DaveBell™
ELECTRONIC EQUIPMENT LIMITED

Digital Level

DL530MLP (519013)

Dear User,

Thank you very much for purchasing Digital Level DL530MLP (519013), please read this instruction manual before operating it.

Content

1 Features and functions

Digital Level DL530MLP (519013) could measure the inclined angle of surface and the included angle between two surfaces exactly, it provide the precise angle reference for indoor and outdoor constructions with convenient operation and broad application.

Features

※ Able to measure the inclined angle to the horizontal surface

※ Able to measure the included angle between two surfaces

※ Able to output laser indication dot which is parallel with the reference surface

※ Display holding function

※ Asymptotic sound indication for unique points

※ Inclination direction indication function

2 . User safety

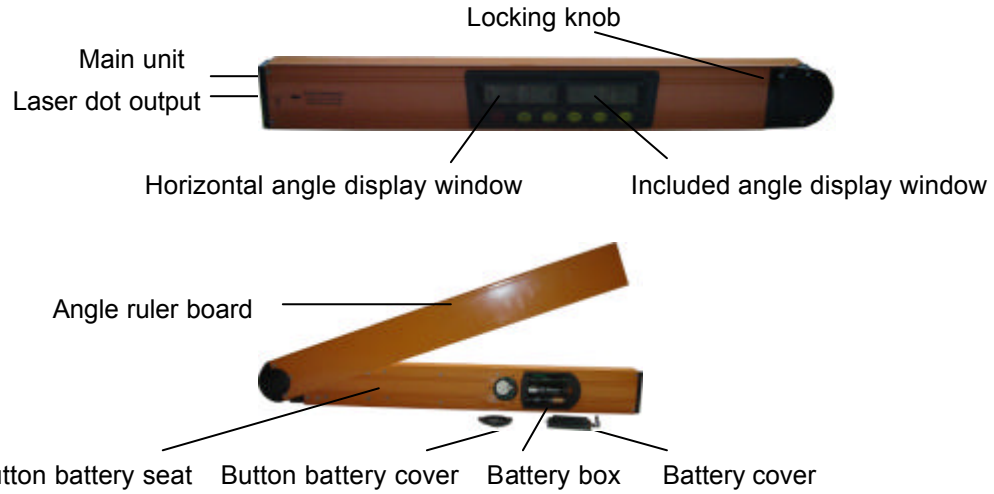
※ Laser output marker is at the output aperture.

※ Do not stare at the laser beam directly.

※ Do not disassemble the instrument or make internal servicing, please make servicing in the authorized service center.

※ The instrument conform to laser radiation safety class standard.

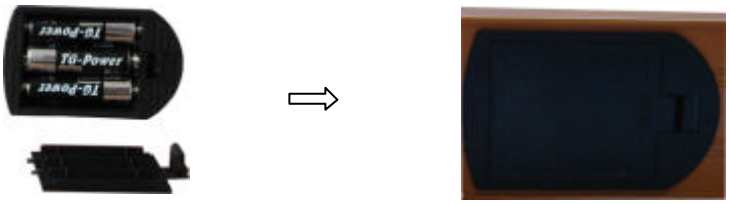
3.. Instrument nomenclature



4.. Operation guide

4.1. Battery mount

Open the battery cover, mount 3*AA battery into the battery box according to the polarity, and then cover the battery cover.



Note:

1) If you don't use the instrument for a long time, please take out the battery.
2) Please replace the battery in time when in low voltage
3) Before taking out the old battery, please confirm the instrument is off.

4.2. Replacement of battery button

When LCD display Erro, which indicates that it is necessary to replace the button battery, and after replaced it, please make calibration as per the method as described in "5. self-check and calibration".

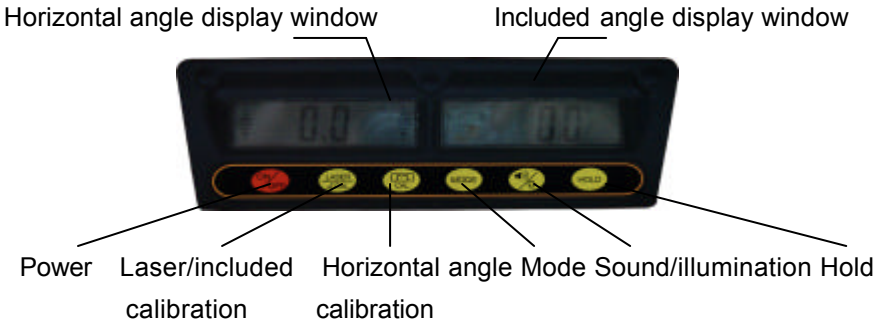
Replacement method of button battery:

1) Please confirm the instrument is off.

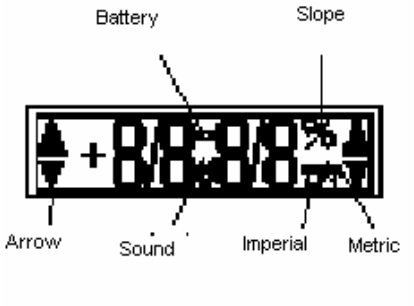
2) Disassemble 3pcs screws and battery cover for securing the button battery with cross driver.
3) Take out the old battery, mount the new battery.
4) Assemble the battery cover again.

4.3. Operation keypad and display

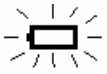
1) Operation keypad



2) LCD



4.4. Button function

Button	Button name	Operation	Display	Instruction
	Power	Short press（<1 second）	LCD full display	Power on and off
	Laser/ Included	Short press （<1 second）		Power on laser indication function, laser output window project bright red laser
	angle calibration	Long press（>1second）		See“5. Self-check and calibration”
	Horizontal angle calibration	Long press（>1 second）		See“5. Self-check and calibration”
	Mode	Short press （<1 second）	5 different display methods	See “5. Accessorial function instruction 3)”
		Hold on	Fast switch symbol, other modes will not display others	Display mode switch（see 5 Accessorial function instruction 4”）
	Sound	Short press（<1 second）		Power on / off sound(see 5 Accessorial function instruction 2”）
	Illumination	Long press (>1 second)		Power on /off illumination
	Hold	Short press（>1 second）	Direction arrow symbol will display and flash	Angle value will enter into locking status, and will not change as the inclined angle
				When power symbol flash, it is low voltage . If battery symbol does not display, it is full voltage
				Arrow display inclined direction Display two-way arrow at 0°

4.5. Accessorial function instruction

1）Power off automatically: the instrument will power off when there is no button operation within 20 minutes.

2）Sound indication: power on sound function, when the digital level is closed to horizontal or vertical position, it will have buzzer indication. The closer the digital level moves to horizontal or vertical position, the denser the sound indication will be. When the digital level is at the horizontal or vertical position, it will have continuous sound indication.

3) Mode switch there are five different display modes(from ①—⑤—①cycle switch)

① ° : decimal 14.5 °

② % : slope percentage 25.9 %

③ IN/FT : inch/ foot 3 1/8 IN/FT

④ IN/FT : inch/ foot 3.10 IN/FT

⑤ mm/m : millimeter/meter 258.9 mm/m

4) Fast switch: hold on MODE button which could make the display mode switch fast, there only be unit symbol on display, and other symbols and numbers will not display. In certain mode, release this button, it will display this mode

5.. Self-check and calibration

Before making the precise jobs, please make accuracy check on digital level, if it could not reach the accuracy requirement, it is necessary to make calibration

Please see the operation steps as the following sheet:

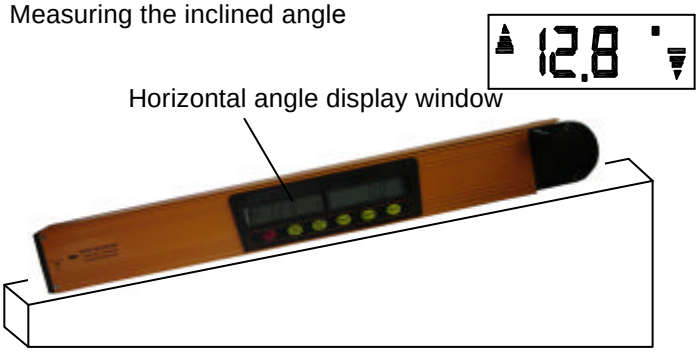
	Check	Calibration
Horizontal angle	Step 1 place the digital level on a smooth and horizontal surface (such as smooth glass surface). See the right picture	
	Step 2 press to power on	Step 2 press to power on, hold on CAL button, LCD display "- 0 -".
	Step 3 Wait the display reading steady(about 3 seconds), write down angle value A.	Step 3 wait 3 seconds, then press CAL button until it display "- 1 -".
	Step 4 Rotate the digital level by 180°on the same surface and then place it on the original position. See the right picture	
	Step 5 wait for the display reading steady (about 3 seconds), write down angle value B.	Step 5 wait 3 seconds, then press CAL button again, until it display "- 2 -".
	Step 6 If the difference between A and B is more than 0.2°, it is necessary to make horizontal calibration.	Step 6 wait 2 seconds, the digital level will display angle value. Unitl now, the calibration of horizontal angle is finished.
	Note: the above operation is done at the same position on the same surface.	

Included angle	Step 1 fold the digital level and place it on the smooth and vertical glass. See the right picture	
	Step 2 press to power on. Wait the display reading steady(about 3 seconds), write down angle value C.	Step 2 press to power on, hold on LASER ∠CAL button until it show "- 1 –".
Included angle	Step 3 unfold the digital level on the same surface and keep the angle ruler board to the glass See the right picture	
	Step 4 wait the display reading steady (about 3 seconds), write down angle value 0.	Step 4 wait 3 seconds, then press LASER ∠CAL button again, LCD will display "- 2 -".
	Step 5 if C>0.1°or D is not 180±0.2°, it is necessary to make vertical calibration.	Step 5 wait 2 seconds, the digital level will display angle value. Until now, the accuracy calibration of the digital level is finished.

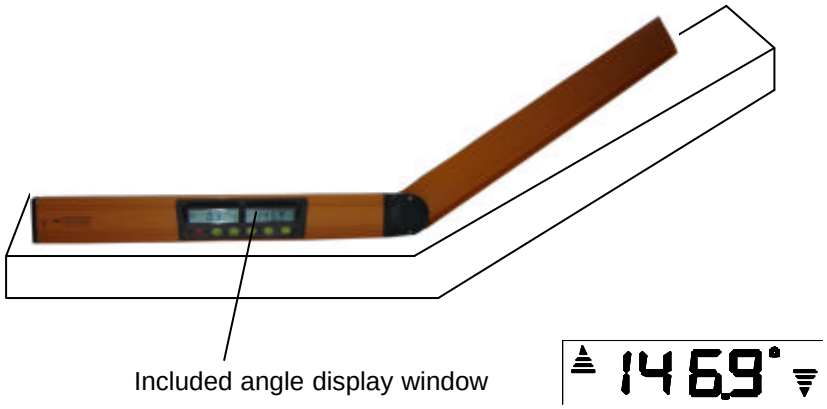
Note: the above operation is done at the same position on the same surface.

6.. Application demonstration

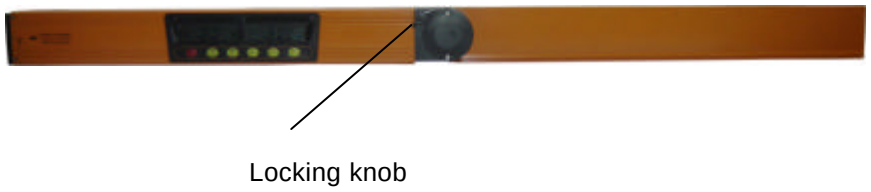
1. Measuring the inclined angle



2. Measuring the included angle



3. Lengthen the digital level, if the measuring surface is very long, you could rotate the angle ruler board to 180°, then tighten the locking knob, which could lengthen it to 1m.



4. Output the laser dot which is parallel with the reference surface

7.. Technical specification

Item	Parameter
Measuring accuracy	±0.1° (within 0°±10°)，others ±0.2°
Measuring range	0°～360° continuous measuring, display 0.0°～ 90.0°
Display mode	5 different display modes
Resolution	0.1°
Laser wavelength	650 nm
Laser class	Class **II**/**III**
Laser indication accuracy	±0.3mm/m
Power	3*AA battery,1* 3Vbutton battery
Working temperature	-10℃～+50℃
Storage temperature	-20℃～+55℃
Size	600×63×40mm
Weight	1.2Kg (including battery)

8. Maintenance

1. The instrument should be carefully operated and properly preserved, and any violent shock or falling will possibly result in the damage of instrument.
2. Keep the laser output window clean, and periodically remove dust by the gentle operation of soft clean cloth or cotton bar with alcohol.
3. Do not use the instrument under the corrosive, flammable and explosive environment.
4. Do not use the instrument under the rain or dip in the water.
5. Please take out the battery when do ’t use the instrument for a long time.