



说明书材质要求： 105g 有光铜版纸	说明书成品尺寸： 105*143mm
■ Black（单色印刷）	
折叠方式： 风琴折（20P 以下用风琴折）	备注：
特别注意：此页内容不印刷	

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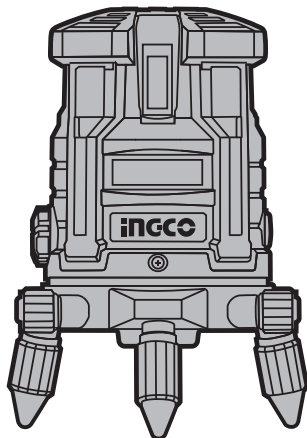
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	版本号	日期	设计师		

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**PRODUCT
MANUAL**

SELF-LEVELING LINE LASER



HLL306505 HLL305205



SCAN FOR VIDEO

Original Instructions

GENERAL POWER TOOL SAFETY WARNINGS

First of all, thank you to your choice on the handheld laser distance meter.

Please carefully read the safety instructions and the user manual before using this product, otherwise it may result in hazardous laser radiation and electric shock. The person responsible for the equipment must ensure that all users understand these directions and adhere to them.

Safety Instructions

1. This product is a class II laser product, please do not stare into beam at any time when operating this product.
2. Please do not looking directly into the beam with optical aids (e.g. binoculars, telescopes).
3. Please do not remove any safety labels on this product.

THE SYMBOLS IN INSTRUCTION MANUAL

	Read the instruction manual before using.
	CE conformity.
	Safety alert. Please only use the accessories supported by the manufacturer.
	Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your Local Authority or retailer for recycling advice.

This manual will show you how to get the most out of your laser tool.

Applications

This is a laser level with 5 red or green laser line generators and one plumb dot. The laser level is innovatively designed for a very broad range of professional and DIY jobs, including:

- Hanging cabinets and shelves.
- Setting floor and wall tiles.
- Drywall installation and hanging acoustic ceilings
- Framing and aligning windows and doors
- Leveling electrical outlets, plumbing and studs
- Accurately laying out right angles for flooring, fences, gates, decks and pergolas.
- Leveling slopes for stairs, rails, roofs and more. (manual mode)

NOTE

Keep this user manual for future reference.



FEATURES

- This laser tool automatically determines horizontal and vertical plans.
- The laser projects separately or simultaneously 1 horizontal and 4 orthogonal vertical red or green beams, intersected forward and on the ceiling as well as one plumb dot.
- Self-levels in automatic mode when the laser is positioned within its self-leveling range of $\pm 4^\circ$.
- Visual and audible warning will appear, when the laser is positioned beyond its self-leveling range.
- Pulse mode emits pulses that can be detected by a detector, increasing the product's range up to 50m/60m (165'/200').
- Manual mode allows angular layout/marketing.
- The locking mechanism protects the pendulum during transportation or when

the laser is not in use.

- Rubberized shock resistant casing.
- 5/8" tripod adaptor
- Height-adjustable support legs
- 360° micro-adjustable rotation.
- Powered by 4AA batteries
- Includes: 4 AA batteries, carry case and strap.

NOTE

This device contains precision components that are sensitive to external shock. An impact or fall may compromise its functionality. Handle with care to maintain its accuracy.

SAFETY INSTRUCTIONS

WARNING

This product emits radiation that is classified as class 3R according to EN 60825 -1

Laser radiation can cause serious eye injury

- Do not stare into the laser beam
- Do not position the laser beam so that it unintentionally blinds you or others.
- Do not operate the laser level near children or let children operate the laser level.
- Do not look into a laser beam using magnifying optical devices such as binoculars or a telescope, as this will increase the level of eye injury.
- Do not remove or deface warning labels on the laser level.
- Do not disassemble the laser level, laser radiation can cause serious eye injury.
- Do not drop the unit.
- Do not use solvents to clean the laser unit.
- Do not use in temperatures below -10°C or above 45°C (14°F to 113°F)
- Do not operate the laser in explosive surroundings such as flammable liquids, gases or dust. Sparks from tools can cause ignition.
- When not in use remove the batteries, engage the pendulum lock and place the laser in the carrying pouch.
- Make sure the pendulum lock mechanism is engaged before
- transporting the laser.

NOTE

If the Pendulum lock mechanism is not engaged before transportation, internal mechanical damage may occur.

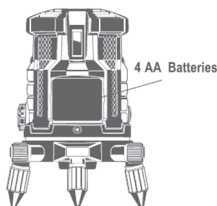
The red goggles are intended to enhance the visibility of the laser beam. They will not protect your eyes against laser radiation.

BATTERY INSTALLATION & SAFETY

This tool can be powered by 4AA batteries.

Installation of the 4 AA Batteries

1. Press down the latch of the cover and pull the battery cover.
2. Insert 4 new AA batteries of the same brand, according to the polarity diagram on the inside of the battery compartment.
3. Reclose the battery cover.



WARNING: Batteries can deteriorate, leak or explode, and may cause injury or fire.

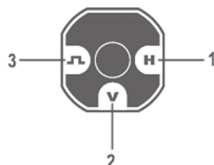
1. Do not shorten the battery terminals.
2. Do not charge Alkaline batteries.
3. Do not mix old and new batteries.
4. Do not dispose of batteries into household waste.
5. Do not dispose batteries in fire.
6. Defective or dead batteries must be disposed of, according to local regulations.
7. Keep the batteries out of reach of children.
8. The self-leveling line laser could work with 5V&2A output power adapter. Do not use adapters of other specifications for power supply.

NOTE

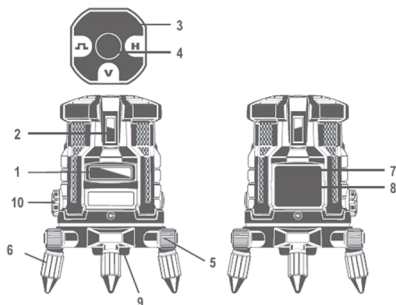
If the laser level will not be used for a long period, remove the batteries from the battery compartment. This will prevent batteries from leaking and corrosion damage.

OVERVIEW**Laser level**

1. Horizontal laser output window
2. Vertical laser output window
3. Keypad
4. Surface level
5. Fine adjustment knob
6. Adjustable support legs
7. Battery cover
8. Battery compartment
9. 5/8" Tripod threaded adaptor
10. Pendulum safety lock

**Keypad**

1. Horizontal line button
2. Vertical lines button
3. Pulse mode button

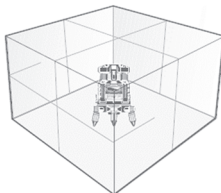


OPERATING INSTRUCTIONS

Working in Automatic mode (self-leveling):

In automatic mode the laser level, will level itself in a $\pm 4^\circ$ range and can project 1 horizontal, 4 vertical lines, and 1 plumb dot. These lines will create 1 cross line on the wall, and a second cross line on the ceiling.

1. Remove the laser from the case and place it on a flat, vibration free surface or on a tripod.
2. Adjust the unit's support legs (#6), or the tripod legs, until the surface level (#4) is centered.
3. Turn the pendulum safety lock (#10) clockwise to the ON position. The surface level at the center of the keypad (#4) will light up and the forward cross beam and plumb dot will be projected.
4. To direct the beams to the desirable position, turn the laser and use the fine-adjustment knob (#5) for precise positioning
5. Press the V button (#2) and the rear vertical beam will also be projected.
6. An additional click on the V button (#2) will project the additional 2 side vertical beams creating an additional cross beam above the laser.
7. One more, click on the V button (#2) will turn off all the vertical beams at once.
8. Press the H button (#1) to turn the horizontal beam on or off.
9. If the initial level of the laser is beyond $\pm 4^\circ$, the laser beams will flash and a beeping alarm will be heard. In this case reposition the laser on a more leveled surface.
10. Before moving the laser level, turn the pendulum safety lock (#10) counterclockwise to the OFF position. This will lock the pendulum and protect your laser.



Working in Manual mode:

In Manual mode the visual and audible warning is disabled and the laser beams can be set at any slope required.

1. If you use red laser, when long press on the button (#3), turn button (#10) to the ON position will activate the Manual mode;
2. If you use green laser, turn button (#10) to the ON position, then long press on the button (#3) will activate the Manual mode.
3. The laser will project blinking forward cross beams.
4. Choose the beams that you want to work with by pressing the V or H buttons.
5. To mark the slope, tilt the laser to the desired slope.
6. To turn the manual mode OFF, turn button (#10) to the OFF position.

Working in Pulse mode with a detector:

For outdoor work under direct sunlight, or bright conditions and for extended indoor ranges up to 50 or 60 meters, use the Pulse mode with a Detector.

When the Pulse mode is activated the laser beams will flash at a very high frequency (Invisible to the human eye) this will allow the detector to detect them.

1. The Pulse mode can be activated in Automatic and Manual modes.
2. To switch on the Pulse Mode, press the  button (#3).
3. When the Pulse mode is switched on, the visibility of the laser beams is reduced a little bit.
4. To switch off the Pulse Mode press the  button (#3) again.

MAINTENANCE

- To assure the accuracy of your project, check the accuracy of your laser level according to the field calibration test procedures.
- When the laser beams begin to dim, replace with new 4 AA batteries.
- Clean with a soft cloth, slightly dampened with a soap and water solution.
- Do not use harsh chemicals, cleaning solvents or strong detergents to clean the laser tool.
- Although the laser level is dust and dirt resistant to a certain degree, do not store in dusty places, as long-term exposure may damage internal moving parts.

- If the laser level is exposed to water, dry the laser level before returning it to the carrying case to prevent corrosion damage.
- Do not attempt to dry the laser level with heat or with an electric dryer.
- Remove the batteries if you do not intend to use the laser level for a long period of time, to prevent corrosion damage.
- Lock the unit before transporting it.

Repairs

- See the warranty section at the end of this manual.
- Do not take apart the Pro-laser or permit unqualified persons to disassemble the laser level.
- Repair the measuring tool through a qualified technician using original spare parts.
- Unauthorized service may cause eye injury, irreparable damage to the laser level and the warranty will be void.

FIELD CALIBRATION TEST

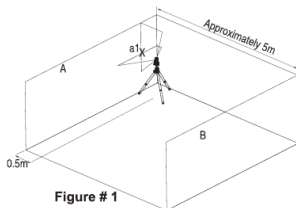
This laser level left the factory fully calibrated. We recommend the user check the accuracy of the laser periodically, especially if the unit falls or is mishandled.

1. Check the height accuracy of the horizontal beam.
2. Check the leveling accuracy of the horizontal beam.
3. Check the leveling accuracy of the vertical beam.
4. Check the perpendicularity between the 2 vertical beams.

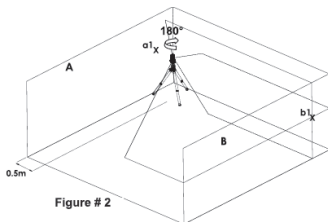
1. Checking the Height Accuracy of the Horizontal beam.

(Up and down deviation)

- 1) Set up the laser on a tripod or on a flat surface between two walls A and B, approximately 5 meters apart.
- 2) Position the laser level at approximately 0.5 meters from wall A
- 3) Unlock the pendulum safety lock (#10), to project the forward horizontal and the vertical cross beams towards wall A.
- 4) Mark the center of the cross beams on the wall as a1 (see figure #1)

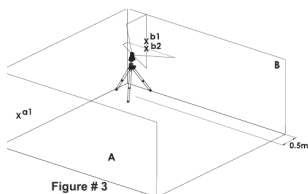


5) Turn the laser 180° towards wall B and mark the center of the cross beams as b1 on the wall (see figure #2)

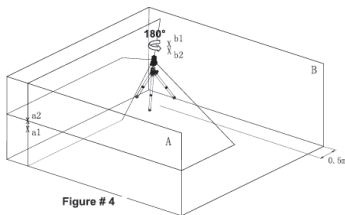


6) Move the laser level towards wall B positioning it at approximately 0.5 meters from wall B and adjust the laser so that the vertical beam passes through point b1.

7) On wall B, mark the center of the cross beams as b2 (see figure #3)



8) Turn the laser 180° towards wall A, and adjust the laser so that the vertical beam passes through point a1 and on the wall, mark the center of the cross beams as a2 (see figure #4)



9) Measure the distances:

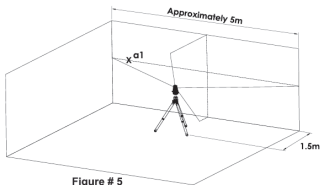
$$\Delta a = |a2 - a1|$$

$$\Delta b = |b1 - b2|$$

10) The difference $|\Delta a - \Delta b|$ should be no more than 2 mm, if otherwise, send the laser level to a qualified technician for repair.

2. Checking the Level Accuracy of the Horizontal beam. (Side to side inclination)

- 1) Set up the laser on a tripod or on a flat surface at a distance of approximately 1.5 meters from a 5 meter/16 feet long wall.
- 2) Unlock the pendulum safety lock (#10), to project the forward horizontal and vertical cross beams towards the wall.
- 3) Mark point a1 on the wall, in the middle of the horizontal line at the left edge of the horizontal beam (see figure #5)



- 4) Turn the laser level counterclockwise until the right edge of the horizontal beam reaches near a1, mark a point a2 on the wall in the middle of the horizontal beam(see figure #6)

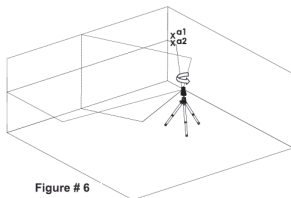


Figure # 6

- 5) The distance between a1 and a2, should be no more than 1 mm, otherwise send the laser level to a qualified technician for repair.

3. Checking the Accuracy of the Vertical beams.

- 1) Hang an approximately 4 meter/13 feet plumb line on a wall.
- 2) After the plumb line has settled, mark point a1 on the wall behind the plumb line, near the plumb cone, (see figure 7).

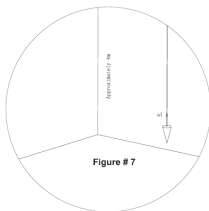
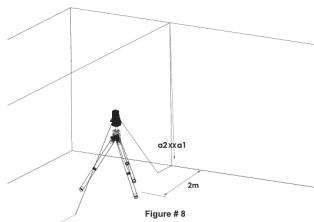


Figure # 7

- 3) Set the laser up on a trip or on a flat surface in front of the wall at a distance of approximately 2 meters/ 6.5 feet.
- 4) Unlock the pendulum safety lock (#10), to project the forward horizontal and vertical cross beams towards the plumb line.
- 5) Press the H (#1) button, to turn off the horizontal beam.

- 6) Use the micro - adjustment knob (#5), to turn the laser, so that the vertical beam will merge with the plumb line below the hanging point.
- 7) Mark point a2 on the wall, in the middle of the vertical beam at the same height as a1. (see figure 8).

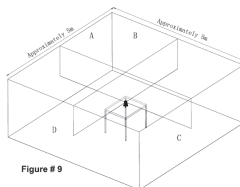


- 8) The distance between a1 and a2, should be no more than 1 mm, if otherwise, send the laser level to a qualified technician for repair.
- 9) Repeat the same procedure to check all other 3 vertical beams.

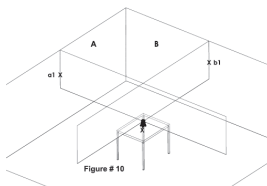
4. Checking 90° accuracy between the 2 vertical beams.

This procedure requires a room of at least 5x5 meters with 4 walls.

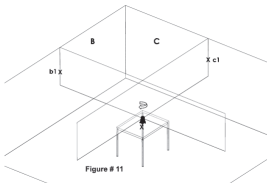
- 1) Set up the laser on the table or on the floor in the middle of the room
- 2) Unlock the pendulum safety lock (#10), to project the forward horizontal and vertical cross beams.
- 3) Press the H (#1) button to turn off the horizontal beam
- 4) Press the V (#2) button twice to project all 4 vertical beams.
- 5) Project the forward vertical beam towards wall A.
(see figure #9).



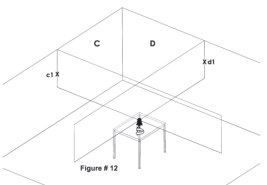
- 6) Mark point a1 on wall A in the middle of the forward vertical beam.
- 7) Mark point b1 on wall B, in the middle of the side vertical beam.
- 8) Mark the plumb dot position as x on the table. (see figure # 10).



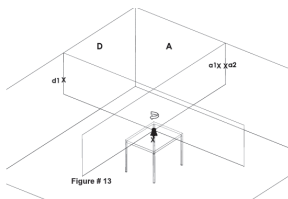
- 9) Rotate the laser clockwise so that the forward laser beam passes through mark b1 on wall B. Verify that the plumb dot is on mark X.
- 10) Mark point c1 on wall C, in the middle of the side vertical beam. (see figure #11).



- 11) Rotate the laser clockwise so that the forward laser beam passes through mark c1 on wall C. Verify that the plumb dot is on mark x.
- 12) Mark point d1 on wall D, in the middle of the side vertical beam. (see figure #12).



- 13) Rotate the laser clockwise so that the forward laser beam passes through mark d1 on wall D. Verify that the plumb dot is on mark x.
- 14) Mark point a2 on wall A, in the middle of the side vertical beam, near point a1 and at the same height. (see figure #13).



- 15) Measure the distances: Δ = from a1 to a2
- 16) The difference Δ from a1 to a2 should be no more than 3 mm, if otherwise, send the laser level to a qualified technician for repair.
- 17) Repeat the same procedure (1-16) to check the perpendicularity between the other 2 vertical beams.

SPECIFICATIONS

Model No.	HLL306505 HLL305205
Laser beams output pattern	Horizontal and forward vertical cross beams Horizontal, forward and backward vertical beams Horizontal and 4 orthogonal vertical beams Plumb down dot appears while vertical beam is ON Horizontal beam
Laser range	• Indoor-30m (100ft) • Outdoor with detector 50/60m (165/200ft)
Accuracy Accuracy (plumb Dot)	$\pm 0.2\text{mm/m}$ ($\pm 0.0002\text{in/in}$) $\pm 1\text{mm/1.2m}$
Fan angle	$120^\circ \pm 5^\circ$
Self-leveling Range	$\pm 4^\circ$
Laser line width	$2.5\text{ mm} \pm 0.5\text{mm/5m}$ ($0.10'' \pm 0.02''$ at 20')
Wavelength	$635 \pm 5\text{nm}$ / $520 \pm 10\text{nm}$ - Laser Class 3R
Power supply	4 AA batteries
Battery life	8 / 2.5 hours with 4AA batteries
Operating temp.	-10°C + 45°C (14°F + 113°F)
Storage temp.	-20°C + 60°C (-4°F + 140°F)
Water & dust proof	IP54
Dimensions	$\varnothing 140\text{mm} \times 195\text{mm}$ (0 5.5" x 8")
Weight without batteries	1015gr $\pm$ 10gr

