DATA SHEET

N2792L Differential Probe Specifications

The Keysight Technologies, Inc. N2792L is a 200MHz differential probe designed to provide superior differential signal measurements with long cable length, making the probe ideal in an automotive test environment. The N2792L offers 50:1 attenuation ratio, allowing it to be used for high voltage signal measurements. The differential probe has an input resistance of 1 MΩ and low input capacitance of 8 pF to minimize circuit loading. The N2792L probe is compatible with any oscilloscope that has 50 Ω BNC input. The probe can be powered by an external +/-8.5V, >60mA power source.

The probe comes with a pair of extension cable (20 cm long) that has a built-in damping resistor to damp out the in-band resonance and provides flat frequency response across the rated bandwidth range.

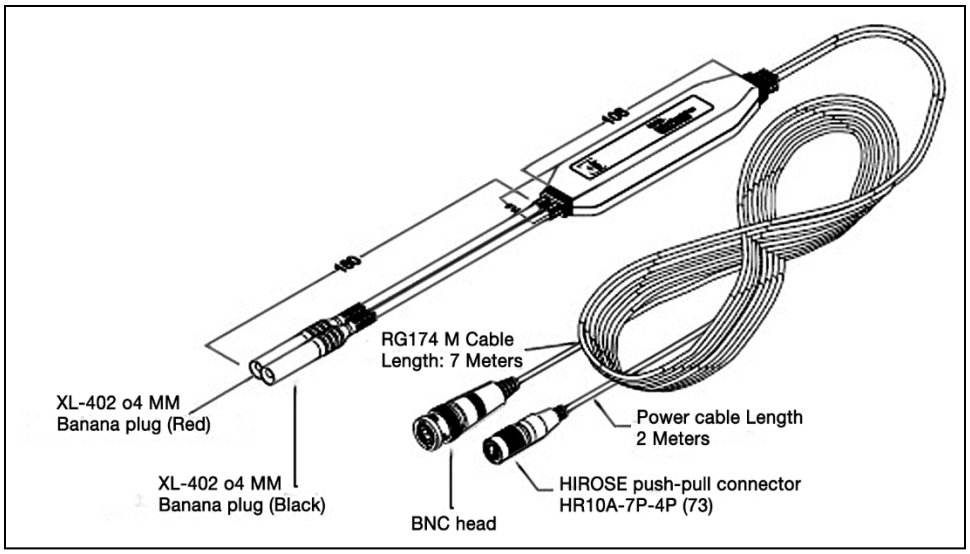

Figure 1. N2792L differential probe dimension

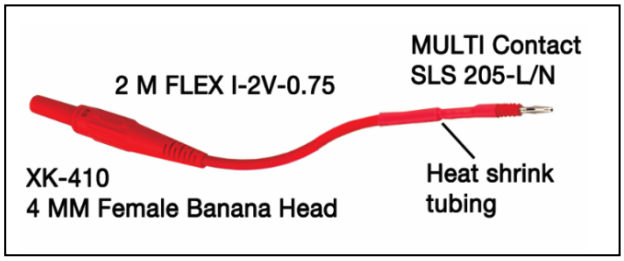

Figure 2. Probe extension cable (20 cm long)

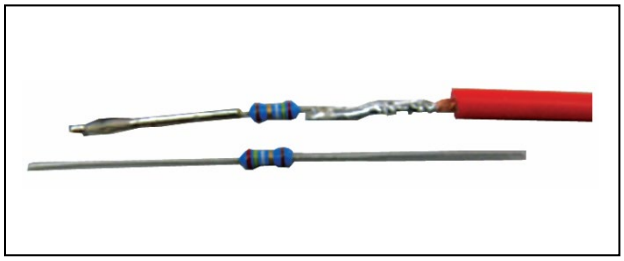

Figure 3. Properly damped extension cable for flat frequency across the rated bandwidth

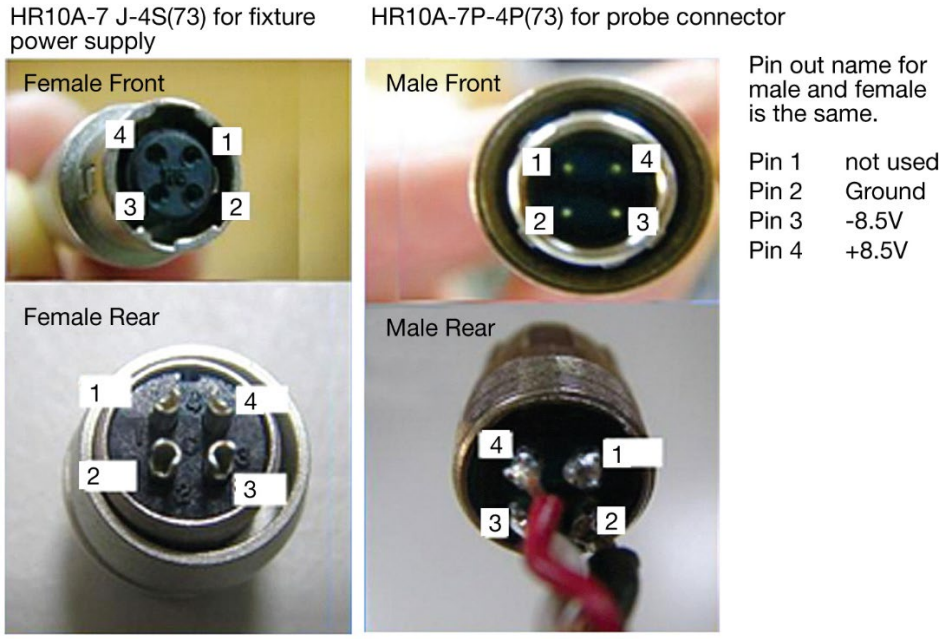

Figure 4. Pinout view of power connector

Characteristics	N2792L
Electrical	
Attenuation ratio	50:1
Bandwidth (-3dB)	200 MHz (without extension cables) 100 MHz (with extension cables)
Bandwidth flatness	<+/- 2.8 dB (without extension cable), <+/- 2.5 dB (with extension cable) See Fig 5, 6 and 7
Accuracy	2%

Input impedance (each input to ground)	1 MΩ//8 pF
Differential input range	+/-100 V (DC + peak AC)
Common mode input range	+/-200 V (DC + peak AC)
Absolute max range (non-destructive range) – each input to ground	+/-200 V (DC + peak AC)
Safety Category	CAT 1 (60Vrms)
Output swing (into 50 ohm load)	+/-2V
Probe offset (typical)	<+/-2mV (adjustable)
Adjustable offset range	-80 mV to +80 mV
Input signal level (minimum)	>15mVrms
Typical CMRR	-80dB @ 50/60Hz, -50dB @10MHz
Power requirement	+/-8.5V +/-5%/60mA
Max non-destructive power	<+12V, >-12V
Mechanical	
Output cable length	7 m
Output cable type	RG174 type cable with 2.7mm diameter
Input cable length	16 cm (built-in cable) + 21.3cm (extension cable) = 36 cm total (from the strain relief to the extension cable tip)
Characteristics	**N2792L**
Probe power cable length	2 m
Power cable connector type and connections	Hirose HR10A-7P-4P (73) Pin 1 Not used Pin 2 Ground Pin 3 -8.5V Pin 4 +8.5V
Probe cable color	Black
Probe input cable	Standard 16 cm with 4mm male connectors
Input extension cable	20 cm long with a built-in 24.9 Ω, 1/8 watt damping resistor, 4mm female banana to Multi Contact LS205-L/N connector (black and red)
Standard accessories	2 hook tips (black and red), 2 extension cables (black and red)

Environmental	
Ambient operating temperature	-10 to +40 degC
Ambient non-operating temperature	-30 to +70 degC
Operating humidity	25 – 85% RH
Non-operating humidity	25 – 85% RH
Operating altitude	3,000 m (9.842 ft)
Non-operating altitude	15,300 m (50,196 ft)
Pollution degree	2
Net weight (approximate)	170 g (6 oz)
Regulatory markings	CEI/IEC61010-031 CAT I EN 61326-1 / EN 61326-2-2

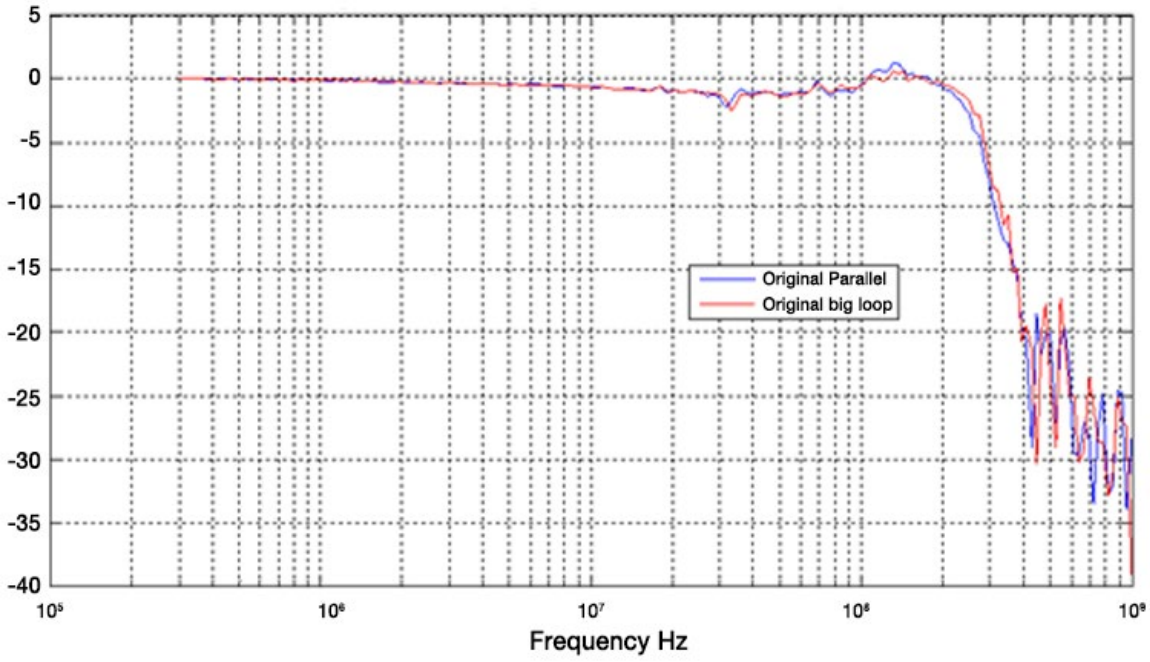

Figure 5. Frequency response plots without the extension cable, with 16cm built-in input cables (red = with large loop, blue = two cables in parallel).

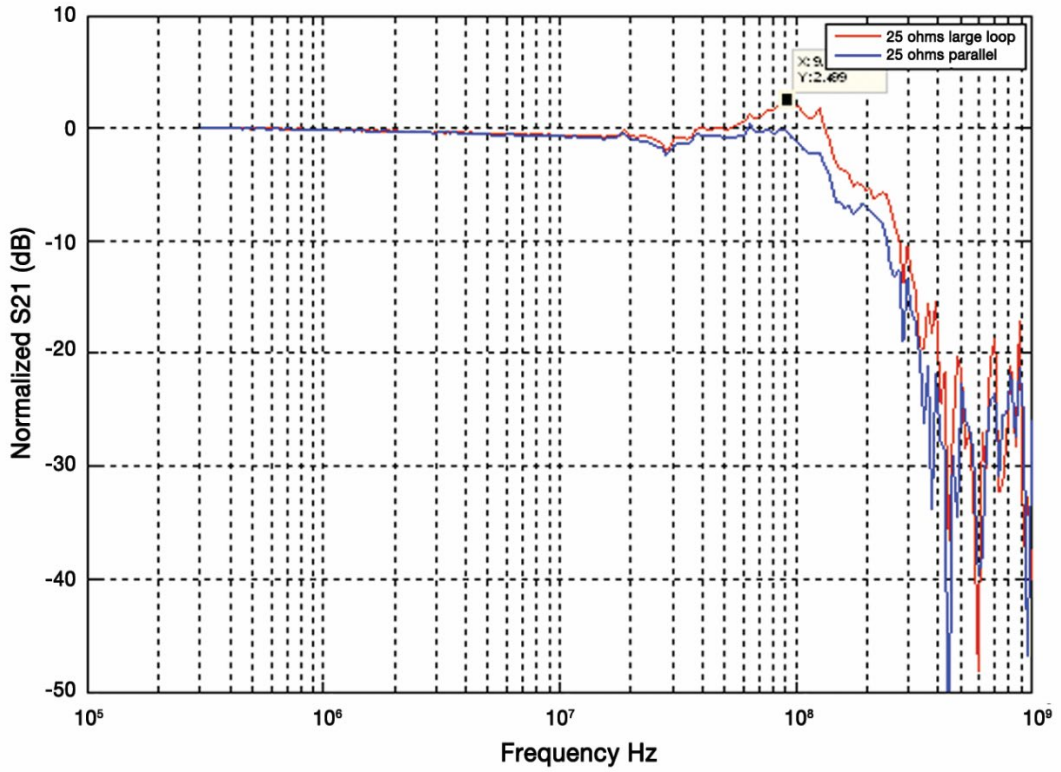

Figure 6. Frequency response plots with 20 cm extension cables used or 36 cm of input cable length in total (red = with large loop, blue = two cables in parallel).

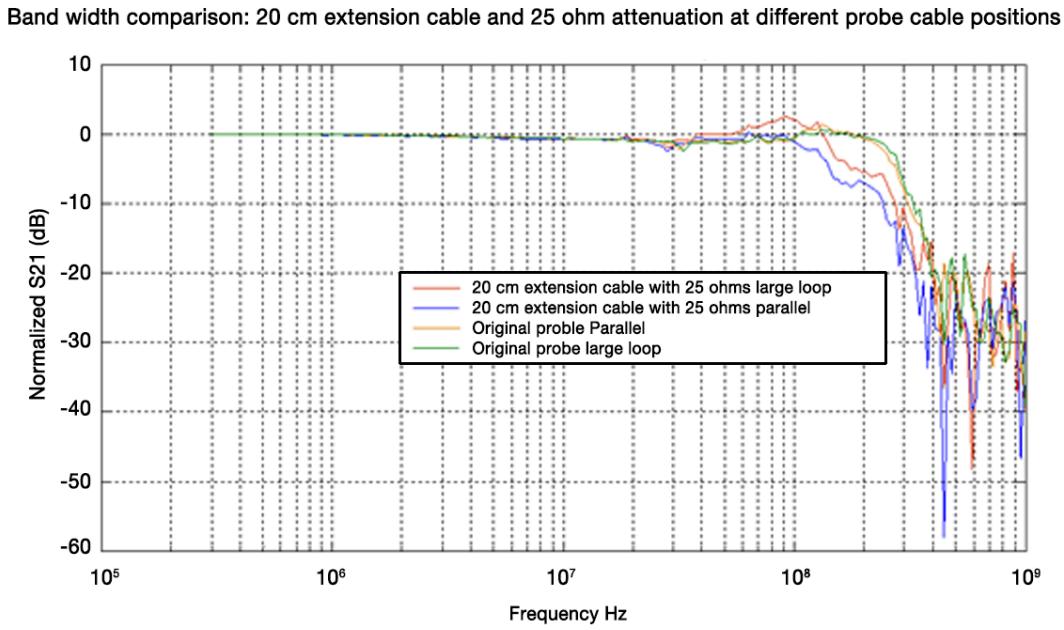

Figure 7. Frequency response plots with 20 cm extension cables used and without extension cable used.

1. When the extension cable pair is used, the probe performance is very sensitive to the layout of the extension cable. When two cables are spread apart making a big loop, the bandwidth is reduced and the response won't be flat. If two cables are running in parallel without a loop, you would get >200MHz full bandwidth and a flat response with <+/-1dB. At a worst case with the extension cable making a big loop, the bandwidth could come down to ~100 MHz and the in-band response may vary as much as <+/-3dB. So, it is always recommended to keep the two cables in parallel or keep them twisted to avoid a ground loop.
2. Product specifications and descriptions in this document are subject to change without notice.

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