

# GRADE 1<sup>TM</sup>

Manual level / Dial-in Grade / Rotating Laser  
Instruction Manual



[www.level1lasers.com.au](http://www.level1lasers.com.au)

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## **Introduction**

Congratulations on buying the Grade 1™ Manual Level/ Dial-in Grade/ Rotating Laser with Vertical Line.

The Grade 1™ features a rotating horizontal laser for general site leveling, a dial to set a gradient for plumbing on the “Y” axis of 0-4% and a vertical line laser for alignment. Other features include side operation for vertical rotation and scan lines for enhanced indoor visible laser operation. The Grade 1™ comes with an electronic receiver for operation outdoors with an operating range of up to 240m diameter.

The Grade 1™ is the ideal tool for plumbers and builders who occasionally need the features of a grade setting laser but don't want to spend thousands of dollars to get it.

# Diagram



- 1. Wall Bracket/Side Bracket
- 2. Side Operation Bubble Vial "Z"
- 3. Leveling Bubble Vial "X" Axis
- 4. Leveling Knob "X" Axis
- 5. Rotating Head/Laser Output

- 6. Control panel
- 7. Vertical Laser Line Output
- 8. Leveling Bubble Vial "Y" Axis
- 9. Leveling Knob "Y" Axis
- 10. Dial-in Grade "Y" Axis



- A. Above, Below and On Level Indicators
- B. Bubble Vial for Leveling Receiver
- C. Laser Sensors
- D. Power Button

# Operating Instructions

## Horizontal Leveling

- Set tripod up on solid ground.
- Place the instrument on the tripod and connect with the central screw.
- Center the bubble vials for both the “X” and “Y” axis using the leveling knobs.
- The instrument is now level and ready to power up, one press of the power/V button starts the rotating laser a second press adds the solid vertical line and a further press turns off the instrument.
- Power up the receiver unit and move in an up and downward motion until the receiver picks up the rotating laser beam. (Note: receiver does NOT pick up the solid vertical line or the rotating beam when in scan mode)
- When the central green led is illuminated and a solid tone is indicated the receiver is at the same height as the horizontal rotating laser plane.
- The receiver can be used either held in the hand or with the use of the staff clamp and attached to a staff for measurements to be made.

## Setting a Grade

- Note the direction of the “X” and “Y” axis by looking at the top of the instrument, grades on this device are made on the “Y” axis so align with the line of the desired grade (either in line or parallel to line).
- Next level the laser as previously described, making sure the grade dial is set to “0”.
- To set the grade simply rotate the grade dial to the required percentage 0-4% then use the “Y” Axis leveling knob to centralize the bubble once again, this tilts the plane of the rotating laser to the required grade along the “Y” Axis.
- If the instrument is moved or disturbed whilst being used then the whole process of leveling will need to be repeated to maintain an accurate job.

## Operating on its side (Vertical Rotation)

- Used for vertical alignment outdoors using the receiver also held on its side also for producing a level laser dot not squaring application can be made as the dot is at 90° to the rotating beam.
- Use the, “X” Axis leveling knob to level up the “Z” axis bubble vial, note the now top leveling knob (“Y” Axis) pivots the rotating plane left and right.

## Using the Grade 1 visibly indoors

- The instrument is just as handy for indoor leveling and alignment jobs.
- The fixed vertical line can be accessed by pressing the power/v button twice, remember to level the two “X” and “Y” bubble vials first.
- A wall cross with vertical and horizontal lines can be obtained by using the scan mode for the rotating beam. Whilst rotating press the top, center button on the control panel this starts scan mode, the horizontal beam will no longer do a full rotation but quickly move left and right thus giving the appearance of a solid line. Note the length of this line can be adjusted with further presses of the scan mode button. To move this line to intersect the fixed vertical lines use the left and right arrow buttons on the control panel to shift the horizontal line to the desired position.
- The Instrument can be used on its side with scan mode and solid line to produce a ceiling cross, the “Z” axis bubble vial will require leveling as indicated in the previous section.



## Other features

- The body of the instrument can be rotated on its base and clicks at each 90° point not that the leveling knobs will change which axis it levels when rotating the instrument in this manner.
- The Grade 1 can be mounted on any standard survey style tripod or monopole both for horizontal leveling and vertical alignment. The side mount can also be used as a rudimentary wall bracket when in horizontal rotation position.
- Batteries are “AA” Alkaline and the battery compartment is best accessed by rotating the body of the laser on its base, be careful to insert batteries as indicated.
- The Grade 1 is a class II laser device and direct looking at the laser beam output should be avoided.

# **Trouble Shooting**

## **Checking Calibration**

The instrument has factory calibration and though normal use should not go out of calibration, however, it is worth checking calibration after any knocks or drops or after extended transportation. Guides on checking calibration can be found at; <http://cmiindustries.com.au/downloads.html>

## **Not Powering up**

Check batteries are inserted correctly and are not discharged. Note do not mix batteries of different type i.e alkaline and heavy duty or of different charge level as this will reduce performance and may cause leakage of batteries which can damage the instrument.

## **No laser being emitted from rotating head**

In excessive temperatures the laser output may dim or completely stop, however, the instrument will return to normal operation once it has cooled down. In excessive heat it is best to place the laser level in the shade if possible.

## **Vials bubble changing position over time.**

The Grade 1 is a manually leveling laser and so cannot compensate for any changes in the environment it has been set up in such as vehicle vibrations, soggy ground, high wind or accidental knock. It is good practice to check the continued level of the bubble vials throughout the day in order to maintain accuracy of the job.

# Technical Specifications

Laser	Class II 635nm
Range (diam) with Receiver	Up to 240m
Accuracy	±4mm/20m
Grade Range	0 – 4 %
Grade Increments	0.1%
Working Temperature	-10° to +40°



# **Maintenance**

Level1Lasers recommends that the Grade1™ is always stored in the protective case.

Keep the Grade1™ clean. Remove dust by gently wiping with a soft clean cloth. The Grade1™ is a precision measuring device and will provide many years of accurate measurements providing it is not subjected to excessive forces such as dropping or shaking.

Level1lasers recommends that you test the level for accuracy on a regular basis. If servicing is required, please contact your nearest Level1lasers stockist.

The Grade1™ should not be immersed in water or left outdoors in extreme weather conditions, if it does get wet dry unit before packing away.

# **Warranty – 1 Year**

This warranty does not cover damage or defects caused by or resulting from misuse, accidental damage, unauthorized repair, abnormal use or calibration after dispatch. This level has been calibrated prior to dispatch and through normal use should not go out of calibration. However, Level1lasers recommend that you check your equipment for calibration from time to time as units may go out of calibration with excessive vibration or after drops or knocks. Simple guides to checking calibration are outlined within the instruction manual of each unit.

**For further warranty information please visit  
[www.level1lasers.com.au](http://www.level1lasers.com.au)**