

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



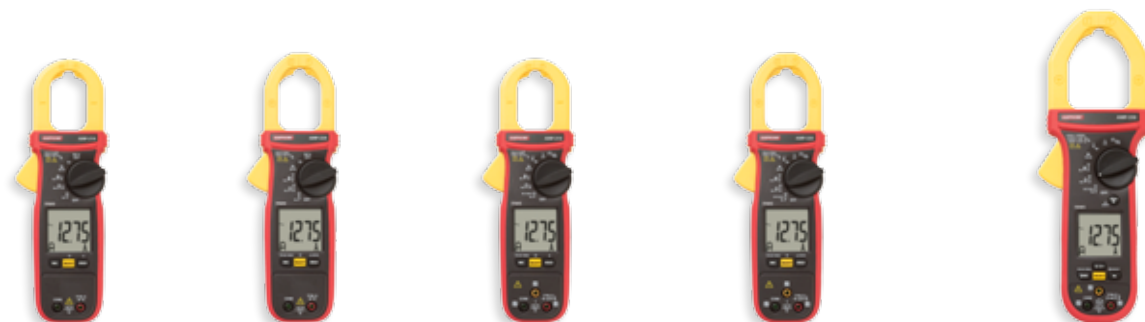
AMP-320 AC/DC Clamp Meter
Electrical Motor Maintenance



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
Safety Rating	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT IV 600 V, CAT III 1000 V
Jaw Opening	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)
AC Voltage (True-RMS)	Range: 0 to 600.0 V Accuracy: $\pm 1.0\% + 5\text{LSD}$ (50 to 60 Hz)		Range: 0 to 600.0 V Accuracy: $\pm 1.0\% + 5\text{LSD}$ (50 to 60 Hz)		Range: 0 to 1000 V Accuracy: $\pm 0.8\% + 5\text{LSD}$ (50 to 60 Hz) $\pm 1.5\% + 5\text{LSD}$ (20 to 200 Hz) $\pm 10\% + 5\text{LSD}$ (200 to 400 Hz)
DC Voltage	Range: 0 to 600.0 V Accuracy: $\pm 1.0\% + 5\text{LSD}$		Range: 0 to 600.0 V Accuracy: $\pm 1.0\% + 5\text{LSD}$		Range: 0 to 1000 V Accuracy: $\pm 0.8\% + 5\text{LSD}$
AC+DC Voltage	–	Range: 0 to 600.0 V Accuracy: $1.2\% \pm 7\text{LSD}$ (DC, 50 to 60 Hz)	–	Range: 0 to 600.0 V Accuracy: $1.2\% \pm 7\text{LSD}$ (DC, 50 to 60 Hz)	Range: 0 to 1000 V Accuracy: $\pm 1.0\% + 5\text{LSD}$ (50 to 60 Hz) $\pm 1.8\% + 7\text{LSD}$ (DC, 40 to 200 Hz) $\pm 12\% + 7\text{LSD}$ (200 to 400 Hz)
AC Current (True-RMS)	Range: 0 to 600.0 A Accuracy: $\pm 1.8\% + 5\text{LSD}$ (50 to 100 Hz) $\pm 2.0\% + 5\text{LSD}$ (100 to 400 Hz)		Range: 0 to 600.0 A Accuracy: $\pm 1.8\% + 5\text{LSD}$ (50 to 100 Hz) $\pm 2.0\% + 5\text{LSD}$ (100 to 400 Hz)		Range: 0 to 1000 A Accuracy: $\pm 1.8\% + 5\text{LSD}$ (40 to 100 Hz) $\pm 2.2\% + 5\text{LSD}$ (100 to 400 Hz)
DC Current	–	Range: 0 to 600.0 A Accuracy: $\pm 2.0\% + 5\text{LSD}$	–	Range: 0 to 600.0 A Accuracy: $\pm 2.0\% + 5\text{LSD}$	Range: 0 to 1000 A Accuracy: $\pm 1.8\% + 5\text{LSD}$
AC+DC Current	–	Range: 0 to 600.0 A Accuracy: $\pm 2.2\% + 7\text{LSD}$ (DC, 50 to 100 Hz) $\pm 2.7\% + 7\text{LSD}$ (100 to 400 Hz)	–	Range: 0 to 600.0 A Accuracy: $\pm 2.2\% + 7\text{LSD}$ (DC, 50 to 100 Hz) $\pm 2.7\% + 7\text{LSD}$ (100 to 400 Hz)	Range: 0 to 1000 A Accuracy: $\pm 2.2\% + 7\text{LSD}$ (DC, 40 to 100 Hz) $\pm 2.5\% + 7\text{LSD}$ (100 to 400 Hz)
Precise Low Current AC	Range: 0 to 60.00 A Accuracy: $\pm 1.5\% + 5\text{LSD}$ (50 to 60 Hz)		Range: 0 to 60.00 A Accuracy: $\pm 1.5\% + 5\text{LSD}$ (50 to 60 Hz)		Range: 0 to 60.00 A Accuracy: $\pm 1.5\% + 5\text{LSD}$ (0.00 to 20.00 A, 40 to 100 Hz) $\pm 2.0\% + 5\text{LSD}$ (0.00 to 20.00 A, 100 to 400 Hz) $\pm 3.0\% + 5\text{LSD}$ (20.00 to 60.00 A, 40 to 100 Hz) $\pm 3.0\% + 5\text{LSD}$ (20.00 to 60.00 A, 100 to 400 Hz)
Precise Low Current DC	–	Range: 0 to 60.00 A Accuracy: $\pm 2.0\% + 5\text{LSD}$	–	Range: 0 to 60.00 A Accuracy: $\pm 2.0\% + 5\text{LSD}$	Range: 0 to 60.00 A Accuracy: $\pm 1.5\% + 5\text{LSD}$ (0.00 to 20.00 A) $\pm 3.0\% + 5\text{LSD}$ (20.00 to 60.00 A)
Precise Low Current AC+DC	–	Range: 0 to 60.00 A Accuracy: $\pm 2.0\% + 5\text{LSD}$ (DC, 50 to 60 Hz)	–	Range: 0 to 60.00 A Accuracy: $\pm 2.0\% + 5\text{LSD}$ (DC, 50 to 60 Hz)	Range: 0 to 60.00 A Accuracy: $\pm 2.0\% + 7\text{LSD}$ (0.00 to 20.00 A, DC, 40 to 100 Hz) $\pm 2.2\% + 7\text{LSD}$ (0.00 to 20.00 A, 100 to 400 Hz) $\pm 3.0\% + 7\text{LSD}$ (20.00 to 60.00 A, DC, 40 to 100 Hz) $\pm 3.0\% + 7\text{LSD}$ (20.00 to 60.00 A, 100 to 400 Hz)
Frequency	Range: 5.00 to 999.9 Hz Accuracy: $\pm 1.0\% + 5\text{LSD}$ (600 V range) Range: 50.0 to 400.0 Hz Accuracy: $\pm 1.0\% + 5\text{LSD}$ (600 A range)		Range: 5.00 to 999.9 Hz Accuracy: $\pm 1.0\% + 5\text{LSD}$ (600 V range) Range: 50.0 to 400.0 Hz Accuracy: $\pm 1.0\% + 5\text{LSD}$ (600 A range)		Range: 5.00 to 999.9 Hz Accuracy: $\pm 1.0\% + 5\text{LSD}$ (1000 V range) Range: 40.0 to 400.0 Hz Accuracy: $\pm 1.0\% + 5\text{LSD}$ (1000 A range)
Resistance	Range: 0.0 to 60.00 k Ω Accuracy: $\pm 1.0\% + 5\text{LSD}$		Range: 0.0 to 60.00 k Ω Accuracy: $\pm 1.0\% + 5\text{LSD}$		
Capacitance	Range: 0.0 to 2500 μF Accuracy: $\pm 2.0\% + 4\text{LSD}$		Range: 0.0 to 2500 μF Accuracy: $\pm 2.0\% + 4\text{LSD}$		
Continuity Beeper	ON $\leq 10 \Omega$ OFF $> 250 \Omega$		ON $\leq 10 \Omega$ OFF $> 250 \Omega$		
Non-Contact Voltage	10V to 1000V AC, 50/60Hz		10V to 1000V AC, 50/60Hz		
True-RMS	•	•	•	•	•
Low Pass Filter	•	•	•	•	•
Autoranging	•	•	•	•	•
Relative Zero	•	•	•	•	•
MAX/MIN/AVG	•	•	•	•	•
Diode Test	•	•	•	•	•
Data Hold	•	•	•	•	•
Backlight	•	•	•	•	•
Auto Power Off	•	•	•	•	•
300 Series:					
DC Microamps	–	–	Range: 0.0 to 2000 μA Accuracy: $\pm 1.0\% + 5\text{LSD}$		
Temperature* (Type K thermocouple) *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 ($\pm 1.0\% + 3.0^\circ\text{F}$), >14.0 to 99.9°F ($\pm 1.0\% + 1.5^\circ\text{F}$) 100 to 752°F ($\pm 1.0\% + 2^\circ\text{F}$), -40.0 to -10.0°C ($\pm 1.0\% + 1.5^\circ\text{C}$) >-10.0 to 99.9°C ($\pm 1.0\% + 0.8^\circ\text{C}$), 100 to 400°C ($\pm 1.0\% + 1^\circ\text{C}$)		
3-Phase and Motor Rotation Indication	–	–	Rotation-R for mains supply Rotation-M for motors		
Inrush Current	–	–	•	•	•
Peak Hold (Crest)	–	–	–	–	•
Work Light	–	–	–	–	•



Model	AMP-210	AMP-220	AMP-310	AMP-320	AMP-330
Display	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
Polarity	Automatic	Automatic	Automatic	Automatic	Automatic
Update Rate	5 per second nominal	5 per second nominal	5 per second nominal	5 per second nominal	5 per second nominal
Operating Temperature	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)
Relative Humidity	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
Operating Altitude	0 to 2000 m	0 to 2000 m	0 to 2000 m	0 to 2000 m	0 to 2000 m
Pollution Degree	2	2	2	2	2
Storage Temperature	-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
Temperature Coefficient	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)
Battery	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
EMC	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
Safety Compliance	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
Certification	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
Dimensions (L x W x H):	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)
Weight:	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:					
User's Manual	•	•	•	•	•
Test Leads	•	•	•	•	•
Carrying Case	•	•	•	•	•
Batteries	AAA (2)		AAA (2)		AA (2)
Alligator Clip Set	–	–	•	•	•
Banana plug K-type Thermocouple	–	–	•	•	•

AMP-300 Series

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The Modern Evolution of the Professional Clamp Meter

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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



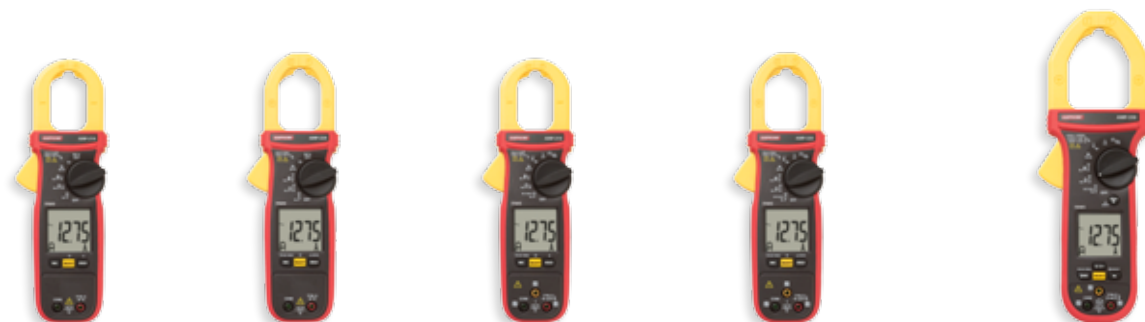
AMP-320 AC/DC Clamp Meter
Electrical Motor Maintenance



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
Safety Rating	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT IV 600 V, CAT III 1000 V
Jaw Opening	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)
AC Voltage (True-RMS)	Range: 0 to 600.0 V Accuracy: $\pm 1.0\% + 5\text{LSD}$ (50 to 60 Hz)		Range: 0 to 600.0 V Accuracy: $\pm 1.0\% + 5\text{LSD}$ (50 to 60 Hz)		Range: 0 to 1000 V Accuracy: $\pm 0.8\% + 5\text{LSD}$ (50 to 60 Hz) $\pm 1.5\% + 5\text{LSD}$ (20 to 200 Hz) $\pm 10\% + 5\text{LSD}$ (200 to 400 Hz)
DC Voltage	Range: 0 to 600.0 V Accuracy: $\pm 1.0\% + 5\text{LSD}$		Range: 0 to 600.0 V Accuracy: $\pm 1.0\% + 5\text{LSD}$		Range: 0 to 1000 V Accuracy: $\pm 0.8\% + 5\text{LSD}$
AC+DC Voltage	–	Range: 0 to 600.0 V Accuracy: $1.2\% \pm 7\text{LSD}$ (DC, 50 to 60 Hz)	–	Range: 0 to 600.0 V Accuracy: $1.2\% \pm 7\text{LSD}$ (DC, 50 to 60 Hz)	Range: 0 to 1000 V Accuracy: $\pm 1.0\% + 5\text{LSD}$ (50 to 60 Hz) $\pm 1.8\% + 7\text{LSD}$ (DC, 40 to 200 Hz) $\pm 12\% + 7\text{LSD}$ (200 to 400 Hz)
AC Current (True-RMS)	Range: 0 to 600.0 A Accuracy: $\pm 1.8\% + 5\text{LSD}$ (50 to 100 Hz) $\pm 2.0\% + 5\text{LSD}$ (100 to 400 Hz)		Range: 0 to 600.0 A Accuracy: $\pm 1.8\% + 5\text{LSD}$ (50 to 100 Hz) $\pm 2.0\% + 5\text{LSD}$ (100 to 400 Hz)		Range: 0 to 1000 A Accuracy: $\pm 1.8\% + 5\text{LSD}$ (40 to 100 Hz) $\pm 2.2\% + 5\text{LSD}$ (100 to 400 Hz)
DC Current	–	Range: 0 to 600.0 A Accuracy: $\pm 2.0\% + 5\text{LSD}$	–	Range: 0 to 600.0 A Accuracy: $\pm 2.0\% + 5\text{LSD}$	Range: 0 to 1000 A Accuracy: $\pm 1.8\% + 5\text{LSD}$
AC+DC Current	–	Range: 0 to 600.0 A Accuracy: $\pm 2.2\% + 7\text{LSD}$ (DC, 50 to 100 Hz) $\pm 2.7\% + 7\text{LSD}$ (100 to 400 Hz)	–	Range: 0 to 600.0 A Accuracy: $\pm 2.2\% + 7\text{LSD}$ (DC, 50 to 100 Hz) $\pm 2.7\% + 7\text{LSD}$ (100 to 400 Hz)	Range: 0 to 1000 A Accuracy: $\pm 2.2\% + 7\text{LSD}$ (DC, 40 to 100 Hz) $\pm 2.5\% + 7\text{LSD}$ (100 to 400 Hz)
Precise Low Current AC	Range: 0 to 60.00 A Accuracy: $\pm 1.5\% + 5\text{LSD}$ (50 to 60 Hz)		Range: 0 to 60.00 A Accuracy: $\pm 1.5\% + 5\text{LSD}$ (50 to 60 Hz)		Range: 0 to 60.00 A Accuracy: $\pm 1.5\% + 5\text{LSD}$ (0.00 to 20.00 A, 40 to 100 Hz) $\pm 2.0\% + 5\text{LSD}$ (0.00 to 20.00 A, 100 to 400 Hz) $\pm 3.0\% + 5\text{LSD}$ (20.00 to 60.00 A, 40 to 100 Hz) $\pm 3.0\% + 5\text{LSD}$ (20.00 to 60.00 A, 100 to 400 Hz)
Precise Low Current DC	–	Range: 0 to 60.00 A Accuracy: $\pm 2.0\% + 5\text{LSD}$	–	Range: 0 to 60.00 A Accuracy: $\pm 2.0\% + 5\text{LSD}$	Range: 0 to 60.00 A Accuracy: $\pm 1.5\% + 5\text{LSD}$ (0.00 to 20.00 A) $\pm 3.0\% + 5\text{LSD}$ (20.00 to 60.00 A)
Precise Low Current AC+DC	–	Range: 0 to 60.00 A Accuracy: $\pm 2.0\% + 5\text{LSD}$ (DC, 50 to 60 Hz)	–	Range: 0 to 60.00 A Accuracy: $\pm 2.0\% + 5\text{LSD}$ (DC, 50 to 60 Hz)	Range: 0 to 60.00 A Accuracy: $\pm 2.0\% + 7\text{LSD}$ (0.00 to 20.00 A, DC, 40 to 100 Hz) $\pm 2.2\% + 7\text{LSD}$ (0.00 to 20.00 A, 100 to 400 Hz) $\pm 3.0\% + 7\text{LSD}$ (20.00 to 60.00 A, DC, 40 to 100 Hz) $\pm 3.0\% + 7\text{LSD}$ (20.00 to 60.00 A, 100 to 400 Hz)
Frequency	Range: 5.00 to 999.9 Hz Accuracy: $\pm 1.0\% + 5\text{LSD}$ (600 V range) Range: 50.0 to 400.0 Hz Accuracy: $\pm 1.0\% + 5\text{LSD}$ (600 A range)		Range: 5.00 to 999.9 Hz Accuracy: $\pm 1.0\% + 5\text{LSD}$ (600 V range) Range: 50.0 to 400.0 Hz Accuracy: $\pm 1.0\% + 5\text{LSD}$ (600 A range)		Range: 5.00 to 999.9 Hz Accuracy: $\pm 1.0\% + 5\text{LSD}$ (1000 V range) Range: 40.0 to 400.0 Hz Accuracy: $\pm 1.0\% + 5\text{LSD}$ (1000 A range)
Resistance	Range: 0.0 to 60.00 k Ω Accuracy: $\pm 1.0\% + 5\text{LSD}$		Range: 0.0 to 60.00 k Ω Accuracy: $\pm 1.0\% + 5\text{LSD}$		
Capacitance	Range: 0.0 to 2500 μF Accuracy: $\pm 2.0\% + 4\text{LSD}$		Range: 0.0 to 2500 μF Accuracy: $\pm 2.0\% + 4\text{LSD}$		
Continuity Beeper	ON $\leq 10 \Omega$ OFF $> 250 \Omega$		ON $\leq 10 \Omega$ OFF $> 250 \Omega$		
Non-Contact Voltage	10V to 1000V AC, 50/60Hz		10V to 1000V AC, 50/60Hz		
True-RMS	•	•	•	•	•
Low Pass Filter	•	•	•	•	•
Autoranging	•	•	•	•	•
Relative Zero	•	•	•	•	•
MAX/MIN/AVG	•	•	•	•	•
Diode Test	•	•	•	•	•
Data Hold	•	•	•	•	•
Backlight	•	•	•	•	•
Auto Power Off	•	•	•	•	•
300 Series:					
DC Microamps	–	–	Range: 0.0 to 2000 μA Accuracy: $\pm 1.0\% + 5\text{LSD}$		
Temperature* (Type K thermocouple) *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 ($\pm 1.0\% + 3.0^\circ\text{F}$), >14.0 to 99.9°F ($\pm 1.0\% + 1.5^\circ\text{F}$) 100 to 752°F ($\pm 1.0\% + 2^\circ\text{F}$), -40.0 to -10.0°C ($\pm 1.0\% + 1.5^\circ\text{C}$) >-10.0 to 99.9°C ($\pm 1.0\% + 0.8^\circ\text{C}$), 100 to 400°C ($\pm 1.0\% + 1^\circ\text{C}$)		
3-Phase and Motor Rotation Indication	–	–	Rotation-R for mains supply Rotation-M for motors		
Inrush Current	–	–	•	•	•
Peak Hold (Crest)	–	–	–	–	•
Work Light	–	–	–	–	•



Model	AMP-210	AMP-220	AMP-310	AMP-320	AMP-330
Display	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
Polarity	Automatic	Automatic	Automatic	Automatic	Automatic
Update Rate	5 per second nominal	5 per second nominal	5 per second nominal	5 per second nominal	5 per second nominal
Operating Temperature	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)
Relative Humidity	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
Operating Altitude	0 to 2000 m	0 to 2000 m	0 to 2000 m	0 to 2000 m	0 to 2000 m
Pollution Degree	2	2	2	2	2
Storage Temperature	-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
Temperature Coefficient	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)
Battery	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
EMC	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
Safety Compliance	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
Certification	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
Dimensions (L x W x H):	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)
Weight:	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:					
User's Manual	•	•	•	•	•
Test Leads	•	•	•	•	•
Carrying Case	•	•	•	•	•
Batteries	AAA (2)		AAA (2)		AA (2)
Alligator Clip Set	–	–	•	•	•
Banana plug K-type Thermocouple	–	–	•	•	•