Dot and Line Laser

3D2XLL (519031)

Dear User,

Thank you very much for purchasing the Dot and Line Laser 3D2XLL (519031). Please read this instruction manual before operating it.

Content

1. Features and functions

Dot and Line Laser 3D2XLL (519031) could project visible self-leveling horizontal line and vertical line, or output the up, down and front dots separately or simultaneously. It provides the exact horizontal, vertical and plumb preference for indoor construction sampling and calibration with convenient operation and broaden usage.

Features:

※ Output 3 laser lines and one plumb down laser dot

※ Form 2 cross laser lines

※ Able to output 3 laser dots simultaneously

※ Self-leveling, laser flash and sound indication when beyond self-leveling range

※ Able to shield the alarming function, and could use for tilt purpose

※ Able to connect with the multi-functional base through 1/4" screw thread.

Instruction: this instruction manual also apply to the laser with high output power version.

2. User safety

※ Laser output marker is at output aperture

※ Do not stare at the laser beam directly

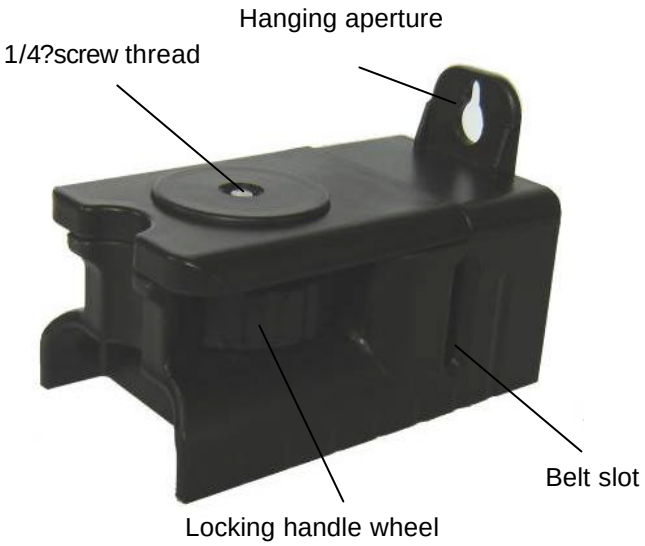
※ Do not disassemble the instrument and make internal servicing, please make servicing through authorized servicing center

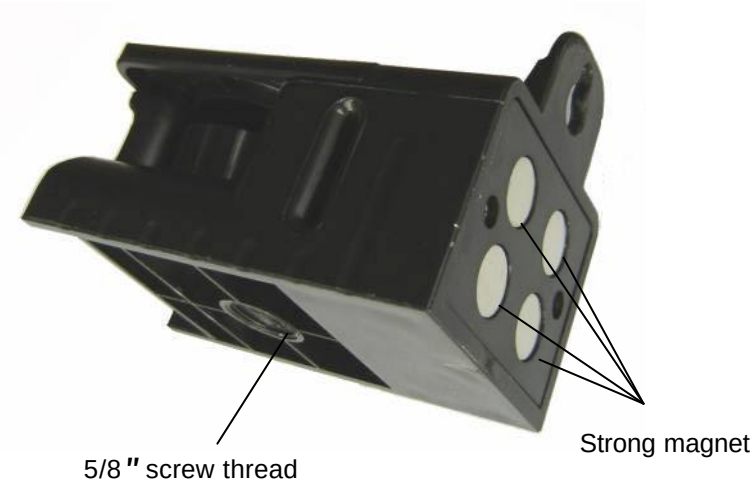
※ The instrument conform to laser radiation safety class standard.

3. Instrument nomenclature

3.1 Features of main unit

3.2 Features of accessories





4. Operation guide

4.1. Mount the battery

Open the battery box cover, mount 3*AA alkaline battery into the battery box as per the polarity direction, then cover the battery cover.

4.2. Place the instrument

a) Place the instrument on the horizontal platform directly

b) Connect with the multifunctional base through 1/4'' screw thread

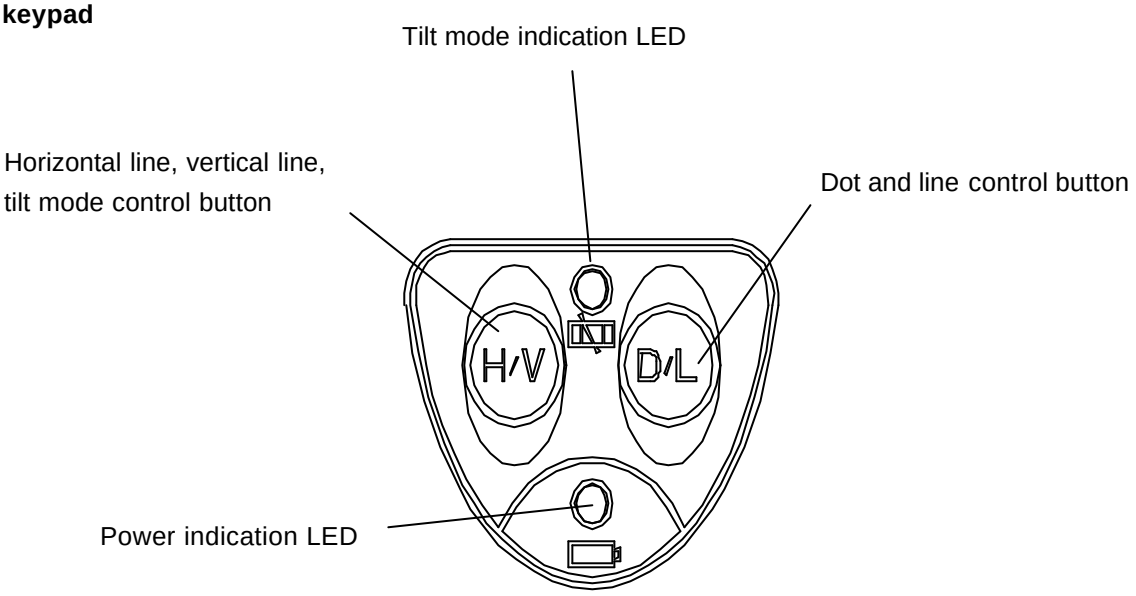
c) Fix the instrument on the tripod

d) Attach the instrument on the steel plate

e) Hang the instrument on the wall

f) Tie the instrument on the column

4.3. Operation keypad



Power indication LED

Lighten: power is on

Extinguish: power in off

Flash continuously: low voltage

Tilt mode indication LED

Flash: the instrument will enter tilt mode status

Extinguish: the instrument will exit tilt mode status

4.4 ON/OFF

Unlock the instrument, the instrument is on, and the power indication LED is on.

Lock the instrument, the instrument is off, the power indication LED is off.

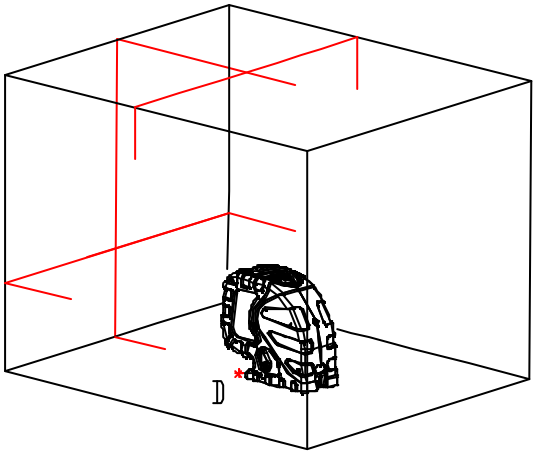
Unlocking status

Locking status

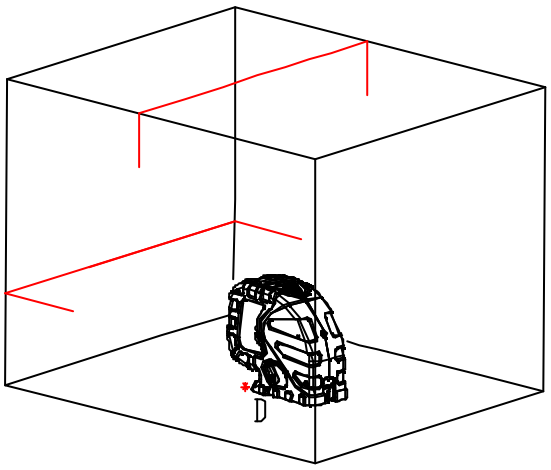
When powering on the instrument, if the laser flashes and with buzzer, which means the instrument is out of self-leveling range, please place the instrument again.

4.5 Laser output control button

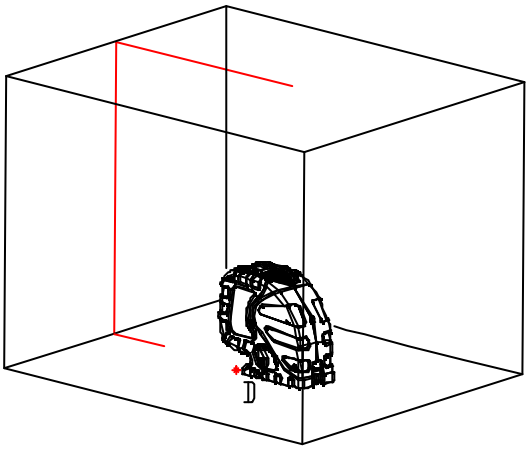
Unlock the instrument and the instrument is on, the output form of instrument is as follows,



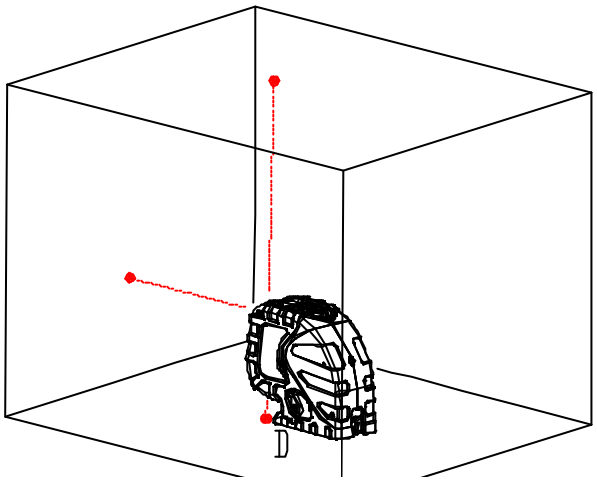
Press  button, the vertical line is off, the output form of instrument is as follows,



Press H/V button again, the horizontal line is off and the vertical line is on, the output form of instrument is as follows,



Press H/V button again, all the horizontal lines and vertical lines will be off, there is no laser output.
Press D/L button, the instrument will output three laser dots (front dot, up dot and down dot).



Press D/L button again, the instrument will switch to ON status again, and output the laser line and down laser dot (that is to say, D/L button controls switching between the laser line and laser dot)

4.6. Tilt mode

When locking the instrument, only press H/V button could enter tilt working mode, power indication LED is on and tilt mode indication LED flash.

When the instrument is in tilt mode, the laser output button and dot&line control button are used as per the above descriptions.

When pressing H/V button continuously until all the laser lines are off, then press H/V button again, the tilt indication LED is off, the power indication LED is off, the instrument will power off.

Note:

(1) The tilt mode only applies when there is no need of the horizontal or vertical reference.

(2) When unlocking the instrument, it can not enter tilt mode, if the instrument is used in the tilt mode, and unlock it, the instrument will exit tilt mode (the tilt mode indication LED is off) and enter the self-leveling status.

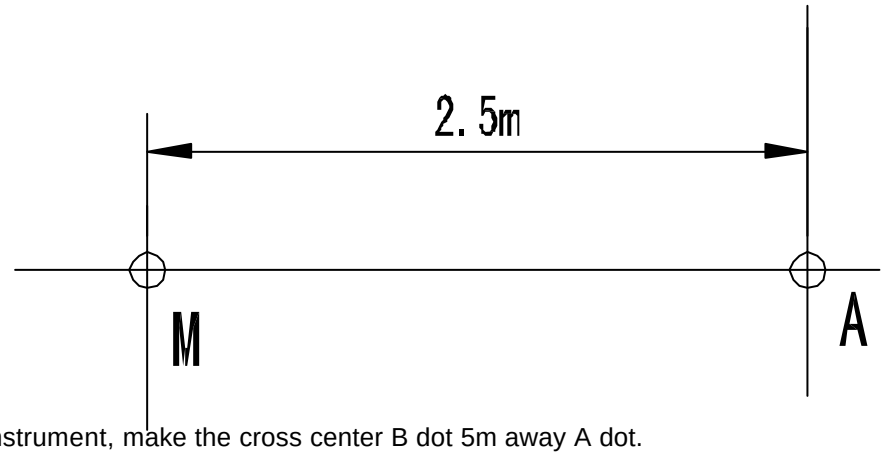
5. Self-check and calibration

5.1 Horizontal line accuracy (horizontal)

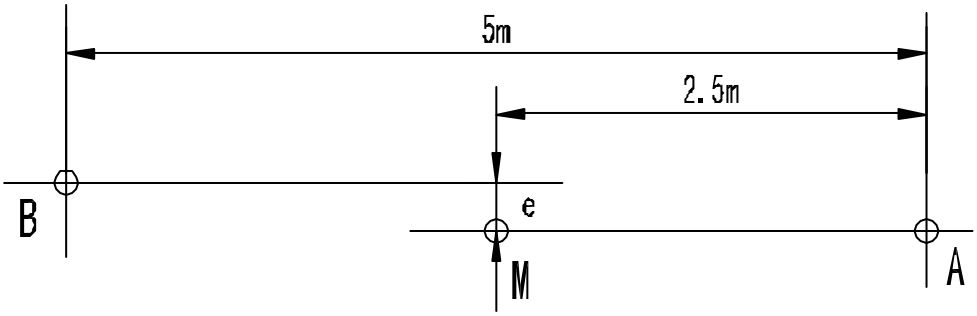
a) Find a flat wall, place a tripod 5m away from the wall and then level it, then secure the instrument on the tripod,.

b) Face the front of instrument to the wall, unlock the instrument and power on all laser lines, there will be the cross laser line on the wall, set crossing dot as A dot.

c) Mark A dot and M dot on the horizontal line separately (the distance of A and M is about 2.5m).



d) Turn the instrument, make the cross center B dot 5m away A dot.



e) Measure distance e from M dot to laser line.

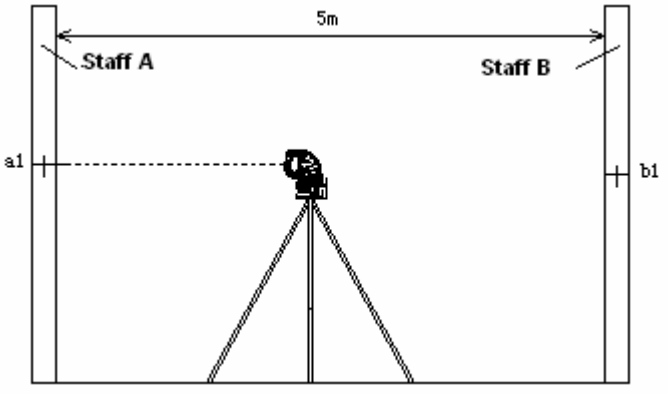
f) If e>1mm, the instrument accuracy has been out of tolerance, it is necessary to making servicing.

5.2. Horizontal accuracy self-check (vertical)

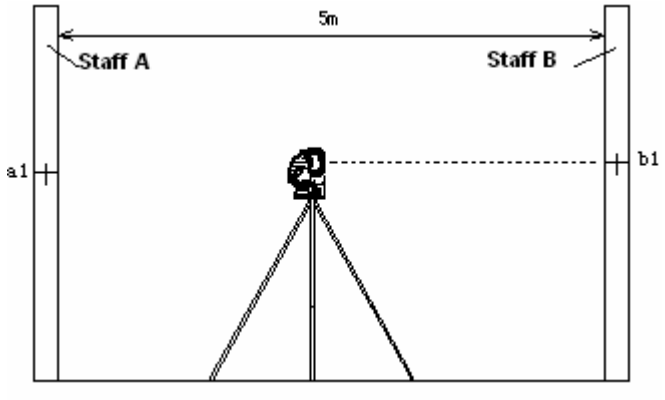
a) As shown in the following figure, stand up two staff which is 5m away, (or find a wall which both sides are parallel and the distance is more than 5m).

b) Fit the instrument on the tripod, and place it in the center of both staff and level the instrument by adjusting the tripod.

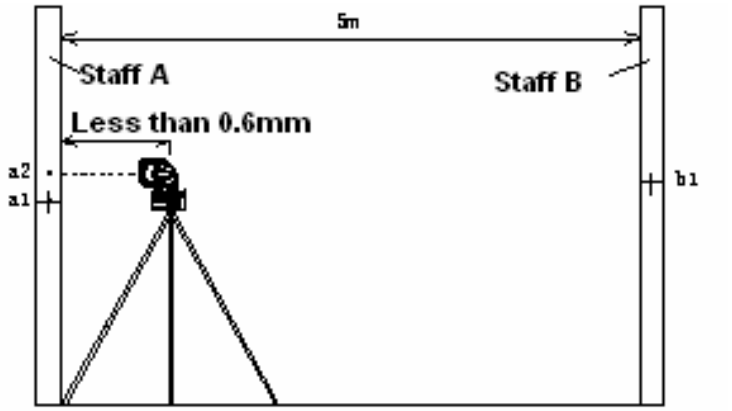
c) Power on all laser lines, make the cross laser dot on staff A, note down a1 dot value.



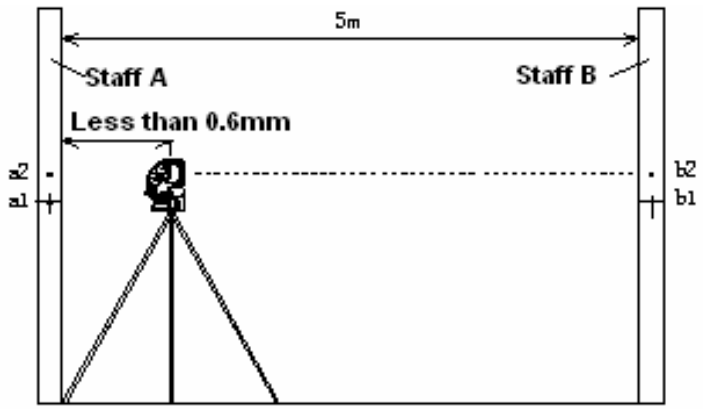
d) Turn the instrument by 180°, make the cross dot on staff B, note down b1 dot value.



e) Move the tripod, make the instrument to the staff A as close as possible, make the cross dot on staff A, note down a2 dot value.



f) Rotate the instrument by 180°, make the cross dot on staff B, note down b2 dot value.



g) Calculate （a1-a2）- (b1-b2) = e,

If the absolute value of e is above 1mm, the instrument accuracy has been out of tolerance, it is necessary to make servicing.

5.3. Self-check and calibration

As shown in the following picture, the instrument have two calibration apertures, A means the adjustment horizontally (the error tested by 1 item in accuracy self-calibration), B means the adjustment vertically (the error tested by 2 item in accuracy self-calibration).

Self-calibration aperture A

Self-calibration aperture B

Note when adjusting:

(1)Use 3mm hexagon spanner when adjusting

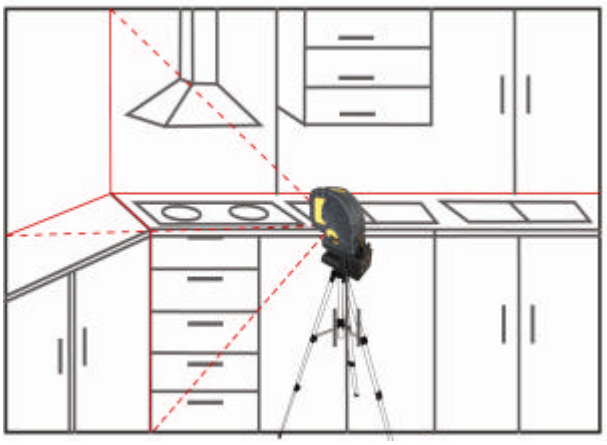
(2) The adjustment of two directions will influence each other sometimes.

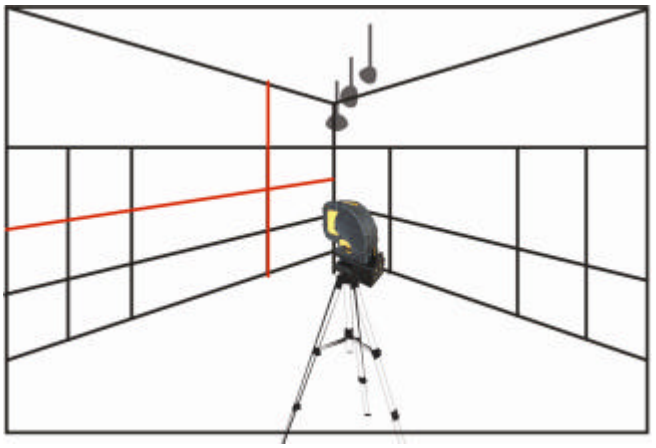
When making the fine adjusting in left and right direction horizontally, the front and back direction vertical will change possibly, also, when adjusting in front and back vertically, the left and right direction horizontally will change possibly. So, when making fine adjustment, it needs to make the adjustment on two directions repeatedly.

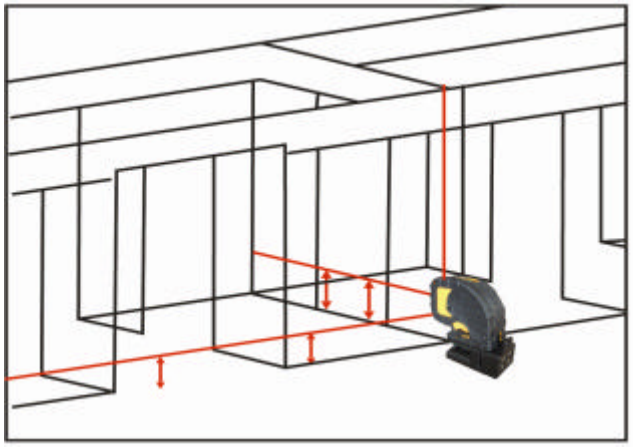
(3) The adjustment of self-calibration screw could not exceed 4 circles. (Clockwise or anti-clockwise direction).

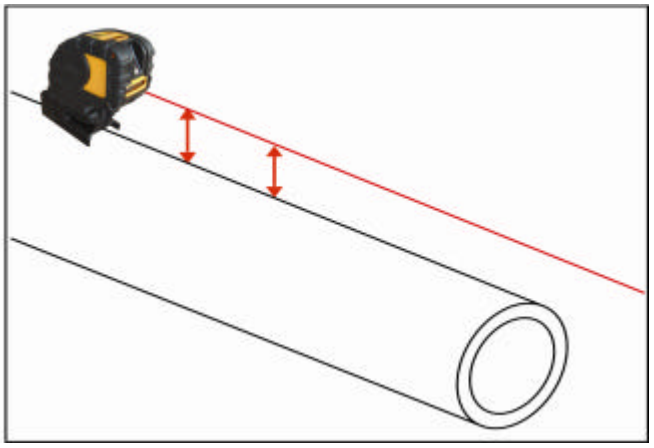
(4) If the instrument accuracy could not be adjusted through self-calibration aperture, please contact the distributor for servicing.

6. Application demonstration









7. Technical specifications

Item	Parameter
Laser wavelength	635nm
Laser class	Class **II** / Class**III**
Accuracy	±1mm/5m(1°bubble range)
Leveling range	±3°
Temperature range	-10℃～+45℃
Power	3*AA battery
Low voltage indication	Power indication LED flash
Size	135×123×65mm
Weight	0.7Kg

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 used.