



Applied Physics  
Systems

# Model 428P

Portable Clip-on Milliammeter

## Features

- Battery operated
- Measures currents from 20  $\mu$ A to 2 A without circuit interruption
- AC and DC modes
- Rugged, water-resistant case
- Optional magnetometer probes

## Applications

- Measurement of current in general-purpose electronic applications
- Measurement of current in sensitive applications where wires cannot be cut
- Measurement of power supply current and ripple magnetic fields from 1  $\mu$ G to 2 G (with optional magnetometer probe)



The Model 428P Portable Clip-on Milliammeter System is an accurate, sensitive ammeter designed to measure small currents without breaking or interrupting the current flow in a circuit. The current probe can be clipped onto wires up to 0.160" diameter; system accuracy is not affected by wire size.

Three full scale AC and DC ranges are available: 20mA, 200mA and 2 Amp. These ranges may be selected manually or by an autorange mode. On the most sensitive range, currents down to 20 $\mu$ A can be measured. The inclusion of an autozero option eliminates the need to manually zero the meter.

The Model 581S Control/Display Console contains the system power supplies. It also contains two displays; a 4½ digit digital display and a fast 20 element LED bargraph display.

The Model 428P measures current flow in a wire by sensing the magnetic field surrounding the wire. The measured current is displayed on a 3½-digit liquid crystal display (LCD). For nighttime viewing, a backlight for the LCD display can be turned on. Battery operation capability, water resistant design and rugged construction make the Model 428P ideal for field applications.

## Magnetometer Probe

An axial magnetometer probe is available as a system option, enabling measurement of magnetic fields from 1 $\mu$ G to 2G. When using this probe, the three full scale ranges correspond to 20mG, 200mG and 2G. The system noise level with the magnetometer probe is 10-6 G rms/root Hz.

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PHYSICAL	
Width/Thickness	4.5" (114.3 mm) x 1.375" (34.925 mm)
Height	8.5" (215.9 mm)
Weight	1.35 pounds, including probe and batteries
Probe Cable Length	Current Probe: 4" (101.6 mm) Magnetometer Probe: 5" (127 mm)
Packaging	Plastic casing, Water-resistant meter

ELECTRICAL	
DC Frequency Response	Low pass — DC to 600 Hz @ -3dB
AC Frequency Response	Bandpass — 20 Hz @ -3db to 600 Hz @ -3db
Calibration Current	Calibration current of 10mA DC $\pm 3\%$ is provided in the Current Calibrator Loop located on the top of the case and activated by pushbutton.
Battery Life	Approximately 12 hours continuous use

ENVIRONMENTAL	
Operating Temperature	-10°C to 50°C (14°F to 122°F)
Storage Temperature	-25°C to 55°C (-13°F to 131°F)
Full Scale Ranges Current Probe	DC: 2A, 200mA, 20mA full scale manually selectable or autorange AC: 2A, 200mA, 20mA RMS full scale manually selectable or autorange
Full Scale Ranges Magnetometer Probe	DC: 2G, 200mG and 20mG full scale pushbutton selectable or autorange AC: 2G, 200mG, 20mG RMS full scale manually selectable or autorange
DC Accuracy	$\pm 1\%$ of reading $\pm 4$ counts
AC Accuracy	$\pm 1\%$ of reading @ 60 Hz for all ranges

Specifications within this document are subject to change without notice.

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