N2780B Series AC/DC Current Probes

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

- 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 N278xB current probes to a single power supply

Compatible with any oscilloscope with a high-impedance BNC input, the new N2780B Series current probes offer accurate and reliable solution for measuring DC and AC currents.



Figure 1. N2780B Series current probes with N2779A power supply

KEYSIGHT

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 N2780B) or DC–100 MHz (for model N2783B), 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 N2782B and N2783B 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. N2783B, N2780B, N2781B and N2782B current probe (from left to right)

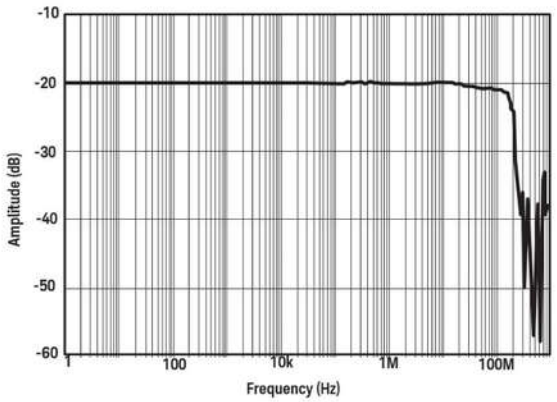


Figure 3. Frequency response of N2783B

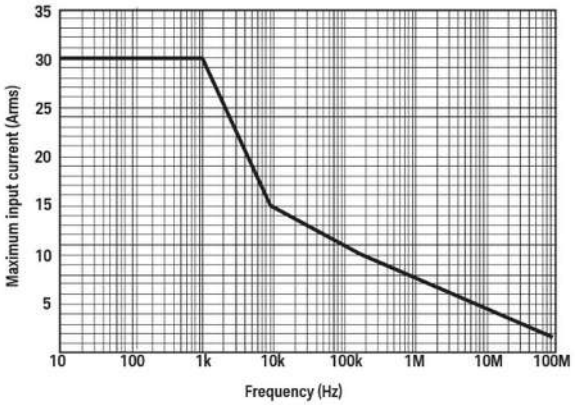


Figure 4. Continuous maximum input rating of N2783B

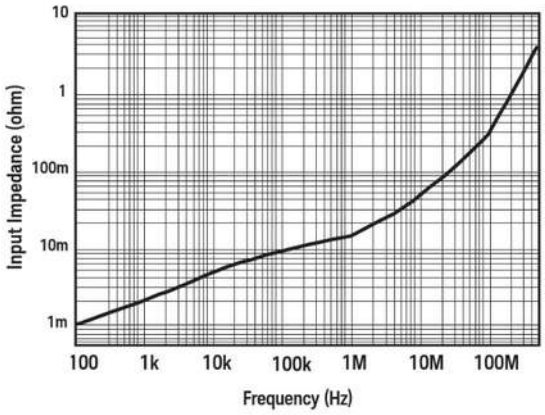


Figure 5. Insertion impedance of N2783B

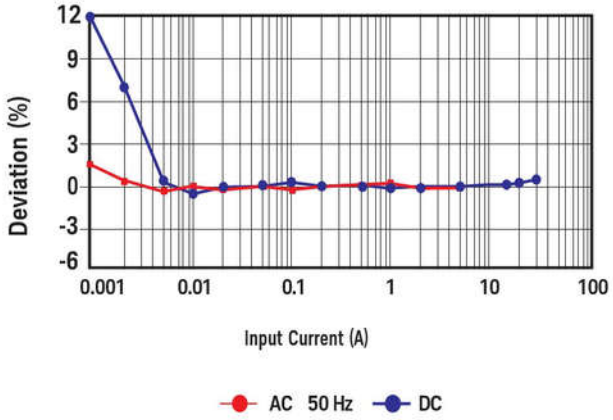


Figure 6. Amplitude accuracy characteristics of N2783B

Note: For the characteristic plots of other current probe models, refer to the N2780B Series current probe user's manual.

N2779A 3-channel power supply specifications



Applicable current probes	N2780B, N2781B, N2782B, N2783B and N2774A
Number of power supply connectors	3
Connector type	LEMO inc./FFA.0S.304.CNAC42Z
Output voltage	DC (12 V, 2.5 A)
Maximum rated power	170 VA
Input power requirement	AC 100-240 VAC, 50/60 Hz, 125-170 VAC






Model number	N2780B	N2781B	N2782B	N2783B
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-resolutionmode 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.)

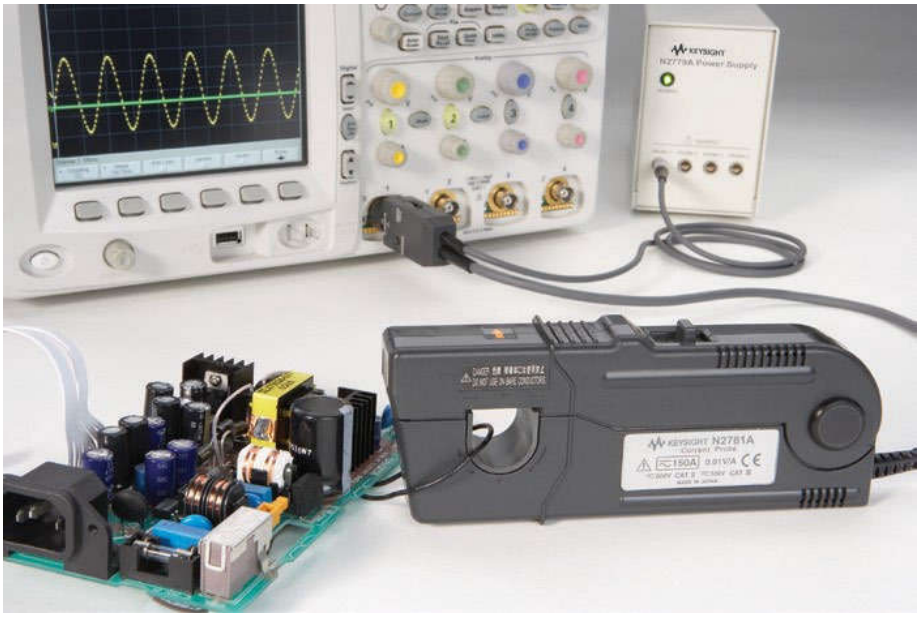
Note*: The amplitude accuracy specifications are guaranteed at 23°C ± 3°C (or 73°F ± 5°F)
**: Insulated conductor must be used.

Compatible Oscilloscopes

Any oscilloscope offering 1 MΩ BNC input including Keysight Technologies, Inc. 1000, 3000 InfiniiVision 2000X,3000X, 5000, 6000 and 7000 Series, and Infiniium 8000 and 9000 Series. 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 has a 50Ω input impedance setting only, you can purchase the Keysight E2697A 50Ω to 1 MΩ adapter for use with the Infiniium 80000 or 90000 Series or the N5449A high impedance probe adapter for use with the Infiniium 90000 X-Series.

Ordering Information

Model	Description
N2780B	2 MHz/500A AC/DC current probe
N2781B	10 MHz/150A AC/DC current probe
N2782B	50 MHz/30A AC/DC current probe
N2783B	100 MHz/30A AC/DC current probe
N2779A	3-channel power supply for N2780B Series current probes



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