

METRON 60 BTI

Laser distance meter with Bluetooth

www.sola.at



Operating instructions METRON 60 BTI laser distance meter (translation of the original version)

About this manual

Congratulations on the purchase of your new METRON 60 BTI. You have acquired a SOLA measuring device, which can make your work easier, faster, and more precise. To utilize the complete functionality range of this measuring device, and to ensure safe operation, please observe the following instructions:

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

Contents

- | | |
|----------------------------------|--|
| 1. General information | 7. Getting started |
| 2. Delivery contents | 8. Operation |
| 3. Description | 9. Cleaning, storage, and transportation |
| 4. Technical data | 10. Troubleshooting |
| 5. Safety instructions | 11. Disposal |
| 6. Laser safety / classification | 12. Manufacturer's guarantee |

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.

NOTICE

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 Symbols



Read the operating instructions before use.



Batteries and devices may not be disposed of with household waste.



Do not throw battery into the fire.



Do not heat battery above 60°C.



Class 2 laser device



Do not look into the laser beam!

2. Delivery contents

2.1 METRON 60 BTI delivery contents

- 1** 1 × Laser distance meter
- 2** 1 × Belt case
- 3** 1 × USB-C charging cable
- 4** 1 × Strap
- 5** 1 × Quick start



3. Description

3.1 Function buttons

- 1** Display
- 2** Keyboard
- 3** Eyelet for strap
- 4** Working face
- 5** Tripod connection 1/4"
- 6** USB-C connection
- 7** ON/measure
- 8** Functions/memory
- 9** Addition/subtraction/measuring edge
- 10** OFF/back



Description



3.2 Display

- 1 Measured values
- 2 Measurement display
- 3 Inclination display
- 4 Function display
- 5 Point-to-point display
- 6 Bluetooth
- 7 Battery status
- 8 Min./max. display
- 9 Measuring edge
- 10 Unit
- 11 Memory



Description



3.3 Intended use

The device is designed to measure distances. The display shows the measurement, the setting, as well as the device status. An emitted laser beam is directed towards a reflective surface and sent back to the laser distance meter. This allows the distance to be determined.

The range depends on the model of the laser distance meter, the reflectivity, and the quality of the reflective surface.



4. Technical data

4.1 General

Measuring range	0.05 to 60 m*
Accuracy	±1.5 mm**
Inclination sensor accuracy	±0.5°
Protection class	IP54
Laser class	2
Laser type	635 nm < 1 mW
Automatic power off, laser	45 s
Automatic power off, device	180 s
Operating time	up to 5,000 measurements***
Battery type	3.7 V 850 mAh Li-ion
Operating temperature	0°C to +40°C

Storage temperature	–20°C to +60°C
Tripod connection	1/4"
Dimensions	119 × 46 × 28 mm
Weight with batteries	100 g

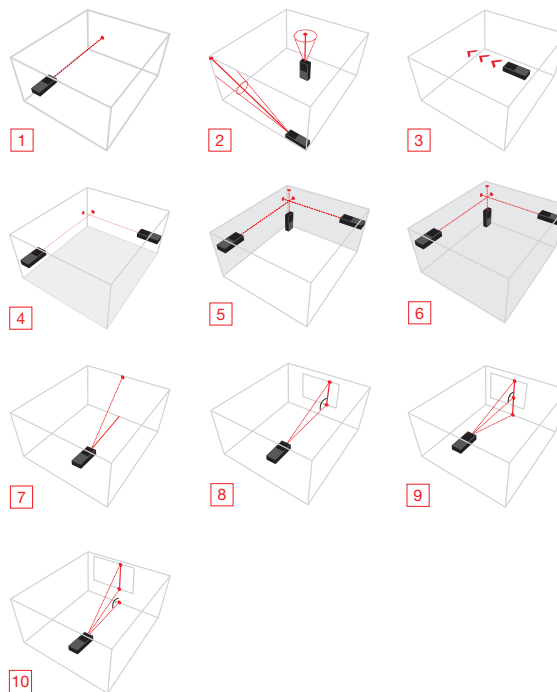
* For measurements with 100% reflectivity of the target (e.g. a wall painted white), low background lighting, and 25°C operating temperature. Measurements may become less accurate in adverse conditions, such as direct sunlight, a poorly reflective surface, or measurement on glass or glossy surfaces, leading to measurement errors. The visibility range of the laser point depends on the ambient conditions.

** Accurate from 0.05–10 m. The maximum tolerance of 0.1 mm/m may deteriorate at distances between 10 m and 60 m.

*** Use at room temperature.

4.2 Functions

- 1  Length measurement
- 2  Min./max. measurement
- 3  Continuous measurement
- 4  Area measurement
- 5  Painter function
- 6  Volume measurement
- 7  Automatic distance measurement
- 8  Indirect 2-point measurement
- 9  Indirect 3-point measurement (2)
- 10  Indirect 3-point measurement (1)



5. Safety instructions

5.1 Area of responsibility

5.1.1 Manufacturer

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

5.1.2 Operator

- The operator is responsible for using the product as intended, the deployment of personnel, their training, and the operational safety of the product.
- The operator understands the safety information which is stated on the product and the instructions in the operating instructions.
- The operator shall comply with the standard local regulations relating to safety and accident prevention regulations as well as worker protection laws and regulations.
- The operator shall immediately notify SOLA if safety-related issues should arise relating to the product or during its utilization.
- The operator shall ensure that the product is not utilized any further if defects become evident, and they will have the product repaired professionally.

5.2 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 4/Technical data).
- Use under extreme temperature fluctuations without adequate acclimatization.
- Disabling of safety devices and removal of hazard notices and labels.
- Unauthorized opening of the device.
- Performance of modifications or alterations to the device or the accessories.
- Deliberate blinding of third parties.
- Inadequate safeguarding at the installation site.

5.3 Utilization limitations

- The METRON 60 BTI is suitable for 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.

5.4 Usage hazards

5.4.1 General

WARNING ⚠

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

- Follow the manufacturer's and operator's safety instructions.
- Protect equipment and accessories from being accessed by 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 must only be performed by SOLA.

5.4.2 Batteries

DANGER ⚠

Mechanical damage can cause batteries and rechargeable batteries to leak, explode, or catch fire or trigger the release of toxic substances.

- Batteries and rechargeable batteries must not be opened or exposed to mechanical loads.
- Repairs must only be performed by SOLA.

WARNING ⚠

High ambient temperatures and immersion into liquids can cause batteries and rechargeable batteries to leak, explode, or catch fire or trigger the release of toxic substances.

- Protect batteries and rechargeable batteries from mechanical damage during transport.

- 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 11/Disposal).

WARNING ⚠

Short-circuiting or improper 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 in the device.
- Do not mix old and new batteries, and do not mix batteries from different manufacturers or with a differing type designation.

WARNING ⚠

If disposed of improperly third parties may possibly be seriously injured and the environment polluted. Burning plastic components generate toxic fumes which may impair health. 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 must not be disposed of together with household waste. Dispose of the device and accessories properly (see Chapter 11/Disposal).
- Protect the product against access by unauthorized persons at all times, especially children.

5.5 Electromagnetic compatibility (EMC)

- The electromagnetic compatibility is the ability of the product to function in an environment where electromagnetic radiation and electrostatic discharge are present, without causing electromagnetic interference to other devices.

5.5.1 Interference with other devices by METRON 60 BTI

- Although the product meets the strict requirements of the relevant directives and standards, SOLA cannot 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, be sure to observe to the vendor-specific information about electromagnetic compatibility.
- Only use original SOLA equipment and accessories.

5.5.2 Interference with the METRON 60 BTI by other devices

- Although the product meets the strict requirements of the relevant directives and standards, SOLA cannot entirely exclude the possibility that intense electromagnetic radiation in the immediate vicinity of radio transmitters, two-way radios, diesel generators, etc., may distort the measurement results.
- When performing measurements under these conditions, check the plausibility of the results.

6. Laser safety / classification

The METRON 60 BTI emits a visible laser point.
The product corresponds to laser class 2 according to
DIN EN 60825-1:2007-03.

Laser class 2:

When using Class 2 laser devices, the eye is protected by the blink reflex or aversion reaction in the case of random and short-term exposure.



WARNING

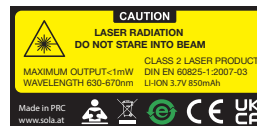
Looking directly into the beam with optical aids (e.g. binoculars, telescopes) can be dangerous.

CAUTION

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

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

Labeling on the device:



Do not remove the type plate!

7. Getting started

7.1 Batteries

The device has a 3.7 V 850 mAh Li-ion rechargeable battery. Fully charge the rechargeable battery before first use. The rechargeable battery charge status is shown on the display. Charge the rechargeable batteries when the symbol is permanently flashing on the screen. Use the charger supplied to charge your METRON 60 BTI. The device cannot be used while charging. The device is fully charged in around 3 hours.



7.2 Belt case

The laser device can be stowed in a belt case for transport. The laser device must be removed from the case for measurement.

8. Operation

8.1 Switching on and off

8.1.1 Switching on and off

Press the ON/measure button to turn the laser device on. Press and hold the OFF/back button for 2 seconds to turn the laser device off.

8.1.2 Back

Press the OFF/back button once to undo the most recent action. Press the OFF/back button twice to exit the current function and return to single measurement mode.

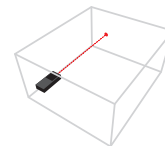
8.1.3 Setting the measurement level

Press the Addition/subtraction/measuring edge button for 2 seconds to toggle between the front, tripod, back with end piece and back of the device. This is shown by an arrow in the display. The rear of the device is set as the measuring edge by default. The rear of the device is set as the measuring edge whenever the device is restarted.

8.2 Applications

8.2.1 Single measurement

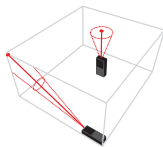
- 1 Switch on the laser distance meter.
- 2 Direct the laser point at the target.
- 3 Press the ON/measure button.



When the signal sounds, the measurement is complete. The distance can be read. To measure additional distances, press the ON/measure button again.

8.2.2 Min./max. measurement

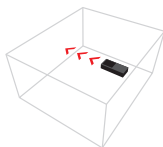
- 1 Switch on the laser distance meter.
- 2 Direct the laser point at the target.
- 3 Press and hold the ON/measure button for 2 seconds.



The minimum and maximum measurements are shown in lines 1 and 2. To stop the measurement, simply press the ON/measure button.

8.2.3 Continuous measurement

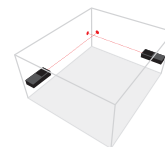
- 1 Switch on the laser distance meter.
- 2 Direct the laser point at the target.
- 3 Press and hold the ON/measure button for 2 seconds.



The laser distance meter measures the current distance and shows this on the bottom line of the display. To stop the measurement, simply press the ON/measure button again.

8.2.4 Area measurement

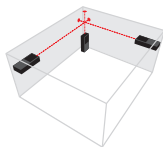
- 1 Switch on the laser distance meter.
- 2 Press the Functions/memory button until the area measurement icon is shown in the display.
- 3 Measure the length and width in succession, just like for a single measurement. The laser beam remains switched on between the two measurements.



After completing the second measurement, the area is automatically calculated and shown in the bottom line of the display. The single measurements are shown in measurement lines 1 and 2.

8.2.5 Painter function

- 1 Switch on the laser distance meter.
- 2 Press the Functions/memory button until the painter function icon is shown in the display.
- 3 The first measurement is a single measurement to determine the wall height.
- 4 Then measure the wall lengths one after the other. The laser beam remains enabled between the measurements.



Once the last wall length measurement has been completed, the total wall area is calculated automatically. The result is displayed in the bottom line of the display. Each additional wall area measurement is automatically added to the previous area. The single measurements are displayed in measurement lines 1 (height) and 2 (length).

Instructions for area subtraction:

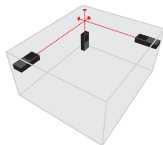
If an area (e.g. door or window) is to be deducted or subtracted from the calculated total wall area, the following steps are required:

- 1 Perform the individual steps of the painter function in full until the total area has been calculated.
- 2 Press the Addition/subtraction/measuring edge button twice until the minus sign appears in the display.
- 3 Then measure the height and length of the area to be subtracted.
- 4 Finally, press the Addition/subtraction/measuring edge button again to subtract the measured area from the total area.

The total wall area is displayed in measurement line 1, the area to be subtracted in line 2 and the result (total wall area minus area to be subtracted) in the bottom line.

8.2.6 Volume measurement

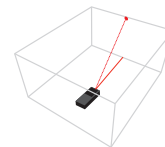
- 1 Switch on the laser distance meter.
- 2 Press the Functions/memory button until the volume measurement icon is shown in the display.
- 3 Measure the length, width, and height, just like for a single measurement. The laser beam remains switched on between the three measurements.



After completing the third measurement, the volume is automatically calculated and shown in the bottom line of the display. The single measurements are shown in measurement lines 1 and 2.

8.2.7 Automatic distance measurement

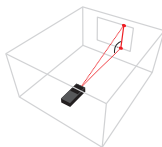
- 1 Switch on the laser distance meter.
- 2 Press the Functions/memory button until the icon for automatic distance measurement appears in the display.
- 3 Measure 1 measuring point like a single measurement.



After the measurement is complete, the distance is displayed in the last line of the display. The single measurements are shown in measurement lines 1 and 2.

8.2.8 Indirect 2-point measurement

- 1 Switch on the laser distance meter.
- 2 Press the Functions/memory button until the indirect 2-point measurement icon is shown in the display.
- 3 Measure the 2 measurement points in succession, just like for a single measurement. The laser beam remains switched on between the two measurements.



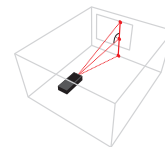
After completing the second measurement, the distance between the first and second measurement points is automatically calculated and displayed in the bottom line of the display. The single measurements are shown in measurement lines 1 and 2.

CAUTION

The two points must be measured in a line and the second measurement point must be at a right angle to the measuring surface, otherwise the measured values may be incorrect.

8.2.9 Indirect 3-point measurement (2)

- 1 Switch on the laser distance meter.
- 2 Press the Functions/memory button until the indirect 3-point measurement icon (2) is shown in the display.
- 3 Measure the 3 measurement points in succession, just like for a single measurement. The laser beam remains switched on between the three measurements.



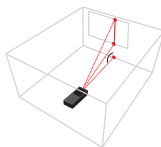
After completing the measurement, the distance between the first and third measurement points is automatically calculated and displayed in the bottom line of the display. The single measurements are shown in measurement lines 1 and 2.

CAUTION

The two points must be measured in a line and the second measurement point must be at a right angle to the measuring surface, otherwise the measured values may be incorrect.

8.2.10 Indirect 3-point measurement (1)

- 1 Switch on the laser distance meter.
- 2 Press the Functions/memory button until the indirect 3-point measurement icon (1) is shown in the display.
- 3 Measure the 3 measurement points in succession, just like for a single measurement. The laser beam remains switched on between the three measurements.



After completing the measurement, the distance between the first and second measurement points is automatically calculated and displayed in the bottom line of the display. The single measurements are shown in measurement lines 1 and 2.

CAUTION

The two points must be measured in a line and the third measurement point must be at a right angle to the measuring surface, otherwise the measured values may be incorrect.

8.2.11 Addition

- 1 Switch on the laser distance meter.
- 2 Direct the laser point at the target.
- 3 Perform a single measurement.
- 4 Press the Addition/subtraction/measuring edge button, to add the next single measurement (+ symbol appears on the display).
- 5 Perform a single measurement.

The laser device shows the result on the bottom line in the display. This process can be repeated indefinitely.

8.2.12 Subtraction

- 1 Switch on the laser distance meter.
- 2 Direct the laser point at the target.
- 3 Perform a single measurement.
- 4 Press the Addition/subtraction/measuring edge button twice to subtract the next single measurement (– symbol appears on the display).

8.3 Selecting a unit of measurement

Press the ON/measure and Functions/memory buttons simultaneously for 2 seconds to use the Addition/subtraction/measuring edge button to switch between m (3 decimal places), m (2 decimal places), in (1 decimal place), in (0 decimal places), in ft and ft. Press the ON/measure button to select the desired unit. The device starts with the most recently set unit.

8.4 Charging the rechargeable batteries

The rechargeable battery charge status is shown on the display. Charge the rechargeable batteries when the symbol is permanently flashing on the screen. Use the charger supplied to charge your laser distance meter. The device cannot be used while charging. The device is fully charged in around 3 hours.

8.5 Working instructions

The laser device must not be moved during measurement. A use of a fixed support with end stop is recommended. Do not cover the laser emission field and the receiving area during measurement. Incorrect measurements are possible depending on the measuring surface. Textured, mirrored, transparent, or porous surfaces should be avoided.

9. Cleaning, storage, and transportation

9.1 Cleaning

- Wipe off the dirt with a soft damp cloth.
- Check the outlet openings of the laser distance meter 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 in 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 4/Technical data).
- After prolonged storage, check the accuracy of the measuring device before using it.

9.2.2 Batteries/rechargeable batteries

- Remove rechargeable batteries or batteries from the device or charging cradle for storage.
- If possible, store at room temperature and in a dry environment (see Chapter 4/Technical data).
- Protect from moisture and wetness. Dry damp rechargeable batteries or batteries completely before storage.
- For longer storage, charge rechargeable batteries to approx. 80% of their capacity (refer to operating instructions). Repeat the process every 6 months during storage.
- After storage, fully charge the rechargeable battery before use.
- Check rechargeable batteries or batteries for visible damage before use. Do not use the rechargeable batteries or batteries if damaged.

9.3 Transportation

9.3.1 General

- The device may be damaged if it falls or is subjected to strong vibrations.
- Never transport the product loose. Always use the original packaging or an equivalent transport container.
- Switch off the measuring device before transporting it.
- Check the unit for damage before use.

9.3.2 Batteries/rechargeable batteries

- Always remove rechargeable batteries or batteries from the device.
- Mask open contacts to avoid short circuits.
- Remove the rechargeable battery from the device and ship it in a storage condition (80% capacity).
- Pack rechargeable batteries or batteries in shockproof packaging to ensure that they do not move or are damaged by external factors.
- Comply with other national and international regulations and any additional requirements of the respective transportation company.
- When transporting or shipping the batteries and rechargeable

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

- In principle, Li-ion rechargeable batteries are subject to the requirements for dangerous goods; nonetheless, they can be transported by the user by road without any further requirements. When shipping occurs by means of third parties (e.g. forwarding agents or air freight), specific requirements for packaging and labeling must be observed.

10. Troubleshooting

Error	Possible cause	Remedy
301	Distance out of the measuring range.	Stay within the measuring range.
302	The reflected signal is too weak.	Measure on a more reflective surface.
303	Range outside of display.	Use the OFF/back button to reset to zero.
304	Calculation error in Pythagoras.	Perform measurement again.
305	Low battery charge.	Charge the rechargeable battery.
306	Temperature too low.	Heat the device.
307	Temperature too high.	Cool the device.
308	Ambient light too bright.	Measure in a darker environment.

11. Disposal

- If disposed of improperly third parties may possibly be seriously injured and the environment polluted.
- Burning plastic components generate toxic fumes which may impair health.
- 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 – must not be disposed of with household waste.



Dispose of the device and the accessories properly.
Only dispose of rechargeable batteries when discharged.
Observe the country-specific disposal requirements.

Your SOLA dealership will accept returned batteries as well as old equipment, and will ensure proper disposal.

Only for EU countries

Electric tools must not be disposed of with household waste!



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

12. Manufacturer's guarantee

“The manufacturer warrants to the original purchaser stated on the guarantee card, freedom from defects of the device for a period of two years, with the exception of batteries, from such time as the device is handed over. The guarantee is limited to repairs and/or replacements at the 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 these are stipulated 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 device's 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.”

Passion for Precision

**SOLA-Messwerkzeuge
GmbH & Co KG**
Unteres Tobel 25
6840 Götzis, Austria
T +43 5523 53380-0
sola@sola.at, www.sola.at

**SOLA-Messwerkzeuge
GmbH & Co. KG**
Heuriedweg 69
88131 Lindau, Germany
T +49 8382 28585
sola@sola.at, www.sola.de

SOLA Suisse AG
Grenzstrasse 24
9430 St. Margrethen, Switzerland
T +41 71 740 1616
info@solasuisse.ch
www.solasuisse.ch