

Clamp-On Meter Models 500, 501, 502 & 503



The AEMC® Models 500, 501, 502 and 503 are compact, professional clamp-on meters that measure up to the toughest standards. They are built into a rugged mechanical case and are designed using quality polycarbonate materials. These meters offer a complete set of measurement ranges and are in compliance with international safety and quality standards to ensure a professional and reliable measuring tool.

These reliable meters are simple to operate and are Auto-Ranging — always providing the optimum measurement range and resolution. They all measure 400AAC, 600VAC,

600Vdc, Resistance, and Continuity (with beeper). The Models 501 and 502 also add a Frequency function sensed from either current or voltage. The Models 501 and 503 are average sensing for traditional load environments. The Model 502 is a True RMS clamp-on that provides RMS measurements for today's non-linear electrical environments, such as variable speed drives or computers. The Model 503 is a Hall Effect clamp-on that provides both DC and AC current measurements to 400A.

The Models 500, 501, 502 and 503 are compact for comfortable one-handed operation. The tapered, hooked jaw

design facilitates maneuvering in crowded wiring and breaker panels, making it easy to select conductors. The jaw opening accommodates a 500MCM cable. The large and easy-to-read 4000-count LCD features comprehensive user information symbols, such as low battery, polarity, overload and an analog bargraph for easy trend readings. All models are equipped with a Data Hold function that freezes the measurement for later viewing.

They include a padded carrying pouch with leads, batteries and user manual — ready to go!

Features

- Compact size — fits into your pocket
- 400AAC or 400AAC/DC current measurements
- 600VAC/DC volts measurements
- TRMS measurements (Model 502)
- Resistance measurements to 400 Ω
- Continuity with beeper below 40 Ω
- Frequency measurements (Models 501 and 502) from V and A
- Hold function to “freeze” readings
- Push-button for easy ADC zeroing (Model 503)
- Large, easy-to-read 4000-count display
- 42-segment analog bargraph
- Includes test leads and soft carrying pouch

Applications

- Industrial, commercial, HVAC and residential troubleshooting
- Power panel, junction box and battery bank monitoring
- Electrical testing and troubleshooting on traditional and non-linear loads, such as adjustable speed drives and computers



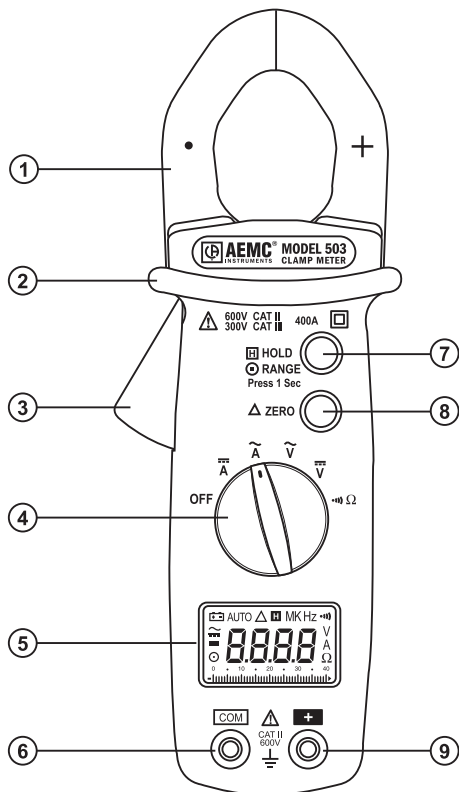
Specifications

| MODELS | 500 (Average Sensing) | 501 (Average Sensing) | 502 (TRMS) | 503 (Average Sensing) |
|--|---|--|--|--|
| AC AMPERES (Auto-Ranging) | | | | |
| Measurement Range | 0.05 to 400A | 0.05 to 400A | 0.05 to 400Arms | 0.05 to 400A |
| Resolution | 40A 0.01A | 0.01A | 0.01A | 0.01A |
| | 400A 0.1A | 0.1A | 0.1A | 0.1A |
| Accuracy | 50 to 60Hz 60 to 500Hz ±2% of Reading ± 5cts ±2.8% of Reading ± 5cts | ±1.9% of Reading ± 5cts ±2.5% of Reading ± 5cts | ±1.9% of Reading ± 5cts ±2.5% of Reading ± 5cts | ±1.5% of Reading ± 10cts ±2.5% of Reading ± 10cts |
| Overload Protection | 600Arms | 600Arms | 600Arms | 600Arms |
| AC VOLTS (Auto-Ranging) | | | | |
| Measurement Range | 0.5 to 600V | 0.5 to 600V | 0.5 to 600Vrms | 0.5 to 600V |
| Resolution | 400V 0.1V | 0.1V | 0.1V | 0.1V |
| | 600V 1V | 1V | 1V | 1V |
| Accuracy | 50 to 60Hz 60 to 500Hz ±1% of Reading ± 5cts ±1.5% of Reading ± 5cts | ±0.8% of Reading ± 5cts ±1.5% of Reading ± 5cts | ±1.5% of Reading ± 5cts ±1.5% of Reading ± 5cts | ±0.8% of Reading ± 5cts ±1.5% of Reading ± 5cts |
| Input Impedance | 1MΩ | 1MΩ | 1MΩ | 10MΩ |
| Overload Protection | 600Vrms | 600Vrms | 600Vrms | 600Vrms |
| DC AMPERES (Auto-Ranging) | | | | |
| Measurement Range | – | – | – | 0.10 to 400A |
| Resolution | 40A – | – | – | 0.01A |
| | 400A – | – | – | 0.1A |
| Accuracy | – | – | – | ±2.5% of Reading ± 10cts |
| Overload Protection | – | – | – | 600Arms |
| DC VOLTS (Auto-Ranging) | | | | |
| Measurement Range | – | 0.2 to 600V | 0.2 to 600V | 0.2 to 600V |
| Resolution | 400V – | 0.1V | 0.1V | 0.1V |
| | 600V – | 1V | 1V | 1V |
| Accuracy | – | ±1% of Reading ± 2cts | ±1% of Reading ± 2cts | ±1% of Reading ± 2cts |
| Input Impedance | – | 1MΩ | 1MΩ | 10MΩ |
| Overload Protection | – | 600Vrms | 600Vrms | 600Vrms |
| RESISTANCE-OHMS (Ω) | | | | |
| Measurement Range | 0.3 to 400Ω | 0.2 to 400Ω | 0.2 to 400Ω | 0.2 to 400Ω |
| Resolution | 0.1Ω | 0.1Ω | 0.1Ω | 0.1Ω |
| Accuracy | ±1.9% of Reading ± 3cts | ±1% of Reading ± 2cts | ±1% of Reading ± 2cts | ±1% of Reading ± 2cts |
| Max Test Voltage | 1.5Vdc | 1.5Vdc | 1.5Vdc | 1.5Vdc |
| Overload Protection | 600Vrms | 600Vrms | 600Vrms | 600Vrms |
| CONTINUITY (••)) | | | | |
| Beeper Activation | <35Ω | <40Ω | <40Ω | <40Ω |
| Max. Test Voltage | 1.5Vdc | 1.5Vdc | 1.5Vdc | 1.5Vdc |
| Overload Protection | 600Vrms | 600Vrms | 600Vrms | 600Vrms |
| FREQUENCY (Hz) (Auto-Ranging) | | | | |
| CURRENT INPUT | | | | |
| Range | 20Hz to 4kHz | 1Hz Resolution | 1Hz Resolution | – |
| | >4kHz to 10kHz | 10Hz Resolution | 10Hz Resolution | – |
| Accuracy | – | ±0.1% of Reading ± 1ct | ±0.1% of Reading ± 1ct | – |
| Min Input Signal | – | 2Arms | 2Arms | – |
| Input Impedance | – | 1MΩ | 1MΩ | – |
| Overload Protection | – | 600Arms | 600Arms | – |
| VOLTAGE INPUT | | | | |
| Range | 10Hz to 4kHz | 1Hz Resolution | 1Hz Resolution | – |
| | >4kHz to 40kHz | 10Hz Resolution | 10Hz Resolution | – |
| | >40kHz to 400kHz | 100Hz Resolution | 100Hz Resolution | – |
| Accuracy | – | ±0.1% of Reading ± 1ct | ±0.1% of Reading ± 1ct | – |
| Min Input Signal | 4kHz | 5Vrms | 5Vrms | – |
| | 40kHz | 5Vrms | 5Vrms | – |
| | 400kHz | 5Vrms | 5Vrms | – |
| Input Impedance | – | 1MΩ | 1MΩ | – |
| Overload Protection | – | 600Vrms | 600Vrms | – |
| SECURITY | | | | |
| Double Insulation <input type="checkbox"/> | Yes | | | |

Specifications

| MODELS | 500 (Average Sensing) | 501 (Average Sensing) | 502 (TRMS) | 503 (Average Sensing) |
|-----------------------|---|--------------------------|---------------|--------------------------|
| GENERAL | | | | |
| Digital Display | 3 1/2 digits LCD display, 4000-count (max. reading 3999) | | | |
| Analog Display | Fast 42-segment analog bargraph display | | | |
| Symbol & Scale Range | Automatic according to range and input signal | | | |
| Polarity | ■ Displayed when negative signal applied to input | | | |
| Overload | OL Displayed when input signal exceeds range | | | |
| Sample Rate | 2 samples/sec for the digital display, 20 samples/sec for the analog bargraph | | | |
| Power Source | Two 1.5V AAA batteries | | | |
| Auto-Off | 30 minutes | | | |
| Low Power Indication | ⏻ Displayed when the battery is below the required voltage | | | |
| Jaw Opening Size Ø | 1.1" (28mm) – facilitates 500MCM cable | | | |
| Dimension | 7.60 x 1.97 x 1.1" (193 x 50 x 28mm) | | | |
| Weight | 8.11 oz (230g) with batteries | | | |
| ENVIRONMENTAL | | | | |
| Altitude | 2167 ft (2000m) max. | | | |
| Operating Temperature | 32° to 104°F (0° to 40°C), <80% RH, non-condensing | | | |
| Storage Temperature | 14° to 140°F (-10° to 60°C), <70% RH, battery removed | | | |
| Pollution Degree | 2 | | | |
| SAFETY | | | | |
| Safety Rating | EN 61010, 600V Cat. II, EN 61010, 300V Cat. III | | | |
| CE Mark | Yes | | | |

Construction



| Function | Model 500 | Model 501 | Model 502 | Model 503 |
|------------------------|-----------|-----------|-----------|-----------|
| TRMS | - | - | ✓ | - |
| 400Aac | ✓ | ✓ | ✓ | ✓ |
| 400Adc | - | - | - | ✓ |
| 600Vac | ✓ | ✓ | ✓ | ✓ |
| 600Vdc | - | ✓ | ✓ | ✓ |
| Resistance | ✓ | ✓ | ✓ | ✓ |
| Continuity | ✓ | ✓ | ✓ | ✓ |
| Beeper | ✓ | ✓ | ✓ | ✓ |
| Frequency | - | ✓ | ✓ | - |
| Bargraph | ✓ | ✓ | ✓ | ✓ |
| Hold | ✓ | ✓ | ✓ | ✓ |
| Push button DC Zero | - | - | - | ✓ |

- Jaw assembly
- Safety barrier – anti-slip guard
- Lever for jaw opening/closing
- Rotary range selector switch
- LCD display with bargraph
- COM (Black) – input jack
- Positive (Red) + input jack
- DC zero button (Blue) (Model 503 only)
- Jaw assembly

Selection Chart



| MODEL | 500 | 501 | 502 | 503 |
|----------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| Catalog No. | 2117.54 | 2117.21 | 2117.66 | 2117.22 |
| Type | AC | AC | AC TRMS | AC/DC |
| AC Current | 0.05 to 400A | 0.05 to 400A | 0.05 to 400A | 0.05 to 400A |
| AC Voltage | 0.5 to 600V | 0.5 to 600V | 0.5 to 600V | 0.5 to 600V |
| DC Current | - | - | - | 0.10 to 400A |
| DC Voltage | - | 0.2 to 600V | 0.2 to 600V | 0.2 to 600V |
| Resistance (Ω) | 400Ω | 400Ω | 400Ω | 400Ω |
| Continuity | <35Ω | <40Ω | <40Ω | <40Ω |
| Frequency (Hz) | | | | |
| Current | - | 20Hz to 10kHz | 20Hz to 10kHz | - |
| Voltage | - | 10Hz to 400kHz | 10Hz to 400kHz | - |
| True RMS | - | - | Yes | - |
| Jaw Size | 1.1" (28mm) | 1.1" (28mm) | 1.1" (28mm) | 1.1" (28mm) |
| Dimension | 7.60 x 1.97 x 1.1" 193 x 50 x 28mm | 7.60 x 1.97 x 1.1" 193 x 50 x 28mm | 7.60 x 1.97 x 1.1" 193 x 50 x 28mm | 7.60 x 1.97 x 1.1" 193 x 50 x 28mm |



Models 500, 501, 502 & 503 include a pair of test leads and soft carrying case

ORDERING INFORMATION

CATALOG NO.

- Clamp-on Meter Model 500 (AC, 400AAC, 600VAC, Ohms, Continuity) **Cat. #2117.54**
- Clamp-on Meter Model 501 (AC, 400AAC, 600VAC/DC, Ohms, Continuity) **Cat. #2117.21**
- Clamp-on Meter Model 502 (TRMS, 400AAC, 600VAC/DC, Ohms, Continuity) **Cat. #2117.66**
- Clamp-on Meter Model 503 (AC/DC, 400AAC/DC, 600VAC/DC, Ohms, Continuity) **Cat. #2117.22**

All clamp-on meters are supplied with a pair of test leads (red/black with probe tips), batteries, soft carrying case and a user manual

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