WARNING To avoid personal injury or to prevent fire or damage to this product or products connected to it, review and comply with the following safety precautions. Be aware that if you use this product in a manner not specified, the protection that the product provides may be impaired.

CAUTION The probe cable is a sensitive part of the probe and, therefore, you should be careful not to damage it through excessive bending or pulling. Avoid any mechanical shocks to the product to guarantee accurate performance and protection. Do not use the probe assembly if the red wear indicator in the cable has become visible.

WARNING Some of the probe tips / accessories are very sharp. You should handle these with care to avoid personal injury.

WARNING Use only Grounded instruments. Do not connect the probe's ground lead to a potential other than earth ground. Always make sure that the probe and oscilloscope are grounded properly.

WARNING Connect the probe to the oscilloscope and connect the ground lead to earth ground before connecting the probe to the circuit under test. Disconnect the probe input and the probe ground lead from the circuit under test before disconnecting the probe from the oscilloscope.

WARNING Indoor Use Only. Do not operate in wet / damp / explosive environments. Keep product surfaces dry and clean.

NOTE If your probe requires cleaning, disconnect it from the instrument and clean it with mild detergent and water. Make sure the probe is completely dry before connecting it to the instrument.

Safety and Regulatory Information

C SP US	CSA is the Canadian certification mark to demonstrate compliance with the Safety requirements.
CE	The CE mark is a registered trademark of the European Community. ISM GRP 1-A denotes the instrument is an Industrial Scientific and Medical Group 1 Class A product. ICES/NMB-001 indicates product compliance with the Canadian Interference-Causing Equipment Standard.
40	This symbol indicates the Environmental Protection Use Period (EPUP) for the product's toxic substances for the China RoHS requirements.
CAT II	IEC Measurement category II is for measurements performed on circuits directly connected to the low voltage installation. Example. Household appliances portable tools, and similar equipment.

Repair and Service

For all repair or service needs, we recommend sending the probe to a Keysight authorized service center.
Visit http://www.keysight.com/find/assist to find a service location near you.

WARNING Do not install substitute parts or perform any unauthorized modification to the product. Only Keysight authorized service centers should perform repair/maintenance on the product.

Before returning the probe for service, you must first call the Call Center at 1 (800) 829- 4444.

For technical assistance, you can contact your local Keysight Technologies Call Center.

- In the Americas, call 1 (800) 829- 4444
- In other regions, visit http://www.keysight.com/find/assist

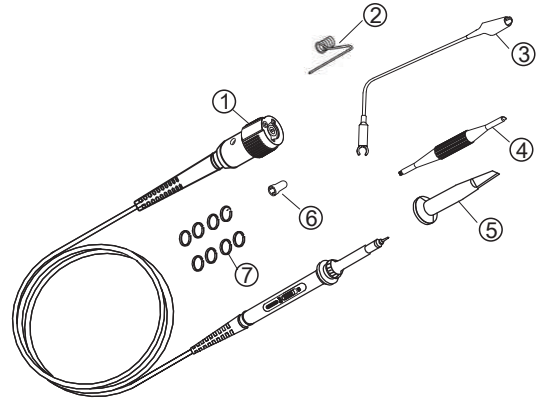
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1900 Garden of the Gods Road
Colorado Springs, CO 80907 USA

N2140-92003

N2140-92003, November 2020,
Available in electronic format only

Keysight N2140A and N2142A Passive Probes

Quick Start Guide



KEYSIGHT TECHNOLOGIES

⚠ The Keysight N2140A 200 MHz and N2142A 75 MHz passive probes are high impedance probes with switchable attenuation ratio (1:1 and 10:1). These are compatible with the Keysight InfiniiVision x-series oscilloscopes or similar oscilloscopes with 1 Mohm BNC input.

NOTE The BNC connector of these probes has a pin hole without a pin. This is as per the design and does not indicate any damage or fault in the probe.

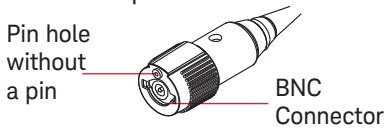


Table 1 - Probe and its Supplied Accessories

ID	Part	Quantity	
		For N2140A	For N2142A
①	Passive probe	2	2
②	Ground Spring	2	-
③	Ground Lead	2	2
④	Adjustment Tool	1	1
⑤	Hook Tip	2	2
⑥	Protective Cap	1	1
⑦	Channel Identification rings	16 rings total (4 rings of each color)	

These accessories are provided in the N2141A kit for the N2140A probe and the N2143A kit for the N2142A probe.

NOTE To securely engage the hook tip with the probe, ensure that you push the hook tip onto the probe completely until it stops and then release it.

These probes have been designed and calibrated for use with instruments having an input impedance of 1M Ω paralleled by 20pF. However, these may be recalibrated for use with instruments having an input capacitance of 15 to 30pF.

Adjusting Probes for Low-Frequency (LF) Compensation

The probe should be adjusted for LF compensation when it is connected to an oscilloscope input for the first time. LF compensation matches the probe cable capacitance to the oscilloscope input capacitance. This matching assures good amplitude accuracy from DC to the upper bandwidth limit frequencies. A poorly compensated probe clearly influences the overall system performance (probe and oscilloscope) and introduces measurement errors resulting in inaccurate readings and distorted waveforms.

For optimal probe compensation:

- Allow the oscilloscope (with the probe connected) to warm up for at least 30 minutes.
- Repeat the compensation steps if the ambient temperature in the area in which the oscilloscope is being used changes by more than 5 degrees C.
- Do NOT push down on the adjustment screw when engaging or turning this screw.

To perform LF compensation:

1 Connect the probe to the oscilloscope's front-panel calibration output (a square wave label is usually seen near this output).
2 Use the supplied adjustment tool to adjust the LF compensation to an optimum square wave response as shown in the figure below.

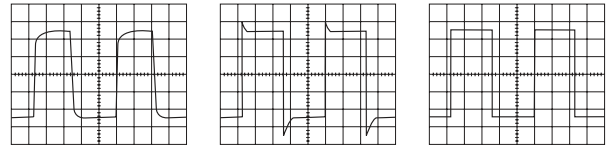


Table 2 - Electrical Characteristics

Characteristic	Value	
Attenuation Ratio	1:1 / 10:1	
Input Capacitance	1:1 - 100pf	10:1 - 15pf
Compensation range (when terminated into 1 Mohm)	15pf - 30pf	
Input Resistance	1:1 - 1MΩ	10:1 - 10MΩ
Maximum Input Voltage	1:1 - 150V rms CAT II 10:1 - 300V rms CAT II	
⚠ Current Rating (DC, 1:1, & maximum voltage)	0.15mA	
Bandwidth	For N2140A 1:1 - 6 MHz 10:1 - 200 MHz	For N2142A 1:1 - 6 MHz 10:1 - 75 MHz

Table 3 - Physical & Environmental Characteristics

Characteristic	Value
Probe Body	95mm
Cable Length	1200mm
Weight	55g
Temperature	-10 °C to +55 °C (Operating) -40 °C to +70 °C (Non-operating)
Altitude	3,000 m (9,842 ft) (Operating) 12200 m (40,026 ft) (Non-operating)
Humidity	5% to 90% RH up to 30 °C (Operating) 5% to 65% RH above 30 °C up to 55 °C (Non-operating)