

**CST/berger**

**—HITECHNIQUES LTD.**

**01-4580725**

Fax: 01-4588296 Rathcoole, Co. Dublin

E-Mail: [survey@iol.ie](mailto:survey@iol.ie)

Chicago Steel Tape

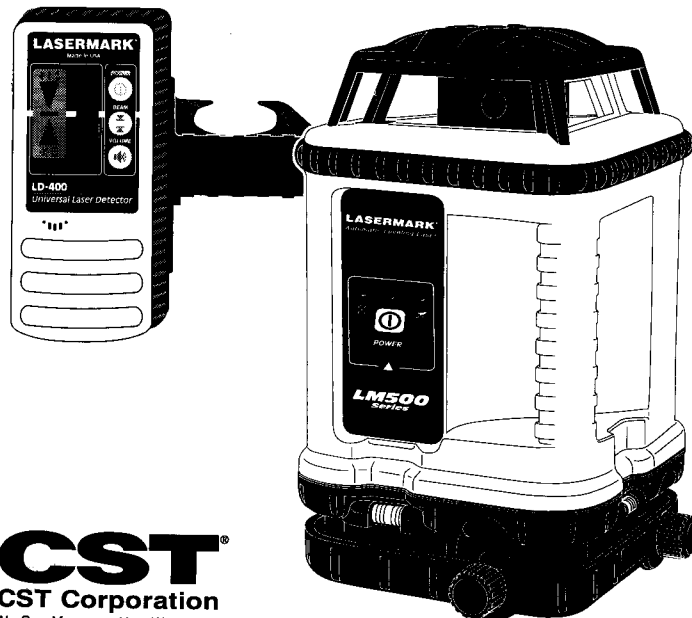
Berger Instrum

Printed in USA CC899 Z93-57-LM500MANUAL

## INSTRUCTION MANUAL

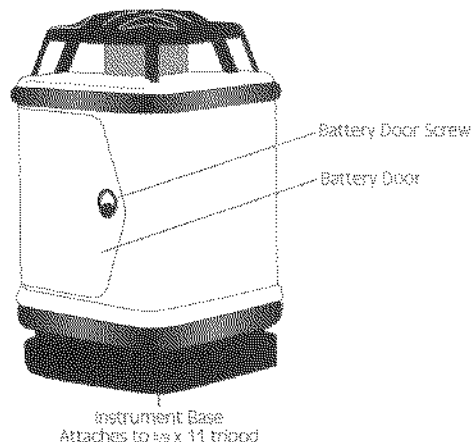
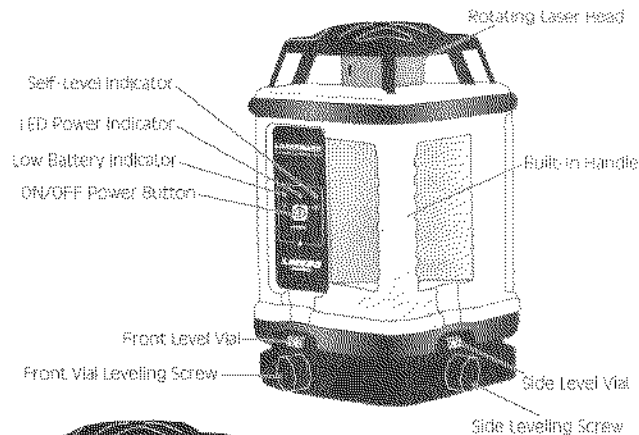
# **LASERMARK®**

## **LM500 Series Self-Leveling Leveling Laser and Universal Laser Detector**

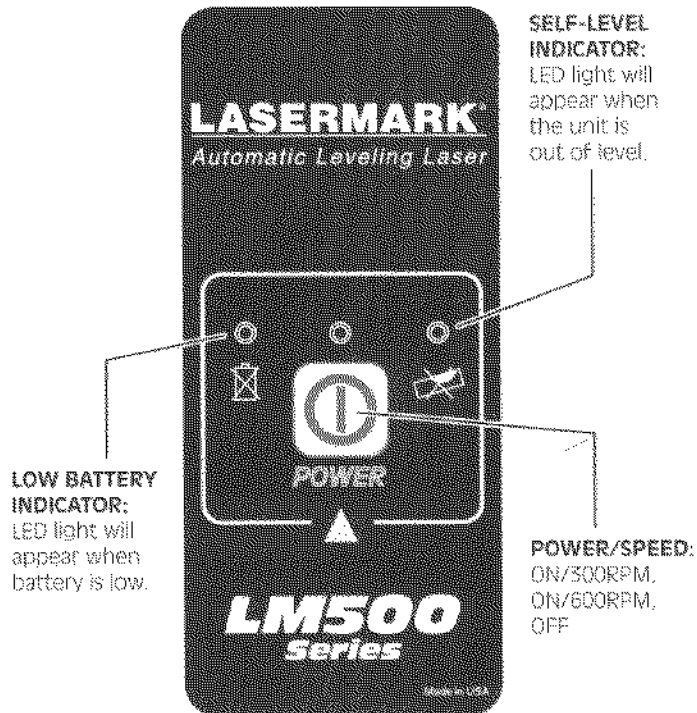


**CST®**  
**CST Corporation**  
No One Measures Up... Worldwide

## 1. LM500 FEATURES



## 2. LM500 CONTROLS



### 3. 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 CFR21, Part 1040 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.



### 4. LM500 OPERATION

#### 4.1 Leveling

1:  
Remove the LaserMark® LM-500 from its case. The level can stand alone or be mounted on a standard  $\frac{5}{8}$  x 11 tripod.

2:  
Once the level has been placed or secured to a tripod, adjust the two leveling screws (turn clockwise to move the bubble to the right or counter-clockwise to move the bubble to the left) and bring the LM-500 within its self-leveling range.

3:  
The unit is now ready to use and is self-leveled to within a  $\pm 20$  arc minute range. Press the ON/OFF button once. The internal head rotates and casts its plane of laser light at 300RPM (best speed to use indoors). To increase the head speed to 600RPM press the ON/OFF

button again (best to use outdoors with laser detector). The LM-500 casts its plane of light across the jobsite, up to 1000' (305m) diameter.

#### 4.2 Automatic Shut-Down

Using a state-of-the-art electronic tilt sensor, the LM-500 provides an automatic shut-down feature to prevent poor readings in any mode. If the unit is bumped or moved more than twenty (20) minutes out of level, the out-of-level indicator light will illuminate and the LM-500 will automatically stop rotating. The unit will not completely shut itself off, it will go into still mode until manually re-leveled or turned off.

### 5. LM500 APPLICATIONS

Use your LaserMark® Automatic Leveling Laser for these and many other projects:

**INDOOR LEVELING:** Drop Ceilings, Cabinets, Counters, Windows

**OUTDOOR LEVELING:** Porches & Decks, Fencing, Batterboards, Landscaping, Grading, Laying Foundation (*below*)

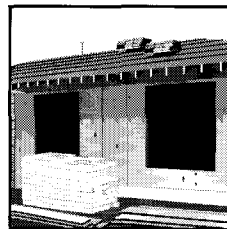


Fig. 1



Fig. 2

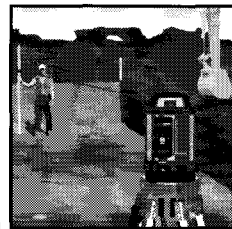


Fig. 3

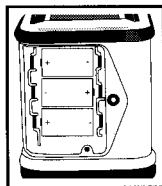
### 6. LM500 BATTERY REPLACEMENT

Your LaserMark® level will provide approximately 70 hours of intermittent use with three "D" cell batteries. If your LaserMark fails to rotate at a steady speed or emits dim laser beams, replace the batteries.

1:  
Remove the battery cover by turning the battery cover screw counter-clockwise.

2:  
Remove the old batteries and replace with three new "D" cell batteries as illustrated (**Fig. 4**).

3:  
Replace the battery cover.



**Fig. 4**

**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.

---

## 7. LM500 CALIBRATION

Your LaserMark® level is a sealed unit and is calibrated to precise accuracies at the factory. It is recommended to perform a calibration check before the initial use of your laser and then periodically from that point forward. If you feel the LM-500 needs calibration, contact the factory, your distributor or the nearest authorized repair center for instructions.

1:  
Mount and level the LaserMark® on a tripod and place approximately 50 feet (15m) away from a wall. Face the front of the unit to the wall.

2:  
Press the POWER button. Mark the position of the laser beam on the wall.

3:  
Loosen the LaserMark® from the tripod and rotate the instrument 180° so the rear of the unit faces the wall. Secure and re-level the unit.

4:  
Again mark the position of the laser beam on the wall. No adjustment is necessary if the vertical difference between the first mark and the second mark is less than 1/16 inch (1.5mm). Otherwise, contact the factory, your distributor or the nearest authorized repair center for instructions.

5:  
Rotate the unit again 90° as in Step 3 and repeat the process as in Step 4.

---

## 8. CARE OF LM500 INSTRUMENT

Always clean the instrument after use. Use a soft, dry cloth to remove any dirt or moisture from the instrument. Do not use benzene paint thinner, or other solvents to clean the instrument. Remove batteries before storage of the instrument.

---

## 9. LM500 SPECIFICATIONS

**Accuracy:** 3/32" at 100 feet (2.4mm at 30m), ±18 arc seconds

**Range:** Up to 1000 feet (305m) diameter

**Laser Diode:** 650nm visible red beam, Class II Laser Product

**Self-Leveling Range:** ±20 arc minutes

**Self-Leveling Method:** Stainless steel ball-bearing pendulum

**Weight:** ±6.8 lbs. (3.1kg) with batteries

**Power:** Three "D" cell Alkalines; provides ±70 hours use

**Rotation Speed:** Two-speed (300/600 RPM)

**Operating Temperature:** -18 to 45°C (0° to 115°F)

**Waterproof:** 100% silicone seal, nitrogen pressurized (IP-X7)

*Specifications subject to change without notice.*

---

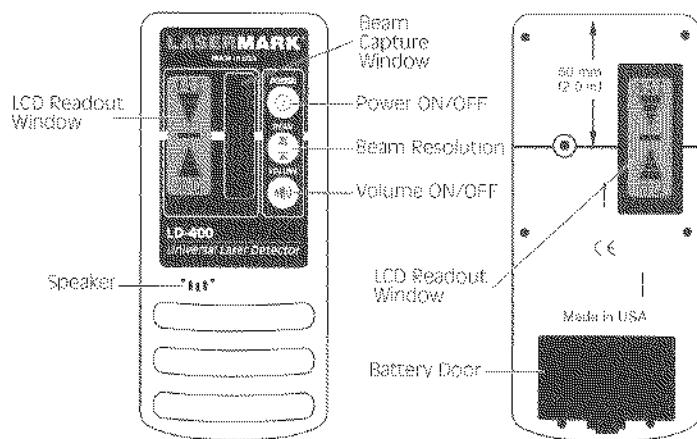
## LD400 UNIVERSAL LASER DETECTOR

---

### 10. LD400 INTRODUCTION

The LaserMark® Universal Laser Detector aids in locating and targeting visible and invisible beams emitted by a rotary laser. Perfect for use in outdoor conditions where sunlight and distance may make this task more difficult.

## 11. LD400 FEATURES



## 12. LD400 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. Removing the battery door allows access to the battery for replacement.

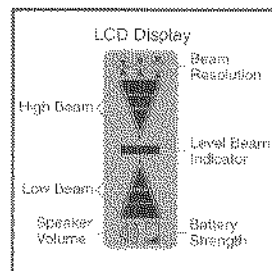
## 13. LD400 OPERATION

1:  
Turn on the unit by pressing the ON/OFF pad. The LCD symbols will momentarily flash (*Fig. 5*) and the "coarse" beam indicator symbol will remain lit. Audio signal is automatically on when unit is first turned on

2:  
Position the front panel of the laser detector towards the direction of the rotary 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. Use the **Beam Resolution** feature to choose between the coarse/low setting, used for approximating level or for initial locating of the center level point, the medium setting, used for greater accuracy, and the fine/high setting, used for the most accurate pinpointing of level.

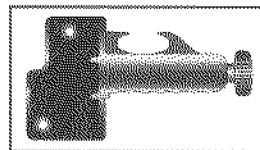
4:  
Move the detector upwards when the low beam indicator light is lit; a short pulsing audio tone will be heard. Move the detector downwards when the high beam indicator arrow is lit; a long pulsing audio tone will be heard. When the beam is level, the level indicator line will be lit and a solid audio tone will be heard. If the detector is not struck by a laser beam, the detector will automatically shut itself off after 5-8 minutes to preserve battery life. Turn the unit back on using the power button.



*Fig. 5*

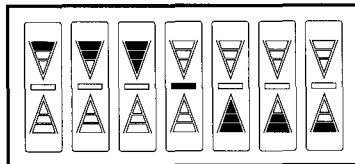
## 14. LD400 SPECIAL FEATURES

The LD-400 comes with a removable rod clamp (#57-RB400, *Fig. 6*) that allows for use in leveling and grading with square, round, or oval leveling rods. The LD-400 is water and dustproof. Use a soft, dry cloth to remove any dirt or moisture from the instrument before storage. Do not use benzene, paint thinner, or other solvents to clean the instrument.



*Fig. 6*

Seven distinct channels of information (**Fig. 7**) indicating the position of the LD-400 in the plane of laser light is found on the LCD display. As you move the detector closer to the center, the arrows fill in to indicate the laser position.



**Fig. 7**

The LD-400 has a unique memory feature which will indicate the last position of the laser beam if moved out of the plane of laser light. The unit has a built in electronic filtering for bright sunlight and electro-magnetic interference. The audio speaker has three selections: Off, Loud and Louder (high is 125+ dBA, low is 105 dBA). It also has three distinct tones for high (fast), on-grade (solid tone) and low (slow).

---

## 15. LD400 SPECIFICATIONS

**Model:** #57-LD400 LaserMark® Universal Laser Detector

**Dimensions:** 6.6" h x 3" w x 1" d (169mm x 76mm x 25mm)

**Weight:** 10 oz. (275g)

**Range (w/ LaserMark® Rotary Laser Level):** up to 2000' (600m)

**Beam Detection Sensitivity:**

Fine,  $\pm .75\text{mm}$ ; Medium,  $\pm 1.5\text{mm}$ ; Coarse,  $\pm 3\text{mm}$

(sensitivity based on standard conditions with most lasers; may vary slightly due to make, manufacturer, beam size, or working conditions)

**Readout:** LED, front and rear windows

**Power:** One 9-volt battery; provides 3 months of typical usage

---

## 16. WARRANTY

This LaserMark® Automatic Leveling Laser is warranted to the original purchaser to be free from defects in workmanship and material. CST Corporation will repair or replace any defective part which may malfunction under normal and proper use within a period of TWO YEARS from the date of purchase without charge of parts and labor, once delivered and shipped prepaid to CST together with proof of date and place of purchase. This warranty is not subject to misuse, abuse, assignment, or transfer. The exclusive remedy under any and all warrants and guarantees, expressed or implied, is limited to repair and/or replacement as provided herein, and CST shall not be liable for damages from loss or delay of equipment uses, consequential, or incidental damage. **Please fill out and return the attached warranty registration card. In the event that you have any problems, please call Customer Service at (800) 435-1859.**