MANUAL

ENGLISH

Laser Distance Meter V1

Ordercode: 91007

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Warning

For your own safety, please read this user manual carefully before your initial start-up!

Unpacking Instructions

Immediately upon receiving this product, carefully unpack the carton and check the contents to ensure that all parts are present, and have been received in good condition. Notify the dealer immediately and retain packing material for inspection if any parts appear damaged from shipping or the carton itself shows signs of mishandling. Save the carton and all packing materials. In the event that a fixture must be returned to the factory, it is important that the fixture be returned in the original factory box and packing.

Your shipment includes:

- Showtec Laser Distance Meter
- 1 x carrying case
- User manual

CAUTION!
Keep this device away from rain and moisture!
Unplug mains lead before opening the housing!

Safety Instructions

Every person involved with the installation, operation and maintenance of this device has to:

- be qualified
- follow the instructions of this manual

Before the initial start-up, please make sure that there is no damage caused by transportation. Should there be any, consult your dealer and do not use the device.

To maintain perfect condition and to ensure a safe operation, it is absolutely necessary for the user to follow the safety instructions and warning notes contained in this manual.

Please consider that damages caused by manual modifications to the device are not subject to warranty.

This device contains no user-serviceable parts. Refer servicing to qualified technicians only.

IMPORTANT:

The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual or any unauthorized modification to the device.

- Never remove warning or informative labels from the unit.
- Do not open the device and do not modify the device.
- Do not disconnect and reconnect the device in short intervals, as this would reduce the device's life.
- Only use the device indoors, avoid contact with water or other liquids.
- Avoid flames and do not put close to flammable liquids or gases.
- Always remove the batteries, when the device is not used or before cleaning!
- Make sure that the device is not exposed to extreme heat, moisture or dust.
- If the device is dropped or struck, have a qualified engineer inspect for safety before operating.
- If the device has been exposed to drastic temperature fluctuation (e.g. after transportation), do not switch it on immediately. The arising condensation water might damage your device. Leave the device switched off until it has reached room temperature.
- If your Showtec device fails to work properly, discontinue use immediately. Pack the unit securely (preferably in the original packing material), and return it to your Showtec dealer for service.
- Repairs, servicing and electric connection must be carried out by a qualified technician.
- WARRANTY: Till one year after date of purchase.

Operating Determinations

- This device is not designed for permanent operation. Consistent operation breaks will ensure that the device will serve you for a long time without defects.
- The maximum ambient temperature t_a = 40°C must never be exceeded.
- The relative humidity must not exceed 50 % with an ambient temperature of 40° C.
- If this device is operated in any other way than the one described in this manual, the product may suffer damages and the warranty becomes void.

You endanger your own safety and the safety of others!

Return Procedure

Returned merchandise must be sent prepaid and in the original packing, call tags will not be issued. Package must be clearly labeled with a Return Authorization Number (RMA number). Products returned without an RMA number will be refused. Highlite will not accept the returned goods or any responsibility. Call Highlite 0031-455667723 or mail aftersales@highlite.nl and request an RMA prior to shipping the fixture. Be prepared to provide the model number, serial number and a brief description of the cause for the return. Be sure to properly pack fixture, any shipping damage resulting from inadequate packaging is the customer's responsibility. Highlite reserves the right to use its own discretion to repair or replace product(s). As a suggestion, proper UPS packing or double-boxing is always a safe method to use.

Note: If you are given an RMA number, please include the following information on a piece of paper inside the box:

01) Your name
02) Your address
03) Your phone number
04) A brief description of the symptoms

Claims

The client has the obligation to check the delivered goods immediately upon delivery for any short-comings and/or visible defects, or perform this check after our announcement that the goods are at their disposal. Damage incurred in shipping is the responsibility of the shipper; therefore the damage must be reported to the carrier upon receipt of merchandise.

It is the customer's responsibility to report and submit claims with the shipper in the event that a fixture is damaged due to shipping. Transportation damage has to be reported to us within one day after receipt of the delivery.

Any return shipment has to be made post-paid at all times. Return shipments must be accompanied with a letter defining the reason for return shipment. Non-prepaid return shipments will be refused, unless agreed otherwise in writing.

Complaints against us must be prepared in writing or sent by fax within 10 working days after receipt of the invoice. After this period complaints will not be handled anymore.

Complaints will only then be considered if the client has so far complied with all parts of the agreement, regardless of the agreement from which the obligation is resulting.

Description of the device

Features

Below, the main features of the Showtec Laser Distance Meter.

- Power supply: 3 x 1,5V AAA battery
- Area Measurement Mode
- Volume Measurement Mode
- Pythagorean Theorem Measurement Mode
- 99 storage slots
- Maximum distance measurement: 40 m
- Measurement precision: ±1,5 mm
- Compact size
- Laser output: class 2, 635nm, <1mW
- Dimensions: 120 x 60 x 30 mm (LxWxH)
- Weight: 0,16 kg

Overview

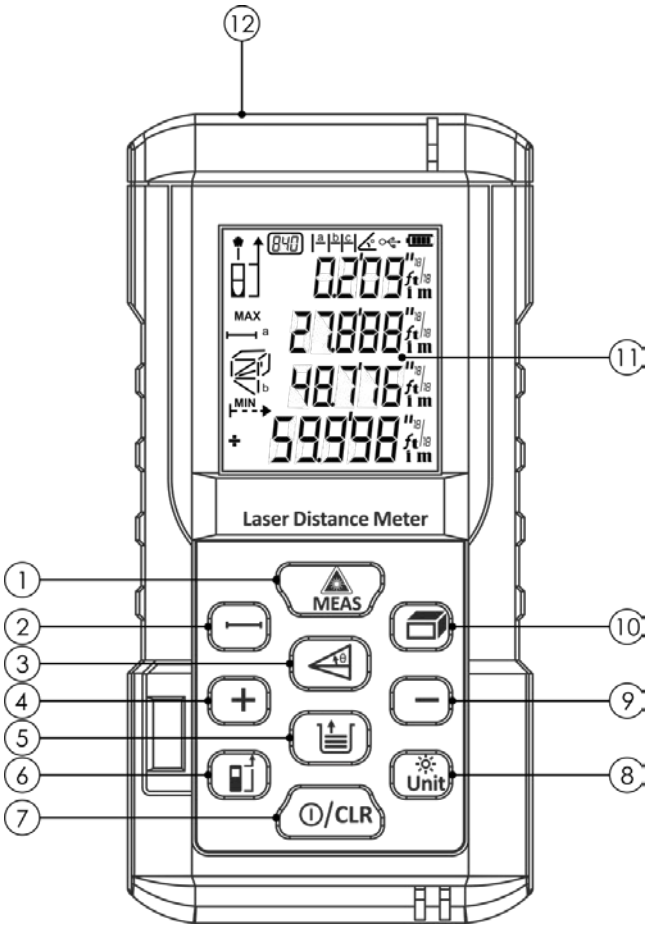


Fig. 01

01) Measurement button
02) Single measurement mode button
03) Pythagorean calculation mode button
04) Add/Next button
05) Store button
06) Benchmark button
07) Power switch/Remove/Backlight button
08) Unit of measurement choice button
09) Subtract/Previous button
10) Area/Volume measurement function button
11) LCD display
12) Laser lens

Installation

Remove all packing materials from the Laser Distance Meter. Check if all foam and plastic padding is removed. Connect all cables.
Always remove the batteries before cleaning and/or servicing or if the device is not used for a longer period of time. Damages caused by non-observance are not subject to warranty.

Set Up and Operation

Follow the directions below, as they pertain to your preferred operation mode.
Make sure that you use 1,5V AAA alkaline batteries.

Replacing batteries

01) Place 3 x 1,5V AAA alkaline batteries in the battery housing in the way presented below (see Fig. 02).
02) You can monitor the battery state by looking at the battery icon on the display.

Fig. 02

Switching ON/OFF

01) Press the MEAS button to switch the device ON.
02) In order to switch the device OFF, press the ⏻/CLR button and hold it down for 3 seconds.
03) The device will automatically switch OFF, if unused for 150 seconds.

Units of measurement/Backlight

01) Repeatedly press the Unit button to toggle between the available units of measurement:
- meters **(m)**
- inches **(in, ‘ “)**
- feet **(ft)**

02) Press and hold down the Unit button for 3 seconds to switch the display backlight ON/OFF.

Setting a benchmark

01) Repeatedly press the button to set the benchmark (starting point) of the measurement. There are 2 options available: the laser lens or the bottomside of the device.

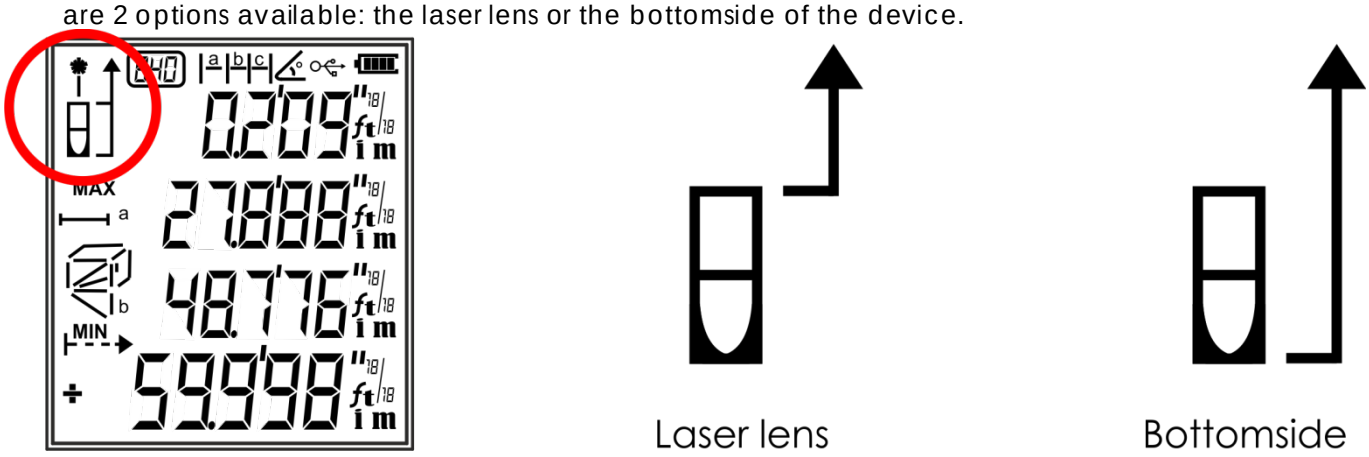


Fig. 03

02) The benchmark has been set. Now, the device will recognize it as the reference point, while processing the measurements.

Saving measurements

01) Once you have made a measurement, press and hold down the button for 3 seconds.
02) The device will now store the measurement in its database. The display will show the current storage slot.

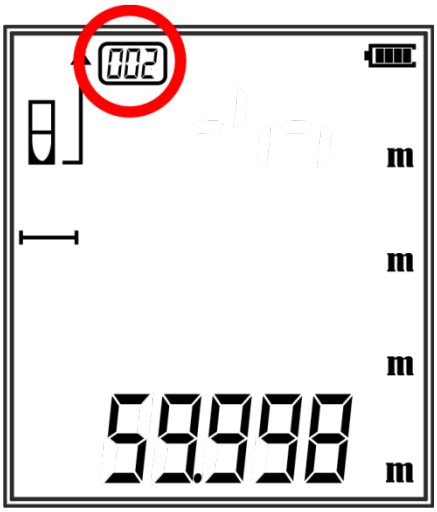


Fig. 04

Browsing through measurements

01) Once you have stored a number of measurements, press the button **(do not hold it down)**.
02) Press the + and − buttons to toggle between the stored measurements.

Control Modes

Single Measurement Mode

01) After switching the device to ON position, press the MEAS button to activate the laser beam.
02) Press the MEAS button again, to measure the desired distance.
03) The display will now show the measured distance.
04) Repeat steps 1-3 to perform more measurements. The results will be displayed on the screen.

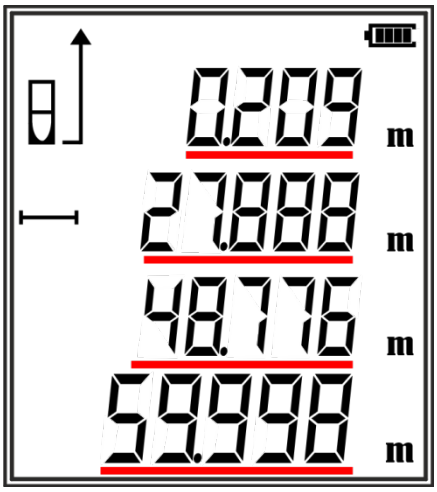


Fig. 05

05) It is possible to add/subtract the measured values. After switching the device to ON position, press the + or − button. The "+" or "-" symbol will appear on the display.
06) Repeat steps 1-3 as many times as desired. The display will show the outcome of adding/subtracting the values.

Continuous Measurement Mode

01) After switching the device to ON position, press the MEAS button and hold it down for 3 seconds.
02) The device is now operating in Continuous Measurement Mode and will automatically perform a number of measurements.
03) Once it is finished, the device will display the maximal and minimal values.

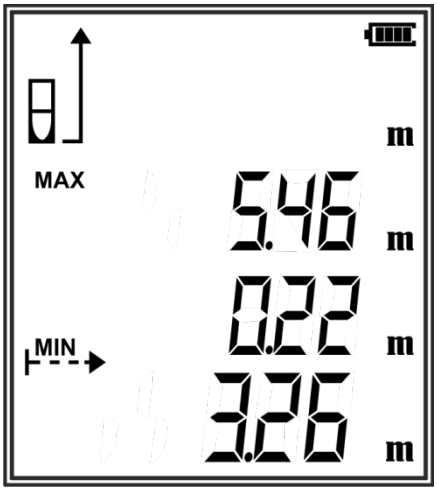


Fig. 06

04) Press the MEAS button to quit the Continuous Measurement Mode.

Area Measurement Mode

01) After switching the device to ON position, press the button to activate the mode.
02) The display will show:

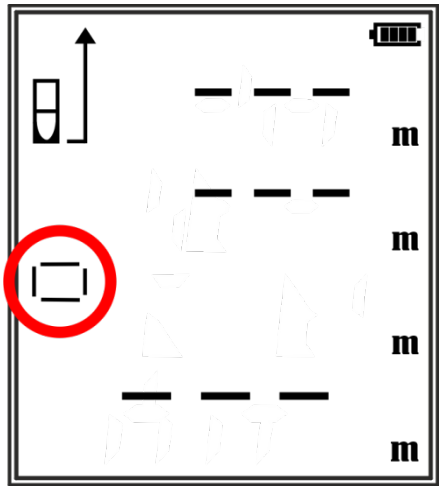


Fig. 07

03) Press the MEAS button to measure the length of the object. The display will show the measured distance.
04) Press the MEAS button again, to measure the width of the object. The display will show the measured distance and the area of the object (in m^2):

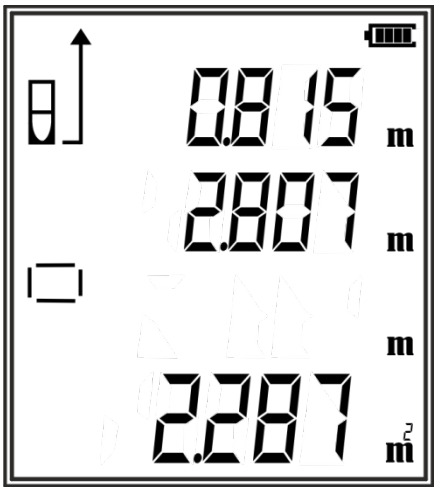


Fig. 08

05) Press the ⏻/CLR button to reset the device and to perform another measurement.

Volume Measurement Mode

01) After switching the device to ON position, press the button twice.
02) The display will show:

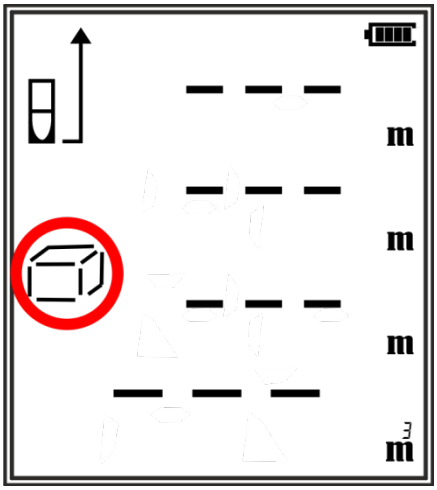


Fig. 09

03) Press the MEAS button to measure the length of the object. The display will show the measured distance.
04) Press the MEAS button again, to measure the width of the object. The display will show the measured distance.
05) Press the MEAS button again, to measure the height of the object. The display will show the measured distance and the volume of the object (in m^3):

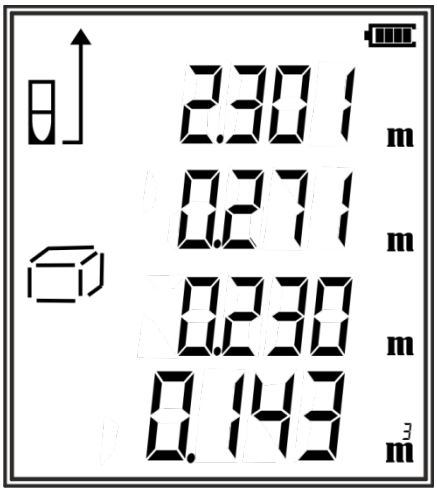


Fig. 10

Pythagorean Theorem Mode – Calculating the Opposite

01) After switching the device to ON position, press the button to activate the mode.
02) Press the MEAS button to activate the laser beam.
03) Press the MEAS button again, to measure the hypotenuse **(a)** of the right-angled triangle. The display will show the measured distance.
04) Press the MEAS button again to measure the adjacent **(b)** of the right-angled triangle. The display will show the measured distance.
05) The device will now show the length of the opposite **(x)**.

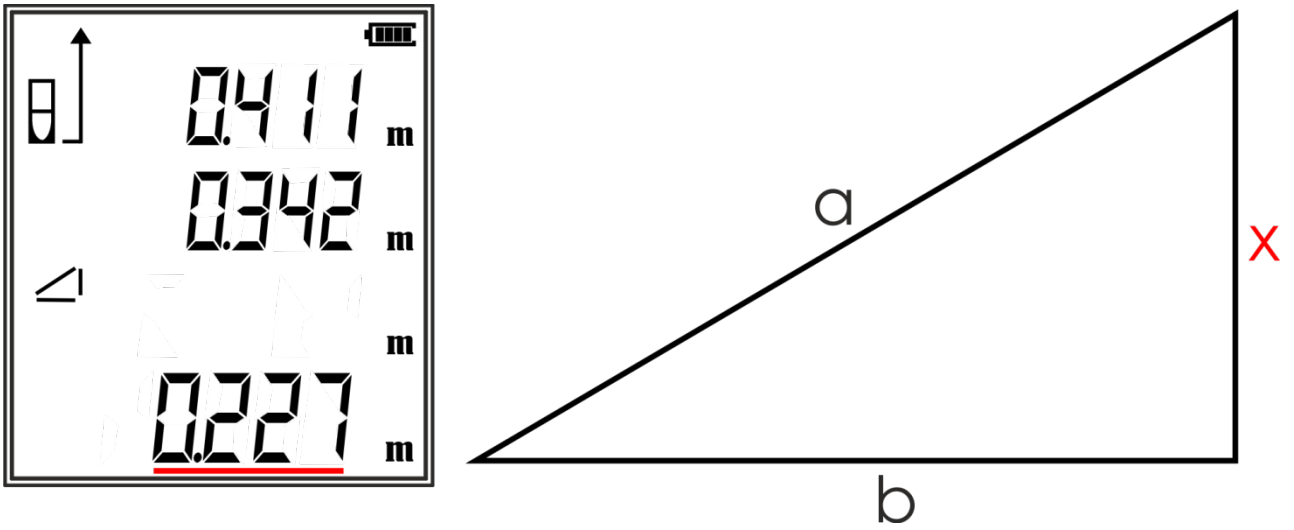


Fig. 11

Pythagorean Theorem Mode – Calculating the Hypotenuse

01) After switching the device to ON position, press the button twice to activate the mode.
02) Press the MEAS button to activate the laser beam.
03) Press the MEAS button again, to measure the opposite **(a)** of the right-angled triangle. The display will show the measured distance.
04) Press the MEAS button again to measure the adjacent **(b)** of the right-angled triangle. The display will show the measured distance.
05) The device will now show the length of the hypotenuse **(x)**.

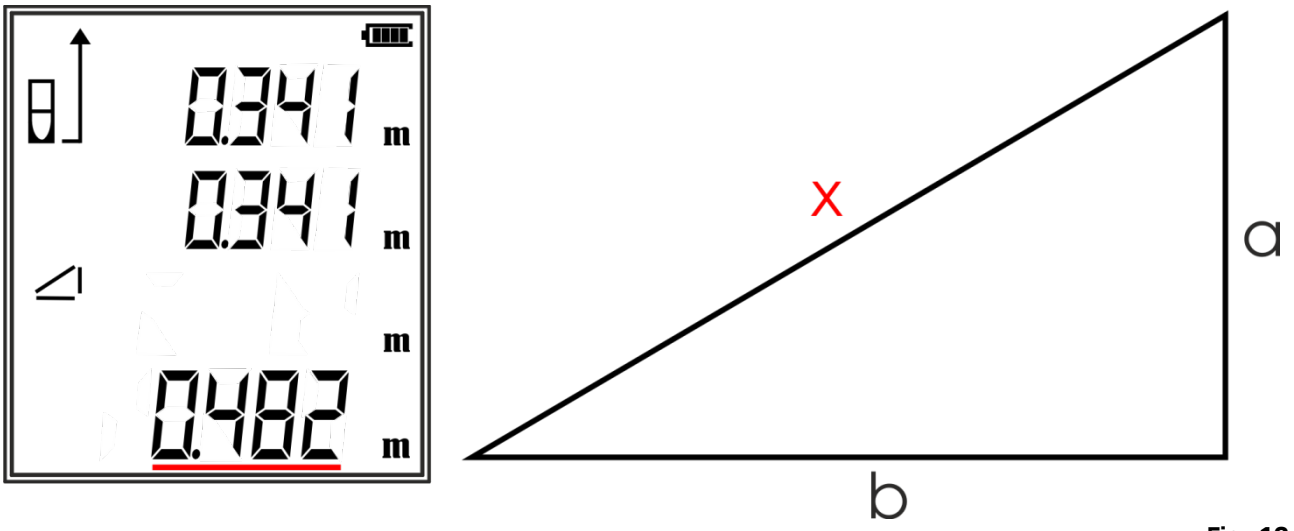
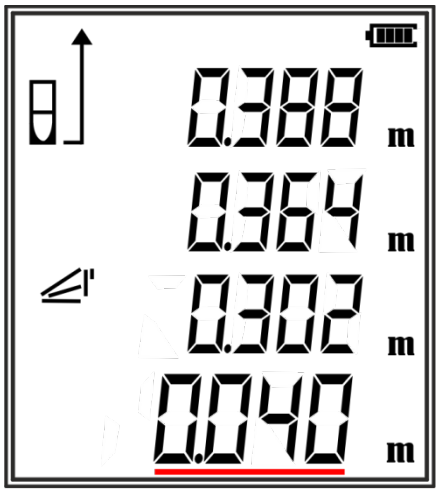


Fig. 12

Pythagorean Theorem Mode – Calculating the "X"

01) After switching the device to ON position, press the button 3 times to activate the mode.
02) Press the MEAS button, to measure the hypotenuse **(a)** of the right-angled triangle. The display will show the measured distance.
03) Press the MEAS button again to measure the height **(b)** of the right-angled triangle. The display will show the measured distance.
04) Press the MEAS button again to measure the adjacent **(c)** of the right-angled triangle. The display will show the measured distance.
05) The device will now show the length of the x-leg **(x)**.



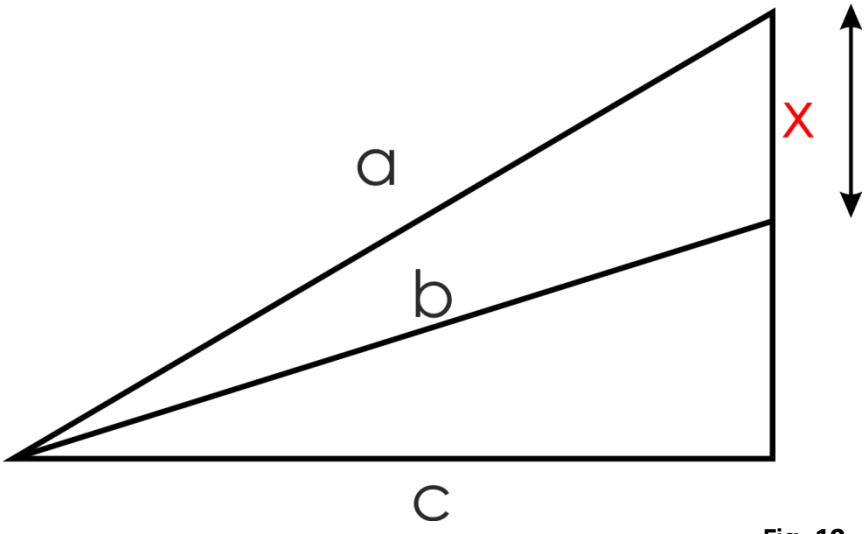
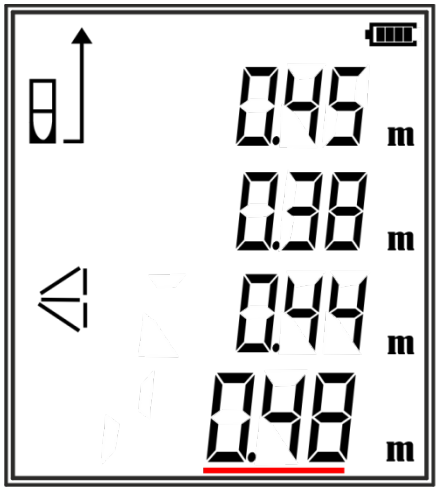


Fig. 13

Pythagorean Theorem Mode – Calculating the Opposite of a Triangle

01) After switching the device to ON position, press the button 4 times to activate the mode.
02) Press the MEAS button, to measure the leg **(a)** of a triangle. The display will show the measured distance.
03) Press the MEAS button again to measure the height **(b)** of the triangle. The display will show the measured distance.
04) Press the MEAS button again to measure the other leg **(c)** of the triangle. The display will show the measured distance.
05) The device will now show the length of the x-leg **(x)**.



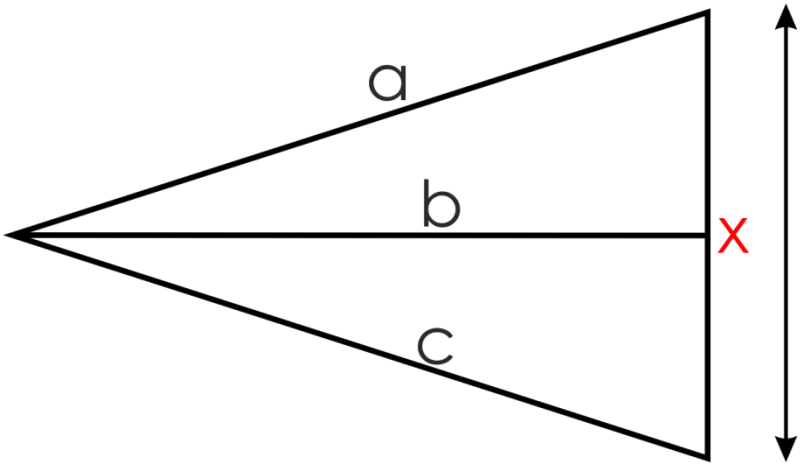


Fig. 14

Maintenance

The operator has to make sure that safety-related and machine-technical installations are to be inspected by an expert after every year in the course of an acceptance test.
The operator has to make sure that safety-related and machine-technical installations are to be inspected by a skilled person once a year.

The Laser Distance Meter requires almost no maintenance. However, you should keep the unit clean. Wipe the cover with a damp cloth. Do not immerse in liquid. Wipe laser lens clean with glass cleaner and a soft cloth. Do not use alcohol or solvents. Make sure that connections are thoroughly dry before supplying batteries.

Troubleshooting

This troubleshooting guide is meant to help solve simple problems.
If a problem occurs, carry out the steps below in sequence until a solution is found. Once the unit operates properly, do not carry out the following steps.

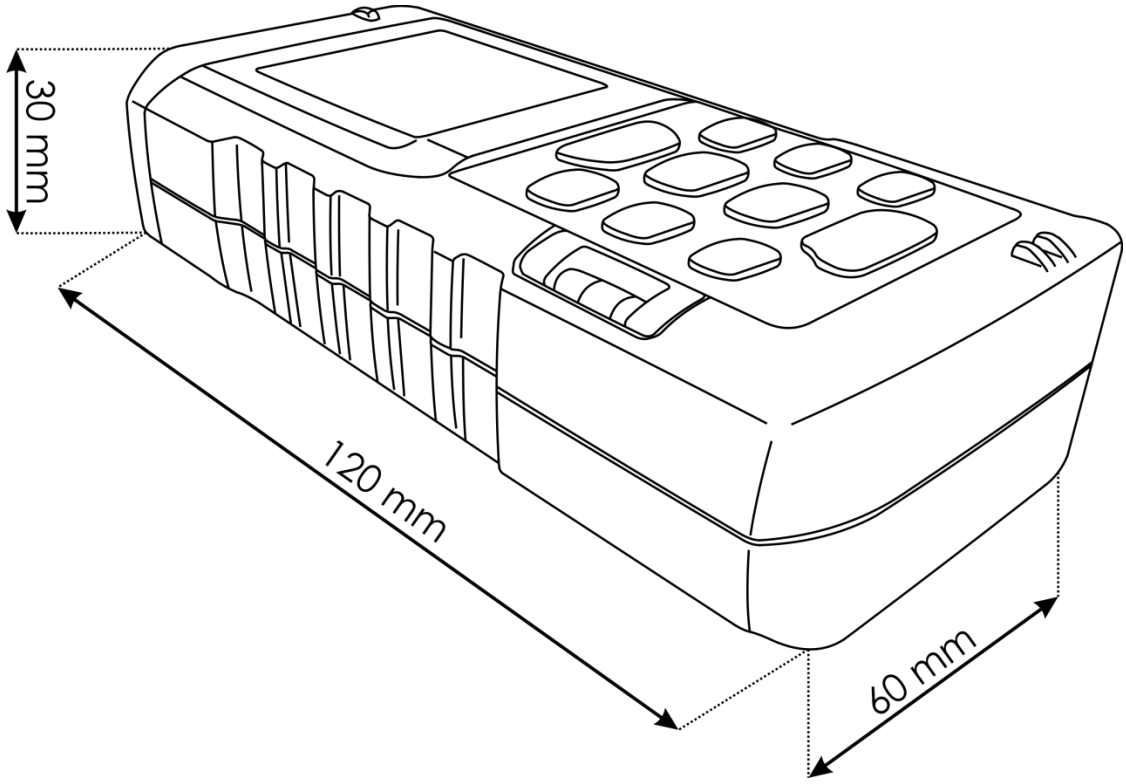
Errors

01) While performing measurements, you may expect some errors. They are caused either by the faulty device or by a user error.
02) Follow the tips from the list below:

Error	Cause	Solution
Err 1	Too weak signal.	Aim the laser beam at a surface with better reflective qualities.
Err2	Too strong signal.	Aim the laser beam at a surface with lesser reflective qualities.
Err3	Battery is low.	Replace the batteries.
Err4	Too high operating temperature.	Perform measurements in suitable temperature conditions.
Err5	The measured length of the hypotenuse is incorrect.	Remeasure the hypotenuse, making sure that its length is bigger than that of the adjacent or the opposite.
Err6	Memory damage	Return the device to your Showtec dealer.

Product Specifications

Model:	Showtec Laser Distance Meter
Power supply:	3 x 1,5V AAA battery
Dimensions:	120 x 60 x 30 mm (LxWxH)
Weight:	0,16 kg
Details:	
Laser output:	class 2, 635nm, <1mW
Housing:	Plastic
Onboard:	LCD display for easy setup
Control:	Area Measurement Mode, Volume Measurement Mode, Pythagorean Theorem Measurement Mode
Memory:	99 storage slots
Maximum distance measurement:	40 m
Max. ambient temperature t_a:	40°C
Max. housing temperature t_B:	80°C



Design and product specifications are subject to change without prior notice.

CE

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