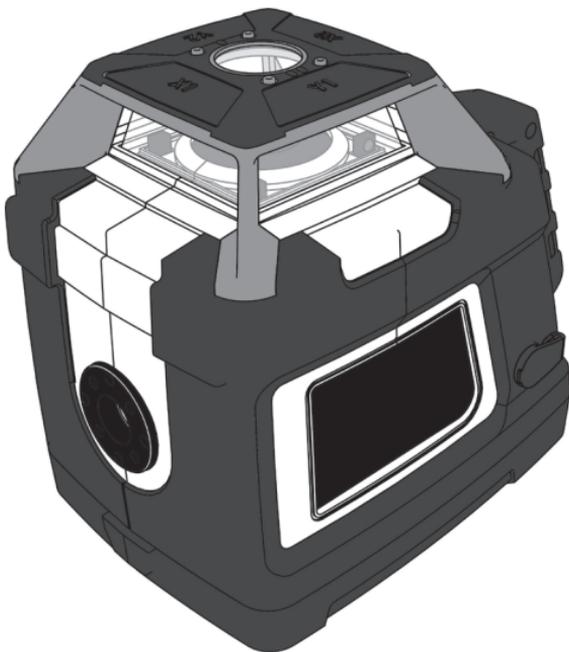


STANLEY®

Auto-Levelling Rotary Laser Level

*RL HW / RL HW+ / RL HGW /
RL HV / RL HVPW/RL HVPW-G*

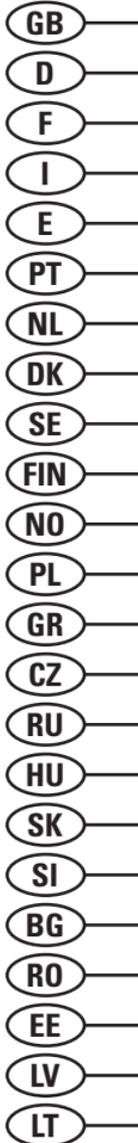


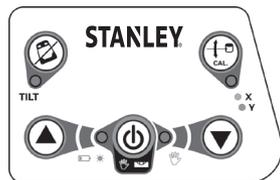
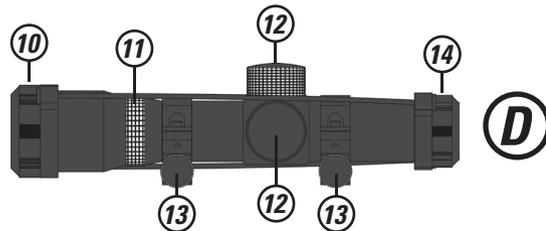
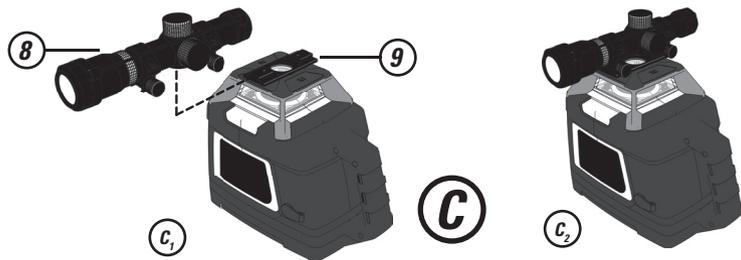
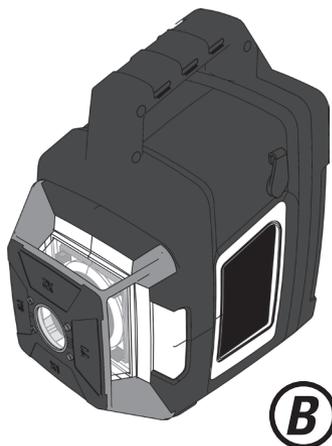
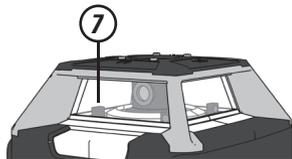
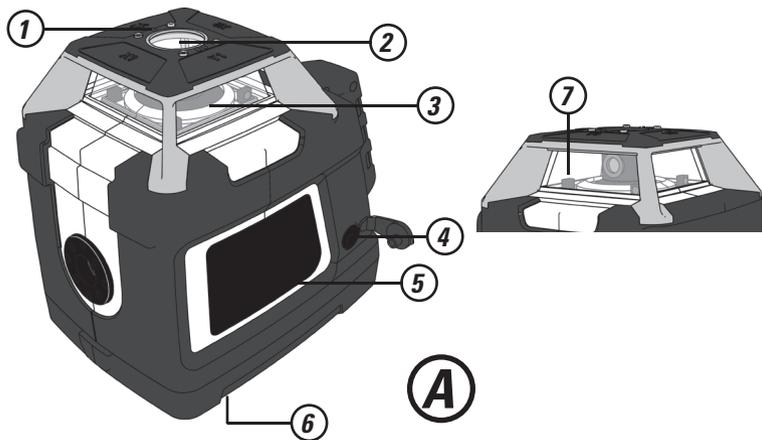
77-496 / 77-429 / 77-439 / 77-497 / 77-427 / 77-441

Please read these instructions before operating the product

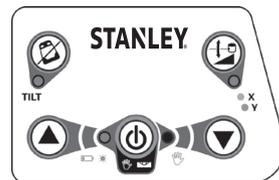


Auto-Levelling

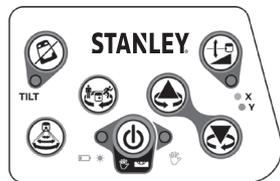




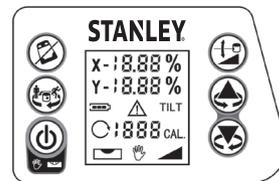
E₁ RL HW



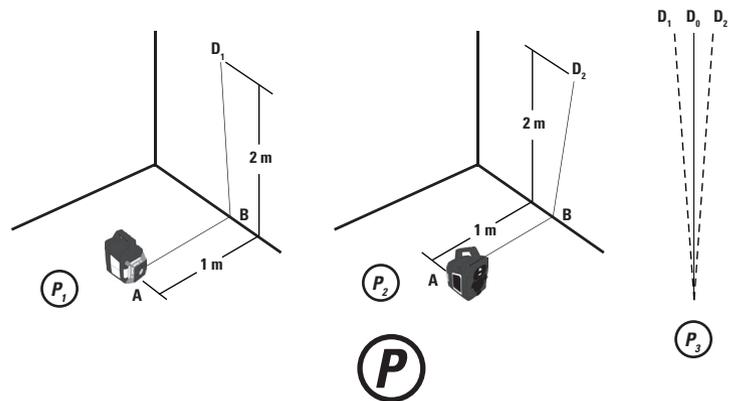
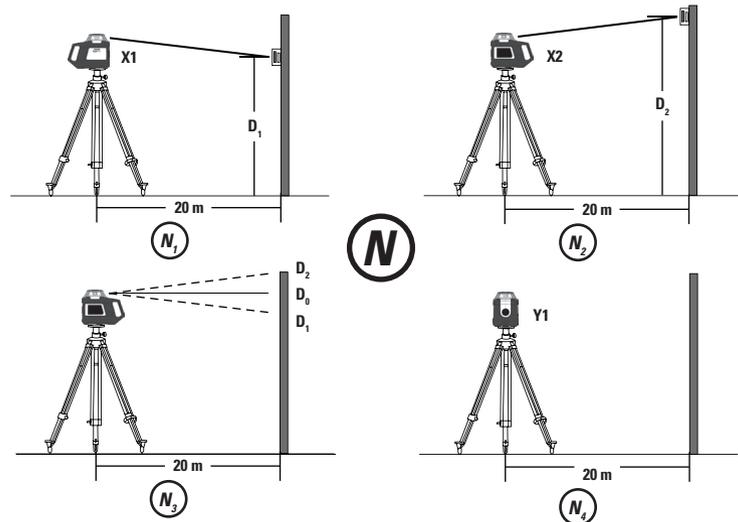
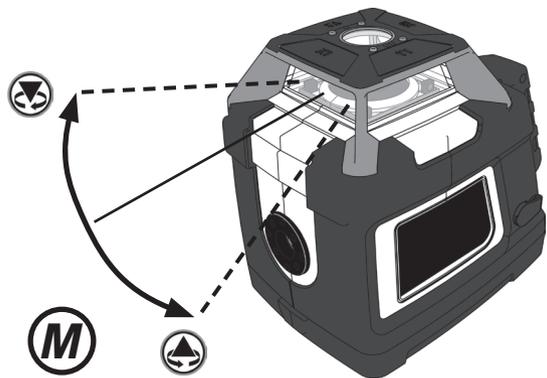
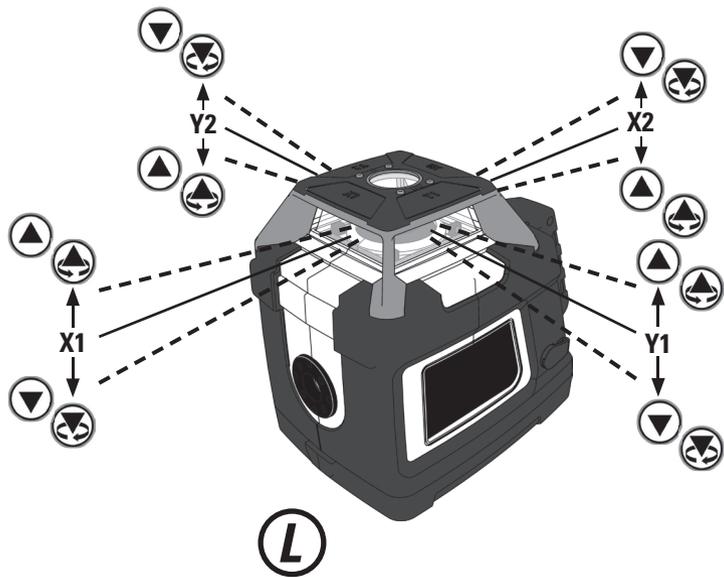
E₂ RL HW+



E₃ RL HV /
RL HVPW/RL HVPW-G



E₄ RL HGW



Contents

- Safety
- Product Overview
- Feature Set
- Keypad, LED, and LCD
- Batteries and Power
- Set Up
- Operation
- Accuracy Check and Calibration
- Specifications

User Safety

- WARNING:**
- Carefully read the **Safety Instructions** and **Product Manual** before using this product. The person responsible for the instrument must ensure that all users understand and adhere to these instructions.

- CAUTION:**
- While the laser tool is in operation, be careful not to expose your eyes to the emitting laser beam. Exposure to a laser beam for an extended time may be hazardous to your eyes.

- CAUTION:**
- Glasses may be supplied in some of the laser tool kits. These are **NOT** certified safety glasses. These glasses are **ONLY** used to enhance the visibility of the beam in brighter environments or at greater distances from laser source.

Retain all sections of the manual for future reference.

- WARNING:**
- The following label samples are placed on your laser tool to inform of the laser class for your convenience and safety. Please reference the **Product Manual** for the specifics on a particular product model.



IEC/EN 60825-1



Product Overview

Figure A - Laser Tool in Horizontal Position

1. Alignment Sight
2. Vertical Up Beam Window (**RL HV / RL HVPW**)/**RL HVPW-G**
3. Rotary Laser / Glass Enclosed
4. Charging / Power Adapter Plug Jack
5. Keypad (**See Figure E**)
6. Vertical Down Beam (**RL HVPW/RL HVPW-G**)
7. Infrared Sensor for Remote (**RL HW+ / RL HGW / RL HV / RL HVPW/RL HVPW-G**)

Figure B - Laser Tool in Vertical Position

Figure C - Laser Tool with Sighting Telescope Accessory (**RL HGW**)

8. Sighting Telescope
9. Sighting Telescope Mount Base

Figure D - Sighting Telescope

10. Eyepiece (*Shown with Cover ON*)
11. Reticle Focus
12. Windage / Elevation Adjustment Covers (**DO NOT OPEN / ADJUST**)
13. Locking Screws
14. Objective (*Shown with Cover ON*)

Figure E - Keypad Configurations

Figure F - Laser Tool Battery Location

15. Battery Pack
16. Optional Batteries - 4 x "C"
17. Battery Cartridge for use with 4 x "C" Batteries

Figure G - Remote Control

18. Infrared LED
19. Keypad

Figure H - Remote Control Battery Location

20. Batteries - 2 x "AAA"
21. Battery Compartment

Figure J - Bracket Accessory

22. Key Hole Slot for Wall Hanging
23. Ceiling Grid Clamp
24. Vertical (*Up / Down*) Fine Adjust Knob
25. Included 5/8 to 1/4 Adapter
26. Vertical Adjust Lock Knob
27. 5/8 Mounting Screw

Feature Set

	RL HW	RL HW+	RL HGW	RL HV	RL HVPW/-G
Horizontal Auto-Levelling	X	X	X	X	X
Tilt Warning	X	X	X	X	X
Manual Mode	X	X	X	X	X
Calibration Mode	X	X	X	X	X
IR sensor for remote		X	X	X	X
Vertical Auto-Levelling		X	X	X	X
Manual Slope Mode (NO Auto-Levelling)		X	X	X	X
Speed Select			X	X	X
Spot Mode			X	X	X
Scan Mode				X	X
Vertical Up Beam				X	X
Vertical Down Beam					X
Digital Slope Mode (with Auto-Levelling)			X		

28. Rotary Fine Adjust Knob
29. Tightening Knob
30. Magnetic Mount
31. Keyhole Mount for Additional Magnet and / or Clamp Accessories
32. Storage Location for 5/8 to 1/4 Adapter

Figure K - Tripod Mounting

33. 5/8 Center Screw
34. Leg Lock Lever

Figure L - Calibration and / or Slope Axis Direction

Figure M - Spot and / or Scan Rotation Direction

Figure N - Horizontal Check Setup

Figure P - Vertical Check Setup



Keypad, LED, and LCD

(See figure ⑤ to reference keypad display for each laser tool model)

Keypads

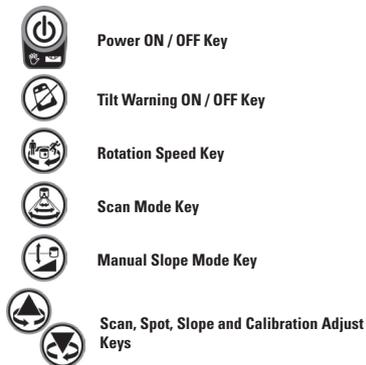
RL HW (See Figure ④)



RL HW+ (See Figure ⑤)



RL HV / RL HVPW / RLHVPW-G (See Figure ④)



RL HGW (See Figure ④)



LEDs



LCD Icons



Batteries and Power

Battery Installation / Removal

(See figure ㉔ and ㉕ to reference battery location of laser tool and remote control)

Laser Tool (See figure ㉔)

- Press tabs to open battery compartment and slide out.
- Install / Remove batteries. Orient batteries correctly when placing into laser tool.
- Securely close and lock battery compartment cover.

IR Remote Controller (See figure ㉕)

- Open battery compartment by sliding cover off.
- Install / Remove batteries. Orient batteries correctly when placing into laser tool.
- Securely close and lock battery compartment cover.

⚠ WARNING:

- Pay close attention to the battery holder's (+) and (-) markings for proper battery insertion. Batteries must be of same type and capacity. Do not use a combination of batteries with different capacities remaining.

Charging Battery

- For best life, the rechargeable battery must be charged for 4 hours before first use.
- Plug charging / power adapter plug into charging jack of laser tool
- Plug charging / power adapter into power outlet (110 V or 220 V) with appropriate plug receptacle.
- The LED on the charging / power adapter will light RED during charge.
- Leave battery to charge for approximately 4 hours to reach full charge.
- When battery is fully charged unplug the charging / power adapter from laser tool and power outlet.
- The LED on the charging / power adapter will light GREEN when charge is complete.



WARNING:

- Use charging / power adapter only with Ni-MH battery pack supplied. Charging any other type of battery may result in damage and/or personal harm.



WARNING:

- The battery and charging / power adapter can be damaged if damp. Always store and charge the tool in a dry and covered place.

NOTE:

- For best battery life, it is recommended to charge the battery once it has been fully discharged and avoid letting charge for > 10 hours at a time.

Operating with Charging / Power Adapter

- Laser tool can operate while plugged into charging / power adapter.
- Functions and controls of laser tool are the same as when not plugged into charging / power adapter.

Set Up

Positioning

(See Feature Set to reference which models offer Auto-Levelling in the given positions)

Horizontal Position (See figure ㉔)

- Place laser tool down on its bottom. Be sure surface is

near level. Press  to power ON.

Vertical Position (See figure ㉕)

- Place laser tool down on its side, handle facing up. Be

sure surface is near level. Press  to power ON.

At Angle



- Press  to power ON. Press and hold  to turn ON Manual Mode. Laser tool can now be positioned to various angles with auto-levelling mode OFF.



NOTE:

- To change between horizontal and vertical positions the laser tool must be powered OFF, repositioned, and then powered ON in the new position.

Mounting on Accessories

Mounting Bracket (See figure ㉔)

- Securely position wall bracket in a location to be measured.
- Visually orient the bracket mounting surface so that it is near horizontal.
- Mount the laser tool to the bracket and tighten the tightening knob.

Tripod Mount (See figure ㉕)

- Position a tripod in a place where it will not be easily disturbed and near the central location of the area to be measured.
- Extend tripod legs as required. Adjust leg positioning to be sure tripod head is near horizontal.
- Mount the laser tool to the tripod by pushing up the 5/8 center screw and tighten.



CAUTION:

- Do not leave the laser tool unattended on an accessory without fully tightening the center screw. Failing to do so may lead to the laser tool falling and sustaining possible damage.

NOTE:

- Either dome head, flat head or elevator type tripod can be used with the laser tool.
- It is best practice to always support laser tool with one hand when placing or removing laser tool from an accessory.
- If positioning over a target, partially tighten the 5/8 screw mount, align laser tool, and then fully tighten the 5/8 screw mount.

Sighting Telescope (RL HGW)

(The Alignment Sight on the top cover of the laser tool can be used for models that do not include the Sighting Telescope)

Mounting and Use (See figure ㉔)

- Loosen both locking screws on sighting telescope. Guide scope onto the mount base located on top of the laser tool with the objective (smaller end) towards the target (㉔). Securely tighten the locking screws (㉔).
- Remove the lens covers from the scope and roughly aim the laser tool / scope towards the target.
- Look through the eyepiece (larger end) and turn the reticle focus until the reticle (cross hair) is sharp and clearly visible.
- Look through the eyepiece to align the vertical line of the reticle with target. Adjust the distance between the eye and eyepiece to focus the target.

NOTE:

- Use of the alignment sight / sighting telescope is to accurately align and square the laser tool to a target when setting a slope for grade applications.
- The sighting telescope has been sighted-in by the manufacturer and should not require any additional adjustments. DO NOT attempt to adjust the windage and elevation of the sighting telescope. Doing so may cause inaccuracies in sighting the target and alignment of the laser tool.

Operation

NOTE:

- See Feature Set to reference which models offer specific functions / modes.
- See LCD / LED Descriptions for indications during operation.
- Before operating the laser tool always be sure to check the laser tool for accuracy.
- In Manual Mode, Auto-Levelling is OFF. The accuracy of the beam is not guaranteed to be level.
- Laser tool will indicate when it is out of compensation range. Reference LED / LCD Descriptions. Reposition laser tool to be closer to level.
- When not in use, please be sure to power OFF the laser tool.
- Because the laser tool is an instrument with high precision,



it is preferable to use the remote whenever possible to perform functions (when available).

- Laser tool is Auto-Levelling by default.
- Tilt Warning is ON by default when laser tool leaves the manufacturer.
- Tilt Warning is only available in the Auto-Levelling modes. Tilt Warning is not available while in Manual Mode.

Power



- Press to turn laser tool ON / OFF.
- When powered ON, Tilt Warning is ON by default (default setting can be changed).
- When powered ON, Laser tool begins Auto-Levelling.
- When Auto-Levelling has completed laser will rotate at last used RPM speed setting.

Tilt Warning (not available in Manual Mode)

- When powered ON, Tilt Warning is ON by default.
- When powered ON, press to turn Tilt Warning ON / OFF.
- With Tilt Warning ON, laser tool will indicate with LED / LCD and blinking laser beam when the laser tool has sensed any movement.
- If an alarm has been triggered, press to reset.
- When reset, the laser tool begins Auto-Levelling. Check alignment with original target.

Tilt Warning Default Setting

- When powered OFF, press and hold followed by .
- Release both keys.
- If Tilt LED / Icon is ON, default setting is ON. If Tilt LED / Icon is OFF default setting is OFF.
- Laser tool begins Auto-Levelling as done when normally powered ON.
- Repeating the steps will toggle ON / OFF the Tilt Warning default setting.

Manual Mode



- When powered ON, press and hold for ≥ 3 seconds to turn ON / OFF Manual Mode.
- Auto-Levelling is OFF in Manual Mode.

- Laser tool can be manually positioned at any angle.
- When Manual Mode is turned OFF, laser tool begins Auto-Levelling as done when initially powered ON.

Calibration Mode - see Accuracy Check and Calibration section

Manual Slope Mode

(For RL HW / RL HW+ substitute where ever



is referenced below)

- When powered ON, press . Manual Mode turns ON, Auto-Levelling OFF.

(For RL HWG needs to be pressed and held for ≥ 3 seconds to enter Manual Mode prior to pressing noted above)

- LED / LCD will indicate "X" axis adjust. Press to adjust axis.
- LED / LCD will indicate when at maximum slope angle. The axis will not move any further in that direction.
- Press again to set the "X" axis and / or proceed to the "Y" axis adjust.
- LED / LCD will indicate "Y" axis adjust. Press to adjust axis.
- LED / LCD will indicate when at maximum slope angle. The axis will not move any further in that direction.
- Press again to set the "Y" axis and / or proceed to use of laser tool in Manual Slope Mode.
- "X" and "Y" axis are now set at manually adjusted slopes.

- To turn Manual Slope Mode OFF, press and hold for ≥ 3 seconds.
- When Manual Mode is turned OFF, laser tool begins Auto-Levelling as done when initially powered ON.

NOTE:

- A single press of will change slope by 0,01%.
- Holding the key down will move the slope axis continuously, slowly at first, followed by a faster rate when held for an extended time.
- Reference Figure for resulting slope direction for each key.

Speed

- Press to toggle through the available speed settings from fastest to slowest to stopped.

Spot Mode

- Press to stopped (0 RPM) setting.
- Press to rotate the direction of the spot.

NOTE:

- A single press of will rotate the direction by 0,10°.
- Holding down the key will rotate the direction continuously, slowly at first, followed by a faster rate when held for an extended time.
- The laser will blink 3 x prior to moving at the faster rate.
- Reference Figure for resulting rotation direction for each key.

Scan Mode

- Press to cycle through available scan angles (15° / 45° / 90°).
- Press to rotate the direction of the scan.
- Press to turn OFF Scan Mode and return to the last used speed setting.

NOTE:

- A single press of will rotate the direction by 2,0°.
- Holding down the key will rotate the direction continuously, slowly at first, followed by a faster rate when held for an extended time.
- The laser will blink 3 x prior to moving at the faster rate.
- Reference Figure for resulting rotation direction for each key.

Digital Slope Mode (with Auto-Levelling)

- When powered ON, press .
- LCD will indicate "X" axis adjust. Press to adjust axis value.
- LCD will indicate when at maximum slope angle. The value will not continue any further in that direction.
- Press again to set the "X" axis and / or proceed to the "Y" axis value adjust.
- LCD will indicate "Y" axis adjust. Press to adjust axis value.
- LCD will indicate when at maximum slope angle. The value will not continue any further in that direction.
- Press again to set the "Y" axis and / or proceed to use of laser tool in Digital Slope Mode.
- Laser tool begins Auto-Levelling as done when initially powered ON and then the "X" and "Y" axis will slope to the set values.
- To turn Digital Slope Mode OFF, the laser tool power needs to be cycled. Press 2x to power OFF and back ON.

NOTE:

- A single press of will change the value by 0,01%.
- Holding the key down will move the value continuously, slowly at first, followed by a faster rate when held for an extended time.



- Reference Figure ① for resulting slope direction for each key.

Remote Control

- The same functions / modes for each specific laser tool are accessible through use with the keys available on the remote.
- The laser tool can be powered OFF with the remote by



pressing both  at the same time. The laser tool can only be powered ON with the power key on the laser tool.

Accuracy Check and Calibration

NOTE:

- See **Feature Set** to reference which models offer specific functions.
- The laser tools are sealed and calibrated at the factory to the accuracies specified.
- It is recommended to perform a calibration check prior to its first use and then periodically during future use.
- Be sure to allow the laser tool adequate time to Auto-Level (< 60 seconds) prior to a calibration check.
- The laser tool should be checked regularly to ensure its accuracies, especially for precise layouts.

Horizontal Check (See Figure ⑨)

- Set the laser tool on a tripod 20 m away from a wall with the "X1" side facing the wall (Ⓞ).
- Power ON the laser tool and allow the laser tool to Auto-Level and be sure laser is rotating.
- Go to the wall and mark a reference point "D₁" where the laser line is on the wall. If available, using a detector may help in locating the beam more easily.
- Loosen the laser tool from the tripod and rotate the laser tool 180° so that the "X2" side is now facing the wall (Ⓞ).
- Go back to the wall and measure the distance between the first reference point "D₁" and the second reference point "D₂" (Ⓞ).

- There is no need to adjust calibration if the distance between reference point "D₁" and "D₂" is < 2,0 mm.
- If the distance measured is ≥ 2,0 mm then a calibration adjustment is necessary.
- Perform the same steps for the "Y" axis as was done for the "X" axis. Replace "X1" and "X2" with Y1" and "Y2" (Ⓞ).

Horizontal Calibration (See Figure ⑩)

(For RL HW substitute  where ever  is referenced below)

(For RL HW / RL HW+ substitute  where ever  is referenced below)

- With laser tool powered OFF, press and hold  followed by .
- Release  and continue to hold  for ≥ 3 seconds.
- Release .
- The LED/LCD will indicate laser tool is in Calibration mode.

- If necessary, adjust the "X" axis by pressing until the laser beam is aligned with "D₀". "D₀" is the halfway point between "D₁" and "D₂" during "X" axis check.
- Press  again to set the "X" axis and / or proceed to the "Y" axis adjust.
- If necessary, adjust the "Y" axis by pressing until the laser beam is aligned with "D₀". "D₀" is the halfway point between "D₁" and "D₂" during "Y" axis check.
- Press  again to set the "X" axis and / or proceed to

exit Calibration Mode.

- Axis settings are now saved, Calibration Mode is OFF, and laser tool begins Auto-levelling as done when initially powered ON.

NOTE:

- A press of  will slope the axis by 3,5 arc seconds. Reference Figure ① for resulting slope direction for each key.
- If the laser tool can still not be calibrated after following the Calibration procedure, please send the laser tool into an Authorized Service Center for repair.

Vertical Check (See Figure ⑪)

(Only necessary on models with Vertical Auto-Levelling)

- Set the laser tool on a stable surface in its vertical position 1 m away from a wall that extends ≥ 2 m high with the "Y1" side facing that wall (Ⓞ).
- Power ON the laser tool and allow the laser tool to Auto-Level and be sure laser is rotating.
- Mark reference points "A" (where laser line is on floor 1 m away from wall), "B" (where laser beam is at corner), and "D₁" (where laser beam is 2 m up the wall).
- Rotate the laser tool 180° so that the "Y2" side is now facing the wall (Ⓞ).
- Align the laser beam with reference points "A" and "B" and then go back to the wall and measure the distance between the reference point "D₁" and "D₂" (Ⓞ).
- There is no need to adjust calibration if the distance between reference point "D₁" and "D₂" is < 1,0 mm.
- If the distance measured is ≥ 1,0 mm then a calibration adjustment is necessary.

Vertical Calibration (See Figure ⑫)

(For RL HW+ substitute  where ever  is referenced below)

- With laser tool powered OFF, press and hold  followed by .

- Release  and continue to hold  for ≥ 3 seconds.
- Release .
- The LED/LCD will indicate laser tool is in Calibration mode.
- If necessary, adjust the vertical "X" axis by pressing  until the laser beam is aligned with "D₀". "D₀" is the halfway point between "D₁" and "D₂" during vertical axis check.
- Press  to set the vertical "X" axis.
- Axis setting is now saved, Calibration Mode is OFF, and laser tool begins Auto-levelling as done when initially powered ON.

NOTE:

- A press of  will slope the axis by 3,5 arc seconds. Reference Figure ① for resulting slope direction for each key.
- If the laser tool can still not be calibrated after following the Calibration procedure, please send the laser tool into an Authorized Service Center for repair.



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