

HR350 Receiver User Guide



Introduction

Thank you for choosing the Spectra Precision® Laser HR350 from the Trimble® family of precision products. The HR350 is a battery-operated laser receiver that detects a rotating laser beam and indicates its position relative to the beam using LCD symbols and LEDs.

Before using the receiver, be sure to read this user guide carefully. Included in it is information about setting up, using, and maintaining the receiver. Also included in this manual are **CAUTIONS** and **Notes**. Each of these words represents a level of danger or concern. A **CAUTION** indicates a hazard or unsafe practice that could result in *minor* injury or property damage. A **Note** indicates important information unrelated to safety.

Your comments and suggestions are welcome; please contact us at:

Trimble Construction Division
5475 Kellenburger Road
Dayton, Ohio 45424-1099 U.S.A.
Phone: (937) 245-5600
(800) 538-7800
FAX: (937) 233-9004
Internet: www.trimble.com

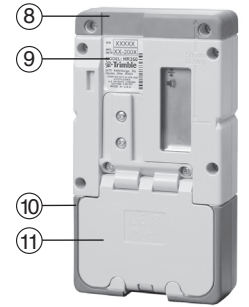
Receiver

Features and Functions

- Power/Audio Button**—is a multi-functional button that is used to turn on/off the receiver and adjust the volume.
- Marking Notches (both sides)**—align with the on-grade portion of the photocell and are used to mark elevation readings. The marking notches are 50 mm (2 in.) from the top of the receiver.
- Grade-Sensitivity Button**—allows you to select the receiver's on-grade sensitivities, which include fine: 1.5 mm (1/16 in.) and medium: 3 mm (1/8 in.).
- LEDs**—show the position of the receiver relative to the laser beam (high, on-grade, or low).
- Liquid Crystal Display (LCD)**—shows the elevation, grade sensitivity, audio, and low-battery status.
- Photocell**—detects the laser beam when it strikes the receiver.
- Audio Port**—is the opening the sound comes out of.



- Clamp-Tab Recess**—is the area that the general-purpose clamp's release tab fits into.
- Label**—shows the serial number and manufacturing date.
- Battery Housing**—holds two AA alkaline, Ni-MH, or Ni-Cd batteries.
- Battery Door**—holds the batteries securely in place.



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How to Use the Receiver

Installing/Removing the Batteries



- Open the battery door using a coin or your thumbnail.
- Install/Remove the 2 AA batteries noting the positive (+) and negative (-) diagram inside the housing.
- Push down on the battery door until it "clicks" into position.

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Learning the Receiver Functions

Turning On/Off the Receiver

- Press the power/audio button to turn on the receiver.

Note: When the receiver is initially turned on, all LCD symbols, LEDs, and the audio signal are turned on for one second (diagnostic mode). After the diagnostic mode is complete, the grade sensitivity (fine) and the audio (loud) symbols appear.

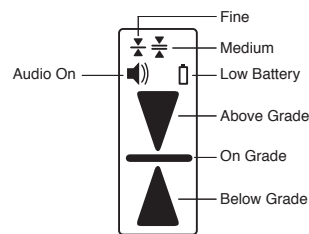
- Press and hold the power/audio button for one second to turn off the receiver.

Selecting the Audio Function

The receiver always starts up with the audio mode (loud) active.

- Press the power/audio button repeatedly to cycle through the audio levels, which include off, soft, and loud.

Note: If the audio function is on, the receiver beeps quickly when the receiver is above the laser beam, slowly when below it, and continuously when centered in the laser beam or on grade.



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Selecting the Grade Sensitivity

The receiver always starts up with the on-grade sensitivity (fine) active.

- Press the grade-sensitivity button repeatedly to select between fine: 1.5 mm (1/16 in.) and medium: 3 mm (1/8 in.) grade sensitivity.

Turning On/Off the LEDs

The LEDs show the position of the receiver relative to the laser beam. Turning off the LEDs extends battery life.

- Press the grade-sensitivity and power/audio buttons repeatedly to turn the LEDs on or off.

Note: When the LEDs are turned on, all LEDs light for one second; when the LEDs are turned off, both red LEDs light for one second.

Using the Receiver with a Laser

- Press the power/audio button to turn on the receiver.
- Position the receiver so that its photocell faces the laser.
- Move the receiver up/down until the LCD and LEDs show an on-grade reading.

Note: The LCD shows a down arrow when the receiver is above the laser beam, an up arrow when below it, and a horizontal line when centered in the laser beam.

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Note: The top/bottom LED flashes when the receiver is within 6 mm (1/4 in.) of being on grade and lights continuously when the receiver is between 6 mm and 25 mm (1/4 in. and 1 in.) of being above or below the laser beam. The green LED flashes when the receiver is on grade.

LCD/LED/Audio Information

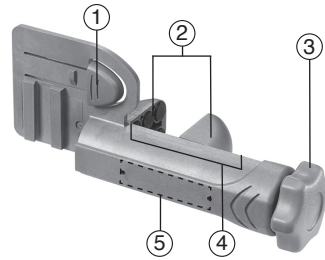
LCD Readout	Function	Audio Output	LED Indication
Down arrow ▼	High	Fast beeping tone	Top red LED: solid
Center bar & down arrow ▼	Fine-high	Fast beeping tone	Top red LED: flashing
Center bar —	On-grade	Continuous tone	Middle green LED: flashing
Center bar & up arrow ▲	Fine-low	Slow beeping tone	Bottom red LED: flashing
Up arrow ▲	Low	Slow beeping tone	Bottom red LED: solid
Battery 🔋	Low battery	N/A	N/A
Horn 📢	Audio on/soft/loud	Single beep	N/A
Fine ⚡	Fine grade sensitivity	N/A	N/A
Medium ⚡	Medium grade sensitivity	N/A	N/A

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General-Purpose Clamp

The C59 general-purpose clamp allows the receiver to be attached to a survey rod or wooden pole.

Features and Functions



1. **Release Tab**—allows the receiver to be locked onto or released from the general-purpose clamp.
2. **Jaws**—close/open so that the general-purpose clamp can be attached to or released from a survey rod or wooden pole.
3. **Jaws Screw**—controls the closing/opening of the jaws.
4. **Reading Edge**—aligns with the receiver's on-grade marking notches.
5. **Bubble Screw Holes**—are where the optional 1075-1220 rod bubble kit is mounted.

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EMC Declaration of Conformity

This receiver has been tested and found to comply with the limits for a Class B digital device for radio noise for digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communication, and is pursuant to part 15 of the Federal Communication Commission (FCC) rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This receiver generates radio frequency. If it's not used in accordance with the instructions, it may cause harmful interference to radio or television reception. Such interference can be determined by turning the receiver off and on. You are encouraged to try eliminating the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the laser and the receiver.

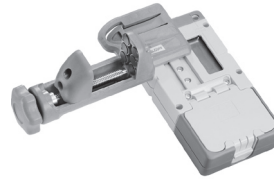
For more information, consult your dealer or an experience radio/television technician.

CAUTION: Changes or modifications to the receiver that are not expressly approved by Trimble could void authority to use the equipment.

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Attaching the Receiver to the Survey Rod or Wooden Pole

1. Slide the general-purpose clamp into the receiver until it “clicks” into position.
2. Turn the jaws screw counterclockwise to open the clamp's jaws.
3. Slide the survey rod or wooden pole between the clamp's jaws.
4. Turn the jaws screw clockwise to hold the general-purpose clamp securely in place.



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Declaration of Conformity

Application of Council Directive(s):	89/336/EEC
Manufacturer's Name:	Trimble Navigation Ltd.
Manufacturer's Address:	5475 Kellenburger Road Dayton, Ohio 45424-1099 U.S.A.
European Representative Address:	Trimble GmbH Am Prime Parc 11 65479 Raunheim, Germany
Model Number:	HR350
Conformance to Directive(s):	EC Directive 89/336/EEC using EN55022 and EN50082-1
Equipment Type/Environment:	ITE/residential, commercial & light industrial
Product Standards:	Product meets the limit B and methods of EN55022 Product meets the levels and methods of IEC 801-2, 8 kV air, 4 kV contact IEC 801-3, 3 V/m 26 to 1000 MHz 80%, @ 1 kHz

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Receiver Specifications

LCD/LED Channels	5
Capture Height	50 mm (2 in.)
Acceptance Angle	90°
On-Grade Sensitivity	Fine: 1.50 mm (1/16 in.) Medium: 3.00 mm (1/8 in.)
Power Source	Two 1.5-V batteries (type LR6/AA)
Battery Life @ 20 °C (68 °F)	Alkaline: 70 hours (LEDs off)
Battery Indicator	LCD battery symbol
Automatic Shutoff	30 minutes after last laser detection or push-button actuation
Spectral Sensitivity	Operates with red visible and infrared rotating lasers with wavelength between 610 and 900 nm
Marking Notch	50 mm (2 in.) below top of receiver, on both sides
Operating Temperature	–20 °C to +50 °C (–4 °F to +122 °F)
Storage Temperature	–40 °C to +70 °C (–40 °F to +158 °F)
Weight	0.28 kg (9.87 oz)
Dimensions (H x W x D)	13.5 cm x 7.2 cm x 2.7 cm (5.32 in. x 2.83 in. x 1.06 in.)

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Warranty

Trimble warrants the receiver to be free of defects in material and workmanship for a period of one year.

Trimble or its authorized service center will repair or replace, at its option, any defective part for which notice has been given during the warranty period. If required, travel and per diem expenses to and from the place where repairs are made will be charged to the customer at the prevailing rates.

Customers should send the product to Trimble Navigation Ltd. or the nearest authorized service center for warranty repairs, freight prepaid. In countries with Trimble subsidiary service centers, the repaired product will be returned to the customer, freight prepaid.

Any evidence of negligent, abnormal use, accident, or any attempt to repair the product by other than factory-authorized personnel using Trimble certified or recommended parts, automatically voids the warranty.

The foregoing states the entire liability of Trimble regarding the purchase and use of its equipment. Trimble will not be held responsible for any consequential loss or damage of any kind.

This warranty is in lieu of all other warranties, except as set forth above, including any implied warranty merchantability of fitness for a particular purpose, are hereby disclaimed. This warranty is in lieu of all other warranties, expressed or implied.

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Notice to Our European Union Customers

For product recycling instructions and more information, please go to: www.trimble.com/environment/summary.html

Recycling in Europe

To recycle Trimble WEEE, call: +31 497 53 2430, and ask for the “WEEE associate,” or

mail a request for recycling instructions to:
Trimble Europe BV
c/o Menlo Worldwide Logistics
Meerheide 45
5521 DZ Eersel, NL



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Trimble Construction Division
5475 Kellenburger Road
Dayton, Ohio 45424-1099
U.S.A.
+1-937-245-5600 Phone

www.trimble.com