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Spectra Precision LL500

Spectra Precision LL500 Self-Leveling Laser Level and HL700 Receiver User Manual

Model: LL500

1. INTRODUCTION

The Spectra Precision LL500 Laser Level is a robust, self-leveling system designed for precise, long-range measurements across construction sites. This system enhances productivity by minimizing the need for multiple setups, making it suitable for various professional applications. This manual provides essential information for the proper setup, operation, and maintenance of your LL500 Laser Level and HL700 Receiver.



Figure 1: Front view of the Spectra Precision LL500 Laser Level.

This image displays the Spectra Precision LL500 Laser Level, showing its yellow casing and the control panel with the power switch and battery indicator.

2. PRODUCT OVERVIEW

2.1 Included Components

The Spectra Precision LL500 kit typically includes the following items:

- LL500 Laser Transmitter
- HL700 Digital Readout Receiver
- C70 Rod Clamp

- Alkaline Batteries (4 D batteries)
- Hard-shell Storage Case
- User Guides

2.2 Key Features

The LL500 Laser Level and HL700 Receiver offer several features designed for accuracy and ease of use:

- **Self-Leveling:** Automatically levels itself within a specified range, with a built-in 'out-of-level' shut-off to maintain accuracy and minimize errors.
- **High Accuracy:** Provides an accuracy of +/-1/16 inch per 100 feet (1.5 mm per 30 m).
- **Temperature Compensation:** Ensures stable and repeatable accuracy even under significant temperature fluctuations.
- **Long Working Diameter:** Operates over a 1,650 ft (500 m) diameter, reducing the need for frequent repositioning on large job sites.
- **HL700 Digital Readout Receiver:**
 - Digital display of elevation with +/-2 inches readout on large front and rear LCDs.
 - Selectable units of measure: millimeters, centimeters, feet, decimal inches, or fractional inches.
 - 5-inch (13 cm) reception height for quick beam acquisition.
 - Anti-strobe sensor to prevent false readings from site strobe lights.
 - Capture function to retain measurements when the display is difficult to view.

Precision LL500 Self-Leveling Laser Level

INCLUDES

The kit includes with LL500 laser transmitter, HL700 digital readout receiver, C70 rod clamp, alkaline batteries, hard-shell storage case, and user guides

PRECISE

Self-leveling with built-in 'out-of-level' shut off maintains accuracy over the entire work area and minimizes errors

ACCURATE

High accuracy laser, 1/16 in per 100 ft (1.5 mm per 30 m) with temperature compensation provides highly stable, repeatable accuracy even under large temperature changes



PERFORMANCE

Long range 1,650 ft (500 m) working diameter increases productivity by reducing need for multiple set-ups on a large job site

SPECIFICATIONS

Included HL700 receiver, which can be used in rod mounted or handheld position, features a digital readout of elevation that provides a numeric display of +/-2 inches, displayed on large front and rear LCDs



Figure 2: Detailed view of the LL500 Laser Level controls.

This image provides a closer look at the LL500's control panel, including the power switch and battery indicator, essential for operation.

3. SETUP

3.1 Battery Installation

1. Locate the battery compartment on the LL500 Laser Transmitter.
2. Open the compartment and insert four (4) D-cell alkaline batteries, ensuring correct polarity.
3. Close the battery compartment securely.
4. The HL700 Receiver also requires batteries; refer to its specific manual for installation.

3.2 Mounting the LL500 Laser Transmitter

The LL500 is designed to be mounted on a stable tripod for optimal performance.

1. Place a tripod on a firm, level surface in the desired work area.
2. Securely attach the LL500 Laser Transmitter to the tripod head using the mounting screw.
3. Ensure the tripod is stable and the laser level is roughly centered.



Figure 3: LL500 Laser Level correctly mounted on a tripod.

This image shows the LL500 laser level securely attached to a tripod, ready for operation on a construction site.

3.3 HL700 Receiver and Rod Clamp Setup

Attach the HL700 Receiver to the C70 Rod Clamp, then secure it to a grade rod.

- Slide the HL700 Receiver into the C70 Rod Clamp.

- Tighten the clamp to hold the receiver firmly.
- Attach the assembled receiver and clamp to a grade rod at a convenient height for measurement.

4. OPERATING INSTRUCTIONS

4.1 Powering On and Self-Leveling

1. Ensure the LL500 is securely mounted and batteries are installed.
2. Flip the power switch to the ON position.
3. The LL500 will begin its self-leveling process. The laser beam will start rotating once leveling is complete.
4. If the unit is significantly out of level, the 'out-of-level' shut-off feature will activate, stopping the laser rotation to prevent inaccurate readings. Adjust the tripod until the unit can self-level.

4.2 Using the HL700 Digital Readout Receiver

The HL700 receiver is crucial for detecting the laser beam and displaying elevation information.

- **Beam Detection:** Move the grade rod with the attached HL700 Receiver through the laser plane. The receiver will indicate when the laser beam is detected.
- **Digital Readout:** The large LCDs on the front and rear of the HL700 will display the elevation difference from on-grade in numeric values (e.g., +/-2 inches).
- **Unit Selection:** Use the controls on the HL700 to cycle through desired units of measure (mm, cm, feet, decimal inches, fractional inches).
- **Anti-Strobe Sensor:** This feature helps prevent false readings caused by other strobe lights on the job site.
- **Capture Function:** If the display is difficult to see, activate the capture function to temporarily hold the measurement on the screen.



Figure 4: HL700 Receiver mounted on a grade rod in use.

This image shows the HL700 receiver attached to a grade rod, positioned to detect the laser beam from the LL500, displaying elevation data.

5. APPLICATIONS

The Spectra Precision LL500 Laser Level is versatile and suitable for a wide range of construction and leveling tasks:

- Checking and setting elevations across large areas.
- Establishing and verifying concrete forms for small to large jobs.
- Inspecting and setting foundations.
- Excavating and digging footings.
- Leveling for septic tanks or sub-base preparation.
- Longer range machine control applications, especially when paired with compatible machine-mounted receivers (e.g.,

CR600, not included in this kit).



Figure 5: LL500 Laser Level in use for general site leveling.

This image depicts a construction worker utilizing the LL500 laser level and a grade rod to perform leveling tasks on a job site.



Figure 6: LL500 Laser Level assisting with concrete formwork.

This image illustrates the LL500 laser level set up on a tripod, providing a level reference for workers preparing concrete forms.

6. MAINTENANCE

Proper maintenance ensures the longevity and accuracy of your Spectra Precision LL500 Laser Level and HL700 Receiver.

- **Cleaning:** Regularly clean the exterior of the laser level and receiver with a soft, damp cloth. Avoid abrasive cleaners or solvents. Ensure the laser aperture and receiver detection window are free from dirt and debris.
- **Storage:** When not in use, store the LL500 and HL700 in their hard-shell carrying case in a dry, temperature-controlled environment.
- **Battery Care:** Remove batteries if the unit will not be used for an extended period to prevent leakage.
- **Calibration:** For continued accuracy, periodic calibration checks by an authorized service center are recommended, especially after significant impacts or prolonged use.

7. TROUBLESHOOTING

This section provides general guidance for common issues. For detailed troubleshooting, refer to the comprehensive user manual PDF or contact customer support.

- **Laser Not Rotating:** Check battery levels. Ensure the unit is within its self-leveling range; if too far out of level, the 'out-of-level' shut-off will prevent rotation. Adjust the tripod.
- **Inaccurate Readings:** Verify the unit is self-leveled. Ensure the HL700 receiver is clean and properly aligned. Check for strong vibrations or impacts that might affect calibration.
- **Receiver Not Detecting Beam:** Confirm the LL500 is powered on and emitting a beam. Ensure the receiver's batteries are charged. Check for obstructions between the laser and receiver.

8. SPECIFICATIONS

| Feature | Specification |
|--------------------|-----------------------------------------|
| Brand | Spectra Precision |
| Model Number | LL500 |
| Material | Acrylic, Plastic |
| Color | Yellow |
| Product Dimensions | 8.3"L x 7.1"W |
| Item Weight | 10 Pounds |
| Operation Mode | Automatic (Self-leveling) |
| Accuracy | +/-1/16" at 1000ft / +/-1.5mm at 30m |
| Working Diameter | 1650 ft (500 m) |
| Power Source | Battery Powered |
| Batteries Required | 4 D batteries (included) |
| Battery Cell Type | Alkaline |
| Special Features | Self-leveling, Temperature Compensation |

9. WARRANTY AND SUPPORT

9.1 Warranty Information

- The LL500 transmitter is backed by a **two-year warranty**.
- The HL700 Receiver is backed by a **three-year warranty**.
- Refer to the official warranty documentation included with your product for full terms and conditions.

9.2 Customer Support

For further assistance, technical support, or service inquiries, please refer to the official Spectra Precision website or contact their authorized service centers. A comprehensive user manual in PDF format is also available for download:

[Download Full User Manual \(PDF\)](#)