

# AMP-300 Series

## Motor Maintenance TRMS Clamp Meters

### The Modern Evolution of the Professional Clamp Meter

Amprobe's AMP-300 Series True-RMS Clamp Meters offer a complete range of measuring functions for modern industrial environments, motor testing and HVAC applications. All models feature True-RMS sensing, low pass filters and fast response processors for quick, error-free measurements. The Amp-Tip function allows for precise measurement of current down to the tenth of an Amp, and a third input jack enables motor rotation and 3-phase sequence testing.

## AMP-300 Series Features

- **True-RMS**
- **Motor Testing Capabilities**
  - Motor rotation
  - 3-phase sequence testing
  - Inrush current monitoring during motor start-up
- **HVAC Features**
  - Temperature measurement; User selectable °F or °C
  - DC Microamps for flame sensor testing
  - Capacitance measurement for start and run motor capacitors
- **Amp-Tip Function**
- **Low Pass Filter** for variable frequency drives
- **Safety Rated:**
  - CAT III 600 V (AMP-310, AMP-320)
  - CAT IV 600 V, CAT III 1000 V (AMP-330)



**AMP-310**  
AC Clamp Meter  
HVAC



**AMP-320**  
AC/DC Clamp Meter  
Electrical Motor  
Maintenance



**AMP-330**  
AC/DC 1000 A Clamp Meter  
Industrial Motor  
Maintenance

## AMP-300 Series Product Details

### True-RMS

for accurate voltage measurements in noisy environments.

### Low pass filter

for current and voltage measurements on variable frequency drives.

### Amp-Tip function

for precise low-current measurement of small diameter wires down to 0.1 Amp to help with electrical system troubleshooting.


### Non-contact voltage detection (NCV)

### Audible continuity and diode test

### Data hold, relative zero, MAX/MIN/AVG mode

### Large LCD backlit display

### Safety rated

 CAT III 600 V  
(AMP-310, AMP-320)

 CAT IV 600 V  
CAT III 1000 V  
(AMP-330)

### Measurements:

Model	AMP-310	AMP-320	AMP-330
Safety Rating	CAT III 600 V	CAT III 600 V	CAT IV 600 V CAT III 1000 V
Voltage	Up to 600 V AC/DC	Up to 600 V AC/DC	Up to 1000 V AC/DC
AC Current	Up to 600 A	Up to 600 A	Up to 1000 A
DC Current	–	Up to 600 A	Up to 1000 A
Frequency		5 to 999 Hz	
Resistance		0 to 60 kΩ	
Capacitance		0.0 to 2500 μF	
Temperature	•	•	•



## AMP-300 Series Applications

- **Accurate measurement of current, voltage and frequency** on all electrical systems including distorted, non-sinusoidal signals (True-RMS function) and variable frequency drives (low pass filter).
- **Capacitance measurement** for start and run motor capacitors.
- **Resistance and continuity** functions to verify quality of electrical connections and to check if motor and transformer coils are working properly.
- **3-phase Motor and Phase Rotation**  
Tests allow proper connection of a motor to a 3-phase system. Improperly connected motors will spin in a reverse direction, which may destroy the motor or equipment connected to it.
- **Low Pass filter** allows measurement of current and voltage on variable frequency drives (motors with speed controlled by frequency). Without this feature, the meter would provide erroneous readings when measuring voltage and current.
- **DC Microamps** output for measurement of flame sensors. Test the proper operation of the flame sensor safety system in gas appliances. A broken sensor in a gas appliance will prevent the safety valve from opening and the appliance will not work.
- **Inrush current measurement** for motor start-up monitoring, allowing users to verify that the motor is receiving the required inrush current to support proper motor start.



AMP-310 AC Clamp Meter HVAC



AMP-320 AC/DC Clamp Meter  
Electrical Motor Maintenance



AMP-330 AC/DC 1000 A Clamp Meter  
Industrial Motor Maintenance

# Detailed Specifications

Model	AMP-210	AMP-220	AMP-310	AMP-320	AMP-330
	AC Clamp Meter Electrical	AC/DC Clamp Meter Electrical	AC Clamp Meter HVAC	AC/DC Clamp Meter Electrical Motor Maintenance	AC/DC 1000 A Clamp Meter Industrial Motor Maintenance
<b>Safety Rating</b>	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT IV 600 V, CAT III 1000 V
<b>Jaw Opening</b>	1.18 in (30 mm)	1.37 in (35 mm)	1.18 in (30 mm)	1.37 in (35 mm)	2.0 in (51 mm)
<b>AC Voltage (True-RMS)</b>	Range: 0 to 600.0 V Accuracy: ±1.0% + 5LSD (50 to 60 Hz)		Range: 0 to 600.0 V Accuracy: ±1.0% + 5LSD (50 to 60 Hz)		Range: 0 to 1000 V Accuracy: ±0.8% + 5LSD (50 to 60 Hz) ±1.5% + 5LSD (20 to 200 Hz) ±10% + 5LSD (200 to 400 Hz)
<b>DC Voltage</b>	Range: 0 to 600.0 V Accuracy: ±1.0% + 5LSD		Range: 0 to 600.0 V Accuracy: ±1.0% + 5LSD		Range: 0 to 1000 V Accuracy: ±0.8% + 5LSD
<b>AC+DC Voltage</b>	–	Range: 0 to 600.0 V Accuracy: 1.2% ± 7LSD (DC, 50 to 60 Hz)	–	Range: 0 to 600.0 V Accuracy: 1.2% ± 7LSD (DC, 50 to 60 Hz)	Range: 0 to 1000 V Accuracy: ±1.0% + 7LSD (50 to 60 Hz) ±1.8% + 7LSD (DC, 40 to 200 Hz) ±12% + 7LSD (200 to 400 Hz)
<b>AC Current (True-RMS)</b>	Range: 0 to 600.0 A Accuracy: ±1.8% + 5LSD (50 to 100 Hz) ±2.0% + 5LSD (100 to 400 Hz)		Range: 0 to 600.0 A Accuracy: ±1.8% + 5LSD (50 to 100 Hz) ±2.0% + 5LSD (100 to 400 Hz)		Range: 0 to 1000 A Accuracy: ±1.8% + 5LSD (40 to 100 Hz) ±2.2% + 5LSD (100 to 400 Hz)
<b>DC Current</b>	–	Range: 0 to 600.0 A Accuracy: ±2.0% + 5LSD	–	Range: 0 to 600.0 A Accuracy: ±2.0% + 5LSD	Range: 0 to 1000 A Accuracy: ±1.8% + 5LSD
<b>AC+DC Current</b>	–	Range: 0 to 600.0 A Accuracy: ±2.2% + 7LSD (DC, 50 to 100 Hz) ±2.7% + 7LSD (100 to 400 Hz)	–	Range: 0 to 600.0 A Accuracy: ±2.2% + 7LSD (DC, 50 to 100 Hz) ±2.7% + 7LSD (100 to 400 Hz)	Range: 0 to 1000 A Accuracy: ±2.2% + 7LSD (DC, 40 to 100 Hz) ±2.5% + 7LSD (100 to 400 Hz)
<b>Precise Low Current AC</b>	Range: 0 to 60.00 A Accuracy: ±1.5% + 5LSD (50 to 60 Hz)		Range: 0 to 60.00 A Accuracy: ±1.5% + 5LSD (50 to 60 Hz)		Range: 0 to 60.00 A Accuracy: ±1.5% + 5LSD (0.00 to 20.00 A, 40 to 100 Hz) ±2.0% + 5LSD (0.00 to 20.00 A, 100 to 400 Hz) ±3.0% + 5LSD (20.00 to 60.00 A, 40 to 100 Hz) ±3.0% + 5LSD (20.00 to 60.00 A, 100 to 400 Hz)
<b>Precise Low Current DC</b>	–	Range: 0 to 60.00 A Accuracy: ±2.0% + 5LSD	–	Range: 0 to 60.00 A Accuracy: ±2.0% + 5LSD	Range: 0 to 60.00 A Accuracy: ±1.5% + 5LSD (0.00 to 20.00 A) ±3.0% + 5LSD (20.00 to 60.00 A)
<b>Precise Low Current AC+DC</b>	–	Range: 0 to 60.00 A Accuracy: ±2.0% + 5LSD (DC, 50 to 60 Hz)	–	Range: 0 to 60.00 A Accuracy: ±2.0% + 5LSD (DC, 50 to 60 Hz)	Range: 0 to 60.00 A Accuracy: ±2.0% + 7LSD (0.00 to 20.00 A, DC, 40 to 100 Hz) ±2.2% + 7LSD (0.00 to 20.00 A, 100 to 400 Hz) ±3.0% + 7LSD (20.00 to 60.00 A, DC, 40 to 100 Hz) ±3.0% + 7LSD (20.00 to 60.00 A, 100 to 400 Hz)
<b>Frequency</b>	Range: 5.00 to 999.9 Hz Accuracy: ±1.0% + 5LSD (600 V range) Range: 50.0 to 400.0 Hz Accuracy: ±1.0% + 5LSD (600 A range)		Range: 5.00 to 999.9 Hz Accuracy: ±1.0% + 5LSD (600 V range) Range: 50.0 to 400.0 Hz Accuracy: ±1.0% + 5LSD (600 A range)		Range: 5.00 to 999.9 Hz Accuracy: ±1.0% + 5LSD (1000 V range) Range: 40.0 to 400.0 Hz Accuracy: ±1.0% + 5LSD (1000 A range)
<b>Resistance</b>	Range: 0.0 to 60.00 kΩ Accuracy: ±1.0% + 5LSD		Range: 0.0 to 60.00 kΩ Accuracy: ±1.0% + 5LSD		
<b>Capacitance</b>	Range: 0.0 to 2500 μF Accuracy: ±2.0% + 4LSD		Range: 0.0 to 2500 μF Accuracy: ±2.0% + 4LSD		
<b>Continuity Beeper</b>	ON ≤ 10 Ω OFF > 250 Ω		ON ≤ 10 Ω OFF > 250 Ω		
<b>Non-Contact Voltage</b>	10V to 1000V AC, 50/60Hz		10V to 1000V AC, 50/60Hz		
<b>True-RMS</b>	•	•	•	•	•
<b>Low Pass Filter</b>	•	•	•	•	•
<b>Autoranging</b>	•	•	•	•	•
<b>Relative Zero</b>	•	•	•	•	•
<b>MAX/MIN/AVG</b>	•	•	•	•	•
<b>Diode Test</b>	•	•	•	•	•
<b>Data Hold</b>	•	•	•	•	•
<b>Backlight</b>	•	•	•	•	•
<b>Auto Power Off</b>	•	•	•	•	•
<b>300 Series:</b>					
<b>DC Microamps</b>	–	–	Range: 0.0 to 2000 μA Accuracy: ±1.0% + 5LSD		
<b>Temperature* (Type K thermocouple)</b> *Error does not include Type-K thermocouple errors	–	–	Range: -40.0 to 752°F, -40.0 to 400°C Accuracy: -40.0 to 14.0°F (±1.0% + 3.0°F), >14.0 to 99.9°F (±1.0% + 1.5°F) 100 to 752°F (±1.0% + 2°F), -40.0 to -10.0°C (±1.0% + 1.5°C) >-10.0 to 99.9°C (±1.0% + 0.8°C), 100 to 400°C (±1.0% + 1°C)		
<b>3-Phase and Motor Rotation Indication</b>	–	–	Rotation-R for mains supply Rotation-M for motors		
<b>Inrush Current</b>	–	–	•	•	•
<b>Peak Hold (Crest)</b>	–	–	–	–	•
<b>Work Light</b>	–	–	–	–	•



Model	AMP-210	AMP-220	AMP-310	AMP-320	AMP-330
<b>Display</b>	3-5/6 digits 6000 counts	3-5/6 digits 6000 counts	3-5/6 digits 6000 counts	3-5/6 digits 6000 counts	3-5/6 digits 6000 counts
<b>Polarity</b>	Automatic	Automatic	Automatic	Automatic	Automatic
<b>Update Rate</b>	5 per second nominal	5 per second nominal	5 per second nominal	5 per second nominal	5 per second nominal
<b>Operating Temperature</b>	32 to 104°F (0 to 40°C)	32 to 104°F (0 to 40°C)	32 to 104°F (0 to 40°C)	32 to 104°F (0 to 40°C)	14 to 122°F (-10 to 50°C)
<b>Relative Humidity</b>	80% at 30°C, 50% at 40°C	80% at 30°C, 50% at 40°C	80% at 30°C, 50% at 40°C	80% at 30°C, 50% at 40°C	Non condensing at ≤10°C 90% at 10 to 30°C 75% at 30 to 40°C 45% at 40 to 50°C
<b>Operating Altitude</b>	0 to 2000 m	0 to 2000 m	0 to 2000 m	0 to 2000 m	0 to 2000 m
<b>Pollution Degree</b>	2	2	2	2	2
<b>Storage Temperature</b>	-4 to 140°F (-20°C to 60°C), < 80% RH	-4 to 140°F (-20°C to 60°C), < 80% RH	-4 to 140°F (-20°C to 60°C), < 80% RH	-4 to 140°F (-20°C to 60°C), < 80% RH	-4 to 140°F (-20°C to 60°C), < 80% RH
<b>Temperature Coefficient</b>	Nominal 0.15 x (specified accuracy)/ °C @ (0°C to 18°C or 28°C to 40°C)	Nominal 0.15 x (specified accuracy)/ °C @ (0°C to 18°C or 28°C to 40°C)	Nominal 0.15 x (specified accuracy)/ °C @ (0°C to 18°C or 28°C to 40°C)	Nominal 0.15 x (specified accuracy)/ °C @ (0°C to 18°C or 28°C to 40°C)	Nominal 0.10 x (specified accuracy)/ °C @ (0°C to 18°C or 28°C to 50°C)
<b>Battery</b>	Two AAA 1.5 V battery	Two AAA 1.5 V battery	Two AAA 1.5 V battery	Two AAA 1.5 V battery	Two AA 1.5 V battery
<b>EMC</b>	Meets EN 61326-1:2006	Meets EN 61326-1:2006	Meets EN 61326-1:2006	Meets EN 61326-1:2006	Meets EN 61326-1:2006
<b>Safety Compliance</b>	UL/IEC/EN 61010-1 ed. 3.0, IEC/EN 61010-2-033 ed. 1.0, CAN/CSA C22.2 NO. 61010-1 ed. 3.0, IEC/EN 61010-2-032 ed. 3.0 & IEC/EN 61010-031 ed. 1.1	UL/IEC/EN 61010-1 ed. 3.0, IEC/EN 61010-2-033 ed. 1.0, CAN/CSA C22.2 NO. 61010-1 ed. 3.0, IEC/EN 61010-2-032 ed. 3.0 & IEC/EN 61010-031 ed. 1.1	UL/IEC/EN 61010-1 ed. 3.0, IEC/EN 61010-2-033 ed. 1.0, CAN/CSA C22.2 NO. 61010-1 ed. 3.0, IEC/EN 61010-2-032 ed. 3.0 & IEC/EN 61010-031 ed. 1.1	UL/IEC/EN 61010-1 ed. 3.0, IEC/EN 61010-2-033 ed. 1.0, CAN/CSA C22.2 NO. 61010-1 ed. 3.0, IEC/EN 61010-2-032 ed. 3.0 & IEC/EN 61010-031 ed. 1.1	UL/IEC/EN 61010-1 ed. 3.0, IEC/EN 61010-2-033 ed. 1.0, CAN/CSA C22.2 NO. 61010-1 ed. 3.0, IEC/EN 61010-2-032 ed. 3.0 & IEC/EN 61010-031 ed. 1.1
<b>Certification</b>	UL (c/us) and CE	UL (c/us) and CE	UL (c/us) and CE	UL (c/us) and CE	UL (c/us) and CE
<b>Dimensions (L x W x H):</b>	8.62 x 3.03 x 1.46 in (219 x 77 x 37 mm)	8.82 x 3.03 x 1.46 in (224 x 77 x 37 mm)	8.62 x 3.03 x 1.46 in (219 x 77 x 37 mm)	8.82 x 3.03 x 1.46 in (224 x 77 x 37 mm)	10.16 x 3.70 x 1.73 in (258 x 94 x 44 mm)
<b>Weight:</b>	208 g (0.46 lb)	254 g (0.56 lb)	208 g (0.46 lb)	254 g (0.56 lb)	420 g (0.93 lb)

Accessories Included:					
<b>User's Manual</b>	•	•	•	•	•
<b>Test Leads</b>	•	•	•	•	•
<b>Carrying Case</b>	•	•	•	•	•
<b>Batteries</b>	AAA (2)		AAA (2)		AA (2)
<b>Alligator Clip Set</b>	-	-	•	•	•
<b>Banana plug K-type Thermocouple</b>	-	-	•	•	•

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