ACCULINE LASER LEVELS PRO™

Manual-Leveling Rotary Laser Level

Model Nos. 40-6500 and 40-6510

Instruction Manual

Congratulations on your choice of this Manual-Leveling Rotary Laser Level. We suggest you read this instruction manual thoroughly before using the instrument. Save this instruction manual for future use.

This product is a multi-functional laser instrument combining a rotating laser with a vertical line and the plumb beam. Visibility of the beam depends on the lighting in various work areas.

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

For Model No. 40-6500

Description	Qty.
Manual-Leveling Rotary Laser Level	1
"AA" Alkaline Batteries	4
6V Battery Adaptor	1
Tinted Glasses	1
Instruction Manual with Warranty Card	1
Soft-sided Carrying Case	1

For Model No. 40-6510

Description	Qty.
Manual-Leveling Rotary Laser Level	1
"AA" Alkaline Batteries	4
6V Battery Adapter	1
Multi-Functional Mount with Carrying Case	1
Remote Control with 9 volt Battery	1
Detector with 9 volt Battery and Clamp	1
Tinted Glasses	1
Magnetic Target	1
Portable Elevating Tripod with Carrying Case	1
Instruction Manual with Warranty Card	1
Soft Sided Carrying Case	1

2. Features and Functions

- Able to emit horizontal laser plane and plumb-up beam at an angle of 90 degrees.
- Able to emit vertical laser plane and horizontal beam.
- Able to emit a line perpendicular to rotating plane, to form laser cross line movable by 360 degrees.
- Large and small range scan modes are available for user's option, to achieve a chalk line.
- Provides the option of moving the horizontal laser line leftwards or rightwards.
- Provides the option of changing the laser rotating speed.
- Able to preset the gradient (slope in manually adjustable).

3. Safety Instructions

Please read and understand all of the following instructions, prior to using this tool. Failure to do so, may result in bodily injury.

CAUTION: If using this product with any type of tinted goggles, please note safety warning below.

DANGER!

Class IIIa Laser Product
Max. Power Output: ≤ 5mW
Wavelength: 625-645nm

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

ATTENTION IMPORTANT

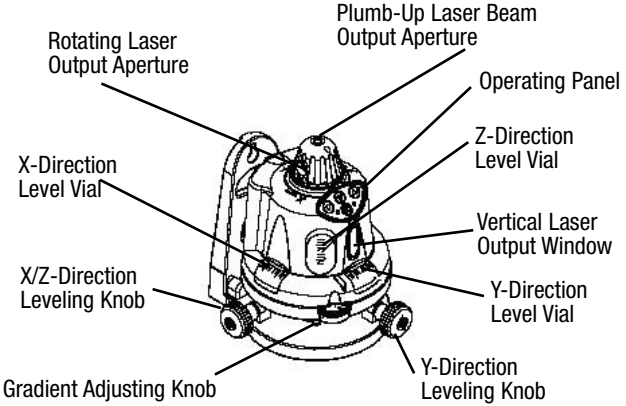
- Read all instructions prior to operating this laser tool. Do not remove any labels from tool.
- Use of controls or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- Do not stare directly at the laser beam.
- Do not project the laser beam directly 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, serious injury may result.
- Use only original AccuLine Pro™ parts and accessories purchased from your AccuLine Pro authorized dealer. Use of non-AccuLine Pro parts and accessories will void warranty.

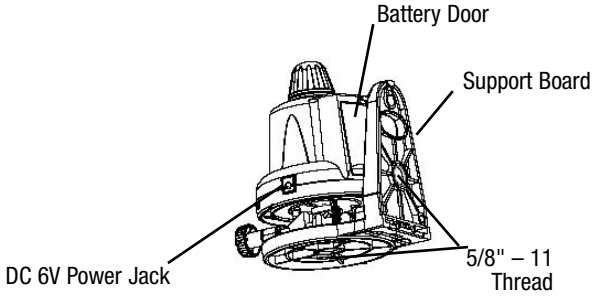
WARNING!

The tinted goggles are designed to enhance the visibility of the laser beam. They DO NOT offer protection to the eyes from direct exposure of the laser beam.

4. Location/Content of Warning Labels

5. Location of Part/Components

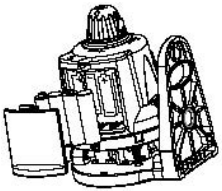




6. Operating Instructions

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

Battery Installation



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

1. Turn the instrument by 90 degrees.
2. Remove the battery door.
3. Put in four AA alkaline batteries into the battery compartment, noting polarity (as shown).
4. Snap the battery door back into place.

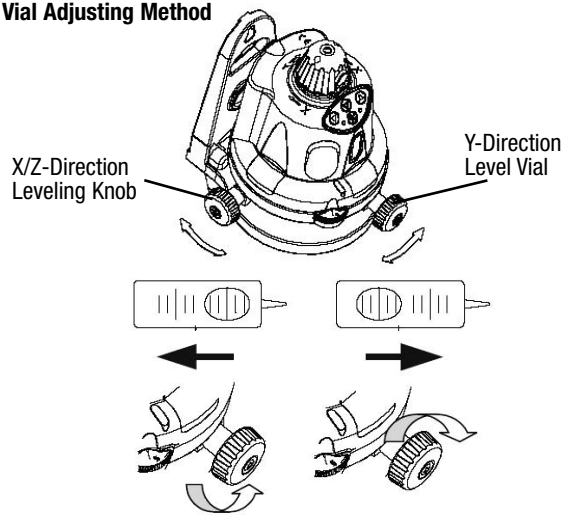
Note: Do not charge alkaline batteries to avoid explosion. Used (discharged) batteries are hazardous waste and should be disposed of properly.

Instrument Usage

Horizontal Output Status Instruction

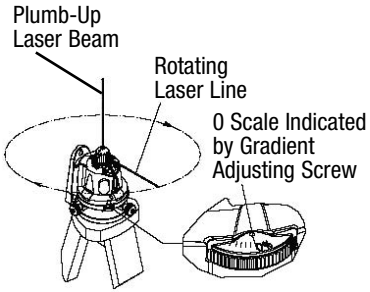
1. Put four "AA" alkaline batteries into the instrument or power the instrument by connecting DC 6V through power jack.
2. Mount the instrument on platform or a leveling tripod, connecting with tripod by the 5/8" –11 screw thread.
3. Make sure that the grads adjusting knob points to 0 scale.
4. Adjust leveling-knob to center the bubble of vials both in X and Y direction.

Level Vial Adjusting Method

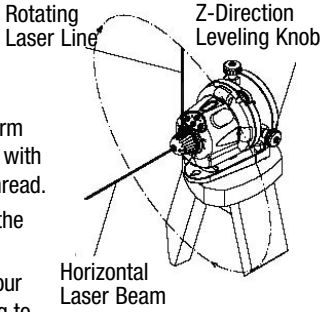


5. Turn the instrument on, select your desired working status according to the guide from the instruction manual, and then start operation.
6. Please turn off the unit after operations.

Note: Make sure that the gradient adjusting knob points to 0 scale



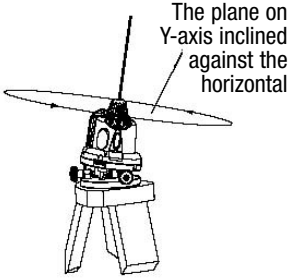
Vertical Output Status Instruction



1. Put four "AA" alkaline batteries into the instrument or power the instrument by connecting DC 6V through power jack.
2. Mount the instrument on platform or a leveling tripod, connecting with tripod by the 5/8" –11 screw thread.
3. Adjust leveling-knob to center the bubble of vial in Z direction.
4. Turn the instrument on, select your desired working status according to the guide from the instruction manual, and then start operation.
5. Please turn off the unit after operations.

Slope Scan Instruction

The slope scan function is available when the instrument is in horizontal output status. The operating details are shown as follows:



1. Mount the instrument on platform or a leveling tripod according to the instruction of horizontal output status.
2. Aim the Y-axis of the instrument at the target in desired inclination direction.

3. Regulate the gradient adjusting knob to tilt the level vial in Y-direction to desired gradient (0%~4%) (fig. 1).

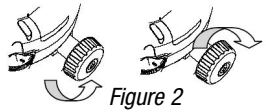


Figure 2

4. Level the vial by the leveling knob (fig. 2).

Figure 1

5. Select your required working state and start operation (fig. 3).

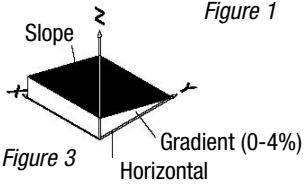


Figure 3

6. Please power off the unit after operations, and turn the gradient adjusting knob to 0 position. (fig. 4).

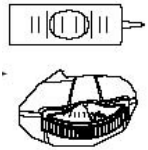


Figure 4

Marking Line Instruction

Note: If the bubble in the vial is not centered, please center the bubble before operation.

When the instrument is in rotating working status, press the power switch once to activate the vertical line function. Now the instrument will form cross by rotating laser and vertical laser. Turn the instrument to move the vertical laser, and make the vertical laser form cross line together with rotating laser at any position within 360 degree range. Figure 5 illustrates this feature.

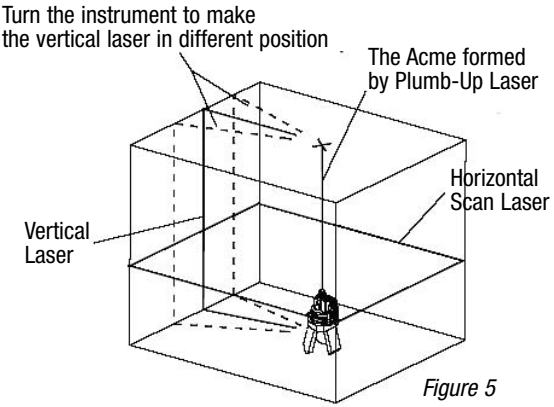
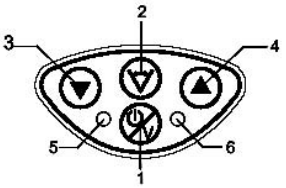


Figure 5

7. Using the Product

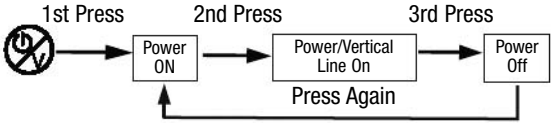
Operating Panel

1. Power/Vertical Line Switch Button
2. Range Scan Mode Button
3. Down Key
4. Up Key
5. Power Lamp
6. Range Scan Mode Indicator Lamp



Power On/Off

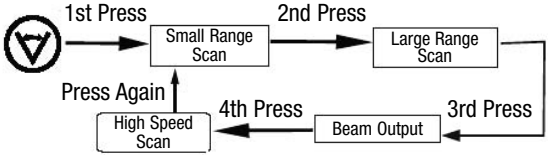
• **Power On:** With the first press of the power button, the rotating laser and plumb-up laser are turned on. Power indicator lamp is also turned on. The power indicator lamp will flash when batteries are low.



• **Vertical Line On:** With a second press of the power button, the vertical laser is also turned on.
• **Power Off:** A third press of the power button, turns all of the lasers and power indicator lamps off.

Range Scan Mode Key

• **High Speed Scan:** When initially powered up, the instrument is in the high-speed scan mode. This is indicated by the range scan indicator lamp (continuously on), and rotating laser in high speed.



• **Small Range Scan:** With one press of the range scan mode button, the rotating laser performs scan at small angle. The range scan indicator lamp will blink.
• **Large Range Scan:** With a second press of the range scan mode button, the rotating laser performs scan at relatively large angle. The range scan indicator lamp will blink.
• **Output:** With a third press of the range scan mode button, the rotating laser stops and projects a laser dot. The range scan indicator lamp will blink.

Up/Down Key

• In high-speed scan mode, pressing the ▲ key will increase scan speed. Pressing the ▼ key will decrease scan speed.

Note: The instrument rotates in highest speed when it is initially powered on.

• In range scan mode, pressing the ▲ key shifts the scan range counterclockwise. Pressing the ▼ key shifts the scan range clockwise.

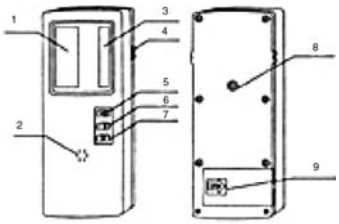
Detector Usage (included in Model No. 40-6510)

1. Technical Specifications

Detecting Range	394 ft. (120m)
Detecting precision	Fine: ±0.039" (±1mm)
	Coarse: ±0.098" (±2.5mm)
Turn-off timer	10 minutes
Three types of sound	
Size	6.614" x 2.677" x 0.905" (168 X 68 X 23mm)

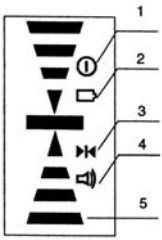
2. Components

(a) Structure



1. Display window
2. Buzzer
3. Receiving window
4. Reference rabbet
5. Sound button
6. Coarse/Fine detection button
7. Power button
8. Threaded hole
9. Battery-box cap

(b) Display



1. Power symbol
2. Low battery symbol
3. Coarse/Fine detection symbol
4. Sound symbol
5. Detecting position symbol

3. Operation Guide

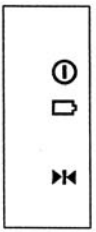
(a) Installation of battery

- Open the battery-box cap and connect the cords inside with the two polarities of the 9V battery.

Note: Take the battery out if the instrument is not use for a long time.

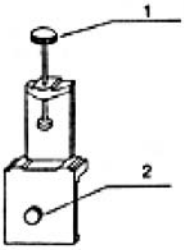
- Put the 9V battery into the battery box and close the battery-box cap.

(b) Turn on/off



- Press the on/off button. When Power symbol is displayed, the instrument is ready for coarse detection.
- When low battery symbol is displayed, change the battery.
- Press the on/off button again to turn off the instrument.

(c) Using the clamp holder

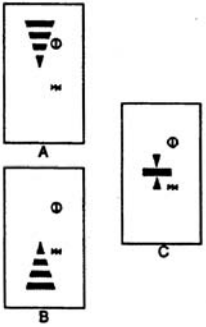


1. clamp bolt
2. M5 screw

- Position the instrument on the clamp holder by the M5 screw of the clamp holder.
- Position the clamp holder on tower rod or other types of surveying rods by the clamp bolt of the clamp holder.

(d) Detection

1. Coarse detection



- Aim the receiving window at the rotating laser instrument. Loosen the clamp bolt and move the instrument up and downwards to receive the laser scanning signals transmitted by the rotating laser instrument.
- When the instrument displays like Fig. (A), move the instrument slightly downwards as indicated by the arrow. When it displays like Fig. (B), move it slightly upwards as indicated by the arrow.
- When Fig. (C) is displayed, the instrument is at the right position.
- Tighten the clamp bolt and mark the position of the object on the rabbet. This mark will be the horizontal reference of the coarse detection.

2. Fine detection

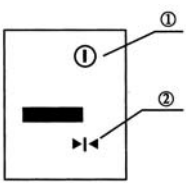


Figure 6

1. power symbol
2. fine detection symbol

- Press coarse/fine detection button. The instrument is ready for fine detection.
- Move the instrument slightly up and downwards like the coarse detection procedure.

- When the instrument displays like Fig 6, it is at the right position.
- Tighten the clamp bolt and mark the position of the object on the rabbet. This mark will be the horizontal reference of the fine detection.

(e) Sound function

- If the instrument is working in a circumstance that makes it difficult to use the display function, the sound function can be used instead.
- Press the sound function button. The sound symbol is displayed which means it is ready for sound function. The instrument then conducts coarse/fine detection through sound (buzz) signals.
- When the sound signal is ultra-short buzz, move the instrument slightly upwards.
- When the instrument makes short buzz, move it slightly downwards.
- When the instrument makes intermittent, continuous sound, it is at the right position.
- If there is no buzz heard, the instrument has not received the laser scanning signal.

(f) Turn-off timer

- The instrument will automatically turn off if it has not received laser scanning signal for 10 minutes

(g) Detector Maintenance

- When you are done using the detector, return it to its packing case.
- Keep the instrument, particularly the detecting window, clean. If unit becomes dusty, use a clean cloth to gently wipe it clean.
- Avoid knocking the unit over or allowing it to fall on the ground.
- Although the instrument is rain resistant, you should avoid submerging the unit in water or other liquids. If unit comes into contact with water or other liquids, wipe it dry immediately.
- Do not use unit around fire or expose it to fire in any way.

8. Self-Check and Calibration

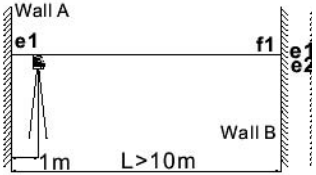
Level Vial Self-Check

A. X/Y-Direction Level Vial Self-Check

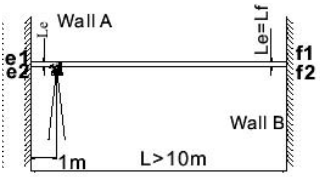
1. Fix the instrument on a platform or a leveling tripod. A tripod with level vial is preferable.
2. Center the bubbles of X/Y-direction level vials by adjusting the leveling knob.
3. Turn the instrument by 360° to observe whether those bubbles are centered at any position, and the instrument is then level.

B. Z-Direction Vial Self-Check

1. Put the instrument with adjusted X/Y-direction vials on tripod 3 feet (1m) from wall A, and level the setup. Project laser beams to wall A and wall B respectively, and mark the red laser points shown on walls as e1 and f1.



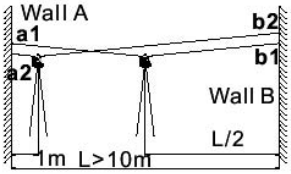
2. Put the instrument under vertical output mode on tripod.
3. First, face the instrument towards wall A, and adjust the leveling knob to center the bubble of Z-direction vial. Project laser beam and mark e2 for the red laser point shown on wall A.



4. Measure the distance Le between e1 and e2, and mark out point f2 on wall B that is lower than point f1 at Le distance.
5. Turn the instrument by 180° to face wall B, and regulate the adjusting knob to make the red laser point projected on wall B superposed with f2.
6. Observe whether the bubble of Z-direction vial is centered or not. If not, reference section 12 of this document.

Instrument Accuracy Self-check

1. Put the instrument on tripod at the center of two parallel walls that is 30-plus ft. (10-plus meters) apart, with the flank board of instrument facing leftwards, as shown.

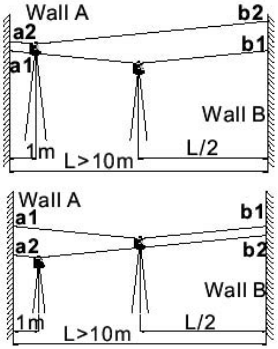


Aim the instrument at wall A and wall B respectively to project laser beams, and mark point a1 and point b1 for the red laser points shown on walls.

2. Move the instrument to a place 3 ft. (1m) apart from wall A and level it, with the flank board still facing leftwards. Repeat step 1, and mark the projected red laser points as a2 and b2;

3. Measure the distance La between a1 and a2, and Lb between b1 and b2.

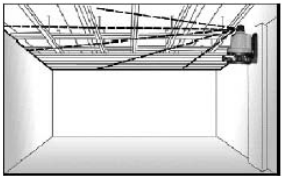
   If (La+Lb)/L or |(Lb-La)/L| is less than or equal to 0.118" (0.3mm), the accuracy is beyond tolerance, reference section 12 of this document.



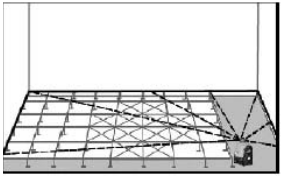
9. Technical Specifications

Laser Wavelength	635nm±10nm
Laser Classification	Class IIIa
Maximum Power Output	≤5mW
Accuracy	±1/4"/100 ft. (±2mm/10m)
Working Range	Maximum 100 ft. (30m) depending upon light conditions
Measuring Range	394 ft. (120m) radius with detector 164 ft. (50m) radius with remote
Power Supply	4 “AA” alkaline batteries
Dimensions	5-3/8" x 4-3/4" x 6" (136 x 120 x 153mm)
Weight	1.5 lbs. (0.7Kg)
Working Temperature	14°F to 113°F (-10°C to +45°C)
Center Screw Thread	5/8" – 11
Scan Speed	Continuous and adjustable
Range Scan Area	Continuous, small range, large range, point
Enclosure	Dust and rain resistant

10. Application Demonstrations

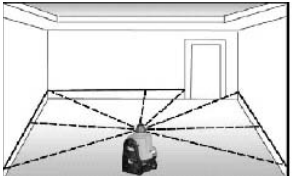


Plumb reference for ceiling installation

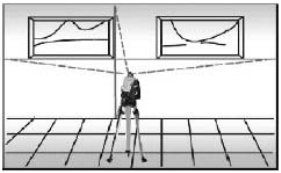


Reference for anti-static flooring installation

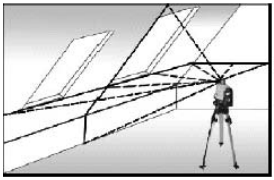
Reference for window installation



Reference for baseboard installation



Reference for hanging pictures



Reference for 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 one year limited warranty on each 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 us online 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. Required repair/calibration must be done by an authorized AccuLine Pro™ service center or Johnson Level & Tool's limited warranty, if applicable, will be void and there will be NO WARRANTY. Contact our Customer Service Department to obtain a Return Material Authorization (RMA) number for return to an authorized service center. 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 Department.

In the U.S., contact Johnson Level & Tool's Customer Service Department at 800-563-8553.

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

13. Product Registration

Enclosed with this instruction manual you will find a warranty card to be completed for product warranty registration. Product warranty registration can also be completed online at our web site www.johnsonlevel.com. You will need to locate the serial number for your product that is located on the bottom of the instrument. **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 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

AccuLine Pro™ accessories are available for purchase through authorized AccuLine Pro dealers. Use of non-AccuLine Pro 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 800-563-8553.

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