

# AVO®850 TRMS Digital Multimeter

# Megger®



- Safety rated CAT III 1000 V, CAT IV 600 V
- True-RMS AC current and voltage
- High accuracy  $\pm(0.05\%)$
- Measure frequency up to 10 MHz
- Resistance, continuity and diode measurements
- 10 mF capacitance range
- High resolution 50 000 count
- Current measurement to 10 A
- Analogue bar graph
- Li-ion rechargeable battery; AC Adapter and charger
- Bluetooth interface and Megger app

## DESCRIPTION

The AVO850 is a professional True-RMS digital multimeter with TFT colour LCD screen 50 000 count display. Includes handy bar graph, capture and Bluetooth feature's. Designed for precision and convenience, this is a high-accuracy multimeter that runs on rechargeable batteries.

The meter meet CAT III and CAT IV IEC 61010-1 standards. The IEC 61010-1 safety standard defines four measurement categories (CAT I to IV) based on the magnitude of danger from transient impulses.

## FEATURES

The AVO850 is a professional True RMS Industrial Digital Multimeter and TFT colour LCD, providing fast AD converting sampling time, high accuracy, built-in data logging and Trend Capture features. It can trace any interrupted problems of the equipments and watch on without person.

The AVO850 True RMS multimeter designed for electronic, electricians, technicians, engineers, and service personnel. Bluetooth connectivity and app support for Android or iOS devices allow real-time result sharing. Use the smart app to remote track readings from a safe distance or store for future reference.

CAT III 1000 V / CAT IV 600 V safety rated with 50,000-count on bright TFT colour LCD. The AVO850 high precision and advance features make it ideal for industrial and lab use. Comes equipped with 4-20 mA process loop measurement with % reading, AC+DC and LoZ.

The continuity function features audible and visual results. Diode function allows forward reverse bias testing of diode and semiconductor junctions. Or the temperature measurements allowing you to find electrical faults from one tool.

It can store and recall data. It features a waterproof, rugged design for heavy duty use. Proper use and care of this meter will provide many years of reliable service.

- Safety rated CAT III 1000 V, CAT IV 600 V
- Accurate True-RMS AC current and voltage
- High accuracy ( $\pm 0.05\%$ )
- Measure frequency up to 10 MHz
- Resistance, continuity, and diode measurements
- 10 mF capacitance range
- Bright back-light display
- High resolution 50 000 counts 320 x 240 TFT colour LCD
- Current measurement to 10 A
- Analogue bar graph

# AVO<sup>®</sup>850

## TRMS Digital Multimeter

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- IP40 (waterproof and dust-proof) rating
- Designed and tested to withstand a 2 m (6.6 ft) drop
- Li-ion rechargeable battery
- AC Adapter and charger
- Bluetooth interface and Megger IOS and Android App

### APPLICATION

Suitable for wide range of application when testing to determine absence or presence of voltage, frequency, diode, capacitance, resistance and a Type K thermocouple input for temperature measurement. The multimeter combines a range of features, precise measurements, and quality construction into a tool of exceptional value. Easy to use and built to last, the AVO850 offers long-term stability for everyday use.

### Specifications

Accuracy is specified for 1 year after calibration, at operating temperatures of 18 °C to 28 °C, with relative humidity at 0 % to 90 %. Accuracy specifications take the form of: (±(% of Reading) + (Counts))

| Specification                                         | Detail                                                                                          |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Maximum voltage between any terminal and earth ground | 1000 V                                                                                          |
| F1 Fuse protection for A inputs                       | 10 A, 1000 V, 30 kA                                                                             |
| F2 Fuse protection for mA input                       | 800 mA, 1000 V, 30 kA                                                                           |
| Battery                                               | Lithium polymer battery (NEDA 1604 battery 1200 mAh 7.4 V 8.88 Wh)                              |
| Display                                               | 50 000 count, TFT LCD 20x per second                                                            |
| Altitude                                              | 2000 m maximum                                                                                  |
| Operating temperature                                 | 5 °C to +40 °C (41 °F to 104 °F)                                                                |
| Storage temperature                                   | -20 °C to +60 °C (-4 °F to 140 °F)                                                              |
| Operating humidity                                    | Max 80% up to 31 °C (87 °F) decreasing linearly to 50% at 40 °C (104 °F)                        |
| Storage humidity                                      | 50% at 40 °C (104 °F)                                                                           |
| Battery life                                          | Lithium polymer battery 300 to 500 charge cycles                                                |
| Size (H x W x D)                                      | 170 mm x 79 mm x 50 mm                                                                          |
| Weight                                                | 376 g with battery 416 g                                                                        |
| Safety                                                | IEC 61010-1: Pollution Degree 2<br>IEC 61010-2-033: CAT IV 600 V, CAT III 1000 V                |
| EMC                                                   | IEC 61326-1: Portable Electromagnetic Environment,<br>CISPR 11: Group 1, Class A, IEC 61326-2-2 |
| Enclosure                                             | Double molded, IP40 rating                                                                      |
| Shock (drop test)                                     | 2 m (6.5 ft)                                                                                    |

|                        |                                                                                                                                                                                                                                                                                                                                         |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Continuity check       | Audible signal will sound if the resistance is less than 250 (approx.), test current <0.35 mA                                                                                                                                                                                                                                           |
| Diode test             | Test current of 1.5 mA maximum, open circuit voltage 3.2 V DC typical                                                                                                                                                                                                                                                                   |
| PEAK                   | Captures peaks > 1 ms                                                                                                                                                                                                                                                                                                                   |
| Temperature sensor     | Requires K-type thermocouple                                                                                                                                                                                                                                                                                                            |
| Input impedance        | > 10 MΩ V DC and >9 MΩ V AC                                                                                                                                                                                                                                                                                                             |
| AC response            | True RMS                                                                                                                                                                                                                                                                                                                                |
| AC True RMS            | The term stands for "Root-Mean-Square," which represents the method of calculation of the voltage or current value. Average responding multimeters are calibrated to read correctly only on sine waves, and they will read inaccurately on non-sine wave or distorted signals. True rms meters read accurately on either type of signal |
| ACV bandwidth          | 50 Hz to 20 000 Hz                                                                                                                                                                                                                                                                                                                      |
| Overrange indication   | OL is displayed                                                                                                                                                                                                                                                                                                                         |
| Auto Power OFF         | 5-30 minutes (approximately) with disable feature                                                                                                                                                                                                                                                                                       |
| Polarity               | Automatic (no indication for positive); Minus (-) sign for negative                                                                                                                                                                                                                                                                     |
| Low battery indication | "  " is displayed if battery voltage drops below voltage.                                                                                                                                                                                            |

### Electrical specifications

#### AC voltage

| Range  | Resolution | 50/60 Hz   | <1 kHz      | <5 kHz      | <20 kHz*    |
|--------|------------|------------|-------------|-------------|-------------|
| 500 mV | 0.01 mV    | (±0.5% +5) | (±1.0% +5)  | (±3.0% +5)  | (±5.5% +20) |
| 5 V    | 0.0001 V   |            |             |             |             |
| 50 V   | 0.001 V    |            | (±1.5% +10) | (±3.5% +10) | unspecified |
| 500 V  | 0.01 V     |            |             |             |             |
| 1000 V | 0.1 V      |            |             | unspecified | unspecified |

\* upper 10 % of range.

#### DC voltage

| Range    | Resolution | Accuracy            |
|----------|------------|---------------------|
| 500 mV * | 0.01 mV    | (±0.1% + 5 digits)  |
| 5 V      | 0.0001 V   | (±0.05% + 5 digits) |
| 50 V     | 0.001 V    | (±0.05% + 5 digits) |
| 500 V    | 0.01 V     | (±0.05% + 5 digits) |
| 1000 V   | 0.1 V      | (±0.1% + 5 digits)  |

\* When using the relative mode (REL Q) to compensate for offsets.

#### (AC+DC)

| Range  | Resolution | <1 kHz       | <5 kHz       |
|--------|------------|--------------|--------------|
| 5 V    | 0.0001 V   | (±1.2% + 20) | (±3.0% + 20) |
| 50 V   | 0.001 V    |              |              |
| 500 V  | 0.01 V     |              |              |
| 1000 V | 0.1 V      |              |              |

# AVO®850

## TRMS Digital Multimeter

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### Resistance

| Range   | Resolution | Accuracy     |
|---------|------------|--------------|
| 500 Ω * | 0.01 Ω     | (±0.20% +10) |
| 5 kΩ    | 0.0001 kΩ  | (±0.20% +5)  |
| 50 kΩ   | 0.001 kΩ   | (±0.20% +5)  |
| 500 kΩ  | 0.01 kΩ    | (±0.50% +5)  |
| 5 MΩ    | 0.0001 MΩ  | (±0.50% +5)  |
| 50 MΩ   | 0.001 MΩ   | (±2.0% +10)  |

\*When using the relative mode (REL Q) to compensate for offsets

### Temp (type-K)

| Range                                                                   | Resolution | Accuracy                                                                             |
|-------------------------------------------------------------------------|------------|--------------------------------------------------------------------------------------|
| -200 to 1350 °C                                                         | 0.1 °C     | (±1.0% reading + 3.0 °C)<br>(±1.0% reading +5.4 °F)<br>(probe accuracy not included) |
| 1. Does not include error of the thermocouple probe.                    |            |                                                                                      |
| 2. Accuracy specification assumes ambient temperature stable to ± 1 °C. |            |                                                                                      |
| 3. Use a long time, reading will increase 2 °C.                         |            |                                                                                      |
| 4. <-50 °C Temp Rang accuracy (±3% + 5 °C)                              |            |                                                                                      |

### DC current

| Range   | Resolution | Accuracy    |
|---------|------------|-------------|
| 500 µA  | 0.01 µA    | (±0.2% + 5) |
| 5000 µA | 0.1 µA     | (±0.2% + 5) |
| 50 mA   | 0.001 mA   | (±0.2% + 5) |
| 500 mA  | 0.01 mA    | (±0.3% + 8) |
| 10 A    | 0.001 A    | (±0.5% + 8) |

### AC current

| Range                                                                 | Resolution | Accuracy   |           |
|-----------------------------------------------------------------------|------------|------------|-----------|
| 500 μA                                                                | 0.01 μA    | (±0.8% +5) | (±3% + 5) |
| 5000 μA                                                               | 0.1 μA     |            |           |
| 50 mA                                                                 | 0.001 mA   |            |           |
| 500 mA                                                                | 0.01 mA    |            |           |
| 10 A                                                                  | 0.001 A    |            |           |
| All AC current ranges are specified from 5% of range to 100% of range |            |            |           |

### Capacitance

| Range  | Resolution | Accuracy     |
|--------|------------|--------------|
| 5 nF * | 0.001 nF   | (±1.5% + 20) |
| 50 nF  | 0.01 nF    | (±1.5% + 8)  |
| 500 nF | 0.1 nF     | (±1.0% + 8)  |
| 5 µF   | 0.001 µF   | (±1.5% + 8)  |
| 50 µF  | 0.01 µF    | (±1.0% + 8)  |
| 500 µF | 0.1 µF     | (±1.5% + 8)  |
| 10 mF  | 0.01 mF    | (±2.5% + 20) |

\* With a film capacitor or better, using relative mode (REL) to zero residual

### Electronic frequency

| Range   | Resolution | Accuracy     |
|---------|------------|--------------|
| 50 Hz   | 0.001 Hz   | (±0.01% + 5) |
| 500 Hz  | 0.01 Hz    | (±0.01% + 5) |
| 5 kHz   | 0.0001 kHz | (±0.01% + 5) |
| 50 kHz  | 0.001 kHz  | (±0.01% + 5) |
| 500 kHz | 0.01 kHz   | (±0.01% + 5) |
| 5 MHz   | 0.0001 MHz | (±0.01% + 5) |
| 10 MHz  | 0.001 MHz  | unspecified  |

Sensitivity: 2 V rms min. @ 20% to 80% duty cycle and <100 kHz; 5 V rms min @ 20% to 80% duty cycle and >100 kHz.

### Electrical frequency

| Range             | Resolution          | Accuracy        |
|-------------------|---------------------|-----------------|
| 10.00 Hz – 10 kHz | 0.01 Hz - 0.001 kHz | (±0.5% reading) |

Sensitivity: 2 V rms

### Duty cycle

| Range                                                       | Resolution | Accuracy                   |
|-------------------------------------------------------------|------------|----------------------------|
| 0.1 to 99.90%                                               | 0.01 %     | (±1.2% reading + 2 digits) |
| Pulse width: 100 µs – 100 ms,<br>Frequency: 5 Hz to 150 kHz |            |                            |

### Safety

This instrument is intended for origin of installation use and are protected by double insulation per 61010-1:2010 +A1:2019 Safety requirements for electrical equipment for measurement, control, and laboratory use to Measurement connection: CAT III 1,000 V and CAT IV 600 V; Pollution Degree 2. The instrument also meets EN (IEC) 61010-2-033:2021 +A11:2021, particular requirements for hand-held multimeters and other meters, 61010-031:2015, Safety requirements for hand-held probe assemblies for electrical measurement and test, EN 62479: 2010 Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz); and EN 50663: 2017 Generic standard for assessment of low power electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (10 MHz - 300 GHz).

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## TRMS Digital Multimeter

### ORDERING INFORMATION

| Description                                                        | Part number |
|--------------------------------------------------------------------|-------------|
| AVO850 Multimeter                                                  | 1015-515    |
| <b>Included Accessories</b>                                        |             |
| 1 m 4 mm non-fused, right angle connector test leads* (x2)         |             |
| 4 mm exposed metal Probes* (x2)                                    |             |
| Exposed tip probes for CAT II probing (x2)                         |             |
| Red and black crocodile clips*                                     |             |
| K-type multimeter adapter                                          |             |
| K-type thermocouple lead                                           |             |
| Soft case                                                          |             |
| 4 mm cap plugs (x2)                                                |             |
| Rechargeable battery and universal mains charger                   |             |
| *Ratings: Double insulated, CAT III 1000 V, CAT IV 600 V, 10 A max |             |

| Description                                                        | Part number |
|--------------------------------------------------------------------|-------------|
| <b>Optional Accessories</b>                                        |             |
| Unfused red and black test leads with probes and croc clips        | 1002-001    |
| Fused red and black test leads (500 mA) with probes and croc clips | 1002-015    |
| Magnetic strap                                                     | 1010-013    |

AVO850\_DS\_ENUS\_V01

ISO 9001  
The word 'Megger' is a registered trademark

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