



## 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  $\pm$ 933V peak

#### Basic Accuracy\*

rms (ac + dc):  $\pm$ (0.5% + 2 digits)  
peak, dc:  $\pm$ (2% + 3 digits)

\*<15V rms, add 2 digits

#### Input Impedance

1 M $\Omega$ , 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  $\pm$ 2000 mV (A) peak

#### Basic Accuracy

rms (ac+dc):  $\pm$ (0.5% + 3 digits) + probe specs  
peak, dc:  $\pm$ (2% + 4 digits) + probe specs

#### Input Impedance

1 M $\Omega$  || 47 pF

#### Crest Factor

>3.0 below 600 mV, 2.0 @ 1000 mV

### Watts Measurements (Volt-Amps)

(1 mV/A) Isolated Input

#### Range

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

#### Accuracy (ac + dc)

Active W (VA):  $\pm$ (1% + 4 digits) + probe specs

### Harmonics Measurement Accuracy (Cursor Data)

(Harmonic Level > 5% Using Smooth ~20)

#### Volts

Fundamental to 13th Harmonic:  
 $\pm$ (2% + 2 digits)  
13th to 31st Harmonic:  
13th ( $\pm$ (2% + 2 digits)) –  
– 31st ( $\pm$ (8% + 2 digits))

#### Amps\* or Watts

Fundamental to 13th Harmonic:  
 $\pm$ (3% + 3 digits) + probe specs  
13th to 31st Harmonic:  
13th ( $\pm$ (3% + 3 digits) + probe specs) –  
– 31st ( $\pm$ (8% + 3 digits) + probe specs)

\*<20A, add 3 digits

#### Phase

Fundamental:  
( $\pm$  2 degrees) + probe specs  
2nd to 31st Harmonic:  
2nd ( $\pm$  5 degrees) – 31st ( $\pm$  20 degrees)  
+ probe specs

### Frequency Measurement Accuracy

(Fundamental, 6.0 Hz - 99.9 Hz)  
6.0 Hz-99.9 Hz:  $\pm$ 0.3 Hz

## General Specifications

**Size:** 9.2 x 3.9 x 2.5 in (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°C to 50°C (32°F to 122°F)  
Storage: -20°C to 60°C (-4°C to 140°F)

#### Temperature Coefficient

0.1 x specified accuracy per °C (0°C to 18°C, 28°C to 50°C)

#### Humidity (noncondensing)

Operating: 0°C to 30°C, 90%  
30°C to 40°C, 75%  
40°C to 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

For a direct connection to a  
Fluke Distributor near you

**CALL**

**1-800-79-FLUKE in the U.S.**

(1-800-793-5853)

Or your nearest  
Fluke sales organization

Z2301A-01U9508/SE EN

## 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 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
Phase Measurement Range	0.30 to 0.69	±0.04
	0.70 to 0.89	±0.03
	0.90 to 1.00	±0.02
	-179 to 180°	
K-Factor (KF)	1.0 to 30.0	±10%
Total Harmonic Distortion (THD)		
%THD-F:	0.0 to 99.9	±(0.03 Reading + 2.0%)
%THD-R:	0.0 to 99.9	±(0.03 Reading + 2.0%)

## Recording Measurements

AC Volts		AC Amps		Watts	
Range	Resolution	Range	Resolution	Range	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 kW	1 kW
				2 kW	1 kW

## 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)

