

# MODEL 428E

## CLIP-ON AC/DC MILLIAMMETER

### FEATURES

- Measures currents from 20  $\mu$ A to 10 A without circuit interruption
- AC and DC modes
- Precision offset capability
- Optional magnetometer probes

### APPLICATIONS

- Measurement of current in high-voltage applications
- Measurement of small AC or DC current changes superimposed on a steady current up to 10 A
- Measurement of power supply current and ripple
- Measurement of magnetic fields from 1  $\mu$ G to 10 G (with optional magnetometer probe)

The Model 428E Clip-on AC/DC Milliammeter measures current without the need for breaking the circuit. The probe can be clipped onto wires up to 0.160" diameter; system accuracy is not affected by wire size. Three full-scale pushbutton selectable ranges are available:

- 100 mA
- 1 Amp
- 10 Amp

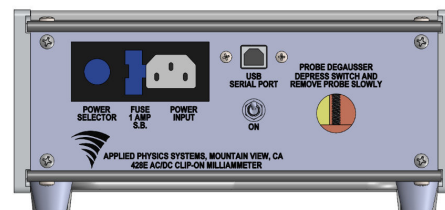
On the most sensitive range, currents down to 20  $\mu$ A can be measured. A precision full-scale DC offset capability is included, enabling the measurement of small AC or DC current changes in the presence of a DC current up to 10A.

The system analog output is available at a front panel BNC connector, which enables measurement of signals over a wide bandwidth of 0 to 600 HZ in the DC mode and 20 to 600 Hz in the AC mode.

The Model 428E console features a bright 4 1/2 digit LED display and is compatible with Hewlett Packard 428 style clip-on current probes and magnetometer probes.



FRONT PANEL



REAR PANEL

### Magnetometer Probes

Two magnetic field measuring probes are available as system options:

- One probe enables transverse field measurement
- One probe enable axial field measurements

When using these probes, the three fullscale ranges correspond to 100 mG, 1 G and 10 G. The system noise level with the magnetometer probes is  $10^{-4}$  G rms/Hz 1/2.

**PERFORMANCE**

Offset	Coarse: $\pm 10$ Amp Fine: $\pm 1$ Amp Zero: $\pm 100$ mA
Full Scale Ranges Current Probe	DC: 10A, 1A, and 100mA all full-scale pushbutton selectable AC: 7.07A, 0.707A, and 70.7mA all RMS full-scale selectable
Full Scale Ranges Magnetometer Probe	DC: 10G, 1G, and 100mG all full-scale pushbutton selectable AC: 7.07G, 0.707G, and 70.7mG all full-scale pushbutton selectable
DC Accuracy	$\pm 1\%$ of reading $\pm 4$ counts
AC Accuracy	$\pm 1\%$ of reading @ 60 Hz for all ranges except 10 mA $\pm 5\%$ of reading @ 60 Hz for 10 mA range

**ELECTRICAL**

Power (selectable)	110-120V, 60Hz, 1 Amp or 208-220V, 50-60Hz, 1 Amp
Analog Output	Front panel BNC connector $\pm 10$ V for full-scale reading; BNC output impedance = 2K ohm
Digital Output	Serial USB
Frequency Response Range	10 Amp: DC to 500 Hz @ -3dB 1 Amp: DC to 500 Hz @ -3dB 100 mAmp: DC to 500 Hz @ -3dB

**PHYSICAL**

Width	8.5" (215.9 mm)
Length	15" (381 mm)
Height	4" (101.6 mm)
Weight	8.5 lbs (3.856 kg)
Display	4 1/2 digit LED, single indicator LEDs for function selected

*Specifications are subject to change without notice.*