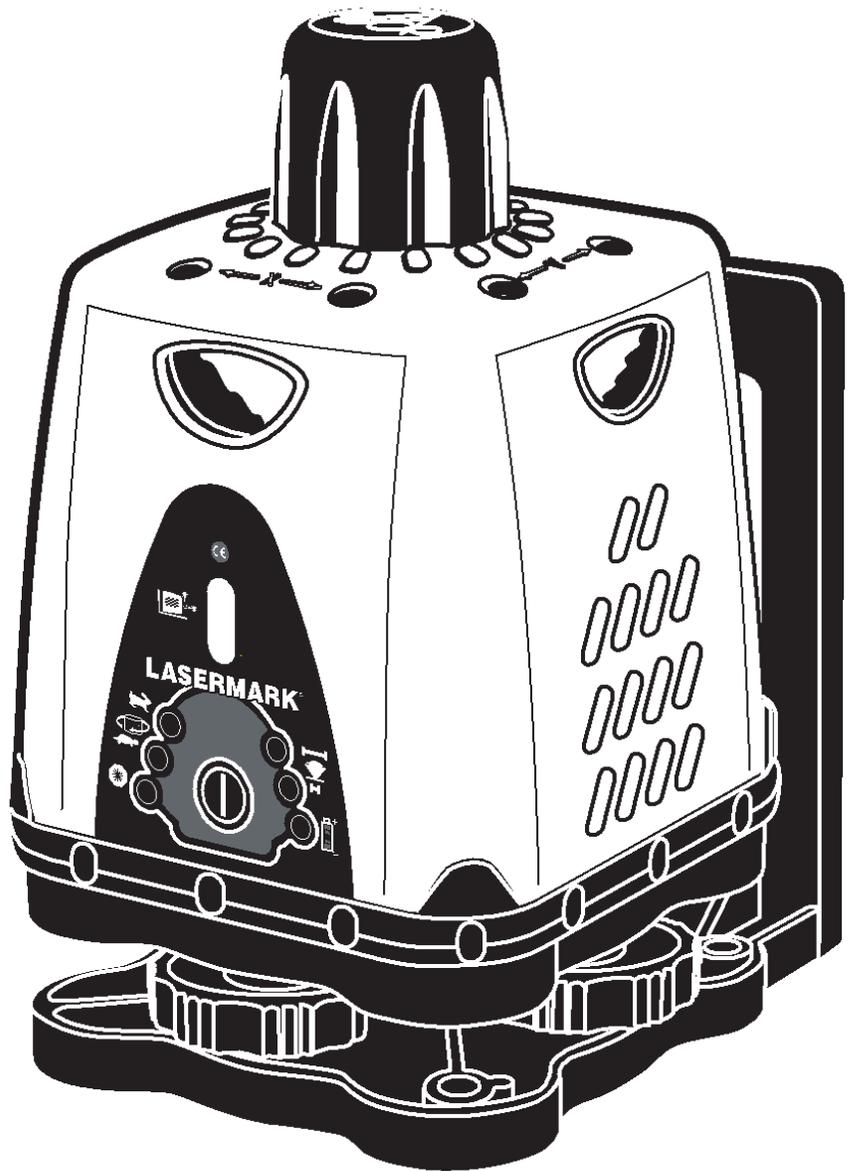


INSTRUCTION MANUAL


W/zard^{LASERMARK™}

LM30

Instruction Manual
Manual de Instrucciones
Manuel d'Instructions
Manuale di Istruzioni
Bedienungsanleitung
Instruções de Utilização



CST/berger

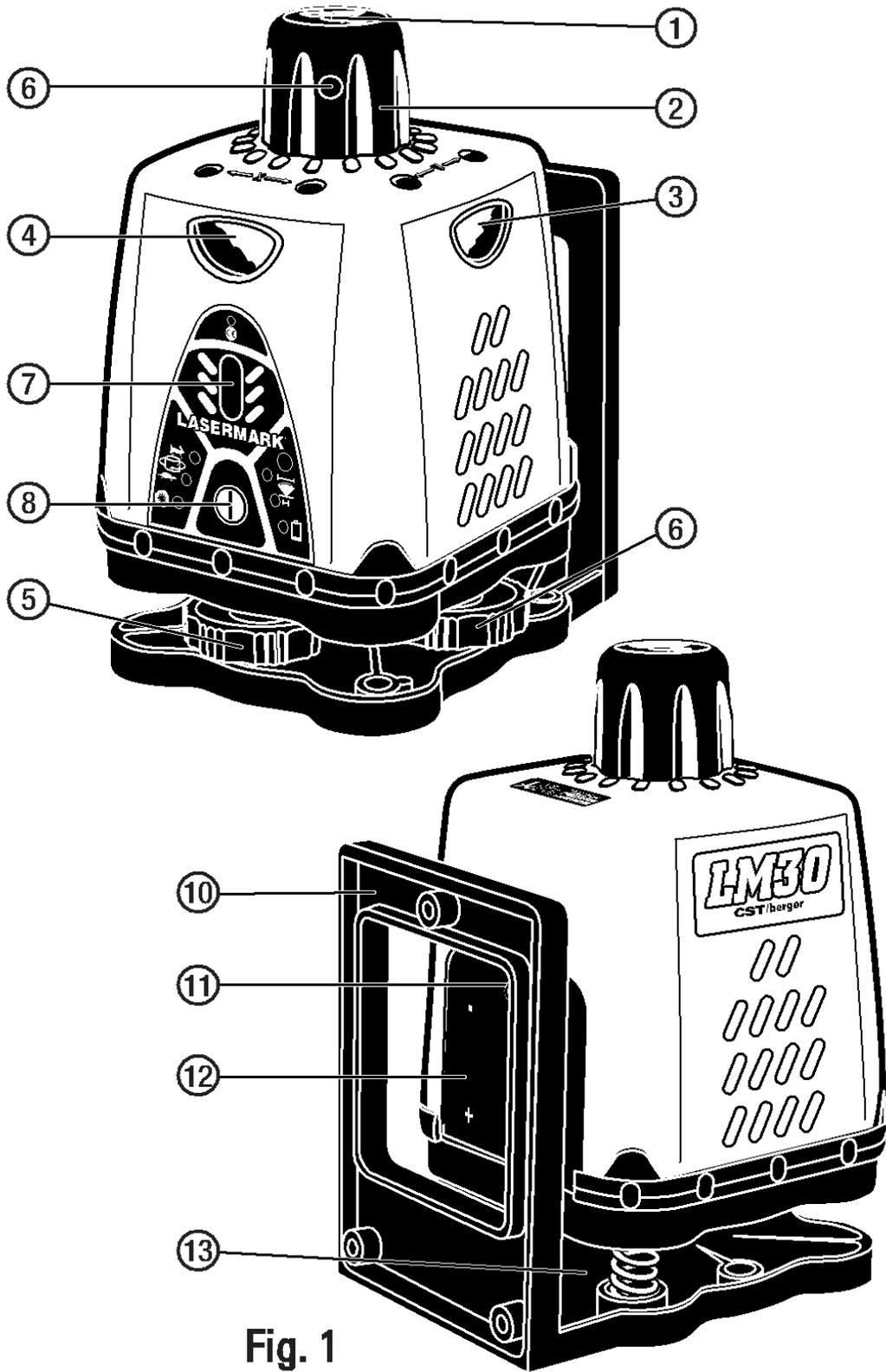


Fig. 1

Copyright © 2003-2005 CST/berger. All rights reserved. This document shall not be copied or otherwise reproduced without CST/berger's written consent. LaserMark® is a registered trademark of CST/berger.

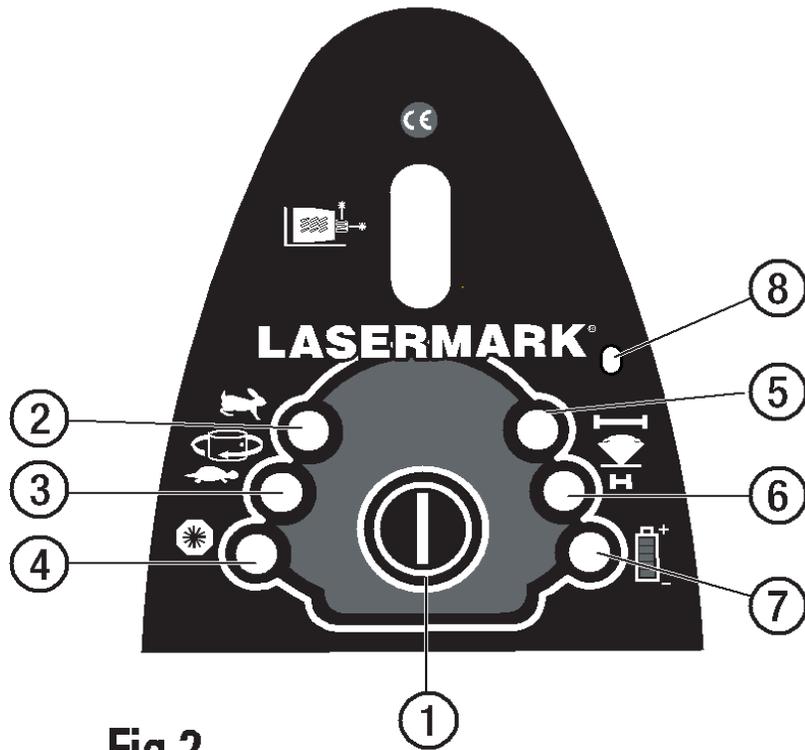


Fig.2

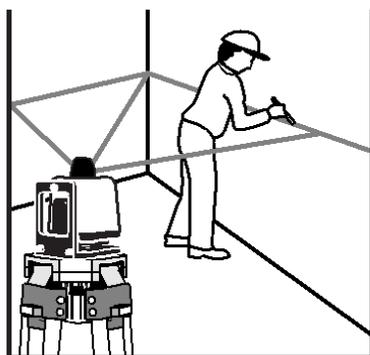


Fig. 3

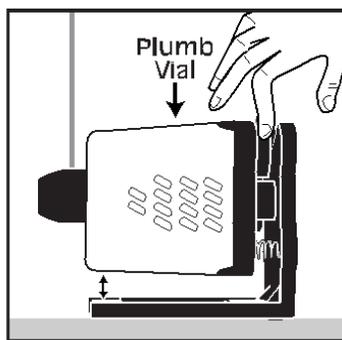


Fig.4

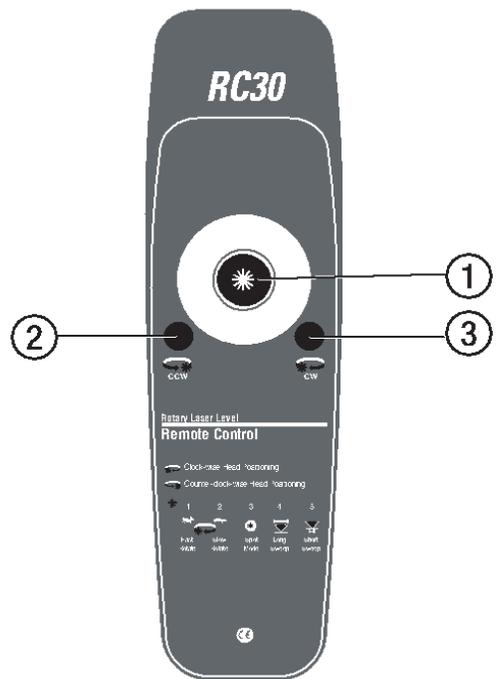


Fig.5



Thank you for purchasing the LaserMark® Wizard LM30 Rotary Laser. Please read this manual thoroughly before operation.

The information contained herein is proprietary information of CST/berger, and is subject to change without notice.

FEATURES (Fig. 1)

1. Laser Emitting Window (Plumb Beam)
2. Rotary Head
3. "Y" Level Vial
4. "X" Level Vial
5. "Y" Leveling Screw & Plumb Vial Leveling Screw
6. "X" Leveling Screw
7. Plumb Vial
8. Control Button
9. Laser Emitting Window (Level Beam)
10. Trivet
11. Battery Door Screw
12. Battery Door
13. Base with two 5/8" - 11 Mounting Thread

CONTROL BUTTON OPERATION (Fig.2)

1. POWER/CONTROL BUTTON - LEDs indicate operation mode
2. PRESS CONTROL BUTTON ONE TIME to turn unit on; rotation begins in "FAST" Speed (approx. 600 RPM).
3. PRESS TWO TIMES for "SLOW" Speed (approx. 150 RPM).
4. PRESS THREE TIMES to "STOP" rotary head (laser remains lit).
5. Press FOUR TIMES to use Long Sweep
6. Press FIVE TIMES to use Short Sweep
7. Low Battery Indication Light
8. Remote Control Window

PRESS CONTROL BUTTON SIX TIMES to turn unit off (no LED's remain lit and the laser is OFF).

LASER SAFETY

The use of controls, adjustments, or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

Do not stare into the laser beams. Do not disassemble the instrument or attempt to perform any internal servicing.

Repair and servicing of this laser are to be performed only by CST or authorized service centers.

This laser complies with all applicable portions of title 21 of the Code of Federal Regulations set by: the Dept. of Health, Education, and Welfare; the Food and Drug Administration; the Center for Devices; and the Bureau of Radiological Health.

The laser LM30 has also been tested and complies with the CE certification requirements set forth in the EC regulations 89/336/EEC and EN 61000-6-1 (EN50082-1), EN 61000-6-3 (EN50081-1) and IEC 60-825-1.



OPERATION

Basic Leveling

As with any level referencing instrument, checking calibration before each use is recommended.

1. Set the instrument on any smooth surface, or mount to a 5/8" x 11 tripod and adjust to desired height.
2. Use the leveling screws and level vials to level the instrument. Each leveling screw controls the vial opposite the screw (the front leveling screw controls the "Y" axis, and the side leveling screw controls the "X" axis).

NOTE: The more accurately the vial bubbles are centered, the more accurate the laser beam will be for referencing level.

3. Turn power on and press the control button once for “FAST” speed (ideal for use outdoors with a laser detector), or twice for “SLOW” speed (ideal for indoor use). You have created a highly visible, level reference line (Fig. 3).

Plumbing

1. On a flat surface, place the instrument on its back using the built-in trivet (control button facing upward).
2. Level the instrument by viewing the plumb vial and turning the front leveling screw until the plumb vial bubble is centered (Fig. 4).
3. Turn power on and press the control button until you reach your desired speed. You have created a highly visible, plumb reference line!

Stopping the Rotary Head

It is possible to stop rotation of the head in order to manually direct the laser dot towards a target, much like a straight-line laser.

1. Turn the unit on by pressing the control button.
2. Press two more times until the “STOP” LED is lit. The rotary head will stop turning.
3. Align the laser beam to your target by turning the rotary head manually.

Sweep Modes (Point & Shoot Scanning)

The LM30’s Sweep Modes create an easily visible laser “chalk line” that you can direct by manually turning the rotary head.

This is especially useful on job sites where you must contain the laser’s location to avoid interference with other laser users or laser detectors on site. Also, this feature is very useful for extending the range of the visible beam.

You may use this feature in either a level or plumb position.

1. Turn the unit on by pressing the control button.
2. Press three more times until the "LONG SWEEP" LED is lit. The rotary head will quickly scan back and forth to create a laser "chalk line".
3. To direct the sweep toward your target, grab the rotary head to stop its movement, and wait for rotation pressure to relax (normally within a few seconds).

Rotate head to your desired position and release.

4. Length of the chalk line will vary depending on the distance of the Wizard from your working surface; the angle of the long sweep is approximately 45°. To create a shorter, faster sweep, press the control button once more ("SHORT SWEEP" LED will light); the angle of the short sweep is approximately 22°.

Note: The Sweep Function of this unit is intended for indoor use only. Use of the LM30 in direct sunlight may result in erratic operation of the Sweep Function.

Use of the LM30 in direct sunlight will not affect any other functions

Remote Control RC30 - (Fig. 5)

Note: Remote control is included with LM30 Interior packages.

The remote controls Fast Rotation Speed, Slow Rotation Speed, Spot Mode, Long Sweep, Short Sweep, and can be used up to a maximum of 100 feet (30 m) away from the unit. The user must face the control panel for proper operation of the remote. Requires 2 AA Alkaline batteries.

1. Operates same as the single button on unit
2. Rotate laser beacon counter-clock-wise when in sweep or spot mode
3. Rotate laser head clock-wise when in sweep or spot mode

APPLICATIONS (Fig.6)

Installing drop ceiling and grid and tiles. Use with Wall/Ceiling Mount

INDOOR LEVELING/PLUMBING: Window Frames, Cabinets & Shelves, Doors & Windows, Erecting Walls & Partitions, Aligning 90° Joints & Edges, Floors, Tile Work.

OUTDOOR LEVELING/PLUMBING: Porches & Decks, Fencing, Flagpoles, Batterboards, Landscaping.

POWER

NiCad or Nimh rechargeable batteries do NOT work well in a Laser Level as their operating voltage is too low. We recommend that only alkaline batteries be used in your Laser Level. Plain carbon batteries can leak either fluid or corrosive gas, both of which can damage the Laser Level.

It should be noted that the electronic switch in the Laser. Your LaserMark® Wizard will provide approximately 60 hours of intermittent use.

The “Low Battery” LED will light when the batteries’ voltage falls below an optimal level. Also, if your Wizard fails to emit laser beams, but still has functioning LEDs and rotation, your batteries may be low; try replacing the batteries before contacting a service center.

Replacement batteries must be all new batteries; alkalines provide the best performance.

Replace the batteries as follows:

1. Remove the battery cover by turning the battery cover screw counter-clockwise.
2. Remove the old batteries and replace with four new “C” cell batteries as illustrated (Fig. 7), and replace the battery cover.

NOTE: Do not mix old and new batteries. Replace all batteries at the same time with new batteries. Remove batteries before storage of the instrument.

CALIBRATION

All Laser Levels are calibrated during assembly and Q.A., however Laser Level owners should always check the calibration of the unit before use as the settings may have changed with time or during transportation. It is also wise to recheck the calibration of the Laser Level at regular intervals and also prior to any critical measurements being performed. A 0.059"(1.5mm) Allen key will be required to adjust the screws on the two leveling vials, and a 5/64" (2mm) one to adjust the LD vial.

Checking Horizontal Rotation Error

1. Mount and level the LaserMark® Wizard on a tripod and place approximately 50 feet (15m) away from a wall. Face the front (control button) to the wall (Fig.8).
2. Turn power on and place the unit in "STOP" mode.
3. Manually rotate the laser beam onto the wall and mark as point A.
4. Loosen the Wizard from the tripod and rotate the instrument 180° so that the back (battery side) now faces the wall.

Secure and re-level the instrument.

5. Again rotate the laser beam onto the wall and mark its position as point B. No adjustment is necessary if the vertical difference between points A and B is 1/8 inch (3mm) or less. Otherwise, adjust as follows.

Correcting Horizontal Rotation Error

1. Adjust the "Y" leveling screw until the laser beam rests midway between A and B (Fig. 8). This will cause the "Y" vial bubble to shift from center. Clockwise rotation will raise the beam; counterclockwise rotation will lower the beam.
2. Center the "Y" vial bubble by adjusting the vial leveling screws with a 1.5mm hex key.
3. Recheck the accuracy of horizontal rotation by repeating steps 1-5 in

section "Checking Horizontal Rotation Error". Readjust as necessary. Repeat the above checking and adjusting procedures using the left and right sides of instrument, adjusting the "X" leveling screw and "X" vial as necessary.

Checking Vertical Rotation Error

1. Set the instrument on its trivet (control button upward) on a floor approximately 100 feet (30m) from the base of a wall. The right side of the instrument should face the wall. Level the unit by adjusting the "Y" leveling screw.
2. Turn power on and place the unit in "STOP" mode.
3. Mark a control point "A" on the wall (Fig. 9). Turn the rotary head manually until the laser beam hits point A on the wall.
4. Turn the rotary head to move the laser beam 30 feet (9m) upward on the wall and mark this as point B.
5. Turn the instrument 180° and align the beam to point A, re-leveling if necessary (Fig. 10).
6. Turn the rotary head to move the laser beam to the same height as point B, and mark as point C.

No adjustment is necessary if the difference between points B and C is 1/8 inch (3mm) or less. Otherwise, adjust as follows.

Correcting Vertical Rotation Error

1. Adjust the "Y" leveling screw until the laser beam rests midway between points B and C. This will cause the plumb vial bubble to shift from center.
2. Center the plumb vial bubble by adjusting the vial leveling screws with a 5/64" (2mm) hex key.
3. Recheck the accuracy of vertical rotation by repeating steps 1-6 in section "Checking Vertical Rotation Error". Readjust as necessary.

SETTING UP

Correct set-up of any manual Laser Level is critical to the operation of the Level. These Laser Levels do not adjust themselves automatically. The accuracy of the job depends entirely upon how well the unit has been set-up. An error of only 0.02" (0.5mm) at the top of the tripod becomes an error of 4" at 65 feet (100 mm at 20 meters). In order to achieve the accuracy required some special precautions should be observed.

1. The head of the Laser Level is fitted with two engineering grade spirit leveling vials which are extremely accurate and very sensitive. When the Level is being set-up the bubbles move quite slowly and may even stick inside the vial. This is called stiction. The solution is to lightly tap the non-rotating part of the Level with the tip of a finger until the bubble ceases to move.
2. When attaching the Laser Level to the tripod, the instrument fastening screw should not be over-tightened. If the screw is tightened excessively then the trivet base will become distorted and over a period of time the plastic material of the trivet will relax, particularly if the day is hot, causing the setting of the Level to change. In extreme cases it is possible to pull the centre insert out of the trivet.

MAINTENANCE

Always clean the instrument after use. Use a soft, dry cloth to remove any dirt or moisture from the instrument. Store the unit in its case when not in use. Batteries should be removed before long-term storage. Do not use benzene, paint thinner, or other solvents to clean the instrument.

ENVIRONMENT PROTECTION

Recycle raw materials instead of disposing as waste. The machine, accessories and packaging should be sorted for environmental friendly recycling. Do not throw used batteries into house waste, fire or water but dispose of in an environmentally friendly manner according to the applicable legal regulations.

SPECIFICATIONS

Approximate Rotation Speed: 600 RPM—OUTDOOR; 150 RPM—INDOOR.
When using optional detector, highest RPM mode is recommended.

Horizontal Accuracy: 1/4" at 100 feet (6mm at 30m)

Vertical Accuracy: 15/32" at 100 feet (12 mm at 30 m)

Range: Up to 200 feet (60m) diameter interior,
up to 800 feet (240m) diameter exterior
with optional laser detector

Laser Diode: 635nm

Laser Class: 3R

Level & Plumb Vial Sensitivity: Level, 5-8 minutes; plumb, 15 minutes

Mounting Screw: 5/8" x 11 for standard tripods

Weight: 3.6 lbs. (1.6kg) with batteries

Power: Four "C" cell batteries provide approxi-
mately 60 hours of intermittent use

Specifications subject to change without notice.

UNIVERSAL LASER DETECTOR

Introduction

The Universal Laser Detector aids in locating and targeting a visible or invisible beam emitted by a rotary laser; perfect for use in outdoor conditions, where sunlight and distance may make locating the beam more difficult.

Features (Fig. A)

- | | |
|--|------------------|
| 1. LCD readout window | 2. Speaker |
| 3. Beam capture window | 4. Power ON/OFF |
| 5. Beam resolution | 6. Volume ON/OFF |
| 7. LCD readout window (LD-400 and LD-120 only) | 8. Battery door |

Operation

1. Turn on the unit by pressing the ON/OFF pad. The LCD symbols will momentarily flash (Fig. B).
2. Expose the beam capture window of the laser detector towards the direction of the rotating laser.
3. Slowly move the laser detector in an upward and downward direction until the LCD beam indicator arrows appear and/or a pulsing audio signal is heard. Select the desired Beam Resolution, according to the job conditions and the precision required (to see the available Resolutions, please refer to the Specs Table).
4. Move the detector upward when the low beam indicator light is lit (with volume on, a short pulsing audio tone is heard). Move the detector downward when the high beam indicator arrow is lit (with volume on, a long pulsing audio tone is heard). When the beam is level, the level beam indicator line will be lit and a solid audio tone will be heard.

If the detector is not struck by a laser beam after 5-8 minutes, the detector will automatically shut itself off to preserve battery life.

Turn the unit back on using the power button.

Special features

The laser detector includes a rod clamp which allows to mount the detector onto square, round or oval sighting rods.

The detectors are gasket sealed for water and dust protection. Remove any moisture or dirt with a soft, dry cloth.

Do not use aggressive cleaning agents or solvents. Remove batteries before storage of the instrument.

The LCD display of the detector LD-400 has seven distinct channels of information, indicating the position of the detector in the plane of laser light, as indicated in Fig. C (the detectors LD-120 and LD-100N have three).

As you move the detector closer to the center, the arrows fill in to indicate the laser position.

The detector has a unique memory feature, which preserves the last position of the laser beam if the detector is moved out of the plane of laser light, as well as built in electronic filtering for bright sunlight and electromagnetic interference.

The detector LD-400 has three speaker selections (Off, Loud (105dBA) and Louder (125+ dBA)), whereas the models LD-120 and LD-100N have only two (Off and On).

Power

A 9-volt battery will provide up to 3 months of typical usage. When the unit is turned on and the low battery symbol remains lit, the battery should be replaced.

Specifications

Description	LD-400	LD-120	LD-100N
Dimensions	6.6" H x " W x 1" D (169mm x 76mm x 25mm)		
Weight	10 oz. (275g)		
Range	Up to 800-ft (305m) Radius with LM30		
Beam Resolution *	Fine ±0.75mm Medium ±1.5mm Wide ±3mm	Medium ±1.5 mm Wide ±3 mm	Medium ±1.5mm Wide ±3mm
Readout	LCD, 2 windows	LCD, 2 windows	LCD, 1 window
Power	One 9-volt battery provides 3 months of typical usage		

Note: Sensitivity values based on standard conditions with most lasers; may vary slightly due to make, manufacturer, beam size, or working conditions.

Warranty

One Year Warranty. CST/berger, *a division of Stanley Works*, warrants this electronic measuring tool against deficiencies in material and workmanship for a period of one year from the date of purchase. Deficient products will be repaired or replaced at CST/berger's option. Proof of purchase is required.

For warranty and repair information, contact:

Your Local Distributor, or CST/berger.

This Warranty does not cover deficiencies caused by accidental damage, wear and tear, use other than in accordance with the manufacturer's instructions or repair or alteration of this product not authorized by CST/berger.

Repair or replacement under this Warranty does not affect the expiry date of the Warranty. To the extent permitted by law, CST/berger shall not be liable under this Warranty for indirect or consequential loss resulting from deficiencies in this product.

Agents of CST/berger cannot change this warranty. This Warranty may not be varied without the authorization of CST/berger.

This warranty may provide you with additional rights that vary by state, province or nation.

IMPORTANT NOTE: The customer is responsible for the correct use and care of the instrument. Moreover he is completely responsible for checking the job along its prosecution, and therefore for the calibration of the instrument. Calibration and care are not covered by warranty.

Subject to change without notice