UNI-TREND INTERNATIONAL LTD.
ISO9001
Certificate No. 956661

UNI-T®

Operating Manual

UT391



Laser distance meter

Table of Contents

Title	Page
I UT391 Product Introduction	14
II Unpacking Inspection	14
III Safety Instruction	14
IV Meter Structure	16
V Setting and Operation of Meter	17
VI Technical Specifications	22
VII Maintenance	23

I UT391 Product Introduction

UT391, Handheld Laser Distance Meter, is specially designed for users. It is a meter with high-precision and multi-function distance measurement. UT391 can measure distance, area and volume, Pythagorean Calculation can also be used in UT391 to measure indirectly. UT391 which is light, easy to use and reliable to measure, can make sure your measurement more accuracy, easier and faster. UT391 can widely apply to Construction, Upholster, Property, Traffic, Fire-Fighting, Gardens, Urban Planning, Water Mornitoring, Electric Power Overhaul, etc. As the replacer of traditional measuring instrument(for example, measuring tape), UT391 is your best choice.

II Unpacking Inspection

Unpack and check, if there is any damage or loss, contact with the nearest local sales service agency.

1. Mainframe	one unit
2. User manual	one copy
3. AAA battery(2×1.5V)	two pieces
4. Warranty card	one copy
5. Soft bag	one copy

III Safety Instruction

Permitted use

- Measuring distances
- Computing functions, e. g. Areas and Volumes
- Indirect distance measuring with Pythagorean calculation

Prohibited use

- Using the instrument without instruction
- Using outside the stated limits
- Deactivation of safety systems and removal of explanatory and hazard labels
- Opening of the equipment by using tools (screwdrivers, etc.), as far as not specifically permitted for certain cases
- Carrying out modification or conversion of the product
- Use of accessories from other manufacturers without the express approval of UNI-T.
- Deliberate or irresponsible behavior on scaffolding, when using ladders, when measuring near machines which are running, or near parts of machines or installations which are unprotected
- Aiming directly into the sun or glare
- Deliberate dazzling of third parties; also in the dark Inadequate safeguards at the surveying site (e.g. when measuring on roads, construction sites, etc.)

Laser classification

The UT391 produced a visible laser beam which emerges from the front of the instrument.
Laser Class II products:
Do not stare into the laser beam or direct it towards other people unnecessarily. Eye protection is normally afforded by aversion responses including the blink reflex.

⚠ WARNING

Looking directly into the beam with optical aids (e.g. binoculars, telescopes) can be hazardous.
Precautions:
Do not look directly into the beam with optical aids.

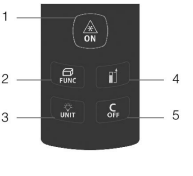
★ CAUTION

Looking into the laser beam may be hazardous to the eyes.
Precautions:
Do not look into the laser beam. Make sure the laser is aimed above or below eye level.

IV Meter Structure

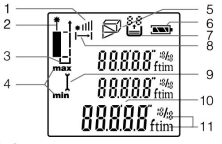
Keypad

1. Power on / Measuring button
2. Area / volume / Historical Data Records button
3. Display Illumination / Unit setting button
4. Reference setting button
5. Clear / Power off button



LCD Display

1 SIGNAL POWER INDICATION
2 LASER "ON"
3 REFERENCE LEVEL
4 MAXIMIM VALUE AND MINIMUM VALUE
5 AREA / VOLUME / PYTHAGOREAN
CALCULATION / HISTORICAL DATA RECORDS
6 BATTERY STATUS
7 HISTORICAL DATA RECORDS
8 CONTINUOUS MEASUREMENT
9 HARDWARE ERROR
10 CURRENT READING
11 UNIT



V Setting and Operation of Meter

Switching on and off

Press ON to switch on the instrument and laser.
Press OFF longer to switch off the instrument.
The instrument switches off automatically after three minutes of inactivity.

CLEAR button

OFF The last actions is cancelled or the data display is cleared.

Reference level setting



The default reference setting is from the rear of the instrument. Short press the key, switch instrument measurement reference among front, rear, endpiece.
In a word, to select the appropriate reference, repeated press the key, until get the reference you wanted.
After each restart, the reference setting automatically defaults back. (rear reference)

Display illumination

Press Unit , illumination of the display can be switched on or off, User can trigger the function when he / she is in darkness situation. The value is clear viable on the LCD.

Distance unit setting for instrument
Press Unit longer to change the next type of unit, m, ft. in, ' ", then to continue press the button for the next unit selection.

Measuring

Single distance measurement
Press ON to activate the laser. Press again to trigger the distance measurement. The measured value is displayed immediately.

Continuous Measurement / Max and Min Measurement





Long press ON , the instrument begins to continuous measurement. By measuring, maximum and minimum value will be displayed on the screen for the first and second rows.
After measuring 100 times in a row, the continuous measurement stops automatically. This function allows customers to get the maximum value and the minimum value. Press ON , can stop continuous measurement.

Area

Press until ▱ symbol appears in the display.
Press ON button to take the first length measurement (e.g. length).
Press ON again to take the second length measurement (e.g. width).
After taking the second measurement, the area/surface is automatically calculated and displayed in the summary line.

Volume

For volume measurements, press button until the indicator for volume measurement appears in the display.
Afterwards, Press ON to measure the length.
Press ON for the width.
Press ON to take the height.
After taking the third measurement, the volume is automatically calculated and displayed.

Indirect measurement

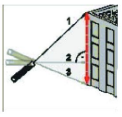
To measure heights that require the measurement of two or three measurements as following step:

using 2 measurements



Press the until ◺ appears on display.
Aim at the above point (1) and then press ON to take the necessary measurement. After the first measurement, the measurement result will be collected and appear on the LCD. Keep the instrument horizontally and take the next measurement.
Aim at the point (2) and then press ON to take the necessary measurement. The second measurement will be the minimum value measurement automatically, the instrument will automatically collect the minimum value, press ON to collect the result. At the same time, the height of (1) and (2) appears LCD.

using 3 measurements



Press ▣ until ▷ appears on the display. Aim at the upper point (1) and press △ ON to take the measurement. After the first measurement, the result will be collected. Keep the instrument horizontally and take the next measurement.

Aim at the point (2) and then press △ ON to take the necessary measurement. The second measurement will be the minimum value measurement automatically, the instrument will automatically collect the minimum value, press △ ON to collect the result.
Aim at the lower point (3) and press △ ON to trigger the measurement. Meanwhile, the height of (1) (2) (3) will be shown in summary line.
Press the button OFF, the instrument will return to single measurement status.

HISTORICAL DATA RECORDS

Long press ▣, until MD appears in the display, the previous 10 results are shown in reverse order. Press ▣, scrolling value display , shown in figure.
Press △ ON or C OFF, automatically returns single measuring status.



VI Technical specifications

Technical Parameters:

Measuring Range	0.05~60m
Measuring Accuracy (Standard Deviation)	±2.0mm
Measuring Unit	m, ft, in, ′ ″
Laser Type	620~690nm
Laser Class	Ⅱ, ＜1mW
Laser Spot @ Distance	6mm@10m, 30mm@50m
Single Measurement Time	0.25~4s
IP Protection	IP40
Operating Temperature	0~+40℃
Storage Temperature	-20~+65℃
Batteries	AAA(Alkaline), 2x1.5V
Measurements Per Battery Set	＞8000
Weight (Without Batteries)	Approx. 92g
Dimensions (L× W ×H)	112×48×25mm
Implementation of National Standards	GB/T 14267-2009

Basic Functions

Single Measurement	√
Max. / Min. Measurement	√
Continuous Measurement	√
Unit Setting	√
Reference Setting	√
Display Illumination	√
Operation Icon Indicator	√
Multi-line Display	√
Area / Volume / Pythagorean Calculation	√
Technology of Intelligent Alterable Frequency Conversion	√
Multifunction Endpiece	√

Buzzer Indicator	√
Historical Data Records	10 Groups
Data Cleanup	√
Error Message Code	√
Battery Indicator	√
Display Illumination Auto. Switch off	15s
Laser Auto. Switch off	30s
Instrument Auto. Switch off	180s

* Maximum deviation error or Shorter range occurs under unfavourable conditions such as bright sunlight or when measuring too poorly reflecting or very rough surfaces, the environment temperature is too high or too low.
** When measuring within 10m, measurement accuracy is ± 2mm; more than 10m, measurement accuracy is calculated as follows: ±2mm ± 0.05* (D-10) (D: Measuring Distance, Unit: m)

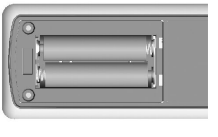
VII Maintenance

⚠ Warning: during replacing battery, keep the sensitive mirror from scratch or dirt to avoid damaging the mirror or influencing the measuring precision; and do not charge the replaced battery to avoid explosion and safety accident!

Battery installation and replacement

★ When the symbol ▭ flashes permanently in the display, replace the battery immediately.
Use alkaline batteries only.
Remove the batteries before any long period of non-use to avoid the danger of corrosion.

1. Battery Installation
a. According to figures,remove battery compartment lid
b. Insert batteries with correct polarity according to battery lid indications
c. Close the battery compartment lid



General maintenance

When the surface of meter is dirty, clean with wet cloth and neutral detergent, grinding miller and solvent are forbidden.
When the meter is damaged and needs to be repaired, please send it to the designated maintenance center of our company for repair by professional service man, do not repair it without authorization.
Especially in the process of using, keep the sensitive mirror of meter away from scratch or dirt to avoid damaging the mirror or influencing the measuring precision.
Remove the battery if it won't be used for a long time.
Store the meter in a place free of moist, high temperature and strong magnetic field.

Troubleshooting – Causes and Corrective Measures

All message are displayed with either Message Codes or "Error". The following errors can be corrected:

Message Code	Cause	Remedy
101	Battery too low	Change batteries
104	Calculation error	Repeat procedure
152	Temperature too high	Cool down equipment
153	Temperature too low	Warm up equipment
154	Out of range	Please measure target within distance of 0.05 to 60m
155	Received signal too weak	Use target plant
156	Received signal too strong	Use target plant
157	Measure error or background brightness too high	Darken target or change target
160	Shake too much	Stabilize equipment and repreat measurement

Hardware error. Switch on/off device several times, if the symbol still appears,then please call your dealer for assistance.

The instruction is subject to change without further notice.

UNI-TREND GROUP LIMITED

Rm 901, 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
http://www.uni-trend.com