Self-leveling Rotary Laser

User Manual

WARNING AND CAUTION

- While the instrument is operating, be careful not to expose your eyes to the emitting laser beam. Exposure to a laser beam for a long time may be hazardous to your eyes (laser beam: equivalent to class 2 laser lever).

- Do not try to dismantle the instrument. Have it repaired by your dealer or supplier. Dismantling it by yourself may worsen the problem.

- When attaching the instrument to a tripod, make sure the instrument is securely fixed to the tripod and the tripod leg clamps should be securely fastened. If not securely fastened or tightened, the main unit could fall off or the tripod could fall over.

- When setting the tripod, beware of the tripod shoes which are sharp. These sharp points allow tripod to be securely positioned on the ground.

- Operate this laser product with the height o laser avoiding that of eyes of vehicle drivers or pedestrians. Avoid putting the laser on a highly reflective material such as mirror. When disposing of this instrument, take a measure by removing the batteries so that the laser will not be emitted.

PRECAUTIONS

- The instrument should not be store or used in extreme temperature or job on place subject to rapid change of temperature. The instrument may not function properly if used out of the ambient temperature range.

- Store inside the carrying case and place in a dry area not subject to vibration, dust or high moisture.

- When storage and usage temperature are widely different, leave the instrument in the case unit it can adjust to the surrounding temperature.

- The instrument should be transported or carried carefully to avoid impact or vibration.

- The instrument should be stored in the carrying case and packed with cushioning material. Always handle the item with care.

- Be sure to observe the items in the instruction manual for proper use of the instrument.

1.Functions

This instrument is equipped with the semiconductor diode with wavelength of 635nm, which the laser beam has supreme visibility. And the laser module of instrument will rotate freely to form a laser-scanning surface. Emitting direction of rotary laser-beam illustrated as follows:

Upright-setting

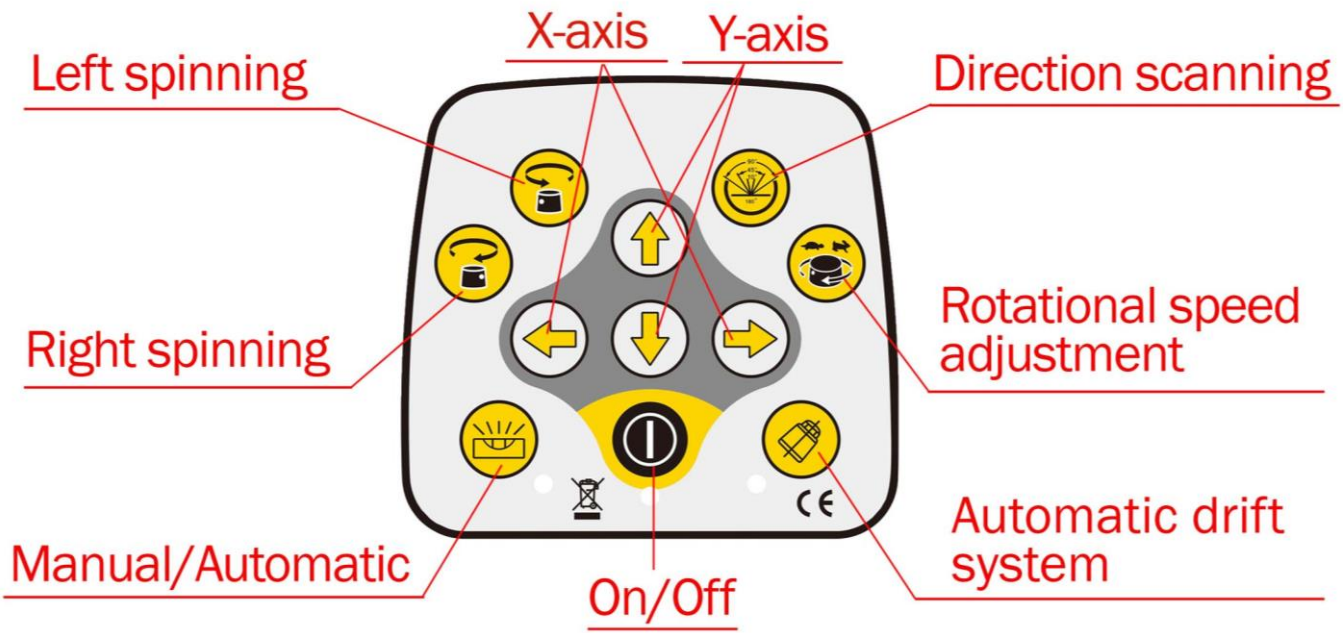
Horizontal-setting

When the instrument is set upright, it will emit laser-beam to form a horizontal scanning surface and a plumb line automatically. When set horizontally, it will form a plumb scanning surface and a vertical line.

2. Introductions

2.1 Main body

2.2 Panel


X-axis
Y-axis
Left spinning
Direction scanning
Right spinning
Rotational speed adjustment
Manual/Automatic
On/Off
Automatic drift system

2.3 Utilities of Panel

(1) ON/OFF: Controlling the state of power.

(2) Power indicator: When it lights, the instrument is starting up. Otherwise it is closing down.

(3) Mode indicator: When it lights, the instrument is leveling manually. When it winks, it stays in alarm. (The slope of the instrument is out of range).

(4) Key of Automatic drift system model: Warns the user for a misaligned device

(5)Light of Automatic drift system model: When the light is twinkling slowly, it is in Automatic Drift System model. When the light is twinkling quickly, the laser level will not level .

(6)Speeding-up: Circling knob. Speed of scanning includes 5-knots:0-60-120-300-6000 r.p.m

(7) Directional scanning: Circling knob. Angle of scanning includes 5 levels: 0 -10°-45° -90°-180°

(8) Manual/Automatic: Controlling the mode of leveling.

(9) Left-spinning: Making the laser module step-move counter-clockwise, when the laser module is power off or it is scanning directionally.

(10) Right-spinning: Making the laser module step-move clockwise, when the laser module is power off

or it is scanning directionally.

(11) X-axis: Adjusting the slope of X-axis, when the instrument stays in manual mode.

(12) Y-axis: Adjusting the slope of Y-axis, when the instrument stays in manual mode.

3.Directions:

3.1 Battery Installment

4×C size Ni-MH Rechargeable batteries can be used in laser

Please put the battery park which is supplied specialize by manufacturer.
Put the battery park into the fixed place at the bottom of laser. Then tight all screws.

3.2 Instrument Placement

3.2.1 Horizontal scanning

Lay the instrument on the tripod or stable flat surface, or even hang it on the wall. Set upright the instrument, and keep the slope of instrument within the range from -5°to +5°.

3.2.2 Vertical scanning

Lay the instrument on the flat surface, and keep the slope of instrument within the range from -5°to +5 °.

3.3 Operations

3.3.1 Power

Press the Key ON/OFF to bring automatic leveling into function when the power indicator lights.

When Power indicator lights, it shows the voltage of the batteries is insufficient. Then the rechargeable

batteries need to be charged.

Press the Key ON/OFF again to switch off the instrument and power indicator will goes out.

3.3.2 Leveling

Press the Key ON/OFF to bring automatic leveling into function when the laser beam begins to wink. After automatic leveling, the laser module will rotate at the speed of 600r.p.m.

If the instrument is placed improperly, or the slope of instrument exceeds the range of ±5°,at that moment mode indicator and the laser beam will wink together. Then place the instrument properly.

3.3.3 Spinning

(1) Continuous spinning

Press the Key “Rotational speed adjustment” to control the spinning speed of the laser module. If press the key repeatedly, the spinning speed of the laser module will continuously change as follows:0-60-120-300-600-0 r.p.m.

(2) Stepping spinning

Locate the Key Speeding-up at speed of 0 r.p.m, the laser module will stop spinning. And press the Key Right-spinning, the laser module will step-move clockwise. Then if press the Key Left-spinning, the laser module will step-move counter-clockwise.

3.3.4 Directional scanning

(1) Locate the Key Speeding-up at speed of 0 r.p.m, the laser module will stop spinning. Press the Key Directional scanning; the laser module will scan directionally. If press the key repeatedly, the angle of scanning of laser module will continuously change as follows: 0°-10-°45º-90-°180°-0°.

(2) Press the Key Left-spinning or the Key Right-spinning to change the direction of scanning.

3.3.5 Slope Adjustment

When the instrument is set upright to do horizontal scanning, the slope of X-axis and Y-axis can be setted.

Press the Key Manual/Automatic when mode indicator lights, the instrument enters the mode of manual leveling.

(1)Slope of X-axis

a. Aim the X1-beam to the direction of the slope required then to adjust.

b. Press the Key ⇦ or ⇨ to move the laser beam up or down.

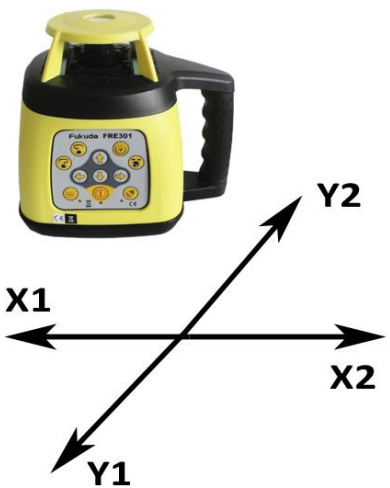
(2) Slope of Y-axis

a. Aim the Y1-beam to the direction of the slope required then to adjust.

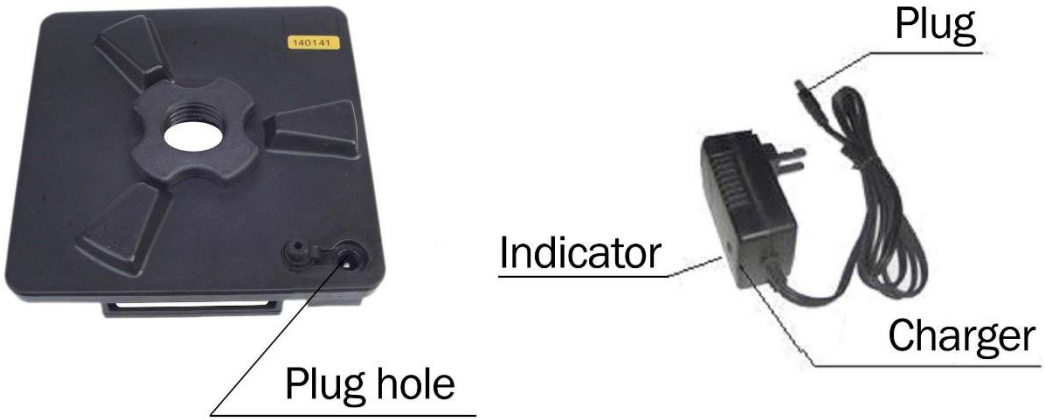
b. Press the Key ⇧ or ⇩ to move the laser beam up or down.

(3)Quit slope adjustment mode

Press Manual/Automatic key again. After mode indicator goes off, the instrument then will quit the slope adjustment mode and will self-leveling again.



4.Power



When the voltage indicator lights, the batteries needs to be charged immediately. Connecting the charger with AC, insert the plug of charger into the plughole at the bottom of the instrument (As depicted above).

If the red indicator lights, it shows the batteries are in charging.

If the green indicator lights, it shows the course of recharging has finished.

Notices:

(1) Using the standard rechargeable batteries of the instrument, recharging will be finished within 7 hours.

(2) Power required for the charger: Frequency: 50-60HZ; Voltage: 85-265V.

(3) Charging and using of the instrument can progress simultaneously.

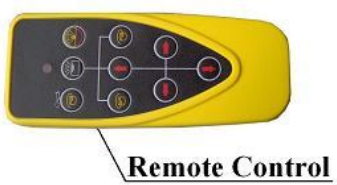
(4) If keeping the instrument in storage (or Leave the instrument unused for a long time), the batteries (dry battery or rechargeable battery) needs to be taken out.

(5) Brand-new rechargeable batteries or long-time unused rechargeable batteries need to be recharged and discharged three times to attain the capacity required.

5.Remote

The remote control of the instrument adopts the infrared technique.

Aim the aperture of infrared ray to the instrument (as depicted below) to bring remote controlling into function (Available distance: indoor: 30M; outdoor: 20M). The keypad panel includes 9 keys; the indicator on the RC will wink to show the operating signal has been sent out once pressing any key.



Functions fulfilled by the remote as follows:

(1)Rotating: Operating method referring to 3.3.3

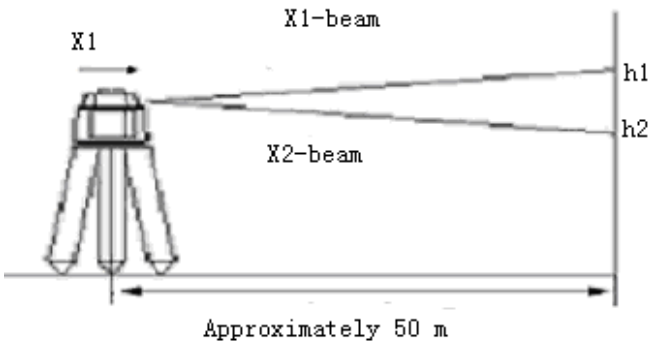
(2) Directional scanning: Operating method referring to 3.3.4

(3) Slope adjustment: Operating method referring to 3.3.5

6.Accuracey Checking

6.1 Horizontal-surface Checking

(1) Place the instrument at the point of 50m in front of wall (or set a scaleplate at the point of 50m away from the instrument), and then adjust the level of the base approximately to aim the X1 to the wall (or scaleplate), as depicted below:



(2) After switching on the power, use the laser detector measuring the h1 of X1-beam on the wall or scaleplate.

(3) Loose the screw of the tripod , turn around the instrument for 180°to measure the h2 of X2-beam

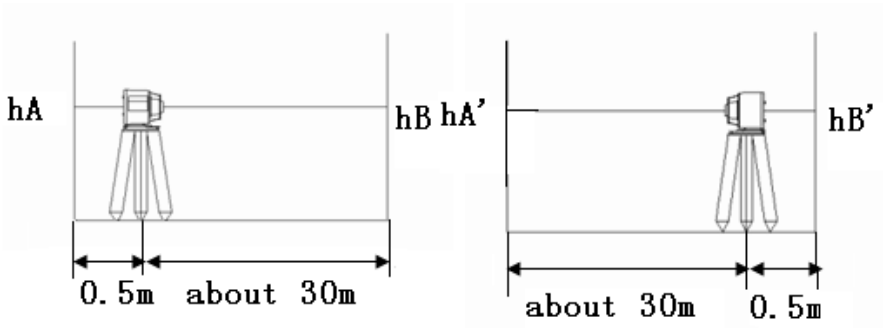
on the wall or scale- plate. The method should be the same with h1.

D-value between h1 and h2 ought to be less than 10mm.

(4) Check the Y-beam in the same way.

6.2 Horizontal-line Checking

(1) Place the instrument between two walls with the distance of 30m (or two scaleplates with the distance of 30m).



(2) Place the instrument according to horizontal setting and then adjust the instrument.

(3)Switch on the power, and then measure the middle point of the laser beam on the wall (or scaleplate): hA, hB and hA', hB'.

(4)△1=hA-hA', △2=hB-hB'

D-value between △1 and △2 ought to be less than 6mm.

7.Specifications

Accuracy:	20 arc seconds(+/-1mm/10m)
Self leveling range:	±5°
Operation range(With detector)	500m with detector（Diameter)
Four head speeds:	0,60,300,600 R. P. M.
Four scan widths:	10°; 45°; 90°; 180°
Bright, visible beam:	Wavelength 635nm:HV Class II Wavelength 535nm:HV Green Class 3R
IR Remote control:	Available distance:20 m
Operation temperature:	-20ºC ~ +50ºC (-4°F~+122°F)
Power supply:	DC 4. 8-6V (4xsub-C NI-MH battery or 4xsub-C Alkaline battery)
Continuance working time:	Approx. 50hr.(Ni-MH)　Approx. 40hr(Alkaline)
Waterproof and dustproof:	IP 55
Dimension:	160(L) X 160(W)X 185(H)mm
Weight:	2.7kg