

# 430 Series Three-phase Power Quality Analyzers



Fluke 435



Fluke 434



On all inputs



## Pinpoint power quality problems faster, safer and in greater detail

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 troubleshooting tool: measures virtually every power system parameter: voltage, current, frequency, power, power consumption (energy), unbalance and flicker, harmonics and inter-harmonics. Captures events like dips and swells, transients, interruptions and rapid voltage changes.
- The Fluke 435 features 0.1 percent voltage accuracy making it fully compliant with the IEC 61000-4-30 Class A standard
- 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 1 minute resolution for up to a month.
- Four channels: simultaneously measures voltage and current on all three phases and neutral.
- AutoScaling: easier trend analysis with automatic scaling of the vertical axis you will always use the full display to view the waveforms.
- Automatic transient display: captures up to 40 dips, swells, interruptions or transients automatically.
- Meets the stringent 600 V CAT IV, 1000 V CAT III safety standard required for measurements at the service entrance.
- Rugged, handheld instrument operates for more than 7 hours on included rechargeable NiMH battery pack. Menu-driven interface simplifies operation.
- Extensive data analysis possibilities. 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 software (included with Fluke 435 and 434).
- The Fluke 435 comes with Power Log software to analyse recorded data and to create reports.
- Complete package includes everything to get started: 4 current clamps, 4 flex clamps with Fluke 435, 5 voltage test leads and clips, line adapter/battery charger and hard case.
- Complies with IEC 61000-4-30 measurement standards.

**AutoTrend - 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.

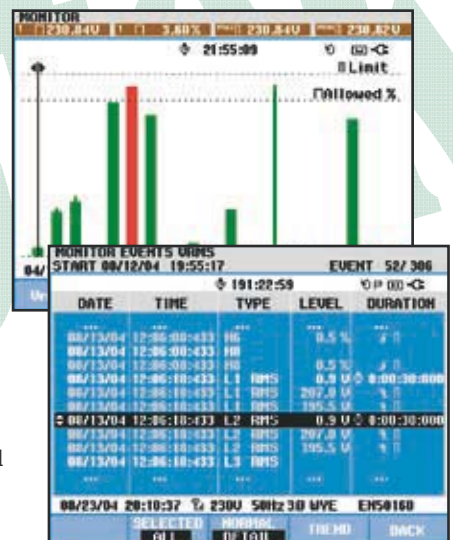
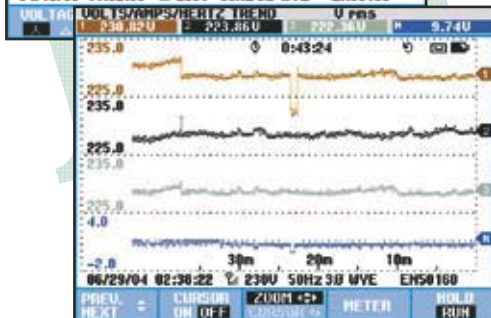
### SystemMonitor - Check performance against EN50160 with ease

With a single push of a button, the unique System-Monitor gives you an overview of power system performance, and checks the compliance 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.

Volts/Amps/Hz				
	L1	L2	L3	N
U <sub>rms</sub>	230.80	223.86	222.38	9.74
U <sub>pk</sub>	324.8	326.0	316.0	17.3
CF	1.41	1.46	1.42	1.78
Hz	49.994			

	L1	L2	L3	N
I <sub>rms</sub>	286	275	282	2.2
I <sub>pk</sub>	427	421	424	4.0
CF	1.49	1.53	1.50	1.79



The System-Monitor overview screen gives instant insight into whether the voltage, harmonics, flicker, frequency and the number of dips and swells fall outside the set limits. A detailed list is given of all events falling outside the set limits.

AutoTrend automatically records all displayed parameters in the background.



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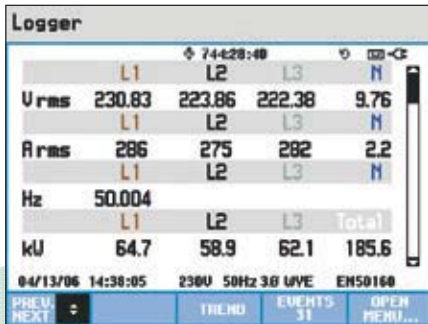
TEL: 02-22782269 FAX: 02-22782059

Home page : [www.radiotek.com.tw](http://www.radiotek.com.tw)

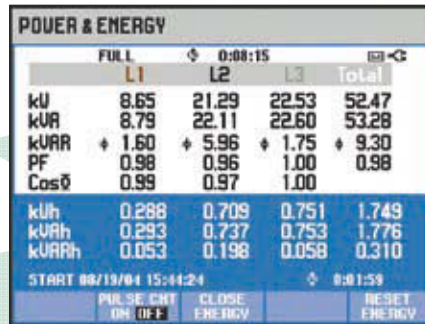
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# 430 Series Three-phase Power Quality Analyzers

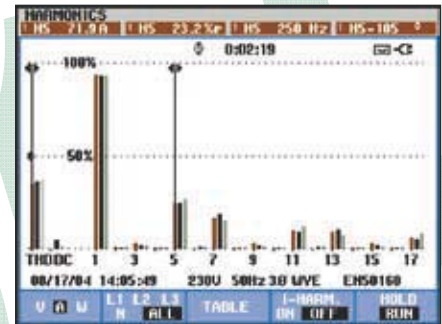
FLUKE®



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



Measure and record power (W), VA and VARs. The 434 and 435 add the ability to record energy consumption.



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



Fluke 435 with flex clamps

## Specifications

(Check the Fluke web for detailed specifications)

Inputs	Number of inputs	4 voltage and current (3 phases + neutral)	
	Maximum input voltage	1000 Vrms (6kV Peak)	
	Maximum sampling speed	200 kS/s on each channel simultaneously	
Volt/Amps/Hz	Vrms (AC+DC)	1...1000 V	± 0.1% of nominal voltage
	Vpk	1...1400 V	5% of Vnom
	Crest factor, voltage	1.0 ... > 2.8	± 5%
	Arms (AC+DC)	0 ... 20,000 A	± 0.5% ± 5 counts
Dips and swells	Vrms	0 - 5500 A	5%
	Crest factor, A	1 ... 10	± 5%
	Hz	50Hz nominal	42.50 ... 57.50 Hz
Harmonics	Vrms (AC+DC) <sup>2</sup>	0.0% ... 100% of Vnom	± 0.2% of nominal voltage
	Arms (AC+DC)	0 ... 20,000 A <sup>2</sup>	± 1% ± 5 counts
Power and Energy	Harmonic (interharmonic) (n)	DC, 1.50; (Off, 1.49) measured according to IEC 61000-4-7	
	Vrms	0.0 ... 1000 V	± 0.05% of nominal voltage
	Arms	0.0 ... 4000 mV x clamp scaling	± 5% ± 5 counts
	Watts	depends clamp scaling and voltage	± 5% ± n x 2% or reading, ± 10 counts
	DC voltage	0.0 ... 1000 V	± 0.2% of nominal voltage
	THD	0.0 ... 100.0 %	± 2.5% V and A (± 5% Watt)
	Hz	0 ... 3500 Hz	± 1 Hz
	Phase angle	-360° ... +360°	± n x 1.5°
	Watt, VA, VAR	1.0 ... 20.00 MVA <sup>1</sup>	± 1% ± counts
	kWh, kVAh, kVAh	00.00 ... 200.0 GVAh <sup>1</sup>	± 1.5% ± 10 counts
Flicker	Power Factor/ Cos φ / DPF	0...1	± 0.03
	Pst (1min), Pst, Plt, PF5	0.00 ... 20.00	±5%
Unbalance	Volts	0.0 ... 5.0%	± 0.5%
	Current	0.0 ... 20%	± 1%
Transient capture	Volts	± 6000 V	± 2.5% of Vrms
	Minimum detect duration	5 μs (200 kS/s sampling)	
Inrush mode	Arms (AC+DC)	0.000 ... 20.00 kA <sup>2</sup>	± 1% of meas ± 5 counts
	Inrush duration (selectable)	7.5 s ... 30 min	
AutoTrend recording	Sampling	5 readings/sec continuous sampling per channel	
	Memory	1800 min, max and avg points for each reading	
	Recording time	Up to 450 days	
	Zoom	Up to 12x horizontal zoom	
Memory	Screens & data	50, shared memory divided between logging, screens and data sets	
Standards	Measurement methods used	IEC61000-4-30 class A; EN50160; IEC 61000-4-15; IEC 61000-4-7	

<sup>1</sup> depending clamp scaling

<sup>2</sup> Value is measured over 1 cycle, commencing at a fundamental zero crossing, and refreshed each half-cycle

**Battery life:** > 7 hours with rechargeable NiMH (installed); **Battery charging time:** 4 hours typical

**Safety:** EN61010-1 (2nd edition) pollution degree 2; 1000 V CAT III / 600 V CAT IV

**Case:** Rugged, shock proof with integrated protective holster, IP51 (drip and dust proof)

**Shock:** 30 g; **Vibration:** 3g according to MIL-PRF-28800F Class 2

**Operating temperature:** 0°C to +50°C

**Size (HxWxD):** 256 mm x 169 mm x 64 mm; **Weight:** 1.1 kg

**Three Years Warranty**

## Recommended Accessories



See page 80 for power quality current clamps

## Included Accessories

Fluke 435/434: Hard carrying case C430 (434)/

Water-tight hard case with rollers C435 (435)

4 current clamps, i400s, CAT IV 600 V

(Fluke 434)

4 current clamps, i430-Flex-4pk, CAT IV

600 V (Fluke 435)

5 Test leads, 4 black, 1 green

Battery Charger Eliminator, BC430

FlukeView Software, SW43W

Power Log Software (435)

Optical Cable for USB, OC4USB

Color localization set, WC100

Getting Started printed

User Manual (CD-ROM)

Basic versions: Excl. current clamps

## Ordering information

Fluke 435/Basic Power Quality Analyzer (three phase)

Fluke 435 Power Quality Analyzer (three phase)

Fluke 434/Basic Power Quality Analyzer (three phase)

Fluke 434 Power Quality Analyzer (three phase)

Fluke 434/LOG Logger Upgrade Kit: Adds the Logger Function of the 435 to the 434

OC4USB Serial Interface Adapter/ Cable (USB)

PM9080 Serial Interface Adapter/ Cable (RS232)

GPS430 GPS sync module for 430 Series



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