

# HiTRON

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



### FEATURES:

- VITA 62 COMPLIANT 6U/8HP or 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. 1.1mA 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:** 630-700W at 90-180Vac/  
 900-1000W at 180-264Vac.  
**Output Connector:** Tyco 6450849-6.  
**Line Regulation:** Typ. 1%.  
**Load Regulation:** VO1/2/3 typ.  $\pm 2\%$  ; 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.  
**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. 86% at 230Vac.  
**Switching Frequency:** 67-100K Hz.  
**Circuit Topology:** ZVS Half-Bridge circuit.  
**Transient Response:** Peak transient less than 1200mV 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

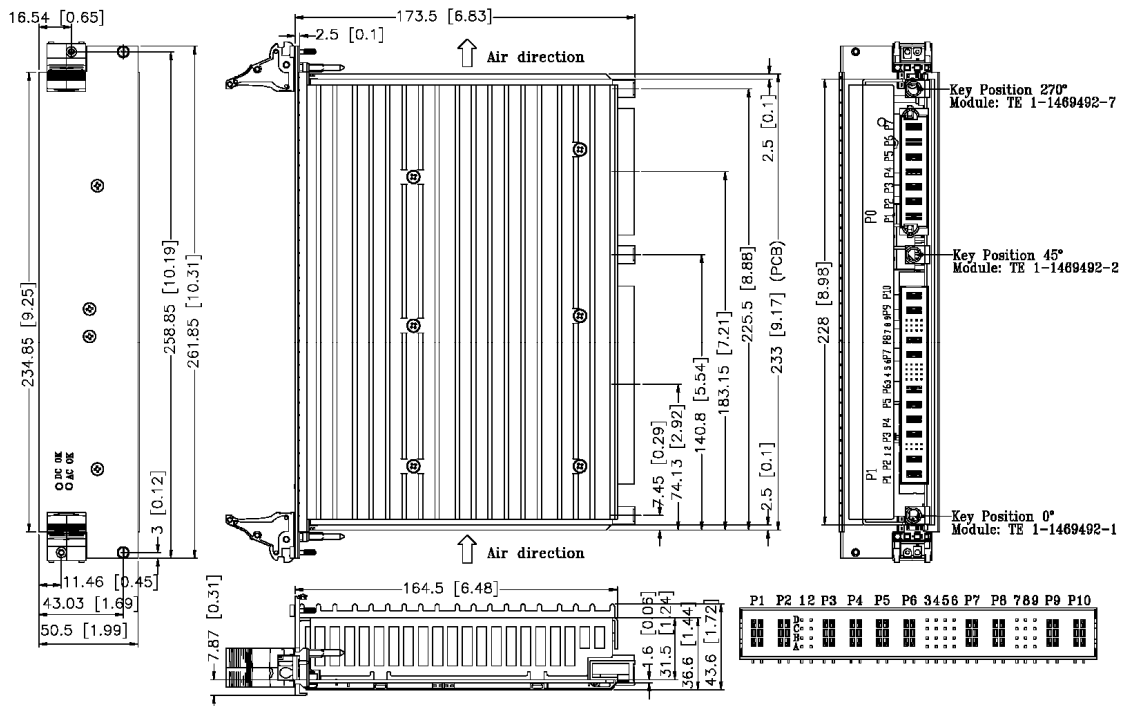
## QUAD OUTPUT

MODEL NO.	O/P Volt.	Volt.	Min.	Typ.	Max.	Peak.
<b>HAV1000-P120EDII-10HP</b>	<b>VO1</b>	<b>12V</b>	0A(1.0A)	55A	60A	63A
	<b>VO2</b>	<b>5V</b>	0A(1.0A)	25A	30A	30A
	<b>VO3</b>	<b>3.3V</b>	0A(1.0A)	20A	25A	25A
	<b>VO4</b>	<b>12V</b>	0A(0.1A)	1A	2A	2A
	<b>VO5</b>	<b>-12V</b>	0A(0.1A)	1A	2A	2A
<b>HAV1000-P120EDII-8HP</b>	<b>VO1</b>	<b>12V</b>	0A(1.0A)	55A	60A	63A
	<b>VO2</b>	<b>5V</b>	0A(1.0A)	25A	30A	30A
	<b>VO3</b>	<b>3.3V</b>	0A(1.0A)	20A	25A	25A
	<b>VO4</b>	<b>12V</b>	0A(0.1A)	1A	2A	2A
	<b>VO5</b>	<b>-12V</b>	0A(0.1A)	1A	2A	2A

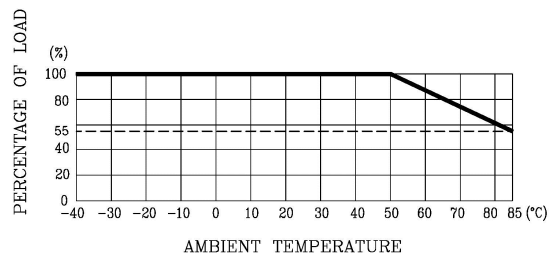
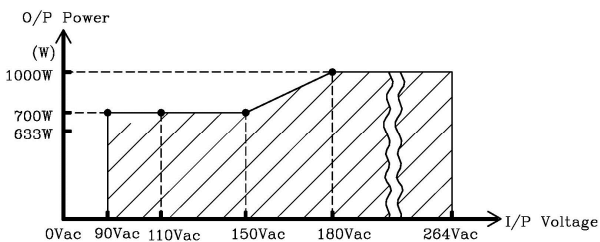
**Remark:** 1. For 10HP version, the Max. Output power is  $\leq 700W$  at 90-180Vac and 1000Watt at 180-264Vac.  
 For 8HP version, the Max. Output power is  $\leq 630W$  at 90-180Vac and 900Watt at 180-264Vac.  
 2. For parallel application, a certain minimum current of outputs is required.

## MECHANICAL DIMENSIONS: MM [INCHES]

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

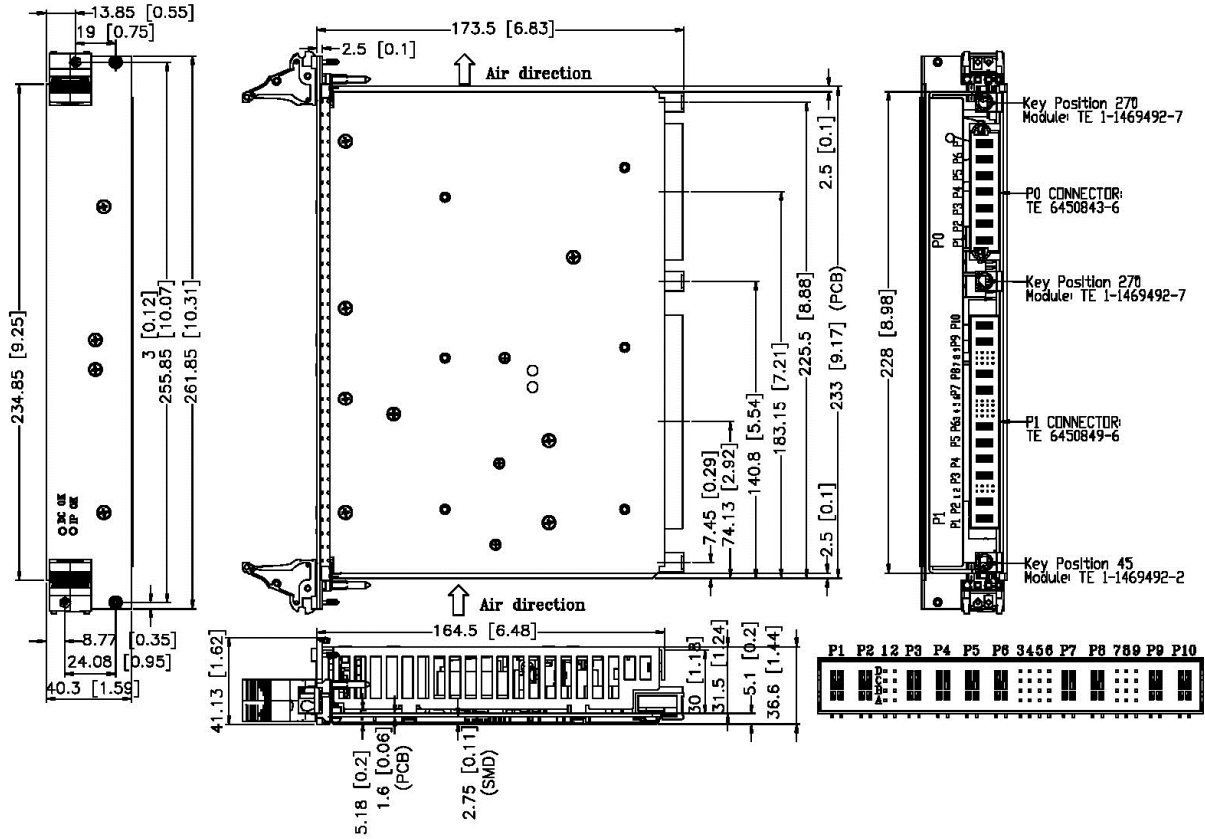


## DERATING CHART

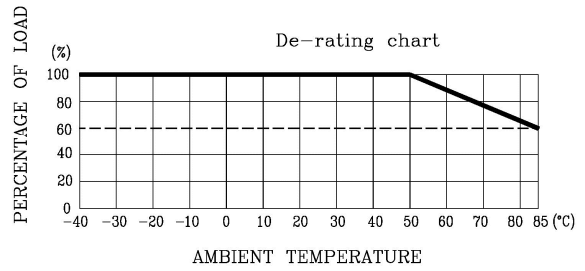
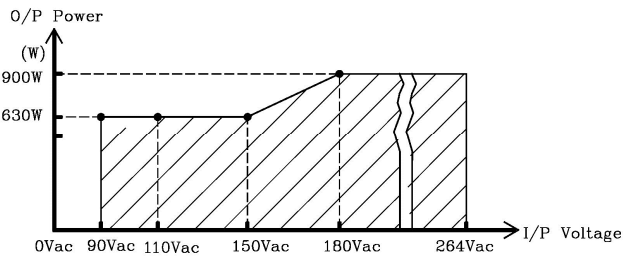


# MECHANICAL DIMENSIONS: MM [INCHES]

HAV1000-P120EDII-8HP (Pitch: 0.85)



## 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	EN	COM	COM	VO2 P03 +5V	VO2 P03 +5V	N/A	A0	SDA	SYS RST	COM	COM	COM	DEG.	I/P_ok	VO1 P02 +12V	VO1 P01 +12V
					C1	C2					C3	C4	C5	C6			C7	C8	C9		
					V3 +S	INH					N/A	A1	SCL	VO5 -12V			V2	V2	V2		
					B1	B2					B3	B4	B5	B6			CS	-S	+S		
					V3 -S	FAL					VO4 +12V	A2	N/A	N/A			N/A	N/A	N/A		
					A1	A2					A3	A4	A5	A6			A7	A8	A9		
					V3 CS	N/A					N/A	Alert	N/A	N/A			V1	V1	V1		
																	CS	-S	+S		