10 kV and 15 kV Digital Megohmmeters

MODELS 6550 & 6555

Expert Tools for Testing Insulation Safely & Accurately

- Measure up to 30 TΩ of Insulation Resistance
- Test voltages up to 15,000 V
- Step, ramp, variable and fixed voltage testing
- Multiple test modes: Burn-In, Early-Break and I-Limit modes
- Four filter choices to optimize measurement stability
- Selectable voltage from (40 to 10,000/15,000) V
- Storage of up to 80,000 measurements
- Optically-isolated USB communication for data transfer to PC and report generation using DataView® software

Our products are backed by over 130 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® INSTRUMENTS
CHAUVIN ARNOUX GROUP

10 kV/15 kV Digital Megohmmeters
Models 6550 & 6555

Ideal for use on Rotating Machinery, Transformers and Cables Operating at Higher Voltages

The Megohmmeter Models 6550 and 6555 are advanced, portable instruments designed to measure a wide range of electrical insulation resistance in motors, cables, and electrical apparatus. Encased in a IP54-rated housing when closed, these devices are built to withstand challenging environments. They feature a LCD screen for clear display of test results and configuration data, which can be exported using the included DataView® software. Both models can operate on either battery or AC power during testing for added flexibility.

These Megohmmeters are essential tools for technicians working with electrical installations and equipment. Powered by microprocessors, they provide precise measurement acquisition, processing, display, and storage. The Model 6550 is capable of performing insulation tests at voltages up to 10 kV, while the Model 6555 supports testing at voltages up to 15 kV, offering versatility for a wide range of applications.

Industry's top-rated 15 kV Megohmmeter Model 6555 ensuring transformer reliability through precision testing.

AUTOMATIC REPORT GENERATION
DataView®

TRUE MegOhmmeter®

SCAN TO LEARN MORE

MAIN FUNCTIONS

- **Fixed voltage:** Timed insulation resistance test at a pre configured voltage. Instrument can display insulation resistance over time in graphical format, or in DAR or PI ratio values.
- **Variable voltage:** Similar to fixed voltage, using a user defined voltage.
- **Step voltage:** Allows operator to pre-program stepped increases in the test voltage output providing a more comprehensive testing procedure. Ideally, insulation resistance should remain constant as voltage increases.
- **Ramp voltage:** Similar to step, but utilizes a steadily increasing voltage to saturate and identify defects in an insulations surface while lowering risks associated with testing at a high voltage.
- Timed measurements at a **variable test voltage** between (40 and 15,000) VDC *(preselected by the user prior to the test.)* Three preselected test voltages can be stored in the instrument and can be modified as needed prior to starting or during a test.
- **Ramp voltage measurements** with a ramp from (40 to 10,000 or 15,000) V *(model dependent)*. Three ramp profiles can be stored in the instrument. Each ramp profile includes the starting and ending test voltage and the ramp time between the two.
- **Step voltage measurements** with steps from (40 to 10,000 or 15,000) V *(model dependent)*. Three step voltage profiles can be stored in the instrument. Each contains up to 10 steps that include test voltage and duration.
- Control test current with I-Limit and Early-Break test options when testing around sensitive components.
- Automatic DAR and PI Ratio calculations.
- Burn-in test current option allows for the maximum test current the instrument can supply.
- Temperature correction of the measured resistance to a reference temperature.
- Capacitance measurement of the device tested.
- Detection and measurement of input voltage, frequency, and current prior to running a test.
- Dielectric Discharge (DD) Ratio function allows for the quality of multi-layer insulation to be measured.
- Guard terminal removes stray leakage currents from measurement.

10 kV/15 kV Digital Megohmmeters
Models 6550 & 6555

IP 54 | 1000 V CAT IV | CE | ▣

Cover Closed

FEATURES

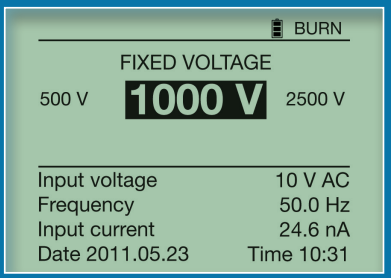
- True Megohmmeter®: maintains test voltages in the presence of low resistance insulation values
- Timed, fixed or programmable test voltage from 40 V to (10 or 15) kV
- Guard lead: Eliminates the influence of surface currents created by contamination, providing a more accurate analysis of the insulation resistance
- Wide measurement range from 10 kΩ to 30 TΩ *(Model dependent)*
- 5 mA maximum test current, user limitable
- Step and Ramp voltage testing
- Automatic calculation of DAR/PI/DD/ΔR ratios
- Large, backlit LCD screen with digital display, bargraph and R(t)+V(t), I(t) and I(V) graphs
- Four filter settings for testing in difficult environments
- Calculate insulation resistance value at a reference temperature
- Storage of 80,000 measurements
- Includes DataView® software for data retrieval, real-time display, analysis and report generation
- Optically-isolated USB communication for transfer onto PC and report generation with DataView® software

APPLICATIONS

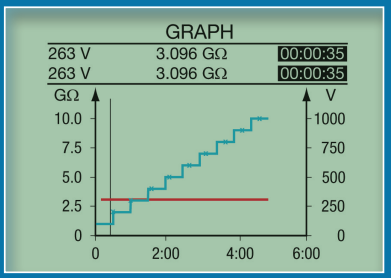
- Acceptance testing and preventive maintenance
- Test motors, cables, switchgears and electrical wiring installations

Multiple Voltage Ramp & Step Test Modes

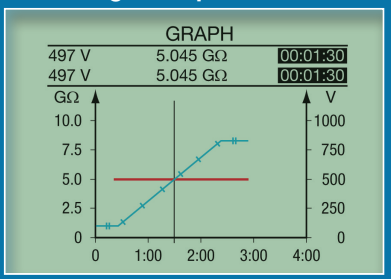
Burn-In Test Mode



Voltage Step Test Mode



Voltage Ramp Test Mode



ACCESSORIES/REPLACEMENTS

CAT. #2133.72 Small classic tool bag
CAT. #2135.41 Optical USB cable
CAT. #2140.19 (1) 9.6 V NiMH battery (*two required*)
CAT. #2151.36 Lead – Replacement Set of (3), 10 ft (15 kV) with integral clips
CAT. #2151.37 Lead – Replacement 1.5 ft (15 kV) blue jumper lead
CAT. #2151.38 Lead – Set of (3), 25 ft, 15 kV with integral clips
CAT. #2151.39 Lead – One 45 ft, 15 kV, blue guard with integral clip
CAT. #2151.40 Lead – One 45 ft, 15 kV, red with integral clip
CAT. #2151.41 Lead – One 45 ft, 15 kV, black with integral clip
CAT. #5000.32 Power cord - 240 V EU

CAT. #	DESCRIPTION
2130.31	Megohmmeter Model 6550 (Graphical, Analog Bargraph, Backlight, Alarm, Timer, (500, 1000, 2500, 5000) V and 10 kV, Ramp, StepV, Variable, Auto DAR/PI/DD, USB, w/DataView® software)
2130.32	Megohmmeter Model 6555 (Graphical, Analog Bargraph, Backlight, Alarm, Timer, (500, 1000, 2500, 5000) V and (10, 15) kV, Ramp, StepV, Variable, Auto DAR/PI/DD, DataView® software)

Specifications

MODELS	6550	6555
INSULATION TESTS		
Test Voltage		
500 V	10 kΩ to 2000 GΩ (2 TΩ)	
1000 V	10 kΩ to 4000 GΩ (4 TΩ)	
2500 V	10 kΩ to 10,000 GΩ (10 TΩ)	
5000 V	10 kΩ to 15,000 GΩ (15 TΩ)	
10,000 V	10 kΩ to 25,000 GΩ (25 TΩ)	
15,000 V	—	10 kΩ to 29,000 GΩ (29 TΩ)
Fixed Test Voltages	(500, 1000, 2500, 5000, and 10,000) V	(500, 1000, 2500, 5000, 10,000, and 15,000) V
Variable Voltages	Variable: 40 V to 10 kV with three user programmable voltage schemes	Variable: 40 V to 15 kV with three user programmable voltage schemes
Ramp Mode	Programmable ramps: start voltage • end voltage • duration	
Ramp Configuration Range	(40 to 1100) V • (500 to 10,000) V	(40 to 1100) V • (500 to 15,000) V
Step Mode	Up to 10 steps *(voltage and duration configurable for each step)*	
Voltage Test	2500 V_{AC} to 4000 V_{DC}	
Capacitance Measurement	(0.005 to 19.99) µF	
Leakage Current Measurement	(0 to 10) mA	
Discharge After Test	Yes • Automatic	
Additional Test Stop Modes		
Break at I-Limit	Programmable: (0.2 to 5) mA	
Early-Break	di/dt	
Timer	Up to 99 m 59 s	
Burn Mode	Constant testing	
Ratio Calculation	PI, DAR, DD	
Calculation of R at ref. T°	Yes	
Measurement Display Filter	4 filters with 3 fixed time constants, and 1 auto-adaptable time	
Graphs on Display	R(t)+V(t); I(t); I(V)	
Storage	256 registers, stores 80,000 points: R, V, I and date	
Communication	USB optically-isolated port	
Power Supply	NiMH rechargeable batteries, (2) 9.6 V 4 A·h battery packs Charging by external voltage: (90 to 260) V; (50 or 60) Hz	
Battery Charging	Battery charging allowed while performing insulation measurements	
Dimensions	(13.39 x 11.81 x 7.87) in (340 x 300 x 200) mm	
Weight	13.7 lb (6.2 kg)	
SAFETY		
Safety Compliance	IEC • EN 61010-2-034 or BS EN 61010-2-034, IEC-61557 parts 1 and 2 (up to 10 kV), 1000 V CAT IV, Pollution Degree 2	
Ingress Protection • Altitude	IP54 • 2000 m	

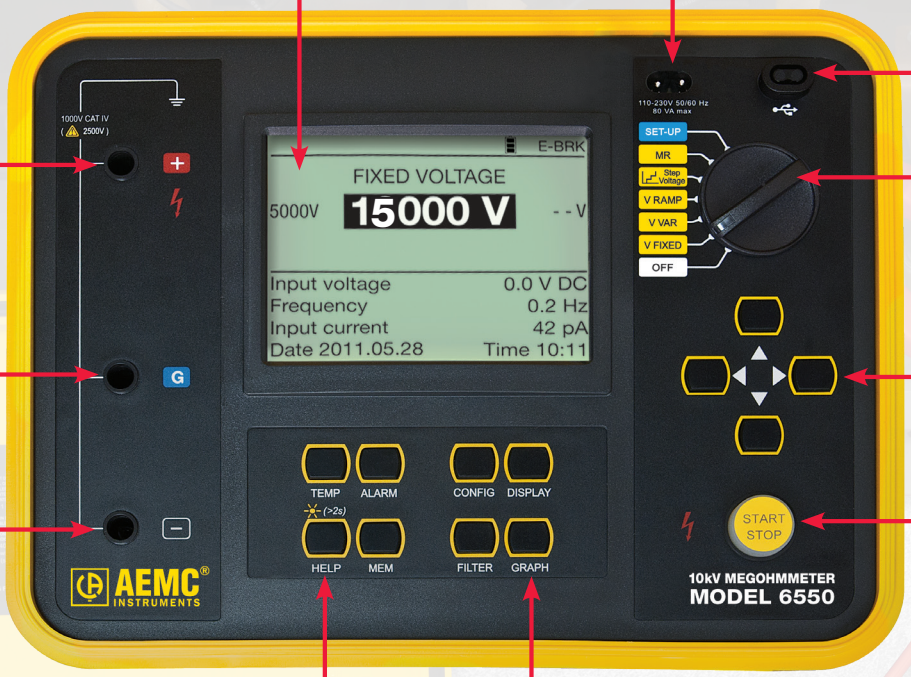
Consult factory for NIST Calibration prices.

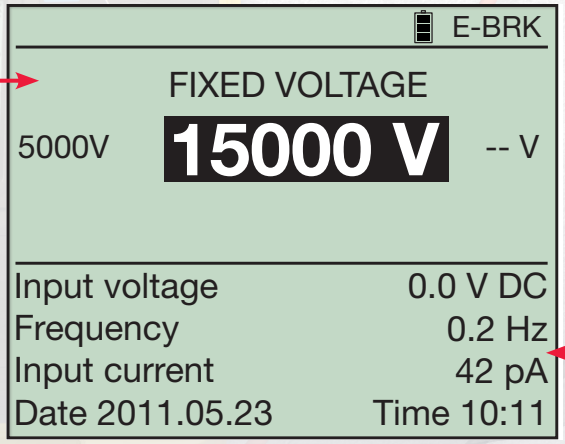
PRODUCT INCLUDES

Small classic tool bag, set of (3) 10 ft color-coded *(red/blue/black)* safety leads with clips (3000 V CAT III), (1) 15 kV jumper lead *(blue)*, optical USB cable, 115 V US power cord, 9.6 V rechargeable NiMH batteries, and a USB drive with DataView® software and user manual.

Front Panel Features

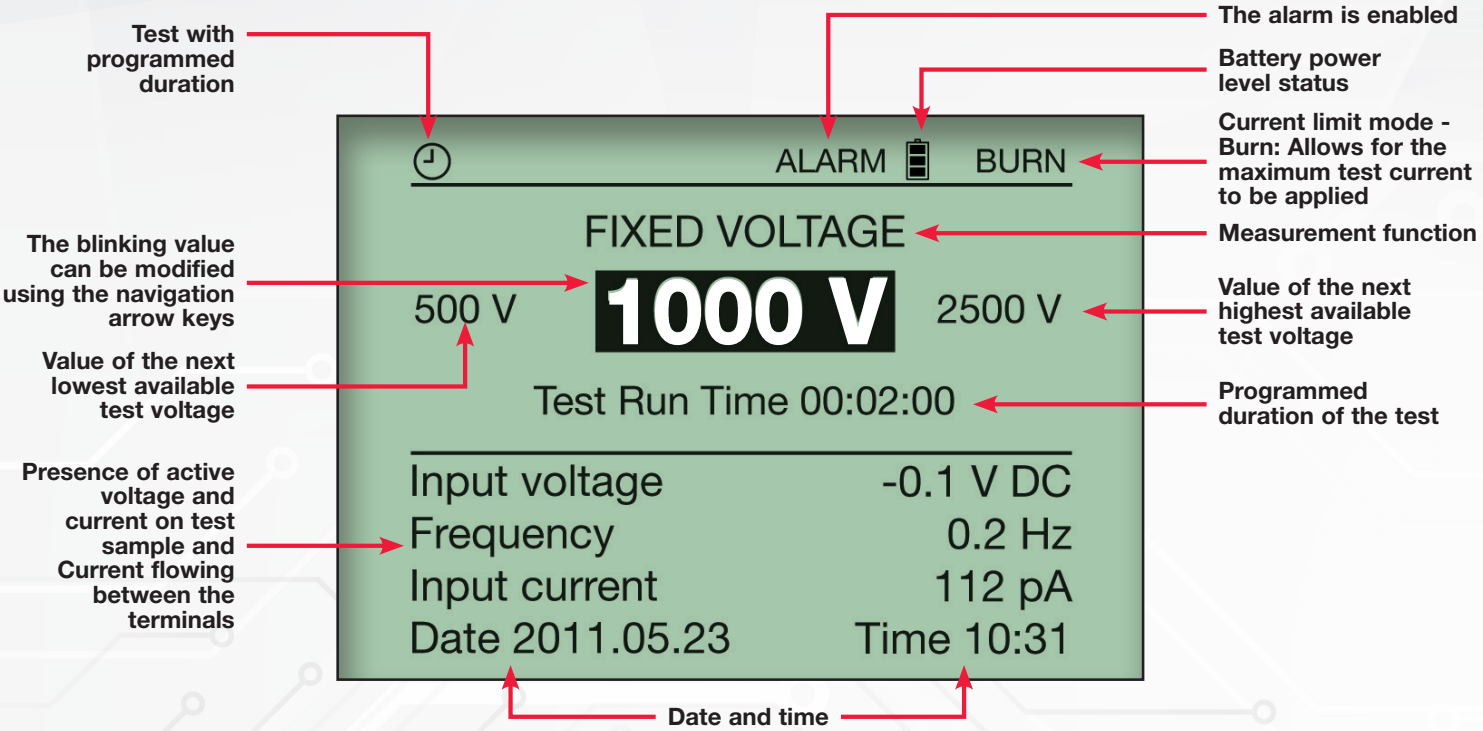
Models 6550 and 6555 have the same front panel with differences in the display only



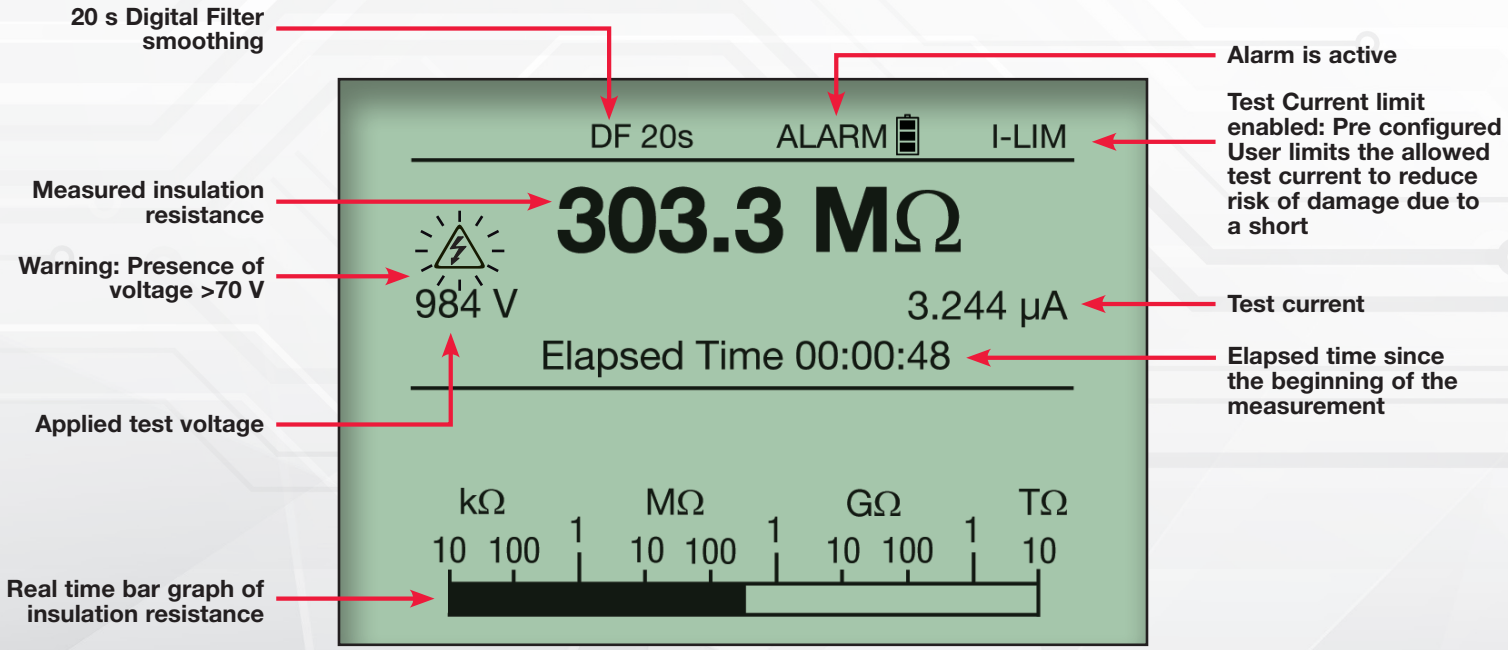


Functional Displays

Example of display before measurement

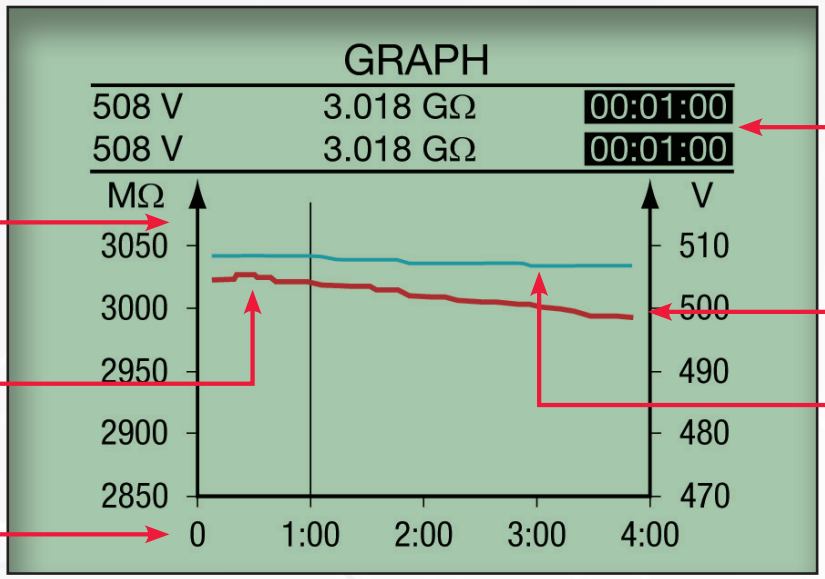


Example of display during measurement



Functional Displays

Resistance versus time graph



Insulation resistance axis

Curve R(t)

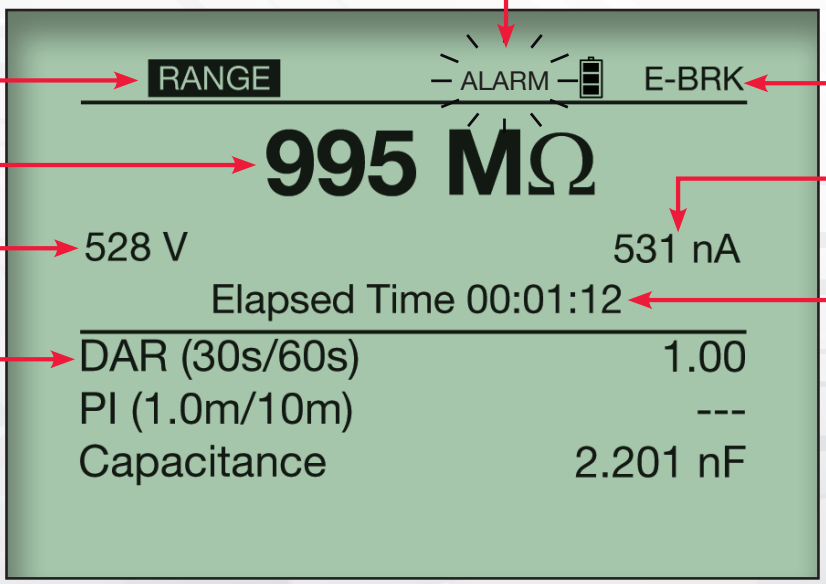
Time axis

Minimum and maximum values of the voltage and the resistance and time at the location of the cursor

Test voltage axis

Curve V(t) identified by x's

Example of display after measurement



The measurement range is fixed

Insulation resistance measured

The value of the test voltage at the end of the measurement

Quality ratio values

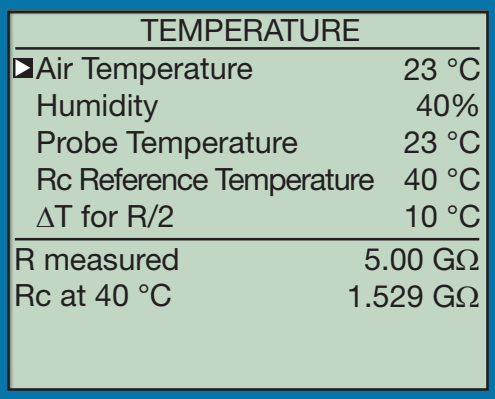
The insulation resistance is below the alarm threshold

Test Current limit Enabled: Early-Break limits test current to .2 mA to prevent damage

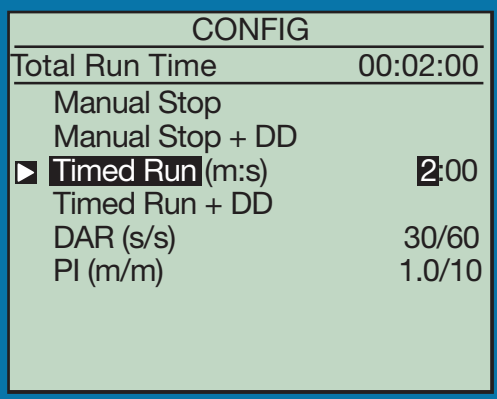
Applied test current

Duration of the measurement

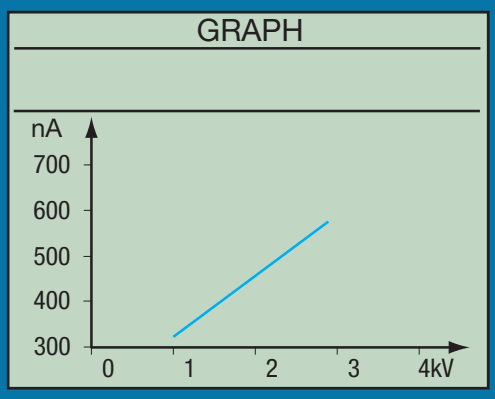
Functional Displays



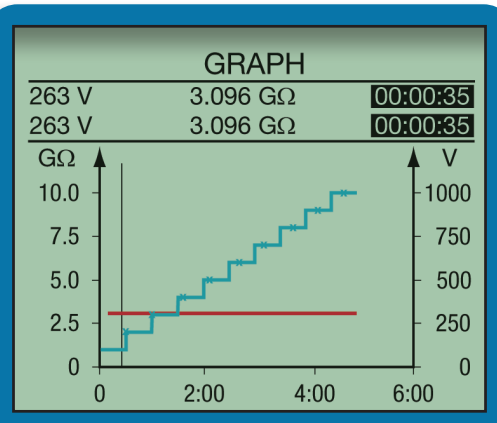
The instrument displays the insulation resistance referred to the reference temperature.



When Timed Run (test with programmed duration) or Timed Run + DD is selected, the duration of the measurement (m:s) can be set.

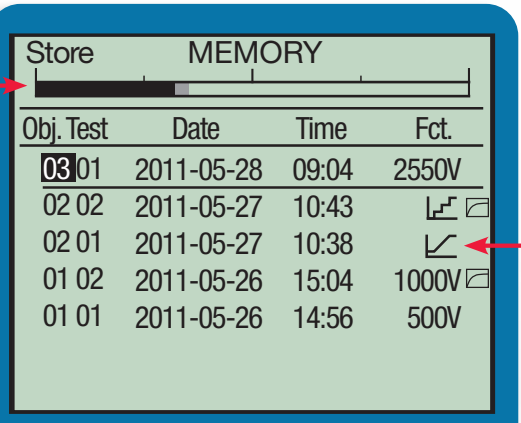


This curve is useful primarily in the case of a measurement in V-RAMP mode.



Example of the display when a measurement in V-STEP mode is performed.

The bargraph indicates the amount of memory used *(black)* and the quantity of memory available *(white)*.



Measurement function and availability of samples are indicated.

The number of measurements that can be recorded depends on the number of samples stored for each measurement.

Functions

Polarized Index (PI) & Dielectric Absorption Ratio (DAR)

Ratio calculations per IEEE 43, used to verify the insulation quality of electrical transformers and motors where foreign contaminants are of specific concern. Tests are performed over 10 minute (PI) or 1 minute (DAR) intervals, then a simple ratio value is calculated indicating the quality of the insulation based its polarization state during the measurement.

Variable Voltage Selection

Allows the user to preset voltages in 10 V increments between (40 - 1000) V, and 100 V increments to 15 kV *(model dependent)*. This function is used where specifications calls for specific test voltages for diagnostic or periodic maintenance testing.

Stop Test on Thresholds *(I-LIM or di/dt, Early-Break)*

Test Current limiting Thresholds
When testing delicate insulation layers, or for testing around sensitive components, using the early break or I-limit functions stops the instrument once the test current limit is met, mitigating the risk of damage that could occur if left unregulated.

Test with Programmable Duration

Insulation measurements sometimes take a long time to stabilize. Insulation quality can be assessed more accurately by means of long-term measurements and analysis of the insulation's trend curve according to the time for which the test voltage is applied.

Programmable Alarms

An alarm threshold can be stored. When the measurement trips the alarm, visual and audible alarms are triggered and displayed.

Dielectric Discharge (DD)

Automatically detect the presence of faulty insulation layers among other high-resistance layers using the math programmed into the instrument.

$$DD = \frac{\text{Current measured after 1 min (mA)}}{\text{Test Voltage (V) x Measured Capacitance (F)}}$$

Storage

Models 6550 and 6555 are equipped with internal memory capable of storing up to 80,000 measurements. Two indices, OBJ *(object)* and TEST, are used to store the time/date-stamped results in an ordered way.

Voltage Ramp and Voltage Step

The resistance of faulty insulation falls as the test voltage increases. This test, which involves increasing the test voltage step by step, helps to assess the quality of the insulation by observing the curve R *(V test)* and the result quantitative indication of the curves slope. A ramp mode with a rise time between the two values is also available.

Graph R(t)+V(t), I(t), I(V)

If a test with a programmed duration is run, the instruments automatically store the data at a rate chosen by the user. Models 6550 and 6555 can display the curves R(t)+V(t), I(t) and I(V) directly on the display screen. The curves can also be displayed on a PC screen with the DataView® software.

DataView® Software

This software retrieves the data stored in the memory, plots the trend curve R(t), prints the customized test protocols and creates spreadsheet files. DataView® configures and controls the instrument via an optically-isolated link compatible with USB and RS232.

Reference Temperature

The value of an insulation resistance varies according to the temperature at the time of the measurement. For precise, reliable monitoring, it is often required to express the result of a measurement at a given temperature of reference. This function adjusts for temperature conditions and calculates insulation resistance based on the users reference temperature to allow for comprehensive analysis.

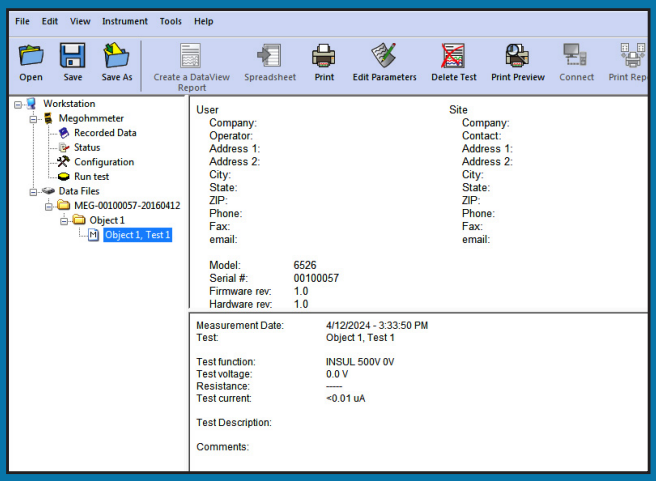
Filter Function

When working in electrically noisy environments, the filter function uses several filters included in the instrument to smooth the display of the insulation values so that you can read them more easily and interpret them more quickly.

DataView®

Data Analysis & Reporting Software

- 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 *(up to 80,000 insulation resistance measurements)*
- Display DAR, PI and DD ratios
- Plot graphs of manual and timed tests
- Include your analysis comments section with the report
- Store a library of setups for different applications
- Certification of results through report generation
- Free updates are available at: www.aemc.com



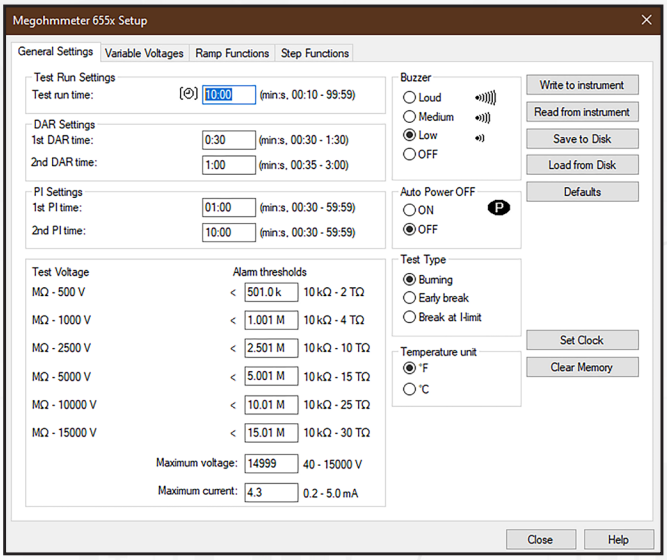
Tree structured status screen provides the ability to select connected instruments, configure instruments, see the instrument's status and review stored test results.

DataView® Software automatically recognizes the instrument when it is connected to the PC allowing communication through the corresponding control panel. The tree structure menu offers direct access to the data recorded in the instrument and its configuration.

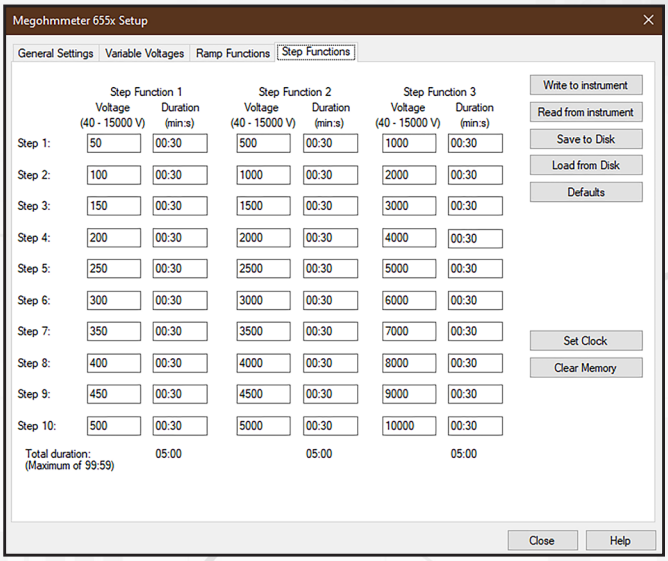
Other Functions Available

- Start and stop tests from your PC
- Real-time display of active tests
- DAR and PI ratio programming and display
- Graphical plot of the tests
- Generate reports from test results

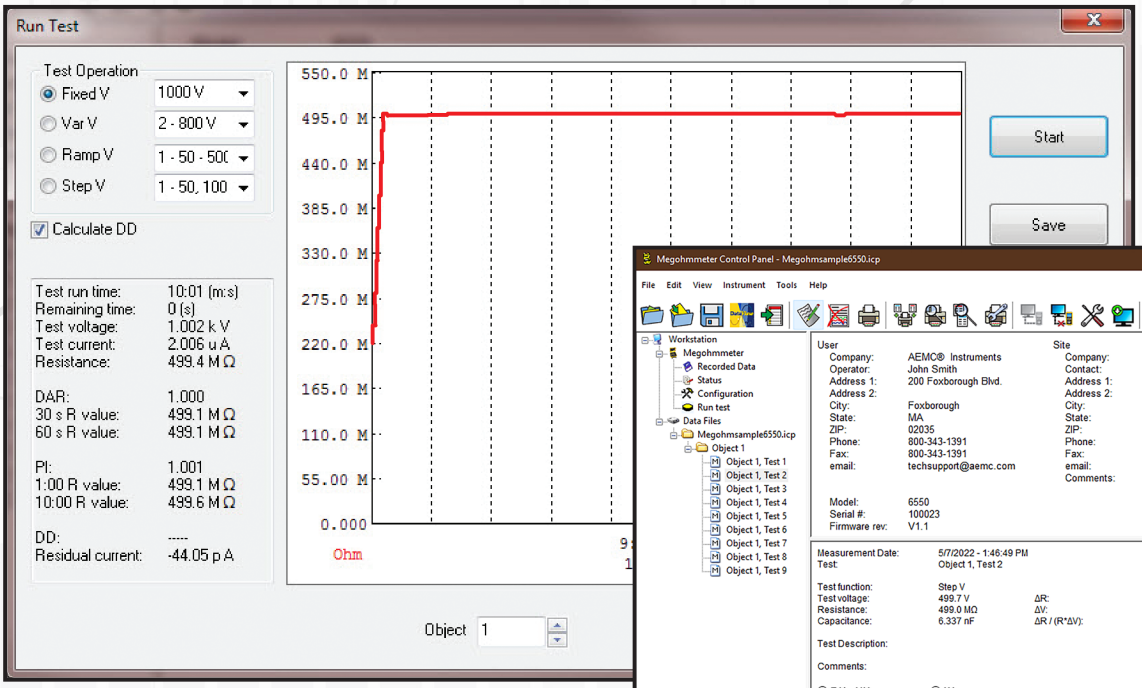
Configuration & Analysis Screens



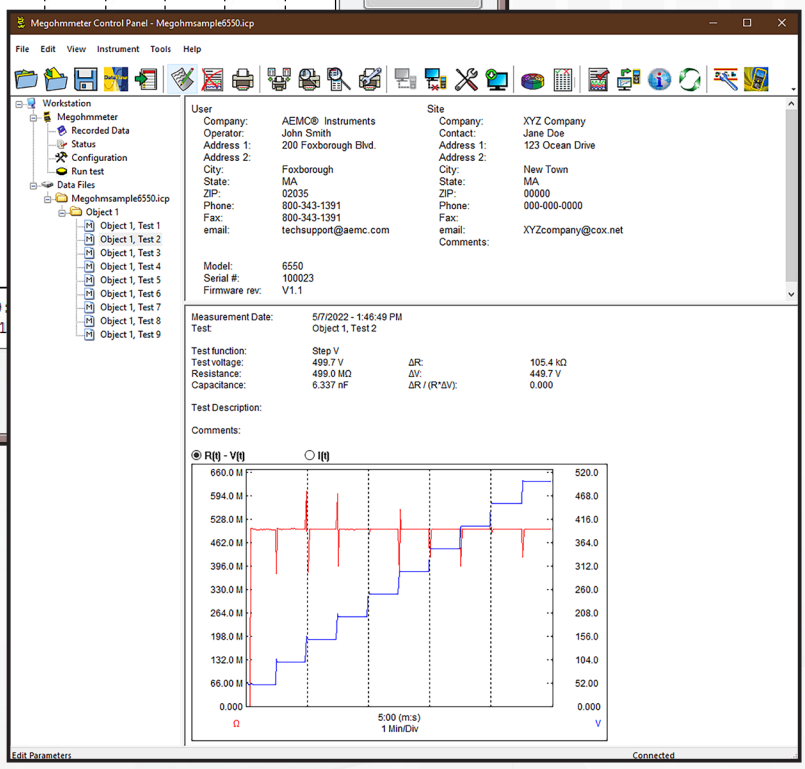
Clear and straightforward set up of parameters.



Step voltage set up screen.



Real-time display of measurement results.



Easy identification of all stored test results.

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United States & Canada

Chauvin Arnoux®, Inc.
d.b.a. AEMC® Instruments
15 Faraday Drive
Dover, NH 03820 USA
Tel (603) 749-6434
Fax (603) 742-2346

Customer Support
Place orders, obtain prices and delivery options
(800) 343-1391
customerservice@aemc.com

Sales & Marketing Department
sales@aemc.com
marketing@aemc.com

United States & Canada *(continued)*

Repair & Calibration Service
repair@aemc.com

Technical & Product Application Support
(800) 343-1391
techsupport@aemc.com

South America, Central America, Mexico & the Caribbean

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

Australia & New Zealand

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

All other countries

Chauvin Arnoux®
12-16 Rue Sarah Bernhardt
92600 Asnières-Sur-Seine, FR
Tel +1 33 1 44 85 45 85
Fax +1 33 1 46 27 73 89
info@chauvin-arnoux.com
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