



# MicroPower Direct

Go Direct - **MicroPower Direct** - For Product, Performance and Price

## 400W AC-DC ACTIVE PFC MEDICAL POWER SUPPLY MPA400MD DUAL OUTPUT SERIES



U - Chassis Type: 8 x 5 x 1.6"  
Enclosed with built-in fan Type: 9 x 5 x 1.6"

### FEATURES:

- Medical Safety Approvals
- Power Factor Corrected to EN61000-3-2 class D
- 1U height size
- U-Chassis & Enclosed with built-in fan Mechanical Options
- High power density: 6.25 watts/cu inches
- Current Monitoring and Remote Voltage adjustment (Margin)

### PRODUCT SPECIFICATIONS:

**Input Voltage:** 90-264 Vac full range, 47~63 Hz.  
**Input Current:** 6.35A at 90 Vac full load.  
**Inrush Current:** 35A Max @ 230 Vac with full load and cold start.  
**PFC:** Active power factor correction meet EN61000-3-2 class D.  
**Fan Drive:** 12 VDC/400 mA is available to drive an external fan.  
**Transient Response:** Returns to within 1% in less than 2.5 mS for a 50% load change and the peak transient does not exceed 5%.  
**Overshoot:** Turn-on/off not exceed 5% over nominal voltage.  
**Efficiency:** 75% minimum (Measuring at 230V and full load).  
**Turn On Delay:** 1 second maximum at 120 Vac.  
**Hold Up Time:** 20 mS min. at 80% of full load.  
**Adjustability:** Output user adjustable  $\pm 5\%$  minimum.  
**Remote Sense:** Designated "RS+" and "RS-" on the CN3.  
**Remote On-Off:** Designated as "RSW" on the CN3, requires a low signal to inhibit output.  
**Power Supply On:** Green LED designated as "LED 1" on the PCB.  
**LED display:** Bi-color "LED1" emit green light on operating. Any protection occurred or RSW applied low signal will emit orange.  
**Power Good:** Designated as "PG" on the CN3 will go high 100-500mS after regulation and goes low 1mS before loss of regulation.  
**Input Circuit (primary):** Two protected fuse inserted, shall be blown only by an internal power fault.  
**Input Voltage Protection:** Power shut down under 80  $\pm 5$  Vac, and recovered over 86 Vac.  
**Over-Power Protection:** C.C. mode 110-140% and auto-recovery.  
**Over-Voltage Protection:** Latching down will occur when output voltage exceed 130% and recycle AC input to reset.  
**Over Temp. Protection:** Protected at ambient 85°C; Auto-recovery.



**Short Circuit Protection:** Trip without damage and auto-recovery.  
**Switching Frequency:** 30 kHz fixed frequency.  
**Operating Temperature:** 0°C to 70°C ambient, de-rating at 2.5% per degree from +50°C to +70°C.  
**Storage Temperature:** -20 to 85°C.  
**Operating Humidity:** 5% to 90% RH, Non-condensing.  
**Storage Humidity:** 5% to 95% RH, Non-condensing.  
**Vibration:** Frequency 5 to 50 Hz, acceleration  $\pm 7.35$  M/(SxS) on X, Y and Z Axis.  
**Emissions:** FCC Part 15, CISPR 22 class B, Conducted.  
**Safety Regulation:** Approved to UL60950-1/ 60601-1, CSA C22.2 No. 60950-1-03/ 601.1-M90, TUV EN60950-1/ 60601-1, CE Mark (LVD) EN61204-3/ 60601-1-2/ 61000-3-2,3 & IEC61000-4 Series Regulations and CB.  
**Leakage Current:** 300  $\mu$ A  
**HI-POT Test:** 1500 Vac between input line and chassis (2 mA DC cut off current); 4000 Vac between primary and secondary windings; Primary to core 1500 Vac. All for 3 sec.  
**Grounding Test:** Apply 40 A from ground pin to the earthed connection point. Maximum allowable resistance is 0.1ohm.  
**Warranty:** 2 years.  
**MTBF:** 100000 Hrs (according to MIL-HBK-217F) at 30° .  
**Cooling:** Enclosed Type: Self cooled by internal ball bearing fan. U-Chassis Type: Full rating under 22.95 CFM forced air flow.  
**Burn in:** 45 +/- 5 degree C for 1 hour @230Vac with full load.  
**Enclosure:** U-Chassis type - 8(L) x 5(W) x 1.6(H) inches. Enclosed type - 9(L) x 5(W) x 1.6(H) inches.  
**Weight:** U-Chassis Type – 1.3KG; Enclosed Type – 1.6KG;

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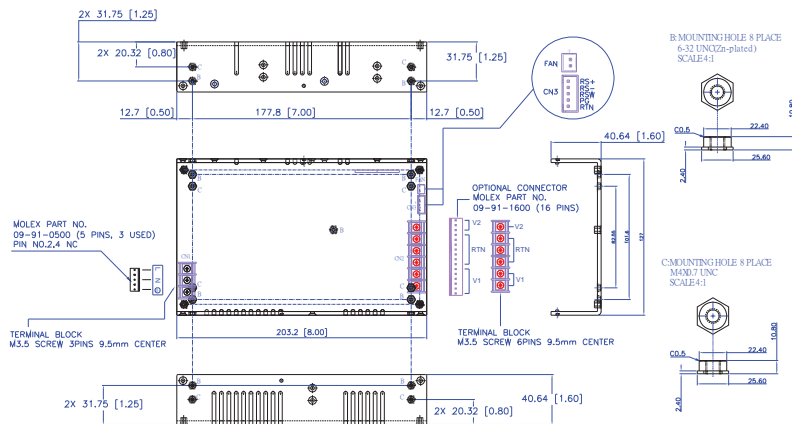
## OUTPUT VOLTAGE / CURRENT RATING CHART: Measured at output power connector.

Model Number	Output Voltage	Max. Output current		Total Regulation	Ripple & Noise
		Convection	22.95 CFM		
MPA400MDx-0312z	V1: +3.3V	30A	40A	± 5%	± 1%
	V2: +12V	16.7A	25A	± 5%	± 1%
MPA400MDx-0324z	V1: +3.3V	30A	40A	± 5%	± 1%
	V2: +24V	8.34A	12.5A	± 5%	± 1%
MPA400MDx-0512z	V1: +5V	30A	40A	± 5%	± 1%
	V2: +12V	16.7A	25A	± 5%	± 1%
MPA400MDx-0524z	V1: +5V	30A	40A	± 5%	± 1%
	V2: +24V	8.34A	12.5A	± 5%	± 1%
MPA400MDx-1224z	V1: +12V	16.7A	25A	± 5%	± 1%
	V2: +24V	8.33A	12.5A	± 5%	± 1%

- \* **MPA400MDx-00z:** x = E (Enclosed type) or U(U-Chassis type); z = Blank (terminal strips), M (Molex Connectors) or I (IEC Input Connector, Enclosed unit only).
- \* 10% minimum load is required for all outputs to maintain the ripple and regulation. Output is fully isolated.
- \* Total combined power of V1 and V2:  
400W Max. with 22.95 CFM forced air and 250W convection cooling for the **MPA400MDU-1224** and 400W for the **MPA400MDE-1224** by self cooling.  
300W Max. with 22.95 CFM forced air and 200W convection cooling for all other **MPA400MDU** models and 300W for all other **MPA400MDE** models by self cooling.

## OUTLINE DRAWING:

Overall Size for U-Chassis Type: 8(L) x 5(W) x 1.6(H)inches; Weight: Maximum weight is 1.3kg; Option: Top Cover.



### I/O Connector pin assignment:

#### Input Connector(CN1):

U-Chassis Type – mating Molex Part No. 09-91-0700 equivalent(7 pin, 5 used), or Howder Terminal block Part No. HD-121-3P.  
Enclosed type – IEC320 or equivalent Snap-in mounting type or DINKLE Terminal block Part No. DT-35-A02W-03 (3 pin)

**Output Connector (CN2):** Mating Molex 16 pins (09-91-1600), or Howder (HD-121-6P) M3.5, 8 pins terminal block, 9.5MM Center.

**Output Pin Assignment:** (See table below)

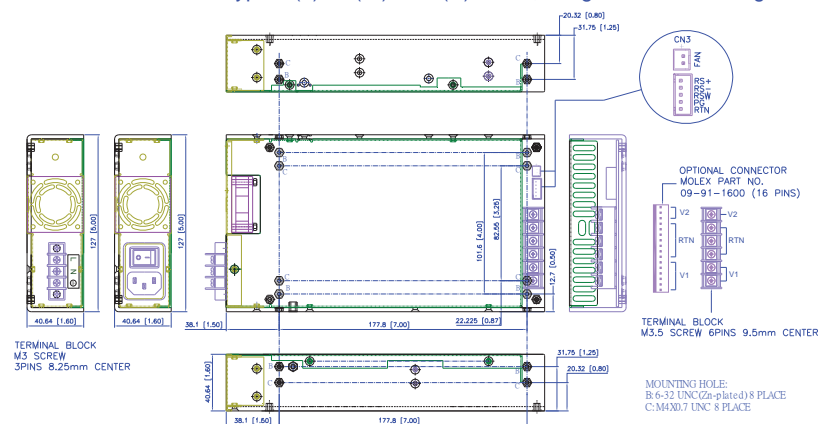
#### Logic signal connectors (CN3):

Mating JST XHP-8 or equivalent (CHYAO SHIUNN JS-2001-08) Mating Pins: JST SXH-002T-P0.6 for AWG 30 to 26.

**Fan driver connector (FAN):** 12 VDC / 400 mA is available to drive an external fan. Mating connector is a JST XHP-2 or Molex P/N 48-151-0210 ( 2 pins 0.98 pitch). Mating Pins: JST SXH-001T-P0.62T or Molex 48150 .

**Mounting Inserts:** 6-32, M4 4 Places individually with maximum penetration 0.15" on bottom side and 0.25" on both side.

Overall Size for Enclosed Type: 9(L) x 5(W) x 1.6(H)inches; Weight: Maximum weight is 1.6kg



	V1	V2	RTN
MOLEX	PINS 1-6	PINS 14-16	PINS 7-13
HOWDER	PINS 1-2	PINS 6	PINS 3-5



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