- **POWER CLAMP-ON METER**

205

ENGLISH

User Manual

AEMC® INSTRUMENTS
CHAUVIN ARNOUX GROUP

Statement of Compliance

Chauvin Arnoux®, Inc. d.b.a. AEMC® Instruments certifies that this instrument has been calibrated using standards and instruments traceable to international standards.

We guarantee that at the time of shipping your instrument has met its published specifications.

An N.I.S.T. traceable certificate may be requested at the time of purchase, or obtained by returning the instrument to our repair and calibration facility, for a nominal charge.

The recommended calibration interval for this instrument is 12 months and begins on the date of receipt by the customer. For recalibration, please use our calibration services. Refer to our repair and calibration section at www.aemc.com.

Serial #: ___________________________________

Catalog #: _#2139.40___________________________

Model #: _205_________________________________

Please fill in the appropriate date as indicated:

Date Received: ______________________________

Date Calibration Due: _________________________

AEMC® INSTRUMENTS
CHAUVIN ARNOUX GROUP

Chauvin Arnoux®, Inc.
d.b.a AEMC® Instruments
www.aemc.com

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Thank you for purchasing a **Model 205 Clamp-on Meter**.

For best results from your instrument and for your safety, read the enclosed operating instructions carefully and comply with the precautions for use. These products must be only used by qualified and trained users.

Meanings of the symbols used on the device

⚠	**CAUTION - Risk of Danger!** Indicates a WARNING and that the operator must refer to the user manual for instructions before operating the instrument in all cases where this symbol is marked.
	Risk of electric shock. The voltage at the parts marked with this symbol may be dangerous.
	Refers to a type A current sensor. This symbol signifies that application around and removal from HAZARDOUS LIVE conductors is permitted.
	9V battery
CE	The CE marking indicates compliance with European directives
⧈	Double insulation or reinforced insulation
	In the European Union, this product is subject to a separate collection system for recycling electrical and electronic components In accordance with directive WEEE 2002/96/EC
~	AC – Alternating current
	AC and DC – Alternating and direct current
⏚	Ground/Earth

PRECAUTIONS FOR USE

This device complies with safety standards IEC-61010-1 and 61010-2-032 for voltages of 1000V in category III or 600V CAT IV at an altitude of less than 2000m, indoors, with a degree of pollution not exceeding 2. These safety instructions are intended to ensure the safety of persons and proper operation of the device.

- The operator and/or the responsible authority must carefully read and clearly understand the various precautions to be taken in use.
- If this instrument is used other than as specified, the protection it provides may be compromised, thereby endangering you.
- Do not use the instrument in an explosive atmosphere or in the presence of flammable gases or fumes.
- Do not use the instrument on networks of which the voltage or category exceeds those mentioned.
- Do not exceed the rated maximum voltages and currents between terminals or with respect to earth.
- Do not use the instrument if it appears to be damaged, incomplete, or not properly closed.
- Before each use, check the condition of the insulation on the leads, housing, and accessories. Any element of which the insulation is deteriorated (even partially) must be set aside for repair or scrapped.
- Use leads and accessories rated for voltages and categories at least equal to those of the instrument. If not, an accessory of a lower category lowers the category of the combined Clamp + accessory to that of the accessory.
- Observe the environmental conditions of use.
- Do not modify the instrument and only use factory replacement parts. Repairs and adjustments must be done by approved qualified personnel.
- Replace the batteries as soon as the symbol appears on the display of the unit. Disconnect all leads before opening the battery compartment cover.
- Use personal protective equipment when conditions require.
- Keep your hands away from the unused terminals of the instrument.
- When handling the test probes, alligator clips, and clamp ammeters, keep your fingers behind the physical guard.
- As a safety measure, and to avoid repeated overloads on the inputs of the device, configuration operations should only be performed when the device is disconnected from all dangerous voltages.

MEASUREMENT CATEGORIES

Definitions of the measurement categories:

CAT IV: Circuits supplying the low-voltage installation of the building.
Example: power lines, meters, and protection devices.

CAT III: Power supply circuits in the installation of the building.
Example: distribution panel, circuit-breakers, fixed industrial machines or devices.

CAT II: Circuits directly connected to the low-voltage installation.
Example: power supply to household electrical appliances and portable tools.

RECEIVING YOUR SHIPMENT

Upon receiving your shipment, make sure that the contents are consistent with the packing list. Notify your distributor of any missing items. If the equipment appears to be damaged, file a claim immediately with the carrier and notify your distributor at once, giving a detailed description of any damage. Save the damaged packing container to substantiate your claim.

ORDERING INFORMATION

Clamp-on Meter Model 205 ....Cat. #2139.40
Includes set of 2, 5 ft. (1.5m) needle tip color-coded leads with 4mm right angle plug, soft carrying case, 1x9V battery and user manual.

Replacement Parts:

Soft Carrying Case ....**Cat. #2118.65**

Set of 2, 5ft (1.5m) Needle Tip Color-coded (Rd/Bk) Leads w/4mm, Right-angle Plug
(600V CAT IV w/shield on Needle Tip, 1000V CAT II w/o shield).....**Cat. #2154.74**

Accessories:

Lead – Set of 2, 5ft silicone color-coded (red/black) with 4mm straight/right angle banana plugs...**Cat. #5000.94**

Probe – Black test probe ....**Cat. #5000.97**

Probe – Red test probe ....**Cat. #5000.98**

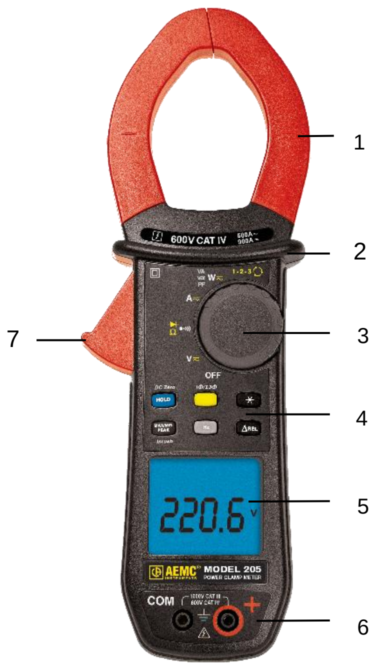
Clip – Black safety alligator ....**Cat. #5000.99**

Clip – Red safety alligator...**Cat. #5100.00**

1 PRESENTATION

The Clamp-on Meter Model 205 is a 6000-count professional electrical measuring instrument that combines the following functions:

- Current measurement
- Measurement of InRush current / overcurrent (True InRush®)
- Voltage measurement
- Frequency measurement
- Continuity test with buzzer
- Resistance measurement
- Diode test
- Power measurements (W, VA, var and PF)
- Phase order indication



Item	Designation	See §
1	Jaws with centering marks (see connection principles)	3.5 to 3.12
2	Physical Guard	-
3	Rotary Function Switch	1.1
4	Function Buttons	2
5	Backlit Display	1.3
6	Input Terminals	1.4
7	Trigger	-

Figure 1: Clamp-on Meter Model 205

1.1 THE ROTARY SWITCH

The rotary switch has six positions. To access the V≈, Ω •))), A≈, VA var PF W≈, 1-2-3 functions, set the switch to the desired function. The functions are described in the table below.

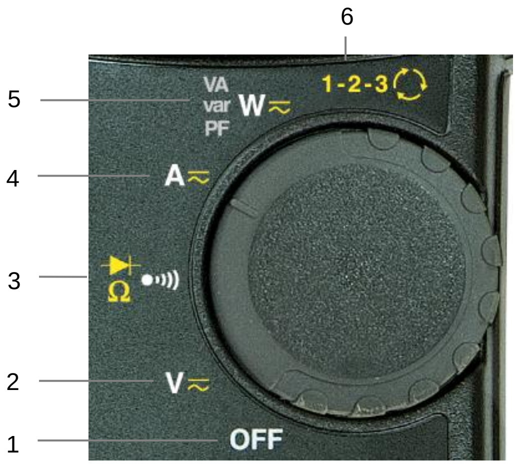


Figure 2: The Function Rotary Switch

Item	Function	See §
1	OFF mode – Turns the clamp-on meter off	3.3
2	AC, DC, AC+DC voltage measurement (V)	3.5
3	Continuity test •))) Resistance measurement Ω Diode test	3.6 3.7 3.8
4	AC, DC, AC+DC current measurement (A)	3.9
5	Power measurements (W, var, VA) and calculation of the power factor (PF) AC, DC, AC+DC	3.11
6	Phase rotation order indicator - 1-2-3	3.12

1.2 THE FUNCTION BUTTONS

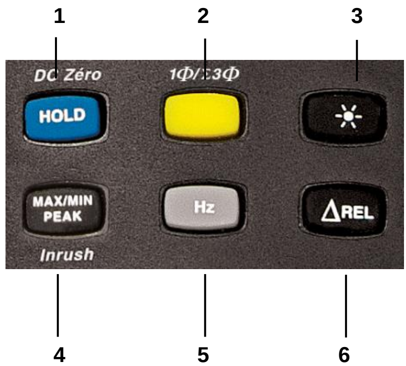


Figure 3: The Function Buttons

Item	Function	See §
1	Holds the last value on the display Zero correction $A_{DC}/A_{AC+DC}/W_{DC}/W_{AC+DC}$ Lead resistance compensation in the continuity and ohmmeter functions	2.1 3.9.2 3.6.1
2	Selects the type of measurement and configuration functions (AC, DC, AC+DC) Selection of single-phase or 3-phase measurement	2.2
3	Enables/disables display backlighting	2.3
4	Enables/disables the MAX/MIN/PEAK mode Enables/disables the True InRush® mode in current measurement (A)	2.4
5	Performs Frequency measurements (Hz) Display of the powers W, VA, var and PF	2.5
6	Activation of ΔREL mode – Displays differential and relative values	2.6

1.3 THE DISPLAY

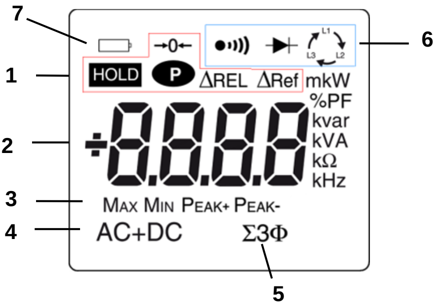


Figure 4: The Display

Item	Function	See §
1	Mode selection display	2
2	Display of the measurement value and unit	3.5 to 3.12
3	Display of the MAX/MIN/PEAK modes	2.4
4	Type of measurement (AC or DC)	2.2
5	Total 3-phase power measurements	3.11.2
6	Selected resistance mode display	1.1
7	Low battery indication	5.3

1.3.1 Display Symbols

Symbol	Designation
AC	Alternating current or voltage
DC	Direct current or voltage
AC+DC	Alternating and direct current or voltage
ΔREL	Relative value, with respect to a reference
ΔRef	Reference value
HOLD	Storage of the values and display hold
Max	Maximum DC or RMS value
Min	Minimum DC or RMS value
PEAK+	Maximum peak value

PEAK-	Minimum peak value
Σ3Φ	Balanced total 3-phase power measurement
V	Volt
Hz	Hertz
W	Watt
A	Ampere
%	Percentage
Ω	Ohm
m	Milli- prefix
k	Kilo- prefix
var	Reactive power
VA	Apparent power
PF	Power factor
	Phase order indication
→0←	Lead resistance compensation
	Continuity test
	Diode test
	Auto Power Off disabled
	Low battery indicator

The display of “**rdy**”, for “ready”, indicates that the device is ready (Phase Order Indication function).

1.3.2 Measurement Capacity Exceeded (OL)

The **OL** (Over Load) symbol is displayed when the display capacity is exceeded.

1.4 THE TERMINALS

The terminals are used as follows:

Figure 5: The Terminals

Item	Function
1	**COM** (black) Input Terminal Jack
2	**+ Positive** (red) Input Terminal Jack

2 THE BUTTONS

The buttons respond differently to short, long, and sustained presses.
The [MAX/MIN PEAK], [Hz] and [ΔREL] keys provide additional functions as well as the detection and acquisition of parameters complementary to the basic measurements.

- Each of these buttons can be used independently of the others or in conjunction with each other. This makes navigation simple and intuitive when reviewing measurement results.
- It is possible, for example, to either look up in sequence the MAX, MIN, etc. values of the RMS voltage alone, or look up in sequence all of the MAX (or MIN, or PEAK) values of all power measurements (W, VA, var, etc.).

In this section, the ◎ icon represents the possible positions of the switch for the button's functionality.

2.1 [HOLD] BUTTON

This button is used to:

- Store and look up the last values acquired specific to each function (V, A, Ω, W) according to the specific modes previously activated (MAX/MIN). The present display is then maintained while the detection and acquisition of new values continues.
- Perform automatic lead resistance compensation (see § 3.6.1).
- Perform automatic zero correction in $A_{DC}/_{AC+DC}$ and $W_{DC}/_{AC+DC}$ (see § 3.9.2).

NOTE: This button is invalid for the Phase Order Indication function.

Successive presses on [HOLD]	◎	**Function**
	[V≈] [Ω ·)))] [A≈] [VA var PF W≈]	**First press:** Holds the last value displayed **Second press:** Returns to normal display mode (the value of each new measurement is displayed)
long (> 2 sec)	A_{DC} A_{AC+DC} W_{DC} W_{AC+DC}	Performs automatic zero correction (see 3.9.2) **NOTE:** This mode operates if the MAX/MIN or HOLD modes (short press) are first de activated
long (> 2 sec)	[Ω ·)))]	Performs automatic lead resistance compensation (see 3.6.1)

See § 2.4.2 and § 2.5.2 for the [HOLD] button functionality in combination with the [MAX/MIN PEAK] and [Hz] buttons.

2.2 (YELLOW) BUTTON (SECOND FUNCTION)

This button is used to select the type of measurement (AC, DC, AC+DC) and the second functions marked in yellow next to the relevant positions of the switch.

It can also be used to modify the default values in the configuration mode (see § 3.4).

NOTE: This button is invalid in the MAX/MIN/PEAK, HOLD and ΔREL modes.

Successive presses on		Function
short	V≂ A≂ VA var PF W≂	- Selects AC, DC or AC+DC. Depending on your choice, the screen displays AC, DC or AC+DC
	Ω	- Cycles through the continuity , Ω and diode test modes and returns to the continuity test
	1-2-3	- Resets the measurement process for the phase order indication function

2.3 BUTTON

Successive presses on		Function
	V≂ Ω A≂ VA var PF W≂ 1-2-3	- Enables/disables display backlighting

NOTE: The backlighting is automatically disabled at the end of 2 minutes.

2.4 MAX/MIN PEAK BUTTON

2.4.1 Normal Mode

This button activates the detection of the MAX, MIN, PEAK+ and PEAK- values of the measurements made.
Max and Min are the extreme mean values in DC and the extreme RMS values in AC.
Peak+ is the maximum instantaneous peak and Peak- is the minimum instantaneous peak.

NOTE: In this mode, the Auto Power Off function of the device is automatically disabled. The P symbol is displayed on the screen.

Successive presses on MAX/MIN PEAK		Function
short	V≈ A≈	**First press:** Activates detection of the MAX/MIN/PEAK values **Second press:** Displays the MAX, MIN, PEAK+ or PEAK- value successively **Third press:** Returns to the display of the present measurement without exiting from the mode (the values already detected are not erased) **NOTE:** The MAX, MIN, PEAK+ or PEAK- symbols are all displayed, but only the symbol of the measurement selected blinks. **Example:** If MIN has been selected, MIN blinks and MAX, PEAK+, PEAK- are lit steadily.
	Ω VA var PF W≈	- Activates the detection of MAX/MIN values - Displays the MAX or MIN value successively - Returns to the display of the present measurement without exiting from the mode (the values already detected are not erased).
long (> 2 sec)	V≈ Ω A≈ VA var PF W≈	- Exits the MAX/MIN/PEAK mode. The values previously recorded are then erased. **NOTE:** If the HOLD function is enabled, it is not possible to exit from the MAX/MIN/PEAK mode. The HOLD function must first be disabled first.

NOTE : ΔREL function can be used with the functions of the MAX/MIN/PEAK mode.

2.4.2 The MAX/MIN Mode + Activation of the HOLD Mode

Successive presses on MAX/MIN PEAK		Function
short	V≈ Ω •)) A≈ VA var PF W≈	- Displays the MAX/MIN/PEAK values detected before the HOLD button was pressed. - When the HOLD button is pressed, the last value is held on the display.

NOTE: The HOLD function does not interrupt the acquisition of new MAX, MIN, PEAK values

2.4.3 Access to the True Inrush® Mode (MAX/MIN PEAK set switch to A≈)

This button allows measurement of the True Inrush® current (starting current, or overcurrent in steady-state operation) for AC or DC current only (not operational in AC+DC).

Successive presses on MAX/MIN PEAK		Function
long (>2 sec)	A≈	- **First press:** Enters the True InRush® mode - "Inrh" is displayed for 3s (the backlighting blinks) - The triggering threshold is displayed for 5s (the backlighting is steady) - "------" is displayed and the "A" symbol flashes (backlighting turns off) - After detection and acquisition, the InRush current measurement is displayed, after the calculations stage "------" (backlighting off) **NOTE:** The A symbol flashes to indicate "surveillance" of the signal. - **Second press:** Exits the True InRush® mode (returns to simple current measurement).
short (<2 sec) **Note:** A short press is functional only if a True InRush value has been detected.	A≈	- Displays the PEAK+ value of the current - Displays the PEAK- value of the current - Displays the RMS True InRush® current **NOTE:** The A, AC and PEAK values flash during this sequence.

2.5 Hz BUTTON

This button is used to display the frequency measurements of a signal.

NOTE: This button is not functional in the DC mode.

2.5.1 Normal Mode

Successive presses on Hz		Function
short (<2 sec)	V≈ A≈	Displays: - The frequency of the signal measured - The present voltage (V) or current (A) measurement
	VA var PF W≈	Displays: - The apparent power (VA) - The reactive power (var) - The power factor (PF) - The frequency of the signal - The active power (W)

2.5.2 The Hz Function + Activation of the HOLD Mode

Successive presses on Hz		Function
short (<2 sec)	V≈ A≈	- Holds the last frequency reading - Successively displays the last held frequency, then the voltage or the current - Displays the stored values of the frequency of the fundamental - **NOTE:** Pressing the HOLD button again returns to real-time measurement updates.

2.6 ΔREL BUTTON

This button is used to display and store the reference value in the unit of magnitude measured, or to display the differential and relative values, in %.

NOTE: This button is not functional in phase rotation mode.

Successive presses on ΔREL	◉	**Function**
short (<2 sec)	V≈ Ω ·))) A≈ VA var PF W≈	Enters the ΔREL mode, to store, then display the reference value. The ΔRef symbol is displayed. - Displays the differential value: (current value – reference (Δ)) The ΔREL symbol is displayed. - Displays the relative value in % (current value – reference (Δ)) The ΔREL and % symbols are displayed. - Displays the reference. The ΔRef symbol is displayed - Displays the current value. The ΔRef symbol blinks.
long (>2 sec)	V≈ Ω ·))) A≈ VA var PF W≈	- Exits from the ΔREL mode

NOTE: The “Relative mode ΔREL” function can also be used with the functions of the MAX/MIN/PEAK mode.

3 USE

3.1 INSTALLING THE BATTERIES

Insert the batteries supplied with the device as follows:

1. Using a screwdriver, unscrew the battery compartment cover (item 1) from the back of the housing.
2. Insert the 1x9V batteries supplied (item 2), observing polarities.
3. Close the battery compartment cover and screw it onto the housing.

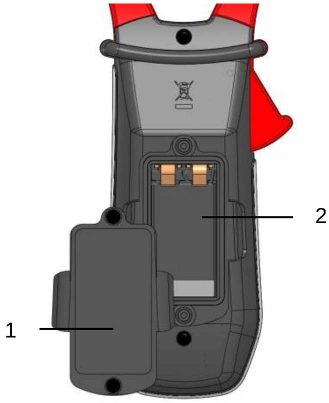


Figure 6 : The Battery Compartment

3.2 TURNING THE CLAMP-ON METER ON

- With the rotary switch set in the OFF position, turn the switch to the desired function. The display lights (all symbols) for a few seconds (see §1.3), then the screen of the function chosen is displayed.
- The clamp-on meter is now ready to make measurements.

3.3 TURNING THE CLAMP-ON METER OFF

The clamp-on meter can be turned off in two ways:

- Manually - Turn the switch to the OFF position.
- Automatically - After ten minutes with no activity, the instrument will turn OFF. Thirty (30) seconds before the device is switched off, the instrument will emit an intermittent audible signal. To re-activate the device, press any button or turn the rotary switch.

3.4 CONFIGURATION

As a safety measure, and to avoid repeated overloads on the inputs of the device, configuration operations should only be performed when the device is disconnected from all dangerous voltages.

3.4.1 Configuring the Maximum Resistance for Continuity

To configure the maximum resistance allowed for a continuity measurement:

1. With the switch in the OFF position, hold the (yellow) button down while turning the switch to until the "full screen" display ends and a beep is emitted. The display will indicate the value below which the buzzer is activated and the •))) symbol is displayed. The value stored by default is 40Ω. The possible values range between 1Ω and 999Ω.
2. To change the threshold, press the (yellow) button. The right-hand digit flashes; each press on the (yellow) button increments it. To shift to the next digit, apply a long press (>2s) to the (yellow) button.

When the desired value is displayed, turn the switch to another setting. The detection threshold chosen is stored and a double beep is emitted.

3.4.2 Auto Power Off

The Auto Power Off feature is enabled by default. To disable it, perform the following:

1. In the OFF position, hold the HOLD button down while turning the switch to V≈ until the "full screen" display ends and a beep is emitted. The P symbol is displayed.
2. When the HOLD button is released, the device is in the voltmeter function in the normal mode.
3. To return to Auto Power Off, turn the clamp-on meter OFF and then back ON again.

3.4.3 Configuring the Current Threshold for True InRush® Measurement

To configure the triggering current threshold of the True InRush® measurement:

1. In the OFF position, hold the MAX/MIN PEAK button down while turning the switch to A≈ until the "full screen" display ends and a beep is emitted. The display will indicate the percentage overshoot to apply to the measured current to determine the measurement triggering threshold.

   The value stored by default is 10%, representing 110% of the established current measured. The possible values are 5%, 10%, 20%, 50%, 70%, 100%, 150%, and 200%.
2. To change the threshold, press the (yellow) button. The value flashes; each press on the (yellow) button displays the next value. To record the chosen threshold, apply a long press (>2s) on the (yellow) button. A confirmation beep is emitted.

To exit from the configuration mode, turn the switch to another setting. The chosen threshold is stored and a double beep is emitted.

NOTE: The starting (InRush) current measurement triggering threshold is fixed at 1% of the least sensitive range. This value is 1% of 99.99A or 1A. This threshold is not adjustable.

3.4.4 Default Configuration

To reset the clamp-on meter to its default parameters (factory configuration):

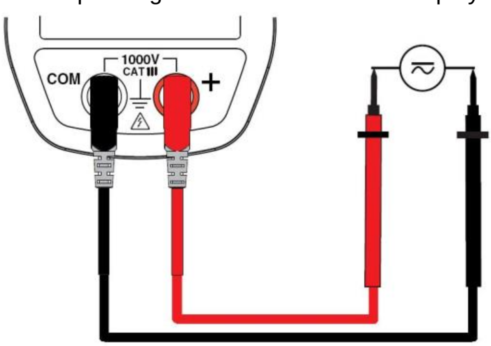
1. In the OFF position, hold the (yellow) button down while turning the switch to A≈, until the "full screen" display ends and a beep is emitted. The **"rSt"** symbol is displayed.
2. After 2 s, the clamp-on meter emits a double beep, then all of the digital symbols of the screen are displayed until the (yellow) button is released. The default parameters are then restored:
   - Continuity detection threshold = 40Ω
   - True InRush® triggering threshold = 10%

3.5 VOLTAGE MEASUREMENT (V)

To measure voltage, proceed as follows:

1. Set the switch to V≈.
2. Connect the black lead to the **COM** terminal and the red lead to the "**+**" terminal.
3. Connect the test probes or the alligator clips to the circuit to be measured. The device selects AC or DC automatically according to which measured value is larger. The AC or DC symbol displays blinking in auto detect mode.

To select AC or DC manually, press the (yellow) button to toggle between them. The symbol corresponding to the choice will then display.

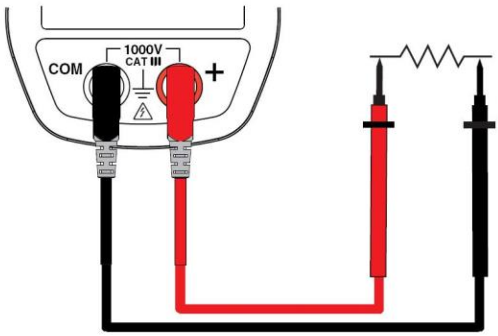


The measured value is displayed on the screen.

3.6 CONTINUITY TEST

Warning: Before performing the test, make sure that the circuit is off and all capacitors have been discharged.

1. Set the switch to ; the symbol is displayed.
2. Connect the black lead to the **COM** terminal and the red lead to the "**+**" terminal.
3. Connect the test probes or the alligator clips to the circuit or component to be measured.



An audible signal is emitted if there is continuity (resistance value is below the maximum threshold - see § 3.4.1) and the measured value is displayed on the screen.

3.6.1 Lead Resistance Compensation

Warning: Before the compensation is executed, the MAX/MIN and HOLD modes must be disabled.

To perform automatic compensation of the test lead resistance, proceed as follows:

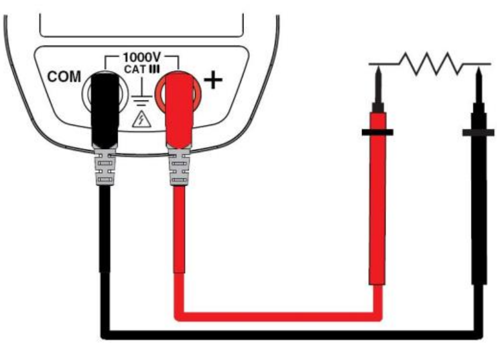
1. Short-circuit the leads connected to the meter.
2. Hold the HOLD button down until the display unit indicates the lowest value. The device measures the resistance of the leads.
3. Release the HOLD button. The correction and the →0← symbol are displayed. The value displayed is stored.

NOTE: The correction value is stored only if it is $\leq 2\Omega$.
Above 2Ω, the value displayed blinks and is not stored.

3.7 RESISTANCE MEASUREMENT Ω

Warning: Before making a resistance measurement, make sure that the circuit is off and all capacitors have been discharged.

1. Set the switch to and press the (yellow) button. The **Ω** symbol is displayed.
2. Connect the black lead to the **COM** terminal and the red lead to the "**+**" terminal.
3. Connect the test probes or the alligator clips to the circuit or component to be measured.



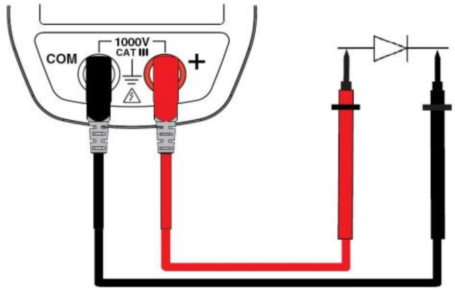
The measured value is displayed on the screen.

NOTE: To measure low resistance values, first perform lead resistance compensation (see § 3.6.1).

3.8 DIODE TEST

Warning: Before performing the diode test, make sure that the circuit is off and all capacitors have been discharged.

1. Set the switch to and press the (yellow) button twice. The symbol is displayed.
2. Connect the black lead to the **COM** terminal and the red lead to the "**+**" terminal.
3. Connect the test probes or the alligator clips to the component to be tested.



The measured value is displayed on the screen.

4. Reverse the leads on the diode and repeat the test.

3.9 CURRENT MEASUREMENT (A)

The jaws are opened by pressing the trigger on the body of the meter. The arrow on the jaws of the clamp-on meter (see the diagram below) should point in the presumed direction of current flow, from the generator to the load. Make sure that the jaws have closed correctly after clamping around the conductor.

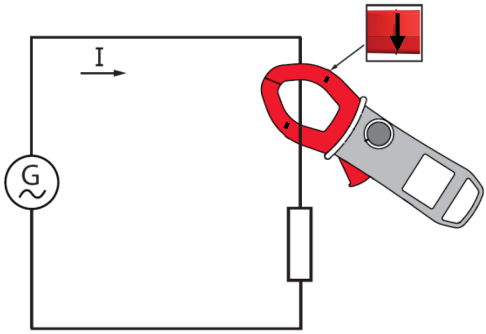
NOTE: The measurement results are optimal when the conductor is centered in the jaws (aligned with the centering marks).

The device selects AC or DC automatically according to which measured value is larger. The AC or DC symbol displays blinking in auto detect mode.

3.9.1 AC Measurement

For an AC current measurement, proceed as follows:

1. Set the switch to and select AC by pressing the (yellow button). The AC symbol is displayed.
2. Clamp the jaws around the conductor to be measured. The device selects AC or DC automatically.



The measured value is displayed on the screen.

3.9.2 DC or AC+DC Measurement

Set the switch to  and select DC if the display does not indicate "0"; the DC zero must be corrected first.

Step 1: Correction of DC Zero

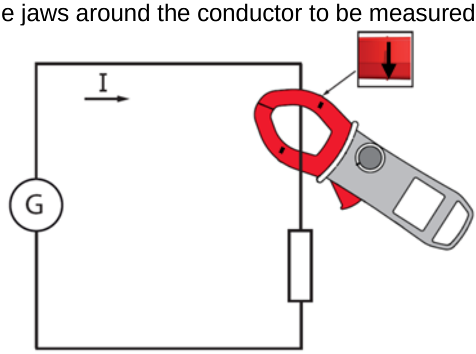
Important: The clamp must not be closed on the conductor during the DC zero correction. Hold the clamp in the same position during the whole procedure so that the correction value will be exact.

Press the  button until the device emits a double beep and displays a value near "0". The correction value is stored until the clamp is powered down.

NOTE: The correction is effected only if the value displayed is < ±10A, otherwise the value displayed blinks and is not stored. The clamp must be recalibrated (see § 5.3)

Step 2: Make a Measurement

1. The switch is set to . Select DC or AC+DC by pressing the (yellow) button until the desired choice is reached.
2. Clamp the jaws around the conductor to be measured.



The measured value is displayed on the screen.

3.10 STARTING CURRENT OR OVERCURRENT (True InRush®) MEASUREMENT

NOTE: The measurement can be made only in AC or DC mode (AC+DC mode disabled).

To measure a starting current or overcurrent, proceed as follows:

1. Set the switch to , correct the DC zero (see §3.9.2), then clamp the jaws around the conductor to be measured.
2. Perform a long press on the button. The **InRh** symbol is displayed, along with the triggering threshold. The clamp then awaits detection of the True InRush® current. "------" is displayed and the A symbol flashes.
3. After detection and acquisition for 100 ms, the RMS value of the True InRush® current is displayed. Pressing the button will display the PEAK+/PEAK- values subsequently.
4. A long press on the button or a change of function on the rotary switch will exit the True InRush® mode.

NOTE: The triggering threshold in A is 10A if the initial current is zero (starting of installation). For an established current (overload in an installation) see §3.4.3.

3.11 POWER MEASUREMENTS W, VA, VAR AND PF

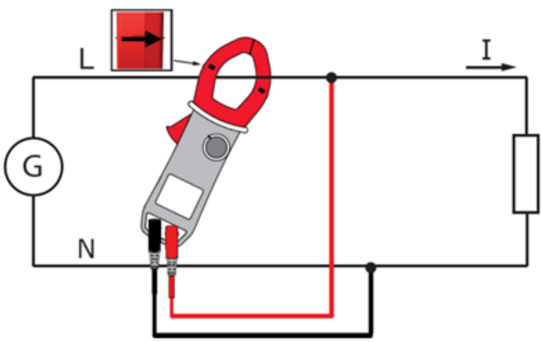
This measurement is possible in single-phase or in balanced 3-phase.

NOTE: If performing DC or AC+DC power measurements, correct the DC zero in current first (see § 3.9.2)

For the power factor (PF) and the powers VA and var, the measurement is possible only in AC or AC+DC.

3.11.1 Single-Phase Power Measurement

1. Set the switch to  and select **VA**, **var**, or **PF** by pressing the button until the desired choice is reached.
2. The device automatically displays AC+DC. To select AC, DC, or AC+DC, press the  (yellow button) until the desired choice is reached.
3. Connect the black lead to the **COM** terminal and the red lead to the "**+**" terminal.
4. Connect the test probes or the alligator clips of the black lead on the neutral (N), then those of the red lead on the L phase.
5. Clamp around only the corresponding conductor, respecting the direction.



The measurement is displayed on screen.

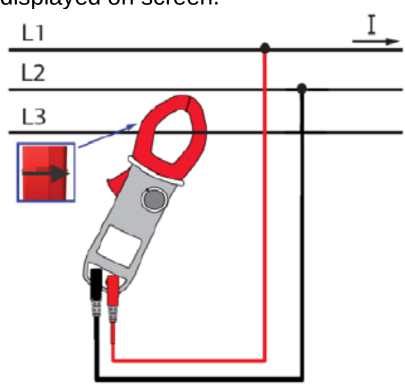
3.11.2 Balanced 3-Phase Power Measurement

1. Set the switch to VA var PF W≂ and select **VA**, **var**, or **PF** by pressing the Hz button until the desired choice is reached
2. Press the (yellow) button until the $\Sigma3\Phi$ symbol is displayed.
3. The device automatically displays **AC+DC**. To select AC, DC, or AC+DC, press the (yellow) button until the desired choice is reached.
4. Connect the black lead to the **COM** terminal and the red lead to the "**+**" terminal.
5. Connect the leads and the clamp to the circuit as follows:

If the red lead is connected…	…and the black lead is connected	…then the clamp is on the conductor
To the L1 phase	to the L2 phase	of the L3 phase
To the L2 phase	to the L3 phase	of the L1 phase
To the L3 phase	to the L1 phase	of the L2 phase

NOTE: The arrow on the jaws of the clamp (see the diagram below) must point in the presumed direction of flow of the current from the source to the load.

The measurement is displayed on screen.



NOTE: 3-phase power on a balanced 4-wire network can also be measured by proceeding in the same way, or by proceeding as for the measurement on a single-phase network, then multiplying the value by three.

3.12 PHASE ROTATION MODE 1-2-3

This mode is used to determine the phase order of a 3-phase network using the "2-wire" method.

To determine the phase order, proceed as follows:

Step 1: Determining the Reference Period:

1. Set the switch to 1-2-3. The **rdy** symbol is displayed; the device is ready for the first phase order determination measurement.
2. Connect the black lead with alligator clip to the **COM** terminal and the red lead with the test probe to the "**+**" terminal.
3. Connect the alligator clip to the presumed L1 phase and apply the red test probe to the presumed L2 phase.
4. Press the (yellow) button. The **ref** symbol blinks on the screen. The instrument is ready to determine the reference period. When the reference period has been determined, an audible signal sounds and the **ref** and symbols are displayed.

NOTE: If the reference period has not been determined, the device emits a beep and displays the "**Err Hz**" or "**ErrV**" message. The symbol flashes, then the "**rdy**" message is displayed on the screen. Repeat the procedure from Step 4.

Step 2: Determining the Measurement Period:

1. Within the next 10 seconds, apply the test probe to the presumed L3 phase. The "**MEAS**" symbol blinks on the display as soon as the L2 phase is disconnected. The device is now in the calculation phase.

NOTE: If the measurement period has not been determined, the device emits a beep and displays the "**Err Hz**" or "**ErrV**" message, then "**rdy**". Repeat the procedure from Step 4.

Result: When the phase order has been determined, the device emits a beep and the indication of order of the phases is displayed on the screen, as follows:

- 0.1.2.3 when the direction of rotation is direct. The "**0**" symbol blinks and turns clockwise;
- 0.3.2.1 when the direction of rotation is reversed. The "**0**" symbol blinks and turns anticlockwise.

NOTE: If the phase order has not been determined, the device emits a beep and displays the "**Err**" message. Repeat the procedure from Step 4.

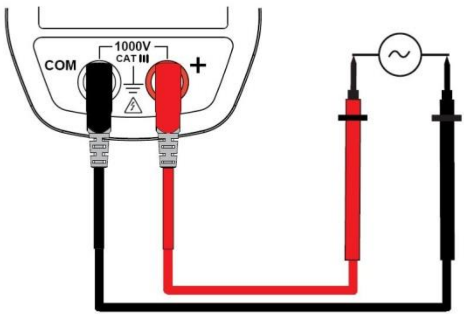
3.13 FREQUENCY MEASUREMENT (HZ)

The frequency measurement is available in **V**, **W** and **A** for AC and AC+DC measurements. The measurement is based on a count of zero crossings (positive-going edges).

3.13.1 Frequency Measurement (V)

To measure the frequency in voltage, proceed as follows:

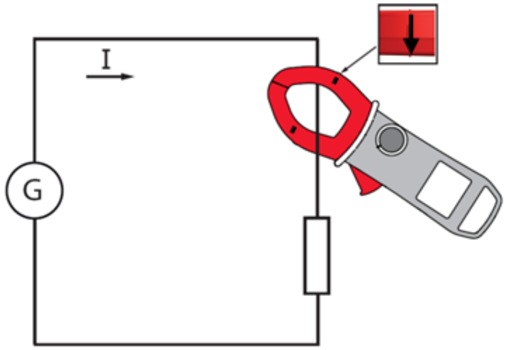
5. Set the switch to **V≈** and press the Hz button. The **Hz** symbol is displayed.
6. Select AC or AC+DC by pressing the (yellow) button until the desired choice is reached.
7. Connect the black lead to the **COM** terminal and the red lead to the "**+**" terminal.
8. Connect the test probes or the alligator clips to the circuit to be measured.



The measured value is displayed on the screen.

3.13.2 Frequency Measurement (A)

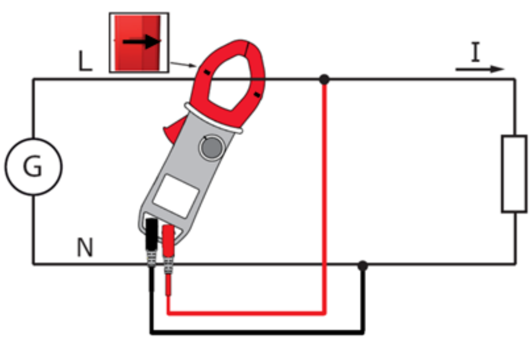
1. Set the switch to **A≈** and press the Hz button. The **Hz** symbol is displayed.
2. Select AC or AC+DC by pressing the (yellow) button until desired choice is reached.
3. Clamp the jaws around the conductor to be measured.



The measured value is displayed on the screen.

3.13.3 Frequency Measurement (W)

1. Set the switch to  and press the button four times. The **Hz** symbol is displayed;
2. Select AC or AC+DC by pressing the (yellow) button until the desired choice is reached.
3. Connect the black lead to the **COM** terminal and the red lead to the "**+**" terminal.
4. Place the test probes or the alligator clips of the black lead on the neutral (N) and that of the red lead on the L phase.
5. Clamp the jaws around the conductor to be measured.



The measurement is displayed on screen.

4 SPECIFICATIONS

4.1 REFERENCE CONDITIONS

Quantities of Influence	Reference Conditions
Temperature:	23°C ±2°C
Relative humidity:	45% to 75%
Supply voltage:	9.0V ±0.5V
Frequency range of the applied signal:	45 to 65Hz
Sine wave:	pure
Peak factor of the applied alternating signal:	√2
Position of the conductor in the clamp:	centered
Adjacent conductors:	none
Alternating magnetic field:	none
Electric field:	none

4.2 SPECIFICATIONS UNDER THE REFERENCE CONDITIONS

Accuracy is expressed in ± (x% of the reading (R) + y counts (ct)).

4.2.1 DC Voltage Measurement

<table>
<tr><td>Measurement Range</td><td>0.00 to 59.99V</td><td>60.0 to 599.9V</td><td>600V to 1000V (1)</td></tr>
<tr><td>Specified Measurement Range</td><td colspan="3">0 to 100% of the measurement range</td></tr>
<tr><td>Accuracy</td><td>0.00 to 5.99V
± (1% R +10cts)
6.00 to 59.99V
± (1% R +3cts)</td><td colspan="2">± (1% R +3cts)</td></tr>
<tr><td>Resolution</td><td>0.01V</td><td>0.1V</td><td>1V</td></tr>
<tr><td>Input Impedance</td><td colspan="3">10MΩ</td></tr>
</table>

Note (1) *The display indicates "+OL" above + 2000V and "-OL" below – 2000V, in REL mode. The "-" and "+" signs are managed. Above 1000V, a repetitive beep indicates that the voltage being measured is greater than the safety voltage for which the device is guaranteed. The display indicates "OL".*

4.2.2 AC Voltage Measurement

Measurement Range	0.15 to 59.99V	60.0 to 599.9V		600V to 1000V RMS 1400V peak (1)
Specified Measurement Range (2)	0 to 100% of the measurement range			
Accuracy	0.15 to 5.99V ± (1% R +10cts) 6.00 to 59.99V ± (1% R +3cts)	± (1% R +3cts)		
Resolution	0.01V	0.1V		1V
Input Impedance	10MΩ			

Note (1) *The display indicates "OL" above 1000V (1400V in PEAK mode). Above 1000V (RMS), a repetitive beep indicates that the voltage being measured is greater than the safety voltage for which the device is guaranteed. The display indicates "OL".*
- Bandwidth in AC = 3 kHz

Note (2) *Any value between zero and the min. threshold of the measurement range (0.15V) is forced to show "----" on the display.*

Specific Specifications in MAX/MIN mode
(from 10Hz to 1kHz, and from 0.30V in AC):

- Accuracy: add 1% R to the values of the table above.
- Capture of the extreme: approximately 100ms.

4.2.3 AC+DC Voltage Measurement

Measurement Range (2)	0.15 to 59.99V	60.0 to 599.9V	600V to1000V RMS (1) 1400V peak
Specified Measurement Range	0 to 100% of the measurement range		
Accuracy	0.15 to 5.99V ± (1% R +10cts) 6 to 59.99V ± (1% R +3cts)		± (1% R +3cts)
Resolution	0.01V	0.1V	1V
Input impedance	10MΩ		

Note (1) *The display indicates "OL" above 1000V (1400V in PEAK mode). Above 1000V (DC or RMS), a repetitive beep indicates that the voltage being measured is greater than the safety voltage for which the device is guaranteed.*
- Bandwidth in AC = 3 kHz

Note (2) *Any value between zero and the min. threshold of the measurement range (0.15V) is forced to "----" on the display.*

Specific Specifications in MAX/MIN mode in voltage (from 10Hz to 1kHz in AC and AC+DC, and from 0.30V):

- Accuracy: add 1% R to the values of the previous table.
- Capture of the extreme: approximately 100ms.

Specific Specifications in PEAK mode in voltage (from 10Hz to 1kHz in AC and AC+DC):

- Accuracy: add 1.5% R to the values in the previous table.
- PEAK capture time: 1ms min. to 1.5ms max.

4.2.4 DC Current Measurement

Measurement Range (2)	0.00 to 59.99A	60.0 to 599.9A	600A to 900A (1)
Specified Measurement Range	0 to 100% of the measurement range		
Accuracy (2) (zero corrected)	± (1% R +10cts)	± (1% R +3cts)	
Resolution	0.01A	0.1A	1A

Note (1) *The display indicates “+OL” above 1800A and “-OL” below -1800A in REL mode. The "-" and "+" signs are displayed.*

Note (2) *The residual current at zero depends on the remanence. It can be corrected by the “DC zero” function of the HOLD button.*

4.2.5 AC Current Measurement

Measurement Range (2)	0.25 to 59.99A	60.0 to 599.9A	600A (1)
Specified Measurement Range	0 to 100% of the measurement range		
Accuracy	± (1% R +10cts)	± (1% R +3cts)	
Resolution	0.01A	0.1A	1A

Note (1) *The display indicates "OL" above 900A (in PEAK mode). The "-" and "+" signs are not managed.*
- Bandwidth in AC = 3 kHz

Note (2) *In AC, any value between zero and the min. threshold of the measurement range (0.25A) is forced to show “----“ on the display.*

4.2.6 AC+DC Intensity Measurement

Measurement Range (2)	0.15 to 59.99A	60.0 to 599.9A	AC: 600A DC or PEAK: 600 to 900A (1)
Specified Measurement Range	0 to 100% of the measurement range		
Accuracy (2) (zero corrected)	± (1% R+10cts)	± (1% R +3cts)	
Resolution	0.01A	0.1A	1A

Note (1) *In DC, the display indicates "+OL" above +1800A and "+-OL" above -1800A in REL mode. The "-" and "+" signs are managed (polarity).*
In AC and AC+DC, the display indicates "+OL" above 1500A in PEAK mode. The "-" and "+" signs are not managed.
- Bandwidth in AC = 3kHz

Note (2) *In AC, any value between zero and the min. threshold of the measurement range (0.15A) is forced to show "----" on the display.*

Specific Specifications in MAX/MIN mode
(from 10Hz to 1kHz, and from 0.30A in AC):

- Accuracy: add ± (1% R) to the values in the tables above.
- PEAK capture time: 1ms min. to 1.5ms max.

Specific characteristics in PEAK mode in current
(from 10Hz to 1kHz in AC and AC+DC):

- Accuracy: add ± (1.5% R +0.5A) to the values in the tables above.
- PEAK capture time: 1ms min. to 1.5ms max.

4.2.7 True Inrush® Measurement

Measurement Range	6 to 600AAC	6 to 900ADC
Specified Measurement Range	0 to 100% of the measurement range	
Accuracy	± (5% R +5cts)	
Resolution	1A	

Specific Specifications in PEAK mode in True InRush® (from 10Hz to 1kHz):

- Accuracy: add ± (1.5% R +0.5A) to the values in the table above.
- PEAK capture time: 1ms min. to 1.5ms max.

4.2.8 Continuity Measurement

Measurement Range	0.0 to 599.9Ω
Open-circuit Voltage	≤ 3.6V
Measurement Current	550µA
Accuracy	± (1% R +5cts)
Buzzer Triggering Threshold	Adjustable from 1 to 599Ω (40Ω is the default)

4.2.9 Resistance Measurement

Measurement Range (1)	0.0 to 599.9Ω	600 to 5999Ω	6 to 59.99kΩ
Specified Measurement Range	1 to 100% of the measurement range	0 to 100% of the measurement range	
Accuracy	± (1% R +5cts)		
Resolution	0.1Ω	1Ω	10Ω
Open-circuit Voltage	≤ 3.6V		
Measurement Current	550µA	100µA	10µA

Note (1) *Above the maximum display value, the display unit indicates "OL". The "-" and "+" signs are not managed.*

Specific Specifications in MAX/MIN mode:

- Accuracy: add 1% R to the values of the table above.
- Capture of the extreme: approximately 100ms.

4.2.10 Diode test

Measurement Range	0.000 to 3.199VDC
Specified Measurement Range	1 to 100% of the measurement range
Accuracy	± (1% R + 10cts)
Resolution	0.001V
Measurement Current	0.55mA
Indication: junction reversed or open-circuit	"OL" is displayed when the measured voltage >3.199V

☞ ***Note****: The "-" sign is disabled for the diode test function.*

4.2.11 Active DC Power Measurements

Measurement Range (2)	0 to 5.999W	6.00 to 59.99kW	60.0 to 599.9kW	600 to 900kW (1)
Specified Measurement Range	1 to 100% of the measurement range	0 to 100% of the measurement range		
Accuracy (3)	± (2% R +10cts)	± (2% R +3cts)		
Resolution	1W	10W	100W	1000W

Note (1) *- Display of O.L or ± O.L*
- Above ±1800kW in REL mode.

Note (2) *Any applied voltage greater than 1000V causes the emission of an intermittent alarm beep to report a dangerous overload.*

Note (3) *The measurement result may be affected by an instability linked to the current measurement (approximately 0.1A).*

Example: *For a power measurement made at 10A, the instability of the measurement will be 0.1A/10A or 1%.*

4.2.12 Active AC Power Measurements

Measurement Range (2) (4)	5 to 5999W	6.00 to 59.99kW	60.0 to 599.9kW	600kW (1)
Specified Measurement Range	1 to 100% of the measurement range	0 to 100% of the measurement range		
Accuracy (3)	± (2% R +10cts)	± (2% R +3cts)		
Resolution	1W	10W	100W	1000W

Note (1) *Bandwidth in AC in voltage = 3kHz, in current = 3kHz*

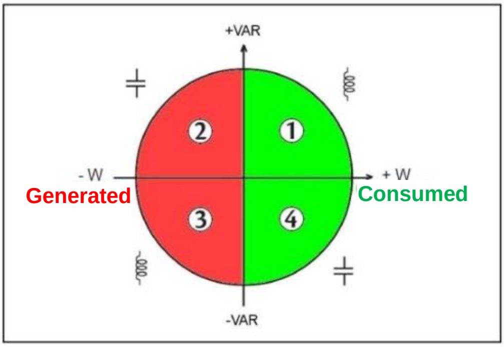
Notes (2) and (3) *of the previous § apply.*

Note (4) *Any power measured less than 5W is regarded as zero and causes the display of dashes "----"*
If the voltage is less than 0.15V or if the current is less than 0.15A, the power measured is regarded as zero and causes the display of "----"

Note (5) *The active powers are positive for power consumed and negative for power generated.*

Note (6) *The signs of the active and reactive powers and power factor are defined by the four-quadrant rule below:*
The diagram below sums up the signs of the power as a function of the phase angle between V and I:

Quadrant 1: Active power P sign + (power consumed)
Quadrant 2: Active power P sign - (power generated)
Quadrant 3: Active power P sign - (power generated)
Quadrant 4: Active power P sign + (power consumed)



Note (7) *- The three-phase quantities shall be measured on stationary signals (stable over 10 s), low distortion (THD < 10 %), and with a phase shift [U, I] < 30° in the frequency range between 45 Hz and 65 Hz.*

4.2.13 Active AC+DC Power Measurements

Measurement Range (2) (4)	5 to 5999W	6.00 to 59.99kW	60.0 to 599.9kW	600 to 900kW (1)
Specified Measurement Range	1 to 100% of the measurement range	0 to 100% of the measurement range		
Accuracy (3)	± (2% R +10cts)	± (2% R +3cts)		
Resolution	1W	10W	100W	1000W

Note (1) *Bandwidth in AC in voltage = 3kHz, in current = 3kHz*

Notes (2), (3), (4), (5), (6) and 7 *of the previous § apply.*

4.2.14 Measurement of Apparent AC Power

Measurement Range (2) (4)	5 to 5999VA	6.00 to 59.99kVA	60.0 to 599.9kVA	600kVA (1)
Specified Measurement Range	1 to 100% of the measurement range	0 to 100% of the measurement range		
Accuracy (3)	± (2% R +10cts)	± (2% R +3cts)		
Resolution	1VA	10VA	100VA	1000VA

Note (1) *Bandwidth in AC in voltage = 3kHz, in current = 3kHz*

Notes (2), (3) and (4) *of the previous § apply.*

4.2.15 Measurement of Apparent AC+DC Power

Measurement Range (2) (4)	5 to 5999VA	6.00 to 59.99kVA	60.0 to 599.9kVA	600 to 900kVA (1)
Specified Measurement Range	1 to 100% of the measurement range	0 to 100% of the measurement range		
Accuracy (3)	± (2% R +10cts)	± (2% R +3cts)		
Resolution	1VA	10VA	100VA	1000VA

Note (1) *- Display of OL above 900kVA in single-phase (1000V x 900A)*
- Bandwidth in AC in voltage = 3kHz, in current = 3kHz

Notes (2), (3) and (4) *of the previous § apply*

4.2.16 Measurement of Reactive AC Power

Measurement Range (2) (4)	5 to 5999 var	6.00 to 59.99 kvar	60.0 to 599.9 kvar	600 kvar (1)
Specified Measurement Range	1 to 100% of the measurement range	0 to 100% of the measurement range		
Accuracy (3) (7)	± (2% R +10cts)	± (2% R +3cts)		
Resolution	1 var	10 var	100 var	1 kvar

Note (1) *Bandwidth in AC in voltage = 3kHz, in current = 3kHz*

Notes (2), (3) and (4) *of the previous § apply*

Note (5) *In single-phase, the sign of the reactive power is determined by the phase lead or lag between the V and I signs, while in balanced three-phase, it is determined by the calculation on the samples.*

Note (6) *- Signs of reactive powers according to the four-quadrant rule (§4.2.12):*

Quadrant 1: Reactive power Q sign +
Quadrant 2: Reactive power Q sign +
Quadrant 3: Reactive power Q sign -
Quadrant 4: Reactive power Q sign –

Note (7) *The three-phase quantities shall be measured on stationary signals (stable over 10 s), low distortion (THD < 10 %), and with a phase shift [U, I] < 30° in the frequency range between 45 Hz and 65 Hz.*

4.2.17 Measurement of Reactive AC+DC Power

Measurement Range (2) (4)	5 to 5999 var	6.00 to 59.99 kvar	60.0 to 599.9 kvar	600 to 900 kvar (1)
Specified Measurement Range	1 to 100% of the measurement range	0 to 100% of the measurement range		
Accuracy (3) (7)	± (2% R +10cts)	± (2% R +3cts)		
Resolution	1 var	10 var	100 var	1 kvar

Note (1) *- Display of OL above 900 kvar in single-phase (1000V x 900A)*
- Bandwidth in AC in voltage = 3kHz, in current = 3kHz

Notes (2), (3) , (4), (5), (6) and (7) *of the previous § apply*

Specific characteristics in MAX/MIN mode in power (from 10Hz to 1kHz):

- Accuracy: add 1% R to the values in the table above.
- Capture time: approximately 100ms

4.2.18 Calculation of the Power Factor

Measurement Range (1)	-1.00 to +1.00	
Specified Measurement Range	0 to 50% of the measurement range	50 to 100% of the measurement range
Accuracy	± (3% R +3cts)	± (2% R +3cts)
Resolution	0.01	

Note (1) *If one of the terms in the calculation of the power factor is displayed as "OL", or forced to zero, the display of the power factor is an indeterminate value "----".*

Note (8) *Sign of the power factor according to the four-quadrant rule (§4.2.12):*

Quadrant 1:	*Power factor PF*	*sign + (inductive system)*
	Cos Φ	*sign +*
Quadrant 2:	*Power factor PF*	*sign - (inductive system)*
	Cos Φ	*sign -*
Quadrant 3:	*Power factor PF*	*sign + (inductive system)*
	Cos Φ	*sign -*
Quadrant 4:	*Power factor PF*	*sign - (inductive system)*
	Cos phi	*sign +*

Specific characteristics in MAX/MIN mode (from 10Hz to 1kHz):

- Accuracy: add 1% R to the values in the table above.
- Capture time: approximately 100ms.

4.2.19 Frequency Measurements

4.2.19.1 Voltage

Measurement Range (1)	5.0 to 599.9Hz	600 to 5999Hz	6.00 to 19.99kHz
Specified Measurement Range	1 to 100% of the measurement range	0 to 100% of the measurement range	
Accuracy	± (0.4% R +1ct)		
Resolution	0.1Hz	1Hz	10Hz

4.2.19.2 Current

Measurement Range (1)	5.0 to 599.9Hz	600 to 2999 Hz
Specified Measurement Range	1 to 100% of the measurement range	0 to 100% of the measurement range
Accuracy	± (0.4% R +1ct)	
Resolution	0.1Hz	1Hz

☞ **Note** : *The display is "----" if the input signal is too low (V<3V or I<3A) or if the frequency is less than 5Hz.*

Specific Specifications in MAX/MIN mode (from 10Hz to 5kHz in voltage and from 10Hz to 1kHz in current):

- Accuracy: add 1% R to the values of the table above.
- Capture of the extreme: approximately 100ms.

4.2.20 Indication of Phase Order

Frequency range	47 to 400Hz
Acceptable voltage range	50 to 1000V
Acquisition duration period	≤500ms
Validity duration period	approximately 10s at 50Hz approximately 2s to 400Hz
Acquisition duration measurement period and phase order display	≤500ms
Acceptable phase unbalance	±10
Acceptable amplitude unbalance	20%
Acceptable level of harmonics in voltage	10%

4.3 ENVIRONMENTAL CONDITIONS

Conditions	Operating	Storage
Temperature	-4° to +131°F (-20° to +55°C)	-40° to +158°F (-40° to +70°C)
Relative humidity (RH):	≤90% up to 131°F (55°C)	≤90% up to 158°F (70°C)

4.4 MECHANICAL SPECIFICATIONS

Housing:	Rigid polycarbonate shell with over-molded elastomer covering; UL94 V1
Jaws:	Polycarbonate Opening: 1.3" (34mm) Clamping diameter: 1.3" (34mm)
Screen:	LCD display unit Blue backlighting Dimension: 1.1 x 1.7" (28 x 43.5mm)
Dimension:	8.7 x 3.0 x 1.65" (222 x 78 x 42mm)
Weight:	0.86 lbs (340g) with the batteries

4.5 POWER SUPPLY

Batteries:	1x9V LF22
Battery life:	>120 h (without backlighting)
Auto Power Off	After 10 minutes with no switch and/or button activity

4.6 COMPLIANCE WITH INTERNATIONAL STANDARDS

Electric safety:	Compliant with standards IEC-61010-1, IEC-61010-2-30, and IEC-61010-2-32: 1000V CAT III or 600V CAT IV
Electromagnetic compatibility:	Compliant with standard EN-61326-1 Classification: residential environment
Mechanical strength:	Free fall: 2m (in accordance with standard IEC-68-2-32)
Level of protection of the housing:	IP40 (per standard IEC-60529)

4.7 ENVIRONMENTAL VARIATIONS

Condition of influence	Range of influence	Measurement influenced	Influence	
			Typical	MAX
Temperature	-4° to +131°F (-20 to +55°C)	V AC V DC A* Ω ▶| W AC W DC	- 0.1% R/10°C 1% R/10°C* - - 0.15% R/10°C	0.1% R/10°C 0.5% R/10°C + 2cts 1.5% R/10°C + 2cts* 0.1% R/10°C + 2 cts 0.2% R/10°C + 2 cts 0.3% R/10°C + 2 cts
Humidity	10% to 90%RH	V A Ω ▶| W	≤ 1 ct - 0.2% R 0.25% R	0.1 R + 1 ct 0.1% R + 2 cts 0.3% R + 2 cts 0.5% R + 2 cts
Frequency	10 Hz to 1 kHz 1 kHz to 3 kHz 10 Hz to 400 Hz 400 Hz to 2 kHz	V A	1% R + 1 ct 8% R + 1 ct 1% R + 1 ct 4% R + 1 ct	1% R + 1 ct 9% R + 1 ct 1% R + 1 ct 5% R + 1 ct
Position of the conductor in the jaws (f≤400 Hz)	Any position on the internal perimeter of the jaws	A-W	2% R	4% R + 1 ct
Adjacent conductor carrying a current of 150 A DC or RMS	Conductor touching the external perimeter of the jaws	A-W	42 dB	35 dB
Conductor enclosed by the clamp	0 to 500 A DC or RMS	V	< 1 ct	1 ct
Application of a voltage of the clamp	0 to 1000 V DC or RMS	A-W	< 1 ct	1 ct
Peak factor (1)	1.4 to 3.5 limited to 900 A peak 1400 V peak	A (AC-AC+DC) V (AC-AC+DC)	1% R 1% R	3% R + 1 ct 3% R + 1 ct

5 MAINTENANCE

5.1 WARNING

- Remove the test leads on any input before opening the case.
- Do not operate the clamp-on meter without a battery case cover.
- To avoid electrical shock, do not attempt to perform any servicing unless you are qualified to do so.
- To avoid electrical shock and/or damage to the instrument, do not get water or other foreign agents into the probe.

5.2 CLEANING

- Disconnect everything connected to the device and set the switch to OFF.
- Use a soft cloth moistened with soapy water. Rinse with a damp cloth and dry quickly using a dry cloth or forced air.
- Dry completely before putting back into use.

5.3 REPLACEMENT OF THE BATTERIES

The symbol indicates that the batteries are low. When this symbol appears on the display unit, the batteries must be replaced. The measurements and specifications are no longer guaranteed.

To replace the batteries, proceed as follows:

1. Disconnect the measurement leads from the input terminals.
2. Set the switch to OFF.
3. Using a screwdriver, unscrew the battery compartment cover from the back of the housing (see §3.1).
4. Remove the used battery and replace with a 9V LF22 battery, observing the polarities.
5. Close the battery compartment cover and screw it onto the housing.

6 REPAIR AND CALIBRATION

To ensure that your instrument meets factory specifications, we recommend that it be submitted to our factory Service Center at one-year intervals for recalibration, or as required by other standards or internal procedures.

For instrument repair and calibration:

You must contact our Service Center for a Customer Service Authorization number (CSA#). This will ensure that when your instrument arrives, it will be tracked and processed promptly. Please write the CSA# on the outside of the shipping container. If the instrument is returned for calibration, we need to know if you want a standard calibration, or a calibration traceable to N.I.S.T. (includes calibration certificate plus recorded calibration data).

Chauvin Arnoux®, Inc. d.b.a. AEMC® Instruments
15 Faraday Drive
Dover, NH 03820 USA
Phone: (800) 945-2362 (Ext. 360)
(603) 749-6434 (Ext. 360)
Fax: (603) 742-2346 or (603) 749-6309
E-mail: repair@aemc.com

(Or contact your authorized distributor)

Costs for repair, standard calibration, and calibration traceable to N.I.S.T. are available.

NOTE: All customers must obtain a CSA# before returning any instrument.

7 TECHNICAL AND SALES ASSISTANCE

If you are experiencing any technical problems, or require any assistance with the proper operation or application of your instrument, please call, mail, fax or e-mail our technical support hotline:

Chauvin Arnoux®, Inc. d.b.a. AEMC® Instruments
15 Faraday Drive
Dover, NH 03820 USA
Phone: (800) 343-1391
Fax: (603) 742-2346
E-mail: techsupport@aemc.com
www.aemc.com

8 LIMITED WARRANTY

The Model 205 is warranted to the owner for a period of three years from the date of original purchase against defects in manufacture. This limited warranty is given by AEMC® Instruments, not by the distributor from whom it was purchased. This warranty is void if the unit has been tampered with, abused or if the defect is related to service not performed by AEMC® Instruments.

Full warranty coverage and product registration is available on our website at www.aemc.com/warranty.html.

Please print the online Warranty Coverage Information for your records.

If a malfunction occurs within the three-year period, you may return the instrument to us for repair, provided we have your warranty registration information on file or a proof of purchase. AEMC® Instruments will, at its option, repair or replace the faulty material.

REGISTER ONLINE AT: www.aemc.com

9 WARRANTY REPAIRS

What you must do to return an Instrument for Warranty Repair:

First, request a Customer Service Authorization Number (CSA#) by phone or by fax from our Service Department (see address below), then return the instrument along with the signed CSA Form. Please write the CSA# on the outside of the shipping container. Return the instrument, postage or shipment pre-paid to:

Chauvin Arnoux®, Inc. d.b.a. AEMC® Instruments
15 Faraday Drive
Dover, NH 03820 USA
Phone: (800) 945-2362 (Ext. 360)
(603) 749-6434 (Ext. 360)
Fax: (603) 742-2346 or (603) 749-6309
E-mail: repair@aemc.com

Caution: To protect yourself against in-transit loss, we recommend you insure your returned material.

NOTE: All customers must obtain a CSA# before returning any instrument.

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Chauvin Arnoux®, Inc. d.b.a AEMC® Instruments
15 Faraday Drive • Dover, NH 03820 USA
www.aemc.com

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