P/N:110401111643X

UNI-T

UNI-TREND TECHNOLOGY (CHINA) CO., LTD.

No.6, Gong Ye Bei 1st Road,
Songshan Lake National High-Tech Industrial
Development Zone, Dongguan City,
Guangdong Province, China

UNI-T

UT15B /UT17B /UT18B MAX

Digital Multimeter User Manual

Preface

Thank you for purchasing this brand new product. In order to use this product safely and correctly, please read this manual thoroughly, especially the safety notes.

After reading this manual, it is recommended to keep the manual at an easily accessible place, preferably close to the device, for future reference.

Limited Warranty and Liability

Uni-Trend guarantees that the product is free from any defect in material and workmanship within one year from the purchase date. This warranty does not apply to damages caused by accident, negligence, misuse, modification, contamination or improper handling. The dealer shall not be entitled to give any other warranty on behalf of Uni-Trend. If you need warranty service within the warranty period, please contact your seller directly.

Uni-Trend will not be responsible for any special, indirect, incidental or subsequent damage or loss caused by using this device.

Contents

Overview ---- 4
Features ---- 4
Accessories ---- 4
Safety Information ---- 5
Electrical Symbol ---- 6
General Specification ---- 7
External Structure ---- 8
LCD Display ---- 9
Rotary Switch and Buttons ---- 10
Operating Instructions ---- 12
Technical Specification ---- 19
Magnetic Hanger (UT-B23) ---- 24
Maintenance ----25

I. Overview

UT15B MAX/UT17B MAX/UT18B MAX is a reliable true-RMS digital multimeter. Designed with VFD to resist interference, the meter can filter interference from carrier frequency overlapped by sine wave or various distortion voltage signals, and is able to measure output voltage of variable-frequency drive. Under DC/AC mode, the meter can perform frequency and duty cycle measurement. UT17B MAX/UT18B MAX has function of measuring temperature at a resolution of 0.1°C. The LED testing function enables UT18B MAX to test LED with voltage up to 12V, without the need to identify polarity. This series achieves protection against false detection and alarm for incorrect connection with input terminal at current position, which ensures user to operate safely. UT15B MAX/UT17B MAX/UT18B MAX gains CE and cETLus certifications according to CAT III 600V.

II. Features

- Large LCD, 6000-count analog-digital display, refresh rate of fast ADC: 5 times per second.
- Built-in VFD to measure distortion voltage and variable-frequency voltage accurately.
- Intelligent capacitance measurement to enable exiting relative measurement mode automatically for capacitance over 6.2μF in relative measurement mode.
- The ability to capture the change of maximum/minimum value (MAX/MIN) when measuring voltage, current and resistance (UT15B MAX/UT17B MAX).
- Full-featured protection against false detection to allow withstanding voltage surge of maximum 1000V; designed with indication for overvoltage and overcurrent.
- UT18B MAX is designed with LED measurement function (output: 12V) to identify polarity automatically.
- The current input terminal is designed with audible and visual alarm for incorrect connection.
- LED indication (UT17B MAX) for high testing voltage (≥30V).
- Designed with two backlight modes (Strong/Weak brightness)
- Memory function is enabled when performing position switching in AC/DC current position.

.

III. Accessories

Please contact your supplier if any accessory below is missing or damaged.
User manual---------- 1 pc
Test lead (including a pair of test lead with extra-fine probe)----------2 pairs

K-type (NiCr-NiSi) thermocouple (equipped with adapter socket)-----1 pc
(for UT17B MAX/UT18B MAX only)
Battery----------1 pair
Magnetic hanger (UT-B23)----------1 set (optional)

IV. Safety Information

1. Safety standard

1) CE and cETLus standards:
   EN 61326-1:2013; EN 61326-2-2:2013
   EN 61010-1:2010; EN 61010-2-033:2012
2) 600V MEASUREMENT CATEGORY III (CAT III), CAT III 600V
3) The maximum measurable voltage is 600V for CAT III locations.
4) Pollution Degree 2
5) Double insulation
6)indoor use

2. Safety instructions and precautions

⚠ Warning

Please read the all the instructions carefully to prevent electric shock, fire or personal injury.If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

1) It is forbidden to use without rear cover closed in place, otherwise it may pose a risk of electric shock!
2) Please check if test lead or its insulation is damaged before use.If insulation on probe is damaged, replace a new one which should meet EN 61010-031 standard, rated follow parameters of the product or better.
3) If the symbol "🔋" appears on the LCD, please replace the batteries in time to ensure measurement accuracy.
4) Set the rotary switch at correct position.
5) Do not measure signal over the specified extreme value, to prevent electric shock and damage to the meter!
6) It is forbidden to turn the rotary switch during measurement, to prevent damage to the meter!
7) After each measurement is completed, please disconnect test lead from measured circuit; after each current measurement is completed, please switch off the power before disconnecting test lead with measured circuit, particularly for large current measurement.
8) Beware of electric shock when working with voltage over DC 60V or AC 30Vrms.
9) Do not use in places with high temperature and humidity. Do not store in damp places, the performance of moistened product may be degraded.
10) Do not alter the internal wiring without authorization, to avoid damaging the product and presenting a safety risk.
11) Clean the casing with wet cloth and mild detergent, do not use abrasive or solvent!
12) Use of test lead

TESTING IN CAT III / CAT IV MEASUREMENT LOCATIONS
Please ensure the test lead shield is pressed firmly in place, to avoid risk of electric shock.

TESTING IN CAT II MEASUREMENT LOCATIONS
Test lead shield can be removed. This allow testing on recessed conductors such as standard wall outlets. Take care not to lose the shields.

V. Electrical Symbol

⎓	DC (Direct Current)
~	AC (Alternating Current)
⏚	Grounding
⧈	Double insulated
⚠	Hazardous voltage! Risk of electric shock!
⚠	Warning
CE	Conform to European Union standards
c ETL us Intertek 4007682	Conform to UL STD 61010-1, 61010-2-033 Certified to CSA STD C22.2 NO. 61010-1, 61010-2-033

CAT III	MEASUREMENT CATEGORY III is applicable to test and measuring circuits connected to the distribution part of the building's low-voltage MAINS installation.
CAT IV	MEASUREMENT CATEGORY IV is applicable to test and measuring circuits connected at the source of the building's low-voltage MAINS installation.

VI. General Specification

1. The maximum voltage between input terminal and ground: See "Technical Specification" for details.
2. ⚠A terminal: FF 11A H 1000V fast-acting fuse. breaking capacity: 20KA or better
3. ⚠mA/μA terminal: FF 440mA H 1000V fast-acting fuse. breaking capacity: 10KA or better
4. Display count: 6100
5. Others:
   Range: Auto/manual
   Polarity: Auto
   Refresh 5 times per second; overrange indication is "OL".
   Display screen: HTN screen
   Operating temperature: 0°C~40°C (32°F~104°F)
   Storage temperature: -10°C~50°C (14°F~122°F)
   Relative humidity: ≤75% (0°C~30°C below); ≤50% (30°C~40°C)
6. Operating altitude: 0~2000m
7. Battery: AA R6P 1.5V×2
8. Low battery: The symbol " " is displayed on the LCD
9. External dimensions: About 182mm × 91mm × 45mm
10. Weight: 452g (including batteries)
11. EMC:
    For RF field of 1V/m: Overall accuracy = Specified accuracy + 5% of range
    For RF field over 1V/m: No specified specification
12. IP rating:
    UT15B MAX/UT17B MAX: IP40
    UT18B MAX: N/A

UT15B MAX/UT17B MAX/UT18B MAX User Manual

VII. External Structure (Figure 1)

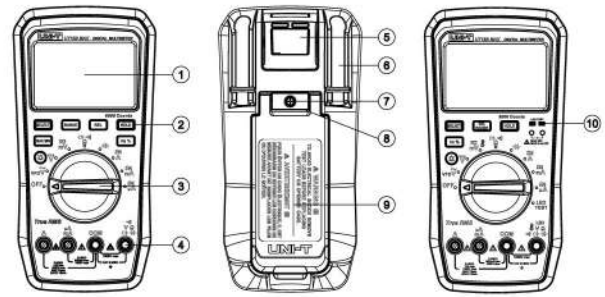


Figure 1

1. LCD display
2. Functional buttons
3. Rotary switch
4. Input terminal
5. Hanging hook (It is designed for magnetic hanger. UT-B23 magnetic hanger is optional.)
6. Test lead holder
7. Screw for fastening battery compartment
8. Battery cover
9. Support
10. LED testing terminal (UT18B MAX)

VIII. LCD Display (Figure 2)

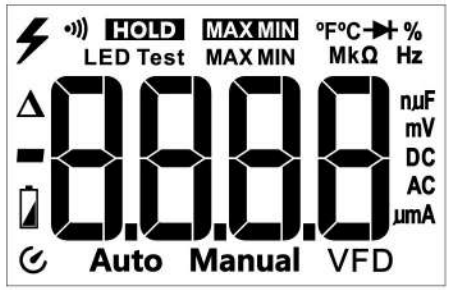


Figure 2

Symbol	Description
ϟ	AC voltage over 30V
HOLD	Data hold
−	Negative reading
AC/DC	AC/DC measurement
MAX MIN	Maximum and minimum function
MAX/MIN	Maximum/minimum measurement
▭	Low battery
Auto	Auto range
Manual	Manual range
⏩	Diode measurement
•))	Continuity measurement
Δ	Relative measurement
Ω kΩ MΩ	Resistance unit: ohm, kilohm, megaohm.
Hz kHz MHz	Frequency unit: hertz, kilohertz, megahertz.

%	Unit of duty cycle
mV V	Voltage unit: millivolt, volt
μA mA A	Current unit: microampere, milliamp, ampere
nF μF	Capacitance unit: nanofarad, microfarad
°C	Celsius temperature unit
°F	Fahrenheit temperature unit
VFD	Low pass filter
	Auto power off
LED Test	LED function testing

IX. Rotary Switch and Buttons

Position	Description
V~、V⎓、mV⎓	AC/DC voltage measurement
Ω	Resistance measurement
⏩	Measurement of voltage of diode PN junction
•))	Continuity measurement
⊣⊢	Capacitance measurement
Hz	Frequency measurement
%	Duty cycle measurement
	Temperature measurement
μA⎓ mA⎓ A⎓	AC/DC current measurement
VFD	Variable-frequency voltage measurement (low pass filter)
LED TEST	LED testing position
OFF	Power off

Functional buttons:

- RANGE: Used to switch between manual and auto range. Each press of this button can switch the range to a higher range. Press this button at highest range to switch to the lowest range. Press this button for more than 2 seconds or turn the rotary switch to exit manual range mode. (Applicable functions: V~、V⎓、A≅、Ω、⏀)

- MAX/MIN (UT15B MAX/UT17B MAX): Press this button to enter manual range mode automatically and display maximum value; press again to display minimum value. Long press for ≥2 seconds or turn the rotary switch to exit MAX/MIN mode. (Applicable functions: **V~** 、 **V⎓** 、 **mV≅** 、 **Ω**)

- REL: Press this button to save the first displayed value as reference value; the second displayed value is the difference between current value and reference value, press again to exit REL mode. Applicable for **V**, **I**, **Ω**, ⊣⊢ (UT18B MAX: Applicable for ⊣⊢ only.)

- Hz/%: Under voltage and current measurement modes, press this button to switch to frequency and duty cycle measurement modes in order.

- SELECT: Press this button to select function (Applicable for combined range only). When pressing this button under AC voltage mode, "VFD" is displayed and the multimeter can enter low pass filter mode, enabling stable measurement of variable-frequency voltage. Press again to exit VFD mode.

- HOLD (applicable for full range): Press this button to hold the displayed value (the symbol "HOLD" is displayed on the LCD); press again to release the hold and enter normal measurement mode.

- ☼ : Press this button once to enable the Class 1 backlight (weak brightness), press again to enable the Class 2 backlight (strong brightness). The backlight will be turned off automatically after 120 seconds. The user can turn off the backlight by pressing the button.

X. Operating Instructions

Please check the batteries (AAA 1.5V × 2) before use. If the battery power is low after the multimeter is powered on, the symbol " 🔋 " will be displayed on the LCD, please replace the batteries in time in such situation. The warning symbol " ⚠ " at the terminals indicates the measured voltage or current cannot exceed the specified value.

1. AC Voltage Measurement (Figure 3)

1) Set the rotary switch to AC voltage position.
2) Connect the red test lead with "V" terminal, and black with "COM". Both test probe tips make contact with both measured ends respectively (connected with the load in parallel).
3) If the input impedance is about 10MΩ, the load in circuit with high impedance can cause measurement error. In most cases, if the impedance in circuit is lower than 10kΩ, the error is negligible (0.1% or less).
4) Under ACV mode, press the SELECT button to enter VFD mode. To ensure accurate measurement, specially-designed internal filter circuit is designed to filter high-frequency interference signal. (Applicable for locations with variable-frequency voltage)
5) The displayed AC value is true RMS value.

Figure 3

2. DC Voltage Measurement (Figure 4)

1) Set the rotary switch to DC voltage position.
2) Connect the red test lead with "V" terminal, and black with "COM". Both test probe tips make contact with both measured ends respectively (connected with the load in parallel).
3) For DC mV position, the impedance is infinite (≥3GΩ), attenuation does not occur when measuring weak signal, thus the measurement accuracy is high. Some digits are displayed if test lead is open, but this does not affect the reading.

⚠ Warning:

- Do not input voltage over 1000Vrms. It is possible to measure higher voltage, but it may damage the multimeter.
- Beware of risk of electric shock when working with high voltage.
- UT17B MAX is designed with LED indication for measuring voltage ≥30V DC/AC.
- Measure a known voltage before use to check if the multimeter functions normally.

Figure 4

3. Resistance/Continuity Measurement (Figure 5)

1) Set the rotary switch to resistance position.
2) Connect the red test lead with "Ω" terminal, and black with "COM". Both test probe tips make contact with both measured ends respectively (connected with the load in parallel).

⚠ Warning:

- "OL" will be displayed if the measured resistor is open or the measured resistance exceed the maximum range.
- Before measuring on-line resistance, please switch off all powers of the measured circuit and discharge all capacitors completely.
- Test lead may cause an error of 0.1Ω~0.2Ω for low resistance measurement. To ensure accurate measurement, please perform measurement in REL mode with test leads shorted.
- If the resistance of shorted test leads is not less than 0.5Ω, please check if test lead is loose or other problems occurs.
- It is normal to take several seconds to stabilize the reading for 60MΩ measurement.
- For continuity measurement: If the measured resistance between both ends is >50Ω, the circuit is open and the buzzer keeps silent; if ≤10Ω, the circuit is connected well and the buzzer sounds continuously.
- Before measuring on-line continuity, please switch off all powers of the measured circuit and discharge all capacitors completely.
- Do not input voltage over DC 60V or AC 30V to avoid personal injury.

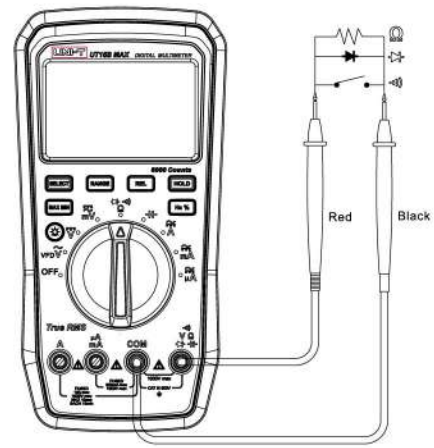


Figure 5

4. Diode Measurement (Figure 5)

1) Set the rotary switch to diode position.
2) Connect the red test lead with "Ω" terminal, and black with "COM". Both test probe tips make contact with both measured ends respectively (connected with the load in parallel).
3) "OL" will be displayed if the measured diode is open or polarity is reversed. The normal voltage for silicon PN junction is about 500~800mV typically.

⚠ Warning:

- Before measuring on-line diode, please switch off all powers of the measured circuit and discharge all capacitors completely. The voltage range of diode testing is about 3.0V.
- Do not input voltage over DC 60V or AC 30V to avoid personal injury.

5. Capacitance Measurement (Figure 6)

1) Set the rotary switch to capacitance position.
2) Connect the red test lead with " ⊣⊢ " terminal, and black with "COM". Both test probe tips make contact with both measured ends respectively (connected with the load in parallel).
3) If there is no input, the multimeter will display a fixed reading (the intrinsic capacitance of the multimeter). For small capacitance measurement, the intrinsic capacitance must be subtracted from the measured capacitance, in order to ensure measurement accuracy.

⚠ Warning:

- "OL" will be displayed if the measured capacitor is shorted or the measured capacitance exceed the maximum range.
- It is normal to take several seconds to stabilize the reading for large capacitance measurement.
- Please discharge all capacitors completely before measurement (especially for capacitors with high voltage) to avoid meter damage and personal injury.

Figure 6

6. AC/DC Current Measurement (Figure 7)

1) Set the rotary switch to " A≅/mA≅/uA≅ " position.
2) When setting the rotary switch to "A≅" position, connect red test lead with " A≅ " terminal; when setting the rotary switch to " mA≅/uA≅ " position, connect red test lead with " mA≅/uA≅ " terminal; and black with "COM".
3) Connect the multimeter with the load in series. The displayed AC value is a true RMS value.

⚠ Warning:

- Before connecting the multimeter in series with the loop to be measured, please switch off the power of the loop.
- "A≅/mA≅/uA≅" terminals are designed with fuses. Do not connect test probe with any circuit in parallel, to prevent the power-supplying terminal from damaging the multimeter and to avoid personal injury.
- If test lead is connected with terminal not corresponding to "A" or "uA/mA" position, the buzzer will make sound as warning, at the same time, the SELECT and HOLD buttons flash synchronously.
- For measuring voltage frequency and duty cycle, if unknown voltage is input, the high-voltage symbol will be displayed constantly (For UT17B MAX, the LED indicator light will be lit up at the same time

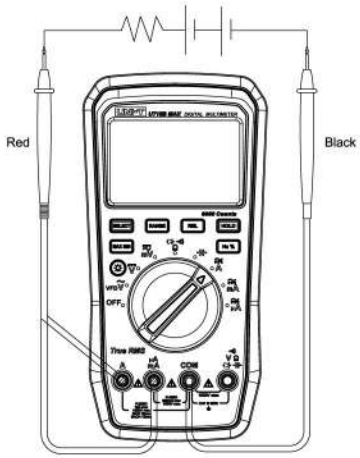


Figure 7

7. Frequency/Duty Cycle Measurement

When performing AC voltage/current measurement, press the Hz% button to enter frequency measurement mode, press again to switch to duty cycle measurement mode.

8. Temperature Measurement (UT17B MAX & UT18B MAX) (Figure 8)

1) For UT17B MAX: Set the rotary switch to " " position, and the LCD shows "OL". For UT18B MAX: Set the rotary switch to " " position, then long press the SELECT button.
2) Connect the positive pole of thermocouple with "°C" terminal, and negative with "COM", then make the probe closely contact with the surface of measured object.

⚠ **Warning:**

- Temperature sensor is only applicable for K-type (NiCr-NiSi) thermocouple. The equipped thermocouple is for measuring temperature below 230°C/449°F only! °F = 1.8 × °C +32

Figure 8

9. LED Measurement (UT18B MAX) (Figure 9)

1) For UT18B MAX: Set the rotary switch to LED TEST position, and the LED shows "OL".
2) LED panel terminal testing: Light up immediately when LED is connected with the terminal. Green indicator light denotes positive.
3) Test lead terminal testing: Connect rest test lead with LED terminal, and black with COM. Both test probes make contact with both pins of the LED respectively, and the LCD shows a voltage value (this voltage value is the value when the LED lights up). If the symbol "−" is not displayed on the LCD, then this represents that the LED pin contacted by red test lead is positive pole and black is negative; otherwise, red is negative and black is positive.

Warning:

- For LED testing end, the maximum continuous output voltage is 12V, and the maximum peak output voltage is 30V.
- If the working voltage of the LED is less than 9V, the LED will light up continuously; if 9V~12V, it flashes.
- If the LED panel terminal is shorted, the measured LED will not light up, but both positive indicators will light up.

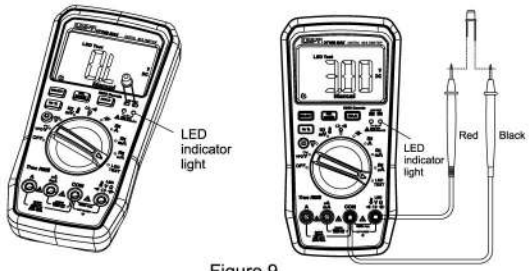


Figure 9

10. Other functions

- When the multimeter is turned on, all LCD segments are displayed for 2 seconds and then the multimeter enters normal measurement state. If error occurs at the internal EEPROM, "ErrE" will be displayed, please restart the multimeter to resume normal.
- If the rotary switch is not turned in about 15 minutes during measurement, the multimeter will power off automatically to save power. If rotary switch is turned or any functional button is pressed in sleep state, the multimeter will awaken automatically with the buzzer making a sound. To disable APO function, please hold down the SELECT button and power on the multimeter in OFF state. The symbol " " on the LCD will disappear accompanied by a long beep to indicate APO function is disabled. To enable the APO function, please restart the multimeter.
- The buzzer makes sound during measurement in case that:

a. The input voltage is >1000V (AC/DC): the buzzer produces a continuous beep to indicate extreme range;

b. The current is >10A (AC/DC): the buzzer produces a continuous beep to indicate extreme range.

- Low voltage detection: VDD is detected when power is supplied. If the voltage is lower than about 2.5V, the symbol " " will be displayed.

XI. Technical Specification

Accuracy: ± (a% of reading + b digits); guaranteed for one year
Ambient temperature: 23°C±5°C (73.4°F±9°F)
Relative humidity: ≤75%

⚠ Note:
The temperature condition of accuracy is 18°C~28°C, the fluctuation range of ambient temperature keeps within ±1°C. If the temperature is <18°C or >28°C, the additional error of temperature coefficient is "0.1 × (specified accuracy)/°C".

1. DC Voltage Measurement

Range	Resolution	Accuracy
600. 0mV	0.1mV	± (0. 4%+3)
6. 000V	0.001V	
60. 00V	0.01V	
600. 0V	0.1V	
1000V	1V	

- Input impedance: ≥3GΩ for mV range; 10MΩ for other ranges. The displayed digit will be unstable for mV range at open circuit, and will be stable (≤ ±3 digits) after connecting with load.
- Maximum input voltage: ±1000V. Sound an alarm for >1000V. "OL" will be displayed on the LCD if the input is > 1100V.
- Range to ensure accuracy: 1~100% of range

2. AC Voltage Measurement

Range	Resolution	Accuracy
600.0mV	0.1mV	±(0.5%+5)
6.000V	0.001V	±(1%+3)
60.00V	0.01V	
600.0V	0.1V	
1000V	1V	
VFD: 600.0V	0.1V	±(8%)

- Input impedance: About 10MΩ
- Display: True RMS.
- Frequency response: 40Hz~500Hz (sine wave); 40Hz~200Hz (non-sine wave); 40Hz~400Hz (VFD)
- Range to ensure accuracy: 1~100% of range. Offset at short circuit: < 2 digits
- AC crest factor at full scale is up to 3.0 (up to 1.5 at full scale of the range of 600V)
  Non-sine wave:
  Increase the accuracy by 3.0% for crest factor of 1.0~2.0.
  Increase the accuracy by 5.0% for crest factor of 2.0~2.5.
  Increase the accuracy by 7.0% for crest factor of 2.5~3.0.
- Maximum input voltage: 1000Vrms. Sound an alarm for >1000V. "OL" will be displayed on the LCD if the input is > 1100V.

3. Resistance Measurement

Range	Resolution	Accuracy
600.0Ω	0.1Ω	±(0.5%+2)
6.000kΩ	0.001kΩ	
60.00kΩ	0.01kΩ	
600.0kΩ	0.1kΩ	
6.000MΩ	0.001MΩ	
60.00MΩ	0.01MΩ	±(2.0%+5)

- Overload protection: 1000V-PTC
- Range: Measured resistance = Displayed resistance – Value of shorted test lead
- Open-circuit voltage: About 0.5V (Testing current: about 0.4mA)
- Range to ensure accuracy: 1~100% of range

4. Continuity/Diode Measurement

Range	Resolution	Accuracy	Remark
•))	0.1Ω	—	The resistance set for open circuit: >50Ω (Buzzer keeps silent) The resistance set for well-connected circuit: ≤10Ω (Buzzer makes sound consecutively)
▶|	0.001V	10%	Voltage drop of silicon PN junction: About 0.5V~0.8V (make a "beep" sound at the moment of connecting) Open-circuit voltage: About 3.0V The testing current is about 0.8mA.

- Overload protection: 1000V-PTC

5. Capacitance Measurement

Range	Resolution	Accuracy
6.000nF	0.001nF	In REL mode: ±(4.0%+8)
60.00nF	0.01nF	±(2.0%+5)
600.0nF	0.1nF	
6.000μF	0.001μF	
60.00μF	0.01μF	
600.0μF	0.1μF	
6000μF	1μF (≤1000μF)	±(5.0%+5)
	1μF (>1000μF)	±10%

- Overload protection: 1000V-PTC
- To ensure measurement accuracy, it is recommended to measure capacitance of ≤600nF in REL mode.
- In REL mode, the multimeter will exit REL function automatically if the input is >6.2nF.
- Range to ensure accuracy: 1~100% of range

6. Frequency/Duty Cycle Measurement

Range	Resolution	Accuracy
10Hz~10MHz	0.01Hz~0.01MHz	±(0.1%+3)
1%~99.9%	0.1%	±(1.0%+4)

- Overload protection: 1000V-PTC
- Input amplitude of mV range: >200mVrms, ≤30Vrms. > 1MHz~10MHz: 900mVrms≤ Input amplitude ≤30Vrms
  Duty cycle is for measurement of square wave ≤1kHz only, and the guarantee range is 10.0%~90.0%.
- Input amplitude of V range is >10Vrms, and input amplitude of 1000V range is ≥100V.
  Duty cycle is for 50Hz or 60Hz only, and the guarantee range is 10.0%~90.0%.
- For current range, the input amplitude is 60% of maximum range.

7. Temperature Measurement (UT17B MAX/UT18B MAX)

Range			Resolution	Accuracy
°C	-55~500°C	-55.0°C~0°C	0.1°C	±(6.0%+2)°C
		>0°C~50.0°C		±2°C
		>50.0°C~500.0°C		±(2.0%+1)°C
°F	-67~932°F	-67°F ~32°F	0.1°F	±(10%+2)°F
		>32°F~122°F		±4°F
		>122°F~932°F		±(4.0%+4)°F

- Overload protection: 1000V-PTC
  Note: The equipped K-type (NiCr-NiSi) thermocouple is for measuring temperature below 230°C/449°F only.

8. DC Current Measurement

Range		Resolution	Accuracy
μA	600.0μA	0.1μA	±(1.2%+3)
	6000μA	1μA	
mA	60.00mA	0.01mA	
	600.0mA	0.1mA	
A	6.000A	0.001A	±(1.2%+4)
	10.00A	0.01A	

- Overload protection: 1000Vrms
- Sound an alarm for input >10A; "OL" is displayed on the LCD for input >11.00A.
- Range to ensure accuracy: 1~100% of range

Considering test lead resistance and loop resistance, an error of 2% of specification shall be added when measuring current with constant voltage source.

9. AC Current Measurement

Range		Resolution	Accuracy
μA	600.0μA	0.1μA	±(1.2%+3)
	6000μA	1μA	
mA	60.00mA	0.01mA	
	600.0mA	0.1mA	
A	6.000A	0.001A	±(1.5%+3)
	10.00A	0.01A	

- Frequency response: 40Hz~500Hz (sine wave); 40Hz~200Hz (non-sine wave)
- Display: True RMS.
- Range to ensure accuracy: 1~100% of range. Offset at short circuit: < 2 digits
- AC crest factor at full scale is up to 3.0
  Non-sine wave:
  Increase the accuracy by 3.0% for crest factor of 1.0~2.0.
  Increase the accuracy by 5.0% for crest factor of 2.0~2.5.
  Increase the accuracy by 7.0% for crest factor of 2.5~3.0.
- Overload protection: Same with DC current measurement.

10. LED Measurement (UT18B MAX)

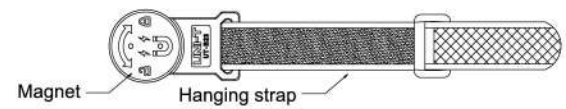
LED testing	LED panel terminal	Positive indicator light (green)
	Test lead terminal	Positive/negative voltage is displayed

- Overload protection: 1000V-PTC
- "OL" is displayed if the input of test lead terminal is ≥6.2V.

XII. Use of Magnetic Hanger (UT-B23)

1. Overview and features

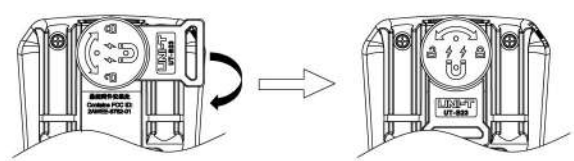
Magnetic hanger, composed of magnet and hanging strap, can be used to hang from power distribution cabinet, photovoltaic combiner box, automobile engine hood, and others, allowing for hand-free measurement and helping in positioning of meter. The magnetic hanger is suitable for use with UT117C, UT15B MAX, UT17B MAX, UT18B MAX, etc.



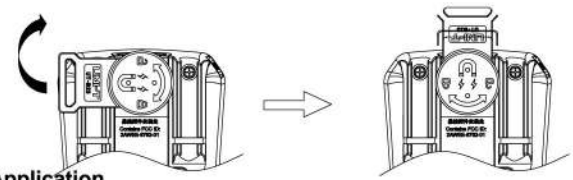
2. Installation

Select appropriate installation way (install from right or left side, as shown below), grip the magnet by hand, put the magnet into plastic housing, and rotate the magnet in a suitable direction. The magnet is held tightly due to the housing structure and the magnet structure.

Install from right side:



Install from left side:



3. Application

Hang from nail, hook or other objects, or attach to iron objects such as power distribution cabinet, photovoltaic combiner box, automobile engine hood, etc.
As shown below:

XIII. Maintenance

⚠ Warning: Before opening the rear cover, please make sure that the power is off and that test leads are removed from input terminals and measured circuit.

1. General maintenance

- Please clean the casing with wet cloth and mild cleanser, do not use abrasive or solvent.
- Please stop use and send for maintenance if any abnormity occurs at the meter.
- The calibration or maintenance must be performed by professional maintenance personnel or department.

2. Replace battery or fuse (Figure 10)

1) If the symbol " " is displayed on the LCD, please replace the battery immediately, otherwise the measurement accuracy will be affected. The battery specification

is: AA 1.5V × 2.

- Set the rotary switch to "OFF", then remove the test lead from input terminal.
- Battery replacement: Loosen the screw at the top with screw driver, remove the battery cover, and replace the battery. Please install new batteries according to the correct polarity.

⚠ Warning: Do not apply new battery with used battery, or with alkaline, carbon and rechargeable battery.

2) If the fuse is damaged caused by false voltage detection or overcurrent during use, some functions may work abnormally, for such situation, please replace the damaged fuse immediately.

- Set the rotary switch to "OFF", then remove the test lead from input terminal.
- Loosen the six screws at rear cover, remover the rear cover, and replace the blown fuse.
- Fuse specification:
  F1 Fuse 440mA/1000V ϕ 10 × 35mm
  F2 Fuse 11A/1000V ϕ 10 × 38mm

3) Replace test lead

Please replace the test lead immediately if its insulation is damaged.

Warning: Test lead for power source measurement shall meet EN 61010-031 standard, and the specification shall meet CAT III 600V, 10A (or higher).

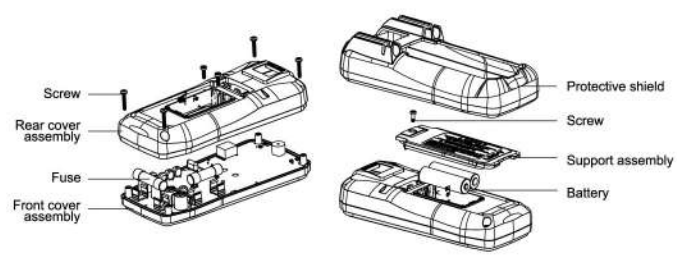


Figure 10

The contents of the User Manual are subject to change without further notice