FLUKE®

Power Quality

New Fluke 435

Fully Class A compliant with logging function to capture data the way you want

Pinpoint power quality problems faster

Fluke 430 Series three-phase and Fluke 43B single-phase Power Quality Analyzers

Analyze your power network quickly

Measure all power parameters, find events and anomalies in seconds

In industry, healthcare, and business – in fact wherever electrical and electronic equipment is indispensable – power quality plays a critical role in maintaining continuity.

Non-linear loads, switching, load changes and equipment problems can result in poor power quality. Poor power quality is not only costly in terms of wasted energy and unnecessary downtime, it's also dangerous and increases risk of equipment failure.

Fluke has an unrivalled range of power quality analyzers to help you maintain high-quality power systems. The tools give you the power to analyze every parameter, power-related event or anomaly faster, safer, more accurately, and in more detail than ever before.

The newest addition to the range, the Fluke 435 three-phase power quality analyzer, is fully Class A compliant and includes a logging function that allows you to select the measurement parameters you see on the display.

Choose the right tool for your power quality test requirements

	435	434	43B
Application	Three-phase		Single-phase
Inputs	4 voltage and 4 current (for 3 phases and neutral)		1 voltage and 1 current
Measurements			
Vrms, Arms, Hz, W, VAR, VA, PF, Cos φ (DPF), Crest Factors	●	●	●
Harmonics and THD (V,A,W), k-factor	●	●	●
Inter-harmonics	●	●	-
kWh and kVARh, kVAh, demand interval	●	●	-
Flicker (Plt, Pst, PF5)	●	●	-
Unbalance	●	●	-
Mains signaling	●	Optional*	-
Recorder/AutoTrend	●/●	●/●	●/-
Logger	●	Optional*	-
System-Monitor (EN50160 compliance)	●	●	-
Real time scope/Phasor diagrams	●/●	●/●	●/-
Dips and swells/Half cycle based	●/●	●/●	●/-
Transient display	●	●	●
Inrush current	●	●	●
IEC61000-4-30, -4-7, -4-15 compliance	Class A	Class B	-
Built-in general purpose Scope and DMM	-	-	●
Memory (screens/data)	50/10	50/10	20 for screens and data
Memory size	16 MB**	8 MB**	
FlukeView software and interface cable	●	●	Depending on configuration
Power Log Software	●	Optional*	Depending on configuration
EN61010 safety rating	600 V CAT IV/1000 V CAT III		600 V CAT III
Current clamps included	4 x i430 Flex	4 x i400S	i400S

** Optional functionality can be added with Logger upgrade kit. For details see ordering information.*
*** Logger uses user-configurable shared memory.*

The Fluke 430 Series three-phas

Pinpoint power quality problems faster, safer and in gr

The Fluke 435 and 434 three-phase power quality analyzers help you locate, predict, prevent and troubleshoot problems in power distribution systems. These easy-to-use handheld tools have many innovative features to give you the details to pinpoint problems faster and safer.

- **Complete three-phase trouble-shooting tool: measure everything!**
  Measure virtually every power system parameter. The Fluke 430 Series measure voltage, current, frequency, power, power consumption (energy), unbalance and flicker, tracks harmonics, inter-harmonics and capture events like dips and swells, transients, interruptions and rapid voltage changes with fast 5 µs resolution.

- **AutoTrend: don't waste time setting up recordings!**
  Ever look at measurement data and wonder how it changes over time? Just press a single button to get a trend overview. No need to start a separate measurement since every measurement you see is always automatically recorded. Instantly zoom in on details and use cursors to analyze while recording continues.

- **Logger: record the detail you need**
  Detailed, user-configurable long-time recording gives you the MIN, MAX and AVG readings of up to 100 parameters on all 4 phases with selectable averaging time down to 0.5 seconds. Enough memory is available to record 400 parameters with 10 minute resolution for up to a month.

- **System Monitor: quickly check system performance**
  One comprehensive overview gives immediate insight into your power system's quality, checking conformity to limits specified in EN50160 or to your own custom limits. You can instantly see which parameters fall outside the limits and drill down into detailed event tables and trend graphs.

- **Automatic transient display: don't miss an event**
  Capture up to 40 dips, swells, interruptions or transients automatically. When an event occurs, voltage and current waveform data are stored for all three phases and neutral allowing you to analyze timing relationships and perform a cause and effect analysis.

- **Four current and four voltage channels**
  Simultaneously measure voltage and current on all three phases and neutral. The instrument supports all common wiring schemes.

- **AutoScaling: easier trend analysis**
  With automatic scaling of the vertical axis you will always use the full display to view the waveforms.

- **Highest safety rating**
  Meets the stringent 600 V CAT IV safety standard required for measurements at the service entrance.

- **Fast and easy to use**
  Menu-driven interface on the high-resolution color screen simplifies operation.

- **Rugged, handheld and ready for action**
  Built to survive in tough industrial environments, the Fluke 430 Series analyzers are easy to carry around and provide over seven hours operation per battery charge.

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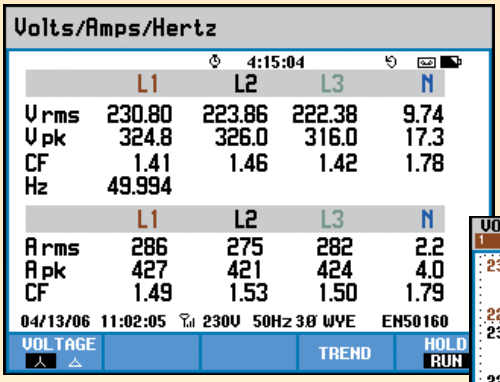
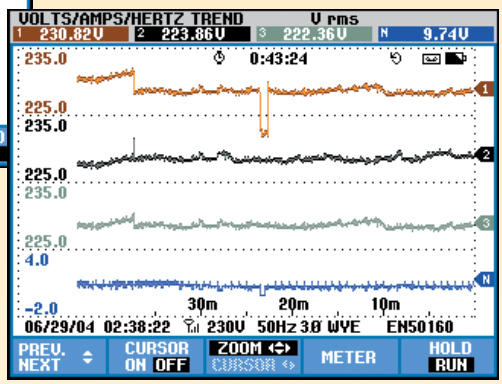
Quickly see the trend

Unique AutoTrend gives you fast insight into changes over time. Every displayed reading is automatically and continuously recorded without having to set up threshold levels or interval times, or having to manually start the process. You can quickly view trends in voltage, current, frequency, power, harmonics or flicker on all three phases plus neutral. And you can analyze the trends using the cursors and zoom function – even while background recording continues.
Additionally, the logger function allows you to select a desired set of readings and capture the level of detail you need over time.

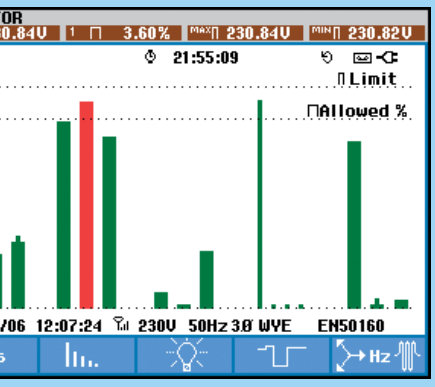


AutoTrend automatically records all displayed parameters in the background. Toggle between meter and trend view and use cursors and zoom to analyze measurements without interrupting the recording.

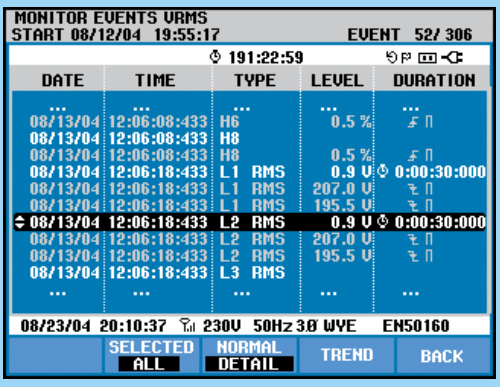


eck performance against 50160 with ease

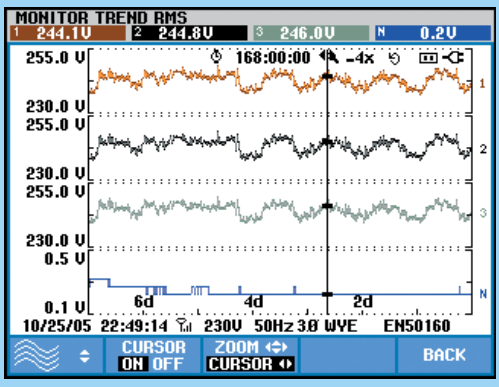
a single push of a button, the unique em-Monitor gives you an overview of er system performance, and checks the pliance of incoming power to EN50160 limits or to your own custom specifications. The overview is shown on a single screen, with color-coded bars clearly indicating which parameters fall outside the limits. A list of each event falling outside these limits is generated. You can easily drill down into a particular event by viewing the voltage, current, flicker, frequency, harmonics, mains signaling and unbalance trend recordings for the individual phases. Again, cursors and zoom allow detailed analysis of the timing relationships between the different phases and simplifies 'cause and effect' analysis.



ystem-Monitor overview screen gives t insight into whether the voltage, onics, flicker, frequency, mains signaling he number of dips and swells tside the set limits.



A detailed list is given of all events falling outside the set limits. By scrolling through the event list and selecting an event, the event can be analyzed in detail.



All relevant parameters are recorded so each event can be analyzed in detail. Cursors are automatically positioned at the selected event to easily view timing relationships.

600 V CAT IV safety rating

Designed to help protect you and your equipment against electrical shock and fire, the Fluke 430 Series analyzers, accessories and charger are all certified to meet the stringent safety standards for use in 600 V CAT IV and 1000 V CAT III environments. They are the first tools of their kind to carry the CAT IV rating and can therefore be used at virtually all power connections and outlets in low-voltage power distribution systems.

One tool to do the job

The Fluke 430 Series provides all the measurement power to locate, predict, prevent and troubleshoot problems in your power distribution systems.

Measures everything

With a Fluke 430 Series analyzer, you can measure true RMS voltage and current, frequency, dips and swells, transients, interruptions, power and power consumption, peak demand interval, (inter-)harmonics, flicker, unbalance, and mains signaling according to the latest IEC61000-4-30 standard.
The Fluke 430 Series can also verify KYZ pulse output revenue meters using an optional pulse input accessory.
Mains signaling allows you to measure the signaling level and 3-second mean level of two selectable frequencies to verify compliance to the Meister Curve.

Automatic transient display

Every time an event or distortion on the voltage waveform is detected, the instrument triggers and automatically stores voltage and current waveforms on all three phases and neutral. The instrument can also trigger when a certain current value level is exceeded. Up to 40 dips, swells, interruptions and transients can be captured in this way. You can see voltage transients as high as 6 kV and as fast as 5 microseconds.

Easy to use

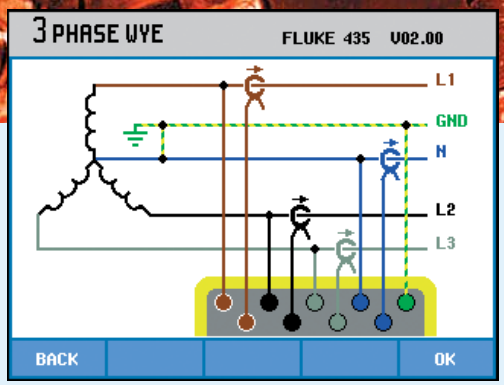
Thanks to thoughtful features like a user-friendly menu in local language and handy on-screen wiring diagrams for all commonly used three-phase and single phase configurations, the 430 Series Power Quality Analyzers are easy to use.

Handheld unit delivered as a complete package

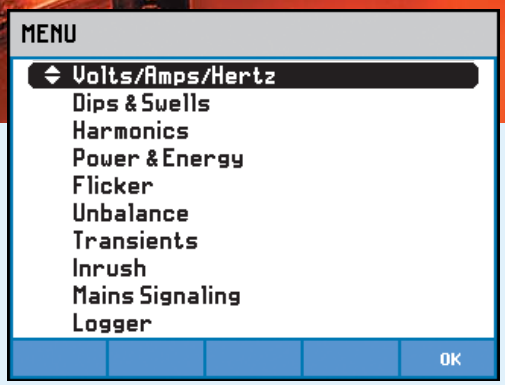
The Fluke 430 Series includes four clamps, five voltage test leads and clips, a USB interface cable, data capture and analysis software, as well as a line adapter/battery charger -- all supplied in a hard case.
You just have to take it out of the box to start tackling your most challenging power quality problems. The rugged construction and battery operation make it ideal for demanding field work.

Extensive data analysis possibilities

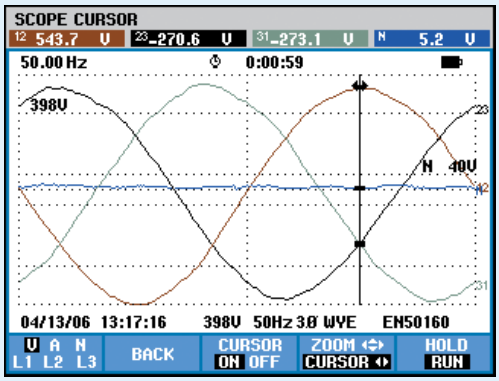
The Fluke 430 Series provides three ways to analyze the measurements. Cursors and zoom can be used ‘live’ while taking the measurements, or ‘offline’ on stored measurement data. The stored measurements can also be transferred to a PC with FlukeView. This software’s ‘view’ mode allows cursors and zoom to be used on stored measurements as if actually working with the instrument. The Power Log software allows you to analyze recorded data from the logging mode in detail and to create reports. Measurement data can be exported to common spreadsheet programs.



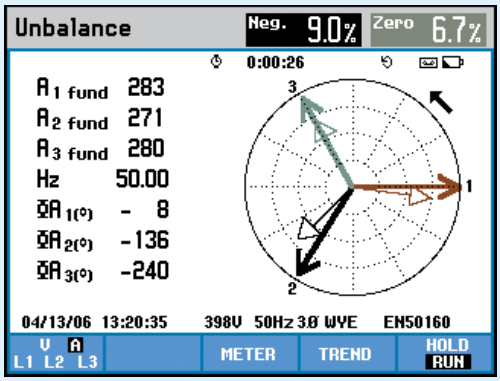
The full color display uses industry-standard color-coding (user selectable) to correlate measurements with actual wiring.



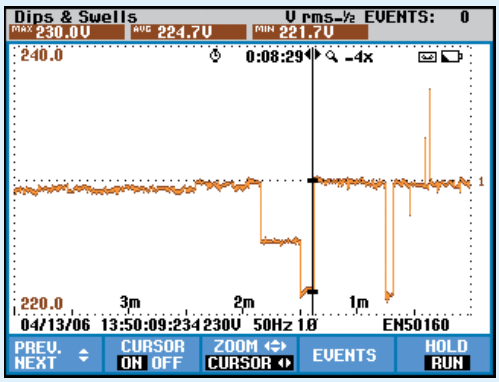
Simple menu structure with logical function grouping gives fast access to key measurements.



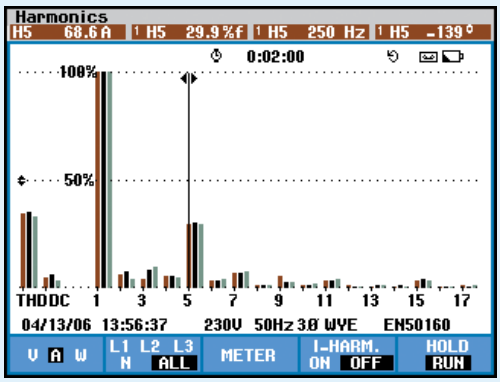
Scope view shows voltage and current waveforms for all three phases. You can toggle to a phasor diagram at any time.



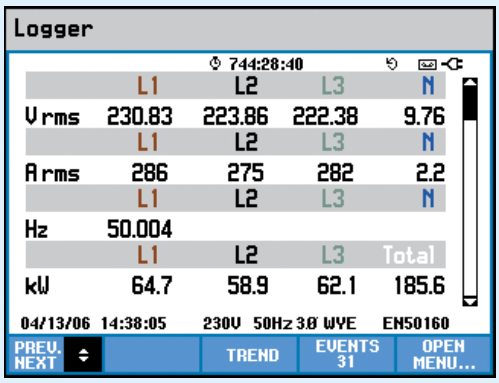
Phasor diagram shows voltage and current unbalance, and helps verify connections.



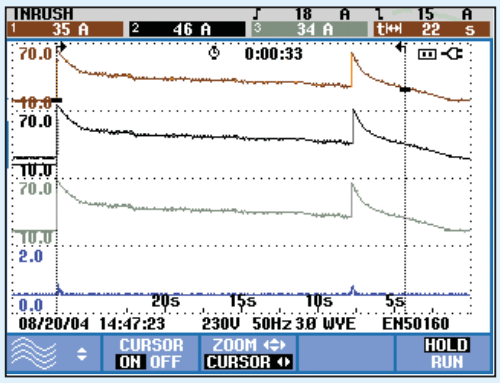
Record dips and swells as short as one half-cycle with min/max/avg readings.



Track harmonics up to the 50th, and measure and record THD in accordance with IEC61000-4-7 requirements.



Logging function allows you to customize measurement selections and provides instantaneous analysis of user-selectable parameters.



Inrush function captures starting current on motors and other devices to help determine trip levels.

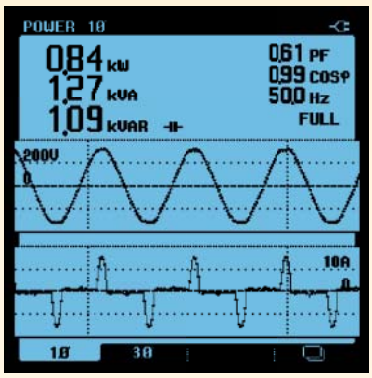
Fluke 43B power quality analyzer

The perfect tool for tracking down single-phase power-related problems

The 43B is the choice for diagnosing and troubleshooting power quality and general equipment failures. Easy to use thanks to menu selection of the power quality modes, it combines the capabilities of a power quality analyzer, a 20 MHz oscilloscope, a multimeter and a data recorder in a single instrument.

Power quality analyzer

- Measure power (W, VA, VAR) and power factor (PF, DPF)
- Calculate power and power factor on balanced 3-phase loads
- Measure voltage, current and power harmonics
- Measure dips and swells on a cycle-by-cycle basis for up to 24 hours
- Automatically capture up to 40 transients
- Measure motor inrush current and analyze using cursors



- *Watts, power factor, displacement power factor (cos φ), VA and VAR*
- *Voltage and current waveforms*

- Broad frequency range (10 to 400 Hz) for aviation, marine and railway applications
- Store up to 20 screens in memory

Oscilloscope

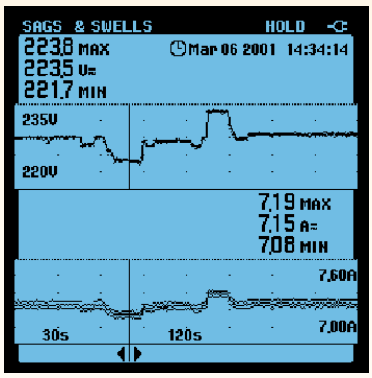
- Dual-channel, 20 MHz bandwidth digital oscilloscope
- 'Connect-and-view' automatic triggering for instant waveform display

Multimeter

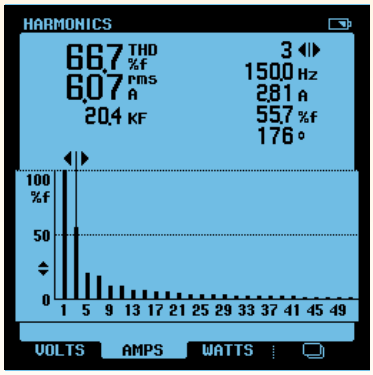
- Measure resistance, continuity and capacitance, and test diodes
- Measure temperature with optional temperature probe

Recorder

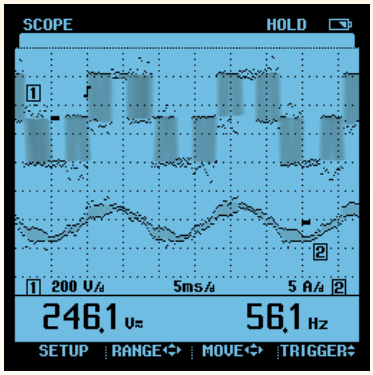
- Record 2 parameters for up to 16 days
- Record voltage, current, frequency, power, harmonics and all scope measurements
- Add cursors to analyze the trend



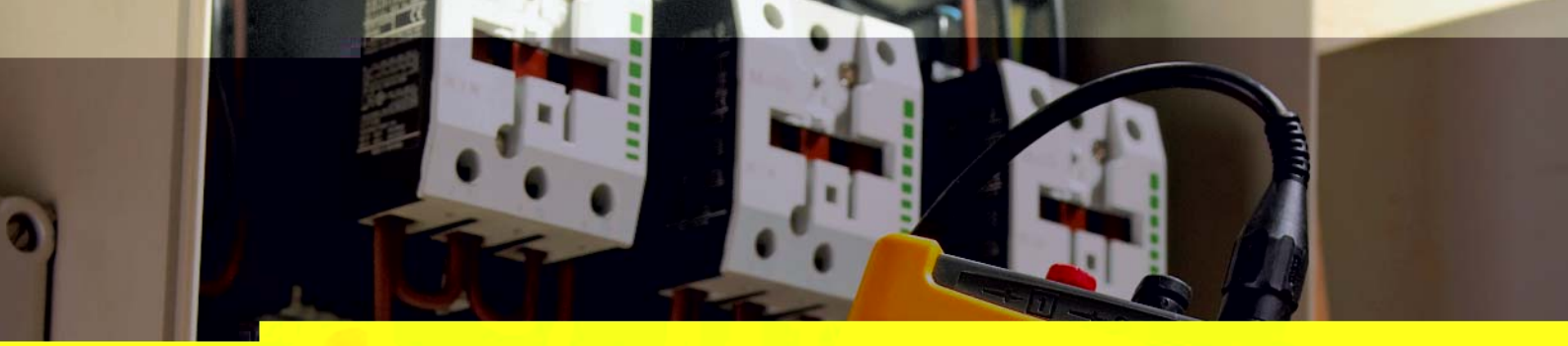
- *Continuously measure volts and amps on a cycle-by-cycle basis for up to 16 days*
- *Use cursors to read time and data of dips and swells*



- *Voltage, current and power harmonics*
- *Up to the 51st harmonics*
- *Total harmonic distortion*
- *Phase angle and individual harmonics*



- *Connect-and-View™ scope for quick waveform display*
- *View voltage and current channels simultaneously*



A choice of three configurations

	43Basic	43B
Current Clamp	i400S	i400S
SW43W FlukeView Software		●
OC4USB Serial Interface Adapter/Cable (USB)		●
C120 Hard Case		●
VPS40 Voltage Probe		●
Fluke 61 IR Thermometer		●

All configurations are delivered with test leads, probes, clips, battery pack, banana-to-BNC adapter and line voltage adapter/battery charger.

FLUKE®

Power Quality

Quality test equipment from a name you trust

A broad selection of innovative test tools to help you diagnose any problem

ScopeMeters

Fluke offers professionals state-of-the-art solutions for investigating not only critical power quality issues, but also for diagnosing equipment problems faster and more efficiently throughout the facility or in the field. Extra rugged and easy to use, Fluke tools are built to the highest safety and reliability standards to help you get the job done right the first time. From clamp meters, insulation and earth-ground testers to thermal imagers, infrared thermometers, digital multimeters and ScopeMeters, make Fluke your source for quality test equipment.

Thermal Imagers

For more information about these and other Fluke test tools, please visit your local Fluke website.

Voltage Recorders

Insulation Tester

Clamp Meters

Infrared Thermometers

Ordering information

Detailed specifications, included and optional accessories can be found in the technical datasheet and on the Fluke website.

Fluke 435	Power Quality Analyzer (three-phase)
Fluke 434	Power Quality Analyzer (three-phase)
Fluke 434/log	Logger Upgrade Kit: Adds the logger function of the Fluke 435 to the Fluke 434
Fluke 43Basic	Power Quality Analyzer (single-phase)
Fluke 43B	Power Quality Analyzer (single-phase)

Optional power quality accessories

BC430	Battery Charger/Line Voltage Adapter
C435	Hard Carrying Case with wheels and handle for the 435
C430	Hard Carrying Case for the 434
i430-flex-4pk	AC Flex Clamps, 4-pack, 30A-3000A, included in 435
i5s	AC Current Clamp (5 A)
i5sPQ3	AC Current Clamp (3-pack)
i400s	AC Current Clamps (400A), included in 434
OC4USB	Serial Interface Adapter/Cable (USB)
PM9080	Serial Interface Adapter/Cable (RS232)
SW43W	FlukeView Software (Fluke 43B/430 Series)
TLS430	Test Leads and Alligator Clips (4 black, 1 green) for 430 Series
WC100	Color localization set (32 multi-color wire clips)
GPS430	GPS sync module for 430 Series

Fluke. *Keeping your world up and running.*

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