UNI-T

# EARTH CLAMP METERS

## UT27X Series




The UT27X Series Earth Clamp Meter is a device for measuring ground resistance, featuring easy operation, portability, high accuracy and strong anti-interference capability; it is widely used in telecommunications, power, equipment rooms and other fields.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Earth resistance test | AC current | AC Current test | | Data storage | | Blutooth App | | Auto power off |

**UT272A: No AC Current test & Bluetooth.**

## Technical Specifications

| Specifications | UT272A | | | UT275A | | |
|---|---|---|---|---|---|---|
| | Range | Resolution | Accuracy | Range | Resolution | Accuracy |
| Earth resistance (Auto range) | 0.01Ω~0.19Ω | 0.01Ω | ±(1.5%+0.05Ω) | 0.01Ω~0.199Ω | 0.001Ω | ±(1%+0.02Ω) |
| | 0.20Ω~1.95Ω | 0.05Ω | ±(1.5%+0.1Ω) | 0.20Ω~1.99Ω | 0.01Ω | ±(1%+0.05Ω) |
| | 2.0Ω~49.9Ω | 0.1Ω | ±(1.5%+1Ω) | 2.0Ω~49.9Ω | 0.1Ω | ±(1%+0.5Ω) |
| | 50.0Ω~99.5Ω | 0.5Ω | ±(2%+2Ω) | 50.0Ω~99.5Ω | 0.5Ω | ±(1.5%+1Ω) |
| | 100Ω~199Ω | 1Ω | ±(2.5%+5Ω) | 100Ω~199Ω | 1Ω | ±(2%+2Ω) |
| | 200Ω~400Ω | 5Ω | ±(5%+10Ω) | 200Ω~395Ω | 5Ω | ±(5%+5Ω) |
| | | | | 400~590Ω | 10Ω | ±(10%+10Ω) |
| | | | | 600Ω~880Ω | 20Ω | ±(20%+20Ω) |
| | | | | 900Ω~1.20KΩ | 30Ω | ±(25%+30Ω) |
| AC Current (Auto range/50Hz/60Hz) | | | | 1.00mA~9.99mA | 0.01mA | ±(2.5%+1mA) |
| | | | | 10.0mA~99.9mA | 0.1mA | ±(2.5%+5.0mA) |
| | | | | 100mA~999mA | 1mA | ±(2.5%+10mA) |
| | | | | 1.00A~9.99A | 0.01A | ±(2.5%+0.2A) |
| | | | | 10.0A~30.0A | 0.1A | ±(2.5%+0.5A) |

| Features | UT272A | UT275A |
|---|---|---|
| Functional | 1, Earth resistance test;<br>2, Loop resistance test | 1, Earth resistance test;<br>2, Loop resistance test;<br>3, AC current test |
| Max measurable conductor dia. | Max Φ44mm | Max Φ44mm |
| Display | 4 digit LCD | 4 digit LCD |
| Sampling rate | 2 time/s | 2 time/s |
| Data storage | 500 set | 500 set |
| Bluetooth | | √ |
| Over range indication | √ | √ |
| Data recall | √ | √ |
| APO | Around 10 minutes without operation | Around 10 minutes without operation |
| Insulation resistance | 50MΩ/1000V | 50MΩ/1000V |
| Power consumption | Around 50mA (max: 100mA) | Around 50mA (max: 100mA) |
| Working temp | -10°C~50°C relative humidity below 85%, no condensation. | |
| Storage temp | -20°C~60°C relative humidity below 85%, no condensation. | |
| IP rating | IP40 | IP40 |
| Safety regulation grade | IEC 61010-1: 2001 (CATIV 300V; Pollution: 2)<br>IEC 61010-2-032: 2002<br>IEC 61326: 2000 (EMC standard) | IEC 61010-1: 2001 (CATIV 300V;Pollution: 2)<br>IEC 61010-2-032: 2002<br>IEC 61326: 2000 (EMC standard) |

Product is preliminary and subject to change pending final release information.

| Model | UT272A | UT275A | UT276B | UT276C |
|---|---|---|---|---|
| Resistance | 400Ω | 1200Ω | 1200Ω | 1800Ω |
| Current | N/A | 30A | 20A | 40A |
| Bluetooth | N/A | YES | YES | YES |
| Category rating | CAT IV 300V | CAT IV 300V | CAT IV 600V | CAT IV 600V |

## Technical Specifications

| Specifications | UT276B | | | UT276C | | |
|---|---|---|---|---|---|---|
| | Range | Resolution | Accuracy | Range | Resolution | Accuracy |
| Earth resistance (Auto range) | 0.010Ω~0.099Ω | 0.001Ω | ±(1%+0.02Ω) | 0.010Ω~0.099Ω | 0.001Ω | ±(1%+0.02Ω) |
| | 0.1Ω~0.99Ω | 0.01Ω | ±(1%+0.05Ω) | 0.1Ω~0.99Ω | 0.01Ω | ±(1%+0.05Ω) |
| | 1.0Ω~49.9Ω | 0.1Ω | ±(1%+0.5Ω) | 1.0Ω~49.9Ω | 0.1Ω | ±(1%+0.5Ω) |
| | 50.0Ω~99.5Ω | 0.5Ω | ±(1.5%+0.5Ω) | 50.0Ω~99.5Ω | 0.5Ω | ±(1.5%+0.5Ω) |
| | 100Ω~199Ω | 1Ω | ±(2.5%+1Ω) | 100Ω~199Ω | 1Ω | ±(2.5%+1Ω) |
| | 200Ω~395Ω | 5Ω | ±(5%+5Ω) | 200Ω~395Ω | 5Ω | ±(5%+5Ω) |
| | 400~590Ω | 10Ω | ±(10%+10Ω) | 400~590Ω | 10Ω | ±(10%+10Ω) |
| | 600Ω~880Ω | 20Ω | ±(20%+20Ω) | 600Ω~880Ω | 20Ω | ±(20%+20Ω) |
| | 900Ω~1.20KΩ | 30Ω | ±(25%+30Ω) | 900Ω~1.80KΩ | 30Ω | ±(25%+30Ω) |
| AC Current (Auto range /50Hz/60Hz) | 0.10mA~9.99mA | 0.01mA | ±(2.0%+1mA) | 0.10mA~9.99mA | 0.01mA | ±(2.0%+1mA) |
| | 10.0mA~99.9mA | 0.1mA | ±(2.0%+5.0mA) | 10.0mA~99.9mA | 0.1mA | ±(2.0%+5.0mA) |
| | 100mA~999mA | 1mA | ±(2.0%+10mA) | 100mA~999mA | 1mA | ±(2.0%+10mA) |
| | 1.00A~9.99A | 0.01A | ±(2.0%+0.1A) | 1.00A~9.99A | 0.01A | ±(2.0%+0.1A) |
| | 10.0A~20.0A | 0.1A | ±(2.0%+0.3A) | 10.0A~40.0A | 0.1A | ±(2.0%+0.3A) |
| Testing method | Mutual inductance method | | | Mutual inductance method | | |
| Functional | 1, Earth resistance test;<br>2, Loop resistance test;<br>3, AC current test (leakage current) | | | 1, Earth resistance test;<br>2, Loop resistance test;<br>3, AC current test (leakage current) | | |
| Max measurable conductor dia. | Max Φ44mm | | | Max Φ44mm | | |
| Display | 4 digit LCD | | | 4 digit LCD | | |
| Sampling rate | 2 time/s | | | 2 time/s | | |
| Data storage | 500 set | | | 500 set | | |
| Bluetooth | √ | | | √ | | |
| Over range indication | √ | | | √ | | |
| Data recall | √ | | | √ | | |
| APO | Around 10 minutes without operation | | | Around 10 minutes without operation | | |
| Insulation resistance | 50MΩ/1000V | | | 50MΩ/1000V | | |
| Power consumption | Around 55mA (max: 150mA) | | | Around 55mA (max: 150mA) | | |
| Working temp | -10°C~50°C relative humidity below 85%, no condensation. | | | | | |
| Storage temp | -20°C~60°C relative humidity below 85%, no condensation. | | | | | |
| IP rating | IP40 | | | IP40 | | |
| Safety regulation grade | IEC 61010-1: 2001 (CATIV 600V;<br>Pollution degree: 2)<br>IEC 61010-2-032: 2002<br>IEC 61326: 2000 (EMC standard) | | | IEC 61010-1: 2001 (CATIV 600V;<br>Pollution degree: 2)<br>IEC 61010-2-032: 2002<br>IEC 61326: 2000 (EMC standard) | | |
| Category rating | CAT IV 600V | | | CAT IV 600V | | |
| Product size | 270 x 94 x 58mm | | | 270 x 94 x 58mm | | |

Product is preliminary and subject to change pending final release information.

UNI-TREND TECHNOLOGY

meters.uni-trend.com

## Strong anti-interference & High accuracy

Permalloy is used as the core material of the clamp head, which has strong anti-interference ability.

Permalloy has extremely high magnetic permeability, which enables the clamp meter to achieve high-precision and high-sensitivity measurement under the condition of extremely weak alternating magnetic field.



| Characteristics | Permalloy | Silicon Steel Sheet | Soft Ferrite |
|---|---|---|---|
| Initial Permeability (μi) | Extremely high (up to 105,000 or higher) | Relatively low (usually 1,500 - 6,000) | Medium to high (usually 1,400 - 15,000) |
| Maximum Permeability (μm) | Extremely high (up to 100,000 or more) | Significantly lower than permalloy | Significantly lower than permalloy |
| Saturation Magnetic Induction (Bs) | Medium (about 0.8T) | High (1.8T - 2.0T) | Low (0.3T - 0.5T) |
| Coercivity (Hc) | Extremely low | Relatively high | Low |
| Resistivity | Relatively low (about 55 μΩ·cm) | Very low (about 50 μΩ·cm) | Very high (about $10^3$ μΩ·cm) |
| Relative Cost | High | Low | Low |

## Large clamp size

Max measurable conductor diameter: 44mm, suitable for most of application scenarios.






## Data communication

**500** set
Data storage

Data recall

Bluetooth app





## UNI-T Smart Measure

- Generating testing report;
- Generating real-time charts;
- Export multiple test data: PDF/XLS/JPEG/CSV;

UNIT Smart Measure (Google play)

UNI-T Smart Measure (iOS-app store)

## Self-calibration



1Ω resistance loop



10Ω resistance loop

Before testing, the standard-equipped test loops can be used for testing to check whether the device works accurately. The test loops are 1Ω test loop and 10Ω test loop respectively.

## Application scenarios



Measurement of Tower Ground Resistance



Measurement of Transformer Ground Resistance



Measurement of AC Current in Distribution Cabinets



Measurement of Ground Resistance of solar Panels