1. Set up and level the laser 100 ft (30 m) from a wall.

2. Raise/lower the receiver until you get an on-grade reading for the Y axis. Using the on-grade marking notch as a reference, make a mark on the wall.

3. Rotate the laser 180° (+Y axis) and re-level the laser.

4. Raise/lower the receiver until you get an on-grade reading for the +Y axis. Using the on-grade marking notch as a reference, make a mark on the wall.

5. Measure the difference between the two marks. If they differ more than 1/8 inch at 100 ft (30 cm at 30 m), the laser needs calibrating.

6. Observe the location of the bubble (top or bottom of the bull’s-eye) and using the left-thumb rule, turn the Y axis screw to move the bubble so that it is centered in the bull’s-eye.

7. To adjust the calibration, insert a nail (1/4 in. or 1.5 mm diameter) into the opening in the calibration screw and turn the screw in the appropriate direction.

8. NEN (110/220 V) or Smart Charger Model 1041S/SE/SEND, N, N, E, NENG (110/220 V), recharge the laser overnight after every third day of use. More frequent recharging may be needed if you use the laser for long periods during the day or in colder climates.

9. After adjusting the Y axis, rotate the laser 90°. Repeat steps 2-8 starting with the -X axis facing the wall.

10. Out-of-Level LED — flashes when the laser is out of its self-leveling range.

11. Low-Battery LED — flashes when the batteries need replacing or recharging.

12. X Axis Calibration Screw— allows the X axis of the laser to be adjusted so that the laser beam is level.

13. Y Axis Calibration Screw— allows the Y axis of the laser to be adjusted so that the laser beam is level.

14. 1/16-11 Tripod Mount — allows the laser to be attached to a standard 1/16-11 construction tripod.

Checking Calibration

To check the horizontal calibration, you'll need a tripod with a 1/16-11 threaded mount, hand-held receiver, and 1/4 in. (1.5 mm) diameter pin or small nail. If you need to adjust the calibration, having another person to help saves time.

1. Set up and level the laser 100 ft (30 m) from a wall.

2. Raise/lower the receiver until you get an on-grade reading for the Y axis. Using the on-grade marking notch as a reference, make a mark on the wall.

3. Rotate the laser 180° (+Y axis) toward the wall and re-level the laser.

4. Raise/lower the receiver until you get an on-grade reading for the +Y axis. Using the on-grade marking notch as a reference, make a mark on the wall.

5. Measure the difference between the two marks. If they differ more than 1/8 inch at 100 ft (30 cm at 30 m), the laser needs calibrating.

6. To correct for a calibration error, position the receiver at the midpoint of the two elevation marks on the wall.

7. Adjust the calibration, insert a nail (1/4 in. or 1.5 mm diameter) into the opening in the calibration screw and turn the screw in the appropriate direction.

8. Rotate the laser 180° back to the original face. Make sure this axis is less than 1/4 in. (1.5 mm) from the midpoint line.

9. After adjusting the Y axis, rotate the laser 90°. Repeat steps 2-8 starting with the -X axis facing the wall.

10. Note: Do not recharge alkaline batteries. To recharge them does not damage the laser but doing so might blow the battery-protection fuse in the battery pack.
Specifications

Laser

<table>
<thead>
<tr>
<th>Laser Type/Classification</th>
<th>670 nm visible, Class II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Leveling Range</td>
<td>±15 arc minutes</td>
</tr>
<tr>
<td>Manual Leveling Method</td>
<td>Three-screw leveling base with bulk-eye circular bubble and out-of-level LED</td>
</tr>
<tr>
<td>Horizontal Accuracy</td>
<td>±0 arc seconds over temperature</td>
</tr>
<tr>
<td>Power Source</td>
<td>4.5 dL-alkaline or Ni-Cd (4.8 Ah) batteries</td>
</tr>
<tr>
<td>Battery Life (18 °F / 20 °C)</td>
<td>17 hours</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-4 °F to 122 °F (50 °C)</td>
</tr>
</tbody>
</table>

Troubleshooting

If none of the following techniques correct the problem, take your system to a local Trimble dealer or authorized service center for evaluation or repair.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
</table>
| Laser will not operate | • Press power button.  
  • Check or replace batteries.  
  • Make sure the battery contacts are clean.  
  • Make sure the battery housing is securely in place.  
  • Return the laser to an authorized service center for inspection. |
| Laser out-of-level indicator does not shut off | • Make sure the laser setup is stable.  
  • Make sure the leveling screws are free to turn.  
  • Re-level the laser and make sure the bubble is centered in bulk-eye level vial.  
  • Return the laser to an authorized service center for inspection. |
| Laser will not start | • Make sure the laser is not equipped with alkaline batteries.  
  • Make sure the Ni-Cd batteries are correctly installed.  
  • Replace the Ni-Cd batteries with new ones.  
  • Return the recharger. |
| Request for Service | Our goal is to provide prompt and efficient service through competent service dealers. Before returning your system for repair, be sure to do the following:  
  1. Put a note into the package identifying yourself as the owner.  
  2. Explain the operating difficulty.  
  3. Include a return address and phone number.  
  4. If the laser is in warranty, provide verification of the date of purchase.  
  5. Pack the equipment securely for shipment in its original carrying case.  
  6. Return the equipment prepaid and insured to your local dealer or authorized Trimble Service Center.  
  7. Request estimate of charges for non-warranty or other service work before repair begins. If estimates are not requested, repair will begin immediately.  
  All certified outlets have factory-trained personnel and use authorized replacement parts to ensure proper and quick return. For long-distance shipments, UPS, 2nd-Day Air, or airfreight is recommended.  
  Except for one-way transportation charges, there will be no charge for repairs caused by defective materials and/or workmanship under warranty.  
  To locate your local dealer or authorized Trimble Service Center worldwide for service, accessories, or spare parts, contact one of our offices listed below. |

North America

<table>
<thead>
<tr>
<th>Office</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimble Construction Division</td>
<td>5475 Kellenburger Road Dayton, OH 45424-1099 U.S.A.</td>
<td>(800) 538-7800 Toll Free, +974-243-5604 Phone, +973-233-9004 Fax</td>
<td></td>
</tr>
<tr>
<td>Europe</td>
<td>Trimble GmbH Am Prime Parc 11 65479 Raunheim Germany</td>
<td>+49-6142-2100-0 Phone, +49-6142-2100-500 Fax</td>
<td></td>
</tr>
<tr>
<td>Latin America</td>
<td>Trimble Navigation Limited 6505 Blue Lagoon Drive Suite 120 Miami, FL 33136 U.S.A.</td>
<td>+1 305-263-9033 Phone, +1 305-263-8915 Fax</td>
<td></td>
</tr>
<tr>
<td>Africa &amp; Middle East</td>
<td>Trimble Export Midden East PO. Box 17760 Jebel Ali Free Zone, Dubai UAE</td>
<td>+971-4-881-3005 Phone, +971-4-881-3007 Fax</td>
<td></td>
</tr>
<tr>
<td>Asia-Pacific</td>
<td>Trimble Navigation Australia Pty Limited Level 1/120 Wickham Street Fortitude Valley, QLD 4006 AUSTRAILIA</td>
<td>+61-7-3216-0044 Phone, +61-7-3216-0088 Fax</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>Trimble Beijing Room 8035-01, Temple Plaza, No. 168 Xiwa Street Haidian District Beijing, China 100044</td>
<td>+86 10 8857 7575 Phone, +86 10 8837 7165 Fax</td>
<td><a href="http://www.trimble.com.cn">www.trimble.com.cn</a></td>
</tr>
</tbody>
</table>

Maintenance and Care

You will get years of service from the leveling system by following the maintenance and care recommendations in this manual. Carry the laser in its moisture-resistant, field-tested carrying case to safely move the laser from one job to another. However well the product is designed, mishaps do occur. The most common problems associated with these are covered in the following areas.

Storage

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

Battery Disposal

Some states and local areas have regulations regarding the disposal of rechargeable batteries. Be sure that replaced batteries are disposed of properly.

System Cleaning

Use only a good-quality glass cleaner and a soft cloth to clean all external optical components. A dry cloth used on the laser exit windows may scratch or damage the glass surfaces.

Monthly, wipe off with a moist, clean cloth any dust or dirt from the optical components. A dry cloth used on the laser exit windows may scratch or damage the glass surfaces. Before cleaning any surfaces to prevent scratching of optical surfaces.

EMC Declaration of Conformity

This laser 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 Communications, 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 laser generates radio frequency. If it is 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 laser off and on. You are encouraged to try to eliminate the interference by one or more of the following measures:  
  • Reorient or relocate the receiving antenna.  
  • Increase the separation between the equipment and the receiver.  
  • Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.  
  For more information, consult your dealer or an experienced radio/television technician.

Warranty

Trimble warrants the LL500 laser to be free of defects in material and workmanship for a period of two years. 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-day 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 of components of which has been given during the warranty period. A Warranty Registration Card must be filled out and returned to 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 customer 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 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. Manner of use of the calibration is the responsibility of the user.

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

This warranty gives you specific rights, except as stated 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.

Recycling in Europe

To recycle Trimble WEEE, call: +31 497 53 2430, or mail a request for recycling instructions to: Trimble Europe B.V. c/o Metro Worldwide Logistics Montneweide 45, 5621 DZ Eersel, NL.

Labels

Labels required for this product: