

# MANUAL **1**<sup>TM</sup>

## Rotating Laser-Instruction Manual



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

# User Safety

- Do not stare into laser beam directly.
- Do not disassemble the instrument or attempt to perform any internal servicing. Repairs and servicing should be performed only by authorized service centers of Level1Lasers.
- This instrument complies with the safety classification standards of laser radiation.



CAUTION: Class II laser <1mW at 635nm  
Do NOT stare into laser beam or aim at another person.  
Follow Australian Standards AS2397 AS2397

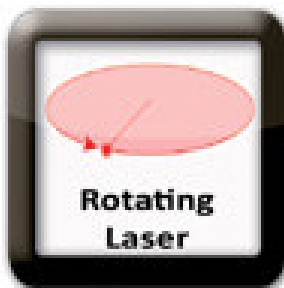
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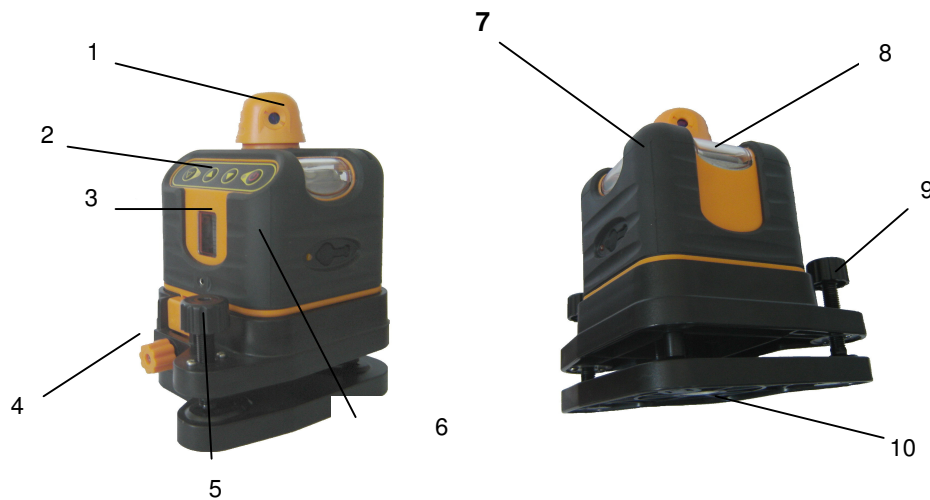


# 1. Features and Functions

- Manual leveling rotating laser creates accurate horizontal laser plane
- Projects horizontal laser plane and plumb-up beam in horizontal mode
- Operates in vertical mode (manual leveling) projecting vertical laser plane with square beam
- Slow, Medium and Fast rotation speeds
- Laser receiver for outdoor use up to 120m radius
- Scan modes with direction for increased visibility indoors



## 2. Diagram



**Figure 1**

1. Rotating laser output
2. Keypad
3. Z-direction level vial
4. Lock handwheel
5. Level handwheel
6. DC 6V outlet

**Figure 2**

7. Y-direction level vial
8. X-direction level vial
9. Level handwheel
10. 5/8" – 11 screw thread

# 3. Operating Instructions

## 3.1 Battery Installation

- a. Remove the battery cover (rotate the battery cover knob counterclockwise)
- b. Insert 4\*AA alkaline batteries according to polarity requirement specified in the battery case.
- c. Replace the battery cover and lock (rotate the battery cover knob clockwise).

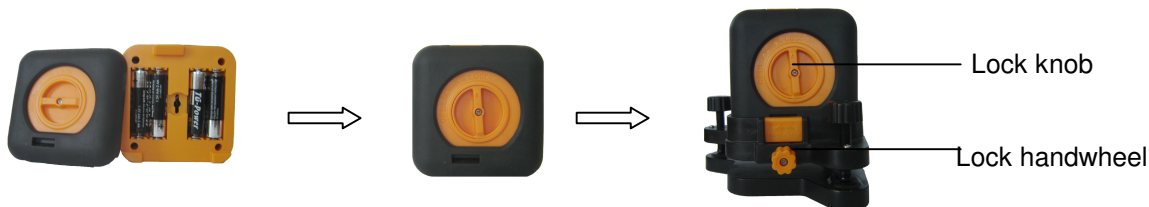


Figure 3

## 3.2 Connection of the instrument to the base

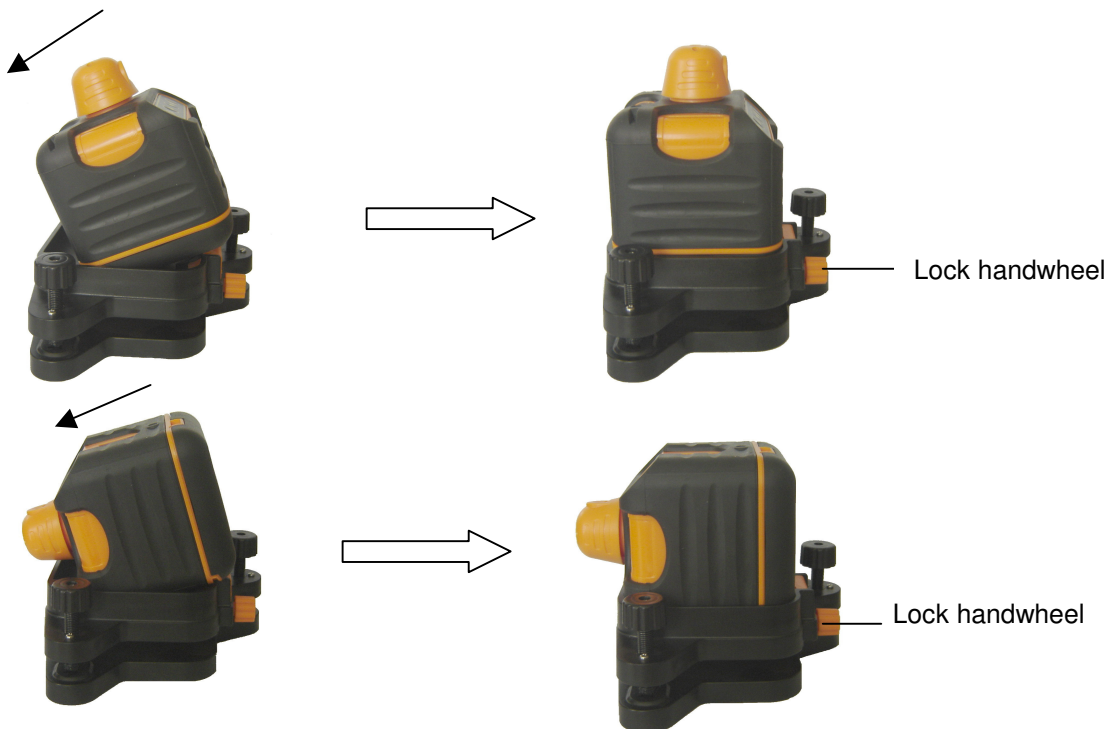


Figure 2

Lock the MANUAL1™ into the base plate as shown above for vertical or horizontal operation.

### 3.3 Level Vial Adjustment Method

Adjust the level handwheel to center the level vial's (continually check level vials during use)

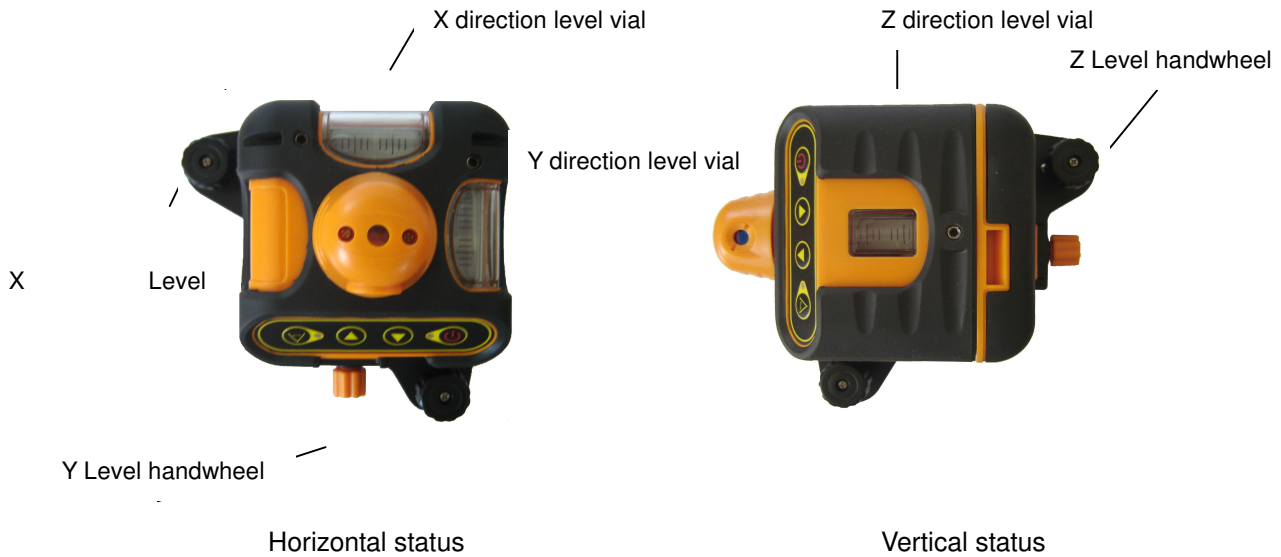


Figure 4

### 3.4 Keypad

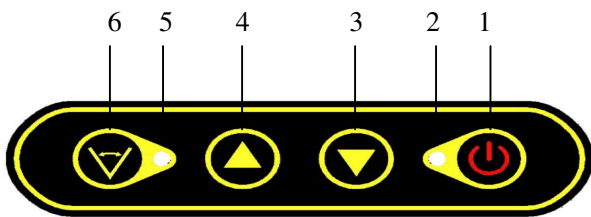
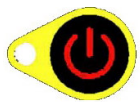


Figure 5

1. Power ON/OFF
2. Power LED
3. Decrease Rotation Speed/Rotate Scan
4. Increase Rotation Speed/Rotate Scan
5. Scan/Rotation mode LED
6. Scan/Rotation button

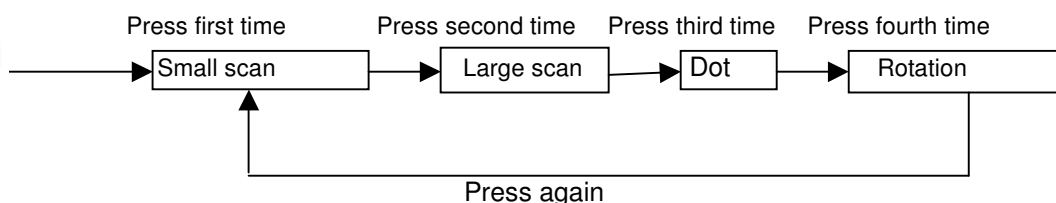
1. Power ON/OFF  press button to turn on or turn off the instrument



Power LED will be illuminated when instrument is on

Power LED will flash when the batteries are low

2. Scan mode button  press scan button to toggle between scan and rotation modes




**Note when the MANUAL1™ is first turned on it will default to rotation mode**

### 3. Rotation speed / Rotate scan




#### In the rotation mode

Press  button to increase rotation speed (Unit defaults to Fast rotation when turned on)

Press  button to decrease rotation speed

#### In scan mode

Press  button rotates scan line counterclockwise

Press  button rotates scan line clockwise

## 3.5 Operation of instrument

### Operation method for horizontal use

- Put 4\*AA alkaline batteries in the unit.
- As shown Figure 6, place the instrument on a flat table or tripod (connected with the tripod through the 5/8"-11 screw thread);
- Adjust the X and Y level handwheel, to level X-direction level vial and Y-direction direction level vial.
- Turn on the instrument and begin to work.
- After finishing the work turn the unit off.

Figure 6



### Operation method for vertical use

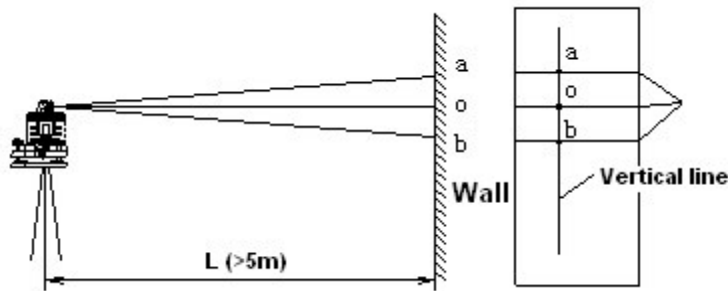
- Put 4\*AA alkaline batteries in the unit .
- As shown in Figure 7, place the instrument on the flat table or tripod (connected with the tripod through the 5/8"-11 screw thread);
- Adjust the Z level handwheel, to level Z-direction level vial.
- Turn on the instrument and begin to work.
- After finishing the work turn the unit off.

Figure 7



# 4. Calibration Self-Check

## 4.1 X & Y-direction vial calibration self-check



- As shown in figure 8, place the instrument at the position L away from the wall (X or Y-direction vial faces the wall)
  - Draw a vertical reference line on the wall as shown in figure 8 (tape a blank sheet of paper to the wall to mark on)
  - Level the X and Y-direction vial, then turn on the instrument, adjust rotation speed if required
  - Mark the cross point of the rotating line on the wall with the vertical line drawn. (Point A)
  - Turn off the instrument, rotate it by 180 degree, and then repeat the said step c), mark the cross point of the rotating line on the wall with the vertical line drawn. (Point b)
  - Measure the distance between a and b in mm **\*\*LA**
  - Using the calculation  $\frac{LA(\text{in mm})}{2 \times L (\text{in m})} = x$   
**if  $x > 0.3$  please return the unit to Level1Laser for recalibration**
- Note it is recommended that this be done for both the X and Y level vial

## 4.2 Z-direction vial self-check and calibration

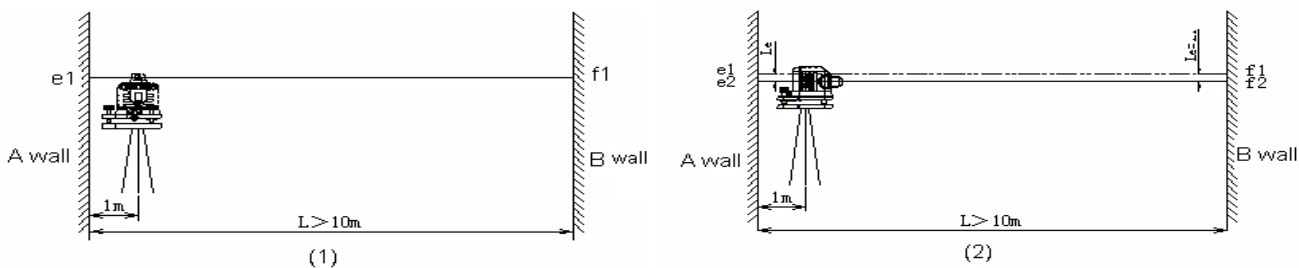
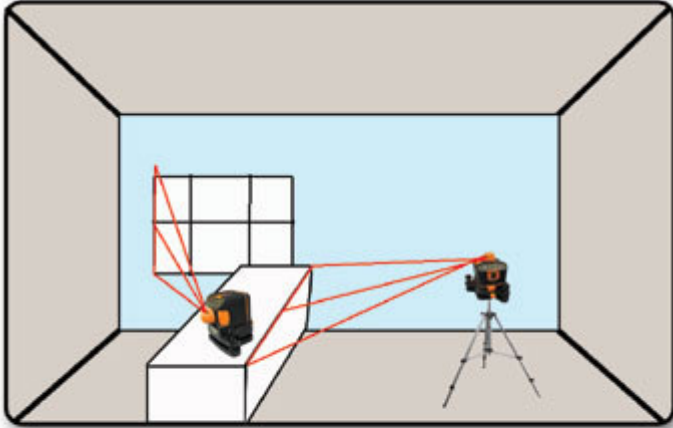


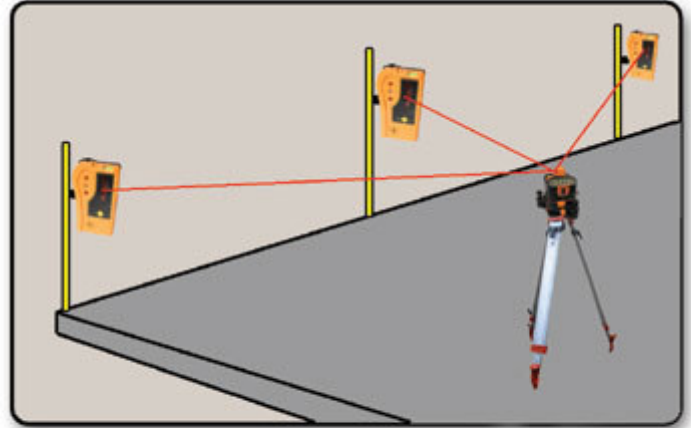
Figure 12

- Check the X and Y-direction vial, then put the instrument on the tripod that is 1m from the wall A (as figure 12 (1)), and then level. Mark the level points on the wall A and B with the vertical a line drawn on the wall A and B (as in 5.1 b), e1 and f1
  - Put the instrument on the tripod horizontally (as figure 12 (2));
  - Set the instrument to face the wall A, adjust the Z-direction leveling handwheel to level the Z-direction spirit vial, turn the laser on and mark the point on the reference line e2
  - Set the instrument to face the wall B, adjust the Z-direction leveling handwheel to level the Z-direction spirit vial, turn the laser on and mark the point on the reference line f2
  - Measure the difference between e1 and e2 and between f1 and f2.
- If this is greater than 3mm when L = 10m return to Level1Lasers for calibration**

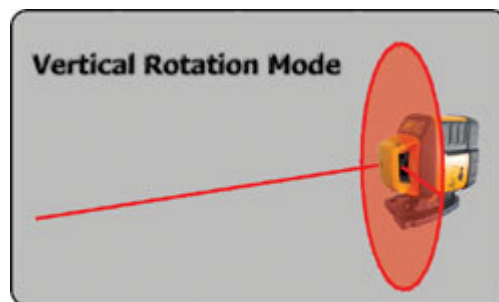
# 5. Application Methods



**Indoor levelling and vertical alignment for building and fit out**



**Outdoor levelling for slabs, decking landscaping etc**



## **OPTIONAL ACCESSORIES**

- Heavy Duty Outdoor Tripod
- Indoor Elevating Tripod
- 5 meter Staff
- 2.4 meter mini staff
- Dual sided LCD display Receiver

## **6. Technical Specifications**

- Laser Wavelength: 635nm
- Laser Class: ClassII
- Output range: 120m in radius ( with detector)
- Accuracy:  $\pm 2\text{mm}/10\text{m}$
- Working temperature  $-10^{\circ}\text{C}$   $\square$   $+45^{\circ}\text{C}$
- Water proof & dust proof: IP 54
- Power: 4\*AA alkaline batteries
- Low voltage: power LED flashes
- Dimension: 130×130×156mm
- Weight: 0.75Kg

## **7. Maintenance**

- This is a precision leveling instrument should be carefully operated and maintained, and any violent shock or fall will possibly result in damage to the instrument.
- Please turn the laser off before moving or transporting the instrument.
- Do not attempt to disassemble the instrument, as this will void warranty.
- Keep the laser clean, especially the laser output window, and remove dust by gently wiping with a soft clean cloth.
- Take the batteries out when the instrument is not in use for extended periods, and keep the instrument in the carry case when not in use.
- Do not put unit away wet. It is recommended that this unit not be used in damp conditions



**For further warranty information please visit**

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