

Lufkin®

PRO SERIES

Self Levelling Rotary Laser Kit (with Gradient)

LSL250 User Guide



Lufkin LSL250

Professional rotary laser in extremely rugged design – horizontal levelling even under tough conditions.

Automatic rotary laser 635 nm, self-levelling range $\pm 5^\circ$ horizontal, accuracy 1 mm / 10 m, temperature-resistant sensor system (SLS). Ideal for horizontal levelling – even under toughest conditions. Highest reliability is guaranteed through the ant-drift system (ADS): The electronics permanently monitor the measuring process and switch the laser off in the case of any outside interference or disturbance. Adjustable horizontal tilt, easy one-button operation. Includes

Sensolite 310 laser receiver and remote control units.

General safety instructions

Caution: Do not look directly into the beam.

Lasers must be kept out of reach of children.

Never intentionally aim the device at people. This is a quality laser measuring device and is 100%

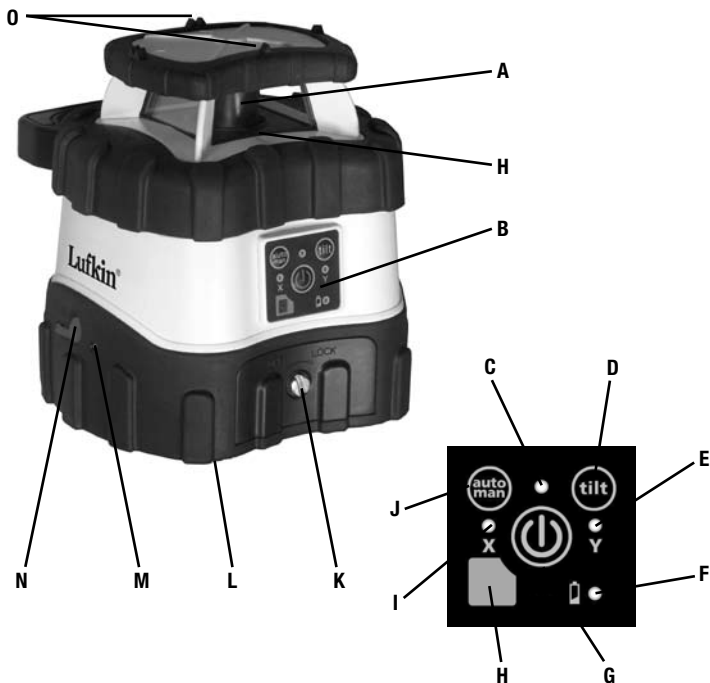
factory adjusted within the stated tolerance. For reasons of product liability, we must also draw your attention to the following: Regularly check the calibration before use, after transport and after extended periods of storage. We also wish to point out that absolute calibration is only possible in a specialist workshop. Calibration by yourself is only approximate and the accuracy of the calibration will depend on the care with which you proceed.

Note: This product is a precision instrument that must be handled and treated with care. Avoid shocks and impact. Always keep and carry in the case! Switch all lasers off and secure the pendulum when not in use. For cleaning, use a soft cloth and glass cleaner.

Warranty

The warranty period is two years from the date of purchase. The warranty covers all material and manufacturing defects occurring during this time. The following are excluded from warranty: Damage due to improper use (e.g. connection to an unsuitable power source, falling onto a hard surface, etc); improper storage; normal wear and tear; minor defects not impairing operation. Any tampering by unauthorized persons will render the warranty void. In the event that you need to claim warranty, please return the complete device together with proof of purchase to the place of purchase or to the Service address on the back page.

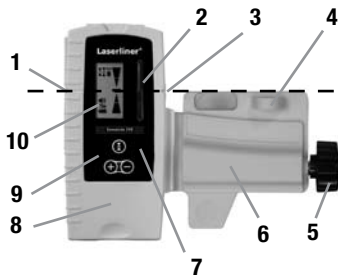
Lufkin® LSL250



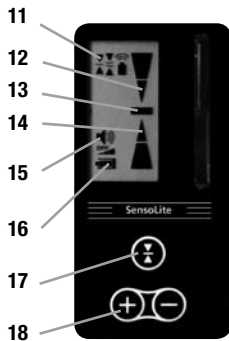
- | | | | |
|---|------------------------------------|---|----------------------|
| A | Prism head | I | X axis LED |
| B | Control panel | J | Auto/man button |
| C | Tilt LED | K | Battery compartment |
| D | Tilt button | L | 5/8" thread (bottom) |
| E | Y axis LED | M | Battery charge LED |
| F | Operating / Battery LED | N | Charger socket (9V) |
| G | ON / OFF button | O | Quick sighting |
| H | Receiver window for remote control | | |

Included accessory: Sensolite 310

Protection class IP 66



- 1 All-round marking groove
- 2 Laser beam sensors
- 3 SpotLite Marking LED
- 4 Levelling vial
- 5 Clamping screw for levelling staff
- 6 Universal mount
- 7 Binding screw (located at the back of the unit)
- 8 Battery compartment (rear side 1 x 9V battery)
- 9 Control panel
- 10 LC-Displays (front and rear side)

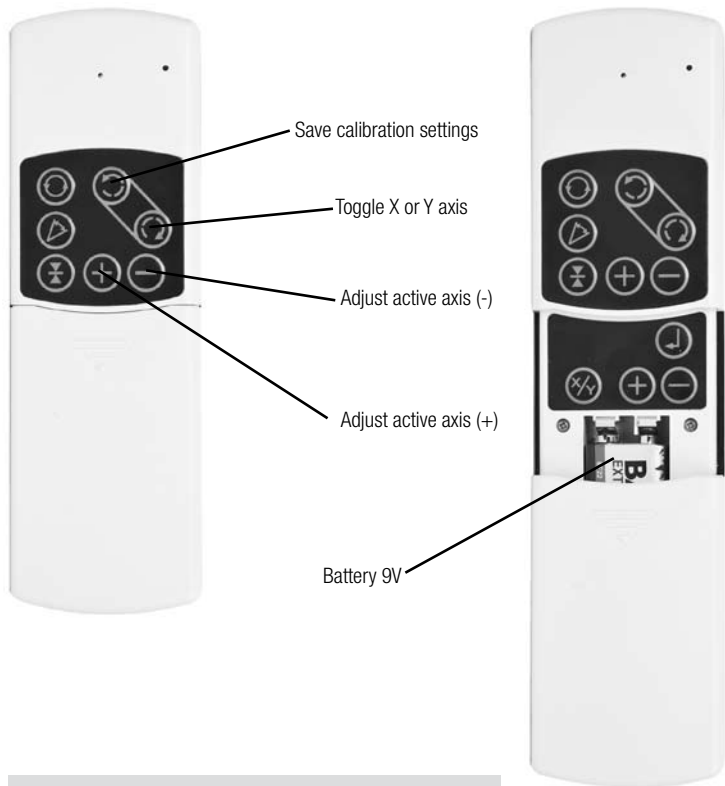


Close-up of detector

- 11 Display measuring range selection
- 12 Detector above laser level
- 13 Precisely on laser level
- 14 Detector below laser level
- 15 Volume indicator
- 16 Low battery indicator
- 17 Detector mode /
Switch: Precision range $\frac{\nabla}{\blacktriangledown}$
Free-hand range $\frac{\nabla}{\blacktriangle}$
- 18 Volume adjustment

Lufkin® LSL250

Remote Control Commander DAL50



Note: Not all buttons are used on the remote control unit. Only those buttons noted above are used.

Self-Levelling-System (SLS)

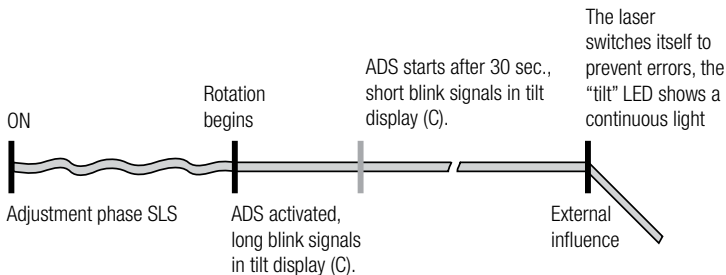
The LSL250 Laser is of the self-levelling kind. When it has been setup in the required basic position, fine adjustment is performed automatically. Adjustments are made by the self-levelling system (SLS), while the X-axis and the Y-axis are scanned by electronic measuring sensors. The working angle is $\pm 5^\circ$.

Anti-Drift-System (ADS)

The Anti-drift system (ADS) is to prevent measurement errors caused by movement of the Laser or tripod. To activate the ADS press the "TILT" button after the Laser has been switched on. The TILT LED will flash and 30 seconds later the ADS becomes active. If the laser is now moved for any reason the ADS will stop the Laser and the TILT LED will illuminate continuously. This is to prevent further readings and possible errors until the unit has been suitably checked.

To cancel the ADS switch the Laser Off and then On.

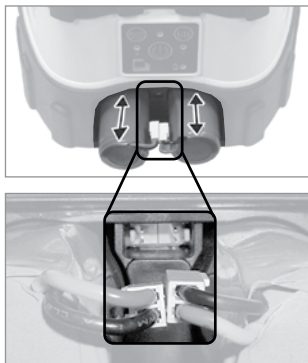
Attention: The ADS-function will switch on the control of the laser 30 sec. after the laser has completely been levelled (adjustment phase). Tilt display (C) emits long blink signals during the adjustment phase and short blink signals when ADS is activated



Operation of the LSL250

Charging the batteries

- Before using the LSL250, fully charge the batteries
- Open the battery compartment (K), insert the batteries and connect the plugs to the sockets. The plugs fit in the sockets in one position only (see pictures on right). Reclose the battery compartment.
- Connect the battery charger/mains unit to a mains source and plug into the socket (N). Please only use the charger/mains unit supplied with the device. If a different one is used, the warranty will become void.
- The device can also be operated with standard alkaline batteries (4 x type D). Insert the batteries as shown by the installation symbols. Ensure the polarity is correct.
- If the LED (F) blinks constantly, either the batteries must be exchanged or recharged.




Note: Do not expose batteries to excessive heat such as sunshine, fire, etc. Dry batteries must not be recharged. Used batteries must not be disposed of as household waste. Please take them to a collection point for used batteries or for special waste. Ask your local authority for further details.

Operation





Setting up:

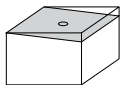
Position the device on a level surface or on a tripod.

- Press the “On/Off” switch. 
- The device automatically levels itself within a range of $\pm 5^\circ$. When levelling has been completed, the laser rotates at maximum speed.

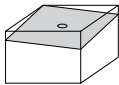
Note: If the device is too far off the horizontal (more than 5°), a warning signal will sound and the rotor head will not rotate. In this case, the device must be repositioned on a more level surface.

Slope mode:

- In normal operation the Self Leveling System (SLS) adjusts the X and Y axes. However if an incline or gradient is required then the SLS must be switched off using the “AUTO/MANUAL” button.
- The “X” LED will light up and the inclination of the “X” axis can now be adjusted.
- Pressing the “TILT” button  on the Level or the “Clockwise” button  on the remote control will change the Axis being adjusted with the X and Y LEDs indicating which Axis is active.
- The inclination of the active Axis can now be adjusted using the  and  buttons on the remote control.



In one plane

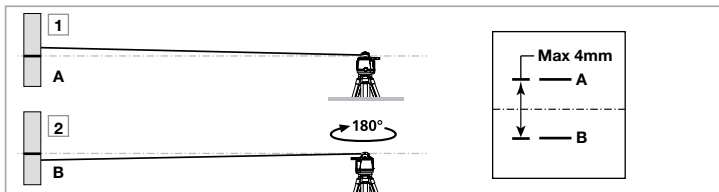


In two planes

Calibration Check

To check the calibration of the LSL250 Laser, place the Laser on a surface or preferably a tripod approximately 10m from a wall or post with the control panel away from the wall or post.

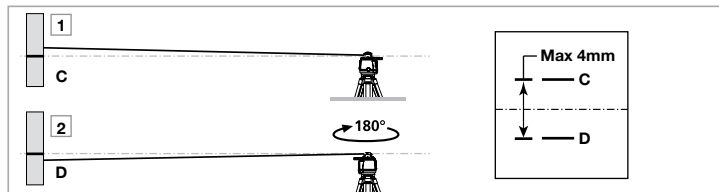
1. Switch on the Laser.
2. Mark the level point on the wall or post and label this point "A" using the detector.
3. Rotate the Laser on the surface or Tripod 180°. Be certain NOT to move or adjust the tripod. Mark the level point on the wall or post and label this point "B". You have now checked the "Y" axis.



The point half way between points "A" and "B" is true level. If "A" and "B" are 4mm apart or less then no adjustment is required.

To check the "X" axis, rotate the level by 90° so that one of the sides is towards the wall or post.

4. Mark the level point on the wall or post and label this point "C".
5. Rotate the Laser on the surface or Tripod 180° so that the other side is towards the wall or post. Be certain NOT to move or adjust the tripod. Mark the level point on the wall or post





and label this point "D". You have now checked the "X" axis. The point half way between points "C" and "D" is also true level and should be the same as that noted for the "Y" axis above. If points "C" and "D" are 4mm apart or less then no adjustment is required.

Note the maximum adjustment is 20mm so if more than this is required then return the Laser to Cooper Tools service dept.



Recalibration

1. During calibration, pay attention to the alignment of the LSL250 and the displays for the X and Y axes. Always calibrate both axes. You can switch between axes with button  on the included remote control or tilt button  on LSL250.


2. Set the device to calibration mode:

Switch off the LSL250, and then, with the auto/man button (J)  depressed, switch on again briefly pressing the ON/OFF button (G) . Keep the auto/man button (J) depressed until the tilt LED lights up. When this happens, the auto/man button (J) can be released.

3. Correcting calibration:

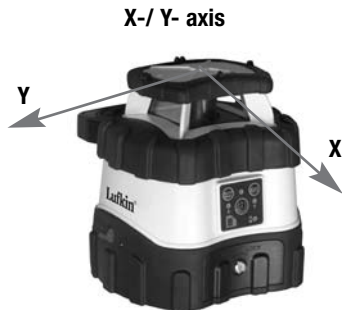
Move the laser from its present position to the true level position midway between A & B or C & D as determined during the “Calibration Check” using the  and  buttons on the remote control

4. Saving calibration:

Save: The new calibration settings can be saved by pressing  on the remote control.

Cancel: By switching off the LSL250, the entire calibration is rejected and the previous status restored.

Note: Regularly check the calibration before use, after transport and after extended periods of storage. Always make sure to control all axes. See also “General safety instructions” on page 2.



Technical Specifications

LSL250 Specifications	
Self-levelling range	± 5°
Adjustment speed	approx. 30 sec – on entire working angle
Precision	± 1 mm / 10 m
Sensor	Electronic levelling device
Horizontal levelling	Automatic
Rotation speed	500 RPM
Remote control	Infrared IR
Laser wavelength	635 nm
Laser	Class 2 (EN60825-1:2003-10)
Laser output rating	< 1 mW
Rechargeable batt. operating time	approx. 60 h
Non-rechargeable battery life	approx. 90 h, 4 x Typ D (Mono 1,5V)
Battery recharging time	approx. 14 h
Ambient operating temperature range	-10°C ... +50°C
Weight	3 kg

SensoLite 310 / Commander DAL 50	
Batteries SensoLite 310 / Commander DAL 50	1 x 9V battery
Range Commander DAL 50	max. 15 m (IR-control)
Laser reception range SensoLite 310	max. 300 m
Operating temperature	-10°C ... + 50°C
Storage temperature	-10°C ... + 70°C

The logo for COOPER Tools features the word "COOPER" in a bold, black, sans-serif font. Above the letter "O" is a black parallelogram slanted downwards to the right. To the right of "COOPER" is the word "Tools" in a smaller, black, sans-serif font.

GUARANTEE

This product is guaranteed against any defect in material or workmanship for two years. Damage caused by abuse, improper use or excessive wear is not covered by this warranty. Claims should be returned to the place of purchase or returned prepaid to:

COOPER TOOLS PTY. LIMITED
Incorporated in N.S.W.
(A.B.N. 50 002 965 826)
519 Nurigong Street, ALBURY,
N.S.W. 2640 Australia

