

# HiTRON

## UNIVERSAL AC INPUT HARMONIC CORRECTION AC-DC 6U PENTAD OUTPUT 1000 WATTS VPX SWITCHING POWER SUPPLIES HAV1000 SERIES



### FEATURES:

- VITA 62 COMPLIANT 6U 10HP VPX POWER SUPPLY
- WIDE OPERATING TEMPERATURE RANGE OF -40°C TO +85 °C
- INTERNAL OR-ING DIODES FOR N+1 REDUNDANCY
- ACTIVE CURRENT SHARING
- EMI MEET EN 55022 / CLASS A
- PMBus INTERFACE FOR STATUS & CONTROL

### SPECIFICATION

#### INPUT SPECIFICATION

**Input Voltage:** Typ. 90-264Vac.  
**Power Factor:** Meet Harmonic Correction IEC 61000-3-2.  
Power Factor typ. 0.98-0.99.  
**Input Connector:** Tyco 6450843-6.  
**Input Frequency:** 47-63Hz.  
**Inrush Current:** 10A(rms) at 230Vac;  
37.2A (peak) at 230Vac.  
**Input Current:** 7.3A at 115Vac / 5.2A at 230Vac.  
**Dielectric Withstand:** Meet IEC 60950-1 regulation.  
**EMI:** Meet EN 55022 FCC Class A.  
**Hold-up Time:** Typ. 6.2mS at 115Vac/2.3mS at 230Vac.  
**Remote ON/OFF:** Available.  
**Power Fail Signal:** Available.  
**Over Temperature Protection (OTP):** Installed NTC and thermostat.  
**Leakage Current:** Typ. 0.7mA at 230Vac.  
**No-Load Power:** Typ. 11.8Watt at 115Vac & 230Vac.

#### OUTPUT SPECIFICATION

**Output Voltage:** See Ratings Chart.  
**Output Current:** See Ratings Chart.  
**Output Power:** 650-703W at 90-180Vac/  
950-1008W at 180-264Vac.  
**Output Connector:** Tyco 6450849-6.  
**Line Regulation:** Typ. 0.5%.  
**Load Regulation:** VO1/2/3 typ.  $\pm 1.5\%$  ; VO4/5 typ.  $\pm 5\%$ .  
**Total Regulation:** VO1/2/3 typ.  $\pm 3\%$ ; VO4/5 typ.  $\pm 5\%$   
**Noise & Ripple:** Typ. 1.5% pk-pk.  
**OVP:** Built-in at all outputs.  
**Adjustability:** Available at VO1/2/3/4/5.  
**N+1 Redundancy:** Installed with internal OR-ing diodes at all outputs and third-wire current sharing method for N+1 redundancy operation.  
**Current Sharing:** Active current sharing at VO1,2 & 3.  
**DC OK Signal:** Available for all outputs.  
**Power OK Signal:** Available for all outputs.  
**Over Current Protection (OCP):** Installed at each rail.  
**Overload Protection (OLP):** Fully protected against output overload or short circuit. Typ. 110-150% max. load. Consult the factory for special OLP setting.

#### GENERAL SPECIFICATION

**Efficiency:** Typ. 89% at 230Vac.  
**Switching Frequency:** 67-100K Hz.  
**Circuit Topology:** ZVS Half-Bridge circuit.  
**Transient Response:** Peak transient less than 600mV and recovers within 2ms for 25% load-change.  
**Safety Standard:** IEC 60950-1 Class I.  
**PMBus:** Built-in.

**Operating Temperature:** -40 to +85 °C with derating  
(see note 3/derating chart).

**Storage Temperature:** -45 to +90 °C.

**Cooling:** At least 800LFM moving air is required to achieve full rating power in a confined area.

**Power Density:** 5.8-8.3 Watts/ Cubic Inch.

NOTE: (1)All measurement are at nominal input, full load and +25°C unless otherwise specifications.  
(2)Due to requests in market and advances in technology, specifications subject to change without notification.  
(3)A warm-up time 3 minutes is required to maintain outputs within specific spec. after cold start at temperature from -40 °C to +0°C.  
(4)Tantalum capacitors connected to system is suggested for bettering Ripple & Noise against operating temperature from -40°C to +0°C.  
(5)125 degree C OS-CON Long-life Solid capacitors are installed in secondary circuits.

# OUTPUT VOLTAGE / CURRENT RATINGS CHART

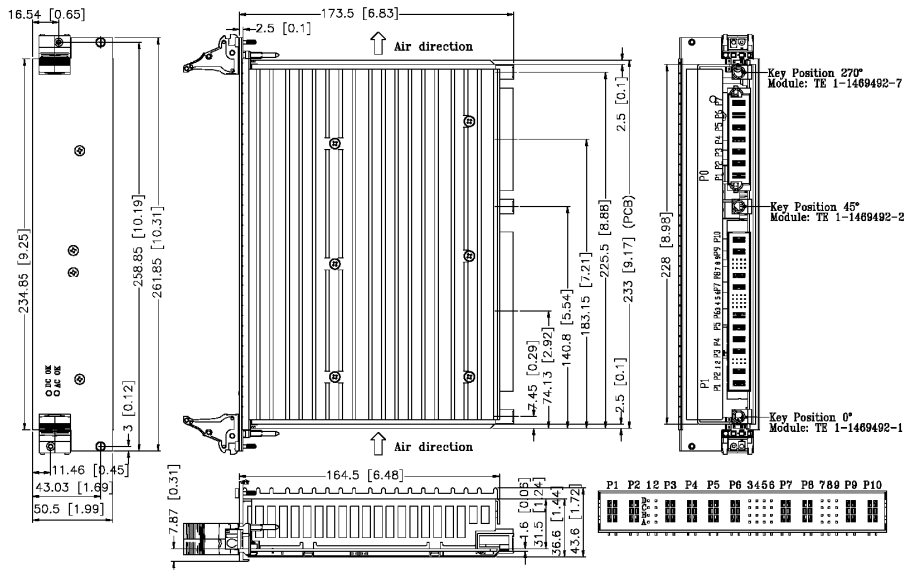
## QUAD OUTPUT

MODEL NO.	O/P Volt.	Volt.	Min.	Typ.	Max.	Peak.
<b>HAV1000-P120EDII-10HP</b>	<b>VO1</b>	<b>12V</b>	0A(1.0A)	44A / 63A	70A	75A
	<b>VO2</b>	<b>5V</b>	0A(1.0A)	21A / 30A	30A	30A
	<b>VO3</b>	<b>3.3V</b>	0A(1.0A)	14A / 20A	25A	25A
	<b>VO4</b>	<b>12V</b>	0A(0.1A)	1A / 1.5A	2A	2A
	<b>VO5</b>	<b>-12V</b>	0A(0.1A)	1A / 1.5A	2A	2A

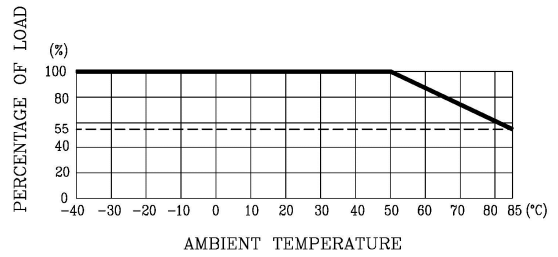
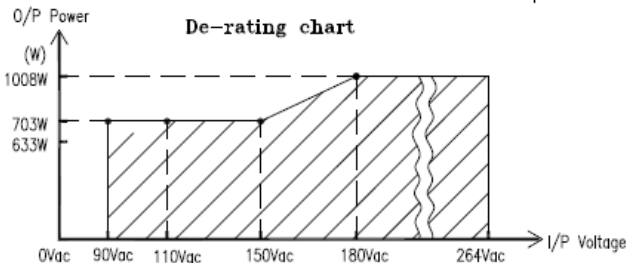
**Remark:**1. For 10HP version, the Max. Output power is <=703W at 90-180Vac and 1008Watt at 180-264Vac.  
 2. For parallel application, a certain minimum current of outputs is required.

## MECHANICAL DIMENSIONS: MM [INCHES]

### HAV1000-P120EDII-10HP (Pitch: 1.0)



## DERATING CHART



## INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

P0			P1																		
P0-P7	P0-P4	P0-P1	P1	P2	D1	D2	P3	P4	P5	P6	D3	D4	D5	D6	P7	P8	D7	D8	D9	P9	P10
L	N	G	COM	VO3 3.3V Aux.	PS_RNT C1 V3 +S B1 V3 -S A1 V3 CS	EN C2 INH B2 FAL A2 N/A	COM	COM	VO2 P03 +5V	VO2 P03 +5V	N/A C3 N/A B3 VO4 +12V A3 PSU_ RNT	A0 C4 A1 B4 A2 A4 Alert	SDA C5 SCL B5 SDA A5 SCL	SYS RST C6 VO5 -12V B6 N/A A6 N/A	COM	COM	COM D7 V2 CS B7 N/A A7 CS	DEG. C8 V2 -S B8 N/A A8 V1 -S	I/P_ok C9 V2 +S B9 N/A A9 V1 +S	VO1 P02 +12V	VO1 P01 +12V