

PROTON

SOLA [®]
PASSION FOR PRECISION

Gebrauchsanweisung

DE

Operating instructions

EN

Mode d'emploi

FR

Istruzioni d'uso

IT

Instrucciones de uso

ES

Gebruiksaanwijzing

NL

Руководство по применению

RU

Instrukcja obsługi

PL

Eksplatacijos instrukcija

LT

Lietošanas instrukcija

LV

Használati útmutató

HU



1.1 PROTON HB



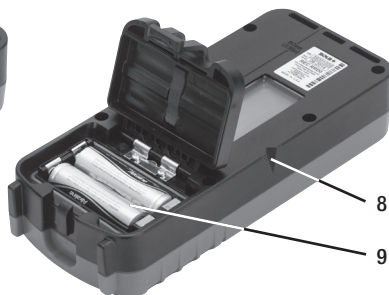
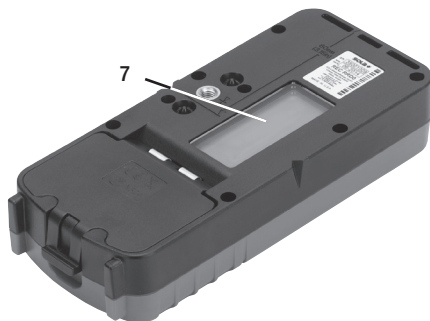
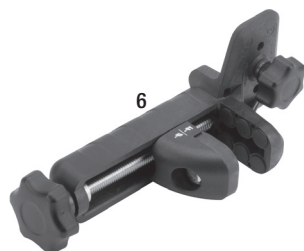
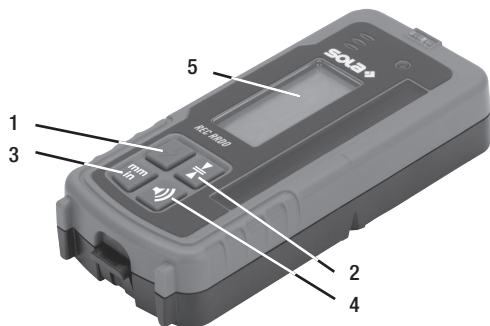
1.2 PROTON SB



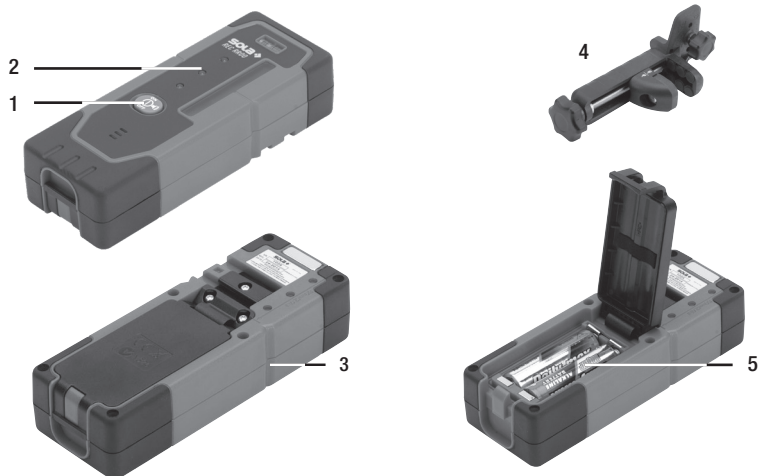
2.1.1 PROTON



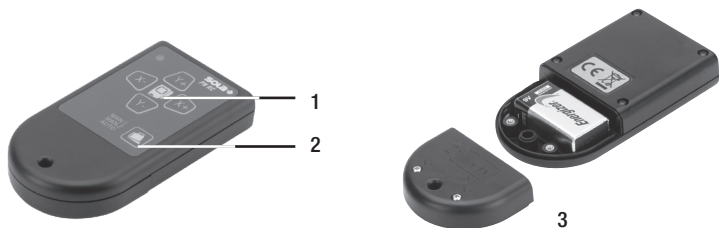
2.1.2 REC RRD0



2.1.3 REC RR00



2.1.4 PN RC



Operating manual

PROTON Line/Point Laser

About this manual

Congratulations on the purchase of your new PROTON! You have acquired a SOLA measurement instrument, which can make your work easier, faster and more precise. To utilize the complete functionality range of this measurement instrument, and to ensure a safe operation, please observe the following instructions:

- Please read these operating manual before starting to use the device.
- Always keep the operating manual near the device.
- Only hand over the device to other persons together with the operating manual.
- Never render the attached warning signs unreadable.

Contents

1. General information
2. Description
3. Technical data
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1. General information

1.1 Signal words and their meaning

DANGER

For an imminent danger that could lead to serious injury or death.

WARNING

For a possibly dangerous situation that could lead to serious injury or death.

CAUTION

For a possibly dangerous situation that could lead to slight injury or property damage.

NOTE

For application notes and other useful information

1.2 Pictograms and other information

1.2.1 Warning signs



Warning of dangers in general

1.2.2 Symbole



Read instructions before use



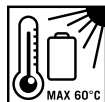
Batteries and devices may not be disposed of with household waste



Do not throw batteries into the fire



Warning label on packages with Li-Ion batteries



Warning signs on battery Do not heat the battery above 60 °C.



2 Class 2 laser device



Do not look into the laser beam!

2. Description

2.1 Device components, display and operating elements

2.1.1 PROTON

1. Button >ON/OFF<
2. Status/battery voltage display
>ON - BATT<
3. Operation indicator >Auto-Manual<
4. Leveling indicator
5. Tripod adapter 5/8"
6. Battery compartment

2.1.2 Receiver REC RRD0 (PROTON S)

1. Button >ON/OFF<
2. Accuracy switch 1-5 mm
3. Mm-inch switching
4. Volume
5. Display
6. RRD0 clamp for screwing
7. Rear display
8. Marking point
9. Battery compartment

2.1.3 Receiver REC RR00

1. Button >ON/OFF<
2. LED Display
3. Marking point
4. RR00 clamp for screwing
5. Battery compartment

2.1.4 Remote control PN RC (PROTON S)

1. X/Y - axis manual setting
2. Manual button (MAN1; MAN2; AUTO)
3. Battery compartment

2.1.5 SOLA Li-Ion battery, charging station and charger

1. SOLA Li-Ion battery Li-Ion 5.2
2. Battery contacts
3. Technical Specifications/certification label
4 Li-Ion charging station
5. Charging connector for the Li-Ion battery
charging station 6 Li-Ion charging station
7. Charging cable
8. Charger plug
9. Operation indicator
10. Connection socket for the country-specific
plug
11. Release button for the country-specific plug
12. Country-specific plug EU/UK

2.2 Intended use

The PROTON is an easy to use, self-leveling laser device which can be used by one or more people to perform accurate horizontal measurements with the help of a receiver device. The visibility range of the laser lines depends on the ambient conditions. Under low light conditions or for longer distances the receiver can be used to locate the laser line position. Follow the instructions contained in this manual. The device and accessory equipment may be a source of dangers if they are utilized improperly or inappropriately by persons who are not instructed as required.

3. Technical data

3.1 Rotating laser PROTON

Application area *

- Laser lines	$r = 20 \text{ m}^*$
- Receiver	see 3.2 and 3.3

- Max. Measurement tolerance	
- Laser line	$\pm 0.1 \text{ mm/m}$

Levelling range (typical)	$\pm 5^\circ$
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Levelling time (maximum)	$\leq 30 \text{ s}$
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Power supply	SOLA Li-Ion battery 5.2
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Operating time (at 20°C)	
SOLA Li-Ion battery 5.2	30 h

permissible temperatures

Operating temperature	-5°C to $+50^\circ\text{C}$
Storage temperature	-20°C to $+75^\circ\text{C}$

Laser diode lines/points	$630/680 \text{ nm} < 3.4 \text{ mW}$
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Laser class	2, DIN EN 60825-1 : 2007-10
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Tripod adapter	5/8"
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Protection class	IP 66
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Weight without battery	2000 g
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Dimensions	$200 \times 196 \times 230 \text{ mm}$
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*... depending on the environmental conditions at the workplace. | Changes (drawings, descriptions and technical data) are reserved.

3.2 Receiver REC RRDO (PROTON S)

Work range	$r = 500 \text{ m}^*$
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Average measurement tolerance	
Fine	1 mm
Rough	5 mm

Operating time (20°C)	$> 70 \text{ hours}$
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Power supply	$2 \times 1.5 \text{ V LR6 (AA) batteries}$
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Operating temperature	-20 °C bis +60 °C
Storage temperature:	-40 °C bis +70 °C
Thread for mounting fixture	1/4"
Weight without battery	305 g
Protection class	IP 67
Dimension (without clamp)	168 × 76 × 36 mm

*... depending on the environmental conditions at the workplace. | Changes (drawings, descriptions and technical data) are reserved.

3.3 Receiver REC RR00

Work range	$r = 350 \text{ m}^*$
Average measurement tolerance	3 mm
Power supply	2 × 1.5 V LR6 (AA) batteries
Operating temperature	-20 °C to +50 °C
Storage temperature	-40 °C to +70 °C
Weight without battery	165 g
Dimension (without clamp)	136 × 50 × 28 mm

*... depending on the environmental conditions at the workplace. | Changes (drawings, descriptions and technical data) are reserved.

3.4 Remote control PN RC (PROTON S)

Work range	$r = 7 - 10 \text{ m}^*$
Power supply	1 × 9 V block battery (6 LR 61)
Operating temperature	-15 °C to +60 °C
Weight without battery	72 g
Dimensions	120 × 65 × 23 mm

*... depending on the environmental conditions at the workplace. | Changes (drawings, descriptions and technical data) are reserved.

3.5 SOLA Li-Ion battery 5.2

Type	Li-ion with protective electronics
Cells	2 × ICR 18650 parallel

Capacity	5200 mAh
Voltage	3.6 VDC
Performance	28 Wh
permissible temperatures	
Operating temperature	-10 °C to +50 °C
Storage temperature (ideal)	-20 °C to +60 °C (ideal +20 °C to +25 °C)
Charging temperature	0 °C to +45 °C (ideal +20 °C to +25 °C)
Humidity	65 ± 20 %
Charging time	3 – 5 h
Weight	100 g
Dimension	71 × 39 × 22 mm

3.6 SOLA charger LG Li-Ion

Nominal input voltage	100 – 240 VAC/50 – 60 Hz
Nominal input current	0.4 A @ 100 VAC - 0.2 A @ 240 VAC under maximum load
Nominal input power	21 Wrms under max load
Output voltage	3.6 VDC
Charging current	3000 mA
Ambient temperature	-10 °C - +50 °C
Protection class	IP 40
Power consumption during standby	≤ 0.3 W @ 100 VAC/≤ 0.5 W @ 240 VAC

4. Safety instructions

4.1 AREA OF RESPONSIBILITY

4.1.1 Manufacturer

SOLA is responsible for the safe delivery condition of the product, including the operating manual and the original accessories.

4.1.2 Operator

The operator is responsible for using the product as intended, the deployment of his personnel, their training and the operational safety of the product.

- He understands the safety information which is stated on the product and the instructions which are contained in the operating manual.
- He shall comply with local regulations relating to safety and accident prevention regulations as well as worker protection laws and regulations.
- He shall immediately notify SOLA if safety-related issues should develop on the product or during its utilization.
- He shall ensure that the product is not utilized any further if defects become evident, and he will have the product repaired professionally.

4.2 Improper Use

- Use of the device and the accessories without instruction.
- Use of third-party accessories or additional equipment.
- Use outside of the intended limits (see Chapter 3/Technical Specifications).
- Use under extreme temperature fluctuations without an adequate acclimatization.
- Disabling of safety devices and removal of hazard notices and labels.
- Unauthorized opening of the device.
- Performance of modifications or alterations the device or the accessories.
- Deliberate blinding of third parties.
- Inadequate safeguarding at the installation site.

4.3 Utilization limitations

The PROTON is suitable for a continuous use in an atmosphere which can be inhabited by humans.

- Do not operate the product in explosion-prone or corrosive environments.
- Inform the local safety authorities and safety experts before working in hazardous environments, in close proximity to electrical installations or similar surroundings.

4.4 Usage Hazards

4.4.1 General



WARNING

Missing or incomplete instructions may result in improper or incorrect use. This can cause accidents with serious damages to persons, property, assets and the environment.

- Follow the manufacturer's and operator's safety instructions.
- Protect equipment and accessories from access through children.



WARNING

Blinding by laser radiation can indirectly lead to serious accidents, especially for people who are driving a vehicle or operating machinery.

- Do not look into the laser beam.
- Do not set up the laser beam and the laser plane at eye level or aim at people.



CAUTION

A fall, longer storage, transportation or other mechanical effects can lead to erroneous measurement results.

- Check the unit for damage before use.
- Do not use damaged equipment. Repairs have to be exclusively performed by SOLA
- Before use, check the accuracy of the device (see Chapter 8/Checking the accuracy)

4.4.2 Charger/batteries/rechargeable batteries



DANGER

There is a risk of mortal danger from electric shock.

- Never open the SOLA Li-Ion battery charger or charging station.
- Only use the SOLA Li-Ion battery charger and charging station in dry places and do not bring them into contact with liquids.



DANGER

Strong mechanical influences, can lead to a leakage, fire or explosion of the batteries or trigger the release of toxic substances.

- Batteries and rechargeable batteries may not be opened or exposed to mechanical loads.
- Damaged batteries, chargers and charging stations may not be used. Repairs have to be exclusively performed by SOLA

**WARNING**

High ambient temperatures and immersion into liquids can cause a leakage, fire or explosion of the batteries or trigger the release of toxic substances.

- Protect batteries and rechargeable batteries from mechanical influences during transport.
- Never store the Li-Ion battery in the sun, on radiators or behind glass windows.
- Do not overheat batteries and rechargeable batteries or expose them to fire.
- Avoid the ingress of moisture into batteries and rechargeable batteries.
- Do not use damaged batteries or rechargeable batteries. Perform a proper disposal (see Chapter 12/Disposal).

**WARNING**

A short-circuiting or unintended use can cause batteries to overheat and create an injury or fire hazard.

- Do not transport or store batteries in the pockets of garments.
- Do not bring the battery contacts in contact with jewelry, keys, or other electrically conductive objects.
- Do not charge the batteries.
- Do not discharge the batteries through short-circuiting.
- Do not solder the batteries within the device.
- Do not mix old and new batteries, and do not mix batteries from different manufacturers or with a differing type designation.

**WARNING**

Using charging devices from other manufacturer's can damage the Li-Ion batteries. This can lead to a fire and explosion hazard.

- Only use original SOLA accessories.

**WARNING**

If disposed of improperly third parties can possibly be seriously injured and the environment polluted. The burning of plastic components generates toxic fumes which may impair health of people. Batteries/rechargeable batteries may explode if they are damaged or heated excessively, and thereby cause poisoning, burning, corrosion or environmental contamination. If disposed of negligently unauthorized persons are able to use the product improperly.

- The product may not be disposed of together with household waste. Perform a proper disposal of the device and the accessories (see Chapter 12/Disposal).
- Protect the product at all times from access through unauthorized persons, and especially children.

4.5 ELECTROMAGNETIC COMPATIBILITY (EMC)

The electromagnetic compatibility is the ability of the product to function in an environment with electromagnetic radiation and electrostatic discharges were are present, without causing an electromagnetic interference for other devices.

4.5.1 Interference for other devices through PROTON

Although the product meets the strict requirements of the relevant directives and standards, SOLA can not completely exclude the possibility of interference with other devices (for example, when using the product in combination with third-party devices, such as field computers, personal computers, wireless devices, mobile phones, certain cables or external batteries).

- When using computers and radio equipment make sure to observe to the vendor-specific information about electromagnetic compatibility.
- Only use original SOLA equipment and accessories.

4.5.2 Interference of the PROTON through other devices

Although the product meets the strict requirements of the relevant directives and standards, SOLA can not entirely exclude the possibility that an intense electromagnetic radiation in the immediate vicinity of radio transmitters, two-way radios, diesel generators, etc. can distort the measurement results.

- When performing measurements under these conditions check the plausibility of the results.

5. LASER SAFETY/CLASSIFICATION

The four PROTON emits four visible laser lines and three laser points.

The product corresponds to the Laser Class 2 according to DIN EN 60825-1: 2007-10

Laser Class 2:

When using Class 2 laser devices the eye is protected by the eyelid closure reflex or evasive reactions in case of a random and short-term exposure.



WARNING

Looking directly into the beam with optical aids (e.g. binoculars, telescopes) can be dangerous.

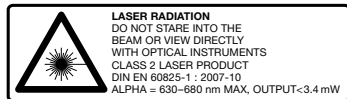


CAUTION

Looking into the laser beam may be hazardous to the eye.

- Do not look into the laser beam.
- Do not aim the laser beam at other people.

Labeling on the device:



For the position of the type plate refer to the inside of the cover page.

- Do not remove the type plate!

6. Start-up

6.1 PROTON

Operation with SOLA Li-ion battery 5.2

1. Fully charge the battery with SOLA Li-ion charger (see Chapter 7.2).
2. Open the battery compartment cover on the rear panel with the thumb nail, a coin or a screwdriver.
3. Insert the SOLA Li-ion battery 5.2 with the correct orientation.
4. Close the battery compartment cover.
5. If the residual capacity of the SOLA Li-ion battery 5.2 drops below 10 % the status/battery voltage display will flash. If the residual capacity of the SOLA Li-ion battery 5.2 drops below 5 % the status/battery voltage display will be continuously illuminated. The laser will switch off automatically, if the residual battery capacity is less than 2 %. Fully charge the battery with the SOLA Li-ion charger (see Chapter 7.2).
6. If the device is not used for a longer period of time, remove the battery and store it in a dry location (see Chapter 9/ Maintenance, storage and transport).



6.2 Receiver REC RR00

1. Open the battery compartment cover on the rear side of the device.
2. Insert the battery as shown on the inside of the device.
3. Close the battery compartment cover.
4. If the device is not used for a longer period of time, remove the battery (see Chapter 9/Maintenance, storage and transport).



6.3 Receiver REC RRDO (PROTON S)

1. Open the battery compartment cover on the rear side of the device.
2. Insert the battery as shown on the inside of the device.
3. Close the battery compartment cover.
4. If the device is not used for a longer period of time, remove the battery (see Chapter 9/Maintenance, storage and transport)



6.4 Remote control PN RC (PROTON S)

1. Open the battery compartment cover on the rear side of the device.
2. Insert the battery as shown on the inside of the device.
3. Close the battery compartment cover.
4. If the device is not used for a longer period of time, remove the battery (see Chapter 9/Maintenance, storage and transport).



7. Operation

7.1 PROTON

Position the laser horizontally on a stable platform, or mount it at the desired height onto a tripod or column/wall bracket with the 5/8" tripod connector.

7.1.1 Switching the laser on/off

On: Press the >ON/OFF< button.

Off: Press the >ON/OFF< button again.

All LED displays will illuminate for 2 seconds.

The laser always starts in the automatic self-leveling mode.

The device is leveled, if the laser beam is lit and the leveling indicator no longer flashes. Auto-manual display is continuously illuminated.

Note: During vertical operation, the laser always operates in the manual mode!

If the laser is positioned tilted by more than 5° (self-leveling range), the leveling and auto-manual alarm indicator will flash constantly, and the laser will flash at the same time. Then realign the laser.

If the laser is beyond the self-leveling range for more than 10 minutes, the device will be switched off automatically.

If the laser leveled for more than 5 minutes in the horizontal mode, the tilt alarm for device height monitoring (height-alarm) will be activated. If the laser is disrupted afterwards (for example the tripod is bumped) and the height of the laser beam is altered by more than 3 mm during the re-leveling, the height-alarm will switch off the laser and the rotor, and the red leveling indicator (tilt) will flash twice per second (twice the speed of manual operation). To delete the height-alarm, turn the laser off and on again. After the laser has leveled itself again, check the original reference level.
To switch it off, press the ON/OFF button again.

7.1.2 Standby mode (PROTON S)

The standby mode is a power-saving feature which is able to extend the battery life.

Press and hold the manual button on the remote control for 5 seconds to activate the standby mode.

The battery indicator LED flashes every 4 seconds, indicating that the laser is in the standby mode and is not turned off.

Press and hold the manual button on the remote control for 5 seconds to disable the standby mode and restore full operational readiness of the laser. The laser beam and all the other features are turned on again.

7.1.3 Single axis inclined operation; MAN1 (PROTON S)

To activate the manual y-axis inclination mode, press the manual button on the remote control once briefly.

Simultaneous flashing of the Green and red LED in one second intervals indicates the y-axis inclination mode.

In this operating mode, the y-axis can be tilted using the arrow keys „Up/down“ on the remote control, while the x-axis will continue in the automatic horizontal operating mode (e.g. when installing sloped/suspended ceilings or drive ways).

The impact monitoring (height-alarm) is still active.

A repeated brief pressing of the manual button will switch the device to the manual operation; MAN2.

7.1.4 Manual operating mode; MAN2 (PROTON S)

A switching from the automatic self-leveling mode to the manual mode can be performed by briefly pressing the manual button twice on the remote control, which will be indicated by the red Auto self-leveling mode LED that flashes every second. In this operating mode, the y-axis can be tilted by pressing the arrow keys up/down, and in addition the x-axis of the laser can also be changed by pressing the arrow keys right/left on the remote control.







Press the manual button again to return to automatic self-leveling mode.

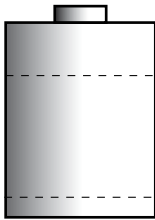




7.2 SOLA Li-Ion battery, charging station & charger

Before the initial startup, the SOLA Li-Ion battery must be fully charged.

- Plug the charger plug into the charging port of the Li-Ion Charger
- Connect the SOLA Li-Ion battery charger to a socket-outlet
- Insert the SOLA Li-Ion battery in the correct position.
- Depending on the charge state and the environmental conditions the charging time will be between 3 and 5 hours
- After 10 charging cycles the battery will reach its full capacity.
- Ideally, the battery should always be fully charged. In urgent cases, the battery can be removed from the charging station before the charging process has been fully completed. This does not adversely affected the service life of the battery (no memory effect).

Operation indicator:

Colour	Display	Mode	Description
yellow green		Standby	No battery in the charger
yellow green		Wait cycle	Battery temperature beyond the valid range
yellow green		Pre-charge	Protective charging for deeply discharged batteries
yellow green		Main charge	Rapid charging phase with max. Power up to 80 %
yellow green		Recharging	Recharging between 80 – 100 %
yellow green		Completed	Charging process completed Battery is 100 % charged
yellow green		Error	Battery too hot/too cold, let it acclimatize and reinsert

	Capacity	Display	Mode
	100 %		Charging process completed
	80 %		Recharging
			Main charge
			Pre-charge

7.3 Receiver REC RRDO (PROTON S)

7.3.1 On/off switching

On: Press the >ON/OFF< button.

Off: Press the >ON/OFF< button again.

- Turn the operating area of the receiver towards the laser device and make sure that the reception window is perpendicular to the line plane.
- Move the receiver up and down until a signalling tone can be heard or direction arrows become visible on the display.

If the marking point of the receiver is located above the laser beam, a fast pulsed signalling tone will sound and the screen will display a downward pointing arrow icon.

- Move the receiver in the downward direction as indicated by the arrow.

If the marking point of the receiver is below the laser beam, a slow pulsed signalling tone will sound and the screen will display an upward pointing arrow icon.

- Move the receiver in the upward direction as indicated by the arrow.

If there is a constant signalling tone and/or only the middle bar is still visible, the marking location is exactly aligned with the laser beam.

> Use a pen to mark the height of the laser beam at the marking locations. The receiver can be aligned vertically with the help of the tube vial, when the marking points on the left and right sides are at the same height.

7.4 Receiver REC RR00

7.4.1 On/off switching

On: Press the >ON/OFF< button.

Off: Press the >ON/OFF< button again.

- Turn the operating area of the receiver towards the laser device and make sure that the reception window is perpendicular to the line plane.
- Move the receiver up and down until a signalling tone can be heard and/or the LED display becomes visible.

If the marking point of the receiver is located above the laser beam, a fast pulsed signalling tone will sound and upper LED will flash.

➤ Move the receiver downward accordingly.

If the marking point of the receiver is below the laser beam, a slow pulsed signalling tone will sound and lower LED will flash.

➤ Move the receiver upward accordingly.

If there is a constant signalling tone and/or the green LED is visible, the marking location is exactly aligned with the laser beam.

➤ Use a pen to mark the height of the laser beam at the marking locations. The receiver can be aligned vertically with the help of the tube vial, when the marking points on the left and right sides are at the same height.

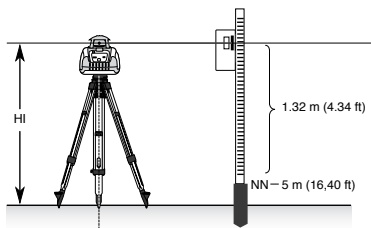
7.5 Applications

7.5.1 PROTON

The PROTON is an easy to use, self-leveling laser device which can be used by one or more people to perform accurate horizontal measurements with the help of a receiver device. The aim is to describe a possible application in greater detail, using the construction operation as an example.

Building construction

1. The device height (HI) is the height of the laser beam.
2. It is determined by adding the measuring rod reading to a height marking or a known elevation.
3. Set-up of the laser and positioning the measuring rod with the receiver on a known height or reference peg (NN).
4. Align the receiver to the position „At height“ of the laser beam
5. Add the measuring rod reading to the known NN height to determine the laser height.



Example:

NN height = 5 m

Staff reading = + 1.32 m

Laser height = 6.32 m

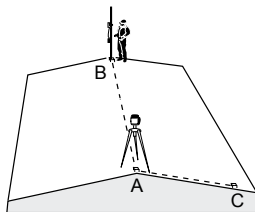
Use the laser height as the reference for all other height measurements.

7.5.2 PROTON S

In addition, to the horizontal operation the PROTON S can also be used as an inclinometer. The x and y axes can be adjusted here. Another option is the single axis inclined operation, during which the x -axis will remain leveled. The aim is to describe a possible application in greater detail, using the single axis inclined operation as an example.

Single axis inclined operation

1. Position the laser over the reference point on (A).
2. Look over the rotor head, to align the laser onto the desired direction peg of the self-leveling axis. Turn the laser on the tripod until it is properly aligned.
3. Attach a receiver to a measuring rod. Place in the measuring rod onto the direction peg of the self-leveling axis to check the height of the laser (B).



Note: Use this device height as a reference when checking the alignment of the laser after setting the inclination on the other axis.

4. To activate the manual y -axis inclination mode, press the manual button on the remote control twice briefly.
5. Measure the height of the laser beam directly on the inclination axis of the device.
6. Without changing the height of the receiver, place in the measuring rod onto the direction peg to align the inclination of the tilt axis (C).
7. Press and hold the arrow button up/down until the laser beam is on the marking point of the receiver.
8. Recheck the height of the laser on the self-leveling axis by using the device height from step 3.

Note: If the device height has changed, rotate the laser on the tripod until the receiver shows that it is on the height of the laser beam.

Note: The performance of work during the inclined operation must always be carried out parallel to the laser line, otherwise deviations from the desired inclination can occur.

8. Checking the leveling accuracy

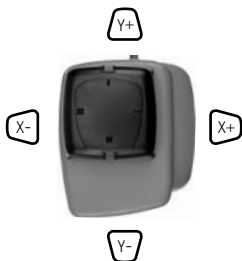
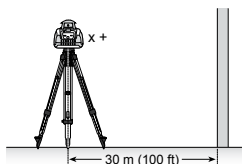
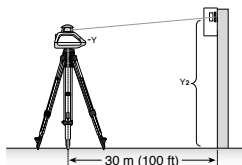
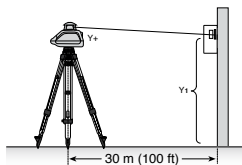
Check accuracy of the SOLA PROTON before each measurement.

► Before starting the check let the device acclimate to the environmental conditions.

1. Position the laser 30m away from a wall and allow it to level itself horizontally.
2. Move the receiver up and down until the +y-axis is positioned on the height of the laser beam. Use the marking notch as a reference and mark the height on the wall.

Note: For increased precision, use the fine adjustment (1 mm) on the receiver REC RRDO (PROTON S).

3. Rotate the laser by 180° (the -y-axis must be facing the wall) and allow it to re-level itself.
4. Move the receiver up and down until the y-axis is positioned „on the height“ of the laser beam. Use the marking notch as a reference and mark the height on the wall.
5. Measure the difference between the two marks. The laser must be calibrated if the difference is greater than 6mm at a distance of 30m.
6. After adjusting the Y-axis, rotate the laser by 90°. Repeat the steps 2-5, and start with the + x-axis pointing towards the wall.



9. Maintenance, storage and transportation

9.1 Cleaning

- Wipe off the dirt with a soft damp cloth.
- Check the outlet openings of the laser regularly, and thoroughly clean them if necessary. Do not touch the glass with your fingers.
- Do not use aggressive cleaning agents or solvents.
- Do not immerse the device into water!
- Clean and dry wet equipment, accessories and transport containers prior to packaging them. Only pack equipment again when it is completely dry.
- Keep plug connections clean and protected from moisture.

9.2 Storage

9.2.1 General

- The equipment may only be stored within the specified temperature limits (see Chapter 3/Technical data).
- After a prolonged storage check the accuracy of the measuring device before using it.

9.2.2 Batteries/rechargeable batteries

- For storage, remove the batteries from the device or from the charging station.
- The storage should preferably be performed in a dry environment at room temperature (see Chapter 3/Technical data).
- Protect from moisture and humidity. Dry wet or damp batteries before the storage, or respectively before usage.
- Prior to a prolonged storage charge the battery to 80 % capacity (see Chapter 7/operation). Repeat the procedure every 6 months.
- After storage, fully charge the battery before use.
- Check the battery for damage before use. Do not use damaged batteries!

9.3 Transport

9.3.1 General

The device may be damaged through strong vibrations or by falling.

Never transport the product loosely. Always use the original packaging or an equivalent transport container.

- Switch off the measuring device before transporting it. During the shutdown the pendulum unit is locked in position and protected against damage.
- Check the unit for damages before use.
- Regularly check the accuracy of the device (see Chapter 8/Checking the accuracy).

9.3.2 Batteries/rechargeable batteries

When transporting or shipping batteries, the operator is responsible for complying with the applicable national and international laws and regulations.

- Before shipping, remove the batteries from the device.

Li-ion batteries fall under the jurisdiction governing hazardous goods, but they may be transported on the road by their operator without further stipulations.

When shipping through third parties (e.g. forwarding agent or air freight) the special requirements regarding the packaging and labeling must be observed.

- Remove the battery from the device and ship it in its storage condition (80 % capacity).
- Cover exposed contacts with tape.
- Package the battery in such a manner that it can not move around in the packaging, and that it can not be damaged by external influences.
- Further national and international regulations and any additional requirements as well as the stipulations of the respective transport company must be observed.



10. Scope of delivery and accessories

10.1 Scope of supply SET PROTON

- 1 Rotating laser PROTON
- 1 SOLA Li-Ion battery **Li-Ion 5.2**
- 1 Charger with charging plug incl. country-specific plug
- 1 Receiver **REC RR00**
- 1 **REC RR00** clamp
- 1 Hanging bag large

10.2 Scope of delivery PROTON S

- 1 Rotating laser PROTON
- 1 SOLA Li-Ion battery **Li-Ion 5.2**
- 1 Charger with charging plug incl. country-specific plug
- 1 Receiver **REC RRDO**
- 1 **REC RRDO** clamp
- 1 Hanging bag large
- 1 Remote control **PN RC**

ACCESSORIES (optional)

- Li-Ion battery set 5.2:
- 1 Li-Ion battery **Li-Ion 5.2**
- 1 Charging station **LST Li-Ion**
- 1 Charger **LG Li-Ion**
- 1 Country-specific plug **EU LS-EU**
- 1 Country-specific plug **UK LS-UK**

Receiver **REC RR00**

Receiver **REC RRDO**

Remote control **PN RC**

Battery adapter **BA**

Car adapter **CC**

Telescopic tripod **TST**

Crank tripod **KST**

Construction-site tripod **BST**

Clamping tripod **KLST**

Wall holder **FWH**

Inclination wedge **NK1**

Laser goggles red **LB red**

Magnetic target **ZS red**

Further information regarding the accessories can be obtained at www.sola.at

11. Troubleshooting

Error	Possible cause	Troubleshooting
Device is switched on, display >ON - BATT< does not light up and there is no visible laser beam.	<ul style="list-style-type: none"> ➤ Battery empty ➤ Rechargeable battery empty ➤ Battery/rechargeable battery inserted incorrectly ➤ Device or switch defective 	<ul style="list-style-type: none"> ➤ Replace the battery ➤ Recharge or replace battery ➤ Insert the batteries/rechargeable batteries correctly ➤ Contact the dealer and have the device repaired.
Device turns off again immediately after startup.	<ul style="list-style-type: none"> ➤ Battery empty Rechargeable battery empty 	<ul style="list-style-type: none"> ➤ Replace the battery ➤ Recharge or replace battery
Device is switched on, display >ON - BATT< lights up, but there is no visible laser beam.	<ul style="list-style-type: none"> ➤ Ambient temperature too high/low ➤ Laser diode or laser control defective 	<ul style="list-style-type: none"> ➤ Allow for an acclimatization of the device ➤ Contact the dealer and have the device repaired.
The >ON - BATT< indicator is blinking	<ul style="list-style-type: none"> ➤ Battery capacity is less than 10 % 	<ul style="list-style-type: none"> ➤ Recharge the battery in time

12. Disposal

If disposed of improperly third parties can possibly be seriously injured and the environment polluted.

The burning of plastic components generates toxic fumes which may impair health of people.

Batteries/rechargeable batteries may explode if they are damaged or heated excessively, and thereby cause poisoning, burning, corrosion or environmental contamination.

If disposed of negligently unauthorized persons are able to use the product improperly.

Measuring tools, accessories and packaging must be recycled in an environmentally-friendly manner.



The product as well as the accessories - especially the batteries and rechargeable batteries - may not be disposed of with household waste.

- Perform a proper disposal of the device and the accessories.
- Only dispose of batteries in a discharged state.
- Observe the country-specific disposal requirements.

Your SOLA dealership will take back batteries as well as old equipment, and will ensure a proper disposal.

Only for EU countries



Electric tools may not be disposed of with household waste!

According to the European Directive 2002/96/EC on Waste Electrical and Electronic Equipment and its implementation in national law, no longer usable electrical and electronic equipment must be collected separately and recycled in an environmentally friendly manner.

13. Manufacturer's Guarantee

„The manufacturer warrants to the original purchaser who is stated on the guarantee card, the freedom from defects for the device for a period of two years, with the exception of batteries, as of the point in time the device is handed over. The guarantee is limited to repairs and/or replacements at manufacturer's discretion. Defects which are caused through improper handling by the purchaser or third parties, natural wear and optical flaws that do not affect the usability of the equipment, are not covered by this guarantee. Claims under this guarantee can only be invoked if the device is submitted along with the guarantee card, completely filled out by the dealer, dated and provided with the company stamp. If the guarantee claim is justified, the manufacturer shall bear the transport costs. The duration of the guarantee will not be extended through repair or spare parts work which is carried out within the scope of the guarantee.

Further claims are excluded, unless there are provided by the respective national legislation. In particular the manufacturer shall not be liable for any direct, indirect, incidental or consequential damages, losses or expenses in connection with the use or because of the inability to use the tool for any purpose whatsoever. Implied warranties for the usage or suitability for a particular purpose are expressly excluded.“

14. EC conformity declaration



Declaration of conformity



We **SOLA Messwerkzeuge GmbH, A-6840 Götzis, Austria**

hereby declare under our sole responsibility that the product (s)

PROTON, REC RR00, REC RRD0, SOLA battery Li-ion 5.2, Li-ion battery charger LG Li-ion

to which this declaration refers, complies with the following standards.

PROTON:

EN 61000-6-3: 2007 + A1:2010
 EN 55011: 2009 + A1:2010 Class B
 EN 61000-4-2: 2009
 EN 61000-4-3: 2006 + A1:2008 + A2:2010
 EN 60825-1: 2001-11

REC RR00:

EN 61326: 1997 + A1:1998 + A2:2001 + A3:2003 Class B
 EN 55022: 1998 + A1:2000 + A1:2003 EN 61000-4-2: 1995
 EN 61000-4-3: 1996
 EN 61000-4-8: 1993

REC RRD0:

EN 61326: 1997 + A1:1998 + A2:2001 + A3:2003 Class B
 EN 55022: 1998 + A1:2000 + A1:2003
 EN 61000-4-2: 1995
 EN 61000-4-3: 1996
 EN 61000-4-8: 1993

Li-Ion battery charger LG Li-Ion:

EN 60601-1: 01/2006
 EN 60335-2-26 06/2005
 EN 60335-1 11/2010
 EN 61000-6-3 09/2007
 EN 60601-1-2 10/2006

EN 55022 05/2008
EN 60601-1-2 10/2006
EN 61000-6-2 03/2006
EN 55014-1 06/2007
EN 55014-2 06/2007

SOLA Li-Ion battery 5.2:
EN 61000-6-1: 2007
EN 61000-6-3: 2007 + A1:2011
UN38.3

In accordance with the provisions of the directive(s)

Electromagnetic compatibility
2004/108/EC Low Voltage
Directive 2006/95/EC



SOLA-Messwerkzeuge GmbH

Mag. Wolfgang Scheyer CE

Herstellergarantie PROTON

Limited warranty PROTON

Seriennummer / Serial no.

Firma / Company / Name

Adresse / address

Telefon / Telephone



SOLA-Messwerkzeuge GmbH

Unteres Tobel 25
A-6840 Götzis
Austria

SOLA[®]
PASSION FOR PRECISION

Kaufdatum/ Stempel/ Unterschrift des Händlers Date of purchase/ Stamp/ Signature (dealer)

