Data Sheet

Programmable DC Power Supplies

9120A Series

The 9120A series are laboratory grade, programmable DC Power Supplies providing great performance and features not found in other supplies in this price category. The power supplies were designed to meet the needs of today's applications in R&D design verification, production testing or university labs that require clean and reliable power, high resolution/accuracy and fast transient response time.

Front Panel Operation

The numeric keys and rotary knob provide a convenient interface for setting output levels quickly and precisely. Voltage and current can be set to a maximum resolution of 0.5 mV (2 mV for 9124) and 0.1 mA respectively. Up to 50 parameters can be stored and recalled from internal memory.

Extra Features

The 9120 series' digital port offers a variety of configurations. The port can operate in digital I/O, external trigger and DFI/RI (Discrete Fault Indicator/Remote Inhibit) mode. The RI feature can be used for turning several power supplies On/Off simultaneously. External triggering can be used in combination with List mode.

The included application software supports front panel emulation and allows users to generate simple test sequences without the need to write source code.

Additionally, the power supply comes with a built-in $5^{1/2}$ digit DVM and high resolution milliohm meter supporting 4 wire measurements.

Model	9120A	9121A	9122A	9123A	9124
Output Voltage	0 - 32 V	0 - 20 V	0 - 60 V	0 - 30 V	0 - 72 V
Output Current	0 - 3 A	0 - 5 A	0 - 2.5 A	0 - 5 A	0 - 1.2 A

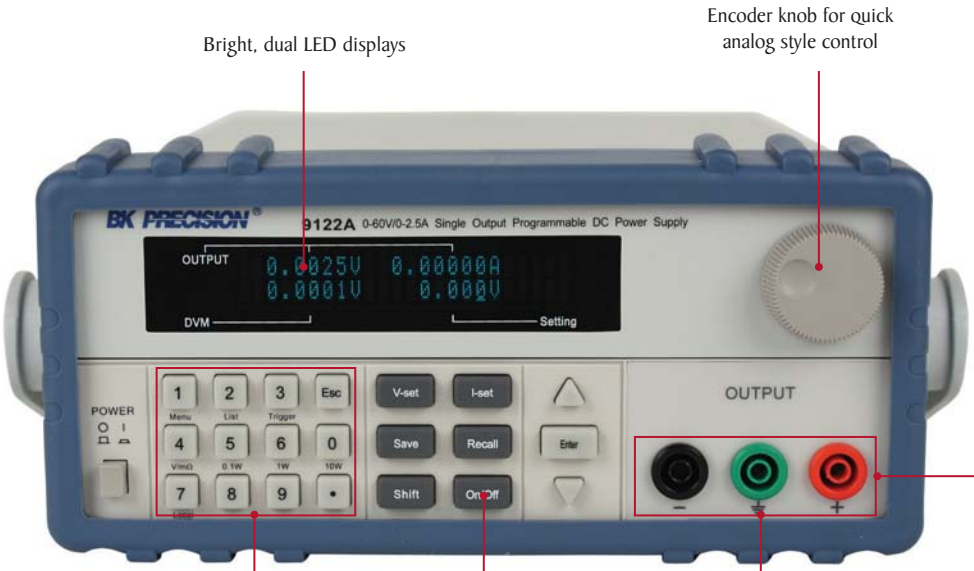
Features and Benefits

- Excellent display resolution
- Fast transient response time (< 150 µs)
- SCPI compatible
- Communicate via USB Interface, using included USB to TTL serial converter cable
- GPIB interface (model 9123A only)
- Closed case calibration
- Compact size for bench use or rack mountable (2U x 1/2U size)
- DVM and Milliohm Meter
- Discrete Fault Indicator/Remote Inhibit (DFI/RI). Useful for turning multiple power supplies On/Off simultaneously
- Application Software for front panel emulation and simple test sequence generation included
- Sheathed banana plug terminals for safety

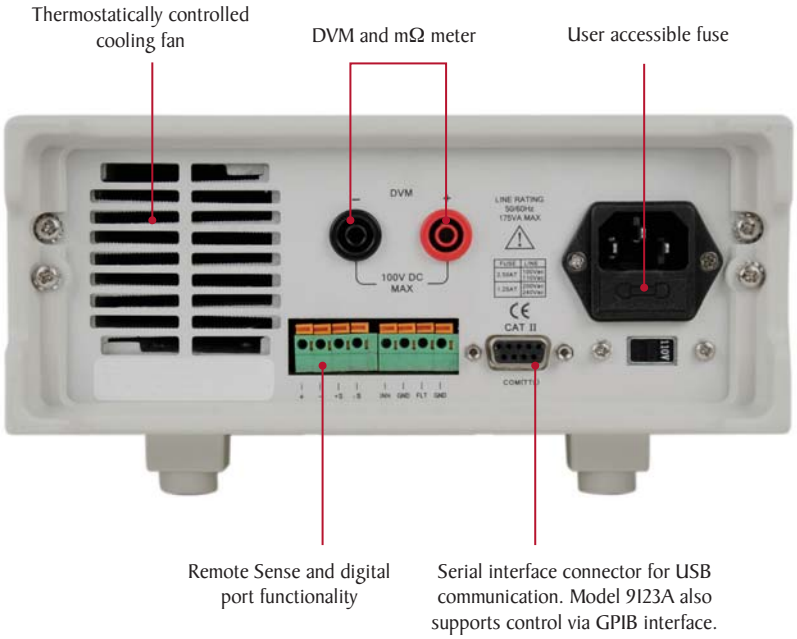
Remote Interface

The power supplies can be remotely controlled from any PC through a USB (virtual com) interface, allowing the user to program and monitor all parameters through easy to use SCPI commands. The power supplies come with a USB to TTL serial converter. Additionally, model 9123A can be controlled via GPIB interface and includes a GPIB to TTL conversion adapter cable.

Front Panel



Rear Panel



Specifications

Model	9120A	9121A	9122A	9123A	9124
Output Ratings (0 °C - 40 °C)	0 - 32 V	0 - 20 V	0 - 60 V	0 - 30 V	0 - 72 V
	0 - 3 A	0 - 5 A	0 - 2.5 A	0 - 5 A	0 - 1.2 A
Load Regulation ±(% of output + offset)	< 0.01% + 2 mV[I]		< 0.01% + 2 mV[I]	< 0.01% + 2 mV[I]	< 0.01% + 2 mV[I]
	< 0.05% + 2 mA		< 0.05% + 2 mA	< 0.05% + 3 mA	< 0.05% + 3 mA
Line Regulation ±(% of output + offset)	< 0.01% + 1 mV[I]		< 0.01% + 2 mV[I]	< 0.01% + 1 mV[I]	< 0.01% + 1 mV[I]
	< 0.05% + 0.1 mA		≤ 0.05% + 0.05 mA	≤ 0.05% + 0.1 mA	≤ 0.05% + 0.05 mA
Programming resolution	0.5 mV		1 mV	0.5 mV	2 mV
	0.1 mA		0.1 mA	0.1 mA	0.02 mA
Readback / Meter resolution	0.1 mV	0.1 mV	0.5 mV	0.1 mV	0.5 mV
	0.01 mA	0.05 mA	0.05 mA	0.05 mA	0.01 mA
Front panel setting resolution	0.5 mV		1 mV	0.5 mV	2 mV
	0.1 mA		0.1 mA	0.1 mA	0.02 mA
Programming accuracy, 12 months (25 °C ±5 °C) ±(% of output + offset)	< 0.03% + 3 mV		≤ 0.03% + 6 mV	≤ 0.03% + 3 mV	≤ 0.03% + 6 mV
	< 0.05% +2 mA		≤ 0.05% + 1.5 mA	≤ 0.05% + 2.5 mA	≤ 0.05% + 1 mA
Readback/ Meter accuracy 12 months (25 °C ±5 °C) ±(% of output+offset)	< 0.02% + 3 mV		≤ 0.02% + 6 mV	≤ 0.02% + 2.5 mV	≤ 0.02% + 5 mV
	< 0.05% + 2 mA		≤ 0.05% + 1.5 mA	≤ 0.05% + 2.5 mA	≤ 0.05% + 1 mA
Ripple & Noise (20 Hz - 20 MHz)	≤ 4 mVp-p	≤ 3 mVp-p	≤ 5 mVp-p	≤ 4 mVp-p	≤ 5 mVp-p
	≤ 3 mArms	≤ 3 mArms	≤ 3 mArms	≤ 4 mArms	≤ 3 mArms
Temperature coefficient, (0 °C - 40 °C) ±(% of output + offset)	< 0.02% + 3 mV		≤ 0.02% + 6 mV	≤ 0.02% + 3 mV	≤ 0.02% + 5 mV
	< 0.05% + 2 mA		< 0.05% + 1 mA	< 0.05% + 2 mA	< 0.05% + 0.5 mA
Readback temperature coefficient, ±(% of output + offset)	< 0.02% + 3 mV		≤ 0.02% + 6 mV	≤ 0.02% + 3 mV	≤ 0.02% + 5 mV
	< 0.05% + 2 mA		≤ 0.05% + 1 mA	≤ 0.05% + 2 mA	≤ 0.05% + 0.5 mA
Transient Response	< 150 µs for output to recover to within 75 mV following a change from 100 mA to 1 A				
DVM Accuracy	0 - 12 V range: 0.02% + 2 mV				
	0 - 40 V range: 0.02% + 3 mV				
DVM Resolution	0 - 12 V range: 0.1 mV				
	0 - 40 V range: 1 mV				
Milliohm Meter Accuracy	0.1% (for Voltage and Current ≥ 10% of full scale)				
	0.3% (for Voltage and Current ≥ 3% of full scale)				
State Storage Memory	50 user configurable memory locations				
Operating Temperature	0 °C to 40 °C, < 75% R.H.				
Storage Temperature	-20 °C to 70 °C, < 85% R.H				
AC Input	115 V / 220 VAC ± 10%, 47 Hz to 63 Hz				
Weight	19.8 lbs (9 kg)		21.2 lbs (9.6 kg)		19.8 lbs (9 kg)
Dimensions (W x H x D)	8.45" x 3.8" x 13.9" (214 x 88.2 x 354.6 mm)				
Three-Year Warranty					
Included Accessories	User manual, power line cord, USB to TTL serial converter IT-E132B, and software installation disk. Model 9123A also includes IT-E135 GPIB to TTL conversion adapter cable				
Optional Accerssories	IT-E151 rack mount kit				

"I" = while using remote sense