
# Digilog Electronics Hand held Laser Distance Meter User Manual



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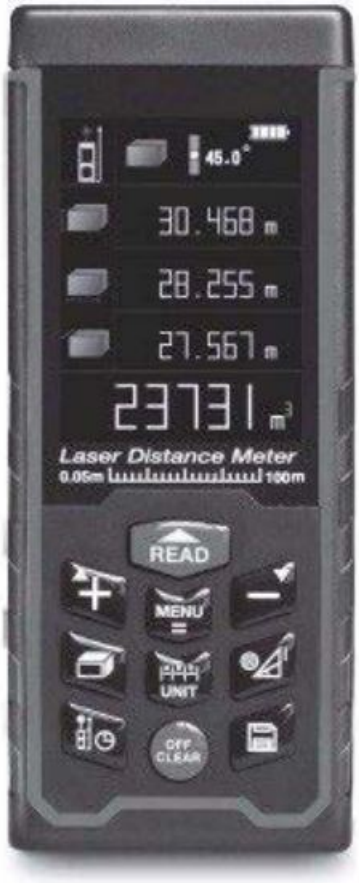



# User's Manual

## hand-held laser distance meter

Contents



## 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 bodily 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 reflecting.

⚠ 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 inflammable, explosive environment.

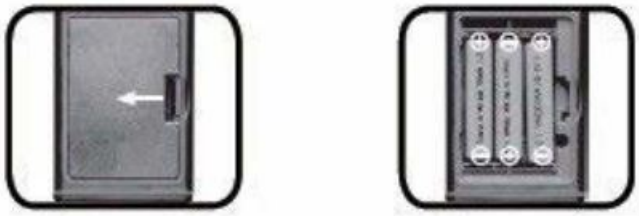
⚠ Discarded batteries or meter device shall not be processed just like household garbage, please handle them in line with related law and regulations.

⚠ 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.

***Professional casts quality and good quality gets reputation***

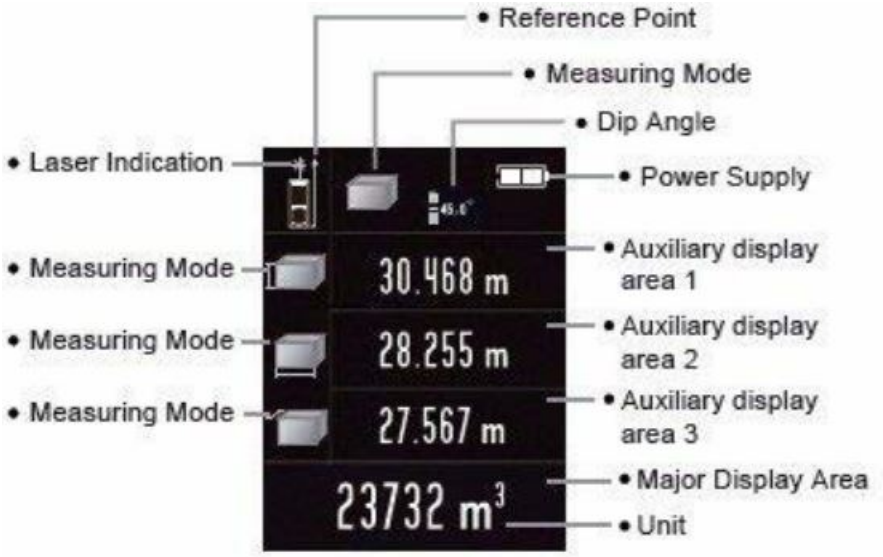
## Battery Installation, Display, Keyboard

### Installation & Replacement Battery

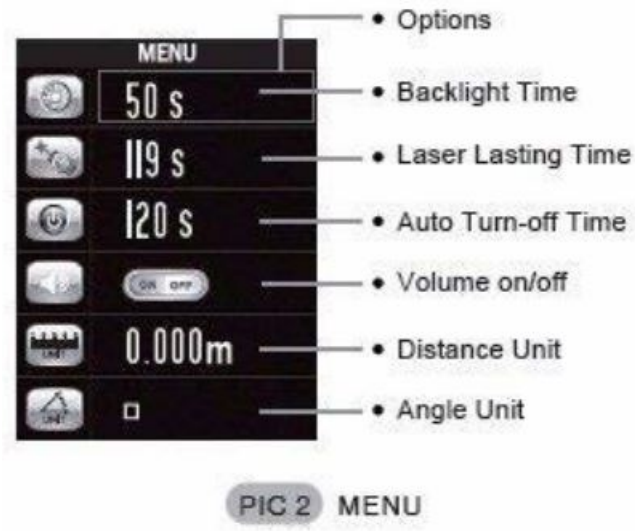


- Discharge the battery door on the back of device, and place battery according to correct polarity, then cover the battery door.
- 1.2V 1000mAh AAA Ni-mh battery is recommended. A charger and cable is included in the accessories bag. User can charge with mini USB, when the power is low.

### Display

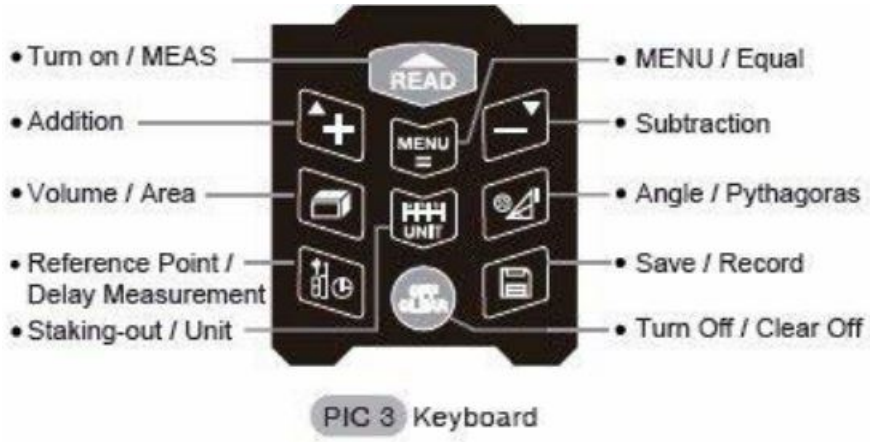



PIC 1 Major Interface




PIC 2 MENU

**Keyboard**




PIC 3 Keyboard

## Turn on & Basic Setting

**Turn on/off**

Press button under on status, device and laser get starting simultaneously and stand by for measuring.

Turn off the device by long pressing button for 3 seconds under on status.When there is no operation, the device will be shut off in 150s. (Users can set this limited time in the device, any other setting you can refer the<menu>)

**Unit setting**

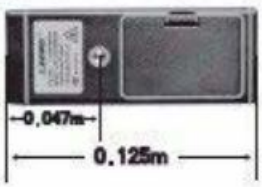
Press button to reset current unit, the default unit is 0.000m, there has eight units for selection.

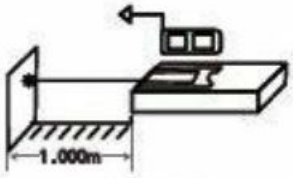
**Unit:**

| | Range | area | volume |
|---|---|---|---|
| 1 | 0.000m | 0.000$m^2$ | 0.000$m^3$ |
| 2 | 0.00m | 0.00$m^2$ | 0.00$m^3$ |
| 3 | 0.000ft | 0.00$ft^2$ | 0.00$ft^3$ |
| 4 | 0.0in | 0.00$ft^2$ | 0.00$ft^3$ |
| 5 | 0 1/16 in | 0.00$ft^2$ | 0.00$ft^3$ |
| 6 | 0'00'1/16 | 0.00$ft^2$ | 0.00$ft^3$ |
| 7 | 0.000米 | 0.000$米^2$ | 0.000$米^3$ |
| 8 | 0.00米 | 0.00$米^2$ | 0.00$米^3$ |

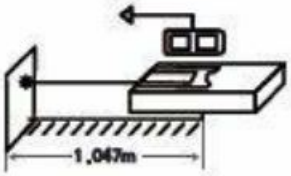
**Reference point setting**

The device get three reference points. System default reference point is bottom. Press to select the reference point.

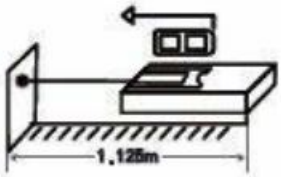


Front Point



Middle Point
(Screw Hole)



Bottom Point

## Distance, Area, Volume & Pythagoras

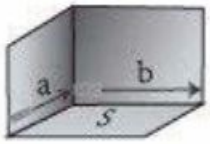
### Single Measurement

Press button READ under measuring mode, laser shoots and focus the target.
Press button READ again for single measurement, result will be shown in the major display area.
The latest 3pcs of records will be shown in the auxiliary display area. Short press button ON to delete the history data.

### Continuous Measurement

The user can use this mode to find the target distance without frequent operation.
Long press button READ under measuring mode and enter continuous measuring mode.
Maximum and Minimum value will be shown on the screen. Present result displays in major display area.
Short press botton READ or ON to quit.

### Area Measurement




S=axb

Press button , shows on the screen.
Please follow the below instructions for area measuring:
Press READ once for length;
Press READ again for width.
The device calculates and shows the result in the major display area. Short press ON to clear off last result and measure again if necessary.
Long press button to save the result.

### Volume Measurement


V=axbxc

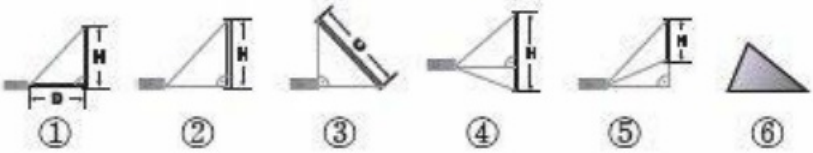
Short press button twice, screen shows .
Please follow the below instructions for area measuring:

Press button for one edge (H)
Press button for the second edge (L)
Press button for the third edge (W)

It is unnecessary for user to measuring according to this order. Device calculates the volume after measuring the third edge. Short press to clear off the last result and measuring again when you make a wrong operation.Long press button to save the result.

**Pythagoras Measurement**

There are six triangle measurement methods:




① ② ③ ④ ⑤ ⑥

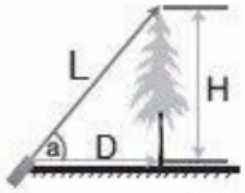
They are:

① Calculate the length of two legs by measuring hypotenuse and angle.
② Calculate the other leg by measuring the hypotenuse and base leg of a right triangle.
③ Calculate the hypotenuse by measuring two legs of a right triangle.
④ Calculate the third side of a triangle by measuring the other two sides and the altitude.
⑤ Calculate the length of the hightlight side by measuring hypotenuse, auxiliary line and base leg of the right triangle.
⑥ Calculate area of an irregular triangle by measuring the length of its three sides.

Press button to select the proper mode among these six.

**Pythagoras Measurement must follow the instructions' order strictly.**

1.Calculate two legs in a right triangle. 




$D = L \times \cos a$

$H = L \times \sin a$

Press button once, screen shows ;

Press button for hypotenuse and dip angle.The results of H and D will be shown after measuring.

2. Calculate the other leg of a right triangle


$$H=\sqrt{L_1^2-L_2^2}$$

Short press button twice, screen shows ;

Press button for length of hypotenuse L1;

Press button for length of one leg L2;

Device calculates the length of the other leg H.

3. Calculate the hypotenuse of right triangle


$$c=\sqrt{a^2+b^2}$$

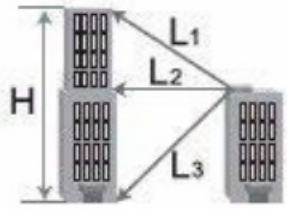
Short press button three times, screen shows ;

Press , measure the length of one leg a;

Press , measure the length of the other leg b;

Device calculates the length of hypotenuse c.

4. Calculate the third side of a triangle




$$H=\sqrt{L_1^2-L_2^2}+\sqrt{L_3^2-L_2^2}$$

Press button four times, screen shows ;

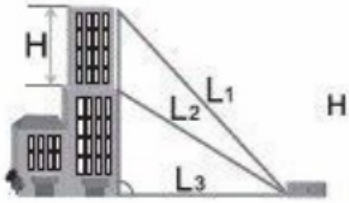
Press ,measure the length of one side L1;

Press ,measure the length of another side L2;

Press ,measure the length of the altitude L3;

Device calculates the length of the third side H.

5. Calculate the highlight side H in one leg of a right triangle




$$H=\sqrt{L_1^2-L_3^2}-\sqrt{L_2^2-L_3^2}$$

Press button five times, screen shows ;

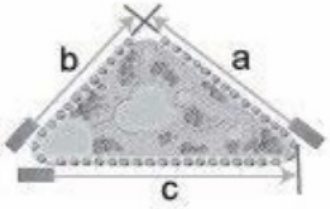
Press , measure the length of hypotenuse L1;

Press , measure the length of the auxiliary line L2;

Press , measure the length of another leg L3;

Device calculates the length of the highlight line H.

6. Calculate the area of an irregular triangle




$$S = \sqrt{Lx(L-a)x(L-b)x(L-c)}$$

$$L = (a+b+c)/2$$

Press button six times, screen shows ;

Press button for first leg a;

Press button for second leg b;

Press button for third leg c;

The result of area S will be shown after measring.

ATTN: If the device shows "ERR 5" while measuring, that means the previous measring results are not accompany to the rule of triangle. For example, the hypotenuse is shorter than a leg. When there are results mistakes, the device will show "ERR 5" to alarm. In that case, users need to measure again.

If user gets a wrong result in last measurement, short press button to return to the last measurement and measure again. Long press button to save the result.

## Calculation

#### Distance Addition

Step 1 Press button when you get the first distance result;

Step 2 Press button to get the second result;

The SUM shows in the major display area.

Repeat Step 1 and Step 2 to continue the summation.

#### Distance Substration

Step 1 Press button when you get the first distance result;

Step 2 Press button to get the second result;

The difference shows in the major display area.

Repeat Step 1 and Step 2 to continue the substration.

ATTN: User can short press button to cancel the last movement while addition or sustration.

Short press twice the button to exit.

**Area Addition and Substration**


PIC 4 First Area Result


PIC 5 Second Area Result


PIC 6 SUM

Step 1 Get first area result as PIC 4.

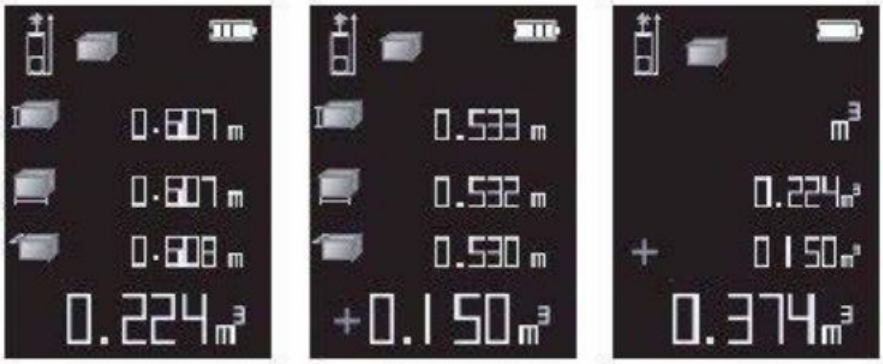
Step 2 Short press button , and then repeat the area measurement movement to get the second result of area as PIC 5.

Step 3 Short press button , device calculates the SUM and shows in the major display area as PIC 6.

Repeat the movement of step 2 for more areas addition before step 3, device will calculates SUM for all areas.

The movements of Substration are similar to Addition.

**Volume Addition and Substration**




PIC 7 First Volume Result PIC 8 Second Volume Result PIC 9 SUM

Step 1 Get first volume result as PIC 7.

Step 2 Short press button , and then repeat the volume measurement movement to get the second result of volume as PIC 8.

Step 3 Short press button , device calculates the SUM and shows in the major display area as PIC 9.

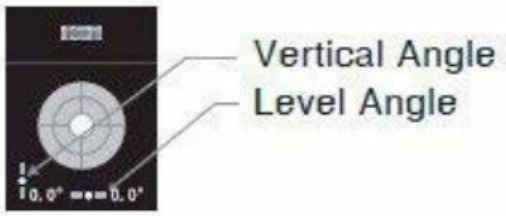
Repeat the movement of step 2 for more areas addition before step 3, device will calculates SUM for all areas.

The movements of Substration are similar to Addition.

**Multi-direction Electronic Level Bubble, Delay Measurement. Staking-out and Angle Measurement**

**Multi-direction Electronic Level Bubble**

Long press button , screen shows:

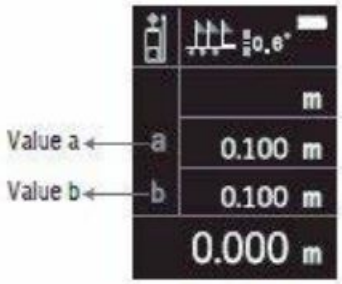



Press button to exit.

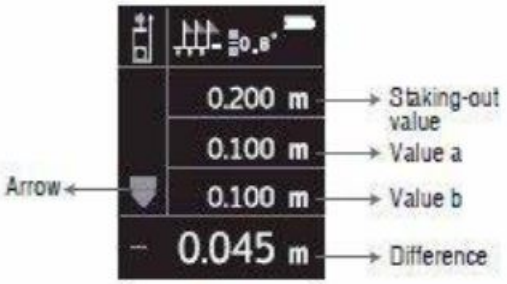
**Delay Measurement**

Long press button , delay time shows on the top of screen in Seconds. Short press and to adjust the time. Max value is 60s, Min value is 5S. Then short press button to start the delay measuring function.

**Staking-out**




PIC 10




PIC 11

User can use staking-out function to find the position which match the setting distance.

1. Long press button , the device shows as PIC 10;

2. Set the value:

Press and to adjust the value of a. Press button when a is confirmed.

Press and to adjust the value of b. Press button when b is confirmed.

3. Arrows:

:Please move back;

:Please move on;

:Match the postion.

4. Short press button to exit.

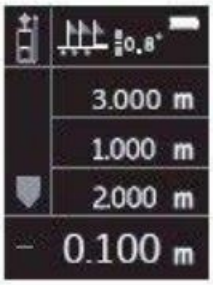
5. Detail instructions

Setting Value=a+n*b (n=0,1,2,...)

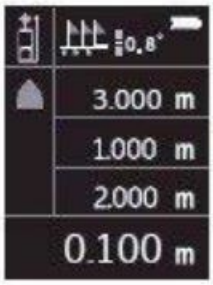
For example: a=1.000m, b=2.000m

1) Recent distance Dist=2.9:
Setting Value=a+1*b=3.000m,
Difference=Dist-3.000=-0.100m

2) Recent distance Dist=3.1:
Setting Value=a+1*b+3.000m,
Difference=Dist-3.000=0.100m




1)Dist=2.9

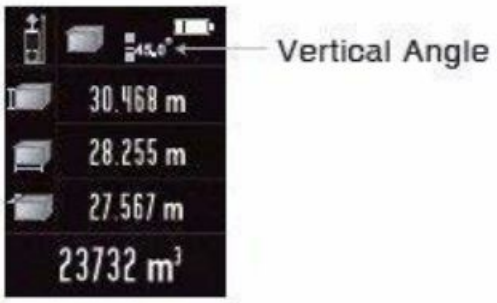



2)Dist=3.1

**Angle value shows on the top of the screen.**

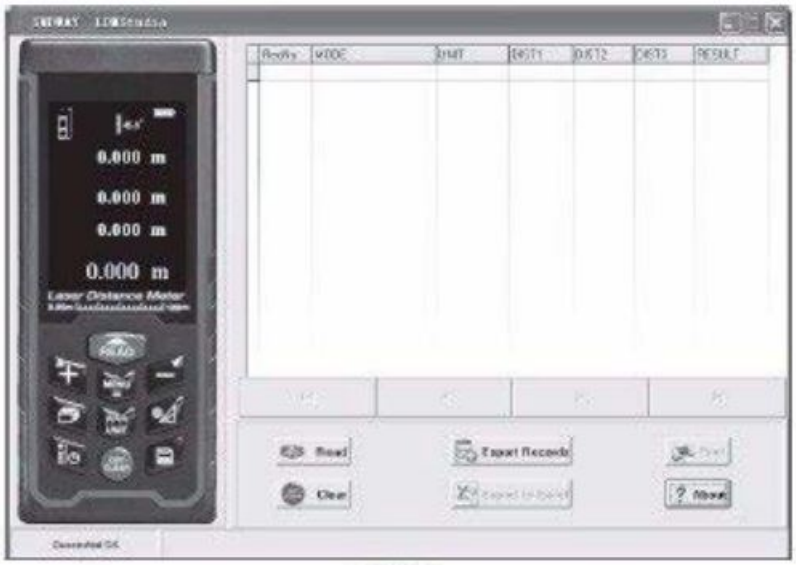
The range of angle is -90.0° ~ 90.0°

Two Units of Angle: ° and % (Slope)




**Connect to Computer (Just for 100m)**

User can transfer the records from the device to the computer with USB connector. User need toinstall the software "LDM Studio" from the disc which is offered with the device. Then user can upload the records to EXCEL. The software interface is as below:




PIC 12

The device is offered with opened USB HID for users to do further development. Please check the disc for the whole agreement.

DOC: SW-S100USBHID ORDER LIST.docx

**Software Installation:**

1)Open the folder "LDMStudio_setup" in the disc. Double click "setup.exe" to install the software. Operate following the instructions in chapter 2 "One-Key Installation" in "readme.docx" or "readme.pdf".

2)Connect the device to the computer with USB afterinstallation. When open the software, it shows the interface of PIC 12. If it is successfully connected, it will shows "**Connected**" at the left bottom of the interface.

3) Click Read or Clear to control or clear the records.

4) Click Upload to upload the records to the computer. Click Export to get the records in EXCEL. Click Print to print the records.

**MENU Setting**

**Enter and Exit the MENU**

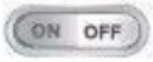
Press button MENU to enter the Menu Setting interface.
User can exit by short press ESC , the alteration can be taken effect but not recorded.
User can also exit by short press OK , the alteration can be taken effect and recorded.

**Baic Operation**

There is a red option frame to show your seletion. (PIC 2).
Move the red option frame up and down by button + and - .
Short press MENU , then the red frame become green.
Press + or - to adjust the parameter of your selected item.

**Items and Options**

There are totally 7 items in 2 pages in the MENU.

| Item | Description | Options |
|---|---|---|
|  | Backlight | 5s~60s |
|  | Laser Lasting | 20s~120s |
|  | Auto Power-off | 100s~300s |
|  | Tone |   |
|  | Distance Unit | 1: 0.000m 2: 0.00m<br>3: 0.0in 4: in 1/16<br>5: 0'00'1/16 6: 0.00ft<br>7: 0.000米 8: 0.00米 |
|  | Angle Unit | 1: o : degree<br>2: 100% : Slope |
|  | Calibration | −0.009m ~ +0.009m |

ATTN: Calibration function may affect precision of the device, so this item cannot be adjust under default state. User need to follow the below steps for the calibration:

Step 1 Turn off the device;

Step 2 Press the button and hold. Short press button , then release it. Release the button till the device enter the main interface;

Step 3 Short press button for MENU setting. Now it is free for the calibration.

**Battery**

The device is accompanied with rechargable batteries and charger. Please check the batteries before charging to make sure the batteries in the device are rechargable. It is forbidden to charge nonrechargable batteries.

The icon  will roll on the right top of the screen while charging. When the charging is finished, the icon  will turn green.

ATTN: We suggest the user to use our standard charger for charging.

**Instrument Maintenance:**

1) The meter should not be stored in high temperature and strong humidity environment for long time;
2) If it is not used very often, please take out the battery and place the meter in the allocated potable bag and store in cool and dry place.
3) Please keep the device surface cleaning. Wet soft cloth is applied to clean dust, but erosion liquid is never allowed to use for the meter maintenance.
4) Laser output window and its focus lens can be maintained according to maintenance procedures for optical device.

**Delivery Package**

Please check if the accessories are matched the below list before buying.

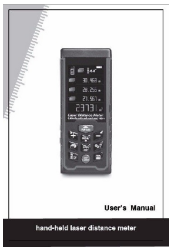
| Item | Contents | Unite | QTY | Remark |
|---|---|---|---|---|
| 1 | Laser distance meter | pc | 1 | |
| 2 | Pounch | pc | 1 | |
| 3 | Hand Strap | pc | 1 | |
| 4 | Rechargable Battery | pc | 3 | |
| 5 | Charger | pc | 1 | |
| 6 | USB Connector | pc | 1 | |
| 7 | Disc | pc | 1 | Only for 100m |
| 8 | Reflector | pc | 1 | Only for 100m |
| 9 | User' s manual | pc | 1 | |
| 10 | Giftbox | pc | 1 | |

## Tips

You may get some warning information as below:

| Info message | Cause & Solution |
|---|---|
| ERR 1 | Received signal is too weak. Chose the surface with stronger reflectance. Use the reflector. |
| ERR 2 | Received signal is too strong. Chose the surface with weaker reflectance. Use the reflector. |
| ERR 3 | Low power. Change or recharge the batteries. |
| ERR 4 | Fail of memorizer. Please contact the manufacturer. |
| ERR 5 | Pythagoras measuring error. Please re-measure. |
| ERR 6 | Exceed the measuring range. |
| ERR 8 | Fail of tilt. Please contact the manufacturer. |

## Documents / Resources

| | |
|---|---|
|  | Digilog Electronics Hand held Laser Distance Meter [pdf] User Manual<br>Hand held Laser Distance Meter, UNI-T UT-392A |