

High Power Programmable DC Power Supplies

HPS Series



The HPS Series Programmable DC Power Supplies provide 20 kW of clean output power and high efficiency in a compact 3U form factor. These power supplies are well equipped for ATE system applications requiring a wide output voltage up to 1500 V. Multiple power supplies can be combined in parallel to increase the total output power to 160 kW.

The 5-inch touchscreen offers intuitive control while displaying both set and measured values including simulated internal resistance. The script function enables the power supply to output a sequence of user-defined voltage/current steps based on a set of written commands.

Additionally, built-in protection features including under voltage protection help prevent damage to the power supply and the device under test. Adjustable voltage/current slew rates and

configurable output on/off timer functions enhance user control. LabVIEW™ drivers are provided to simplify instrument control from a PC. Output voltage and current can be logged directly to a USB flash drive.

Applications

- Testing photovoltaic components including inverters and battery charge controllers
- Relay and component device testing
- Various applications in aerospace, electric vehicle (EV), and green technology industries
- Manufacturing and production test

Features and benefits

- 5-inch TFT touchscreen display for intuitive control
- High power density, 20 kW in a 3U form factor
- Efficiency up to 94%
- Built-in voltage and current measurement
- Master/slave mode provides up to 160 kW of output power with 8 units connected in parallel
- Galvanically isolated analog control and monitoring interface
- OVP, OCP, OPP, UVP (under voltage protection), and key lock function
- Configurable voltage and current rise time
- Fast transient response time < 3 ms
- Thermostatically-controlled fans help minimize noise
- Simulate the output of photovoltaic arrays
- Remote sense to compensate for voltage drop
- Datalogging directly to a USB flash drive
- Output on/off timer
- RS232 and LAN interfaces
- LabVIEW™ drivers included
- 3-phase 208 VAC or 400 VAC input configurations available*

*See ordering information section on page 5

Model	HPS20K800	HPS20K1500
Max. Output Voltage	800 V	1500 V
Max. Output Current	25 A	13.4 A
Max. Output Power	20 kW	

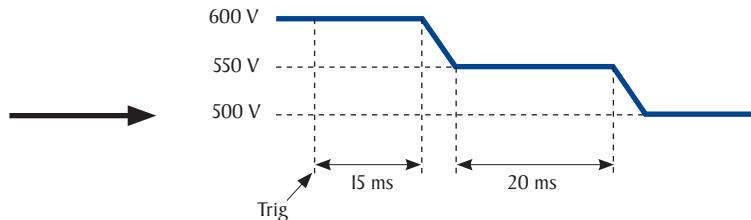
Operation highlights

Generate custom output sequences (Script function)

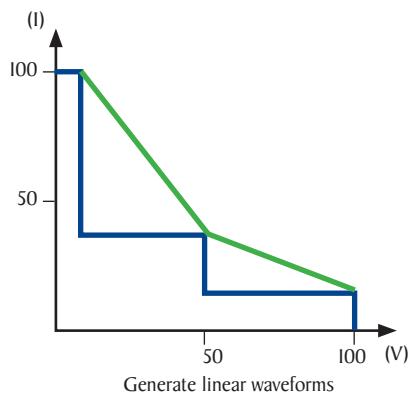
The script function provides a simple way to output a sequence of user-defined voltage/current steps. Similar to list mode, this function offers greater flexibility by supporting more complex output curves. The script function is useful for generating custom output sequences in production test and other automated test applications.

Script example

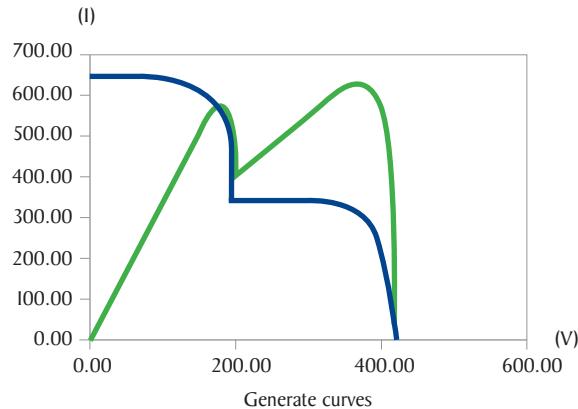
Command	Comment
i 10	Current limit set to 10 A
u 600	Set output voltage to 600 V
RUN	Enable the output
WAIT	Wait for manual trigger
delay 15	15 ms delay
u 550	Set output voltage 550 V
delay 20	20 ms delay
u 500	Set output voltage to 500 V



Additional script function capabilities



Generate linear waveforms

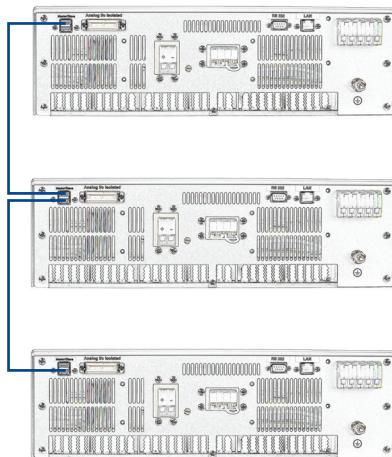


Generate curves

Master/Slave operation

Up to 8 HPS Series power supplies can be connected in parallel delivering 160 kW of total output power.

Up to 160 kW

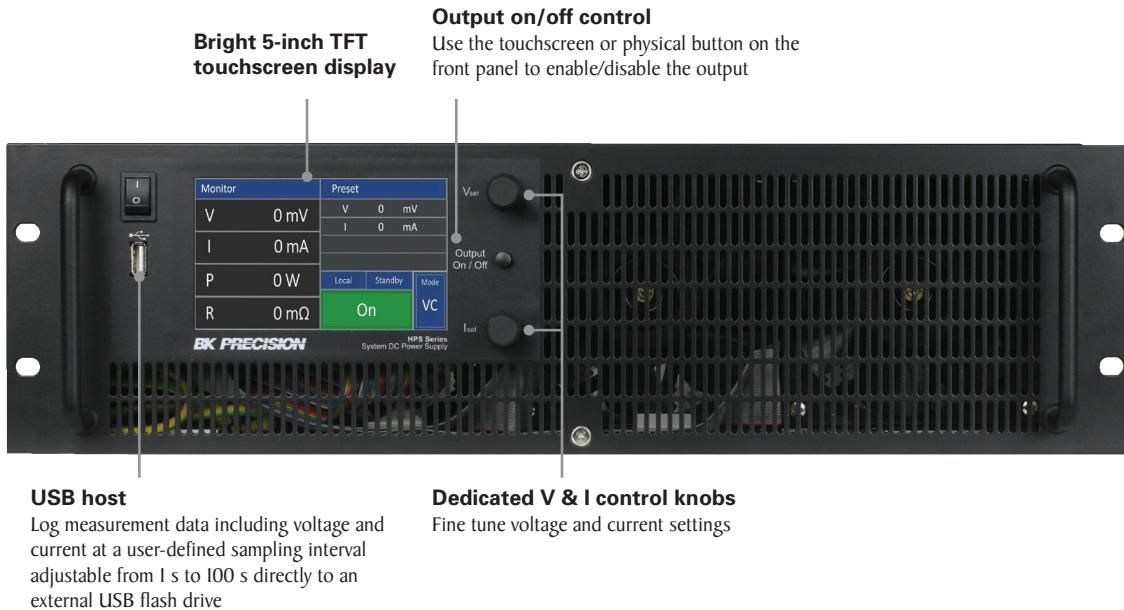


Intuitive front panel operation

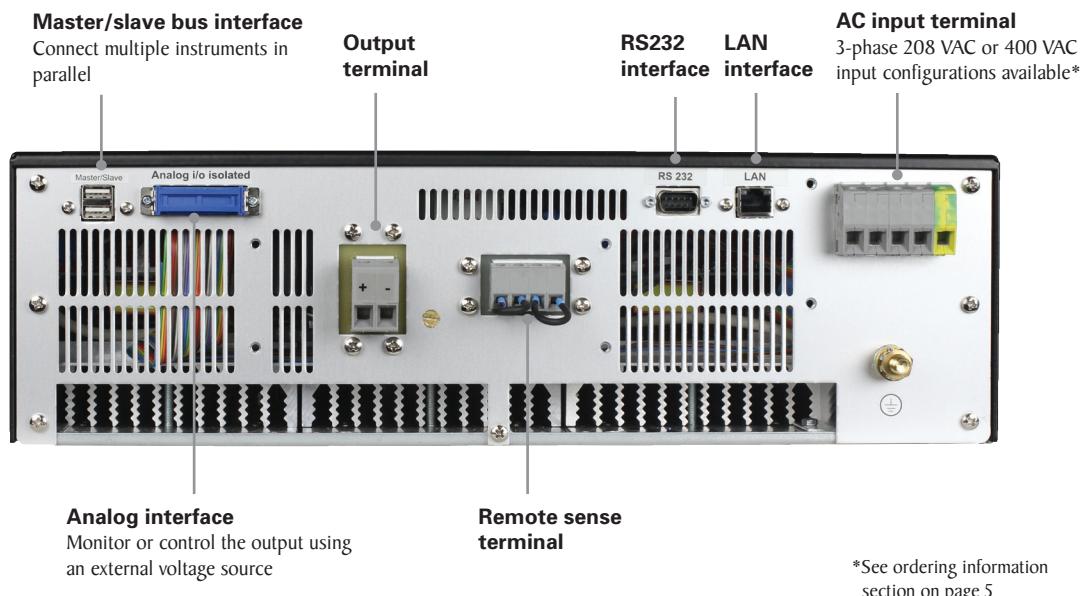
The 5-inch touchscreen display is intuitive and easy to navigate. Measured voltage, current, power, and internal resistance values are displayed along with set parameters and operating mode.

B&K Precision HPS10K50			
Monitor	Preset		
V	0 mV	V	0 mV
I	0 mA	I	0 mA
P	0 W	P	0 W
R	0 mΩ	R	0 mΩ
		Local	Standby
		On	VC

Front panel



Rear panel



Specifications

Note: All specifications apply to the unit after a temperature stabilization time of 15 minutes over an ambient temperature range of $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$. Specifications are valid for single unit operation only.

Model	HPS20K800	HPS20K1500
Output Rating		
Output Voltage	0 to 800 V	0 to 1500 V
Output Current	0 to 25 A	0 to 13.4 A
Output Power	20 kW	
Line Regulation		
Voltage	160 mV	300 mV
Current	5 mA	3 mA
Load Regulation		
Voltage	420 mV	770 mV
Current	33 mA	27 mA
Ripple and Noise (20 Hz to 20 MHz)		
Voltage p-p	350 mV	900 mV
Voltage rms	150 mV	200 mV
Current rms ⁽¹⁾	25 mA	12 mA
Readback Resolution		
Voltage Range	20 V to 99.99 V	10 mV
	100.0 V to 999.9 V	0.1 V
	1000 V to 1500 V	-
Current Range	0 A to 9.999 A	1 mA
	10.00 A to 25 A	10 mA
Programming Accuracy		
Voltage	≤ 800 mV	≤ 1.5 V
Current	≤ 50 mA	≤ 30 mA
Output Response Time⁽²⁾		
Rise Time	Full Load	≤ 40 ms
	No Load	≤ 10 ms
Fall Time	Full Load	≤ 60 ms
	No Load	≤ 10 s
208 AC Input		
Nominal Input Voltage	208 VAC	
Input Range	187 to 229 VAC	
Frequency	47 to 63 Hz	
Phase	3 phase	
400 AC Input		
Nominal Input Voltage	400 VAC	
Input Range	360 to 440 VAC	
Frequency	47 to 63 Hz	
Phase	3 phase	
Protection		
OVP	Range	0 to 960 V
		0 to 1800 V

(1) When output power $> 1.0\%$ of full power.

(2) From 10% to 90% or from 90% to 10% of total voltage excursion.

General		
Remote Sense Compensation	80 V	150 V
Transient Response Time ⁽³⁾	≤ 3 ms	
Command Response Time ⁽⁴⁾	10 ms	
Efficiency ⁽⁵⁾	94%	
Power Factor	> 0.7	
Output Terminal Isolation	2000 V	
Inrush Current ⁽⁶⁾	76 A	
Leakage Current	< 35 mA	
I/O Interfaces	RS232, LAN, Analog (Galvanically isolated DB25)	
Analogue Programming (typical)	Input impedance: $1\text{ M}\Omega$ Maximum input voltage 25 V Response time < 10 ms	
Temperature Ratings	Operation	32 °F to 122 °F (0 °C to 50 °C)
	Storage	-4 °F to 158 °F (-20 °C to 70 °C)
Operating Humidity		
Altitude		
Environment		
Dimensions (WxHxD)	19" x 5.3" x 24.2" (482 x 132.5 x 614.7 mm)	
Weight	82 lbs (37 kg)	
Warranty	3 Years	
Standard Accessories	Test report & certificate of calibration	
Regulatory Compliance		
Safety	Low Voltage Directive (LVD) 2014/35/EU, EN61010-1:2010 + A1:2019	
Electromagnetic Compatibility	EMC Directive 2014/30/EU, EN61326-1:2013	

(3) Time for output voltage to recover within $0.5\% \pm 25$ mV of its rated output.

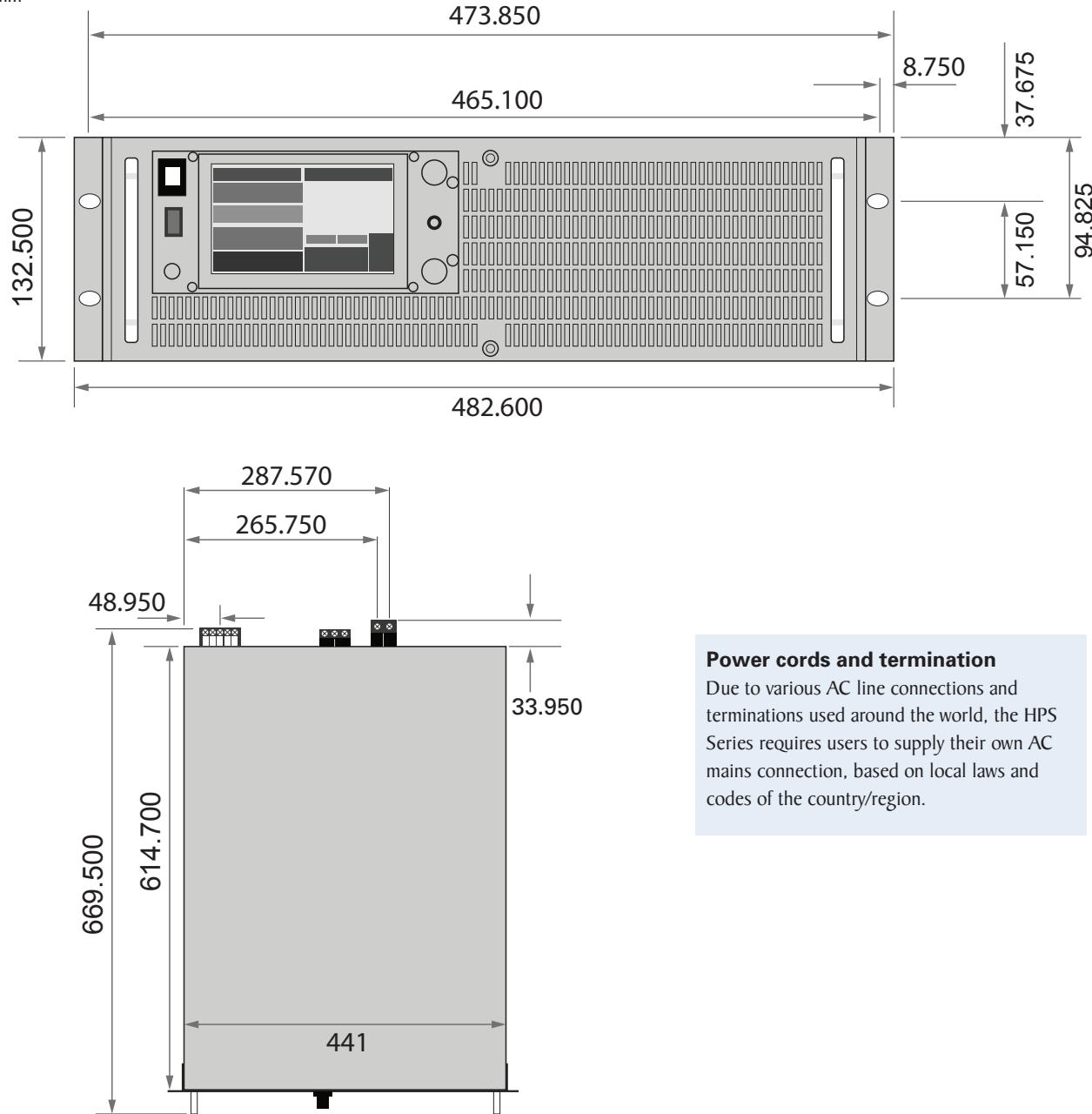
(4) Typical time required for output to begin to change following receipt of command data.

(5) At nominal line voltage and max load.

(6) Applies to rated input voltage. The inrush current only occurs when first connecting to the grid.

Technical Drawings

Units are in mm



Power cords and termination

Due to various AC line connections and terminations used around the world, the HPS Series requires users to supply their own AC mains connection, based on local laws and codes of the country/region.

Ordering Information

HPS Series

Model	Description
HPS20K800	800 V / 25 A / 20 kW DC Power Supply - 208 VAC Input
HPS20K800-400V	800 V / 25 A / 20 kW DC Power Supply - 400 VAC Input
HPS20KI500	1500 V / 13.4 A / 20 kW DC Power Supply - 208 VAC Input
HPS20KI500-400V	1500 V / 13.4 A / 20 kW DC Power Supply - 400 VAC Input

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

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ISO9001:2015

Certification body NSF-ISR
Certificate number 6Z241-IS8



Registered to ISO 9001

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