



**Electronic Self-Leveling Rotary Laser Level
with Integral Vertical Mount
Model No. 40-6522**



Instruction Manual

Congratulations on your choice of this Electronic Self-Leveling Rotary Laser Level with integral vertical mount. We suggest you read this instruction manual thoroughly before using the instrument. Save this instruction manual for future use.

This tool emits one rotating laser beam plus one plumb beam and is ideal for laying out indoor or outdoor construction projects. Since the product is equipped with a laser beam detector, visibility of the beam in various lighting conditions is not an issue.

This is a Class IIIa laser tool and is manufactured to comply with CFR 21, parts 1040 .10 and 1040 .11 as well as international safety rule IEC 285.



Table of Contents

- | | |
|--|----------------------------------|
| 1. Kit Contents | 8. Self-Check & Fine Calibration |
| 2. Features and Functions | 9. Technical Specifications |
| 3. Safety Instructions | 10. Application Demonstrations |
| 4. Location/Content
of Warning Labels | 11. Care and Handling |
| 5. Location of Parts/Components | 12. Product Warranty |
| 6. Operating Instructions | 13. Warranty Registration |
| 7. Using the Product | 14. Accessories |

1. Kit Contents

Description Model No. 40-6522

	<u>Qty.</u>
Electronic Self-Leveling Rotary Laser Level with Integral Vertical Mount	1
Ni-MH Rechargeable Battery Pack	1
6V Battery Adapter	1
Remote Control with 9V Battery	1
Detector with 9V Alkaline Battery and Clamp	1
Magnetic Target	1
Tinted Glasses	1
Instruction Manual with Warranty Card	1
Hard-Shell Carrying Case	1





2. Features and Functions

- Large electronic self-level range: The unit works when within $\pm 5^\circ$. When beyond the $\pm 5^\circ$ leveling range, the laser line flashes, rotation of the beam stops, and an audible alarm activates.
- Vertical and horizontal working modes: electronic self-leveling in both horizontal and vertical mode with one rotating laser beam and one 90° split beam.
- Two rotational speeds: 120 and 500 rpm
- Scan function adjusts the scan line size and scan direction.
- Out-of-level alarm ensures the working accuracy.
- Fine self-calibration function
- Detector and remote control are included to make the laser ideal for all outdoor and indoor applications.
- Slope function allows the user to perform slope in both X & Y axis.
- 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: 625-645nm

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

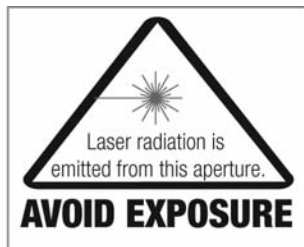


**ATTENTION****IMPORTANT**

- 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.

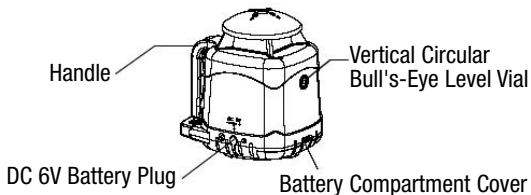
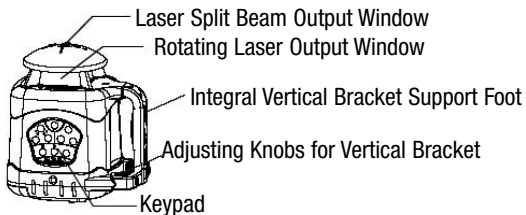


4. Location/Content of Warning Labels





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.

Notes:

- Always check to make sure that the on/off switch is in the off position (when power indicator lamp is not lit) before removing and replacing batteries.
- Both Ni-MH and "C" alkaline batteries (not included) can be used in the unit's battery compartment.
- Unit ships with Ni-MH battery packs installed.





Alkaline Battery Installation

1. Remove battery compartment cover by loosening the bolt with a slotted screwdriver or a coin. Remove the Ni-MH battery packs from the chambers inside the battery compartment, making sure to disconnect the two-pin connectors. Then, insert 4 - "C" alkaline batteries into the chambers, noting polarity as shown on chamber bottoms or cover of battery compartment.

Notes:

- When the battery case is filled with "C" alkaline batteries, the power adapter should not be used to charge these batteries.
- Used (discharged) batteries are hazardous waste and should be disposed of properly.

Charging Ni-MH Rechargeable Batteries

1. Remove black rubber plug above the battery compartment cover and insert the 6V battery adapter. Plug adapter into 110V AC wall socket to begin charging. When the charge indicator lamp turns from red to green (after approximately five hours), the Ni-MH rechargeable battery pack has been fully charged.

Note:

- (1) For the first two charges of new rechargeable batteries, it is necessary to charge for 12 plus hours, run unit until empty and recharge again for another 12 plus hours.
- (2) The unit can still work during charging with the adapter.
- (3) Red light on laser indicates laser is charging. Green light indicates laser is fully charged.
- (4) Used (discharged) batteries are hazardous waste and should be disposed of properly.





Instrument Usage

1. Put in Ni-MH rechargeable battery pack, or 4 "C" alkaline batteries (not included), or connect the 6V DC battery adaptor to the unit's power jack.
2. Place the instrument on a platform or tripod, connecting with tripod to the 5/8" screw thread at the bottom of the instrument.
Note: If the instrument is inclined beyond the self-leveling range, the instrument will deliver an audible alarm. You will need to re-position the instrument inside of its self-leveling range.
3. Press power button to turn power on, and press operation buttons on control panel or use remote control to adjust to your desired working status.
4. After finishing operation or before moving the instrument, turn the power off.

7. Using the Product

Place the unit on a relatively level surface like a tripod, floor, etc during operation.

Operating Panels



Instrument Panel



Remote Control Panel

operating panel for calibration (located beneath the sliding nameplate panel of the remote control)





Power On/Off

1. Press the power button to power on. The power indicator lamp should light up and then the instrument will automatically level itself, with rotation occurring once the unit is level.
2. Press the power button again to power off.
3. Pressing the red power button on the remote will power down the laser beam and rotating beacon, but does not power off the laser.

Low Battery Indicator

If the battery indicator lamp is blinking, it means the battery is low. To ensure operation, replace batteries or charge the rechargeable Ni-MH battery pack.



Alarm If Beyond Range

If the instrument is inclined beyond its auto-leveling range of $\pm 5^\circ$, it will deliver an audible alarm, rotation will stop and the laser beam will flash. You will need to re-position the instrument within its self-leveling range.

Height of Instrument (H.I.)

1. After powering on the instrument and entering into auto-level status, press the TILT button. When the indicator light is on (see figure), the instrument enters into TILT mode.
2. If the leveled instrument is moved or bumped, the head will stop rotation and the TILT indicator light and laser beam will flash.
3. Pressing the vial button on either the keypad of the laser or remote will allow the laser to relevel itself and the laser will stay in TILT mode.
4. Press the TILT button on the laser keypad again to exit TILT mode.





Speed Adjustment

After unit electronically self-levels, it rotates at its highest speed. Press the speed adjustment button (see figure) on either the laser keypad or remote to change the rotating speed.



Note: During the self-leveling sequence, this key is not functional.

Scan Mode

1. Press the scan mode button (see figure) on either the laser keypad or remote to activate scan mode.
2. With the second press of this button, the unit emits a shorter bright laser line.
3. With the third press of this button, the unit emits a bright laser point.
4. To return to rotating, press the speed adjustment button.



Rotating the Scan Line

1. Press the clockwise button on either the laser keypad or remote and the scan line moves to the right.
2. Press the counter-clockwise button and the scan line moves to the left.



Slope Mode

1. Press the slope mode button once (see figure) on either the laser keypad or remote to enter into the X-direction slope mode.
 - Press the button pointing to the left to shift the slope angle to the left.
 - Press the button pointing to the right to shift the slope angle to the right.





2. Press the slope mode button again to select Y-direction slope.
 - Press the button pointing to the left to shift the slope angle to the left.
 - Press the button pointing to the right to shift the slope angle to the right.
3. Another press of the slope mode button changes back to X-direction slope selection. Pressing and holding the button returns the unit to normal operation.

Notes:

- When the unit is in TILT mode, pressing the slope mode button will exit you from the TILT mode and into the slope mode.
- When using the unit in the vertical position, open the vertical bracket and place the silver vertical foot over the desired location. Adjust the vertical adjustment knobs to center the bubble in the circle. When using the slope mode in Y-direction the vertical beam can be moved to the left or right.

Timed Auto-off Function

Turn the unit on using the power button on the instrument keypad. Press the power button once on the remote control. The unit is now in sleep mode. The rotating beacon and laser beam will be powered down.

If the unit is in sleep mode for 30 continuous minutes, the unit turns off automatically. With a second press of the power button on remote control, the unit exits sleep mode and enters self-level mode.





Using the Integral Vertical Mounting Bracket

The integral vertical mounting bracket allows the unit to be used in the vertical position on a table or tripod.

To use the unit with the vertical mounting bracket:

1. Place the unit on its side flipping the vertical bracket on the handle up.
2. Adjust the two leveling knobs on the base of the vertical mounting bracket so that the bubble of the circular bull's-eye level vial (located on top of vertical mounting bracket) is centered.

Detector Usage

The 40-6715 laser detector is an indispensable accessory when using rotary laser levels. The main function of the detector is to detect the position of the laser signals that are transmitted by rotary lasers. This detection quickly and precisely provides the user with the horizontal and vertical references.

This product features high sensitivity, a double-faced display, low power consumption, good reliability and easy manipulation. It can be used with most types of rotating laser levels.

1. Technical Specifications

Detecting accuracy:	Fine: $\pm 0.039''$ (± 1 mm) Coarse 1: $\pm 0.098''$ (± 2.5 mm) when range ≥ 492 ft. (150m) Coarse 2: $\pm 0.394''$ (± 10 mm) when range ≥ 492 ft. (150m)
Automatic Shut-off:	6 minutes ± 1 minute
Power Supply:	9V battery, 30 hrs continuous use (with LCD illumination off)

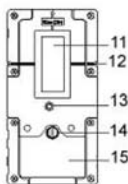
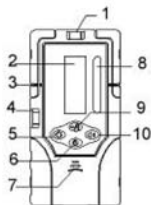




Sound indicator:	slow short beep, rapid short beep and continuous sound
LED display:	down arrow, up arrow, horizontal on grade bar
Dimensions:	6.30" x 3.35" x 1.10" (160 x 85 x 28mm)
Weight:	1 lb. (0.45kg)
Others:	Rain and dust resistant

2. Components

(a) Exterior Instruction

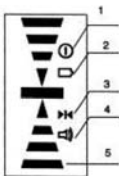


- 1) Horizontal vial
- 2) Front display window
- 3) Front on grade mark
- 4) Vertical vial
- 5) LED key
- 6) Power key
- 7) Beeper
- 8) Reception window
- 9) Fine/Coarse accuracy key
- 10) Beeper key
- 11) Back display window
- 12) Back on grade mark
- 13) Bracket screw thread
- 14) Battery cover screw
- 15) Battery cover





(b) Display



1. Power on symbol
2. Low battery indicator
3. Fine/Coarse symbol
4. Beeper symbol
5. Position indication arrows



Power Key: Turn on/off the power



Fine/Coarse Accuracy Key: Switch detecting accuracy



LED Key: Turn on/off the LCD's light



Volume Key: Cycles between high, low and off

3. Operation Guide

(a) Battery Installation

- Open the battery cover door by turning the battery cover screw counter-clockwise. Put the battery into the battery case noting the polarity shown in the battery compartment.
- Put the battery cover door back, and tighten the screw.

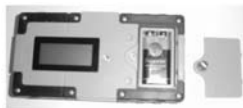


Figure 1

Note: 1) Remove the battery when the unit is being stored for a long time.
2) When the low battery indicator is displayed, change the battery soon.





4. Operating Instructions

Power On

Press the power key to turn the unit on. The LCD display will illuminate all the indicator segments for 0.5 second (Fig.2). When the indicator segments are no longer illuminated, the detector is ready for use.

Note: The LCD display will still have the power, detection and sound indicators illuminated (Fig. 3).



Figure 2

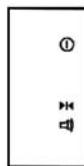


Figure 3

Fine/Coarse accuracy key

Power on and press the fine/coarse accuracy key, the unit will cycle between three accuracy options: fine, coarse 1, coarse 2. The accuracy symbol displayed on the LCD will change.



Fine



Coarse 1



Coarse 2

Volume Key

Power on and press the volume key, the unit will cycle between a high sound, low sound and mute. The sound symbol displayed on the LCD will change accordingly.



High sound



Low sound



Mute

Note: There will be two beeps when turning the unit on and off. There will be one beep when changing functions.



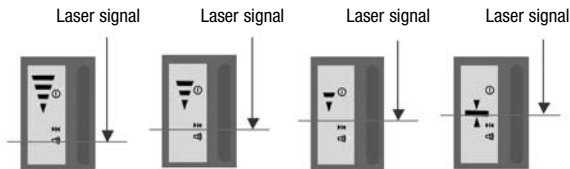


Detecting Laser Level Signals

While detecting laser signals, the LCD will display as follows: (take the set-up state of high sound and fine detection as an example)

The laser signal is down	The laser signal is up	Horizontal bar indicated on-grade	No laser signal is detected
Sound: rapid short beeps	Sound: slow short beeps	Sound: continuous sound	Sound: no sound

When the laser signal is near the on-grade mark, the displayed up and down arrows will decrease as the distance to the on-grade mark decreases.



1. When detecting a horizontal laser signal, it is important to have the bubble vial centered, as the deflection of the receiver will influence its receiving accuracy.





2. When detecting a vertical laser signal, it is important to have the bubble vial centered, as the deflection of the receiver will influence its receiving accuracy.
3. Keep the reception window facing the laser while detecting.
4. Hold the unit stable while detecting.



LED Function

Power on and press the LED key, the LCD will now be backlit.

Automatic Shut-off Function

When the unit does not receive a laser signal for 6 minutes, the unit will power off automatically.

Low Battery Display Function

When the battery sign blinks on the LCD, the battery is low and needs to be replaced. If the battery is very low, the unit will power off automatically. Replace the battery.



Rod Clamp

Connecting to the rod clamp.



Connecting to the grade rod.



5. Detector Maintenance

- Keep the unit, particularly the reception window, clean. If it does get dirty, use a cloth to wipe it clean.





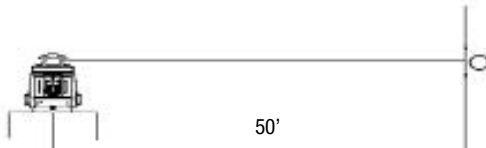
8. Self-Check & Fine Calibration

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

The instrument must be self-checked before operation. If the accuracy is found beyond tolerance, user can make adjustment according to directions as follows.

X & Y-Direction Accuracy Self-Check

1. Note the X & Y-direction on top of the laser.
2. Place the unit on a platform or tripod that is 50' away from a wall indoors, with the X-direction facing the wall head-on. Turn the unit on.
3. Using the detector mark on the wall where the beam hits the wall and mark that as A.
4. Turn the instrument by 180 degrees and mark the beam as point B.
5. Measure the vertical distance between point A and point B. If A & B are more than 1/32" apart at 50', the unit is out of calibration.
6. Turn the instrument by 90° and place it on the platform, with the Y-direction facing the wall. Perform Y-direction self-check with the same method as X-direction self-check, and mark point C and point D by turns.






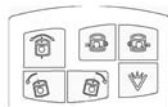


7. If point C and point D are within 1/32" at 50', the accuracy is within tolerance.

Fine Calibration Using the Remote Control

The following procedure is only valid when adjusting out errors that are less than 1/2" over 100ft. Errors larger than 1/2" at 100ft. must be done by a qualified technician. Reference section 12 for further information.


1. Access calibration mode by simultaneously pressing the Power button  and the TILT button .
2. While continuing to hold the TILT button, release the Power button.
 - When releasing the Power button, all red LED's on the unit's keypad display will light up. After about 10 seconds, all LED's except the power LED will go off.
3. Release the TILT button.
 - Note that the rotating head of the laser is not rotating, but the laser is flashing. The unit is now in calibration mode and all other operations will be performed with the unit's remote control.
4. Open the lower cover of the remote control to access the operation panel for the calibration.
 - Multiple presses of the X/Y button  toggles calibration control between the X-axis, Y-axis and Z-axis (as indicated via the s, y, and z Calibrator LED's located on the instruments keypad.





- Once the desired axes has been selected, the UP arrow and DOWN arrow buttons are used to adjust the position of the laser plane.


X-Axis Calibration

1. Place the unit into calibration mode as discussed above.
2. Position the unit so that the X-axis is directed to the two targets.
3. Press the  button on the remote control to toggle calibration control to the X-axis.
4. Press the UP arrow and DOWN arrow buttons, respectively to adjust the laser height to coincide with the zero position of the target.
5. Press the ENTER button on the remote control to accept the calibration value, noting that the status indicator goes "OFF".
6. After calibration is completed, make sure to power off the unit and then power on again to activate the calibration.


Y-Axis Calibration

1. Place the unit into calibration mode as discussed above.
2. Position the unit so that the Y-axis is directed to the two targets.



3. Press the  button on the remote control to toggle calibration control to the X-axis.
4. Press the UP arrow and DOWN arrow buttons, respectively to adjust the laser height to coincide with the zero position of the target.
5. Press the ENTER button on the remote control to accept the calibration value, noting that the status indicator goes "OFF".
6. After calibration is completed, make sure to power off the unit and then power on again to activate the calibration.

Z-Axis Calibration

1. Place the unit into calibration mode as discussed above.
2. Position the unit so that the Z-axis is directed to the two targets.
3. Press the  button on the remote control to toggle calibration control to the X-axis.
4. Press the UP arrow and DOWN arrow buttons, respectively to adjust the laser height to coincide with the zero position of the target.
5. Press the ENTER button on the remote control to accept the calibration value, noting that the status indicator goes "OFF".
6. After calibration is completed, make sure to power off the unit and then power on again to activate the calibration.





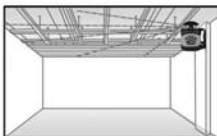
9. Technical Specifications

Laser Wavelength	635nm±10nm
Laser Classification	Class IIIa
Maximum Power Output	≤5mW
Accuracy	±1/16"/100 ft. (±1.5mm/30m)
Interior Range	Up to 200 ft. diameter (60m) depending upon light conditions
Exterior Range	Up to 2000 ft. diameter (600m) with detector
Remote Range	Up to 200 ft. diameter (60m) with remote
Slope	±8°
Self-Leveling Range	±5°
Power Supply	Rechargeable NiMH battery pack, or 6V adapter (included) 4 - "C" alkaline batteries (not included)
Battery Life	Approx. battery life 15 hours continuous use with rechargeable battery pack, 20 hours with 4 "C" alkaline batteries
Dimensions	5.75" x 7.75" x 7.625" (146 x 197 x 194mm)
Weight	4.4 lbs. (2 Kg)
Working Temperature	14°F to 113°F (-10°C to +45°C)
Center Screw Thread	5/8" – 11
Rotation Speeds	120 and 500 rpm
Scanning Modes	0°, 30°, 60°
IP Protection Class	66

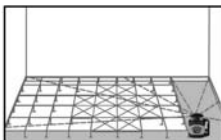




10. Application Demonstrations



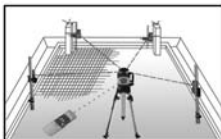
Plumb reference for ceiling installation



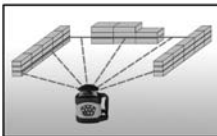
Reference for flooring installation



Reference for window installation



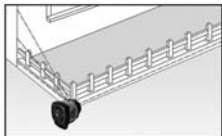
Reference for squaring and leveling



Reference for retaining wall installation



Reference for cement floor installation



Reference for fence



Reference for trim installation and locating ceiling fixtures





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.

