HPD - Introduction

300 Watt, ¼ Rackmount and Benchtop High Density Power Supplies

The HPD Series (High Power Density) 300W programmable power supplies are designed for system, benchtop, ATE and other instrument-controlled applications. The series offers a full 300 watts in a ¼ rackwide package. HPDs feature programmable output voltage and current plus low output ripple and noise. The units meet FCC class A requirements for reduced EMI. HPDs can be used individually or can be combined in an optional 19" rack adapter to achieve single, dual, triple or quad outputs.

Features

- **Voltage**
  - Three standard models in adjustable voltage and current ranges: 0-15V, 0-20A; 0-30V, 0-10A; and 0-60V, 0-5A
  - High resolution 10-turn potentiometer provides precise output voltage control
- **Modular Design**
  Single units may be rack mounted alone or configured with XT series
- **Input**
  115 VAC, 47-63 Hz, single phase input standard, 230 VAC input available (Option M2)
- **Displays**
  - Simultaneous digital displays of voltage and current on large, easy to ready LEDs
  - Unique twin LED bar graphs show voltage and current levels proportional to supply output
- **Protection and Safety**
  - Overvoltage protection
  - Short circuit proof outputs
  - Current limit
- **Regulation**
  0.01% + 2 mV line and load regulation
- **Transient Response**
  <500 µs transient response with ±50% load change (typical)
- **Remote Programming**
  - Remote programming and monitoring of output voltage and/or current, OVP, remote on/off, master/slave tracking (Option M5A)
  - Internal IEEE-488 Interface Card with voltage/current readback and adjustable OVP (Option M9B)
- **CE Mark**
- **5 Year Warranty**

Output

Voltage and Current

Model	Voltage	Current
HPD 15-20	0-15	0-20
HPD 30-10	0-30	0-10
HPD 60-5	0-60	0-5

Constant Voltage Mode

Ripple and Noise: 5 mV RMS and 100 mV p-p max.

Regulation

Line: 0.01% of V max. + 2 mV
Load: 0.01% of V max. + 2 mV

Transient Response: Typically recovers in <500 µs to within 0.05% of steady-state output voltage. ±50% load change in the range of 25 to 100% of rated load

Stability: 0.02% of maximum voltage over 8 hours after 60 minute warm up time at fixed line, load and temperature

Temperature Coefficient: 0.015%/°C of maximum output voltage

Constant Current Mode

Regulation:

Line: 0.01% of I max. + 1 mA
Load: 0.01% of I max. + 1 mA

Temperature Coefficient: 0.02%/°C of maximum output current

Stability: 0.03% of maximum current over 8 hours after 60 minute warm up time of fixed line, load and temperature

Input

Voltage and Frequency: 115 VAC single phase ±10%, 47-63 Hz, or optional 200 to 250 VAC (M2)

Current: 6

General

Operating Temperature:
0 to 50°C (derated above 30°C)

Storage Temperature: -55°C to 85°C

Cooling: By convection

Efficiency: 80%

Series Operation: Consult Sorensen

Parallel Operation: Consult Sorensen

Overvoltage Protection: Available with Options M5A and M9B

Overload Short-Circuit Protection: Standard, switches to current mode operation while in short circuit

Output to Chassis Isolation: 400 VDC

Voltage Resolution: Standard 0.02%, IEEE-488

Meter Accuracy: 1% of full scale + 1 count

Voltage Programming: Zero to full scale output linearly proportioned to a 0-10V or 0-10 kΩ (Option M5A)

Current Programming: Zero to full scale output linearly proportioned to 0-10V or 0-10 kΩ (Option M5A)

Remote Sensing: Compensation for maximum line drop of 0.5V (per output line)

Rear Access Connector: Option M5A. D subminiature 25 pin female. Option M9B IEEE-488 connector (mating connector not supplied)

Regulatory Compliance: CE Mark

Dimensions: 3U or 5.25" (133 mm) H x 4.25" (108 mm) W x 11.50" (292 mm) D

Weight: 7.7 lbs. (3.5 kg)

Shipping Weight: 9 lbs. (4 kg)

Options & Accessories

M2 Input Voltage: 200-250 VAC, single phase, 47-63 Hz

M5A Analog Programming: Internal interface for full scale remote programming of output voltage and/or current by a 0-10V or 0-10 kΩ external source connected at the rear panel. Includes 0-10V readback, externally adjustable overvoltage protection (OVP), TTL shutdown with selectable logic, master/slave tracking and status signals for programming mode, operating mode, OVP and output fail flag (May not be combined with M9B)

M9B Internal IEEE-488 Interface: Features complete remote programming, including status reporting, settings query and interrupt generation with user-designated fault conditions. Both the voltage and current output are precisely programmed directly in volts and amps. See page 49 for more information (May not be combined with M5A)

M11: 10-turn current control potentiometer

M13: Locking shafts (front panel potentiometers)

M15: Front panel binding posts

M18: Carrying handle

Rack Adapter Kit: Specify RM-XHS

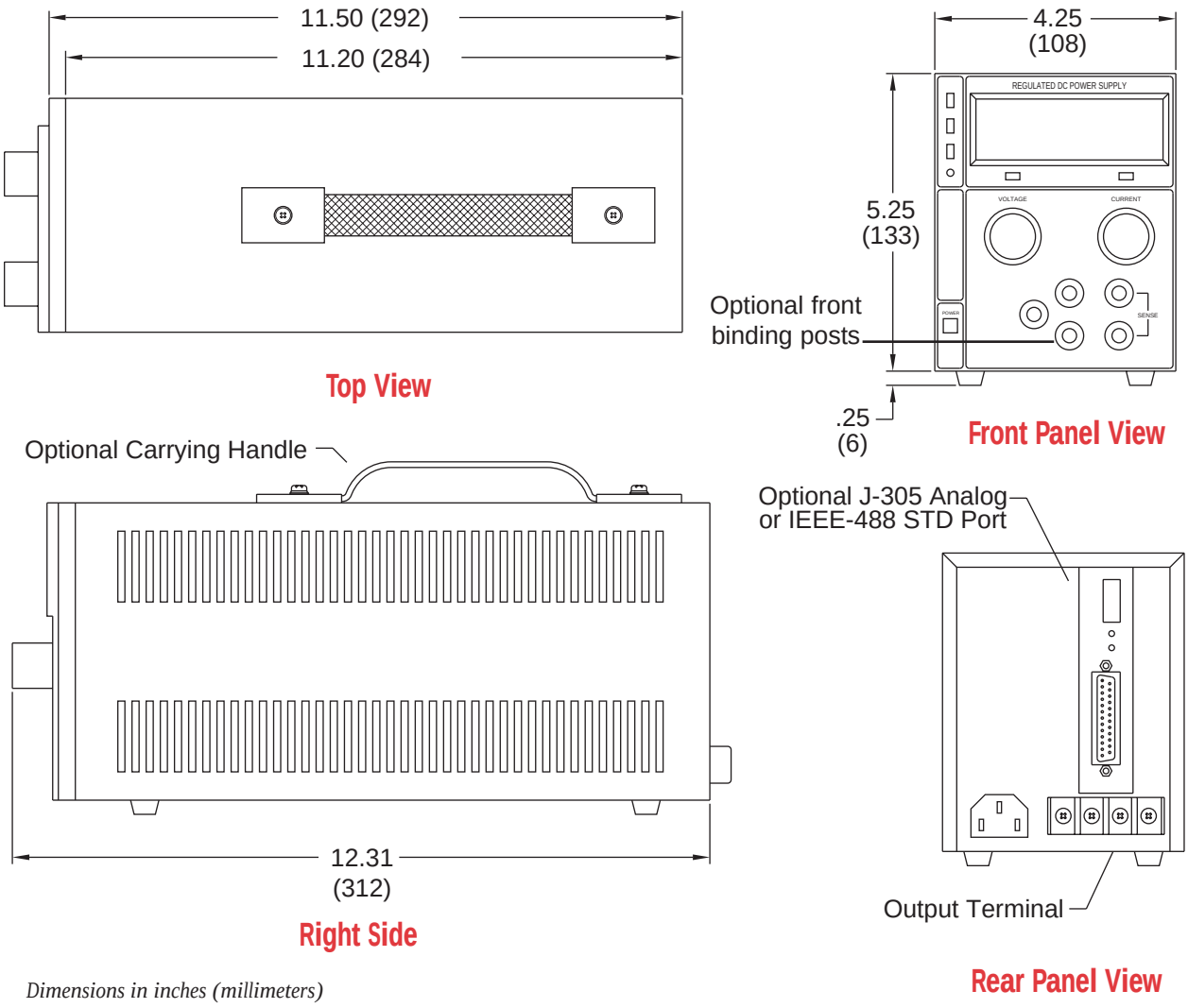
HPD - Data Table

Model	Output Power				Constant Voltage Mode				Temp. Coeff., Voltage %/°C	Voltage **Drift** % (Typ,)	Programming **Constants** Voltage Mode[1]	
	Voltage (VDC)	Current (ADC)			Regulation Line and Load mV	Ripple (RMS) mV	**Resolution** %	Transient Response Time µs			Ohms/V	V/V
		30°C	40°C	50°C								
HPD 15-20	0-15	20	15	10	7	5	0.02	<500	0.015	0.02	667	1.5
HPD 30-10	0-30	10	7.5	5	10	5	0.02	<500	0.015	0.02	333	3.0
HPD 60-5	0-60	5	3.75	2.5	16	5	0.02	<500	0.015	0.02	167	6.0

Model	Constant Current Mode		Temp. Coeff., **Current** %/°C (Typ.)	Current Drift % (Typ.)	Programming Constants Current Mode[1]		Standard Input Power (Single Phase, 47-63 Hz)		Efficiency % (Typ.)
	Regulation Line and Load mA	Ripple (RMS) mA			Ohms/A	V/A	VAC ± 10%	Current A RMS (Max.)	
HPD 15-20	6	5	0.02	0.03	500	2.0	115	6	80
HPD 30-10	4	5	0.02	0.03	1000	1.0	115	6	80
HPD 60-5	3	5	0.02	0.03	2000	0.5	115	6	80

Note: 1. Requires M5A option

HPD - Case and Options



Dimensions in inches (millimeters)

M5A • J-305 Pin Assignments

Pin	Identification	Pin	Identification
1	Overvoltage Protection Flag	14	Not Used
2	TTL Shutdown Return	15	TTL Shutdown
3	Not Used	16	Current Limit Program
4	Program Return	17	Voltage Program
5	Program Return	18	Current Readback
6	Auxiliary Ground	19	Voltage Readback
7	Remote Voltage Program Select*	20	+10V Reference Out (10 mA max)
8	Remote Current ProgramSelect*	21	Output Fail Flag*
9	Voltage Current Limit Mode Indicator	22	+ Sense
10	+ Out	23	+ Out
11	+ Out	24	- Return
12	- Return	25	- Return Sense
13	- Return		