

**Rotary Laser Owner's Guide**

# ***David White***<sup>®</sup>

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LR 410H  
LR 430HDV



**FOR CUSTOMER SERVICE, PARTS AND REPAIR CALL  
(765) 581-4097**

**[www.davidwhite.us.com](http://www.davidwhite.us.com)**

**IMPORTANT:**  
Read Before Using

**IMPORTANT:**  
Lire avant usage

**IMPORTANTE:**  
Leer antes de usar

# With David White your sights are set on precision and accuracy.

Congratulations! You've purchased a David White builder/contractor instrument, known throughout the world for precision and accuracy.

The purpose of this user's guide is to acquaint you with the instrument, its components, safety, proper care and handling.

Our levels, level-transits and transits are constructed to withstand extremely rugged field use. Like all precision instruments, however, they should be treated with reasonable care to prolong life and accuracy.

All instruments are adjusted when they are shipped from the factory. It is the customer's responsibility to check and to ensure instruments are adjusted prior to using.

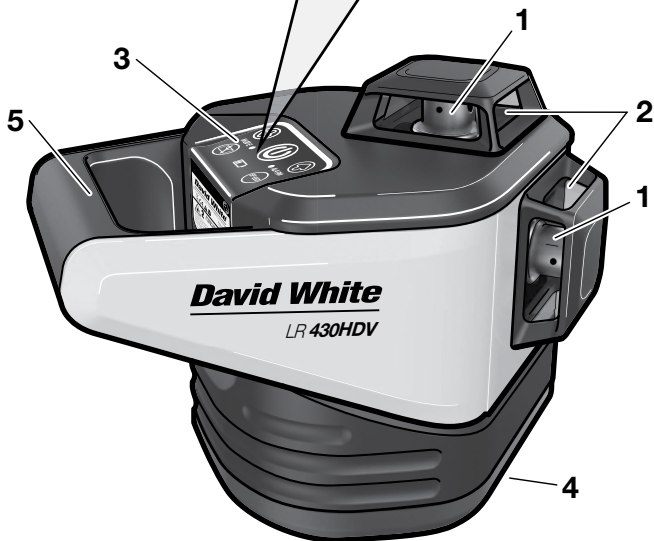
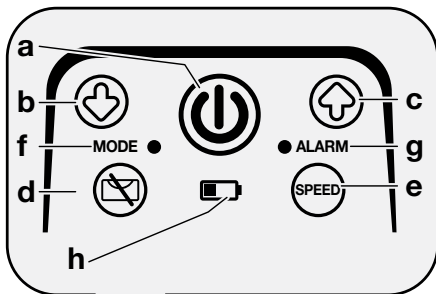
David White is not responsible for errors caused by instruments that are out of adjustment.

Contact your distributor, dealer or David White for information on the nearest facility to check if your instrument is properly adjusted.

All specifications are subject to change without notice.

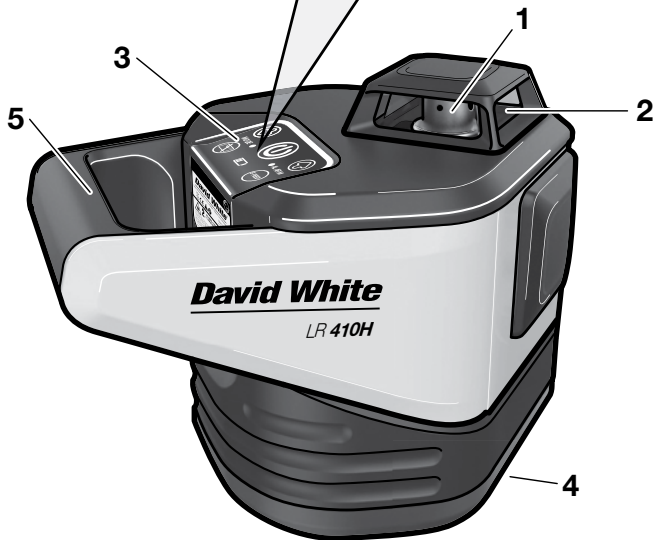
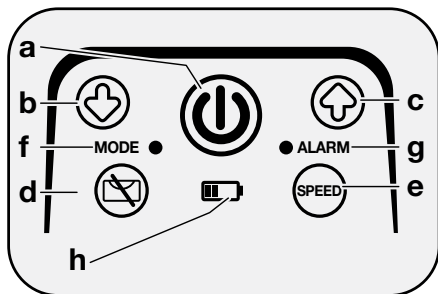


LR 430HDV

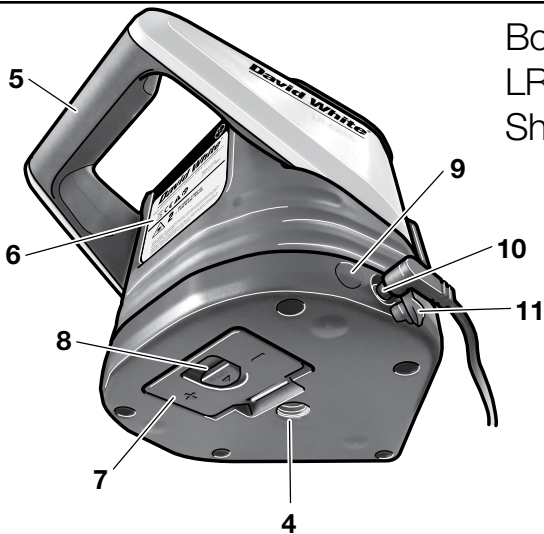




LR 410H



Bottom of  
LR-Series  
Shown



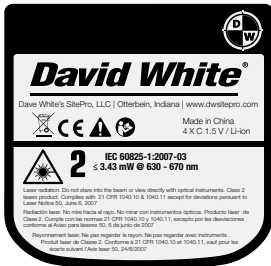
LR 430HDV



# GENERAL SAFETY RULES

**⚠ WARNING** Read all instructions. Failure to follow all instructions listed below may result in hazardous radiation exposure, electric shock, fire and/or serious injury.

All labels on your laser are for your safety and must not be removed. Removing labels increases the risk of exposure to laser radiation. Do not throw this manual away.



If glass light house breaks when dropped, contact customer service immediately. Broken glass can cause laceration hazard and unit to lose its IP rating.



**DO NOT** direct the laser beam at persons or animals and do not stare into the laser beam yourself. This tool produces laser class 2 laser radiation and complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007. This can lead to persons being blinded.

**DO NOT** remove or deface any warning or caution labels.

Removing labels increases the risk of exposure to laser radiation.

**Use of controls or adjustments or performance of procedures other than those specified in this manual, may result in hazardous radiation exposure.**

**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** place the laser tool in a position that may cause anyone to stare into the laser beam intentionally or unintentionally. Serious eye injury could result.

**ALWAYS position the laser tool securely.** Damage to the laser tool and/or serious injury to the user could result if the laser tool falls.

**ALWAYS use only the accessories that are recommended by the manufacturer of your laser tool.** Use of accessories that have been designed for use with other laser tools could result in serious injury or unsatisfactory performance.

**DO NOT use this laser tool for any purpose other than those outlined in this manual.** This could result in serious injury or unsatisfactory performance.

**DO NOT leave the laser tool “ON” unattended in any operating mode.**

**DO NOT disassemble the laser tool.** There are no user serviceable parts inside. Do not modify the product in any way. Modifying the laser tool may result in hazardous laser radiation exposure.

### **Work area safety**

**Keep work area clean and well lit.** Cluttered or dark areas invite accidents.

**DO NOT operate the laser tool around children or allow children to operate the laser tool.** Serious eye injury could result.

**DO NOT use instruments, attachments and accessories outdoors when lightning conditions are present.**

### **Electrical safety**

**Batteries can explode or leak, cause injury or fire.** To reduce this risk, always follow all instructions and warnings on the battery label and package.

**Remove the batteries from the tool when not using it for extended periods.** When storing for extended periods, the batteries can corrode and discharge themselves.

**DO NOT short any battery terminals.**

**DO NOT charge alkaline batteries.**

**DO NOT mix old and new batteries.**

**Replace all old batteries at the same time with new batteries of the same brand and type.**

**DO NOT mix battery chemistries. Dispose of or recycle batteries per local code.**

**DO NOT dispose of batteries in fire.** Keep batteries out of reach of children.

### **Personal safety**

**Stay alert, watch what you are doing and use common sense when operating a tool. Do not use a tool while you are tired or under**

**the influence of drugs, alcohol or medication.** A moment of inattention while operating a tool may result in serious personal injury or incorrect measurement results.

**Use safety equipment. Always wear eye protection.** Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.

**DO NOT use the laser viewing glasses as safety goggles.** The laser viewing glasses are used for improved visualization of the laser beam, but they do not protect against laser radiation.

**DO NOT use the laser viewing glasses as sun glasses or in traffic.** The laser viewing glasses do not afford complete UV protection and reduce color perception.

**DO NOT use any optical tools such as, but not limited to, telescopes or transits to view the laser beam.** Serious eye injury could result.

**DO NOT stare directly at the laser beam or project the laser beam directly into the eyes of others.** Serious eye injury could result.

**Use caution when using instruments in the vicinity of electrical hazards.**



## Magnets

**Keep the tool and laser target away from cardiac pacemakers.** The magnets of the tool and

laser target plate generate a field that can impair the function of cardiac pacemakers.

**Keep the tool and laser target away from magnetic data medium and magnetically-sensitive equipment.**

The effect of the magnets of the tool and laser target plate can lead to irreversible data loss.

## Use and care

**Use the correct tool for your application.** The correct tool will do the job better and safer.

**Do not use the tool if the switch does not turn it on and off.** Any tool that cannot be controlled with the switch is dangerous and must be repaired.

**Store idle tool out of the reach of children and do not allow persons unfamiliar with the tool or these instructions to operate the tool.**

Tools are dangerous in the hands of untrained users.

**Maintain tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the**



**operation.** If damaged, repair tool before use. Many accidents are caused by poorly maintained tools.

**Use the tool, accessories, etc., in accordance with these instructions and in the manner intended for the particular type of tool, taking into**

**account the working conditions and the work to be performed.** Use of the tool for operations different from those intended could result in a hazardous situation.

**SAVE THESE INSTRUCTIONS.**

## CHARGER SAFETY RULES

**⚠ WARNING** Please read and respect all instructions for the safe operation of the charger to avoid electric shocks, injuries and fire.

**Keep the charger away from rain or moisture.** If not, it can cause electric shocks.

**Do not charge other batteries with this charger.** The charger must only be used for charging the Li-Ion batteries in the scope of delivery. Do not charge alkaline batteries.

**Keep the contacts and the charger clean.**

**Before using the charger, please make sure that the cables and**

**plugs are not damaged.** If they are, please give the defective parts to a qualified service center using original replacement parts.

**Do not put the charger on paper or other flammable materials.** The heat of the charger can cause fire.

**Under abusive conditions liquids can leave the batteries. Avoid contact.** If you are in contact with the liquid, clean with water. If the liquid is in contact with your eyes, seek medical attention. The batteries must not be opened and must be protected from permanent sun.

**Children must not play with the charger, even not under supervision.**

## INTENDED USE

The instrument is intended for determining and checking precise horizontal (LR 410H) and vertical (LR 430HDV only) lines and 90° angles. The instrument is suitable for indoor and outdoor use.

# FEATURES

The numbering of the product features shown refers to the illustration of the instrument on the graphic page.

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>1. Rotating Laser Beacon</li> <li>2. Glass Lighthouse</li> <li>3. Control Keypad</li> <li>3a. Power Button</li> <li>3b. Slope Adjustment / Counter-Clockwise Beam Positioning Button</li> <li>3c. Slope Adjustment / Clockwise Beam Positioning Button</li> <li>3d. Manual Mode Button</li> </ul> | <ul style="list-style-type: none"> <li>3e. Variable Rotation Speed / Scanning Button</li> <li>3f. MODE Indicator</li> <li>3g. ALARM Indicator</li> <li>4. 5/8-11 Tripod Mount</li> <li>5. Carrying Handle</li> <li>6. Nameplate / Warning Label</li> <li>7. Battery Lid</li> <li>8. Latch of Battery Lid</li> <li>9. Battery Charging Indicator</li> <li>10. Battery Charging Port</li> <li>11. Charging Port Plug</li> </ul> |
|--|---|

# TECHNICAL DATA

	LR 410H	LR 430HDV
<b>Leveling</b>	Horizontal	Horizontal w/ 90° Verticals
Horizontal Accuracy	±3/32-in at 100-ft (±2.25mm at 30m)	±3/32-in at 100-ft (±2.25mm at 30m)
Vertical Accuracy	n/a	±1/8-in at 100-ft (±3mm at 30m)
Angle Accuracy	20"	20"
Leveling Type	Electronic Self-Leveling (±4°)	Electronic Self-Leveling (±4°)
<b>Slope/Grade Capability</b>	Single Axis up to ±4°	Single Axis up to ±4°
<b>Working Range</b> (approx.)		
Without Detector	65-ft (20m)	65-ft (20m)
With Detector	1150-ft (350m)	1150-ft (350m)
<b>Beam Rating</b>	635 nm, Class 2	635 nm, Class 2
<b>Rotation Speed</b>	400, 800, 2200 RPM	400, 800, 2200 RPM

	LR 410H	LR 430HDV
<b>Scanning</b>	Yes	Yes
<b>Power Supply</b>	Four (4) C Cell Alkaline or Li-on Rechargeable Batteries	Four (4) C Cell Alkaline or Li-on Rechargeable Batteries
<b>Operating Time</b>	Hours are approximate and based on continuous use, and how many beams are ON.	
w/ Li-Ionen Battery	16 hrs	8 to 16 hrs
w/ Alkaline Batteries	22 hrs	11 to 22 hrs
<b>Environment</b>	IP55, Water/Dust Resistant	IP55, Water/Dust Resistant
Operating Temp.	14° to 112° F (-10° to + 45° C)	14° to 112° F (-10° to + 45° C)
Storage Temperature	-4° to 158° F (-20° to 70° C)	-4° to 158° F (-20° to 70° C)
<b>Dimension</b>	8.5 x 6.0 x 6.2-in (215 x 150 x 156mm)	8.5 x 6.0 x 6.2-in (215 x 150 x 156mm)
<b>Weight</b> (instrument only)	4.2 lb (1.9 kg)	4.7 lb (2.07 kg)

Please note: Specifications are subject to change without notification.

## PREPARATIONS

### Inserting/Replacing Battery

Alkaline batteries or rechargeable Lithium-ion (Li-ion) battery pack are suitable for use to power your instrument.

**⚠ WARNING** Always replace all alkaline batteries at the same time. Only use batteries from one brand and with the identical capacity.

Remove the batteries/pack from the tool when not using it for extended periods. When storing for extended periods, the batteries can corrode and discharge themselves.

To open the battery compartment, slide the latch **8** in the direction of the

arrow and fold the battery lid **7** up.

Insert batteries using correct polarity as illustrated on the outside of the battery lid.

When inserting alkaline batteries, pay attention to the correct polarity according to the representation on the inside of the battery compartment.

**Always replace all batteries at the same time.** Only use batteries from one brand and with the identical capacity.

Remove the batteries from the instrument when not using it for extended periods. When storing for extended periods, the batteries can

corrode and discharge themselves.

When using rechargeable Li-ion batteries for the first time, be sure to charge for several hours.

## **Charging Rechargeable Li-ion Battery Pack (sold separately)**

**If you are using rechargeable  
Li-ion battery pack, following these  
instructions.**

Insert the charger into the wall outlet. Remove the charging port plug **11** and insert the charger plug into charging port **10** of the instrument.

The charger indicator **9** will display:

1. Red light - Battery is charging but not fully charged. Make take up to 7 hrs to fully charge
2. Green light - Battery is fully charged and ready for use

Requirements for the charger:  
Frequency: 50-60HZ; Voltage: 100-240V (0.36A).

Instrument can be used while charging rechargeable battery pack.

Brand-new rechargeable batteries or rechargeable batteries unused for long period need to be recharged and discharged three times to attain full capacity.

# OPERATION

**⚠ WARNING** Do not subject the instrument to

**extreme temperatures or variations in temperature.** As an example, do not leave it in vehicles for long time. In case of large variations in temperature, allow the instrument to adjust to the ambient temperature before putting it into operation. In case of extreme temperatures or variations in temperature, the accuracy of the instrument can be impaired.

**Avoid heavy impact to or falling down of the instrument.** After severe exterior effects to the instrument, it is recommended to carry out an

accuracy check each time before continuing to work.

This instrument has been calibrated to precise accuracies at the factory. However, an accuracy check is recommended before the initial use of the instrument and then periodically. **See Accuracy Check.**

## **Setting Up the Instrument**

Position the instrument on a firm surface, mount it to a tripod or to the wall mount with alignment unit. Due to the high leveling accuracy, the instrument reacts sensitively to ground vibrations and position

changes. Therefore, pay attention that the position of the instrument is stable in order to avoid operational interruptions due to re-leveling.

## Switching On and Off

To **switch on** the instrument, press **⏻ 3a**. The instrument automatically starts leveling and the MODE indicator **MODE 3f** flashes green, the laser flashes.

The instrument is leveled in as soon as MODE indicator **MODE 3f** continuously lights up green and the laser beam is steady. The horizontal

laser automatically starts in rotational operation.

The laser instrument can stand alone on a level, sturdy surface or preferably secured to a 5/8-11 tripod.

**If the instrument is placed improperly, or the slope of instrument exceeds the range of +/-4°, the MODE indicator **MODE 3f** flashes red and the laser beam flash. Reposition the instrument that it is more horizontal or level.**

To **switch off** the instrument, press and hold the power button **3a** for three (3) seconds.

# OPERATION MODES

## Variable Rotational Speed

The rotational speed of the instrument can be adjusted while instrument is in rotational operation. For optimal use with detector, use 800 or 2000 rotations per minute (RPM).

Press **⚙️ 3e** to adjust the rotational speed between 400, 800, and 2000 RPM.

## Scanning/Sweep Mode

The scanning mode creates a shorter, brighter laser “chalk line” that can be used for leveling. Long press the **⚙️ 3e** to switch to scanning mode. The initial scanning angle is a 10° sweep.

Press **⚙️ 3e** to adjust scanning angle between 10°, 45°, 90°.

## 3D Laser Plane Operation (LR 430HDV Only)


This operation activates the horizontal and two vertical rotating laser planes. You can select between different plane combinations:


1. Horizontal Laser Plane
2. Vertical Laser Plane
3. Horizontal and Vertical Plane
4. Horizontal and Two 90° Vertical Planes

Press **⏻ 3a** to switch between the different operations.


## Manual Mode

Manual mode operation disengages the self-leveling operation. This allows the instrument to be placed in any position, at any angle or slope.



Press  **3d** to enter manual mode. The ALARM indicator **3g** lights up red and automatic self-leveling is deactivated.

To switch to self-leveling mode, press  **3d**.

## Slope Mode

The slope of the rotational plane can be adjusted for X-axis. While the instrument is set up and leveled press  **3d** to switch to Manual Mode.

Aim the X1-beam to the direction of the slope required.

Press  **3b** to adjust x-axis downward or  **3c** to adjust x-axis upward. Position the laser beam up or down until the beam slope is set at the desired position.

To return to automatic self-leveling operation, press  **3d** again. Allow time for the instrument to self-level.

## Alarm System

The ALARM system alerts user when the laser instrument can not level. When the ALARM indicator **3g** flashes red light, the laser is out of its self-leveling range. The ALARM indicator **3g** lights up red and automatic self-leveling is deactivated.

# ACCURACY CHECK

The ambient temperature has the greatest influence. Especially temperature differences occurring from the ground upward can divert the laser beam. The deviations play a role in excess of approx. 65-ft (20m) measuring distance and can easily reach two to four times the deviation at 330-ft (100m). Because the largest difference in temperature layers is close to the ground, the instrument should always be mounted on a

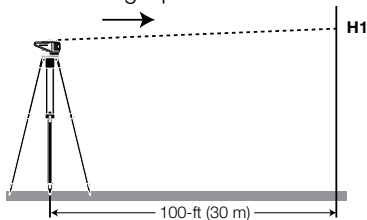
tripod when measuring distances exceeding 65-ft (20m). If possible, also set up the instrument in the center of the work area.

## Checking the Leveling Accuracy

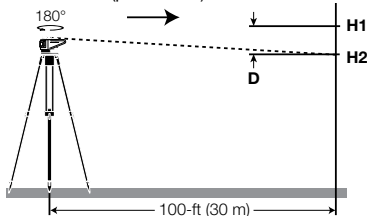
Apart from exterior influences, device-specific influences (such as heavy impact or falling down) can lead to deviations. Therefore, check the accuracy of the instrument each time before starting your work. A free

measuring distance of 100-ft (30m) on a firm surface is required for the check.

- Mount the instrument in the horizontal position onto a tripod or place it on a firm and level surface near wall. Switch the instrument on. Position the X-axis to aim to a wall or target plate.



- After the leveling, mark the center of the laser beam on wall (point **H1**).
- Rotate the instrument by 180°, allow it to level in and mark the center point of the laser beam on the wall (point **H2**).



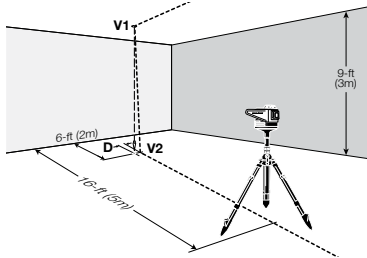
- The difference **D** of both marked points **H1** and **H2** on wall is the actual deviation of the instrument for the measured axis.

The value of **D** (deviation) should be less than 7/32-in (5mm).

## Checking the Vertical Alignment (LR 430HDV Only)

A free measuring distance of 16-ft (5m) on a firm surface is required.

- Place the laser instrument on a flat, level surface or mount onto a tripod approximately 16-ft (5m) from a wall.
- Hang a plumb bob from ceiling a minimum 6-ft (2m) from wall **V1**.
- Switch the instrument on and allow the instrument to self-level. Activate the vertical rotating laser.
- Position the vertical laser plane to align at point **V1**.



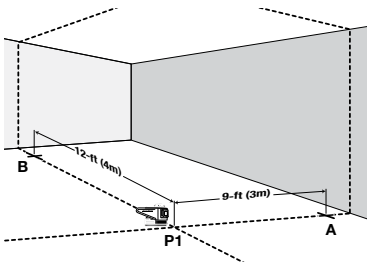
- If needed, allow the instrument to self-level again.
- The difference **D** between the point of the plumb bob and **V2** is the actual deviation of the instrument for the measured axis.

The value of **D** (deviation) should be less than 3/64-in (1.15mm).

- Check the alignment of the second vertical laser plane.

### Checking the 90° Vertical Planes (LR 430HDV Only)

- Place the laser instrument on a flat, level surface or mount onto a tripod in the corner of room approximately 10-ft (3.2m) from one wall and 12-ft (4.2m) from the other wall.
- Switch the instrument on and allow the instrument to self-level. Activate the vertical rotating laser.
- Measure exactly 12-ft or 4m from the laser point **P1** of the instrument and the vertical laser plane. Mark this point **B** on the floor.



- Measure exactly 10-ft or 3m from the laser point **P1** of the instrument and the opposite laser plane. Mark this point **A** on the floor.
- Measure the distance **C** between point **A** and **B**. The value of **C** should be 15-ft (5m), but may deviate within +/- 1/32-in (0.8mm).

## LD20 DETECTOR (OPTIONAL)

Your instrument may include the LD20 Rotary Laser Detector. If your David White instrument is packaged with another model or you would like learn more about our laser detectors and other accessories, visit [www.davidwhite.us.com](http://www.davidwhite.us.com)

The detector aids in locating and targeting a visible or invisible beam emitted by a rotary laser instrument; perfect for use in outdoor conditions, where sunlight and distance may make locating the beam more difficult.

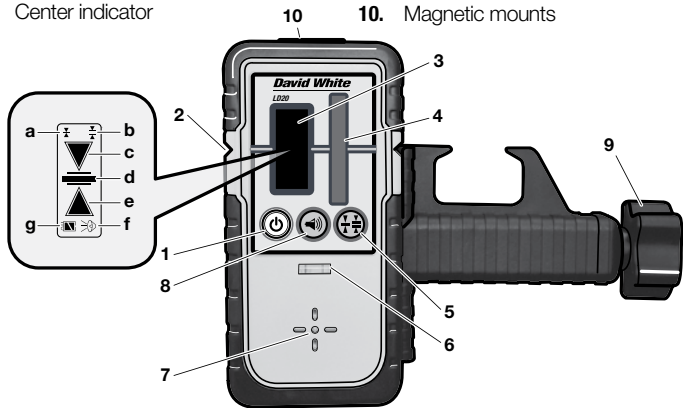
The laser detector includes a rod clamp which allows to mount the detector onto square, round or oval sighting rods.



## LD20 FEATURES

The numbering of the product features shown refers to the illustration of the tool above.

1. On/Off switch
2. Center mark
3. LCD Display
- 3a. "Fine" adjustment indicator
- 3b. "Coarse" adjustment indicator
- 3c. Direction indicator "move downward"
- 3d. Center indicator
4. Reception area for the laser beam
5. Button for adjustment of measuring accuracy
6. Spirit level
7. Speaker
8. Audio signal button
9. Locking screw for leveling rod
10. Magnetic mounts



## LD20 PREPARATIONS

### Inserting/Replacing the Battery

9V alkaline battery is recommended for the tool.

When the batteries are low, the battery low indicator **g** will display.

Pull the latch of battery lid outward and open the battery lid.

**Remove the battery when not using it for extended periods.** When storing for extended periods, the battery can corrode and discharge.

# MAINTENANCE AND SERVICE

**Store and transport the tool only in the supplied protective case.**

**Keep the tool clean at all times.**

**Do not immerse the tool into water or other fluids.**

**Wipe off debris using a moist and soft cloth.** Do not use any cleaning agents or solvents.

**Regularly clean the surfaces at the exit opening of the laser in particular, and pay attention to any fluff of fibers.**

If the tool should fail despite the care taken in manufacturing and testing procedures, repair should be carried out by an authorized after-sales service center for Dave White's SitePro instruments. In all correspondence and spare parts orders, please always include the model number and serial number of the instruments.

**All precision instruments should be cleaned, lubricated, checked and adjusted ONLY at a qualified instrument repair station or by the manufacturer, at least once a year.**

**In case of repairs, send in the instrument packed in its protective case.**

## ENVIRONMENT PROTECTION



Recycle raw materials & batteries instead of disposing of waste. The unit, accessories, packaging & used batteries should be

sorted for environmentally friendly recycling in accordance with the latest regulations.

# LIMITED WARRANTY

Dave White's SitePro ("Seller") warrants to the original purchaser only, that all David White laser tools and optical instruments will be free from defects in material or workmanship for a period of two (2) years from date of purchase.

SELLER'S SOLE OBLIGATION AND YOUR EXCLUSIVE REMEDY under this Limited Warranty and, to the extent permitted by law, any warranty or condition implied by law, shall be the repair or replacement of parts, without charge, which are defective in material or workmanship and which have not been misused, carelessly handled, or misrepaired by persons other than Seller or Authorized Service Center. To make a claim under this Limited Warranty, you must return the complete laser, optical instrument or David White product, transportation prepaid, to SITEPRO Service Department or Authorized Service Center. Please include a dated proof of purchase with your tool. For locations of nearby service centers, please call 1-855-354-9881.

THIS LIMITED WARRANTY DOES NOT APPLY TO ACCESSORY ITEMS SUCH AS TRIPODS, RODS, HAND LEVELS, FIELD SUPPLIES, TAPES, MOUNTING DEVICES AND OTHER RELATED ITEMS. THESE ITEMS RECEIVE A 90 DAY LIMITED WARRANTY.

To make a claim under this Limited Warranty, you must return the complete product, transportation prepaid. For details to make a claim under this Limited Warranty please visit [www.davidwhite.com](http://www.davidwhite.com) or call 1-855-354-9881.

ANY IMPLIED WARRANTIES SHALL BE LIMITED IN DURATION TO ONE YEAR FROM DATE OF PURCHASE. SOME STATES IN THE U.S., AND SOME CANADIAN PROVINCES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING BUT NOT LIMITED TO LIABILITY FOR LOSS OF PROFITS) ARISING FROM THE SALE OR USE OF THIS PRODUCT. SOME STATES IN THE U.S., AND SOME CANADIAN PROVINCES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE IN THE U.S., OR PROVINCE TO PROVINCE IN CANADA AND FROM COUNTRY TO COUNTRY.

THIS LIMITED WARRANTY APPLIES ONLY TO PRODUCTS SOLD WITHIN THE UNITED STATES OF AMERICA, CANADA AND THE COMMONWEALTH OF PUERTO RICO. FOR WARRANTY COVERAGE WITHIN OTHER COUNTRIES, CONTACT YOUR LOCAL SITEPRO DEALER OR IMPORTER.





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