Micro LM-100 Laser Distance Meter

RIDGID

micro LM-100 Laser Distance Meter	
Record Serial Number below and retain product serial number which is located on nameplate.	
Serial No.	

Safety Symbols

In this operator's manual and on the product, safety symbols and signal words are used to communicate important safety information. This section is provided to improve understanding of these signal words and symbols.

⚠ This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
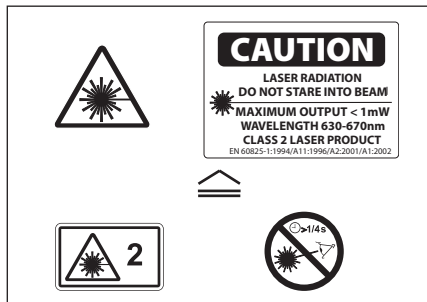
NOTICE NOTICE indicates information that relates to the protection of property.

This symbol means read the operator's manual carefully before using the equipment. The operator's manual contains important information on the safe and proper operation of the equipment.

⚠2 This symbol means this device contains a Class 2 Laser.

This symbol means do not stare into the laser beam.

This symbol warns of the presence and hazard of a laser beam.

CAUTION
LASER RADIATION
DO NOT STARE INTO BEAM
MAXIMUM OUTPUT < 1mW
WAVELENGTH 630-670nm
CLASS 2 LASER PRODUCT
EN 60825-1:1994/A11:1996/A2:2001/A1:2002

⚠2

General Safety Rules

⚠ WARNING
Read all safety warnings and instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

SAVE THESE INSTRUCTIONS!

The CE declaration of comformity (890-011-320) will accompany this manual as a separate booklet when required.

Work Area Safety

· **Keep your work area clean and well lit.** Cluttered or dark areas invite accidents.

· **Do not operate equipment in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Equipment can create sparks which may ignite the dust or fumes

· **Keep children and by-standers away while operating equipment.** Distractions can cause you to lose control.

Electrical Safety

· **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electrical shock if your body is earthed or grounded.

· **Do not expose equipment to rain or wet conditions.** Water entering equipment will increase the risk of electrical shock.

Personal Safety

· **Stay alert, watch what you are doing and use common sense when operating equipment. Do not use equipment while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating equipment may result in serious personal injury.

· **Use personal protective equipment.** Always wear eye protection. Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.

· **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.

Equipment Use and Care

· **Do not force equipment. Use the correct equipment for your application.** The correct equipment will do the job better and safer at the rate for which it is designed

· **Do not use equipment if the switch does not turn it ON and OFF.** Any tool that cannot be controlled with the switch is dangerous and must be repaired.

· **Disconnect the batteries from the equipment before making any adjustments, changing accessories, or storing.** Such preventive safety measures reduce the risk of injury.

· **Store idle equipment out of the reach of children and do not allow persons unfamiliar with the equipment or these instructions to operate the equipment.** Equipment can be dangerous in the hands of untrained users.

· **Maintain equipment.** Check for misalignment or binding of moving parts, missing parts, breakage of parts and any other condition that may affect the equipment's operation. If damaged, have the equipment repaired before use. Many accidents are caused by poorly maintained equipment

· **Use the equipment and accessories in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the equipment for operations different from those intended could result in a hazardous situation

- **Use only accessories that are recommended by the manufacturer for your equipment.** Accessories that may be suitable for one piece of equipment may become hazardous when used with other equipment

- **Keep handles dry and clean; free from oil and grease.** Allows for better control of the equipment.

Service

- **Have your equipment serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the tool is maintained.

Specific Safety Information

⚠ WARNING

This section contains important safety information that is specific to this tool.

Read these precautions carefully before using the micro LM-100 Laser Distance Meter to reduce the risk of eye injury or other serious personal injury.

SAVE THESE INSTRUCTIONS!

Keep this manual with the tool for use by the operator.

Laser Distance Meter Safety

- **Do not look into the laser beam.** Looking into the laser beam may be hazardous to the eyes. Do not look at the laser beam with optical aids (such as binoculars or telescopes).

- **Do not direct the laser beam towards other people.** Make sure the laser is aimed above or below eye level. Laser beams may be hazardous to the eyes.

If you have any question concerning this Ridge Tool product:

- Contact your local RIDGID distributor.

- Visit www.RIDGID.com or www.RIDGID.eu to find your local Ridge Tool contact point.

- Contact Ridge Tool Technical Services Department at rtctechservices@emerson.com, or in the U.S. and Canada call (800) 519-3456.

Description, Specifications And Standard Equipment

Description

The RIDGID® micro LM-100 provides simple, quick, and accurate distance readings at the push of a button. You simply push the measurement button to turn on the class II laser and point at the remote or difficult to reach place to be measured to, then push the measurement button again. The micro LM-100 provides a quick measurement on a clear easy to read backlit LCD display.

Specifications

Range	0.05 to 50m* (0.16 ft to 164 ft*)
Measuring Accuracy Up To 10m (2, Standard Deviation)	Typically: ±1.5mm** (± 0.06 in**)
Measuring Units	m, in, ft
Laser Class	Class II
Laser Type	635 nm, <1 mW
Ingress Protection	IP 54 Dust Proof, Splash Proof
Memory	20 Measurements
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 4,000 Measurements

RIDGID **micro LM-100 Laser Distance Meter**

Batteries ....(2) AAA
Auto. Laser Switch-Off..................After 30 Seconds
Auto. Shut-Off..............................After 3 Minutes of Inactivity
Dimension ....115 x 48 x 28mm
                                        (4^1/$_2$" x 1^7/$_8$ x 1^1/$_8$")
Weight...0.2kg (7oz)

Features

- Area, Volume Calculations
- Indirect Measurement
- Addition/Subtraction
- Display Illumination and Multi-line Display
- Continuous Measurement
- Min/Max Distance Tracking
- Beep Indication

* Range is limited to 50m (164 ft.) Use a commercially available target plate to improve measurement ability during daylight or if the target has poor reflection properties.

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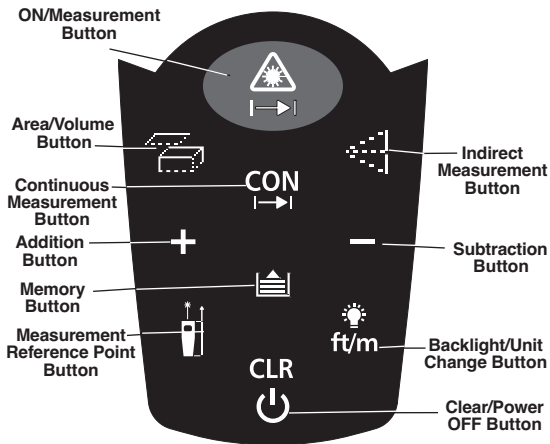

Figure 1 – micro LM-100 Laser Distance Meter

Controls

ON/Measurement Button

Area/Volume Button

Continuous Measurement Button

Addition Button

Memory Button

Measurement Reference Point Button

Indirect Measurement Button

Subtraction Button

Backlight/Unit Change Button

Clear/Power OFF Button

Figure 2 – micro LM-100 Buttons

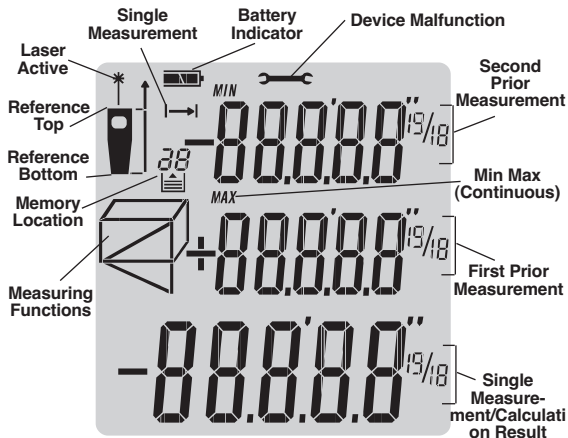## LCD Display Icons

Figure 3 – micro LM-100 LCD Display

Standard Equipment

· micro LM-100
· Carrying Case
· Wrist Strap

· Batteries (2 AAA)
· Operator's Manual

NOTICE This equipment is used to make distance measurements. Incorrect use or improper application may result in incorrect or inaccurate measurements. Selection of appropriate measurement methods for the conditions is the responsibility of the user.

Laser Classification

The RIDGID micro LM-100 generates a visible laser beam that is emitted from the top of the device.

The device complies with class 2 lasers according to: EN 60825-1:1994/A11:1996/A2:2001/A1:2002

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

· Reorient or relocate the receiving antenna.
· Increase the separation between the equipment and receiver.
· Consult the dealer or an experienced radio/TV technician for help.

Electromagnetic Compatibility (EMC)

The term electromagnetic compatibility is taken to mean the capability of the product to function smoothly in an environment where electromagnetic radiation and electrostatic discharges are present and without causing electromagnet interference to other equipment.

NOTICE The RIDGID micro LM-100 conforms to all applicable ECM standards. However, the possibility of it causing interference in other devices cannot be precluded.

Installing Wrist Strap

Route small end of wrist strap through loop on micro LM-100 housing. Thread strap end through loop of small end and pull tight.

Figure 4 – Installing Lanyard   **Figure 5 – Changing Batteries**

Changing/Installing Batteries

The micro LM-100 is supplied with batteries installed. If the battery indicator is flashing, the batteries need to be replaced. Remove the batteries prior to long term storage to avoid battery leakage. *(Figure 5)*

1. Use a Phillips head screw driver to loosen the battery compartment cover screw and remove the cover.

2. Remove existing batteries.

3. Install two AAA alkaline batteries (LR03), observing the correct polarity as indicated in the battery compartment.

NOTICE Use batteries that are of the same type. Do not mix battery types. Do not mix new and used batteries. Mixing batteries can cause overheating and battery damage.

4. Replace cover and tighten screw.

Pre-Operation Inspection

⚠ WARNING

Before each use, inspect your distance meter and correct any problems to reduce the risk of injury or incorrect measurements.

Do not look into the laser beam. Looking into the laser beam may be hazardous to the eyes.

1. Clean any oil, grease or dirt from equipment. This aids inspection.

2. Inspect the distance meter for any broken, worn, missing, misaligned or binding parts, or any other condition which may prevent safe and normal operation.

3. Check that the warning labels are present, firmly attached and readable. *(See Figure 6.)*

4. If any issues are found during the inspection, do not use the distance meter until it has been properly serviced.

5. Following the Operation Instructions, turn the distance meter on, make a measurement and confirm the same measurement with another instrument (tape measure, etc.). If the correlation between the measurements is not acceptable, do not use the distance meter until it has been properly serviced.

Figure 6 – Warning Labels

Set-Up and Operation

⚠ WARNING

Do not look into the laser beam. Looking into the laser beam may be hazardous to the eyes. Do not look at the laser beam with optical aids (such as binoculars or telescopes).

Do not direct the laser beam towards other people. Make sure the laser is aimed above or below eye level. Laser beams may be hazardous to the eyes.

Set up and operate the distance meter according to these procedures to reduce the risk of injury or incorrect measurements.

1. Check for an appropriate work area as indicated in the *General Safety Section*.

2. Inspect the object being measured to and confirm that you have correct equipment for the application. The micro LM-100 Laser Distance Meter is designed to measure distances up to 50m

(164 feet). *See the Specifications section* for range, accuracy and other information.

3. Make sure that all equipment has been properly inspected.

micro LM-100 Controls and Settings

Turning ON and OFF

Press the *ON/Measurement Button* (🔼) to turn ON the distance meter and the laser. Make sure that the laser is pointed in a safe direction before turning ON.

Press and Hold the *Clear/Power OFF Button* (🔘) to turn the Distance meter OFF. The laser distance meter will turn OFF automatically after three minutes of inactivity.

Setting Measurement Reference Point

When the distance meter is turned ON, the default measurement reference point is the back edge of the meter ⫯. Press the Measurement *Reference Point Button* (ⓘ) to change the measurement reference point to the front edge (laser end) of the meter. The meter will beep and the display will show the reference point front symbol ⫯.

Changing Display Units

Press and Hold the *Backlight/Unit Change Button* (🔅) to change the display units. Available Units: Feet, Meters, Inches.

Clearing Displayed Data/Last Action

Press the *Clear/Power OFF Button* (🔘) to clear the displayed data or cancel the last action.

Reviewing the Last 20 Measurements

Press the *Memory Button* (≙) to review the last twenty measurements or calculated results, shown in reverse order. Use the *Addition or Subtraction Buttons* (+) (−) to move through these records.

Clearing Data From Memory

Press and Hold the *Memory Button* (≙) and Press and Hold the *Clear/Power Button Key* (⌀) at the same time to clear all data in the memory.

Backlighting the Display

Press the *Backlight/Unit Change Button* (⌀) to turn the display backlight ON or OFF.

Measurements

The RIDGID micro LM-100 Laser Distance Meter has a measuring range of 50m (164') maximum. Use in bright sunlight may decrease the range of the meter. The reflective properties of the surface may also decrease the range of the meter.

Measurement errors can occur when measuring to clear, semi-permeable or high gloss/reflective surfaces such as colorless liquids (e.g. water), glass, Styrofoam, mirrors, etc. Applying a commercially available laser target plate to the surface may allow more accurate measurements.

NOTICE Do not aim the laser at the sun. This can damage the meter.

Single Distance Measurement

1. Press *ON/Measurement Button* (≙) to activate the laser. Press *ON/Measurement Button* (≙) again to take a measurement.

2. The measured value is displayed immediately.

Continuous Measurement, Max and Min Measurement

1. Press and Hold *Continuous Measurement Button* (⌀) to enter the continuous measurement mode. In continuous measurement mode, the measured value is updated approximately every 0.5 seconds in the third line. The corresponding minimum and maximum values are displayed dynamically in the first and second line.

2. Press and Hold either *ON/Measurement Button* (≙) or *Clear/Power OFF Button* (⌀) to stop taking continuous measurements. The device automatically stops after 100 continuous measurements.

Adding/Subtracting Measurements

1. Press *Addition Button* (+) to add the next measurement to the previous one.

2. Press *Subtraction Button* (−) to subtract the next measurement the previous one.

3. Press *Clear/Power OFF Button* (⌀) to cancel the last action.

4. Press *Clear/Power OFF Button* (⌀) again to return to taking single measurements.

Area Measurement

1. Press *Area/Volume Button* (⌀). The ▭ symbol appears in the display. The distance to be measured will flash in the symbol.

2. Press *ON/Measurement Button* (≙) to take the first measurement (e.g. length).

3. Press *ON/Measurement Button* (≙) again to take the second measurement (e.g. width).

4. The result of the area calculation is displayed in the third line; the individually measured values are displayed in lines 1 and 2.

Volume Measurement

1. Press *Area/Volume button* ⊟ . The ⊏ symbol appears in the display. The distance to be measured will flash in the symbol.

2. Press *Area/Volume button* ⊟ again, the ⊐ symbol for volume measurement appears in the display. The distance to be measured will flash in the symbol

3. Press *ON/Measurement Button* ⚖ to take the first measurement (e.g. length).

4. Press *ON/Measurement Button* ⚖ again, to take the second measurement (e.g. width).

5. The result of the area calculation is displayed in the third line; the individually measured values are displayed in lines 1 and 2.

6. Press *ON/Measurement Button* ⚖ again, take the third distance measurement (e.g. height). The value is displayed in the second line.

The result of the volume calculation is displayed in the third line.

Indirect Measurements

Indirect measurements are used when a direct measurement is not possible. Indirect measurements are calculated from measurements of the hypotenuse and one side of a right triangle (triangle with a 90 degree angle). For instance, if calculating the height of a wall from the ground, measurements would be taken to the top of the wall (hypotenuse), and perpendicular to the line between the two measurement points at the wall base (side). From these two measurements, the distance between the two measurement points is calculated.

Indirect measurements are less accurate than direct measurements. For greatest accuracy with Indirect Measurements, hold the micro LM-100 in the same position (only changing angle) for all measurements. Make sure that the laser beam is perpendicular to the line between the measurement points when measuring the side of the triangle. All measurements need to be to points on a single straight line.
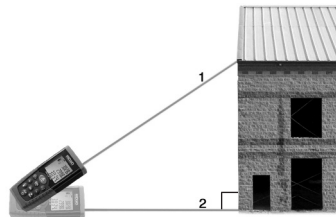
Using Two Points

Figure 7 – Indirect Measurement Using Two Points

1. Press *Indirect Measurement Button* ⊡ once. The △ symbol will show in the display. The distance to be measured will flash in the symbol.

2. Press *ON/Measurement Button* ⚖ to turn ON the laser, aim the laser at the upper point (1) and trigger the measurement. The measurement will be displayed in the first line.

3. The next distance to be measured will flash.

4. Press *ON/Measurement Button* ⚖ to turn on the laser, keeping the instrument as perpendicular to the line between the measurements as possible, Press *ON/Measurement Button* ⚖ again to measure the distance result of the horizontal point (2). The measurement will be displayed in the second line.

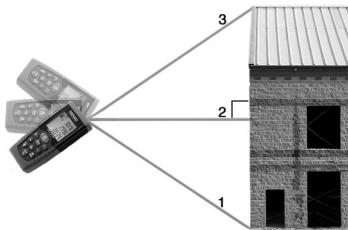5. The result of the calculation is displayed in third line.

Using Three Points

Figure 8 – Indirect Measurement Using Three Points

1. Press Indirect *Measurement Button* ⊲) once, the ⊿ symbol will show in the display. The distance to be measured will flash in the symbol.

2. Press *Indirect Measurement Button* ⊲) again, the ◁ symbol will show in the display. The distance to be measured will flash in the symbol.

3. Aim the laser at the lower point (1) and press button 1 to take the measurement. The measurement will be displayed in first line.

4. The next distance to be measured will flash.

5. Press *ON/Measurement Button* ♨ to turn on the laser, keeping the instrument as perpendicular to the line between the measurements as possible, Press *ON/Measurement Button* ♨ again to measure the distance result of the horizontal point (2). The measurement will be displayed in the second line.

6. Press *ON/Measurement Button* ♨ to turn on the laser, aim the laser at the top point, press ON/Measurement Button ♨

to take the measurement. The measurement will be displayed in the second line.

7. The result of the calculation is displayed in third line.

Cleaning

Do not immerse the RIDGID micro LM-100 in water. Wipe off dirt with a damp soft cloth. Do not use aggressive cleaning agents or solutions. Treat the instrument as you would a telescope or camera.

Storage

The RIDGID micro LM-100 laser distance meter must be stored in a dry secure area between -10°C (14°F) and 60°C (158°F).

Store the tool in a locked area out of the reach of children and people unfamiliar with the laser distance meter.

Remove the batteries before any long period of storage or shipping to avoid battery leakage.

Service and Repair

⚠ WARNING
Improper service or repair can make the RIDGID micro LM-100 unsafe to operate.

Service and repair of the RIDGID micro LM-100 must be performed by a RIDGID Independent Authorized Service Center.

For information on your nearest RIDGID Independent Service Center or any service or repair questions:

• Contact your local RIDGID distributor.
• Visit www.RIDGID.com or www.RIDGID.eu to find your local Ridge Tool contact point.

• Contact Ridge Tool Technical Services Department at rtctechservices@emerson.com, or in the U.S. and Canada call (800) 519-3456.

For troubleshooting suggestions, please refer to the troubleshooting guide on *page 13*.

Disposal

Parts of the micro LM-100 Laser Distance Meter contain valuable materials and can be recycled. There are companies that specialize in recycling that may be found locally. Dispose of the components in compliance with all applicable regulations. Contact your local waste management authority for more information.

For EC Countries: Do not dispose of electrical equipment with household waste!

According to the European Guideline 2002/96/EC for Waste Electrical and Electronic Equipment and its implementation into national legislation, electrical equipment that is no longer usable must be collected separately and disposed of in an environmentally correct manner.

Battery Disposal

For EC countries: Defective or used batteries must be recycled according to the guideline 2006/66/EEC.

Troubleshooting - Error Codes

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 a commercially available target plate.
252	Temperature too high.	Cool down instrument.
253	Temperature too low.	Warm up instrument.
255	Hardware error.	Power the unit OFF then ON, if the symbol still appears, please contact technical support.