



Self-Leveling 3 Dot Laser
Model Nos. 40-6641, 40-6643, 40-6646



Instruction Manual

Congratulations on your choice of this Self-Leveling 3 Dot Laser. We suggest you read this instruction manual thoroughly before using the instrument and save this instruction manual for future use.

This is a Class II 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 for Model 40-6646

| | <u>Qty.</u> |
|---------------------------|--------------------|
| Self-Leveling 3 Dot Laser | 1 |
| “AA” Alkaline Batteries | 2 |

Description for Model 40-6641 & 40-6643

| | <u>Qty.</u> |
|---------------------------|--------------------|
| Self-Leveling 3 Dot Laser | 1 |
| Magnetic Bracket | 1 |
| Tinted Glasses | 1 |
| Magnetic Target | 1 |
| “AA” Alkaline Batteries | 2 |
| Hard-Shell Carrying Case | 1 |



2. Features and Functions

- Simultaneously projects three laser beams (front, up and down) to check plumb and level.
- Magnetically dampening compensation system stabilizes pendulum quickly and accurately, and stays level even with nearby vibration on the job site.
- Visual out of level indicator alerts you to when the tool is beyond its leveling range.
- Clearance for all common drywall track materials and 2x dimensional lumber.
- Locking compensator helps protect the tool's inner mechanisms.
- Dust resistant construction.
- Tripod thread for convenience.





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 II Laser Product
 Max. Power Output: $\leq 1\text{mW}$
 Wavelength: 635nm (40-6643 & 40-6646)

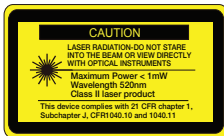
**THIS TOOL EMITS LASER RADIATION.
 DO NOT STARE INTO BEAM.
 AVOID DIRECT EYE EXPOSURE.**



DANGER!

Class II Laser Product
 Max. Power Output: $\leq 1\text{mW}$
 Wavelength: 520nm (40-6641)

**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.



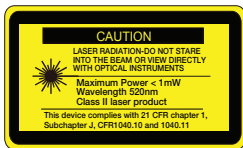
4. Location/Content of Warning Labels



40-6643
40-6646



40-6641



5. Location of Parts/Components



6. Operating Instructions

IMPORTANT: It is the responsibility of the user to ensure proper maintenance of the Self-Leveling 3 Dot Laser. Conduct periodic test measurements to ensure the instrument is measuring accurately and consistently. This is most important if the instrument has been exposed to extreme temperatures or moisture. Keep the Self-Leveling 3 Dot Laser optic lens clean and inspect for damage.

Battery Installation

To install batteries in the Self-Leveling 3 Dot Laser:

1. Remove the battery cover, which is located at the back of the tool, by pressing the battery cover release found on the left and right side of the tool and pulling the cover back.
2. Insert 2 “AA” batteries into the battery compartment according to the polarity illustrated inside.
3. Replace the battery cover by seating the bottom door edge first, then pivoting the battery cover up. Press in the release tabs to clear the housing as the door closes.



Notes:

- Always check that the locking compensator/power switch is in the locked position before removing and replacing batteries.
- Use only alkaline batteries.
- Remove the batteries when storing the instrument for an extended time (more than 3 months) to avoid damage to the tool should the batteries deteriorate.



Powering the Laser On/Off

Slide the locking compensator up to **power on** the unit and unlock the compensator so that the laser can self-level. The status light will illuminate, and the unit will emit three laser beams (up, front and down).

Slide the locking compensator down to **power off** the unit and engage the pendulum lock. The laser can be safely transported when the pendulum is locked.

Note: The Self-Leveling 3 Dot Laser must be within $\pm 5^\circ$ of level for the self-leveling feature to function properly. If the instrument is beyond its 5° self-leveling range, the laser will not self-level, the laser will flash and the status light will turn red. Once the instrument has been adjusted to within its 5° self-leveling range, the laser will self-level, the status light will turn green and the laser light will stop flashing and remain solid.

Tips from the Pros

- Increasing the Beams' Visibility – When working in bright conditions, such as when working near windows or outside walls, the visibility of the laser beams can be maximized by following these steps:
 - Work towards the laser.
 - Use a freestanding target (sold separately).
 - Wear laser glasses (sold separately).

Note: Laser glasses enhance beam visibility but should never be used to stare into the beam or be used as safety glasses. Eye damage may result if these directions are not followed.





Care and Handling

- This Self-Leveling 3 Dot Laser is a precision tool that must be handled with care.
- Avoid exposing unit to shock vibrations and extreme temperatures.
- Remove the batteries when storing the unit for an extended time (more than 3 months) to avoid damage to the unit should the batteries deteriorate.
- 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 unit.





7. Checking Accuracy

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

Checking Plumb Accuracy

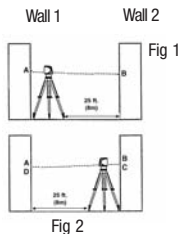
1. Place the laser on a flat surface in as tall of a room as possible. 20' or higher is ideal. In shorter rooms, a mirror can also be used on the ceiling to reflect the beam back to the ground to give a longer effective distance.
2. Turn on the laser. Mark the center of the plumb down beam as Point O. Mark the center of the plumb up beam as Point A.
3. Rotate the laser 90 degrees, aligning the plumb down beam with Point O. Mark the plumb up beam as Point B.
4. Rotate another 90 degrees and align the plumb down over Point O. Mark the plumb up as Point C.
5. Rotate another 90 degrees and align the plumb down over Point O. Mark the plumb up as Point D.
6. This will establish 4 points on the ceiling (A, B, C and D), that should either perfectly superimpose or form a very small circle. Measure the diameter of this small circle. The laser is in tolerance if the circle is equal to or smaller than:
 - 3/64" for a 10' ceiling
 - 3/32" for a 20' ceiling, or reflected by a mirror from a 10' ceiling.
 - 1/16" for a 30' ceiling, or reflected by a mirror from a 20' ceiling.





Checking Level Accuracy

- Set the instrument on a level surface such as a tripod, located between two walls (labeled Wall 1 and Wall 2), located a minimum of 25' apart (see Fig 1). The laser should be as close as possible to Wall 1.
- Point the instrument at Wall 1. Turn the laser on, and mark the beam as Point A. Rotate the instrument 180 degrees so the laser is pointed at Wall 2. Mark the beam on Wall 2 as Point B.
- Move the instrument and the tripod so the laser is positioned as close as possible to Wall 2 near Point B (see Fig 2). Level the tripod and position the instrument on the tripod facing Wall 2. Turn the laser on, and mark the beam as Point C. Point C should be directly above or below Point B.
- Turn the laser off and rotate the laser 180 degrees so that it is facing directly to Wall 1. Turn on the laser, and mark the beam as Point D. Point D should be directly above or below Point A.
- Measure the vertical distance between Points A and D.
- Measure the vertical distance between Points B and C.
- If the larger of the two differences measured above is less than 1/4" at 25', your instrument is within tolerance.



Note: This accuracy checking method doubles the error. For example, if the difference between Point A and Point D is 1/4" at 25', your laser is accurate to 1/8" at 25'.





8. Application Examples

Dot lasers are extremely versatile devices. While the most common application of a Self-Leveling 3 Dot Laser is for plumb layout of walls and setting drywall track, Self-Leveling 3 Dot Lasers have many useful applications designed to help you work more efficiently and effectively, including:

- Plumbing walls
- Setting drywall top and bottom track
- Transferring reference points from floor to ceiling (e.g., setting a light fixture every two feet, using the floor to measure and transfer the point to the ceiling)
- Setting a common level height, such as marking locations for electrical boxes or switches, or for hanging photographs, etc.
- Setting fence posts, pipe stubs or electrical conduit to a common height, and ensuring collinearity
- Leveling pipes and plumbing, or using as a level reference for setting pitch on drainage pipes
- Setting reference points for installation of wainscoting
- Setting plumb references for installation of wallpaper
- Setting a level reference for checking level or pitch of a poured concrete floor
- Checking square of windows and doorways





9. Troubleshooting Guide

This section is designed to help you diagnose and troubleshoot common problems that prevent the Self-Leveling Cross-Line Laser from working properly.

| Symptom | Possible Cause | Solution |
|------------------------------|-------------------------------------|---|
| Will not turn on | Batteries missing or depleted | Change the batteries |
| | Polarity reversed | Check battery polarity |
| Turns off after a short time | Batteries depleted | Change the batteries |
| Laser light is dim | Batteries depleted | Change the batteries |
| Laser light is blinking | Laser is out of self-leveling range | Position laser within 5° of level so that it can self-level |





10. Technical Specifications

| | |
|--------------------------------|---|
| Laser Wavelength | 635 nm (40-6643 & 40-6646) |
| Laser Wavelength | 520 nm (40-6641) |
| Laser Classification | II |
| Maximum Power Output | ≤1mW |
| Self-Leveling Range | ±5° |
| Laser Accuracy | ±1/8" / 30' |
| Measuring Range | 0' - 100' |
| Power Supply | 2 "AA" alkaline batteries (included) |
| Battery Life* | 36 hours/20 hours (40-6643 & 40-6646) 18 hours/9 hours (40-6641) |
| Operating Temperature Range | 32°F - 104°F |
| Storage Temperature Range | 0°F - 120°F |
| Dimensions | 3.5" x 4.5" x 2.75" |
| Weight | 0.60 lbs |
| Tripod Thread | 1/4" – 20 |
| IP Rating | IP 50 |

* Battery life reported with all beams enabled, as tested with lithium AA/Alkaline AA.





11. Product Warranty

Johnson Level & Tool offers a two 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 (888-953-8357).

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





12. 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.



