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Manual
Laser distance meter
PCE-LDM 50

Content

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. Moreover, the CEM LDM-100 with most advanced angle Sensor not only indicates vertical angle measurements, but also can obtain real horizontal distances when the target is obstructed, and perform various indirect height.

Permitted Use

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

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 and attach and strap.
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

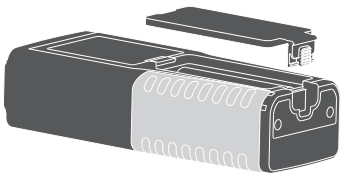


Figure A

Keypad (See "Figure B")

1) ON / MEAS (On/Measuring) button
2) Area / Volume button
3) Indirect measurement (Angle) button
4) Continuous measurement button
5) Plus (+) button
6) Minus (−) button
7) Storage button
8) Reference level button
9) Illuminating/UNITS button
10) Clear/Off button

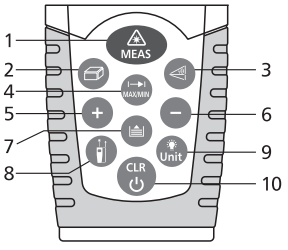


Figure B

LCD Display (See "figure C")

1) Laser active
2) Reference level (front)
3) Reference level (rear)
4) Variable measuring functions
   — Length measurement
   Area measurement
   Volume measurement
   Angle measurement Horizontal distance measurement using Angle
   Indirect measurement
   Indirect (second) measurement
5) Continuous measurement
6) Battery status
7) Historical memory, call up values
8) Instrument error warning
9) Angle senor open
10) First value display line
11) Second value display line
12) Summary line for last measure or calculation result

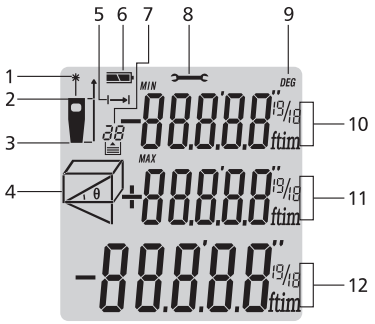


Figure C

3.Initial Operation and Setting

Switching On and Off

MEAS Switches on the instrument and laser. The display shows the battery symbol until the next button is pressed.

CLR Press this button longer to switch off the instrument.
The instrument switches off automatically after three minutes of inactivity.

CLEAR button

CLR The last action is cancelled or the data display is cleared, while making measurements. If in mode of History storage each single measurement will be deleted from the memory after click the button.

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).
Press this button to set the rear reference again.

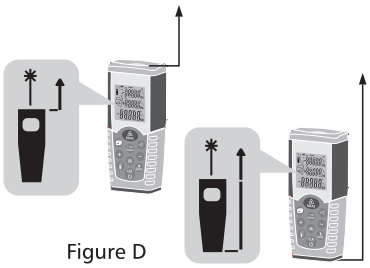


Figure D

In a word, to select the reference level, push button 8 repeatedly until the required reference level is indicated in the display. Each time after switching on, the rear edge of the measuring tool is preset as the reference level.

Display illumination

Unit 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. The value is clear viable on the LCD

Distance unit setting for instrument

Unit Click the button longer to change the next type of unit, **m, ft. in, ft+in** then continue to click the button for the next unit selection

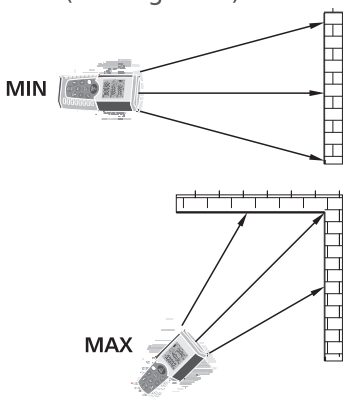
4.Measuring

Single distance measurement

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

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

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. The corresponding dynamically maximum and minimum values are displayed in the first and second line



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 MAX/MIN until the indicator for continuous measurement appears in the display. And press it again or MEAS to stop the function. The function is terminated after continuous 100 times measurement.

5.Functions

Addition / Subtraction

Distance measuring.

\+ The next measurement is added to the previous one, then press MEAS the second measured value is shown and the result is shown automatically.

− The next measurement is subtracted from the previous one, then press MEAS the result is always shown in the summary line with the previous value in the second line.

CLR The last step is cancelled.

Area measurement

Press once. The ▱ symbol appears in the display.
Press MEAS button to take the first length measurement (e.g. length).
Press MEAS again to take the second length measurement (e.g. width).
After taking the second measurement, the area/surface is automatically calculated and displayed in the summary line. The last individual measured value is indicated at the second line in the display.

Volume measurement

For volume measurements, push button twice until the indicator for volume measurement appears in the display. Afterwards, Press this button MEAS to measure the length, Press this button MEAS for width, Press this button MEAS to take the height
After taking the third measurement, the volume is automatically calculated and displayed. The last individual measured value is not displayed.

Angle measurement (See "Figure F")

The inclination sensor measures Angle degree between ± 90°.
During Angle measurement the instrument should be hold without a transverse angle (±45°). Press this button once to activate the Angle sensor. The ∠ symbol appears in the display. The Angle value is shown as ° unit continuously Press MEAS to measure the inclination and the distance.

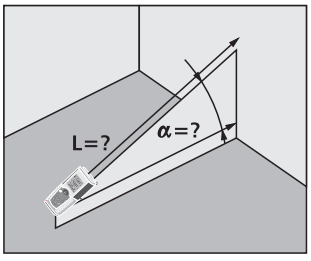


Figure F

Direct horizontal distance

Press this button twice and the following symbol appears in the LCD display.
MEAS Press this button to measure Angle and distance. The summary line displays the result as the direct horizontal distance.

Indirect measurement

Indirect measurement - determining a distance using 2 auxiliary measurements. (See "Figure G").
e.g. when measuring heights that require the measurement of two or three measurements as following step:
Press this button once, the display shows.
MEAS 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.
MEAS Press and hold down this button to trigger continuous measurement, the horizontal line is measured. At the same time, the result is displayed in the summary line, results in the secondary line.

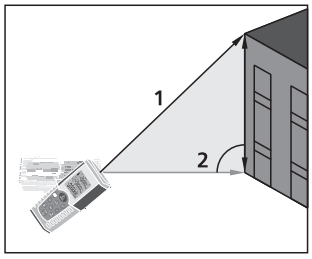


Figure G

Indirect Measurement - determining a distance using 3 measurements (See"Figure H")

Press this button twice; the display shows the following symbol, the display shows.
MEAS 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.
MEAS Press and hold down this button to trigger continuous measurement, sweep the laser up and down over the ideal target point.
Press MEAS continuous measurement (2). The value is adopted. Aim at the lower point and Press this button to MEAS trigger the measurement (3).The result is displayed in the summary line, the partial results in the secondary lines at same time.

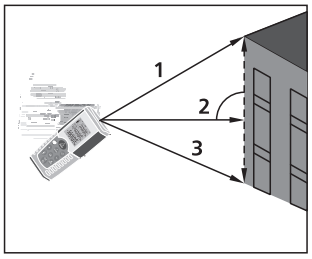


Figure H

Indirect measurement - determining a chain value using 3 measurements (See"Figure I")

e.g. determining the height between point 1 and point 2 using three target points.
Press this button three times ; the display shows the following symbol, the display shows.. Aim at the upper point (1).
Press this button MEAS and trigger the measurement. After the first measurement the value is adopted. The display flashes (2).

MEAS Triggers the measurement. After the second measurement the value is adopted. The display flashes (3).
MEAS Press and hold down this button to trigger continuous measurement. Sweep the laser up and down over the ideal target point. The result is displayed in the summary line at the same time.

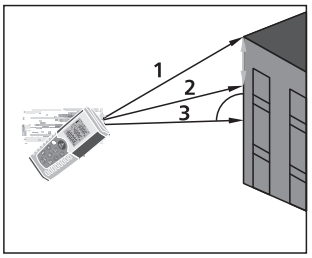


Figure I

Historical storage

Continue press the next value of previous 20 records (measurements or calculated results) are shown in the reverse order. Press + to retrieve the next value of 20 records .

6.Technical data

Technical specifications	Model: LDM-100
Range	0.05 to 50 m(2 in up to 164 ft)
Measuring accuracy	±1.5 mm(± 0.06 in)
Measuring units	m,in,ft,ft+in
Laser Class	Class 2
Laser Type	635 nm, < 1mW
Auto Bias Technology	•
Area, Volume Calculations	•
Indirect measurement using Pythagoras	•
Addition/Subtraction	•
Continuous Measurement	•
Min/Max Distance Tracking	•
3 Axis Accelerometer Digital Angle Finder	•
Auto Horizontal distance	•
Display illumination and multi-line display	•
Buzzer indication	•
Multifunctional end pieces	•

Dust Protect/Splash proof	IP 54
History measurement recodes	20
Keyboard Type	Super Soft-Touch (Long life) Over 1 Million Times
Operating Temperature	0°C to 40°C (32°F to 104°F)
Storage Temperature	-10°C to 60°C (14°F to 140°F)
Battery Life	up to 5,000 measurements
Batteries	2 x 1.5V AAA Type
Auto. laser switch-off	after 0.5 min
Auto instrument switch-off	fafter 3 min
Angle measurement using 3 Axis Accelerometer	
Measurement Range	±90°
Accuracy	±0.5°
Dimension	110 x 45 x 27 mm
Weight	135g

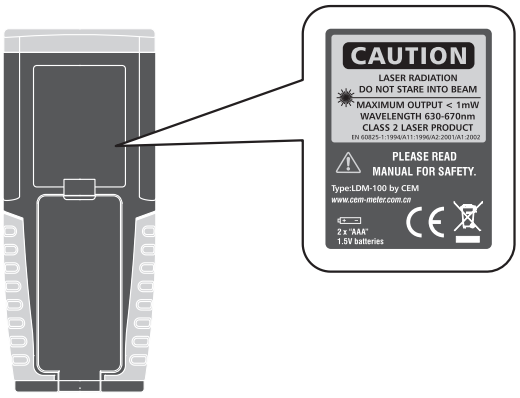
During daylight or if the target has poor reflection properties!
In favorable conditions (good target surface properties, room temperature) up to 10 m. In unfavorable conditions, such as intense sunshine, poorly reflecting target surface (black surface) or high temperature variations, the deviation over distances above 10m can increase over 1.5mm..

7.Troubleshooting – Causes and Corrective Measures

All message codes are displayed with either "correct value" or "Error". The following errors can be corrected:

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.Labelling



In this direction will find a vision of the measurement technique:
http://www.industrial-needs.com/measuring-instruments.htm

NOTE: "This instrument doesn't have ATEX protection, so it should not be used in potentially explosive atmospheres (powder, flammable gases)."