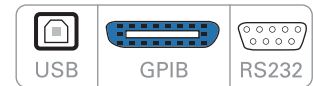# Data Sheet

Programmable Triple Output DC Power Supplies
9130B Series

USB   GPIB   RS232

The 9130B Series triple output linear programmable DC power supplies feature isolated outputs that can be adjusted independently or combined in series or parallel to output higher voltage or current. Additionally, these supplies can operate in tracking mode with user-configurable ratios between channels.

The front panel keys and rotary knob with convenient cursors let users quickly set voltage and current values. Up to 36 different instrument settings can be saved and recalled. The power-on state of the outputs can also be configured.

For remote control, the standard USB (USBTMC-compliant), RS232, and GPIB interfaces

supporting SCPI commands can be used to remotely control the power supplies via a PC. Alternatively, users can control the power supply, execute test sequences or log measurements using the provided PC software application. This software also integrates with Data Dashboard for LabVIEW apps enabling iOS, Android, or Windows 8 compatible tablets or smartphones to remotely monitor select measurement indicators.
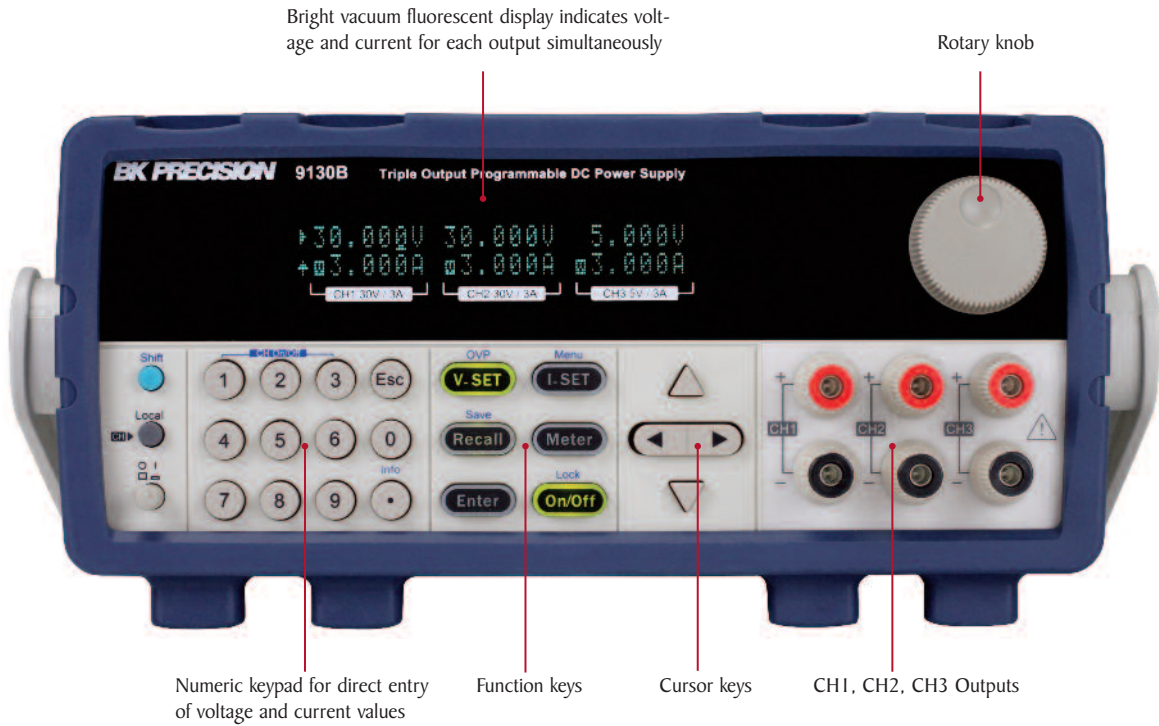
These power supplies are suitable for a wide range of applications including production testing, telecommunications, R&D, electronic service, and labs.
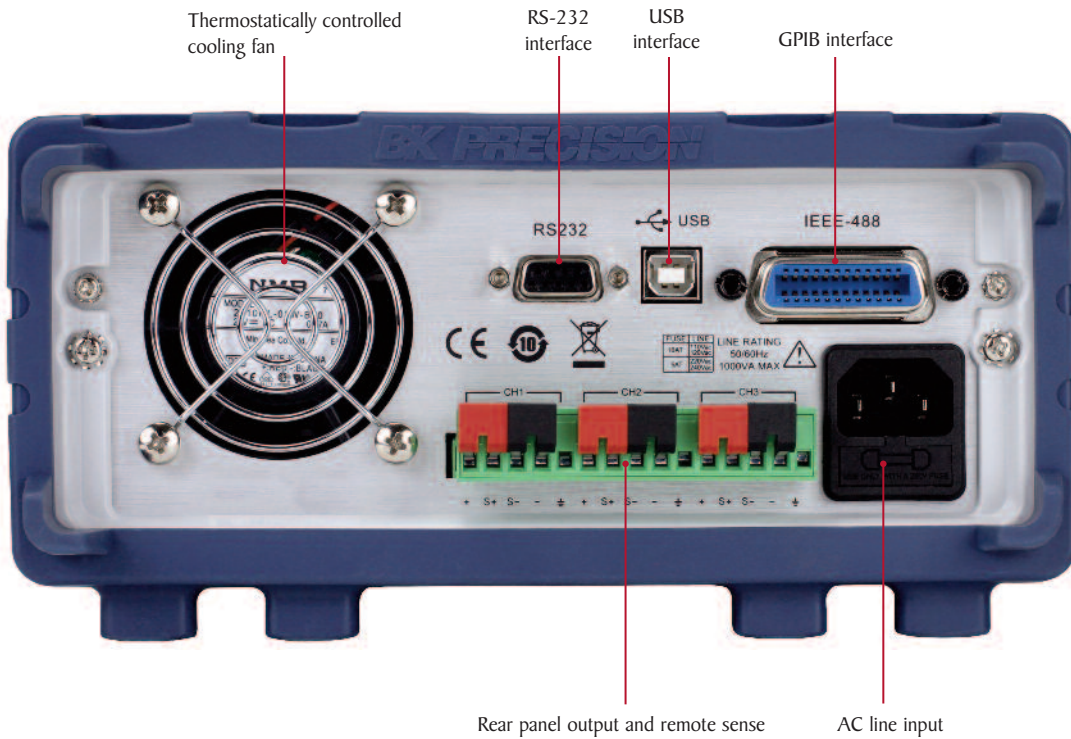
Features

- Three independent and electrically isolated outputs
- Displays voltage and current settings for all three channels simultaneously
- Low noise, linear regulation
- High programming and readback resolution of 1 mV / 1 mA
- Series and parallel modes combine channels to increase the output voltage or current
- Tracking mode allows users to set up channels to maintain a programmed ratio
- Fully programmable channels with Output On/Off control
- Store and recall up to 36 instrument settings
- Remote sense
- Timer-controlled output function adjustable from 0.1 – 99999.9 s
- Standard USB (USBTMC-compliant), RS232, and GPIB interfaces supporting SCPI commands for remote control
- NI certified LabVIEW driver and softpanel for remote control, test sequence generation, and datalogging available
- Overvoltage (OVP) and overtemperature (OTP) protection including keylock function
- Compact 19" half-rack form factor allows for side-by-side rack mounting of two units

Model	9130B	9131B	9132B
Voltage	0 - 30 V (Ch1 & Ch2) 0 - 5 V (Ch3)	0 - 30 V (Ch1 & Ch2) 0 - 5 V (Ch3)	0 - 60 V (Ch1 & Ch2) 0 - 5 V (Ch3)
Current	0-3 A (Ch1, Ch2 & CH3)	0-6 A (Ch1 & Ch2) 0 - 3 A (Ch3)	0-3 A (Ch1, Ch2 & Ch3)

Front panel

Bright vacuum fluorescent display indicates voltage and current for each output simultaneously

Rotary knob

Numeric keypad for direct entry of voltage and current values

Function keys

Cursor keys

CH1, CH2, CH3 Outputs

Rear panel

Thermostatically controlled cooling fan

RS-232 interface

USB interface

GPIB interface

Rear panel output and remote sense

AC line input

Flexible operation

Combined series mode

```
▷ 120.00V   Series     5.000V
  3.000A    CH1+2      3.000A
```

Ch1 and Ch2 in Series mode

Channels 1 and 2 can be wired in series to increase the voltage. Selecting Series Combined Mode provides convenient metering of the channels connected in series.

Combined parallel mode

```
▷ 5.000V    Para       Para
  9.000A    ALL        ALL
```

All Channels in Parallel mode

Channels 1 and 2, 2 and 3, or All channels can be wired in parallel to increase the current. Selecting Parallel Combined Mode provides convenient metering of the channels connected in parallel.

Tracking mode

```
▷ Track
  CH1+CH2   CH2+CH3    ALL
```

Tracking mode options

```
▷ 60.000V   20.000V    5.000V
 ▣3.000A   ▣1.000A    3.000A
```

Ch1 and Ch2 in Tracking mode

Tracking mode can be used to simplify adjustments across multiple channels by maintaining a user-defined ratio between outputs. Tracking mode can be set on channels 1 and 2, 2 and 3, or All channels.

Remote control and programming

Test system integration

These power supplies offer standard USB, RS-232, and GPIB interfaces to facilitate test system development and integration. The 9130B Series supports SCPI-compliant protocols and come with LabVIEW™ drivers.

Application software

PC software is provided for front panel emulation, generating and executing test sequences or logging measurement data without the need to write source code.

- Remote monitoring on iOS, Android, or Windows 8 compatible tablets or smartphones via NI Data Dashboard for LabVIEW apps.
- Log voltage, current, and power values of each channel as well as timestamp, CV/CC mode, and output status.
- Quickly develop a custom dashboard with indicators, charts, or gauges to monitor your power supply.
- Create an unlimited number of external list files to be executed from PC memory. Save and recall list files to/from the PC.

Bipolar output configuration

The independent and isolated outputs can be used to create positive and negative outputs between channels 1 and 2.
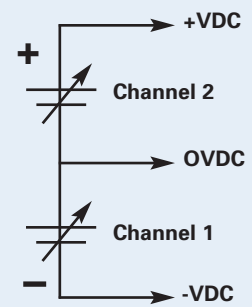
This feature is useful for powering bipolar circuits and devices.

Specifications

Models	9130B	9131B	9132B
Output Rating			
Voltage	0–30 V (Ch1 & Ch2), 0-5 V (Ch3)	0-30 V (Ch1 & Ch2), 0-5 V (Ch3)	0-60 V (Ch1 & Ch2), 0-5 V (Ch3)
Current	0-3 A (Ch1, Ch2), 0-3 A (Ch3)	0-6 A (Ch1, Ch2), 0-3 A (Ch3)	0-3 A (Ch1, Ch2), 0-3 A (Ch3)
Power	195 W	375 W	375 W
Load Regulation			
Voltage	≤ 0.01%+3 mV		
Current	≤ 0.1%+3 mA		
Line Regulation			
Voltage	≤ 0.01%+3 mV		
Current	≤ 0.1%+3 mA		
Ripple & Noise			
Voltage	≤ 1mVrms	≤ 1mVrms	≤ 1mVrms
Current	≤ 3mArms	≤ 5 mArms (Ch1 & Ch2), ≤ 4 mArms (Ch3)	≤ 4 mArms
Temperature Coefficient (0 °C to 40 °C) ± (% output + offset) (typical)			
Voltage	≤ 0.03% + 10 mV		
Current	≤ 0.1% + 5 mA		
Programming Resolution			
Voltage	1 mV		
Current	1 mA		
Readback Resolution			
Voltage	1 mV		
Current	1 mA		
Programming Accuracy ± (% output + offset)			
Voltage	≤ 0.03% + 10 mV		
Current	≤ 0.1% + 5 mA	≤ 0.1% + 8 mA (Ch1& Ch2), ≤ 0.1% + 5 mA (Ch3)	≤ 0.1% + 5 mA
Readback Accuracy ± (% output + offset)			
Voltage	≤ 0.03% + 10 mV		
Current	≤ 0.1% + 5 mA	≤ 0.1% + 8 mA (Ch1 & Ch2), ≤ 0.1% + 5 mA (Ch3)	≤ 0.1% + 5 mA
Series Accuracy (combined mode)			
Current	≤ 0.05% + 10 mA		
Parallel Accuracy (combined mode)			
Voltage	≤ 0.02% + 5 mV		
Current	≤ 0.1% + 20 mA		
General			

		9130B	9131B	9132B
Transient Response Time[1]	Ch1,Ch2	≤180 μs	≤120 μs	≤90 μs
	Ch3	≤160 μs	≤200 μs	≤80 μs
Rising Time at Full Load / No Load	Ch1,Ch2	≤100 ms	≤100 ms	≤100 ms
	Ch3	≤20 ms	≤100 ms	≤100 ms
Falling Time at Full Load	Ch1,Ch2	≤2.4 ms	≤1.5 ms	≤5 ms
	Ch3	≤1 ms	≤1.5 ms	≤4.5 ms
Falling Time at No Load	Ch1,Ch2	≤4 s	≤1 s	≤5 s
	Ch3	≤300 ms	≤1 s	≤150 ms
Memory		4 memory groups with 9 locations in each group		
Timer		0.1 - 99999.9 seconds		
Remote Interface		USB (USBTMC-compliant), GPIB, RS-232		
AC Input		110/220 VAC (+/- 10 %), 47 Hz - 63 Hz		
Operating Temperature		32 °F to 104 °F (0 °C to 40 °C), relative humidity up to 80%		
Storage Temperature		-4 °F to 158 °F (-20 °C to 70 °C)		
Dimensions (W x H x D)		8.45" x 3.47" x 13.96" (214.5 x 88.2 x 354.6 mm)	8.45" x 3.47" x 17.52" (214.5 x 88.2 x 445 mm)	
Weight		16.98 lbs. (7.7 kg)	33.07 lbs. (15 kg)	
Three-Year Warranty				
Standard Accessories		Power cord, instruction manual, test report, and certificate of calibration		
Optional Accessories		IT-E151 rack mount kit		

"1" Following a change in output current from 10% to 100% load with output recovery to within 15 mV.
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.