again.

Tento symbol indikuje, že výrobek nesoucí takovéto označení nelze likvidovat společně s běžným domovním odpadem. Jelikož se jedná o produkt obchodovaný mezi podnikatelskými subjekty (B2B), nelze jej likvidovat ani ve veřejných sběrných dvorech. Pokud se potřebujete tohoto výrobku zbavit, obraťte se na organizaci specializující se na likvidaci starých elektrických spotřebičů v blízkosti svého působiště.

Dit symbool duidt aan dat het product met dit symbool niet verwijderd mag worden als gewoon huishoudelijk afval. Dit is een product voor industrieel gebruik, wat betekent dat het ook niet afgeleverd mag worden aan afvalcentra voor huishoudelijk afval. Als u dit product wilt verwijderen, gelieve dit op de juiste manier te doen en het naar een nabij gelegen organisatie te brengen gespecialiseerd in de verwijdering van oud elektrisch materiaal.

This symbol indicates that the product which is marked in this way should not be disposed of as normal household waste. As it is a B2B product, it may also not be disposed of at civic disposal centres. If you wish to dispose of this product, please do so properly by taking it to an organisation specialising in the disposal of old electrical equipment near you.

Този знак означава, че продуктът, обозначен по този начин, не трябва да се изхвърля като битов отпадък. Тъй като е B2B продукт, не бива да се изхърля и в градски пунктове за отпадъци. Ако желаете да извърлите продукта, го занесете в пункт, специализиран в изхвърлянето на старо електрическо оборудване.

Dette symbol viser, at det produkt, der er markeret på denne måde, ikke må kasseres som almindeligt husholdningsaffald. Eftersom det er et B2B produkt, må det heller ikke bortskaffes på offentlige genbrugsstationer. Skal dette produkt kasseres, skal det gøres ordentligt ved at bringe det til en nærliggende organisation, der er specialiseret i at bortskaffe gammelt el-udstyr.

Sellise sümboliga tähistatud toodet ei tohi käidelda tavalise olmejäätmena. Kuna tegemist on B2B-klassi kuuluva tootega, siis ei tohi seda viia kohalikku jäätmekäitluspunkti. Kui soovite selle toote ära visata, siis viige see lähimasse vanade elektriseadmete käitlemisele spetsialiseerunud ettevõttesse.

Tällä merkinnällä ilmoitetaan, että kyseisellä merkinnällä varustettua tuotetta ei saa hävittää tavallisen kotitalousjätteen seassa. Koska kyseessä on yritysten välisen kaupan tuote, sitä ei saa myöskään viedä kuluttajien käyttöön tarkoitettuihin keräyspisteisiin. Jos haluatte hävittää tämän tuotteen, ottakaa yhteys lähimpään vanhojen sähkölaitteiden hävittämiseen erikoistuneeseen organisaatioon.

Ce symbole indique que le produit sur lequel il figure ne peut pas être éliminé comme un déchet ménager ordinaire. Comme il s'agit d'un produit B2B, il ne peut pas non plus être déposé dans une déchetterie municipale. Pour éliminer ce produit, amenez-le à l'organisation spécialisée dans l'élimination d'anciens équipements électriques la plus proche de chez vous.

Cuireann an siombail seo in iúl nár cheart an táirgeadh atá marcáilte sa tslí seo a dhiúscairt sa chóras fuíoll teaghlaigh. Os rud é gur táirgeadh ghnó le gnó (B2B) é, ní féidir é a dhiúscairt ach oiread in ionaid dhiúscartha phobail. Más mian leat an táirgeadh seo a dhiúscairt, déan é a thógáil ag eagraíocht gar duit a sainfheidhmíonn i ndiúscairt sean-fhearas leictrigh.

Dieses Symbol zeigt an, dass das damit gekennzeichnete Produkt nicht als normaler Haushaltsabfall entsorgt werden soll. Da es sich um ein B2B-Gerät handelt, darf es auch nicht bei kommunalen Wertstoffhöfen abgegeben werden. Wenn Sie dieses Gerät entsorgen möchten, bringen Sie es bitte sachgemäß zu einem Entsorger für Elektroaltgeräte in Ihrer Nähe.

Αυτό το σύμβολο υποδεικνύει ότι το προϊόν που φέρει τη σήμανση αυτή δεν πρέπει να απορρίπτεται μαζί με τα οικιακά απορρίματα. Καθώς πρόκειται για προϊόν B2B, δεν πρέπει να απορρίπτεται σε δημοτικά σημεία απόρριψης. Εάν θέλετε να απορρίψετε το προϊόν αυτό, παρακαλούμε όπως να το παραδώσετε σε μία υπηρεσία συλλογής ηλεκτρικού εξοπλισμού της περιοχής σας.

Ez a jelzés azt jelenti, hogy az ilyen jelzéssel ellátott terméket tilos a háztartási hulladékokkal együtt kidobni. Mivel ez vállalati felhasználású termék, tilos a lakosság számára fenntartott hulladékgyűjtőkbe dobni.Ha a terméket ki szeretné dobni, akkor vigye azt el a lakóhelyéhez közel működő, elhasznált elektromos berendezések begyűjtésével foglalkozó hulladékkezelő központhoz.

Questo simbolo indica che il prodotto non deve essere smaltito come un normale rifiuto domestico. In quanto prodotto B2B, può anche non essere smaltito in centri di smaltimento cittadino. Se si desidera smaltire il prodotto, consegnarlo a un organismo specializzato in smaltimento di apparecchiature elettriche vecchie.

Šī zīme norāda, ka iztrādājumu, uz kura tā atrodas, nedrīkst izmest kopā ar parastiem mājsaimniecības atkritumiem. Tā kā tas ir izstrādājums, ko cits citam pārdod un lieto tikai uzņēmumi, tad to nedrīkst arī izmest atkritumos tādās izgāztuvēs un atkritumu savāktuvēs, kas paredzētas vietējiem iedzīvotājiem. Ja būs vajadzīgs šo izstrādājumu izmest atkritumos, tad rīkojieties pēc noteikumiem un nogādājiet to tuvākajā vietā, kur īpaši nodarbojas ar vecu elektrisku ierīču savākšanu.

Šis simbolis rodo, kad juo paženklinto gaminio negalima išmesti kaip paprastų buitinių atliekų. Kadangi tai B2B (verslas verslui) produktas, jo negalima atiduoti ir buitinių atliekų tvarkymo įmonėms. Jei norite išmesti šį gaminį, atlikite tai tinkamai, atiduodami jį arti jūsų esančiai specializuotai senos elektrinės įrangos utilizavimo organizacijai.

Dan is-simbolu jindika li l-prodott li huwa mmarkat b'dan il-mod m'għandux jintrema bħal skart normali tad-djar. Minħabba li huwa prodott B2B , ma jistax jintrema wkoll f'ċentri ċiviċi għar-rimi ta' l-iskart. Jekk tkun tixtieq tarmi dan il-prodott, jekk jogħġbok għamel dan kif suppost billi tieħdu għand organizzazzjoni fil-qrib li tispeċjalizza fir-rimi ta' tagħmir qadim ta' l-elettriku.

Dette symbolet indikerer at produktet som er merket på denne måten ikke skal kastes som vanlig husholdningsavfall. Siden dette er et bedriftsprodukt, kan det heller ikke kastes ved en vanlig miljøstasjon. Hvis du ønsker å kaste dette produktet, er den riktige måten å gi det til en organisasjon i nærheten som spesialiserer seg på kassering av gammelt elektrisk utstyr.

Ten symbol oznacza, że produktu nim opatrzonego nie należy usuwać z typowymi odpadami z gospodarstwa domowego. Jest to produkt typu B2B, nie należy go więc przekazywać na komunalne składowiska odpadów. Aby we właściwy sposób usunąć ten produkt, należy przekazać go do najbliższej placówki specjalizującej się w usuwaniu starych urządzeń elektrycznych.

Este símbolo indica que o produto com esta marcação não deve ser deitado fora juntamente com o lixo doméstico normal. Como se trata de um produto B2B, também não pode ser deitado fora em centros cívicos de recolha de lixo. Se quiser desfazer-se deste produto, faça-o correctamente entregando-o a uma organização especializada na eliminação de equipamento eléctrico antigo, próxima de si.

Acest simbol indică faptul că produsul marcat în acest fel nu trebuie aruncat ca şi un gunoi menajer obişnuit. Deoarece acesta este un produs B2B, el nu trebuie aruncat nici la centrele de colectare urbane. Dacă vreţi să aruncaţi acest produs, vă rugăm s-o faceţi într-un mod adecvat, ducând-ul la cea mai apropiată firmă specializată în colectarea echipamentelor electrice uzate.

Tento symbol znamená, že takto označený výrobok sa nesmie likvidovať ako bežný komunálny odpad.Keďže sa jedná o výrobok triedy B2B, nesmie sa likvidovať ani na mestských skládkach odpadu. Ak chcete tento výrobok likvidovať, odneste ho do najbližšej organizácie, ktorá sa špecializuje na likvidáciu starých elektrických zariadení.

Ta simbol pomeni, da izdelka, ki je z njim označen, ne smete zavreči kot običajne gospodinjske odpadke. Ker je to izdelek, namenjen za druge proizvajalce, ga ni dovoljeno odlagati v centrih za civilno odlaganje odpadkov. Če želite izdelek zavreči, prosimo, da to storite v skladu s predpisi, tako da ga odpeljete v bližnjo organizacijo, ki je specializirana za odlaganje stare električne opreme.

Este símbolo indica que el producto así señalizado no debe desecharse como los residuos domésticos normales. Dado que es un producto de consumo profesional, tampoco debe llevarse a centros de recogida selectiva municipales. Si desea desechar este producto, hágalo debidamente acudiendo a una organización de su zona que esté especializada en el tratamiento de residuos de aparatos eléctricos usados.

Den här symbolen indikerar att produkten inte får blandas med normalt hushållsavfall då den är förbrukad. Eftersom produkten är en så kallad B2B-produkt är den inte avsedd för privata konsumenter, den får således inte avfallshanteras på allmänna miljö- eller återvinningsstationer då den är förbrukad. Om ni vill avfallshantera den här produkten på rätt sätt, ska ni lämna den till myndighet eller företag, specialiserad på avfallshantering av förbrukad elektrisk utrustning i ert närområde.