N2780A Series AC/DC Current Probes

A wide selection of current probes to meet your application's needs

Data Sheet

Figure 1 N2780A Series current probes with N2779A power supply

- Various bandwidths: DC to 2 MHz, 10 MHz, 50 MHz, 100 MHz
- DC and AC measurements
- Superior 1% accuracy and high signal-to-noise ratio
- Overload-protect function prevents probe damage from excessive input
- Direct connection to high-impedance 1 MΩ BNC input of oscilloscope
- "Demagnetize" button to remove any residual magnetism that builds up in the magnetic core
- External power supply (N2779A) lets you connect up to three N278xA current probes to a single power supply

Compatible with any oscilloscope with a high-impedance BNC input, the new N2780A Series current probes offer accurate and reliable solution for measuring DC and AC currents.

Hybrid technology for AC and DC measurements

Using hybrid technology that includes a Hall-effect sensor and an AC current transformer, the probes provide accurate measurement of DC or AC currents up to 500 Arms (for model N2780A) or DC–100 MHz (for model N2783A), without breaking into the circuit. Using split core construction, the probe easily clips on and off of a conductor.

Wide range of applications

The current probes feature broad measurement ranges (up to 500 A), flat frequency response, low noise and low insertion loss that make the probes ideal for current measurements in areas such as measuring steady state or transient current of motor drives, switching power supplies, inverters, controllers, sensors, disk drives, LCD displays, electronic ballasts and amplifiers. The high signal-to-noise ratio of the N2782A and N2783A makes them ideal for making low-level current measurements in milliampere ranges.

Accurate current measurement

A built-in DEMAG (demagnetize) function allows the removal of any residual magnetism that has built up in the magnetic core due to power on/off switching or excessive input current. In addition, voltage offset or temperature drift on the probe can be easily corrected by using the zero adjustment control.

Figure 2 N2783A, N2780A, N2781A and N2782A current probe (from left to right)

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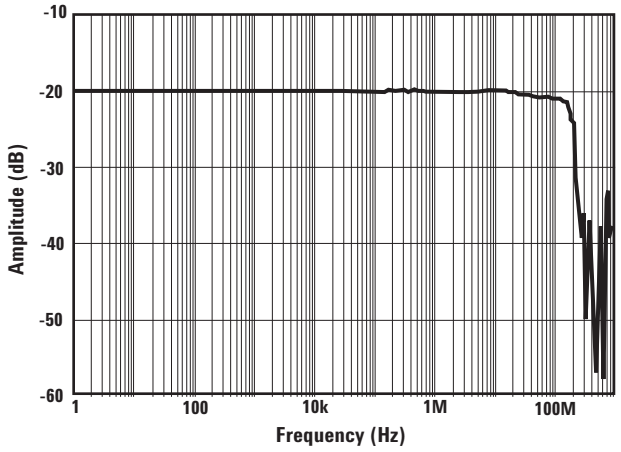


Figure 3 Frequency response of N2783A

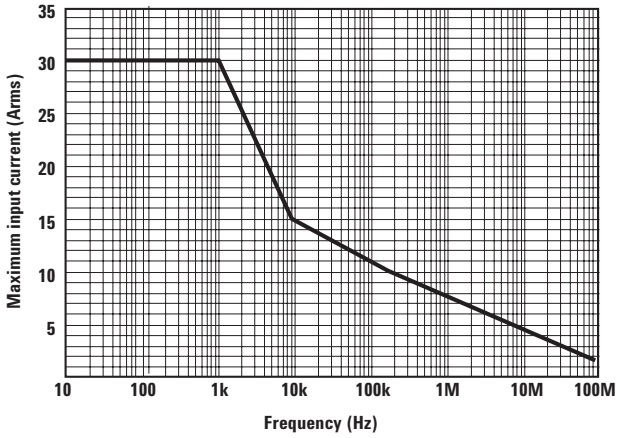


Figure 4 Continuous maximum input rating of N2783A

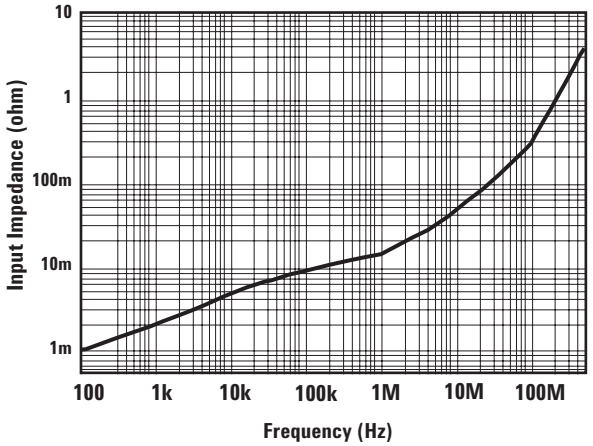


Figure 5 Insertion impedance of N2783A

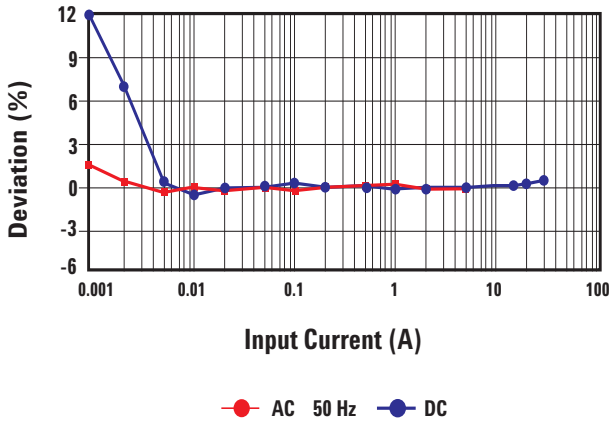


Figure 6. Amplitude accuracy characteristics of N2783A

Note: For the characteristic plots of other current probe models, refer to the N2780A Series current probe user's manual.

N2779A 3-channel power supply specifications

Applicable current probes:	N2780A, N2781A, N2782A, N2783A and N2774A
Number of power supply connectors:	3
Connector type:	LEMO inc./FFA..0S.304.CNAC42Z
Output power:	DC (12 V, 1.4 A)
Maximum rated power:	130 VA
Input power requirement:	AC 100-240 VAC, 50/60 Hz, 125-170 VAC




Model number	N2780A	N2781A	N2782A	N2783A
Bandwidth (-3dB)	DC to 2 MHz	DC to 10 MHz	DC to 50 MHz	DC to 100 MHz
Risetime	175 ns or less	35 ns or less	7 ns or less	3.5 ns or less
Maximum current (continuous) RMS	500 A	150 A	30 A	30 A
Maximum peak current (non-continuous)	700 A peak	300 A peak	50 A peak	50 A peak
Lowest measurable current (at ±3% accuracy at DC, scope set to 1 mV/div and high-resolution mode on)	20 mA	20 mA	5 mA	5 mA
Output voltage rate	0.01 V/A (100:1)	0.01 V/A (100:1)	0.1 V/A (10:1)	0.1 V/A (10:1)
Amplitude accuracy* (DC and 45 to 66 Hz, rated current)	±1.0% rdg. ± 500 mA	±1.0% rdg. ± 100 mA	±1.0% rdg. ± 10 mA	±1.0% rdg. ± 10 mA
Noise (measured with 20 MHz bandwidth limit filter on the scope)	Equivalent to 25 mArms or less	Equivalent to 25 mArms or less	Equivalent to 2.5 mArms or less	Equivalent to 2.5 mArms or less
Temperature coefficient for sensitivity (within a range of 0°C to 40 °C or 32 °F to 104 °F)	±2% or less	±2% or less	±2% or less	±2% or less
Effect of external magnetic fields (in a DC to 60 Hz, 400 A/m magnetic field)	Equivalent to a maximum of 800 mA	Equivalent to a maximum of 150 mA	Equivalent to a maximum of 20 mA	Equivalent to a maximum of 5 mA
Maximum rated power	7.2 VA (with rated current)	5.5 VA (with rated current)	5.6 VA (with rated current)	5.3 VA (with rated current)
Rated supply voltage	DC ±12 V ±0.5 V	DC ±12 V ±1 V	DC ±12 V ±0.5 V	DC ±12 V ±0.5 V
Diameter of measurable conductors	20 mm dia. (0.79″ dia.)	20 mm dia. (0.79″ dia.)	5 mm dia. (0.2″ dia.)	5 mm dia. (0.2″ dia.)
Cable lengths	Sensor cable: Approx. 2 m (78.7″) Power supply cable: Approx. 1 m (39.4″)	Sensor cable: Approx. 2 m (78.7″) Power supply cable: Approx. 1 m (39.4″)	Sensor cable: Approx. 1.5 m (78.7″) Power supply cable: Approx. 1 m (39.4″)	Sensor cable: Approx. 1.5 m (78.7″) Power supply cable: Approx. 1 m (39.4″)

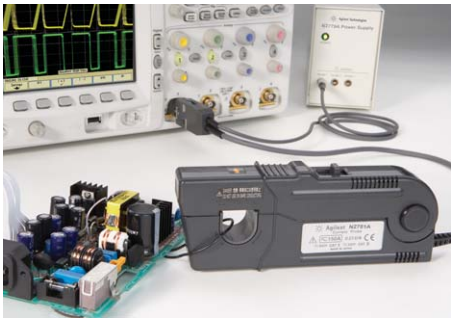
Note*: The amplitude accuracy specifications are guaranteed at 23°C ± 3°C (or 73°F ± 5°F)

Compatible Oscilloscopes

Any oscilloscope offering 1 MΩ BNC input including Agilent 3000 Series, 6000 Series, and Infiniium 8000 Series oscilloscopes. You must select the input impedance of the oscilloscope to be 1 MΩ in order to make accurate measurements. If the oscilloscope you are using does not have a 1 MΩ input impedance setting, you can purchase the Agilent E2697A 50Ω to 1 MΩ adapter.

Ordering Information

N2780A
2 MHz/500A AC/DC current probe
N2781A
10 MHz/150A AC/DC current probe
N2782A
50 MHz/30A AC/DC current probe
N2783A
100 MHz/30A AC/DC current probe
N2779A
3-channel power supply for N2780A Series current probes



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Revised: February 5, 2007

Product specifications and descriptions in this document subject to change without notice.

Printed in USA, April 3, 2007
5989-6432EN

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