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#### **Data Sheet**

# Programmable Triple Output DC Power Supplies 9130B Series



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.

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)

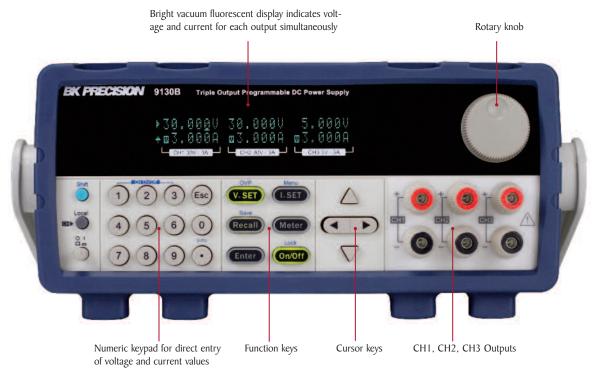


#### **Features**

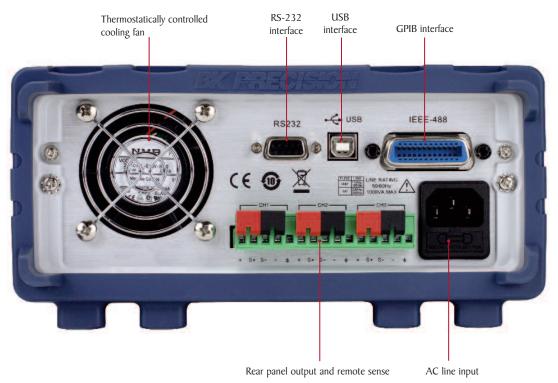
- Three independent and electrically isolated outputs
- Displays voltage and current settings for all three channels simultaneously
- Low noise, linear regulation
- High programming and readback resolution of 1 mV / 1 mA
- Series and parallel modes combine channels to increase the output voltage or current
- 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



## **Front panel**



## **Rear panel**



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#### Flexible operation

#### Combined series mode

÷	120.00V	Series	5.0007
	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

∻	5.0007	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.

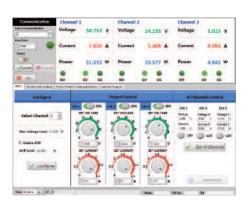
### Remote control and programming

#### 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 $^{\text{TM}}$  drivers.

#### **Application software**



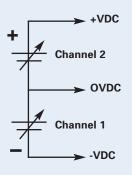


PC software is provided for front panel emulation, generating and executing test sequences or logging measurement data without the need to write source code.

- 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.

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## **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	ge ≤ 0.01%+3 mV					
Current		≤ 0.01%+3 mA				
Ripple & Noise		3 0.170 T 3 HB C				
Voltage		≤ ImVrms	≤ ImVrms	≤ ImVrms		
Current		≤ 3mArms	≤ 5 mArms (Ch1 & Ch2), ≤ 4 mArms (Ch3)	≤ 4 mArms		
	+ (0 °C +o	40 °C) ± (% output + offset) (typical)	3 3 Hz WHS (CH1 & CH2), 3 1 Hz WHS (CH3)	3 1 112 (1113		
Voltage	11 (0 0 10	40 C/ ± (// Output + Onset/ (typical)	≤ 0.03% + 10 mV			
Current		≤ 0.03% + 10 mV ≤ 0.1% + 5 mA				
Programming Resolution	on		2 0.170 1 3 1101			
	UII		I mV			
Voltage Current			I mA			
Readback Resolution			I IIIA			
			1\			
Voltage			I mV			
Current	10/ -	I mA				
Programming Accuracy	/ ± (% out	put + offset)	0.000 . 10 . 11			
Voltage			≤ 0.03% + 10 mV	0.10/		
Current		≤ 0.1% + 5 mA	$\leq 0.1\% + 8 \text{ mA (Ch1& Ch2)}, \leq 0.1\% + 5 \text{ mA (Ch3)}$	≤ 0.1% + 5 mA		
Readback Accuracy ± (	% output	+ offset)	0.02% + 10			
Voltage		2.12( ) 7	≤ 0.03% + 10 mV	2.10/ . 7		
Current		≤ 0.1% + 5 mA	$\leq 0.1\% + 8 \text{ mA (Ch1 & Ch2)}, \leq 0.1\% + 5 \text{ mA (Ch3)}$	≤ 0.1% + 5 mA		
Series Accuracy (comb	ined mod	e)				
Current			≤ 0.05% + 10 mA			
Parallel Accuracy (com	bined mo	de)				
Voltage			≤ 0.02% + 5 mV			
Current			≤ 0.1% + 20 mA			
General						
Transient Response Time <sup>1</sup>	Ch1,Ch2	·	≤120 µs	≤90 µs		
	Ch3	≤160 µs	≤200 µs	≤80 µs		
Rising Time at	Ch1,Ch2		≤100 ms	≤100 ms		
Full Load / No Load	Ch3	≤20 ms	≤100 ms	≤100 ms		
Falling Time at	Ch1,Ch2		≤1.5 ms	≤5 ms		
Full Load	Ch3	≤I ms	≤1.5 ms	≤4.5 ms		
Falling Time at	Ch1,Ch2		≤I s	≤5 s		
No Load	Ch3	≤300 ms	≤I 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,			struction manual, test report, and certificate of calibration	<u>-</u>		
Optional Accessories		IT-E151 rack mount kit				
		11-L131 fack mount at				

"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  $^{\circ}$ C  $^{\pm}$ 5  $^{\circ}$ C.

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