

AEMC® Instruments

1000 V CAT IV
Clamp-on Meters



TEquipment.NET
An Interworld Highway, LLC Company

USA

AEMC ONE SOURCE®
For All Your Electrical Test & Measurement Instruments

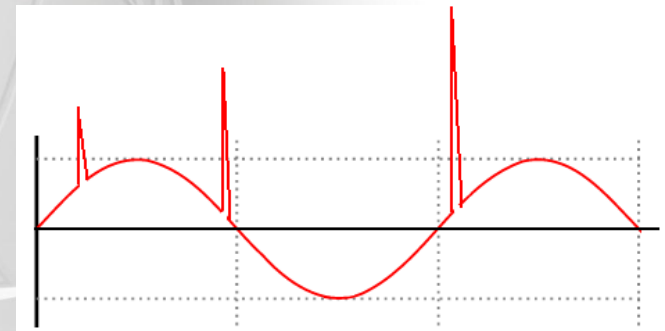
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WHAT IS CAT IV RATING???

Test instruments are rated on their ability to withstand a voltage impulse, which is applied through a specified level of resistance (See table).

The ratings are broken down by categories — CAT I, II, III, and IV.

Rated voltage	IEC 61010-1 2nd Edition			UL 61010B-1 (UL 3111-1)		
	CAT IV	CAT III	CAT II	CAT III	CAT II	CAT I
150V	4,000V	2,500V	1,500V	2,500V	1,500V	800V
300V	6,000V	4,000V	2,500V	4,000V	2,500V	1,500V
600V	8,000V	6,000V	4,000V	6,000V	4,000V	2,500V
1,000V	12,000V	8,000V	6,000V	8,000V	6,000V	4,000V
Resistance	2 ohms	2 ohms	12 ohms	2 ohms	12 ohms	30 ohms



CAT IV-rated test instruments are designed for testing on the primary supply source, which also includes 120V or 240V overhead or underground lines that power detached buildings or underground lines that power well pumps. The CAT IV rating covers the highest and most dangerous level of transient overvoltage electricians encounter when working on utility service equipment like exterior transformers

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WHAT IS it so important???

Category	Description
CAT I	At the signal level, parts of an electronic equipment
CAT II	Portable equipment, appliances, at local level environment
CAT III	At a fixed installation, distribution level of AC main power
CAT IV	Outside of a building, main power line at service level

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Models

Two product groups

400 series

Models 401 and 403 are general purpose measures to 1000VAC/1400VDC and 1000AAC/1500ADC
Models 405 and 407 also measures Power and Harmonics measures to 1000VAC/1400VDC and 1000AAC/1500ADC



600 series

Models 601 and 603 are general purpose measures to 1000VAC/1400VDC and 2000AAC/3000ADC
Models 605 and 607 also measures Power and Harmonics measures to 1000VAC/1400VDC and 2000AAC/3000ADC

The models 407 and 607 employ Bluetooth communication

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General purpose Clamps



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Power Clamps



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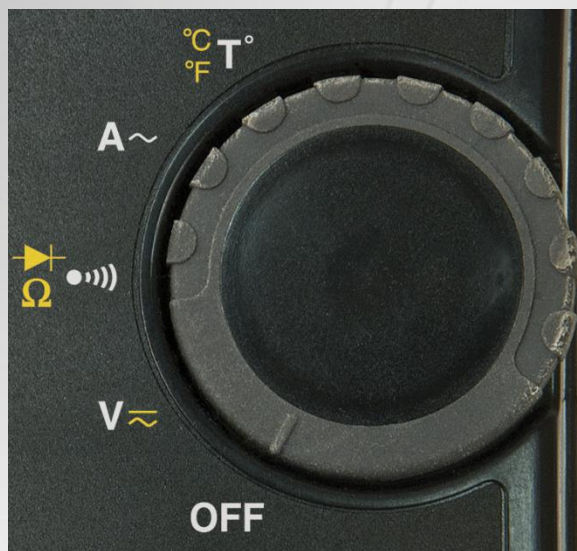
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Model 401 Functions

Measures to 1000VAC/1400VDC and 1000AAC/1500ADC



Switch positions



Push Buttons



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Model 403 Functions

Measures to 1000VAC/1400VDC and 1000AAC/1500ADC



Switch positions



Push Buttons



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Model 405 Functions

Measures to 1000VAC/1400VDC and 1000AAC/1500ADC
Measures Power and Harmonics



Switch positions



Push Buttons



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Model 407 Functions

Measures to 1000VAC/1400VDC and 1000AAC/1500ADC
Records up to 1000 measurements at user selectable storage rates from 1 to 600 sec/sample
Measures Power and Harmonics



Switch positions



Push Buttons



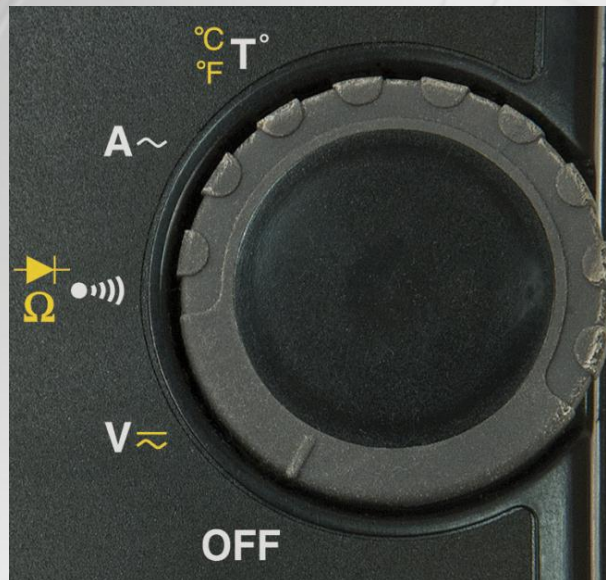
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Model 601 Functions

Measures to 1000VAC/1044VDC and 2000AAC/3000ADC



Switch positions



Push Buttons



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Model 603 Functions

Measures to 1000VAC/1400VDC and 2000AAC/3000ADC

Switch positions

Push Buttons



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Model 605 Functions

Measures to 1000VAC/1400VDC and 2000AAC/3000ADC

Measures Power and Harmonics



Switch positions



Push Buttons



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Model 607 Functions

Measures to 1000VAC/1400VDC and 2000AAC/3000ADC

Records up to 1000 measurements at user selectable storage rates from 1 to 600 sec/sample

Measures Power and Harmonics



Switch positions



Push Buttons



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401,403,601,603 Specifications



MODELS	401	403	601	603
ELECTRICAL				
Type of Acquisition	TRMS (AC)	TRMS (AC)/DC	TRMS (AC)	TRMS (AC)/DC
Autorange	Yes	Yes	Yes	Yes
Automatic AC/DC Detection	-	Yes	-	Yes
A AC	0.15 to 1000A (1500A peak)	-	0.15 to 2000A (3000A peak)	-
A DC	-	0.15 to 1500A	-	0.15 to 3000A
A AC+DC	-	-	-	-
Best Accuracy	-	1% of Reading + 3 counts	-	-
V AC	-	0.15 to 1000V (1400V peak)	-	-
V DC	-	0.15 to 1400V	-	-
V AC+DC	-	-	-	-
Best Accuracy	-	-	-	-
Hz	-	Current: 5.0Hz to 2000Hz Voltage: 5.0Hz to 20.0kHz	-	-
Ohm	-	0.1 Ω to 99.99k Ω	-	-
Open Circuit Voltage	-	\leq 8V	-	-
Measurement Current	-	\leq 680 μ A	-	-
Audible Continuity	-	Yes	-	-
Continuity Threshold	-	Adjustable from 1 to 999 Ω	-	-
Diode Test (semiconductor junction)	-	Yes	-	-
Temperature (K type)	-	-60 to +1000°C (-76 to +1832°F)	-	-
Single-phase and Total Three-phase Power Values	-	Yes	-	-
Active Power	-	-	-	-
Reactive Power	-	-	-	-
Apparent Power	-	-	-	-
FP / DPF	-	-	-	-
Harmonic Analysis	-	-	-	-
THDf / THDr	-	-	-	-
Frequency Analysis	-	-	-	-
Phase Rotation (2-wire method)	-	-	-	-
True InRush (overcurrent measurement)	-	Yes	-	-
Motor Inrush	-	Yes	-	-
Load Change	-	Yes	-	-
Hold	-	Yes	-	-
Min. / Max.	-	Yes	-	-
Peak+ / Peak-	-	-	-	-
RELATIVE Δ X / Differential Δ X/X (%)	-	Yes / Yes	-	Yes / Yes
MECHANICAL				
Clamping Diameter	1.89" (48mm)	-	2.36" (60mm)	-
Display	-	Backlit LCD	-	-
Resolution	-	10,000 counts	-	-
Number of Values Displayed	-	1	-	-
Auto Power Off	-	Yes	-	-
Data Recording	-	-	-	-
Communication Interface	-	-	-	-
Electrical Safety as per IEC 61010	-	1000V CAT IV; 1000V CAT III	-	-
Power Supply	-	4 x 1.5V AA	-	-
Dimensions & Weight	3.62 x 10.70 x 1.61" (92 x 272 x 41mm) / 600g	-	4.37 x 11.65 x 1.61" (111 x 296 x 41mm) / 640g	-

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405,407,605,607, Specifications



MODELS	405	407	605	607
ELECTRICAL				
Type of Acquisition	TRMS (AC)	TRMS (AC, AC+DC)/DC	TRMS (AC, AC+DC)/DC	TRMS (AC, AC+DC)/DC
Autorange	Yes	Yes	Yes	Yes
Automatic AC/DC Detection	-	Yes	Yes	Yes
A AC	0.15 to 1000A (1500A peak)		0.15 to 2000A (3000A peak)	
A DC		0.15 to 1500A		0.15 to 3000A
A AC+DC	0.15 to 1000A (1500A peak)		0.15 to 2000A (3000A peak)	
Best Accuracy		1% of Reading + 3 counts		
V AC		0.15 to 1000V (1400V peak)		
V DC		0.15 to 1400V		
V AC+DC		0.15 to 1000V (1400V peak)		
Best Accuracy		1% of Reading + 3 counts		
Hz	Current: 5.0 Hz to 2000 Hz Voltage: 5.0 Hz to 20.00 kHz		Current: 5.0Hz to 1000Hz Voltage: 5.0Hz to 20.00kHz	
Ohm		0.1Ω to 99.99kΩ		
Open Circuit Voltage Measurement Current		≤ 6V ≤ 680μA		
Audible Continuity		Yes		
Continuity Threshold	Adjustable from 1 to 999Ω	40Ω	Adjustable from 1 to 999Ω	40Ω
Diode Test (semiconductor junction)	Yes	No	Yes	No
Temperature (K type)				
Single-phase and Total Three-phase Power Values			Yes	
Active Power		1W to 1000kW		1W to 2000kW
Reactive Power		1var to 1000kvar		1 var to 2000kvar
Apparent Power		1VA to 1000kVA		1 VA to 2000kVA
FP / DPF	Yes / No	Yes / Yes	Yes / No	Yes / Yes
Harmonic Analysis				
THDf / THDr	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
Frequency Analysis	No	25th order	No	25th order
Phase Rotation (2-wire method)	Yes	-	Yes	-
True InRush (overcurrent measurement)			Yes	
Motor Inrush			Yes	
Load Change			Yes	
Hold			Yes	
Min. / Max.			Yes	
Peak+ / Peak-			Yes	
RELATIVE ΔX / Differential ΔX/X (%)	-	Yes / Yes	-	Yes / Yes
MECHANICAL				
Clamping Diameter	1.89" (48mm)		2.36" (60mm)	
Display			Backlit LCD	
Resolution			10,000 counts	
Number of Values Displayed	1	3	1	3
Auto Power Off			Yes	
Data Recording	-	Yes	-	Yes
Communication Interface	-	Bluetooth communication	-	Bluetooth communication
Electrical Safety as per IEC 61010	1000V CAT IV; 1000V CAT III			
Power Supply	4 x 1.5V AA			
Dimensions & Weight	3.62 x 10.70 x 1.61" (92 x 272 x 41mm) / 600g		4.37 x 11.65 x 1.61" (111 x 296 x 41mm) / 640g	

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Function	401	403	405	407	601	603	605	607
Display Count	10000	10000	10000	10000	10000	10000	10000	10000
VAC	1000	1000	1000	1000	1000	1000	1000	1000
VDC	---	1400	1400	1400	1400	1400	1400	1400
AAC	1000	1000	1000	1000	2000	2000	2000	2000
ADC	---	1500	1500	1500	---	3000	3000	3000
	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Hz	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ω /Cont	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Temp	Yes	Yes	No	No	Yes	Yes	No	No
Adp	No	Yes	No	No	No	Yes	No	No
Power 1 & 3 θ	No	No	W, VA, PF	W,VAR VA, PF	No	NO	W, VA, PF	W,VAR VA, PF
Phase Rotation	No	No	Yes	No	No	No	Yes	No
InRush	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Function Chart Selection Guide

AEMC[®] Instruments

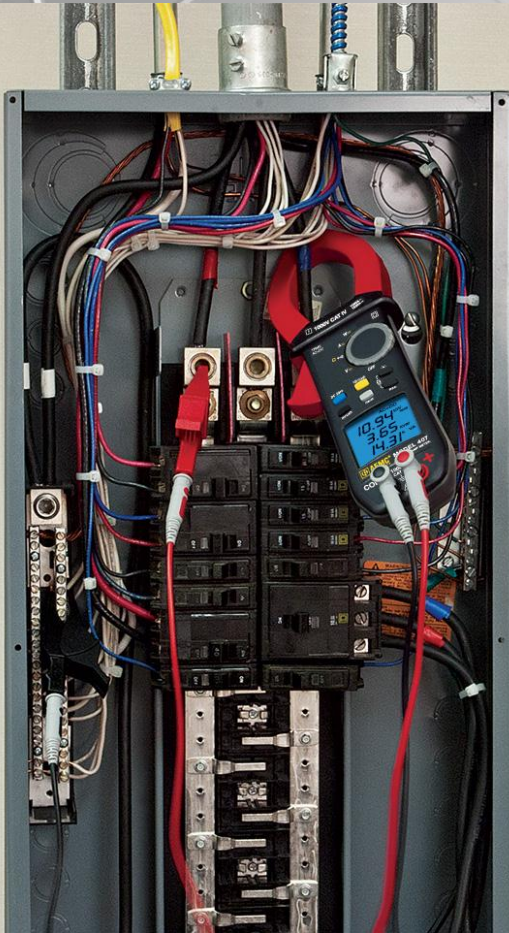
Function	401	403	405	407	601	603	605	607
Harmonics	No	No	THD	Yes to 25th	No	No	THD	Yes to 25th
Fundamental Frequency	-	-	40-70hZ	40-70 & 400 Hz	-	-	40-70 hZ	40-70 & 400 Hz
CF	No	No		Yes	No	No		Yes
THDf & THDr	No	No	Yes	Yes	No	No	Yes	Yes
Delta Rel	No	Yes	Yes	No	No	Yes	Yes	No
Min/Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Peak +/-	No	No	Yes	Yes	No	No	Yes	Yes
Hold	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Datalogger	No	No	No	1000 points	No	No	No	1000 points
Comm	No	No	No	Bluetooth	No	No	No	Bluetooth
Backlight	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Auto Off	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Function Chart Selection Guide

Glossary of Terms

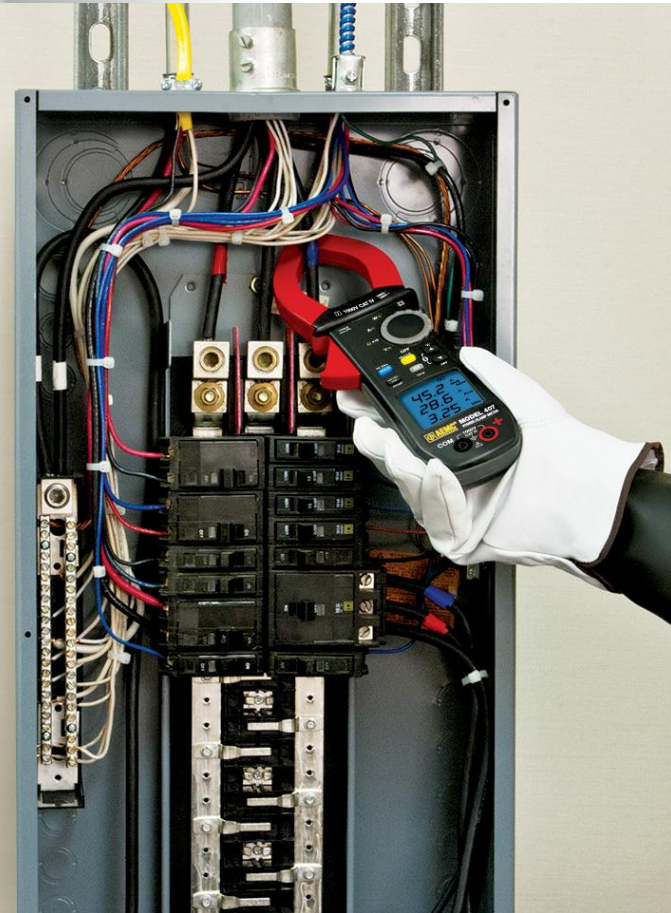
- Volt..... True RMS AC, DC, AC + DC (Ripple).**
- Amps..... AC only (C.T.) AC/DC (Hall effect device).**
- Ripple..... The quality of rectified AC voltage expressed in a percentage.**
- W..... Apparent Power (Volts X Amps).
Real Power (Volts X Amps X COS θ).
Reactive Power (Volts X Amps Reactive).**
- Min/Max..... Highest & Lowest RMS Voltage or Current.**
- Peak..... Instantaneous (1ms) maximum Voltage or current.**
- Harmonics.... Multiple frequencies within 50 or 60Hz fundamental (400Hz selectable).**
- THD..... Total Harmonic Distortion as expressed as a $\sqrt{\Sigma^2 H_m}$ / Fundamental $^2=$ %.**
- True Inrush... Several types:
Start up (Motor start and End).
Maximum instantaneous (RMS $\frac{1}{2}$ Cycle)
Maximum due to load changes.**
- Recording..... Automatically stores the Max, Min, Average of Voltage, Current & Power.**
- Auto Shut-off. Selectable, Automatic after 10 minutes inactivity with 5 “Beep” warning**

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Use as a traditional
clamp meter

Use as a wireless
communicating
power meter



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Clamp-On Multimeters

400 & 600 Series



Users can be sure of working in total safety with 1000V CAT IV ratings

- ▶ 1000V CAT IV Rated
- ▶ UL 94 Flame retardant self extinguishing
- ▶ Agency Approved by UL, CSA, VDE, GS (TUV)
- ▶ RoHS compliant
- ▶ IP54 Rated
- ▶ 10,000 count Blue electroluminescent backlit display
- ▶ Measure's up to 1000V AC, DC and AC+DC with resolution to 10mV
- ▶ Measures up to 2000 Amps AC, 3000 Amps DC
- ▶ Measures Single and three phase power (Real, Reactive and Apparent) up to 3MW with resolution to 1W
- ▶ Measures Frequency to 20kHz with 0.1Hz resolution (model dependent)
- ▶ Auto selects AC or DC measurement
- ▶ InRush current measurement with 1ms capture
- ▶ Measures Harmonics up to the 25th
- ▶ Phase rotation indication
- ▶ Records up to 1000 measurements
- ▶ Jaw opening up to 2.35"

Our products are backed by over 100 years of experience in test and measurement equipment, and encompass the latest international standards for quality and safety.

Technical Hotline: (800) 343-1391
www.aemc.com



Pricing

<u>Model</u>	<u>Catalog No.</u>	<u>List Price</u>
401	2139.20	\$309.00
403	2139.21	\$329.00
405	2139.50	\$350.00
407*	2139.51	\$450.00
601	2139.30	\$411.00
603	2139.39	\$450.00
605	2139.60	\$490.00
607*	2139.61	\$550.00

* Blue Tooth

All models 3 Year Warranty

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Strategic Advantages

- ✓ 1000V CAT IV rated – no competitor has this
- ✓ 2000 Amp AC 3000 ADC – no competitors in this price range
- ✓ AC+DC measurement (can measure ripple on a DC signal)
- ✓ IP54 rated
- ✓ Measures real, apparent and reactive power to 3 MW with 1W resolution with 1 and 3 phase display
- ✓ 40 to 70 and 400Hz fundamental reference for harmonic measurements
- ✓ Bluetooth communication
- ✓ Stores up to 1,000 measurements with user programmable storage rates
- ✓ InRush measurement with 1mS response time
- ✓ Phase rotation measurement
- ✓ Agency approvals pending UL, CSA, VDE,GS and TUV
- ✓ UL 94VO flame retardant/self extinguishing plastic
- ✓ RoHS (Lead Free) compliance pending

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MARKETING

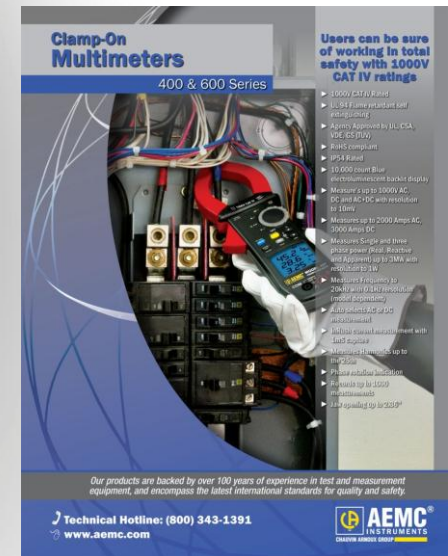
Availability

Brochure
Web listing
Inventory
Launch

March
March
End March
End March

Competition

NONE with this capability



Clamp-On Multimeters
400 & 600 Series

Users can be sure of working in total safety with 1000V CAT IV ratings

- ▶ 1000V CAT IV Rating
- ▶ 1000V True RMS and real time monitoring
- ▶ Agency Approved by UL, CSA, IEC, BS, CE, etc.
- ▶ RoHS compliant
- ▶ IP54 Rated
- ▶ 10,000 count blue backlit measurement backlit display
- ▶ Measure AC up to 1000V AC, DC and AC+DC with resolution to 10mV
- ▶ Measure up to 2000 Amps AC, 2000 Amps DC
- ▶ Measures Single and three phase power (Watt, Reactive and Apparent) up to 100kVA (3 phase)
- ▶ Measure Frequency to 20kHz (True RMS) and True Peak Frequency
- ▶ Auto shutdown for power measurement
- ▶ Built-in auto measurement with built-in fuse
- ▶ Measurement range up to 1000V
- ▶ High and low impedance
- ▶ Holds up to 1000 measurements
- ▶ Powered up to 2000V

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INSTRUMENTS
CLAMP-ON METER GROUP

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**This concludes the Webinar
on the
CAT IV 1000V Clamp-on Meter Products**

*Thank you
for your
Participation!*