ROTARY LASER LEVEL RL430ST

Contents

1. Features and functions

(Red laser)   (Green laser) auto-leveling rotating laser could project visible horizontal laser plane and plumb-up laser beam & vertical laser plan and horizontal laser line. Its extensive functions bring great convenience to set accurate horizontal, vertical and plumb references for indoor and outdoor lay out and calibrations. This kind of product is featured by easy manipulation and wide applications.

※ Electronic leveling, laser stop rotating and sound indication when beyond range

※ 360°rotating, could work vertically and horizontally.

※ Adjustable rotating speed and scan angle.

※ TILT mode has the unleveled alarm function, the laser head stop rotating to insure the construction accuracy when the instrument is hit.

※VWS function could set the instrument to be low sensitive, to insure the reliable wild working performance   .

※ SLOPE mode function could set the single slope plane that means when setting one single axis, the other axis will be self-leveled.

※ MAN mode function could set the double axis slope and forcing rotating status. That means operators could set the slopes declining in both axis if necessary, or make the instrument into rotating status directly.

※ Accuracy self-calibration function

※ Timing auto-off function

※ Remote control operation function

※Connecting with the tripod through the 5/8" screw thread

※Various accessories of elaborate design can bring usage expansion

※Rainproof and dustproof

2. Usage safety

※Laser output sign lies near the output aperture.

※Do not stare into laser beam directly

※Do not disassemble the instrument or attempt to perform any internal servicing. Repairs and servicing could be performed only by authorized service centers.

※The instrument complies with the safety classification standards of laser radiation.
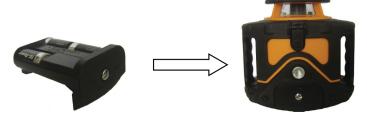
3. Nomenclature

Laser output window — Rotary head

Remote receiving tube

Operation keypad — Handle

Knob for placing vertically — Bubble

Support for placing vertically

Side 5/8" screw thread

Battery cover screw

Battery cover

Central 5/8″ screw thread
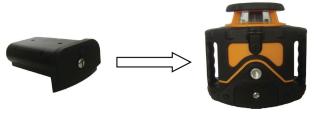
4. Operation guide

4.1 Battery installation

a) Put 3*C alkaline batteries into the battery box follow the marked polarity direction, and install the battery box to the instrument.
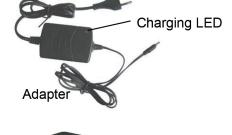

Install alkaline battery

b) Install the rechargeable battery into the instrument

Install the rechargeable battery box

4.2 Charge the rechargeable battery

Charge the rechargeable battery directly by the adapter. The LED is red during the charging process; the LED will turn green when the battery is full.

Charging LED

Adapter

Charge the rechargeable battery box directly

Charge the rechargeable battery box on the instrument

Note: please charge the rechargeable battery when the battery is empty (the power supply LED flash mean the battery is already empty). That could extend the battery service life.

4.3 Instrument placement

In horizontal working status

a) Place the instrument on a horizontal plane directly.

b) Install the instrument on the tripod by the 5/8'' screw thread in bottom

Place the instrument on a horizontal platform

Install the instrument on the tripod by the 5/8'' screw thread in bottom

In vertical working status:

a) Place the instrument on a leveled plane horizontally

b) Install the instrument on the tripod by the side 5/8'' screw thread
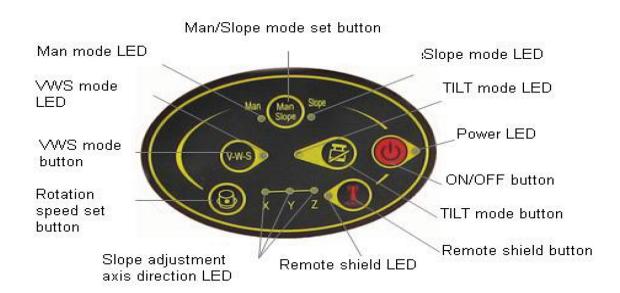
Place the instrument a horizontal platform

Install the instrument on the tripod by the side 5/8'' screw thread

When place the instrument horizontally, in order to make the vertical reference plane over the support, please adjust the level hand wheel to make the bubble vial centered.

Adjust the hand wheel to make the bubble vial centered

4、Instrument keypad

Man/Slope mode set button
Man mode LED
Slope mode LED
VWS mode LED
TILT mode LED
VWS mode button
Power LED
Rotation speed set button
ON/OFF button
TILT mode button
Remote shield button
Slope adjustment axis direction LED
Remote shield LED

Power LED

ON: Power is on.

OFF: Power is off

Flash: Low power

TILT mode LED

Flash slowly (1 time /second): Instrument enter TILT preparation status

ON: TILT mode enter TILT status

Flash quickly (2 times /second): instrument is in TILT alarming status

OFF: instrument exit TILT status

Slope mode LED

ON: Single-axis slope mode is on

OFF: Single-axis slope mode is off

Man mode LED

ON: Dual-axis slope mode is on

OFF: Dual-axis slope mode is off

Slope axis-direction LED

For X, Y, Z LEDs, when one axis is in slope setting status, its corresponding LED will light.

VWS mode LED

Flash: VWS mode is on
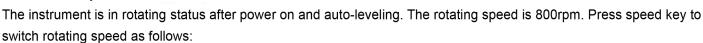
OFF: VWS mode is off

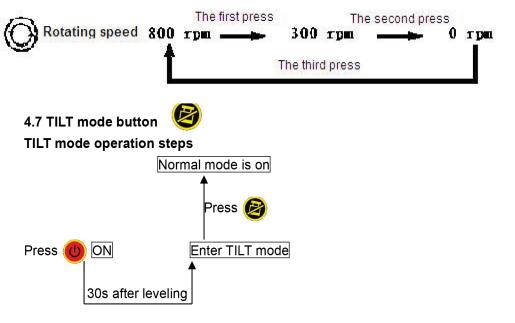**4.5 Power on/off button**

a) Press power on/off key, the instrument start on, power LED is on.

b) Instrument is in auto-leveling status when power on; the rotating speed is 800rpm after auto-leveled.

4.6 Rotation speed butto

The instrument is in rotating status after power on and auto-leveling. The rotating speed is 800rpm. Press speed key to switch rotating speed as follows:

4.7 TILT mode button

TILT mode operation steps

a) If the instrument is in Man status, press TILT button, it will exit Man status.

4.8 VWS mode button

VWS mode operation steps

Power on, press [V–W–S] enter VWS mode

a) If the instrument is in Man working status, press VWS mode button will exit Man working status.

b) In VWS mode, TILT will not work.

Three kinds of rotating mode

Mode	LED	Small shake	Big shake
Normal mode		Stop rotating to auto-leveling, after auto-leveled, the instrument continue rotating, the alarm will not work if the instrument is in the auto-leveling range.	
TILT mode	LED is on	Stop rotating and not auto-leveling, alarm sound, LED flash quickly.	
Wind save mode	LED is on / LED light after auto-level for 30 seconds	Keep rotating, and auto-leveling, no alarm.	Stop rotating and not auto-leveling, alarm sound. LED flash quickly.

4.9 Man/Slope set button

a) In horizontal working status

4

				X LED light, X axis in slope mode. Y axis is auto-leveling
First press	Single-axis Slope in slope mode	Slope LED is on	Press the key X/Y on remote control to choose the slope direction on X/Y direction. Then press ▲ ▼ to adjust the slope value	Y LED light, Y axis in slope mode. X axis is auto-leveling
Second press	Double-axis slope in Man mode	Man LED is on		X LED light, X axis in slope mode. Y axis is quiescent
				Y LED is light, Y axis in slope mode. X axis is quiescent
Third press	Slope mode is off, enter normal mode			

b) In vertical working status

First press	Single-axis Slope in slope mode	Slope LED is on	X LED light, X axis in slope mode. Z axis is auto-leveling
Second press	Double-axis slope in Man mode mode	Man LED is on	Press the key On the remote control to choose the slope direction on X/Z, then press to adjust the slope value X/Y ▲ ▼	X LED light, X axis in slope mode. Z axis is quiescent
				Z LED light, Z axis in slope mode. X axis is quiescent
Third press	Slope mode is off, enter normal mode		

c) When the instrument enters the slope mode, it will keep VWS mode and TILT mode.

d) When the instrument enters the Man mode, it will exit the VWS mode and TILT mode. Press the TLIT mode key or VWS mode key, the instrument will exit the Man mode and enter the auto-leveling mode.

4.10 Remote shield button

Press this key, remote shield LED light, the instrument could not receive the remote signal, Press this key again, LED is extinguished and instrument could receive the remote signal again.
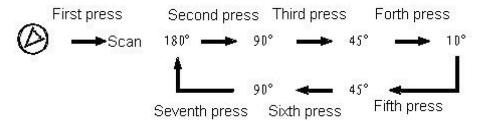
4.11 Remote Keypad

Slope adjustment button

Slope adjustment axis direction selection button

Area scanning/dot move clockwise or anti-clockwise

Area scanning function

Power LED

Rotation speed set button

Remote control sleep button

a) In Man/Slope mode, press slope adjustment button on remote control, adjust the tilt angle of laser plane (or line).
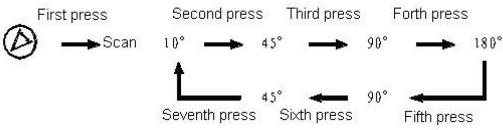
b) **Area scanning function button**

In rotation status, press the area scanning function button on remote control, the instrument will enter area scanning status, the area scanning angle is 180°. Press this button again, it will change as follows,

When the rotation speed is 0, press the area scanning function button on remote control, the instrument will enter area scanning status, area scanning angle is 10°, continue pressing this button, it wil change as follows,

c) **Area scanning/dot move clockwise or anti-clockwise**

In area scanning status, press area scanning dot move clockwise or anti-clockwise button, when move anti-clockwise, single press to move slowly, lone press to move quickly.

In dot status, press area scanning dot move clockwise or anti-clockwise button, single press to move slowly, lone press to move quickly.
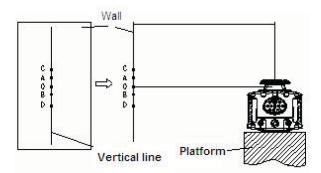
5. Self-check and calibration

Users should make a self-Check and calibration after using the instrument for a period or before implementing a big project. If the accuracy is beyond range, the users can do the check and calibration according to the method below.

5.1 Accuracy check

(1)Set a platform in a room which is 20m far way from the wall, put the instrument on the platform, and take the X axis face to the wall.

(2)Power on and after the instrument is auto-leveled, mark the laser line which is on the wall as sign A, and make a vertical line from sign A.

(3)Rotate the instrument by 90 degree in turn, after the instrument is auto-leveled, mark the intersection point between the laser line and the vertical line as sign B, C, and D.

(4)Measure the maximal distance between two points which amount point A, B, C, D.

If h≤3mm, the accuracy is OK; If 3mm< h≤20mm, the accuracy is beyond tolerance, it need to be calibrated; If h>20mm, the accuracy is beyond tolerance, user must contact with seller for service.

5.2 Accuracy calibration

According to the test result of instrument accuracy check, mark a sign "O" at the place h/2(in the middle of the highest point and the lowest point among A, B, C, D).
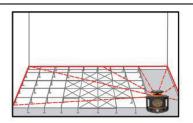
(1) Enter the calibration mode

a, Turn off the instrument, take the X axis of the instrument to face the wall

b, Press the Man/Slope mode key together with power on key, then release the power on key and hold on pressing the Man/Slope mode key until the X, Y, Z three LED flashing three times. Then release the Man/Slope mode key and the instrument enters the calibration mode, keep rotating.

(2) X-axis calibration

a, press the self-calibration axis selecting key on the remote control, the X direction calibration LED flash, instrument enter the X direction calibration mode.

b, Press the self-calibration adjustment key on the remote control, make the laser line move up and down until coincident with the point O.

(3) Y-axis calibration

a, In calibration mode, rotate the instrument 90 degree to make Y axis face to the wall.

b, Press the self-calibration axis selecting key on the remote control, the Y direction calibration LED flash, instrument enter the Y direction calibration mode.

c, Press the self-calibration adjustment key on the remote control, make the laser line move up and down until coincident with the point O.
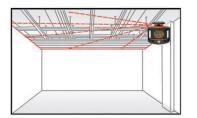
(4) Calibration confirmation

When the calibration of X direction and Y direction are all finished, please press self-calibration confirmation key, the calibration LED closed, calibration value is saved, and instrument exit the calibration mode.
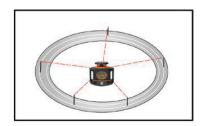
Note: In order to make the said calibration effective, you must power off the instrument after the said calibration, and then power on it again.
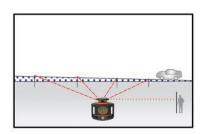
Y-axis accuracy check is a necessity after X-axis calibration, and X-axis accuracy check is also a necessity after Y-axis calibration. Instrument self-calibration will not be fulfilled until both X-axis and Y-axis accuracy meet the requirement.
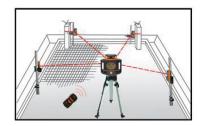
6. Applications

7. Technical Specifications

Item	Data
Laser wave	Red Beam :635nm, Green Beam :520nm
Laser class	Class Ⅱ/Ⅲ
Output range	Red Beam ：600m， Green Beam 400m
Rotary speed	High（800±100 rpm） Low（300±100 rpm） Speed is 0
Accuracy	±0.075mm/m
Auto-leveling range	±5°
Temperature	-10℃～+45℃
IP class	IP66
Power	3* C batteries or rechargeable Li battery pack
Low voltage indication	Power LED flash
Size	219mm×160mm×202mm
Weight	2.4Kg

8. Maintenance

※　The instrument should be carefully operated and properly preserved, and any violent shock or falling will possibly result in the damage of instrument.

※　Do not attempt to disassemble the instrument, and the unprofessional disassembly will result in the damage of instrument.

※　Keep the cleanness of instrument, especially the laser output window, and remove dust by the gentle operation of soft clean cloth.

※　Take the batteries out when the instrument is not in use for a long time, and keep the instrument in the carrying case when it is unused.

※　Avoid being wet with water and rain.