

HVP950 SERIES



950 Watt 56V / 12VDC Dual Output Model

- 11.81 x 3.23 x 1.57" Hot-Swap Package

Features:

- Universal AC Input Range (90-264 VAC)
- Active Power Factor Correction (0.98 PF Typical)
- Hot-Swap / N+1 Redundant Operation
- Analog / I²C / PMBus Interface for Status & Control
- Front Panel LED Indicators
- Class B Emissions
- 2 Year Warranty

INPUT:

Input Voltage	90~264 VAC (Universal AC Input)
Input Frequency	47-63Hz
Inrush Current	29Arms @ 230 VAC Cold Start
Input Current	9A / 4.5A @ 115 / 230 VAC
Input Protection	Single Fuse
Hold-Up Time	10ms Minimum @ 115 VAC Minimum
Leakage Current	800 μ A @ 230 VAC Maximum
Power Factor	EN61000-3-2 (0.99 PF Typical)
No Load power	9 Watt Typical

GENERAL:

Efficiency	Up to 91% (see 80 Plus test, page 3)
Operating Temperature	-10-70°C, derate linearly to 60% load at 50-70°C
Storage Temperature	-40°C to +85°C
Over-Temp Protection	Auto-Recovery
Cooling	Internal Ball Bearing Fans
Operating Humidity	5-90% RH, Non-Condensing
Vibration	5 ~ 50 Hz, acceleration 7.35 m/s*s on X,Y and Z Axis
MTBF	>100k Hrs (according to MIL-HBK-217F) at 30°C

OUTPUT:

Adjustment Range	Via I ² C / PMBus Interface
Minimum Load	none required
Line Regulation	\pm 1%
Load Regulation	\pm 3% (5VSB = \pm 5%)
Ripple & Noise	\pm 1% pk-pk @ 20MHz
Overload Protection	120-135% of max power (Foldback)
Over Voltage	Latching before 130% of nominal
Short Circuit Protection	Trip without damage & auto-recovery
Transient Response	recovers <2ms following a 25% load change
Switching Frequency	55KHz

EMC:

Electrostatic Discharge	EN61000-4-2, \pm 4KV Contact / \pm 8KV Air Discharge
Radiated Susceptibility	EN61000-4-3, 26-1000MHz, 10V/M, 80% AM
EFT / Bursts	EN61000-4-4, \pm 2KV
Surges	EN61000-4-5, \pm 2KV Line-Earth, \pm 1KV Line-Line
Conducted Immunity	EN61000-4-6, 0.15-800MHz, 10V, 80% AM
Voltage Dips	EN61000-4-100, 95% Dip & 10ms, 30% Dip & 500ms
Voltage Interruptions	EN61000-4-11, 95% reduction, 5s
Fluctuations & Flicker	EN61000-3-3

STATUS / CONTROL:

5VSB	500mA (Always present and on)
DC Okay	Active Low
Fan Fail	Active Low
Enable	Active Low
P/S Present	Pull to Low
Current Share	V1 Only
AC Fail	Active Low

APPROVALS:

Emissions	EN55022 "B", FCC Part 15 Subject J Class B
Safety Approvals	IEC 60950-1 Class I

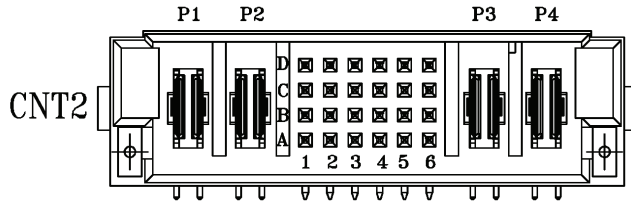
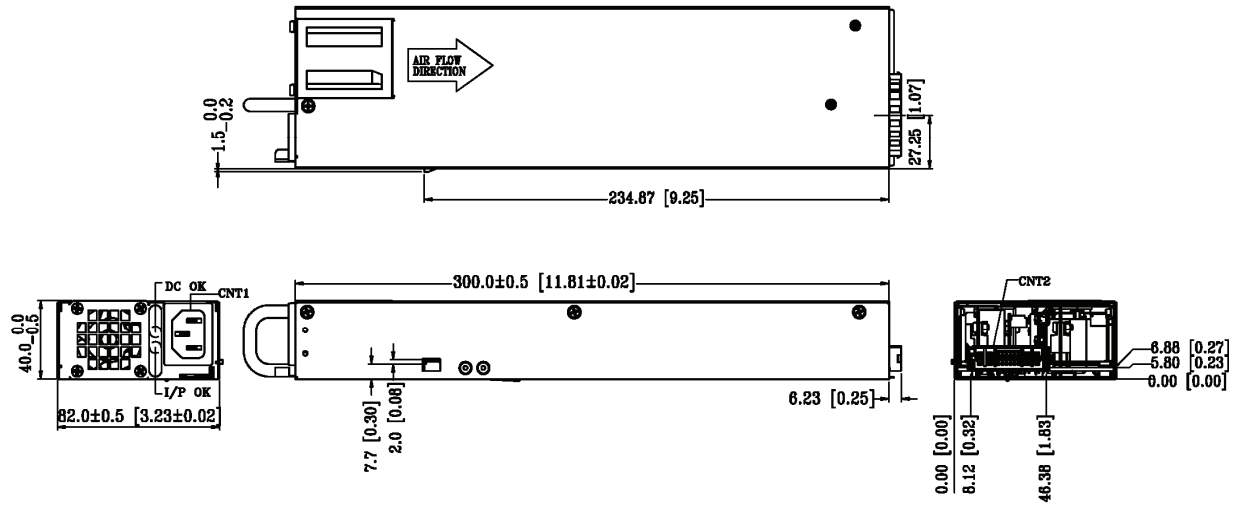
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Output Specifications:

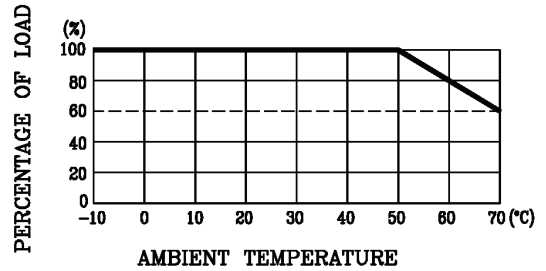
Model:	V1	I _{out}	V2	I _{out}	V3	I _{out}
HVP950-D5601	+56V	13.4A	+12V	16.6A	5Vsb	500mA

* Maximum Output Power ≤950 Watts

Mechanical Dimensions:



DERATING CHART



INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

CNT1			CNT2								P3	P4
L	N	G	P1	P2	D1	D2	D3	D4	D5	D6		
LINE	NEUTRAL	GND	VO2	COM	Albet	A2	DGND	5VSB	N/A	56V CS	VO1 RTN	VO1
					C1	C2	C3	C4	C5	C6		
					PS PRNT	A1	PS EN IN	DCOK 12V L	N/A	N/A		
					B1	B2	B3	B4	B5	B6		
					12V CS	A0	PS EN OUT	DCOK 56V L	N/A	N/A		
					A1	A2	A3	A4	A5	A6		
SCL	SDA	AC FAIL	FAN FAL	N/A	N/A							

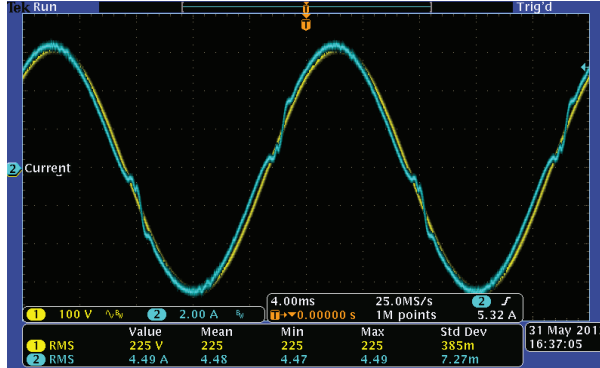
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80 PLUS Verification and Testing Report

TYPICAL EFFICIENCY (50% Load):	92.86%
AVERAGE EFFICIENCY:	91.99%
80 PLUS COMPLIANT:	YES

Input Current and Voltage Waveforms

Manufacturer	HiTRON Electronic Corporation
Model Number	HVP950-D5601
Serial Number	N/A
Year	2012
Type	1U
Test Date	31-May-12



Rated Specifications	Value	Units
Input Voltage	100~240	Volts
Input Current	4.5 ~ 12.5	Amps
Input Frequency	50~60	Hz
Rated Output Power	946.9	Watts

Note: All measurements were taken with input voltage at 230V nominal and 50 Hz

Input AC current Waveform (ITHD = 5.61% , 100% Load)

I RMS A	PF	I THD %	Load %	Fraction of Load	Input Watts	Interbal Fan Power (W)	DC Terminal Voltage(V) / DC Load Current (A)					Output Watts	Efficiency %
							56V	12V	N/A	N/A	N/A		
0.588	0.8384	18.03	*10%	Low	113.6	2	56 / 1.34	12 / 1.66				96.21	86.45%
1.016	0.9119	17.16	20%	Light	213.4	2	56 / 2.68	12 / 3.32				191.02	90.45%
2.336	0.9604	12.34	50%	Typical	516.3	2.796	56 / 6.7	12 / 8.3				476.64	92.86%
4.553	0.9866	5.61	100%	Full	1033.5	7.176	56 / 13.4	12 / 16.6				950.32	92.65%

* 10% load results are for informative purposes only and not included in certification requirements.

** Fan power should be recorded if Fan exists, but is not included in the efficiency calculations.

