Laser Distance Measure
Model No. 40-6001

Instruction Manual

Congratulations on your choice of this Laser Distance Measure. We suggest you read this instruction manual thoroughly before using the instrument. Save this instruction manual for future use.

This is a Class II laser tool and is manufactured to comply with CFR 21, parts 1040.10 and 1040.11 as well as international safety rule IEC 285.

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1. Kit Contents

Description	Qty.
Laser Distance Measure	1
Protection Cover	1
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2. Safety Information

Please read and understand all of the following instructions, prior to using this tool. Failure to do so, may result in bodily injury.

CAUTION!

Class II Laser Product
Max. Power Output: ≤ 1mW
Wavelength: 640-660nm

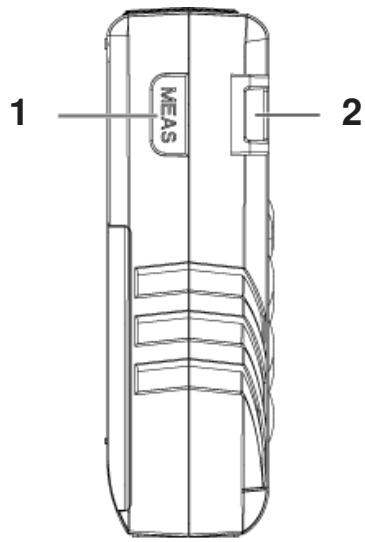
THIS TOOL EMITS LASER RADIATION.
DO NOT STARE INTO BEAM.
AVOID DIRECT EYE EXPOSURE.

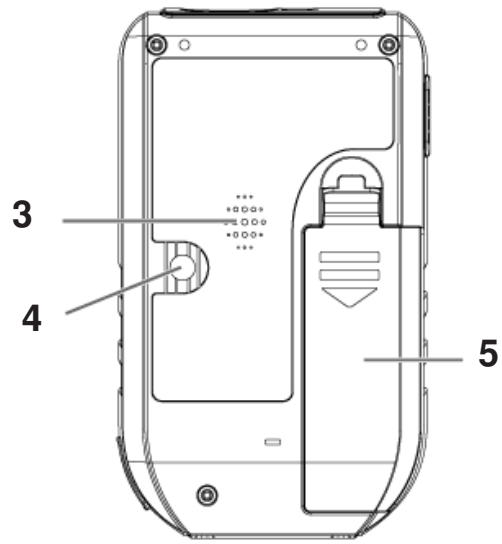
ATTENTION  IMPORTANT

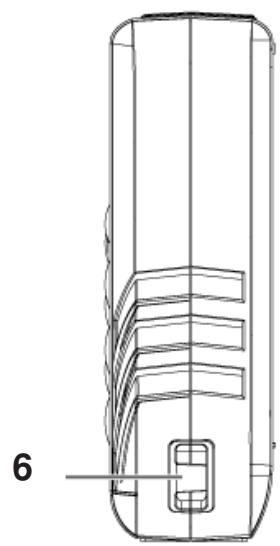
- Read all instructions prior to operating this laser tool. Do not remove any labels from tool.
- Do not stare directly at the laser beam.
- Do not project the laser beam directly into the eyes of others.
- Do not set up laser tool at eye level or operate the tool near a reflective surface as the laser beam could be projected into your eyes or into the eyes of others.
- Do not place the laser tool in a manner that may cause someone to unintentionally stare into the laser beam. Serious eye injury may result.
- Do not operate the tool in explosive environments, i.e. in the presence of gases or flammable liquids.
- Keep the laser tool out of the reach of children and other untrained persons.
- Do not attempt to view the laser beam through optical tools such as telescopes as serious eye injury may result.
- Always turn the laser tool off when not in use or left unattended for a period of time.
- Remove the battery when storing the tool for an extended time (more than 3 months) to avoid damage to the tool should the batteries deteriorate.
- Do not attempt to repair or disassemble the laser tool. If unqualified persons attempt to repair this tool, warranty will be void.

3. Location/Content of Warning Labels

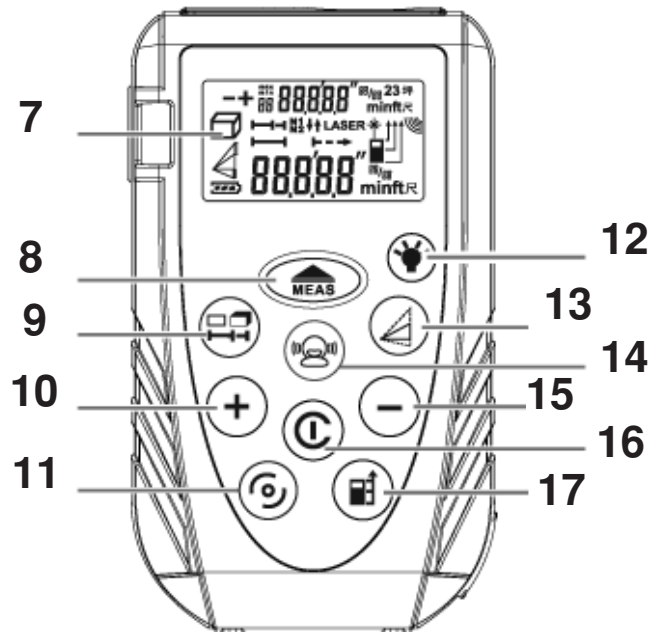
4. Location of Part/Components



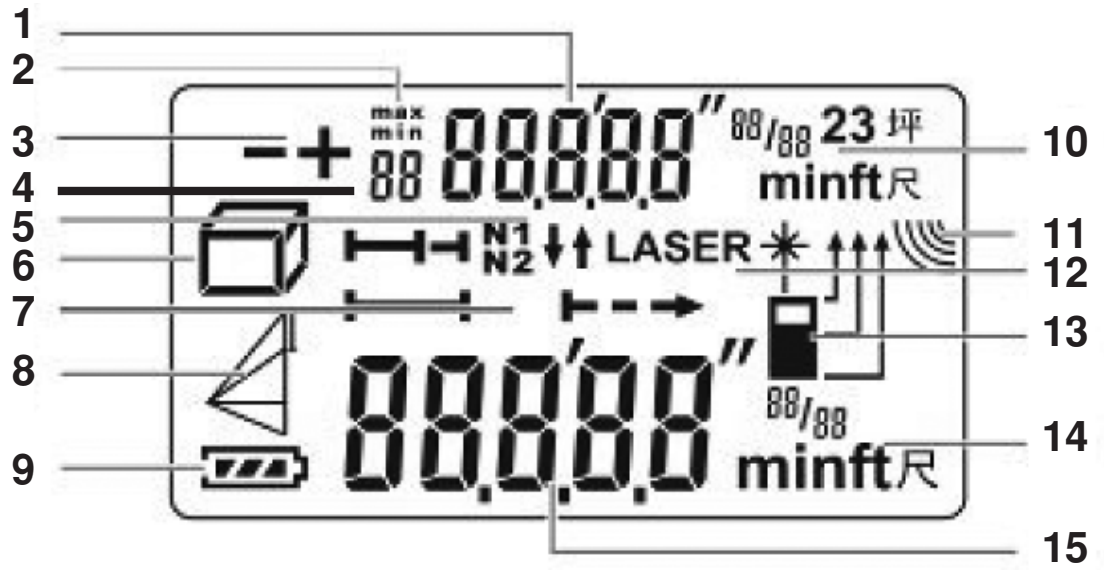




1. Side Measure Button
2. Level Vial
3. Sound Port / Speaker
4. Tripod Thread 1/4 - 20
5. Battery Cover
6. Wrist Strap Bracket



7. LCD Display
8. Measure Button
9. Area, Volume, Stake-Out
10. Add/Count Up
11. Unit of Measure / Max & Min Switch
12. Backlight/Continuous Laser Mode
13. Indirect Measurement/Pythagoras
14. Sound Activated Measure/ Memory Recall
15. Subtract/Count Down
16. Power/Clear/Escape
17. Measuring Reference Position / Sound On/Off



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Measuring Reference

Range

Range is specified between a minimum 20-inches to a maximum of 165-feet with an accuracy of 1/16”. Longer ranges will be found by the instrument but a variance in the accuracy may exist. At night or dusk the range may be greater than during daylight or if the target has poor reflective properties.

Target Surfaces

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

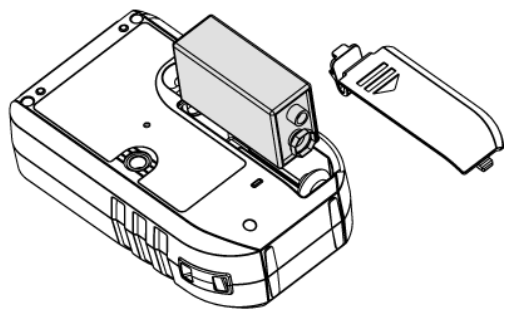
Hazards of Use

Be aware that errors in distance measurements may occur if the instrument is defective or has been dropped, been misused or modified.

Note

Conduct periodic test measurements to ensure the instrument is measuring accurately and consistently. This is most important if the instrument has been exposed to abnormal use. Always confirm accuracy before and during important measurements. Keep the laser distance measure optic clean and inspect for damage.

5. Start Up - Battery Installation



1. Remove battery compartment lid.
2. Insert 9v battery observing correct polarity.
3. Close battery compartment lid.
4. Replace battery when the flashes on screen. When this icon appears there are approximately 100 measurements remaining.

Note

Use only alkaline batteries. If the instrument will not be used for an extended time, remove the batteries to protect against corrosion.

Power Button

Press Power Button 1 X to power up.
Press and hold Power Button to power off.
This instrument powers off automatically after three minutes of inactivity.

Backlight

Press Backlight Button 1 X to activate backlight.

Sound (Beep)

Press & Hold  Measuring Reference Position until you hear a beep to de-activate Sound. Repeat to activate.

Automatic Shutoff

Laser will turn off after 30 seconds
Unit will turn off after 3 minutes

6. Using the Product

Measuring

Measuring Modes

Your Laser Distance Measure has four measuring modes:
Length
Area/Square
Volume/Cube
Indirect/Pythagoras

Units of Measure

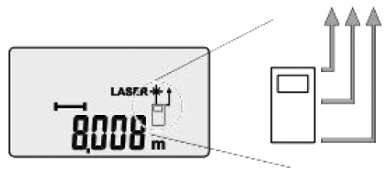
This instrument has seven units of measure. The desired unit of measure can be set by pressing  . The sub screen will display only feet and meters in a decimal format in Area and Volume modes.
The following units can be set:

	Distance	Area	Volume
1.	0.000 m	0.000 m^2	0.000 m^3
2.	0.00 ft	0.00 ft^2	0.00 ft^3
3.	0’0” 1/32	0.00 ft^2	0.00 ft^3
4.	0.00 in	0.00 ft^2	0.00 ft^3
5.	0 1/32 in	0.00 ft^2	0.00 ft^3
6.	0 1/16 in	0.00 ft^2	0.00 ft^3
7.	0 1/8 in	0.00 ft^2	0.00 ft^3

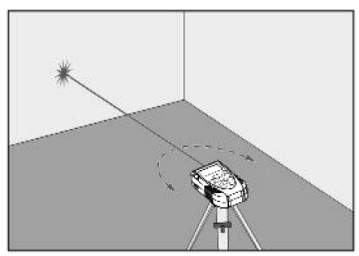
Measurement Reference Position

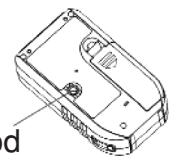
Default measurement setting is from the rear of the instrument for all modes. Be sure to adjust the measuring reference position prior to engaging a measuring calculation mode. Press  to scroll through the reference point options

Front
Middle - Tripod Thread (Size 1/4”-20)
Rear

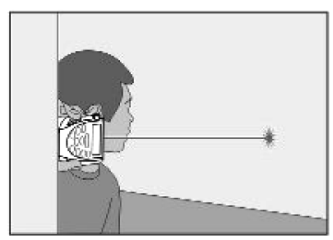


Indicator for reference




Tripod
Thread

Single Distance Measuring



Press  1 X to power up.
Direct Laser Beam to Target.
Press  1 X.
Record measurement (up to 10 measurements will be stored automatically and available for recall, see Memory Recall page 22).
Press & Hold  1 X to power down

Sound Activated Measuring

Press © 1 X.

Press 1 X (Icon will appear on screen).

Press 1 x or Make Sound over 75 decibels to activate beam.

Direct Laser beam to Target.

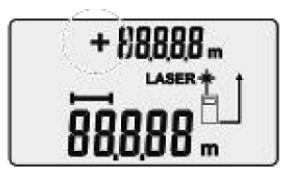
Any sound over 75 decibels will activate measurement (e.g. clap hands).

Measurement will be recorded on screen.

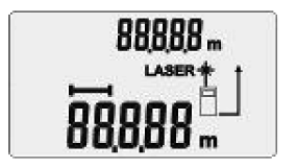
Repeat these steps for each sound activated measurement. Sound activated measuring may be used during any measuring function (e.g. Pythagorean, area, volume, etc).

Adding or Subtracting

Press measure button 1 X to activate laser.



Flash twice to confirm addition



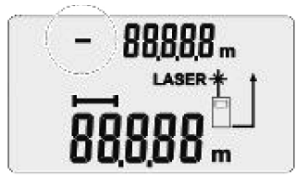
Result on sub-screen

Press measure button 1 X and record first measurement.

Press 1 X (first measurement moves to sub value position on screen and sign temporarily appears).

Press measure button 1 X to activate laser.

Press measure button 1 X to record second measurement.



Flash twice to confirm subtraction

Result on sub-screen

Press ⊕ 1 X to add measurement 1 (Stored in sub value position) and measurement 2 together.

To add second measurement again (duplicate same measurement) to total simply.

Press ⊕ button as many time as necessary or to subtract the value press ⊖ button.

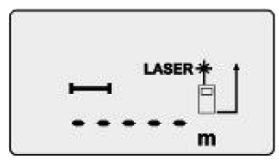
Continuous Measuring & Min/Max Measuring

This mode will take continuous measurements as you move closer or further away from the target. Minimum working range 10-inches. Maximum Range 165-feet.

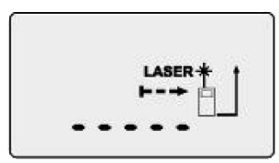
Press and hold measure button 1 X.

The Continuous Measure ⊢- - -→ will appear on screen.

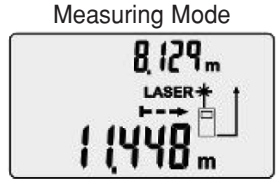
End Continuous Measure: Press Measure 1 X.



Normal Measuring Mode



Switch to Continuous Measuring Mode



Operating in Continuous Measuring Mode

Minimum / Maximum Measurements

As the laser beam is scanned across the measuring surface, the minimum distance (Min. is default setting) is recorded in the sub value position on the screen.

Pause Continuous Measuring: Press  measure button or  Power Button 1 X (note: when pressing power button to pause, main value will be reset to zero).

Switch to Maximum Measure:
Press & Hold for 3 Seconds  Unit of Measure Max/Min Switch 1 X (MAX appears in sub value position of screen).

Press Measure Button  1 X to continue measure

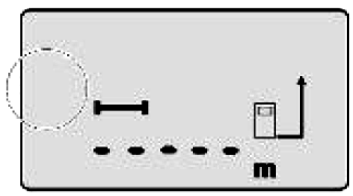
Press Measure Button  1 X to Pause

To Exit: Press  Power Button 1 X

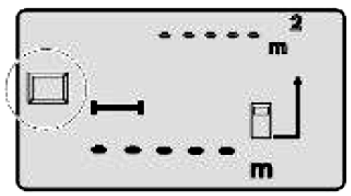
Area Measurement (Square²)

Press ⏻ Power Button 1 X to power on.

Press ▭ Function Button 1 X to enter Area.
A rectangle icon will appear on the left side of screen.
Observe flashing line for each required measurement (Length & Width).



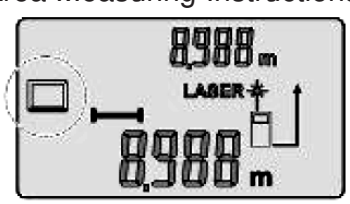
Standby Screen



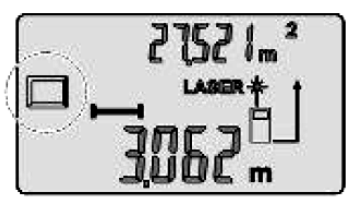
Area Measuring Screen

Press ⌂ Measure Button to record first measurement.
Follow Instructions on screen to measure width & length.
Area calculation will be presented in sub value position at top of screen.
Unit of measure for area will be displayed in decimal form in feet or meters on sub screen.

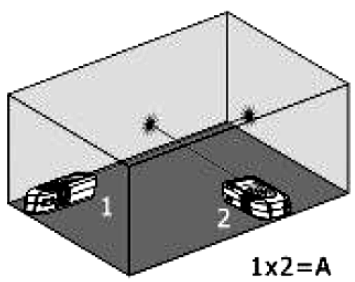
Area Measuring Instructions



Measure Width



Measure Length



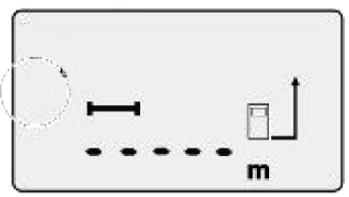
Volume Measurement (Cube^3)

Press Power Button 1 X to power on.

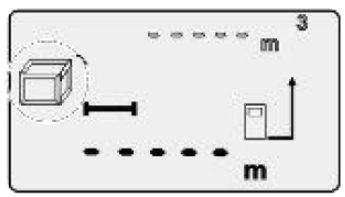
Press Function Button 2 X.

A 3-dimensional rectangle icon will appear on the left side of screen

Observe flashing line for each required measurement (Length, Height & Width).



Standby Screen



Volume Measuring Screen

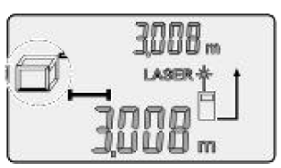
Press measure button 1 X to take measurements.

Follow instructions on main screen to measure length, width, height.

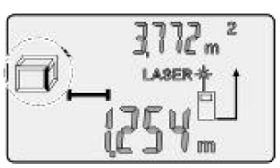
Volume calculation will be presented in sub value position at top of screen

Unit of measure for area will be displayed in decimal form in feet or meters in sub screen.

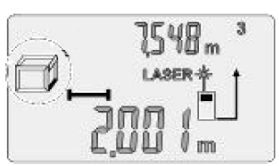
Volume Measuring Screen



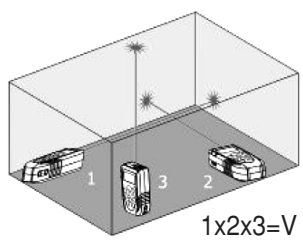
Width



Height



Length



1x2x3=V

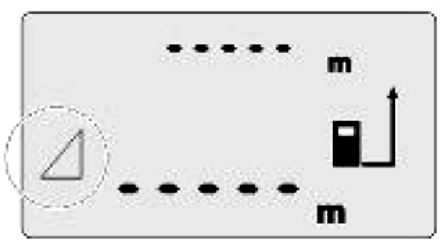
Indirect Measurements (Pythagorean Methods)

All Calculations are based on Pythagorean Theorem $a^2+b^2=c^2$.

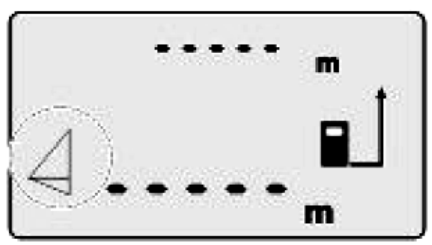
This function allows for the measurement of hard to reach jobs.

Follow the order of the flashing line for each required measurement.

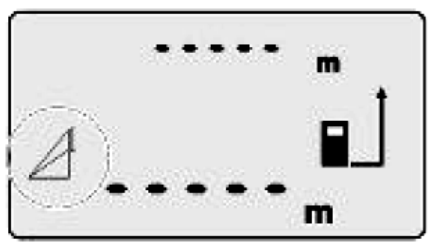
Note: For Accurate measurements the instruments distance to target must remain constant. Using a tripod with a 1/4-20 thread will facilitate this requirement.



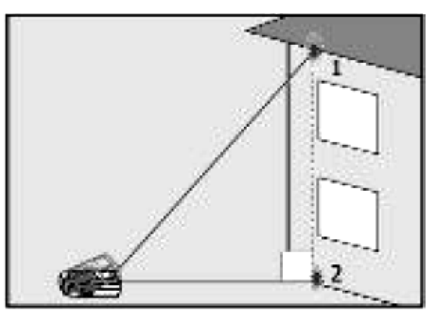
First Press for Single Pythagoras
Calculates distance between Point 1 and Point 2

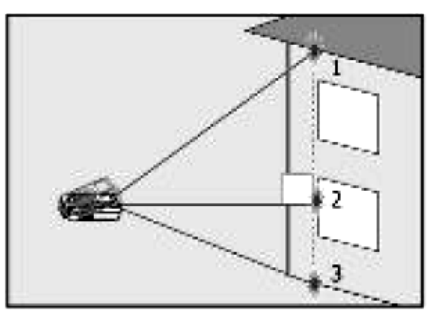


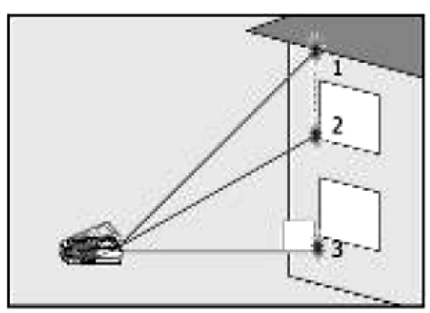
Second Press for Double Pythagoras (Summary)
Calculates distance between Point 1 and Point 3



Third Press for Double Pythagoras (Partial Measurement)
Calculates distance between Point 1 and Point 2







Indirect Measurement 1 (2 shot measurements FULL Height)

Press  Indirect Measure Button 1 X to enter mode.
Position instrument by observing flashing line on screen.
Press  measure button to record first measurement.
Aim laser at second target observing flashing line on screen. Use the level vial to ensure an accurate 90º measurement.
Press  measure button to record second measurement.
Pythagoras calculation (full height) will be presented in sub-value position at top of screen.

Indirect Measurement 2 (3 shot measurements FULL Height)

Press  Indirect Measure Button 2 X to enter Mode.

Aim laser at target-observe line on screen.

Press  measure button to record first measurement.

Aim laser at second target-observe flashing line on screen.

Press  measure button to record second measurement.

Aim laser at third target. Use the level vial to ensure an accurate 90º measurement.

Press  measure button to record third measurement.

Pythagoras calculation (full height) will be presented in sub-value position at top of screen.

Indirect Measurement 3 (3 shot measurements PARTIAL Height)

Press  Indirect Measure Button 3 X to enter Mode.

Aim laser at targeted measuring surface observe flashing line on screen.

Press  measure button to record first measurement.

Aim laser at second target, observe flashing line on screen.

Press  measure button to record second measurement.

Aim laser at third target observing flashing line on screen. Use the level vial to ensure an accurate 90º measurement.

Press  measure button to record second measurement.

Pythagoras calculation (partial height) will be presented in sub-value position at top of screen.

Note: Unit of measure for each Pythagoras function is capable of being displayed in decimal (feet, inches or metric) or inches + feet to 1/32. Simply press  measure button to scroll through each type.

Stake-out

Stake-out mode is designed to mark off repetitive equal distances. For example, fence post installation or framing.

1. To use Stake-out, you have to set one value or “stake” in memory.
2. Turn the unit on.
3. Press three (3) times to enter the first stake setting.
4. Press to increase your value.
5. Press to decrease your value.
6. Hold for one second to shift to left.
7. Hold for one second to shift to right.
8. Once value is set, press to enter.
9. Pressing and at same time will restore zero.

Setting N1

After the stake is set, N1 will display on screen. Enter Continuous Measuring Mode. An arrow will guide direction. When approaching the set stake, it will alert you by beeping. This function can be stopped by pressing the red power button .

Screen show direction and N1

Memory Recall

This instrument stores your last 10 measurements in order recognizing their unit of measure and measuring mode.

Press and hold the  Sound Activated Measuring button 1 X.

Press  or  buttons to scroll up or down through the recorded measurements.

Indoor & Outdoor Measurements

This model is designed to take measurements indoors and outdoors under normal settings. The measuring surfaces and ambient light are critical factors to the quality of measurement (indoors an outdoors). Please note that in some situations the unit may have difficulty reading the surface you try to measure if lighting or sunlight is intense and/or the surface being measured does not reflect the laser beam appropriately.

Measurement Errors

Error messages will appear if the unit's receiver is not getting a strong enough laser return signal.

Common surfaces that could cause an error reading:

- Water or other fluids
- Translucent to clear surfaces like glass or acrylic
- Porous or dark surfaces may require longer reading times or cause an error reading
- Moving surfaces or objects such as curtains
- Highly reflective or angled surfaces may deflect the laser beam signal

Error Codes

Code	Description	Solution
101	Distance is outside of measuring range	Measure in a shorter distance or longer distance
102	Reflected signal is too weak	Measure on a better surface
103	Out of display range	Reset zero by pressing ©
104	Pythagorean theorem calculation error	Check and verify value is correct
105	Low Battery	Install a new battery
106	Temperature is outside of working range	Measure in an environment within specified working temperature range
107	Ambient light is too strong	Measure in a darker place (shadow target)

Tips from the Pro's

Take more than one measurement in critical situations where accuracy needs to be greater than an estimation measurement. Take 3-4 measurements from the same position to compare consistency of each reading. Prior to important measurements verify that the instrument is in proper working order and take sample measurements to of a known distance to verify accuracy.

To accurately measure from the rear of the instrument, use a scrap piece of drywall or other flat material. Extend the material off the corner and butt the LDM up to the material. Then take measurement.

7. Technical Specifications

Measure Range*	20” - 165’
Accuracy*	± 1/16”
Measure Speed*	0.5 seconds
Laser Type	650 nm, ± 10nm, Class II, ≤ 1mW
Power Supply	9V Alkaline Battery (included)
Battery Life	5000 measurements
Dimensions	4.1” x 2.4” x 1.3” (104 x 61 x 33 mm)
Working Temperature	32°F to 104°F (0°C to +40°C)
Storage Temperature	-4°F to 104°F (-20°C to +60°C)
Auto Shut-off Laser	30 seconds
Auto Shut-off Main Power	3 minutes
Sound Activated Noise Level	Greater than 75 decibels

*The working range and accuracy is dependent on how well laser light is reflected from the surface for the target and with increased brightness of the ambient light intensity measuring accuracy may deteriorate.

8. Product Warranty

Johnson Level & Tool offers a two year limited warranty on our laser distance measure products. You can obtain a copy of the limited warranty for a Johnson Level & Tool product by contacting Johnson Level & Tool's Customer Service Department as provided below or by visiting us online at www.johnsonlevel.com. The limited warranty for each product contains various limitations and exclusions.

NOTE: The user is responsible for the proper use and care of the product.

For further assistance, or if you experience problems with this product that are not addressed in this instruction manual, please contact our Customer Service Department.

In the U.S., contact Johnson Level & Tool's Customer Service Department at 800-563-8553.

In Canada, contact Johnson Level & Tool's Customer Service

Department at 800-346-6682.

9. Product Registration

Product warranty registration can be completed by calling 1-888-9-LEVELS. You will need to locate the serial number for your product that is located inside the battery compartment. **PLEASE NOTE THAT IN ADDITION TO ANY OTHER LIMITATIONS OR CONDITIONS OF JOHNSON LEVEL & TOOL'S LIMITED WARRANTY, JOHNSON LEVEL & TOOL MUST HAVE RECEIVED YOUR PROPERLY COMPLETED WARRANTY CARD WITHIN 30 DAYS OF YOUR PURCHASE OF THE PRODUCT OR ANY LIMITED WARRANTY THAT MAY APPLY SHALL NOT APPLY AND THERE SHALL BE NO WARRANTY**.