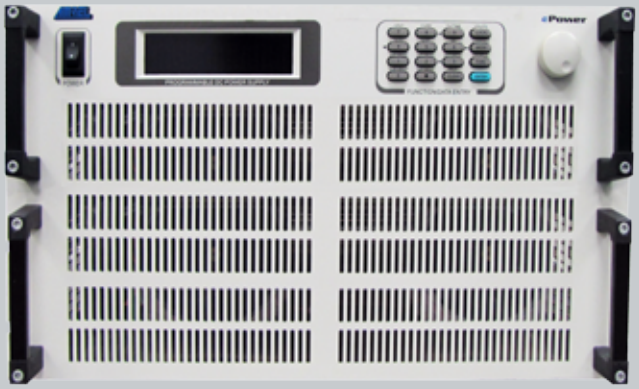
HPS Series (45kW-150kW)

ePower by AMREL™

60kW HPS System

100kW HPS System



AMREL Power's HPS High Power Switching DC Power Supply Series from 45kW ~ 150kW+, delivers unsurpassed quality & reliable low-noise performance, fast & precise programmability, and premium features at an affordable value, all in a convenient rack-mount cabinet with casters

Markets and Applications

- Telecommunications & IT
- Industrial Automation & Process Control
- Magnets, RF Amplifiers & Beam Steering
- Heater Supplies
- Battery, Ultracapacitor & Energy Storage Validation/Testing
- Material Research
- Electroplating, Sputtering & Coating
- Electrical Component Validation
- Burn-in & Lights-out Testing
- Laser Diode Validation & Testing
- PV Inverter, Fuel Cell & Renewable Energy R&D/Testing
- Aerospace & Satellite Testing
- Test & Measurement
- Water Treatment & Purification
- Semiconductor Processing
- Industrial Automation
- Gas, Chemical, Petroleum & Utility Plants
- EOL Test, QC and Inspection
- Defense, Military & Aerospace ATE
- Automotive Component, ECU & HIL Testing
- Compliance Testing

HPS Features and Benefits

- High Power Density: Up to 150 kW in 19" Rack-mount Cabinets with casters
- Fast Load Transient Response: Protection from undesired voltage excursions
- Fast Slew Rate: Industry-leading rise/fall times for speed-critical applications
- Low RMS and P-P Noise: Suitable for the most sensitive applications
- Parallel up to 150 kW: Expandable as your requirement grows
- Low Audible Noise: Temperature controlled variable speed fans
- Ultra-precision accuracy: Voltage and current measurements without external DMMs
- Exclusive A Panel: The perfect balance between performance and value. The AMREL A panel offers 3 ½ digit LED readouts, 10-turn potentiometers for setting voltage and current, front panel over-voltage protection preview/adjustment and reset and external analog programming.
- K Panel features: Sophisticated performance and premium features. AMREL's K panel offers advanced voltage and current sequencing, keypad and encoder for simple navigation, vacuum fluorescent display providing vibrant readback of settings & measurements, and a wide array of interfaces such as external analog programming, GPIB & RS-232, and field-enabled USB & Ethernet option.

Standard Features

- Two Modes in One: Automatic constant voltage and constant current mode crossover
- Protection Against Hazardous Faults: Remote Shutdown (S/D) and Interlock provides various external output shutdown capability – in case of hazardous faults
- Advanced External Analog Programming: Increased control and convenience in external programming applications achieved through various external voltage current and control methods
- Protection Against Voltage Drops: Remote Sense corrects for errors from line voltage drops
- Sophisticated Power Conversion Technology: State-of-the-art FET-based high frequency switching technology provides accuracy, exceptional load transient response & low noise

Exclusive K Panel Features

- VFD (Vacuum Florescent Display) provides easy-to-read settings and accurate measurements
- Digital OVP, OCP, ILIST and VLIST display for easy function recognition
- Real-time encoder provides precise and on-the-fly voltage and current control
- Multi-functional front panel keypad for high resolution and precise digital OVP, OCP, ILIST & VLIST, current and voltage control
- Remote programming control with standardized SCPI commands, LabVIEW & LabWindow for advanced and integrated ATE Testing
- Embedded Ethernet and USB interface option without the need for interface converters
- Remote/Front Panel Lockout to ensure protection for remote ATE systems
- In-field GPIB, RS232, USB, Ethernet and Firmware Upgrades to prevent down-time, satisfy new and dynamic system applications and provide up-to-date software maintenance
- 16 bit Read back and Programming DAC for high resolution and accuracy for standalone or burn-in testing without the need for external measuring equipment
- 4 memory locations to store & recall frequently-used settings simplifies testing processes
- Convenient and robust voltage & current sequencing – 4 sequencing profiles; 20 points per profile

TECHNICAL SPECIFICATIONS

The following subsections provide environmental, electrical, and physical characteristics for the SPS MEDIUM POWER Series power supplies.

ENVIRONMENTAL CHARACTERISTICS

PARAMETER	SPECIFICATION
TEMPERATURE COEFFICIENT	0.02%/°C of maximum output voltage rating for voltage set point. 0.03%/°C of maximum output current rating for current set point.
AMBIENT TEMPERATURES	
Operating	0 to 50°C
Storage	-25° to 65°C
COOLING	Internal fans; vents on sides and rear. (Units may be stacked without clearance above or below).
HUMIDITY	95% maximum, non-condensing, 0 to 50°C; 45°C maximum wet-bulb temperature
ALTITUDE	Operating full power available up to 5,000 feet (1 ,524m), derate 10% of full power for every 1,000 feet higher; non-operating to 40,000 feet (12, 192m)

ELETRICAL CHARACTERISTICS

PARAMETER	SPECIFICATION
INPUT POWER	
Voltage (Standard)	208/220 VAC±10% (allowed range 187-242 VAC)
Voltage (Options)	380/400 VAC±10% (allowed range 342-440 VAC) 440/480 VAC±10% (allowed range 396-528 VAC)
Frequency	47 to 63 Hz
Phases	3–phase, 3–wire plus ground. Not phase rotation sensitive. Neutral not used.
Power Factor	0.9 typical for 208/220VAC input0.78 typical for 380/400VAC input0.7 typical for 440/480VAC input
Efficiency	87% typical at full load, nominal line
FRONT PANEL METER ACCURACY	
Voltage	A-Panel: ±0.5% of full-scale + 1 Digit K-Panel: ±0.1% of full-scale
Current	A-Panel: ±0.5% of full-scale + 1 Digit K-Panel: ±0.4% of full-scale
LOAD REGULATION	(Specified at no load to full load, nominal AC input)
Voltage	0.02% of maximum output voltage
Current	0.1% of maximum output current
LINE REGULATION	(Specified ±10% of nominal AC input, constant load)
Voltage	0.01% of maximum output voltage
Current	0.05% of maximum output current
TRANSIENT RESPONSE	A 50% step load will recover to within 0.75% of original value within 1 ms.
DOWN PROGRAMMING	With no load the output will program from 100 to 10% in less than 1.5 seconds
STABILITY	±0.05% of set point after 30 minute warm-up and over 8 hours at fixed line, load, and temperature.

REMOTE CONTROL / MONITOR	On/Off control via contact closure, 6-120 VDC or 12-240 VAC, and TTL or CMOS switch, output voltage and current monitor, OVP limit set, summary fault status		
PARAMETER	SPECIFICATION		
FRONT PANEL AND REMOTE DIGITAL PROGRAMMING			
Voltage	A-Panel: ±0.5% of full-scale + 1 Digit K-Panel: ±0.1% of full-scale		
Current	A-Panel: ±0.5% of full-scale + 1 Digit K-Panel: ±0.4% of full-scale		
Overvoltage Protection (OVP)	±1% of full-scale output		
REMOTE DIGITAL READBACK			
Voltage	±0.15% of full-scale output		
Current	±0.4% of full-scale output		
REMOTE ANALOG PROGRAMMING			
Constant Voltage	±0.25% of full-scale output for 0-5V range (±0.5% 0-10V range)		
Constant Current	±0.8% of full-scale output		
Overvoltage Protection (OVP)	±1% of full-scale output		
REMOTE ANALOG READBACK			
Voltage	±1% of full-scale output, 0-10V range		
Current	±1% of full-scale output, 0-10V range		
RESISTIVE			
Constant Voltage (0-100%)	0-5 kΩ		
Constant Current (0-100%)	0-5 kΩ		
VOLTAGE			
Constant Voltage (0-100%)	0–5 VDC or 0–10 VDC		
Constant Current (0-100%)	0–5 VDC or 0–10 VDC		
Overvoltage Protection (OVP)	0.25–5.5 VDC		
REMOTE SENSING	Terminals are provided to regulate output voltage at point of load. Maximum line drop 5% of rated output voltage per line for 40-100V models, 2% of rated output voltage per line for >100V models.		
REMOTE ANALOG CONTROL			
Input to Output Isolation	The control signal return for Non-Isolated Analog programming is connected to the negative output terminal. Under no condition should the negative terminal exceed 300V to earth ground. The maximum voltage from control signal return of the Remote Isolated Analog programming (option) to the negative output terminal is 600V.		
DIMENSION	45 & 60KW MODEL	75 & 100KW MODEL	150KW MODEL
WIDTH	24.00 in (60.96 cm)	24.00 in (60.96 cm)	48.00 in (121.92 cm)
DEPTH	36.00 in (91.44 cm)	36.00 in (91.44 cm)	36.00 in (91.44 cm)
HEIGHT	43.00 in (109.22cm)	73.00 in (185.42cm)	73.00 in (185.42cm)
SHIPPING WEIGHT (approximate)	(45kW) ≈ 610 lbs (277 kg)	(75kW) ≈ 1055 lbs (480 kg)	(150kW) ≈ 2110 lbs (960 kg)
	(60kW) ≈ 690 lbs (313 kg)	(100kW) ≈ 1211 lbs (550 kg)	

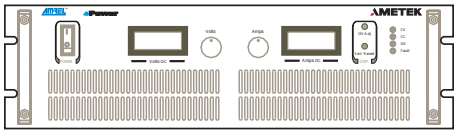
Important Notes:
1) Specifications are subject to change without notice
2) The HPS Series power supplies are intended for indoor use only.
3) Regulatory: CE Mark compliant to EN61010-1 and EMC to 61326, Group1, Class A

ePower GENERAL SPECIFICATIONS

HPS SELECTOR GUIDE

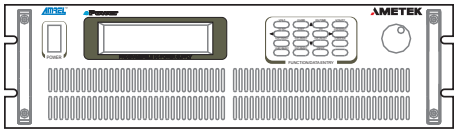
HPS UUU X VVV - KOOZ (A-panel) | HPS UUU X VVV - KOYZ (K-panel)

A-panel



3 ½ Digit V/I LED Readout, V/I Front Panel Control Knobs and External Analog Programming
Ordering Example (A-panel): HPS200X300-A00C
Description: 200Vdc, 300Adc and 208/220Vac 3-ph AC Input

K-panel



V/I VFD Display, Keypad & Encoder, External Analog Programming, RS-232 and GPIB
Ordering Example (K-panel): HPS200X300-K02C
Description: 200Vdc, 300Adc, GPIB & RS232 Interface and 208/220Vac 3-ph AC Input

O - OPTIONS	Y - INTERFACE (K-panel only)	UUU - VOLTAGE RATING	Z - AC INPUT VOLTAGE
0 - None	2 - GPIB & RS-232	VW - CURRENT RATING	C - 208/220Vac 3-ph
1 - Isolated Anolog Interface	E - GPIB, RS-232, USB & ETHERNET		D - 380/400Vac 3-ph
			E - 440/480Vac 3-ph

MODELS	Amperage				
Voltage	45kW	60kW	75kW	100kW	150kW
0-40V	0-1125A	0-1500A	0-1875A	---	---
0-60V	0-750A	0-1000A	0-1250A	0-1500A	0-2500A
0-80V	0-563A	0-750A	0-938A	0-1125A	0-1875A
0-100V	0-450A	0-600A	0-750A	0-1000A	0-1500A
0-160V	0-282A	0-376A	0-470A	0-624A	0-940A
0-200V	0-225A	0-300A	0-375A	0-500A	0-750A
0-250V	0-180A	0-240A	0-300A	0-400A	0-600A
0-330V	0-136A	0-182A	0-227A	0-304A	0-455A
0-400V	0-113A	0-150A	0-188A	0-252A	0-375A
0-600V	0-75A	0-100A	0-125A	0-168A	0-250A

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