HILTI

PS 50

2

3

ORIGINAL OPERATING INSTRUCTIONS

PS 50 multidetector

It is essential that the operating instructions are read before the tool is operated for the first time.

Always keep these operating instructions together with the tool.

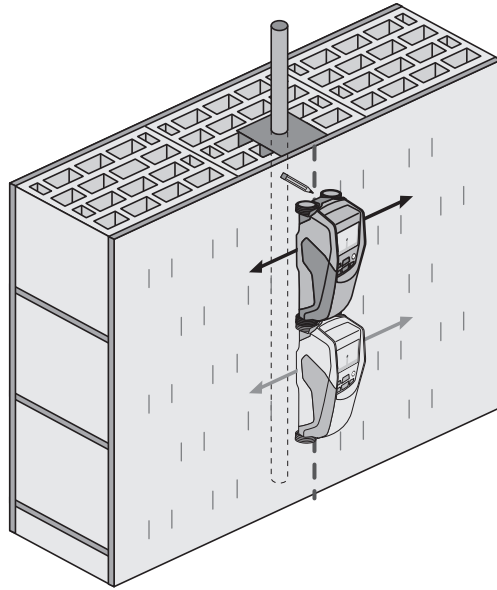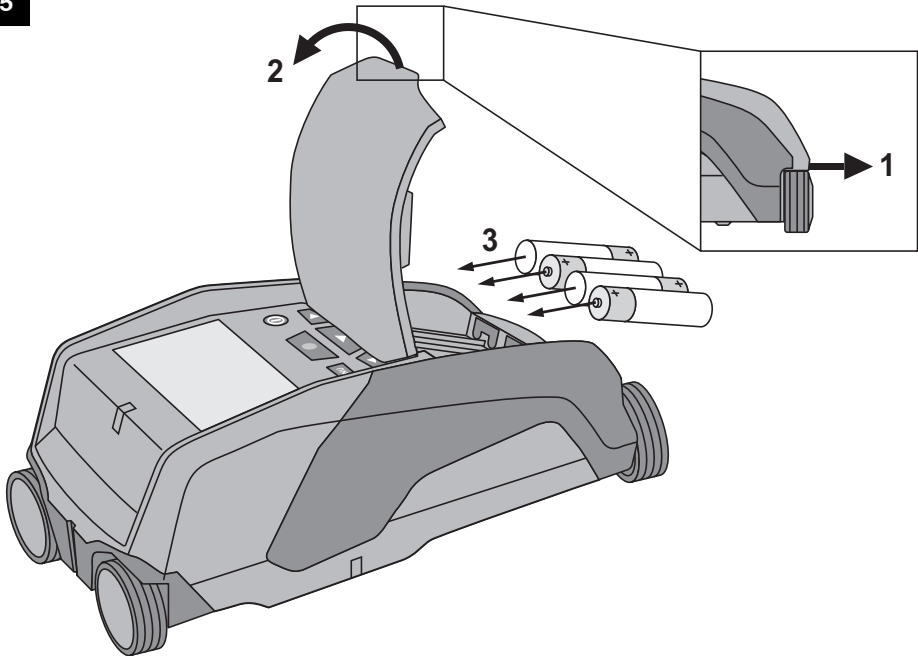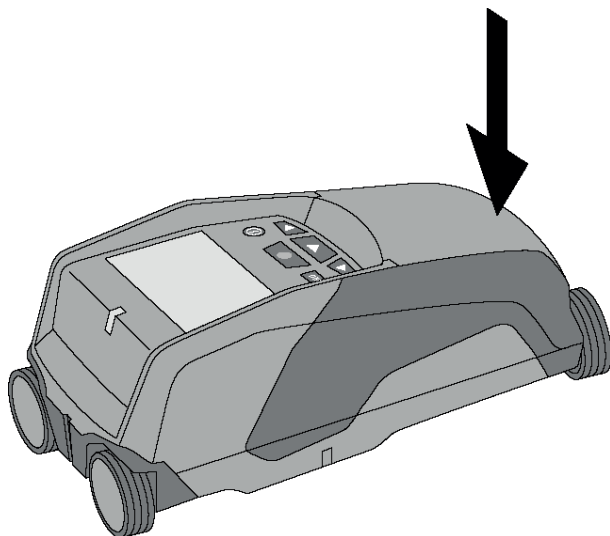Ensure that the operating instructions are with the tool when it is given to other persons.

1 These numbers refer to the illustrations. You can find the illustrations at the beginning of the operating instructions.

In these operating instructions, the designation "the tool" always refers to the PS 50 Multidetector.

Parts and operating controls 1

① Display
② Control panel
③ Battery compartment
④ Marking notches
⑤ Status LED (red / green)
⑥ Sensor area
⑦ Wheel
⑧ Hand strap attachment point
⑨ On/off button
⑩ "Measure" button
⑪ Menu button
⑫ "Left" arrow button
⑬ "Down" arrow button
⑭ "Right" arrow button
⑮ Service cover
⑯ Type identification plate

Display 2

① Signal tone indicator
② Battery status indicator
③ Sensor area indicator (the broken line represents the outside edge of the tool, for marking the position of the object)
④ Area already scanned
⑤ Scale showing approximate depth of the object
⑥ Unscanned area
⑦ Position of outside edge (for marking a detected object at one of the lateral marking notches)
⑧ Scanning mode indicator
⑨ Gray: detected object is outside the sensor area
⑩ Black: detected object is inside the sensor area
⑪ The center line corresponds with the upper marking notch
⑫ Approximate depth of the object
⑬ Object class indicator

1 General information

1.1 Safety notices and their meaning

DANGER
Draws attention to imminent danger that will lead to serious bodily injury or fatality.

WARNING
Draws attention to a potentially dangerous situation that could lead to serious personal injury or fatality.

CAUTION
Draws attention to a potentially dangerous situation that could lead to slight personal injury or damage to the equipment or other property.

NOTE
Draws attention to an instruction or other useful information.

1.2 Explanation of the pictograms and other information

Warning signs

General
warning

Symbols

Read the
operating
instructions
before use.

Return
materials for
recycling

Location of identification data on the tool

The type designation and serial number can be found on the type identification plate on the tool. Make a note of this data in your operating instructions and always refer to it when making an enquiry to your Hilti representative or service department.

Type:

Generation: 01

Serial no.:

2 Description

2.1 Use of the product as directed

The PS 50 Multidetector is designed to detect objects such as ferrous metals (rebars), non-ferrous metals (copper and aluminium), wood beams, plastic pipes and electric cables in dry materials.

Further information and examples of applications can be found on our Web sites.

The tool and its ancillary equipment may present hazards when used incorrectly by untrained personnel or when used not as directed.

Observe the information printed in the operating instructions concerning operation, care and maintenance.

Take the influences of the surrounding area into account. Do not use the tool or appliance where there is a risk of fire or explosion.

Modification of the tool or tampering with its parts is not permissible.

2.2 Items supplied

1	The tool
1	Hand strap
4	Batteries
1	Operating instructions
1	Manufacturer's certificate
1	Soft pouch
1	Set of marking pens
1	Hilti toolbox

3 Technical data

Right of technical changes reserved.

Maximum detection range for locating objects[1]	15 cm (5.90 in)
Maximum detection range for object classification[1]	60 mm (2.36 in)
Maximum detection range for live electric cables (50/60 Hz, 90-240 V)	60 mm (2.36 in)
Location accuracy "a" (to the middle of the object)[1, 2, 3]	± 5 mm (± 0.2 in)
Depth measurement accuracy "b"[1, 2, 3]	± 10 mm (± 0.4 in)
Minimum distance "c" between two objects[1, 3]	4 cm (1.57 in)
Operating temperature range	-10...+50°C (14 °F ... 122 °F)

[1] Depends on the scanning mode, the size and type of the object as well as the type and condition of the material scanned.
[2] External influences such as, in particular, high temperature fluctuations, dampness, shock, dropping, etc. can affect accuracy. Unless stated otherwise, the tool was adjusted or calibrated under standard ambient conditions (MIL-STD-810F).
[3] See fig. 7 on the cover page.

Storage temperature range	-20...+70°C (-4 °F ... 158 °F)
Batteries	4 x 1.5 V LR06 (AA)
Batteries	4 x 1.2 V HR06, KR06 (AA)
Battery life (alkaline batteries)	5 h
Battery life (with 2500 mAh batteries)	7 h
Protection class	IP 54 (dust and splash-proof) (IEC 60529)
Weight in accordance with EPTA procedure 01/2003	0.7 kg (1.5 lb)
Dimensions (L x W x H)	195 mm x 90 mm x 75 mm (7.7 in x 3.5 in x 3.0 in)

[1] Depends on the scanning mode, the size and type of the object as well as the type and condition of the material scanned.

[2] External influences such as, in particular, high temperature fluctuations, dampness, shock, dropping, etc. can affect accuracy. Unless stated otherwise, the tool was adjusted or calibrated under standard ambient conditions (MIL-STD-810F).

[3] See fig. 7 on the cover page.

4 Safety instructions

In addition to the information relevant to safety given in each of the sections of these operating instructions, the following points must be strictly observed at all times.

4.1 Basic information concerning safety

a) **Keep children away from the tool.**
b) **Check the display after switching the tool on.** The display should show the Hilti logo and the name of the tool. The display then shows the current settings or the settings previously saved.
c) **Operation of the tool in the proximity of persons with a cardiac pacemaker is not permissible.**
d) **Operation of the tool in the proximity of pregnant women is not permissible.**
e) Rapidly changing detection conditions may lead to inaccurate readings.
f) **Do not use the tool in the proximity of medical instruments and appliances.**
g) **Do not drill at positions where the tool has located an object. Take the diameter of the drill bit into account and always allow an adequate safety factor.**
h) **The warnings shown in the display must always be observed.**
i) **Due to the scanning principle employed, the results of the scan may be negatively affected by certain ambient conditions. These include, e.g. proximity to appliances that generate powerful magnetic or electromagnetic fields, dampness, construction materials containing metal, aluminium foil-backed insulation, multiple layers, materials with cavities or electrically conductive wall coverings or tiles. Accordingly, other sources of information (e.g. plans of the building) should also be consulted before beginning drilling, sawing or grinding in the area scanned.**
j) **Take the influences of the surrounding area into account. Do not use the tool where there is a risk of fire or explosion.**

k) **Make sure that the display area can be easily read (e.g. do not touch the display area with the fingers, keep the display area clean).**
l) **Do not use the tool if it is defective.**
m) **Always keep the detection area clean.**
n) **Always check how the tool is set before using it.**
o) **Operation of the tool in the proximity of military installations, airports or astronomical facilities is not permissible unless prior permission has been obtained.**

4.2 Proper organization of the workplace

a) **Avoid unfavorable body positions when working from ladders. Make sure you work from a safe stance and stay in balance at all times.**
b) **When the tool is brought into a warm environment from very cold conditions, or vice-versa, allow it to become acclimatized before use.**
c) **Only use the tool within the defined limits.**
d) **Observe the accident prevention regulations applicable in your country.**

4.3 Electromagnetic compatibility

The tool complies with the requirements of EN 302435. Accordingly, permission must be obtained prior to operating this tool, for example, in hospitals, atomic power stations or in the proximity of airports or mobile phone relay stations.

4.4 General safety instructions

a) **Check the condition of the tool before use. If the tool is found to be damaged, have it repaired at a Hilti Service Center.**
b) **Keep the tool clean and dry at all times.**
c) **Do not apply stickers or adhesive plates at the sensor area on the underside of the tool.** Metal plates, in particular, will affect scanning results.

d) **Take care to ensure that the service cover on the tool is always securely closed. The service cover may be opened only at a Hilti Service Center.**
e) **You must check the accuracy of the tool after it has been dropped or subjected to other mechanical stresses.**
f) **Although the tool is designed for the tough conditions of jobsite use, as with other measuring instruments it should be treated with care.**
g) **Although the tool is protected against the entry of moisture, it should be wiped dry before being put away in its transport container.**
h) **Check the accuracy of the tool before using it for detection or measurement.**

4.5 Electrical safety

a) **Keep the batteries out of reach of children.**

b) Remove the batteries from the tool if it is to remain unused for some time. The batteries will self-discharge and may begin to corrode if stored for a long period.
c) Always replace all batteries at the same time. Use only batteries of the same capacity and from the same manufacturer.
d) **Do not allow the batteries to overheat and do not expose them to fire.** The batteries may explode or release toxic substances.
e) **Do not charge the batteries.**
f) **Do not solder the batteries into the tool.**
g) **Do not discharge the batteries by short-circuiting.** This may cause them to overheat and present a risk of personal injury (burns).
h) **Do not attempt to open the batteries and do not subject them to excessive mechanical stress.**

4.6 Transport

Always remove the batteries before shipping the tool.

5 Description of the system

5.1 Basic principle ❸

The tool scans in direction "A" to the depth indicated in the display. If an object is located beneath the sensor it will be shown in the sensor area of the display. Scanning takes place only while the tool is being moved in direction "B" and so long as the tool is moved a distance of at least 10 cm (3.9 in). Objects that differ from the surrounding material will be detected. The display shows the position of the object, its approximate depth and, when possible, the object class. Due to the operating principle employed, the upper edges of objects that lie transversely to the scanning direction will be reliably detected. In order to locate objects that lie longitudinally along the path of the scan it is always necessary to make a second scan, perpendicular to the path of the first scan.

The tool is equipped with various sensors that allow object location, depth measurement and material classification.

When several objects are positioned one above the other in the material being scanned, the object closest to the surface will be shown in the display. The image of the object shown in the display may differ from the actual characteristics of the object concerned. In particular, very thin objects will be shown thicker than they actually are. Large, cylindrical objects (e.g. plastic pipes or water pipes) shown in the display may appear narrower than they actually are.

Depending on the size and depth of the object detected, identification of the object class may also be possible.

5.2 Scanning modes

The tool features the following scanning modes:

- Universal
- Concrete
- Wet concrete
- Floor heating
- Drywall
- Hollow brick
- Signal View

The tool can be adapted for use on various materials by selecting the appropriate scanning mode.

NOTE
Scanning performance depends greatly on selection of the correct scanning mode. Make sure that the correct / optimum scanning mode for the applicable material is selected as the results may vary depending on the scanning mode used.

5.2.1 Universal

The "Universal" scanning mode is suitable for use in most applications on solid masonry or concrete. In this mode, metal or plastic objects and electric cables are detected. Cavities in brick or empty plastic pipes with a diameter of less than 2 cm (0.8 in) will probably not be detected. The maximum detection depth is 8 cm (3.2 in).

5.2.2 Concrete

The "Concrete" scanning mode particularly suitable for use on dry steel-reinforced concrete. In this mode, steel reinforcing bars, plastic or metal pipes and electric cables are detected. The maximum detection depth is 15 cm (6 in).

The "Universal" mode should be selected in order to avoid errors when the tool is used to scan thin concrete walls.

5.2.3 Wet concrete

The "Wet concrete" scanning mode is particularly suitable for scanning fresh concrete. In this mode, steel reinforcing bars, plastic or metal pipes and electric cables are

detected. It is not possible to differentiate between live and non-live cables. The maximum detection depth is 6 cm (2.3 in).

NOTE
Concrete takes several months to dry out fully.

5.2.4 Floor heating

The "Floor heating" scanning mode is particularly suitable for detecting metal, metal composite and water-filled plastic pipes or electric cables under a layer of screed. The maximum detection depth is 8 cm (3.2 in).

NOTE
Empty plastic pipes will not be found.

NOTE
Pay attention to how the tool is oriented in the area of heating pipe loops (i.e. end bends in floor heating systems). It is necessary to scan in several paths and in both directions.

5.2.5 Drywall

The "Drywall" scanning mode is suitable for detecting wood beams, metal studs, pipes containing water and electric cables in drywall partitions. The maximum detection depth is 8 cm (3.2 in).

NOTE
Empty plastic pipes will not be found.

5.2.6 Hollow brick

The "Hollow brick" scanning mode is suitable for use on masonry containing many cavities. Cavities are filtered out to a great extent (i.e. not shown) in this scanning mode. In this mode, metal objects, water-filled plastic pipes and live electric cables will be detected. The maximum detection depth is 8 cm (3.2 in).

NOTE
Empty plastic pipes and cables that are not live will not be shown.

5.2.7 Signal view
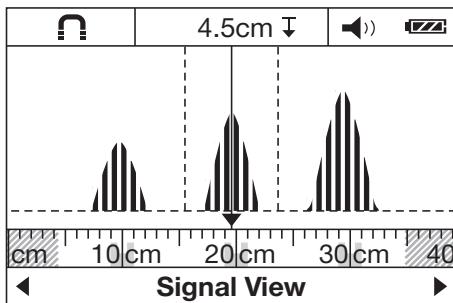
The "Signal View" scanning mode is suitable for use on all types of materials. The signal strength at each position in the scan is shown. This scanning mode makes it possible

to locate closely spaced objects precisely and allows a better assessment to be made of complexly structured materials on the basis of signal variations.

The signal peaks are shown as rectangles along the small scale above the scanning mode indicator bar. Object depth and, where possible, object class are shown. The maximum detection depth is 15 cm (6 in).

NOTE
No conclusion about object depth can be reached from the strength of the signal.

5.3 Distance measurement view
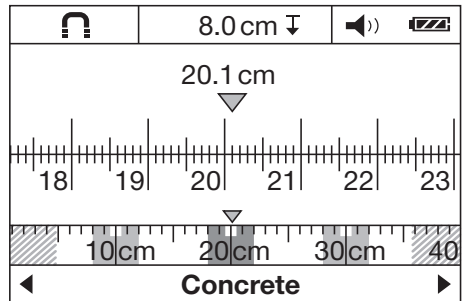
In all scanning modes, the tool can be switched to distance measurement view. Only the display is switched over when this is done, not the selected scanning mode.

NOTE
When distance measurement view is selected it is possible to determine the distance between objects. In the example shown in the illustration, three equally-spaced objects are detected. The length of the scan measured from the starting point is 20.1 cm (7.9 in). The three objects detected, spaced at a distance of 10 cm (3.9 in) from each other, are shown as rectangles along the small scale positioned above the scanning mode indicator bar.

5.4 Materials suitable for scanning

- Concrete / steel reinforced concrete
- Masonry (brick, cellular concrete, expanded concrete, pumice concrete and sand-lime block)
- Beneath surfaces such as plaster, tiles, wallpaper, parquet and carpet
- Wood and plasterboard / gypsum board

5.5 Detectable objects

- Steel reinforcing bars
- Metal pipes (e.g. steel, copper and aluminium)
- Plastic pipes (e.g. plastic pipes containing water, such as in floor or wall heating systems, etc.)
- Cavities
- Wood beams
- Electric cables (irrespective of whether the cables are live or not)

- Three-phase electric cables (e.g. for electric cookers)
- Low-voltage cables (e.g. for doorbells or telephones)

5.6 Indication of object class

(ferrous metal icon)	Ferrous metal	Steel reinforcement (rebars) and water-filled plastic pipes
(non-ferrous metal icon)	Non-ferrous metal	e.g. copper or aluminium pipes
(non-metallic icon)	Non-metallic	e.g. plastic pipes, wood beams and cavities
(live electric cables icon)	Live electric cables	e.g. live AC cables, live low-voltage cables or live three-phase cables
(unknown objects icon)	Unknown objects	Unknown objects, including objects at a depth of more than 6 cm

5.7 Indication of detection status

Status LED	The LED lights green.	No object detected.
	The LED lights red.	Object detected.
	The LED blinks red.	The object detected is very probably live (i.e. carrying electric current).

5.8 Scanning limitations

Due to the scanning principle employed, certain unfavorable circumstances may negatively affect the result:

- Walls or floors consisting of multiple layers
- Empty plastic pipes in hollow brick, wood beams in cavities and in drywall partitions
- Objects that run through the wall, floor or ceiling at an angle
- Metal surfaces and damp areas; under certain circumstances, these may be detected as objects in the material scanned
- Cavities in the material scanned; these may be detected as objects
- Proximity to appliances that emit powerful magnetic or electromagnetic fields, e.g. mobile phone / cordless phone base stations or generators

5.9 Examples of scan results

NOTE
In the following examples the signal tone is switched on.

5.9.1 Steel reinforcing bars
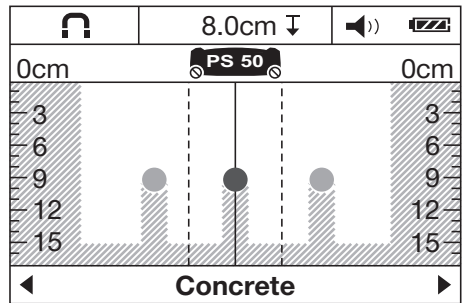
A steel object, e.g. a steel rebar, is present in the sensor area. To the left and right of this are other objects which are outside the sensor area. The depth of the object is approx. 8 cm (3.1 in). The tool emits a signal tone.

5.9.2 Copper pipes

⌐	4.0cm ↧	◀))	▰▰

0cm   **PS 50**   0cm

2 — 2
4 — 4
6 — 6
8 — 8

◀   **Universal**   ▶

A non-ferrous metal object, e.g. a copper pipe, is within the sensor area. It lies at a depth of approx. 4 cm (1.6 in). The tool emits a signal tone.
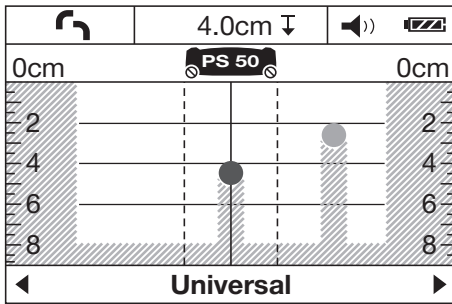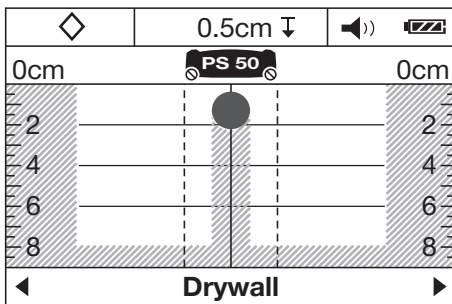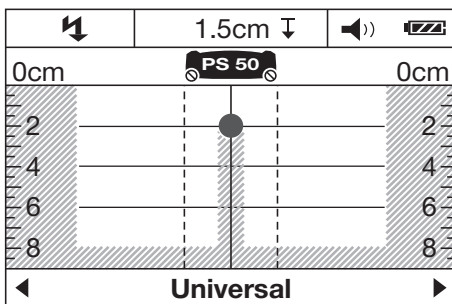
5.9.3 Plastic or wooden objects

◇	0.5cm ↧	◀))	▰▰

0cm   **PS 50**   0cm

2 — 2
4 — 4
6 — 6
8 — 8

◀   **Drywall**   ▶

A non-metallic object is within the sensor area. The object is made of plastic or wood (or is a cavity) and lies close to the surface. The tool emits a signal tone.

5.9.4 Live electric cables

⚡	1.5cm ↧	◀))	▰▰

0cm   **PS 50**   0cm

2 — 2
4 — 4
6 — 6
8 — 8

◀   **Universal**   ▶

NOTE
Depending on the size and depth of the object, it is not always possible to determine without doubt whether it is live (i.e. carrying electricity).

NOTE
When scanning, do not lay your hands on the surface of the material.

NOTE
Live cables can be detected more reliably when the scanner is moved slowly.

A live metallic object, e.g. an electric cable, is within the sensor area. It lies at a depth of approx. 1.5 cm (0.6 in). The tool emits a warning signal tone for "live cables" as soon as the electric cable is detected by the sensor.

5.9.5 Objects with a large surface area

∩	2.0cm ↧	◀))	▰▰

0cm   **PS 50**   0cm

2 — 2
4 — 4
6 — 6
8 — 8

◀   **Universal**   ▶
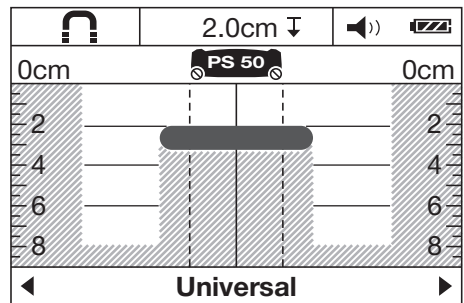
A metal object with a large surface area, e.g. a metal plate, is within the sensor area. It lies at a depth of approx. 2 cm (0.8 in). The tool emits a signal tone.

5.9.6 Unclear signals ▣

?	0.0cm ↧	◀))	▰▰

0cm   **PS 50**   0cm

2 — 2
4 — 4
6 — 6
8 — 8

◀   **Universal**   ▶
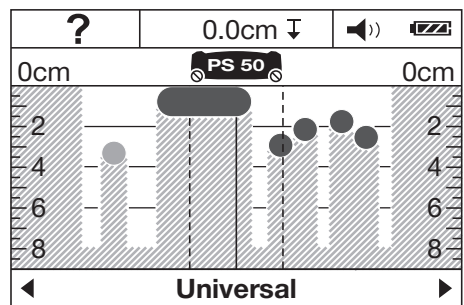
If a very large number of objects are shown it is possible that the wall contains many cavities (e.g. hollow brick) or the scan has been made along the length of a long object.

NOTE
By making additional scans parallel to the first scan, above and below, and marking the position of any objects detected, it is possible to determine the course followed by long objects. Offset marks are an indication of cavities.

NOTE
In the "Hollow brick" scanning mode, cavities are filtered out to a great extent (i.e. not shown).

6 Before use

6.1 Inserting the batteries 5

CAUTION
Do not use damaged batteries.

CAUTION
Always replace the complete set of batteries.

CAUTION
Do not mix old and new batteries. Do not mix batteries of different makes or types.

1. Release the catch on the underside of the tool and open the battery compartment cover.

2. Insert the batteries in the tool. Close the cover and check that it engages in the closed position.
   NOTE Take care to observe correct polarity (see symbols in battery compartment).
   The Battery status indicator in the display on the tool indicates battery charge state.
3. Make sure that the battery compartment is closed properly.

6.2 Switching the tool on / off

1. Switch the tool on by pressing the on/off button. The status LED lights green. The default mode selected from the menu is indicated.
2. When the tool is already switched on, press the on/off button: The tool switches off.
   NOTE If the warning "Please change batteries" is displayed, the settings will be saved and the tool then switches itself off automatically.
   NOTE If no scan is made or no button is pressed, the tool will switch itself off automatically after 5 minutes. You can adjust the switch-off time in the menu (see 7.1.5).

7 Operation

7.1 Making settings in the menu

1. To enter the menu, press the "Menu" button.
2. To access the individual menu items, press the "Down" arrow button or the "Measure" button.
   NOTE The selected menu item is highlighted in gray.
3. Press the "Left" or "Right" arrow button to change the setting for the selected menu item.
4. To leave the menu, press the "Menu" button again.
5. The current settings are adopted and the selected default mode then displayed.

7.1.1 Switching on the electric current sensor

Activate the electric current sensor from the "AC sensor" menu option. At the default setting, the electric current sensor is switched off. The electric current sensor is used only for classification of electric cables. Even when the power is switched off (cables not live), electric cables are shown as objects.
NOTE
To avoid the possibility of incorrect readings, e.g. in damp concrete or when touching the surface being scanned, switch the AC sensor on only when it is actually needed.

7.1.2 Setting default mode

In the "default mode" menu item you can set the scanning mode that is to be displayed after the tool is switched on.

NOTE
The factory setting for the scanning mode is "Universal".

7.1.3 Switching the signal tones on and off

In the "Signal tones" menu item you can select whether a signal tone is also emitted when an object is detected by the tool.
NOTE
In the default setting, the signal tone is active.

7.1.4 Setting the brightness

Set the display brightness in the "Brightness" menu item.
NOTE
The factory setting is "Maximum" (maximum brightness).

7.1.5 Setting the switch-off time

In the "Cut off time" menu item select the time interval after which the tool shall switch itself off automatically when no scan is made or no button is pressed.
NOTE
The factory setting is"5 min".

7.1.6 Setting the language

Set the desired dialog language in the "Language" menu item.
NOTE
The factory setting is "English".

7.1.7 Setting the unit of measurement

Set the desired unit of measurement in the "Units" menu item.

NOTE
The factory setting is "Centimeter".

7.2 Displaying information about the tool

The individual menu items let you display information about the tool or restore the factory settings.

1. To access the menu providing further information about the tool, press the "Menu" button and the "On/off" button simultaneously while the tool is switched off.
2. Press the "Down" arrow button or the "Scan" button to select a menu item.
    NOTE The selected menu item is highlighted in gray.
3. Press the "Right" arrow button, depending on the selected menu item, to choose additional information about the tool or to restore the factory settings.
4. Press the "Menu" button again to leave the current menu and press it once more to return to the scanning mode display.

7.3 Changing the scanning mode

Press the "Left" or "Right" arrow button to cycle through the various scanning modes.

NOTE
The currently active setting is shown in the lower area of the display.

7.4 Changing the view

1. To switch from scanning mode view to distance measurement view, press and hold the "Left" or "Right" arrow button for longer than 2 seconds.
2. To switch from distance measurement view back to scanning mode view, press and hold the "Left" or "Right" arrow button for longer than 2 seconds.

7.5 Scanning 🔓
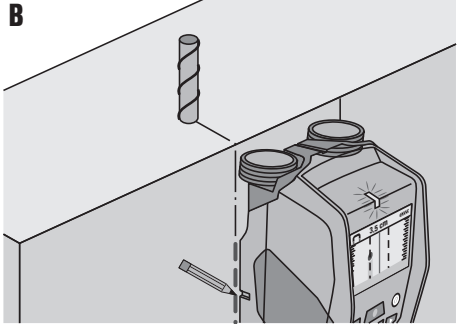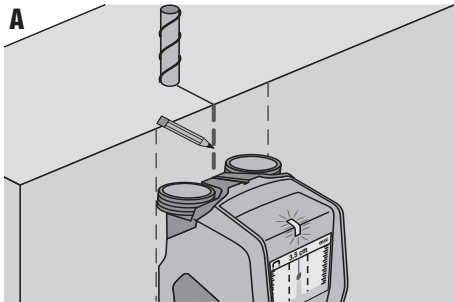
1. Switch the tool on by pressing the on/off button.
    NOTE The default mode set in the menu is then displayed.
2. Select the scanning mode that suits the material to be scanned.
3. Place the tool on the surface to be scanned and then move it slowly and in a straight line, applying light, even pressure to the wheels on the battery compartment.
    NOTE The results of the scan are displayed after scanning a distance of at least 10 cm (3.9 in). Optimum results are achieved when a distance of 40 cm (15.7 in) or greater is scanned.
    NOTE Always move the tool over exactly the same path, forward and back.
    NOTE Avoid scanning long paths in order to keep measurement errors as small as possible.
    NOTE If you lift the tool off the surface during the scan, the results of the last scan are still displayed. The message "Hold" is shown in the sensor area of the display. When you place the tool back on the surface and continue to move it, or if you press the scan button, a new scan will be started.
    NOTE Always keep all 4 wheels in contact with the surface being scanned. Do not scan over steps or edges.
    NOTE Do not touch the surface while making the scan.
4. If no object is found, make a second scan perpendicular to the path of the first scan.
5. If you wish to locate and mark a detected object accurately, move the tool back until the object is directly below the center line of the sensor area display (see fig. A).
6. With the aid of the upper marking notch, mark the position of the object on the surface scanned.
    NOTE As the sensor area lies slightly below the upper marking notch, this mark serves as a reliable indication only when the object detected runs exactly vertically.

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7. To mark the position of the object more exactly, move the tool to the left or right until the object detected is shown at the corresponding edge of the sensor display area.
8. Mark the position of the detected object with the aid of the left or right marking notch (see fig. B).

9. Make a scan perpendicular to the path of the first scan.
   NOTE A scan perpendicular to the path of the first scan is necessary because objects that lie longitudinally along the direction of the scan may not be detected or may lead to uncertain scan results (e.g. a very large number of objects indicated).

8 Care and maintenance

8.1 Cleaning and drying

1. Use only a clean, soft cloth for cleaning. If necessary, moisten the cloth slightly with pure alcohol or a little water.
   NOTE Do not use any other liquids as these may damage the plastic components.
2. The temperature limits for storage of your equipment must be observed, especially in winter / summer.

8.2 Storage

Put the tool into storage only when dry. Please observe the applicable temperature limits when storing the tool.

Check the accuracy of the equipment before it is used after a long period of storage.

Remove the batteries from the tool before storing it for a long period. Leaking batteries may damage the tool.

8.3 Transport

Use the Hilti toolbox or equivalent packaging when transporting the tool.

CAUTION
Always remove the batteries before shipping the tool.

8.4 Hilti Calibration Service

We recommend that the tool is checked by the Hilti Calibration Service at regular intervals in order to verify its reliability in accordance with standards and legal requirements.

Use can be made of the Hilti Calibration Service at any time, but checking at least once a year is recommended.

The Calibration Service provides confirmation that the tool is in conformance, on the day it is tested, with the specifications given in the operating instructions.

After checking, a calibration sticker applied to the tool and a calibration certificate provide written verification that the tool is operating in accordance with the manufacturer's specification.

Calibration certificates are always required by companies certified according to ISO 900x.

Your local Hilti Center or representative will be pleased to provide further information.

9 Troubleshooting

Fault	Possible cause	Remedy
The tool can't be switched on.	The batteries are exhausted.	Replace the batteries.
	Incorrect battery polarity.	Insert the batteries correctly and close the battery compartment cover.
The tool is switched on but doesn't react.	System error.	Remove and reinsert the batteries.
The tool is too cold or too hot.	The tool is too cold or too hot.	Wait until it is within the permissible temperature range.
"Slipping wheel" is shown in the display.	A wheel lost contact with the surface.	Press the "Scan" button. Make sure that the wheels remain in contact with the surface when moving the tool. On uneven surfaces (e.g. masonry, tiles, joints, plaster, etc.), lay a thin sheet of cardboard between the wheels of the tool and the surface to be scanned and apply steady, uniform pressure to the wheels on the battery compartment.
"Too fast" is shown in the display.	The tool was moved too quickly.	Press the "Measure" button. Move the tool slowly over the wall.

Fault	Possible cause	Remedy
The display shows "Temperature outside limits".	Temperature above or below the permissible range.	Wait until temperature is within the permissible range.
The display shows "Temperature change too high"	The temperature inside the tool has changed too quickly.	Switch the tool on again.
"Strong radio signal detected" is shown in the display.	Interference caused by radio signal. The tool switches itself off automatically.	If possible, eliminate the radio signal (e.g. WLAN, UMTS, aircraft radar, transmitter mast or microwave device) and switch the tool back on.

10 Disposal

Most of the materials from which Hilti tools or appliances are manufactured can be recycled. The materials must be correctly separated before they can be recycled. In many countries, Hilti has already made arrangements for taking back old tools or appliances for recycling. Ask Hilti Customer Service or your Hilti representative for further information.

For EC countries only

Do not dispose of electronic measuring tools or appliances together with household waste.

In observance of the European Directive on waste electrical and electronic equipment and its implementation in accordance with national law, electrical appliances that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.

11 Manufacturer's warranty

Please contact your local Hilti representative if you have questions about the warranty conditions.

12 FCC statement (for USA only)

CAUTION This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or re-locate the receiving antenna.
- Increase the distance between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for assistance.

NOTE
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. **This device may not cause harmful interference.**
2. **This device must accept any interference received, including interference that may cause undesired operation.**

For users in the USA
Operation of this device is restricted to law enforcement, fire and rescue officials, scientific research institutes, commercial mining companies, construction companies and private parties operating on behalf of these groups. Operation by any other party is a violation of 47 U.S.C. § 301 and could subject the operator to serious legal penalties.

Coordination requirements

1. UWB imaging systems require coordination through the FCC before the equipment may be used. The operator shall comply with any constraints on equipment usage resulting from this coordination.
2. The users of UWB imaging devices shall supply detailed operational areas to the FCC Office of Engineering and Technology who shall coordinate this information with the Federal Government through the National Telecommunications and Information Administration.
   The information provided by the UWB operator shall include the name, address and other pertinent contact information of the user, the desired geographical area of operation, and the FCC ID number and other nomenclature of the UWB device.
   This material shall be submitted to the following address:
   Frequency Coordination Branch, OET
   Federal Communications Commission
   445 12th Street, SW
   Washington, D.C. 20554
   ATTN: UWB Coordination

3. Users of authorized, coordinated UWB systems may transfer them to other qualified users and to different locations upon coordination of change of ownership or location to the FCC and coordination with existing authorized operations.
4. The NTIA/FCC coordination report shall include any needed constraints that apply to day-to-day operations. Such constraints could specify prohibited areas of operations or areas located near authorized radio stations for which additional coordination is required before operation of the UWB equipment. If additional local coordination is required, a local coordination contact will be provided. Ground Penetrating Radar Coordination Notice And Equipment Registration.

NOTE
This form is only for domestic United States users. Failure to do this is a violation of Federal law.

1. Date:
2. Company name:
3. Address:
4. Contact information [contact name and phone number]:
5. Area of operation [state(s)]:
6. Equipment identification
   Designation: PS 50
   FCC-ID: SDL-PS38R01
7. Receipt date of equipment:

Fax this form to the FCC at: 202-418-1944
or mail it to:
Frequency Coordination Branch, OET
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554
ATTN: UWB Coordination
Do not send this information to Hilti Corporation.

13 IC statement (for Canada only)

This device complies with the requirements defined in RSS-220 in conjunction with RSS-Gen of IC.

Operation is subject to the following two conditions:

1. **This device may not cause harmful interference.**

2. **This device must accept any interference received, including interference that may cause undesired operation.**

For users in Canada
This device shall be operated only where directed to the ground or wall, and where it is in contact with the ground or wall surface. This device shall be operated only by law enforcement agencies, scientific research institutes, commercial mining companies, construction companies, and emergency rescue or fire-fighting organizations.
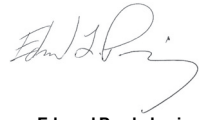
14 EC declaration of conformity (original)

Designation:	Multidetector
Type:	PS 50
Generation:	01
Year of design:	2013

We declare, on our sole responsibility, that this product complies with the following directives and standards: until 19th April 2016: 2004/108/EC, from 20th April 2016: 2014/30/EU, 2011/65/EU, EN ISO 12100, 1999/5/EC, EN 302435-1 V1.3.1:2009, EN 302435-2 V1.3.1:2009.

Hilti Corporation, Feldkircherstrasse 100, FL-9494 Schaan

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HILTI

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