



Laser Distance Meter
Laser-Distanzmesser
Laser distance-mètre
Metro di distanza laser
Medidor Láser de Distancia

User Manual

Please read this manual before switching the unit on.
Important safety information inside.



Laser Distance Meter User Manual



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The compact and handy base model was specifically designed for indoor applications. Shortcut and Soft grip keys for addition, subtraction, area and volume calculation make measuring fast and very reliable.

1. Safety Instruction

Permitted Use

- Measuring distances
- Computing functions, e. g. areas and volumes

Prohibited Use

- Using the instrument without instruction
- Using outside the stated limits
- Deactivation of safety systems and removal of explanatory and hazard labels
- Opening of the equipment by using tools (screwdrivers, etc.), as far as not specifically permitted for certain cases
- Carrying out modification or conversion of the product
- Use of accessories from other manufacturers without the express approval of CEM Technology.
- Deliberate or irresponsible behavior on scaffolding, when using ladders, when measuring near machines which are running, or near parts of machines or installations which are unprotected
- Aiming directly into the sun
- Inadequate safeguards at the surveying site (e.g. when measuring on roads, construction sites, etc.)

Laser Classification

The CEM produced a visible laser beam which emerges from the front of the instrument.

Laser Class 2 products:

Do not stare into the laser beam or direct it towards other people unnecessarily. Eye's protection is normally afforded by aversion responses including the blink reflex.



WARNING:

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

Precautions:

Do not look directly into the beam with optical aids.



CAUTION:

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

Precautions:

Do not look into the laser beam. Make sure the laser is aimed above or below eye level.

2.Start-Up

Inserting/Replacing Batteries (See "Figure A")

- 1) Remove battery compartment lid.
- 2) Insert batteries, observing correct polarity.
- 3) Close the battery compartment again.
 - Replace the batteries when the symbol "≡" flashes permanently in the display.
 - Use alkaline batteries only.
 - Remove the batteries before any long period of non-use to avoid the danger of corrosion

Keypad (See "Figure B")

- | | | |
|--|---------------------------------|-------------------------------|
| 1- ON/MEAS button | 6- Plus (+) button | 12- Illuminating/UNITS button |
| 2- Bluetooth/Timer button | 7- Clear/Off button | 13-Side MEAS button |
| 3- Single/Continuous Distance measurement button | 8- Reference button | |
| 4- Area/Volume button | 9- Tilt/Stake out button | |
| 5- Storage button | 10- Indirect measurement button | |
| | 11- Minus (-) button | |

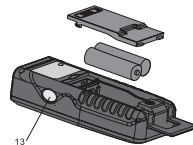


Figure A

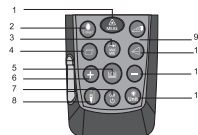


Figure B

LCD Display (See "figure C")

- 1- Laser active
- 2- Reference level (front)
- 3- Reference level (rear)
- 4- Reference level (tripod)
- 5- Reference level (end piece)
- 6- Area/Volume measuring functions
 - ▢ Area measurement
 - ▢ Volume measurement
- 5- Single distance measurement
- 6- Battery status
- 7- Variable Indirect measuring functions
 - ▢ Single Pythagorean measurement
 - ▢ Double Pythagorean measurement
 - ▢ Double Pythagorean (partial height) measurement
 - ▢ Tilt measurement
- 8- Stake out function

- 9- Battery status
- 10- Single distance measurement
- 11- Continuous measurement & Max and Min measurement
- 12- Instrument error warning
- 13- Historical memory
- 14- Bluetooth
- 15- Timer
- 16- Tilt
- 17- Intermediate line 1
- 18- Intermediate line 2
- 19- Intermediate line 3
- 20- Summary line

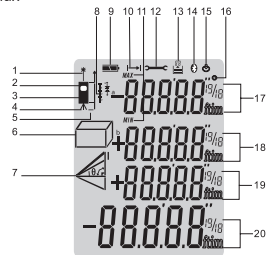


Figure C

3.Initial Operation and Setting

Switching On and Off



Switches on the instrument and laser.



Press this button longer to switch off the instrument.

The instrument switches off automatically after three minutes of inactivity.

Clear Button



The last action is cancelled or the data display is cleared. If in the mode of History storage, press Storage button and Clear button simultaneously will clear all storage data in the memory.

Reference Level Setting (See "Figure D")

The default reference setting is from the rear of the instrument. Press this button  to take the selection from the front edge . A special beep sounds whenever the reference setting is changed. After a re-startup the reference returns automatically to the default setting (rear reference).

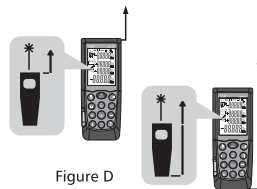


Figure D

Using the Tripod reference

The reference must be appropriately adjusted in order to be able to take correct measurements with a tripod. You can switch the reference on the tripod on or off by longer pressing the reference button.

Multifunctional end piece

The instrument can be adapted for the following measuring situations See figure {E}..

- For measurements from an edge, fold out the positioning bracket until it first locks in place.
 - For measurements from a corner, open the positioning bracket until it locks in place, then push the positioning bracket lightly to the right to fold it out fully.
- See figure {F}.

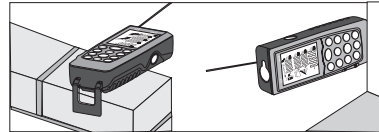


Figure E

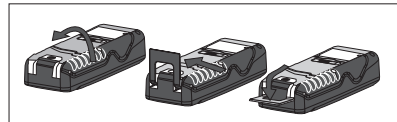


Figure F

Display Illumination

 Click illumination/UNITs button of the display can be switched on or off, user can trigger the function when he/she is in darkness situation.

Distance Unit Setting For Instrument

 Click the button longer to change the next type of unit. The following unit can be set:

	Distance	Area	Volume
1	0.000 m	0.000 m ²	0.000 m ³
2	0.0 in	0.000 ft ²	0.000 ft ³
3	0 1/16 in	0.000 ft ²	0.000 ft ³
4	0.000 ft	0.000 ft ²	0.000 ft ³
5	0' 00" 1/16	0.000 ft ²	0.000 ft ³

4. Measuring

Single Distance Measurement



Press to activate the laser.

Press again to trigger the distance measurement. The measured value is displayed immediately.

Continuous laser



Press and hold down the key until the Laser active character appears permanently in the display and a beep sounds. Every further press of the key releases a distance measurement. You can switch the continuous laser function on or off by press this button longer.



Or you can press the key to switch the device and Laser continuous operation off.

If the laser is in continuous operation mode, the laser automatically switches off after 3 minutes.

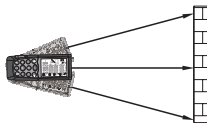
Continuous Measurement (Tracking) & Max and Min Measurement (See "Figure G")

The continuous measurement function (tracking) is used for the transferring of measurements, e.g., from construction plans. In continuous measurement mode, the measuring tool can be moved to the target, whereby the measured value is updated approx. every 0.5 seconds in the third line. The corresponding minimum and maximum values are displayed dynamically in the first and second line.

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As an example, the user can move from a wall to the required distance, while the actual distance can be read continuously. For continuous measurement, push button  until the indicator for continuous measurement appears in the display. And press MEAS or Clear button again to stop the function. The function is terminated automatically after continuous 100 times measurement.

MIN



MAX

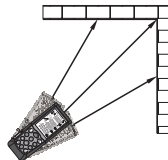


Figure G

5.Functions

Addition / Subtraction

Distance measuring.

-  The next measurement is added to the previous one.
-  The next measurement is subtracted from the previous one.
-  The last step is cancelled.
-  Return to the single distance measurement

Area Measurement

Press the Area/Volume button once. The  symbol appears in the display.

Press  button to take the first length measurement (e.g. length).

Press  again to take the second length measurement (e.g. width).

The result of the function is displayed in the summary line.

Volume Measurement

For volume measurements, push Area/Volume button twice until the  indicator for volume measurement appears in the display.

-  press to takes first distance measurement (e.g. length)
-  press to takes second distance measurement(e.g. width)
-  press to takes the third distance measurement(e.g. height).

The result of the function is displayed in the summary line.

Indirect Measurement (See "Figure H")

Indirect measurement - determining a distance using 2 auxiliary measurements.

e.g. when measuring heights that require the measurement of two or three measurements as following step:

Press this button  once, the display  shows. The distance to be measured flashes in the symbol.

 Aim at the upper point (1) and trigger the measurement.

After the first measurement the value is adopted. Keep the instrument as horizontal as possible.

 Press to measurement the distance result of the horizontal point (2).

The result of the function is displayed in the summary line.

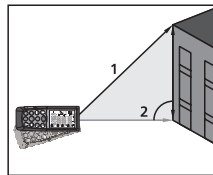


Figure H

Indirect Measurement - Determining a Distance Using 3 Measurements (See "Figure I")

Press this button  twice; the display shows the following symbol, the display  shows. The distance to be measured flashes in the symbol.

 Aim at the lower point (1) and trigger the measurement. After the first measurement the value is adopted. Keep the instrument as horizontal as possible.

 Press to measurement the distance result of the horizontal point (2).

 Press to measurement the distance result of the upper point (3).

The result of the function is displayed in the summary line.

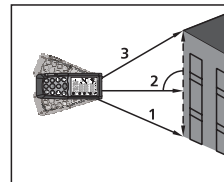


Figure I

Indirect Measurement - Determining a Distance Using 3 Measurements (See "Figure J")

Press this button  three times; the display shows the following symbol, the display  shows. The distance to be measured flashes in the symbol.

-  keep instrument as horizontal as possible, aim at the point (1) and trigger the measurement.
-  Press to measurement the distance result of the middle point (2).
-  Press to measurement the distance result of the upper point (3).

The result of the function is displayed in the summary line.

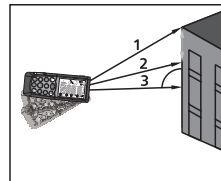


Figure J

Historical Storage

-  the previous 20 records (measurements or calculated results) are shown in the reverse order. Use the   buttons to navigate through these records.

You can clear all records by press Storage button and Clear button simultaneously in historical storage mode..

Timer (self-triggering)



Press this button to set a 5-second time delay.

or



Press and hold down this button until the desired time delay is reached (max. 60 seconds).

Or you can use   button to change time delay.



Press this button, remaining seconds until measurement (e.g. 59, 58, 57...) are displayed in a countdown. The last 2 seconds will flash and beep faster. After the last beep the measurement is taken and the value is displayed.

Bluetooth

Switching on BLUETOOTH / sending measurements



Press and hold until the Bluetooth symbol appears in the display. Then you can use our Meterbox APP installed on your phone to connect with this instrument.

Whilst the first connection between the Phone/PC and the Laser distance meter is being established, a prompt for the Pin-code of the instrument may be displayed. In this case, enter the code 0000 into your Phone/PC.

Switching off BLUETOOTH



Press and hold until the Bluetooth symbol disappears in the display. The BLUETOOTH switches off as soon as the instrument is switched off.

Stake out function (See "Figure K")

Two different distances (a and b) can be entered into the instrument and can then be used to mark off defined measured lengths, e.g. in the construction of wooden frames.

Entering stake out distances:

 Press this button longer and the stake out function symbol appears in the display. The value (a) and the corresponding intermediate line flash. By using and   , you can adjust the values (first a and then b) to suit the desired stake out distances. Holding the buttons down increases the rate of change of the values.

Once the desired value (a) has been reached it can be confirmed with the button  . The value (b) and the intermediate line flashes (the defined value (a) is automatically adopted). Value (b) can be entered using and   . The defined value (b) is confirmed with the  button.

Pressing  the button starts the laser measurement. The display shows current measuring distance in the summary line. Then moved slowly along the stake out line the displayed distance decreases. The instrument starts to beep at a distance of 0.1m from the next stake out point.

The arrows in the display indicate in which direction the instrument needs to be moved in order to achieve the defined distance (either a or b). As soon as the stake out point is reached the beep changes and the intermediate line starts to flash.

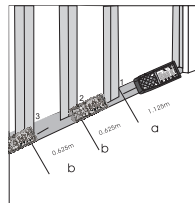


Figure K

The function can be stopped at any time by pressing   the button.

Tilt measurement (See "Figure L")

The inclination sensor measures tilts between $\pm 65^\circ$.

During tilt measurement the instrument should be held without a transverse tilt ($\pm 10^\circ$).

 Press this button once to activate the tilt sensor.

The symbol appears in the display. The tilt value is displayed in the intermediate line 1.

Press to measure the inclination and the distance.

The distance (L) shows in the summary line, and the distance (A) (B) calculated by α and L shows in the intermediate line 2, 3.

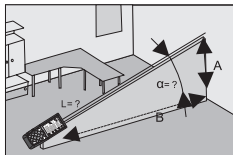


Figure L

6. Technical Data

Technical Specifications	Model: iLDM-150
Range (use target plate from about 50m)	0.05 to 70 m*(0.2 in to 229 ft*)
Measuring accuracy up to 10m (2 σ , standard deviation)	Typically: ± 1.5 mm** ($\pm 1/16$ in**)
Measuring units	m,in,ft
Laser Class	Class II
Laser Type	635 nm, <1mW
Smallest unit displayed	1mm
Tilt measurements:	
Tilt sensor:	$\pm 65^\circ$
Measuring range	
Accuracy(2 σ , standard deviation)	
- to laser beam	$\pm 0.5^\circ$
- to the housing	$\pm 0.5^\circ$
Area, Volume Calculations	✓
Indirect measurement using Pythagoras	✓

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Indirect measurement using tilt sensor (direct horizontal distance)	√
Angle measurement using tilt sensor($\pm 65^\circ$)	√
Addition/Subtraction	√
Continuous Measurement	√
Min/Max Distance Tracking	√
Timer (self-triggering)	√
Laser continuous	√
Stake out function	√
Display illumination and multi-line display	√
Multifunctional endpiece	√
Tripod thread	√
Beep indication	√
BLUETOOTH® 3.0 EDR	√
Range of BLUETOOTH®	10m
BLUETOOTH® with Apple ipod/iphone support	√
BLUETOOTH® with SPP support	√

Dust Protect/Splash proof	IP 54
History measurement records	20
Keyboard Type	Super Soft-Touch (Long life)
Operating Temperature	0°C to 40°C(32°F to 104°F)
Storage Temperature	-10°C to 60°C(14°F to 140°F)
Batteries	Type AA 2 x 1.5V
Battery Life	up to 8,000 measurements
Auto laser switch-off	after 30 seconds
Auto instrument switch-off	after 3 min
Dimension	135 x 53 x 30 mm
Weight	160g

* Use a target plate to increase the measurement range during daylight or if the target has poor reflection properties

** in favourable conditions (good target surface properties, room temperature) up to 10 m (33 ft). In unfavourable conditions, such as intense sunshine, poorly reflecting target surface or high temperature variations, the deviation can increase by ± 0.15 mm/m (± 0.0018 in/ft).

7.Troubleshooting – Causes and Corrective Measures

Code	Cause	Corrective measure
204	Calculation error	Repeat procedure
208	Received signal too weak, measurement time too long. Distance >50m	Use target plate
209	Received signal too strong	Target too reflective(use target plate)
252	Temperature too high	Cool down instrument
253	Temperature too low	Warm up instrument
255	Hardware error	Switch on/off the device several times, If the symbol still appears, please contact your dealer for assistance.

8. Measuring Conditions

Measuring Range

The range is limited to 70m.

At night or dusk and if the target is in shadow the measuring range without target plate is increased. Use a target plate to increase the measurement range during daylight or if the target has poor reflection properties.

Target Surfaces

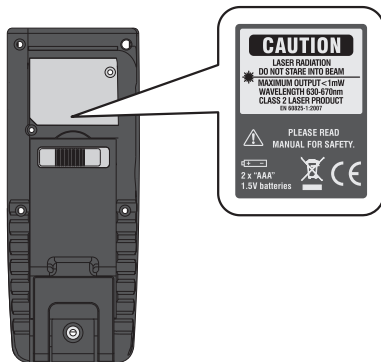
Measuring errors can occur when measuring toward colorless liquids (e.g. water) or dust free glass, Styrofoam or similar semi-permeable surfaces. Aiming at high gloss surfaces may deflect the laser beam and lead to measurement errors.

Against non-reflective and dark surfaces the measuring time may increase.

Care

Do not immerse the instrument in water. Wipe off dirt with a damp, soft cloth. Do not use aggressive cleaning agents or solutions. Handle the instrument as you would a telescope or camera.

9. Labelling







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