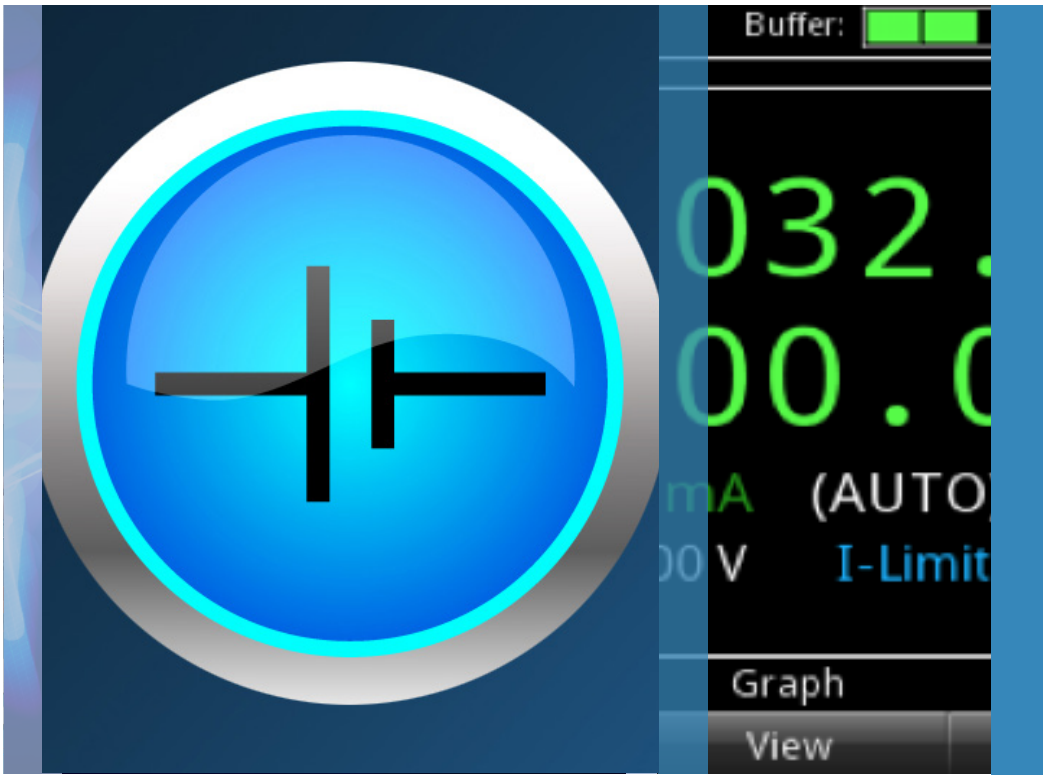
DC Power Supplies

Selection Guide



Tektronix®

KEITHLEY
A Tektronix Company

Powering Results with Precision and Simplicity

Matching the Power Supply to the Application

Whether being used to train the next generation of electrical engineers or for developing a breakthrough in ultra-low power, wearable products, power supplies must meet a wide range of power sourcing requirements. For applications ranging from basic power sourcing to those that push the limits of performance with high sensitivity sources or sources that can deliver thousands of volts, using the appropriate power supply is critical to obtaining successful test results in teaching, research, design and manufacturing.

The most common selection criteria are:

- Output voltage, current, and power
- Setting resolution and accuracy
- Ripple and noise
- Features and programmability

This selection guide has been developed to help you determine the DC power supply that is most suitable for your testing need.

KEITHLEY
A Tektronix Company

Power Supplies

From Basic Needs to the Most Challenging Requirements

Together, Tektronix and Keithley offer a comprehensive portfolio of DC power supplies to address your power sourcing needs from basic to the most challenging requirements for automated test, education, precision testing of low power, portable devices, and research & development. Plus, each of the power supplies in this selection guide is covered by a three-year warranty, furthering your equipment investment.




	PWS2000 Series (4 models)	PWS4000 Series (5 models)	2200 Series (5 models)	2220/2230 Series (8 models)
Description	Single-channel, low-noise, benchtop linear power supply	Single-channel, low-noise, programmable, benchtop linear power supply	Single-channel, low-noise, programmable, benchtop linear power supply	Two and three channels, low-noise, programmable, benchtop linear power supply
Applications	Teaching Labs	R&D Labs	R&D Labs; ATE Systems	Advanced Teaching Labs; R&D Labs; ATE Systems
Channels	1	1	1	2 (2220 Series); 3 (2230 Series)
Power	90W - 192W	86W - 150W	86W - 150W	90W /120W
Max Voltage	18V-72V	20V-72V	20V-72V	CH1 and CH2: 30V CH3: 6V (2230 Series)
Max Current	1.5A-6A	1.2A-5A	1.2A-5A	CH1 and CH2: 1.5A CH3: 5A (2230 Series)
Interface	NA	USB	USB & GPIB	USB; USB & GPIB (-G versions)
Resolution	10mV, 10mA	1mV, 0.1mA	1mV, 0.1mA	1mV, 1mA
Voltage Measurement Accuracy	0.03% ± 15mV	0.02% ± 6mV	0.02% ± 6mV	0.3% ± 10mV
Current Measurement Accuracy	0.1% ± 15mA	0.05% ± 2.5mA	0.05% ± 2.5mA	0.1% ± 5wmA

Tektronix

Power Supplies

From Basic Needs to the Most Challenging Requirements

	Model 2231A-30-3	Models 2280S-32-6, 2280S-60-3	2260B Series (4 models)	2268 Series (6 models)
Description	Triple-channel, low-noise, manual, benchtop linear power supply	Single-channel, precision measurement power supply	Single-channel, wide output range, programmable power supply	Single-channel, low profile, programmable system power supply
Applications	Teaching Labs	R&D Labs; ATE Systems; Battery-powered Device Power Consumption Test;	R&D Labs; ATE Systems; Power LED and Laser Device Test;	ATE Systems; Automotive Electronics Test;
Channels	3	1	1	1
Power	195W	192W	360W, 720W	850W
Max Voltage	CH1 and CH2: 30V CH3: 5V	32V, 60V	30V, 80V	20V – 150V
Max Current	CH1 and CH2: 3A CH3: 3A	3.2A, 6A	13.5A – 72A	5.6A – 42A
Interface	Optional USB	USB, GPIB, and LAN LXI	USB, LAN, analog, and optional GPIB	USB, GPIB, LAN, RS-232, RS-485, and analog
Resolution	10mA, 1mA	0.1mV, 10nA	1mV, 1mA	0.012% of Full Scale
Voltage Accuracy	0.06% ± 20mV	0.02% ± 2mV	0.1% ± 10mV	0.1% of Full Scale
Current Accuracy	0.2% ± 10mA	0.05% ± 250µA	0.1% ± 6mA	0.2% of Full Scale

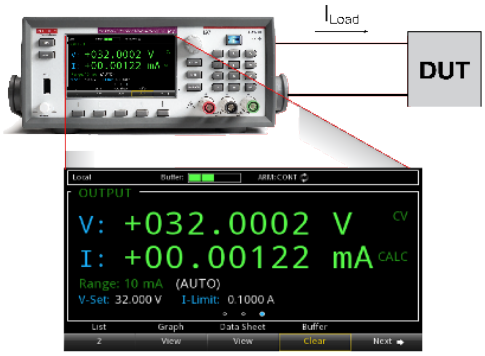
KEITHLEY
A Tektronix Company

Precision Power Supplies for Low Power, Portable Devices

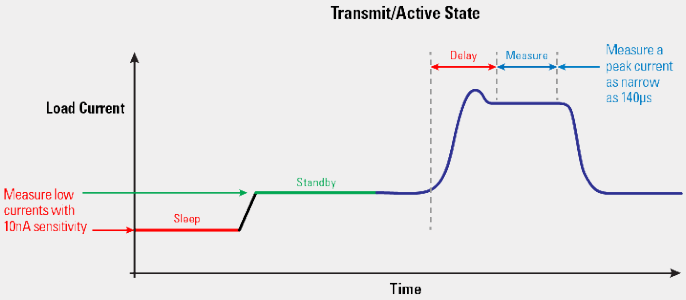
Series 2280S Low-Noise, Programmable DC Power Supplies

Cost-Effective Solution for Very Low Load Current Measurements

Series 2280S Power Supplies offer the sensitivity necessary for measuring low sleep mode and standby mode currents. With the ability to control the integration time and to add filtering, they can measure very low currents down to 1µA and even slightly lower with 10nA resolution.



Make Time-Critical Measurements on Fast-Changing or Pulse-Like Loads



The Series 2280S can make fast current measurements on a load burst that is as narrow as 140µs and can easily monitor load currents during all operating modes of a device to determine its total power consumption without the need for extra equipment.

	Series 2800S Power Supplies	
	2280S-32-6	**2280S-60-3**
Description	Precision measurement power supply	
Channel	1	1
Power	192 W	192 W
Output Voltage	32 V	60 V
Output Current	6 A	3.2 A
Programmable	GPIB/USB/LAN LXI	GPIB/USB/LAN LXI
Measurement Sensitivity	100µV, 10nA	

More Power in Less Space for **Automated Test**

	Series 2260B and Series 2268 Power Supplies									
	2260B-30-36	2260B-30-72	2260B-80-13	2260B-80-27	2268-20-42	2268-40-21	2268-60-14	2268-80-10	2268-100-8	2268-150-5
Description	Single channel, wide output range, programmable power supply				1U high and half-rack width, programmable power supply, 15V and 5V auxiliary outputs, constant power control mode, foldback mode with programmable delay					
Channel	1	1	1	1	1	1	1	1	1	1
Power	360 W	720 W	360 W	720 W	850W	850W	850W	850W	860W	850W
Output Voltage	30 V	30 V	80 V	80 V	20V	40V	60V	80V	100V	150V
Output Current	36 A	72 A	13 A	27 A	42 A	21 A	14 A	10.5 A	8.5 A	5.6 A
Programmable	USB/LAN GPIB optional				GPIB/USB/LAN, RS-232, RS-485, Isolated Analog I/O, Non-Isolated Analog I/O					

Performance, Versatility, and Ease of Use for Today's Cost-Conscience **Research & Development** Environment

	PWS4205	2200-20-5	PWS4305	2200-30-5	PWS4323	2200-32-3	PWS4602	2200-60-2
Channel	1	1	1	1	1	1	1	1
Power	100 W	100 W	150 W	150 W	96 W	96 W	150 W	150 W
Output Voltage	20 V	20 V	30 V	30 V	32 V	32 V	60 V	60 V
Output Current	5 A	5 A	5 A	5 A	3 A	3 A	2.5 A	2.5 A
Programmable	USB	GPIB/USB	USB	GPIB/USB	USB	GPIB/USB	USB	GPIB/USB
Description	Single-channel, low-noise, programmable, benchtop linear power supply							

	PWS4721	2200-72-1	2220-30-1/ 2220J-30-1*		2220G-30-1/ 2220GJ-30-1*		2230-30-1/ 2230J-30-1*		
Channel	1		1	2	1	2	1	2	3
Power	86 W	86 W	45 W	45 W	45 W	45 W	45 W	45 W	30 W
Output Voltage	72 V	72 V	30 V	30 V	30 V	30 V	30 V	30 V	6 V
Output Current	1.2 A	1.2 A	1.5 A	1.5 A	1.5 A	1.5 A	1.5 A	1.5 A	5 A
Programmable	USB	GPIB/USB	USB		USB/GPIB		USB		
Description	Single-channel, low-noise, programmable, benchtop linear power supply		Two and three channels, low-noise, programmable, benchtop linear power supply						

*J indicates 100VAC input voltage version

	2230G-30-1/ 2230GJ-30-1*		
Channel	1	2	3
Power	45 W	45 W	30 W
Output Voltage	30 V	30 V	6 V
Output Current	1.5 A	1.5 A	5 A
Programmable	USB/GPIB		
Description	Three channels, programmable, benchtop linear power supply		

Education and Teaching Labs

Hands-on Training with Real-World Instruments for Effective Learning on a Tight Budget

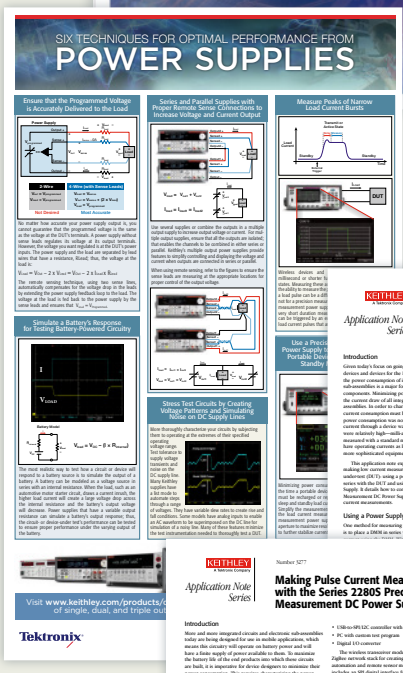
	2231A-30-3			PWS2185	PWS2323	PWS2326	PWS2721
Description	Three channel, benchtop linear power supply			Single-channel, low-noise, benchtop linear power supply			
Channel	1	2	3	1	1	1	1
Power	90 W	90 W	15 W	90 W	96 W	192 W	108 W
Output Voltage	30 V	30 V	5 V	18 V	32 V	32 V	72 V
Output Current	3 A	3 A	3 A	5 A	3 A	6 A	1.5 A
Programmable	Optional USB			N/A			

Resources for You

Learn more about choosing the appropriate power supply or specialized source from this special collection of reference material from our on-line library.

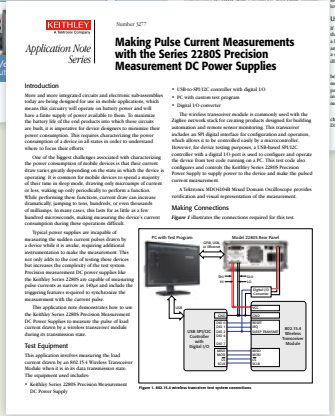
- **e-Guide to Power Supplies:** In addition to offering guidance for selecting the appropriate general purpose power supply or specialized source, this e-guide what to do when more sensitivity is needed than a power supply can offer this e-guide or specialized source for a wide range of testing needs

- **Power Supplies Poster:** This visual learning tool is a great way to learn six easy techniques for getting the most power supply performance and enhancing your results.



- **Low Current Measurements Application Note:** Learn two methods for making low current measurements on a low power device under-test (DUT) by either using a power supply with a precision DMM in series with the DUT or using a precision measurement power supply.

- **Pulse Current Measurements Application Note:** This application note demonstrates how to use a precision measurement power supply to measure the pulse of load current drawn by a wireless transceiver module during its transmission state.



Visit www.keithley.com/products/dcac/highspeedpower to access additional resources on power supply selection, including application notes, customer testimonial videos, datasheets, how-to videos, on-line demos, white papers, and more.

Contact Tektronix and Keithley:

ASEAN / Australasia (65) 6356 3900
Austria 00800 2255 4835
Balkans, Israel, South Africa and other ISE Countries +41 52 675 3777
Belgium 00800 2255 4835
Brazil +55 (11) 3759 7627
Canada 1 800 833 9200
Central East Europe and the Baltics +41 52 675 3777
Central Europe & Greece +41 52 675 3777
Denmark +45 80 88 1401
Finland +41 52 675 3777
France 00800 2255 4835
Germany 00800 2255 4835
Hong Kong 400 820 5835
India 000 800 650 1835
Italy 00800 2255 4835
Japan 81 (3) 6714 3010
Luxembourg +41 52 675 3777
Mexico, Central/South America & Caribbean 52 (55) 56 04 50 90
Middle East, Asia, and North Africa +41 52 675 3777
The Netherlands 00800 2255 4835
Norway 800 16098
People's Republic of China 400 820 5835
Poland +41 52 675 3777
Portugal 80 08 12370
Republic of Korea 001 800 8255 2835
Russia & CIS +7 (495) 6647564
South Africa +41 52 675 3777
Spain 00800 2255 4835
Sweden 00800 2255 4835
Switzerland 00800 2255 4835
Taiwan 886 (2) 2656 6688
United Kingdom & Ireland 00800 2255 4835
USA 1 800 833 9200

Rev. 0415

For Further Information

Tektronix and Keithley maintain a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit **www.tektronix.com** and **www.keithley.com.**

Copyright © 2015, Tektronix. All rights reserved. Tektronix products are covered by U.S. and foreign patents, issued and pending. Information in this publication supersedes that in all previously published material. Specification and price change privileges reserved. TEKTRONIX and TEK are registered trademarks of Tektronix, Inc. All other trade names referenced are the service marks, trademarks or registered trademarks of their respective companies.

09/15 KI 1KW-60035-1

Tektronix®

KEITHLEY
A Tektronix Company