

## Laser Leveled Marker Operation Manual

To help you use this instrument quickly, we provide a specific operation manual for you. Please read the manual carefully before you use the instrument, and keep it well.

Thanks for choosing and purchasing Laser Marker, the precise instrument. To assure the requirement of precision, please carefully read the manual before you use the instrument, properly keep this instrument for future reference.

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### 1. Purpose

The compact instrument Laser Marker is light-weighted, easy to carry and operate, with accurate marking capacity. It is widely applicable to construction and inspection of interior decoration, building installation, piping wiring and various fields requiring marking and positioning.

### 2. Safety notice

The laser radiation is strong. Do not look at laser beam directly, avoiding hurting your eyes.

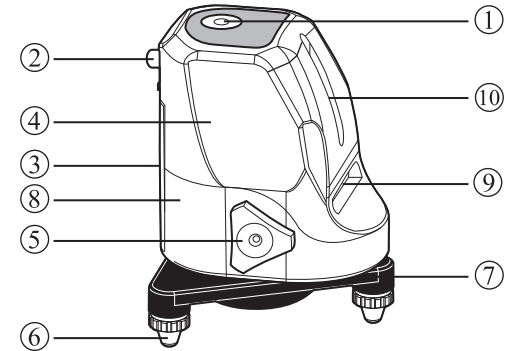
### 3. Function and Feature

1. Compact, light-weighted, easy to carry and operate, with accurate marking capacity.
2. Magnetic damping compensator ensures quick automatic leveling.
3. Transmit one level laser beam and one perpendicular laser beam with intersecting as a 90 degrees right angle cross curve, and the perpendicular laser beam can be extended to exceeding the roof.
4. In case of exceeding leveling scope, laser beam of the instrument will automatically flash to give alarm.

### 4. Structure of the instrument

1. Air bubble
2. Switch button(V/H)
3. Battery case
4. Casing(up)
5. Power( lock button of compensator)
6. Leg adjustment screws
7. Junction Plate

1. Air bubble
2. Switch button(V/H)
3. Battery case
4. Casing(up)
5. Power( lock button of compensator)
6. Leg adjustment screws
7. Junction Plate
8. Casing(down)
9. Level laser beam transmitting window
10. Perpendicular laser beam transmitting window



### 5. Operation guidelines

1. Open the battery case to insert two sets of 1.5V AA alkaline batteries.(Note the polarity)
2. Properly install the level rotator of the instrument and put it on the elevating tripod support. Properly adjust the leveling.
3. Turn the power and the instrument will be on the automatic leveling condition.
4. Turn the switch button(V/H), level and perpendicular laser beam will be transmitted.
5. In case the laser beam flashes to give alarm, it indicates that the instrument isn't smoothly positioned and exceeds automatic leveling scope. It is necessary to re-position the instrument and adjust the elevating tripod or leg screws till the water bubble go into the circle.
6. Change the batteries in case the power isn't sufficient.

7. When the instrument is not in used, the power switch shall be turned OFF. Batteries shall be taken out . Put the instrument back into its bag to avoid unexpected damage.

## **6. Self-check of accuracy**

### ***i. Self-check of level accuracy***

1. Find a smooth wall surface without vibration, which shall be little affected by wind. Mount this instrument five meters away from the wall surface.
2. Properly install the level rotator of the instrument and put it on the elevating tripod support. Properly adjust the leveling.
3. Turn the power and the instrument will be on the automatic leveling condition.
4. Turn the switch button(V/H) to position HV, then two laser beam will display on the wall surface as a cross curve. Assume the intersect as point A, then use right-angle setsquare to measure if the two lines intersect at 90 degrees.
5. Note down point A and point M which is 2.5 meters away from point A at the level line.
6. Rotate the instrument to allow another intersect-point B, which is five meters away from point A.
7. Measure distance E from point M to this level line.
8. E shall be within  $\pm 3\text{mm}$ .

### ***ii. Self-check of perpendicular accuracy***

1. Find a smooth wall surface without vibration, which shall be little affected by wind. Mount this instrument five meters away from the wall surface.
2. Use a thread plumb to determine a perpendicular point B on the ground, which is three meters high from point A, another head of the thread plumb.
3. Turn the power and the instrument will be on the automatic leveling condition.
4. Properly install the level rotator of the instrument and put it on special support. Properly adjust the leveling.
5. Turn the switch button(V/H) to position HV, then two laser beam will display on the wall surface as a cross curve.
6. Coincide the perpendicular laser beam with the perpendicular point B on the ground.

7. At this time, assume a point C on the three meters high perpendicular laser beam.
8. Distance between point A and point C shall be within  $\pm 2\text{mm}$ .

## **7. Technical specification**

1. Light source: Semiconductor laser instrument
2. Wave Length: 635nm
3. Laser output power:  $<1\text{mw}$
4. Level accuracy: at  $5\text{m}\pm 1.5\text{mm}$ .
5. Perpendicular accuracy: at  $5\text{m}\pm 1.5\text{mm}$ .
6. Width of laser beam: at  $5\text{m}\pm 2.5\text{mm}$
7. Length of laser beam: at  $5\text{m}>10\text{m}$
8. Self-leveling range:  $\pm 2.5^\circ$
9. Brake ways: mechanical ways
10. Operation temperature:  $-5^\circ\text{C}\sim 40^\circ\text{C}$
11. Power supply: two alkaline AA batteries (DV3V)
12. Continuous operation hours with batteries: 12 hours (alkaline batteries)
13. Instrument size: length 98mm\*width 60mm\*height 105mm

## **8. Attachment list**

1. Instrument: 1 piece
2. Carrying bag: 1 set
3. Operation Instrument: 1 copy

## **9. Maintenance**

1. The instrument is kind of precision instrument which shall not be heated or drenched, extruded by force, collided or fallen for fear of influencing its precision.
2. When not use, power switch shall be pushed to OFF position and batteries shall be taken out after the pilot lamp goes out. Lock the pendulum mass, and put it back into the carrying bag.
3. Keep the instrument clean, use clean and soft cloth to wipe glass of transmitting windows.