

JOHNSON[®]

Self-Leveling Rotary Laser with GreenBrite[®] Technology Model No. 40-6543



Instruction Manual

Congratulations on your choice of this Self-Leveling Rotary Laser with GreenBrite[®] Technology. We suggest you read this instruction manual thoroughly before using the laser. Save this instruction manual for future use.

This laser emits one rotating laser beam plus one plumb beam and is ideal for laying out indoor construction projects.

This is a Class IIIa laser tool and is manufactured to comply with CRF 21, parts 1040.10 and 1040.11 as well as international safety rule IEC 285.



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1. Kit Contents

Description	Qty.
Self-Leveling Rotary Laser with GreenBrite® Technology	1
Ni-MH Rechargeable Battery Pack	1
6.4V Battery Adapter	1
Alkaline Battery Compartment (batteries not included)	1
Remote Control with 9V Battery	1
Wall/Ceiling Mount	1
Magnetic Target	1
Tinted Glasses	1
Instruction Manual with Warranty Card	1
Hard-Shell Carrying Case	1

2. Features and Functions

- Green beam is 400% more visible than red beam lasers
- Self-leveling in the horizontal plane
- Locking mechanism protects inner pendulum during transportation
- Manual-leveling in the vertical plane with 90° split beam
- Range-scan modes include dot and two adjustable line lengths
- Visual and audible alarms when beyond leveling range
- Dust and rain resistant





3. Safety Instructions

Please read and understand all of the following instructions, prior to using this tool. Failure to do so, may void the warranty.

DANGER!

Class IIIa Laser Product
Max. Power Output: $\leq 5\text{mW}$
Wavelength: 522-542nm

**THIS TOOL EMITS LASER RADIATION.
DO NOT STARE INTO BEAM.
AVOID DIRECT EYE EXPOSURE.**



ATTENTION



IMPORTANT

- Read all instructions prior to operating this laser tool. Do not remove any labels from tool.
- Do not stare directly at the laser beam.
- Do not project the laser beam directly into the eyes of others.
- Do not set up laser tool at eye level or operate the tool near a reflective surface as the laser beam could be projected into your eyes or into the eyes of others.
- Do not place the laser tool in a manner that may cause someone to unintentionally look into the laser beam. Serious eye injury may result.
- Do not operate the tool in explosive environments, i.e. in the presence of gases or flammable liquids.
- Keep the laser tool out of the reach of children and other untrained persons.
- Do not attempt to view the laser beam through optical tools such as telescopes as serious eye injury may result.
- Always turn the laser tool off when not in use or left unattended for a period of time.
- Remove the batteries when storing the tool for an extended time (more than 3 months) to avoid damage to the tool should the batteries deteriorate.
- Do not attempt to repair or disassemble the laser tool. If unqualified persons attempt to repair this tool, warranty will be void.
- Use only original Johnson® parts and accessories purchased from your Johnson® authorized dealer. Use of non-Johnson® parts and accessories will void warranty.



4. Location/Content of Warning Labels



DANGER

**LASER RADIATION
AVOID DIRECT EYE
EXPOSURE.**

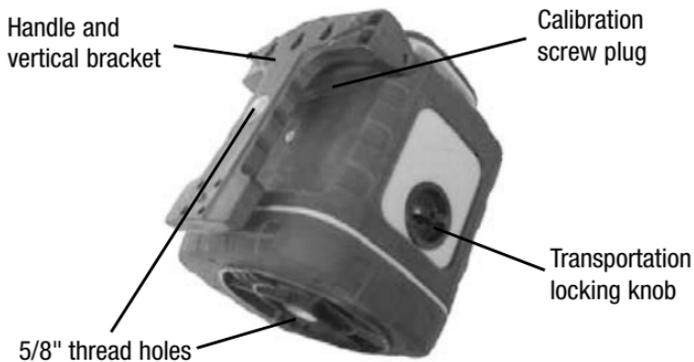
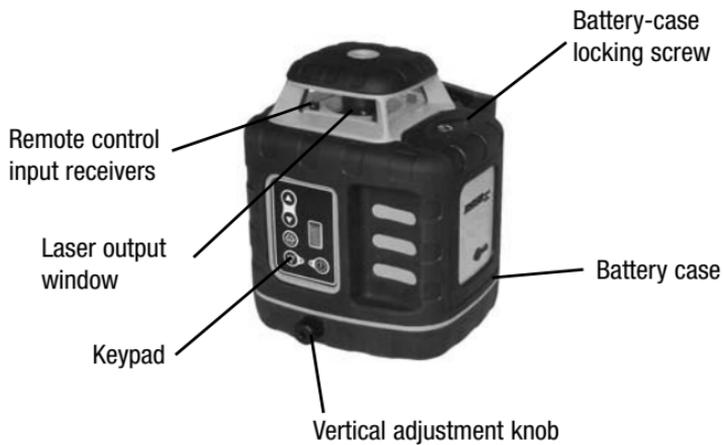
 **MAXIMUM OUTPUT POWER**
≤ 5mW @ 522-542nm

**CLASS IIIa LASER PRODUCT.
THIS PRODUCT COMPLIES WITH
THE APPLICABLE REQUIRE-
MENTS OF 21 CFR PARTS
1040.10 & 1040.11**

Mfg. for Johnson Level & Tool Mfg. Co., Inc.
6333 W. Douglas Bay Rd. Allouez, WI 53002
Manufactured in China by JLT05
Date (m/y): _____



5. Location of Part/Components



6. Operating Instructions

IMPORTANT: It is the responsibility of the user to verify the calibration of the instrument before each use.

Battery Installation

Note: Always check to be sure that the on/off switch is in the off position before removing and replacing batteries.

Usage for Rechargeable & Alkaline Battery Cases

1. Put 4 “C” alkaline batteries into the battery case according to the polarity indication shown in the battery case.
2. Put the battery case on the laser and tighten the locking screw.
3. If using the rechargeable battery pack, put the battery box on the laser and tighten the locking screw.

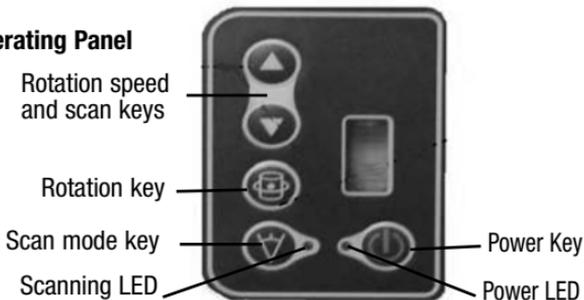


Note:

- When you change the new battery or one which has not been used for long periods of time, it may not reach full charge until after you have discharged it fully in use and recharge several times.
- The instrument will still work even if it is being charged with the adapter.
- Do not charge alkaline batteries.
- Used (discharged) batteries are hazardous waste and should be disposed of properly.

7. Using the Product

Operating Panel



1. Power Key

- Press this key to turn on and off the power.  The locking mechanism must be set in the unlock position to turn laser on in the horizontal mode.

2. Power LED

- When the LED is lit the unit is connected to the power
- When the LED is off the unit is not receiving power
- When the LED is flashing the battery is low

3. Scanning LED

- When the LED is lit the unit is in rotation mode
- When the LED is flashing the unit is in scan mode

4. Scan mode key

- With the first press of this button, the laser emits a short laser line. 
- With a second press of this button, the laser emits a longer laser line.
- With a third press of this button, the laser emits a laser dot.

5. Rotation key

Press this key, the laser will rotate at its highest speed



6. Rotation speed and scan keys

In rotation mode

- Press the up arrow to increase rotation speed
- Press the down arrow to decrease rotation speed



In scan mode

- Press the up arrow to rotate the scan counterclockwise
- Press the down arrow to rotate the scan clockwise

Out of level alarm

Set the lock knob to the unlocked position. Turn the power on and the laser will self-level. During the process of self-leveling, if the laser is tilted to exceed its self-leveling range, it will stop rotating and the unit will produce a sound alarm.

Transportation lock knob operation

When the lock knob is turned to "ON", the compensator is unlocked.
When the lock knob is turned to "OFF", the compensator is locked.



Use on a platform



Connected to a
5/8" x 11 tripod

Usage for Horizontal Application

1. Put in the Ni-MH battery pack or alkaline batteries, or connect with 6.4V DC power through power jack.

2. Place the laser on a platform or tripod, connect to the tripod using the 5/8" thread at the bottom of laser.

Note: If the laser is inclined beyond its self-leveling range, with transportation locking knob in the on position, the laser will deliver an audible alarm. Re-position the laser until level.

3. Rotate transportation locking knob counter-clockwise to "ON", then turn power on. Press the keys on control panel or remote control to adjust to your desired working status.
4. After finishing operation or before moving the laser, turn power off and return locking knob to the "OFF" position.

Note: If transportation locking knob is not turned to the lock position it will deliver an audible alarm when the unit is returned to its case.

It is important that the locking knob is turned to the locked position prior to returning the unit to its case.



Note: Remote control operating panel is similar to laser operating panel.

Usage for vertical application

IMPORTANT: Keep the transportation “Locking Knob” in the “Locked/Off” position.

1. Install batteries/battery pack as previously discussed.
2. Set the laser down on its vertical bracket.
3. Turn on the power by pressing the Power Key. The vertical vial will now be backlit.
4. Turn the vertical “Adjusting Knob” until the vertical vial bubble is centered.
5. Select the work state that you need by pressing the buttons on the operating panel or remote control.
6. Power the laser off when you finish work and keep the transportation lock in the locked/off position.



Use on a platform

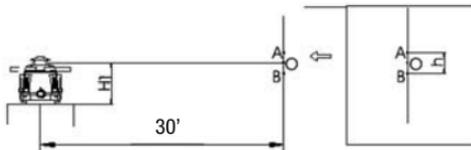


Connected to a
5/8" x 11 tripod



8. Self-Check & Fine Calibration

IMPORTANT: It is the responsibility of the user to verify the calibration of the instrument before each use.



X-Direction Accuracy Self-Check

1. Place the unit on a platform that is 30 feet away from a wall, with the battery case facing towards the wall. Turn the locking knob to “ON”, power on the unit in the high-speed rotating status.
2. Draw a vertical line on the wall, and mark the intersection between the laser line and the vertical line as point A. Note this test should be done indoors with dim lighting. It’s critical that the laser beam is easily seen.
3. Turn the instrument 180 degrees, mark point B on the wall at the intersection of the laser beam and vertical line. Also mark the center between point A and point B as point O.
4. Measure the vertical distance (h) between point A and point B.
5. If $h \leq 0.118"$, accuracy is within specification. If not, the accuracy is beyond the specification. If beyond the specification, the unit can be calibrated as follows.





X-Direction Accuracy Calibration

1. Turn the lock knob to the "OFF" position.
2. Remove the rubber plug from the X-direction self-calibration aperture inside the battery compartment. Adjust the weight screw inside the instrument core with a flathead screwdriver.
3. If point A is above point O, rotate the screwdriver counterclockwise. If point A is under the point O, rotate the screwdriver clockwise. (Rotating the screwdriver 1 rotation will adjust the laser line 1mm).
4. Check the accuracy again following the X direction accuracy self-check. If the accuracy is still beyond specification, readjust the weight screw again until the accuracy is correct.

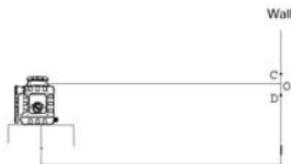


X-direction Self-calibration aperture



Y-Direction Accuracy Self-Check

1. Rotate the instrument 90 degrees and place it on the platform.
2. Check the accuracy of Y-direction with the same method as that of X-direction (mark the point as C and D).
3. If the accuracy is beyond specification the unit can be calibrated as follows.





Y-Direction Accuracy Calibration

1. Turn the lock knob to the “OFF” position.
2. Screw off the Y-direction self-calibration aperture bolt located behind the handle. Adjust the weight screw inside the instrument core with a flathead screwdriver.
3. If point C is above the point O, rotate the screwdriver counterclockwise. If point C is under the point O, rotate the screwdriver clockwise.



Note: After the unit is checked in one direction, check the other direction, until the accuracy of the two directions are both within specification.

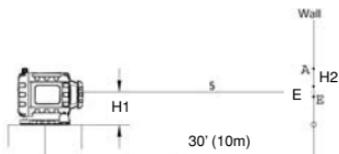
Note: If adjusting screws bottom out and unit is still not calibrated in X or Y axis, unit will need to be sent in for servicing.

Note: Install the self-calibration aperture screw and rubber stopper after finishing the accuracy self-check and calibration.





Accuracy Self-check in vertical status



1. Follow the operations as shown above, and measure the distance “H1” between the laser rotating plane and the platform surface.
2. Set the locking knob to “OFF” position, and place the instrument in vertical position.
3. Rotate the vertical adjusting knob to center the bubble.
4. Measure the distance “H2” between the top laser beam and the platform surface.
5. Mark E in the position that is equal to (H1-H2) under the point O.
6. Adjust the adjusting knob to make the laser beam aim at E.
7. Check the bubble to see if it is centered. If it is not yet - instrument will need to be sent in for calibration.





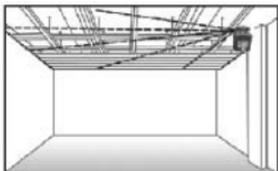
9. Technical Specifications

Laser Wavelength	532nm±10nm
Laser Classification	Class IIIa
Maximum Power Output	≤5mW
Accuracy	±1/8"/100 ft. (±1mm/10m)
Interior Range	Up to 400 ft. (120m) diameter depending upon light conditions
Exterior Range	Up to 1,200 ft. (400m) diameter with detector (not included)
Remote Range	Up to 200 ft. (60m) diameter
Self-Leveling Range	±3.5°
Power Supply	NiMH rechargeable battery pack, 6.4V adapter (included) 4 "C" alkaline batteries (not included)
Battery Life	Approx. battery life 16 hours continuous use (rechargeable battery pack); 15 hours with alkaline batteries
Dimensions	7.087" x 6.378" x 7.953" (180 x 162 x 202mm)
Weight	4.409lbs (2kg)
Working Temperature	32°F to 104°F (0°C to +40°C)
Center screw thread	5/8" – 11
Scanning Modes	0, 30°, 60°
Rotation Speed	150, 200, 250, 300 rpm
IP Protection Class	66

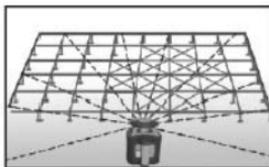




10. Application Demonstrations



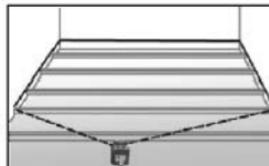
Plumb reference for ceiling installation



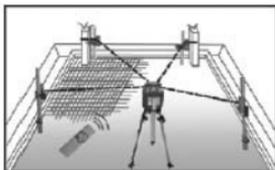
Reference for anti-static flooring installation



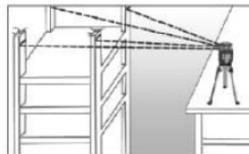
Reference for window installation



Reference for flooring



Reference for squaring and leveling



Reference for cement floor installation





11. Care and Handling

- This laser unit is a precision tool that must be handled with care.
- Avoid exposing unit to shock vibrations and extreme temperatures.
- Before moving or transporting the unit, make sure that the unit is turned off.
- Remove the batteries when storing the unit for an extended time (more than three months) to avoid damage to the unit should the batteries deteriorate.
- Always store the unit in its case when not in use.
- Avoid getting the unit wet.
- Keep the laser unit dry and clean, especially the laser output window.
Remove any moisture or dirt with a soft, dry cloth.
- Do not use harsh chemicals, strong detergents or cleaning solvents to clean the laser unit.

12. Product Warranty

Johnson Level & Tool offers a three year limited warranty on each of its products. You can obtain a copy of the limited warranty for a Johnson Level & Tool product by contacting Johnson Level & Tool's Customer Service Department, as provided below, or by visiting our web site at www.johnsonlevel.com. The limited warranty for each product contains various limitations and exclusions.

Do not return this product to the store/retailer or place of purchase. Non-warranty repairs and course calibration must be done by an authorized Johnson® service center or Johnson Level & Tool's limited warranty, if applicable, will be void and there will be NO WARRANTY. Contact one of our service centers for all non-warranty repairs. A list of service centers can be found on our web site at www.johnsonlevel.com or by calling our Customer Service Department. Contact our Customer Service Department for Return Material Authorization (RMA) for warranty repairs (manufacturing defects only). Proof of purchase is required.





NOTE: The user is responsible for the proper use and care of the product. It is the responsibility of the user to verify the calibration of the instrument before each use.

For further assistance, or if you experience problems with this product that are not addressed in this instruction manual, please contact our Customer Service Dept.

In the U.S., contact Johnson Level & Tool's Customer Service Department at 888-9-LEVELS.

In Canada, contact Johnson Level & Tool's Customer Service Department at 800-346-6682.

13. Warranty Registration

Enclosed with this instruction manual you will find a warranty registration card to be completed for your product. You will need to locate the serial number for your product that is located on the bottom of the unit.

PLEASE NOTE THAT IN ADDITION TO ANY OTHER LIMITATIONS OR CONDITIONS OF JOHNSON LEVEL & TOOL'S LIMITED WARRANTY, JOHNSON LEVEL & TOOL MUST HAVE RECEIVED YOUR PROPERLY COMPLETED WARRANTY CARD AND PROOF OF PURCHASE WITHIN 30 DAYS OF YOUR PURCHASE OF THE PRODUCT OR ANY LIMITED WARRANTY THAT MAY APPLY SHALL NOT APPLY AND THERE SHALL BE NO WARRANTY.





14. Accessories

Johnson® accessories are available for purchase through authorized Johnson® dealers. Use of non-Johnson® accessories will void any applicable limited warranty and there will be NO WARRANTY. If you need any assistance in locating any accessories, please contact our Customer Service Department.

In the U.S., contact Johnson Level & Tool's Customer Service Department at 888-9-LEVELS.

In Canada, contact Johnson Level & Tool's Customer Service Department at 800-346-6682.



