

# UNI-T®



**UT390B+/UT391+  
UT391A+/UT393+**

## Operating Manual



**Hand-held Laser Distance Meter**



P/N:110401105409X

## Contents

I. Product Overview	1
II. Safety Service Regulations	1
III. Battery Installation	5
IV. Instrument Starting and Menu Setting	5
V. Self-calibration Function	6
VI. Distance Measurement, Indirect Measurement of Area, Volume and Pythagorean, and Cumulative and Regressive Measurement	7
VII. Function of Measurement Record Storage	15
VIII. Indication Information	16
IX. Technical Parameters	17
X. Daily Instrument Maintenance	18
XI. Packing List	18

## I. Product Overview

UT390B+UT391+UT391A+UT393+ series of hand-held laser range finders belong to high-precision and multi-functional laser measuring instrument, which can be used to measure distance, area and volume, and can also utilize the indirect measurement of Pythagorean theorem. The product is portable and reliable in measuring, making your measurement more accurate, simple and faster, and getting twice the result with half the effort.

The product, as a substitute of traditional measuring tools (tape and steel scale) can be widely used in construction, decoration, tenement, traffic, fire fighting, landscapes, urban planning, urban appearance management, water conservation detection, electric maintenance and other industries, being an ideal tool for measurement !

## II. Safety Service Regulations

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



Before using this instrument, please carefully read all the operation guidance and safety regulations. It would cause damage to the instrument, influence measuring precision or cause injury to user or the other person if you do not use this instrument according to the operation method specified in the Instructions.

Do not open or repair the instrument in any way by yourself, and do not illegally modify or change laser emission performance of the instrument. Please keep the instrument in a proper and safe manner, and do not place in places available for children to void usage by other irrelevant persons.

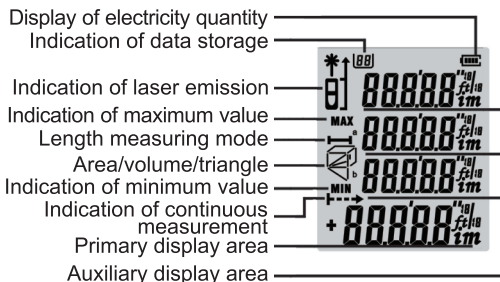
Do not use laser transmitter of the instrument to irradiate eyes and other parts of yours or the others' or surface of high-reflective materials, for its electromagnetic radiation may interfere other equipments or devices. Please do not use the instrument on airplane or near medical devices, or in flammable and explosive environments.

Waste battery used by the instrument or waste instrument can not be disposed together with household wastes, which should be disposed according to relevant national or local laws and regulations.

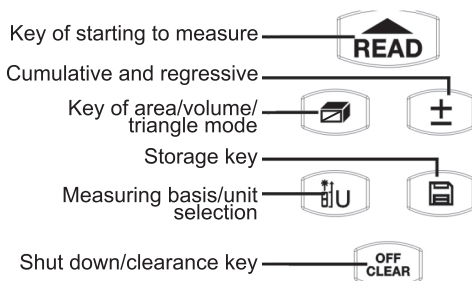
If any quality problem or any question about instrument usage, please contact with the local dealer or us in time, and we will solve your problem in time.

Thanks for using products of Uni-Trend laser measuring device series!

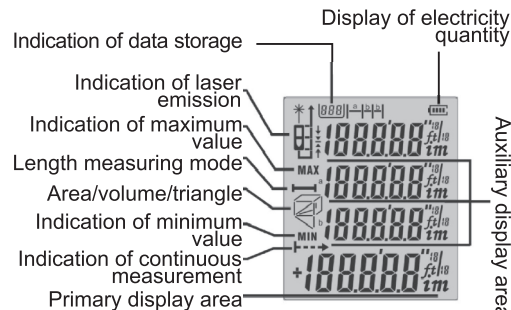
## ● Display Screen (UT390B+/UT391+)



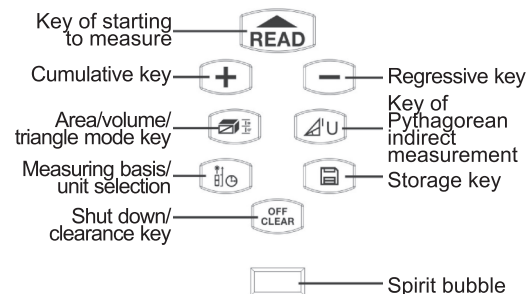
## ● Keys (UT390B+/UT391+)



## ● Display screen (UT391A+/UT393+)



## ● Keys (UT391A+/UT393+)





### III. Battery Installation

- Take of the battery cover on the back of the instrument, and install battery correctly according to the polarity indication and lock up the battery cover.
- The instrument uses 1.5V AAA battery.
- Take out battery if the instrument will not be used in a long time to avoid being corroded by battery.


### IV. Instrument Starting and Menu Setting

#### ● Turn on and off the instrument

When the instrument is turned off, press the key of , the instrument and laser are turned on at the same time, and the instrument enters the to-measure mode.

When the instrument is turned on, press the key of  for 3 seconds to turn off the instrument. The instrument will automatically turn off if it is not used in 150 seconds.

#### ● Unit setting

Long press the key of  to enter the status of adjusting measuring unit to re-set the current measuring unit.


Default unit of the instrument is: 0.000m, and there are 6 kinds of unit for option.

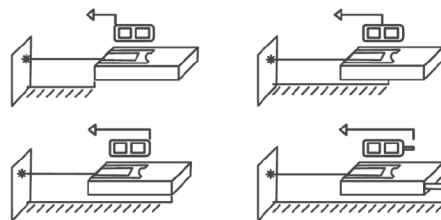
#### ● Measurement unit

	Length	Area	Volume
1	0.000m	0.000m <sup>2</sup>	0.000m <sup>3</sup>
2	0.00m	0.00m <sup>2</sup>	0.00m <sup>3</sup>
3	0.0in	0.00ft <sup>2</sup>	0.00ft <sup>3</sup>

4	0.00ft	0.00ft <sup>2</sup>	0.00ft <sup>3</sup>
5	0 1/16in	0.00ft <sup>2</sup>	0.00ft <sup>3</sup>
6	0'00'1/16	0.00ft <sup>2</sup>	0.00ft <sup>3</sup>

#### ● Setting of measuring basis

Press the key of  to select measuring reference basis, and the system provides four benchmarks: front end, triangle holder point, tail end, and extended tail board.






#### ● Turn on and off back light

Back light will be turned on for 15 seconds once pressing any key, and if no other operations, it will automatically turn off to save electricity.

### V. Self-calibration Function

The instrument has function of self-calibration to ensure precision.

Calibrating method: In the OFF status, press the key of  continuously and press the key of  to start the instrument, and release the key of  until there appears

“CAL” on the screen and flickering figures to enter self-calibration mode. At this time, users can calibrate instrument error by pressing keys of  $\pm$  and  $\square$  within the range of -9-9mm. For example, if the actual distance is 3.780m, and the distance measured by the instrument is 3.778m, 2mm less than the actual distance, then you can enter the calibration mode, and press the key of  $\pm$  to add 2mm. If the distance measured by the instrument is 3.783m, 3mm more than the actual distance, you can enter the calibration mode, and press the key of  $\square$  to decrease 3mm. After complete adjusting, press the key of  $\text{MEM}$  to save calibration results.

## VI. Distance Measurement, Indirect Measurement of Area, Volume and Pythagorean, and Cumulative and Regressive Measurement

### ● Single measurement:

Click the key of  $\text{MEM}$  in the to-measure mode to emit instrument laser and lock the measuring point, and then click the key of  $\text{MEM}$  to measure single distance data. Measurement result is displayed in the primary display area.

### ● Continuous measurement:

Long press the key of  $\text{MEM}$  in the to-measure mode to enter continuous measuring status, and the maximum measuring value during this continuous measurement will be displayed in the auxiliary display area on the screen. In the primary display area is the current measurement value. Click the key of  $\text{MEM}$  or  $\text{MEM}$  to exit from the continuous measurement mode.

### ● Area measurement:

Press the key of  $\text{AREA}$ , and there will be a rectangle appearing on the screen, with one side flickering.

Complete the following operations as indicated:

Press the key of  $\text{AREA}$  to measure the first side (length)

Press the key of  $\text{AREA}$  to measure the second side (width)

The instrument will automatically calculate the area, with the result displayed in the primary display area.

Measurement values of rectangle length and width are displayed in the auxiliary display area.

During the measuring process, one can press the key of  $\text{MEM}$  to clear the measuring result to measure again.

Press the key of  $\text{MEM}$  twice to exit from the status of area measurement to enter length measuring mode.

### ● Volume measurement:

Press the key of  $\text{VOLUME}$  twice, the system will enter volume measuring status, and the instrument enters volume status. There will be a cube flickering on the screen.

Complete the following operations as indicated:

Press the key of  $\text{VOLUME}$  to measure the first side (length)

Press the key of  $\text{VOLUME}$  to measure the first side (width)

Press the key of  $\text{VOLUME}$  to measure the first side (height)

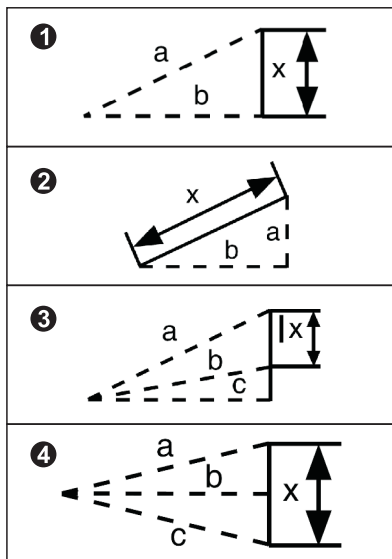
The instrument will automatically calculate the volume, with the result displayed in the primary display area.

Measurement values of cube length, width and height are displayed in the auxiliary display area.

During the measuring process, one can press the key of  $\text{MEM}$  to clear the measuring result to measure again.

Press the key of  $\text{MEM}$  twice to exit from the status of volume measurement to enter length measuring mode.

● Indirect measurement of Pythagorean theorem



The instrument has four preset modes of utilizing Pythagorean theorem to measure unilateral distance of the triangle to facilitate users to conduct indirect measurement in certain complex environments.

**1) Measure hypotenuse and base and indirectly measure height**

Click for three times to enter triangle indirect measuring mode.

Press the key of to firstly measure length of hypotenuse in imaginary line (a) as indicated on the screen

Press the key of to measure length of right-angle side in imaginary line (base) (b)

The instrument automatically calculate out the length of right-angle side in solid line (height) (x)

**2) Measure the two right-angle sides of right triangle, and indirectly measure hypotenuse length**

Click the key of for four times, and the screen displays: , with right-angle sides flickering

Press the key of to firstly measure length of the imaginary line (a) as indicated on the screen

Press the key of to measure length of the other right-angle side in imaginary line (b)

The instrument will automatically calculate out length of hypotenuse in solid line (x)

**3) Click the key of for five times, and the screen displays: , with hypotenuse flickering**


Press the key of to firstly measure length of an imaginary line (a) as indicated on the screen


Press the key of to measure length of the middle imaginary line (b)


Press the key of to measure length of the other imaginary line (c)

The instrument will automatically calculate out length of one side in solid line of the triangle (x)

#### 4) Click the key of for six times, and the screen displays: , with hypotenuse flickering

Press the key of  to firstly measure length of an imaginary line (a) as indicated on the screen


Press the key of  to measure length of the imaginary line (b) as in the figure



Press the key of  to measure length of the other imaginary line (c)

The instrument will automatically calculate out length of triangle right-angle side in solid line (x)


In the Pythagorean measuring mode, the instrument can calculate only if right-angle side has to be less than hypotenuse length. Otherwise, the instrument will display indication of wrong signal. In the Pythagorean measuring mode, it has to measure from the same starting point and measure hypotenuse firstly and then right-angle sides in order to ensure measurement precision.

#### ● Function of cumulative and regressive measurement

Single distance can be measured by cumulative or regressive operation of plus/minus calculation. After getting measurement result after measuring single distance, users can select cumulative or regressive function by pressing the key of .

Click the key of , and "+" appears in the primary measuring display area on the screen to enter cumulative measuring mode. The cumulative value of the last measurement value and current measurement value is displayed on the screen. Long press the key of , and

"-" appears in the primary measuring display area on the screen to enter regressive measuring mode. The differential value of the last measurement value and the current measurement value is displayed on the screen.

Not only the distance but also area and volume can be accumulated and subtracted. In the following are examples introducing functions of area accumulation and subtraction, to which volume accumulation and subtraction are similar. Area accumulation: Measure the first area to obtain the result as shown in the following Fig.1. Then press the key of  to measure the second area to obtain the result as shown in the following Fig.2. There will be a + displayed in the left bottom corner.

In the end, press the key of  to obtain results of sum value of the two areas, as shown in Fig.3.

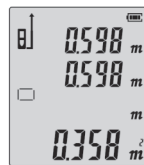


Fig.1

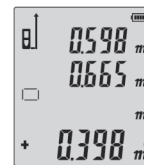


Fig.2

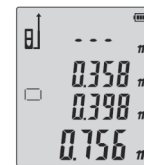



Fig.3

Area subtraction: In the following is an example to introduce how to operate area subtraction by one minuend minus two subtrahends:



**Step 1:** Measure the first area according to the area measuring method as shown in Fig.4, and measured area is 0.311 square meter.

**Step 2:** Press the key of  to start to measure the second area as shown in Fig.5, and measure area is 0.110 square meter.

**Step 3:** Repeat Step 2 to measure the third area as shown in Fig.6, and measured area is 0.118 square meter.

**Step 4:** Press the key of , and the screen displays as shown in Fig.7.

0.331 is the area calculated in the first time, 0.228 is the area calculated in the second time, and the sum of 0.110 and the area of 0.118 in the third time is accumulated as:  $0.083=0.331-0.228$ .



Fig.4



Fig.5










Fig.6



Fig.7

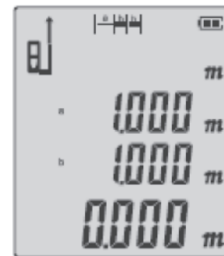
### ● Function of laying off






Long press the key of , and the instrument enters the mode of laying-off measuring. As shown in the following figure, a and b are two default values, which can be adjusted by pressing key of  or . It will increase adjustment range for each time by long pressing the key of  or . Press the key of  after adjustment, the instrument will enter laying-off operation, and the instrument has two indications of voice and icon.

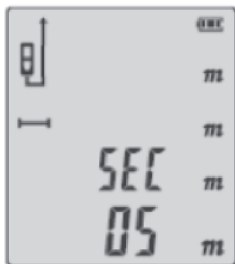
↓ means that the instrument needs to be moved backward, and ↑ means that the instrument needs to be moved forward. Operator can operate according to the above two. The instrument will display  when it is near or reach to laying-off point.

### ● Timing measurement


In order to facilitate users to use the instrument in the occasion where timing measurement is necessary, the instrument provides the function of timing measurement.









Long press the key of , it will display the current timing time (with s as unit) at the bottom of the screen, as shown in the following figure. At this time, one can press the keys of  and  to adjust timing time, 60s at most and 3s at least. Then press the key of  to start this timing measurement after adjusting the time to delay in this status. If the laser has been opened, long press  to promptly start the timing measurement.



## VII. Function of Measurement Record Storage

In the measuring mode, if the current data is valid, long press the key of  for 3 seconds, and the current measured data will automatically be stored in the instrument. In the indirect area, volume and triangle measuring modes, one can store data after all the measurements, and at this time, the instrument will store complete record of this measurement in this measuring mode.

### ● Browse/delete records:

Click the key of  to inquire the stored measurement data, and press  to page up the record, and  to page down. During the record inquiry process, click the key of  to delete the current record, and long press the key of  to delete all the records. Press the key of  of "starting to measure" to exit from this status.

## VIII. Indication Information:

During usage process, the primary display area may display the following indication information

Information	Reason	Solution
Err 1	Too weak signal	Measure targeted point with stronger emission capability
Err 2	Too strong signal	Measure targeted point with weaker reflectivity
Err 3	Two low battery voltage	Replace battery
Err 4	Exceed working temperature range	Use the instrument in specified environments
Err 5	Pythagorean measuring range	Measure again, and ensure that the hypotenuse is longer than right-angle side

## IX. Technical Parameters:

Function	UT390B+	UT391+	UT391A+	UT393+
Maximum measuring distance	40m	60m	80m	100m
Measurement precision**	±2mm		±2mm	
Selection of measurement unit	mm/in/ft		mm/in/ft	
Continuous measurement	✓		✓	
Area and volume measurement	✓		✓	
Function of Pythagorean measurement	✓		✓	
Function of cumulative and regressive measurement	✓		✓	
Area and volume accumulation and subtraction	✓		✓	
Length accumulation and subtraction	✓		✓	
Area accumulation and subtraction	✓		✓	
Volume accumulation and subtraction	✓		✓	
Measurement of maximum and minimum values	✓		✓	
Laying-off measurement			✓	
Delayed measurement			✓	
Extended tail board			✓	
Function of self calibration	✓		✓	
Laser grade	Grade 2		Grade 2	
Laser type	620-680nm, <1mW		635nm, <1mW	
Data storage	30 groups		100 groups	
Each group of battery can measure	2*1.5V (AAA) 8000 times			
Automatically cut off laser	20s		20s	
Automatic shutdown	150s		150s	
Voice indication	✓		✓	
Display of electricity quantity	✓		✓	
Storage temperature	-20°C~60°C		-20°C~60°C	
Operating temperature	0°C~40°C		0°C~40°C	
Storage humidity	RH85%		RH85%	
Appearance dimension	112*50*25mm		123*55*28mm	
Function of spirit level	✓		✓	

\*\* In the following severe environments: too strong sunshine, excessive environment temperature fluctuation, too weak reflection of reflecting surface, insufficient battery electricity quantity, etc., it will cause larger error of measurement result, and it will obtain better service effects by using targeted baffle board.

## X. Daily Instrument Maintenance:

- Do not place the instrument in the environment under high temperature and high humidity for long time. Please take out battery and place in portable bag in a cool, dark and dry place. If the instrument will not be used in a long time.
- Please keep the instrument surface clean. One can use wet soft cloth to clean the instrument surface and dry up in time, and do not clean the instrument with corrosive liquid. One can wipe the laser window and focusing lens as wiping optical elements.

## XI. Packing List

Item	Name	Unit	Quantity	Remark
1	Mainframe	Set	1	
2	Instrument portable bag	Piece	1	
3	Sling	Piece	1	
4	AAA battery	Piece	1	
5	Instructions	Book	1	
6	Graphic carton	Piece	1	
7	Reflector	Piece	1	Only UT393+

**UNI-T**<sup>®</sup>

UT390B+/391+/391A+/393+Instructions

**UNI-T**<sup>®</sup>


UT390B+/391+/391A+/393+Instructions

Instructions are subject to change  
without prior notice!

Manufacturer:  
Uni-Trend Technology (China) Limited  
No 6, Gong Ye Bei 1st Road  
Songshan Lake National High-Tech Industrial  
Development Zone, Dongguan City  
Guangdong Province  
China  
Postal Code:523 808

Headquarters:  
Uni-Trend Group Limited  
Rm901, 9/F, Nanyang Plaza  
57 Hung To Road  
Kwun Tong  
Kowloon, Hong Kong  
Tel: (852) 2950 9168  
Fax: (852) 2950 9303  
Email: [info@uni-trend.com](mailto:info@uni-trend.com)  
<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	MODEL UT390B+,UT391+, 机型: UT391A+,UT393+英文
CHK 审核		Part NO. 物料编号: 110401105409X
APPRO. 批准		 优利德科技(中国)有限公司 UNI-TREND TECHNOLOGY (CHINA) LIMITED