



**Self-Leveling Cross-Line Laser**  
**Model Nos. 40-6650, 40-6656 & 40-6657**



# Instruction Manual

*Congratulations on your choice of this Self-Leveling Cross-Line Laser. We suggest you read this instruction manual thoroughly before using the instrument. Save this instruction manual for future use.*

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.



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## 1. Kit Contents

<b>Description for Model 40-6650, 40-6656 &amp; 40-6657</b>	<b>Qty.</b>
Self-Leveling Cross-Line Laser Level	1
Multi-Functional Elevating Magnetic Bracket	1
“AA” Alkaline Batteries	3
Mounting Strap	1
Instruction Manual	1
Soft-Sided Pouch (40-6650 & 40-6656)	1
Hard-Shell Carrying Case (40-6657)	1

## 2. Features and Functions

- Able to project one horizontal, vertical or cross-line laser beam, separately or simultaneously.
- Magnetic dampening compensation system.
- Self-leveling with a laser flash alarm when beyond leveling range.
- Multi-functional elevating magnetic bracket is included to allow the laser to hang on a wall, attach to metal, or connect to tripod (5/8" -11 or 1/4" -20).
- Includes adjustable strap for attachment to pipe or conduit.





### 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.

#### 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.

40-6650

**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.**



40-6656 & 40-6657

**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.**



## 4. Location/Content of Warning Labels



**40-6650**

**40-6656 & 40-6657**

**DANGER**

**LASER RADIATION  
AVOID DIRECT EYE  
EXPOSURE.**

MAXIMUM OUTPUT POWER  
< 5mW @ 625-645nm

CLASS I(a) LASER PRODUCT  
THIS PRODUCT COMPLES  
WITH THE APPLICABLE  
REQUIREMENTS OF 21CFR  
PARTS 1040.10 & 1040.11.

Mfg. for Johnson Level & Tool Mfg. Co., Inc.  
6333 W. George Way Hi. Menasha, WI 53002  
Manufactured in China by JLT05  
Date (m/y): \_\_\_\_\_

**DANGER**

**LASER RADIATION  
AVOID DIRECT EYE  
EXPOSURE.**

MAXIMUM OUTPUT POWER  
< 5mW @ 522-542nm

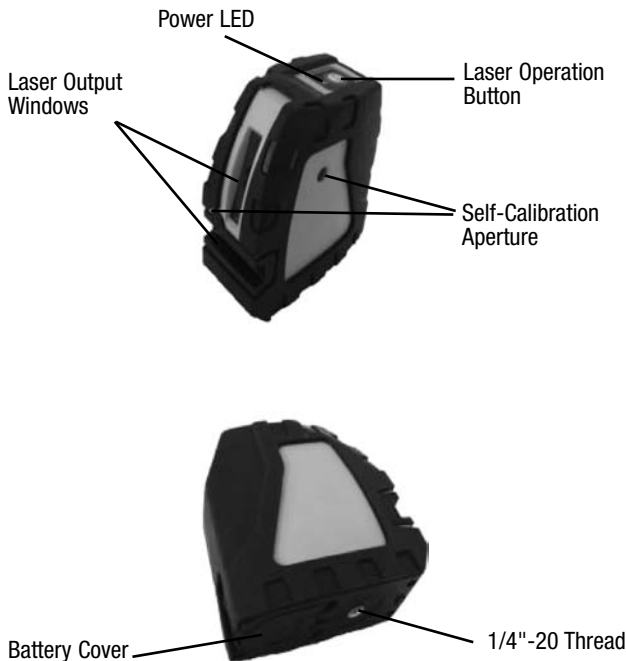
CLASS I(a) LASER PRODUCT  
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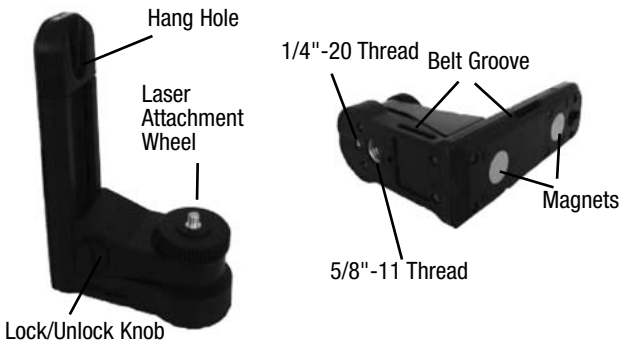


## 5. Location of Part/Components

### Instrument



## Multi-Functional Elevating Magnetic Bracket



## 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 power is off before removing and replacing batteries.

1. Open the battery cover and put in three “AA” batteries according to the illustrated polarity direction.

**Note:**

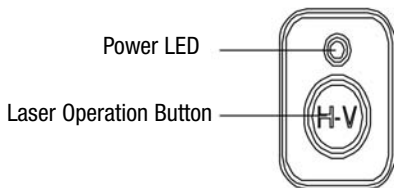
- Pay attention to the polarity of the batteries.
- Used (discharged) batteries are hazardous waste and should be disposed of properly.



## 7. Using the Product

This bracket was specially designed for more extensive adaptability of the laser. The bracket can be connected with a standard tripod by 5/8"-11 thread and a 1/4"-20 camera tripod. With the use of the bracket, the laser can be freely rotated, hung on the wall, attached to a metal plate, or bound on staff or pipe with use of its strap. Attach the laser to the bracket using the laser attachment wheel on the bracket.

### Operation Keypad




#### Power LED

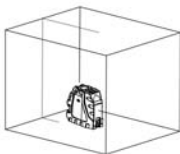
ON (green): power is on

OFF: power is off

ON (red): low battery


#### Laser Operation Button

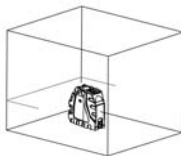
Press  once for the vertical line only.




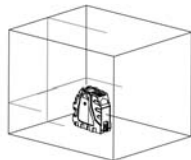





Press  a second time for the horizontal line only.



Press  a third time for both the horizontal and vertical line simultaneously.



Press  a fourth time to turn both the horizontal and vertical line off.





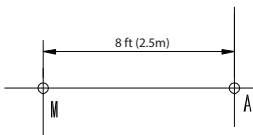
## 8. Calibration

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

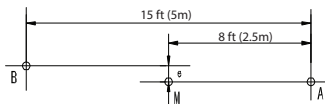
### Horizontal Line Transverse Accuracy Check

Transverse accuracy refers to the accuracy of the horizontal laser beam projected along the wall, and ensures the beam is level from left to right

1. Set the instrument on a tripod and place approximately 15 ft (5m) from a wall.
2. Unlock the unit and power the unit on.
3. Face the cross-line laser line to the wall, and set the center as Dot 'A'. Make a mark on the wall for Dot 'A'. Make another mark on the wall 8 ft (2.5m) from Dot 'A' and mark on the wall as Dot 'M'.



4. Rotate the instrument 90° and make a mark on the wall 15 ft (5m) from Dot 'A'. Label this mark as Dot 'B'.

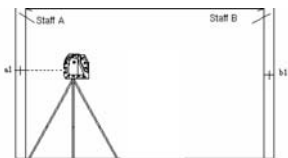


5. Measure the distance 'e' from Dot 'M' to the laser line, as per the Figure.
6. If 'e' > 1.5mm, the instrument is out of tolerance and must be calibrated.

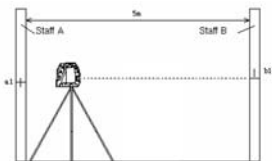
### Horizontal Pitch Accuracy Check

Pitch accuracy refers to the accuracy of the laser between the tool and the wall, and ensures that the horizontal beam is level between the tool and the wall.

1. Set up two survey-staffs, OR use two walls, both a minimum of 15 ft (5m) from each other.
2. Set the instrument on a level tripod as close as possible to wall A.
3. Power on all laser lines, and move the laser until the cross dot projects on staff/wall A. Make a mark and label as 'A1'.

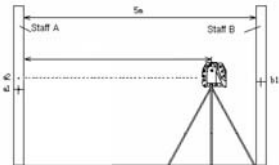


4. Rotate the instrument 180° and make the cross dot project on staff/wall B. Make a mark and label as 'B1'.

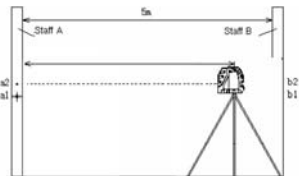




5. Move the tripod as close as possible to wall B, and make the cross dot project on staff/wall A. Make a mark and label as 'A2'.



6. Rotate the instrument by 180° and move the cross dot to project on staff/wall B. Make a mark and label as 'B2'.



7. Calculate the vertical distance  $(A1-A2) - (B1-B2) = e$
8. If  $e > 3/32"$  at 15 ft, the instrument is out of tolerance and must be calibrated.





## Self-Calibration Adjustment

See the following figure. There are two self-calibration apertures on the instrument. The self-calibration aperture A corresponds with the adjustment of the fore/aft direction (pitch accuracy). The self-calibration aperture B corresponds with the adjustment of the left/right direction (transverse accuracy).



1. When adjusting, use a 3mm hex tool.
2. The adjustment of both directions will influence each other. When making fine adjustments in the left/right direction, it might influence the front/back axis. Be sure to repeat the adjustment of both axis when making adjustments to ensure both are accurate.
3. When making adjustment with the adjusting screw, you should not exceed four complete turns of the screw(s).
4. If the unit is still not able to be calibrated, it may be outside of its adjustment range and should be sent to the nearest service center.





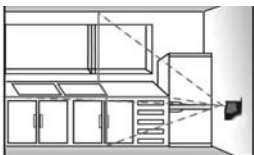
## 9. Technical Specifications

Laser Wavelength	635nm±10 (40-6650) 532nm±10 (40-6656 & 40-6657)
Laser Classification	Class IIIa
Maximum Power Output	≤5mW
Accuracy	±1/8"/35 ft. (±3mm/10m)
Interior Range	Up to 150 ft. (45m) depending upon light conditions (40-6650) Up to 200 ft. (60m) depending upon light conditions (40-6656 & 40-6657)
Self-Leveling Range	± 3°
Power Supply	3 "AA" alkaline batteries
Battery Life	Approx. battery life 20 hours continuous use
Dimensions	4-1/8" x 1-15/16" x 4-1/8" (104x49x104mm)
Weight	1.5 lbs. (0.3 Kg)
Working Temperature	14°F to 113°F (-10°C to +45°C)
Center Screw Thread	5/8" – 11; 1/4" – 20
IP Protection Class	55

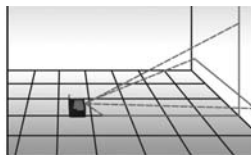




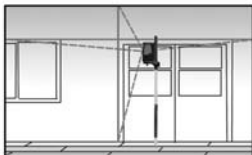
## 10. Application Demonstrations



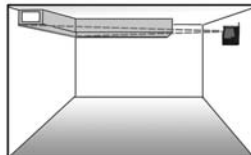
Fixing cabinets



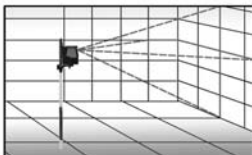
Laying tile



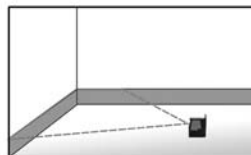
Fixing doors and windows



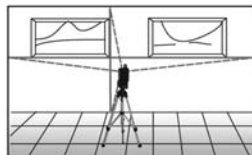
Setting pipelines



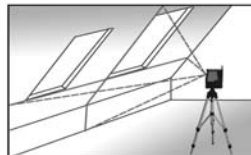
Installing partitions



Installing baseboards



Check spacing and indents



Dormer 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](http://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](http://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

Please register within 30 days of purchase. Registering ensures we have your information on file for warranty service even if you lose your receipt, and lets us contact you if there is ever a product recall. We will never sell your information and only send you marketing information if you opt-in.

To register, go to [www.johnsonlevel.com/register](http://www.johnsonlevel.com/register).





## 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.






## 15. Troubleshooting

Symptom	Possible Cause	Solution
Will not turn on	Batteries missing or depleted	Change the batteries
	Polarity reversed	Check polarity
Turns off after a short time	Batteries depleted	Change the batteries
Flashing or Beeping	Laser is beyond leveling range	Place on surface within 3° of level
	Laser is out of calibration	Perform calibration check and calibrate laser if needed
Laser is not accurately reading plumb, level or square	Laser is out of calibration LESS THAN 1/4" per 35'	Calibrate laser (procedure in the manual) or return to Johnson dealer for calibration
	Laser is out of calibration MORE THAN 1/4" per 35'	Return to Johnson dealer for service





<b>Symptom</b>	<b>Possible Cause</b>	<b>Solution</b>
Laser will not calibrate	Laser core parts may be misaligned beyond the limit of field calibration	Return to Johnson dealer for service
Laser light appears dim	Batteries are weak Improper battery type  Ambient temperature too high/low	Replace batteries  Ensure high quality Alkaline batteries are used  Ensure temperature is within operating range listed under specifications

