



Professional True RMS Industrial Digital Multimeter with built-in Thermal Imager, having TFT color LCD display, providing fast A/D converting sampling time, high accuracy. It is easy to find and solve the problems of production equipments using Bluetooth technology. Measurement safety with double molded plastic housing design and IP65 waterproof function.

## DT-9889

### Thermal Imaging Multimeter

#### Key Features

- 6000 count 2.8" TFT Color LCD display
- Built-in Thermal imager with Max, Min and Center cross targeting
- 50Hz, fast thermal image frame rate
- DC Voltage
- AC, AC + DC TRMS Voltage
- DC Current
- AC, AC + DC TRMS Current
- Resistance and Continuity Test
- Diode Test
- Capacitance
- Frequency
- Duty Cycle
- Temperature with K-type probe
- Flexible Clamp for measuring high current upto 3000A
- IP- 65 , Dust and Waterproof
- Bluetooth Connectivity
- Smartphone app with real time data logging, trend capture and sharing
- Long lasting Rechargeable battery

#### Environment

|                             |                           |
|-----------------------------|---------------------------|
| Reference Temperature       | 18°C ~ 28°C (64°F ~ 82°F) |
| Operating Temperature       | 5°C ~ 40°C (41°F ~ 104°F) |
| Allowable Relative Humidity | <80%RH                    |
| Storage Temperature         | -20° ~ 60°C (-4°F~140°F)  |
| Storage Humidity            | <80%RH                    |

#### Reference Standards

|                        |                            |
|------------------------|----------------------------|
| Safety                 | IEC/EN61010-1              |
| EMC                    | IEC/EN 61326-1             |
| Insulation             | Double Insulation          |
| Pollution Level        | 2                          |
| Overvoltage category   | CAT IV 600V, CAT III 1000V |
| Max operating altitude | 2000m (6562ft)             |



# DT-9889 Thermal Imaging Multimeter

## Mechanical Characteristics

|                             |                               |
|-----------------------------|-------------------------------|
| Size ( L x W x H)           | 175 x 85 x 55mm (7 x 3 x 2in) |
| Weight (batteries included) | 540g                          |

## Power Supply

|                              |                                                                                                         |
|------------------------------|---------------------------------------------------------------------------------------------------------|
| Battery type                 | 1x7.4V rechargeable Li-ION battery, 2300mAh                                                             |
| Battery charger power supply | 100/240V AC, 50/60Hz, 10VDC, 1A                                                                         |
| Low battery indication       | Symbol  on the display |
| Auto Power Off               | After 15 ~ 60 minutes idling (can be disabled)                                                          |
| Fuses                        | F10A/1000V, 10x38mm (input 10A)<br>F800mA/1000V, 6x32mm (input mA uA)                                   |

## Display

|                    |                                     |
|--------------------|-------------------------------------|
| Conversion         | TRMS                                |
| Characteristics    | Colour TFT, 6000 dots with bargraph |
| Sampling frequency | 3 times/s                           |



## Input Protection Limits

| Function                                                                 | Maximum input                |
|--------------------------------------------------------------------------|------------------------------|
| V DC or V AC                                                             | 1000V DC/AC RMS              |
| mA AC/DC                                                                 | 800mA 1000V fast acting fuse |
| A AC/DC                                                                  | 10A 1000V fast acting fuse   |
| Frequency, Resistance, Capacitance<br>Duty Cycle, Diode Test, Continuity | 1000V DC/AC rms              |
| Temperature                                                              | 1000V DC/AC rms              |

Surge Protection: 8kV peak per IEC 61010

## Technical Specifications

### Thermal Imager

|                                              |                                                                                                |
|----------------------------------------------|------------------------------------------------------------------------------------------------|
| Field of view (FOV) / Minimum focus distance | 21° x 21° / 0.5m                                                                               |
| Spatial resolution (IFOV)                    | 4.53 mrad                                                                                      |
| IR resolution                                | 80x80 pixels                                                                                   |
| Thermal sensitivity / NETD                   | <0.1°C @ + 30°C (+86°F) / 100mK                                                                |
| Image frequency                              | 50Hz                                                                                           |
| Focus mode                                   | Focus free                                                                                     |
| Focal length                                 | 7.5mm                                                                                          |
| Focal Plane Array (FPA) / Spectral range     | Uncooled microbolometer / 8 ~ 14 um                                                            |
| Object temperature range                     | -20°C to +260°C (-4°F to +500°F)                                                               |
| Accuracy                                     | ±3°C (±5.4°F) or ±3% of reading (Environment temperature 10°C ~ 35°C, object temperature >0°C) |

Accuracy calculated as [% reading + (num. digits\* resolution)] at 18°C ~ 28°C <75% RH



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ISO 9001-2015 CERTIFIED COMPANY

Office Address : # 1, 1st Main, 2nd Cross, Maruthinagar, Bengaluru, Karnataka - 560 026. India

Factory Address : #18 ,4th A Main Road, Bahubali Nagar, Jahalli Village, Bengaluru - 560013

Email : [sales@aayushei.com](mailto:sales@aayushei.com) / [marketing@aayushei.com](mailto:marketing@aayushei.com) / [accounts@aayushei.com](mailto:accounts@aayushei.com)

Web : [www.aayushei.com](http://www.aayushei.com) , Mob : +91 88922 55555 / 96639 82272/ 88922 77777



QMS/019303/1120

## DC Voltage

| Range   | Resolution | Accuracy                       | Input impedance | Overload Protection |
|---------|------------|--------------------------------|-----------------|---------------------|
| 600.0mV | 0.1mV      | ±(0.09% of reading + 5 digits) | >10MΩ           | 1000V DC/AC RMS     |
| 6.000V  | 0.001V     |                                |                 |                     |
| 60.00V  | 0.01V      |                                |                 |                     |
| 600.0V  | 0.1V       | ±(0.2% of reading + 5 digits)  |                 |                     |
| 1000V   | 1V         |                                |                 |                     |

## AC+DC TRMS Voltage

| Range  | Resolution | Accuracy (50Hz / 1kHz)         | Input Impedance | Overload Protection |
|--------|------------|--------------------------------|-----------------|---------------------|
| 6.000V | 0.001V     | ±(2.4% of reading + 20 digits) | >10MΩ           | 1000V DC/AC RMS     |
| 60.00V | 0.01V      |                                |                 |                     |
| 600.0V | 0.1V       |                                |                 |                     |
| 1000V  | 1V         |                                |                 |                     |

## AC TRMS Current

| Range   | Resolution | Accuracy* (50Hz ~ 1kHz)       | Overload Protection    |
|---------|------------|-------------------------------|------------------------|
| 600.0uA | 0.1uA      | ±(1.2% of reading + 5 digits) | Quick fuse 800mA/1000V |
| 6000uA  | 1uA        |                               |                        |
| 60.00mA | 0.01mA     |                               |                        |
| 600.0mA | 0.1mA      |                               |                        |
| 10.00A  | 0.01A      | ±(1.5% of reading + 8 digits) | Quick fuse 10A/1000V   |

\*Accuracy specified from 5% to 100% of the measuring range, sine wave.  
Accuracy PEAK function: ±10% of reading

## AC Current via Flexible Clamp

| Range  | Resolution | (50Hz ~ 60Hz)                 | (61Hz ~ 1kHz)                 | Overload Protection |
|--------|------------|-------------------------------|-------------------------------|---------------------|
| 30.00A | 0.01A      | ±(0.8% of reading + 5 digits) | ±(2.4% of reading + 5 digits) | 1000V DC/AC RMS     |
| 300.0A | 0.1A       |                               |                               |                     |
| 3000A  | 1A         |                               |                               |                     |

## Frequency (Electronic Circuits)

| Range    | Resolution | Accuracy                       | Overload Protection |
|----------|------------|--------------------------------|---------------------|
| 60.00Hz  | 0.01Hz     | ±(0.09% of reading + 5 digits) | 1000V DC/AC RMS     |
| 600.0Hz  | 0.1Hz      |                                |                     |
| 6.000kHz | 0.001kHz   |                                |                     |
| 60.00kHz | 0.01kHz    |                                |                     |
| 600.0kHz | 0.1kHz     |                                |                     |
| 6.000MHz | 0.001MHz   |                                |                     |
| 10.00MHz | 0.01MHz    |                                |                     |

Sensitivity: • >2Vrms (@ 20% ~ 80% duty cycle) and f <100kHz  
• >5Vrms (@ 20% ~ 80% duty cycle) and f >100kHz

## AC TRMS Voltage

| Range  | Resolution | Accuracy*                     |                               | Overload Protection |
|--------|------------|-------------------------------|-------------------------------|---------------------|
|        |            | (50Hz ~ 60Hz)                 | (61Hz ~ 1kHz)                 |                     |
| 6.000V | 0.001V     | ±(0.8% of reading + 5 digits) | ±(2.4% of reading + 5 digits) | 1000V DC/AC RMS     |
| 60.00V | 0.01V      |                               |                               |                     |
| 600.0V | 0.1V       |                               |                               |                     |
| 1000V  | 1V         |                               |                               |                     |

- \*Accuracy specified from 10% to 100% of the measuring range, sine wave
- Input impedance: >9MΩ
- Accuracy PEAK function: ±10% rdg, PEAK response time: 1ms

## DC Current

| Range   | Resolution | Accuracy                      | Overload Protection    |
|---------|------------|-------------------------------|------------------------|
| 600.0uA | 0.1uA      | ±(0.9% of reading + 5 digits) | Quick fuse 800mA/1000V |
| 6000uA  | 1uA        |                               |                        |
| 60.00mA | 0.01mA     |                               |                        |
| 600.0mA | 0.1mA      | ±(0.9% of reading + 8 digits) | Quick fuse 10A/1000V   |
| 10.00A  | 0.01A      | ±(1.5% of reading + 8 digits) |                        |

## AC + DC TRMS Current

| Range   | Resolution | Accuracy* (50Hz ~ 1kHz)        | Overload Protection    |
|---------|------------|--------------------------------|------------------------|
| 600.0uA | 0.1uA      | ±(3.0% of reading + 20 digits) | Quick fuse 800mA/1000V |
| 6000uA  | 1uA        |                                |                        |
| 60.00mA | 0.01mA     |                                |                        |
| 600.0mA | 0.1mA      |                                |                        |
| 10.00A  | 0.01A      |                                | Quick fuse 10A/1000V   |

## Frequency (Electrical Circuits)

| Range           | Resolution         | Accuracy           | Overload Protection |
|-----------------|--------------------|--------------------|---------------------|
| 40.00Hz ~ 10kHz | 0.01 Hz ~ 0.001kHz | ±(0.5% of reading) | 1000V DC/AC RMS     |

Sensitivity: 2V RMS

## Duty Cycle

| Range        | Resolution | Accuracy                       |
|--------------|------------|--------------------------------|
| 5.0% ~ 95.0% | 0.1%       | ± (1.2% of reading + 2 digits) |

Pulse frequency range: 40Hz~10kHz, Pulse amplitude: ±5V (100us~100ms)

## Capacitance

| Range   | Resolution | Accuracy                       | Overload Protection |
|---------|------------|--------------------------------|---------------------|
| 60.00nF | 0.01nF     | ±(1.5% of reading + 20 digits) | 1000V DC/AC RMS     |
| 600.0nF | 0.1nF      | ±(1.2% of reading + 8 digits)  |                     |
| 6.000uF | 0.001uF    | ±(1.5% of reading + 8 digits)  |                     |
| 60.00uF | 0.01uF     | ±(1.2% of reading + 8 digits)  |                     |
| 600.0uF | 0.1uF      | ±(1.5% of reading + 8 digits)  |                     |
| 6000uF  | 1uF        | ±(2.5% of reading + 20 digits) |                     |



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## Diode Test

| Function | Test Current | Max voltage with open circuit |
|----------|--------------|-------------------------------|
| →        | <1.5mA       | 3.3VDC                        |

## Temperature with K-type probe

| Range              | Resolution | Accuracy*                | Overload Protection |
|--------------------|------------|--------------------------|---------------------|
| -40.0°C ~ 600.0°C  | 0.1°C      | ±(1.5% of reading + 3°C) | 1000V DC/AC RMS     |
| 600.0°C ~ 1000.0°C | 1°C        |                          |                     |
| -40.0°F ~ 600.0°F  | 0.1°F      | (1.5% of reading + 5.4F) |                     |
| 600°F ~ 1800°F     | 1°F        |                          |                     |

\*Instrument accuracy without probe; Specified accuracy with stable environmental temperature at ±1°C for long-lasting measurements, reading increases by 2°C

## Resistance and Continuity Test

| Range   | Resolution | Accuracy                       | Buzzer | Overload Protection |
|---------|------------|--------------------------------|--------|---------------------|
| 600.0Ω  | 0.1Ω       | ±(0.5% of reading + 10 digits) | >50Ω   | 1000V DC/AC RMS     |
| 6.000kΩ | 0.001kΩ    | ±(0.5% of reading + 5 digits)  |        |                     |
| 60.00kΩ | 0.01kΩ     |                                |        |                     |
| 600.0kΩ | 0.1kΩ      |                                |        |                     |
| 6.000MΩ | 0.001MΩ    |                                |        |                     |
| 60.00MΩ | 0.01MΩ     | ±(2.5% of reading + 10 digits) |        |                     |

## Accessories:

Power Adapter, Test Leads, K-Type Temperature Probe, User Manual, 2 Batteries, Software, SD Card, Gift Box with Carrying Case and Magnetic Hanging belt.



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