# **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.

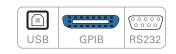
The front panel keys and rotary knob with convenient cursors let users quickly set voltage and current values. Up to 36 different instrument settings can be saved and recalled. The power-on state of the outputs can also be configured.

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

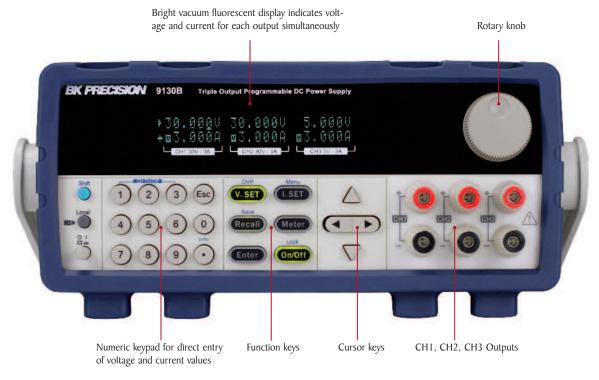
- Three independent and electrically isolated outputs
- Displays voltage and current settings for all three channels simultaneously
- Low noise, linear regulation
- High programming and readback resolution of 1 mV / 1 mA
- Series and parallel modes combine channels to increase the output voltage or current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



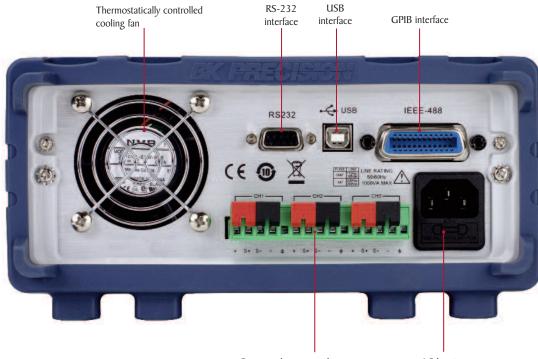
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Programmable Triple Output DC Power Supplies 9130B Series

### **Front panel**



### **Rear panel**



Rear panel output and remote sense

AC line input

## Flexible operation

#### **Combined series mode**

*	120.00V	Series	5 <b>.</b> 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.

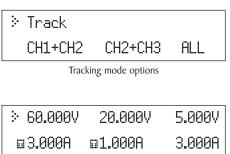
#### **Combined parallel mode**

*	5.0000	Para	Para
	9.000A	ALL	ALL

All Channels in Parallel mode

Channels I 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



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<sup>™</sup> drivers.

#### Application software



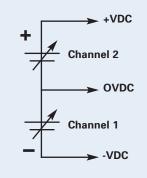
Communication Channel 1			Channel 3	2		Channe	Channel 3			
Solect Centra slortes	Voltage	30.753	v	Voltage	24.	235 V	Voltage	5.	023 V	
Resilfate	Current	1.836	A	Current	3	868 A	Current		-	
-	Power	31.553	w	Power	35.	577 W	Power	4.	943 W	
		ev ec		e ov	e cv	ec		cv		
Mds Anothersteining	fastritears' and	ngGranins. In	drived (Para	e-61	_				_	
Configure			Out	put Control			All	hannels C	Introl	
Select Channel 1 Max Values Loost 4.00 E Castra CAP OVP Link 20.00 9			-		1			CH 3 Instage 4 Lass V Convert Lass 4 Convert Sci All Ch	CH3 Verage 5 arm 1 Carrier 5 from 4 Carrier 5 from 4 carrier 5 armont 6	
Configure	a5	2			25 0		TWWe:	New Iv	are in a	

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			20.170131111				
Voltage			$\leq 0.01\% + 3 \text{ mV}$				
Current			≤ 0.1%+3 mA				
Ripple & Noise							
Voltage		≤ ImVrms	≤ ImVrms	≤ ImVrms			
Voltage     ≤ 1mVrms     ≤ 1mVrms       Current     ≤ 3mArms     ≤ 5 mArms (Ch1 & Ch2), ≤ 4 mArms (Ch2)			≤ 4 mArms				
	+ /0 °C +0	40 °C) ± (% output + offset) (typical)	$\leq 3$ m/mis (cm $\alpha$ cm2), $\leq 4$ m/mis (cm3)	S T II/ (III)			
		$40^{\circ}$ C) $\pm$ (% output + onset) (typical)	≤ 0.03% + 10 mV				
Voltage Current			$\leq 0.03\% + 10 \text{ mV}$ $\leq 0.1\% + 5 \text{ mA}$				
			S 0.170 T 3 IIIA				
Programming Resolution Voltage			I mV				
-							
Current			l mA				
Readback Resolution			1				
Voltage			I mV				
Current	1-1		I mA				
Programming Accuracy	' ± (% out	put + offset)					
Voltage			$\leq 0.03\% + 10 \text{ mV}$				
Current		≤ 0.1% + 5 mA	$\leq 0.1\% + 8 \text{ mA} (Ch1\& Ch2), \leq 0.1\% + 5 \text{ mA} (Ch3) \leq 0.1\% + 5$				
Readback Accuracy ± (	% output	+ offset)					
Voltage							
Current		$\leq 0.1\% + 5 \text{ mA}$	$\leq 0.1\% + 8 \text{ mA} (Ch1 \& Ch2), \leq 0.1\% + 5 \text{ mA} (Ch3)$	≤ 0.1% + 5 mA			
Series Accuracy (comb	ined mod						
Current			$\leq 0.05\% + 10 \text{ mA}$				
Parallel Accuracy (com	bined moo	de)					
Voltage			≤ 0.02% + 5 mV				
Current			$\leq 0.1\% + 20 \text{ mA}$				
General							
Transient Response Time <sup>1</sup>	Ch1,Ch2	≤180 µs	≤120 µs	≤90 µs			
nunsient Response nine	Ch3	≤160 µs	≤200 µs	≤80 µs			
Rising Time at	ChI,Ch2	≤100 ms	≤100 ms	≤100 ms			
Full Load / No Load	Ch3	≤20 ms	≤100 ms	≤100 ms			
Falling Time at	ChI,Ch2	≤2.4 ms	≤1.5 ms	≤5 ms			
Full Load	Ch3	≤l ms	≤1.5 ms	≤4.5 ms			
Falling Time at	ChI,Ch2	≤4 s	≤l s	≤5 s			
No Load	Ch3	≤300 ms	≤l s	≤150 ms			
Memory		4 r	nemory groups with 9 locations in each group				
Timer			0.1 - 99999.9 seconds				
Remote Interface			USB (USBTMC-compliant), GPIB, RS-232				
AC Input			USB (USBTMC-compliant), GPIB, RS-232 110/220 VAC (+/- 10 %), 47 Hz - 63 Hz				
Operating Temperat	ure	32 °F to	104 °F (0 °C to 40 °C), relative humidity up to 80%				
Storage Temperatu			-4 °F to 158 °F (-20 °C to 70 °C)				
Dimensions (W x H		8.45" x 3.47" x 13.96" (214.5 x 88.2 x 354.6 mm		88.2 x 445 mm)			
Weight		16.98 lbs. (7.7 kg)	33.07 lbs. (15 kg)				
				Three-Year Warranty			
Standard Accessor	ies	Power cord in	struction manual, test report, and certificate of calibration				
			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  $\pm$  5 °C.

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