A PASSION FOR PERFECTION

PFEIFFER VACUUM

RC 500 / RC 500 WL

Remote Control for Leak Detector
ASM 3xx, HLT 5xx and MiniTest 300

Operating Instructions

EN

IG 0140 BEN_E (1311)

Product identification
The information of the type plate is required for the communication with Pfeiffer Vacuum.

Fig. 1 Product identification

Validity
This document is valid for products with the article number

PT 445 420 AT	RC 500 WL
PT 445 421 AT	RC 500
PT 445 432-T	RC 500 WL (ASM 3xx)

You can find the article number on the type plate.
This document is based on the firmware versions V1.4 and higher.
If the device does not function as described, check whether your device is equipped with this firmware version.

Subject to technical changes without prior notice. The illustrations are not in full scale.

Table of contents

1 Operating instructions

1.1 How to use this manual

- Please read these operating instructions before commissioning the remote control.
- Keep the operating instructions so that you can refer to them at any time.
- Enclose the operating instructions if the remote control is passed on to third parties.
- We reserve the right to alter the design or any data given in this manual.
- The illustrations are not binding.

1.2 Warning and danger symbols

DANGER

Specifications for the prevention of bodily injuries of all kinds.

WARNING

Specifications for the prevention of severe material and environmental damage.

CAUTION

Specifications for handling or use. Failure to observe these can lead to faults or minor material damage.

2 Important safety instructions

Notice: Before installing the RC 500/RC 500 WL and MiniTest remote control all safety instructions should be read carefully and should be understood properly.

2.1 Intended use

The RC 500 / RC 500 WL remote control is intended for the operation of the leak detectors ASM 3xx(*), HLT 5xx and MiniTest 300.
The RC 500 / RC 500 WL remote control must only be used for the purpose and within the context outlined in these operating instructions.
Only Pfeiffer Vacuum original accessories are to be used.

(*) only RC 500 WL, PT 445 432-T

2.2 User requirements

SKILLED PERSONNEL

The RC 500 / RC 500 WL remote control may only be connected and operated by properly trained staff.

- The user must be familiar with the function of the device; he or she may only connect and operate the device after having read and understood the operating instructions.
- The user should consult local, state, and national agencies regarding specific requirements and regulations for devices with wireless transmission capability.
- In case of more questions regarding safety, operation and/or maintenance, the user should contact our nearest representative.

2.3 Restrictions of use

DANGER

Danger in explosive environments.
The RC500/RC500WL remote control may only be used away from explosive environments.

2.4 Hazards in the event of intended use

DANGER

Possible interference with pacemakers.
The performance of pacemakers may be affected by the magnets on the back of the RC 500 / RC 500 WL remote control. Observe the distances indicated by the pacemaker manufacturer.

When handling the remote control:

DANGER

Possible liquid crystal hazard!
If the display has broken, prevent liquid crystals from entering people's mouths or eyes. Use soap and water to wash hands, feet or clothes that have come into contact with liquid crystals.

DANGER

Possible radiation hazard!
When the device is operated, a minimum distance of 7 cm between the remote control and people must be observed, with the exception of hands and wrists. Operation at a shorter distance than indicated above is not allowed. The RC 500 / RC 500 WL remote control complies with part 15 of the FCC regulations[1].

[1] FCC: Federal Communications Commission, approval authority for communication devices (USA)

When handling the rechargeable battery and charger, main adapter:

WARNING

Possible short circuit hazard!
In case fo a short-circuit the battery might ignite, explode, leak battery fluid, or become overheated and cause burns.
Do not short-circuit the battery of the RC 500 WL remote control.

WARNING

Possible explosion hazard!
The battery of the RC 500 WL remote control can explode if it is extreme overheated.
Do not set fire to the battery as it might explode.

Notice: Charging the battery at higher temperatures (> 40° C) decreases its service life.

CAUTION

Possible risk of damage!
The electronics of the RC 500/RC 500 WL remote control may be damaged by an incorrect supply voltage.
Only use the accompanying charger, main adapter.

Environmental conditions of the remote control (see Refer to chapter 8):

CAUTION

Possible risk of damage!
The RC 500 / RC 500 WL remote control may be damaged in the open through moisture, strong insolation, or intense dust.
Only use the device inside buildings.

CAUTION

Possible risk of destruction!
Aggressive substances may damage the RC 500 / RC 500 WL remote control beyond repair.
Avoid contact between the RC 500 / RC 500 WL and bases, acids, and solvents, and do not expose it to extreme climatic conditions.

CAUTION

Possible risk of destruction!
The RC 500 / RC 500 WL remote control may be damaged beyond repair by penetrating liquid.
Do not switch on the RC 500 / RC 500 WL remote control if liquid has penetrated the unit. Contact the Pfeiffer Vacuum Service Department.

Storage and transportation of the remote control:

CAUTION

Possible risk of damage!
The RC 500 / RC 500 WL remote control may be damaged by being stored in unfavourable conditions (too damp, too hot, too cold, too high above sea level) for months or years (see Technical specifications chapter 8).
If the RC 500 / RC 500 WL remote control has been stored under such conditions, leave it switched off and contact the Pfeiffer Vacuum Service Department.

CAUTION

Possible risk of damage!
The RC 500 / RC 500 WL remote control may be damaged by improper transport.
Always transport the RC 500 / RC 500 WL remote control in its original packaging.

Cleaning the remote control:

Notice: Clean the plastic housing of the RC 500 / RC 500 WL remote control, the front foil and the display using a soft cloth, moistened with some water or soap suds. Do not use any solvents!

Operating the remote control:

Notice: The performance and reliability of the RC 500 / RC 500 WL remote control can only be guaranteed if it is operated under the specified conditions of use.
(See Technical specifications chapter 8.)

Notice: Any changes made to the RC 500 / RC 500 WL remote control by the user may result in a violation of statutory provisions or may affect the EMC properties and safety of the product. Pfeiffer Vacuum does not accept any liability for the consequences of such changes.

3 Description RC 500 / RC 500 WL

3.1 Use

The RC 500 / RC 500 WL remote control operates the leak detectors ASM 3xx(*), HLT 5xx and MiniTest 300.

Notice: Data and settings that affect the MiniTest 300 are listed in the appropriate instructions.

The RC 500 / RC 500 WL remote control is accommodated in a robust housing the shape of which enables ergonomic working. Magnets on the underside of the unit enable it to be attached to horizontal or vertical metal surfaces.

The wireless version RC 500 WL enables remote operation up to a distance of over 100 m, depending on the reception conditions. The integrated rechargeable battery enables over 8 hours of operation, depending on the battery level.

The RC 500 version enables remote operation of the leak detector in question up to a distance of 34 metres using a connection cable.

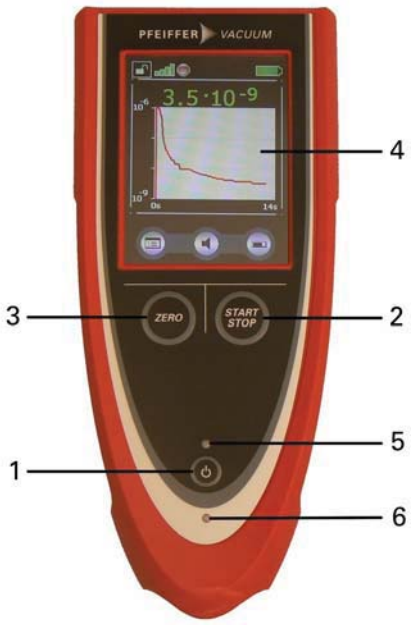
The leak rates can be displayed in digits or in a curve on the colour display.

Measured values of up to several hours of recording can be stored in an internal memory. The data storage interval is adjustable. The data can easily be downloaded to a USB stick via the integrated USB interface to save it.

An internal trigger can be set to provide a warning if the limit leak rates are exceeded. An optical warning is shown on the display and an acoustic warning signal with variable pitch proportionally to the leak rate is sounded on the integrated loudspeaker or the connected headphones.

(*) only RC 500 WL, PT 445 432-T

3.2 Operating Elements



Pos.	Description
1	POWER button
2	START/STOP button
3	ZERO button
4	Touch Display
5	Operating LED
6	CHARGE LED

Fig. 2 RC 500 WL remote control

POWER button (1)

RC 500 WL: Power switch. After pressing and briefly holding the switch, the operating LED lights up as confirmation and flashes when the remote control is ready for use.
Switch off by pressing and holding the button for more than 2 seconds.

RC 500: The remote control turns on when the cable is plugged in.
Pressing the Power button turns the display of the remote control on and off.

START/STOP button (2)

Starts the leak test of the SmartTest leak detector (see technical manual of the leak detector, and observe the menu option "Control location").
Pressing the button again stops the leak test.

ZERO button (3)

Activates the ZERO function.

Touch display (4)

Shows measurements displayed numerically or as a curve, indicates statuses and offers operating interfaces.

Operating LED (5)

Flashes during normal operation.

Charging LED (RC 500 WL) (6)

Lights up while the battery is being charged.

3.3 Back of the RC 500/RC 500 WL

There are two M3 threaded bushes on the back of the housing for securing the RC 500 / RC 500 WL remote control.

Pos. Description

1 Magnets for attaching the unit to metal surfaces, e.g. to the leak detector.

2 M3 threaded bushings to attach holders

CAUTION

Risk of damage!
Use screws that reach max. 6 mm into the housing.

3 Sound outlet aperture for the integrated loudspeaker.

4 Eye for attaching carrying devices (e.g. wrist band, to be ordered separately).

Fig. 3 Back of the RC 500 / RC 500 WL remote control

3.4 Supplied equipment

Article number PT 445 420 AT	RC 500 WL remote control, wireless
Supplied equipment	RC 500 WL remote control
	Connection cable, 4 m
	Charger, main adapter (for integrated battery)
	Radio transmitter
	Connection cable for radio transmitter
	Operating instructions

Article number PT 445 432-T	RC 500 WL remote control, wireless
Supplied equipment	Connection cable ASM 3xx/RC 500 WL
	Charger, main adapter (for integrated battery)
	Radio transmitter
	Connection cable for ASM 3xx/radio transmitter
	Operating instructions

Article number PT 445 421 AT	RC 500 remote control, non-wireless
Supplied equipment	RC 500 remote control
	Connection cable, 4 m
	Operating instructions

Article number PT 445 422	Radio transmitter (for operating a second leak detector)
Supplied equipment	Radio transmitter
	Connection cable
	Installation instructions

Article number PT 445 424	Battery
Supplied equipment	Installation Instruction
	Rechargeable battery 3.7 V/ 5.8 Ah
	Cell rubber pad
	Cable tie
	Screws Delta PT Torx® Plus B30x12
	Screws Delta PT Torx® Plus B30x8

Torx® is the registered trademark of Camcar-Textron Inc. USA

4 Installation

4.1 Connection to the leak detector

RC 500 WL (wireless)

CAUTION

The fuse (0,8 A) can blow.
Only plug the radio transmitter when the leak detector switched off.

The RC 500 WL remote control is connected to the leak detector by means of a wireless data connection.
Connect the leak detector to the radio transmitter for this purpose (see chapter 4.2).

The RC 500 WL remote control is shipped set-up for connection with the supplied radio transmitter. This way, the connection is immediately established upon turning the unit on.

Alternatively, it can also be connected by means of the enclosed cable, similar to connecting the RC 500 (non-wireless) remote control. In this case only one connection cable must be used with the RC 500 WL, not more. Extending by further wires is not possible when using RC 500 WL.

RC 500 (non-wireless)

The RC 500 (non-wireless) remote control is connected to the leak detector by connecting the enclosed connection cable to the RJ 25 socket (see chapter 4.2).
The connection cable can be extended up to 34 m by using one or more extension cables.

4.2 Connecting radio transmitter and leak detector

Connecting the radio transmitter for the RC 500 WL (wireless) remote control to the ASM 3xx:

1 Position the radio transmitter (1) in a suitable location on the ASM 3xx leak detector so that there is a direct line of sight between the antenna and the remote control.
It is also possible to connect the radio transmitter with the 9-pin D-SUB plug directly.

2 Connect the connecting cable of the radio transmitter to the Sub-D socket of the leak detector (2).

Fig. 4 Connection of the radio transmitter to the ASM 3xx (i.e. ASM340)

Connecting the radio transmitter for the RC 500 WL (wireless) remote control to the HLT 5xx:

1 Use Velcro to position the radio transmitter (1) in a suitable location on the HLT 5xx leak detector so that there is a direct line of sight between the antenna and the remote control.

2 Connect the connecting cable of the radio transmitter to the RJ25 socket of the leak detector (2).

Fig. 5 Connecting the radio transmitter to the leak detector (i.e. SmartTest)

Notice: To extend the wireless operating range an extension cable also can be used to position the radio transmitter away from the leak detector, if reception is poor (e.g. at the ceiling of the room).

Notice: The operating range of the radio transmitter will be affected by metal objects in its near, avoid installing the antenna near such objects.

4.3 Inputs and outputs

The inputs and outputs of the RC 500 / RC 500 WL remote control have covers to prevent large dirt particles and moisture from penetrating.

Notice: The IP42 safety class can only be guaranteed if the covers are closed.

RJ25 socket

The RJ25 socket is located at the underside of the RC 500 / RC 500 WL remote control and closed with a protective plug when delivered.

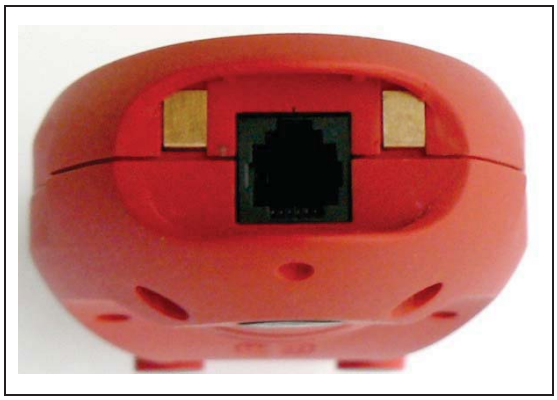


Fig. 6 RJ25 socket on the bottom of the remote control

Notice: Leave the protective plug in the socket when the cable is not connected.

Notice: We recommend only inserting and removing the RJ25 plug as often as is necessary for operation.

Connections on the side

Notice: Fold the protective strip upwards before connecting a plug.

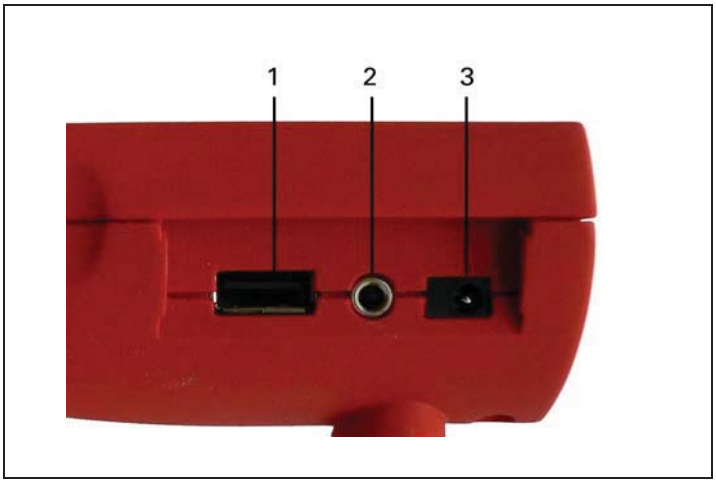


Fig. 7 Connections on the side (without cover)

1 USB connection
Insert the USB stick (FAT formatted) to record data.

2 3.5 mm jack for stereo headphones
Standard stereo headphones with a 3.5 mm jack plug and >2x32 Ohm impedance can be connected to the jack.
If the headphones are inserted, the volume of the integrated loudspeaker is automatically lowered.

3 Charging socket for the enclosed charger, main adapter

4.4 Charger, Main Adapter

DANGER

Possible risk of voltage hazard!
Do not open the external charger, main adapter of the RC 500 WL remote control. This might result in electric shock and/or injuries.

DANGER

Risk due to incorrect power supply unit!
Using an external charger, main adapter which has not been approved by the manufacturer of the remote control may result in electric shock, damage and/or injuries.
Only use the charger, main adapter which was enclosed with the RC 500 WL remote control.

Fig. 8 Charger, main adapter of the RC 500 WL

Connect the plug of the power supply with the socket of the RC 500 WL (see Fig. 7, Pos. 3), to charge the integrated battery.
The RC 500 WL is always switched on while the power supply cable is connected and the battery is being charged, the Charging LED is lit.
Short pressing of the „POWER“ button reduces the backlight intensity, pressing it for a time longer than about 10 s performs a reset of the remote control.

The LED switches off as soon as the battery has fully charged.

The battery can be charged during operation.

You can use the enclosed power supply all over the world; adapt it with the interchangeable blades to the national design (Europe, North America, Japan, UK, China, Australia, see also chapter 8.4).

5 Operating the remote control

5.1 Starting up the RC 500/RC 500 WL

After starting up, a start screen with a „Welcome“ message is shown on the touch display.

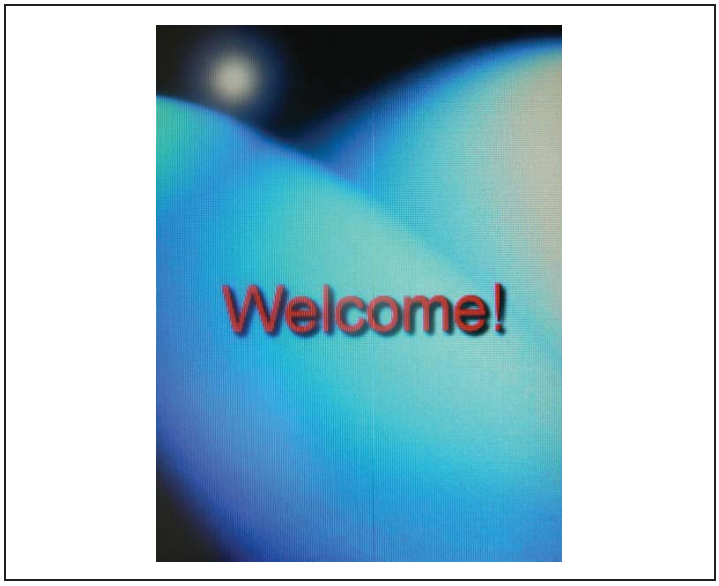


Fig. 9 Touch-Display of the RC 500 / RC 500 WL

5.1.1 Initial start-up: RC 500 or RC 500 WL

The first time the RC 500 or RC 500 WL is switched on, you must specify whether it will be used in combination with a ASM 3xx/HLT 5xx or a MiniTest. To make this selection and save the setting permanently, press the ASM 3xx/HLT 5xx or MiniTest button once. (To change this setting at a later time, press and hold the “Start/Stop” and “Zero” buttons while the unit is starting up)

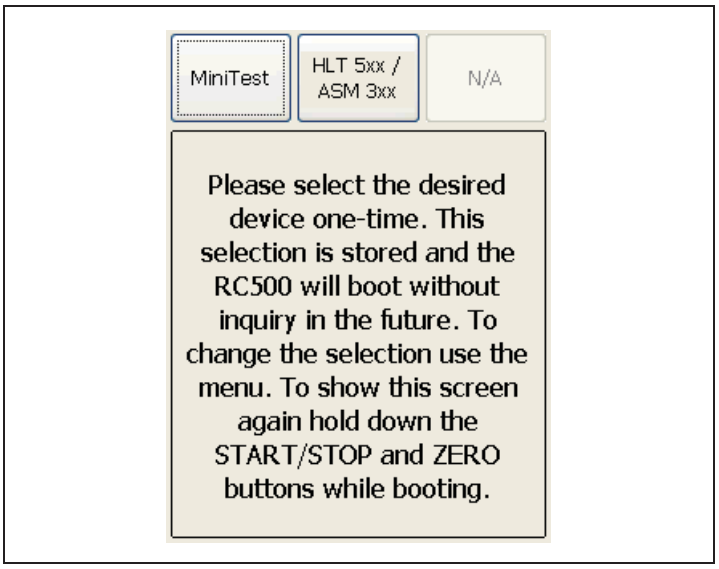


Fig. 10 Prompt after switching on the unit

5.1.2 Connect with ASM 3xx/HLT 5xx

After each time it is switched on the remote control RC 500 WL (wireless) searches for nearby leak detectors with which it is possible to establish a connection.
If no devices are found with which a connection is possible, the message “No data connection” will be displayed.
How to establish a connection is described in section 5.3.2.
If there is a connection to a leak test device, the RC 500/RC 500 WL remote control will display the current measured value (See Fig. 16).

Notice: The first time the unit is switched on, the menu language is English. Therefore, to select between wired and wireless remote control, both the English texts on the display and the text in the national language are shown.

5.1.3 Connect with MiniTest

The RC 500 WL features the option of wired or wireless operation; this can be selected in the menu under Settings / Wireless. The type of use and the connection status are displayed in the top left corner of the touch display.

Cable connected

Fig. 11 Communication (left) interrupted / (right) OK

If communication is interrupted, check whether:

- the cable is connected
- the MiniTest is switched on

Wireless

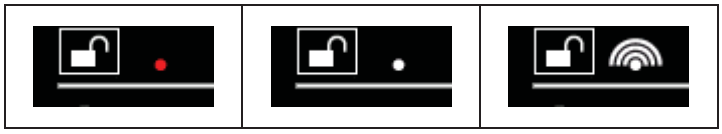


Fig. 12 (left, middle) No com. (right) Com. OK

If the remote control does not communicate with the MiniTest, check whether:

- the sliding switch on the wireless transmitter is set to “ON”
- the MiniTest is switched on

These settings can be found in the remote control menu under “Settings / Wireless / Connect other devices”.

Wired / wireless

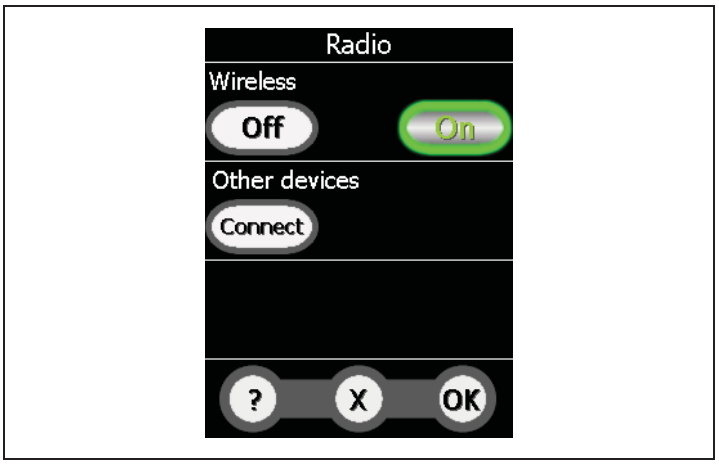


Fig. 13

- Select On or Off
- Press OK

Connect

The search for other devices is necessary for connection to a different transmitter than the one included.
The ID of the included transmitter is saved in the RC 500. Communication is established with this transmitter in the state “Wireless connection On”. The possible connection parameters are listed in the top window, where you can select a transmitter. (The identifier of the transmitter (PV_....) is shown on the rating plate.)

Fig. 14

Once the data connection is established the MiniTest parameters and data are read in and the state is displayed.

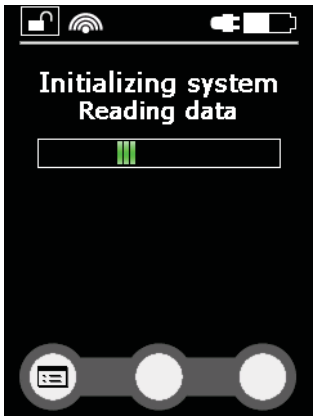


Fig. 15

5.2 Touch display operation

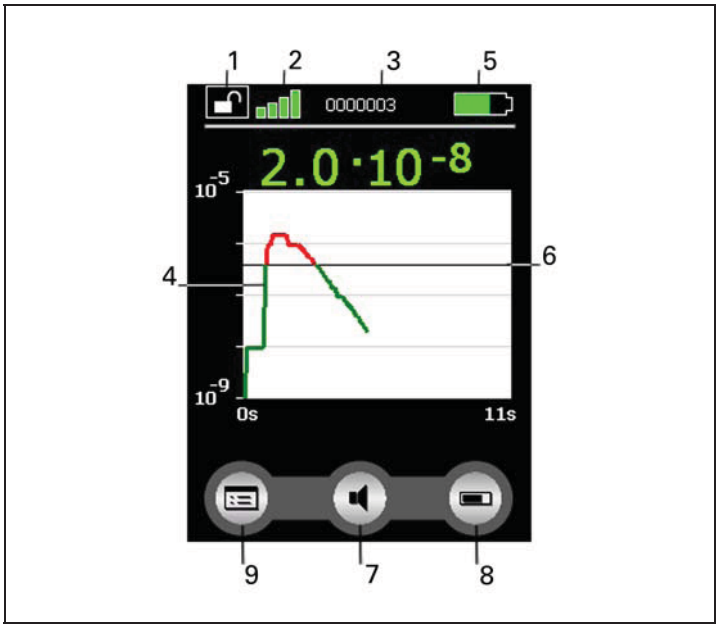


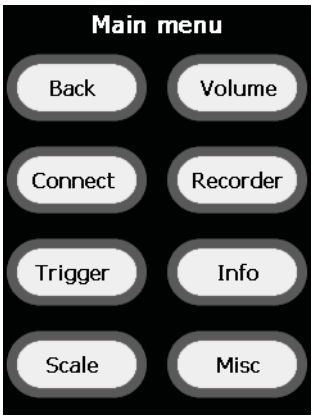
Fig. 16 Symbols and information on the display

Pos.	Description
1	Lock/unlock buttons
2	Status of the wireless connection
3	Data set of the entry
4	Display of measured values
5	Charging status display
6	Trigger level
7	Sound volume
8	Toggle display of measured values
9	Menu (access to the main menu)

The touch display functions can be used by lightly touching the relevant symbol on the display with a finger or a blunt pen.

- "Lock buttons":
  Touch and hold the symbol for more than 2 seconds to lock out touch display operation.
  The buttons then become dark.
  Unlock: touch and hold the symbol for more than 2 seconds.
- "Connection":
  Shows whether the RC 500 WL is connected to the leak test device by a wireless link.
- "Data recording":
  The number of the active data record is displayed.
- "Menu":
  To access the main menu.
- "Sound volume":
  Enables you to adjust the volume of the loudspeaker in the leak detector or in the remote control.
- "Toggle display of measured values":
  Enables you to toggle between a large digital display of the values or a display of the progress over time (diagram).

5.3 Main menu for the configuration



The "Menu" symbol (Fig. 16, Pos. 9) can be used
to access the main menu for the configuration of the remote control.

The functions of the individual buttons are described in more details hereafter.

Fig. 17 Main menu on the touch display

5.3.1 Buttons with basic functions

Fig. 18 Buttons with basic functions

If displayed, these buttons have the following functions:

"?"
Opens a help window for the current display.

- Click on "?".
- Use the arrow keys to scroll through longer texts.
- Close the window with "OK".

"X"
Closes the current page.
No changes made will be saved!

"OK"
Closes the current page and saves the changed settings.
The remote control will now work with these settings.

5.3.2 Connecting / disconnecting (RC 500 WL)

The RC 500 WL remote control searches for a receiver (radio transmitter) of a leak detector after turning on or after pressing the "Connect" button.

If no connection is found in the area within 20 seconds, the search is aborted.

The button "Connect" is displayed in the main menu when there is no connection to a leak detector yet.

After establishing the connection, the function of the button changes to "Disconnect".

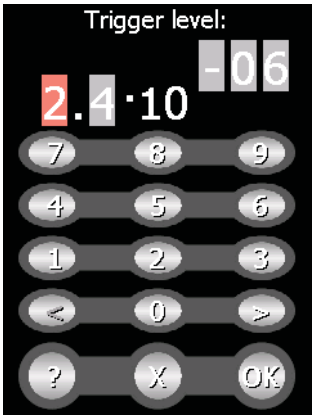
Close an existing connection with "Disconnect"; the main menu is displayed.

Connecting to a leak detector

- Pressing the “Connect” button of the main menu starts the search.
- If devices with which a connection is possible were found in the area, they are displayed in the list "Connectable devices".
- Select the desired device and connect to it by pressing "Connect".
  The main menu opens automatically.
- Press "Cancel" to end the connection process and return to the main menu.

Fig. 19 Display of connectable devices for the connection

5.3.3 Setting the trigger level



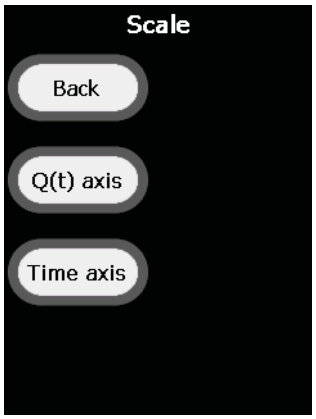
Setting the trigger level:
The basic level and exponent of the trigger level of the remote control are set here.

- The individual input fields can be selected with "<" and ">".
- The selected field is marked red and can be changed.
- Use the numeric keypad to enter the desired digit.
- After entering a digit, the mark changes to the next field.
- Confirm the set level with "OK".

Fig. 20 Trigger level menu

Notice: The trigger level set here does NOT correspond to the trigger lever set on the leak detector but only applies to the acoustic alarm signal of the RC 500 / RC 500 WL remote control.

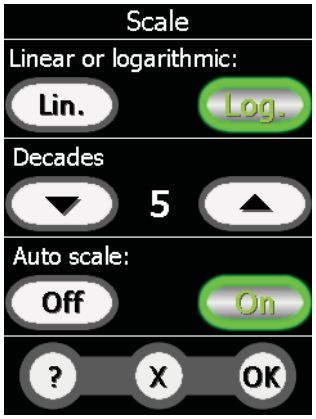
5.3.4 Scaling of the leak-rate curve



Scaling options of the leak-rate curve and the bargraph:

- Q(t) axis:
  Opens a submenu with a choice between linear and logarithmic display of the measured values and the automatically scaling (see Fig. 22).
- Time axis:
  Opens a submenu for the scaling of the time axis (see Fig. 23).

Fig. 21 Scale menu

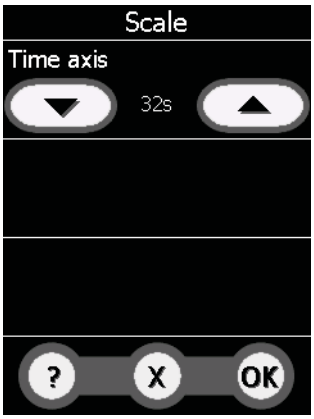


Scaling options of the leak-rate curve and the bargraph:

The selected values are displayed in the centre.

- Lin / Log:
  Toggle between linear and logarithmic.
- For logarithmic scaling:
  Select number of decades between 1 and 15 (with the arrow keys).
- Automatic scaling:
  Can be turned on or off.
- Confirm the set level with "OK".

Fig. 22 Scale submenu



Scaling the time axis of the leak-rate curve:

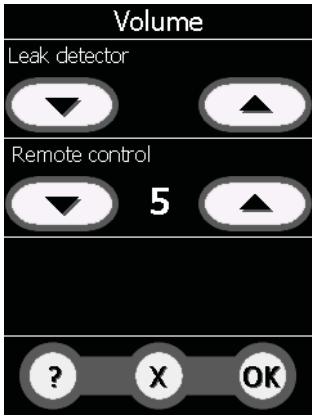
The selected value is displayed in the centre.

The shown time in this menu is the displayed range of the time axis of the leak-rate curve.

Fig. 23 Menu scaling of the time axis

5.3.5 Sound volume

In this menu you can set the volume of the acoustic signals at the leak detector and at the remote control using the "Arrow up" and "Arrow down" buttons.



Setting the volume:
The volume of the loudspeaker of the remote control and the connected leak detector can be adjusted within 15 volume levels.
Both devices play an example tone at the volume corresponding to the set levels.

- Set the volume of the leak detector and/ or the remote control with the arrow keys.
- Level 0: the volume is turned off

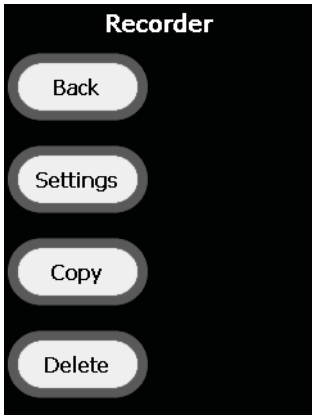
The volume of the leak detector is overwritten by the remote control.

Fig. 24 Volume menu

DANGER

Possible risk of hearing damage!
The hearing may be damaged by the alarm signal.
If a high volume is set, only briefly expose the hearing to the alarm signal or use ear protection.

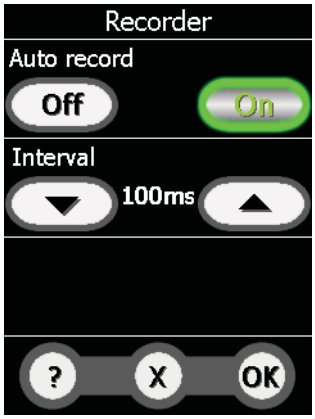
5.3.6 Recorder



Recording measurements, copying or deleting recorded data

- Select „Settings“ to start, to stop or to configure the recording of measurements. Opens a submenu (see Fig. 26).
- Select „Copy“ to write recorded data to a plugged-in USB stick. Opens a submenu (see Fig. 27).
- Select „Delete“ to erase data from the internal memory. Opens a submenu (see Fig. 28).

Fig. 25 Recorder menu

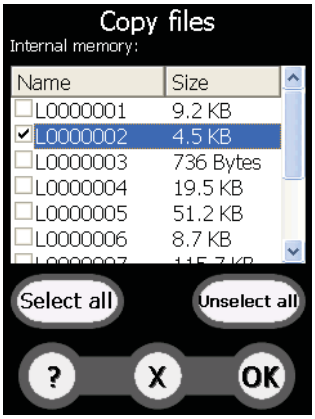


Preparing and configuring of recording

- Select „Auto record On“ to prepare the recording. The recording to a new data file will start if the measurement mode will be activated. If the measurement mode is stopped again the recording quits and the data file is closed.
- Select „Auto record Off“ if no recording should be done.
- „Interval“ is the duration between the storage of two measured values to the data file.
- Confirm the settings with "OK".

Fig. 26 Recorder submenu settings

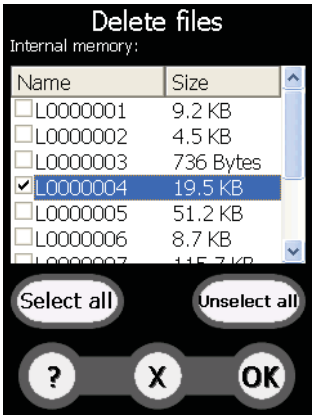
Notice: Set correct values of date and time (see 5.3.8.2) to identify the appropriate data files after recording.



Recorded data files can be copied to a plugged-in USB stick

- Plug-in the USB stick to the RC 500 / RC 500 WL.
- Select the files by clicking on it or use the „Select all“ button.
- Press „OK“ to copy the selected files to the USB stick.
- Apply the shown message with „OK“.
- The USB stick can be unplugged.

Fig. 27 Recorder submenu Copy files

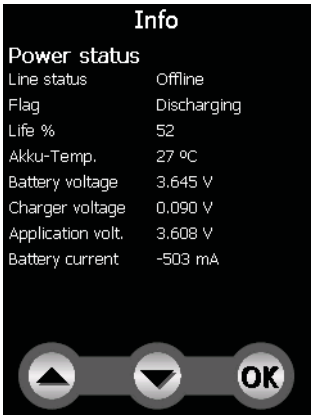


Recorded data files can be deleted from the internal memory.

- Select the files by clicking on it or use the „Select all“ button.
- Press „OK“ to delete the selected files
- Apply the shown message with „OK“ if the selected files should be deleted.
- A message confirms that the files are deleted, apply with „OK“.

Fig. 28 Recorder submenu Delete files

5.3.7 Info: device information



"Info" provides among others information about the power level of the battery, the wireless connection, and gives information on the current version on several information pages.

Detailed information:

- Select the desired information with the arrow keys.
- Return to the main menu with "OK".

Fig. 29 Info menu

5.3.8 Miscellaneous

In the "Miscellaneous" menu, you can set the language, make software updates, set the time and the date, and select energy-saving options.
The menu point Service offers expanded functions and test options via an access PIN.

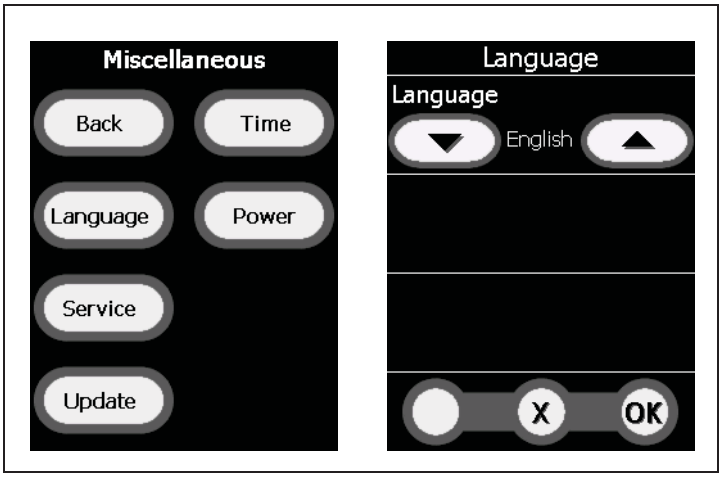


Fig. 30 Miscellaneous menu

Language selection

- By clicking on "Language", the sub-menu is opened for selecting the language.
- The current language is displayed in the centre. Available are: German, English, French, Spanish, Russian and Chinese.
- Select the desired language and confirm with "OK".

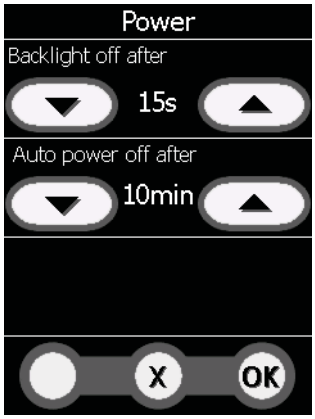
Energy-saving options, time and date:

See the following chapters.

Service:

The service menu is accessible via a PIN.

5.3.8.1 Energy-saving options (RC 500 WL)



The background illumination can be automatically decreased after a time between 15 s and 10 min. This lowers the energy consumption and the operating time of the battery is extended.

- Set the time period with "Arrow up" and "Arrow down".

The remote control can be turned off if it is not used after an adjustable time between 5 min. and 4 hours.

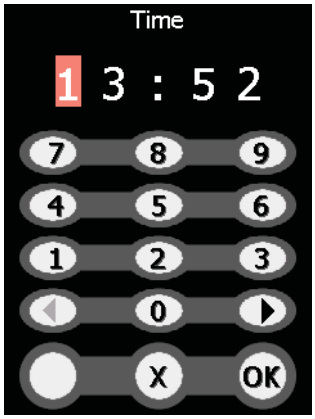
- Set the time period with "Arrow up" and "Arrow down".
- Confirm the settings with "OK".

Fig. 31 Energy menu

Resetting the decreased background illumination when operating the remote control:

By tapping on the touch display, the regular background illumination is turned on again.

5.3.8.2 Set Time and Date



Setting the time:

- The fields can be selected individually with "<" and ">".
- The field selected for change is marked red.
- Make changes via the numeric keypad.
- After changing a digit, the red mark automatically changes to the next field.
- Confirm the set time with "OK".
- The date can be set in the same way.

Fig. 32 Time menu

Notice: The wired remote control RC 500 can not store date and time if the connecting cable is removed or the leak detector is turned off.

5.4 Operating the leak detector ASM 3xx/HLT 5xx

The "START/STOP" and "ZERO" buttons on the remote control can be used to operate the leak detector in the same manner as on the actual leak detector.

Notice: You must observe the operating instructions of the leak detector in any case!

If the remote control displays a menu page of the configuration, you can change to the status display of the leak detector with "Back".
The leak detector can be in the modes „Running up“ or „Ready to start“:

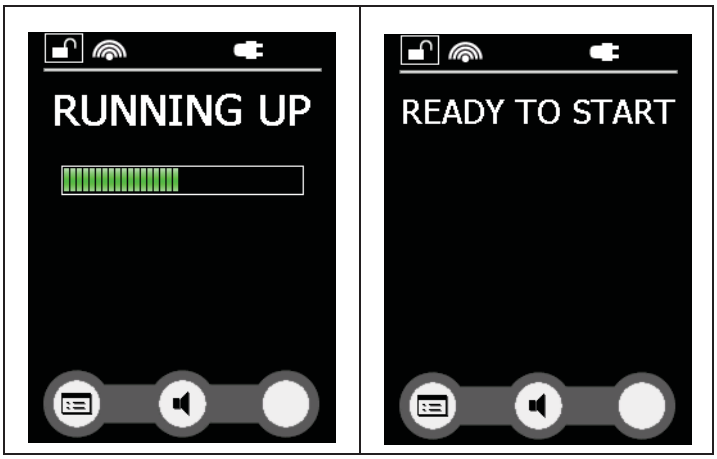


Fig. 33 „Running up“ and „Ready to start“ status displays

START/STOP button

Pressing the START/STOP button for the first time activates the leak detector so that it starts measuring.

Pressing the START/STOP button again while measuring interrupts the measurement.

After starting up, the leak test device can be in „Pumping down“ or „Measure“ mode:

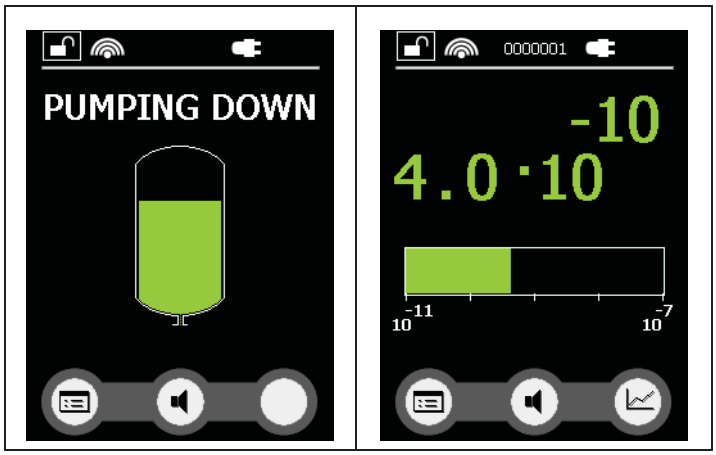


Fig. 34 „Pumping down“ and „Measure“ status displays (numerical and bar graph)

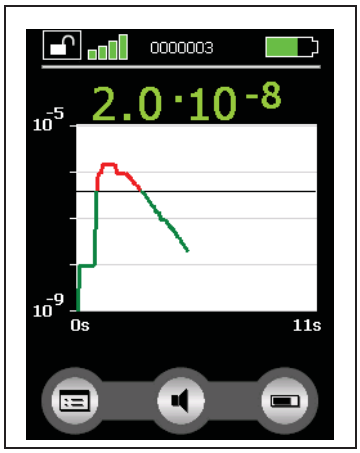


Fig. 35 „Measure“ status display (curve)

ZERO button

Pressing the ZERO button activates the background suppression in the leak detector.
(See the operating instructions of the leak detector.)

Notice: The „calibration“ function can only be activated on the leak detector, not with the remote control.

5.5 Paging function for HLT 5xx

With the paging function the remote control RC 500 WL can easily be located, if it is searched sometimes.
Open the following menu at the leak detector:

Setup - Info - Paging function

Pressing the button „On“ lets an acoustic signal sound at the remote control, the button „Off“ quits this signal.
(Available with leak detector software version V 2.3)

5.6 Paging function for ASM 3xx

With the paging function the remote control RC 500 WL can easily be located, if it is searched sometimes.
Open the following menu at the leak detector:

Settings → Advanced → Input/Output → Serial Link #1(Serial) → Parameter → RC 500 WL → Paging Func.

When the paging function is activated, the remote control emits “beep”. “Beep” emission stops as soon as the function is deactivated.
(This function is available as of the supervisor firmware version V3200.)

6 Maintenance tasks

6.1 Spare parts

Description	SP No.
Replacement battery RC 500 WL, 3.7 V, 5800 mAh	PT 445 424
Housing shell set RC 500 / RC 500 WL including keypad foil and fixture	PT 445 423
Charger, main adapter RC 500 WL	PT 445 430

6.2 Maintenance

The RC 500 / RC 500 WL remote control requires hardly any maintenance.
Only the battery of the RC 500 WL needs replacing if its storage capacity becomes less.

WARNING

Possible short circuit hazard!
The battery might ignite, explode, leak battery fluid, or become overheated and cause burns due to short circuit.
Do not short-circuit the battery of the RC 500 WL remote control.

WARNING

Possible explosion hazard!
Do not set fire to the battery of the RC 500 WL remote control.

Notice: Only use batteries approved by Pfeiffer Vacuum. Do not use any damaged batteries.

Notice: The battery is a wearing part and subject to the six-month warranty period.

6.3 Replacing the battery

Required Tools

- Torx® screwdriver TX 10

6.3.1 Removing of the rechargeable battery

To replace the faulty battery please proceed as follows:

- Remove the bottom cover first to expose the rechargeable battery. Unscrew the 6 fixing screws in the bottom cover and remove them. Then, lift up the bottom cover. (See Fig. 1.)

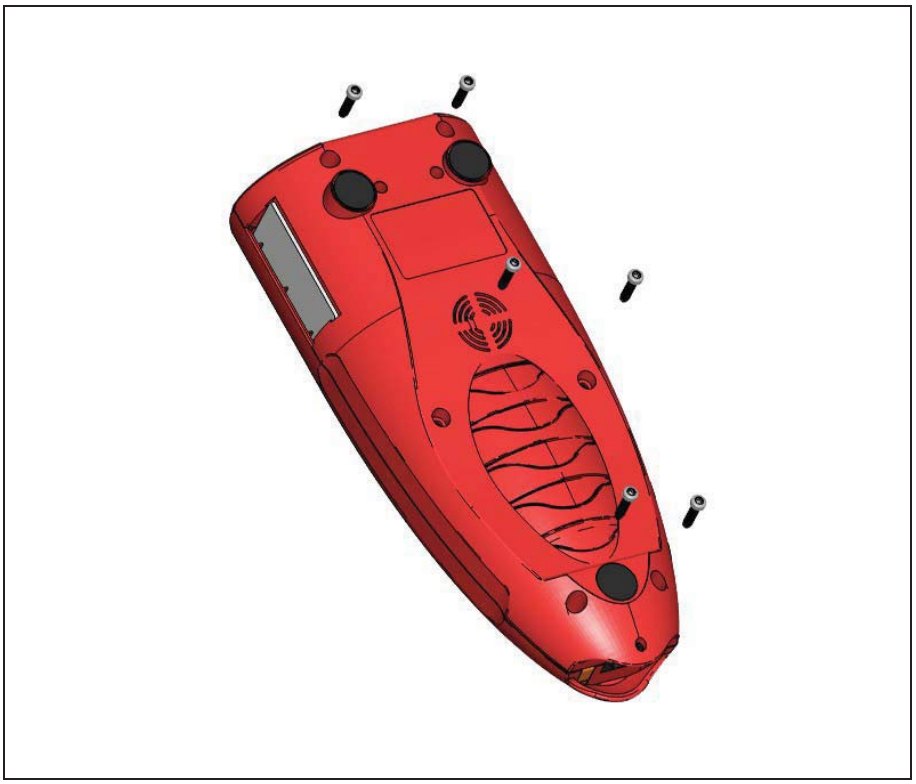


Fig. 36 Location of screws in the bottom cover

- Disconnect the battery connector from the printed circuit board. (See Fig. 37/1.)
- Remove the cable tie from the battery connecting cable. Pull the cable out of the cable guides on the printed circuit board and top cover. (See Fig. 37/2.)
- Unscrew the fixing screws of the mounting bracket that holds the rechargeable battery. Remove the mounting bracket and lift up the battery from the circuit board. (See Fig. 37/3.)

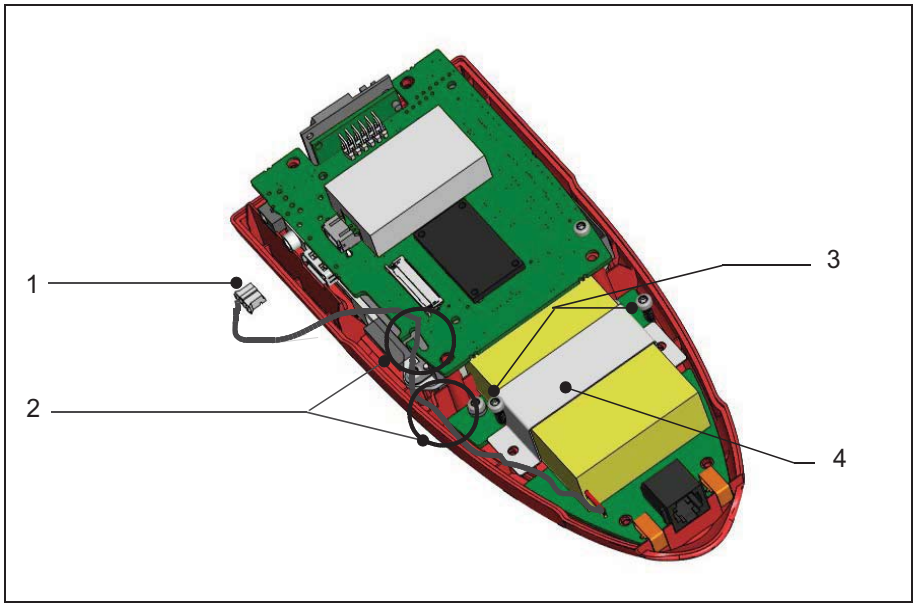


Fig. 37 Remote control RC 500 WL opened

Item	Description	Item	Description
1	Connector of rechargeable battery	3	2 x Screws Torx® B30x8
2	Cable guides	4	Mounting bracket

6.3.2 Assembly of the rechargeable battery

There are two possibilities to remount the rechargeable battery.
In older units, the battery is fixed using the cell rubber pads.
In newer models, cell rubber strips are glued on the circuit board and the mounting bracket.
Both procedures are described below:

Inserting the cell rubber strips

- Place the provided cell rubber strips on the marked surfaces on the circuit board. (See shaded areas in Fig. 38.)
- Position the rechargeable battery on the strips and wrap the ends around the battery.
- Hold the strips down and slip the mounting bracket over the rechargeable battery to hold it in place.
- Fasten the mounting bracket with two Torx® screws in the housing cover.

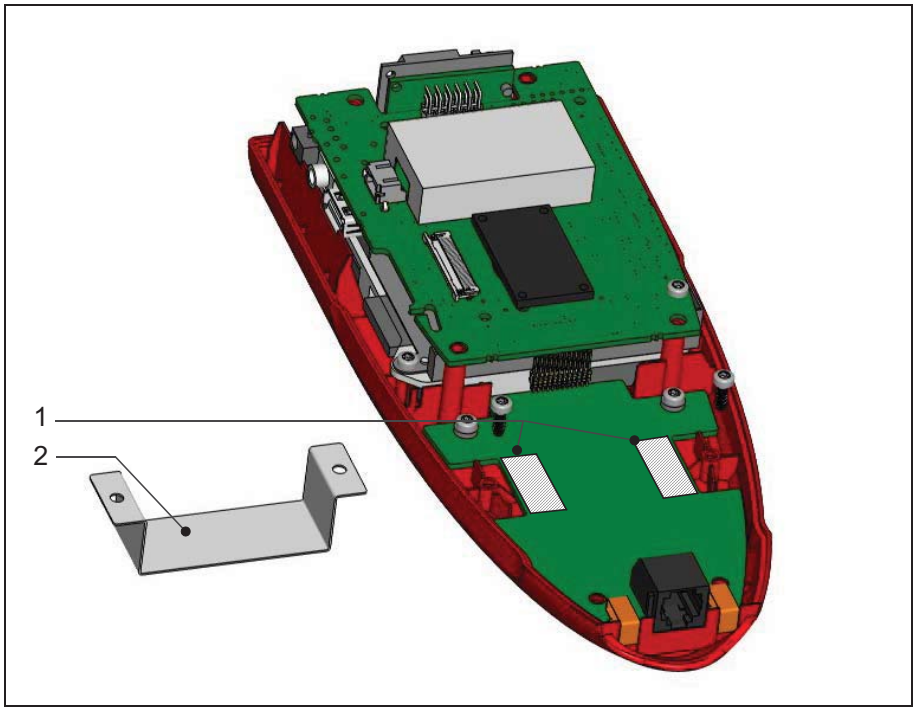


Fig. 38 Battery assembly with inserted cell rubber strips

Item	Description	Item	Description
1	Area for placing the strips	2	Mounting bracket for battery

Adhering the cell rubber strips

- Separate the strips along perforations. Adhere the individual strips on the shaded areas (see Fig. 37) on the circuit board and the mounting bracket.
- Position the rechargeable battery on the strips.
  Slip the mounting bracket over the rechargeable battery.
  Fix the mounting bracket with two Torx® screws in the housing cover.

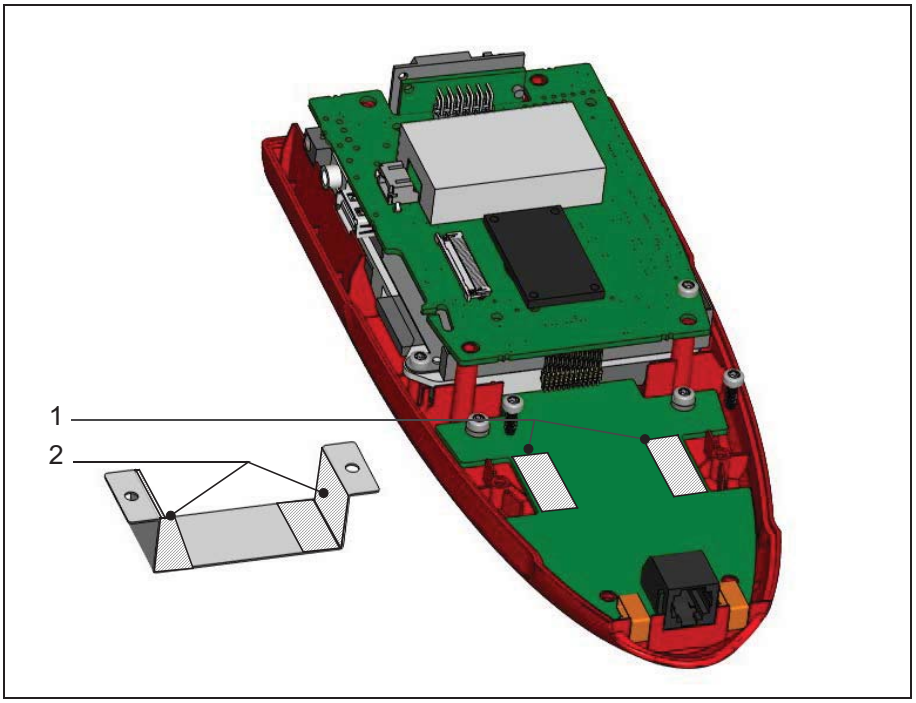


Fig. 39 Battery assembly with adherent cell rubber strips

Item	Description	Item	Description
1	Area for adhering the strips on the circuit board	2	Area for adhering the strips on the mounting bracket

- Lay the cables of the rechargeable battery as shown in Fig. 40.
  Thread the cables into the cable guides on the printed circuit board and in the top cover.
  Fix the cables with a cable tie.
- Reconnect the cable connector of the rechargeable battery with the charging circuit on the board.

Notice: Connector fits only in one position
(Red wires on the right).

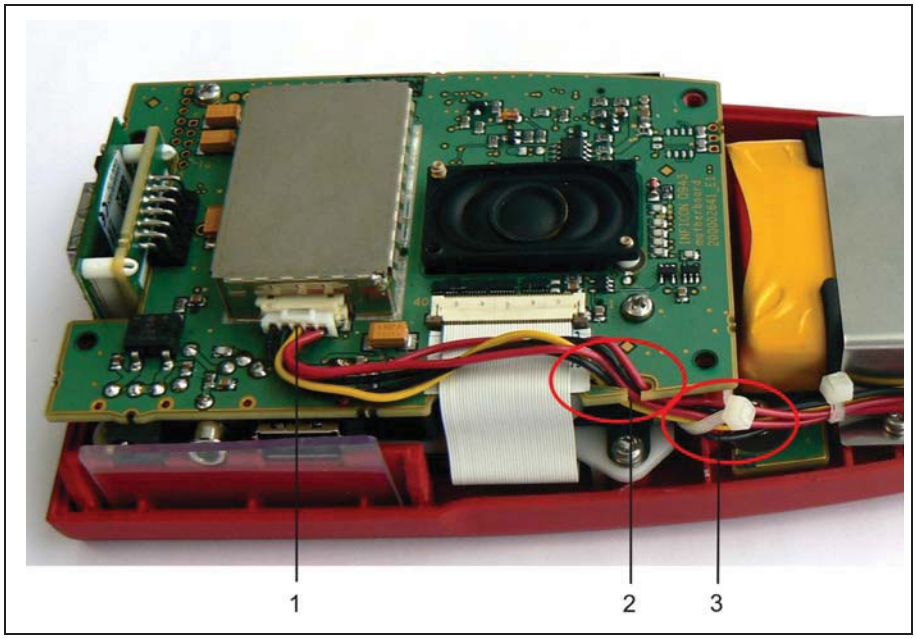


Fig. 40 Wiring of the rechargeable battery

Item	Description	Item	Description
1	Connector of the rechargeable battery	3	Cable tie
2	Cable guides on the PCB		

- Adhere the supplied cell rubber strip on to the rechargeable battery.
  (See marked position in Fig. 6.)

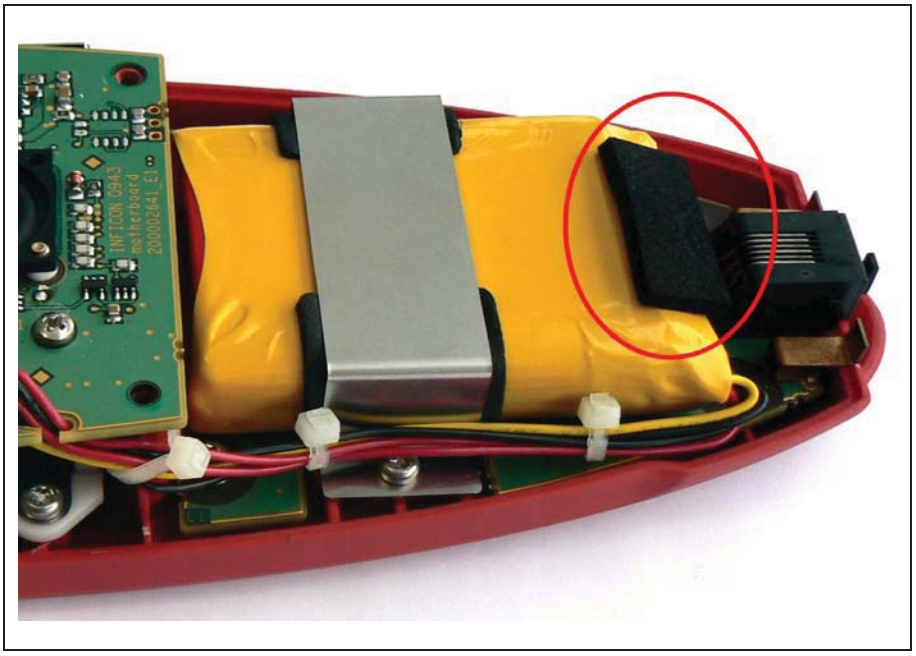


Fig. 41 Position of the cell rubber strip on the rechargeable battery

Notice: When closing the housing, make sure that no cables of the rechargeable battery are caught between the two housing sides.

- Now assemble the bottom cover and screw in the six fixing screws.

6.4 Tests

6.4.1 Calibration

No calibration is required.

6.4.2 Functional Check

Charge the battery completely using the original power supply unit.
The RC 500 WL is always switched on during battery charging.
In the "Miscellaneous" menu, enter "Time" and „Date“.
The new battery will be ready for operation when the LED "Charging" goes out.

6.5 Cleaning

Notice: Do not use any solvents!
Clean the plastic housing of the device, the front foil and the display using a soft cloth, moistened with some water or soap suds.

7 Transport and disposal

7.1 Transporting

CAUTION

Possible risk of damage!
The RC 500 / RC 500 WL remote control may be damaged by improper transport.
Always transport the RC 500 / RC 500 WL remote control in its original packaging.

7.2 Disposal

Dispose of the device in accordance with the applicable statutory provisions on the disposal of electronic devices, especially also regarding the installed rechargeable battery.

8 Technical Data

8.1 Weight / dimensions

Dimensions (L x W x H)	210 x 90 x 46 mm
Weight RC 500 (non-wireless)	ca. 0.4 kg
Weight RC 500 WL (wireless)	ca. 0.5 kg
Type of protection	IP 42

8.2 Characteristics

Audio alarm at 1 m distance	70 db(A) max.
Headphone jack stereo 3.5 mm	>2 x 32 Ohm
RC 500 WL charging voltage from Charger, main adapter	24 V DC, max. 0,7 A
RC 500 supply voltage from leak detector	24 V DC, max. 0,7 A
Range of wireless transmission	>100 m in free field
HF output power	+6dBm (4mW)
Frequency of wireless transmission	2.4 GHz
Internal memory capacity	64 MB, 32 MB of which is available for recording data
Battery operation time (RC 500 WL)	>8 hours (depending on battery level)
Display	TFT Touch 1/4 VGA / 3.5‘‘ 240 x 320 px, max. error 4 px

8.3 Environmental Conditions

Only for use within buildings.	EN 61010
Permissible ambient temperature (during operation)	5 to +40 ° C
Permissible storage temperature	-10 to +60 ° C
Maximum relative humidity	80% to 31°C, linear decreasing 50% at 40°C
Max. permissible height above sea level (during operation)	2000 m

8.4 Mains power for charger, main adapter

Mains voltages and frequencies for charger, main adapter	100 - 250 V, 50/60 Hz
Power consumption	<30 VA
Interchangeable blades of mains plug	Europe, North America, Japan, UK, China, Australia

8.5 Wireless permits of RC 500 WL

CE, FCC, IC, TELEC, MIC, MII

9 Ordering Information

Description	Article number
RC 500 WL remote control (wireless), ASM 3xx RC 500 WL remote control (wireless), HLT 5xx, MiniTest	PT 445 432-T PT 445 420 AT
RC 500 remote control (non-wireless), HLT 5xx, MiniTest	PT 445 421 AT
Accessories:	
Connection cable for radio transmitter 4 m	PT 445 401
10-m extension cable	PT 445 402
Radio transmitter (for operating a second leak detector)	PT 445 422
Connection cable ASM 3xx/RC 500 WL	A 465975
Connection cable ASM 3xx/radio transmitter	A 466613

10 Declaration of conformity

The declarations of conformity for the remote control in the wireless version RC 500 WL and non-wireless version RC 500 are reproduced on the two following pages.

Declaration of conformity

Product	RC 500 WL Remote control for Leak Detectors ASM 3xx, HLT 5xx, MiniTest 300
Art. no.	PT 445 420 AT, PT 445 432-T

Declaration of conformity in terms of the listed EC Guidelines:

We hereby declare that the products listed above conform to the following regulations.

The authorised representative for the arrangement of the technical documents is Andreas Schopphoff, Pfeiffer Vacuum GmbH, Berliner Str. 43, 35614 Asslar

- **Directive on radio equipment and telecommunications terminal equipment (1999/5/EC)**
- **Low-voltage Directive (2006/95/EC)**
- **Directive on electromagnetic compatibility (2004/108/EC)**

Applied harmonised standards:

ETSI EN 300 328 V1.7.1 (2006-10)

EN 50371: 2002

EN 60950-1: 2006

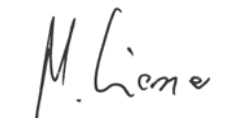
EN 301 489 - 1: 2005

EN 301 489 - 17: 2002

EN 61000-6-4: 2007 part	EN 55022 class B
EN 61000-6-2: 2005 parts	EN 61000-4-2
	EN 61000-4-3

Signatures

Asslar, 31 March 2010



Pfeiffer Vacuum GmbH
Berliner Str. 43
DE-35614 Asslar

Manfred Bender
Executive director

Dr. Matthias Wiemer
Executive director

Declaration of conformity

Product	RC 500 Remote control for Leak Detector HLT 5xx, MiniTest 300
Art. no.	PT 445 421 AT

Declaration of conformity in terms of the listed EC Guidelines:

We hereby declare that the products listed above conform to the following regulations.

The authorised representative for the arrangement of the technical documents is Andreas Schopphoff, Pfeiffer Vacuum GmbH, Berliner Str. 43, 35614 Asslar

- **Directive on electromagnetic compatibility (2004/108/EC)**

Applied harmonised standards:

EN 61326-1 (2006)	
EN 61000-6-4: 2007 part	EN 55011 class B
EN 61000-6-2: 2005 parts	EN 61000-4-2
	EN 61000-4-3
	EN 61000-4-4
	EN 61000-4-6

Signatures

Asslar, 31 March 2010

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A PASSION FOR PERFECTION

PFEIFFER VACUUM

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