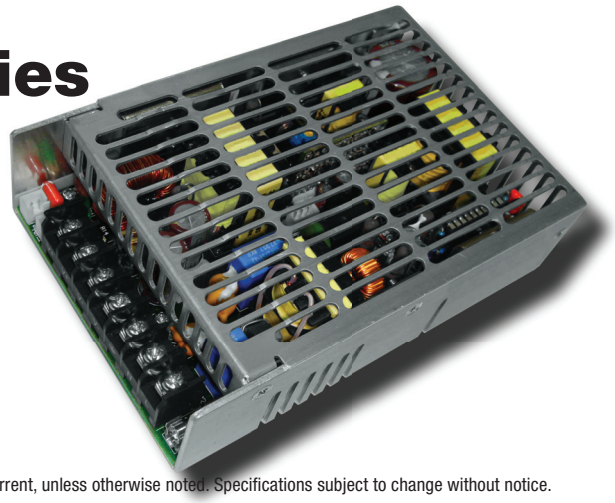
# MPU-300D Series

## Dual Output 300W Power Factor Corrected AC/DC Power Supplies



### Key Features:

- Small 1U 300W Supply
- Dual Outputs
- PFC to EN61000-3-2 “A”
- EN 60950 Approved (UL)
- CE Certified
- FCC Class B Emissions
- Auto Selectable AC Input
- Four Mechanical Options

PFC PASSIVE

RoHS

### Electrical Specifications

Specifications typical @ +25°C, nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

**Input**

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|
| Input Voltage Range | Autoranging | 90 | | 132 | VAC |
| | | 180 | | 264 | |
| Input Frequency | | 47 | | 63 | Hz |
| Input Current, Full Load | 100 - 120 VAC | | 8 | | A |
| | 200 - 240 VAC | | 4 | | |
| Inrush Current, Cold Start | 110 VAC | | | 35 | A |
| | 220 VAC | | | 70 | |
| Leakage Current, See Note 1 | 264 VAC | | 1.0 | | mA |
| Power Factor Correction | Meets EN61000-3-2 Class A | | | | |
| Input Protection | T8A/250V Fuse | | | | |

**Output**

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|
| Output Voltage Adjustment | V1 By Trim Pot | | ±5.0 | | % |
| Output Regulation, See Note 2 | See Model Selection Guide | | | | |
| Hold Time | 110 VAC, 80% Load | | 20 | | mSec |
| Ripple & Noise (20 MHz), See Note 3 | See Model Selection Guide | | | | |
| Overload Protection | Power Limit | 110 | | 140 | % |
| Over Voltage Protection | >130% of Rated Output Voltage. Recycle AC Input. | | | | |
| Over Temperature Protection | | | +110 | | °C |
| Temperature Coefficient | | | ±0.04 | | %/°C |
| Transient Recovery Time, See Note 4 | 50% Load Change | | 2.5 | | mS |
| Transient Response Deviation | | | 5 | | % |
| Overshoot/Undershoot | At Turn On/Off | | | 5.0 | % |
| Turn On Delay | 230 VAC | | | 1 | S |
| Output Short Circuit | Continuous With Autorecovery | | | | |

**General**

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|
| Isolation Voltage, See Note 5 | Input - Output | 3,000 | | | VAC |
| | Input - FG (Frame Ground) | 1,500 | | | |
| | Primary - Core | 1,500 | | | |
| Switching Frequency | Fixed | | 23 | | kHz |

**Interface Signals**

| | |
|---|---|
| Power Supply On | Green LED (LED1) on the PCB |
| Power Good Signal | PG on CN1. Goes TTL high 100 to 500 mS after regulation. Goes low at least 1 mS before the loss of regulation. Will sink 100 mA. |
| Fan Fail | FF on pin 3 of CN1. Open collector output rated for 15 VDC/5 mA sink current maximum. Goes high if a fan failure is detected |

**Environmental**

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|
| Operating Temperature Range | Ambient | 0 | +25 | +50 | °C |
| Output Derating | 2.5%/ °C from +50 °C to + 70 °C | | | | |
| Storage Temperature Range | | -20 | | +85 | °C |
| Cooling | See Model Selection Guide | | | | |
| Operating Humidity | RH, Non-condensing | | | 90 | % |

**Reliability Specifications**

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|
| MTBF | MIL HDBK 217F, 30°C, Gnd Benign | 100 | | | kHours |
| Safety Standards | UL 60950, EN 60950 | | | | |
| EMI Compliance | Compliance to EN 55022 (CISPR22) Class B; EN 61000-3-2,3 | | | | |
| EMS Immunity Compliance | EN 6100-4-2,3,4,5,6,11; EN 55024, CE Marked (LVD) | | | | |
| Vibration | Sinusoidal 5~50 Hz, Acceleration ±7.35 m/s$^2$ on X, Y & Z Axis | | | | |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## Model Selection Guide

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| Model Number | Output Voltage Factory | | Max. Output Current (Note 7) 18 CFM (U/w Air, E, F) | Max. Output Current (Note 7) Convection (U) | Regulation (Note 2) | Ripple & Noise (Note 3) | Efficiency (Note 7) |
|---|---|---|---|---|---|---|---|
| MPU-300D-0512yz | V1 | +5 VDC | 30.00A | 15.00A | ±5.0% | 1.0% | 75% |
| | V2 | +12 VDC | 16.67A | 10.42A | | | |
| MPU-300D-0524yz | V1 | +5 VDC | 30.00A | 15.00A | ±5.0% | 1.0% | 75% |
| | V2 | +24 VDC | 8.33A | 5.20A | | | |
| MPU-300D-0548yz | V1 | +5 VDC | 30.00A | 15.00A | ±5.0% | 1.0% | 75% |
| | V2 | +48 VDC | 4.16A | 2.60A | | | |
| MPU-300D-1224yz | V1 | +12 VDC | 16.67A | 12.50A | ±5.0% | 1.0% | 75% |
| | V2 | +24 VDC | 8.33A | 6.25A | | | |

**Notes:**

1. Models are available with leakage current specified as low as 500 µA (at 240 VAC) / 300 µA (at 120 VAC). Contact the factory for details.
2. Output regulation includes line & load.
3. Ripple & noise is measured from 10 Hz to 20 MHz. Measurement connection to the unit is made with a 0.1 µF ceramic capacitor & a 22 µF electrolytic capacitor connected in parallel.
4. Transient recovery is measured to within a 1% error band for a load step change of 50% to 100%.
5. Isolation specifications are production HI-Pot tested for 3 seconds.
6. The full output range (see table above) is covered in the safety agency certification. Standard models are factory set to the "Preset" voltage. This may be set to other levels within the range without affecting the agency certification. For more information, contact the factory.
7. The maximum continuous output power level, (combined for V1 & V2) is 300W (with 18 CFM) for the **MPU-300D-1224** & 250W for all other models. For convection cooling, the maximum continuous output power level (combined for V1 & V2) is 150W for the **MPU-300D-1224** & 125W for all other models. For more information, contact the factory.
8. A 10% minimum load is required to maintain regulation and ripple specifications.

Models with other output voltage levels are available (i.e. 15 VDC, 36 VDC, etc) Contact the factory for details at: **sales@micropowerdirect.com**

**MPU-300D-XXXXYZ**

- **Mechanical Configuration** U = U-Chassis
- **Outputs** D = Dual
- **Output Voltage Selection**
- **Connector Type** T = Terminal Block, A = Molex
- **Case Options (If Available)** C = Cover, E = End Fan, F = Top Fan

## Connections

### Input Connector (CN2):

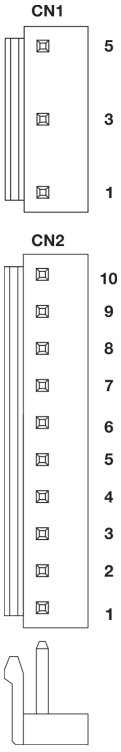
- JST Crimp Style Connector
  JST Mating Part No:
  BP5P-VH or equivalent
  (two pins removed)

| Pin | JST |
|---|---|
| 1 | Field Ground |
| 3 | AC-Neutral |
| 5 | AC-Line |

### Output Connector (CN1):

- JST Crimp Style Connector
  JST Mating Part No: B10P-VH

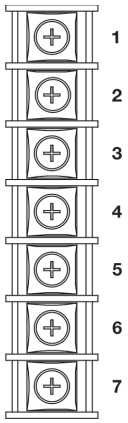
| Pin | JST |
|---|---|
| 1 | $V1_{OUT}$ |
| 2 | $V1_{OUT}$ |
| 3 | $V1_{OUT}$ |
| 4 | Common |
| 5 | Common |
| 6 | Common |
| 7 | Common |
| 8 | Common |
| 9 | $V2_{OUT}$ |
| 10 | $V2_{OUT}$ |




### Input/Output Connector (CN1):

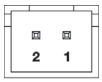
- Terminal Block:
  Howder No. HB-95-7P
  7 pins, M3.5 Screw, 9.5 mm Centers

| Pin | T Block |
|---|---|
| 1 | AC-Line |
| 2 | AC-Neutral |
| 3 | Field Ground |
| 4 | $V2_{OUT}$ |
| 5 | Common |
| 6 | Common |
| 7 | $V1_{OUT}$ |

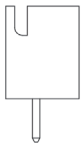



### Fan Driver Connector (CN3):

- JST Crimp Style Connector
  JSTMating Part No: XHP-2
  or equivalent

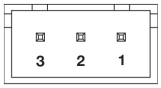



| Pin | Function |
|---|---|
| 1 | Minus |
| 2 | Plus |

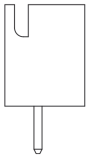


### Logic Signal Connector (CN4):

- JST Crimp Style Connector
  JST Mating Part No: XHP-3




| Pin | Function |
|---|---|
| 1 | Power Good |
| 2 | Common |
| 3 | Fan Fail |



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## Mechanical Dimensions: U-Chassis

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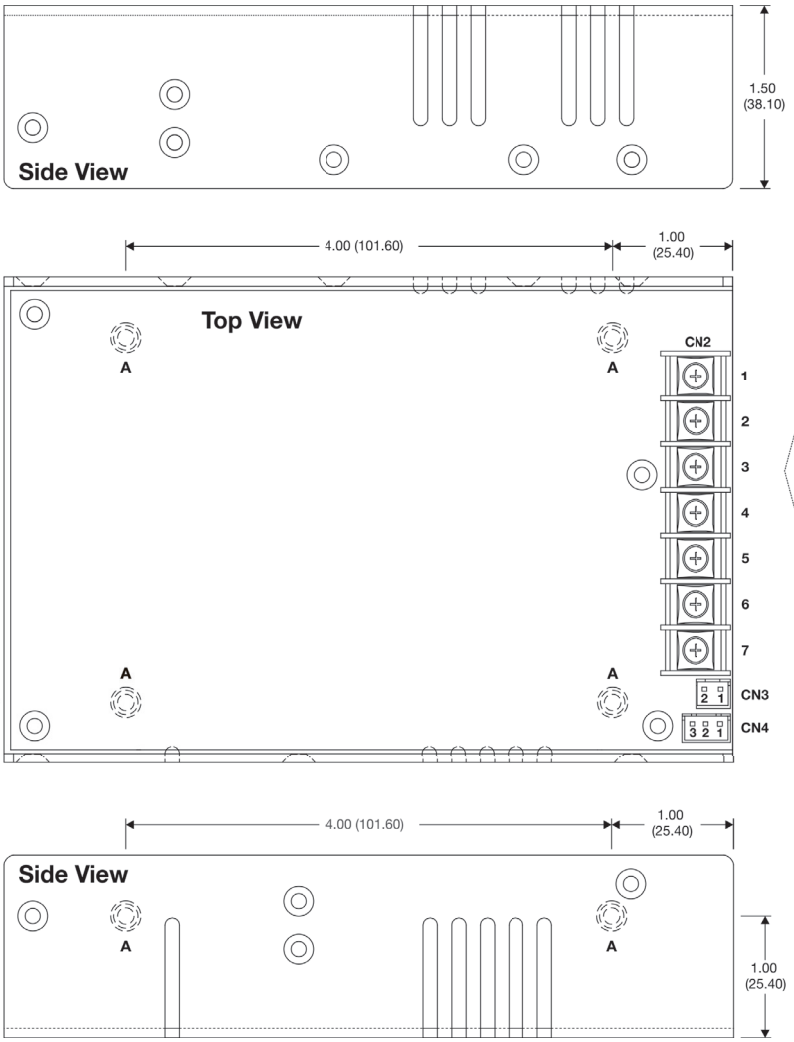
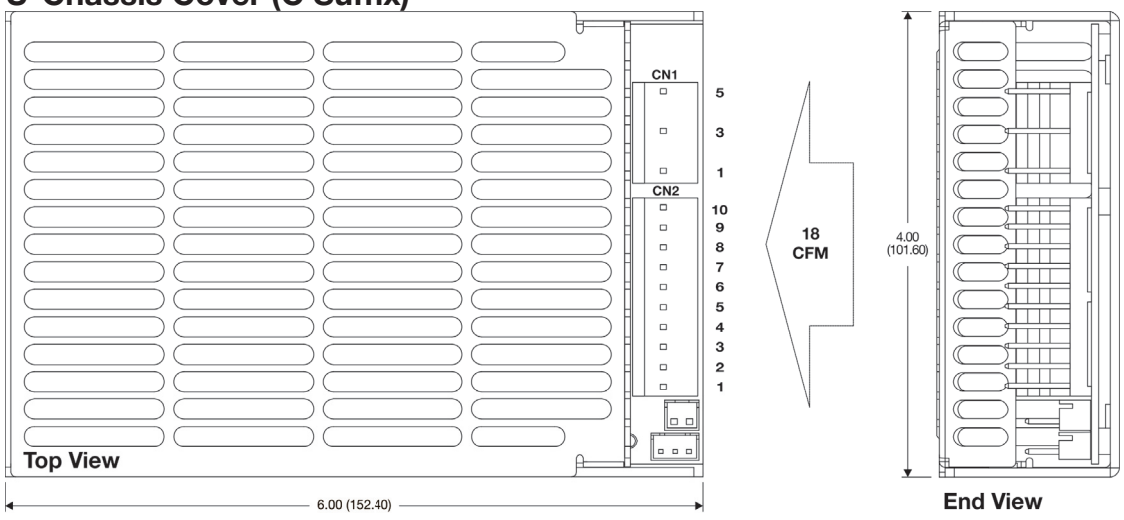
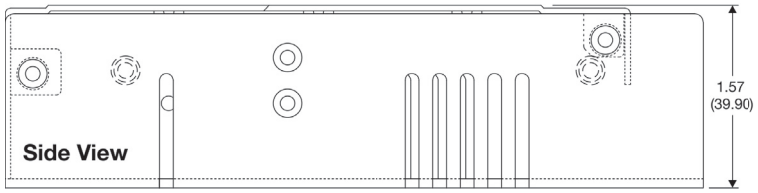



## U-Chassis Cover (C Suffix)

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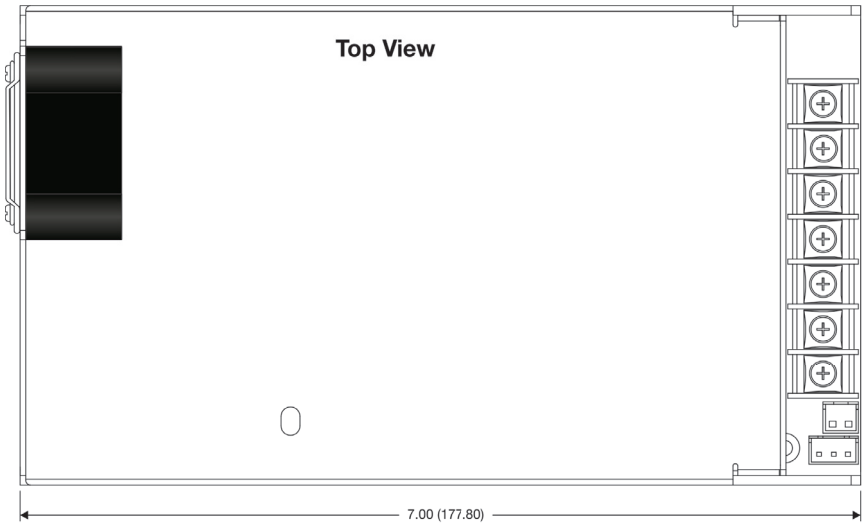
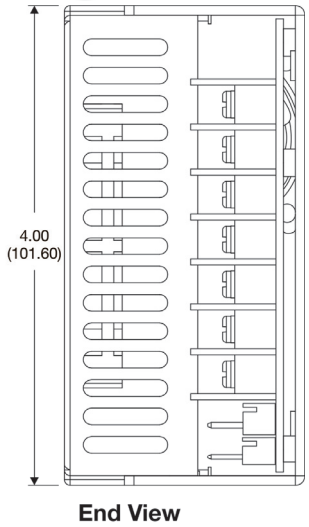
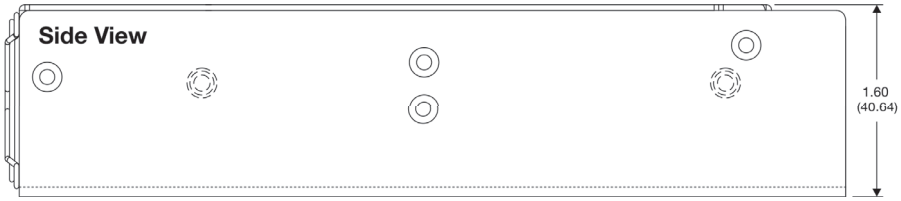
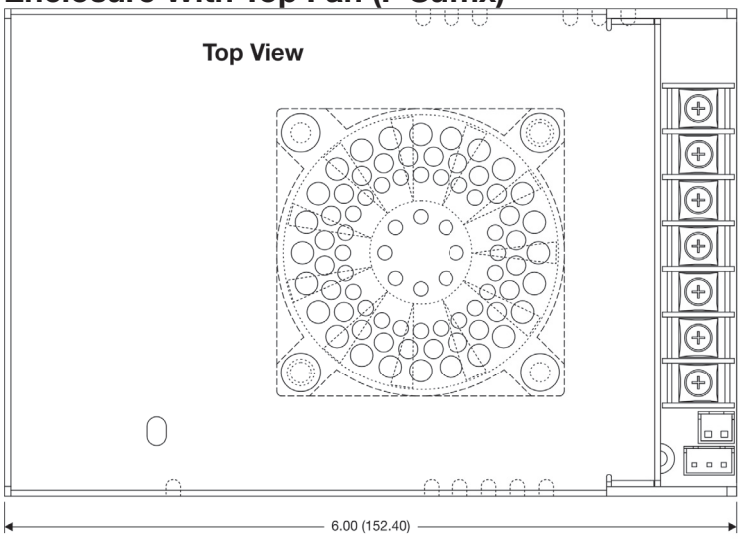
## Enclosure With End Fan (E Suffix)

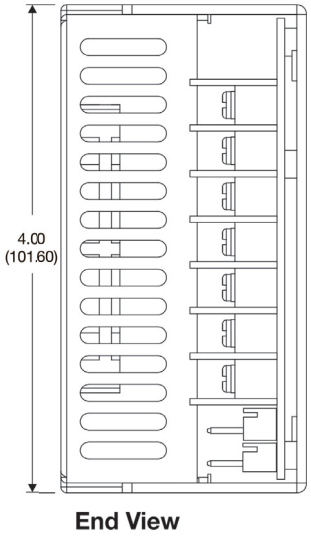


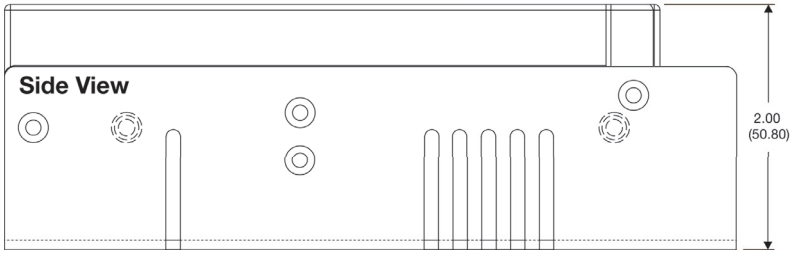




## Enclosure With Top Fan (F Suffix)

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