

519008 DL270ML



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1. Features and functions

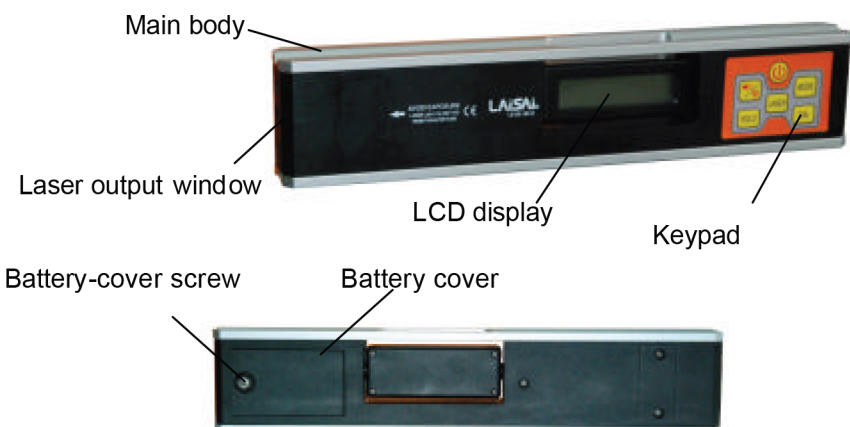
LS160-180II laser digital level is a kind of digitalized measuring tool which can offer quick and accurate angle measurement on the horizontal plane and also long-distance laser indication. Easy in operation, it is an ideal instrument for such constructions as indoor decoration, machinery setting, civil engineering, etc.

- ※ Measure the angle to the horizontal plane
- ※ LCD is rotatable by 180°
- ※ Display holding function
- ※ Asymptotic sound indication for unique points
- ※ Inclination direction indication
- ※ Self-calibrated at 0° and 90° unique points

2. User safety

- ※ Laser output sign is located at the output window.
- ※ Do not stare into laser beam directly.
- ※ Do not disassemble the instrument or attempt to perform any internal servicing. Repairs and servicing could be performed only by authorized service centers.
- ※ The instrument complies with the safety class standards of laser radiation.

3. Nomenclature



4. Operation instruction

4.1 Battery installation

- (1) Loose the screws which on the battery cover counter-clockwise.

(2) Open the battery cover, put the battery into the battery case according to the polarity shown in the battery slot, then snap the battery cover back, and tighten the screws clockwise.



Note:

1. Take out the batteries if the instrument is not in use for a long time.
2. Please replace the battery in time while in low battery.
3. Please confirm that the instrument is in the power-off state while taking out the old batteries from the battery case.

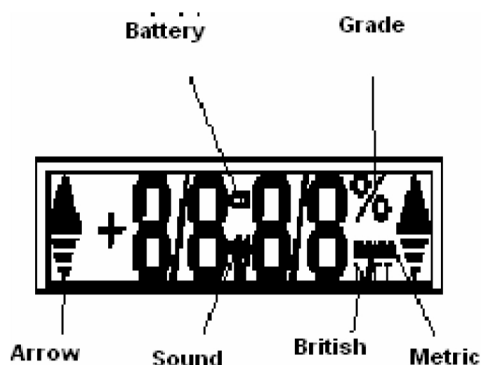
4.2 Operation keypad and display

4.2.1 Keypad



Power Sound/illumination Hold Laser Calibration Mode

4.2.2 Display:

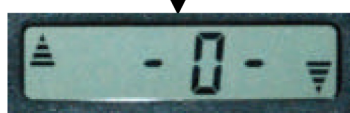
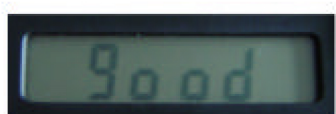


4.2.3 The LCD of the instrument could be rotatable within the range of 180 degree:















4.3 Display after installing the battery:

- 1) After putting in the battery, the instrument turns up automatically, shortly shows "GOOD", then the LCD shows "- 0 -", Calibrate the instrument as "5. Self-check and calibration"
- 2) Then operate the instrument as "4.4 Operation mode"



4.4 Operation mode see as follow:

Key	Name	Operation	Display	Instruction
	Power	Short press (<1 second)		Turn on/off
	Hold	Short press (<1 second)	Arrow and sign flash	Angle value is locked and it will not change as the tilted angle changes.
	Illumination	Long press (>2 second)		Turn on/off LCD illumination
	Sound	Long press (<1 seconds)		Turn on/off sound function(Please see the assistant function instruction 4.5.2)
	Laser	Short press (<1 second)		Turn on laser beam, red laser comes from laser output window
	Mode	Short press (<1 second)	5 different display modes	Display mode switch (Please see the assistant function instruction 4.5.3)
		Long press (hold on)	Change sign quickly, the other characters will not be displayed	
	Calibration	Long press (>2 seconds)		Unit calibration (see 5. Self-check and calibration)
				Battery sign flash, means low battery Battery sign extinguished, means full battery
				Arrow shows the incline direction When 0° , both direction arrows will be displayed.

4.5 Assistant function instruction

4.5.1 Auto-turn off

The instrument will auto-turn off if there is no button operation within 20 minutes.


4.5.2 Sound reminder

Sound function is on. The buzzer will sound as an indication when the instrument is close to the horizontal position or vertical position, and with closer position, the indication sound will become denser. When the instrument is at the horizontal position or vertical position, there will come a continuous indication sound.

4.5.3 Mode switch

Angle value has 5 display modes (from ① – ⑤ – ① cycle switch)

① ° : Decimalist	14.5 °
② % : Gradient percent	25.9 %
③ IN/FT : Inch/feet	3 1/8 IN/FT
④ IN/FT : Inch/feet	3.10 IN/FT
⑤ mm/m : Millimeter/meter	258.9 mm/m






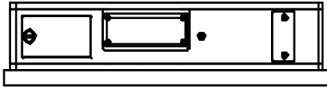

Quick switch: if hold on  button, the display mode could switch quickly; LCD only display the unit sign, the other sign and number will not be displayed; if loose that button in certain mode, LS160-180II will display as this current mode.

5. Self-check and Calibration

Suggestion: In order to ensure the measurement accuracy, you'd better check the accuracy before operating this laser

digital level. If the accuracy is bad, please calibrate the level.

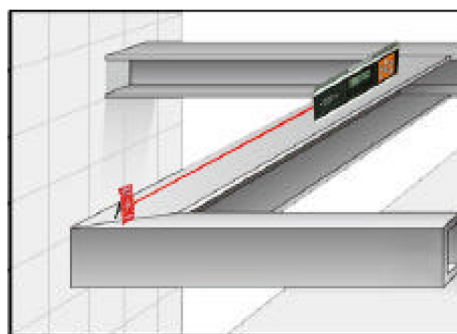
Operation process is as follow:

	Check	Calibration
Horizontal angle	1. Select a flat and horizontal platform as reference surface, like glass table-surface. See right picture	
	2. press  key to turn on the unit 3. Wait for the reads on LCD become stable (about 3 seconds), record the angle value A.	2. press  to turn on the unit, hold on  until display “-0-“ 3. Wait 3 seconds, and press  again, the LCD shows “-1-”.
Horizontal angle	4. Turn the unit by 180 degree, Still place the unit on the original place, see the right picture:	
	5. Wait for the reads on LCD become stable (about 3 seconds), record the angle value B. 6 If A, B angle value margin exceed 0.2 degree, it is necessary to calibrate the horizontal accuracy	5. Wait 3 seconds, and press  again, the LCD shows “-2-” . 6. Wait 2 seconds, the unit shows angle value. Now, the calibration of horizontal angle of this digit level is finished.
Note: all the operation above should operate on the same position of the same plane.		

6. Application



Provide appointed angle slope



Provide reference for steel frame building

8. Technical Specifications

Measurement Accuracy	$\pm 0.1^\circ$ (within $0^\circ \pm 10^\circ$)
Working range	0° - 360° Continuous measurement, display 0.0
Display mode	5 display modes
Resolution	0.1°
Laser wavelength	650 nm
Laser class	Class II / III
Laser indication accuracy	$\pm 0.3\text{mm/m}$
Power	3*AAA batteries
Working temperature	$-10^\circ\text{C} \sim +45^\circ\text{C}$
Size	305×60×32mm
Weight	670g (with battery)

MAINTENANCE

This instrument should be carefully operated and properly preserved. Any violent shock, falling or impact may result in damage.

Keep the instrument clean especially the laser output window glass. Remove dust gently with soft clean cloth.

Please do not use the instrument under cankerous, combustible or explosive conditions.

Do not immerse the instrument in water and avoid use in rain.

Do not attempt to disassemble the instrument. Unprofessional disassembly will result in damage of the instrument.

Remove the batteries when instrument will not be used for a long time.