

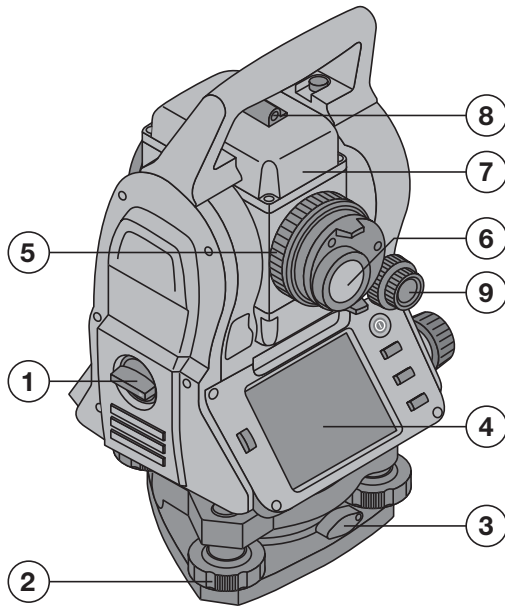
HILTI

POS 15/18

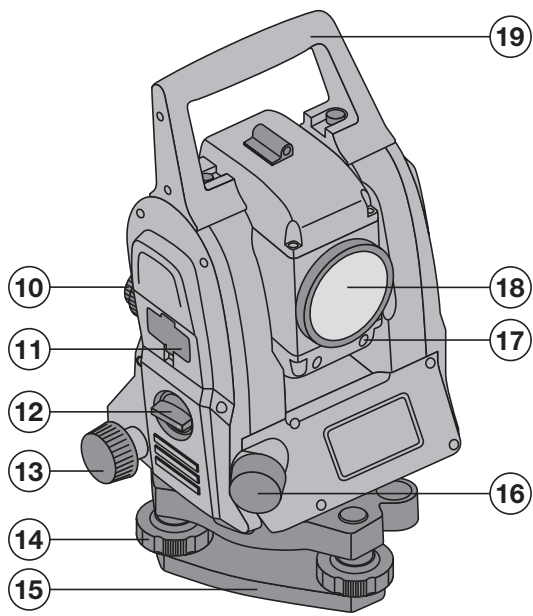
Kurzanleitung	de
Quick-start guide	en
Guía rápida	es
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Guida rapida	it
Korte handleiding	nl
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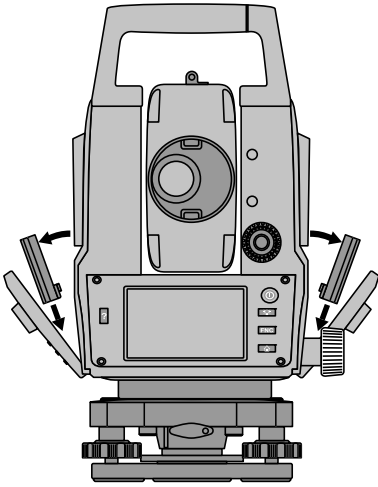


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ORIGINAL OPERATING INSTRUCTIONS

POS 15/18 total station

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.

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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 POS 15 or POS 18.

Rear casing section 1

- 1 Left battery compartment with cover retaining screw
- 2 Tribrach footscrew
- 3 Tribrach lock
- 4 Touch screen control panel
- 5 Focussing knob
- 6 Eyepiece
- 7 Telescope with laser distancer
- 8 Alignment sight (sighting aid)
- 9 Vertical drive

Front casing section 2

- 10 Vertical drive
- 11 USB interface connectors (small and large)
- 12 Right battery compartment with cover retaining screw
- 13 Horizontal drive
- 14 Tribrach footscrew
- 15 Tribrach
- 16 Laser plummet
- 17 Guide light
- 18 Objective lens
- 19 Carrying handle

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



Returning materials for recycling



Do not look into the beam.



Do not turn the screw

Symbol for Laser Class II / Class 2



Laser class II
according to
CFR 21, § 1040
(FDA)

Laser Class
2 in
accordance
with IEC/EN
60825-1:2007

Symbol for Laser Class III / Class 3



Laser class II
according to
CFR 21, § 1040 (FDA)

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

Laser exit aperture



Laser exit aperture

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 tool is designed for measuring distances and directions, calculating target positions in 3 dimensions and the values derived from these positions and for laying out points using given coordinates or values relative to a control line.

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 Description of the tool

The POS 15/18 total station can be used to determine the exact position of objects or points. The tool is equipped with horizontal and vertical circles with digital graduation, two electronic levels (compensators), a coaxial laser distance incorporated in the telescope and an electronic processor system for calculating and saving data. Hilti PROFIS Layout, a PC application from Hilti, can be used to transfer data in both directions between the total station and a PC, for data processing and for exporting data to other systems.

3 Technical data

Right of technical changes reserved.

NOTE

The only difference between the two tools is their angle measurement accuracy.

Telescope

Telescope magnification	30x
Shortest target distance	1.5 m (4.9 ft)
Telescope angle of view	1° 20': 2.3 m / 100 m (7.0 ft / 300 ft)
Objective lens aperture	45 mm (1.8")

Compensator

Type	Dual-axis, liquid
Working range	±3'
Accuracy	2"

Angle measurement

POS 15 accuracy (DIN 18723)	5"
POS 18 accuracy (DIN 18723)	3"
Angle reading system	Diametral

Distance measurement

Range	340 m (1000 ft) Kodak 90% gray
Accuracy	±3 mm + 2 ppm (0.01 ft + 2 ppm)
Laser class	Class 3R, visible, 630-680 nm, Po < 4.75 mW, f = 320-400 MHz (EN 60825-1/ IEC 60825-1); Class III (CFR 21 § 1040 (FDA))

Guide light

Aperture angle	1.4°
Typical range	70 m (230 ft)

Laser plummet

Accuracy	1.5 mm at 1.5 m (1/16 at 3 ft)
Laser class	Class 2, visible, 635 nm, Po < 1 mW (EN 60825-1/ IEC 60825-1); Class II (CFR 21 §1040 (FDA))

Data memory

Memory size (data blocks)	10,000
Data transfer interfaces	Host and client, 2 x USB

Display

Type	Color display (touch screen), 320 x 240 pixels
Illumination	5 levels
Contrast	Day / night mode selectable

IP protection class

Class	IP 56
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Horizontal drive

Type	Continuous
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Tripod thread

Tribrach thread	5/8"
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POA 80 battery

Type	Li-ion
Rated voltage	3.8 V
Battery capacity	5,200 mAh
Charging time	4 h

Battery life (with distance / angle measurement every 30 seconds)	16 h
Weight	0.1 kg (0.2 lbs)
Dimensions	67 mm x 39 mm x 25 mm (2.6" x 1.5" x 1.0")

POA 81 AC adapter and POA 82 charger

AC supply	100...240 V
AC frequency	47...63 Hz
Rated current input	4 A
Rated voltage	5 V
Weight (POA 81 AC adapter)	0.25 kg (0.6 lbs)
Weight (POA 82 charger)	0.06 kg (0.1 lbs)
Dimensions (POA 81 AC adapter)	108 mm x 65 mm x 40 mm (4.3" x 2.6" x 0.1")
Dimensions (POA 82 charger)	100 mm x 57 mm x 37 mm (4.0" x 2.2" x 1.5")

Temperature

Operating temperature range	-20...+50°C (-4°F to +122°F)
Storage temperature range	-30...+70°C (-22°F to +158°F)

Dimensions and weights

Dimensions	149 mm x 145 mm x 306 mm (5.9" x 5.7" x 12")
Weight	4.0 kg (8.8 lbs)

4 Safety instructions

4.1 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.

4.2 Misuse

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

- a) **Never use the tool without having received the appropriate instruction on its use or without having read these operating instructions.**
- b) **Never point the tool or its accessories toward yourself or other persons.**
- c) The connecting cable between the PC and the POS 15/18 must be clearly visible and positioned so that it presents no hazard.
- d) **Do not render safety devices ineffective and do not remove information and warning notices.**
- e) When switching distance measurement from prism measurement to reflectorless measurement, make sure that you do not look at the objective lens of the tool.
- f) Have the tool repaired only at a Hilti Service Center. **Failure to follow the correct procedures when opening the tool may cause emission of laser radiation in excess of class 3R.**
- g) Modification of the power tool or tampering with its parts is not permissible.
- h) The grip is designed to have a certain amount of play at one side. This is not a fault. It serves to protect the alidade. Tightening the screws on the grip may cause damage to the thread, making costly repairs necessary. **Do not tighten any screws on the grip!**
- i) To avoid the risk of injury, use only genuine Hilti accessories and additional equipment.
- j) Use only clean, soft cloths for cleaning. If necessary, they may be moistened with a little alcohol.
- k) Keep laser tools out of reach of children.
- l) Measurements to plastic foam surfaces, e.g. polystyrene foam, to snow or to highly reflective surfaces, may result in incorrect readings.
- m) Measurements taken to surfaces with low reflectivity in highly reflective surroundings may be inaccurate.
- n) Measurements taken through panes of glass or other objects may be inaccurate.
- o) The measurement may be incorrect if the conditions under which the measurement is taken change rapidly, e.g. due to people walking through the path of the laser beam.
- p) Do not point the tool toward the sun or other powerful light sources.

- q) Do not use the tool as a level.
- r) Check the tool before taking important measurements or after it has been dropped or subjected to mechanical effects such as impact or vibration.

4.3 Proper organization of the work area

- a) Secure the area in which you are working and take care to avoid directing the beam toward other persons or toward yourself when setting up the tool.
- b) Use the tool only within the defined application limits, i.e. do not take readings from mirrors, stainless steel or polished stone, etc.
- c) Observe the accident prevention regulations applicable in your country.

4.4 Electrical safety

- a) **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.
- b) Do not touch the supply cord or extension cord if damaged while working. Disconnect the supply cord plug from the power outlet. Damaged supply cords or extension cords present a risk of electric shock.

4.5 Electromagnetic compatibility

Although the tool complies with the strict requirements of the applicable directives, Hilti cannot entirely rule out the possibility of the tool

- causing interference to other tools (e.g. aircraft navigation equipment) or 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.

4.5.1 Laser classification for Laser Class 2 products

The laser plummet of the tool complies with Laser Class 2 based on the IEC/EN 60825-1:2007 standard and Class II based on CFR 21 § 1040 (Laser Notice 50). In the event of direct eye contact with the laser beam, close your eyes and move your head out of the path of the beam. Do not look directly into the light source. Do not direct the laser beam toward persons.

4.5.2 Laser classification for Laser Class 3R products

- a) This tool complies with Laser Class 3R in accordance with IEC60825-1 / EN60825-1:2007 and Class IIIa in accordance with CFR 21 § 1040 (Laser Notice 50). In the event of direct eye contact with the laser beam, close your eyes and move your head out of the path of the beam. Do not look directly into the light source. Do not direct the laser beam toward persons.

- b) Tools of the laser class 3R and class IIIa should be operated by trained personnel only.
- c) The area in which the tool is in use must be marked with laser warning signs.
- d) Precautions must be taken to ensure that the laser beam does not unintentionally strike highly reflective surfaces.
- e) Precautions must be taken to ensure that persons do not stare directly into the beam.
- f) The laser beam must not be allowed to project beyond the controlled area.
- g) When not in use, laser tools should be stored in an area to which unauthorized persons have no access.

4.6 Careful use of battery-powered tools

- a) **Do not expose batteries to high temperatures and keep them away from fire.** This presents a risk of explosion.
- b) Under abusive conditions, liquid may leak from the battery. **Avoid contact. If contact accidentally occurs, flush with water. In the event of the liquid coming into contact with the eyes, rinse the eyes with plenty of water and consult a doctor.** Liquid ejected from the battery may cause irritation or burns.
- 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) **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).**
- e) **Paper clips, coins, keys, nails, screws and other small metal objects that could short-circuit the electrical contacts must be kept away from batteries that are not in use and away from battery chargers.** Short-circuiting the contacts on a battery or charger may cause burning injuries or start a fire.
- f) **Use only the battery chargers recommended by the manufacturer to charge the batteries.** Use of a charger with batteries other than the specific type(s) for which it is designed presents a risk of fire.
- g) **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.

4.7 General safety rules

- a) **Before taking measurements, the user must make sure that the instruments and equipment used meet the requirements of the task.**
- b) **Do not operate the tool in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** tools and appliances create sparks which may ignite the dust or fumes.
- c) **Stay alert, watch what you are doing and use common sense when operating the machine. Don't use the machine when you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating machines may result in serious personal injury.

- d) **When a tripod or wall mount is used, check that the tool is correctly and permanently mounted and that the tripod is standing securely on solid ground.**
- e) **Maintain the machine carefully. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the machine's operation. If damaged, have the machine repaired before use.** Poor maintenance is the cause of many accidents.
- f) **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.**
- g) **Check the tool for damage before use.** If the tool is found to be damaged, have it repaired at a Hilti service center.
- h) **Operating and storage temperatures must be observed.**
- i) **Check the accuracy of the tool after it has been dropped or subjected to other mechanical stresses.**
- j) **When the tool is brought into a warm environment from very cold conditions, or vice-versa, allow it to become acclimatized before use.**
- k) **Keep the laser exit aperture clean to avoid measurement errors.**
- l) **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.**
- m) **As a precaution, check the previous settings or any adjustments you may have made.**
- n) **View the tool at an angle when setting it up with the aid of the circular bubble level.**
- o) **Secure the battery compartment cover carefully in order to ensure that the battery cannot fall out and that no contact can occur which would result in the tool being switched off inadvertently possibly resulting in loss of data.**

4.8 Transport

Observe the special guidelines applicable to the transport, storage and use of Li-ion batteries.

The batteries must be insulated or removed from the tool before the tool is shipped or sent by mail. Leaking batteries may damage the tool.

To avoid pollution of the environment, the tool and the batteries must be disposed of in accordance with the currently applicable national regulations.

Consult the manufacturer if you are unsure of how to proceed.

5 First steps

5.1 Batteries

The tool is equipped with two batteries which can supply power one after the other.

The current state of battery charge (both batteries) is always shown.

When changing batteries, one battery can remain in the tool and continue to provide power while the other battery is being charged.

When changing batteries while the tool is in operation and to prevent the tool switching itself off, it is recommended that the batteries are changed one after the other.

5.2 Charging the battery

After unpacking the tool, remove the AC adapter, charger and battery from their holders.

Charge the battery for approx. 4 hours.

5.3 Inserting and changing the battery

Insert the charged battery into the tool with the battery connector underneath and facing the tool.

Secure the battery compartment cover carefully.

5.4 Checking functions

NOTE

Please note that this tool makes use of friction clutches for pivoting about the alidade and thus does not have to be locked at the horizontal drives.

The horizontal and vertical drives are of the continuous type, similar to those of an optical level.

Check the functions of the tool before initial use and at regular intervals in accordance with the following criteria:

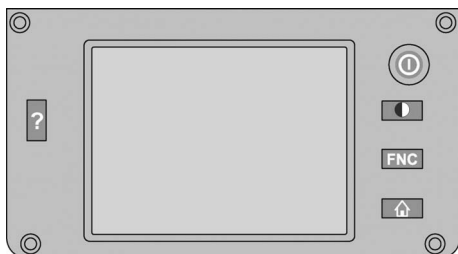
1. Pivot the tool carefully by hand to the left and right and tilt the telescope up and down to check operation of the friction clutches.
2. Turn the horizontal and vertical drives carefully in both directions.
3. Turn the focussing ring fully to the left. Look through the telescope and turn the eyepiece ring to bring the cross hairs into focus.
4. With a little practice you can check the two optical sights on the telescope to ensure that they are in alignment with the object targeted by the cross hairs.
5. Check to ensure that the cover for the USB interfaces is closed securely before further use of the tool.
6. Check that the screws on the carrying handle are tight.

5.5 Control panel

The control panel consists of a total of 5 buttons with symbols plus a touch screen for interactive operation.

5.5.1 Function buttons

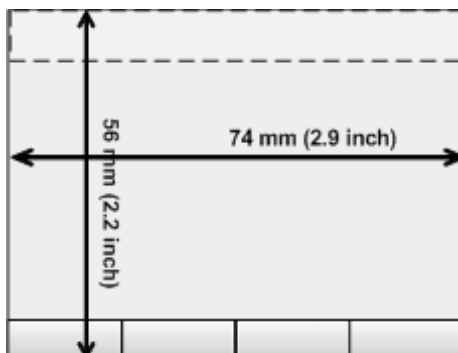
The function buttons are used for general operation of the tool.



	Switch the tool on or off.
	Switch the display backlight on or off.
	Select the FNC menu for additional settings.
	Cancel or end all active functions and return to the start menu.
	Show the help text for the current screen.

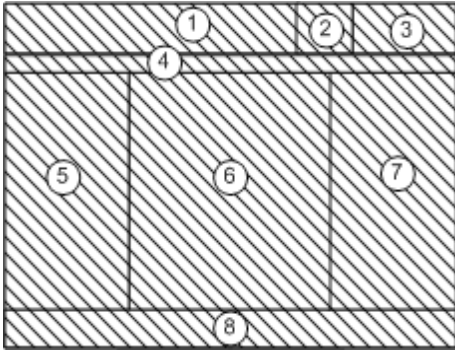
5.5.2 Size of the touch screen

The touch screen is approx. 74 x 56 mm (2.9 x 2.2 in) in size and has a resolution of 320 x 240 pixels.



5.5.3 Division of the touch screen

The touch screen is divided into areas for operation of the tool and for displaying information to the user.



- ① Instructions and info for the user

- ② Battery and laser pointer status indicator

- ③ Time and date indicator and entry line

- ④ Menu hierarchy

- ⑤ Data field designations in ⑥

- ⑥ Data fields


- ⑦ Drawings to assist measuring operations


- ⑧ Bar containing up to 5 touch screen buttons


5.5.4 Touch screen – numerical keyboard


When numerical data is required to be entered, the appropriate keyboard appears in the display automatically. The keyboard layout is as shown in the illustration below.




-  Cancel and return to previous screen.

-  Confirm and apply the entry.

-  Move the cursor to the left.

-  Move the cursor to the right.

-  Delete the character to the left of the cursor position. If there is no character to the left, the character at the cursor position will be deleted.

5.5.5 Touch screen – alphanumerical keyboard

When alphanumerical data is required to be entered, the appropriate keyboard appears in the display automatically. The keyboard layout is as shown in the illustration below.



	Cancel and return to previous screen.
	Switch to lower case letters.
	Switch to numerical keys.
	Confirm and apply the entry.
	Move the cursor to the left.
	Move the cursor to the right.
	Delete the character to the left of the cursor position. If there is no character to the left, the character at the cursor position will be deleted.

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5.5.6 Touch screen – general operating controls

	Application button - used to start an application or function.
	Button for direct entry of numerical data, including symbols and decimal points.
	Button for direct entry of alphanumeric characters, including upper and lower cases.
	Select from a list. These lists may contain numerical or alphanumeric values and settings.
	A drop-down menu. In most cases, these menus provide a maximum of three options for the selection of settings.
	Example of a button in the bottom line of the display.

5.5.7 Laser pointer status indicator

The tool is equipped with a laser pointer.

	Laser pointer ON
	Laser pointer OFF

5.5.8 Battery condition indicators

The tool uses 2 lithium-ion batteries which can supply power at the same time or one after the other, depending on requirements.

The tool switches from one battery to the other automatically.

One of the batteries can thus be removed at any time, e.g. for charging, while continuing to use the tool with the other battery - so long as its capacity allows.

NOTE

The state of battery charge is indicated by the extent to which the battery symbol is “filled”.

5.6 Further information and operating instructions

Further information and operating instructions can be found online at:



POS 15 (<http://qr.hilti.com/td/r4847>)



POS 18 (<http://qr.hilti.com/td/r4849>)

5.7 Switching on / off

5.7.1 Switching on

Press and hold the on/off button for approx. 2 seconds.

NOTE

If the tool is starting from a fully switched-off state, the complete start-up procedure takes approx. 20 – 30 seconds, during which two different screens are displayed consecutively.

If the tool cannot be switched on, check that the batteries have been inserted correctly.

If the batteries have been inserted correctly and the tool still cannot be switched on, have it checked by Hilti Service.

5.7.2 Switching off

Press the on / off button.

NOTE

Please note that when switching off or restarting, the user is asked to confirm this action, just to be sure.

You have three alternatives: 1. You may switch off the tool completely. 2. You may restart the tool. Unsaved data will then be lost. 3. You may end the Hilti application; the tool remains switched on.

6 Adjustment

6.1 Hilti Repair Service

The Hilti Repair Service checks the tool and, if deviations from the specified accuracy are found, recalibrates it and checks it again to ensure conformity with specifications. The service certificate provides written confirmation of conformity with specifications at the time of the test.

Recommendation

- Have the tool checked at suitable intervals, depending on how heavily it is used.
- Have it checked by the Hilti Repair Service at least once a year.
- After exceptionally heavy use or rough treatment, have the tool checked by the Hilti Repair Service.
- The tool should be checked by the Hilti Repair Service before being used for particularly important work.

Having the tool checked by the Hilti Repair Service does not relieve the user of his/her obligation to check the tool before and during use.

7 Care and maintenance

NOTE

Have damaged parts replaced by Hilti Service.

7.1 Cleaning and drying

Blow any dust off the glass.

CAUTION

Do not touch the glass surfaces with your fingers.

Use only a soft, clean cloth to clean the tool. If necessary, the cloth may be moistened with a little pure alcohol or water.

CAUTION

Do not use liquids other than alcohol or water. Other liquids may damage plastic parts.

NOTE

Have damaged parts replaced by Hilti Service.

7.2 Storage

NOTE

Do not put the tool into storage when wet. Allow it to dry before putting it away.

NOTE

Always clean the tool, its transport container and accessories before putting them into storage.

NOTE

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

CAUTION

Remove the batteries if the tool is to remain unused for a long period of time. Leaking batteries may damage the tool.

NOTE

Observe the specified temperature limits when storing your equipment, above all in winter and summer, especially if the equipment is stored in a motor vehicle (-30°C to +70°C (-22°F to +158°F)).

7.3 Transport

CAUTION

The batteries must be insulated or removed from the tool before the tool is shipped or sent by mail. Leaking batteries may damage the tool.

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

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8 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.

9 Manufacturer's warranty

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

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10 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.

11 EC declaration of conformity (original)

Designation:	Total station
Type:	POS 15/18
Generation:	01
Year of design:	2010

We declare, on our sole responsibility, that this product complies with the following directives and standards: 2004/108/EC, 2006/66/EC, 2011/65/EU, EN ISO 12100.

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