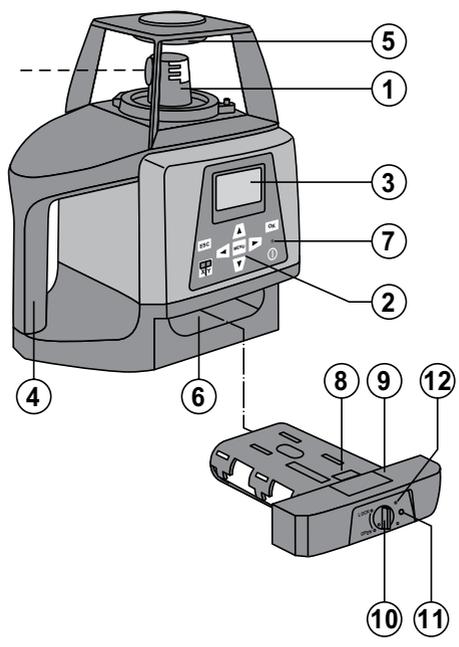
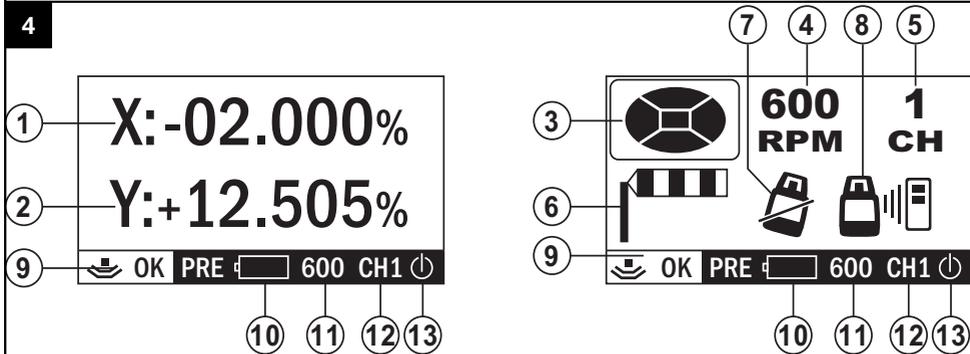
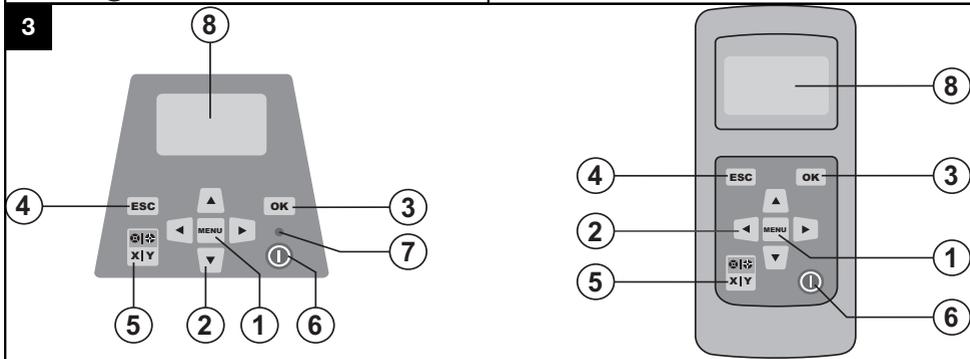
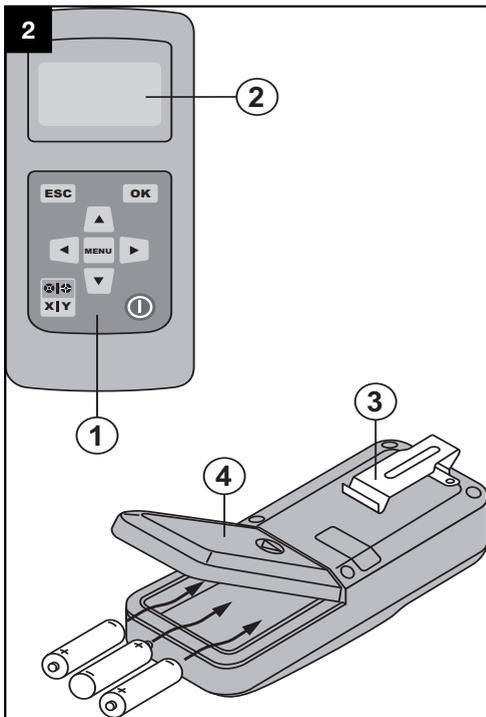
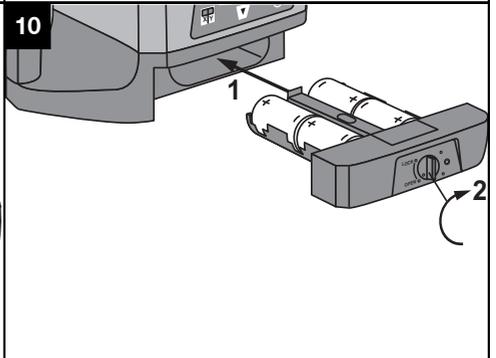
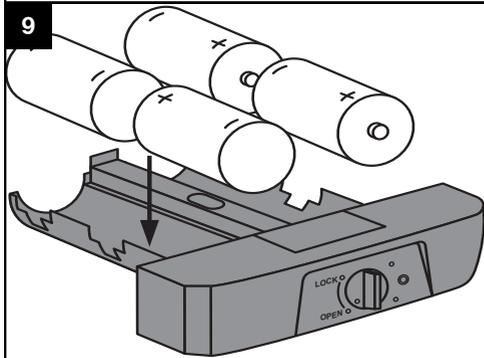
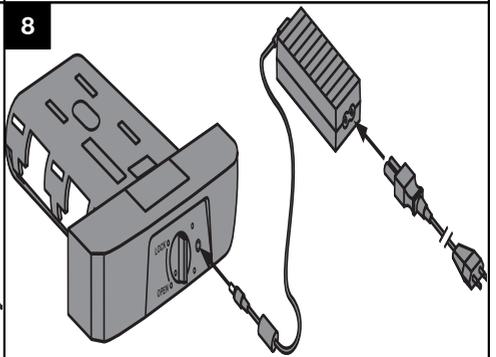
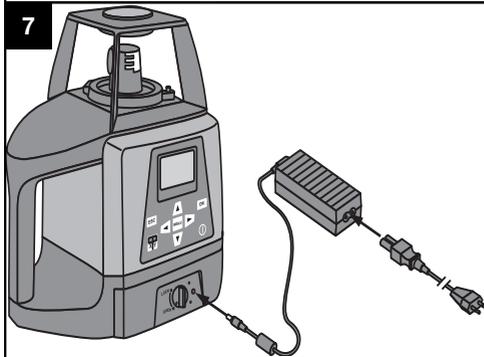
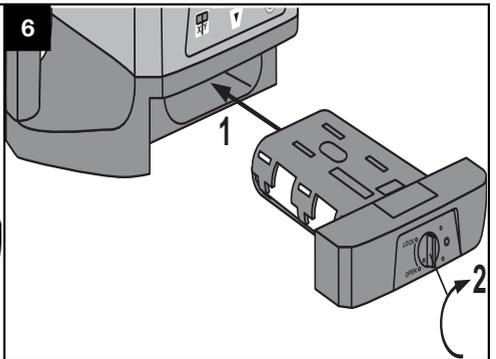
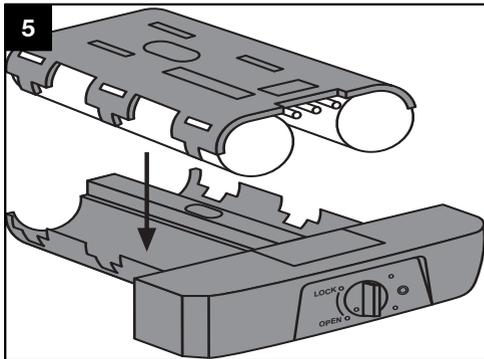


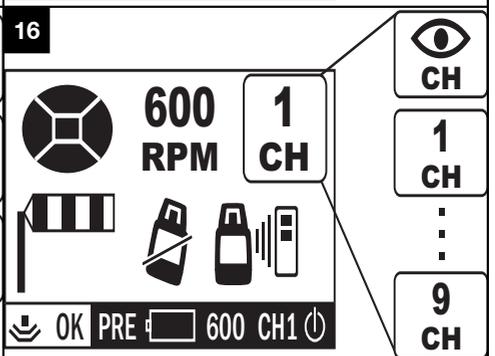
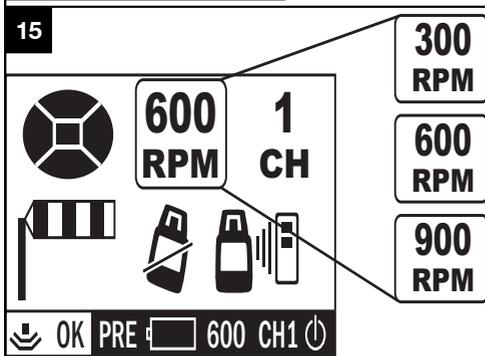
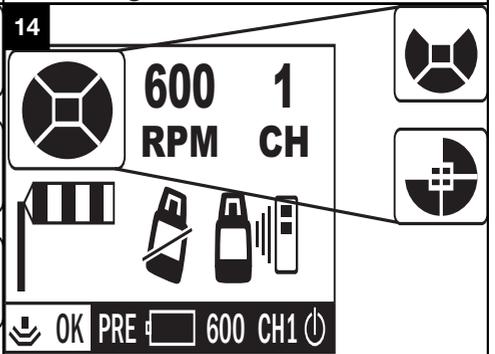
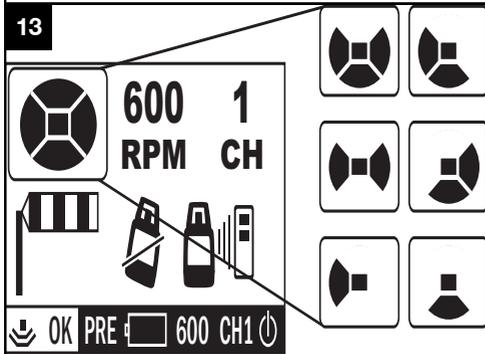
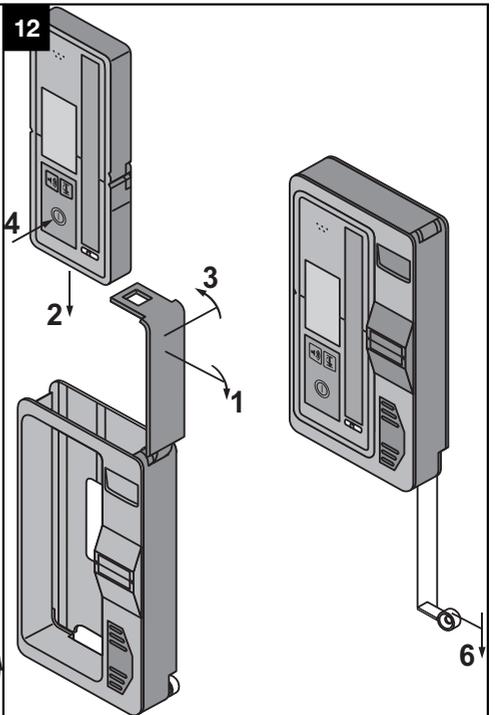
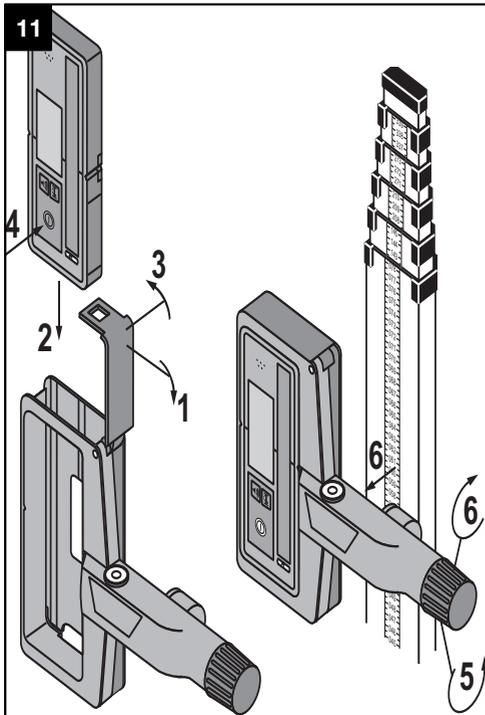
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Operating instructions	en
Mode d'emploi	fr
Istruzioni d'uso	it
Manual de instrucciones	es
Manual de instruções	pt
Gebruiksaanwijzing	nl
Brugsanvisning	da
Bruksanvisning	sv
Bruksanvisning	no
Käyttöohje	fi
Instrukcja obsługi	pl
Инструкция по эксплуатации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

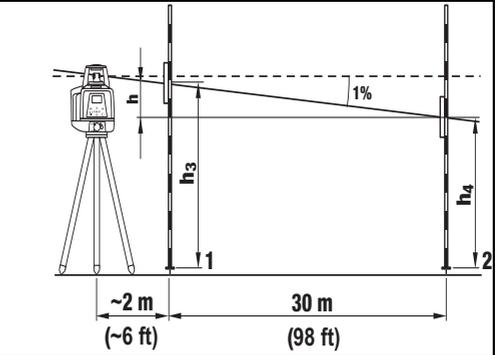
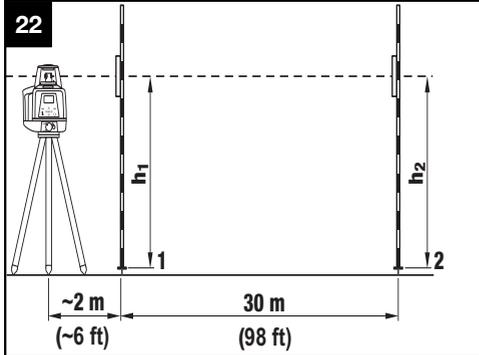
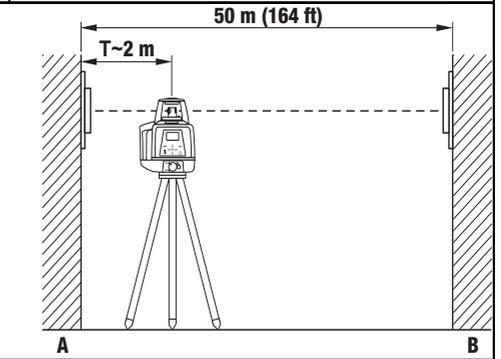
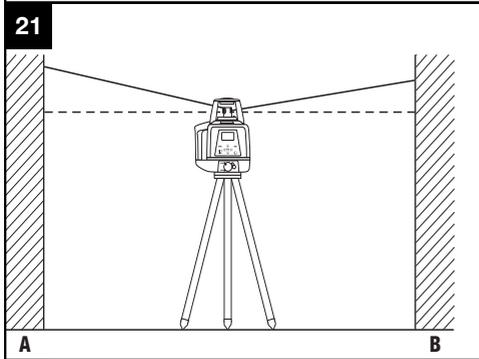
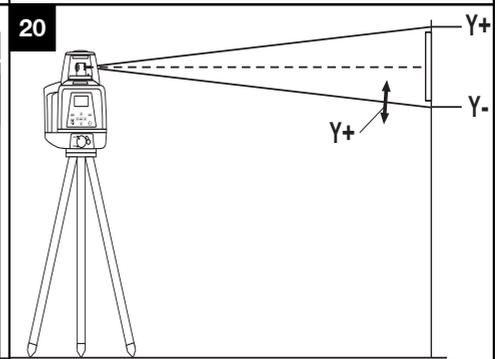
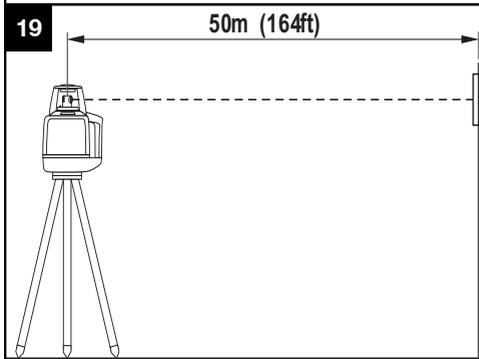
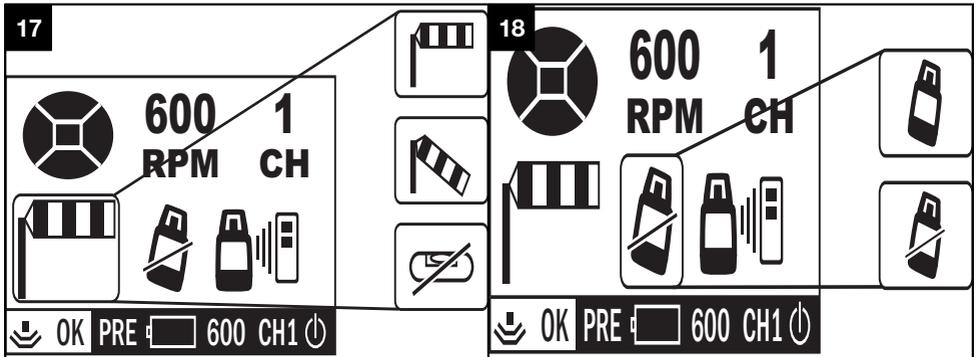












ORIGINAL OPERATING INSTRUCTIONS

PRE 38 grade laser

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
1 General information	18
2 Description	18
3 Accessories	21
4 Technical data	21
5 Safety instructions	22
6 Before use	23
7 Operation	25
8 Care and maintenance	28
9 Troubleshooting	30
10 Disposal	30
11 Manufacturer's warranty	31
12 FCC statement (applicable in US) / IC statement (applicable in Canada)	31
13 EC declaration of conformity (original)	31

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 PRE 38 grade laser.

PRE 38 grade laser - parts, operating controls and indicators **1**

- 1 Rotary head
- 2 Control panel
- 3 Display
- 4 Grip
- 5 Sight
- 6 Battery compartment
- 7 Auto-leveling LED
- 8 Battery

- 9 Battery holder
- 10 Catch
- 11 Charging cord socket
- 12 Battery charge status LED

PRA 380 remote control unit **2**

- 1 Control panel
- 2 Display
- 3 Belt clip
- 4 Battery compartment

PRE 38 and PRA 380 control panel **3**

- 1 Menu button (MENU)
- 2 Arrow button
- 3 Confirmation button (OK)
- 4 Back button (ESC)
- 5 X/Y button
- 6 On/off button
- 7 Automatic horizontal leveling LED
- 8 Display

PRE 38 and PRA 380 normal display **4**

- 1 Inclination in the X-axis
- 2 Inclination in the Y-axis

PRE 38 and PRA 380 menu display **4**

- 3 Activation / deactivation virtual beam shields
- 4 Speed of rotation
- 5 Communication channel
- 6 Leveling sensitivity
- 7 Shock warning
- 8 Warning signal

PRE 38 and PRA 380 status display bar **4**

- 9 Communication indicator
- 10 Battery status indicator
- 11 Speed of rotation
- 12 Communication channel
- 13 Leveling indicator

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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

Symbols



Read the operating instructions before use.



General warning



Return materials for recycling



Do not look into the beam.

Symbol for Laser Class III / Class 3



Laser Class IIIa according to CFR 21, § 1040 (FDA)



Do not look into the beam with the naked eye or with optical instruments.

On the tool



Do not stare into the beam.

Laser warning plates for the USA according to CFR 21 § 1040 (FDA).

On the tool



Laser warning plate according to IEC825 / EN60825-1:2007

Type identification plate



PRE 38

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 Hilti PRE 38 is a grade laser that projects a rotating laser beam.

The tool is designed to be used for determining, transferring and checking references in the horizontal and inclined planes. Examples of uses are the transferring of datums and heights.

Use of tools or AC adapters which show visible signs of damage is not permissible.

Operation outdoors or in damp conditions in "charging during operation" mode is not permissible.

Hilti supplies various accessories which allow the tool to be used with maximum efficiency.

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

To avoid the risk of injury, use only genuine Hilti accessories and insert tools.

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 appliance where there is a risk of fire or explosion.

Modification of the tool is not permissible.

2.2 Features

The Hilti PRE 38 is a grade laser with 3 different speeds of rotation: 300, 600 and 900 r.p.m.

Used in conjunction with the PRA 38 laser receiver, this tool allows a single person to level and align very quickly and accurately in all planes (horizontal and inclined).

The tool adjusts itself automatically once switched on (automatic leveling within a range of 10°(up to ±5° off level)).

The tool must be set to the desired inclination in the X and Y-axis (X-axis inclination range: -10% to +10%; Y-axis: -5% to +25%). The laser beam is activated only once the tool has leveled itself accurately.

LEDs indicate the tool's current operating status.

The PRE 38 is easy to set up and operate and features a rugged casing. The tool is powered by a rechargeable NIMH battery pack which can be charged while the tool is in operation.

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2.3 Horizontal plane

After switching on, so long as inclination in both axes (X and Y) has been set to 0.000% using the corresponding buttons, the tool levels itself automatically in the horizontal plane with the aid of two built-in motors.

2.4 Inclined plane

After switching on, the corresponding buttons are used to set the X and Y-axes to the desired inclination. The tool subsequently adjusts itself automatically by way of 2 built-in motors.

2.5 Speed of rotation

For optimum performance at all distances, the user can set the speed of rotation to 300, 600 or 900 r.p.m.

2.6 Shock warning

The shock warning system is activated automatically after the tool has been in operation for 10 minutes. The tool will then go into warning mode if subsequently affected by vibration, movement or impact.

2.7 Virtual beam shields

The laser beam can be switched off in certain sectors in order to avoid unnecessary laser emissions or interference with other laser tools outside the working area.

2.8 Leveling sensitivity

The user can set the tool's sensitivity (high or low vibration), i.e. the degree of vibration the leveling system shall allow when the tool is operating in the horizontal or inclined plane.

2.9 Setting the channel used for communication

The user can select the channel to be used for communication between the PRE 38 and the PRA 380 remote control unit. When several PRE 38 lasers are in use on a construction site, various communication channels can be selected in order to avoid interference between the tools. In this way, by selecting various communication channels, one remote control unit can also be used to control several PRE 38 lasers.

NOTE

After switching on, the settings made when the tool was previously used are again active. Check these settings and change them if necessary.

2.10 Items supplied

- 1 PRE 38 grade laser
- 1 PRA 38 laser receiver
- 1 PRA 80 laser receiver holder
- 1 PRA 380 remote control unit

- 1 PRE 38 and PRA 380 operating instructions
- 1 PRA 38 operating instructions
- 1 PRA 87 battery pack
- 1 PRA 88 battery charger
- 1 PRA 89 AC adapter
- 6 Batteries (size AA cells)
- 3 Manufacturer's certificates
- 1 Hilti toolbox

2.11 Operating status indicators

The tool is equipped with the following operating status indicators: Auto-leveling LED, charging LED.

2.12 PRE 38 grade laser LED indicators

LED (green) lights constantly	Inclination has been set. The rotary head rotates and the laser beam is switched on.
LED (green) blinks	Inclination setting is active. The rotary head does not rotate and the laser beam is switched off.

2.13 PRA 88 battery charging LED indicators

LED (red) lights constantly	PRA 87 battery pack is charging.
LED (green) lights constantly	PRA 87 battery pack is fully discharged.
LED (green) blinks	PRA 87 battery pack not inserted correctly.
LED (red) blinks	PRA 87 battery pack protection system is active and the laser is ready for operation.

2.14 Normal display

X	Inclination in the X-axis (digits blink when in inclined mode)
Y	Inclination in the Y-axis (digits blink when in inclined mode)

2.15 Menus

Virtual beam shields	The laser beam is emitted in the dark shaded areas. The laser beam is shut off in the light areas.
Speed of rotation	300 / 600 / 900 r.p.m.
Communication channel	Channels 1 to 9
Sensitivity setting	Low vibration / high vibration / manual
Shock warning	Active / inactive
Warning signal	Active / inactive

2.16 Display bar

Transmission status	Transmitting / finished / incomplete
Battery status	Charge status >75% / 35%-75% / 10-35% / <10%
Speed of rotation	300 / 600 / 900 r.p.m.
Communication channel	Channels 1 to 9
Leveling indicator	Blinks while leveling.

3 Accessories

Designation	Short designation
Various tripods	PUA 20, PA 921, PUA 30 and PA 931/2
Telescopic staffs	PA 950/960, PA 951/961, PA 962 and PUA 50
Height transfer device	PRA 81

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4 Technical data

Right of technical changes reserved.

PRE 38 grade laser

Receiving range (diameter)	with PRA 38 laser receiver: 2...800 m (6 to 2624 ft)
Accuracy	±0.5 mm per 10 m horizontal distance (0.2" in 32.8 ft, +75° F), temperature 24°C,
Laser class	Class 3R, visible, 685 nm, <2.5 mW (EN 60825-3:2007 / IEC 60825 - 3:2007); Class IIIa (CFR 21 § 1040 (FDA))
Speed of rotation	300, 600, 900 r.p.m. (selectable)
Self-leveling range	±5°
Power source	4.8 V / 9.0 Ah NiMH battery pack
Battery life	Temperature +20°C (+68°F): ≥ 80 h
Operating temperature range	-20...+50°C (-4°F to 122°F)
Storage temperature range (dry)	-30...+60°C (-22°F to 140°F)
Protection class	IP 66 (in accordance with IEC 60529) (not in "charging during operation" mode)
Tripod thread	5/8" x 11
Weight (including battery)	3.6 kg (7.9 lbs)
Dimensions (L x W x H)	174 mm x 218 mm x 253 mm (6.9" x 8.6" x 10.0")

PRA 87 NiMH battery pack

Rated voltage (normal mode)	4.8 V
Maximum voltage (during operation or during charging while in operation)	12.0 V
Rated current	9,000 mAh
Charging time	7 h at 24°C (74°F)
Operating temperature range	-20...+50°C (-4°F to 122°F)
Storage temperature range (dry)	-30...+60°C (-22°F to 140°F)
Charging temperature range (also for charging during operation)	+10...+40°C (50° to +104°F)
Weight (incl. battery holder)	0.89 kg (1.97 lbs)
Dimensions (L x W x H)	152 mm x 93 mm x 37 mm (5.9" x 3.7" x 1.4")

PRA 89 AC adapter

AC supply	100...240 V
AC frequency	50...60 Hz
Rated power	36 W
Rated voltage	12 V
Operating temperature range	+10...+40°C (50°F to +104°F)

Storage temperature range (dry)	-10... +60°C (14°F to 140°F)
Weight	0.19 kg (0.42 lbs)
Dimensions (L x W x H)	87 mm x 39 mm x 27 mm (3.4" x 1.5" x 1.1")

PRA 380 remote control unit

Operating range (radius)	Max. 150 m (492 ft)
Power source	2x1.5V (AAA) LR03 alkaline batteries
Battery life (alkaline)	Temperature +20 °C (68 °F): At least 3 months
Operating temperature range	-20... +50°C (-4°F to 122°F)
Storage temperature	-30... +60°C (-22°F to 140 °F)
Protection class	IP 56 in accordance with IEC 60529
Weight (including batteries)	0.25 kg (0.50 lbs)
Dimensions (L x W x H)	157 mm X 64 mm X 37 mm (6.8" X 2.5" X 1.4")

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

- Do not render safety devices ineffective and do not remove information and warning notices.**
- Keep laser tools out of reach of children.**
- Failure to follow the correct procedures when opening the tool may cause emission of laser radiation in excess of class 2 or, respectively, class 3. **Have the tool repaired only at a Hilti service center.**
- Take the influences of the surrounding area into account. Do not use the tool where there is a risk of fire or explosion.**
- (Statement in accordance with FCC §15.21): Changes or modifications not expressly approved by the manufacturer can void the user's authority to operate the equipment.

5.3 Proper organization of the work area

- Secure the area in which you are working and take care to avoid directing the beam towards other persons or towards yourself when setting up the tool.**
- Avoid unfavorable body positions when working from ladders. Make sure you work from a safe stance and stay in balance at all times.**
- Measurements taken through or from panes of glass or through other objects may be inaccurate.
- Ensure that the tool is set up on a steady, level surface (not subject to vibration).**
- Use the tool only within its specified limits.**
- When working in "charging during operation" mode, attach the AC adapter in a secure position, e.g. on a tripod.**

- Use the appliance and its accessories etc. in accordance with these instructions and in the manner intended for the particular type of appliance, taking into account the working conditions and the work to be performed.** Use of appliances for applications different from those intended could result in a hazardous situation.
- Use of the telescopic staff in the vicinity of overhead high voltage cables is not permissible.**

5.3.1 Electromagnetic compatibility

Although the tool complies with the strict requirements of the applicable directives, Hilti cannot entirely rule out the possibility of the tool being subject to interference caused by powerful electromagnetic radiation, leading to incorrect operation. Check the accuracy of the tool 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).

5.3.2 Laser classification for Laser Class III appliances

- Depending on the version purchased, the tool complies with Laser Class 3 in accordance with IEC825-1:2003 / EN60825-1:2003 and Class IIIa in accordance with CFR 21 § 1040 (FDA). Do not stare into the beam and do not direct the beam toward other persons.
- Tools of the Laser Class 3R and Class IIIa should be operated by trained personnel only.
- The area in which the tool is in use must be marked with laser warning signs.
- The plane of the laser beam should be well above or well below eye level.
- Precautions must be taken to ensure that the laser beam does not unintentionally strike highly reflective surfaces.

- f) Precautions must be taken to ensure that persons do not stare directly into the beam.
- g) The laser beam must not be allowed to project beyond the controlled area.
- h) When not in use, laser tools should be stored in a place to which unauthorized persons have no access.

5.4 General safety rules

- 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) **The user must check the accuracy of the tool after it has been dropped or subjected to other mechanical stresses.**
- c) **When the tool is brought into a warm environment from very cold conditions, or vice-versa, allow it to become acclimatized before use.**
- d) **If mounting on an adapter, check that the tool is screwed on securely.**
- e) **Keep the laser exit aperture clean to avoid measurement errors.**
- f) **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.**
- g) **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.**
- h) **Check the tool before using it for important measuring work.**
- i) **Check the accuracy of the measurements several times during use of the tool.**
- j) **Use the AC adapter only for connecting to the AC supply.**
- k) **Check to ensure that the tool and AC adapter do not present an obstacle that could lead to a risk of tripping and personal injury.**
- l) **Ensure that the workplace is well lit.**
- m) **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- n) **Check the condition of the extension cord and replace it if damage is found. Do not touch the AC adapter if the extension cord or AC adapter are damaged while working. Disconnect the supply**

cord plug from the power outlet. Damaged supply cords or extension cords present a risk of electric shock.

- o) **Do not expose the supply cord to heat, oil or sharp edges.**
- p) **Never operate the AC adapter when it is dirty or wet. Dust (especially dust from conductive materials) or dampness adhering to the surface of the AC adapter may, under unfavorable conditions, lead to electric shock. Dirty or dusty tools should thus be checked at a Hilti service center at regular intervals, especially if used frequently for working on conductive materials.**
- q) **Avoid touching the contacts.**

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5.4.1 Battery tool use and care

- a) **Check that the tool is switched off before fitting the battery.** Use only the Hilti batteries approved for use with this tool.
- b) **Do not expose batteries to high temperatures and keep them away from fire.** This presents a risk of explosion.
- c) **Do not disassemble, squash or incinerate batteries and do not subject them to temperatures over 75°C.** This presents a risk of fire, explosion or injury through contact with caustic substances.
- d) **Avoid ingress of moisture.** Moisture in the interior of the tool may cause a short circuit and chemical reactions resulting in burns to the skin or fire.
- e) **Use only batteries of the type approved for use with the applicable tool.** Use of other batteries or use of the batteries for purposes for which they are not intended presents a risk of fire and explosion.
- f) **Observe the special guidelines applicable to the transport, storage and use of Li-ion batteries.**
- g) **Avoid short circuiting the battery terminals.** Check that the battery terminals and the terminals in the device are free from foreign objects before inserting the battery in the device. Short circuiting the battery terminals presents a risk of fire, explosion and chemical burns.
- h) **Do not charge or continue to use damaged batteries (e.g. batteries with cracks, broken parts, bent or pushed-in and/or pulled-out contacts).**
- i) **Use only the PRA 89 AC adapter to power the tool or charge the battery pack.** Failure to observe these points may result in damage to the tool.

6 Before use

NOTE

The tool may be operated only with the Hilti PRA 87 battery pack, which has been manufactured in accordance with IEC 60285, or with 4 size D alkaline batteries. The PRA 88 battery holder must be used in accordance with the applicable instructions.

6.1 LED indicators

Please refer to section 2 "Description".

6.2 Battery use and care

Store the battery in a cool, dry place. Never store the battery where it is exposed to direct sunlight or sources of heat, e.g. on heaters / radiators or behind a motor vehicle windshield. Batteries that have reached the end of their life must be disposed of safely and correctly to avoid environmental pollution.

6.3 Charging the battery



DANGER

Use only the specified Hilti batteries and Hilti AC adapters listed under “Accessories”.

6.3.1 Charging a new battery for the first time

Charge the battery fully before using it for the first time.

NOTE

Make sure the system to be charged is standing securely.

6.3.2 Charging a previously used battery

Ensure that the outer surfaces of the battery are clean and dry before inserting it in the tool.

NiMH battery packs can be used at any time, even when only partly charged. During charging, progress is indicated by the LEDs on the tool.

6.4 Fitting the battery 5 6

DANGER

Use only the specified Hilti batteries and Hilti AC adapters listed under “Accessories”.

CAUTION

Before inserting the battery in the power tool, check to ensure that the battery terminals and the contacts in the power tool are free from foreign objects.

1. Push the battery into the tool.
2. Turn the catch in a clockwise direction to the second position (the “locked” symbol is displayed).

6.5 Removing the battery

1. Turn the catch in a counterclockwise direction from the second position back to the “open” position (the “unlocked” symbol is displayed).
2. Pull the battery out of the tool.

6.6 Options for charging the battery

DANGER

The PRA 89 AC adapter may be used indoors only. Avoid ingress of moisture.

6.6.1 Charging the battery in the tool 7

NOTE

When charging, take care to ensure that the temperature is within the recommended charging temperature range (10 to 40°C/ 50 to 104°F).

1. Remove the plastic cover so that the charging cord socket on the battery pack is visible.
2. Connect the charging cord from the AC adapter or car charging connector to the battery.
3. During charging, the charge status is indicated by the battery status LEDs on the tool (the tool must be switched on).

6.6.2 Charging the battery outside the tool 8

NOTE

When charging, take care to ensure that the temperature is within the recommended charging temperature range (10 to 40°C/ 50 to 104°F).

1. Remove the battery from the tool and connect it to the AC adapter or car charging connector.
2. The red LED on the battery lights while charging is in progress.

6.6.3 Charging the battery while the tool is in operation

CAUTION

Avoid ingress of moisture. Moisture in the interior of the tool may cause a short circuit and chemical reactions resulting in burns to the skin or fire.

1. Remove the plastic cover so that the charging cord socket on the battery pack is visible.
2. Connect the charging cord from the AC adapter to the battery.
3. The tool continues to operate while charging is in progress.
4. During charging, the charging status is indicated by the LEDs on the tool.

6.7 Using alkaline batteries 9 10

DANGER

Do not mix old and new batteries.

DANGER

Do not mix batteries of different types or from different manufacturers.

6.7.1 Inserting the size D batteries

1. Remove the PRA 87 battery pack from the battery holder, if present.
2. Insert 4 alkaline size D batteries in the battery holder.
3. Insert the battery holder in the tool and turn the catch to the “LOCK” position.

6.7.2 Replacing the size D batteries

1. Turn the catch on the battery holder to the “OPEN” position and remove the battery holder from the tool.
2. Remove the old batteries and insert new batteries. Take care to ensure correct polarity (+ to +) and (- to -).
3. Insert the battery holder in the tool and turn the catch to the “LOCK” position.

7 Operation

7.1 Switching the tool on

Press the on/off button.

NOTE

After switching on, the tool begins the automatic leveling procedure (the auto leveling indicator blinks). The laser head begins to rotate and the beam is emitted as soon as the automatic leveling procedure is complete (the auto leveling indicator lights constantly).

7.2 Operation

NOTE

When using the PRA 380 remote control unit, switch the tool on before switching the remote control unit on.

NOTE

The tool must be set up with its casing within $\pm 5^\circ$ of horizontal in order to ensure trouble-free self-levelling.

DANGER

Never attempt to align the tool with the aid of the sight while the tool is switched on.

1. Set up the tool at a suitable location for the job, e.g. on a tripod.
2. Set up the tool in the required attitude and inclination with the aid of the sight and then switch it on. It then adjusts itself in the X and Y-axes. The green LED blinks while the tool is adjusting itself. The laser beam switches on and begins to rotate as soon as the tool has adjusted itself correctly. The green LED lights constantly.
3. Switch the laser receiver on by pressing the on/off button.
4. Use the laser receiver to check the height of the laser beam - the beam has been located when a constant signal is heard and the horizontal mark is shown clearly in the display.

7.3 Working with the laser receiver

The PRA 38 laser receiver can be used at distances (radiuses) of up to 200 m (650 ft). The laser beam is indicated by visual and audible signals.

7.3.1 Using the laser receiver as a hand-held tool

1. Press the on/off button.
2. Hold the PRA 38 with the receiving window directly in the plane of the rotating laser beam. The laser beam is indicated visually and by an audible signal.

7.3.2 Working with the laser receiver in the PRA 80 receiver holder

1. Open the catch on the PRA 80.
2. Insert the PRA 38 laser receiver in the PRA 80 laser receiver holder.
3. Close the catch on the PRA 80.
4. Switch the laser receiver on by pressing the on/off button.

5. Unscrew the clamping knob slightly.
6. Secure the PRA 80 receiver holder on the telescopic staff by tightening the clamping knob.
7. Hold the PRA 38 with the receiving window directly in the plane of the rotating laser beam. The laser beam is indicated visually and by an audible signal.

7.3.3 Working with the PRA 81 height transfer device

1. Open the locking mechanism on the PRA 81.
2. Insert the PRA 38 laser receiver in the PRA 81 height transfer device.
3. Close the locking mechanism on the PRA 81.
4. Switch the laser receiver on by pressing the on/off button.
5. Hold the PRA 38 with the receiving window directly in the plane of the rotating laser beam. The laser beam is indicated visually and by an audible signal.
6. Use the measuring tape to measure the desired offset distance.

7.3.4 Menu options

Press the on/off button for two seconds when switching on.

The menu is then shown in the display.

Use the "units" button to switch between metric and imperial units.

Use the "volume" button to assign the higher-pitched signal to the upper or lower area of the receiving window. To save the settings, switch the PRA 38 off.

7.3.5 Setting the accuracy

The accuracy button can be used to adjust the PRA 38 to one of three different accuracy settings: Fine: ± 0.5 mm (± 0.02 "); Standard: ± 1.0 mm (± 0.04 "); Coarse: ± 1.5 mm (± 0.06 ").

7.3.6 Setting the volume of the audible signal

When the receiver is switched on, the volume is set to "normal". The volume can be adjusted from "normal" to "loud" by pressing the audible signal button. Press the button again to switch the signal off and press it once more to set the signal to "quiet".

7.4 Aligning the tool in the direction of inclination

If the laser is used with a preset angle of inclination, it must be set up correctly in order to ensure that the laser plane lies parallel to the desired plane of inclination.

NOTE

The collimator on the tool is calibrated to the axis of inclination of the laser beam. To set the laser to the desired direction of inclination, follow the instructions below:

1. Mark a line that lies parallel to the desired direction of inclination.
2. Set up the laser on this line. Use a plumb line to do this: Allow the plumb line to hang from the fastening screw on the tripod.
3. Adjust the tool to the approximate direction of inclination. Check that the tool is set up correctly for entering a positive or negative inclination.
4. Set up a pole or other target at the opposite end of the line.
5. Using the collimator as a sighting aid, set up the tool so that the collimator is lined up with the target.

7.5 Setting the angle of inclination

The tool can be used in horizontal or vertical reference planes by setting the desired inclination values for both the X and Y-axes.

7.5.1 Using the control panel

1. Press the on/off button.
The tool then begins automatic self-leveling.
2. Press the X/Y-button to activate inclination entry mode.
An arrow on the right indicates the active axis and +/- blinks.
Press the X/Y-button repeatedly to alternate between activation of the X-axis and Y-axis.
3. Press the “up” or “down” arrow buttons to alternate between positive (+) and negative (-) inclination.
4. Press the “right” or “left” arrow buttons to move the cursor to the appropriate position.
You can then change the value shown.
5. Press the “up” or “down” arrow buttons to increase or decrease the value.
6. Enter the other value in the same way.
7. Press the “OK” button to confirm the entry and complete the operation.

NOTE After entering the inclination value, it will take approx. 2 minutes until the tool has adjusted itself to this inclination and the laser beam starts rotating. Do not touch the tool during this time as this may affect the accuracy of the setting.

NOTE Press and hold the X/Y-button to reset inclination of the active axis to 0.000%.

7.5.2 Using the remote control unit

1. Follow the steps 1-7 described in section 7.5.1 “Using the control panel”.
2. Press the OK button to complete the transmission. If the “NG” symbol appears (transmission incomplete), press the “OK” button again until the “OK” symbol (transmission complete) is shown.

NOTE After entering the inclination value, it will take approx. 2 minutes until the tool has adjusted itself to this inclination and the laser beam starts rotating. Do not touch the tool during this time as this may affect the accuracy of the setting.

NOTE Press and hold the X/Y-button to reset inclination of the active axis to 0.000%.

7.6 Activating / deactivating the virtual beam shields

The laser beam can be switched off at one or more sides of the PRE 38. This function is useful when more than one laser tool is in use on a construction site and you wish to avoid detecting the beam from more than one laser at a time. The laser plane is divided into four quadrants. These are shown in the beam shield display and the appropriate direction can be selected as follows:

7.6.1 Using the control panel

1. Use the “Menu” button to activate the display.
2. Use the arrow buttons to navigate to the beam shield symbol (at top-left in the display) and press the “OK” button to confirm your selection.
3. Use the arrow buttons to select the sector in which the beam shield is to be activated. Press the same arrow button to move from one sector to another. The beam shield is not active in the dark shaded sectors indicated by the symbol.
4. Complete your selection by pressing the “OK” button.

7.6.2 Using the remote control unit

1. Follow the steps 1-4 described in section 7.6.1 “Using the control panel”.
2. Press the OK button to complete the transmission. If the “NG” symbol appears (transmission incomplete), press the “OK” button again until the “OK” symbol (transmission complete) is shown.

NOTE By following steps 2 and 3, with the aid of the X/Y-buttons, all sectors can be shifted by 45°.

7.7 Setting the speed of rotation

The speed of rotation can be changed by pressing the arrow buttons and the “OK” button.

7.7.1 Using the control panel

1. Press the “Menu” button to activate the menu.
2. Use the arrow buttons to navigate to the RPM symbol and confirm this selection by pressing the “OK” button.
3. Select the corresponding speed of rotation by pressing the arrow buttons.
4. Press the “OK” button to confirm the speed of rotation you have set.

7.7.2 Using the remote control unit

1. Follow the steps 1-4 described in section 7.7.1 “Using the control panel”.
2. Press the OK button to complete the transmission. If the “NG” symbol appears (transmission incomplete), press the “OK” button again until the “OK” symbol (transmission complete) is shown.

7.8 Setting the communication channel

The same remote control unit can be used to control several PRE 38 lasers. There are 9 channels available for

remote control of these tools. Prepare a remote control unit for operation with a tool by setting the remote control unit and the laser tool to the same communication channel.

7.8.1 Using the control panel

1. Press the "Menu" button to activate the menu.
2. Use the arrow buttons to navigate to the CH symbol and confirm this selection by pressing the "OK" button.
3. Select the applicable communication channel by pressing the arrow buttons.
4. Confirm the selected communication channel by pressing the "OK" button.

7.8.2 Using the remote control unit

1. Follow the steps 1-4 described in section 7.8.1 "Using the control panel".
2. Press the OK button to complete the transmission. If the "NG" symbol appears (transmission incomplete), press the "OK" button again until the "OK" symbol (transmission complete) is shown.

NOTE Only the channel used by the remote control can be changed on the remote control unit.

The channel used by the PRE 38 can be set on the remote control unit with the aid of a search function. The search function, which is activated by way of the CH symbol, searches for the channel used by the PRE 38 in active or standby mode. An eye symbol is shown instead of the channel number at the applicable position in the display. All channels found are shown at the end of the search process. The applicable channel can be selected using the arrow buttons and then confirmed by pressing the "OK" button.

7.9 Setting the sensitivity for the automatic leveling process

Various sensitivity settings (low vibration, high vibration, manual mode) allow the user to adjust the tool to the level of vibration constantly present in the environment in which the tool is operated. Where a high level of vibration is present, the "high vibration" setting should be used in order to avoid the need for constant automatic re-leveling and the pauses in rotation that this causes.

7.9.1 Using the control panel

1. Press the "Menu" button to activate the menu.
2. Use the arrow buttons to navigate to the flag symbol and confirm this selection by pressing the "OK" button.

3. Select the corresponding sensitivity range by pressing the arrow buttons (low vibration, high vibration, manual mode).
4. Press the "OK" button to confirm the sensitivity you have set.

7.9.2 Using the remote control unit

1. Follow the steps 1-4 described in section 7.9.1 "Using the control panel".
2. Press the OK button to complete the transmission. If the "NG" symbol appears (transmission incomplete), press the "OK" button again until the "OK" symbol (transmission complete) is shown.

NOTE When the tool is operated in manual mode, the automatic leveling function is switched off (the inclination setting is no longer monitored and thus cannot be guaranteed. The X/Y-button is deactivated).

7.10 Shock sensitivity and warning signal during rotary operation

After switching on, the tool is set automatically to level itself and to use the highest accuracy setting. In this case, the tool is sensitive to shock and will react accordingly, i.e. in the event of the tool being moved or bumped accidentally while in operation, the laser beam will rotate slowly as a warning to the user (if the warning signal is activated). If the warning signal has been deactivated, the laser stops rotating and the shock sensitivity LED blinks. In this case, switch the tool off and then on again. The tool then re-levels itself and the beam begins to rotate.

7.10.1 Deactivating the shock warning

When the shock warning is deactivated, the laser will not stop rotating when the tool has been moved or accidentally disturbed.

7.10.1.1 Using the control panel

1. Press the "Menu" button to activate the menu.
2. Use the arrow buttons to select the shock sensitivity symbol and confirm this selection by pressing the "OK" button.
3. Use the arrow buttons to select the appropriate setting (activate / deactivate shock warning).
4. Confirm your selection by pressing the "OK" button.

7.10.1.2 Using the remote control unit

1. Follow the steps 1-4 described in section 7.10.1.1 "Using the control panel".
2. Press the OK button to complete the transmission. If the "NG" symbol appears (transmission incomplete), press the "OK" button again until the "OK" symbol (transmission complete) is shown.

8 Care and maintenance

8.1 Cleaning and drying

1. Blow dust off the laser exit window.
2. Do not touch the laser exit windows and filter 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 (-25°C to +60°C).

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 is completely dry.

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

8.3 Transport

Use the Hilti toolbox or packaging of equivalent quality for transporting or shipping your equipment.

CAUTION

Always remove the battery from the tool before shipping.

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.

The tool will be readjusted if deviations from the manufacturer's specification are found. After checking and adjustment, a calibration sticker applied to the tool and a calibration certificate provide written verification that the tool operates 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.

8.5 Checking accuracy

In order to ensure compliance with the technical specifications, the tool should be checked regularly (at least before each major / relevant job).

8.6 Horizontal error

8.6.1 Checking horizontal error 19

1. Set up the PRE 38 grade laser on a tripod approx. 50 m (164 ft) from a wall.
2. Use a spirit level to ensure that the tripod head is horizontal.
3. Align the laser so that one side is facing the wall and then secure the laser tool on the tripod.
4. Switch the tool on and, at the same time, keep the X/Y button pressed. The axis that blinks, X or Y, is the one that is to be checked.

NOTE The axis to be checked can be changed by pressing the arrow buttons. Confirm your selection by pressing the "ENT" button.

The display shows "POSITION 1" (blinking) and, at the same time, the tool levels itself. After completion of automatic leveling, the laser beam switches on and the head begins to rotate.

5. Use the laser receiver (set to maximum accuracy) to find the position of the laser beam and mark this height on the wall.
6. Press the "ENT" button.

The display shows "POSITION 2" (blinking).

7. Release the securing screw on the tripod, rotate the tool through 180° and then retighten the securing screw. Then wait a few moments until the tool has leveled itself again.

After this, two arrow buttons are shown, the laser beam switches on and the head begins to rotate.

8. Use the laser receiver (set to maximum accuracy) to find the position of the laser beam and mark its height on the wall.

If the difference in height between the two marks is less than 5 mm, no adjustment is necessary. The tool can be switched off and used as normal.

If adjustment is found to be necessary, please proceed as described in section 8.5.2 "Adjusting for horizontal error".

8.6.2 Adjusting for horizontal error 20

NOTE

Before adjusting, check whether adjustment is necessary. Please refer to section 8.6.1.

1. Adjust the laser beam so that it lies between the two marks. Use the "up" and "down" arrow buttons to do this.
2. Confirm this middle position by pressing the "ENT" button.

The word "CALCULATING" then blinks in the display, indicating that the tool is calibrating itself.

Do not touch the tool while this is taking place. Wait until "END" is shown in the display.

3. Press the “ENT” button when “END” is shown in the display.
The display then shows the axes available for selection.
4. If you wish to check the other axis, continue by following the instructions in section 8.6.1, “Checking horizontal error”.
5. Switch the tool off after completing the adjustment procedure.
6. Repeat the check in order to ensure that all settings are correct.

NOTE The display shows “CALCULATION OVER ERR” if the value to be corrected is outside the range.

8.7 Convergence error

8.7.1 Checking convergence error 21

NOTE

Carry out this check only after adjustment for horizontal error has already been made.

1. Set up the PRE 38 grade laser on a tripod between two walls which are approx. 50 m (164 ft) apart.
2. Use a spirit level to ensure that the tripod head is horizontal.
3. Mount the tool on the tripod so that the X or Y-axis is directed towards the wall.
4. Use the laser receiver (set to maximum accuracy) to find the position of the laser beam and mark its height on both walls.
5. Switch the tool off and move it closer to the wall (1-2 m / 3-6 ft from the wall). Make sure that the tool remains facing the same direction.
6. Switch the tool on again.
7. Use the laser receiver (set to maximum accuracy) to again find the position of the laser beam and mark its height on both walls.
8. Use the measuring tape to measure the vertical distance between the two marks on each wall.
If the difference between the two distances measured is less than ±5 mm (±7/32 in), the error is within specification. No adjustment is necessary.
If the difference between the two distances measured is greater than ±5 mm (±7/32 in), the error is not within specification. Adjustment is necessary. Please contact your nearest Hilti Center.

8.8 Inclination error

NOTE

Due to the accuracy required, use a millimeter scale.

NOTE

Carry out this operation only when horizontal error has been checked or adjusted and convergence error is within specification.

8.8.1 Checking inclination error 22

NOTE

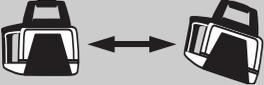
A measuring staff with a millimeter scale must be used due to the accuracy required for this test.

1. Hammer two nails into the floor, exactly 30 m (98 ft) apart. Mark the nails with the designations “nail 1” and “nail 2”.
2. Set up the tool on a tripod at a distance of 1 to 2 meters from nail 1, in alignment with nails 1 and 2. Position the tool so that the X-axis is exactly in alignment with nails 1 and 2.
3. Switch the tool on. Check that inclination is set to 0.000 %. Switch on the PRA 38 laser receiver and set it to maximum accuracy mode. Use the measuring staff to read the height of the laser beam (in millimeters) at nails 1 and 2, then write down the height for nail 1 as “h1” and the height for nail 2 as “h2”.
4. Set the inclination of the X-axis to 1.000 %. Read the height of the laser beam (in millimeters) again at nails 1 and 2, then write down these heights as “h3” (for nail 1) and “h4” (for nail 2).
5. Incorporate the height measurements h1, h2, h3 and h4 in the formula below. The distance between nail 1 and nail 2 (30 m / 98 ft) is converted to a value of 30,000 millimeters (1181 in) in the formula.

$$X(\%) = \frac{(h2 - h4) - (h1 - h3) \times 100}{30000 \text{ (mm)}}$$

6. Position the tool so that the Y-axis lies directly on the line joining nails 1 and 2, then repeat steps 1 to 5 described in section 8.8.1.
If the result of the calculation is within 0.990% - 1.010% for both axes, then accuracy is within specification.
If the result of the calculation is not within 0.990% - 1.010% for both axes, please contact your nearest Hilti Center.

9 Troubleshooting

Fault	Possible cause	Remedy
PRE 38 battery low 	The batteries in the grade laser are exhausted.	Remove the exhausted batteries and insert new ones.
PRA 380 battery low 	The batteries in the remote control unit are exhausted.	Remove the exhausted batteries and insert new ones.
The tool has been bumped. 	The tool has been subjected to vibration or an impact.	Activate the automatic self-levelling function by switching the tool off and then on again.
The tool has been set up off-level. 	The tool has been set up off level, i.e. outside its self-leveling range.	Reposition the tool so that it is realigned in accordance with the symbol shown.
Calibration Over ERR	The result of the tool check is not within specification.	Restart the tool by switching it off and then on again.
E-05	The rotary head does not rotate.	Switch the tool off and then on again.
E-51	Internal memory error in the remote control unit.	Switch the remote control unit off and then on again.
E-60s	Encoder system error	Switch the tool off and then on again.
E-80s	Leveling is not yet complete.	Switch the tool off and then on again.
E-99	Internal memory error	Switch the tool off and then on again.
LCD display light blinks	The display remains blank	Switch the tool off and then on again.

10 Disposal

WARNING

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

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 and batteries 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.

11 Manufacturer's warranty

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

en

12 FCC statement (applicable in US) / IC statement (applicable in Canada)

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 may radiate radio frequency energy. Accordingly, if not installed and used in accordance with the instructions, it 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.

13 EC declaration of conformity (original)

Designation:	Grade laser
Type:	PRE 38
Generation:	01
Year of design:	2010

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, 2006/42/EC, 2006/66/EC, EN ISO 12100, 1999/5/EC, EN 301 489-1 V1.8.1, EN 301 489-3 V1.4.1, EN 300 440-1 V1.5.1, EN 300 440-2 V1.3.1.

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