LG20 Crossbeam Generator

User Guide

www.trimble.com

Trimble

Introduction

Thank you for choosing the Spectra Precision® Laser LG20 from the Trimble® family of precision products. This simple-to-use tool allows you to perform elevation leveling or vertical plumb work, such as ceiling installations, or laying out wall lines and putting up wall partitions. You can also use the laser outdoors for leveling and aligning applications (optional HR250 receiver required).

Before using the laser, be sure to read this operator's manual carefully. Included in it is information about setting up, using, and maintaining the laser. Also included in this manual are **CAUTIONS** and **Notes**. Each of these words represents a level or 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:

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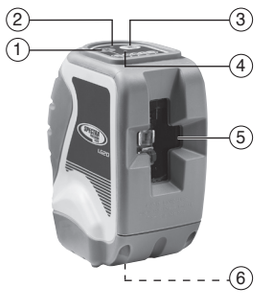
Features



1. Power/Mode Button
2. Manual LED
3. Receiver Button
4. Power (solid)/Receiver (flashing) LED
5. Exit Window for Beam(s)
6. Battery Housing

Laser Safety

The pocket laser uses a Class 2 laser, which complies with the requirements based on the IEC825-1/EN60825 standards (Class 2 based on 21CFR 1041). This laser may be operated without the need for any additional protective measures. Nevertheless, as with the sun, care should be taken to avoid looking directly into the light source.

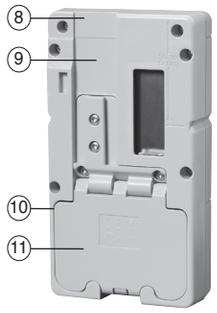
CAUTION: Never look directly into the laser beam.

Please keep the pocket laser out of the reach of children.

HR250 Receiver

1. **Power and Audio Button** – turns the receiver on/off and changes the audio to loud, soft, and off.
2. **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.
3. **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.).
4. **LEDs** – show the position of the receiver relative to the laser beam (above grade, on grade, or below grade).
5. **Front and Back Liquid Crystal Displays (LCDs)** – show the power, audio, elevation, grade sensitivity, out-of-level, and battery status. The LCDs also show when the laser has been bumped out of level.
6. **Photocell** – detects the laser beam when it strikes the receiver. If the photocell does not detect the laser beam for 30 minutes, the receiver shuts off automatically.
7. **Audio Port** – is the opening the sound comes out of.

HR250 Receiver (cont.)

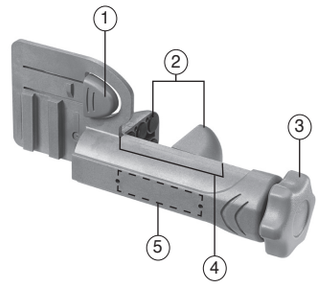


8. **Clamp-Tab Recess** – is the area that the general-purpose clamp's release tab fits into.
9. **Label** – shows the serial number and manufacturing date.
10. **Battery Housing** – holds 2 AA alkaline batteries.
11. **Battery Door** – holds the batteries securely in place.

General-Purpose Clamp

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

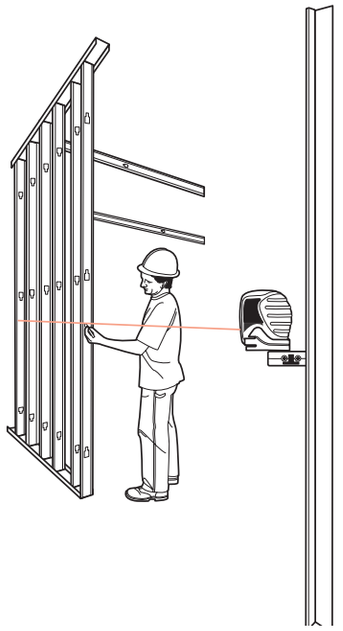
Features and Functions



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 1277-6251S rod bubble kit is mounted.

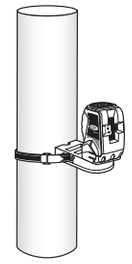
0002-8210 Universal Accessory

1 M (4 Ft) Marks

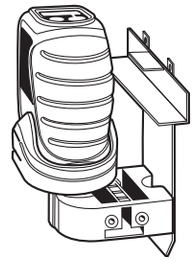


Elevations with 1/4–20 Tripod Mount

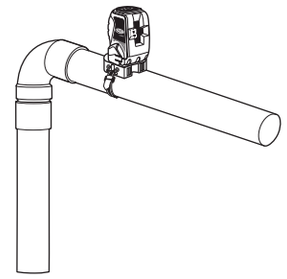
Columns with Strap or Bungee Cord



Ceiling with 0002-3480 Ceiling Plate



Pipes/Conduit



Batteries

Installation/Removal

CAUTION: The batteries should be removed when storing the laser more than 30 days.

1. Release the battery door using your fingers, a coin, or a screwdriver. Open the door.
2. Install/remove the AA batteries.

   Note: When installing the batteries, be sure to note the positive (+) and negative (–) diagrams molded on the battery housing.
3. Close the battery door and latch it shut.

Disposal

Some states and local areas have regulations regarding the disposal of batteries. Be sure to dispose of discharged batteries properly.

Laser Setup without a Tripod

Setups attempted through glass or other material will affect the accuracy of the laser.

1. Repeatedly press the power/mode button until the desired beam(s) appears. The green power/receiver LED lights to show that the laser is on.

   Note: If you are also using the receiver, press the receiver button.

   CAUTION: Never look directly into the laser beam.
2. Place the laser on a flat surface. The laser must be within ±5° of being level for it to self-level.
3. Adjust the position of the laser so that the beam(s) is at the desired position.
4. Locate the position of the beam(s). Mark the wall, elevation, floor, or ceiling.

Applications

Plumbing a Wall

1. Place the laser against the front edge of the bottom track.
2. Repeatedly press the power/mode button until the vertical beam appears.

3. Adjust the top of the partition until it aligns with the vertical beam.

Installing a Ceiling

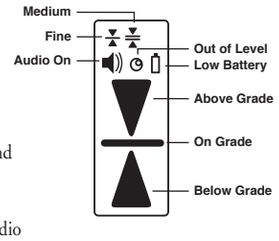
1. Measure up from the floor (or other reference mark) to the finished ceiling height.
2. Install the first piece of wall molding.
3. Slide the ceiling plate (0002-3480) behind the wall molding.

4. Attach the universal accessory (0002-8210) to the laser and clamp it to the ceiling plate so that the level beam is at wall molding height. Install the rest of the wall molding.

5. Lower the laser 3 cm (1.2 in.) on the ceiling plate so that the level beam is at the horizontal target elevation.
6. Install the ceiling's cross Ts and main Ts.

Learning the Receiver Functions

Turning On/Off the Receiver



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

   Note: When the receiver is initially turned on/off, 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.

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

Turning On/Off LEDs

The LEDs show the position of the receiver relative to the laser beam.

Turning off the LEDs extends battery life.

The factory default setting for the LEDs is on.

1. 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.

Selecting the Grade Sensitivity

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

1. 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.

Selecting the Audio Function

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

1. 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.

Using the Receiver with a Laser

1. Press the power/audio button to turn on the receiver.
2. Position the receiver so that its photocell faces the laser.
3. 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.

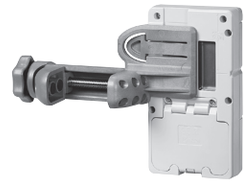
Note: The top/bottom LED flashes when the receiver is within 6 mm (1/4 in.) of being on grade and light continuously when the receiver is between 6 mm and 25 mm (1/4 in. and 1 in.) of being above or below the laser beam. The green LED flashes when the receiver is on grade.

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
Out-of-level symbol	Out-of-level	Beeping tone	N/A

Attaching the Receiver to a Grade Rod

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.

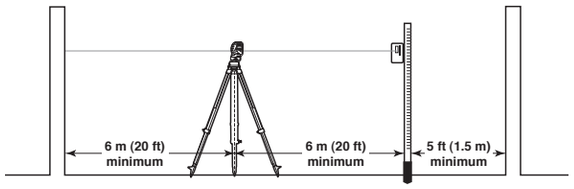
Laser Setup with a Tripod

1. Set up the tripod in the middle of your work area (or wherever is best for your application needs). Make sure the setup is stable.

   Note: The typical operating radius of the system is 75 m (250 ft).

   Note: For best system performance, do not set up the laser within 6 m (20 ft) of a wall. Also do not use the receiver within 6 m (20 ft) of the laser or within 1.5 m (5 ft) of a wall. At these close ranges, the receiver’s electronics may give incorrect beam elevation information due to the laser beam reflecting off of the walls.

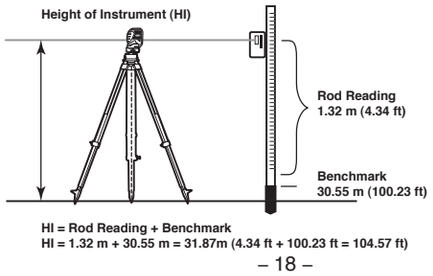
2. Attach the universal accessory (0002-8210) to the laser and attach the laser to a 1/4-20 camera tripod.
3. Turn on the laser and receiver.



Determining the Height of Instrument (HI)

The height of instrument (HI) is the elevation of the laser’s beam. The HI is determined by adding the grade-rod reading to a benchmark or known elevation.

1. Set up and level the laser.
2. Attach the receiver to a grade rod and turn on the receiver.
3. Place the grade rod on a job-site benchmark (BM) or known elevation.
4. Slide the receiver up/down the grade rod until the LCD shows an on-grade reading.
5. Add the grade-rod reading to the benchmark to determine the height of instrument.
   Example: Benchmark elevation = 30.55 m (100.23 ft)
   On-grade rod reading = + 1.32 m (4.34 ft)
   Height of instrument = 31.87 m (104.57 ft)
6. Use this HI as a reference for all other elevations.



Specifications

Laser

Level and Vertical Beam Accuracy	+/– 6 mm @ 21 m (+/– 1/4 in. @ 70 ft)
Self-Leveling Range	±5° from level
Out-of-Level Indicator	Beam flashes
Visual Working Range	30 m (100 ft)
Laser Class	2
Laser Type	635 nm
Beam Fan Angle	110°, vertical beam is biased upward
Power Source	4 AA alkaline
Battery Life	40 hours (alkaline)
Low-Battery Indicator	Power LED flashes slowly
Auto-Shutoff (Holding the power button down for 3 seconds enables auto-shutoff.)	1 hour (on/off selectable)
Operating Temperature Range	–10 °C to 45 °C (14 °F to 113 °F)
Size	12.0 x 11.0 x 6.5 cm (4.7 x 4.4 x 2.6 in.)
Weight	0.6 kg (1.25 lb)

Receiver

Accuracy	1.5 mm (1/16 in.), and 3 mm (1/8 in)
Elevation Readout	Front and back LCDs, and simultaneous front LEDs with green on-grade
Out-of-Level Indication	Audio and visual
Audio Control	Loud/Soft/Off
Capture Height	50 mm (2 in.)
Marking Notches	50 mm (2 in.) below top of receiver
Power Source	2 AA alkaline batteries
Battery Life	60+ hours
Low-Battery Indicator	LCD on main display
Automatic Shutoff	30 minutes after last laser strike or button press
Drop Resistance	1.5 m (5 ft) onto concrete at room temperature
Water Resistant	Yes
Operating Temperature	–20 °C to 60 °C (–4 °F to 140 °F)
Storage Temperature	–40 °C to 70 °C (–40 °F to 158 °F)
Regulatory Conformance	RFI (Radio Frequency Interference Protection) per 89/336/EEC using EN55022 and EN50082-1

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

Request for Service

To locate your local dealer or authorized Trimble Service Center outside the U.S.A for service, accessories, or spare parts, contact one of our offices listed below.

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Maintenance and Care

Handling Precautions

When transferring the laser from a very low temperature to a warmer environment or visa versa, always allow time for the laser to reach the new temperature before using. Allowing this time is especially important when transferring the laser from an extremely heated/cold vehicle to the job site.

System Cleaning

For maximum performance and accuracy always keep the lenses clean. When cleaning, apply very light pressure and use only a good quality glass cleaner on a soft cloth to clean the exterior of the laser and its lenses.

CAUTION: A dry cloth or abrasive organic cleaner could scratch or damage these surfaces.

CAUTION: Do not submerge the laser.

Storage

When you’re not using the laser, store it in its pouch/carrying case.

CAUTION: Do not store the laser in a wet pouch/carrying case. If the pouch/carrying case gets wet, let it dry before storing the laser in it.

Calibration

Before each use, be sure to check the laser for signs of damage. If the laser has been dropped or subjected to other rough treatment, it should be checked for accuracy. For instruction on checking calibration, please visit www.trimble.com and look for Product Information.

Warranty

Trimble warrants the Spectra Precision® Laser LG20 and HR250 to be free of defects in material and workmanship for one year. This warranty period is in effect from the date the system is delivered by Trimble or its authorized Dealer to the purchaser, or is put into service by a Dealer as a demonstrator or rental component.

Additionally, items covered by the standard Trimble one-year warranty are the accessories. All other components not manufactured Trimble but sold as a part of the system, such as tripods and grade rods, will carry a 90 days warranty or the manufacturer’s warranty, whichever is greater.

Trimble or its Authorized Service Center will repair or replace, at its option, any defective part or components of which notice has been given during the warranty period. A Warranty Registration Card must be filled out properly and on file with Trimble Service Department before warranty repair or replacement can be approved. Travel and per diem expenses, if required, to and from the place where repairs are made will be charged to the purchaser at the prevailing rates.

Customers should send products to the nearest Authorized Factory Service Center for warranty repairs, freight prepaid. In countries with Trimble Service Subsidiary Centers, the repaired products will be returned to the customer, freight prepaid.

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

Special precautions have been taken to ensure the calibration of the laser; however, calibration is not covered by this warranty. Maintenance of the calibration is the responsibility of the user.

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 an implied warranty merchantability of fitness for a particular purpose, is hereby disclaimed. This warranty is in lieu of all other warranties, expressed or implied.

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