APEXFORGE

User's Manual

LASER DISTANCE METER

MAGIC D50 Pro

RoHS C E FC FDA

LASER RADIATION
DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT
IEC 60825-1:2014
≤1mW@635nm

Safety regulations

Please read the safety regulations and operation guide carefully before operating.
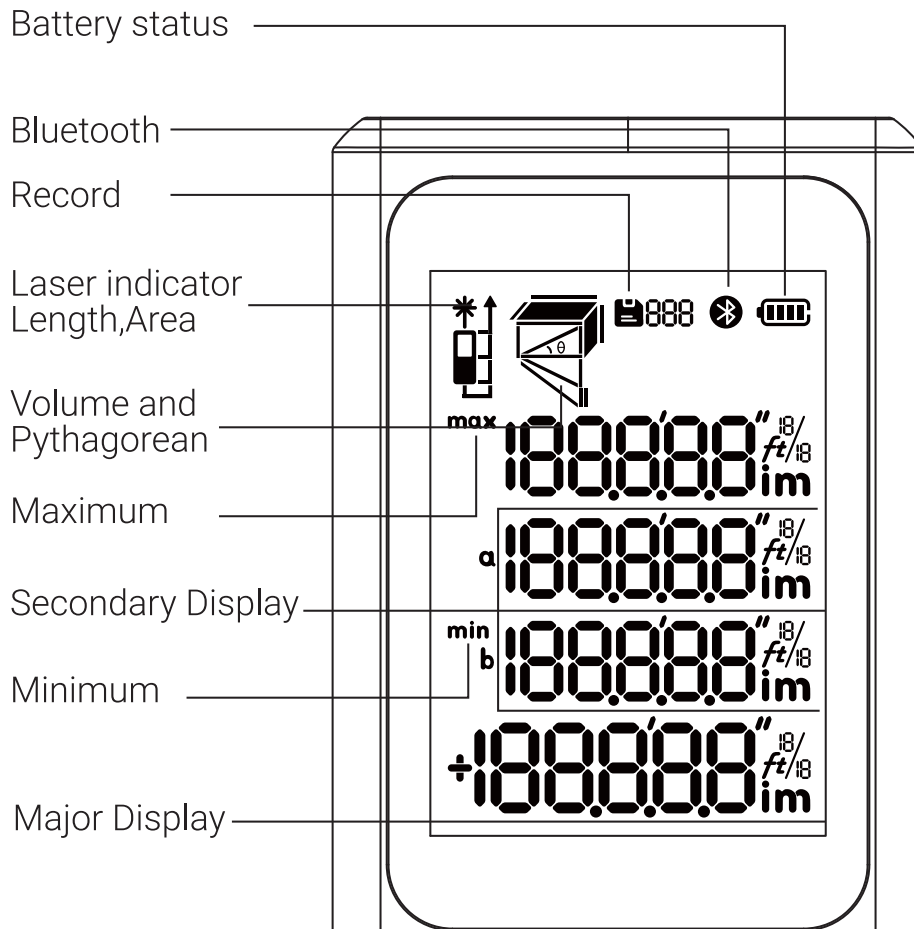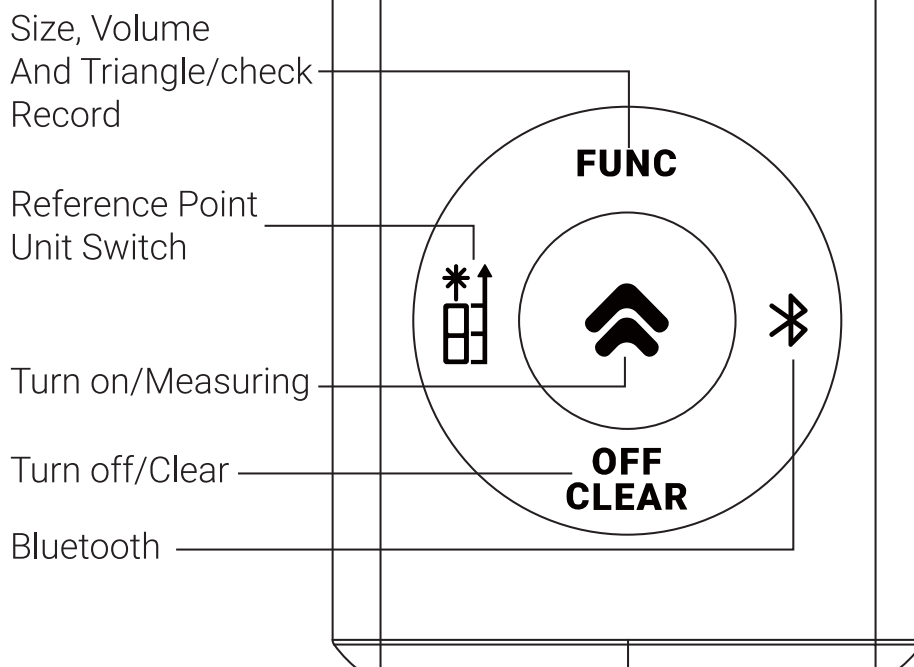
⚠ Please read all of the operational guide and safety regulations in this manual before operation . Improper operations without complying with this manual guided could cause damage to the device, influence on measurement result or physical injury to the user.

⚠ The instrument is not allowed to disassemble or repair in any ways. It is forbidden to do any illegal modification or performance change for laser emitter. Please keep it out of reach of children and avoid using by any irrelevant personnel.

⚠ It is strictly prohibited to shoot eyes or other parts of body with the laser; it is not allowed take the laser to shoot any objects' surface with strong reflectivity.

⚠ Due to electromagnetic radiation interference to other equipment and devices, please don't use the meter in the plane or around medical equipment, don't use it in anflammable, explosive environment.

⚠ Discarded batteries or meter device shall not be processed just like household garbage, please handle them in line with related law and regulations.

⚠ Any quality issues or any questions on the meter, please contact local distributors or manufacturer in time, we are ready to offer solutions for you.

DISPLAY & KEYBOARD

• Display

Battery status

Bluetooth

Record

Laser indicator
Length,Area

Volume and
Pythagorean

Maximum

Secondary Display

Minimum

Major Display

• Keyboard

Size, Volume
And Triangle/check
Record

Reference Point
Unit Switch

Turn on/Measuring

Turn off/Clear

Bluetooth

FUNC

OFF
CLEAR

Lithium battery

- The built-in 3.7V 370mAh lithium battery is non-removable. The instrument has integrated charging circuit, with clear undervoltage indication, charging indication.
- Battery charging: It is recommended to use the mobile phone charger or 5V/1A adaptors with Type-C charging cable to charge the battery.
- The instrument shall be charged in time when running out of battery or its battery symbol shows blank and flashes after being turned on due to its insufficient battery capacity. Insert USB to charge, and the battery symbol scrolls display . When fully charged, it will display and flash.

Battery maintenance

When you don't use the device for a long time, charge the product fully and recharge it every six months to avoid battery damage.

Power on/off and Settings

- **Power on/off the instrument**

In the shutdown state, press to start the instrument and prepare to measure.
In the power-on state, press OFF CLEAR for 3 seconds to turn off the instrument. The instrument will be power off automatically after 150 seconds with no operation on the instrument.

- **Unit setting**

In the measurement mode, long press to switch between different measurement units. The instrument offers 6 units to choose from.

	Length	Area	Volume
1	0.000 m	0.000 m^2	0.000 m^3
2	0.00 m	0.00 m^2	0.00 m^3
3	0.0 in	0.00 ft^2	0.00 ft^3
4	0 1/16 in	0.00 ft^2	0.00 ft^3
5	0'00" 1/16	0.00 ft^2	0.00 ft^3
6	0.00 ft	0.00 ft^2	0.00 ft^3

• **Reference point Settings**

Short press ▦ to switch the front-end basis and back-end basis. The default reference point is the back-end basis.

• **Backlight On/off**

The screen backlight is power on/off automatically. The instrument turns on the backlight for 15 seconds after you press any keys of the instrument. And it will turn off the backlight to save power after 15 seconds of no operation on the instrument.

Self-calibration and Sound settings

To ensure the accuracy of the instrument, a self-calibration function is provided. Calibration method: In the power-off state, press and hold [OFF CLEAR] and [⌃] at the same time until the screen shows and flashing numbers at the bottom. At this time, self-calibration mode is entered. Then, the user can press ▦ to [⁎] adjust the value according to the error of the instrument. The adjustment range is -9~9mm.

For example: the actual distance is 3.780m.

If the measured value is 3.778m, which is 2mm lower than the actual value, you can enter the calibration mode, and press [⁎] to increase the calibration value by 2mm on the existing basis.

If the measured value is 3.783m, which is 3mm higher than the actual value, you can enter the calibration mode, and press ▦ to lower the calibration value by 3mm on the existing basis. After adjustment, press to [⌃] save the calibration result.

Press [⌃] to save calibration result and enter sound settings, the screen shows " Sound " and there are flashing letters

at the bottom. Press ⬚ ✳ to switch sound on/off, "o∏" is sound on, "oFF" is sound off. After the setting is completed, press ⌃ to save and exit the setting.

Distance, Area, Volume and Pythagorean Theorem Measurement

• Single Measurement

When the instrument prepares to measure,press ⌃ to emit the laser, lock the measurement point. Then press ⌃ again to single measure the distance and the result shows in the main display area.

• Continuous Measurement

When the instrument prepares to measure, press and hold ⌃ to enter continuous measurement mode. During the continuous measurement, the maximum and minimum value and the difference between maximum and minimum show on the secondary display area.

The main display area shows current measurement value, short press ⌃ or **OFF CLEAR** to exit continuous measurement mode.

• Area Measurement

Press **FUNC** once, the screen shows ▱,and one side of the rectangle flickers.

Complete the following actions as prompted:

Press ⌃ to measure the first side(width)

Press ⌃ to measure the second side(length)

The instrument will calculate the area automatically, and the result shows on the main display area.

The secondary display area will show the measurement value of the length and width. During measurement, the user can press **OFF CLEAR** to clear the result and remeasure.

When there is no data in the display area, press **OFF CLEAR** to exit area measurement mode, and enter single measurement mode.

• Volume Measurement

Press **FUNC** twice, the instrument enter volume measurement

mode, There will be a cube ⬜ flickering on the screen. Complete the following actions as prompted:

Press ⌃ to measure the first side(width)

Press ⌃ to measure the second side(length)

Press ⌃ to measure the third side(height)

The instrument will calculate the volume automatically, the calculation result shows in the main display area. And the length, width and height of the cube show in the secondary display area.

During measurement, you can press **OFF CLEAR** to clear the measurement result and remeasure.

When there is no data in the display area, press **OFF CLEAR** to exit volume measurement mode and enter single measurement mode.

• Pythagorean Theorem Measurement

❶ ❷ ❸ ❹
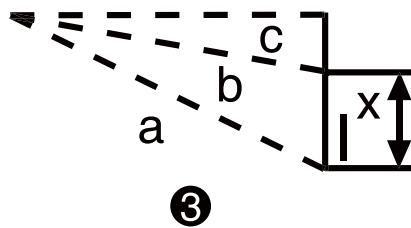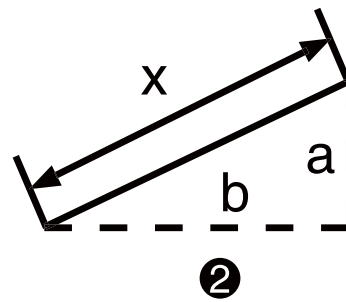
There are four preset modes for the instrument to measure the distance of one side of a triangle by using the Pythagorean theorem.

It is convenient for users to perform indirect measurement in a specific complex environment.

1> Measure the hypotenuse and adjacent side of a right triangle to indirectly measure the opposite height.

Press **FUNC** three times to enter the height measurement mode by Pythagorean theorem. At this time, the display will show a ◣ and its hypotenuse is flickering, the instrument emits laser to lock the measurement point.

Press ⌃ to measure the first side (a);
Press ⌃ to measure the second side (b);
The instrument will automatically calculate the length of the height(x).

2> Measure the adjacent and opposite side of a right triangle to indirectly measure the length of the hypotenuse. Press **FUNC** our times. At this time, the display will show a ◺ and its adjacent is flickering, and the instrument emits laser to lock the measurement point.
Press ⌃ to measure the first side (a);
Press ⌃ to measure the second side (b);
The instrument will automatically calculate the length of the hypotenuse(x).

3> Measure the two hypotenuse and base of the triangle to calculate the opposite height:
Press **FUNC** five times. At this time, the display will show a ◹ and its hypotenuse is flickering, and the instrument emits laser to lock the measurement point.
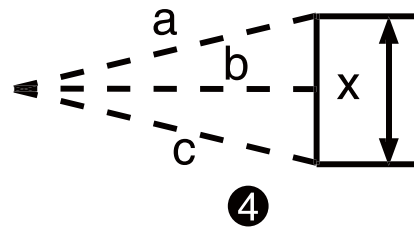Press ⌃ to measure the first side (a);
Press ⌃ to measure the second side (b);
Press ⌃ to measure the third side (c)
The instrument will automatically calculate the length of the auxiliary height(x).

4> Measure hypotenuse and vertical line to calculate base sum:
Press **FUNC** six times. At this time, the display will show a ◁ and its hypotenuse is flickering, and the instrument emits laser to lock the measurement point.
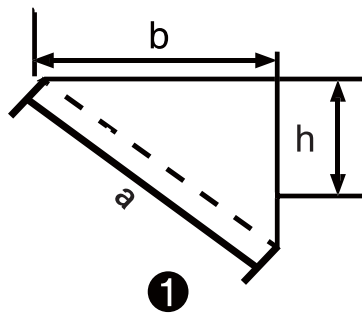Press ⌃ to measure the first side (a);
Press ⌃ to measure the second side (b);
Press ⌃ to measure the third side (c)
The instrument will automatically calculate the length of the base(x).

In Pythagorean theorem measurement mode, the right-angle side must be shorter than the hypotenuse length, otherwise the instrument will display an error signal. In Pythagorean theorem measurement mode, it is necessary to ensure the measurement from the same starting point and measure according to the order of hypotenuse and right-angle sides, thus ensure the accuracy of measurement.

Record Storage Function

Measurement records will be automatically saved, and users can export records through the App.

Bluetooth

- The Bluetooth function is set to turn on by default at the factory, and there is a Bluetooth icon ✳ on the screen of the instrument.
- Bluetooth automatically turns on when you turn on the device. If the "AF MAGIC" App is opened, it will automatically search and connect to the App device.
- When the instrument is turned on, open the "AF MAGIC" App and click the add device button in the upper right corner to connect the device.
- If you do not need to connect Bluetooth, you can manually turn off Bluetooth to save power.
- When the instrument calculates the final measurement result, it will automatically record the data. Long press **FUNC** to view the record, and the specific operation to view the record is as follows:

Short press ⊞ and ✳ to switch the record;
Long press **OFF CLEAR** to clear all data;
Short press **OFF CLEAR** to exit viewing records.

App Installation

Scan the product QR code, or search for "AF MAGIC" in the App Store, download and install the App. The Android user can search for the App "AF MAGIC" in Google Play.
Product QR code

Error Code

During use, the following prompts may appear in the main display area

Prompts	Reason	Reason
Err1	Signal is too weak	Measure the targetwith strong reflectivity
Err2	Signal is too s trong	Measure the target with weak reflectivity
Err3	Battery voltage is too low	Charge the battery
Err5	Pythagorean measurement violations	Re-measureto make sure the hypotenuse is larger than the right-angled side
Err6	Exceeds the measurement distance range	Make the instrument use within the range

Specifications

Model	MAGIC D50 Pro
Range	0.05-50m
Precision	±(1.5mm+D * 0.0001)*
Continuous measurement	√
Bluetooth	√
Bluetooth distance	10m
Area / Volume measurement	√
Pythagorean measurement	√
Max/Mini	√
Self-calibration	√
Laser class	II
Laser type	630-680nm, <1mW
The number of storage records	100
Auto laser off	20s
Auto power off	150s
Charging time	About 2h
Battery life	5500 measurements
Sound prompts	√
Storage temperature	-20˚C~60˚C
Working temperature	0˚C~40˚C
Storage humidity	20%~80% RH
Battery	3.7V 370mAh Lithium Battery
Charging port	Type-C, DC 5V 0.5A
Net weight	64g
Dimension	98x37x21mm

* The minimum of the range refers to the distance measured by front-end datum
* 'D' refers to actual distance
* There will be a large error in the measurement results from harsh environments such as: strong sunlight, fluctuating temperature, weak reflectivity of reflective surface and insufficient battery power. In this case, it is better to use the target reflector. Conditions that affect the measurement include: the objective lens or laser tube is blocked by foreign matter; the measurement target is unclear, such as water surface, glass, mirror surface; laser jitter during measurement, etc.

Daily Care

● It is forbidden to store the instrument in a high temperature and high humidity environment for a long time. When the instrument is not used for a long time, please put the instrument in a bag and store it in a cool and dry place.

Please keep the surface of the instrument clean, wipe the dust on the surface with a damp soft cloth, and do not clean the instrument with corrosive lotion. The laser output window and its focus lens can be wiped according to maintenance procedures for optical device.

Packing List

Please carefully check whether all the accessories are completed according to the packing list when purchasing.

NO.	Item	Unit	Quantity	Note
1	Laser distance meter	pc	1	
2	Gift box	pc	1	
3	User's manual	pc	1	
4	Type-C cable	pc	1	

WARRANTY CARD

◎ Your Warranty Includes

• 36-Month Coverage

Within 36 months of purchase, we will provide timely and effective online after-sales service. We will repair or replace any defective product (due to manufacturing fault) within the warranty period. The battery provides 24-month coverage.

⟁ How to Return Your APEXFORGE Product

- Contact support@apex-forge.com with your order number.
- We will issue you a return label for your return.
- Tear off the 'Return Details' page and fill in the details. Include this inside your return package.
- We will issue your replacement/refund on receiving the return package.

⟁ Return Details

In order to process your return as quickly as possible, we require the following information.
Please fill out this form and include it in your return package.

Purchase Name:	
Order Number:	
Date of Purchase:	
Your Email Address:	
Place of Purchase:	

⟁ If your purchase was fulfilled by Amazon, please use Amazon's 30-day return service.

FCC Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
•Reorient or relocate the receiving antenna.
•Increase the separation between the equipment and receiver.
•Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
•Consult the dealer or an experienced radio/TV technician for help.
Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

RF Exposure Information
The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.