

Rotating Laser (RLM50)

Congratulations on your choice of this  rotating laser. For the purpose of long-term use of this instrument, we suggest you to read this instruction manual carefully before using it.

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1. Features and functions

- Able to emit horizontal laser plane and plumb-up beam.
- Able to emit vertical laser plane and horizontal beam.
- Provide the stepless adjustment for the laser rotating speed.
- The combined bracket is more convenient for the unit to be used vertically, hanged on the wall or connected with the tripod.

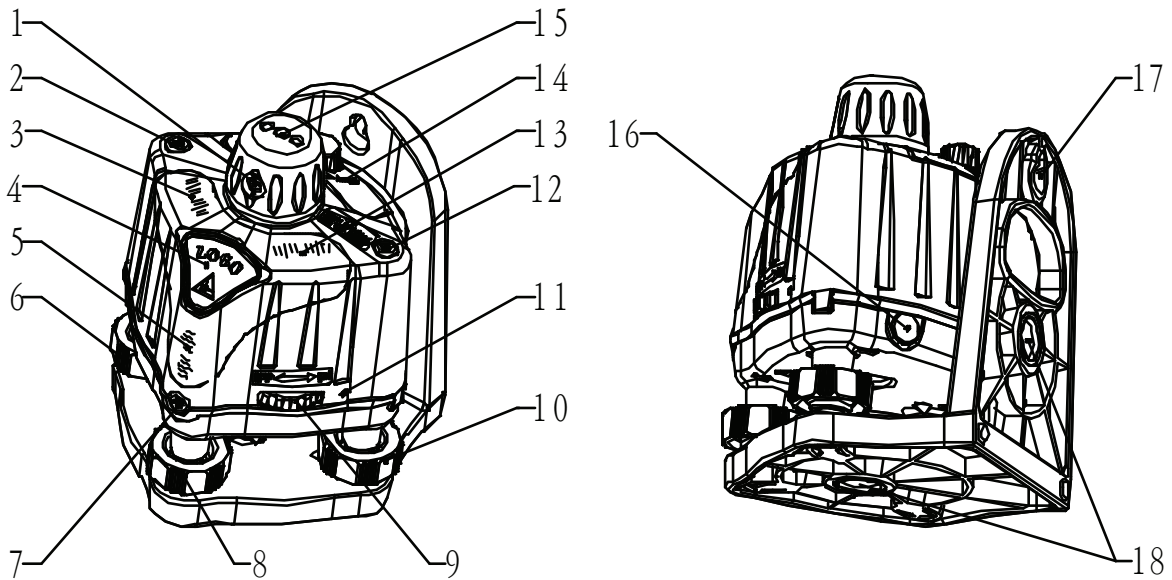
2. User Safety

- Alarm mark is attached beside the laser output window.
- Do not stare at the laser beam.
- Do not disassemble the instrument or attempt to perform any internal servicing. Repairs and servicing are to be performed only by authorized service centers.
- This instrument complies with the safety classification standards of laser radiation.



3. Nomenclature

- | | |
|--|---|
| 1. Rotating beam emitting window | 10. X-direction leveling handwheel |
| 2. Y-direction vial calibrating hole | 11. Power indicator light |
| 3. Y-direction vial | 12. X-direction vial calibrating hole |
| 4. Brand card | 13. X-direction vial |
| 5. Z-direction vial | 14. Battery cover |
| 6. Y-direction leveling handwheel | 15. Vertical beam emitting window |
| 7. Z-direction vial calibrating hole | 16. Jack for the Optional 6V DC adaptor |
| 8. Z-direction leveling handwheel | 17. Hang hole |
| 9. Power switch (speed-adjusting switch) | 18. 5/8"-11 screw thread |



4. Operation Instruction

1. Battery Installation

- a) Unscrew the battery cover as shown in FIG. 2.
- b) Put in 4*AA batteries according to the illustrated polarity.
- c) Screw the battery cover.

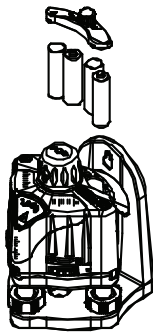


FIG. 2

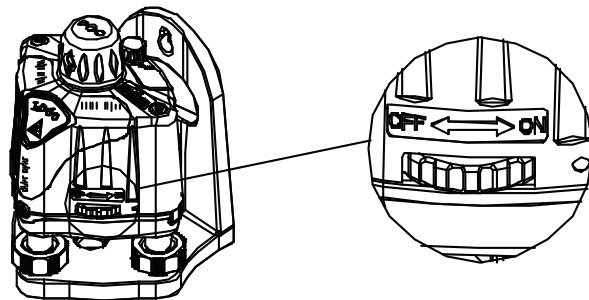


FIG. 3

5. Application Methods

1. Turn On/ Off

As FIG. 3, along the direction indicated by the arrow ' ON ', switching the button to power on, the unit emit laser, the power indicator is lighted, then continuing to switch the button, the rotatable head starts to rotate, the speed is changed from 0 to 550r/min. Along the direction indicated by the arrow 'OFF', switching the button, the rotating speed is slowed down till to turn off the unit.

2. Operation method for the horizontal emitting

- a) Put 4*AA batteries in the unit (or input 6V DC through $\Phi 5$ jack);
- b) As shown in FIG. 4, place the instrument on the flat table or tripod (connected with the tripod through the 5/8"-11 screw thread);
- c) Adjust the leveling handwheel, to make the bubble inside the X-direction vial and Y-direction vial to be in the middle of the vial.
- d) Turn on the instrument and begin to work.
- e) After finishing the work, cut off the power supply.

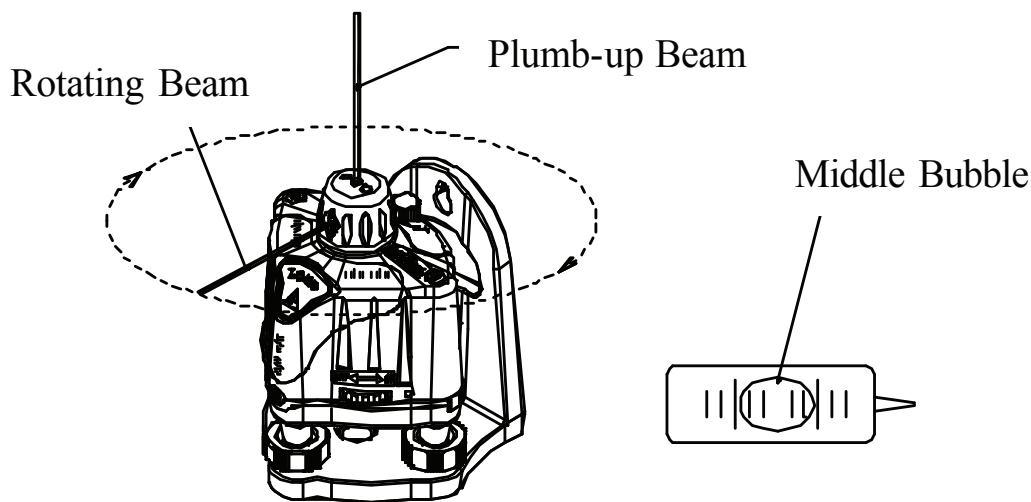


FIG. 4

3. Operation method for the vertical emitting

- a) Put 4*AA batteries in the unit (or input 6V DC through $\Phi 5$ jack);
- b) As shown in FIG. 5, place the instrument on the flat table or tripod (connected with the tripod through the 5/8"-11 screw thread);
- c) Adjust the leveling handwheel, to make the bubble inside the Z-direction vial to be in the middle of the vial.
- d) Turn on the instrument and begin to work.
- e) After finishing the work, cut off the power supply.

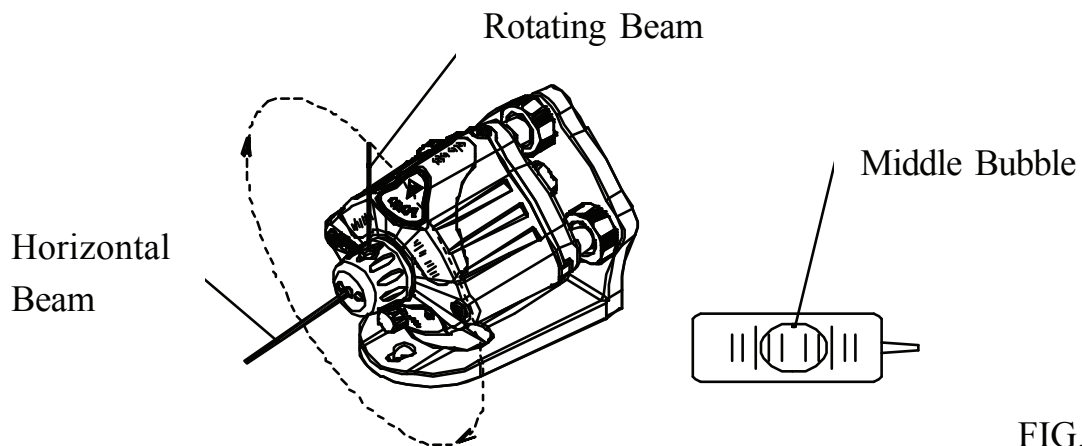


FIG. 5

6. Application Demonstration

7. Self-check and Calibration

1. X & Y-direction vial self-check and calibration

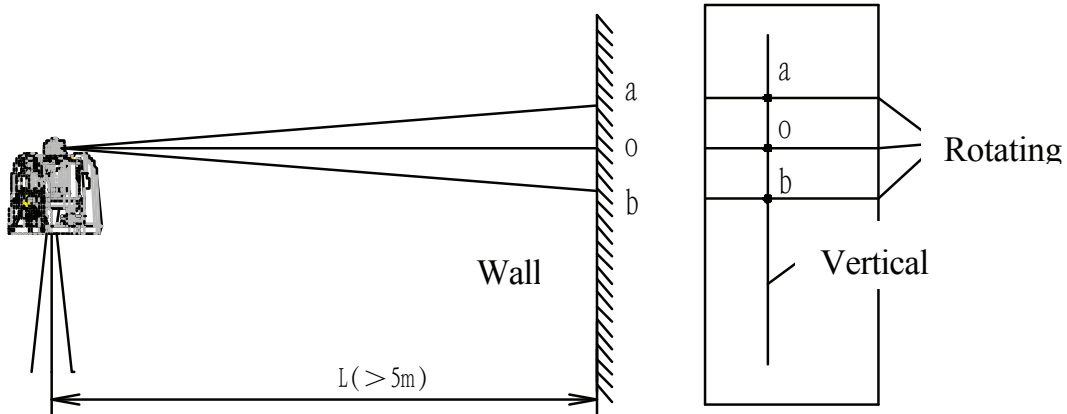


FIG. 6

- As FIG. 6, place the instrument at the position L away from the wall (X or Y-direction vial faces the wall);
- Draw a line on the wall at the position facing against the instrument;
- Level the X and Y-direction vial, then turn on the instrument to adjust it at the proper speed;
- Mark the cross point of the instrument rotating beam on the wall with the vertical line drawn on the wall as a;
- Turn off the instrument, turn it by 180 degree, and then repeat the said step c), mark the cross point of the instrument rotating beam on the wall with the vertical line draw on the wall as b;
- Measure the distance between a and b, if $L a / 2L > 0.3$, the vials need calibrating.

Calibration Method:

Mark the middle point between a and b on the vertical line, adjust the rotating beam to 0 point, then through the vial calibrating hole adjust the vial bubble to be in the middle of the two long reticles using an inner-hexagonal spanner (as FIG. 7).

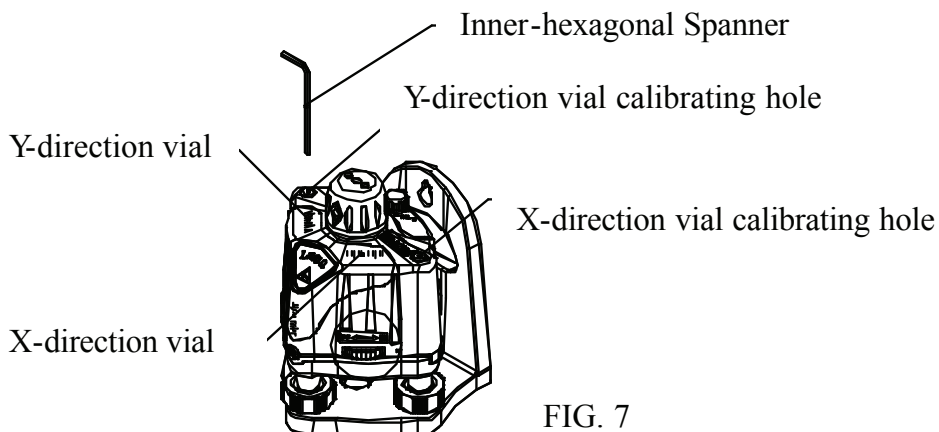


FIG. 7

2. Taper Errors self-check and calibration

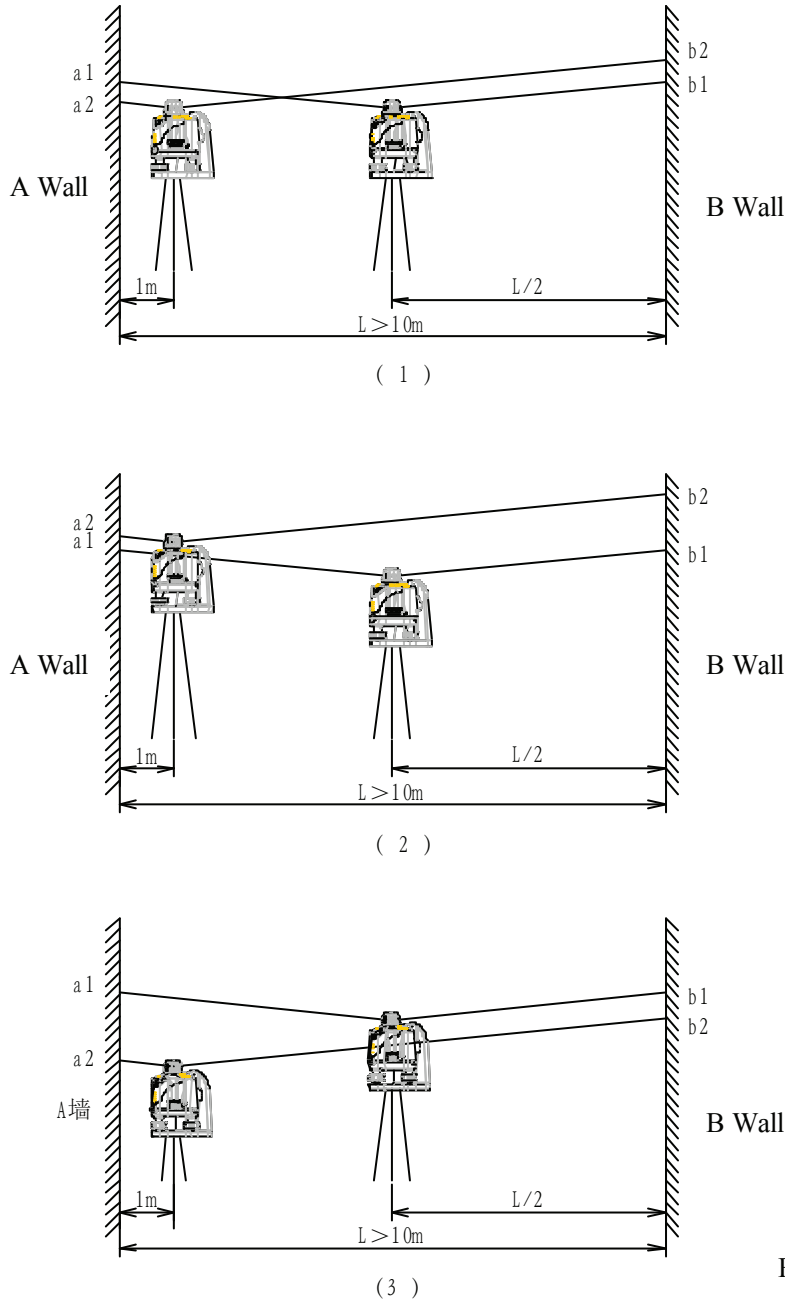


FIG. 8

- As shown in FIG. 8, take two parallel walls A and B, between which the distance is 10m. Place the instrument on the tripod, which is in the middle of the wall A and B;
- Draw the vertical line on the wall A and B respectively (as the FIG. 6);
- Level the X and Y-direction vial, then turn on the instrument to adjust it at the proper speed;
- Mark the cross points of the instrument rotating beam on the wall A and B with the vertical line drew on the wall A and B as a1 and b1 respectively;



- e) Move the instrument to close the wall to be at the position 1m from the wall A, repeat the said step c).
 (There will be three situations as shown in FIG. 8.) Mark the cross points of the instrument rotating beam on the wall A and B with the vertical line drew on the wall A and B as a2 and b2 respectively;
- f) Measure the distance L_a between a1 and a2, the distance L_b between b1 and b2. If $(L_a+L_b)/L$ (as FIG. 8 (1)), $(L_b-L_a)/L$ (as FIG. 8 (2)) or $(L_a-L_b)/L$ (as FIG. 8 (3)) $>0.3\text{mm}$, the instrument needs calibrating.

Calibration Method:

Place the instrument in the middle of the two walls, and level the X and Y-direction vial, by adjusting the tripod height, make the rotating beam to be under the state as shown in FIG. 8(1) meanwhile $L_a=L_b$; adjust the optical wedge seat inside the rotating laser emitting window to make the rotating beam to cross the vertical line at point a2; then repeat self-check and calibration until the accuracy meets the request.

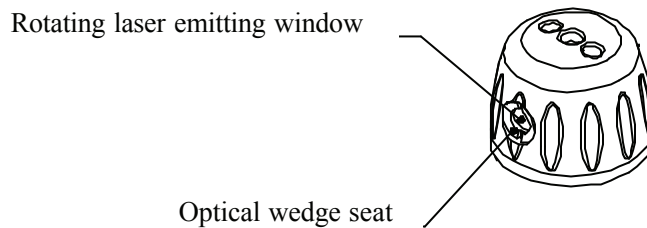
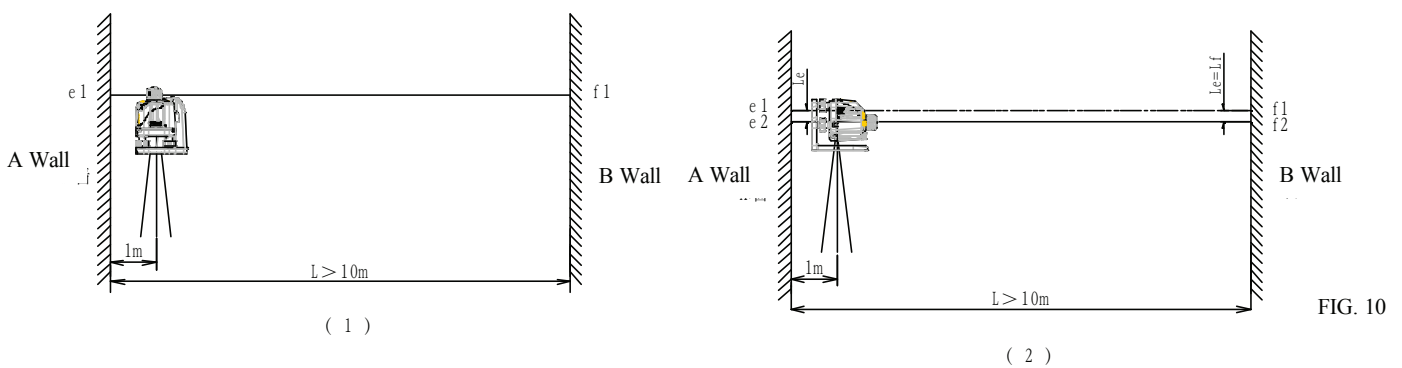


FIG. 9

3. Z-direction vial self-check and calibration



- a) Adjust the X and Y-direction vial well, then put the instrument on the tripod that is 1m from the wall A (as FIG. 10 (1)), and then level it. Mark the cross points of the instrument rotating beam on the wall A and B with the vertical line drew on the wall A and B as e1 and f1 respectively;
- b) Put the instrument on the tripod horizontally (as FIG. 10 (2));



- c) First make the instrument to face the wall A, adjust the Z-direction leveling handwheel to make the Z-direction vial bubble to be in the middle, then the unit emits laser beam. Mark the laser point, i.e. the laser projection on the wall A as e2;
- d) Measure the distance L_e between e1 and e2, and on the wall B mark f2 below f1 L_e ;
- e) Turn the instrument by 180 degree to face the wall B, adjust the leveling handwheel to make the laser projection on the wall to be coincided with f2.
- f) Observe the Z-direction vial bubble if in the middle, or else it needs adjusting.

Adjusting method:

Through the Z-direction vial calibrating hole to adjust the bubble to be in the middle of the two long reticles using an inner-hexagonal spanner.

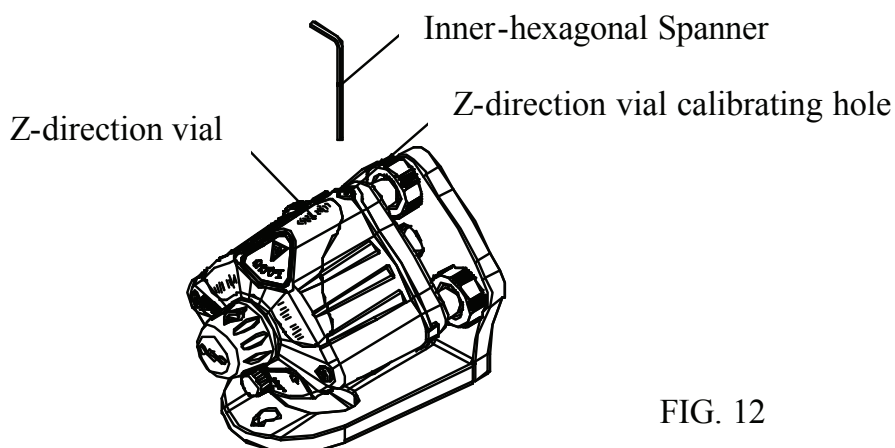


FIG. 12

8. Technical Specifications

- Laser Wavelength: 650nm
- Laser Class: Class II
- Horizontal Accuracy: $\pm 1.5\text{mm}/10\text{m}$
- Plumb-up Accuracy: $\pm 1.5\text{mm}/10\text{m}$
- Measure Range: By eyes: $>30\text{m}$ (indoors)
By detector: $>120\text{m}$
- Rotating Speed: continuously adjustable (0~550r/min)
- Power: 4*AA batteries
- Working Temperature: $-10^{\circ}\sim+40^{\circ}$
- Center Thread: 5/8"-11
- Dimension: 120mm \times 120mm \times 150mm
- Weight: approx. 600g

9. Packing List

No.	Description	Qty
1	LS503I Rotating Laser	1
2	Ls306 Laser Glass	1
3	LS303-6 Tripod	1
4	AA Alkaline Battery	4
5	Case	1

10. Maintenance

- The precision instrument should be carefully operated and properly preserved, and any violent shock or falling will possibly result in the damage to the instrument.
- Before moving or transporting the instrument, please keep it under the locked situation to avoid effecting the accuracy.
- Do not attempt to disassemble the instrument unprofessionally to repair it.
- Keep the laser emitting window cleanness, termly clean it using the soft clean cloth or cotton swab with alcohol.
- Keep the instrument in the carrying case when it is unused. Take the batteries out when the instrument is not in use for a long time.
- Unable to be inundated or caught in the rain.
- Do not close the instrument to the hot source, and do not insolate it under the sun.

