

Specifications

Basic electrical specifications are defined over the temperature range from 18°C to 28°C for a period of one year after calibration.

Accuracy is specified as \pm ([% of reading] + [number of units in least significant digit]).

Frequency Range, Fundamental

6-65 Hz and dc

Minimum Input Levels

5V rms or 1A rms

Volts Measurements (True rms)

Input Range: 5.0V to 600V rms (ac + dc)
5.0V to +/-933V peak

Basic Accuracy*:

rms (ac + dc): +/- (0.5% + 2 digits)
peak, dc: +/- (2% + 3 digits)

* < 15V rms, add 2 digits

Input Impedance: 1 M Ω , balanced

Crest Factor: > 3.0 below 300V, 1.56 @ 600V

Amps Measurements (True rms)

(1 mV/A) Isolated Input

Input Range: 1.00 mV (A) to 1000 mV rms (A) (ac + dc)
1.0 mV (A) to +/- 2000 mV (A) peak

Basic Accuracy:

rms (ac + dc): +/- (0.5% + 3 digits) + probe specs.
peak, dc: +/- (2% + 4 digits) + probe specs.

Input Impedance: 1 M Ω || 47 pF

Crest Factor: > 3.0 below 600 mV, 2.0 @ 1000 mV

Watts Measurements (Volt-Amps)

(1 mV/A) Isolated Input

Range: 0 W (VA) to 600 kW (kVA) average
0 W (VA) to 2000 kW (kVA) peak

Accuracy (ac + dc):

Active W (VA): +/- (1% + 4 digits) + probe specs

Harmonics Measurement Accuracy (Cursor Data)

(Harmonic Level > 5% Using Smooth ~20)

Volts:

Fundamental to 13th Harmonic: +/- (2% + 2 digits)
13th to 31st Harmonic: 13th (+/- (2% + 2 digits)) -----
----- 31st (+/- (8% + 2 digits))

Amps* or Watts:

Fundamental to 13th Harmonic: +/- (3% + 3 digits) + probe specs
13th to 31st Harmonic: 13th (+/- (3% + 3 digits) + probe
specs) ----- 31st (+/- (8% + 3
digits) + probe specs)

* < 20A, add 3 digits

Phase:

Fundamental: (±2 degrees) + probe specs
2nd to 31st Harmonic: 2nd (±5 degrees) -- 31st (±20
degrees) + probe specs

Frequency Measurement Accuracy

(Fundamental, 6.0 Hz - 99.9 Hz)

6.0 Hz - 99.9 Hz: +/- 0.3 Hz

Other Measurement Specifications

Measurement Function	Range/Resolution	Accuracy	
Input Bandwidth: (-0.5 dB):	DC 6 Hz to 2.1 kHz		
Crest Factor (CF): (Using Smooth $\sqrt{20}$)	1.00 to 5.00	±4%	
Power Factor (PF):	0.00 to 1.00	±0.02	
Displacement Power Factor (DPF):	0.00 to 0.29	unspecified	
	0.30 to 0.69	±0.04	
	0.70 to 0.89	±0.03	
	0.90 to 1.00	±0.02	
Phase Measurement Range:	-179 to 180 degrees		
K-Factor (KF) Model 41B:	1.0 to 30.0	±10%	
Total Harmonic Distortion (THD)			
	%THD-F:	0.0 to 799.9	±(0.03 x Reading + 2.0%)
	%THD-R:	0.0 to 99.9	±(0.03 x Reading + 2.0%)

Ranges and Resolution

AC Volts		AC Amps		Watts	
Range (PK)	Resolution	Range (PK)	Resolution	Range (PK)	Resolution
20V	0.1V	2A	0.01A	50W	1.0W
50V	0.1V	5A	0.01A	100W	1.0W
100V	0.1V	10A	0.01A	200W	1.0W
200V	0.1V	20A	0.01A	500W	1.0W
500V	1V	50A	0.1A	1 kW	0.01 kW
1 kV	1V	100A	0.1A	2 kW	0.01 kW
		200A	0.1A	5 kW	0.01 kW
		500A	1A	10 kW	0.1 kW
		1000A	1A	20 kW	0.1 kW
		2000A	1A	50 kW	0.1 kW
				100 kW	1 kW
				200 kW	1 kW
				500 kW	1 kW
				1 kkW	1 kW
				2 kkW	1 kW

General Specifications

Size: 9.2 x 3.9 x 2.5 inches (234 x 100 x 64 mm)

Weight: 2.0 lbs (1 kg)

Input Connectors:

Voltage: 2 shrouded banana jacks (4 mm)

Current Probe: 1 shrouded BNC jack

Battery:

Type: 4 Alkaline "C" Cells ANSI/NEDA-14A, IEC-LR14
(supplied)

Operating Time: 48 hours, typical (continuous, without backlight)

Alternate Battery:

4 NiCad Cells, customer supplied and externally charged. The tester prevents battery reversal by turning itself off if battery voltage drops below 4.0V dc.

Temperature:

Operating: 0 to 50°C (32 to 122°F)

Storage: -20 to 60°C (-4 to 140°F)

Temperature Coefficient:

0.1 x Specified Accuracy per degree C
(0 to 18 degrees C, 28 to 50 degrees C)

39/41B

Users Manual

Humidity (noncondensing):

Operating:	0 - 30°C:	90%
	30 - 40°C:	75%
	40 - 50°C:	45%
Storage:		90%

Altitude:

Operating:	10,000 feet (3 km)
Storage:	40,000 feet (12 km)

Shock & Vibration: per MIL-T-28800, class 3, sinusoidal, nonoperating

Electro-Magnetic Compatibility:

RF Emissions: EN 50081-1 Commercial Limits,
VFG 243-1991

RF Susceptibility: EN 50082-1 Commercial Limits
Council Directive: Electromagnetic Compatibility Directive (89/336/EEC)

Drip Proof and Dust Proof Case: per IEC 529, Section 3;
IP 52 Dust-Protected, Drip Proof

Display

Type:	Super Twisted Liquid Crystal
Size:	3.0 inch diagonal (76 mm)
Resolution:	160 W x 128 H pixels
Contrast:	User adjustable
Backlight:	Yellow-green LED

Safety

Designed for 600V measurements on industrial power distribution circuits.

⚠ Overload Protection:

Voltage or Current Probe Input: 600V, maximum
Surge Protection: 6 kV per IEC 1010-1
Maximum Voltage Isolation to Earth: 600V from any terminal

Protection Levels:

IEC 1010-1, Pollution Degree 2, Installation
Category III, Material Group II, 600V

Protection Class:

Protection Class II as described in IEC 1010-1, Annex H (Double or Reinforced Insulation).

Waveform Memory (Model 41B)

Eight nonvolatile memories store 2048 sampled points of waveform data for both Voltage and Current inputs for later recall or sending to a computer.

EIA-232-E (RS-232) INTERFACE (Model 41B)

Optically-Isolated, 1.2, 9.6, or 19.2k baud rate.

Printer graphical output in either Epson or HP format. Text data is sent in ASCII format (SEND). Waveform, Data, and Picture formats may be remotely accessed. Remote Trigger function.