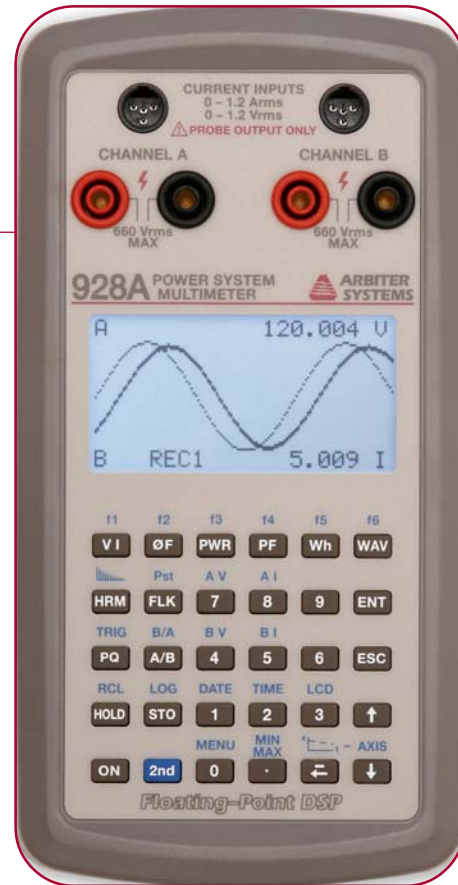


## Model 928A Power System Multimeter™

Specifications subject to change without notice.

- **Low Cost**
- **0.1% Accuracy**
- **Power and Energy**
- **Flicker Per IEC 61000-4-15**
- **Harmonics I, V to 50<sup>th</sup>, THD**
- **Phase Angle I-I, V-V, I-V**
- **Waveform display**



*Built by Power Professionals, For Power Professionals*

The Model 928A Power System Multimeter with *Floating-Point DSP™* Digital Signal Analysis is an AC Power measurement instrument, providing outstanding performance and flexibility in a small, hand-held package. Not only does the Model 928A measure basic data and power quantities, but it also measures power quality including harmonics, flicker, sags, surges and interruptions. Incorporating a graphic LCD display, serial communications, real time clock and an unprecedented combination of features makes the Model 928A the ideal instrument for the power professional.

### Inputs

The Model 928A uses two identical input measurement channels capable of measuring either voltage or current. The dual inputs allow for voltage to current, voltage to voltage or current to current measurements with a basic accuracy of 0.1%. Note: an input CT is required for any current measurement and the basic accuracy of the Model 928A is affected by the accuracy of the input CT.

The flexible current inputs are compatible with both voltage output and current output CTs. Convenient current transformer calibration tables help eliminate errors introduced by the CTs and lessen their effect on system measurements. A special 0 to 40 mA range allows for accurate low level (< 10 mA) measurements.

### Features

The Model 928A includes a bright, 128 x 64 graphic backlit LCD display, a 30-key multifunction keypad and USB 1.1 interface. The Model 928A may be powered either from four AA type cells (alkaline or NiMH) or an optional external, +7 Vdc plug-in power supply.

### Accessories

The Model 928A requires an external CT for current measurements, such as the AP0001300 (1000:1) or the AP0012300 (100:1). Optional accessories include a tilt/bail handle, soft case, test leads, external +7 Vdc power supply, and other CTs.

## Model 928A Specifications

### Input

#### Input Configuration

The Arbiter Systems<sup>®</sup>, Inc. Model 928A Power System Multimeter<sup>™</sup> has two identical measurement channels, Channel A and Channel B. Each input channel has a voltage input and a current input. Current inputs are intended for use with external CTs having a nominal output of 0 to 1 Arms or 0 to 1 Vrms. For basic measurements (voltage, current, frequency, and phase angle) any combination of inputs may be used. For power and energy measurements (active power, apparent power, reactive power, and power factor), one voltage and one current must be selected.

#### Voltage

Input Range 1 to 660 Vrms  
Impedance 1.2 megohm, differential

#### Current

Input Range 0.01 to 1.2 Arms or 0.01 to 1.2 Vrms  
Low Range to < 1 mA or 1 mV  
Burden 0.01 ohm max. (current input style) or 100 kohms nominal (voltage input style)

### Interface

#### Operator Interface

Display 128 x 64 graphic LCD, backlit  
Keyboard 30 key keypad  
Serial USB 1.1, Type B  
Memory 512 kB flash  
Data User setups  
Real Time Clock  
Approx. 400 kB measurement data

### Power Requirements

#### Batteries<sup>1</sup>

Type 4 Type AA/LRG/AM3,  
Alkaline/NiCd/NiMH  
Operation 30 hours typical with alkaline cells  
60 hours typical with NiMH

#### External<sup>1</sup>

Voltage +7 to +10 Vdc (+11 Vdc maximum)  
Current < 100 mA  
Connector 5.5 x 2.0 mm, center positive

### Measurements

#### Voltage and Current

Method Wideband: True rms, 3 kHz Bandwidth  
Narrowband: Fundamental magnitude  
Accuracy 0.1% of reading (voltage) or  $\pm 5$  mV,  
whichever is greater  
0.1% of reading + CT errors (current)  
1% of reading + CT errors (low current range)

#### Phase Angle, A-B

Range 0 to 360° or  $\pm 180^\circ$   
Accuracy 0.1°  
Underrange < 1° typical

#### Frequency

Range 50 or 60 Hz  $\pm 5$  Hz  
Accuracy 0.005% of reading

#### Harmonics

Input Channel A and Channel B,  
simultaneous  
Range 2<sup>nd</sup> to 50<sup>th</sup> Harmonic (50 or 60 Hz  
fundamental)  
Accuracy 0.1% THD + 5% reading  
Display THD; K-factor; Amplitude bar graph;  
and individual harmonic magnitude  
and phase (simultaneous)

#### Waveform

Display Channel A and/or Channel B

#### Power / Energy Quantities

Range 0 to 99999 MVA or MVAh  
 $\pm 99999$  MVAR or MVARh  
 $\pm 99999$  MW or MWh  
 $\pm 1.0000$  PF, lead or lag  
Accuracy 0.1% of VA, for VA, VAR, and W  
0.001 PF

<sup>1</sup> The batteries and the external wall-mount power supply are accessories and not included with the base Model 928A.

## Model 928A Specifications

### General

#### Physical

Size	200.0 x 104.2 x 37.4 mm (7.9 x 4.1 x 1.5 in.) 381 x 305 x 299 mm (15 x 12 x 9 in.), shipping
Weight	1 kg (2.2 lbs.), maximum 2.5 kg (5.5 lbs), shipping

#### Environmental

Temperature	Operating: -10° to +50° C Nonoperating: -40° to +75° C
Humidity	Noncondensing

### Accessories

#### Included

<u>Description</u>	<u>Order No.</u>
Operation Manual	PD0030900
Voltage Probe Lead Set	AP0009700

#### Available

<u>Description</u>	<u>Order No.</u>
Mlink software. Free download from <a href="http://www.arbiter.com">www.arbiter.com</a>	
100:1 Clamp-on CT, 150 A, 10 mV/A Requires CA0027200	AP0012300
1000:1 Clamp-on CT, 1000 A, 1 mA/A Requires CA0027100	AP0001300
Universal Test Plug Current Shunt Allows for clamp-on use with a test block.	AS0079000
Voltage Probe Lead Set	AP0009700
CT Cable, Current Output	CA0027100
CT Cable, Voltage Output	CA0027200
928A Soft Carrying Case	HD0069800
USB Data Cable, 6 ft	CA0026106
4-AA Alkaline cells	BT0000201
External power supply, +7 Vdc	AP0011200
928A Bail Assembly	AS0082900
Model 928A Starter Kit	AS0071800
Includes:	
1 - AP0012300: 100:1 Clamp-on CT, 150 A, 10 mV/A	
1 - CTCHAR: CT Characterization (100 mA to 100 A)	
1 - CA0027200: CT Cable, Voltage Output	
1 - AP0009700: Voltage Probe Lead Set	
1 - AP0011200: External Power Supply, +7 Vdc	
1 - CA0026106: USB Data Cable, 6 ft	
1 - BT0000201: 4-AA Alkaline cells	
1 - HD0069800: 928A Soft Carrying Case	
1 - AS0082900: 928A Bail Assembly	