Data Sheet

Multi-Range DC Power Supplies
Models 9103 and 9104

Full-Featured DC Power Supplies to Meet Your High Power Needs

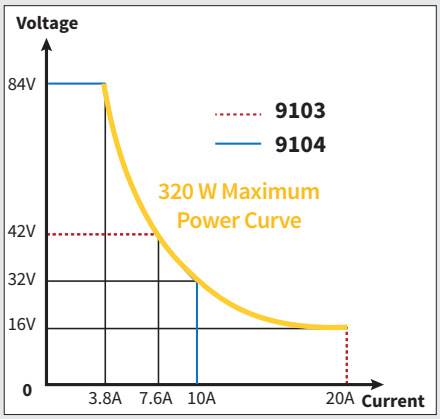
Multi-range power supply models 9103 and 9104 can replace several power supplies on your bench by offering extended operating areas. Unlike conventional supplies with fixed output ratings, these power supplies automatically recalculate voltage and current limits for each setting, providing 320 W output power in any voltage/current setting within the supply's rated voltage and current limits.

This family of switching mode power supplies feature a small form factor, auto cross-over for constant voltage (CV) and constant current (CC) operation, 3 voltage/current presets for frequently-used settings and transient operation, and versatile remote control modes. The dual action push button allows the user to set both coarse and fine voltage and current levels quickly and precisely. A remote sensing terminal compensates for voltage drop across load leads.

These features make the 9103 and 9104 suitable for a wide range of applications requiring high current including production testing, telecommunications, R&D, service, and university labs.

Model	9103	9104
Maximum Voltage	0 - 42 V	0 - 84 V
Maximum Current	0 - 20 A	0 - 10 A

Model 9103 / 9104 output characteristics



Traditional power supplies with rectangular output characteristics are only able to deliver maximum output power at one voltage/current point. The 9103 and 9104 provide greater flexibility over traditional power supplies by extending the operating areas. For example, the 9103 can operate at 42V / 7.6 A, 16 V / 20 A, or any other point on the maximum power curve.

Features and Benefits

- Automatic CV/CC crossover operation
- Lightweight and compact
- Save up to 3 user-defined voltage and current presets for quick recall
- Transient mode for generating square, triangular or trapezium waveforms
- PC software for remote control and external timed programming
- Analog remote control function
- USB interface
- Output on-off switch and control panel lock button for safer operation
- Overvoltage and overcurrent protection

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Designed to Make Your Work Easier

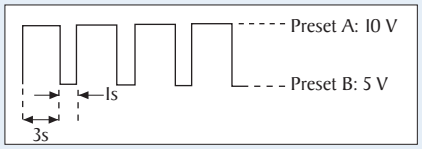
Fully Protected

Have peace of mind knowing that these power supplies come with built-in OVP (overvoltage protection), OTP (overtemperature protection), and OCP (overcurrent protection) circuitry. These protections help prevent serious damage to equipment in case of power supply failure.

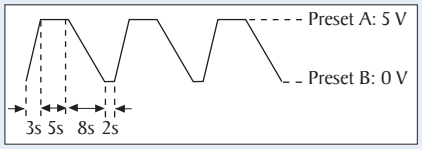
Analog Remote Control Capability

Use the included 8-pin connector to wire up to an external variable DC voltage source or variable resistor to remotely control the power supply's output voltage and current or to turn the output on/off.

Custom Presets and Transient Mode Operation



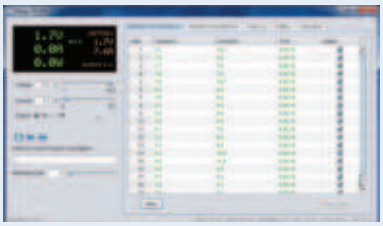
Square waveform



Trapezoidal waveform

Use the front panel preset buttons to quickly set and recall up to 3 different voltage and current settings, to program the power supply for transient mode operation and to output bi-level square, triangular or trapezoidal waveforms.

PC Connectivity

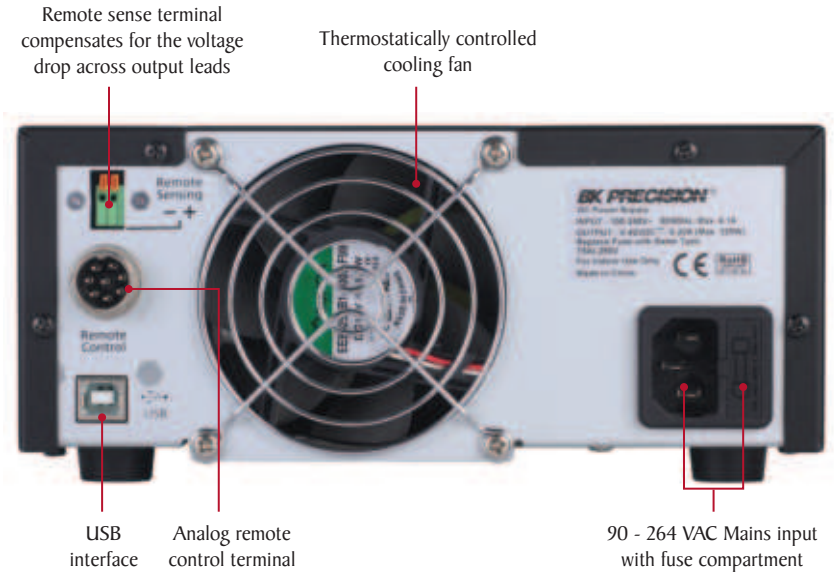


Control your instrument through remote control PC software or use programming commands to communicate with your instrument.

Flexibility & Performance

Front Panel

Rear Panel



Specifications

Models	9103	9104
Output Rating		
Variable Output Voltage	0 - 42 VDC	0 - 84 VDC
Variable Output Current	0 - 20 A	0 - 10 A
Maximum Output Power	320 W	
Voltage Regulation		
Load (0 - 100% of rated current)	≤ 120 mV	≤ 100 mV
Line (90 - 264 VAC variation)	≤ 10 mV	
Current Regulation		
Load (10 - 90% rated voltage)	≤ 50 mA	
Line (90 - 264 VAC variation)	≤ 10 mA	
Ripple & Noise		
Ripple & Noise Voltage (rms)	≤ 8 mVrms	≤ 8 mVrms
Ripple & Noise Voltage (peak-peak)	≤ 80 mVp-p	≤ 80 mVp-p
Ripple & Noise Current (peak-peak)	≤ 200 mA	≤ 50 mA
Meter Type & Accuracy		
Voltage Meter	4 Digit LED Display ±(0.1% + 5 counts)	
Current Meter	4 Digit LED Display ±(0.1% + 5 counts)	
Output Resolution		
Output Voltage	0.02 V	
Output Current	0.01 A	
Output Setting Accuracy ±(%output + offset)		
Output Voltage	±(0.2% + 0.05)	
Output Current	±(0.2% + 0.05)	
Output Rise & Fall Time (typical)		
Rise Time (50% load current)	≤ 80 ms	≤ 140 ms
Rise Time (maximum current)	≤ 1200 ms	≤ 1800 ms
Fall Time (50% load current)	≤ 90 ms	≤ 150 ms
Fall Time (100% load current)	≤ 50 ms	≤ 90 ms

Note: All specifications apply to the unit after a temperature stabilization time of 15 minutes over an ambient temperature range of 23 °C ± 5 °C.

For up-to-date product information, please visit www.bkprecision.com

General		
AC Input	90 - 264 VAC, 45 - 65 Hz	
AC Input Fuse	T5AL250V	
Power Consumption (typical)	≤ 372 W (230 VAC) ≤ 385 W (100 VAC)	≤ 367 W (230 VAC) ≤ 380 W (100 VAC)
Efficiency (typical)	≥ 86% (230 VAC) ≥ 83% (100 VAC)	≥ 87% (230 VAC) ≥ 84% (100 VAC)
Power Factor Control	Power factor correction > 0.91 at optimal load	
Full Load Input Current	≤ 1.8 A (230 VAC) ≤ 4.1 A (100 VAC)	
No Load Input Current	≤ 300 mA (230 VAC / 100 VAC)	
Protection Features	Adjustable upper voltage limit, adjustable upper current limit, Short Circuit, Overload, Over Temperature, Tracking OVP	
Tracking Over Voltage Protections	0 - 10 V: Set Voltage + (1.5 V ± 0.5 V) 10 V- 42 V: 115 % - 130% of set voltage	0 - 10 V: Set Voltage + (1.5 V ± 0.5 V) 10 V - 84 V: 115 % - 130 % of set voltage or > 90 V
Switching Frequency	45 - 55 kHz	
Cooling Method	Thermostatic control fan from 0 to full speed	
Transient Response Time (50 - 100% Load)	≤ 2.0 ms	
Safety & EMC		
Safety Standard	CE: EN 61010	
EMC	CE: EN55011	
Harmonics Current Emission	EN 61000-3-2	
Voltage Fluctuations & Flicker	EN 61000-3-3	
EMC Immunity	EN 61000-6-1	
Environment		
Operating Temperature	0 °C to +40 °C	
Working Humidity	10-80% relative humidity, non-condensing	
Storage Temperature and Humidity	-15 °C to +70 °C 10 - 85% relative humidity, non-condensing	
Pollution Degree	Class 2	
Dimensions and Weight		
Dimensions (W x H x D)	200 x 90 x 250 mm (7.9 x 3.6 x 10 inch)	
Weight	2.5 kg (5.5 lb)	
	Two-Year Warranty	
Included Accessories	Power cord, USB cable, remote control connector and test report	

About B&K Precision

For more than 70 years, B&K Precision has provided reliable and value-priced test and measurement instruments worldwide.

Our headquarters in Yorba Linda, California houses our administrative and executive functions as well as sales and marketing, design, service, and repair. Our European customers are most familiar with B&K through our French subsidiary, Sefram. Engineers in Asia know us through our B+K Precision Taiwan operation. The independent service centers in Singapore and Brasil service customers in Singapore, Malaysia, Vietnam, Indonesia and South America, respectively.

B&K Precision group member Independent service center Service center location

Quality Management System

B&K Precision Corporation is an ISO9001 registered company employing traceable quality management practices for all processes including product development, service, and calibration.

ISO9001:2015

Certification body NSF-ISR
Certificate number 6Z241-IS8

NSF-ISR
Registered to ISO 9001

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