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800 Watts

HDS800 Series



- High Efficiency up to 92%
- 1U Profile, High Power Density
- Programmable Output Voltage (0-105%)
- Programmable Output Current (0-105%)
- Parallel Operation
- Fully Featured Signals & Controls
- 3 Year Warranty

Specification

Input

- | | |
|-----------------------|--|
| Input Voltage | • 90-264 VAC (127-370 VDC), see derating curve |
| Input Frequency | • 47-63 Hz |
| Input Current | • 9.3 A/3.7 A typical at 100/240 VAC |
| Inrush Current | • 30.0 A/60.0 A typical at 115/230 VAC |
| Power Factor | • 0.98/0.95, typical at 115/230 VAC full load |
| Earth Leakage Current | • <1.0 mA at 264 VAC/60 Hz |
| Input Protection | • T or F15 A/250 V internal fuse |

Output

- | | |
|----------------------------|---|
| Output Voltage | • See model table |
| Output Trim | • $\pm 5.0\%$ by potentiometer |
| Output Voltage Program | • 0-105% of rated output |
| Output Current Program | • 0-105% of rated output |
| Initial Set Accuracy | • $\pm 1\%$ |
| Minimum Load | • No minimum load required |
| Start Up Delay | • 800 ms maximum |
| Start Up Rise Time | • 100 ms maximum at full load |
| Hold Up Time | • 8 ms minimum |
| Line Regulation | • $\pm 1\%$ |
| Load Regulation | • $V_1: \pm 1\%$, standby output: $\pm 3\%$ |
| Transient Response | • <1% for a 25% step load change |
| Ripple & Noise | • 150 mV pk-pk all voltages, see note 1 |
| Oversvoltage Protection | • Tracks output voltage. See application notes, Recycle AC to reset |
| Overtemperature Protection | • Primary and secondary heatsinks monitored. Output shuts down, auto recovers |
| Overload Protection | • >105% rated power, constant current |
| Short Circuit Protection | • Auto recovery |
| Temperature Coefficient | • $\pm 0.02\%/^{\circ}\text{C}$ (0-50 $^{\circ}\text{C}$) |
| Remote Sense | • Compensates for 0.5V max voltage drop
If remote sense is not required, local sense must be used |
| Enable | • Output must be enabled. See application notes, power supply is shipped with enable links fitted |
| Current Share | • 5 supplies can share within 5% |
| Standby Output | • 5V at 0.5 A, present whenever AC is applied (9V at 0.3A, user selectable, by connecting 'VSET', Pin 18 of CN2 to 'GND') |

General

- | | |
|---------------------|--|
| Efficiency | • See model table |
| Isolation | • 3000 VAC Input to Output, 1500 VAC Input to Ground, 500 VAC Output to Ground |
| Switching Frequency | • PFC 65 kHz typical, PWM 40-200 kHz variable |
| Power Density | • 10.1 W/in ³ |
| Signals & Controls | • Enable, Current Share, V Program, I Program, 5 V Standby, PWM switching |
| MTBF | • 90 kHrs to MIL-HDBK-217F at 25 $^{\circ}\text{C}$ |

Environmental

- | | |
|-----------------------|--|
| Operating Temperature | • -20 $^{\circ}\text{C}$ to 70 $^{\circ}\text{C}$, derate linearly from 100% load at 50 $^{\circ}\text{C}$ to 50% load at 70 $^{\circ}\text{C}$ |
| Cooling | • Internal fan fitted. Speed increases with load and internal temperature |
| Operating Humidity | • 20-90% R.H. non-condensing |
| Storage Temperature | • -40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$ |
| Storage Humidity | • 10-95% R.H. |
| Vibration | • 10-500 Hz, 2g 10 min/cycle, 60 min period for each axis. Compliant to IEC68-2-16, IEC 68-2-64 |

EMC & Safety

- | | |
|----------------------|--|
| Emissions | • EN55022 class B conducted & radiated |
| Harmonic Currents | • EN61000-3-2 class A |
| Voltage Flicker | • EN61000-3-3 |
| ESD Immunity | • EN61000-4-2, ± 4 kV contact, ± 8 kV air discharge, Perf Criteria A |
| Radiated Immunity | • EN61000-4-3, 3 V/m, Perf Criteria A |
| EFT/Burst | • EN61000-4-4, level 2, Perf Criteria A |
| Surge | • EN61000-4-5, installation class 3, Perf Criteria A |
| Conducted Immunity | • EN61000-4-6, 3 V, Perf Criteria A |
| Magnetic Field | • EN61000-4-8, 1 A/m, Perf Criteria A |
| Dips & Interruptions | • EN55024, >95% 10 ms, 30% 500 ms, >95% 5000 ms, Perf Criteria A, A, B |
| Safety Approvals | • UL60950-1, CSA C22.2 No. 60950-1, EN60950-1 |

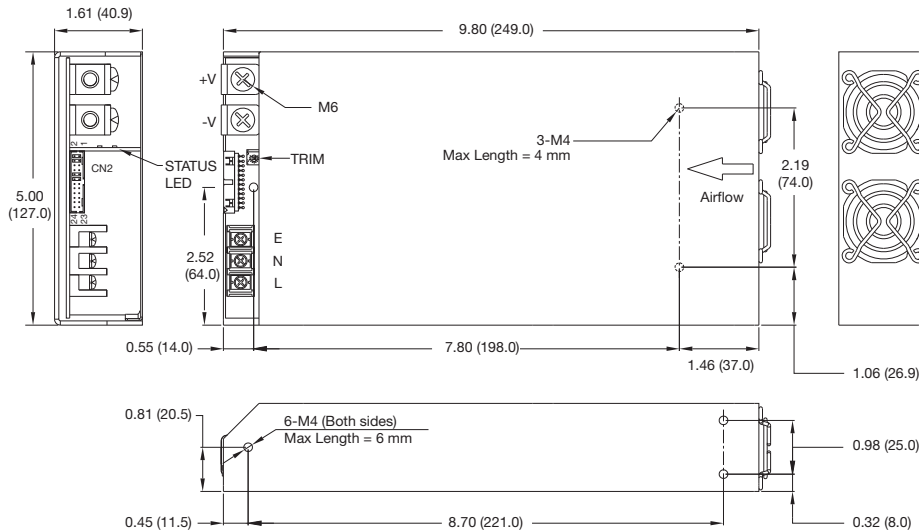
Models and Ratings

Output Power	Output Voltage V1	Output Current		Efficiency ⁽²⁾	Model Number
		Min	Max		
800 W	12.0 VDC	0.0 A	66.7 A	89%	HDS800PS12
800 W	15.0 VDC	0.0 A	53.4 A	90%	HDS800PS15
800 W	24.0 VDC	0.0 A	33.5 A	92%	HDS800PS24
800 W	30.0 VDC	0.0 A	26.7 A	92%	HDS800PS30
800 W	36.0 VDC	0.0 A	22.3 A	92%	HDS800PS36
800 W	48.0 VDC	0.0 A	16.7 A	92%	HDS800PS48
800 W	60.0 VDC	0.0 A	13.4 A	92%	HDS800PS60

Notes

1. Ripple & noise is measured with 20 MHz bandwidth and using 12" twisted pair-wire terminated with 0.1 μF & 47 μF capacitors in parallel.
2. Measured with 230 VAC input and full load.

Mechanical Details



CN2 Control Pin Connections								
Pin	Function	Description	Pin	Function	Description	Pin	Function	Description
1	VS+	Remote sense (+)	9	EN-	Inhibit On/Off(-)	17	AUX	+5V/0.5 A or +9V/0.3 A Standby power
2	VO+	Positive Output Voltage	10	GND	Ground	18	GND	Ground
3	VS-	Remote Sense (-)	11	EN+	Inhibit On/Off (+)	19	SCL	I ² C Serial Clock
4	VO-	Negative Output Voltage	12	AUX	+5V/0.5 A or +9V/0.3 A Standby power	20	SDA	I ² C Serial Data
5	POK	Power OK	13	ACI	I Program	21	AUX	+5V/0.5 A or +9V/0.3 A power
6	GND	Ground	14	GND	Ground	22	GND	Standby Ground
7	PAR	Parallel Operation Current Share	15	VCI	V Program	23	N.C.	RS232 Receive
8	VSET	Aux Output Setting	16	GND	Ground	24	N.C.	RS232 Transmit

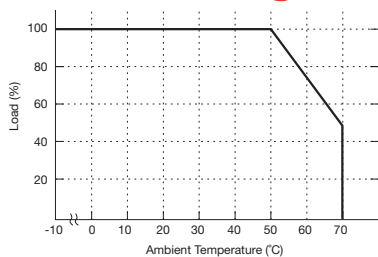
Mating connector CN2: PHDR-24VS housing, SPHD-002T-P05 contacts

Notes

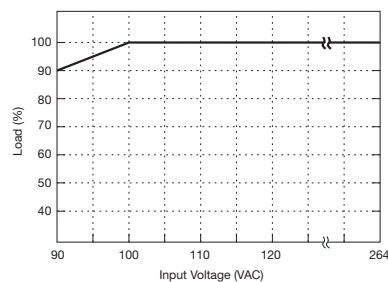
1. All dimensions are in inches (mm).
2. Weight 3.85 lb (1.75 kg)
3. Maintain 2" (50mm) clear space at each end.

Derating Curve

Thermal Derating Curve



Input Derating Curve

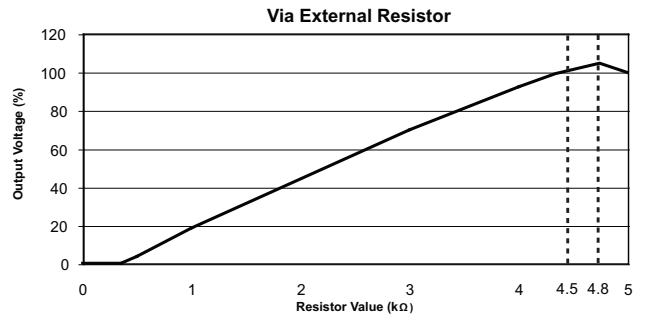
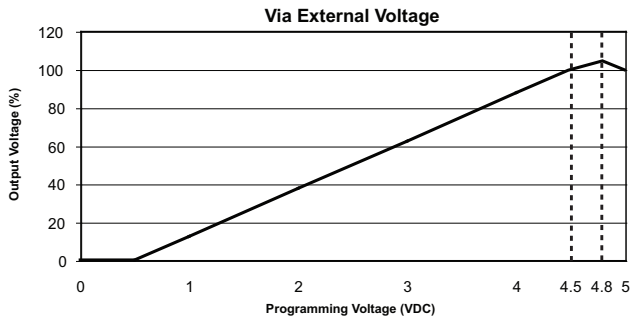


Application Notes

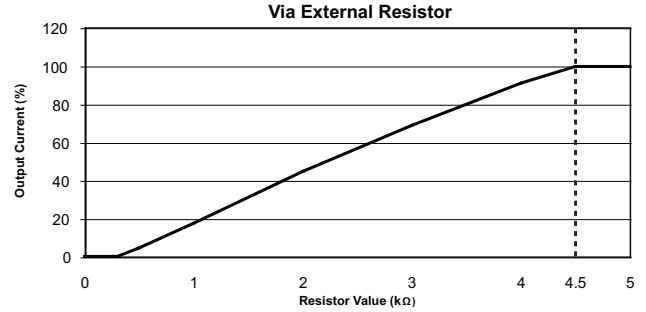
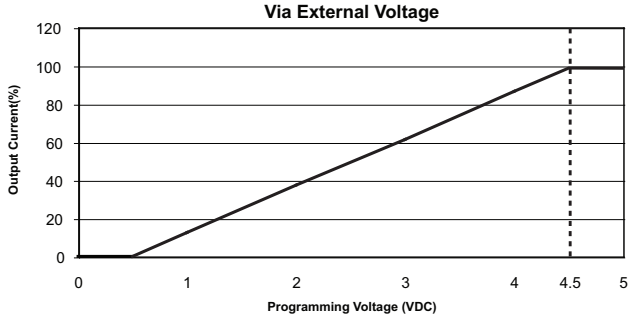
LED Status

LED Status	Output Status
Solid (Green)	DC Output OK
Solid (Orange)	DC Output OK in remote control mode
Slow Blink (Green)	Output Not Enabled
Fast Blink (Red)	Over Voltage
Solid (Red)	Over Loaded
Slow Blink (Red)	Over Temperature
Intermittent Blink (Red)	Fan Fail
Short & Long Blink (Red)	AUX Standby Failure

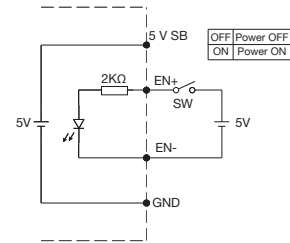
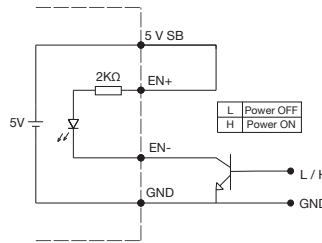
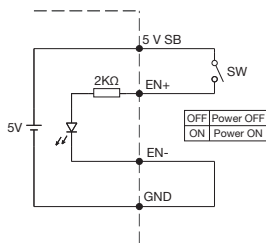
Output Voltage Programming



Output Current Program

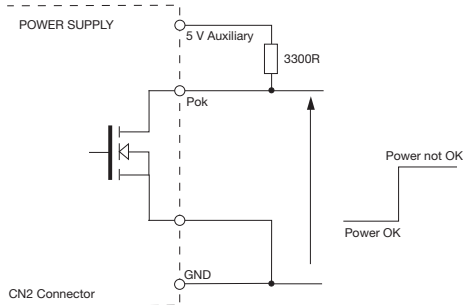


Remote Enable



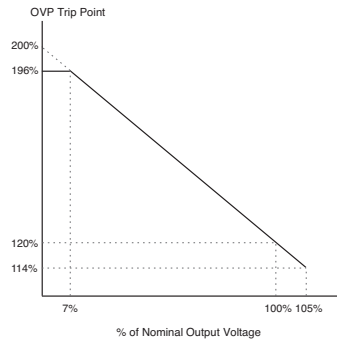
Application Notes

POK Signal

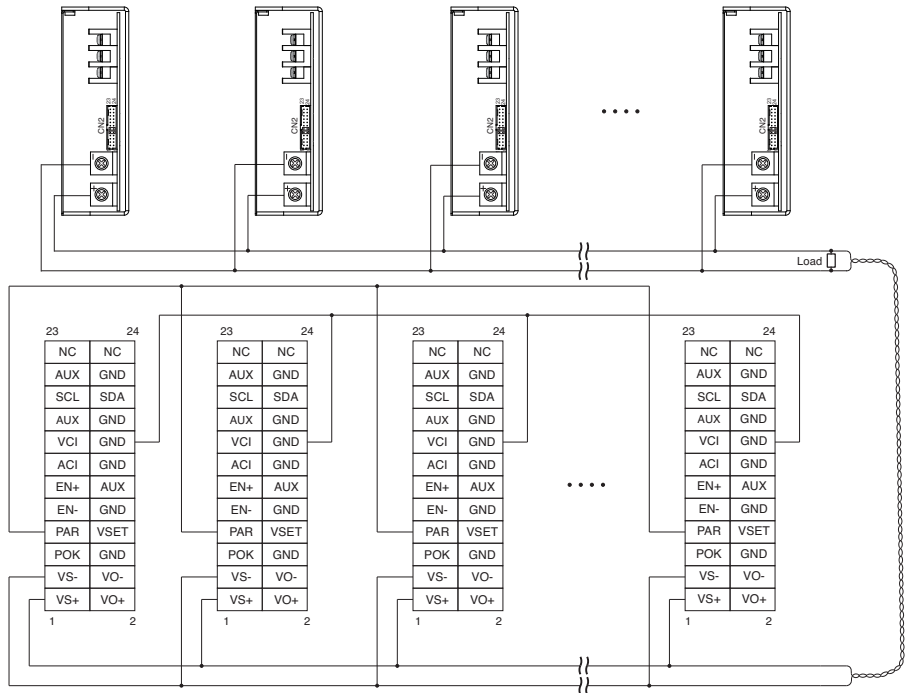


Open drain signal, low when PSU turns on
 Maximum sink current: 20 mA
 Maximum drain voltage: 40 V

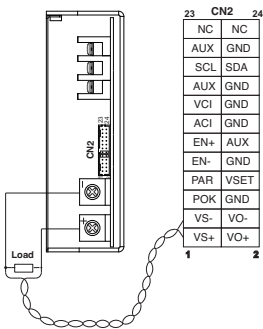
OVP Setting



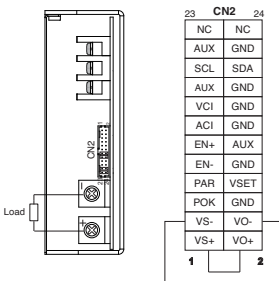
Current Share



Remote Sense

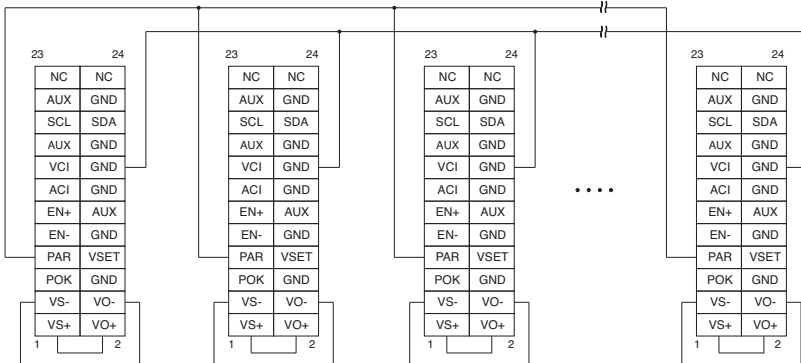


Local Sense



Must be used if remote sense is not required.

Current Sharing with Remote Sensing



Current Sharing with Local Sensing

Notes

In parallel operation, it is possible that only one unit will operate if the load is less than 5% of the combined rated output load. It is possible to have more than five units in parallel, contact sales for details.