

# General Purpose & Power Clamp-On Meters

400 & 600 Series

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

- ▶ 1000V CAT IV Rated
- ▶ UL 94 IV flame retardant self-extinguishing
- ▶ IP54 Rated
- ▶ 10,000 count blue electroluminescent backlit display
- ▶ Measures up to 1000V<sub>ac</sub> (1400V peak); (1000V<sub>dc</sub> and AC+DC with resolution to 10mV model dependent)
- ▶ Measures up to 2000A<sub>ac</sub> and 3000A<sub>dc</sub> (model dependent)
- ▶ Measures single- and three-phase power (real, reactive and apparent) up to 3MW with resolution to 1W (model dependent)
- ▶ Auto selects AC or DC measurement
- ▶ **True InRush**<sup>®</sup> current measurement with 1mS capture
- ▶ Measures harmonics up to the 25th (Models 407 & 607)
- ▶ Records up to 1000 measurements (Models 407 & 607)
- ▶ Leads are constructed with a flexible silicone material



*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**

 **AEMC**<sup>®</sup>  
INSTRUMENTS  
CHAUVIN ARNOUX GROUP



The **TRMS Clamp-On Meter Models 400 & 600 Series** provide a new standard for safety and measurement capability not available in any other clamp meter sold today. Safety rated at 1000V CAT IV, they are safe to operate in all electrical environments. They are rugged enough for the most demanding work environments and will withstand both dust and water spray with their IP54 rating. They are ergonomically designed and easily used by one hand, including function selection and button pushing

even with a glove on. In addition to the standard measurement of volts, amps, frequency, resistance, diode checking and continuity, the Models 401, 403, 601 & 603 offer several unequalled functions.

### True InRush®

Unlike other instruments which only measure the InRush when the installation is first powered up, the Models 401, 403, 601 & 603 measure all types of InRush, even those due to load increases on an installation which is already up and running. **This is an exclusive AEMC® feature.** Both peak and RMS InRush values are captured at a 1ms sample rate and 100ms duration windows.

### Adapter Function (Models 403 & 603)

Provides the ability to directly display measurements from any device that has a millivolt output in either AC or DC.

### Delta Relative Function (Models 403 & 603)

Allows a base measurement to be set as the reference with all future measurements displayed as a + or – deviation from that value.

### Other Functions Include

Temperature measurement using a K-type thermocouple, Min/Max monitoring of measurement from any function position and a Hold function to retain the last reading. A truly unique meter focused on user safety, as well as measurement performance.

## ▶ FEATURES

- ▶ 1000V CAT IV Rated
- ▶ UL 94 VI flame retardant self-extinguishing
- ▶ IP54 Rated
- ▶ 10,000 count blue electroluminescent backlit display
- ▶ Measures up to 1000V<sub>AC</sub> (1400V peak), 1000V<sub>DC</sub> and AC+DC with resolution to 10mV
- ▶ Measures up to 2000A<sub>AC</sub> and 3000A<sub>DC</sub> (model dependent)
- ▶ Measures frequency to 20kHz with 0.1Hz resolution
- ▶ Auto selects AC or DC measurement voltage
- ▶ True InRush® current measurement with 1mS capture
- ▶ Jaw opening up to 1.89" (400 series) and up to 2.36" (600 series)
- ▶ Leads are constructed with a flexible silicone material



*Includes set of color-coded silicone insulated test leads, test probes and alligator clips, K-thermocouple with 4mm integrated adapter, soft carrying case, four 1.5V AA batteries and user manual*


ORDERING INFORMATION	CATALOG NO.
Clamp-On Meter Model 401 (TRMS, 1000V <sub>AC</sub> /DC, 1000A <sub>AC</sub> , Ohms, Continuity, Temperature)	Cat. #2139.20
Clamp-On Meter Model 403 (TRMS, 1000V <sub>AC</sub> /DC, 1000A <sub>AC</sub> /1500A <sub>DC</sub> , Ohms, Continuity, Temperature)	Cat. #2139.21
Clamp-On Meter Model 601 (TRMS, 1000V <sub>AC</sub> /DC, 2000A <sub>AC</sub> , Ohms, Continuity, Temperature)	Cat. #2139.30
Clamp-On Meter Model 603 (TRMS, 1000V <sub>AC</sub> /DC, 2000A <sub>AC</sub> /3000A <sub>DC</sub> , Ohms, Continuity, Temperature)	Cat. #2139.31

# SPECIFICATIONS


MODELS	401	403	601	603
<b>ELECTRICAL</b>				
Measurement Method	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
Best Accuracy	1% of Reading + 3 cts			
V AC	0.15 to 1000V (1400V peak)			
V DC	0.15 to 1400V			
Hz	Current: 5.0 to 2000Hz Voltage: 5.0 to 20.00kHz			
Ohm	0.1Ω to 99.99kΩ			
Open Circuit Voltage	≤ 8V			
Measurement Current	≤ 680μA			
Audible Continuity	Yes			
Continuity Threshold	Adjustable from 1 to 999Ω			
Diode Test (semiconductor junction)	Yes			
Temperature (K-type)	-76 to +1832°F (-60 to +1000°C)			
True InRush® (overcurrent measurement)	Yes			
Motor InRush	Yes			
Load Change	Yes			
Hold	Yes			
Min / Max	Yes			
RELative ΔX / Differential ΔX/X (%)	-	Yes / Yes	-	Yes / Yes
<b>MECHANICAL</b>				
Jaw Opening	1.89" (48mm)		2.36" (60mm)	
Display Resolution	10,000 cts			
Display Backlighting	Backlit LCD			
Measurements Displayed	x1			
Auto Power Off	Yes			
Electrical Safety as per IEC 61010	1000V CAT IV			
Power Supply	Four 1.5V AA			
Dimensions & Weight	10.70 x 3.62 x 1.61" (272 x 92 x 41mm) / 600g		11.65 x 4.37 x 1.61" (296 x 111 x 41mm) / 640g	

## CONSTRUCTION

### ▶ 400 Series




Typical one line digital display (Models 401, 403 & 405)




Typical three line digital display (Model 407)


### ▶ 600 Series



Typical one line digital display (Models 601, 603 & 605)



Typical three line digital display (Model 607)



Jaw assembly 1.89" (48mm)

Rotary range selector switch

Lever for jaw opening/closing


Function buttons:

- Hold
- Harmonics
- Backlight
- Min/Max
- Frequency
- Record\*

Backlit LCD display

COM (Black) - input jack

Positive (Red) + input jack



Jaw assembly 2.36" (60mm)

Rotary range selector switch

Lever for jaw opening/closing

Function buttons:

- Hold
- Harmonics
- Backlight
- Min/Max
- Frequency
- Record\*

Backlit LCD display

COM (Black) - input jack

Positive (Red) + input jack



The **TRMS Clamp-On Meter Models 400 & 600 Series** provide a new standard for safety and measurement capability not available in any other clamp meter sold today. Safety rated at 1000V CAT IV, they are safe to operate in all electrical environments. They are rugged enough for the most demanding work environments and will withstand both dust and water spray with their IP54 rating. They are ergonomically designed

and easily used by one hand, including function selection and button pushing even with a glove on. In addition to the standard measurement of volts, amps, frequency, resistance, diode checking and continuity, the Models 405, 407, 605 & 607 offer several unequalled functions.

#### True InRush®

Unlike other instruments which only measure the InRush when the installation is first powered up, the Models 405, 407, 605 & 607 measure all types of InRush, even those due to load increases on an installation which is already up and running. **This is an exclusive AEMC® feature.** Both peak and RMS InRush values are captured at a 1ms sample rate and 100ms duration windows.

**Power measurements** are available for Watts, VARs and VA, including Min and Max tracking. The Models 405, 407, 605 & 607 also have the unique capability to display single- and three-phase power measurements. Total Harmonic Distortion both total and referenced to the fundamental are also available taking in harmonic frequencies to the 25<sup>th</sup> order.

**Harmonic analysis** on individual harmonics is available up to the 25<sup>th</sup> harmonic of either 50 or 60Hz fundamental and up to the 7<sup>th</sup> harmonic on a 400Hz fundamental.

**Data logging** is a standard feature in the Models 407 & 607.

Up to 1000 measurements can be stored from any of the function positions. Max, Min and present values are stored each time. Storage rate is programmable from 1 per second to 1 every 600 seconds. Communication to the PC is wireless via *Bluetooth*. Graphing and analysis of the data is accomplished by a comprehensive software package called DataView®.

**Other functions include** Power Factor, Min/Max monitoring of measurement from any function position and Peak +/- display is available. A Hold function is provided to retain the last reading on any of the functions. A truly unique meter focused on user safety, as well as measurement performance.

## ▶ FEATURES

- ▶ 1000V CAT IV Rated
- ▶ UL 94 VI flame retardant self-extinguishing
- ▶ IP54 Rated
- ▶ 10,000 count blue electroluminescent backlit display
- ▶ Measures up to 1000VAC (1400V peak), 1000VDC and AC+DC with resolution to 10mV
- ▶ Measures up to 2000AAC and 3000ADC (Models 605 & 607)
- ▶ Measures single- and three-phase power (real, reactive and apparent) up to 3MW with resolution to 1W
- ▶ Measures frequency up to 20kHz with 0.1Hz resolution
- ▶ Auto selects AC or DC measurement
- ▶ True *InRush*® current measurement with 1mS capture
- ▶ Measures harmonics up to the 25<sup>th</sup> (Models 407 & 607)
- ▶ Records up to 1000 measurements (Models 407 & 607)
- ▶ *Bluetooth* communication (Models 407 & 607)
- ▶ Includes FREE DataView® software for download and report generation (Models 407 & 607)
- ▶ Jaw opening up to 1.89" (400 series) and up to 2.36" (600 series)
- ▶ Leads are constructed with a flexible silicone material



Includes set of two color-coded silicone insulated test leads, test probes and alligator clips, hard carrying case, four 1.5V AA batteries and safety information sheet.

DataView® software and \*Bluetooth adapter are included with Models 407 & 607 only

# SPECIFICATIONS

MODELS	405	407	605	607
<b>ELECTRICAL</b>				
Measurement Method	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 cts			
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 cts			
Hz	Current: 5.0 to 2000Hz Voltage: 5.0 to 20.00kHz		Current: 5.0 to 2000Hz Voltage: 5.0 to 20.00kHz	
Ohm	0.1 $\Omega$ to 99.99k $\Omega$			
Open Circuit Voltage	$\leq 8V$			
Measurement Current	$\leq 680\mu A$			
Audible Continuity	Yes			
Continuity Threshold	Adjustable from 1 to 999 $\Omega$	40 $\Omega$	Adjustable from 1 to 999 $\Omega$	40 $\Omega$
Diode Test (semiconductor junction)	Yes	–	Yes	–
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	Yes	Yes	Yes	Yes
THDf / THDr	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
Frequency Analysis	–	25 <sup>th</sup> order	–	25 <sup>th</sup> 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 $\Delta X$ / Differential $\Delta X/X$ (%)	–	Yes / Yes	–	Yes / Yes
<b>MECHANICAL</b>				
Jaw Opening	1.89" (48mm)		2.36" (60mm)	
Display Resolution	10,000 cts			
Display Backlighting	Backlit LCD			
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			
Power Supply	Four 1.5V AA			
Dimensions & Weight	10.70 x 3.62 x 1.61" (272 x 92 x 41mm) / 600g		11.65 x 4.37 x 1.61" (296 x 111 x 41mm) / 640g	

## ORDERING INFORMATION

## CATALOG NO.

Clamp-On Meter Model 405 (TRMS, 1000V <sub>AC/DC</sub> , 1000A <sub>AC</sub> /1500A <sub>DC</sub> , Ohms, Continuity, Power, THD)	Cat. #2139.50
Power Clamp-On Meter Model 407 (TRMS, 1000V <sub>AC/DC</sub> , 1000A <sub>AC</sub> /1500A <sub>DC</sub> , Ohms, Continuity, Energy, Harmonics, Power, THD, Recording)	Cat. #2139.51
Clamp-On Meter Model 605 (TRMS, 1000V <sub>AC/DC</sub> , 2000A <sub>AC</sub> /3000A <sub>DC</sub> , Ohms, Continuity, Power, THD)	Cat. #2139.60
Power Clamp-On Meter Model 607 (TRMS, 1000V <sub>AC/DC</sub> , 2000A <sub>AC</sub> /3000A <sub>DC</sub> , Ohms, Continuity, Energy, Harmonics, Power, THD, Recording)	Cat. #2139.61

# DataView®

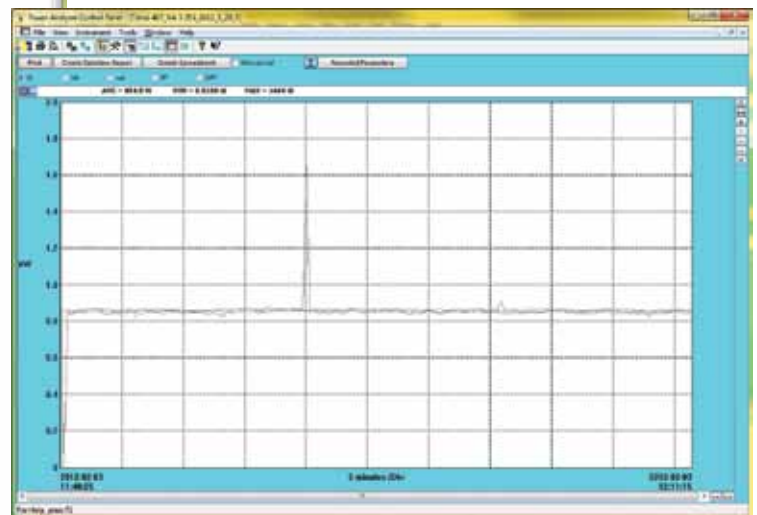
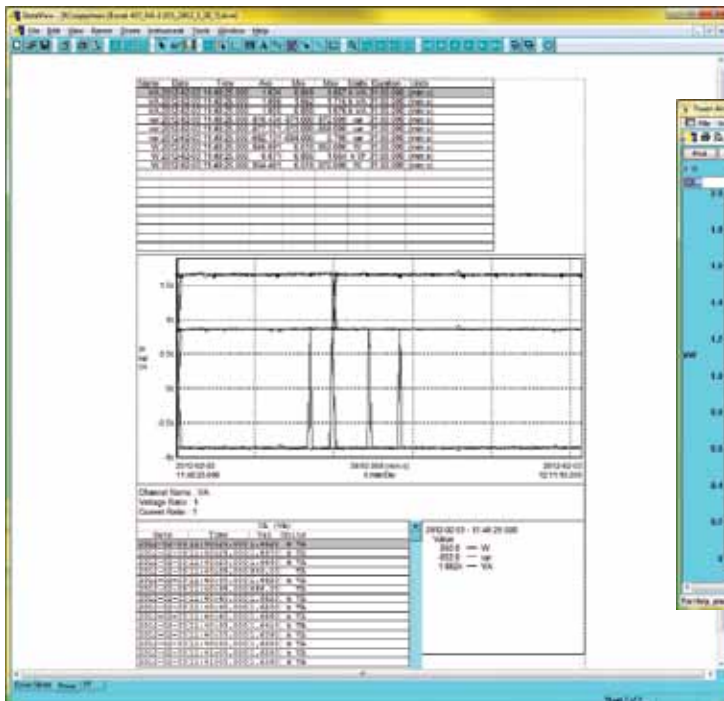
## Data Analysis and Reporting Software

### FEATURES

- ▶ Download and store recorded data
- ▶ Wireless *Bluetooth* communication
- ▶ Print reports using the included default templates or custom templates that you design



*DataView® software, user manual and quick start guide are included in the USB key*



*Clean, easy-to-read report of test results.*

*DataView® software report.*

# SELECTION CHART

MODELS		401	403	405	407	601	603	605	607
<b>Display Resolution</b>		10,000cts	10,000cts	10,000cts	10,000cts	10,000cts	10,000cts	10,000cts	10,000cts
<b>Measurements Displayed</b>		x1	x1	x1	x3	x1	x1	x1	x3
<b>Display Backlighting</b>		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Measurement Method</b>		TRMS	TRMS	TRMS	TRMS	TRMS	TRMS	TRMS	TRMS
<b>Automatic AC/DC Detection</b>		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>A</b>	AC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	DC	–	Yes	Yes	Yes	–	Yes	Yes	Yes
	AC+DC	–	–	Yes	Yes	–	–	Yes	Yes
<b>V</b>	AC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	DC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	AC+DC	–	–	Yes	Yes	–	–	Yes	Yes
<b>Hz</b>		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Resistance/Audible Continuity</b>		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Temperature (°C / °F)</b>		Yes	Yes	–	–	Yes	Yes	–	–
<b>Adapter Function</b>		–	Yes	–	–	–	Yes	–	–
<b>2-wire Phase Rotation</b>		–	–	Yes	–	–	–	Yes	–
<b>W, Var, VA, PF</b>		–	–	Yes	Yes	–	–	Yes	Yes
<b>DPF</b>		–	–	–	Yes	–	–	–	Yes
<b>THDf / THDr</b>		–	–	Yes	Yes	–	–	Yes	Yes
<b>Harmonics (0 to 25)</b>		–	–	–	Yes	–	–	–	Yes
<b>MIN / MAX</b>		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Peak+ / Peak-</b>		–	–	Yes	Yes	–	–	Yes	Yes
<b>True InRush®</b>		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>ΔREL</b>		–	Yes	Yes	–	–	Yes	Yes	–
<b>Recording</b>		–	–	–	Yes	–	–	–	Yes
<b>PC software (included) Bluetooth</b>		–	–	–	Yes	–	–	–	Yes

## United States & Canada

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