Instruction Manual

Congratulations on your choice of this Self-Leveling Combination Cross-Line Laser and Five-Beam Laser Dot. 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

**Description for Model 40-6688**

<table>
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<th>Description</th>
<th>Qty.</th>
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<tr>
<td>Self-Leveling Combination Cross-Line Laser &amp; Five-Beam Laser Dot</td>
<td>1</td>
</tr>
<tr>
<td>Multi-functional Magnetic Base</td>
<td>1</td>
</tr>
<tr>
<td>Mounting Strap</td>
<td>1</td>
</tr>
<tr>
<td>“AA” Alkaline Batteries</td>
<td>3</td>
</tr>
<tr>
<td>Tinted Glasses</td>
<td>1</td>
</tr>
<tr>
<td>Magnetic Target</td>
<td>1</td>
</tr>
<tr>
<td>Instruction Manual</td>
<td>1</td>
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<tr>
<td>Hard-Shell Carrying Case</td>
<td>1</td>
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</tbody>
</table>
2. Features and Functions

- Laser simultaneously projects two, three or five laser beams (up, down, front, left and right directions).
- Able to project one horizontal, vertical or cross-line beam.
- Magnetic dampened compensation system.
- Laser beam flashes and sounds audible alarm when the laser is beyond its self-leveling range.
- Pendulum locking mechanism helps protect units inner mechanisms.
- Multi-functional magnetic base for attaching to tripod or any metal surface.
- Manual mode feature allows unit to be tipped at extreme angles without the audible alarm and laser flash being triggered.
- Pulsed line feature allows outdoor use with line generator laser detector (sold separately).
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: ≤ 5mW
Wavelength: 625-645nm & 532nm

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

**ATTENTION**

- 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

![Warning Labels Image]

**DANGER**

Laser Radiation Avoid Direct Eye Exposure.

Maximum Output Power:
- ≤ 5mW @ 625-645 nm & 532 nm

Class IIa Laser Product. This product complies with the applicable requirements of 21 CFR PARTS 1040.10 & 1040.11.

Mfg. by Johnson Level & Tool Mfg. Co., Inc.

6203 W. Donges Bay Rd., Mequon, WI 53097

Manufactured in China by JLT05

Date (m/y): __________
5. Location of Part/Components

Keypad

Laser Dot Output Windows

Compensator Lock/Unlock Switch

Self-calibration Aperture A

Self-calibration Aperture B

Battery Cover

1/4” - 20 Thread attaches to base

Wall Mount

Laser Connecting Knob

Belt Mounting Groove

5/8” Thread

Rare Earth Magnets

1/4” - 20 Thread
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 compensator lock/unlock switch is in the locked position before removing and replacing batteries.

1. As shown in figure, open the battery cover.
2. Put three “AA” alkaline batteries into the battery compartment noting polarity.
3. Close the battery cover.

7. Using the Product

Place the laser on a relatively smooth, flat and level surface.

**Note:** Product must be within ±4° of level for self-leveling feature to function properly. Greater than 4° will result in an alarm condition (flashing laser and intermittent beeping sound).

Place the laser on a tripod using the multi-functional base.
Attach the laser to a steel object.

Laser can pivot on base.

Strap the laser to a pole.
Keypad Operations

Power LED:
LED On: Laser is on or pendulum compensator is unlocked
LED Off: Pendulum compensator is locked and laser is off
LED Flashing: Low Battery

Manual Mode LED:
LED Flashing: The pendulum compensator is locked (laser is not self-leveling) and laser is on
LED Off: The laser is in self-leveling mode or the laser is off

Horizontal Laser Line LED:
LED On: The horizontal laser line is on
LED Flashing: The horizontal laser line is in pulse mode and can be used with a line detector (sold separately)
LED Off: The horizontal laser line is off
**Vertical Laser Line LED:**
LED On: The vertical laser line is on
LED Flashing: The vertical laser line is in pulse mode and can be used with a line detector (sold separately)
LED Off: The vertical laser line is off

**Dot LED:**
LED On: Dot laser is on
LED Off: Dot laser is off
LED Flashing: Laser is outside its self-leveling range

**Pendulum Compensator Lock Switch**
Unlock the laser, the laser will be on, and the power LED is on. Lock the laser, the laser will be off, and the power LED is off.

When unlocking the laser, if the laser flashes and sounds an alarm, the laser is out of its self-leveling range.
**Pulse Mode Button**

When the horizontal laser line, vertical laser line, or both laser lines are on, press the pulse button and the laser line will enter Pulse Mode and the corresponding LED will flash. Press the pulse button again and the laser will exit the pulse mode, and the corresponding LED will return to solid.

**Note:**
1. When the laser lines are off, the pulse mode button will not function.
2. Pulse mode is for use with a line detector (sold separately).

**Laser Line Control Button**

Press the line button to turn the laser line on or off. Unlock the laser and press the line button once. The horizontal laser line LED will be on and the output of the laser is as follows:

- Horizontal Line

Press the line button a second time, the horizontal laser line LED will be off, the vertical LED will be on, and the output of the laser is as follows:

- Vertical Line
Press the line \textbf{LINE} button a third time, the horizontal laser line and vertical laser line LED will be on, and the output of the laser is as follows:

![Cross-Line](image)

Press the line \textbf{LINE} button a fourth time, the horizontal laser line and vertical laser line LED will be off, there is no laser line output.

**Laser Dot Control Button \textbf{DOT}**

Press the dot \textbf{DOT} button to turn the laser dot on or off, unlock the laser and press the dot \textbf{DOT} button once. The Laser Dot LED is on and the output of the laser is as follows:

![3 Dots](image)

Press the dot \textbf{DOT} button a second time, the Laser Dot LED is on, the output of the laser is as follows:

![2 Dots](image)
Press the dot \textbf{DOT} button a third time, the Laser Dot LED is on, the output of the laser is as follows:

Press the dot \textbf{DOT} button a fourth time, the Laser Dot LED is off, there is no laser dot output.

With all laser lines and laser dots being on the laser, the output is as follows:

\textbf{Manual Mode}

With the lasers compensator pendulum switch locked, press the \textbf{LINE} button or the \textbf{DOT} button, the laser will be in manual mode, the power LED is on, and the manual mode LED will be flashing.

\textbf{Note:}

1. When manual mode is on, the laser does not self-level and no out-of-level alarm is indicated.
2. If the lasers compensator pendulum switch is unlocked during manual mode, the laser will go into self-leveling mode and the manual mode LED will turn off.

Note: To use model 40-6688 with a detector, a green detector is required and is sold separately. For help in selecting a proper green laser detector, please contact Johnson Level Customer Service at service@johnsonlevel.com or call 888-9-LEVELS (USA) or 800-346-6682 (Canada).
8. Accuracy Check

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

**Horizontal line accuracy (horizontal)**
1. Place unit on a tripod approximately 5′ from a wall. Secure the instrument on the tripod.
2. Face the front of the instrument to the wall, unlock the instrument, and power on the horizontal and vertical laser lines. Make a mark on the wall where the cross-line is displayed. Label this as ‘A’.
3. Make a mark 8′ from A, along the horizontal laser line, and label as ‘M’.
4. Turn the instrument until the vertical line meets ‘M’, and then make a mark 8′ from ‘M’, and 15′ from ‘A’. Label this mark as ‘B’. Also make a mark on the vertical line where it meets ‘B’.
5. Measure the height distance between ‘M’ and where the horizontal laser line currently sits.
6. If e>1/16”, the instrument accuracy is out of tolerance, and calibration is necessary.

**Horizontal accuracy self-check (Vertical)**
1. Stand up two straight poles/boards 15′ from each other, or two walls which are parallel and more than 15′ distance.
2. Place the instrument on the tripod, and place in the center of the poles/boards/walls, and level the instrument by adjusting the tripod.
3. Power on horizontal and vertical laser lines, and make a mark where the cross laser meets target ‘A’. Mark this as ‘A1’.
4. Turn the instrument by 180°, so that the cross line meets target ‘B’. Mark this as ‘B1’.
5. Move the tripod within 2′ of target ‘A’. Make a mark where the cross meets target ‘A’, and label as ‘A2’.
6. Rotate the instrument by 180° and make a mark where the cross meets target ‘B’, and label as ‘B2’.
7. Calculate \((A1-A2)-(B1-B2) = E\). If the absolute value of \(E\) is above 1/16″, the instrument accuracy is out of tolerance and calibration is required.

**Dot Accuracy**

1. With the laser on its base and set on a flat platform, turn the laser on.
2. Mark the down beam location and use this as your reference point.
3. Locate the up beam and mark its point as ‘A’.
4. Rotate the laser (not moving the base) 180° by swiveling the laser on its base and mark the up beam location as ‘B’.
5. Rotate the laser 90° and mark the up beam as ‘C’.
6. Rotate the laser 180° and mark the up beam as ‘D’.

**Note:** Do not move the base, and always have the down beam in the same location.

7. Connect the four dots. Connect A to B, and C to D.
8. If the center point ‘E’ is more than 1/8″ at 50′, or 1/16″ at 25′ from points A, B, C, and D, the unit needs to be recalibrated.
Checking the 3 Horizontal Beams

1. As shown in Fig. 1, set the instrument on a tripod or flat platform 50′ from an upright wall. Aim the front beam at the face of the wall. Mark the point projected on the wall by front beam as ‘A’.

2. Turn the instrument clockwise (Fig. 2) to make the point projected by the right laser beam on the same exact line as point ‘A’, and then mark the point as ‘B’.

3. Turn the instrument clockwise (Fig. 3) to make the point projected by the left laser beam on the same exact line as point ‘A’, and then mark the point as ‘C’.

4. The vertical distance between points A, B and C should not exceed 0.125″ (3.2mm).

5. If laser exceeds 1/8″ at 50′, contact Johnson Level & Tool for service.
### 9. Technical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser Wavelength</td>
<td>635nm±10 (dots)</td>
</tr>
<tr>
<td></td>
<td>532nm±10 (lines)</td>
</tr>
<tr>
<td>Laser Classification</td>
<td>Class IIIa</td>
</tr>
<tr>
<td>Maximum Power Output</td>
<td>≤5mW</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±1/8″/50 ft.</td>
</tr>
<tr>
<td>Interior Range</td>
<td>Up to 200 ft.</td>
</tr>
<tr>
<td>Self-Leveling Range</td>
<td>±4°</td>
</tr>
<tr>
<td>Power Supply</td>
<td>3 “AA” alkaline batteries (included)</td>
</tr>
<tr>
<td>Battery Life</td>
<td>20 hours</td>
</tr>
<tr>
<td>Dimensions</td>
<td>4.803″ x 2.835″ x 4.567″</td>
</tr>
<tr>
<td>Weight</td>
<td>5.164 lbs.</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>32° F to 104° F</td>
</tr>
<tr>
<td>Tripod Thread</td>
<td>5/8″ – 11; 1/4″ – 20</td>
</tr>
<tr>
<td>IP Rating</td>
<td>IP 54</td>
</tr>
</tbody>
</table>

*With Johnson model 40-6763 Green Beam Laser Detector (sold separately)*
10. Application Demonstrations

- Piping
- Transfer Reference Points
- Shelving
- Tiling
- Plumb Walls
- Interior Layout
# 11. Troubleshooting Guide

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will not turn on</td>
<td>Batteries missing or depleted</td>
<td>Change the batteries</td>
</tr>
<tr>
<td></td>
<td>Polarity reversed</td>
<td>Check polarity</td>
</tr>
<tr>
<td>Turns off after a short time</td>
<td>Batteries depleted</td>
<td>Change the batteries</td>
</tr>
<tr>
<td></td>
<td>Compensator lock may be engaged</td>
<td>Verify compensator is in unlocked position</td>
</tr>
<tr>
<td>Flashing or Beeping</td>
<td>Laser is beyond leveling range</td>
<td>Place on surface within 4º of level</td>
</tr>
<tr>
<td></td>
<td>Laser is out of calibration</td>
<td>Perform calibration check and calibrate laser if needed</td>
</tr>
<tr>
<td>Laser is not accurately</td>
<td>Compensator may be locked</td>
<td>Unlock compensator</td>
</tr>
<tr>
<td>reading plumb, level or square</td>
<td>Laser is out of calibration</td>
<td>Contact Johnson to arrange calibration</td>
</tr>
<tr>
<td>Symptom</td>
<td>Possible Cause</td>
<td>Solution</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Laser light appears dim</td>
<td>Pulse mode may be engaged which makes the beam detectable, but dimmer</td>
<td>Turn off pulse mode by pressing “P” button until line LED’s are solid</td>
</tr>
<tr>
<td></td>
<td>Batteries are weak</td>
<td>Replace batteries</td>
</tr>
<tr>
<td></td>
<td>Improper battery type</td>
<td>Ensure high quality Alkaline batteries are used</td>
</tr>
<tr>
<td>Laser can not be detected with a detector</td>
<td>Pulse mode may be off</td>
<td>Turn on pulse mode by pressing “P” button until line LED’s flash</td>
</tr>
<tr>
<td>(Note: detector is sold separately)</td>
<td>Detector may require new batteries</td>
<td>Check and replace detector battery</td>
</tr>
<tr>
<td></td>
<td>The detector may not be the proper one for the product</td>
<td>Validate detector is for lines of the appropriate wavelength</td>
</tr>
<tr>
<td></td>
<td>Trying to detect dot lasers when dot laser beams are not detectable; only the</td>
<td>Do not attempt to detect the dot laser, use the line laser if possible</td>
</tr>
<tr>
<td></td>
<td>lines are detectable</td>
<td></td>
</tr>
</tbody>
</table>
12. 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.

13. 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.

14. 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.
15. 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.