

UNI-T®



UT390B+/UT391+/UT392A/
UT392B/UT393A/UT393B

Operating Manual



Hand-held Laser Distance Meter



P/N:110401106022X

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I. Product Overview

UT390B, UT391+, UT392A, UT392B, UT393A, UT393B handheld laser distance meters are a series of highly accurate multifunctional laser distance meters. The product can measure distance, area, volume, and calculate distances with Pythagorean Theorem. These products are highly reliable, making measurements simple and accurate.

These devices can be applied to architecture, decoration, property, transportation, fire protection, garden, city planning, city appearance management, water conservancy inspection electric power maintenance, and other industries. As substitute for traditional measurement tools (tape and steel scale), these meters are the ideal tools for distance measurement.

II. Safety Service Regulations

Please carefully read the safety terms and operation guidance before using this device for the first time.



The device might get damaged, produce inaccurate measurement, or cause injury to users if operations specified in this manual are not followed.

- Do not open or repair the device in any way by yourself
- Do not illegally modify or change laser emission performance of the device
- Please keep the device in a proper and safe manner
- Do not store it in places easily accessible to children
- Avoid usage by other irrelevant persons
- Do not use laser transmitter of the device to irradiate eyes, other body parts, or high-reflective surfaces

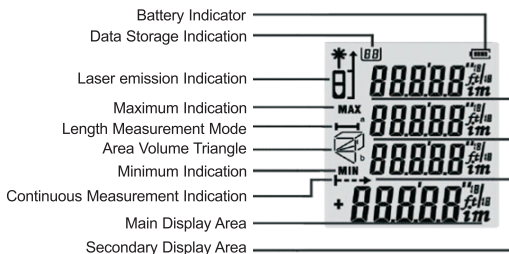
The device's electromagnetic radiation may interfere with other equipment or devices, please do not use the device on airplane, near medical devices, or in inflammable and explosive environments.

Waste batteries and any rejected devices cannot be disposed with household waste, please dispose them according to local laws and regulations.

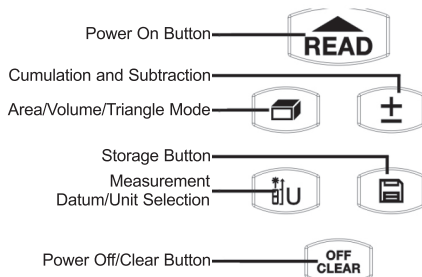
For any quality problems or questions about the device, please contact the local distributors and we will solve your problem in time.

Thank you for choosing this UNI-T device!

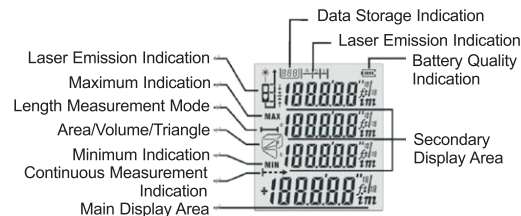
● Display (UT390B+/UT391+/ UT392A/UT392B)



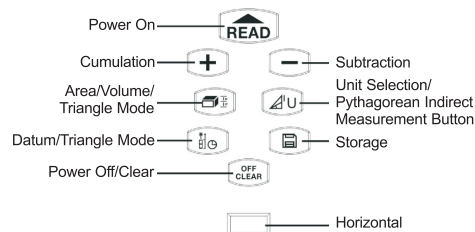
● Buttons (UT390B+/UT391+/ UT392A/UT392B)



● Display (UT393A/UT393B)



● Buttons (UT393A/UT393B)



Battery Installation

- Open the battery cover on the back of device, install the batteries according to the polarity indication and lock up the battery cover.
- 1.5 V AAA batteries are suitable for this device.
- If this device is not being used for long time, please take out the batteries to avoid corrosion.

III. Device Startup and Menu Setting

• Turn on and off the Device

Press "READ" button to turn on the device, the laser will also be on at the same time, it will then enter measurement mode. Long press "OFF/CLEAR" button for 3 seconds to turn off the device. The device will power off automatically after idling for 150 seconds.

• Unit Setting

Long press "U" or "F" button to enter measurement unit adjustment mode and reset the current measurement unit.

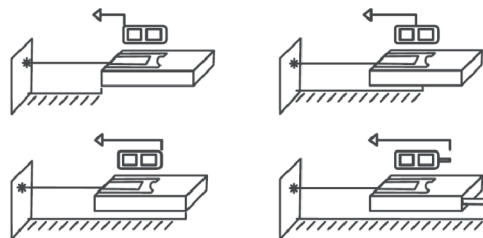
The default unit of this device is 0.000m, and there are 6 selectable units.

• Measurement Unit

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

Measurement Standard

Short press "U" or "F" button to select measurement reference. UT390B+/UT391+/UT392A/UT392B provide front and end standard, and UT393A/UT393B provide front, three foot pivot, end and extended tail board standards.



Turn on/off Backlight









The backlight will turn on after pressing any button, and go off after 15 seconds of idling.

IV. Calibration Function

Calibration (UT390B+/UT391+/UT392A/UT392B)






The device provides calibration function to ensure accuracy.




Calibration method:

1. When the device is powered off, press and hold  button and press  button to power on the device.
2. Release  button until "CAL" and number appear on the display to enter calibration mode.
3. Users can use  and  buttons to adjust error value, adjustment range is -9~9mm. For example, actual distance is 3.780m. If this device's measurement distance is 3.778m, which indicates 2mm less than the actual's. Enter the calibration mode and use  button to add 2mm. If this device's measurement distance is 3.783mm, which is 3mm more than the actual's. Enter the calibration mode and use  button to reduce 3mm.
4. After calibration, press  button to save the calibration result.

Self-Calibration (UT393A/UT393B)



The device provides calibration function to ensure accuracy. Calibration method:

1. When the device is powered off, press and hold  button and press  button to power on the device.
2. Hold  button until the flashing number under CAL appears on the display to enter calibration mode.
3. Users can use  and  buttons to adjust error value, adjustment range is -9~9mm. For example, actual




- distance is 3.780m. If this device's measurement distance is 3.778m, which indicates 2mm less than the actual's. Enter the calibration mode and use  button to add 2mm. If this device's measurement distance is 3.783mm, which is 3mm more than the actual's. Enter the calibration mode and use  button to reduce 3mm.
4. After calibration, press  button to save calibration result.

V. Distance, Area, Volume, Pythagorean, Cumulative and Regressive Measurement


● Single Measurement



Short press  button in measurement mode to emit laser and lock the measurement point. Press  button again for single distance data measurement. Measurement result will be displayed on the main display area.

● Continuous Measurement


Long press  button in measurement mode to enter continuous measurement mode. Secondary display area will display the maximum measurement value during continuous measurement mode. Main display area will display the current measurement value. Short press  or  button to exit continuous measurement mode.

● Area Measurement

Press  button and the display will show a rectangle, one side of the rectangle will flash. Complete the following operations according to the instructions:


1. Press  button to measure the first side (length)
 2. Press  button to measure the second side (width)
- The device will calculate the area automatically and the result will be shown on the main display area.


Secondary display area shows the measurement values of rectangle length and width.




During measurement, use  button to clear the measurement result and restart measurement.

Press  button 2 times to exit area measurement mode.

● Volume Measurement


Press  button for 2 times to enter volume measurement mode, and a square will flash on the display. Complete the following operations according to the instructions:


Press  button and the display will show a rectangle, one side of the rectangle will flash. Complete the following operations according to the instructions:

1. Press  button to measure the first side (length).
2. Press  button to measure the second side (width).
3. Press  button to measure the third side (height).

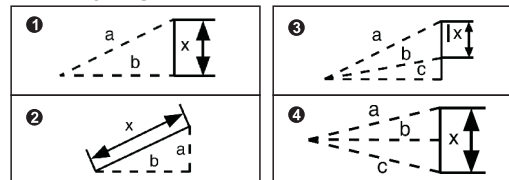
The device will calculate the volume automatically and the result will be shown in the main display area.

Secondary display area shows the measurement values of square length, width and height.




During measurement, use  button to clear the measurement result and restart measurement.



Press  button 2 times to exit volume measurement mode and enter length measurement mode.

● The Pythagorean Measurement








There are 4 modes for measuring triangular distance with Pythagorean Theorem, it creates convenience for users to carry out indirect measurement in complex environments.







(1). Short press  button for 3 times or  button once, hypotenuse of  will flash on the display.

Press  button to measure the length of the dotted hypotenuse (a) according to the instructions on display. Press  button to measure the length of the dotted angle side (base) (b).







The device will calculate the length of the solid right-angle side (height) (x) automatically.

(2). Short press  button for 4 times or  button for 2 times, the right-angle side of  will flash on the display. Press  button to measure the length of the dotted line (a) according to the instructions on display. Press  button to measure the length of the dotted right-angle side (b).

The device will calculate the length of the solid hypotenuse (x) automatically.




(3). Short press  button for 5 times or  button for 3 times, the hypotenuse of  will flash on the display. Press  button to measure the length of the dotted line (a) according to the instructions on display. Press  button to measure the length of the dotted line on the center (b). Press  button to measure the length of another dotted line (c).

The device will calculate the length of one side of the solid triangle (x) automatically.

(4). Short press  button for 6 times or  button for 4 times, the hypotenuse of  will flash on the display. Press  button to measure the length of the dotted line (a) according to the instructions on display. Press  button to measure the length of the dotted line as the figure (b). Press  button to measure the length of another dotted hypotenuse (c). The device will calculate the length of the solid angle side (x) automatically.

In the Pythagorean measurement mode, the length of right-angle side must be less than the hypotenuse, or wrong signal indicator will be shown on the display. To ensure measurement accuracy, measurement must be taken from the same starting point and in the order of hypotenuse, then angle side.

● Cumulative and Regressive Measurement Function

Single distance can be measured by cumulative or regressive operation of plus/minus calculation. Users can use  button to enter cumulative and regressive function after getting the single distance measurement result. Short press  or  button, “+” appears on the main display area and enter cumulative measurement mode.

Display shows the cumulative value of last measurement value and current measurement value.

Long press \pm button or short press \div button, “-” appears on the main display area and enter regressive measurement mode. Display shows the difference value of last measurement value and current measurement value.

Not only the distance but also area and volume can be accumulated and subtracted.

The following examples illustrate the cumulative and regressive function of area, to which cumulative and regressive of volume are similar.

Area accumulation: Measure the first area to get a result as shown in figure 1. Press \pm or \div button to measure the second area and get a result as shown in figure 2, and a plus sign will be shown in the left bottom corner. Lastly, press HOLD button to get the sum value of these two areas, the result is shown in figure 3.

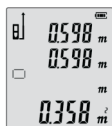


Figure 1

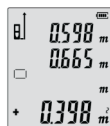


Figure 2



Figure 3

Area subtraction: the following example illustrates how to operate area subtraction that subtracts two subtrahends from a minuend.

Step 1: Measure the first area as shown in figure 4 according to area measurement method. The measured area is 0.311 square meter.

Step 2: Long press \pm button or short press \div button to measure the second area as shown in figure 5. The measured area is 0.110 square meter.

Step 3: Repeat step 2 to measure the third area as shown in figure 6. The measured area is 0.118 square meter.

Step 4: Press HOLD button and display is shown as figure 7. 0.331 is the first measured area, 0.228 is the second measured area, and the sum of 0.110 and the third measured area 0.118 is calculated as: $0.083 = 0.331 - 0.228$.

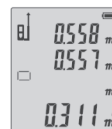


Figure 4



Figure 5









Figure 6



Figure 7

● Stake-Out Function (UT393A/UT393B)

Long press  button to enter stake-out measurement mode. As shown in the following figure, a and b are two default values, users can press  or  buttons to adjust these two values. Long press  or  buttons will increase adjustment amplitude for each time. After adjustment, press  button to enter stake-out operation, the device has voice and icon two indications.

↓ indicates that the device needs to be moved backward,






↑ indicates that the device needs to be moved forward.

Users can operate the device according to these two icons. When the device is close to the stake-out point,

⌘ will be shown.


● Timing Measurement (UT393A/UT393B)



Long press  button, current timing value (with s as unit) is shown at the bottom of display, as shown in the following figure. Then enter   button to adjust timing. The maximum is 60s and the minimum is 30s. In this mode, after adjusting delayed time, press  button to start this timing measurement. If laser is on, long press  to start timing measurement immediately.










VI. Measurement Record Storage Function

In measurement mode, if current data is valid, long press  for 3s, the current measurement data will be stored automatically in the device.








In area, volume, triangle measurement modes, storage can be carried out when all measurements are completed. The device will save the whole record of this measurement.

● Browse/Delete Records

UT390B+/UT391+/UT392A/UT392B

Short press  button to check stored measurement data. Press  button to page up records, and press  button to page down records. When checking the record, short press  button to delete the current record, long press  button to delete all the records. Press  or  button to exit this mode.

UT393A/UT393B

Short press  button to check stored measurement data. Press  button to page up records, and press  button to page down records. When checking the record, short press  button to delete the current record, long press  button to delete all the records. Press  or  button to exit this mode.

VII. Error Indicators

Information	Reasons	Solution
Err1	Signal too weak	Measure target point with strong emission capability
Err2	Signal too strong	Measure target point with weaker reflectivity
Err3	Battery voltage too low	Replace the battery
Err4	Beyond the operating temperature range	Use the device in specified environment
Err5	Pythagorean Measurement Range	Restart measurement, and ensure the hypotenuse is longer than the right-angle side

VIII. Technical Parameters

Functions	UT390B+	UT391+	UT392A	UT392B	UT393A	UT393B
MAX Measurement Distance	40m	60m	80m	100m	120m	150m
Measurement Accuracy*	$\pm (1.5\text{mm} + d * 5/100000)$					
Measurement Unit Selection	m/in/ft					
Continuous Measurement	✓				✓	
Area and Volume Measurement	✓				✓	
Pythagorean Measurement	✓				✓	

Cumulative and Regressive Measurement	✓	✓
Accumulation and Subtraction of Area and Volume	✓	✓
Accumulation and Subtraction of Length	✓	✓
Accumulation and Subtraction of Area	✓	✓
Accumulation and Subtraction of Volume	✓	✓
MAX, MIN Measurement	✓	✓
Stake-Out Measurement		✓
Delayed Measurement		✓
Extended Tail Plate		✓
Auto Calibration Function	✓	✓
Laser Level	Grade 2	Grade 2
Laser Type	635nm, <1mW	635nm, <1mW
Data Storage	30 Groups	100 Groups
Battery lifetime	2*1.5V (AAA) 8000 Times	
Auto Cutting Laser	20S	20S
Auto Power Off	150S	150S
Sound Prompt	✓	✓
Battery Quality	✓	✓
Storage Temperature	-20°C~60°C	-20°C~60°C
Operating Temperature	0°C~40°C	0°C~40°C

Storage Humidity	RH85%	RH85%
Product Size	112*50*25mm	123*55*28mm
Level Ruler	✓	✓

** The severe environments are as following: strong sunshine, large temperature fluctuation, weak reflecting surface, low battery voltage and so on. These conditions may cause measurement error. Using the target reflector has a better effect under these conditions.

IX. Maintenance

- Do not store the device in high temperature and high humidity environments for a long time. If the device will be not be used for long time, please take out the battery and put the device in portable bag and place it in a cool, dark and dry place.
- Please keep the device surface clean. Use wet and soft cloth to clean the surface and dry up in time. Do not clean the device with corrosive liquid. Wipe the laser window and focusing lens according to the method of wiping optical devices.

X. Packing List


Objects	Name	Unit	Quantity	Remark
1	Mainframe	Set	1	
2	Portable Bag	Piece	1	
3	Hanging Belt	Piece	1	
4	AAA Battery	Piece	2	
5	Manual	Book	1	
6	Warranty Certificate	Piece	1	
7	Graphic Carton	Piece	1	
8	Reflector Panel	Piece	1	UT392B/UT393A/ UT393B

The manual is subject to change without prior notice!

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 Fax: (852) 2950 9303
<http://www.uni-trend.com>

说明书菲林做货要求:

序号	项目	内容
1	尺寸	尺寸80×120±1MM
2	材质	封面封底120g铜版纸，内页60g书纸
3	颜色	单色双面印刷
4	外观要求	完整清晰、版面整洁，无斑墨、残损、毛边、刀线错位等缺陷。
5	装订方式	两枚钉装
6	表面处理	无
7	其它	无
版本		REV. 0
DWH 设计	宣浩	<div>MODEL <small>UT390B+/UT391+/UT392A</small></div> <div>机型: <small>/UT392B/UT393A/UT393B</small></div> <div>Part NO.</div> <div>物料编号: 110401106022X</div> <div>  优利德科技(中国)有限公司 UNI-TREND TECHNOLOGY (CHINA) LIMITED </div>
CHK 审核		
APPRO. 批准		