

Be sure to read Initial Setup Guidelines and set the laser on a tripod or a stable surface which will not change height or vibrate during your work. Do not use a pickup bed, plastic bucket or picnic table (we have seen all of these setups attempted by contractors with predictably poor results).

Using the two leveling knobs, center the bubble in the circular level vial (review the procedure if you have difficulty). Facing the laser control panel and looking down at the circular level vial, when you turn either leveling screw clockwise, the bubble will move toward that leveling screw. Once the bubble is centered, start the laser by pressing the on/off (I/O) button.



If long distance is required, the LaserVision® AUTO can be set-up in the middle of a site, covering a total diameter of 1,000 feet (300 meters) using an optional receiver.

Periodically check your setup against existing benchmarks or set and check your own benchmarks.

Note that there are three ways to project a level reference from the LaserVision® AUTO: full 360° rotation, scanning beam and fixed beam.

360° rotation is used when working outdoors with a receiver (at maximum rotation speed), or when indoors and a full plane is needed (at any speed that allows visibility).

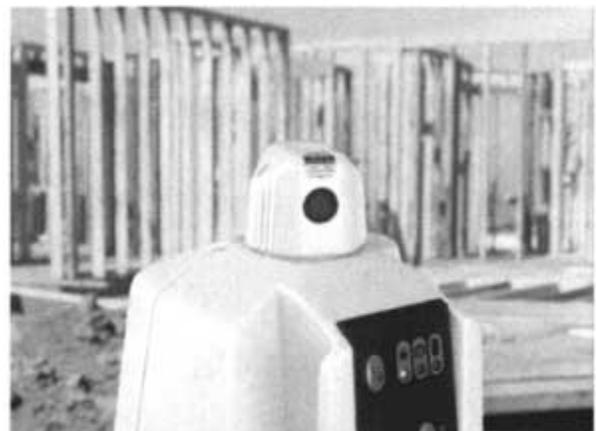
Scanning the beam is helpful when working indoors in brightly lit conditions, since the sweep of the beam is concentrated into a smaller area (scan can be varied to sweep approximately 90°, 45°, 30°, or 15° by using the + and - buttons when in scan mode). Once the beam is scanning at the desired width, the location of the scanned area can be set by manually turning the rotating (scanning) head.

Fixed beam (rotation off) can be used to locate the height of a specific spot. With the rotation off, the spot is aimed by manually turning the rotating head.

Level Alignment

The LaserVision® AUTO provides a precise reference for level alignment needs such as:

- Setting concrete forms
- Grading and landscaping
- Digging footers and basements
- Checking and leveling floors
- Soffets and cut-offs
- Plug and switch heights



- T-bar ceilings

Vertical Alignment

Along with the ability to project a level reference plane, the LaserVision® AUTO has a built-in manual vertical vial. When the laser is in its vertical position, the vertical vial located under the window in the control panel is used to plumb the rotatable beam of laser light. Vertical setups can be used for:

- Aligning bolts and wall plates
- Layout work
- Plumbing walls and panels
- Transferring lines from floor to ceiling
- Aligning and plumbing posts and tall forms



Plumb Spot

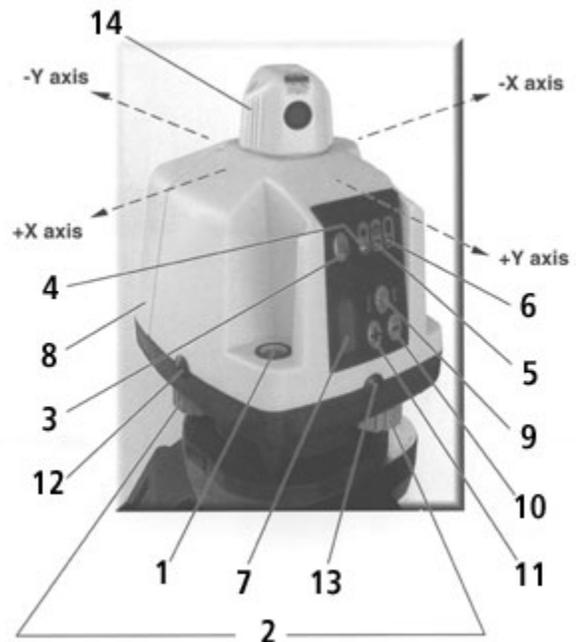
The LaserVision® AUTO projects an auto-plumbed laser spot from the top of the rotating head that can be used for:

- A reference beam at 90° to the rotatable beam to assist with layout tasks.
- A self plumbed beam for very accurately transferring points from floor to ceiling.

1. **Circular level vial:** The circular vial indicates if the laser is rough leveled closely enough for the automatic compensator to take over and maintain a precise level.

2. **Leveling knobs:** Use the leveling knobs to center the bubble in the circular level vial. The leveling knobs are also used during vertical alignment (see Vertical And Line Layout Setup).

Note: The leveling knobs are at 90° to the leveling pivot point, which is directly below the circular vial. As you face the control panel and look down at the circular vial, the leveling knob on your right controls bubble movement from left to right. The leveling knob at the back (below the battery door) controls bubble movement from front to back. Turning the leveling knob on your right in a clockwise motion will move the bubble to the right and turning



the back leveling knob in a clockwise motion will move the bubble to the back. Turning either knob counter-clockwise will have the opposite effect.

3. **On / Off button:** When the on/off button is pressed, the laser beams are projected if the circular level vial is centered, otherwise the leveling limit indicator will flash and the laser will not operate. (except in vertical mode - see Vertical And Line Layout Setup).
4. **Laser-on indicator:** This display comes on when the laser beam is being projected.
5. **Leveling Limit indicator:** This indicator flashes if the circular level vial is not centered enough to allow automatic compensation. (except in vertical mode - see Vertical And Line Layout Setup).
6. **Low battery indicator:** This indicator comes on when the batteries need to be replaced.
7. **Vertical vial:** The vertical vial is used to plumb the plane of laser light when the laser is in the vertical mode (see Vertical And Line Layout Setup).
8. **Battery charging jack:** The charging jack is located inside the battery door next to the batteries. A rechargeable battery kit is available as an option.
9. **Rotate / Scan Selector Button:** Use this button to change from 360° rotation to a scanning beam pattern.
10. **Slower Rotation / Narrower Scan Button:** Slows the rotation or narrows the beam scan pattern width.
11. **Faster Rotation / Wider Scan Button:** Speeds-up the rotation or widens the beam scan pattern width.
12. **X Axis Calibration Port:** Access port to calibrate the laser (see Checking And Adjusting Calibration).
13. **Y Axis Calibration Port:** Access port to calibrate the laser (see Checking And Adjusting Calibration).
14. **Rotating Head:** Turn the rotating head by hand to aim the laser beam or scan sweep. Once you have aimed the rotating head, there may be a 2-3 second delay before the beam begins scanning.

Calibration is your responsibility, check it often.

Although the LaserVision® AUTO is an exceptionally rugged laser, it is well worth the effort to check calibration before you first use it and then at regular intervals to insure that you are doing the highest quality work possible. Always check calibration if the laser has been handled roughly.

Calibration procedure

Note: Refer to the picture on page 2 for a diagram of the "X" and "Y" axis directions used during this calibration procedure.

1. Start with a tripod or stand that has been leveled (using a carpenter's level) to allow the laser to be turned to different positions with minimal re-leveling of the circular level vial. Attach the laser to the tripod or stand approximately 50 feet (15m) from a wall or other stable vertical surface. We will call the vertical surface the target. If the target has direct sunlight on it, you may have to shade the surface to see the laser spot clearly.
2. Turn the entire laser so that one direction of the x-axis is aimed at the target. Center the circular level vial and turn the laser on.
3. With the rotation stopped, point the laser spot at the target by manually turning the rotating head and mark the beam center.
4. Return to the laser and rotate the entire unit 180 degrees so that the opposite X-axis direction is aiming at the target. Re-center the bubble in the circular level if necessary. Once again, point the laser spot at the target by manually turning the rotating head and mark the beam center.
5. The difference between the two marks (if any) is double the difference between how the laser is calibrated and true level for the X-axis. Half way between these two marks is true level. Make a long level mark at true level. If the difference between either outer mark and true level is within your working tolerance, go on to step 8. If not, continue with the next step.
6. Remove the black rubber plug from the X-axis calibration port. Using a 3/32" hex driver, adjust the X-axis calibration. Turning the screw clockwise will raise the beam in the +X axis (see pg 2). One full turn of the screw will make approximately a 3/4"(19 mm) change at 100'(30m) **turn the screw only as much as it will take to correct any error observed in step 5**. After making the adjustment, remove the laser from the platform and give it two vertical shakes to center the compensator. Adjusting calibration pushes on the pendulum of the compensator and can cause it to take a set. The shaking procedure will relieve any set that may have occurred. After shaking, place the laser on the platform and re-check the X-axis calibration. Make any further adjustments following the above procedure.
7. Rotate the laser 90 degrees to aim the +Y-axis (control panel) at the target. Re-center the bubble. Check the reading at the target. If the reading is on, or within tolerance of the true level mark, calibration is complete. If not, continue on.
8. Remove the black rubber plug from the Y-axis calibration port. Using a 3/32" hex driver, adjust the Y-axis calibration. Turning the screw clockwise will raise the beam in the +Y-axis (see pg. 2). One full turn of the screw will make approximately a 3/4"(19 mm) change at 100'(30m) **turn the screw only as much as it will take to correct any error observed in step 7**. After making the adjustment, remove the laser from the platform and give it two vertical shakes to center the compensator. Adjusting calibration pushes on the pendulum of the compensator and can cause it

to take a set. The shaking procedure will relieve any set that may have occurred. After shaking, place the laser on the platform and re-check the Y-axis calibration. Make any further adjustments following the above procedure.

Calibration is now complete.



Pull firmly on tab at base of door to remove.



Install batteries according to the instructions molded on the battery holder.

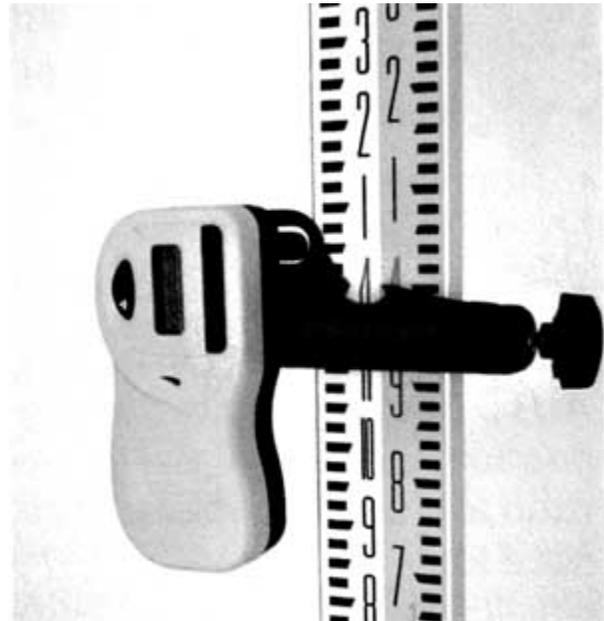


Hook battery door at top of housing and push firmly at base of door to latch.

Receiver

When your work takes you outdoors, a receiver is essential. No true rotating laser can be used outdoors without a receiver as it would not be safe or legal to put out enough laser power to make the rotating beam visible in sunlight. The Auto receiver provides excellent functionality at a great price.

- Receiving range 500ft (150m)
- Reception height 1.5" (38 mm)
- Three channel LED front display
- Selectable tone (hi, low, off)
- Battery life 70 hrs. (2 AA batteries)
- 90° reception angle
- One year warranty



Optional rechargeable battery kit

Under its battery door, the LaserVision® AUTO has a built-in jack for recharging batteries. The rechargeable battery kit provides two industrial grade Ni-Cad batteries and a battery charger designed for a 10 hour charge time. Ni-Cad batteries will provide approximately 1/3 the operating time of alkaline batteries and are an environmentally friendly upgrade for your system.

Caution: Only charge Ni-Cad batteries!

The rechargeable battery kit is available by special order from Zircon customer service at 1-800-245-9265.

Note: The LaserVision® AUTO is completely manual when set up in the vertical mode and you must check the bubble from time to time to ensure accuracy.

Establish two points of alignment for the plane of light, assemble the vertical mount and attach the laser to it. Set the laser over your near point and use the Y-axis leveling screw (now at the bottom of the laser) to rough center the vertical vial (visible through the window in the control panel now at the top of the laser). Note that the surface the vertical mount is resting on should be reasonably level. Turn the laser on and stop the beam rotation (using the "-" button). Manually turn the rotating head to project the beam downward toward your near point while you rough align the laser/mount assembly by sliding the entire assembly. Turn-on the rotation (using the "+" button). Keep the beam crossing the near point while sliding the base of the assembly until the rotating beam is on or near your far point.



The X-axis leveling knob (now nearest the top of the laser) provides a fine mechanical line control to accurately align the beam plane to your far point. Visually check your far point to be sure the beam is crossing it and verify that the beam is still crossing your near point. Make a final adjustment of the vertical vial after the alignment is done. Draw a line around the feet of the mount so that you can verify that the mount has not been moved. Also check that the beam is still crossing your points from time to time. The vertical mount can also be attached to a tripod and vertical setups can be made outdoors with an optional receiver.

Check the vertical vial and your benchmarks regularly to be sure your work will be accurate. The LaserVision® AUTO is designed for vertical alignment up to two stories high.

The laser will not operate, there is no obvious damage

- If the low battery indicator is on, or you suspect the batteries may be dead, replace the batteries.
- Check the battery contacts to be sure that they are clean.

The receiver shows an on-grade at two different heights

- Check the jobsite for windows or mirrored surfaces that might be reflecting the laser and causing the other reading.
- Check for others on the site using a rotary laser.

The laser was knocked over

- Visually check the optics for damage.
- Inspect the laser for any other physical damage.
- Check to see that the laser is putting out a beam.
- Turn the laser rotation on and check for unusual noise or vibration.
- Check the calibration and adjust as needed.
- Check to see that the laser displays the "limit" light when the circular level vial bubble moves approximately half way outside the circle.

The laser only works at short distances

- Check the output window on the rotating head of the laser for heavy dust or moisture. Remove dust with a camera brush or blow off gently with clean compressed air. Allow moisture to dry.

The receiver does not indicate "on grade" at long distance

- Be sure you have not exceeded 500ft (150m) from the laser.
- Check the output window on the rotating head of the laser for dust or moisture. Remove dust with a camera brush or blow off gently with clean compressed air. Allow moisture to dry.

The laser shuts off after running for only a few minutes

- If the yellow out of level indicator is flashing, re-center the circular vial.
- If the red low battery indicator is flashing, replace or recharge the batteries.
- If there is no indication at all, check for dead batteries.

Calibration is your responsibility. Check it often.

Although the LaserVision® AUTO is an exceptionally rugged laser, it is well worth the effort to check calibration before you first use it and then at regular intervals to insure that you are doing the highest quality work possible. Always check calibration if the laser has been handled roughly.

Precautions that should be followed when using any laser.

- Don't stare into the laser beam or view it directly with optical instruments.

- Don't disassemble the laser or attempt to service it.
- Don't use the laser until you have read the instruction manual and you are familiar with how to operate the laser properly.

U.S. OSHA requirements for operating visible lasers.

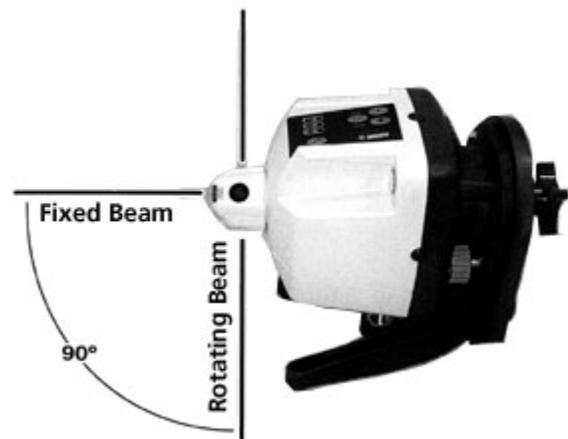
- Only qualified and trained employees are to install, adjust and operate the laser. (see operator card included with this manual)
- Laser operators must carry proof of qualification.
- The area of a job site where a laser is being used must be posted with a laser warning placard (included with shipments to U.S. & Canada).
- The laser should be set up above eye level and never intentionally aimed at anyone.
- Turn the laser off when it is not being used, such as during lunch hour, at the end of the day, or during other long breaks in the work.

Note: The LaserVision® AUTO is a class IIIa (less than 2.5mW) laser under the United States C.D.R.H. guidelines. The LaserVision® AUTO is a class IIIa laser under the 1993 IEC 825-1 laser safety standard and the revised edition of the European Norm EN60825. The LaserVision® AUTO conforms to applicable EC directives regarding RFI and EMI.

The LaserVision® AUTO complies with FDA performance standards 21 CFR subchapter J.

A laser warning placard is included with lasers shipped to the U.S. and Canada. It may be attached to the carrying case, with the case visible and placed near where the laser is being used, for meeting job site posting requirement.

In vertical mode, the LaserVision® AUTO projects a rotatable beam of laser light that can be used as a spot, rotated, or scanned. Simultaneously, a fixed beam is projected at 90° to the rotatable beam from the top of the rotating head. The 90° beam provides a convenient way to define right angle intersections for interior layout. See [vertical and line layout setups](#) for complete instruction on aligning the vertical plane of light.



When the LaserVision® AUTO is in vertical mode, it is completely manual in operation and will not turn off if it is disturbed. Check the vertical vial and your benchmarks regularly to be sure your work will be accurate. The LaserVision® AUTO is designed for vertical alignment up to two stories high.

The base of the LaserVision® AUTO has four notches molded-in to quickly allow the transferring of points from floor to ceiling. By simply drawing an intersection with two lines, the base notches act as guides to align the LaserVision® AUTO over the intersection. Once over the point, center the bubble in the circular vial and the self leveling system will operate, projecting a self plumbed spot on the ceiling.



Calibration

There is no set interval for checking the calibration of the LaserVision® AUTO, but calibration should be checked from time to time in order to ensure that the highest possible quality of work is being done. Calibration should always be checked if the laser has been handled roughly or shipped by common carrier.

Batteries

From time to time, remove the batteries and check the contacts for corrosion. Alkaline batteries will last far longer than carbon batteries. If you use Ni-Cad rechargeable batteries, be careful to never charge alkaline or carbon batteries. Also, do not charge Ni-Cad batteries too often. Ni-Cad batteries should be charged after about 20 to 24 hours of operation. Never run the laser from the charger unless there are rechargeable (Ni-Cad) batteries installed. Keep a spare set of batteries in the carrying case to avoid down time.

Laser output windows

Regularly check the output windows for dust and dirt. Dust can be removed with a camera brush or clean compressed air.

Control panel and exterior

Clean the control panel and the other exterior surfaces of the laser with a soft damp cloth.

Tripod mounting thread

Occasionally, the threaded hole for the tripod bolt should be lubricated with a light oil.

Caution

Never store the laser in a carrying case that is wet inside. Moisture can get inside the laser this way. Should this happen, remove the battery cover and place the laser and the open case in a warm area until it is completely dry (free of condensation inside windows).

Check Your Setup

Outdoors: Check your setup from time to time, using engineered benchmarks on the jobsite to assure that your work is correct and matches the design of the job. Realize that even engineered benchmarks may not be perfect and enough verification must be done to be confident you are properly set up. If there are not suitable benchmarks on the site, you should set your own by driving stakes and recording their elevations, or by marking the laser beam height on stable objects such as telephone poles, concrete walls, etc. The benchmarks should be 90° apart for greatest accuracy. Having benchmarks to check is of great value for jobs where setups need to match day after day.

Indoors: Make reference marks, preferably 90° apart, once you have set the laser up either horizontally or vertically. Check your setup from time to time using the marks as a guide.

Work as close to the laser as possible.

You can work up to 500 feet (150 meters) away from the LaserVision® AUTO with the optional receiver. As with all instruments, the farther away you work, the more any error can build-up. Set the laser in a safe place, as close to your work as possible.

Maintain your equipment.

Keeping tripod and mounting hardware tight, and being sure grade rods are in good condition, can prevent errors and performance problems.