Utility Test Tools
A full complement of reliable, easy-to-use tools for specialists to lineman.
Make Fluke your source for advanced tools and application expertise.

You know Fluke for the world’s most rugged, reliable and easy-to-use handheld test tools from digital multimeters to clamp meters. You trust the accuracy and precision of Fluke calibrators and standards in your calibration lab. Now you can rely on Fluke test and measurement expertise for a broad portfolio of portable utility tools including new thermal imagers, power quality meters and earth ground testers.

- **From the truck to the substation.** Utility workers rely on Fluke tools and application expertise—only available from the world leader in test and measurement.
- **Rugged and reliable.** Fluke tools are built to the highest safety and reliability standards. So your team gets the job done right the first time.
- **Simple and easy to use.** Fluke tools are designed with you in mind, allowing you and your team, more time in the field and less time in the classroom.

More information and resources.
You can always count on Fluke for the troubleshooting techniques, application information, and training to keep your power distribution network up and running. Visit our web site at [www.fluke.com/utility](http://www.fluke.com/utility).

For technical questions or to request a demonstration, contact Fluke at fpqsupport@fluke.com or 1-888-257-9897.

---

The Fluke 576 Photographic IR Thermometer

Capture precise measurements and digital images simultaneously.
The Fluke 576 non-contact thermometer is the ideal professional diagnostic tool providing accurate temperature readings at all distances and documentation, including images, for analysis and reporting. The Fluke 576 measures surface temperatures while simultaneously capturing photo images of the measurement location. This helps to quickly locate overloading or overheating systems, reduce work and follow-up time, and avoid costly outages. The Fluke 572 and Fluke 574 share many of the precision features of the Fluke 576 but do not save a photograph.

Temperature measurement techniques
- **Spot measure:** Determine the absolute surface temperature of an object
- **Temperature differential:** Compare two spot measurements against each other
- **Scanning:** Detect changes along a wide or continuous region target
Find problems faster with Fluke thermal imagers.

Reduce costs and maximize uptime with our complete range of imaging solutions. They combine the largest, sharpest images in the industry, with innovative, easy-to-use features.

- **Fluke Ti40 and Ti50 Series** reveal more with IR Fusion™ Technology—merging infrared and visible light images in one display.
- **Fluke Ti20** with built-in inspection routing software makes predictive maintenance fast and easy.
- **Fluke Ti30** is ideal for field use with its five-hour battery life, and fast and easy inspection routing.
- **Breakthrough price-to-performance** knocks down cost barriers.
- **Software is included** with all models and licensing is unlimited.

Fluke thermal imagers are available with different detector sizes, temperature ranges, and thermal sensitivities to meet every image quality requirement. All Fluke thermal imagers are fully radiometric. Measurement data for thousands of individual sensor points are stored. All these data points can be used for analysis and reporting on the imager, or in the software supplied with each instrument.

These rugged, battery-powered instruments are easy-to-use and incorporate advanced features to increase your ability to predict impending problems faster.

See things both ways with Fluke IR-Fusion™ technology*

To communicate critical information, infrared images only are no longer enough. With revolutionary IR-Fusion™ technology, one can better identify details. Manage and analyze images by combining real world visual images with infrared images, merging them into one! This technology allows you to blend between two images, or create picture-in-picture combinations, as in the example above.

* Available on Ti40X and Ti50X models.

Find out how thermal imagers can help you with your everyday troubleshooting and maintenance of transformers by checking out our Monitoring Transformers application note at www.fluke.com/utilitynotes
Never miss capturing a disturbance—with the exclusive threshold-free measurement system, it's automatic.

Capture every measurement, every event, on every cycle, all the time with the Fluke 1750 Three-Phase Power Recorder. Unprecedented accuracy and resolution provide complete visibility into your distribution system.

Features
- **Premium accuracy and measurement techniques:** Guaranteed for all power quality parameters, with IEC 61000-4-30 compliant measurement systems
- **Quick and reliable configuration:** PDA wireless “front panel interface” provides a window into what the instrument is recording, even in awkward test locations
- **Threshold-free setup:** Apply thresholds after data is collected with Fluke Power Analyze Software
- **Captures everything:** Cross-channel and current triggering capture every measurement, on every channel, every time
- **Intuitive PC software:** Easily analyze data and generate reports
- **Plug and play:** Set up in minutes with self-identifying current probes and single-lead voltage connections
- **No need to reconnect wires:** Swap channels internally with the wireless PDA or PC when connections are not correct
- **Measure every parameter:** Voltage and current on three phases, neutral, and ground
- **5 MHz, 9000 V pk waveform capture:** Get a detailed picture of even the shortest events
- **Quickly retrieve data:** With included SD memory card or via the 100BaseT high-speed Ethernet connection

Full disclosure monitoring
Full disclosure monitoring is the ability to measure all aspects of power quality, on every voltage cycle, and record them in appropriate detail over the duration of a power study. It delivers clear visibility into all characteristics of a power system that affect critical loads and gives high confidence regarding the relative health of your power system.

Find out more about the technology behind full disclosure monitoring and how it overcomes common shortcomings of recording instruments, go to [www.fluke.com/utilitynotes](http://www.fluke.com/utilitynotes) and click on the application note, Full disclosure monitoring.
Fluke 1760 Three-Phase Power Quality Recorder

The power quality expert’s choice for the most demanding tests.
The Fluke 1760 Three-Phase Power Quality Recorder is fully compliant to IEC 61000-4-30 Class-A, for advanced power quality analysis and consistent compliance testing. Designed for analysis of medium- and low-voltage utility power distribution systems, this power quality monitor provides the flexibility to customize thresholds, algorithms, and measurement selections.

- **Flexible, and fully configurable thresholds and scale factors:** Allows user to pinpoint specific issues by defining the detailed criteria for detection and recording of disturbances.
- **10 MHz, 6000 Vpk waveform capture:** Get a detailed picture of sub-microsecond events.
- **Comprehensive software included:** Provides trend diagrams for root cause analysis, statistical summaries, report writing, and real-time data monitoring in the online mode.
- **Rugged field design:** Insulated housing and a solid state design with no rotating components enable reliable testing under nearly any conditions which additionally satisfies important IEC 61010-1 shock protection requirements.
- **Fully Class-A compliant:** Conduct tests according to the stringent international IEC 61000-4-30 Class-A standard.
- **GPS time synchronization:** Correlate data with events or datasets from other instruments, with precision.
- **Uninterrupted power supply (40 minutes):** Never miss important events—even record the beginning and end of interruptions and outages, to help determine the cause.

New IEC 61000-4-30 Class-A standard
The new IEC 61000-4-30 Class-A standard takes the guesswork out of selecting a power quality instrument. The standard defines the measurement methods for each power quality parameter to obtain reliable, repeatable, and comparable results. In addition, accuracy, bandwidth, and a minimum set of parameters are all clearly defined.

To find out more about the Class-A standards, go to www.fluke.com/utilynotes and click on the application note, *What does Class-A mean to me?*
Three-phase power quality

1740 Series Three-Phase Power Quality Loggers

Compact and rugged, the Fluke 1740 Series three-phase power quality loggers are everyday instruments for technicians who troubleshoot and analyze power distribution systems. Capable of simultaneously logging up to 500 parameters for up to 85 days and capturing events, the Fluke 1740 Series helps uncover intermittent and hard-to-find power quality issues.

- **Plug and play**: Setup in minutes with automatic current probe detection and powering
- **Installs inside the cabinet**: Compact, fully insulated housing and accessories fit easily in tight spaces, next to live power
- **Determines the root cause**: Included PQ Log software quickly analyzes trends, creates statistical summaries, and generates detailed graphs and tables
- **Monitors power for the long-term**: Data can be downloaded during recording without interruption
- **Measure voltage with premium accuracy**: IEC 61000-4-30 Class-A compliant voltage accuracy (0.1 %)
- **Quickly validate quality of power**: Assess power quality according to EN50160 power quality standard, with statistical overview
- **Rugged and reliable**: Designed for everyday field use, with no moving parts and durable, insulated case, with two year warranty

View graphs and generate reports with Fluke PQ Log software

Power quality recording and analysis: Techniques and applications

Hooking up a power quality recorder and taking days’ worth of data can give you a rich picture of your power. In this article we’ll talk about the various recording techniques available in power loggers and recorders—understanding the tools and techniques you have available will be key to your strategy. What should you be looking for? And when does recording make sense?

Read this article on-line at www.fluke.com/utilitynotes
Fluke 430 Series Three-Phase
Power Quality Analyzers

Pinpoint problems quickly on-screen with these easy-to-use troubleshooters.
The Fluke 435 and 434 Three-Phase Power Quality Analyzers are frontline troubleshooters that help you locate and troubleshoot power quality problems. They enable the user to pinpoint problems quickly by viewing and analyzing data on-screen, often eliminating the need to leave a power quality recorder for an extended period.

- **Troubleshoot real-time**: Analyze the trends using the cursors and zoom tools—even while background recording continues
- **View graphs and generate reports**: With included analysis software
- **Quickly check revenue meters**: Using simple pulse count energy mode
- **Logger function**: Configure for any test condition with memory for over 400 parameters at user defined intervals [435 only]
- **Autotrend**: Every measurement you see is always automatically recorded, without any setup
- **Battery life**: Seven hours operating time per charge on NiMH battery pack
- **System-Monitor**: Up to ten power quality parameters on one dashboard
- **Automatic transient mode**: Captures 200 kHz waveform data on all phases simultaneously—up to 6 kV
- **Fully Class-A compliant**: Conduct tests according to the stringent international IEC 61000-4-30 Class-A standard
- **GPS time synchronization**: Correlate data with events or datasets from other instruments, with precision

Multi-purpose measurement tools help utilities increase service and protect revenue

Enough revenue meters are out of tolerance that a 2001 Electric Power Research Institute study estimated meter-related losses at $5 million to $20 million per year for a medium sized U.S. utility. Using a multi-purpose analyzer such as the Fluke 430 Series allows utility technicians to offer more customer services in less time and quickly audit revenue meters during each site visit.

Find out more about revenue meter verification and the 430 Series at [www.fluke.com/utility](http://www.fluke.com/utility)
Power quality handhelds

Fluke 345 Power Quality Clamp Meter

Easily monitor and troubleshoot high current applications.

The power quality clamp meter combines the functionality of a current clamp, power quality meter, oscilloscope, and data logger in a single handheld instrument that has been designed for ruggedness and ease of use.

**Features**

- Clamp-on measurement of ac current up to 1400 A rms and dc current up to 2000 A without breaking the circuit
- Highest safety rating in the industry—600 V CAT IV
- Troubleshoot on screen with graphical display of waveforms, harmonics, and recorded data
- Investigate intermittent issues with logging of Min, Max, and Average measurements
- Measures V, A, Hz, CF, THD, DF, W, VA, VAR, kWh, and Power Factor even on distorted waveforms
- Quantify demand with three-phase power capability for balanced loads
- View graphs and generate reports with included Power Log software

Expand your capabilities with industry leading accessories including flexible current probes and current clamps.

Whether you need flexible current probes for tough-to-reach locations, or high precision current clamps for secondary CT applications—you can find it here.

While all test tools in this catalog are packaged with the most commonly used accessories for utility applications, you can further enhance the versatility of Fluke tools by customizing them with optional accessories. Designed and manufactured to our same high quality and safety standards, these rugged, heavy-duty accessories can help you solve more of the measurement challenges you face on the job.

Go to www.fluke.com for more information.

Fluke 43B Power Quality Multimeter

Field proven performance makes it a “must have” for every tool box.

The Fluke 43B Power Quality Multimeter performs the measurements you need to maintain power systems, troubleshoot power problems, and diagnose equipment failures. All in a rugged, handheld package.

- Combines the most useful capabilities of a power quality analyzer, multimeter, and scope
- 20 measurement memories to save/recall screens and data with cursor readings
- Monitoring functions help track intermittent problems and power system performance
- Records two selectable parameters for up to 16 days
- Complete package with voltage probes and 40 A/400 A current clamp, FlukeView® Software and optically isolated interface cable
- Toggle through the most commonly used power quality modes with a single keystroke
- Users/applications manual and power quality video to help answer tough questions

The range of measurements offered is suitable for:

- Measuring and logging power, voltage, and current parameters
- Installing and testing of dc power systems
- Analysis of voltage and current harmonics

Fluke Corporation Utility Test Tools
Fluke VR101S Voltage Event Recorder System

**Set up, plug in, download, and analyze**
The VR101S is the perfect system for investigating single-phase voltage issues. The recorder is first configured by the power quality technician and then sent to the problem site to capture sags, swells, transients, outages, and frequency variations on line voltage at receptacles. A flashing light indicates that the VR101 has recorded an event and can be returned to the specialist.

The VR101S is a starter system that includes a compact VR101 event recorder, an optical interface cable, and EventView® software that turns your PC into a power quality reporting tool. Additional VR101 event recorders can be purchased individually, so you can monitor several locations at once.

Fluke 9040 Phase Rotation Meter

**Hook up 3-Phase systems correctly, and quickly.**
Ideal product for the utility industry with the widest frequency range, of 15 - 400 Hz, on the market. The Fluke 9040 is a rotary field indicator and can provide clear indication of the three-phase via an LCD and the phase rotation direction to determine correct connections.

Every day, thousands of workers suffer disabling injuries on the job.
To help you reduce the level of risk in your work environment, Fluke has created a Safety Program for electrical measurement—including a free video.

At Fluke, we’re committed to helping you stay safe and compliant. So we’ve developed the only safety program designed to mitigate risk and promote safe electrical measurement. Find out more and order a free safety video, just visit www.fluke.com/safety
What is Stakeless testing?
Measure earth ground loop resistances for multi-grounded systems using only current clamps.
This test technique eliminates the dangerous, and time consuming activity of disconnecting parallel grounds, as well as the process of finding suitable locations for auxiliary ground stakes. You can also perform earth ground tests in places you have not considered before: inside buildings, on power pylons, or anywhere you don’t have access to soil.

For a virtual demonstration for each of the 4 testing methods of the 1625 and 1623 visit www.fluke.com/utilities

Fluke 1625 Advanced GEO Earth Ground Tester

The most complete earth ground tester on the market.
The new Fluke 1625 offers an innovative solution called Stakeless testing to make your earth ground loop resistance testing quicker and easier. No need for a separate earth ground clamp.

Features
• 3- and 4-Pole Fall-of-Potential testing (using stakes)
• Stakeless testing (using only 2 clamps)
• Selective testing (using 1 clamp and stakes)
• 4-Pole Soil Resistivity testing
• One button measurement—automatic hold of last set of measurements
• Limit for verification of measurements
• Automatic frequency control (AFC) for stable measurements

Fluke 1630 Earth Ground Clamp Meter

Measure earth ground loop resistance anywhere. Quickly and easily.
The Fluke 1630 Earth Ground Clamp is able to measure ground loop resistances using the Stakeless testing—eliminating the need to use earth ground stakes. Gone are the days of spending time placing and connecting stakes for each earth ground rod on your system—a major time saver.
• Quick and easy use—no earth ground stakes are necessary
• Large, 35 mm (1.35 in) jaw opening
• Measures ground resistance from 0.025 Ω to 1500 Ω
• Measures ground leakage current from 0.2 mA to 30 mA
• High and low alarming
• Automatic self calibration
• Rugged carrying case and resistance check loop included

Earth Ground

Earth Ground Resistance: Principles, testing methods and applications
Learn about the basics of Earth Ground measurement and testing. Answer questions such as: “Why ground? Why is testing important?” and “What is a good ground resistance value?”
Discover all of the methods available for testing and their most common applications.
To get your copy of the Earth Ground Resistance brochure, ask your local Fluke distributor or download a copy on-line at www.fluke.com/utilities
Insulation resistance

Fluke 1550B 5 kV MegOhmMeter

Easily identify potential equipment failures.
The Fluke 1550B is ideal for utility electricians, technicians and engineers who install, maintain or repair transformers, cables, switchgear, generators, and motors. This type of testing is performed when new electrical equipment is installed or repaired. The Fluke 1550B is also a perfect tool for preventative or predictive maintenance programs designed to identify potential equipment failures before they occur. The 1550B is capable of applying test voltages of up to 5000 V dc, which allows the measurement of resistance values up to one teraohm.

- Standard voltages of 250 V, 500 V, 1000 V, 2500 V, 5000 V for a wide range of insulation test needs
- Programmable test voltages available in 50 volt steps from 250 to 1000 volts and 100 volt steps from 1000 to 5000 volts
- Automatic calculation of Dielectric Absorption Ratio (DAR) and Polarization Index (PI) with no additional setup
- Improved ramp function (0 to 5000 V dc) for breakdown testing
- Warning voltage function alerts the user that voltage is present and gives the voltage reading up to 600 V ac or dc
- Runs off of high-capacity rechargeable batteries for more testing between charges
- Measurements can now be stored in up to 99 memory locations, with each location assigned a unique, user defined, four character (alpha-numeric) label for easy recall
- Includes improved FlukeView® Forms Basic Software and Optical Interface cable for easier downloading to a Windows® PC

Comprehensive maintenance keeps electricity flowing

Pacific Gas and Electric Company (PG&E), incorporated in California in 1905, is one of the largest combination natural gas and electric utilities in the United States. In order to provide optimum service while limiting downtime, PG&E maintains a comprehensive preventive and predictive maintenance program.

Find out how PG&E partnered with Fluke and Fluke products to update their insulation testing accuracy and functionality, as well as promote safer work practices—go to www.fluke.com/utilitynotes
Put Fluke tools on every tool belt.

Now you can equip utility specialists, technicians and lineman with a full complement of portable tools for utility applications including:

- Thermography
- Power Quality
- Earth Ground
- Insulation Resistance

Trust our tools for rugged reliability and safety from the truck to the substation, wherever this mission critical high-voltage work takes your team. All are designed, manufactured, and calibrated with Fluke bench-top calibrators, the best in the world. So you know that quality and precision is engineered into every component. To keep your Fluke tools operating at peak performance, you can easily calibrate them in your cal lab using Fluke calibration equipment and the recommended procedures we supply.

More information and resources.

You can always count on Fluke for the troubleshooting techniques, application information, and training to keep your power distribution network up and running. Visit our web site at www.fluke.com/utility

To learn more, or for a product demonstration contact us in Seattle, WA, USA at fpqsupport@fluke.com or call 1-888-257-9897