

Laboratory Power Supplies

XHR Series

1000 Watts from 120 V / 15 A Outlet

Voltage Range 0-7.5 VDC to
Current Range 0-130 A to

- 85-250 VAC universal input
- Power Factor Correction (PFC)
- Zero voltage „soft“ switching for high efficiency, low noise and high reliability
- Constant voltage or constant current operation with automatic crossover and mode indication
- Stackable half-rack package
- Benchtop and rack mountable
- Front and/or rear connectors
- Analog programming standard, optional ISOL (isolated programming)
- Optional internal 16-bit GPIB (IEEE 488) and RS-232 control interface cards
- LabView® and LabWindows® drivers
- OVP, current limit, thermal protection
- Standby mode
- Ten-turn front panel knobs for high resolution setting of voltage and current limit
- Front panel button preview of voltage, current, OVP
- Remote/local modes
- Remote sense, 5 V line loss compensation
- CE, CSA, UL approvals



The XHR Series provides 1000 watts of programmable DC power in a compact half-rack package. Ideal for both benchtop and system use, the XHR is power factor corrected for low current draw (only 11 A at 120 VAC for 1000 watts) and reduced generation of input current harmonics. State-of-the-art zero voltage or „soft“ switching technology virtually eliminates switching transients and contributes to the high efficiency, low noise and high reliability of this product.

The XHR is stackable, with a small footprint, front panel binding post connectors, and a low current requirement that allows it to be plugged into a standard 120 VAC, 15 A circuit, making it the smart choice when a programmable high power source is required on the bench. The half-rack XHR is ideal as a „companion“ for another half-rack instrument in a test system equipment console, eliminating the need for a blank panel while preserving vertical rack space. With a choice of rear and/or front panel connectors, the XHR offers added system flexibility.

General Specifications

Operational AC Input Voltage	85-250 VAC, 47-63 Hz; power factor corrected. Derate maximum output power to 900 W for AC input less than 95 V.
Maximum Input Current	13 A maximum at 100 VAC, 11 A maximum at 120 VAC, 6 A maximum at 220 VAC
Power Factor	0.99 minimum for full load and 120 VAC input
Input Harmonic Distortion	Harmonics distortion complies with EN61000-3-2 limits
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	4s 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 On/Off 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 and Monitoring Accuracy	<±1% of full scale output for the default range
Operating Temperature Range	0 to 40° C
Storage Temperature Range	-40 to 85° C
Humidity Range	10 to 80% RH, non-condensing
Front Panel Voltage and Current Control	10-turn voltage and current potentiometers
Front Panel Voltage Control Resolution	0.02% of maximum voltage

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Electrical Specifications¹ (Specifications are subject to change without notice.)

Model	XHR 7.5-130	XHR 20-50	XHR 33-33	XHR 40-25	XHR 60-18	XHR 100-10	XHR 150-7	XHR 300-3.5	XHR 600-1.7
Output Ratings:									
Output Voltage	0-7.5 V	0-20 V	0-33 V	0-40 V	0-60 V	0-100 V	0-150 V	0-300 V	0-600 V
Output Current	0-130 A	0-50 A	0-33 A	0-25 A	0-18 A	0-10 A	0-7 A	0-3.5 A	0-1.7 A
Output Power	975 W	1000 W	1089 W	1000 W	1080 W	1000 W	1050 W	1050 W	1020 W
At the front panel binding posts:									
Output Current	0-30 A	0-30 A	0-30 A	0-25 A	0-18 A	0-10 A	0-7 A	0-3.5 A	0-1.7 A
Output Power	225 W	600 W	990 W	1000 W	1080 W	1000 W	1050 W	1050 W	1020 W
Line Regulation:²									
Voltage	1 mV	1 mV	1 mV	1 mV	1.5 mV	1.5 mV	3 mV	10 mV	15 mV
Current	5 mA	2 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA
Load Regulation:³									
Voltage	1.5 mV	1.5 mV	1.5 mV	1.5 mV	1.5 mV	2.5 mV	4 mV	10 mV	15 mV
Current	50 mA	10 mA	4 mA	3 mA	3 mA	2 mA	2 mA	2 mA	2 mA
Meter Accuracy:									
Voltage (0.5% of Vmax + 1 count)	0.05 V	0.2 V	0.3 V	0.3 V	0.4 V	0.6 V	0.9 V	1.6 V	4 V
Current (0.5% of Imax + 1 count)	0.8 A	0.4 A	0.3 A	0.3 A	0.1 A	0.06 A	0.05 A	0.03 A	0.01 A
Output Noise & Ripple:									
rms	5 mV	5 mV	5 mV	5 mV	5 mV	5 mV	10 mV	15 mV	50 mV
p-p (0-20 MHz)	50 mV	50 mV	50 mV	50 mV	50 mV	50 mV	75 mV	100 mV	300 mV
Drift (8 hours):⁴									
Voltage (0.05% of Vmax)	3.75 mV	10 mV	16.5 mV	20 mV	30 mV	50 mV	75 mV	150 mV	300 mV
Current (0.1% of Imax)	130 mA	50 mA	33 mA	25 mA	18 mA	10 mA	7 mA	3.5 mA	1.7 mA
Temperature Coefficient:⁵									
Voltage (0.02% of Vmax/°C)	1.5 mV	4 mV	6.6 mV	8 mV	12 mV	20 mV	30 mV	60 mV	120 mV
Current (0.03% of Imax/°C)	39 mA	15 mA	9.9 mA	7.5 mA	5.4 mA	3 mA	2.1 mA	1.1 mA	0.48 mA
Maximum Remote Sense:									
Line Drop Compensation ⁶	3 V/line	5 V/line	5 V/line	5 V/line	5 V/line	5 V/line	5 V/line	5 V/line	5 V/line
OVP Adjustment Range:									
(5% to 110% of Vmax)	0.375-8.25 V	1-22 V	1.65-36.3 V	2-44 V	3-66 V	5-110 V	7.5-165 V	15-330 V	30-660 V
Efficiency:⁷	81%	83%	83%	83%	84%	84%	85%	85%	85%

1 Specifications indicate typical performance at 25° C ± 5° C, nominal line input of 120 VAC.

2 For input voltage variation over the AC input voltage range, with constant rated load.

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.

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.

Options:

GPB-XHR	GPB Interface card (16-bit)
RS-232-XHR	RS-232 Interface card (16-bit)
ISOL-XHR	Isolated Interface card provides isolated analog control and readback of output voltage and current
M13A	Locking knobs for front panel controls
M22a	No front binding posts
M61	Recessed front panel potentiometers
RM-XHR	19-inch rack mount kit for two XHR power supplies, 2U

Contact Zentro-Elektrik for custom voltage and current combinations and other options.