

# HiTRON

## UNIVERSAL INPUT HARMONIC CORRECTION AC-DC N+1 REDUNDANCY AND ACTIVE CURRENT SHARING ENCLOSURE BOX SINGLE & MULTI-OUTPUT 400 WATTS INTERNAL SWITCHING POWER SUPPLIES HVP400 SERIES



### FEATURES:

- ACCOMMODATE UNIVERSAL AC SOURCES
- MEET IEC 61000-3-2 HARMONIC CORRECTION
- THIRD-WIRE CURRENT SHARING
- OR-ING DIODES FOR N+1 REDUNDANCY
- HOT-SWAPPABLE
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET EN 55022 CLASS B
- CE MARKING COMPLIANCE

### SPECIFICATION

#### INPUT SPECIFICATION

**Input Voltage:** Typ. 90-264Vac with PFC.  
**Input Connector:** IEC320-3P & On/Off Switch.  
**Input Frequency:** 47-63Hz.  
**Inrush Current:**  $\leq 30A$  @230Vac by active inrush current limiter circuit.  
**Input Current:** 5.8A @ 115Vac, 2.6A @ 230Vac.  
**Dielectric Withstand:** Meet IEC 60950-1.  
**EMI:** Meet EN 55022 Class B.  
**Hold-up Time:** Typ. 7.2-12mS @ 115Vac and Typ. 35-42mS @ 230Vac.  
**Power OK Signal:** Available at VO1 & VO2.  
**Power Factor Correction:** Meet IEC 61000-3-2 Harmonic Correction. PF typ. 0.92-0.98.  
**Over Temp. Protection:** By thermostat.  
**Power Disable:** Pin P3-2/open=shut-down. Pin P3-2/short=Operation.  
**Power On LED Indicator:** Installed.  
**Earth Leakage:** Less than 0.5mA @230Vac.

#### OUTPUT SPECIFICATION

**Output Voltage:** See Ratings Chart.  
**Output Current:** See Ratings Chart.  
**Output Connector:** B-S/S-T/Molex MLX5045.  
**Output Wattage:** Typ. 350-400 watts.  
**Line Regulation:** Typ. 0.1%.  
**Load Regulation:** Main VO1 typ.  $\pm 1.0\%$ .  
 Aux.VO2 typ.  $\pm 1-2\%$  (Magnetic Amp.).  
 Aux.VO3 typ.  $\pm 3.0\%$  (Couple Common Choke).  
**Noise & Ripple:** Typ. 1.0% peak to peak.  
**OVP:** Built-in at main VO1.  
**Remote Sense:** Available at VO1 & VO2 rail.  
**Redundancy:** Available for N+1 redundancy operation for sharing the load.  
**Current Sharing:** 3rd-wire current sharing for VO1 & VO2 rails.  
**OR-ing Diode:** Installed in VO1,2,3.  
**Adjustability:** Available at VO1 & VO2.  
**Output LED Indicator:** Installed in VO1,2,3.  
**Overload Protection (OLP):** Fully protected against output overload and short circuit. Consult the factory for OLP setting.

#### GENERAL SPECIFICATION

**Efficiency:** Typ. 65-70%.  
**Switching Frequency:** Fixed frequency at 56K Hz.  
**Circuit Topology:** PWM Fixed Frequency Forward Circuit.  
**Transient Response:** Output voltage returns in less than 3mS following a 25% load change.  
**Safety Standard:** UL 60950-1/EN 60950-1 Class I.  
**Hot Swappable:** Available.  
**Power Density:** 2.95 Watts / Cubic Inch.  
**Operating Temperature:** 0 to +50°C under 35 cfm forced air cooling for full load.  
**Storage Temperature:** -20 to +85 °C.  
**Temperature Coefficient:** Typ. 0.04% /°C.  
**Cooling:** At least required 35 cfm forced cooling air flow for full load operation.  
**MTBF:** 180,000 hours at full load and 25°C by MIL-HDBK-217F spec.  
**Construction:** Enclosure box.

Note: Due to requests in market and advances in technology, specifications subject to change without notification.



In application

# OUTPUT VOLTAGE / CURRENT RATINGS CHART

## SINGLE OUTPUT

MODEL NO.	MAIN VO1 @★#≡⊙	
	Typ.	Volt.
HVP400-S033850	85.0A	3.3V
HVP400-S050700	70.0A	5.0V
HVP400-S120300	30.0A	12.0V
HVP400-S150250	25.0A	15.0V
HVP400-S240160	16.0A	24.0V
HVP400-S280140	14.0A	28.0V
HVP400-S360110	11.0A	36.0V
HVP400-S480085	8.5A	48.0V

## DUAL OUTPUT

MODEL NO.	MAIN VO1 @★#≡⊙		AUX. VO2 @▲◇#≡⊙	
	Typ.	Volt.	Typ.	Volt.
HVP400-D033E	70.0A	+3.3V	20.0A	5.0V
HVP400-D033I	70.0A	+3.3V	10.0A	12.0V
HVP400-D033K	70.0A	+3.3V	8.0A	15.0V
HVP400-D033M	70.0A	+3.3V	5.0A	24.0V
HVP400-D050I	55.0A	+5.0V	10.0A	12.0V
HVP400-D050K	55.0A	+5.0V	8.0A	15.0V
HVP400-D050M	55.0A	+5.0V	5.0A	24.0V

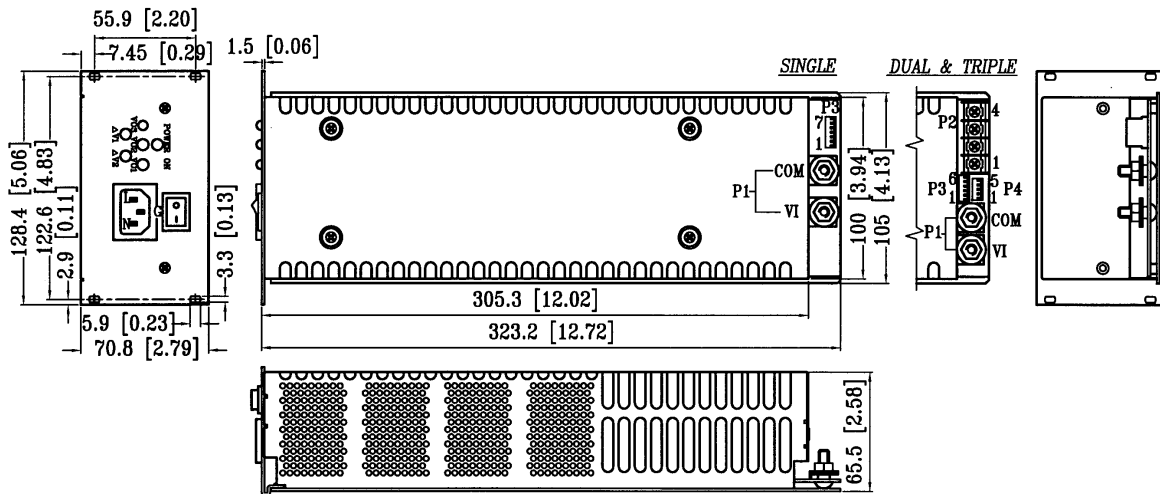
## TRIPLE OUTPUT

MODEL NO.	MAIN VO1 @★#≡⊙		AUX. VO2 @▲◇#≡⊙		AUX. VO3 ■◇◇	
	Typ.	Volt.	Typ.	Volt.	Typ.	Volt.
HVP400-T033EI	70.0A	+3.3V	25.0A	5.0V	3.0A	12.0V
HVP400-T033II	70.0A	+3.3V	10.0A	12.0V	3.0A	12.0V
HVP400-T050DI	50.0A	+5.0V	25.0A	3.3V	3.0A	12.0V
HVP400-T050II	50.0A	+5.0V	10.0A	12.0V	3.0A	12.0V
HVP400-T050IE	50.0A	+5.0V	10.0A	12.0V	3.0A	5.0V
HVP400-T050MI	50.0A	+5.0V	5.0A	24.0V	3.0A	12.0V
HVP400-T050KK	50.0A	+5.0V	8.0A	15.0V	3.0A	15.0V

Symbol: "★" OVP built-in. "@" Adjustable. "◇" Floating(or isolated) output. "#" Remote sensing.  
 "≡" Active current sharing. "▲" Installed with magnetic amplifier. "⊙" Installed with OR-ing diode.  
 "■" Couple common choke.

## MECHANICAL DIMENSIONS: MM [INCHES]

WEIGHT: 2,400.0g (85.0 Oz.)



## INPUT & OUTPUT CONNECTORS PIN ASSIGNMENT

ASSIGNMENT	AC INPUT			SINGLE O/P		DUAL & TRIPLE O/P						ASSORTED SIGNALS										
	AC-L	AC-N	AC-G	VOI	DC-COM	VOI	DC-COM	+VO2	-VO2	+VO3	-VO3	+VO1#	-VO1#	+VO1≡	-VO1≡	+VO2#	-VO2#	+VO2≡	-VO2≡	Power Good	Power Disable	DC COM
CNTR & PIN#	L	N	G	P1-V1	P1-COM	P1-V1	P1-COM	P2-4	P2-3	P2-2	P2-1	P3-4	P3-6	P3-3	P3-5	P4-4	P4-3	P4-2	P4-5	P4-1	P3-2	P3-1

Mating connector: P1 & P2 No-needed. P3 & P4 Molex MLX5051.