



# Industrial World Revolution

**M**egger<sup>®</sup>

[www.megger.com/us](http://www.megger.com/us)

The word "Megger" is a registered trademark.

The industrial revolution is coming.  
Are you ready for it?



**Megger.**

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**Navigate your revolution with a Megger test set.**

Whether you're making, moving or simply consuming power, Megger provides quality testing equipment to make sure your electrical system is in working order.

You produce everything from coal to steel billets from chemical compounds to refined fuel and from integrated circuits to airliners. During the process, you demand constant power at a constant quality. Keeping that production line running requires a lot of attention and maintenance. Megger provides the test sets to make sure that your power is in tune with your equipment—keeping products or your flights on schedule.

You know Megger. Since 1903, the Megger family has provided tools training and products under such familiar monikers as Biddle, AVO, Programma, Mult-Amp, Pax Diagnostics, HDW Electronics and Seba KMT. With a vision encompassing excellence, precision, innovation and service, Megger and its subsidiaries and divisions will partner with any customer, working with them on an interactive path to the right solution. Megger equipment supports electrical systems worldwide across a range of industries.

Megger has offices across the U.S. and around the world, with major international hubs in Sweden, U.K and Germany.



**Innovation revolution in product choice**

Your needs are diverse. So are our products. Only Megger provides such a wide range of testing solutions in the most critical electrical maintenance areas including:

- Protective relay test equipment
- Cable fault locating products
- Transformer test sets
- Low voltage circuit breakers
- Vacuum interrupter test sets
- High-current test equipment
- Primary current injection test sets
- Low resistance test sets
- Battery test equipment
- Insulation-resistance test sets
- Power quality analyzers
- Multifunction test sets
- Oil test sets
- Insulation power factor test equipment

**Today's issues for industrials**

Industrial organizations deal with a series of major challenges and uncertainties within the scope of the global arena. Delivering results through growth and value are keys to business success. Collaborate with Megger to start your industrial revolution.

**What are your major challenges to change?**

**Downtime:** It only takes one mistake to cause a major outage or loss of power in your facility. The loss of power is particularly critical at sites where the bottom line is at risk. Many institutions likely will have back-up power which will automatically start up when electrical power is lost. But what is your practice to back-up the back-up?

**Safety:** How do we shift from risk management to risk resilience? The success of a business is its people, and our job is to make safety priority number one. Industrials must solve unsafe maintenance practices that put valued employees, and assets, at risk. Megger provides options for safe and effective testing that aid your management team when responding to risk. It's revolutionizing safety!

**Regulation:** How do business and government work together? Companies today face a growing body of diverse and complex regulations. The regulatory environment is changing faster than companies can absorb. Megger understands this and has a shared agenda with its partners. Use our knowledge to help you get through the regulation and end up on top.

Products that revolutionize the industrial markets are ones that answer the questions of reduced downtime, enable safety and answer regulation. This helps you increase your bottom line. What are they, and in what application do they fall under?

**Cable fault locators** – Testing the condition and integrity of the underground cable system is vital to ensuring the reliability of the entire system. One cable failure can result in lost revenue. Megger cable fault locating products minimize that risk and keep your costs under control.



### SWG truck mount system

- Focuses on URD cables
- Is fully self-contained
- Figures fault distance automatically
- Brings more power functionality to fault locating



### EZ restore overdrive power restoration tool

- Has feedback alert
- Weighs less than 48.5 lbs
- Offers unique USB load
- Has transfective color LCD



### EZ thump fault locating system

- Focuses on distribution voltage power cables
- Works like a thumper
- Possesses easy go automatic sequence
- Interprets test results

### VLF sine wave 34 kV measurement tester medium voltage diagnostic test set

- High test capacity of 5 uF
- Suitable for outdoor use (IP54)
- Single button operation
- Integrated safety system



### Digiphone pinpoint

- Finds the fault with unprecedented accuracy
- Offers simple visual directions
- Possesses smart background noise reduction
- Automatically limits audio volume to 84 decibels



### CI cable identifier

- Identifies and energizes primary cable safely
- Identifies live secondary cables up to 240 VAC
- Avoids false positives



### ST16 smart thump fault location system

- Uses live trace to confirm fault
- Offers sectionalizing option
- Marks distances to cable end and fault
- Assures user safety



**Battery test equipment** – batteries are essential in the maintenance of your power system. When power goes down major organizations have a backup resources to get power up and running in a flash. These products watch over your backup making your power systems ready for the perils of downtime – saving time and saving money.



### Battery ground fault locator

- Grounds faults in ungrounded dc battery systems easily located
  - Operates in high electrical noise environment
  - Simplifies fault tracing by identifying fault characteristic (resistive and capacitive) magnitudes



### Battery ground fault tracer

- Grounds faults in ungrounded dc battery systems easily located
  - Operates in high electrical noise environment
  - Simplifies fault tracing by identifying fault characteristic (resistive and capacitive) magnitudes



### BITE3 battery impedance test set

- Determines health of lead-acid cells up to 2000 Ah
  - On-line testing with pass/warning/fail calculations
  - Measures impedance, interconnection resistance and cell voltage
  - Windows CE operating system with 32 MB of memory
  - Measures float and ripple currents
  - Includes PowerDB LITE management software



### BITE2 and BITE2P

- Determines condition of lead-acid and NiCd cells up to 7000 Ah
  - On-board pass/warning/fail indications
  - Robust, repeatable instruments
  - On-line testing



### TORHEL 840/860 battery load units

- Batteries can be tested in service
  - Unit adjusts to include load currents in the test parameters
  - User-adjustable alarm and shutdown points to avoid excessive discharge
  - Easily expandable for larger battery banks using TXL extra load units (option)
  - Computerized test operation using PowerDB software
- TXL830, TXL850 and TXL870 Extra Load accessory for TORHEL Units
  - Provide higher load currents for concurrent power tests
  - Discharging process controlled by a TORHEL unit
  - Connect directly to the battery under test



### BVM battery voltage monitor

- Automates battery voltage measurement during capacity tests
- Daisy chain set-up design allows expandability up to 120 units
- High accuracy and stability for precise data collection
- Integrates with PowerDB LITE test data management software
- Wide voltage range
- Easy setup

**Protective relay test equipment** – Running on time requires attention and maintenance. Megger relay test equipment ensures that your power is in tune keeping that product line running and on time. And with the STVI managing that maintenance is made easy with one simple push of a button.

### PMM-1 power multimeter

- Simultaneous measurement and display of all three-phase system parameters
- Accurate phase angle measurement at low current levels
- Versatile, menu-driven instrument with a built-in timer and data-logging
- High-speed measurement mode



### MPRT8445 protective relay test system

- New Smart Touch View Interface™ (STVI)
- New multi-colored graphics with intuitive navigation
- New enhanced dynamic test capabilities
- New built-in test report generator
- New high current output (45 Amps at 300 VA per phase)
- Improved low current accuracy (currents below 100 mA)
- New convertible voltage channels (15 Amps at 120 VA)
- New lighter weight unit (up to 25% weight reduction)
- Open communication architecture for use with third-party software programs



### SMRT410 multi-phase relay test system

- Small, rugged, lightweight and powerful
- Operates with or without a computer
- Intuitive manual operation with Smart Touch View Interface
- High current, high power output (60 Amps/300 VA rms) per phase
- Flexible output design provides up to four-phase voltage and up to ten-phase current
- Network interface provides IEC 61850 test capabilities
- Fully automated testing using AVTS software



### SMRT36 three-phase relay test system

- Small, rugged, lightweight and powerful
- Operate with or without a computer
- Intuitive manual operation with Smart Touch View Interface
- High current, high power output (60 Amps/300 VA rms) per phase
- Convertible channels provides 6 currents
- Network interface provides IEC 61850 test capabilities
- Optional transducer test capability
- Fully automated testing using AVTS Software



### SMRT1 single-phase relay test system

- Small, rugged, lightweight and powerful
- Operate with or without a computer
- Intuitive manual operation with STVI
- High current, high power (75 A/400 VA rms)
- Network interface provides IEC 61850 test capabilities
- Fully automated testing using AVTS software



### STVI smart touch view interface handheld controller for SMRT and MPRT test sets

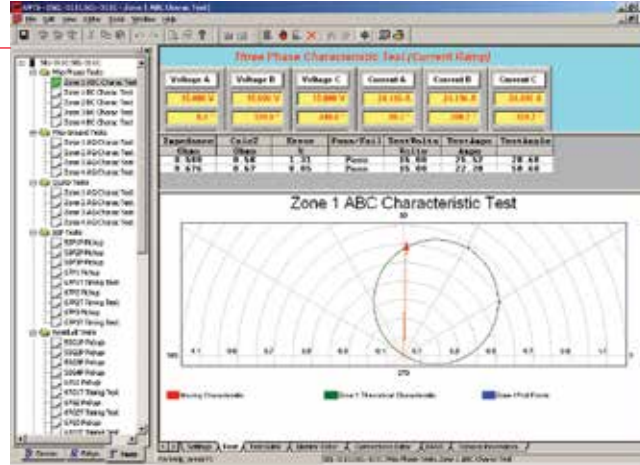
- Large High Resolution Color TFT LCD touch-screen intuitive smart navigation makes testing relays easier
- Designed for either right or left handed operation with control knob centrally located
- Automatic Ramp, Pulse Ramp, Binary Search and Pulse Ramp Binary Search Capability for pick up and dropout tests
- Overcurrent Relay Test includes IEC, IEEE and hundreds of Specific Relay Time-Curves Built-in
- Dynamic Testing Capability, Multi-Shot Trip and Reclose “Sequencing” test screen
- Save/View/Print results from internal PowerDB OnBoard
- Download results via USB to print



**Relay test software** – AVTS is a Microsoft® Windows® XP®/Vista®/7/8 compatible software program designed to manage all aspects of protective relay testing using Megger SMRT or MPRT relay test sets. AVTS is a very flexible software with many powerful features.

**Megger AVTS relay test software**

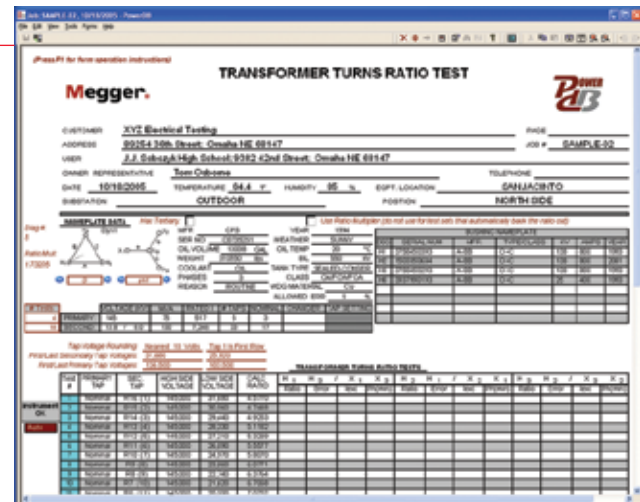
- Powerful, easy-to-use Microsoft Windows 2000/XP/ Vista/7/8 compatible
- Designed to manage all aspects of protective relay testing using the MPRT relay test set
- Now loaded with more features and capabilities:
  - Click-on-fault
  - Dynamic control
  - Binary search
  - Waveform recorder
  - SSI file reader
  - Modbus communications
  - Optional IEC 61850 test capability



**Data collection and data management software** – Companies that do testing should not only do maintenance but also create the proper documentation for preventative and predictive maintenance data analysis that is sound and up to date. Our enhanced software product does just that and more.

**PowerDB software**

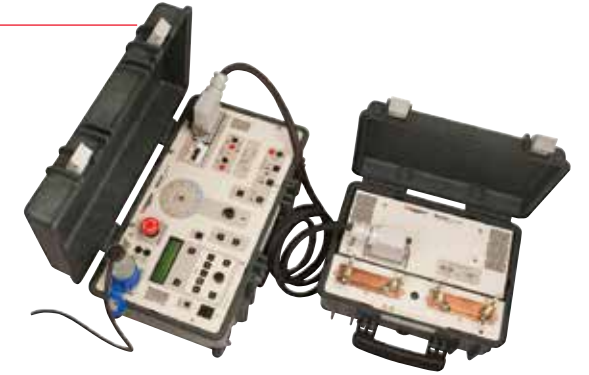
- Windows-based PC software available in four editions
- Interfaces to instruments via either Serial RS232, Ethernet, or USB flash drive
- Users set up test routines in advance of testing
- Analysis, compare and trend data
- Merge test results between field and office databases
- Customize reports for professional data presentation



**Low voltage circuit breakers** – Current is running through your network of electrical components and used to transmit your power. Can you have too much power? What do you have in place to prevent your power system from overloading? Low voltage circuit breakers protect an electrical circuit from damage caused by overload or short circuit, protecting equipment from catastrophic failure and protecting your business from excessive down-time. Well maintained circuit breakers save your business from lost production time and expensive repair costs.

**INGVAR**

- Most advanced primary current injection test system to simplify all types of switchgear and CT commissioning, ground grid, circuit breaker testing and more
- Up to 5000 A output current
- Two units, each of about 20 kg, makes it easier to carry
- Unique I/30 function allows the current to be pre-set using low current to prevent test sample heating, thus eliminating corruption of test result



**ODEN primary injection testing of protective relay equipment and circuit breakers**

- Portable modular system
- Broad application range
- Up to 8 kA output



## Revolution through our company brands

Additionally, under the Megger umbrella, STATES offers terminal blocks and test switches for power system applications. Test technicians depend on these high quality products to provide easy access to wiring on panels and switchboards. For more information on STATES, go to [www.statesproducts.com](http://www.statesproducts.com).

The AVO Training Institute is also part of the Megger family. For over 50 years, AVO has been helping create safe and reliable electrical systems. The mission is simple: save lives by eliminating electrical hazards and empower employees to work safely and effectively. AVO's accredited safety and technical training courses offer certified student hands-on training in Utility and Industry electrical maintenance, testing, power studies and safety skills. AVO's engineering group's registered engineering division analyzes power systems to identify conditions that create instability and hazardous workspaces. Every arc flash hazard analysis, protective device coordination, short circuit and load flow study AVO performs is sealed by their Professional Engineers, who are collectively registered across the U.S. and Canada.

Courses are available at training locations nationwide and for presentation onsite at your facility. For more information on training go to [www.avotraining.com](http://www.avotraining.com).

Megger also supports its test sets with PowerDB. Megger's PowerDB is versatile, powerful software. It collects, stores and analyzes data from a wide range of power testing instruments. With PowerDB, generating comprehensive reports has never been easier. For more information on PowerDB, go to [www.powerdb.com](http://www.powerdb.com).

## Commitment to the innovation revolution

Megger promotes innovation. The company continues to design and introduce new test instruments—ones that provide better diagnostic information. They are also easier to use, faster to test and more reliable. Megger anticipates and identifies needs; we listen to customers, standard developers and industry specialists. We also continue to invest in new manufacturing techniques, R&D and advanced engineering design.

We are committed to innovation and the evolution (or revolution) of the research process. Our technical leadership among peers and colleagues reflects this commitment. Megger's commitment has not wavered in the last 100 years, and it won't waiver in the next 100. Megger is often the first to design and introduce many key products to the marketplace. These include the first portable insulation resistance test set commercial cable fault locator, DSP based watt-hour meter test system and a software driven protective relay test system.

Megger test instruments are manufactured at five facilities located in the US and in Europe: Dallas, Texas USA; Valley Forge, Pennsylvania USA; Dover, England; Taby Sweden; and Baunach, Germany. All Megger factories have been awarded ISO 9000:2000 certification for their quality-assured processes. The Dover and Taby products facilities have also ISO 4001 accreditation for environmental standards. Certificates of conformity are available, and our metrology laboratories also offer calibration and certification services traceable to dozens of national and international standards.

## Innovation in presences and support

Megger has the largest dedicated technical sales team in the industry, providing professional sales support and service before, during and after every sale. The Megger sales team includes technical sales representatives—plus inside sales personnel distributors and manufacturer representatives. This network provides a local sales presence in more than 100 countries across the globe—to provide an even higher level of local support.

Megger also has many technical support offices strategically placed. In fact, there's one near you. All of our sales and application engineers are thoroughly trained on new products and applications to make sure you always receive the right product—on time, when you need it.

Technical support of our products is paramount. Megger maintains a diverse staff of highly trained and experienced application engineers driven by one purpose: to assist users of Megger equipment. They provide training test application support and recommendations for solving a client's most critical testing needs. In addition, Megger maintains service and repair facilities, along with satellite service organization authorized to provide efficient and effective local repair services in many countries. Every location employs Megger-trained technicians and offers a range of capabilities from the service and repair of warranty and non-warranty products to the supply of spare parts.

All service and repair work is performed by certified technicians, and parts and labor guaranteed. We also maintain an inventory of spare parts and accessories to ensure prompt and efficient service to all clients.

## Revolution through education

Using our engineering and technical expertise as a base, Megger creates and/or sponsors numerous technical seminars conferences and product forums, which our customers regularly attend around the globe. These events provide practical real world information the option to network with peers and the opportunity to improve application and testing skills.

Megger also offers a series of free publications covering a wide variety of electrical testing application and case studies using Megger equipment. In addition, professional electrical and safety training classes are offered through the AVO training institute, which operates as a subsidiary of Megger.

From the beginning, Megger has always been its people. Megger employs a strong competent team of professionals dedicated to providing the innovative test equipment necessary to keep electrical systems strong and steady. Additionally, Megger customer service and support excellence is unequalled.

# The industrial revolution is coming. Are you ready for it?





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