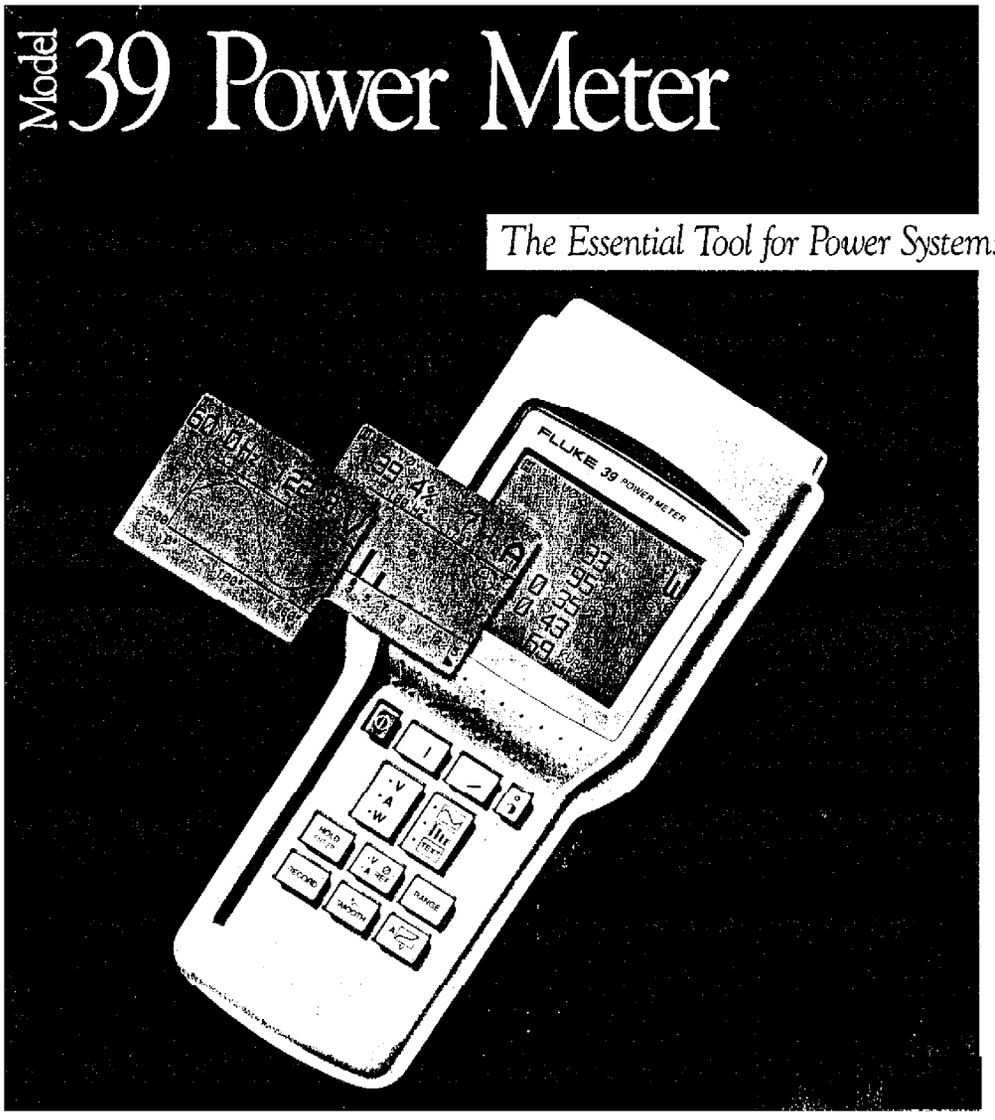
Model 39 Power Meter

The Essential Tool for Power Systems Troubleshooting



- Calculates 3 Phase Power, Power Factor and KVAR.
- Displays voltage, current and power waveforms.
- Measures RMS, Peak and Total Harmonic Distortion of voltage and current.
- Displays harmonic detail in bar graph format.
- Measures harmonic power and indicates direction of flow.
- Records Min/Max/Avg readings of voltage, current, power and frequency.

FLUKE

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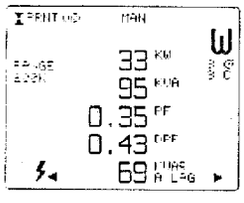
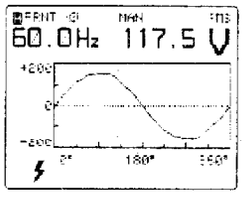
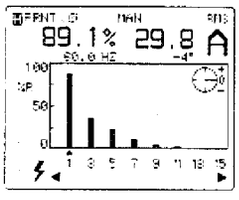


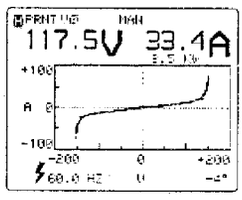
V, A, W Text
Calculated 3 Phase Watts



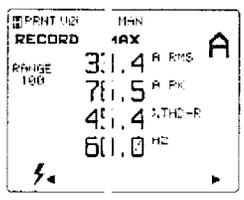
V, A, W Waveforms



V, A, W Harmonics



V, A Check Screen



Record Min, Max, Avg

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Models 39 and 41B

CAT III-600V

* Tested by CSA to UL 1244

Introduction

The Model 39 Power Meter and 41B Harmonics Analyzer combine the ease of use of a digital multimeter, the visual feedback of an oscilloscope and the power of a harmonics analyzer in a single instrument. If you're testing power on three-phase systems or trouble-shooti g harmonics on non-linear loads, no test tool makes it easier.

The Model 41B is ideal for further analyzing data and optimizing system performance. Use the Model 41B's FlukeView™ software (includec) to download acquired data to a printer or an MS-DOS® or Windows® compatible computer for analysis and presentation.

Three Views of each reading:

- Waveform
- Bargraph showing harmonic levels
- Numeric values

Real-time Display Updates
Display updates three times a second for a dynamic view of actual circuit conditions

Comprehensive Measurements
Measure rms, peak and total harmonic distortion (THD) for complex voltages and currents - with no manual calculations required.

Three-Phase readings
From a simple single-phase measurement, automatically calculates three-phase power for 3-wire balanced loads (typically 5% or less imbalance).

System Critical Data
Immediate readings of Power Factors, KVAR, Crest Factor, K-Factor

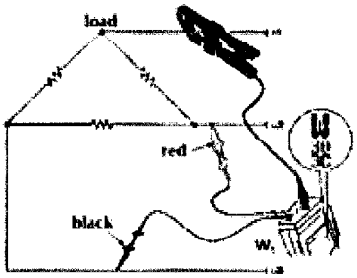
Display Harmonics individually to the 31st

Min/Max and Average recording

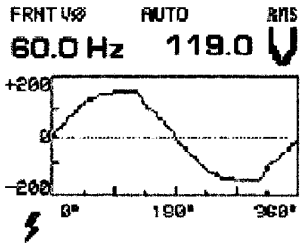
Data Storage of up to eight complete measurement sets (Fluke 41B)

Isolated Serial Interface for communications with a serial printer or DOS or Windows-compatible computer (Fluke 41B)

Safety Designed to meet the latest standards: IEC 1010-1, pollution degree 2, Installation Category III, material group II, 600V. Double insulated protection as described in IEC 1010-1, Annex H.



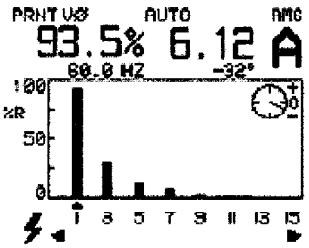
The Fluke 39 and 41B calculate a three-phase readout from a simple, single-phase measurement of a balanced three-conductor load. To make the single-phase measurement, simply connect the meter as shown and select the 3ø, 3C watts display.



Volts

Display - one cycle of the fundamental waveform and its frequency. Instantaneous voltage at cursor position.

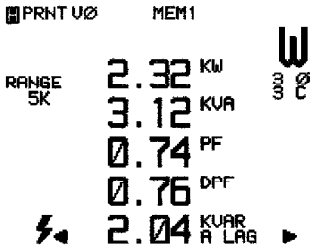
Application - detecting flat-topped voltage caused by current harmonics, and notching caused by SCR switching



Amps

Display - %-fundamental or %-rms, rms value, frequency, and phase angle of fundamental or harmonic currents (up to 31st), as selected by cursor from bar graph.

Application - identifying sources of harmonic currents. Obtaining data for designing, specifying or sizing transformers, filters, etc.



Watts

Display - watts, volt-amps, power factor (total) and displacement power factor of fundamental of single-phase or three-phase power.

Application - identifying displacement versus total power factor. Determining proper power-factor correction methods.

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Features

	39	41B
Direct 3Ø readout from simple single-phase measurement	•	•
True-rms voltage from 5.0V to 600V	•	•
True-rms current from 1A to 500A (1000A with optional probe)	•	•
Peak, DC, and Crest Factor	•	•
Total harmonic distortion (% THDF and % THDR)	•	•
Active power from 10W to 300kW (600kW with optional probe)	•	•
Apparent power (kVA)	•	•
Total power factor (PF)	•	•
Displacement power factor (DPF)	•	•
K-factor	•	•
Frequency from 6Hz -99.9Hz (fundamental)	•	•
Harmonics to 31st	•	•
Phase angle of fundamental and harmonics	•	•
Waveform and spectrum displays	•	•
Record mode - MIN, MAX and AVG	•	•
Zoom mode	•	•
48-hour battery life (4 "C" cells)	•	•
Handheld, 1 kg (2 lb)	•	•
Surge protection, 6kV per IEC 1010-1 CAT III - 600V	•	•
Marks - CE, $CSA_{NRTL/C}$, TUV/GS	•	•
Includes 500A current clamp and video	•	•
Memory for 8 complete data sets		•
Optically isolated RS-232 interface		•
FlukeView® PC software for Windows® and DOS included		•

Specifications

Function	Range & Resolution	Accuracy
Voltage	5.0V to 600V rms (AC+DC) ±5.0V to ±933V peak	±(0.5% + 2 digits) Peak or DC: ±(2% + 3 digits) (Add 2 digits if <15V rms)
Current (1mV/A) Isolated input	1.00A to 1000A rms (AC+DC) ±1.0A to ±2000A peak	±(0.5% + 3 digits)+probe specs Peak or DC: ±(2% + 4 digits) + probe specs
Watts/Volt-Amps (1mV/A) isolated input	0.0W(VA) to 600kW(kVA) average 0.0W(VA) to ±2000kW(kVA) peak	AC+DC: ±(1% + 4 digits) + probe specs
Harmonics (harmonic level >5% using Smooth 20)	Volts: Fundamental to 13th At 31st Amps or Watts: Fundamental to 13th At 31st	±(2%+2 digits) ±(8%+2 digits) ±(3% + 3 digits) + probe specs ±(8% + 3 digits) + probe specs
Frequency	Fundamental: 6.0 Hz to 99.9 Hz	±0.3 Hz
Input Bandwidth	DC, 6 Hz to 2.1 kHz	
Crest Factor (CF)	1.00 to 5.00	±4%
Power Factor (PF)	0.00 to 1.00	±0.02
Displacement Power Factor (DPF)	0.00 to 1.00	±0.04 to ±0.03 (0.30 to 0.89) ±0.02 (0.90 to 1.00)
Phase	-179° to 180°	
K-Factor (KF)	1.0 to 30.00	±10%
% THD-F	0.00% to 799.9%	±(0.03 Reading + 2.0%)
% THD-R	0.0% to 99.9%	±(0.03 Reading + 2.0%)

Minimum Input Levels: 5V rms or 1A rms

Battery Life: 4 alkaline "C" cells ANSI/NEDA-14A, IEC-LR14 (supplied) 48 hours typical (continuous)

Shock & Vibration: Per MIL-T-28800, Class 3

Case: Drip-Proof and Dust-Proof per IEC, IP 52

Size: 234 mm L x 100 mm W x 64 mm D (9.2" L x 3.9" W x 2.5" D)

Weight: 0.9 kg (2.0 lb.)

One Year Warranty

Accessories and Ordering Information:

Included Accessories

Models	Models	Description
41B:		Isolated RS-232 Cable, FlukeView Software (included w/41B), Software Manual
39/41B:	80i-500s	AC Current Probe
39/41B:	TL24	Test Leads
39/41B:	AC20	Test Clips
39/41B:	TP20	Test Probes, Operator's manual

Optional Accessories

Models	Description
C41S	Soft Case
80i-110s	AC/DC Current Probe
80i-1000s	AC Current Probe

Educational Video Tapes:

Models	Description
926993	"Understanding Harmonics"
939327	"Managing Electrical Power Systems"

Ordering Information

	Models	Description
Model	41B	Power Harmonics Analyzer
Model	39	Power Meter