

LS5000 MANUAL ROTATING LASER

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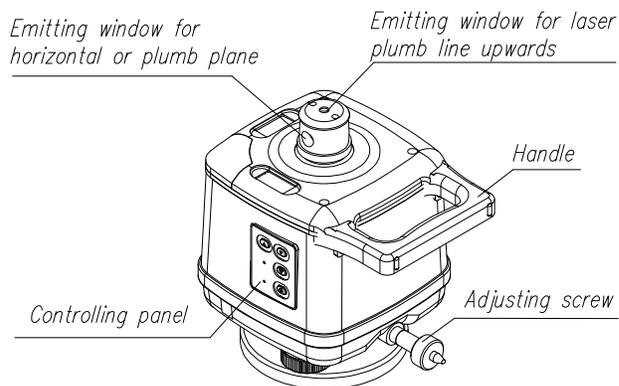
1. Features & functions

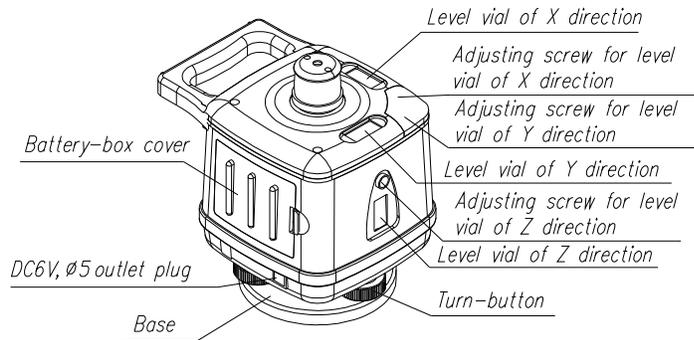
The LS5000 is a manual setting, multi-functional laser level instrument. It can project not only a horizontal laser plane with a plumb line, but also a laser plumb plane with a horizontal line. It is easy and convenient to use. When equipped with the LS700 laser detector and other series accessories, LS5000 has a long leveling range and more flexibility. It is a modern tool for work in the building and construction trade for ground-works, for interior refurbishment work, general leveling & alignment, staking out and worksite profiling.

The LS5001 has an additional plumb line downwards compared to the LS5000. It has all the other features, the same as the LS5000.

Before using the instrument, please read this Manual carefully. Refer to all the details to guarantee your instrument works continuously and reliably.

2. Construction





3. Control Panel



On/off button

Model of 5000: Push the button to power on or off the instrument

Model of 5001: Push once --- power on the instrument

Push twice --- project the plumb line downwards

Push three times --- power off the instrument.



Power indicator lamp

Power

Lamp lit means power ON.

Lamp extinguished means power off.

Lamp flashing means low voltage.



Mode button

Power ON and instrument will rotate continuously

Push once --- scan with a small range

Push twice --- scan with a large range

Push three times---provides a laser horizontal dot

Push four times --- return to continuous rotation.



Scan mode indicator lamp

Scan None-flashing light means continuous rotation.

Flashing light means scan.

Up/down button



In continuous rotating mode

Push UP button – to speed up the rotation.

Push DOWN button--- to reduce the speed of rotation.

In Scan mode

Push UP button --- the whole scan range shifts clockwise.

Push DOWN --- the whole scan range shifts counterclockwise

4. Technical Specifications

1. Laser wavelength: 635nm
2. Laser safety classification: class II
3. Horizontal accuracy: $\pm 2\text{mm}/10\text{m}$
4. Plumb accuracy: $\pm 3\text{mm}/10\text{m}$
5. Operating range:
 - a. With eye: $>20\text{m}$ (indoors)
 - b. With detector: $> 120\text{m}$
6. Rotating speed: can be adjusted continuously
7. Scanning width: small range, large range & a red dot
8. Power: 4 x AA alkaline batteries or 6V DC charger (not supplied)
9. Low voltage indicator
10. Dimensional size: 165×125×180mm
11. Rainproof and dustproof to IP43
12. Projects two laser lines @ an accurate right angle
13. Project laser horizontal plane with a laser plumb line
14. Project laser plumb plane with a laser horizontal line
15. Operating temperature: -10°C \square $+40^{\circ}\text{C}$
16. Central base screw thread: 5/8"

5. Operating Instructions

We'd like to help you to solve any worksite related leveling or alignment problems with this equipment. Please do not hesitate to contact with us for advice & guidance, which may help us to improve this instrument and/or its accessories.

5.1 Horizontal working

This working state gives a horizontal laser reference plane with a plumb laser line upwards. It can be used to set levels and squaring in such applications as the following: to lay out the floor, to level the ground, to install framework of doors and windows and to install suspended ceilings.

(a) Mounting / positioning:

It would be beneficial to use it together with an adjustable tripod.

- Or to be set on a normal tripod.
- To be placed on a firm surface, fixed platform or stable ground.
- To be fixed on Wall mounting bracket.
- To be set on adjustable mount.

(b) Leveling

Adjust turn-knobs to centre the bubble of level vials both in the X and Y directions.

(c) Power ON and set the instrument to either rotating or scan mode. Adjust the rotational speed, then the instrument is ready for work!

(d) The instrument can also be used to calibrate plumb with the plumb laser line pointing upwards.

5.2 Vertical working

This working state gives a laser plumb, i.e. vertical reference plane with a horizontal laser line. It can be used to set Plumb in numerous applications.

(a) Mounting / positioning:

According to your work needs, choose a firm position or the working direction to set instrument horizontally on a fixed platform, or attach to a tripod via the optional L-shaped (LS308) vertical mount.

(b) Leveling

Adjust turn-knob to centre the bubble of level vial in Z direction.

(c) Power ON and set the instrument to either rotating or scan mode.

(d) Adjust the rotational speed, then the instrument is ready for work!

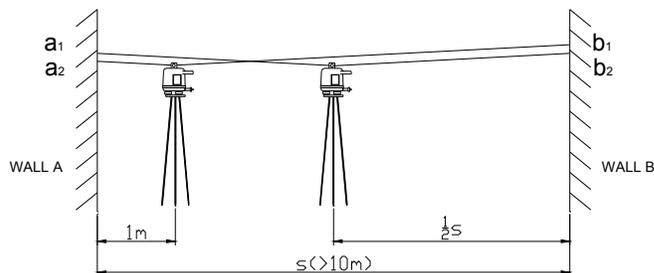
Self-check and Calibration of instrument Accuracy – or preferably return to us for a professional calibration!

5.2.1 Self-check of instrument horizontal accuracy

- (1) Set instrument on tripod according to the direction of fig (Instrument handle is rightward), which is between Wall A and Wall B. (Note: the distance L between two walls should exceed 10m). Let instrument project red laser towards two walls. And mark a_1 and b_1 on walls at the location of red laser point.
- (2) Move instrument to position of 1m far away from Wall A and level it. (Instrument handle is still rightward) Let instrument project red laser towards two walls second time. And mark a_2 and b_2 on walls at the location of red laser point.
- (3) Measure the distance L_a between a_1 and a_2 , the distance L_b between b_1 and b_2 . If $(L_a - L_b)/L$ or $(L_b - L_a)/L \leq 0.3\text{mm/m}$, the instrument accuracy meets requirement. Otherwise the instrument should be sent to an authorized service centre to calibrate.

5.2.2 Self-check for deviation of level vial

A The level vial of X direction

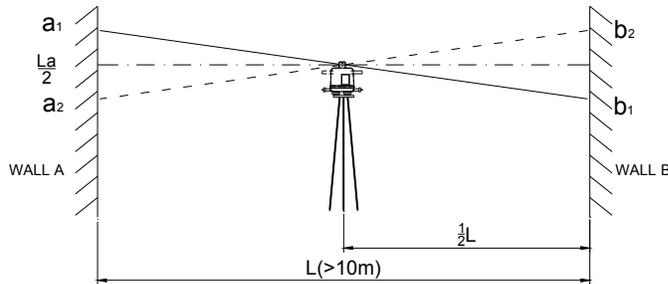


1. Check

- (1) Set instrument on tripod according to the direction of fig (Instrument handle is rightward), which is between Wall A and Wall B. (Note: the distance L between two walls should exceed 10m). Let instrument project red laser towards two walls. And mark a_1 and b_1 on walls at the location of red laser point.
- (2) Turn instrument in angle of 180° and level it. (Instrument handle is Leftward). Let instrument project red laser towards two walls once more. And mark a_2 and b_2 on walls at the location of red laser point.
- (3) Measure the distance L_a between a_1 and a_2 , the distance L_b between b_1 and b_2 . If L_a/L or $L_b/L \leq 0.3\text{mm/m}$, the level vial of X direction meets requirement. Otherwise the level vial must be adjusted.

2. Adjustment

- (1) Mark a_3 on the wall, which is $L_a/2$ far away from a_1 and a_2 . Adjust turn-button to make laser point on the wall coincide with a_3 .
- (2) Check the deviation for the bubble of level vial. And adjust the B hexagonal socked screw with the hexagon ring spanner in the adjust-hole of level vial. It's OK when the bubble has been centred.



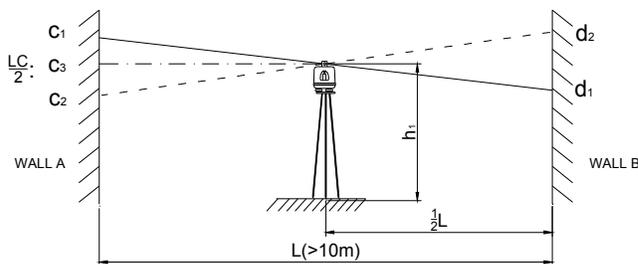
B. The level vial of Y direction

1. Check

- (1) Set instrument on tripod according to the direction of fig (Direction of instrument handle likes fig), which is between Wall A and Wall B. Let instrument project red laser towards two walls. And mark c_1 and d_1 on walls at the location of red laser point.
- (2) Turn instrument in angle of 180° and level it. (Instrument handle is backward). Let instrument project red laser towards two walls once more. And mark c_2 and d_2 on walls at the location of red laser point.
- (3) Measure the distance L_c between c_1 and c_2 , the distance L_d between d_1 and d_2 . If L_c/L or $L_d/L \leq 0.3\text{mm/m}$, the level vial of Y direction meets requirement. Otherwise the level vial must be adjusted.

2. Adjustment

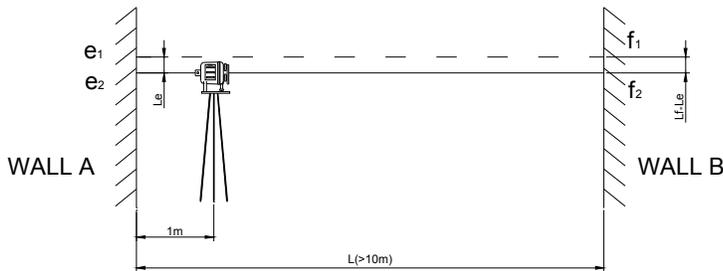
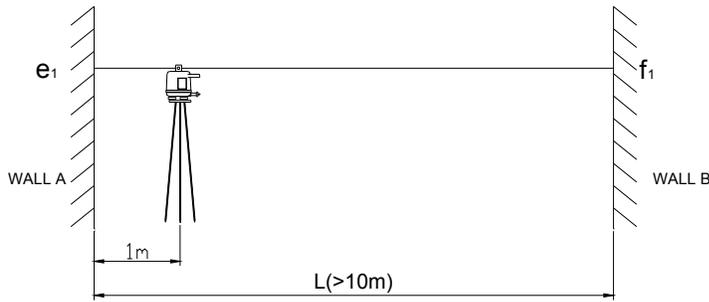
Follow the same procedures for the adjustment of level vial of X direction



B. The level vial of Z direction

1. Check

- (1) Set instrument on tripod after adjustment of level vials in X direction and Y direction. And also level the instrument, which is 1m far away from Wall A. Let instrument project red laser towards Wall A and Wall B. And mark e_1 and f_1 on walls at the location of red laser point.
- (2) Remove the instrument and set LS308 vertical mount on the tripod. Then set instrument on vertical mount horizontally.
- (3) Orient the instrument to Wall A. Adjust the adjusting screw to center the bubble. Let instrument project red laser towards Wall A and mark e_2 on wall at the location of red laser point.
- (4) Measure the distance L_e between e_1 and e_2 . Mark out f_2 in the position L_e down from f_1 on Wall B.
- (5) Orient the instrument to Wall B by turning it in 180° angle. Adjust the adjusting screw to make red laser point coincide with f_2 on Wall B.
- (6) Check if the bubble for level vial of Z direction is centered, if it is deviated out of one grid, it needs adjustment.



2. Adjustment

Adjust the hexagonal socketed screw with the hexagon ring spanner in the adjust-hole of level vial of Z direction. It's OK when the bubble has been centred.

5.4 Power Supply

Please use four quality "AA" size, alkaline batteries or optional 6V dc charger & rechargeable batteries. (The latter are currently not available from P.R.Eng Ltd)

6. Laser Safety and Maintenance

6.1 Laser safety. This laser instrument belongs to laser product - Class II.

Do not stare into the laser beams. Do not disassemble the instrument or attempt to perform any internal servicing which voids the warranty. Repair and servicing should only be performed by Authorized Service Centres.

6.2 Safety Label



6.3 Working temperature: -10°C to $+45^{\circ}\text{C}$

Storage temperature: -30°C to $+70^{\circ}\text{C}$ **but must be in dry conditions.**

Environment requirement: This instrument should be used in a normal living environment. It is not suitable for work in very humid or explosive situations.

6.4 Maintenance

- Keep the instrument clean, especially the laser emitting windows. If there is dirt, remove it carefully with a clean, soft cloth.
- **Avoid dropping, impacts, water-immersion or placing in carry case WET.**

7 Optional Accessories

- Laser detector, LS700 (.pdf Manual available on email request)
- Mounting bracket for above
- 5/8" Photo elevating Tripod - for Internal use.
- 5/8" Aluminium Surveying Tripod – for Exterior use.

8 Warranty

This equipment is supplied with ONE year full Parts & Labour Warranty from the date of purchase. Normal wear & tear is EXCLUDED.

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