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Fault Sniffer 2

Cable fault detection device

OPERATING MANUAL

Consultation with Megger

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:

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Terms of Warranty

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

Megger warrant that at the time of delivery Megger 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, Megger 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.

Megger 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 Megger.

All warranty claims versus Megger are hereby limited to a period of 12 months from the date of delivery. Each component supplied by Megger within the context of warranty will also be covered by this warranty for the remaining period of time but for 90 days at least.

Each measure to remedy a claim under warranty shall exclusively be carried out by Megger 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 Megger. 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, Megger 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.

Contents

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1. Safety instructions

1.1 Safety precautions

This manual contains basic information about commissioning and operating the Fault Sniffer 2. Therefore, it must be ensured that this manual is accessible to authorised and trained operating personnel at all times. The operating personnel must read the manual carefully. In no case shall the manufacturer be liable for any damage to persons or materials caused by failure to observe the safety instructions contained in this manual.

The country-specific standards and regulations must be observed!

1.2 Identification of safety instructions

Important instructions concerning personal and occupational health and safety and technical safety are identified in the text as follows:

Warnings! These symbols warn you of possible health hazards caused by improper operation. For example: 'Only switch on the device outside!', 'Only carry out the sensor running-in phase in the fresh air!', 'Check zero point and set correctly.'

Caution: Important information and useful tips for operating the system. Failure to observe may result in unusable measurement results.

Notes contain useful additional information and application tips for the safe use of the device and for your own health.

Do not use excessive force or tools when connecting the cables and adapters!

1.3 Working with Megger products

The generally valid electrical regulations of the country in which the device is installed and operated, as well as the existing national regulations for accident prevention and any internal regulations (work, operating and safety regulations) of the operator must be observed.

Original accessories are used for system safety and functional reliability. The use of other parts is not permitted and leads to the loss of warranty.

1.4   Operating personnel

Work on this system and its peripherals may only be carried out by trained or instructed personnel. Other persons must be kept away.

Operating personnel should be fully trained in the field of cable detection and equipped with approved cable detection devices.

Operating personnel should also be provided with suitable protective clothing and must wear it (including safety goggles, protective gloves and safety footwear).

1.5   Repair and maintenance

Maintenance and repair work may only be carried out by Megger or an authorised partner. It is recommended to have the device and accessories checked once a year in a Megger service station.

ℹ️ The device should be serviced once a year. Please notify your sales partner, so that the service is carried out. In addition, the filter should be replaced at regular intervals, see Chapter: 7 Changing the filter

1.6   Unpacking

After receiving the system, please check that the contents of the delivery match the delivery list. If any parts are missing, please inform your supplier.

If the device or accessories show any signs of damage, please inform your supplier and the carrier immediately. Please provide detailed information about the type of damage. Please keep the damaged packaging in order to be able to enforce your claims even better at a later point.

2. Areas of application/intended use

Warning of possible health hazard! Only use the device if you have inspected the surroundings/location by means of an on-site safety inspection and assessment before starting the work.

The Fault Sniffer 2 measuring device is used to locate cable faults in underground low-voltage networks while above ground, without removing the corresponding power line from the mains power supply. The dual sensor installed in the device reacts to the appropriate gases.

When and for what may the device be used?

The use is limited to the detection of cable faults and cannot be used to assess hazards.

The device is not approved for use in zones with a risk of explosion.

The device must not be used for explosive mixtures.

How should the device be stored in case of prolonged non-use?

If the Fault Sniffer 2 is not used for an extended period of time, the battery should be stored at between -20°C and +50°C for 30 days and at between -20°C and +30°C for one year.

If the device has not been used for a long period of time, it should be prepared before the next use:

1. Switch on the device.
2. Select the Cable fault detection menu item.
3. Let the device run in the fresh air for about 1 hour.
4. Then perform a calibration and, if necessary, an adjustment (see Chapter 9).

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3. Device illustration/controls

No.	Description
1	Display
2	Optical alarm
3	OK/ENTER and ON/OFF
4	Gas inlet with connection nipple for probes Installed behind: Filters, integrated pump and sensors
5	Tenax nipple for attaching a carrying strap (on both sides)
6	Acoustic alarm
7	Function keys F1 and F2
8	Charging socket (not shown here)
9	BACK/ESC (Escape) key
10	Charging socket
11	Nameplate on the back

3.1 Display

The display is a graphics-capable LCD display and allows measured values and text information to be displayed clearly. Clean the display regularly.
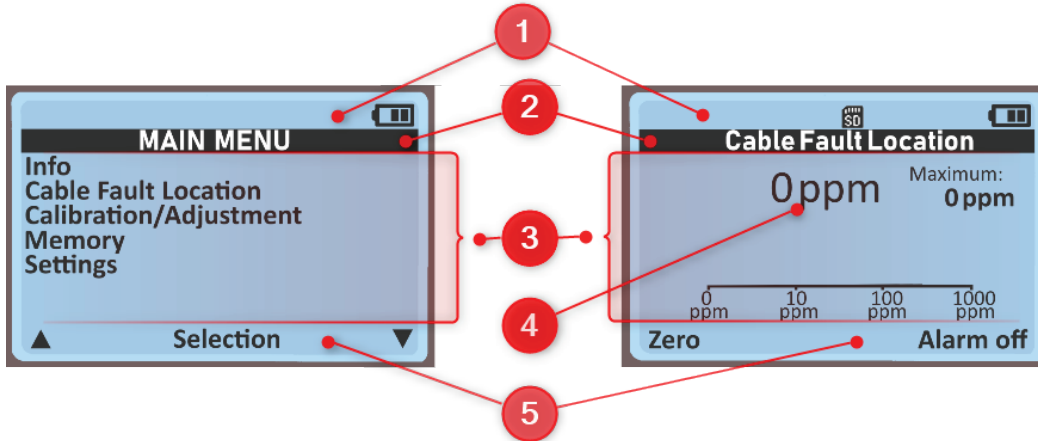
No.	Description of the display
1	Display symbols in the top line of the display for active and inactive functions as well as the permanent display of the charge level
	Battery charge level — Measurement data is saved
	Bluetooth connection active — Alarm switched off
2	Displays the selected menu item
3	Display area for menu, measured values and graphical displays
4	Number for the currently measured ppm value
5	Operating option of function keys F1/F2

3.2 Buttons on the device

Confirm: Press OK/ENTER to confirm the selection of a menu item.

ON/OFF: Press ON/OFF to turn the device on and off.

Back: Press BACK/ESC once or more to return to the previous menu or to the main menu.

Cancellation of a test phase/test: Press BACK/ESC to confirm the cancellation of a currently running phase of a test that has been started or the complete cancellation of a test.

The **function keys F1 and F2** have a function adapted to the respective menu item. These functions are described in the bottom line of the display. The text on the left applies for F1 and the text on the right applies for F2. If no text or symbol is displayed, the corresponding key has no function.

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3.3 Acoustic alarm

The acoustic alarm is the buzzer below the F2 function key. This sounds for important events or error messages.

3.4 Optical alarm

An optical alarm is indicated by several bright alarm LEDs above the display. The LEDs flash at the same frequency as the acoustic signal sounds.

3.5 Bluetooth (integrated)

The integrated Bluetooth module is used for standard data transfer and for updating the device firmware.

3.6 Gas inlet with connection nipple for probes

Various probes can be connected via the plug-in nipple on the gas inlet. In order to protect the sensors from contamination and the penetration of moisture, a hydrophobic filter and dust filter are located at the gas inlet. Additional protection against moisture is provided by a water blocker, which can also be connected if necessary.

3.7 Charging socket

On the left side of the housing is the charging socket to which the power supply unit or the vehicle charging cable can be connected. In addition, the device can be charged in the supplied case. The charging connections for this are located on the outside and inside of the case.

3.8 Nameplate

The nameplate with the device name, article number (PN) and serial number (SN) is on the back of the device.

4. Storage, transport, packaging

After unpacking, during transport and before and after storage, check the device for visible damage. If there is any damage, please contact your sales partner.

5. Power supply (charging)

To be able to use the device at any time, check the charge level of the Li-ion battery. You can keep the device plugged into the charging current at all times without the risk of overcharging.
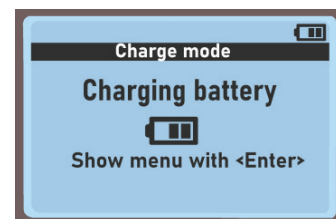
The rechargeable Li-ion battery should not be deep discharged, in order to prevent damage. The device consumes a small amount of power even when it is switched off. Charge the battery of the device regularly when not in use.

Connect to charging socket and charge

The charging socket is on the left side of the device. Connect a suitable charger (230 V AC or 12 V DC). The charging time for a discharged device is approximately 6 hours.

You can view the current battery capacity from the 'Info' menu.

Indicators on the power supply unit and measuring device.

- **Power supply unit / LED lights up green:** Battery is being charged (shown on measuring device display)

- **Vehicle charger and display are off:** Battery is full, trickle charging when 12 V power supply is connected

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6.   Operation/handling

6.1   Switching the device on and off

Switching on the device

1. Press ON/OFF (OK/ENTER) for at least 2 seconds.
2. Wait for the system and pump test.
3. Confirm the service date with CONTINUE (if displayed).

Result: The device displays the main menu.

Switching off the device

ℹ   The device can only be switched off from the main menu.

1. Press BACK/ESC until the main menu is displayed.
2. Press ON/OFF (OK) for at least 5 seconds. The key must not be released until after the last message 'Off in 1' appears.

Result: The device is switched off.
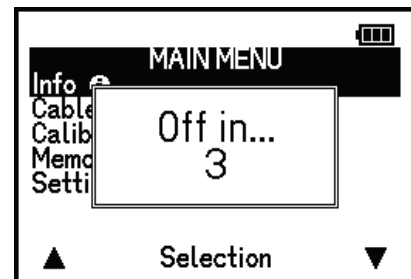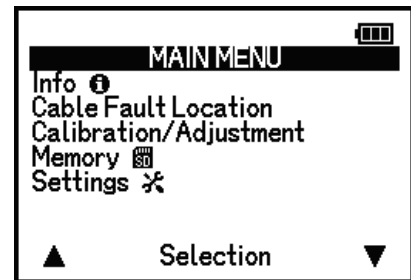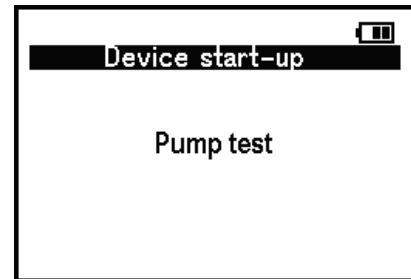
6.2   Wait for the sensor running-in phase during tests

For all tests, a sensor running-in phase first takes place. Wait for the sensor running-in phase to finish, as no measured value can be measured during this time (approx. 1 minute).

⚠   Only switch on the device outside. Wait for the sensor running-in phase in the fresh air.

ℹ   If fresh air is present, you can switch on the device, for example, when you arrive at work or when you arrive in the car. This means that the device is ready for use.
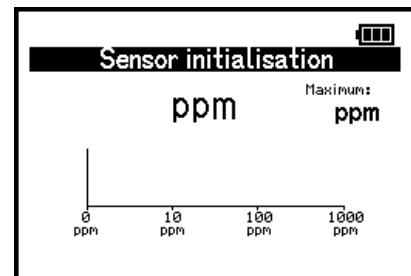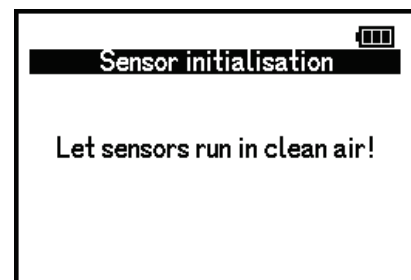
6.3 Selecting the 'Info' menu and checking the values

The 'Info' menu displays the serial number (SN), software version, free memory, date, time, and battery charge level.

```
Info ⓘ
SN:            160/03533
SW version:    4
Free memory:   99 %
Date:          19.08.20
Time:          15:46:36
Battery:       88 %
```

6.4 Confirming the service date

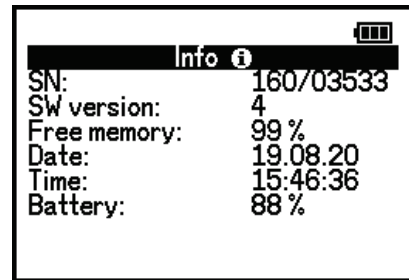The service date is displayed when the device is started to inform the user. If the service is due, a message is displayed. This must be confirmed with 'Continue'.
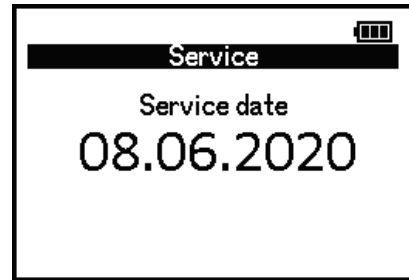
ℹ️ Confirm the service message and contact your sales partner so that the service is carried out.

Note: You can set how and when the service date is displayed in the device settings.

```
Service

Service date
08.06.2020
```
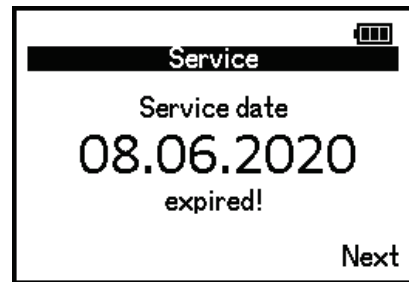
6.5 Viewing the data memory

The data memory lists all the tests that have been carried out in order. You can review tests, send, print or delete them.

ℹ️ This menu item allows you to delete the entire data memory.

```
Service

Service date
08.06.2020
expired!

Next
```

Structure of the display in the data memory

#9	CF	06/06/2020	09:23:05
Number of test	Type of test	Date of test	Start time of test
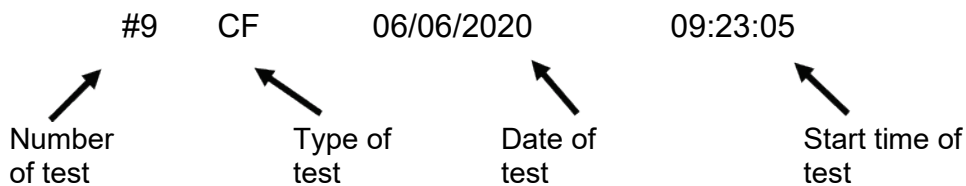
Overview for the abbreviations for the entry: Type of test

Abbre-viation	Description
CF	Cable fault detection
CA	Calibration/Adjustment

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7. Changing the filter

⚠️ Filters are designed to protect the measuring device from serious damage. Moist or dirty filters reduce the flow rate and extend the response time of the measuring device. The proper function of the device can only be guaranteed when the filters are dry and clean.

Hydrophobic filters retain moisture and block the intake path when water is drawn in. Theoretically, these filters can be removed and dried after they have become damp. However, in most real-life cases, it is not clean water that is drawn in, meaning that the filters often become dirty and should be replaced.

Dust filters must be replaced if they become damp and before they become clogged with dirt. This means that they may need to be replaced several times a day on days when conditions are dry and dusty. Therefore, the filters must be checked depending on the application situation. A fixed-rota basis (e.g. once a day) is not always optimal or sufficient.

Suitable replacement filters for the filter housing at the gas inlet and water blocker can be ordered as accessories (see page 32).

7.1 Replacing filters at the gas inlet

The measuring device contains hydrophobic filters (membranes) for protection against water ingress and a dust filter. These filters are housed in a filter housing and are located behind the gas inlet screw on the right-hand side of the device. You can change the complete filter housing including all filters or just the dust filter.

🚫 Do not use any objects or use any force or tools when opening and closing the housing, to avoid damage to the thread.

⚠️ Use tweezers to change the filter! Make sure that you do not touch the hydrophobic filter (membrane)!

Filter assembly:

No.	Description
①	Dust filter
②	Hydrophobic membrane 1 **(do not touch!)**
③	Filter housing
④	Hydrophobic membrane 2 **(do not touch!)**

Replacing the dust filter

ℹ The dust filter should be changed much more frequently than the entire filter housing (depending on the conditions of use, in a ratio of 10:1).

Preliminary work
- Clean the device and gas inlet (so that it is free from dust and moisture)
- Make sure that tweezers are at hand

Replacing
1. Loosen the gas inlet screw by turning it anti-clockwise.
2. Remove the dust filter from the filter housing. Make sure that you do not touch the hydrophobic filters (membranes)!
3. Insert the new dust filter into the filter housing.
4. Reinstall the filter housing in the correct position.
5. Place the gas inlet screw on the thread on the device housing and tighten the gas inlet screw clockwise by hand.
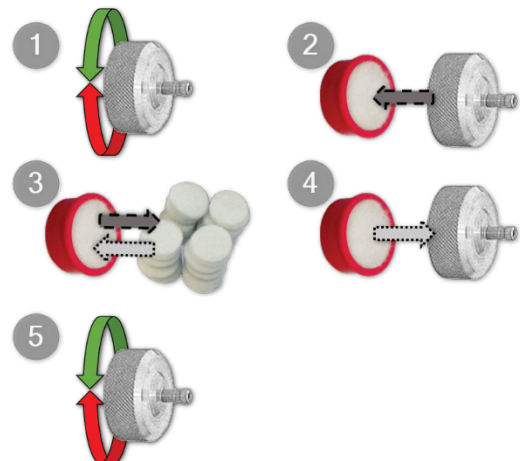
Replacing the complete filter housing

ℹ️ The hydrophobic filter/hydrophobic membrane must not be touched with bare fingers, as this will damage it!

Preliminary work
- Clean the device and screw cap (so that it is free from dust and moisture)
- Make sure that tweezers are at hand

Replacing
1. Loosen the gas inlet screw by turning it anti-clockwise.
2. Remove the filter housing.
3. Replace the filter housing.
4. Reinstall the filter housing in the correct position.
5. Place the gas inlet screw on the thread on the device housing and tighten the gas inlet screw clockwise by hand.
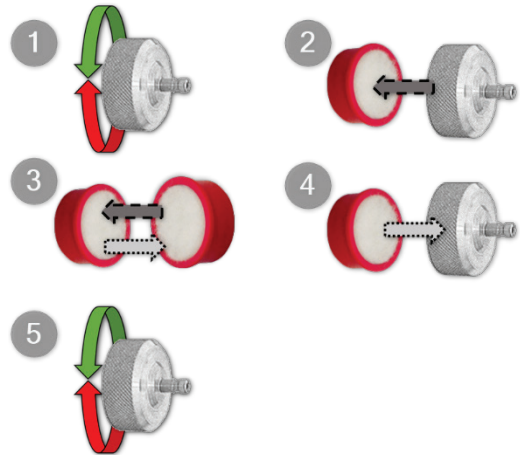
7.2 Replacing filters in the water blocker

There is also a hydro filter and dust filter in the water blocker, which must be replaced as required and depending on how frequently the water blocker is used.

Water filter   Dust filter
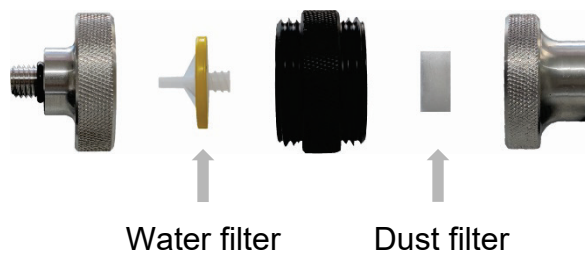
Replacing
1. Unscrew the necessary side of the water blocker.
2. Remove the old filter.
3. Insert the new filter.
4. Screw the side of the water blocker back on.

8. Cable fault detection

With cable fault detection, you can detect the smallest gas concentrations of burnt insulation material above or in the ground. Probes are connected to the device for detection. The gases are directed to the sensors via the integrated pump in the device. In addition, a vacuum probe system can be connected to direct the gases to the sensors.

The sensors used to detect gas concentrations require a running-in period of approximately 1 minute. The running-in phase must be carried out outside. A suitable probe should only be connected after the running-in phase has been completed.

8.1 Connecting a suitable probe

Depending on the conditions at the application site, different probes can be connected to the device.

It is always recommended to attach an additional water blocker when connecting a drill hole probe.

When connecting a bell probe, an additional water blocker should only be attached if the ground is moist at the application site.

Drill hole probe

Bell probe
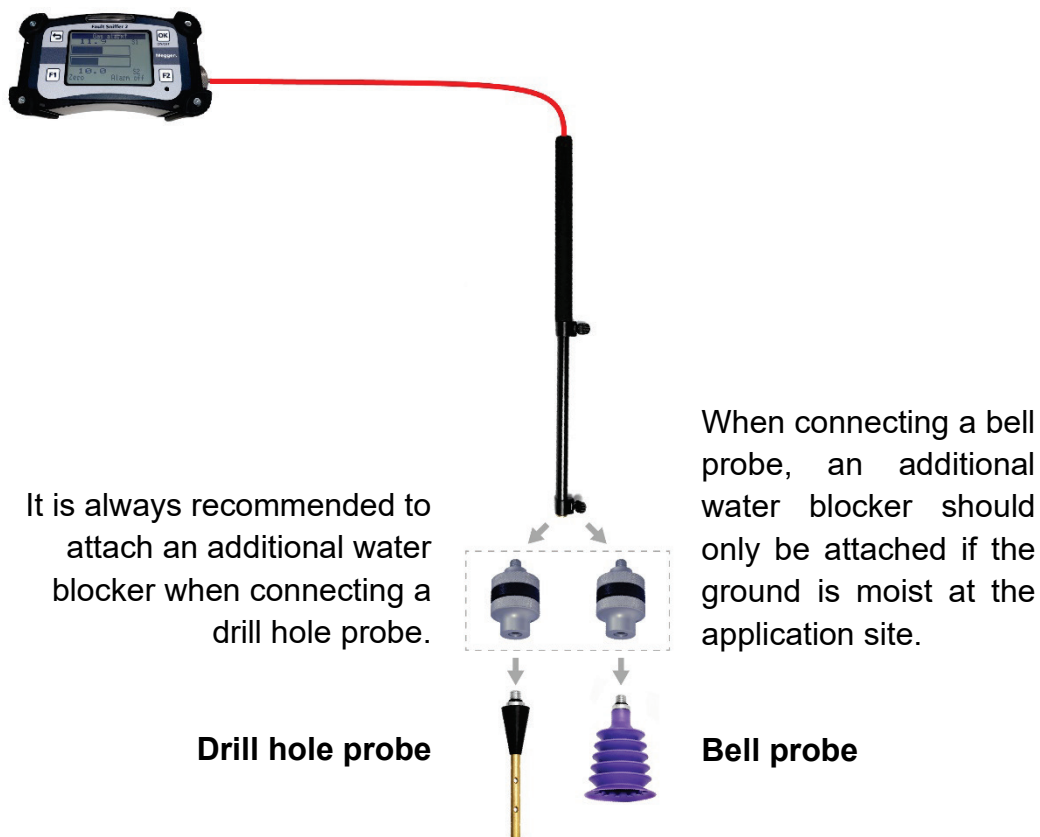
In addition to the two probes supplied, gases can also be directed to the sensors via the optional VSS 15 vacuum probe system.

Detailed information on the use of the vacuum probe system can be found in the relevant operating instructions.

8.2   Examples for the use of the probes

The figures illustrate the differences in measurement results due to the use of the probes under different conditions.

No.	Name of the probe: Operating principle, examples of measurements
1	Bell probe: Above-ground collection by suction
2	VSS15 mobile vacuum probe system: Above-ground collection by suction
3	Drill hole probe: Collection by suction in the ground
4	Drill hole probe: Collection by suction in the ground Localisation in problematic soil conditions

All the illustrations show an example of the gas quantity and gas distribution, a display and a trend arrow of the measured ppm value.
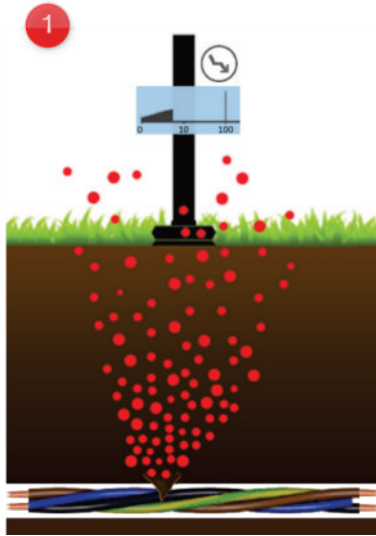
With the bell probe ①, you can measure gases occurring directly on the ground. The smallest amounts of gas on the ground are also an indication that high concentrations can be found below the surface.

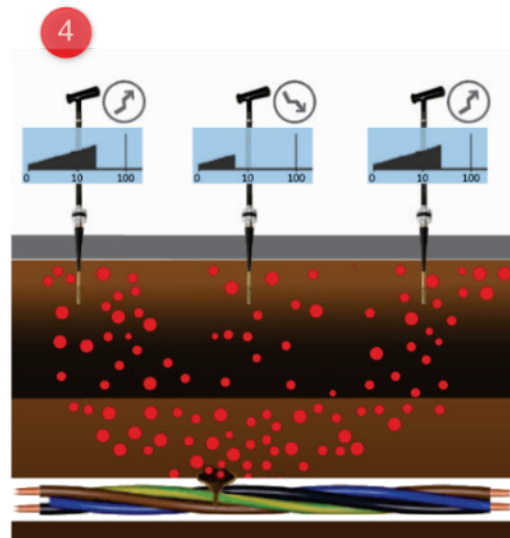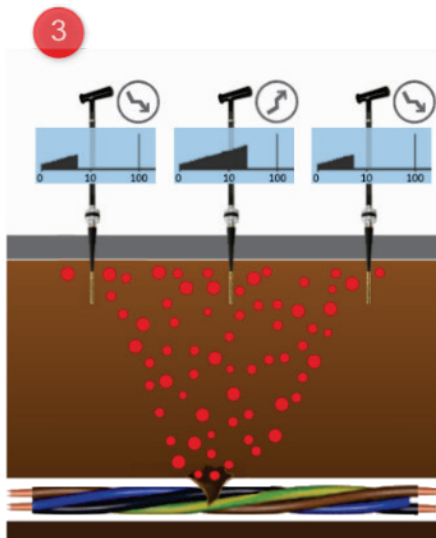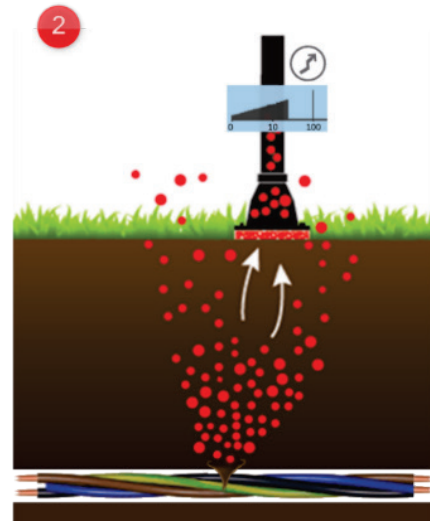In contrast to the bell probe, the VSS15 mobile vacuum probe system ② also sucks out of the ground. If there is a quantity of gas present, the VSS15 will give you a faster and more accurate display. Compared to the bell probe, you get a higher ppm value (see the display and trend arrows). The VSS15 clearly reduces the waiting time and search time for the smallest gas leaks.

Gas quantities can be measured directly in the ground with the drill hole probe. The drill hole probe is particularly suitable for localisation in problematic soil conditions. Once the drill holes are set, depending on the nature of the soil, ③ you get the highest ppm value directly at the cable fault or ④ if the gases have migrated through different layers of earth, you get the highest ppm values around the cable fault.
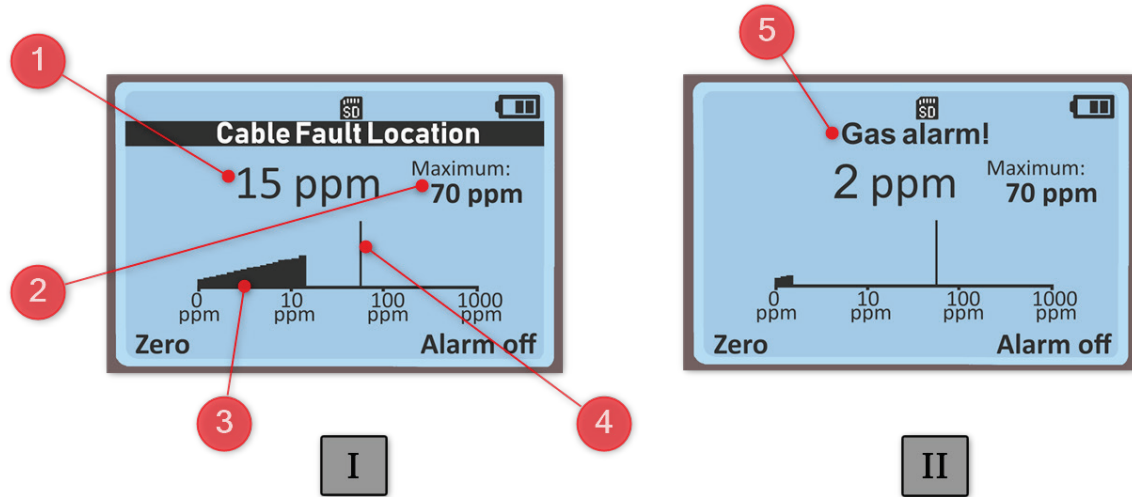
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8.3 Display of gas concentrations

Two different displays of the gas concentration are integrated in the device.

- The gas concentration of burnt insulation material
- The gas concentration of natural gas or a gas similar to natural gas

⚠️ If the device displays the gas alarm, you should pass this information on to the competent authorities known to you.

I Cable fault detection	II Gas alarm
When gas due to burnt insulation material is detected, the display shows the gas concentration as a cumulative display of both sensors. The gas concentration is displayed graphically as a number in ppm and as a logarithmically increasing bar graph. The measured maximum value is displayed as a number in ppm and graphically as a single line.	If there is a gas alarm, the device has detected a gas. However, it is most likely not gas produced by the combustion of insulation material, but natural gas or a gas similar to natural gas. In the case of a gas alarm, only one of the two sensors responds, an acoustic signal sounds and the LEDs flash.

No.	Description
1	Number for the currently measured ppm value
	Note: If you see an arrow in front of the ppm value **(< ppm)**, negative measured values were briefly measured. Negative measured values are not displayed because they are not significant for cable fault detection.
2	Number for the highest measured ppm value
3	Bar graph of the current measurement (display range: 0 to 1000 ppm)
4	Display of the maximum value (vertical line)
5	Detection of natural gas or a gas similar to natural gas

8.4 Resetting the maximum value

Method (which display will reset?)	Procedure
Manual (Number and line)	If no more gas is measured, you can reset the maximum value with F1 after a short time.

8.5 Alarms

In certain situations, an alarm is sounded via the device's signal generator. The alarms with the associated message on the display are:

When is the alarm triggered?	Display
When the device is switched on	Device start/system test/pump test
End of measuring range exceeded	Measuring range exceeded
Natural gas or similar gas detected	Gas alarm
Suction pump is blocked	Pump alarm

Switching the alarms on and off

You can silence the acoustic alarm during cable fault detection using **Alarm off** (F2).

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8.6 Performing tests

ℹ️ For longer periods of work, wear the Fault Sniffer 2 together with the waist belt to protect your back. This is the only way to distribute the weight of the device over a large area in a way that is gentle on your back.

Preliminary work

- Test holes for when using the drill hole probe must not be deeper than 20 cm!
- Before setting test holes, for example with the broach, it must be ensured that no supply cables or other lines are damaged as a result.

Requirements

- Only switch on the device in the fresh air.
- Wait for the sensor running-in phase in the fresh air.
- Connect a probe to the device.

Performing tests

⚠️ If part of the preliminary work, or requirements are not fulfilled, you must not perform the test.

ℹ️ You can press BACK/ESC to cancel the test at any time. **Result:** The pump shuts down. You will see the main menu.

1. Select the menu item for the test.

2. Wait for the sensor running-in phase as no measured value is measured during this time (approx. 1 minute).
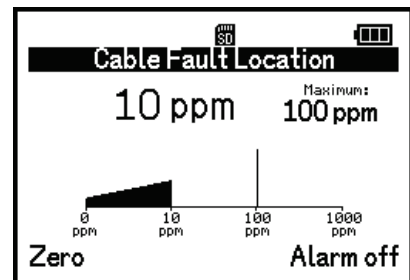
3. Check the zero point or reset the zero point. The measured value should be 0 ppm in fresh air.
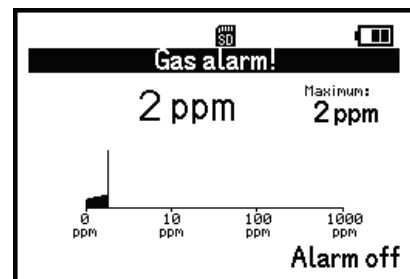
4. Check the gas concentration for the test holes.

Result: If gas concentration is present:
- You will see an increase in the ppm value, or
- You will see the gas alarm.

9. Calibration/adjustment

If necessary, you can check and reset the sensitivity of the sensors in the menu item 'Calibration/adjustment'. Use the calibration to check the sensors and use the adjustment to reset them. Test gas is required for this. In this menu item, you can either perform the calibration on its own or perform the calibration and adjustment directly together or one after the other. If the adjustment is required, this is indicated after the calibration (message in the display: Calibration not OK).

⚠️ Perform the calibration/adjustment only in fresh and clean air! Fresh and clean air is free of hydrocarbons and toxic gases.

ℹ️ Perform the check at regular intervals to prevent incorrect measured values and health hazards.

Process	Description
Calibration (Compare)	Process: Target comparison/target value Using the test gas with a specified gas concentration, the sensors should measure and display the correct measured value for the respective gas concentrations.
Adjustment (Setting)	Process: Actual transfer/actual value Typically, the sensitivity of gas sensors decreases over time. If the gas sensors lose their sensitivity, they must be reset, so that the sensors measure and display the correct measured value for an existing gas concentration. Based on the test gas and the previous calibration test procedure, the sensors are reset and then re-checked with a new calibration.

For example: You have connected test gas at 100 ppm. The device measures and displays 60 ppm. It can be assumed that the sensitivity of the sensors has decreased. Adjust the sensitivity of the sensors. To check this adjustment, use the calibration with the same test gas. The device measures and displays 100 ppm.

⚠️ If the calibration/adjustment fails after several attempts, please contact the manufacturer. Sensors may have been damaged due to prolonged contact with very high gas concentrations or other influences.

9.1 Test gases that may be used

Only use the test gas recommended and distributed by Megger.

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9.2   Performing the calibration

You can perform the calibration in a menu-guided way. Observe the operating instructions shown on the display.

i You can press BACK/ESC to cancel the calibration at any time.

Requirements

- Test gas is available, but is not yet connected to the device.
- Connect a probe to the device (optional).
- Only switch on the device in the fresh air.

Starting the calibration

1. Select the menu item for the test.
2. Wait for the sensor running-in phase as no measured value is measured during this time.
3. Check the zero point or reset the zero point. The measured value should be 0 ppm in fresh air.
4. Start the calibration only at 0 ppm by confirming with F2.
5. When prompted, connect the test gas.
6. Wait approximately 1 minute for the sensor to settle and calibrate.
7. Check the displayed ppm value with the test gas specifications.
8. Confirm completion of the calibration with F2.
9. Remove the test gas when instructed to do so.
10. Press F2 to display the result.

Result and other possibilities: The calibration is complete.

You have the following options:

- **Calibration not OK (display):** Perform adjustment. Press F2 to reset the sensors in the device.

- **Exit and return to the main menu:** Press F1 (or BACK/ESC and then OK) to exit the calibration.
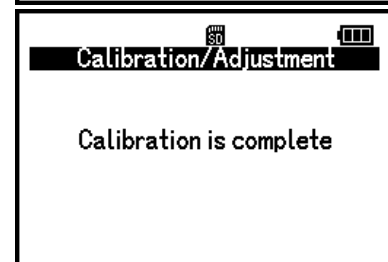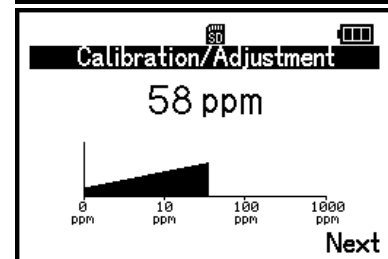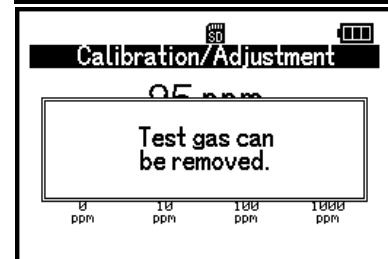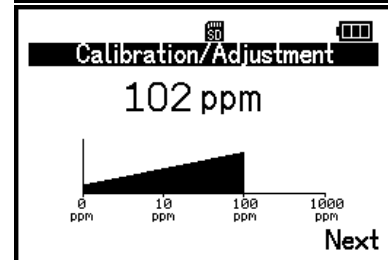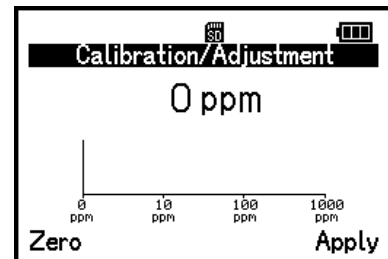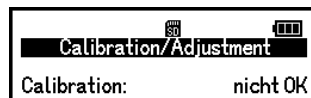
9.3 Performing the adjustment

You can perform the adjustment in a menu-guided way. You must perform the calibration before and after the adjustment. This is because you can only perform the adjustment by means of a previous calibration. And you use the subsequent calibration to check the newly adjusted sensors. Observe the operating instructions shown on the display.

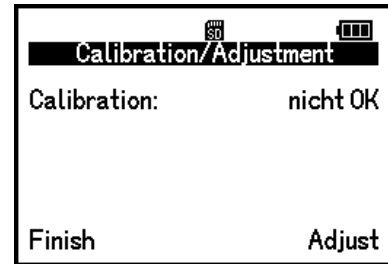**i** You can press BACK/ESC to cancel the adjustment at any time.

Requirements

- The adjustment is due according to the service interval.
- You have performed the calibration.
- Device password

Starting the adjustment

1. When the calibration is complete, press F2.
2. Enter the correct password and confirm with OK/ENTER.
3. Read the security prompt!
   Caution! As soon as the security prompt has been confirmed, the sensors are re-adjusted irrevocably!
4. Confirm the security prompt with OK/ENTER or confirm the cancellation of the adjustment with BACK/ESC.

Partial result: The adjustment has been performed (display on the device). The device displays the main menu.

5. Select the menu item Calibration/adjustment.
6. Perform a new calibration and check the displayed ppm value with the test gas specifications.

Result: The adjustment is complete and checked. The device displays the main menu.
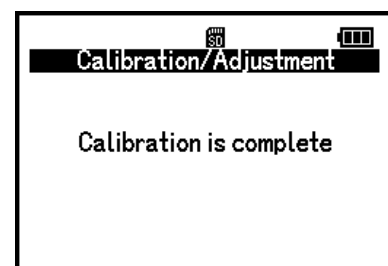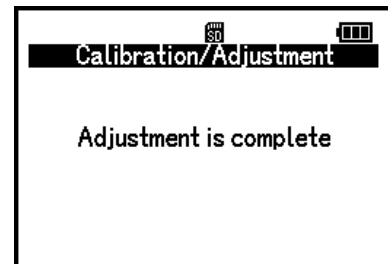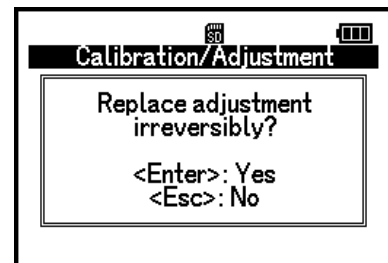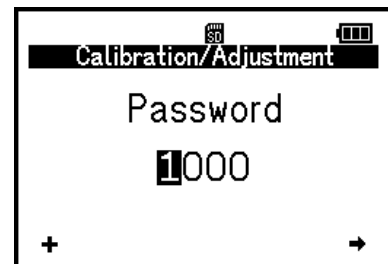
10. Settings

10.1 Opening and changing device settings

Requirement: Device password

In the settings, you can select different menu items depending on the authorisation level. The illustration on the right shows an example and an excerpt of menu items in the settings. The default password is 1000.
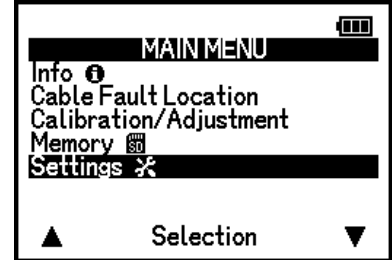
i Notes on operation in the settings:
If you have selected one of the menu items in the settings, you can use OK/ENTER to cycle through all the displayed entries once. Press F1/F2 to change a value.

10.2 Entering the password

i If you enter an incorrect password, the message 'Password incorrect' appears in the display and settings with a low authorisation level are then displayed. To view or change all settings, you must enter the correct password.

Entering the password

1. Select the 'Settings' menu item.
2. Press F1 repeatedly to enter the desired number (1 to 9) at the highlighted location.
3. Press F2 to select the next digit.
4. Confirm the password with OK/ENTER.
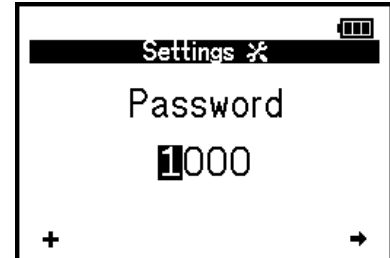
Result: After the message 'Password correct' or 'Password incorrect' appears in the display, the settings with the authorisation level are opened.

10.3 General (overview) menu item

Display	Possible settings
Language	German/optional additional languages
Automatic off	Off/15 min/30 min
Lighting	On/10 s/1 min/10 min/Off
Immediate start	Setting for the device after switching on: CF = Start with cable fault detection Off = Start with main menu

10.3.1 Changing the language of the device

Select the 'General' menu item. In addition to the standard languages German and English, you can select other available languages. If the language you are looking for is not available, please contact your sales representative.

10.3.2 Setting the time for the auto power down of the device

Select the 'General' menu item. Use 'Automatic off' to set the device to auto power down when it is inactive. **15 min/30 min/Off**

10.3.3 Setting the time for the lighting

Select the 'General' menu item. You can turn the lights on or off permanently or set a time to automatically turn off the lights when inactive. **On/10 s/1 min/10 min/Off**

10.3.4 Immediate start on and off

Select the 'General' menu item. Use 'Immediate start' to set whether the device should start directly with cable fault detection or with the main menu. **(CF/off) (default: CF)**

Value	Display shown after starting the device
CF	Start the device with cable fault detection
Off	Start the device with the main menu

10.4   Service date

10.4.1 Service date of the device (overview)

Display	Range
Service	On/Off/On+Info
Lock	Off/0 days/30 days/60 days

10.4.2 Displaying the service date when the device starts

Select the 'Service date' menu item. You can specify whether the next service date is displayed at startup. The date of the next service due can be displayed (on/off) when the device starts. In addition, information about the remaining time until the next service can be displayed from 90 days before the due date. **On+Info (default: OFF)**

10.4.3 Setting the time for the device to be locked if the service is due

Select the 'Service date' menu item. You can specify whether and when the device should be locked when the service date is due. After this period, an unlock is only possible temporarily until the device is next started. This is indicated on the display. **OFF/0 days/30 days/60 days (default: OFF)**

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10.5 Cable fault detection

10.5.1 Cable fault detection (overview)

Display	Range
Show MI (Show cable fault detection menu item)	Yes/No
Save	Yes/No

10.5.2 Showing and hiding the menu item in the main menu

Select the 'Cable fault detection' menu item and 'Show MI'. You can specify whether the menu item (MI) should be displayed in the main menu or not. (**Default: Yes**)

10.5.3 Switching 'Save measurements' on and off

Select the 'Cable fault detection' menu item and 'Save'. You can specify whether to save measurements for cable fault detection in the device. The highest measured ppm value and the associated time are saved.

For example, during a 1-hour cable fault detection session, a total of 1 maximum value and the associated time are saved.

10.6 Changing the date/time

You can set the current date and time for the device. When setting, you cycle through all input points in succession. Your entries and changes are saved immediately.

Changing values

1. Use F1/F2 to change a value.
2. Use OK/ENTER to select the next digit.
3. Repeat steps 1 and 2 as required to set the current date and time.
4. When you are finished, leave the menu item using BACK/ESC.

Result: You have set the date and time.

11. Technical data

The Fault Sniffer 2 is specified by the following technical parameters:

Name	:	Fault Sniffer 2 cable fault detection device
Dimensions	:	Approximately 192 x 100 x 87 mm (without gas inlet screw)
Weight	:	Approximately 1150 g
Display	:	LCD, 240 x 160 pixels, touch display with backlight for the logarithmic display of measured value and bar graph
Power supply	:	Li-Ion battery pack, nominal voltage: 3.6 volt, nominal capacity: 6700 mAh, charging voltage 12 V/1 A DC rechargeable
Charging	:	Via charger with 230 V AC or 12 V DC via integrated charging socket
Pump	:	Integrated, flow rate approximately 40 l/h.
Operating time	:	>10 hours
Operating temperature	:	-10°C to +50°C
Storage	:	Via drill hole probe (7.5 mm) or bell probe
Degree of protection	:	IP42
Connections	:	1 nipple Rectus Series 20
Filter	:	Hydrophobic filter with double membrane and dust filter at the gas inlet Hydro filter and dust filter in the water blocker
Decoupling	:	
Interface	:	Bluetooth
Data memory	:	> 2,000,000 measured values
Carrying technique	:	Attachment for Tenax waist belt
Sensors	:	Dual sensor for the detection of gases that are characteristic of cable faults
Operating principle	:	Semiconductor and electrochemical
Display range	:	Up to approximately 1000 ppm

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12. Optional accessories / spare parts

The following spare parts and accessories can be purchased from the relevant Megger sales representative:

Description	Item number
VSS 15 vacuum probe system	1012956
Replacement set - EFI1 filter (3 pieces), dust filter for gas inlet (30 pieces), hydro filter for water blocker (8 pieces) and dust filter for water blocker (80 pieces)	90039408
1 pack Bitumen plugs (100 pieces)	118302678

13. Error messages/troubleshooting

The following are error messages and error codes with short descriptions for troubleshooting. This information will help you to perform the appropriate action recommended by the device manufacturer when messages appear.

Message or error	Possible cause or meaning	Solution approach or contact person
CONFIG	Configuration is not present or inconsistent.	You can try to use the update tool to re-install the configuration. Otherwise the device must be returned.
Data memory full!	Too many tests in the data memory	Empty the data memory
EEPROM	Hardware fault. Failed to access memory.	
Adjustment not possible!	No or incorrect test gas -------------------------- Defective sensor	Apply the correct test gas ----------------------------- Have the sensor repaired during service
Calibration not OK	Sensor sensitivity does not meet test specifications	Perform the adjustment first and then the calibration
Sensor error detected and corrected automatically. Readjustment required! *followed by…* Error 01 08	An error occurred during calibration / adjustment.	Repeat the calibration and the adjustment.
Adjustment invalid! Please conduct Calibration/Adjustment!	A previous calibration was not completed successfully.	Repeat the calibration and the adjustment.
Measuring range exceeded!	Sensor outside the specified measuring range	Connect the correct sensor or decrease the pressure/temperature
Password incorrect!	Incorrect password entered	Enter the correct password
Pump alarm: Check the gas path	Pump has switched off ---------------------- Pump is blocked	Check all connections for ... -------------------------------- Find and remove blockage
Error 01 03 and error 07 03	Sensor signal in invalid range.	Switch the device off and on again and let it run in the fresh air for longer. Then perform calibration and adjustment. If the error repeats, the device must be serviced.

Message or error	Possible cause or meaning	Solution approach or contact person
Service appointment expired!	34	Device must be sent in for service.
Sensor error detected! Service required! *followed by…* Error 01 08		Device must be sent in for service.

| Message or error | Possible cause or meaning | Solution approach or contact person |