

# Oscilloscope Probes

Get the measurement accuracy you want for your application

## Probe Types

Keysight offers a broad range of voltage, current, and optical probing solutions for InfiniiVision and Infiniium Series oscilloscopes. Select from the probe categories listed below to see what Keysight has to offer.

- Hi-Z+ Probes
- Passive Probes
- High-Frequency Differential Active Probes < 10 GHz
- High-Frequency Differential Active Probes  $\geq$  10 GHz
- Single-Ended Active Probes
- Power Rail Probes
- Current Probes
- Optical Probes

[Oscilloscope Probes Selection Guide](#)

# Hi-Z+ Passive Probing System

Keysight offers a family of single-ended passive probes offers the performance expected of an active probe with the usability expected from a passive probe. The Hi-Z+ probes support higher input voltages and support for simplified probing of MMCX connectors. All three of these probes leverage the PP0004A Hi-Z+ Adapter to interface with our current generation oscilloscopes with AutoProbe 1 interfaces. There are also a variety of accessory kits available for extra parts or replacements.

PP000xA Hi-Z+ Probes

Model	Bandwidth	Input Voltage	Input Impedance	Tip Type
PP0001A	1 GHz	300 V CAT II	10 M $\Omega$ // 4.0 pF	5mm tip
PP0002A	800 MHz	1200 V CAT II	40 M $\Omega$ // 2.0 pF	5mm tip
PP0003A	1 GHz	30 V CAT II	10 M $\Omega$ // 4.0 pF	MMCX Connector

## Passive Probes

Keysight offers a broad range of passive probes with various attenuation ratios and input impedance specifications to optimize the dynamic range and loading considerations of your oscilloscope ground-reference measurements. These passive probes are compatible with most Keysight oscilloscopes that have either standard BNC inputs or AutoProbe1/BNC input connections.

General-Purpose Passive Probes

Model	Bandwidth	Attenuation Ratio	Input Impedance <sup>1</sup>	Compensation Range <sup>2</sup>	Notes
N2840A	50 MHz	10:1	10 M $\Omega$ // 11 pF	5 – 30 pF	
10074D	150 MHz	10:1	10 M $\Omega$ // 15 pF	9 – 17 pF	
N2841A	150 MHz	10:1	10 M $\Omega$ // 11 pF	5 – 30 pF	Recommended for InfiniiVision 2000 X-Series
N2871A	200 MHz	10:1	10 M $\Omega$ // 9.5 pF	10 – 25 pF	Optimized for fine-pitch probing
N2842A	300 MHz	10:1	10 M $\Omega$ // 11 pF	5 – 30 pF	Recommended for InfiniiVision 2000 X-Series
N2853A	350 MHz	10:1	10 M $\Omega$ // 11 pF	5 – 30 pF	
N2872A	350 MHz	10:1	10 M $\Omega$ // 9.5 pF	10 – 25 pF	Optimized for fine-pitch probing
N7007A	400 MHz	10:1	10 M $\Omega$ // 16 pF	6 – 18 pF	Extreme temperature probing (-40 to +85°C), 2 meter cable
N2843A	500 MHz	10:1	10 M $\Omega$ // 11 pF	5 – 30 pF	Recommended for InfiniiVision 3000 X-Series
10073D	500 MHz	10:1	2.2 M $\Omega$ // 12 pF	6 – 15 pF	
N2873A	500 MHz	10:1	10 M $\Omega$ // 9.5 pF	10 – 25 pF	Fine-pitch, recommended for Infiniium EXR/MXR/S-Series
N2875A	500 MHz	20:1	20 M $\Omega$ // 5.6 pF	7 – 20 pF	Optimized for fine-pitch, low capacitive probing
N2894A	700 MHz	10:1	10 M $\Omega$ // 9.5 pF	10 – 25 pF	Fine-pitch, recommended for InfiniiVision 4000/6000 X-Series
PP0002A	800 MHz	Variable	40 M $\Omega$ // 2.0 pF	N/A	5 mm tip, 1200 V CAT II, requires PP0004A (AutoProbe1)
PP0001A	1 GHz	Variable	10 M $\Omega$ // 4.0 pF	N/A	5 mm tip, 300 V CAT II, requires PP0004A (AutoProbe1)
PP0003A	1 GHz	Variable	10 M $\Omega$ // 4.0 pF	N/A	MMCX connector, 30 V CAT II, requires PP0004A (AutoProbe1)

### High-Sensitivity 1:1 Passive Probes

Model	Bandwidth	Attenuation Ratio	Input Impedance <sup>1</sup>	Compensation Range <sup>2</sup>	Notes
10070D	20 MHz	1:1	1 M $\Omega$ // 70 pF +	N/A	Recommended for low-voltage measurements
N2870A	35 MHz	1:1	1 M $\Omega$ // 39 pF +	N/A	Recommended for low-voltage measurements

### Switchable Passive Probes (1:1 // 10:1)

Model	Bandwidth	Attenuation Ratio	Input Impedance <sup>1,3</sup>	Compensation Range <sup>2</sup>	Notes
N2142A	6 MHz	1:1	1 M $\Omega$ // 100 pF +	N/A	Low-cost 2-pack, recommended for InfiniiVision EDUX1000 X-Series
	70 MHz	10:1	10 M $\Omega$ // 15 pF +	15 – 30 pF	
N2140A	6 MHz	1:1	1 M $\Omega$ // 100 pF +	N/A	Low-cost 2-pack, recommended for InfiniiVision EDUX1000 X-Series
	200 MHz	10:1	10 M $\Omega$ // 15 pF +	15 – 30 pF	
N2889A	10 MHz	1:1	1 M $\Omega$ // 60 pF +	N/A	The most general-purpose passive probe
	350 MHz	10:1	10 M $\Omega$ // 11 pF +	10 – 35 pF	

### High-voltage Passive Probe (100:1)

Model	Bandwidth	Attenuation Ratio	Input Impedance <sup>1</sup>	Compensation Range <sup>2</sup>	Notes
10076C	500 MHz	100:1	66.7 M $\Omega$ // 3 pF +	6 – 18 pF	High-voltage, low capacitive probing

### High-frequency/Low-Z Passive Probes (50- $\Omega$ terminated)

Model	Bandwidth	Attenuation Ratio	Input Impedance <sup>4</sup>	Compensation Range	Notes
N2874A	1.5 GHz	10:1	500 M $\Omega$ // 1.8 pF +	N/A	Low-cost, high-frequency probing at the cost of resistive loading
N2876A	1.5 GHz	100:1	5 M $\Omega$ // 2.2 pF +	N/A	Low-cost, high-frequency probing at the cost of resistive loading

### TDR/TDT Probe

Model	Bandwidth	Type	Input Impedance	Tip Spacing	Compatible TDR/TDT Modules	Notes
N1021B	18 GHz	Differential	100 $\Omega$	Variable between 0.5 mm – 2.54 mm	DCA-X N1055A & 54754A	Designed for TDR applications, but also suitable as high bandwidth, passive probe for non-TDR applications

1. Input impedance when terminated into oscilloscopes with 1-M $\Omega$  input terminations. For higher-bandwidth Infiniium oscilloscopes with 50- $\Omega$  input terminations only, the E2697A high impedance adapter can be purchased (includes 10073D 500-MHz passive probe) to provide a 1-M $\Omega$  input termination.
2. For proper probe compensation (flatness), the oscilloscope's input capacitance must be within the specified compensation range of the probe.
3. Capacitance at the probe tip of 1:1 probes is the specified probe capacitance plus the capacitance of the oscilloscope when terminated into 1-M $\Omega$ .
4. Input impedance when terminated into oscilloscopes with 50- $\Omega$  input terminations. These probes are not compatible with Keysight's InfiniiVision 1000 and 2000 X-Series oscilloscopes.

### Passive Probes for Handheld Digital Oscilloscopes

Model	Bandwidth	Attenuation Ratio	Input Capacitance	Length	Safety Rating
U1560A	45 MHz	1:1	42 pF	1.2 m	Cat III 300 V
U1561A	250 MHz	10:1	16 pF	1.2 m	Cat III 600 V, Cat II 1000V
U1562A	300 MHz	100:1	6.5 pF	1.2 m	Cat III 600 V, Cat II 1000 V, Cat I 3540 V

## High-Frequency Differential Active Probes <10 GHz

Probing high-speed differential buses typically requires differential active probes. Keysight offers a broad range of differential active probing solutions for your unique measurement requirements based on bandwidth, dynamic measurement range, and probe loading.

### High-frequency Differential Active Probes <10 GHz

Model	Bandwidth	Input Range	Probe Offset	Diff Input Impedance	Attenuation Ratio	Prob-to-scope Interface	Power Source	Oscilloscope Termination
N2750A	1.5 GHz	± 5 V	± 15 V	100 kΩ/0.7 pF	2:1/10:1 <sup>1</sup>	AutoProbe1	Oscilloscope	50 Ω
N2751A	3.5 GHz	± 5 V	± 15 V	100 kΩ/0.7 pF	2:1/10:1 <sup>1</sup>	AutoProbe1	Oscilloscope	50 Ω
N2752A	6.0 GHz	± 5 V	± 15 V	100 kΩ/0.7 pF	2:1/10:1 <sup>1</sup>	AutoProbe1	Oscilloscope	50 Ω
1130B <sup>2</sup>	1.5 GHz	± 2.5 V	± 12 V	50 kΩ/0.27 pF	10:1	AutoProbe1	Oscilloscope	50 Ω
1131B <sup>2</sup>	3.5 GHz	± 2.5 V	± 12 V	50 kΩ/0.27 pF	10:1	AutoProbe1	Oscilloscope	50 Ω
1132B <sup>2</sup>	6.0 GHz	± 2.5 V	± 12 V	50 kΩ/0.27 pF	10:1	AutoProbe1	Oscilloscope	50 Ω
1134B <sup>2</sup>	7.0 GHz	± 2.5 V	± 12 V	50 kΩ/0.27 pF	10:1	AutoProbe1	Oscilloscope	50 Ω
N2830A <sup>2,3</sup>	4 GHz	± 2.5 V	± 16 V	100 kΩ/0.32 pF	5:1/10:1 <sup>1</sup>	AutoProbe1	Oscilloscope	50 Ω
N2831A <sup>2,3</sup>	8 GHz	± 2.5 V	± 16 V	100 kΩ/0.32 pF	5:1/10:1 <sup>1</sup>	AutoProbe1	Oscilloscope	50 Ω
N7000A <sup>2</sup>	8 GHz	± 2.5 V	± 16 V	100 kΩ/0.32 pF	5:1/10:1 <sup>1</sup>	AutoProbe2	Oscilloscope	50 Ω

1. Auto-selected based on V/division setting.
2. Requires differential probe head sold separately.
3. Not compatible with InfiniiVision X-Series oscilloscopes, but is compatible with the Infinium UXR (1 mm & 1.85 mm models) with the cascaded use of the N5442A and N2852A adapters.

### Oscilloscope Compatibility for High-Frequency Differential Active Probes (<10 GHz)

Probe-to-scope Interface	Scope Termination	Compatible Oscilloscopes
BNC	50 Ω	<ul style="list-style-type: none"> <li>• InfiniiVision 3000A, 3000T, 4000, and 6000 X-Series</li> <li>• Infinium EXR, MXR, S-Series, 9000 Series</li> <li>• Any vendor's oscilloscope with a BNC input connection and a 50 Ω input impedance termination</li> </ul>
AutoProbe1	50 Ω	<ul style="list-style-type: none"> <li>• InfiniiVision 3000A, 3000T, 4000, and 6000 X-Series (except N2830A and N2831A)</li> <li>• Infinium EXR, MXR, S-Series, 9000, and 90000A Series</li> <li>• Infinium UXR (3.5 mm models), V, Z, Q, and 90000X Series with the use of the N5442A</li> </ul>
AutoProbe2	50 Ω	<ul style="list-style-type: none"> <li>• Infinium UXR (3.5 mm models), V, Z, Q, and 90000X Series</li> </ul>

## AutoProbe interface

Keysight's AutoProbe interface provides the following:

- DC voltage to power active probe circuitry
- Automatic detection of probe attenuation
- Automatic control of selectable probe attenuation on some probes
- Probe DC offset on many probes

# High-Frequency Differential Active Probes $\geq 10$ GHz

Get the highest performance available for measuring differential and single-ended signals on high-density integrated circuits and printed circuit boards.

As devices get smaller and faster, accurately probing signals becomes more challenging. Keysight's InfiniiMax Probing System has the most accurate probe amplifiers, the widest variety of probe heads, and all the accessories you need to get the job done.

High-Frequency Differential Active Probes  $\geq 10$  GHz

Model	Bandwidth	Impedance Profile <sup>1</sup>	Diff Input Impedance	Probe Noise <sup>2</sup>	Probe-to-Scope Interference	InfiniiMode <sup>3</sup>	Input Range	Probe Offset	Attenuation Range <sup>4</sup>
N2803A	30 GHz	RCRC	100 k $\Omega$ /0.32 pF	23.9 nV/rt(Hz)	AutoProbe2	No	$\pm 1.25$ V	$\pm 16$ V	6:1
MX0025A	25 GHz	RC	50 k $\Omega$ /0.17 pF	25.0 nV/rt(Hz)	AutoProbe2	Yes	$\pm 2.5$ V	$\pm 16$ V	1:1/4:1/8:1
MX0023A	25 GHz	RC	50 k $\Omega$ /0.17 pF	25.0 nV/rt(Hz)	AutoProbe2	No	$\pm 1.25$ V	$\pm 16$ V	1:1/4:1
N2802A	25 GHz	RCRC	100 k $\Omega$ /0.32 pF	23.9 nV/rt(Hz)	AutoProbe2	No	$\pm 1.25$ V	$\pm 16$ V	6:1
MX0024A	20 GHz	RC	50 k $\Omega$ /0.17 pF	25.0 nV/rt(Hz)	AutoProbe2	Yes	$\pm 2.5$ V	$\pm 16$ V	1:1/4:1/8:1
N2801A	20 GHz	RCRC	100 k $\Omega$ /0.32 pF	23.9 nV/rt(Hz)	AutoProbe2	No	$\pm 1.25$ V	$\pm 16$ V	6:1
N7003A	20 GHz	RCRC	100 k $\Omega$ /0.32 pF	33.5 nV/rt(Hz)	AutoProbe2	Yes	$\pm 2.5$ V	$\pm 16$ V	5:1/10:1
MX0022A	16 GHz	RC	50 k $\Omega$ /0.17 pF	25.0 nV/rt(Hz)	AutoProbe2	Yes	$\pm 2.5$ V	$\pm 16$ V	1:1/4:1/8:1
N7002A	16 GHz	RCRC	100 k $\Omega$ /0.32 pF	33.5 nV/rt(Hz)	AutoProbe2	Yes	$\pm 2.5$ V	$\pm 16$ V	5:1/10:1
MX0021A	13 GHz	RC	50 k $\Omega$ /0.17 pF	25.0 nV/rt(Hz)	AutoProbe2	Yes	$\pm 2.5$ V	$\pm 16$ V	1:1/4:1/8:1
N7001A	13 GHz	RCRC	100 k $\Omega$ /0.32 pF	33.5 nV/rt(Hz)	AutoProbe2	Yes	$\pm 2.5$ V	$\pm 16$ V	5:1/10:1
N2832A	13 GHz	RCRC	100 k $\Omega$ /0.32 pF	33.5 nV/rt(Hz)	AutoProbe1	Yes	$\pm 2.5$ V	$\pm 16$ V	5:1/10:1
1169B	13 GHz	RC	50 k $\Omega$ /0.21 pF	25.0 nV/rt(Hz)	AutoProbe1	No	$\pm 1.65$ V	$\pm 16$ V	3.45:1
MX0020A	10 GHz	RC	50 k $\Omega$ /0.17 pF	25.0 nV/rt(Hz)	AutoProbe2	Yes	$\pm 2.5$ V	$\pm 16$ V	1:1/4:1/8:1
1168B	10 GHz	RC	50 k $\Omega$ /0.21 pF	25.0 nV/rt(Hz)	AutoProbe1	No	$\pm 1.65$ V	$\pm 16$ V	3.45:1

1. Input Impedance Profile: RCRC architecture is the best choice for signals with low source impedance and RC architecture is the best choice for measuring signals that transition to low power modes because it has lower loading.
2. Probe noise listed is the most common setup. Probe noise can vary with multiple factors such as attenuation ratio, probe head, and probe mode.
3. Measure differential, single-ended, and common mode signals.
4. Auto selected based on volts/division (all modes).

### Oscilloscope Compatibility for High-Frequency Differential Active Probes ≥ 10 GHz

Probe-to-scope Interface	Compatible Oscilloscopes
AutoProbe1	<ul style="list-style-type: none"> <li>• Infiniium MXR, EXR, S-Series, 9000, and 90000A Series</li> <li>• Infiniium UXR (3.5 mm models), V, Z, Q, and 90000X Series with the use of the N5442A adapter</li> <li>• Infiniium UXR (1 mm &amp; 1.85 mm models) with the cascaded use of the N5442A &amp; N2852A adapters</li> </ul>
AutoProbe2	<ul style="list-style-type: none"> <li>• Infiniium UXR (3.5 mm models), V, Z, Q, and 90000X Series</li> <li>• Infiniium UXR (1 mm &amp; 1.85 mm models) with the use of the N2852A adapter</li> <li>• Infiniium N1000A and 86100D DCA-X with the use of the N5477A adapter (only for N2801A/02A/03A)</li> </ul>

## High-Voltage Differential Active Probes

Keysight offers a broad range of high-voltage differential probes to help test power-related devices and circuits including probes with high input impedance for minimal loading, probes with multiple attenuation ratios for optimum dynamic range measurements, and probes that can measure up to ±7000 Volts.

### High-Voltage Differential Active Probes

Model	Bandwidth	Input Range	Diff Input Impedance	Attenuation Ratio	Probe-to-scope Interface	Power Source	Oscilloscope Termination
N2805A	200 MHz	±100 V	4 MΩ /4.0 pF	50:1	AutoProbe1	Oscilloscope	50 Ω
N2804A	300 MHz	±300 V	8 MΩ /10 pF	100:1	AutoProbe1	Oscilloscope	50 Ω
N2791A	25 MHz	±700 V	8 MΩ /3.5 pF	10:1/100:1	BNC	USB cable or battery	1 MΩ
N2790A	100 MHz	±1400 V	1 MΩ /3.5 pF	50:1/500:1	AutoProbe1	Oscilloscope	1 MΩ
DP0001A	400 MHz	±2000 V	10 MΩ /2.0 pF	50:1/100:1/250:1/500:1	AutoProbe1	Oscilloscope	50 Ω
N2891A	70 MHz	±7000 V	100 MΩ /5.0 pF	100:1/1000:1	BNC	USB cable or battery	1 MΩ

### Oscilloscope Compatibility for High-Voltage Differential Active Probes

Probe-to-scope Interface	Oscilloscope Termination	Compatible Oscilloscopes
BNC	1 MΩ	<ul style="list-style-type: none"> <li>• InfiniiVision 1000, 2000, 3000A, 3000T, 4000, and 6000 X-Series</li> <li>• Infiniium EXR, MXR, S-Series, 9000 Series</li> <li>• Any vendor's oscilloscope with a BNC input connection and a 1 MΩ input impedance termination</li> </ul>
BNC	50 MΩ	<ul style="list-style-type: none"> <li>• InfiniiVision 3000A, 3000T, 4000, and 6000 X-Series</li> <li>• Infiniium EXR, MXR, S-Series, 9000 and 90000A Series</li> <li>• Any vendor's oscilloscope with a BNC input connection and a 50 MΩ input impedance termination</li> </ul>
AutoProbe1 <sup>1</sup>	50 MΩ	<ul style="list-style-type: none"> <li>• InfiniiVision 3000A<sup>1</sup>, 3000T, 4000, and 6000 X-Series</li> <li>• Infiniium EXR, MXR, S-Series, 9000 and 90000A Series</li> <li>• Infiniium UXR (3.5 mm models), V, Z, Q, and 90000X Series with the use of the N5442A adapter</li> <li>• Infiniium UXR (1 mm &amp; 1.85 mm models) with the cascaded use of the N5442A &amp; N2852A adapters</li> </ul>

1. DP0001A is not compatible with the InfiniiVision 3000A X-Series oscilloscopes.

# AutoProbe1 interface

Keysight's AutoProbe1 interface provides the following:

- DC voltage to power active probe circuitry
- Automatic detection of probe attenuation
- Automatic control of selectable probe attenuation on some probes
- Probe DC offset on many probes

## Single-Ended Active Probes

### Measurements referenced to ground

When capacitive loading and limited bandwidth of conventional passive probes begin to degrade the measurement integrity of your high-speed signals, consider using one of Keysight's higher bandwidth single-ended active probes.

Single-Ended Active Probes

Model	Bandwidth	Input Range	Probe Offset	Input Impedance	Attenuation Ratio	Probe-to-scope Interface	Notes
N2795A	1 GHz	±8 V	±8 V	1 MΩ/1.0 pF	10:1	AutoProbe1	Extreme Temp. (-40 to +85°C), 2 meter long cable
N2797A	1.5 GHz	±8 V	±12 V	1 MΩ/1.0 pF	10:1	AutoProbe1	
N2796A	2 GHz	±8 V	±12 V	1 MΩ/1.0 pF	10:1	AutoProbe1	
1130B <sup>1</sup>	1.5 GHz	±2.5 V	±12 V	25 kΩ/0.44 pF	10:1	AutoProbe1	
1131B <sup>1</sup>	3.5 GHz	±2.5 V	±12 V	25 kΩ/0.44 pF	10:1	AutoProbe1	
1132B <sup>1</sup>	5.0 GHz	±2.5 V	±12 V	25 kΩ/0.44 pF	10:1	AutoProbe1	
1134B <sup>1</sup>	7.0 GHz	±2.5 V	±12 V	25 kΩ/0.44 pF	10:1	AutoProbe1	

1. Single-ended and differential probe. Requires probe head sold separately.

Oscilloscope Compatibility for Single-Ended Active Probes

Probe-to-scope Interface	Compatible Oscilloscopes
AutoProbe1	<ul style="list-style-type: none"> <li>• InfiniiVision 3000A, 3000T, 4000, and 6000 X-Series</li> <li>• Infiniium EXR, MXR, S-Series, 9000, and 90000A Series</li> <li>• Infiniium UXR (3.5 mm models), V, Z, Q, and 90000X Series with the N5442A adapter</li> <li>• Infiniium UXR (1 mm &amp; 1.85 mm models) with the cascaded use of the N5442A &amp; N2852A adapters (only for N2795A/96A/97A, not for 1130B/31B/32B/34B)</li> </ul>



## AutoProbe1 interface

Keysight's AutoProbe1 interface provides the following:

- DC voltage to power active probe circuitry
- Automatic detection of probe attenuation
- Automatic control of selectable probe attenuation on some probes
- Probe DC offset on many probes

## Power Rail Probes

### Measure output ripple with high-sensitivity

Engineers often use 1:1 passive probes for the sensitivity required to measure the output ripple of DC supplies. But 1:1 passive probes have limited bandwidth (typically less than 35 MHz) and no DC offset capability. A Keysight power rail probe can measure noise, output ripple, and transients on DC power supplies with high sensitivity (millivolts), large DC offsets, and high bandwidth.

Power Rail Probes

Model	Bandwidth	Input Range	Probe Offset	Input Impedance	Attenuation Ratio	Probe-to-scope Interface
N7020A	2 GHz	±850 mV <sup>1</sup>	±24 V	50 kΩ	1.1:1	AutoProbe1
N7024A	6 GHz	±600 mV <sup>1</sup>	±15 V	50 kΩ	1.3:1	AutoProbe1

1. Measurement range about the offset level.

Oscilloscope Compatibility for Power Rail Probes

Model	Compatible Oscilloscopes
N7020A	<ul style="list-style-type: none"><li>• InfiniiVision3000A, 3000T, 4000, and 6000 X-Series oscilloscopes</li><li>• Infinium EXR, MXR, S-Series and 9000 Series oscilloscopes</li></ul>
N7024A	<ul style="list-style-type: none"><li>• Infinium EXR, MXR, S-Series, 9000 Series, and 90000A Series oscilloscopes</li><li>• Infinium UXR-Series, V-Series, Z-Series, 90000Q Series, and 90000X Series with the use of the N5442A adapter</li></ul>

## AutoProbe1 interface

Keysight's AutoProbe1 interface provides the following:

- DC voltage to power active probe circuitry
- Automatic detection of probe attenuation
- Automatic control of selectable probe attenuation on some probes
- Probe DC offset on many probes

# Current Probes

Keysight offers a broad range of current probing solutions including clamp-on current probes with bandwidths from DC to 150 MHz, Rogowski coils that can measure peak currents up to 3000 Amps, and high-sensitivity R-shunt probes that can measure current as low as 50  $\mu$ A.

## AC/DC Hall-Effect (Clamp-On) Current Probes

Model	Bandwidth	Max Current	Conversion Factor (Attenuation)	Min Scope Vertical Scale	Probe-to-Scope Interface	Power Source
N7026A	150 BHz	40 A-Pk <sup>1</sup> , 30 A-RMS <sup>1</sup>	1 V/A (1:1), 0.2 V/A (5:1) <sup>2</sup>	1 mA/div	Autoprobe1	Oscilloscope
N2893A	100 MHz	30 A-Pk <sup>3</sup> , 24 A-RMS <sup>3</sup>	0.1 V/A (10:1)	10 mA/div	AutoProbe1	Oscilloscope
N2783B	100 MHz	50 A-Pk, 30 A-RMS	0.1 V/A (10:1)	10 mA/div	BNC	N2779A
1147B	50 MHz	30 A-Pk <sup>3</sup> , 24 A-RMS <sup>3</sup>	0.1 V/A (10:1)	10 mA/div	AutoProbe1	Oscilloscope
N2782B	50 MHz	50 A-Pk, 30 A-RMS	0.1 V/A (10:1)	10 mA/div	BNC	N2779A
N2781B	10 MHz	300 A-Pk, 150 A-RMS	0.01 V/A (100:1)	100 mA/div	BNC	N2779A
N2780B	2 MHz	700 A-Pk, 500 A-RMS	0.01 V/A (100:1)	100 mA/div	BNC	N2779A
1146B	100 kHz	100 A-Pk, 100 A-RMS	0.1 V/A (10:1), 0.01 V/A (100:1) <sup>4</sup>	10 mA/div	BNC	9 V Battery

## AC-Only Rogowski Current Probes

Model	Bandwidth	Max Current	Conversion Factor (Attenuation)	Probe-to-Scope Interface	Power Source
N7042A	9.2 Hz to 30 MHz	300 A-Pk	0.02 V/A (50:1)	BNC	AC power adapter or 4x AA batteries
N7041A	12 Hz to 30 MHz	600 A-Pk	0.01 V/A (100:1)	BNC	AC power adapter or 4x AA batteries
N7040A	3 Hz to 23 MHz	3000 A-Pk	0.002 V/A (500:1)	BNC	AC power adapter or 4x AA batteries

## High-Sensitivity AC/DC R-Shunt Current Probes

Model	Bandwidth	Current Range	Gain	Channels	Probe Heads (Standard)	Probe-to-Scope Interface	Power Source
N2820A	Zoom-out: 3 MHz Zoom-in: 500 kHz	Zoom-out: 5 A Zoom-in: 50 $\mu$ A	Zoom-out: 1.97 Zoom-in: 300	2	20 m $\Omega$ , 100 m $\Omega$ , User-defined	AutoProbe1	Oscilloscope
N2821A	Zoom-out: 3 MHz Zoom-in: 500 kHz	Zoom-out: 5 A Zoom-in: 50 $\mu$ A	Zoom-out: 1.97 Zoom-in: 300	1	20 m $\Omega$ , 100 m $\Omega$ , User-defined	AutoProbe1	Oscilloscope

1. When using a power adapter booster (standard), 15 A-Pk, 5 V-RMS without oscilloscope-provided power only. An MXR/EXR enables max current range without using the power adapter.
2. Auto-selected based on Amps/division setting.
3. The maximum number of current probes supported by InfiniiVision oscilloscopes is limited depending on the oscilloscope. Infiniium oscilloscopes have no limitations.
4. Manually selectable.
5. A wider input range is possible when using the user-defined head and Rsense.

### Oscilloscope Compatibility for Current Probes

Probe-to-scope Interface	Compatible Oscilloscopes
BNC	<ul style="list-style-type: none"> <li>• InfiniiVision 1000, 2000, 3000A, 3000T, 4000, and 6000 X-Series</li> <li>• Infiniium EXR, MXR, S-Series, 9000, and 90000A Series</li> <li>• Any vendor's oscilloscope with a BNC input connection and a 1 M<math>\Omega</math> input impedance termination</li> </ul>
AutoProbe1	<ul style="list-style-type: none"> <li>• InfiniiVision 3000A, 3000T, 4000, and 6000 X-Series</li> <li>• Infiniium EXR, MXR, S-Series, and 9000 and 90000A Series</li> <li>• Infiniium UXR (3.5 mm models), V, Z, Q, and 90000X Series with the use of the N5449A adapter</li> <li>• Infiniium UXR (1 mm &amp; 1.85 mm models) with the cascaded use of the N5449A &amp; N2852A adapters (only for 1147B and N2893A, not for N7026A, N2820A/21A)</li> </ul>

## AutoProbe1 interface

Keysight's AutoProbe1 interface provides the following:

- DC voltage to power active probe circuitry
- Automatic detection of probe attenuation
- Automatic control of selectable probe attenuation on some probes
- Probe DC offset on many probes

## Optical Probes

Keysight offers fully-integrated optical front-end solutions for Infiniium real-time oscilloscopes. The solution is designed for reference receiver testing of industry optical standards or characterizing the raw response of an optical transmitter. It can also be used to view optical streams at speeds up to 56 Gbaud PAM4, making it an ideal solution for characterizing or troubleshooting high-speed optical signals in system level testing and debugging.

Optical Probes

Model	Bandwidth	Inputs	Input Connector Type	Wavelength Range	Required Infiniium Baseline Software	Output Connector Type	Compatible Oscilloscopes
N7004A	33 GHz	Single-mode & Multi-mode	FC/PC to 50/125 $\mu$ m fiber	750 nm to 1650 nm	Version 05.70 or higher	2.92 mm female	UXR (3.5 mm models), V, Z, Q, and 90000X
N7005A	60 GHz	Single-mode	FC/PC to 9/125 $\mu$ m fiber	1250 nm to 1600 nm	Version 10.25 or higher	1.85 mm male	UXR (1 mm & 1.85 mm models)

# Additional Resources

- [Oscilloscope Probes Selection Guide](#)
- [InfiniiVision Oscilloscope Probes and Accessories](#)
- [Infiniium Oscilloscope Probes and Accessories](#)
- [DCA Accessories N1027A Kits and General-Purpose Parts](#)
- [Probe Resource Center](#)

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- Electro Rent: <https://www.electrorent.com/eu/manufacturers/keysight-technologies>
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- Orix Rentec: <http://www.orixrentec.jp/index.html>
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