STANLEY®

5 - Beam Self-Leveling Spot Laser

PB-5

77-119

Please read these instructions before operating the product

Self-Leveling

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Contents

Safety

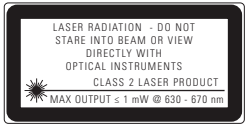
User Safety

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

Retain this manual for future reference.

IMPORTANT: The following labels are on your laser tool for your convenience and safety. They indicate where the laser light is emitted by the level. **ALWAYS BE AWARE** of their location when using the level.

EN 60825-1



DO NOT remove any warning label(s) on the housing. This instrument must only be used for leveling and layout tasks as outlined in this manual.

ALWAYS make sure that any bystanders in the vicinity of use are made aware of the dangers of looking directly into the laser tool.

DO NOT use in combination with other optical instruments. Do not modify the instrument, or make manipulations or use in other applications than those described in the manual.

DO NOT look into the beam with optical aids, such as magnifiers, binoculars or Telescopes.

DO NOT stare into the laser beam or direct it towards other persons. Make sure the instrument is not set at eye level. Eye protection is normally afforded by natural aversion responses such as the blink reflex.

DO NOT direct the laser beam at other persons.

ALWAYS turn the laser tool "OFF" when not in use. Leaving the laser tool "ON" increases the risk of someone inadvertently staring into the laser beam.

DO NOT operate the laser tool in combustible areas such as in the presence of flammable liquids, gases or dust.

DO NOT disassemble the laser tool. There are no user serviceable parts inside. Disassembling the laser will void all warranties on the product. Do not modify the product in any way. Modifying the laser tool may result in hazardous laser radiation exposure.

DO NOT use this instrument in areas where a risk of explosion is present.

NOTE: Since the laser beam is of the focused type, ensure you check the beam's path over a relatively long distance and take all necessary precautions to ensure the beam cannot interfere with other persons.

Battery Safety

WARNING: Batteries can explode or leak and can cause injury or fire. To reduce this risk:

ALWAYS follow all instructions and warnings on the battery label and package.

DO NOT short any battery terminals

DO NOT charge alkaline batteries.

DO NOT mix old and new batteries. Replace all of them at the same time with new batteries of the same brand and type.

DO NOT mix battery chemistries.

DO NOT dispose of batteries in fire.

ALWAYS keep batteries out of reach of children.

ALWAYS remove batteries if the device will not be used for several months.

NOTE: Ensure that the correct batteries as recommended are used.

NOTE: Ensure the batteries are inserted in the correct manner, with the correct polarity.

End of Life

DO NOT dispose of this product with household waste.

ALWAYS dispose of batteries per local code.

PLEASE RECYCLE in line with local provisions for the collection and disposal of electrical and electronic waste under the WEEE Directive.

Declaration of Conformity

The Stanley Works declares that the CE Mark has been applied to this product in accordance with the CE Marking Directive 93/68/EEC.

This product conforms with EN60825-1:2007.

For further details please refer to www.stanleyworks.com.

Product Description

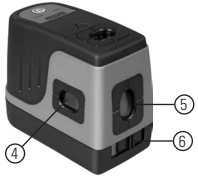
Package Contents

1. Laser Unit
2. Multi-Functional Base
3. Strap (use with Base)
4. Laser Target
5. Carrying Case
6. Batteries (2 x AA)
7. User Manual

Product Overview

Laser Unit

1. Window for Up Beam Laser
2. Keyboard
3. Window for Left Beam Laser



4. Window for Right Beam Laser
5. Window for Front Beam Laser
6. Main Power / Transport Lock

7. Window for Down Beam Laser
8. Laser Warning Label
9. 1/4 - 20 Threaded Mount
10. Battery Compartment Cover

Multi-Functional Base

1. 1/4 - 20 Screw Mount
2. Key Hole Slot for Hanging
3. Strapping Slots

4. 5/8 - 11 Threaded Mount
5. 1/4 - 20 Threaded Mount
6. Fine Tune Adjustment Screws
7. Magnet Mount

Level Beam Accuracy:	≤ 4 mm / 10 m (≤ 5/32 in / 30 ft)
Up Beam Accuracy:	≤ 1.5 mm / 3 m (≤ 1/16 in / 10 ft)
Down Beam Accuracy:	≤ 1.5 mm / 2 m (≤ 1/16 in / 6.5 ft)
Square Beam Accuracy:	≤ 4.5 mm / 10 m (≤ 3/16 in / 30 ft)
Working range:	Self-Leveling to ± 4°
Working distance:	≤ 30 m (≤ 100 ft)
Laser Class:	Class 2
Laser Wavelength:	635 nm ± 5 nm
Operating Time:	20 h
Power Voltage:	3 V
Power Supply:	2 x AA Batteries (Alkaline)
IP Rating:	IP54
Operating Temperature Range:	-10° C to +40° C (+14° F to +104° F)
Storage Temperature Range:	-20° C to +60° C (-4° F to +140° F)
Weight (without Base and Batteries):	430 g (15.1 oz)
Size:	105 mm × 50 mm × 120 mm (4 1/8 in × 2 in × 4 3/4 in)

Battery Installation / Removal

1. Turn laser unit over. Open battery compartment cover by pressing, sliding out. and flipping open.

2. Install / Remove batteries. Orient batteries correctly when placing into laser unit.

3. Close and lock battery compartment cover by flipping it down and sliding in until securely closed.

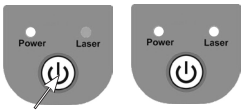
Laser Unit

Power OFF / Locked

1. Transport lock in locked position. Laser power is OFF.

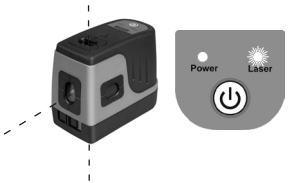
Power ON / Unlocked

2. Transport lock in unlocked position. Laser power is ON. Left LED indicator lights green when main power is on.



Laser ON / OFF

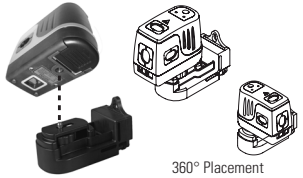
3. Press power key to power laser ON / OFF. Right LED lights green when laser power is on.



4. Laser beam(s) blink along with right LED to indicate the laser unit is out of the working range. Reposition laser unit to be more level.

5. Low battery - Left LED blinks red to indicate when battery power is low. Replace batteries.

Multi-Functional Base

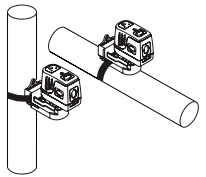


360° Placement

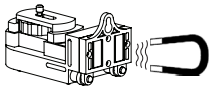
1. 1/4 - 20 screw mount to attach laser unit. Allows for full 360° placement of the laser unit.

Standard Mounts for Optional Tripod Mounting

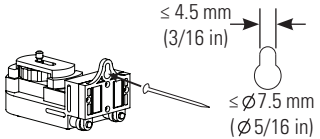
2. 1/4 - 20 or 5/8 - 11 thread mount available for optional accessories.



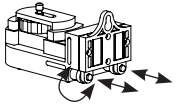
3. Attach to supportive objects with the included strap. Multiple positions available.



4. Attach to supportive magnetic objects with the built in magnets.

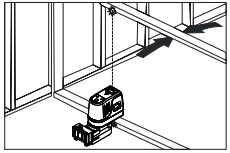


5. Key hole slot available for hanging onto a screw, nail, and/or similar object.

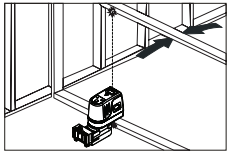


6. Angle can be altered by use of the fine adjustment screws.

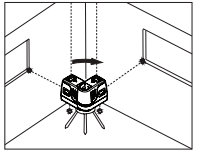
Applications



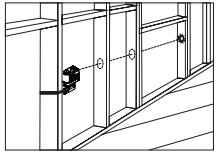
1. Plumb:
Establish 2 reference points that need to be plumb. Align one of the vertical laser beams to a set reference point. The opposing laser beam will be projecting a point which is plumb. Position the desired object until the laser beam is aligned with the second reference point that needs to be plumb with the set reference point.



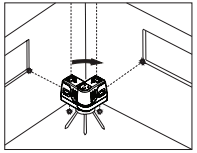
2. Point Transfer:
Align one of the vertical laser beams to a set reference point. The opposing laser beam will be projecting a point which is plumb. Mark point of the opposing laser beam.



Align the front beam laser to a set reference point. With a tripod or other stationary object, rotate the laser unit to project the front laser beam to a new location. This new location will be level with the first point. Mark point of the laser beam.



3. Level:
Use front laser beam to project level reference point out to desired object

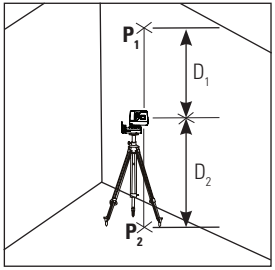


Establish 2 reference points that need to be level. Align the front beam laser to a set reference point. With a tripod or other stationary object, rotate the laser unit to project the front laser beam to a new location. This new location will be level with the first point. Position the desired object until the laser beam is aligned with the point that is being moved.

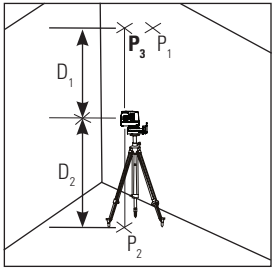
Calibration

NOTE: The laser unit has been calibrated at the time of manufacturing. Periodically check the accuracy of the laser unit to ensure that the calibrated specifications are maintained.

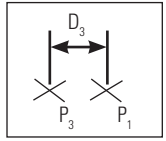
Up and Down Beam Accuracy



1. Place laser unit as shown with laser ON. Measure distances D_1 and D_2. Mark points P_1 and P_2.



2. Rotate laser unit 180° keeping same distances for D_1 and D_2. Align downward laser beam with point P_2. Mark point P_3.



3. Measure distance D_3 between points P_3 and P_1.

4. Calculate the maximum allowed offset distance and compare to D_3. If D_3 is not less than or equal to the calculated maximum offset distance the unit must be returned to your Stanley Distributor.

Maximum Offset Distance:

Max = (D_1 m x .5 $\frac{mm}{m}$) + (D_2 m x .75 $\frac{mm}{m}$)

= (D_1 ft x .0063 $\frac{in}{ft}$) + (D_2 ft x .0096 $\frac{in}{ft}$)

Compare:

$D_3 \leq$ Max

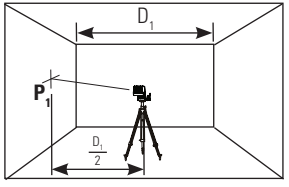
Example: D_1 = 3 m, D_2 = 1 m, D_3 = 1.5 mm

(*3 m* x .5 $\frac{mm}{m}$) + (*1 m* x .75 $\frac{mm}{m}$) = 2.25 mm (maximum allowed offset distance)

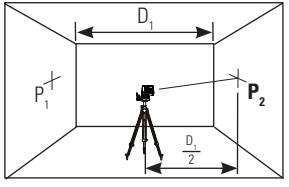
1.5 mm ≤ 2.25 mm (**TRUE**, unit is within calibration)

Level Beam Accuracy - Single Beam

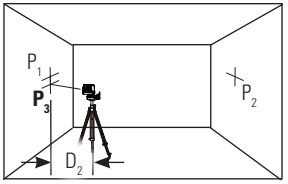
1. Place laser unit as shown with laser ON. Mark point P_1.



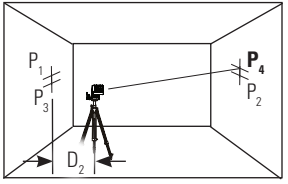
2. Rotate laser unit 180° and mark point P_2.



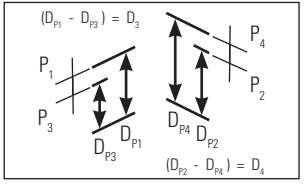
3. Move laser unit close to wall and mark point P_3.



4. Rotate laser unit 180° and mark point P_4.



5. Measure the vertical distance from the floor to each point. Calculate the difference between distances D_{P1} and D_{P3} to get D_3 and distances D_{P2} and D_{P4} to get D_4.



6. Calculate the maximum allowed offset distance and compare to the difference of D_3 and D_4 as shown in the equation. If the sum is not less than or equal to the calculated maximum offset distance the unit must be returned to your Stanley Distributor.

Maximum Offset Distance:

Max = 0,4 $\frac{mm}{m}$ x (D_1 m - (2 x D_2 m))

= 0,0048 $\frac{in}{ft}$ x (D_1 ft - (2 x D_2 ft))

Compare:

$D_3 - D_4 \leq \pm$ Max

Example: D_1 = 10 m, D_2 = 0,5 m

D_{P1} = 30,75 mm, D_{P2} = 29 mm, D_{P3} = 30 mm, D_{P4} = 29,75 mm

D_3 = (*30,75 mm - 30 mm*) = 0,75 mm

D_4 = (*29 mm - 29,75 mm*) = - 0,75 mm

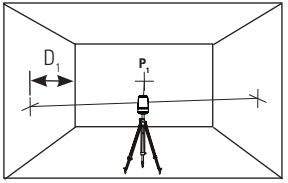
0,4 $\frac{mm}{m}$ x (*10 m* - (2 x *0,5 m*) = 3,6 mm (maximum allowed offset distance)

(*0,75 mm*) - (- 0,75 *mm*) = 1,5 mm

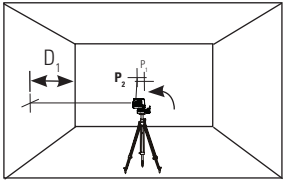
1,5 mm ≤ 3,6 mm (**TRUE**, unit is within calibration)

90° Beam Accuracy

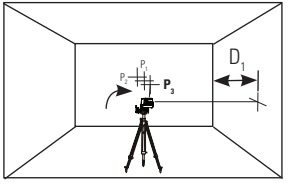
1. Place laser unit as shown with laser ON. Mark point P_1 .



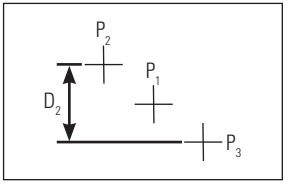
2. Rotate laser unit 90° and mark point P_2 .



3. Rotate laser unit 180° and mark point P_3 .



4. Measure the vertical distances between the highest and lowest points of the group.



5. Calculate the maximum allowed offset distance and compare to D_2 . If D_2 is not less than or equal to the calculated maximum offset distance the unit must be returned to your Stanley Distributor.

Maximum Offset Distance:

Max = $0{,}8 \frac{mm}{m} \times D_1$ m
= $0{,}0096 \frac{in}{ft} \times D_1$ ft

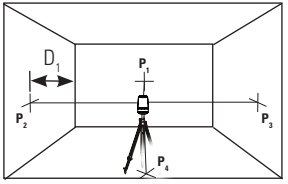
Compare:

$D_2 \leq$ Max

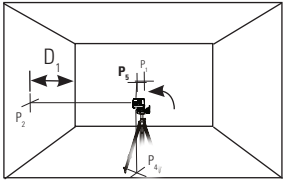
Example: D_1 = 10 m, D_2 = 5.5 mm
.8 $\frac{mm}{m}$ x *10 m* = 8 mm (maximum allowed offset distance)
5.5 mm ≤ 8 mm (**TRUE**, unit is within calibration)

Square Beam Accuracy

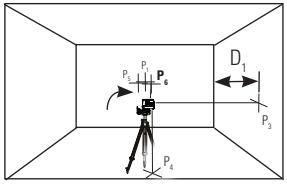
1. Place laser unit as shown with laser ON. Mark points P_1 , P_2 , P_3 , and P_4 .



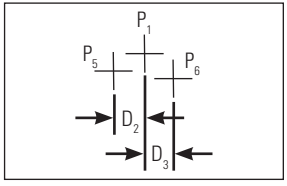
2. Rotate laser unit 90° keeping the down laser beam aligned with point P_4 and the front laser beam vertically aligned with point P_2 . Mark point P_5 .



3. Rotate laser unit 180° keeping the down laser beam aligned with point P_4 and the front laser beam vertically aligned with point P_3 . Mark point P_6 .



4. Measure the horizontal distance between points P_1 and P_5 to get distance D_2 and points P_1 and P_6 to get distance D_3 .



5. Calculate the maximum allowed offset distance and compare to D_2 and D_3 . If D_2 or D_3 are not less than or equal to the calculated maximum offset distance the unit must be returned to your Stanley Distributor.

Maximum Offset Distance:

Max $= 0{,}9 \frac{mm}{m} \times D_1 m$
$= 0{,}011 \frac{in}{ft} \times D_1 ft$

Compare:

D_2 and $D_3 \leq$ Max

Example: $D_1 = 5$ m, $D_2 = 2$ mm, $D_3 = 1.5$ mm
$.9 \frac{mm}{m} \times 5 m = 4.5$ mm (maximum allowed offset distance)
2 mm and *1.5 mm* ≤ 4.5 mm (**TRUE** and **TRUE**, unit is within calibration)

Maintenance and Care

Laser unit is not waterproof. **DO NOT** allow to get wet. Damage to internal circuits may result.

DO NOT leave laser unit in direct sunlight or expose it to high temperatures. The housing and some internal parts are made of plastic and may become deformed at high temperatures.

DO NOT store the laser unit in a cold environment. Moisture may form on interior parts when warming up. This moisture could fog up laser windows and cause corrosion of internal circuit boards.

When working in dusty locations, some dirt may collect on the laser window. Remove any moisture or dirt with a soft, dry cloth.

DO NOT use aggressive cleaning agents or solvents.

Store the laser unit in its case when not in use. If storing for extended time, remove batteries before storage to prevent possible damage to the instrument.

One Year Warranty

Stanley Tools warrants its electronic measuring tools against deficiencies in materials and/or workmanship for one year from date of purchase.

Deficient products will be repaired or replaced, at Stanley Tools' option, if sent together with proof of purchase to:

Stanley UK Sales Limited
Gowerton Road
Brackmills, Northampton NN4 7BW

This Warranty does not cover deficiencies caused by accidental damage, wear and tear, use other than in accordance with the manufacturer's instructions or repair or alteration of this product not authorised by Stanley Tools.

Repair or replacement under this Warranty does not affect the expiry date of the Warranty.

To the extent permitted by law, Stanley Tools shall not be liable under this Warranty for indirect or consequential loss resulting from deficiencies in this product.

This Warranty may not be varied without the authorisation of Stanley Tools.

This Warranty does not affect the statutory rights of consumer purchasers of this product.

This Warranty shall be governed by and construed in accordance with the laws of England and Stanley Tools and the purchaser each irrevocably agrees to submit to the exclusive jurisdiction of the courts of England over any claim or matter arising under or in connection with this Warranty.

IMPORTANT NOTE: The customer is responsible for the correct use and care of the instrument. Moreover, the customer is completely responsible for periodically checking the accuracy of the laser unit, and therefore for the calibration of the instrument.

Calibration and care are not covered by warranty.

Subject to change without notice

STANLEY®
MAKE SOMETHING GREAT™

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