

INSTRUCTION MANUAL

ROTARY LASER LEVEL

GPR-R4 / R4H / G4

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

FOR YOUR RECORD

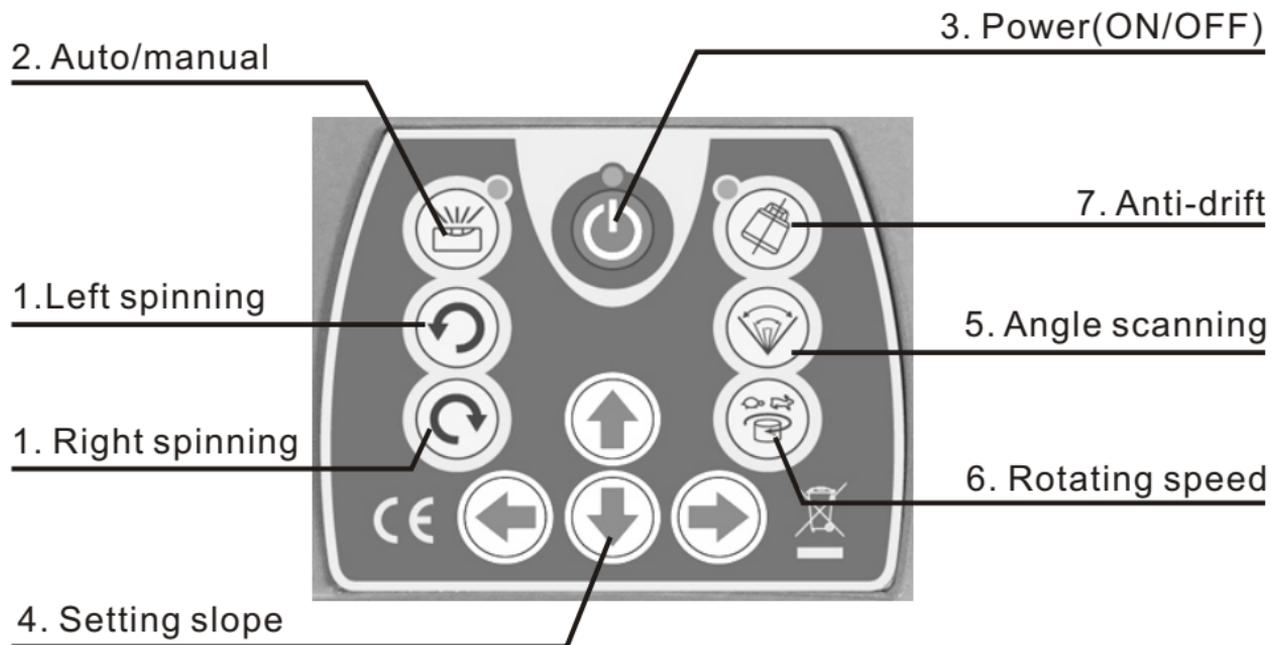
Place Of Purchase :

Date Of Purchase :/...../.....

Contents

1.1	Main body	03
1.2	Panel	04
1.3	Operation instrument	05
2.	Directions	06
2.1	Battery Installment	06
2.2	Instrument Placement	06
2.2.1	Horizontal scanning (manual mode)	06
2.2.2	Vertical scanning (manual mode)	06
2.3	Operations	07
2.3.1	Power	07
2.3.2	Leveling	07
2.3.3	Spinning	08
2.3.4	Directional scanning	08
2.3.5	Slope Adjustment	09
3.	Recharge battery	10
4.	Remote	12
5.	Accuracy Checking	13
5.1	Horizontal-surface Checking	13
5.2	Horizontal-line Checking	14
6.	Specifications	16

1.2 Panel



1.3 Operation instrument

1. Left / right spinning: After the laser head speed is set on 0 r.p.m. the left/right button can change the laser position.
2. Auto/manual: Push button to switch manual or auto leveling.
3. Power(ON/OFF): Controlling the state of power.
4. Setting slope (manual mode): The arrow button for upper & down & left & right can adjust X and Y axis.(Touch panel direction is Y axis)
5. Angle scanning: Setting 5 sections angle scanning, 0° - 10° - 45° - 90° - 180° , the Left/right button can change the laser position.
6. Rotating speed: Setting 5 sections rotating speed, 0-60-120-300-600 r.p.m.
7. Anti-drift: The Anti-Drift System, when ON, will signal to the operator that the instrument has been moved out of level.
The ADS LED will blink slowly when instrument in Anti-Drift System.
The ADS LED will blink quickly when instrument moved out of level.

2. Directions

2.1. Battery Installment

- (1) Take down the cover of battery case at the bottom of the instrument.
- (2) Put the batteries into the case according to the right position.
- (3) Lay the cover on the box, and then tighten all screws.

2.2 Instrument Placement

2.2.1 Horizontal scanning (manual mode)

Lay the instrument on the tripod or stable flat surface, or even hang it on the wall. Set up right the instrument, and keep the slope of instrument within the range from -5° to $+5^{\circ}$.

2.2.2 Vertical scanning (manual mode)

Lay the instrument on the flat surface, and keep the slope of instrument within the range from -5° to $+5^{\circ}$.

2.3 Operations

2.3.1 Power

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

When power indicator blink, it shows the voltage of the batteries is insufficient. Then the rechargeable batteries need to be charged.

Press the Key ON/OFF to close down the instrument.

2.3.2 Leveling

When turned on, the laser beam will start to blink, It will stop winking after finish leveling.

If the instrument is placed improperly, or the slope of instrument exceeds the range from -5° to $+5^{\circ}$, the mode indicator and the laser beam will wink at the same time. Then place the instrument properly.

2.3.3 Spinning

(1) Change speed

Press the rotating speed button to control the spinning speed of the laser head. If press the key repeatedly, the spinning speed of the laser head will continuously change as follows: 0-60-120-300-600-0 r.p.m.

(2) Stepping spinning

Locate the Key Speeding-up at 0 r.p.m., The laser head will stop spinning. And press the Key Right- spinning, the laser head will step-move clockwise. If then press the key Left-spinning, the laser head will step-move counter-clockwise.

2.3.4 Directional scanning

1. Press the Key Directional scanning: the laser head will scan directionally. If press the key repeatedly, the angle of scanning of laser head will continuously changes as follows: 0, -10° , -45° , -90° , -180° , -0°
2. Press the Key Left-spinning or the key Right-spinning to change the direction of scanning.

2.3.5 Slope Adjustment

When the instrument is set upright to do horizontal scanning, the slope of X-axis and Y-axis can be adjusted. Press the Key Manual/Automatic when mode indicator lights, the instrument enters the mode of manual leveling.

(1) Slope of X-axis

1. Aim the X1-beam to the direction of the slope required to adjust, as depicted below:
2. Press the key ← or → to move the laser beam up or down.

(2) Slope of Y-axis

1. Aim the Y1-beam to the direction of the slope required to adjust.
2. Press the key ↑ or ↓ to move the laser beam up or down.

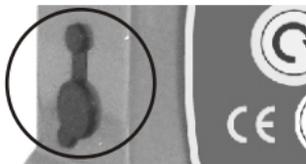
(3) Press the key Manual/Automatic again when mode indicator goes out, the instrument will enter mode of automatic leveling.



3. Recharge battery

When the batteries needs to be charged, connecting the charger with AC. Insert the plug of charger into the plug hole at the bottom of the instrument (As depicted below).

If the indicator of charger lights, it shows the batteries are being charged. If the indicator light of the charger winks, it shows the course of recharging has ended.



Plug hole



Charger

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.

4. Remote

The remote 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: 20M).

The tele controlling panel includes 9 keys; the indicator on the device will wink to show the operating signal has been sent out once pressing any key.

Functions fulfilled by the remote as follows:

1. Spinning: Operating method referring to 2.3.3.
2. Directional scanning: Operating method referring to 2.3.4.
3. Slope adjustment: Operating method referring to 2.3.5.

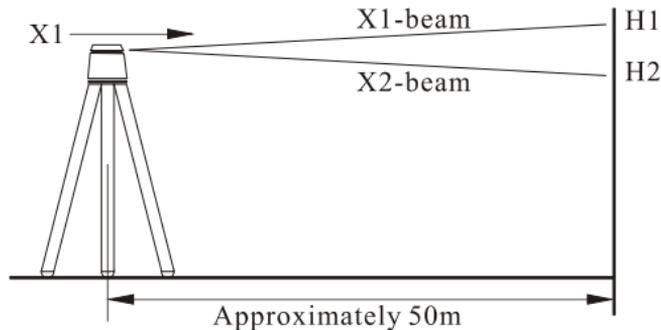


Remote

5. Accuracy Checking

5.1. Horizontal-surface Checking

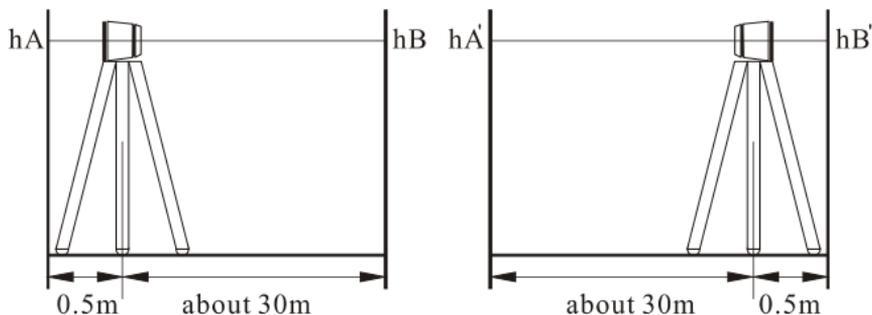
1. Place the instrument at the point of 50m in front of wall (or set a scale plate at the point of 50m away from the instrument), and then adjust the level of the base approximately to aim the X1 to the wall (or scale plate), as depicted below:



2. After switching on the power, use the laser detector measuring the h_1 of X1-beam on the wall or scale plate.
3. Loose the screw of the tripod, and then turn around the instrument 180° to measure the h_2 of X2-beam on the wall or scale plate.
D-value between h_1 and h_2 ought to be less than 10mm
4. Check the Y-beam in the same way.

5.2 Horizontal-line Checking

1. Place the instrument between two walls with the distance of 30m (or two scale plates 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 scale plate): h_A , h_B and $h_{A'}$, $h_{B'}$
4. $\Delta 1 = h_A - h_{A'}$, $\Delta 2 = h_B - h_{B'}$
D-value between $\Delta 1$ and $\Delta 2$ ought to be less than 6mm

6. Specifications

Model no.	GPR-R4	GPR-R4H	GPR-G4
Light source	Red beam	Red beam-High power	Green beam
	laser diode, wavelength 635nm		Wavelength 532nm
Leveling accuracy	$\pm 10'' / \pm 20''$		
Self-leveling range	$\pm 5^\circ$		
Measuring range	Diameter: 500m (Using the laser detector)		
Spinning speed	0,60,120,300,600 r.p.m.		
Directional-scanning	0°, 10°, 45°, 90°, 180°		
Setting slope	$\pm 5^\circ$ (Dual axis)		
Down point	Accuracy: $\pm 1\text{mm} / 1.5\text{m}$		
Remote controlling Distance	Approximately 20m		
Power Supply	DC 4.8-6V (NI-MH rechargeable)		
Working Temperature	-20°C ~ +50°C (-4°F ~ +122°F)		-10°C ~ +45°C (14°F ~ +113°F)
Water-proof	IP-56		
Dimension	160(L)x160(W)x185(H)mm		
Weight	2kgs		



ISO 9001:2000

R4-2010-01-13