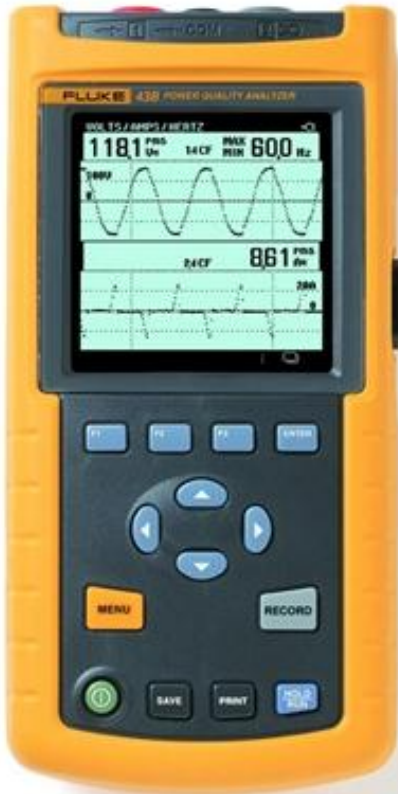


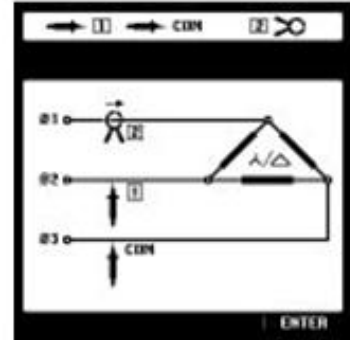
## Fluke 43B Power Quality Analyzer

Maintain power systems, troubleshoot power problems, diagnose equipment failures



The Fluke 43 Power Quality Analyzer 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
- **New!** Calculates 3-phase power on balanced loads, from a single-phase measurement
- Measures power harmonics, and captures voltage sags, transients and inrush current
- Monitoring functions help track intermittent problems and power system performance
- Menus use familiar electrical terminology
- **New!** Toggle through the most commonly used power quality modes with a single keystroke
- Records two selectable parameters for up to 16 days
- **New!** 20 measurement memories to save/recall screens and data with cursor readings
- **New!** FlukeView® Software can log harmonics and all other readings over time
- **New!** FlukeView Software provides a complete harmonics profile up to the 51st harmonic
- Measures resistance, diode voltage drop, continuity, and capacitance
- Users / applications manual and power quality video to help answer tough questions
- Complete package with voltage probes and 500A current clamp, FlukeView Software and optically isolated interface cable
- 3 year warranty on the Fluke 43B, 1 year on accessories



- **New!** On screen graphics show you how to set up 3-phase power measurements



- Watts, power factor, displacement power factor (Cos), VA and VAR
- Voltage and current waveforms



C22.2 #1010



Listed



- Voltage and current waveforms
- True-rms voltage and current
- Frequency



- Voltage, current, and power harmonics • Up to 51st harmonic
- Total harmonic distortion (THD)
- Phase angle of individual harmonics

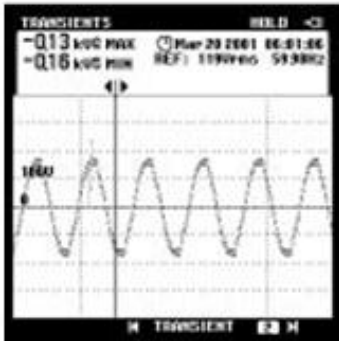
# Specifications

Accuracies are stated as  $\pm$  (percentage of reading + counts) without probes unless otherwise noted.

Specifications are valid for signals with a fundamental between 40 and 70 Hz.



- Continuously measure volts and amps on a cycle-by-cycle basis for up to 24 hours
- Use cursors to read time and date of sags and swells



- Catch voltage transients and waveform distortion
- Catch and save up to 40 transients
- Correlate the cause of transients with time and date stamps

| Input Characteristics   | Ranges   | Accuracy   |
|---|--|--|
| Input impedance   | 1 M $\Omega$ , 20 pF   |  |
| Voltage rating  | 600 Vrms, CAT III  |  |
| Volt / Amps / Hertz   |  |  |
| True-rms voltage (AC+DC)  | 5.000 V, 50.00 V, 500.0 V, 1250 V*   | $\pm$ (1 % + 10 counts)  |
| True-rms current (AC+DC)  | 50.00 A, 500.0 A, 5.000 kA, 50.00 kA, 1250 kA  | $\pm$ (1 % + 10 counts)  |
| Frequency   | 10.0 Hz to 15.0 kHz  | $\pm$ (0.5 % + 2 counts)   |
| CF Crest Factor   | 1.0 to 10.0  | $\pm$ (5% + 1 count)   |
| Power   |  |  |
| W, VA, VAR Reactive Power<br>1-phase and 3-phase, 3<br>conductor balanced loads | 250 W 2.50 kW, 25.0 kW, 250kW, 2.50 MW,<br>25 MW, 250 MW, 625 MW, 1.56 GW  | $\pm$ (2 % + 6 counts) Total Power<br>$\pm$ (4 % + 4 counts) Fundamental<br>Power  |
| PF Power Factor   | 0.00 to 1.00   | $\pm$ 0.04   |
| DPF Displacement Power Factor   | 0.00 to 0.25<br>0.25 to 0.90<br>0.90 to 1.00   | not specified<br>$\pm$ 0.04<br>$\pm$ 0.03  |
| Hz Frequency fundamental<br>Harmonics   | 40.0 to 70.0 Hz  | $\pm$ (0.5 % + 2 counts)   |
| Volts, Amps, Watts  | Fundamental  | V,A $\pm$ (3 % + 2 counts),<br>W $\pm$ (5 % + 2 counts)  |
|   | 2 to 31st Harmonic   | V,A $\pm$ (5 % + 3 counts),<br>W $\pm$ (10 % + 10 counts)  |
|   | 32 to 51st Harmonic  | V,A $\pm$ (15 % + 5 counts),<br>W $\pm$ (30 % + 5 counts)  |
| Frequency of fundamental  | 40 Hz to 70 Hz   | $\pm$ 0.25 Hz  |
| Phase   | Volt & Amps (between Fund. & Harmonic)   | 2nd ( $\pm$ 3 $^\circ$ ) ... 51st ( $\pm$ 15 $^\circ$ )  |
|   | Watts (between Volt Fund. & Amps<br>Harmonic )   | Fund ( $\pm$ 5 $^\circ$ ) ... 51st ( $\pm$ 15 $^\circ$ )   |
| K-Factor (Amps & Watts)   | 1.0 to 30.0  | $\pm$ 10 %   |
| THD   | 0.00 to 99.99  | $\pm$ (3% + 8 counts)  |
| Sags & Swells   |  |  |
| Recording times (selectable)  | 4 min to 16 days   |  |
| Vrms actual, Vrms max,<br>min (AC + DC)   | 5.000 V, 50.00 V 500.0 V, 1250 V*  | Readings $\pm$ (2% +10 counts)<br>Cursor readings $\pm$ (2% + 12 counts)<br>Cursor Readings Average $\pm$ (2%<br>+10 counts) |
| Arms actual, Arms max,<br>min (AC + DC)   | 50.00 A, 500.0 A, 5.000 kA, 50,00 kA   |  |
| Recording   |  |  |
| Recording times (selectable)  | 4 min to 16 days   |  |
| Parameters  | Choose one or two parameters from one of the groups below  |  |
| V/A/Hz  | Line Voltage, Current, Frequency   |  |
| Power   | Watts, VA, VAR, PF, DPF, Frequency   |  |
| Harmonics   | THD, Volts (Fund. & Harmonic), Amps(F&H) Watts(F&H) Freq.(H), %(H) of total, Phase(H), KF  |  |
| Ohms  | Ohms, Diode, Continuity, Capacitance   |  |
| Temperature   | $^\circ$ C or $^\circ$ F   |  |
| Scope   | DC Voltage, DC Current, AC Voltage, AC Current, Frequency, Pulse Width + or -,<br>Phase, Duty cycle + or -, Peak max, Peak min, Peak min-max, Crest Factor |  |
| Transients  |  |  |
| Minimum pulse width   | 40 ns  |  |
| Useful bandwidth input 1  | DC to 1 MHz (with test leads TL24)   |  |
| Number of transients  | 40   |  |
| Voltage threshold settings  | 20%, 50%, 100%, 200% above or below reference signal   |  |
| Reference signal  | After START, the Vrms and frequency of the signal are measured. From these<br>data a pure sinewave is calculated as reference for threshold setting.       |  |
| Vpeak min, Vpeak max at cursor  | 10 V, 25 V, 50 V, 125 V, 250 V, 500 V, 1250 V  | $\pm$ 5% of full scale   |

\*Rated 600V CAT III

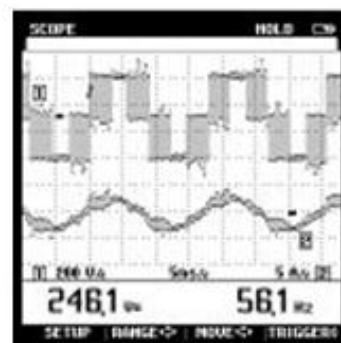
| Inrush Current                                     | Ranges  | Accuracy                 |
|--|---|--------------------------|
| Current ranges (selectable)                        | 1 A, 5 A, 10 A, 50 A, 100 A, 500 A, 1000 A  |                          |
| Inrush times (selectable)                          | 1 s, 5 s, 10 s, 50 s, 100 s, 5 min  |                          |
| Cursor readings                                    | A peak max at cursor 1 and cursor 2   | ± 5% of full scale       |
| Time between cursors**                             | 4 to 235 pixels   | ± (0.2% + 2 pixels)      |
| Scope, dual channel scope with measurement reading |   |                          |
| Input impedance                                    |   |                          |
| Input 1  | 1 MΩ/12 pF; with BB120: 20 pF   | ± 2 pF; with BB120 ±3 pF |
| Input 2  | 1 MΩ/10 pF; with BB120: 18 pF   | ± 2 pF; with BB120 ±3 pF |
| Vertical   |   |                          |
| Voltage ranges                                     | 50 mV/div to 500V/div   | ± (1% + 2 pixels)        |
| Vertical sensitivity, resolution                   | 5 mV/div to 500V/div, 8 bit (256 levels)  |                          |
| Bandwidth input 1 (voltage)                        | DC to 20 MHz at inputs, or with BB120 and VPS100-R probe (Opt);<br>1 MHz with TL24 Leads  |                          |
| Bandwidth input 2 (current)                        | DC to 15 kHz at inputs<br>10 kHz with 80i-500s Current Clamp  |                          |
| Coupling   |   |                          |
| Horizontal   | DC, AC (10 Hz -3 dB)  |                          |
| TimeBase modes                                     |   |                          |
| TimeBase ranges                                    | Normal, roll, single  |                          |
| Sampling rate                                      | 60 s/div to 20 ns/div   | ± (0.4% + 1 pixel)       |
| Record length (min / max samples)                  | 25 MS/s   |                          |
| Trigger source                                     | 512 per channel   |                          |
| Trigger mode                                       | Input 1 or Input 2 or Automatic selection   |                          |
| Connect-and-View™                                  | Automatic Connect-and-View™, Free Run, Single Shot.   |                          |
| Pre-trigger  | Advanced automatic triggering that recognizes signal patterns and automatically adjusts triggering, timebase and amplitude. Automatically displays stable pictures of complex and dynamic signals like motor drive and control signals. |                          |
| Measurement readings, per channel selectable       | Up to 10 divisions  |                          |
| Ohms, Diode, Continuity, Capacitance               | Volts & Amps (DC, AC, AC + DCrms, Peak max, Peak min, Peak min / max ), Frequency, Duty cycle + or -, Phase, Pulse Width + or -, Crest factor   |                          |
| Ohms   | 500.0 Ω 5.000 kΩ, 50.00 kΩ, 500.0 kΩ, 5.000 MΩ, 30.00 MΩ  | ± (0.6% +5 counts)       |
| Diode voltage                                      | 0 to 3.000 V  | ± (2% +5 counts)         |
| Continuity, shorts > 1 ms                          | Beeper on at < 30Ω ± 5Ω,  |                          |
| Capacitance  | 50.00 nF, 500.0 nF, 5.000 μF, 50.00 μF, 500.0 μF  | ±(2% +10 counts)         |
| Temperature***                                     | -100.0 °C to 400.0 °C,<br>-200.0 °F to 800.0 °F   | ±(0.5% +5 counts)        |
| Max current, max open circuit volt.                | 0.5 mA, < 4 V (all functions above)   |                          |
| Memory   |   |                          |
| Number of screens                                  | 20  |                          |
| Optical Isolated RS-232 Interface                  |   |                          |
| To printer   | Supports HP LaserJet™, DeskJet, Epson FX/LQ and Postscript printers with optional PAC91 Printer Adapter Cable   |                          |
| To PC  | FlukeView® Power Quality Analyzer software with PM9080 Interface Adapter included   |                          |
| FlukeView® Power Quality Software                  |   |                          |
| Hardware requirements                              | PC or 100% compatible with Windows® 95, 98, Me, 2000, NT4.0.  |                          |

\*\* 1 pixel = inrush time/250

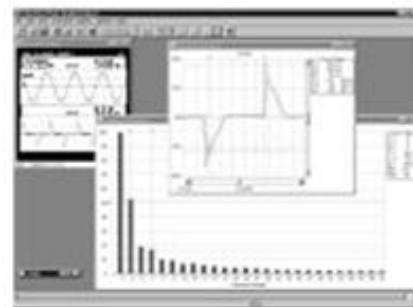
\*\*\* Requires optional temperature accessory



- Inrush current up to 500A with supplied current probe
- Use cursors to measure inrush current timing



- Connect-and-View™ scope for quick waveform display
- Voltage and current channels
- 20MHz bandwidth with optional 10:1 voltage probe. 15kHz on current channel with optional current clamp



- FlukeView® Power Quality Analyzer software (included)
- Capture measurement screens for professional-looking reports
- Log readings to your computer disk drive
- Works with Windows word processing, spreadsheet and analysis software
- Windows 95 / 98 / Me / 2000 / NT 4.0

## General Specifications

|   |   |
|---|---|
| <b>Power</b>  |   |
| Line voltage adapter/battery charger included   |   |
| Installed battery   | Rechargeable NiCd pack (4 to 6 Vdc)                         |
| Operating time  | 4 hours   |
| Charging time   | 4 hours (Fluke 43B OFF) 12 hours (Fluke 43B ON)             |
| Refresh Cycle   | 8 to 14 hours (to keep NiCd battery capacity optimal)       |
| <b>Environmental</b>  |   |
| Temperature   | 0°C to 50°C (32°F to 122°F)                                 |
| Environmental   | MIL 28800E, Type 3, Class III, Style B                      |
| Enclosure   | IP51 (dust, drip water proof)                               |
| <b>Mechanical Data</b>  |   |
| Size (H x W x D)  | 232 x 115 x 50 mm (9.1 x 4.5 x 2 inches)                    |
| Weight  | 1.1 kg (2.5 lbs.) incl. battery pack                        |
| <b>Safety</b>   |   |
| For measurements on 600 Vrms Category III installations, Pollution Degree 2 in accordance with<br>EN61010-1 (1993) (IEC1010-1)<br>ANSI/ISA S82.01-1994<br>CAN/CSA-C22.2 No. 1010.1-92<br>UL3111-1 |   |
| Surge protection  | 6 kV on input 1 and 2                                       |
| Floating measurements   | 600 Vrms from any terminal to ground                        |
| Warranty  | 3 years parts and labor on Fluke 43B, 1 year on accessories |

### Ordering Information

Fluke 43B Power Quality Analyzer

### Included Accessories

C120 Hard Case  
 TL24 Test Leads  
 AC20 Industrial Test Clips  
 AC85 Large Jaw Alligator Clips  
 TP1 Flat-tipped Slim-Reach™ Test Probes  
 TP4 4 mm Round Slim-Reach™ Test Probes  
 80i-500s 500A AC Current Clamp  
 PM 9080 Optically Isolated RS232 Interface Adapter  
 BP120 Rechargeable Ni-Cd Battery Pack (installed)  
 PM 8907 Line Voltage Adapter/Battery Charger  
 SW43W FlukeView® Power Quality Analyzer Software for Windows  
 FlukeView® Power Quality Analyzer Users Manual  
 Shielded Banana-to-BNC Adapter Users Manual / Application Guide  
 Power Quality CD-ROM

### Optional Accessories

C789 Soft Carrying Case  
 80i-110s 100A AC/DC Current Probe  
 i200s AC Current Clamp  
 i1000s 1000A AC Current Clamp  
 i2000flex Flexible 2000A AC Current Probe  
 i3000s Clamp-On AC Current Clamp  
 VPS100-R Red 10:1 Voltage Probe (requires BB120, one included)  
 BB120 Two Shielded Banana-to-BNC Adapters  
 80TK Thermocouple Module  
 80T-IR Non Contact Infrared Temperature Probe  
 80T-150U Universal Temperature Probe  
 PAC91 Parallel Printer Adapter  
 PM9087 Isolated Automotive Lighter Plug Charging Adapter  
 TL20 63" Test Lead Set  
 TL21 Extension Lead Set  
 TL22 63" Right Angle Silicone Test Lead Set  
 TL23F Electrical Test Lead Set  
 TL23R Electrical Test Lead Set  
 TL24 63" Right Angle/Straight Silicone Test Leads  
 TL26A 60" 5-Way Test Lead Set  
 TL28A 63" Alligator Clip Test Lead Set  
 TL71 Premium DMM Test Lead Assembly  
 TL74 4 mm Diameter Test Leads  
 TL75 48" Hardpoint Test Lead Set



**Fluke.** Keeping your world up and running.



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