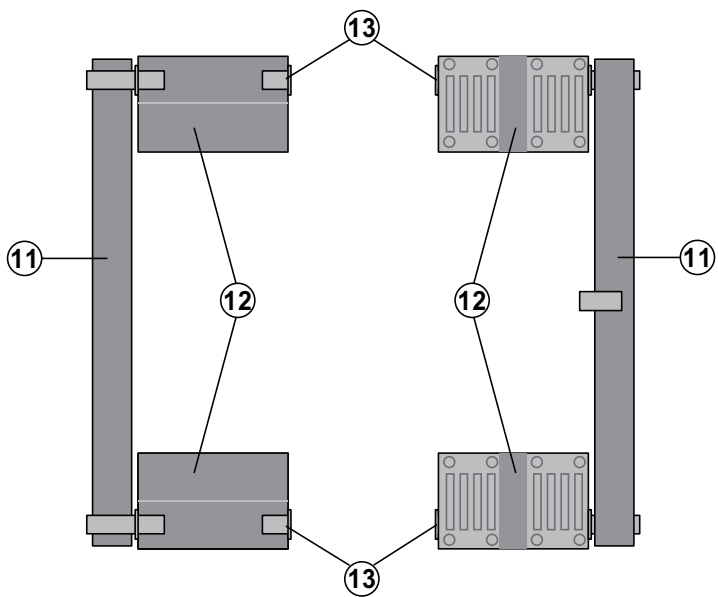
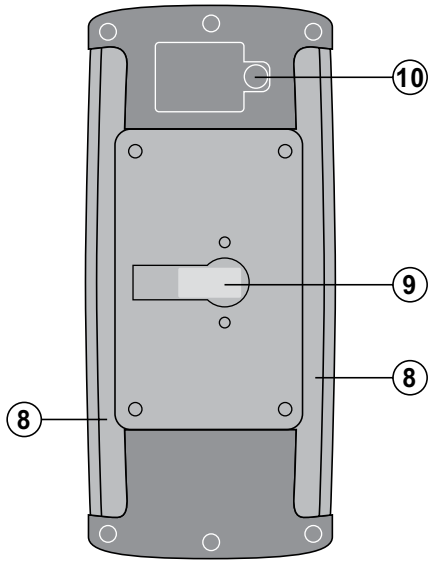
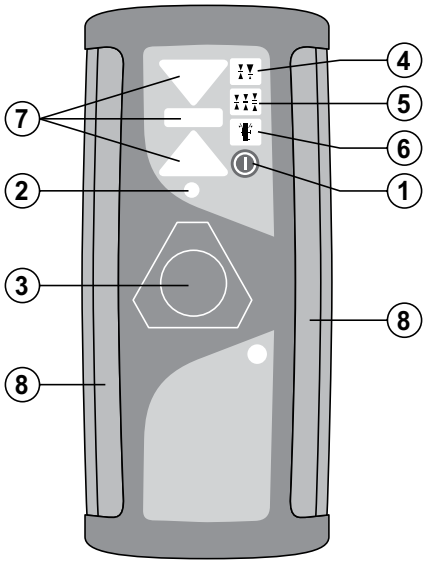


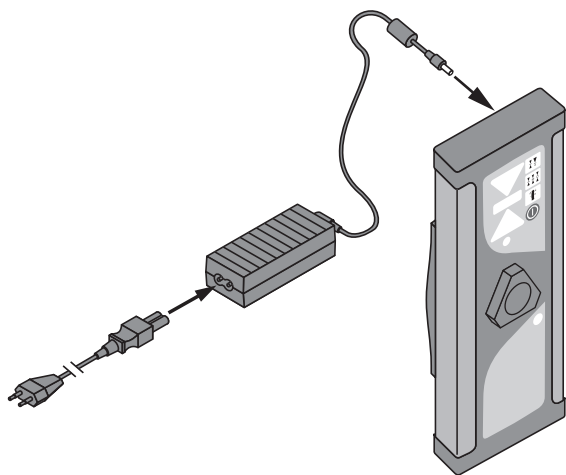
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Operating instructions	en
Mode d'emploi	fr
Istruzioni d'uso	it
Manual de instrucciones	es
Manual de instruções	pt
Gebruiksaanwijzing	nl
Brugsanvisning	da
Bruksanvisning	sv
Bruksanvisning	no
Käyttöohje	fi
Instrukcja obsługi	pl
Инструкция по эксплуатации	ru
Návod k obsluze	cs
Návod na obsluhu	sk



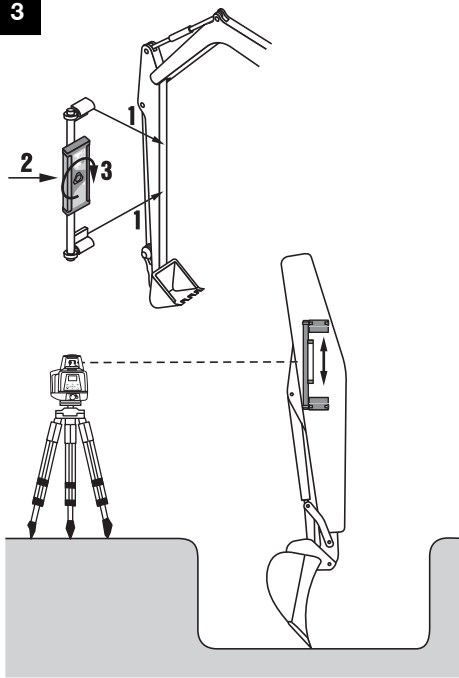
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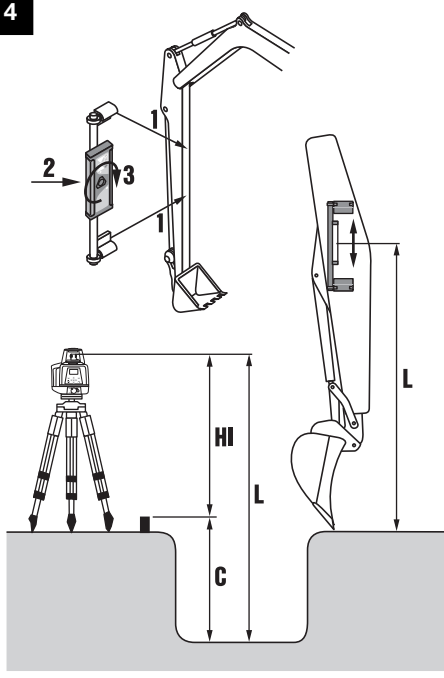
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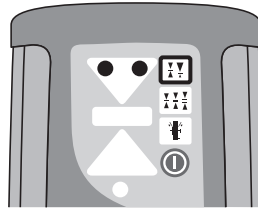
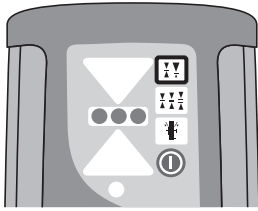
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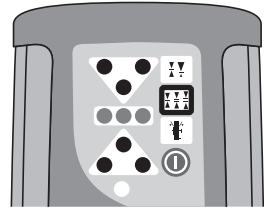
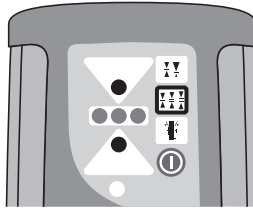
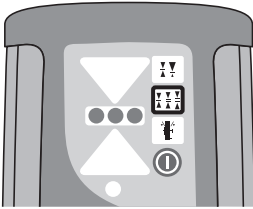
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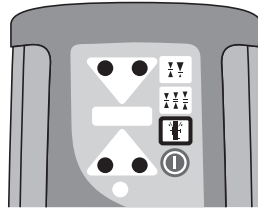
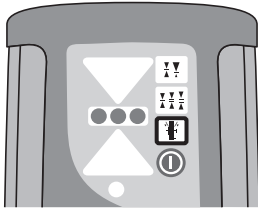
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6



7



ORIGINAL OPERATING INSTRUCTIONS

PRM 15 machine receiver

en

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.

Contents	Page
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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 PRM 15 machine receiver.

Parts, operating controls and indicators **1**

PRM 15 machine receiver

- ① On/off button
- ② Battery status indicator
- ③ Securing knob
- ④ Pre-set level shift button
- ⑤ Sensitivity setting button
- ⑥ Plumb indicator button
- ⑦ Pre-set level indicator
- ⑧ Receiving window
- ⑨ Securing screw
- ⑩ Charging cord socket

PRMA 70 magnetic holder

- ⑪ Aluminium tube
- ⑫ Magnets
- ⑬ Securing screw

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 waste material 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 machine. 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.: _____

en

2 Description

2.1 Use of the product as directed

The Hilti PRM 15 machine receiver is an electronic laser receiver that is capable of receiving and indicating the position of the beam from a rotating laser. When in use, the magnetic holder can be used to attach the receiver to a steel surface, such as the arm of a mechanical excavator. After switching on, the tool provides a visual indication of the pre-set laser reference plane relative to the position of the excavator bucket.

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 power tool or appliance where there is a risk of fire or explosion.

Do not tamper with the tool or make modifications to it.

2.2 Features

The receiver features a long receiving window for 360 degree laser reception, which increases the working area and range. The bright LED display provides a clear indication. The reinforced polycarbonate casing increases the ruggedness of the tool and helps to ensure a long lifetime. The tool uses rechargeable NiMH batteries.

2.3 Items supplied

- 1 PRM 15 machine receiver
- 1 Operating instructions
- 1 PRMA 70 magnetic holder
- 1 PRA 85 AC adapter
- 1 Manufacturer's certificate

2.4 LED indication after setting

Setting the pre-set level shift



Standard setting (pre-set level is in the middle of the receiving area): The green pre-set level LEDs light for 1 second.

Excavator mode (pre-set level is at the top edge of the receiving area): Two red LEDs of the upper arrow light for 1 second.

Setting the pre-set level sensitivity



Fine mode: The green pre-set level LEDs light for 1 second.

Standard mode: The green pre-set level LEDs and one red LED for each arrow light for 1 second.

Coarse mode: The green pre-set level LEDs and all red LEDs for the arrows light for 1 second.

Setting the plumb indication



Plumb indication is OFF: The green pre-set level LEDs light constantly for 2 seconds.

Plumb indication is ON: Two red LEDs for each of the arrows blink alternately for 2 seconds.

NOTE

The currently selected operating mode can be shown simply by pressing the button. Selection mode can be accessed by pressing the button repeatedly.

2.5 Indication while receiving

Charging status indicator	Battery fully charged: LED is off.
	Low battery: The red LED blinks.
	Battery exhausted: The red LED lights until the battery is completely discharged.
Pre-set level indicator	The height of the receiver in relation to the height of the laser beam is indicated by the bright red LEDs which, at the same time, indicate the direction in which the receiver has to be moved in order to bring it to the pre-set level.
	When the bright green LED lights, this indicates that the receiver is at the pre-set level of the rotating laser.
Plumb indication	The receiver is plumb: The pre-set level indicators light constantly.
	The receiver is not plumb (± 2.5 degrees off plumb): The pre-set level LEDs blink rapidly or slowly.



2.6 LED indication after connecting the AC adapter

Battery charge status display	Battery conditioning phase: This phase prepares the battery for the normal charging phase. This phase begins as soon as the cord is plugged in to the electric supply and lasts for approx. 10-20 minutes.
	- The green LED blinks slowly (0.85 Hz) - the conditioning phase is active.
	- The green LED blinks rapidly (1.7 Hz) - error during the conditioning phase.
	Normal charging: This phase begins after successful completion of the conditioning phase.
	- The green LED lights constantly - the battery is being charged.
- The green LED blinks slowly and regularly (0.85 Hz) - the battery is fully charged.	
- The green LED blinks very rapidly (6.7 Hz) - error during charging. The charging cycle has been aborted. Disconnect the AC adapter and then reconnect it or, alternatively, replace the battery.	

3 Accessories

Designation

PRA 86 car charging connector

4 Technical data

Right of technical changes reserved.

PRM 15 machine receiver

Laser reception angle	2 x 180° = 360°
Sensor reception measurement	Continuous proportional
Vertical reception	203 mm (8 in)
Machine receiver range (radius)	3...488 m (10 ft to 1600 ft)
Machine receiver accuracy	± 2 mm (± 0.079 in)
Laser rotation speed range	150 /min to 1200 /min
Receiver compatibility	Standard infrared and visible rotating lasers
Unaffected by light pulses from warning lights on construction sites	Yes

LED color scheme	Upper arrow (red) Pre-set level line (green) Lower arrow (red)
Bandwidth accuracy (standard mode)	Fine bandwidth = 5 mm ($\frac{3}{16}$ in) Standard bandwidth = 10 mm ($\frac{3}{8}$ in) Coarse bandwidth = 20 mm ($\frac{3}{4}$ in)
Bandwidth accuracy (excavator mode)	Fine bandwidth = 12 mm ($\frac{1}{2}$ in) Standard bandwidth = 25 mm (1 in) Coarse bandwidth = 50 mm (2 in)
Automatic power-off	After 30 minutes in switched-on mode when no laser beam is received
Weight (casing)	1.2 kg (2.5 lbs)
Dimensions (L x W x H)	241 mm x 111 mm x 106 mm (9.5" x 4.38" x 4.2")
Built-in securing screw	Can be secured to the tubular section of the magnetic holder (max. 1" outside diameter)
Operating temperature range	-20... +60°C (-4 °F to 140 °F)
Storage temperature	-40... +70°C (-40 °F to 158 °F)
Air humidity	90% air humidity for 48 hours at 32 °C
Protection class	IP 67
Battery	5 AA NiMH (cannot be replaced on the construction site)
Power source	Continuous indication in the laser beam: 25 hours (when battery is fully charged and at 70 °F)
Charging temperature	+5... +35°C (41 °F to 95 °F)
Battery charging time	5 hours for full charge

PRA 85 mains adapter

AC supply	115...230 V
AC frequency	47...63 Hz
Rated power	40 W
Rated voltage	12 V
Operating temperature range	+0... +40°C (32°F to +104°F)
Storage temperature range (dry)	-25... +60°C (-13°F to 140°F)
Weight	0.23 kg (0.51 lbs)
Dimensions (L x B x H)	110 mm x 50 mm x 32 mm (4.3" x 2" x 1.3")

5 Safety instructions

5.1 Basic information concerning safety

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.

5.2 General safety rules

- Keep other persons, especially children, away from the area in which the work is being carried out.
- Check the condition of the tool before use. If the tool is found to be damaged, have it repaired at a Hilti service center.

- Do not render safety devices ineffective and do not remove information and warning notices.
- The tool must be checked at a Hilti service center after it has been dropped or subjected to other mechanical stresses.
- If using the magnetic holder, check that the tool is fitted correctly.
- To avoid measurement errors, the receiving area must be kept clean.
- Although the tool is designed for the tough conditions of jobsite use, as with other optical and electronic instruments (e.g. binoculars, spectacles, cameras) it should be treated with care.

- h) Although the tool is protected to prevent entry of dampness, it should be wiped dry each time before being put away in its transport container.
- i) To avoid hearing damage, hold the tool as far away as possible from your ear (and other persons' ears).

5.2.1 Electrical



- a) **Keep the batteries out of reach of children.**
- b) **Do not allow the batteries to overheat and do not expose them to fire.** The batteries may explode or release toxic substances.
- c) **Do not charge the batteries.**
- d) **Do not solder the batteries into the tool.**
- e) **Do not discharge the batteries by short circuiting as this may cause them to overheat and present a risk of personal injury (burns).**
- f) **Do not attempt to open the batteries and do not subject them to excessive mechanical stress.**
- g) **Use only the specified battery to power the tool and use only the PRA 85 mains adapter or PRA 86 car charging connector for charging.** Failure to observe these points may result in damage to the tool.

5.3 Proper organization of the work area

- a) **Avoid unfavorable body positions when working on ladders or scaffolding. Make sure you work from a safe stance and stay in balance at all times.**
- b) Measurements taken through or from panes of glass or through other objects may be inaccurate.
- c) **Use the tool only within its specified limits.**

5.4 Electromagnetic compatibility

Although the appliance complies with the strict requirements of the applicable directives, Hilti cannot entirely rule out the possibility of interference to the appliance caused by powerful electromagnetic radiation, leading to incorrect operation. Check the accuracy of the appliance by taking measurements by other means when working under such conditions or if you are unsure. Likewise, Hilti cannot rule out the possibility of interference with other devices (e.g. aircraft navigation equipment).

5.5 Magnetic holder

CAUTION! Although the magnetic holder is equipped with powerful magnets, the load it is capable of carrying is limited to 1.1 kg (2.5 lbs).

To prevent injury, take care to avoid trapping your fingers between the magnets and the mounting surface when bringing the magnetic holder into place.

6 Before use



6.1 Charging the battery



DANGER

Use only the Hilti AC adapters listed under "Accessories".

6.2 Options for charging the battery

DANGER

The PRA 85 mains adapter is for indoor use only. Avoid ingress of moisture.

6.3 Charging the battery in the tool **2**

NOTE

When charging, take care to ensure that the temperature remains within the recommended charging temperature range (5 to 35°C/ 41 to 95°F).

1. Pull the cover to the side so that the charging cord socket becomes accessible.
2. Connect the charging cord from the AC adapter or car charging connector to the battery.

NOTE The charging status is shown by the battery display on the tool while charging is taking place.

6.4 Setting up

Set up the rotating laser at a suitable, secure location, taking care to ensure that there are no objects interrupting the field of view between the rotating laser and the machine receiver. The Hilti PRM 15 machine receiver can be used at a radius of up to 488 m (750 ft.) (this range also depends on the power of the rotating laser used).

WARNING

Observe all safety information given in the PRM 15 operating instructions and observe all other safety instructions and precautions applicable to the area in which you are working.

6.5 Repositioning the magnets

NOTE

In order to avoid obstacles, the groups of magnets can be moved to any position, as desired, on the tubular section of the holder. In most cases, it should not be necessary

to move the magnets. If it is found necessary to move the groups of magnets, this should be done before mounting the magnetic holder on the excavator.

1. Release the clamping screw with the aid of a $\frac{5}{16}$ " (8 mm) hex key.
2. Slide the magnets to the desired position on the tubular section.
3. Retighten the clamping screw to a torque of 11 Nm.
NOTE Mount the machine receiver between the two groups of magnets.

6.6 Attaching the magnetic holder

NOTE

On a mini-excavator, the magnetic holder can be attached to the side, the front or the rear of the excavator arm. The magnetic holder is equipped with the appropriate recesses which allow it to be attached beneath hydraulic lines or over welds.

1. Place the magnetic holder on a steel or iron surface. Take care to ensure that the surface is flat and clean.
2. Determine the position on the machine at which the receiver is to be attached. When doing so, take the height of the rotating laser into account.
3. Bring the upper edge of the magnets into contact with the mounting surface.
4. Move the lower magnets slowly toward the mounting surface until contact is made and both groups of magnets hold securely.

NOTE Some of the parts of the magnetic holder are made of metal and may thus leave marks on some surfaces.

NOTE In order to ensure a secure hold, both groups of magnets must make full contact with the mounting surface.

6.7 Securing the machine receiver

Position the machine receiver between the two groups of magnets. Insert it through the hook and then tighten the fastening screw by turning it in a clockwise direction. It may be necessary to release the fastening screw by turning it in a counterclockwise direction before it can be tightened.

6.8 Removing the magnetic holder

1. Remove the machine receiver from the magnetic holder.
2. Remove the magnetic holder from the mounting surface.

6.9 Instructions for mounting the receiver on an excavator

NOTE

When mounting the tool on an excavator or tractor excavator, the excavator arm should be in a vertical or nearly vertical position. The excavator arm should be brought into a position that it can take up every time the pre-set level is to be read. This position is subsequently known as the "position for checking the level". The machine receiver can be mounted on the excavator before or after it has begun the excavation.

6.9.1 Mounting the machine receiver from within the excavation **3**

1. Excavate a small area to the desired height/depth. Bring the excavator bucket into the "position for checking the level" within the excavation.
2. Set up the rotating laser in a suitable position (outside the excavation) that allows optimum reception of the laser beam and efficient operation of the excavator and switch it on.
3. Attach the magnetic holder to the side of the excavator arm at the height of the laser beam.
4. Insert the machine receiver in the magnetic holder and then slide it up or down until the pre-set level of the laser beam is indicated and then secure the receiver in this position.
5. Begin the excavation. Check at regular intervals to ensure that the height of the excavation is correct.

6.9.2 Mounting the machine receiver from outside the excavation **4**

1. Set up the rotating laser in a suitable position (outside the excavation) that allows optimum reception of the laser beam and efficient operation of the excavator and switch it on.
2. Bring the excavator bucket into the "position for checking the level" outside the excavation.
3. Determine the setting-up distance (L= distance between the laser plane and the desired height/depth of the excavation).
4. Transfer the setting-up distance L to the excavator arm (measuring from the tip of the teeth on the excavator bucket (outside the excavation). Subsequently mount the magnetic holder on the side of the excavator arm at this height L.
5. Secure the machine excavator in the holder. In doing so, the pre-set level should be positioned exactly at the end of distance L.
6. Switch the machine receiver on and begin the excavation.
7. Check at regular intervals to ensure that the height of the excavation is correct.

7 Operation

NOTE

Only the AC adapter recommended by Hilti (the Hilti PRA 85) should be used to charge the battery.

7.1 Switching the tool on / off

1. Press the on/off button for 1 second. The machine receiver is switched on.
2. Press the on/off button for 3 seconds. The machine receiver is switched off.

7.2 Selecting grading mode or excavation mode 5

1. Press the on/off button once.
The current mode is indicated.
2. Press the on/off button again within 2 seconds to select between the 2 alternative modes.
Grading mode: The pre-set level is at the center of the machine receiver. This is the standard setting. The pre-set level indicator lights for 1 second.
Excavation mode: The pre-set level is at the upper end of the machine receiver. There is a delay of 1 second until the height of the receiver relative to the laser beam is indicated. The selected mode is indicated accordingly.

7.3 Setting the accuracy bandwidth 6

NOTE

The previously used settings are retained when the tool is switched off and on again.

1. Press the on/off button once.
The current bandwidth is displayed.
2. Press the on/off button again within 2 seconds to select between 3 alternative bandwidths.
Fine mode: The green pre-set level LED lights for 1 second.
Standard mode: The green pre-set level LED and the two red direction arrows closest to the pre-set level light for 1 second.
Coarse mode: The green pre-set level LEDs and all red direction arrows light for 1 second. The LEDs light for 1 second at all settings.

7.4 Activating the plumb indication 7

NOTE

The previously used settings are retained when the tool is switched off and on again. The pre-set level indicator lights constantly when the receiver is in a plumb position. The pre-set level LEDs blink either slowly or rapidly when the receiver is not in a plumb position (± 2.5 degrees off plumb).

1. Press the on/off button once.
The current plumb indication is then shown.
2. Press the on/off button again within 2 seconds to select whether the plumb indication is to be "active" or "inactive".
3. Set the plumb indication to "active".
The green pre-set level LED lights for 2 seconds.
4. Set the plumb indication to "inactive".
The upper and lower LEDs blink alternately for 2 seconds.

8 Care and maintenance

8.1 Cleaning and drying

1. Blow dust off the surfaces.
2. Do not touch the display areas or the receiving window with the fingers.
3. 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.
4. Observe the temperature limits when storing your equipment. This is particularly important in winter / summer if the equipment is kept inside a motor vehicle (-40°C to +70°C / -40°F to +158°F).

8.2 Storage

Remove the tool from its case if it has become wet. The tool, its carrying case and accessories should be cleaned and dried (at maximum 40°C / 104°F). Repack the equipment only once it has dried completely and then store it in a dry place.

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

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 packaging of equivalent quality for transporting or shipping your equipment.

DANGER

Always remove the batteries before transporting 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.

8.5 Magnetic holder

Keep the magnetic holder clean. Simply wipe off any grease or dirt that collects on or around the magnets. If the holder gets wet, lay it down with the magnets facing downwards so that the water can drain out.

Should you need to replace the tubular section, use only Schedule-40 aluminium tubing with an outside diameter of 25.4 mm.

Tighten the holders for the groups of magnets only when the magnets are in position on the tube.

9 Disposal

DANGER

Improper disposal of the equipment may have serious consequences:

The burning of plastic components generates toxic fumes which may present a health hazard.

Batteries may explode if damaged or exposed to very high temperatures, causing poisoning, burns, acid burns or environmental pollution.

Careless disposal may permit unauthorized and improper use of the equipment. This may result in serious personal injury, injury to third parties and pollution of the environment.



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

Disposal of electric appliances together with household waste is not permissible.

In observance of European Directive 2002/96/EC on waste electrical and electronic equipment and its implementation in accordance with national law, electric appliances that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.



Dispose of the batteries in accordance with national regulations. Please help us to protect the environment.

10 Manufacturer's warranty

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

11 FCC statement (applicable in USA)

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 radiofrequency 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 recep-

tion, 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 relocate the receiving antenna.

Increase the distance between the equipment and receiver.

Consult the dealer or an experienced TV/radio technician for assistance.

NOTE

Changes or modifications not expressly approved by Hilti could void the user's authority to operate the equipment.

12 EC declaration of conformity (original)

en

Designation:	Machine receiver
Type:	PRM 15
Generation:	01
Year of design:	2009

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.

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