Sorensen XHR Series

1 kW

DC Power Supply

7.5-600 V

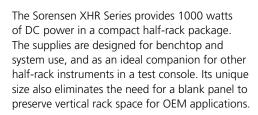
115

0-1.7 A

GPIE RS232

230

- Universal input 85-250 Vac
- Power Factor Correction (PFC)
- Zero voltage "soft switching"
- Simultaneous front panel display voltage and current
- Constant voltage or constant current operation
- Front and rear connectors
- Remote sense with 5 V line loss compensation
- LabVIEW® and LabWindows® drivers





The XHR is power factor corrected for low current draw — only 11 amps at 120 volts AC for 1000 watts — and reduced generation of input current harmonics. Zero voltage or "soft switching" virtually eliminates switching transients for high efficiency, low noise and high reliability. It is also stackable, with a small footprint, front panel binding post connectors, and a low current requirement with universal input, making the XHR ideal for benchtop applications.

AMETEK Programmable Power 9250 Brown Deer Road San Diego, CA 92121-2267 USA





XHR Series : Product Specifications

Common	
Switching Frequency	7.5 V to 300 V models: nominal 125 kHz (250 kHz output ripple); 600 V model: nominal 62.5 kHz (125 kHz output ripple)
Time Delay	4 sec maximum from power on until output stable
Voltage Mode Transient Response Time	1 ms for output voltage to recover within 0.5% of its previous level after a step change in load current of up to 50% of rated output
Maximum Voltage Differential	±600 Vdc from output to safety ground
Remote Start/Stop and Interlock	2.5-15 V signal or TTL-compatible input, selectable logic
Remote Analog Programming	Voltage and current programming inputs (source must be isolated): 0-5 k, 0-10 k resistances; 0-5 V (default), 0-10 V voltage sources
Remote Analog Monitoring	Voltage and current monitor outputs 0-5 V (default), 0-10 V ranges for 0-100% of output
Remote Programming & Monitoring Accuracy	1% zero to full scale output for the default range
Front Panel Voltage and Current Control	10-turn voltage and current potentiometers
Front Panel Voltage Control Resolution	0.02% of maximum voltage
Main Output Connector	7.5 to 40 V models: nickel-plated copper bus bars; 60 to 600 V models: 4-terminal wire clamp connector for DC output and local sense
Protection Features	Over-voltage protection and Over-temperature protection
Approvals	CE-marked units meet: EN61010-1, EN61000-6-2 and EN61000-6-4; CSA C/US certified to UL61010-1B and CSA C22.2 No 1010.1; Meets USA EMC standard: FCC, part 15B, Class A; Meets Canadian EMC standard: ICES-001, Class A.
Environmental	
Operating Temperature	0°C to 40°C
Storage Temperature	-40°C to 85°C
Humidity Range	Up to 80% RH, non-condensing
Physical	
Dimensions	Width: 8.5" (216 mm) Height: 3.4" (86.4 mm) Depth: 18.6" (472.2 mm)
Weight	Approximately 14 lbs. (6.4 kg)
Input	
Voltage Ranges	85-250 VAC, 47-63 Hz, power factor corrected. Derate maximum output power to 900 W for AC input less than 95 V
Phases	
Power Factor	0.99 minimum for full load and 120 Vac input
Current	13 A maximum at 100 Vac; 11 A maximum at 120 Vac; 6 A maximum at 220 Vac
AC Input Connector Type	IEC 320 connector

XHR Series : Product Specifications

1 kW

Output			
Model	Voltage	Current	Power
XHR 7.5-130	0-7.5	0-130	975 W
XHR 20-50	0-20	0-50	1000 W
XHR 33-33	0-33	0-33	1089 W
XHR 40-25	0-40	0-25	1000 W
XHR 60-18	0-60	0-18	1080 W
XHR 100-10	0-100	0-10	1000 W
XHR 150-7	0-150	0-7	1050 W
XHR 300-3.5	0-300	0-3.5	1050 W
XHR 600-1.7	0-600	0-1.7	1020 W

Output: At the front panel binding posts						
Model	Output Ratings		Line Regulation ²		Load Regulation ³	
Wodel	Voltage (VDC)	Current (ADC)	Voltage	Current	Voltage	Current
XHR 7.5-130	0-7.5	0-130	3 mV	14 mA	3 mV	66 mA
XHR 20-50	0-20	0-50	4 mV	6 mA	4 mV	26 mA
XHR 33-33	0-33	0-33	5 mV	4.3 mA	5 mV	18 mA
XHR 40-25	0-40	0-25	8 mV	3.5 mA	6 mV	14 mA
XHR 60-18	0-60	0-18	8 mV	2.8 mA	8 mV	10 mA
XHR 100-10	0-100	0-10	12 mV	2 mA	12 mV	6 mA
XHR 150-7	0-150	0-7	17 mV	1.7 mA	17 mV	4.5 mA
XHR 300-3.5	0-300	0-3.5	32 mV	1.3 mA	32 mV	3 mA
XHR 600-1.7	0-600	0-1.7	62 mV	1.2 mA	62 mV	2 mA

Model	Meter Accuracy		Output Noise	Output Ripple	Drift (8 hours) ⁴	
	Voltage (0.5% to 1% of Vmax + 1 count)	Current (0.5% of Imax + 1 count)	(0-20 MHz) Voltage (p-p)	(rms) Voltage	Voltage (0.05% of Vmax)	Current (0.1% of Imax)
XHR 7.5-130	0.09 V	1.4 A	70 mV	10 mV	3.75 mV	130 mA
XHR 20-50	0.3 V	0.6 A	70 mV	10 mV	10 mV	50 mA
XHR 33-33	0.43 V	0.43 A	75 mV	7.5 mV	16.5 mV	33 mA
XHR 40-25	0.5 V	0.35 A	75 mV	7.5 mV	20 mV	25 mA
XHR 60-18	0.7 V	0.19 A	75 mV	10 mV	30 mV	18 mA
XHR 100-10	1.1 V	0.11 A	100 mV	10 mV	50 mV	10 mA
XHR 150-7	1.6 V	0.08 A	150 mV	20 mV	75 mV	7 mA
XHR 300-3.5	4 V	0.05 A	250 mV	30 mV	150 mV	3.5 mA
XHR 600-1.7	7 V	0.03 A	500 mV	120 mV	300 mV	1.7 mA

^{3.} For 0-100% load variation, with constant nominal line voltage. Measured at the rear panel output connector unless stated otherwise.

^{4.} Maximum drift over 8 hours with constant line, load, and temperature, after 30-minute warm-up.

XHR Series : Product Specifications

	Temperature Coefficient ⁵		Maximum Remote	OVP Adjustment		
Model	Voltage (0.02% of Vmax/°C)	Current (0.03% of Imax/°C)	Sense Line Drop Compensation ⁶	Range (5%to 110% of Vmax)	Efficiency ⁷	
XHR 7.5-130	1.5 mV	39 mA	3 V / line	0.375-8.25 V	81%	
XHR 20-50	4 mV	15 mA	5 V / line	1-22 V	83%	
XHR 33-33	6.6 mV	9.9 mA	5 V / line	1.65-36.3 V	83%	
XHR 40-25	8 mV	7.5 mA	5 V / line	2-44 V	83%	
XHR 60-18	12 mV	5.4 mA	5 V / line	3-66 V	84%	
XHR 100-10	20 mV	3 mA	5 V / line	5-110 V	84%	
XHR 150-7	30 mV	2.1 mA	5 V / line	7.5-165 V	85%	
XHR 300-3.5	60 mV	1.1 mA	5 V / line	15-330 V	85%	
XHR 600-1.7	120 mV	0.48 mA	5 V / line	30-660 V	85%	

XHR 1 kW Internal Interface Specifications with RS-232 or GPIB Interface Installed 1.8					
	Pro	gram Accuracy	Readback Accuracy		
Model	Voltage (mV)	Current (mA)	OVP (mV)	Voltage	Current
XHR 7.5-130	10 +0.12%	900 +0.1%	80	30 +0.12%	900 +0.1%
XHR 20-50	50 +0.12%	750 +0.1%	200	60 +0.12%	750 +0.1%
XHR 33-33	75 +0.12%	500 +0.1%	330	75 +0.12%	500 +0.1%
XHR 40-25	75 +0.3%	350 +0.15%	400	75 +0.3%	350 +0.1%
XHR 60-18	150 +0.25%	250 +0.1%	600	150 +0.25%	250 +0.1%
XHR 100-10	150 +0.35%	140 +0.15%	800	150 +0.35%	140 +0.15%
XHR 150-7	225 +0.35%	120 +0.1%	1500	225 +0.35%	120 +0.1%
XHR 300-3.5	225 +0.35%	80 +0.1%	3000	225 +0.35%	80 +0.1%
XHR 600-1.7	250 +0.35%	80 +0.1%	6000	300 +0.35%	80 +0.1%

Specifications subject to change without notice.

^{1.} Specifications indicate typical performance at 25°C \pm 5°C, nominal line input of 120 Vac. 5. Change in output per °C change in ambient temperature, with constant line and load.

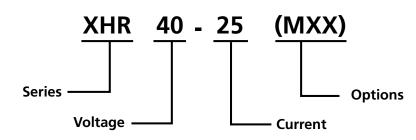
^{6.} Line drop is subtracted from total voltage available at supply output.

^{7.} Typical efficiency at 115 Vac input and rated output power.

^{8.} Apply accuracy specifications according to the following voltage program accuracy example: Set a model 20-50 power supply to 10 V. The expected result will be within the range of 10 V \pm 75 mV \pm 0.12% of the set voltage of 10 V.

XHR Series

Model Number Description



Options and Accessories	
MGA *	GPIB / IEEE 488.1
MGP *	Multi-channel GPIB / IEEE 488.2
MCA *	Interface for linking multiple units using one GPIB address (used with GPIB-M)
MRA *	RS-232 interface card
MIA *	ISOL interface card provides isolated analog control and readback
RM-XHR	19-inch Rack Mount Kit for up to two XHR power supplies
M13A	Locking knobs for front panel controls
M22A	No front binding post

^{*} Options cannot be combined

Available from:



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