
LS516/LSG516 Self-leveling Rotating Laser

Instruction Manual

(2009-8-14)



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1. Features & Functions

LS516 (Red laser) /LSG516 (Green laser) self-leveling rotating laser could project visible horizontal laser plan and plumb-up laser beam & vertical laser plan and horizontal laser line. Its extensive functions bring great convenience to set accurate horizontal, vertical and plumb references for indoor and outdoor lay out and calibrations. This kind of product is featured by easy manipulation and wide applications.

Features

- ※ Self-leveling, laser stop rotating and sound indication when beyond range
- ※ 360° rotating, could work vertically and horizontally.
- ※ Adjustable rotating speed and scan angle.
- ※ Able to accuracy calibration outside the instrument
- ※ Remote control operation function
- ※ Connecting with the tripod through the 5/8" screw thread
- ※ Various accessories of elaborate design can bring usage expansion
- ※ Rainproof and dustproof

2. Usage safety

- ※ Laser output sign lies near the output aperture.
- ※ Do not stare into laser beam directly
- ※ Do not disassemble the instrument or attempt to perform any internal servicing. Repairs and servicing could be performed only by authorized service centers.
- ※ The instrument complies with the safety classification standards of laser radiation.

3. Nomenclature



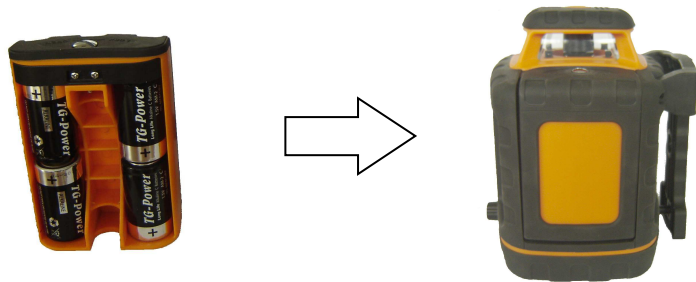


4. Operation Instruction

4.1 Battery Installation

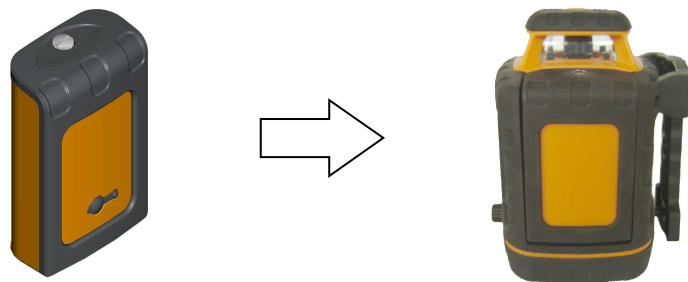
a) Alkaline battery installation

Put 4 x C alkaline batteries into the battery case according to the polarity indication. Then put the battery case into the instrument and tighten the screw on the battery cover.



b) Install the rechargeable battery box

Install the rechargeable battery box into the instrument directly and tighten the screw which is on the battery cover.



4.2 Charge the rechargeable battery

a) The rechargeable battery box could be charged separately, or be charged through instrument.

b) Charge the rechargeable battery directly by insert the charger into the charging jack. The LED is red during the charging process; the LED will turn green when the battery is full.

c) Please charge the rechargeable battery when the battery is empty (the power supply LED flash mean the battery is already empty). That could extend the battery service life.

4.3 Instrument placement

Place the instrument horizontally

a) Install the batteries or rechargeable battery box.

b) Place the instrument on a leveled plane directly or install the instrument on the tripod by the 5/8" screw thread on the instrument base.

c) Turn the locking knob to "ON"

- d) Set all the preparation works by operating the keypad
- e) When works is over or need to move the instrument, please turn it off and turn the lock knob to “OFF”.



Place the instrument on a leveled plane directly or install the instrument on the tripod by the 5/8” screw thread on the instrument base.

PS:

If alarm sounds when instrument works, that means the gradient angle is too big, please readjust the placement of instrument until alarm is silent.

If alarm sounds when move the instrument, that means the instrument is not locked, please lock the instrument first and then move it, or else it will break the instrument.

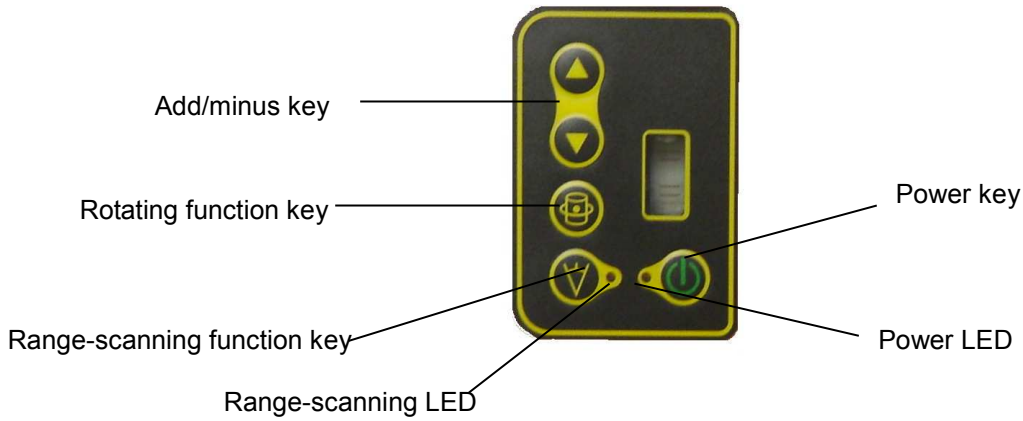
Place the instrument vertically

- a) Install the batteries or rechargeable battery box.
- b) Turn the locking knob to “OFF”
- c) Place the instrument on a leveled plane or install the instrument on the tripod by the 5/8” screw thread on the bracket vertically.
- d) Adjust the adjustment knob until the bubble is centered
- e) Set all the preparation works by operating the keypad
- f) When works is over or need to move the instrument, please turn off the instrument.



Place the instrument on a plane vertically or install the instrument on the tripod by the 5/8” screw thread on the bracket.

4.4 Function of the keypad



Power key/Power LED

Press this key to connect with or cut off the power

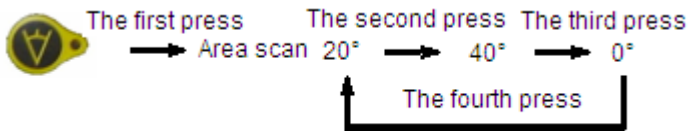
LED lighted connect with the power

LED extinguished cut off the power

LED flash low battery



Range-scanning function key/ Range-scanning LED



LED lighted: Laser rotating

LED flashing: Range scanning



Rotating function key

Press this key, the instrument rotate in high speed



Add/minus key

In laser rotating mode:

press ▲ the rotating speed quicken

press ▼ the rotating speed slower

In rang scan mode:

press ▲ the scan range turns clockwise

press ▼ the scan range turns counterclockwise

4.5 Beyond-tolerance Alarm function:

Set the locking knob to unlock position (the locking knob point to "ON"), the instrument enters into the status of

self-leveling. If the instrument is so tilted as to exceed the self-leveling range, it will stop rotating and also the beeper will give a sound alarm.

4.6 Remote control function

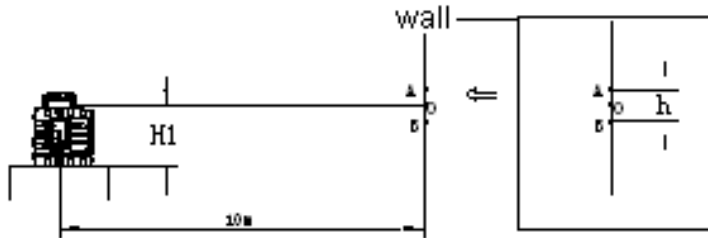
Please operate the LS516 by remote control with LS311-516.



Use LS311-516 to remote control this LS516.

5. Self-check and Calibration

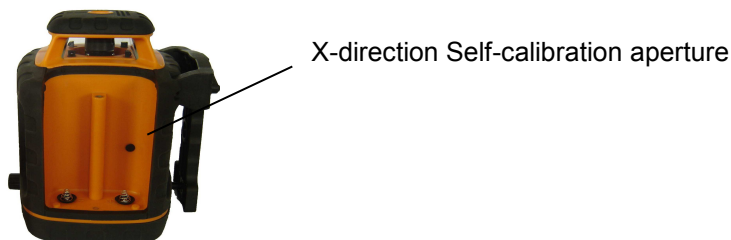
Instrument Accuracy Self-check and Calibration



X direction Accuracy Self-check

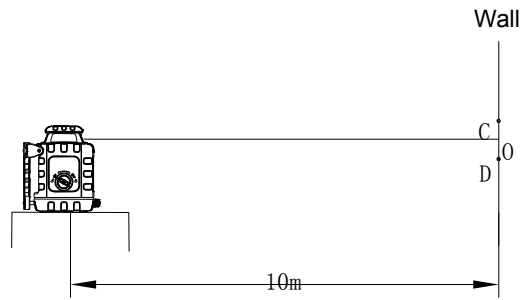
1. In a room which has medium brightness, as shown in above picture, place the unit on a platform that is 10m away from the wall, with the battery case towards to the wall. Turn the locking knob to “ON” status, power on and make the unit in high-speed rotating status;
2. Draw a vertical line on the wall, and take the intersection between the laser line and the vertical line as point A.
3. Turn the instrument by 180 degrees, mark the intersection between the laser line and the vertical line as point B, and also mark the center between point A and point B as point O;
4. Measure the vertical distance h between point A and point B.
5. If $h \leq 3m$, accuracy is eligible. Otherwise, the accuracy is beyond tolerance. In case of this, you can calibrate the instrument as follows.

X direction Accuracy Calibration



As shown in the figure, turn off the unit and turn the lock knob to the “OFF” status. Disassemble the battery box and take off the rubber stopper from the X direction self-calibration aperture, and adjust the weight screw on the instrument core with the minus screwdriver until the laser line is within the range of 1.5mm above or below the point O. If point A is above the point O, rotate the screwdriver counterclockwise. If point A is under the point O, rotate the screwdriver clockwise.

Y direction Accuracy Self-check

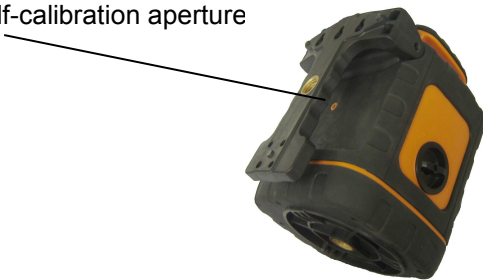


Rotate the instrument by 90 degrees and place it on the platform. Check the accuracy of Y-direction with the same method as that of X-direction (mark the point as C and D)

If the accuracy is beyond tolerance, make the calibration as follows.

Y-direction accuracy calibration

Y direction self-calibration aperture

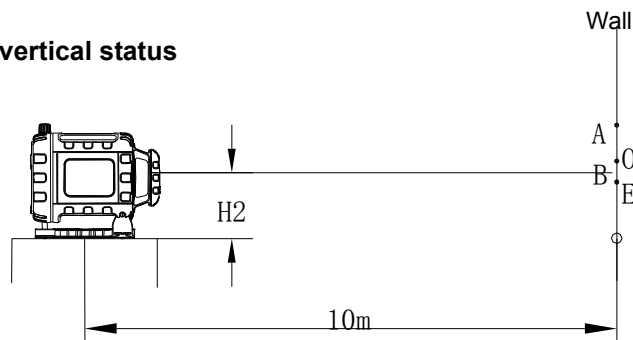


As shown in the figure, turn off the instrument and make the locking knob to "OFF" status. Screw off the Y-direction self-calibration aperture bolt, and adjust the weight screw on the instrument core with the minus screwdriver until the laser line is within the range of 1.5mm above or below the point O. (note: If point C is above the point O, Please rotate screwdriver counterclockwise. If point C is under the point O, Please rotate screwdriver clockwise.)

Note:

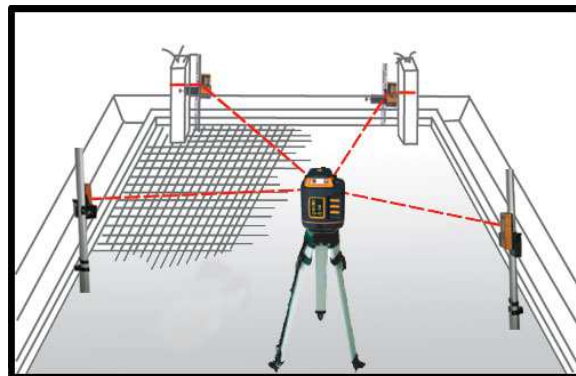
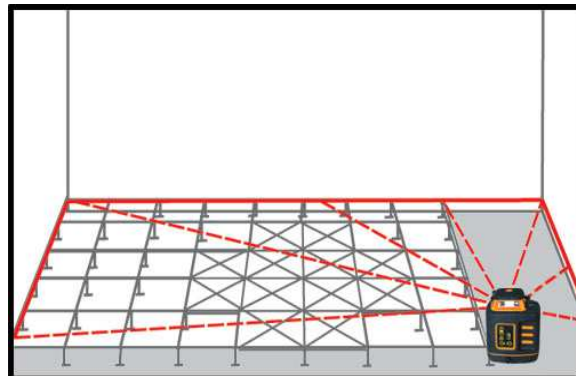
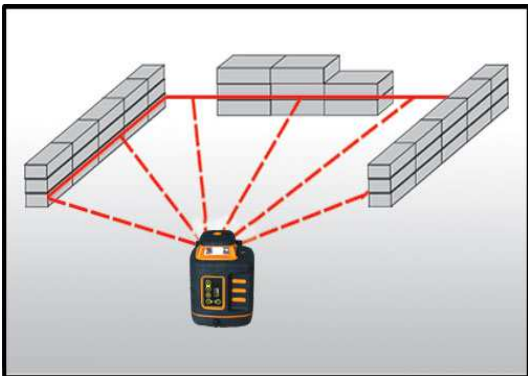
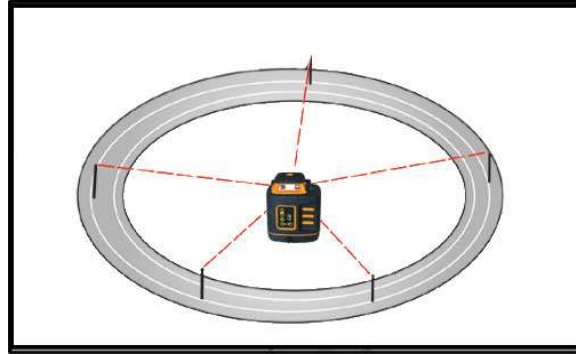
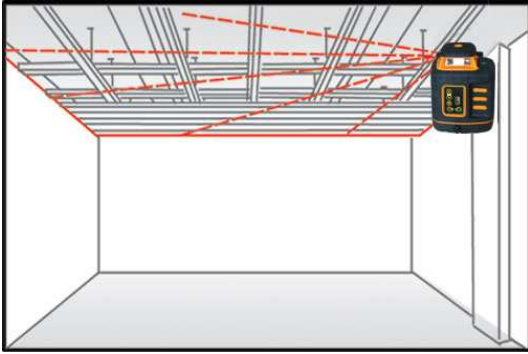
- 1) After checked one direction, please check another direction, till the accuracy of the two directions are both qualified.
- 2) Please install the self-calibration aperture screw and rubber stopper after finishing the accuracy self-check and calibration.

Accuracy Self-check in vertical status



1. Follow the operations as above, and measure the distance 'H1' between the laser rotating plane and the table surface;
2. Set the locking knob to "OFF" position, and place the instrument in vertical position (As shown in the above figure);
3. Adjust the adjusting knob to make the bubble centered;
4. Measure the distance 'H2' between the top laser beam and the table surface;
5. Mark E in the position that is equal to (H1-H2) under the point O
6. Adjust the adjusting knob to make the laser beam aim at E;
7. See whether the bubble is centered or not. If not, please send it back to the dealer for adjustment.

6. Application methods



7. Technical Specification

Laser Wavelength	LS516:635nm,LSG516:532nm
Laser class	class II /III
Operating range	LS516: 600m, LSG516: 400m
Rotating speed	300~150 rpm
Accuracy	Horizontal:±0.15mm/m Vertical:±0.3mm/m
Auto-leveling range	±3.5°
Area scan angle	0°, 20°, 40°
Temperature	LS516: -10℃~+45℃ LSG516: 0℃~+40℃

IP	IP66
Power	4 × C Alkaline Battery Or rechargeable battery pack (optional)
Low battery indication	Power LED flashing
Size	162mm× 180 mm ×202 mm
Weight	2.55Kg

8. Maintenance

- ※ The instrument should be carefully operated and properly preserved, and any violent shock or falling will possibly result in the damage of instrument.
- ※ Please turn off the unit and set the locking knob to “LOCK” position before moving or transporting the instrument.
- ※ Do not attempt to disassemble the instrument, and the unprofessional disassembly will result in the damage of instrument.
- ※ Keep the cleanness of instrument, especially the laser output window, and remove dust by the gentle operation of soft clean cloth.
- ※ Take the batteries out when the instrument is not in use for a long time, and keep the instrument in the carrying case when it is unused.
- ※ Although the instrument has the design of water proof, please try best to avoid using in rainy day or wet environment.