

Device Evaluation using the Agilent B2961/B2962A Ultra Low Noise DC Source

Agilent B2961A/B2962A 6.5 digit
Low Noise Power Source



For applications requiring clean DC voltage and current sources

Design engineers working in many different areas face ever-decreasing operating voltages and lower design margins, which necessitate higher precision power supplies and sources. Some of these applications include:

- **Oscillator ICs (PLL, VCO, etc.) & Oscillation Devices**

For these devices frequency varies with applied DC voltage, so any voltage source noise strongly impacts device evaluation results

- **Analog-to-Digital Converter (ADC) ICs**

Decreasing power supply voltages and higher resolution requirements mandate a low noise voltage source at the ADC input during design evaluation

- **Sensing Devices & Transducers**

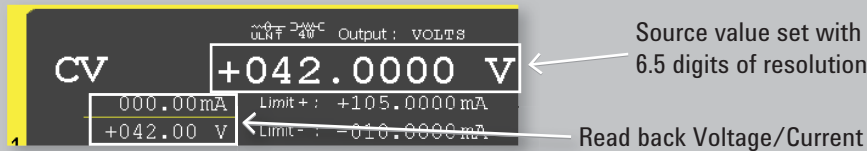
A low noise voltage source is required for the sensor interface and at the analog inputs of the peripheral circuitry.

- **Energy Generating Devices & Circuits**

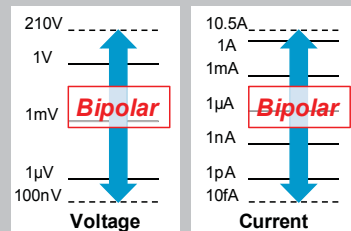
A battery monitoring circuit needs a clean voltage source to emulate the battery cell, which intrinsically generates very low noise.

Agilent B2961/62A Low Noise Power Source

The Agilent B2961A and B2962A are low noise power sources that can source either voltage or current while also monitoring them. They can source voltage and current with 6.5 digits of resolution, which is essential for a variety of measurement applications.

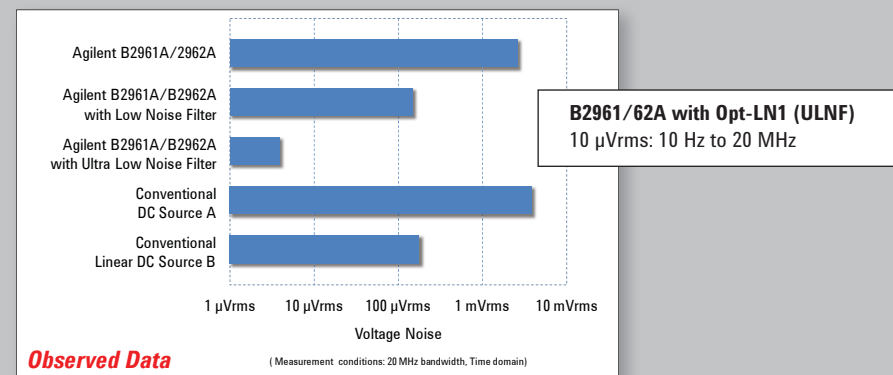


The B2961A and B2962A are bipolar sources, so the polarity for voltage and current can be either positive or negative. They can source currents from 10 fA to 3 A(DC) or 10.5 A(pulsed), and voltages from 100 nV to 210 V.



Ultra Low Noise Filter Option for B2961/62A

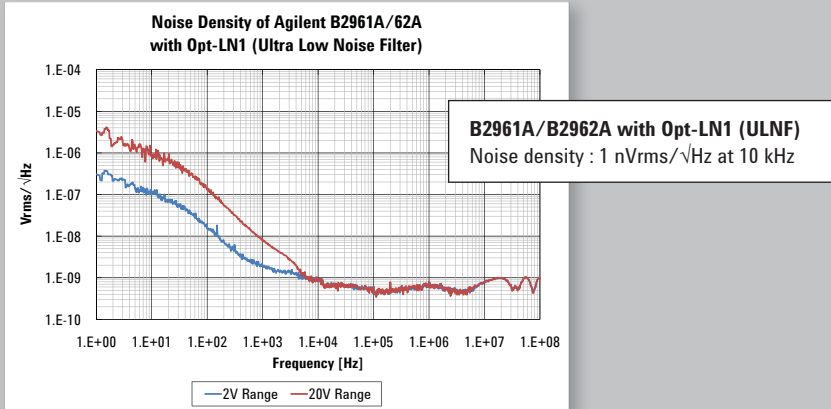
Using the Ultra Low Noise Filter (ULNF) with the Agilent B2961A or B2962A allows ultra-clean voltage sourcing. This accessory reduces the noise level down to 10 mVrms (10 Hz to 20 MHz) for voltages and currents up to 42 V and 105 mA. Moreover, integrated remote sensing circuitry ensures that the output voltage remains true to the setting value.



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Ultra-Low Noise Filter Performance

The noise density of the B2961A & B2962A using the ULNF is 1 nVrms/√Hz at 10 kHz. This satisfies the phase noise requirements for testing oscillators and oscillating devices such as VCOs, PLLs, etc. It also enables the testing and evaluation of ADC devices that require precise low-noise voltage supplies/sources for proper characterization.

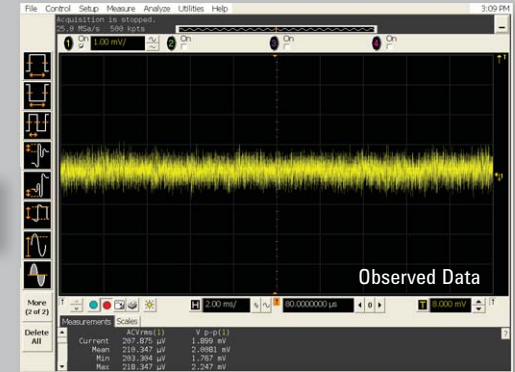


Low Noise Filter Option for B2961A/B2962A

Using the Low Noise Filter (LNF) with the Agilent B2961A/B2962A provides clean voltage sourcing equivalent to that of much costlier precision linear voltage/current source instruments. Best of all, you can use the instruments' full output ranges (up to 210 V /105 mA, 21 V/ 1.5 A or 6 V/3 A) without sacrificing lower noise performance.

The LNF also supports 4-wire connections to allow sourcing and measurement far from the output terminals of the filter.

B2961A/B2962A with Opt-LN2 (LNF)
350 μVrms: 10 Hz to 20 MHz



Agilent B2961A/B2962A Low Noise Power Source Key Specifications and Characteristics

Product Number	Option	Max output		Source Resolution		Noise ¹	
		DC	Digit	Min Resolutions	0.1 to 10 Hz	10 to 20 MHz	
B2961A B2962A	210 V 3.03A	6 ½	100 nV 10 fA	<5 μVpp <1 pApp		3 mVrms
	LN1	42 V 105 mA	6 ½	100 nV 10 pA	<5 μVpp <1 pApp		10 μVrms (1 nVrms/√Hz at 10kHz)
	LN2	210 V 3.03 A	6 ½	100 nV 10 pA	<5 μVpp <1 pApp		350 μVrms

1. Supplemental Characteristics

B2961A/B2962A Key Features:

- ✓ 6.5 Digit High Resolution and Wide Bipolar Range
- ✓ 10 μVrms Ultra Low Noise
- ✓ Precision 10 kHz Arbitrary Waveform Generation Capability
- ✓ Programmable Output Resistance
- ✓ Time Domain Voltage/Current Waveform Viewer

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