Current Probes
Agilent 1146A ac/dc Current

- **Low-cost solution**
- **ac/dc currents measured simultaneously**
- **Accurate measurements of currents: 100 mA to 100 Arms, dc to 100 kHz**
- **Load impedance > 1 MΩ/100 pF**

Within Budget, Without Compromise

The low-cost 1146A probe expands oscilloscope applications in industrial, automotive and power environments and is ideal for analysis and measurement of distorted current waveforms and harmonics. Accurate display and measurement of currents from 100 mA to 100 Arms, dc to 100 kHz, are made by using Hall Effect technology, eliminating the need for an electrical connection to the circuit.

Low phase shift makes this probe ideal for power quality measurements, while the high sensitivity makes it a great tool for measuring low-voltage signals. For true root mean square (RMS) measurements, the 1146A lets you measure the dc and ac output signals proportional to the total current. A battery level indicator and overload indicator help insure proper readings.

A narrow, elongated clamping mechanism lets you easily probe in crowded cable bundles and circuit boards. The probe connects directly to an oscilloscope through a 2 meter coaxial cable with an insulated BNC.

Probe power is provided by the battery, so there is no need for an external amplifier or power supply.

Figure 5.3. Agilent 1146A 100 mA to 100 Arms, dc to 100 kHz probe.

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Specifications

Operating Characteristics

Current range*	100 mV/A: 100 mA to 10 A peak; 10 mV/A: 1 to 100 A peak	
Output signal	1000 mV peak max	
ac current accuracy* (after calibration and for one year) (zero probe before making measurement)	Range 100 mVA (50 mA to 10 A peak) 10 mVA (500 mA to 40 A peak) 10 mVA (40 A to 100 A peak)	Accuracy 3% of reading ± 50 mA 4% of reading ± 50 mA 15% max at 100 A
Phase shift [1]	< 1° from dc to 65 Hz on 10 mV/A < 1.5° from dc to 65 Hz on 100 mV/A	
Frequency range*	dc to 100 kHz (–3 dB with current derating)	
Noise	Range 10 mV/A: 480 µV; Range 100 mV/A: 3 mV	
Slew rate	Range 10 mV/A: 20 mV/µs; Range 100 mV/A: 0.3 V/µs	
Load impedance	> 1 MΩ/100 pF	
Insertion impedance (50/60 Hz)	0.01 Ω	
Rise or fall time	Range 100 mV/A: 3 µs; Range 10 mV/A: 4 µs	
Working voltage	600 Vrms maximum	
Common mode voltage	600 Vrms maximum	
Influence of adjacent conductor	< 0.2 mA/A ac	
Influence of conductor position in jaw	0.5% of reading at 1 kHz	
Battery	9 V alkaline (NEDA 1604A, IEC 6LR61)	
Low battery	Green LED when ≥ 6.5 V	
Overload indication	Red LED indicates input greater than selected range	
Typical consumption	8.6 mA	
Battery life	55 hours typical	

* Characteristics marked with asterisks are specified performance. Others are typical characteristics.

[1] Reference conditions 23° C ± 5° C, 20 to 75% relative humidity, dc to 1 kHz, probe zeroed, one minute warmup, batteries at 9 V + 0.1 V, external magnetic field < 40 A/m, no dc component, no external current carrying conductor, 1 MΩ/100 pF load, conductor centered in jaw.

Ordering Information

Part #	Description	Quantity
1146A	ac/dc oscilloscope current probe	1