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TLASER-300
3 LINE LASER LEVEL



ORIGINAL OPERATING INSTRUCTIONS



DANGER! Read all safety regulations and instructions.
Keep all safety regulations and instructions in a safe
place for future use.



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ORIGINAL OPERATING INSTRUCTIONS

Dear User:

Thank you very much for purchasing LAISAI LSG686SP line laser, please read this instruction manual before operating it.

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1. Feature and functions

LSG686SP line laser could separately or simultaneously project self-leveling visible horizontal laser line, vertical line and plumb dot. It provide the accurate horizontal, vertical and plumb references for indoor layout and calibration. The product is featured by easy manipulation and wide applications.

Features:

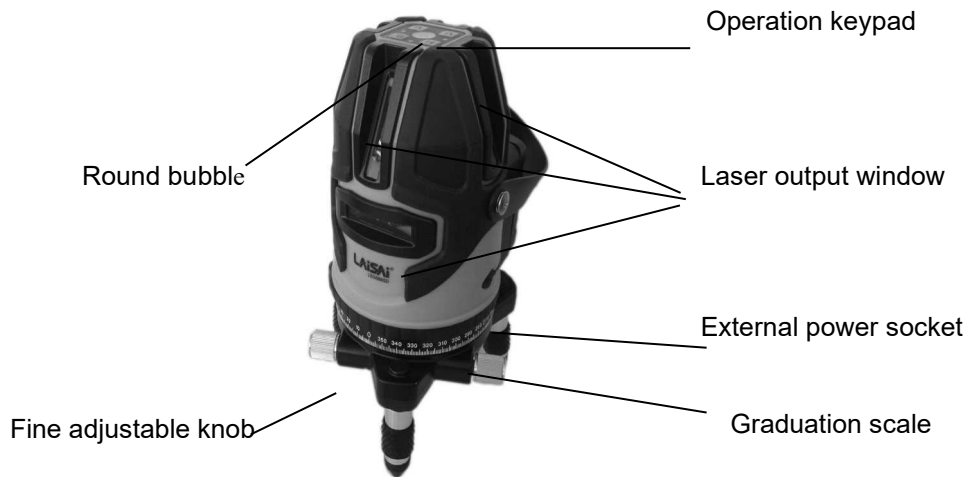
- ※ LSG686SP output 5 laser lines and 1 laser dot
 - LSG686SPD output 5 laser lines and 3 laser dots
 - LSG686SPD-3 output 3 laser lines and 3 laser dots
- ※Form two cross laser lines
- ※Compatible both indoor and outdoor application, switchable between the continuous laser and pulse laser.
- ※ Self-leveling, laser flash and audible warning when beyond the self-leveling range
- ※ The alarming function can be shield, and with tilt function.
- ※ The instrument is 360 degree rotate-able and also can fine adjust the angle.
- ※ Height could be adjusted by the tripod base.
- ※ Able to connect with the tripod through 5/8" connecting seat.

Note: This instruction manual is also applicable for lasers with higher output power.

2. User safety

- ※The laser output mark is at the output aperture.
- ※Do not stare into laser beam directly.
- ※Do not disassemble the instrument or attempt to perform any internal servicing by yourself, the servicing work could only be done by the authorized service center.
- ※The instrument complies with the safety classification standards of laser radiation.

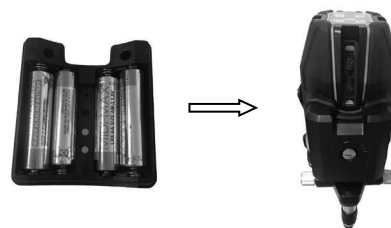
3. Nomenclature



4. Operation guide

4.1 Mount the alkaline batteries:

a) Mount 4*AA alkaline batteries into the battery box according to the polarity indication shown in the battery box, and then mount the battery box to the instrument.



b) Mount the rechargeable battery box to the instrument directly.



4.2 Charge the rechargeable battery

Plug the charger into the charging hole to charge the rechargeable battery box. When charging, the indication light is red, and when finished charging, the indication light turns from red to green.

Charge to the rechargeable battery directly



Mount the rechargeable battery on the instrument and charge it

**(Although it can be charged on an instrument,
However, it should be avoided as far as possible.)**



4.3 Using the adapter

Connect the instrument with the adapter by the external power supply socket.

Connect with the adapter



4.4 Adjust the adjustable supporting leg

When using the instrument, you could adjust 3pcs supporting foot to make the round vial in center, if the laser line flash and with the buzzer sound, which shows the instrument is out of self-leveling range, please adjust the round vial in center.

Bubble in center



4.5 Instrument rotating horizontally and fine adjusting



4.6 Place the instrument

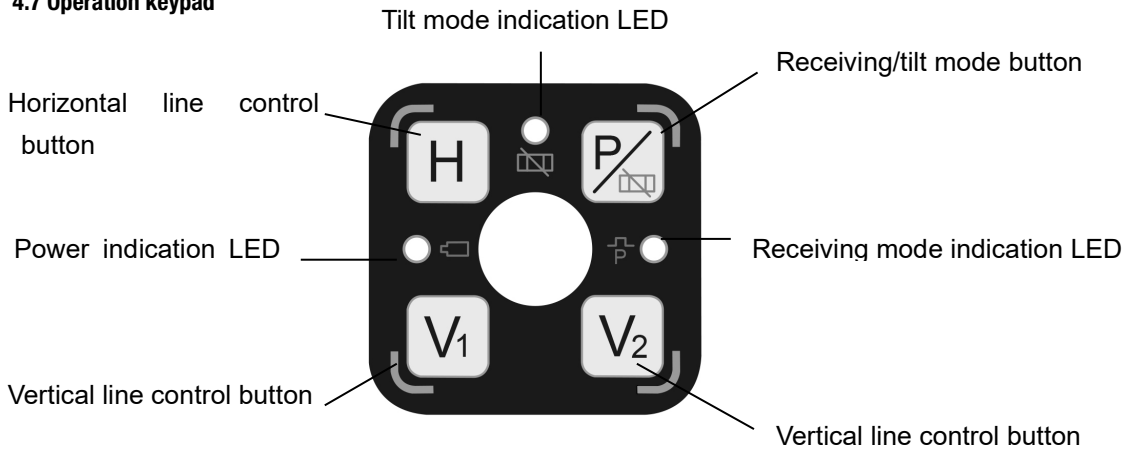
a) Place on the horizontal platform directly



b) Connect with tripod through 5/8'' in the bottom of instrument



4.7 Operation keypad



Power indication LED

ON: the power is connected

OFF: the power is cut off

Flash continuously: low voltage

Tilt mode indication LED:

Flash continuously: tilt mode on

OFF: tilt mode off

Receiving mode indication LED:

ON: Receiving mode on

OFF: Receiving mode off

Bubble illumination: green

4.8. ON/OFF

Unlocking the instrument, it is on, and the power indication LED is on.

Locking the instrument, it is off, and the power indication LED is off.



Unlock

Lock

When the instrument is on, if the laser flash with the buzzer sound, which shows the instrument is out of range, please place the instrument to level again.

4.9. Receiving/tilt mode button

Receiving mode	Mode indication light	Brightness of laser light	Receiver
On	On	Dim	receivable
Off	Off	Normal	Can't receive

Unlock the instrument, this button could only be used as the receiving mode button.

Lock the instrument, press this button to enter into tilt working mode, power indication LED is on, and tilt indication LED flash.

Press this button again, the receiving mode indication LED is on, press this button thirdly, all indication LEDs are off, the instrument is off.

Under the tilt mode, the usage of the laser output control button and receiving mode button is same as above described.

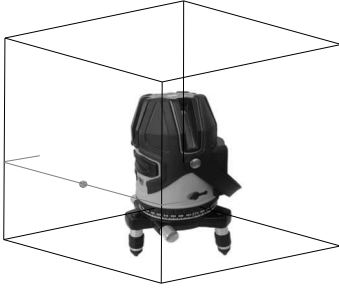
Note:

(1) The tilt mode function is only suitable for the applications when there is no need of horizontal or vertical reference.

(2) In unlocking status, the instrument can not enter into tilt mode, the tilt mode is invalid, if the instrument working under the tilt mode, unlock the instrument, the instrument will exit the tilt mode (tilt mode indication LED is off), the instrument will enter into self-leveling status.

4.10. Laser output control button

Press  the instrument output is as the following:



Press  the instrument output is as follows:



Press  button, the instrument output is as follows,



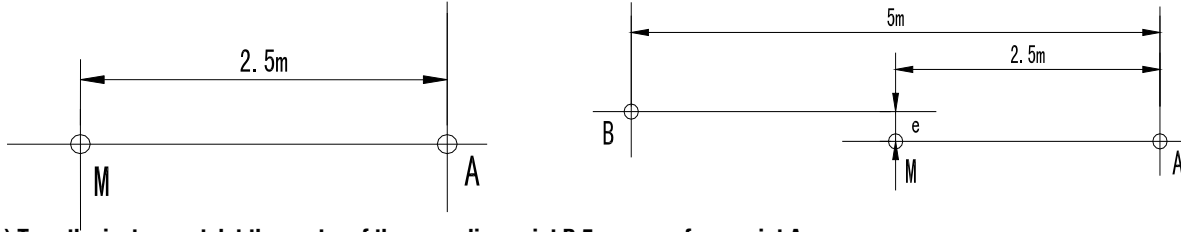
When all laser lines are on, the output is as follows,



5. Self-check and calibration

5.1 horizontal line accuracy self-check (transversely)

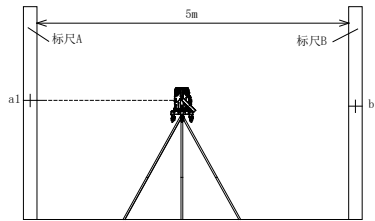
- Find a flat wall, place the instrument 5m away from the wall, and level the bubble.
- Fit the instrument on the elevating or tripod and face to the wall.
- Open all laser lines: there will be cross laser line on the wall, set the center of cross line as A dot.
- Mark A and M on the horizontal line separately (the distance of A and M is about 2.5m).



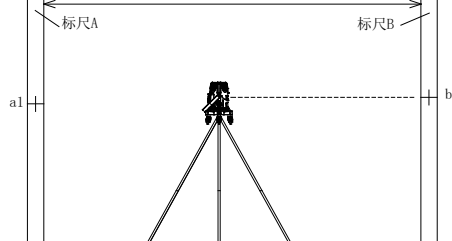
- Turn the instrument, let the center of the cross line point B 5ms away from point A
- Measure the distance e between point M to the laser line.
- If $e > 1\text{mm}$, the instrument accuracy is out of tolerance, service is needed.

5.2 Self-check the horizontal accuracy (longitudinal)

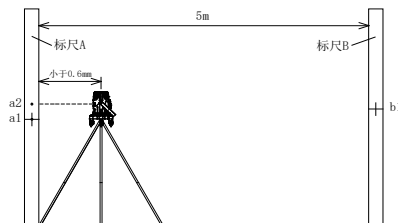
- As shown in the following figure, stand up two staff which is 5m away (or find a wall which both sides are parallel and the distance is more than 5m).
- Fit the instrument on the elevating or tripod, and place it in the center of both staff, level the bubble.
- Turn on all the laser lines to make the laser center dot on staff A, record a1 dot value.



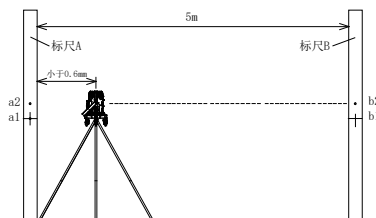
- Turn the instrument by 180 degree, make the cross dot on the staff B, record b1 dot value.



- Move the tripod, make the instrument 0.6m away from staff A, and make the cross center on staff A, record a2 value.



- Rotate the instrument by 180 degree; make the crossing dot on staff B, record b2 dot value.



Calculate $(a1-a2) - (b1-b2) = e$, If e is above 1mm, the instrument accuracy is out of tolerance, please contact the seller for servicing.

5.3 Self-calibration & adjustment

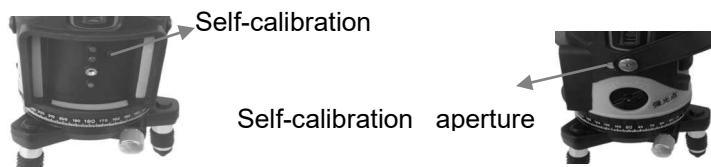
As shown in the following picture, the instrument have two calibration apertures, A means the left and right adjustment transversely (the error tested by item1), B means the front and back adjustment longitudinal (the error tested by item2).

(1) Adjust with 3mm hexagon spanner.

(2) The adjustment of two directions will influence each other sometimes. When making the fine adjusting in left and right direction transversely, the front and back direction longitudinal will change possibly, also, when adjusting in front and back longitudinal, the left and right direction transversely will change possibly.

(3) The adjustment of self-calibration screw could not exceed 4 circles. (Clockwise or anti-clockwise direction).

(4) If the instrument could not adjust through self-calibration aperture, please contact the distributor for service



6. Technical specification

Item	Parameter
Laser wavelength	520nm
Laser class	Class II
Accuracy	$\pm 1\text{mm}/5\text{m}(1^\circ \text{ vial range})$
Self-leveling range	$\pm 3^\circ$
Temperature range	$-10^\circ\text{C} \sim +45^\circ\text{C}$
Power supply	4*AA batteries or Li battery box or adapter
Low voltage indicate	Power indication LED flash
Size	$\phi 100 \times 222\text{mm}$
Weight	1.43Kg

8. Maintenance

- ※ **This instrument could not be sunk in the water and could not be wet with rain.**
- ※ **This instrument should be carefully operated and properly preserved, any violent shock or falling possibly result in the damage of instrument.**
- ※ **Before moving or shipping the instrument, please set the instrument in locking status to avoid influencing the accuracy.**
- ※ **Do not attempt to disassemble the instrument, and any unprofessional disassembly will result in the damage of instrument.**
- ※ **Keep the instrument clean, especially the laser output window glass, and remove dust by the gentle operation of soft clean cloth.**
- ※ **Take the batteries out when the instrument is not is use for a long time, and keep the instrument in the carrying case when it is not in use.**