

# 5000V Digital/Analog Megohmmeter Models 5050 & 5060



The Models 5050 and 5060, the latest design in 5000V Megohmmeters, are the most innovative product in their class on the market today. The features and functions incorporated in these products are the results of many years of analyzing how megohmmeters are used in everyday applications. The most advanced technology available has been applied to automate and facilitate the testing process for these applications.

Many features incorporated in the Models 5050 and 5060 (not found in any other megohmmeter on the market today) include automatic calculation and presentation of the Dielectric Absorption Ratio (DAR), Polarization Index (PI) and Dielectric Discharge (DD). The PI ratio times are also user defined. These new

advanced megohmmeters display the test voltage, insulation resistance and the leakage current during and after the test. Capacitance of the sample and discharge voltage present at the test leads is displayed at the conclusion of the test.

The Models 5050 and 5060 are designed with the highest level of safety features built in. Both units are packaged in a rugged insulated case. The Models 5050 and 5060 incorporate test inhibit capabilities which will not allow test voltages to be generated if a live sample is detected. The test terminals are recessed to ensure operating safety. The test leads, rated for 5000V for both testing and measurement, are the only truly safety approved 5000V leads on the market today. The Models 5050 and 5060 can

be operated from an internal rechargeable battery system or from AC line power.

The Model 5060 offers additional functionality in that an RS-232 port provides the ability to configure the units from a PC and run the test from the PC. Automatic documentation of test conditions and test results eliminates the need for writing down information. Test reports can be generated directly from the instrument to a printer or through the PC using the DataView<sup>®</sup> graphing and analysis software provided.

The list of features, functions and benefits goes on and on. If you are looking for a truly advanced 5000V Megohmmeter, the AEMC Models 5050 and 5060 are the best in class and available at an affordable price.

## Features

- True Megohmmeter®
- Test voltage combinations of 500V, 1000V, 2500V and 5000V
- Insulation measurements from 30kΩ to 10,000GΩ (10TΩ)
- Selectable and programmable test voltage (40 to 5100V)
- Automatic calculation of DAR, PI and DD ratios
- Direct measurement and display of Capacitance and Leakage Current
- Display resistance, test voltage and run time
- Programmable test run times and PI ratio times
- Smooth and Alarm functions
- Automatic test inhibition if live sample (>25V)
- Automatic discharge and display of discharge voltage
- Large dual-display with time, voltage and measurements shown
- Bright blue electroluminescent backlight
- Programmable test voltage lock-out
- Programmable alarm setting
- Auto power-down when not in use
- AC or DC powered with rechargeable NiMH batteries
- Rugged, weatherproof field case
- Designed and built to IEC safety standards
- EN 61010-1, 1000V Cat. III

## Model 5060 includes these additional features:

- RS-232 interface for direct printing of results (serial or parallel output)
- 128kB memory for storing extensive field test data
- Configure instrument and run tests from a PC
- Includes DataView® Lite software for data storage, analysis and report generation



Model 5060 performing insulation test on a generator.

## Applications

- Test insulation on cables, transformers, motors, generators, insulators and wiring installations
- High resistance or absorption tests
- Spot reading tests
- Timed resistance measurements
- Dielectric Absorption Ratio (DAR) and Polarization Index (PI) tests
- Multi-layer insulation testing (Dielectric Discharge)
- Test old or water damaged installations over long time runs
- Motor insulation resistance measurements
- Computer controlled production line testing
- Predictive maintenance by storing results in PC for trend analysis
- User selectable voltage testing to provide application specific testing

Insulation can be subject to slow, gradual degradation over long periods of time, as well as sudden damage. The effects of moisture, dirt, corrosion, chemical penetration and even vibration can cause degradation of insulation. The effects of this degradation can easily be documented by using the automatic Polarization Index test feature standard on all models. Comparing the results over time will provide valuable information for preventative maintenance measures.

## Key Functions – Models 5050 & 5060



**Smooth Function** – This function is very useful when the readings on the display are unstable and hard to read. It applies a digital filter to the displayed readings to smooth out the presentation. It does not effect the measurement or recording of data.



**Alarm Function** – Allows for the setting of a low limit resistance value for each test voltage, below which a buzzer will sound alerting you to a problem condition.



**Selectable Voltage** – Provides the flexibility to program an exact voltage for a specific test to any voltage from 40 to 5100V in 10V increments. The Model 5070 also allows for storage of three different voltage selections.



**Test Voltage Lock-out** – Gives the flexibility to limit the maximum output test voltage to any value from 40 to 5100V to protect delicate equipment from accidental exposure to excessive test voltages.



**Timer Function** – Program a test run time from one minute to 50 hours.

## Key Functions – Model 5060



**Record Function** – provides the option to automatically store the data from a timed test at programmable intervals or to store the results of the test manually at the push of a button at the end of the test.



**Print Function** – Provides a direct print out to a printer of test results in a predefined format.



*Model 5060 checking insulation resistance on feed cables to a three-phase motor.*

# Functional Displays



Insulation Resistance Measurement displayed throughout the test. Time or test voltage can be displayed at the press of a button.



Automatic calculation and display of DAR ratio



Automatic calculation and display of PI Ratio



Automatic calculation and display of DD Ratio on request at the conclusion of the test



Capacitance Measurement from 1nF to 50μF displayed at the conclusion of each test



Leakage Current Measurement from 1pA to 3000μA displayed during the test



User selectable Test Voltage programming from 40 to 5100V



Memory Function for Data Storage up to 99 objects (files), each containing up to 99 test results; the maximum number of records stored is 1500.

# Specifications

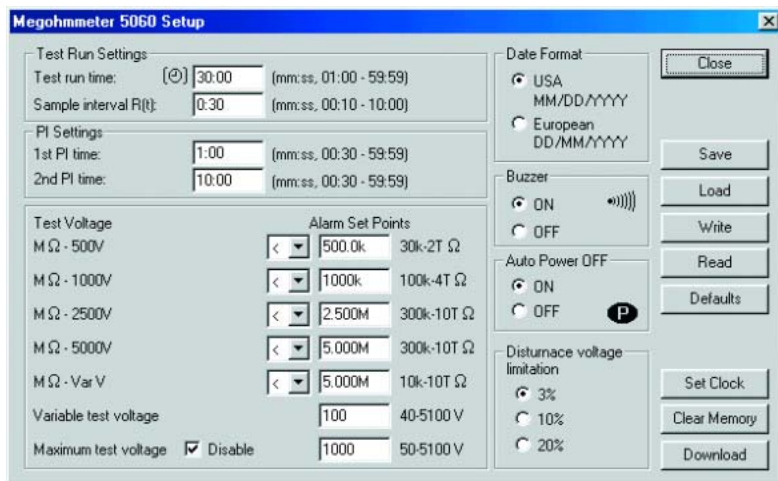
MODELS	5050	5060	
<b>ELECTRICAL</b>			
<b>INSULATION TESTS</b>			
Test Voltage/Range	500V 1000V 2500V 5000V	30kΩ to 2000GΩ (2TΩ) 100kΩ to 4000GΩ (4TΩ) 100kΩ to 10,000GΩ (10TΩ) 300kΩ to 10,000GΩ (10TΩ)	30kΩ to 2000GΩ (2TΩ) 100kΩ to 4000GΩ (4TΩ) 100kΩ to 10,000GΩ (10TΩ) 300kΩ to 10,000GΩ (10TΩ)
Automatic Voltage	Programmable: 40 to 1000V: 10V increments 1000 to 5100V: 100V increments	Programmable: 40 to 1000V: 10V increments 1000 to 5100V: 100V increments	
Short Circuit Current	<1.6mA ± 5%	<1.6mA ± 5%	
Accuracy	1kΩ to 40GΩ 40GΩ to 10TΩ	±5% of Reading ± 3cts ±15% of Reading ± 10cts	±5% of Reading ± 3cts ±15% of Reading ± 10cts
DAR (1 min/30 sec)	0.02 to 50.00	0.02 to 50.00	
PI (10 min/1 min & user programmable)	0.02 to 50.00	0.02 to 50.00	
DD $\left(\frac{\text{Current after 1 min}}{\text{test voltage} \times \text{capacitance}}\right)$	0.02 to 50.00	0.02 to 50.00	
Capacitance Check	0.005 to 49.99μF Max resolution 1nF	0.005 to 49.99μF Max resolution 1nF	
Leakage Current Measurement	0.00nA to 3mA Max resolution 1pA	0.00nA to 3mA Max resolution 1pA	
Programmable Run Time R(t)	1 to 60 minutes	1 to 60 minutes	
Smooth Function (user selectable)	Digital filtering stabilized display readings	Digital filtering stabilized display readings	
Discharge After Test	Automatic	Automatic	
Discharge Voltage Display	Yes	Yes	
Voltage Test/Safety Check	0 to 1000V <sub>AC/DC</sub> (16 to 420Hz), 1V Resolution	0 to 1000V <sub>AC/DC</sub> (16 to 420Hz), 1V Resolution	
Voltage Warning Indicator	Yes >25V	Yes >25V	
Test Inhibition <sup>(1)</sup>	Yes >25V	Yes >25V	
Guard Terminal	Yes – adjustable from 25 to 1000V depending on test voltage range in use	Yes – adjustable from 25 to 1000V depending on test voltage range in use	
<b>DISPLAY</b>			
Backlight	Blue, Electroluminescent		
Display Size	4 x 2.25" (102 x 57mm)		
Display	Digital: Two 4000-count displays Analog bargraph: 33-segments		
<b>GENERAL</b>			
Power Source	Eight NiMH rechargeable batteries Line power: 85 to 256V <sub>AC</sub> (50/60Hz)		
Dimensions	10.63 x 9.84 x 7.09" (270 x 250 x 180mm)		
Weight	9.5 lbs (4.3kg)		
Protection Index	IP53		
<b>OTHER SPECIFICATIONS</b>			
Report Print Out Direct to Printer	No	Yes: preset format	
Storage of Readings over Time R(t)	4kB memory	128kB memory	
Programmable Reading Intervals	5 sec to 15 min	5 sec to 15 min	
Test Voltage Display	Yes	Yes	
Elapsed Test Time Display	Yes	Yes	
Real Time/Date Display	No	Yes	
Test Voltage Lock-out	User programmed	User programmed	
Storage of Test Results	20 Readings	Stores over 1500 test results	
Communication Port	–	RS-232	
PC Software/Report Generation	No	Yes DataView® Lite (included)	
PC Operation of Megohmmeter	No	Yes	
<b>SAFETY</b>			
Safety Rating	EN 61010-1, 1000V Cat. III		
Double Insulation <input type="checkbox"/>	Yes		
CE Mark	Yes		

<sup>(1)</sup>Inhibit voltage is selectable at 3, 10 or 20% of test voltage

# DataView® Lite Software for Model 5060



Model 5060 easily configures and runs right from a PC.

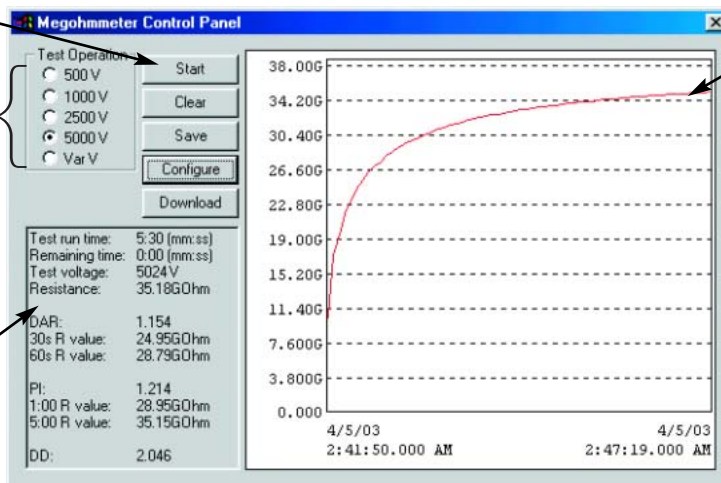


Clear and easy setup of all functions from one dialog box

One button operation starts test and graph results

Test voltage selection

Test result status box displays complete test results in real time



Graphic viewing of insulation resistance during the test run

Run test and display results from one dialog box.

## Features

Configure all functions of the Megohmmeter Model 5060

Print reports of all test results

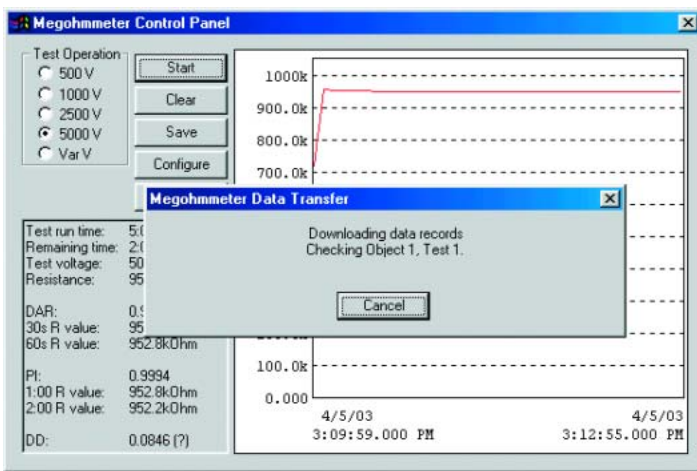
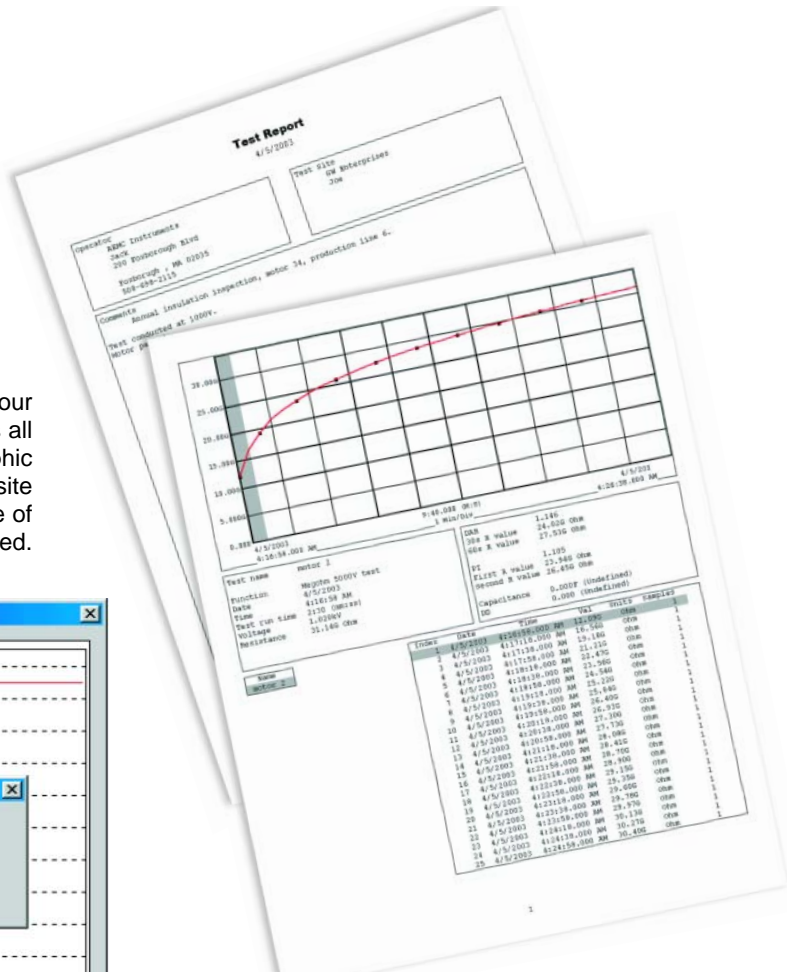
- Select test voltage and run tests from your computer with a simple click and execute process
- Capture and display data in real time
- Retrieve data from the instrument's memory
  - Over 1500 insulation resistance measurements
- Display DAR, PI and DD ratios
- Plot graphs of manual and timed tests
- Include your analysis in the comments section with the report
- Store a library of setups for different applications
- Certification of results through report generation

## Minimum System Requirements

- Windows®98/2000/ME/XP or Windows®NT 4.0
- 128MB of RAM (256MB recommended) for Windows®98/2000/ME or Windows®NT 4.0  
256MB of RAM for Windows®XP
- 35MB of hard disk space (200MB recommended)
- CD Rom Drive



Reports may be displayed on your PC and printed. Each report includes all test results in a tabular and graphic format, as well as operator and test site information. Comments typed in at time of storage will also be included.

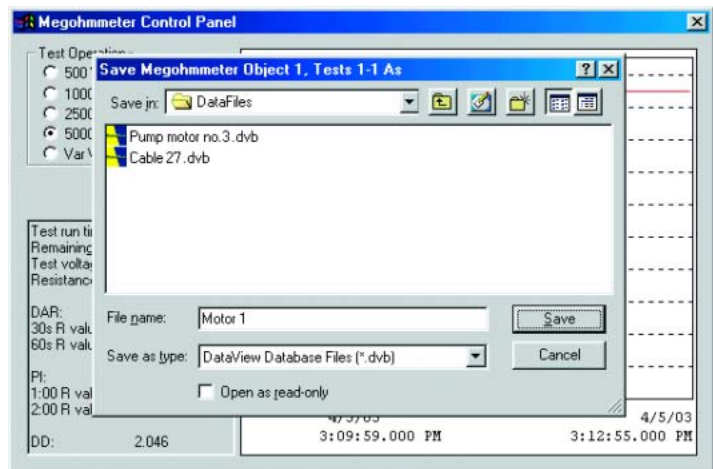


A simple press of the download button from either the setup or run dialog boxes will show all test results stored in the Model 5060.

The DataView® Lite Software provides a convenient way to configure and control Megohmmeter tests from your computer. Through the use of two clear and easy-to-use dialog boxes, all functions of the Model 5060 can be configured and tests can be initiated. Results can be displayed in real time and stored in your PC. Reports may be printed along with the operator's comments and analysis.



DataView® Lite is included with the Model 5060



Each test will be stored as its own file and may be given its own unique file name.

# Accessories



Models 5050 and 5060 include soft accessory bag with one red, one blue and one black lead with integral 5kV rated hippo clips, one jumper lead for use with guard terminal, rechargeable battery, US 120V power cord and user manual.



Optional 1000V Lead set  
Catalog #2119.55

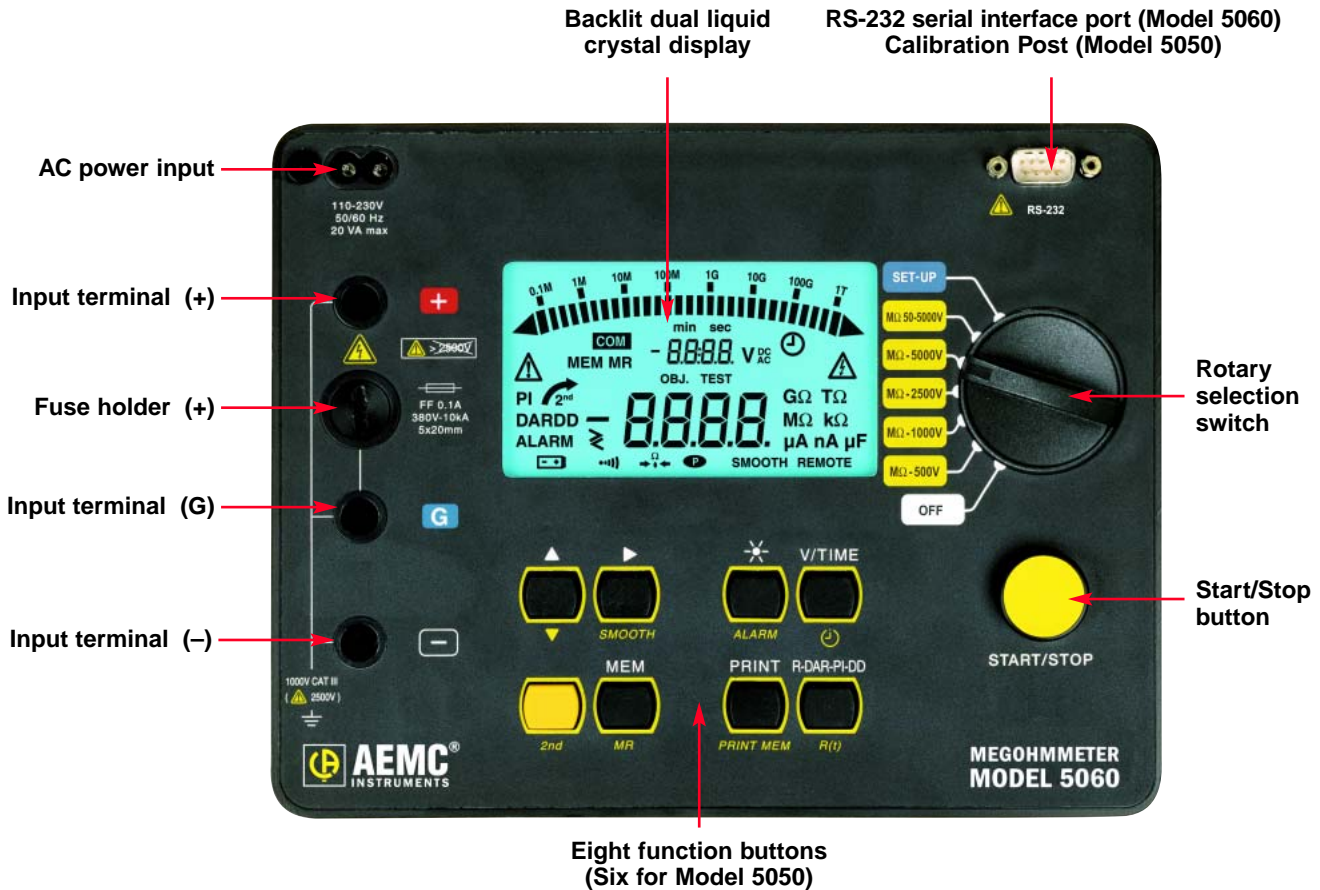


Cable, PC RS-232, DB9 F/F 6 ft null modem cable for Model 5060 (included)



DataView® Lite for Model 5060 (included)

# Construction



## ORDERING INFORMATION

## CATALOG NO.

<b>Megohmmeter Model 5050</b> (Digital, with Analog Bargraph, Backlight, Alarm, Timer, 500V, 1000V, 2500V, 5000V, Auto DAR/PI/DD) . . . . .	<b>Cat. #2130.20</b>
Includes soft accessory bag, one red, one blue and one black lead with integral 5000V rated hippo clips, one jumper lead for use with guard terminal, rechargeable battery pack, US120V power cord and user manual	
<b>Megohmmeter Model 5060</b> (Digital, with Analog Bargraph, Backlight, Alarm, Timer, 500V, 1000V, 2500V, 5000V, Auto DAR/PI/DD, RS-232 w/DataView® Lite Software). . . . .	<b>Cat. #2130.21</b>
Includes soft accessory bag, one red, one blue and one black lead with integral 5000V rated hippo clips, one jumper lead for use with guard terminal, one 6 ft RS-232 DB9/DB25 F/F to DB9/DB25 F/F Cable, rechargeable battery pack, DataView® Lite software, US 120V power cord and user manual	
<b>Accessories (Optional)</b>	
Cable, PC RS-232. DB9 F/F 6 ft . . . . .	Cat. #2119.46
Leads, set of three, 5 ft color coded – rated at 1000V max . . . . .	Cat. #2119.55
one red, one blue and one black lead; one red, one blue and one black alligator clip	
Leads, set of three, 10 ft color-coded rated at 5000Vmax. . . . .	Cat. #2119.76
one red, one blue and one black lead; one red, one blue and one black alligator clip;	
one black test probe, one red test probe	
Leads, set of three, 25 ft color-coded rated at 5000Vmax. . . . .	Cat. #2119.86
one red, one blue and one black lead with integral 5000V rated hippo clips	
Leads, set of three, 45 ft color-coded rated at 5000Vmax. . . . .	Cat. #2119.87
one red, one blue and one black lead with integral 5000V rated hippo clips	

## Contact Us

### United States & Canada:

Chauvin Arnoux<sup>®</sup>, Inc.  
d.b.a. AEMC<sup>®</sup> Instruments  
200 Foxborough Blvd.  
Foxborough, MA 02035 USA  
(508) 698-2115 • Fax (508) 698-2118  
[www.aemc.com](http://www.aemc.com)

**Customer Support – for placing an order, obtaining price & delivery:**  
[customerservice@aemc.com](mailto:customerservice@aemc.com)

**Sales Department – for general sales information:**  
[sales@aemc.com](mailto:sales@aemc.com)

**Repair and Calibration Service – for information on repair & calibration, obtaining a user manual:**  
[repair@aemc.com](mailto:repair@aemc.com)

**Technical and Product Application Support – for technical and application support:**  
[techinfo@aemc.com](mailto:techinfo@aemc.com)

**Webmaster – for information regarding [www.aemc.com](http://www.aemc.com):**  
[webmaster@aemc.com](mailto:webmaster@aemc.com)

### South America, Central America, Mexico, Caribbean, Australia & New Zealand:

Chauvin Arnoux<sup>®</sup>, Inc.  
d.b.a. AEMC<sup>®</sup> Instruments  
15 Faraday Drive  
Dover, NH 03820 USA  
(978) 526-7667 • Fax (978) 526-7605  
[export@aemc.com](mailto:export@aemc.com)  
[www.aemc.com](http://www.aemc.com)

### All other countries:

Chauvin Arnoux SCA  
190, rue Championnet  
75876 Paris Cedex 18, France  
33 1 44 85 45 28 • Fax 33 1 46 27 73 89  
[info@chauvin-arnoux.com](mailto:info@chauvin-arnoux.com)  
[www.chauvin-arnoux.com](http://www.chauvin-arnoux.com)