

MPU-60S Series



Single Output, 60W Compact, U-Channel AC/DC Power Supplies

Key Features:

- 60W Output Power
- Universal 90-265 AC Input
- EN 60950 Approved
- Low Leakage Current
- Six Single Output Models
- Meets EN 55022 B
- >130 kHour MTBF
- “Finger Safe” Cover Avail.
- DIN Rail Kit Available



MicroPower Direct

292 Page Street
Suite D
Stoughton, MA 02072
USA

T: (781) 344-8226
F: (781) 344-8481
E: sales@micropowerdirect.com
W: www.micropowerdirect.com



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	Universal	90		265	VAC	
		120		370	VDC	
Input Frequency		47		63	Hz	
Input Filter	Meets EN 55022 Class B; FCC Class B					
Input Current	See Model Selection Guide					
Inrush Current	Cold Start, 115 VAC			30.0	A Pk	
	Cold Start, 230 VAC			50.0		
Safety Ground Leakage Current				0.5	mA	
Output						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Output Voltage/Current	See Model Selection Guide					
Output Voltage Tolerance			±2.0		%	
Line Regulation	Vin = Min to Max		±1.0		%	
Load Regulation	Iout = 5% to 100%		±1.0		%	
Ripple & Noise (20 MHz)	See Note 1					
Hold-Up Time	115 VAC	10			mSec	
Temperature Coefficient			±0.02		%/°C	
Over Voltage Protection	See Model Selection Guide					
Overload Protection	See Note 2	125		150	%	
Short Circuit Protection	Continuous (Autorecovery)					
General						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Isolation Voltage	Input to Output	3,000			VAC	
		4,242			VDC	
	Input to Ground	1,500			VAC	
		500			VAC	
Switching Frequency	Fixed		100		kHz	
EMI Characteristics						
Parameter	Standard	Criteria	Level			
Radiated Emissions	EN 55022		B			
Conducted Emissions	EN 55022		B			
Noise Immunity (EMS)	EN 55024					
Surge	EN 61000-4-4				±1 kV (L-N)	
					±2 kV (L-FG & N-FG)	
Environmental						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Operating Temperature Range	Ambient	-40	+25	+70	°C	
Storage Temperature Range		-50		+84	°C	
Cooling	Free Air Convection (See Derating Curve)					
Humidity	RH, Non-condensing			95	%	
Physical						
Size	See Mechanical Drawings					
Weight	U-Channel				8.46 Oz (0.240 kg)	
	With Cover				9.17 Oz (0.260 kg)	
Reliability Specifications						
Parameter	Conditions	Min.	Typ.	Max.	Units	
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	130			kHours	
Safety Standards	UL 1950, EN 60950					
Vibration	10~500 Hz, 5G 10 min/1 Cycle. Period of 60 min each along X, Y & Z Axis					

www.micropowerdirect.com

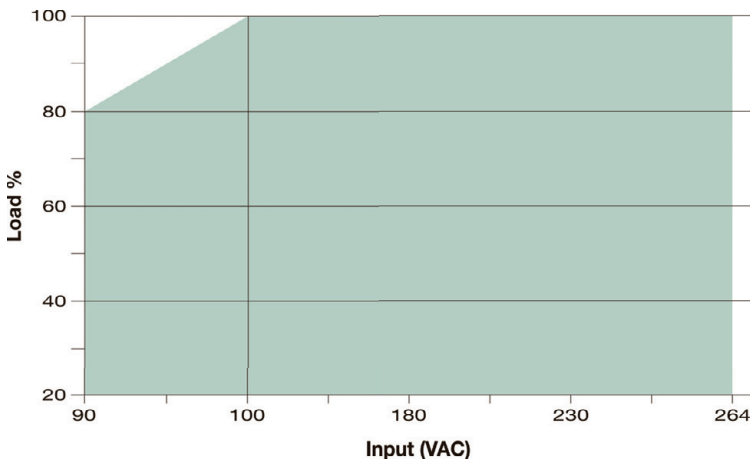
Model Number	Input		Output			Max Output Power (W)	Over Voltage Protection (VDC)	Efficiency (% Typ)
	Current (A)		Voltage (VDC)	Current (A)				
	115 VAC	230 VAC		Rated	% Min.			
MPU-60S-05T(C)	2.0	1.0	5.0	10.00	1.00	50	6.2	82
MPU-60S-09T(C)	2.0	1.0	9.0	6.66	1.00	60	10.0	84
MPU-60S-12T(C)	2.0	1.0	12.0	5.00	1.00	60	15.0	86
MPU-60S-15T(C)	2.0	1.0	15.0	4.00	1.00	60	18.0	86
MPU-60S-24T(C)	2.0	1.0	24.0	2.50	1.00	60	28.0	86
MPU-60S-48T(C)	2.0	1.0	48.0	1.25	1.00	60	57.0	86

For U-channel and enclosed models, see MPU-60S Datasheet

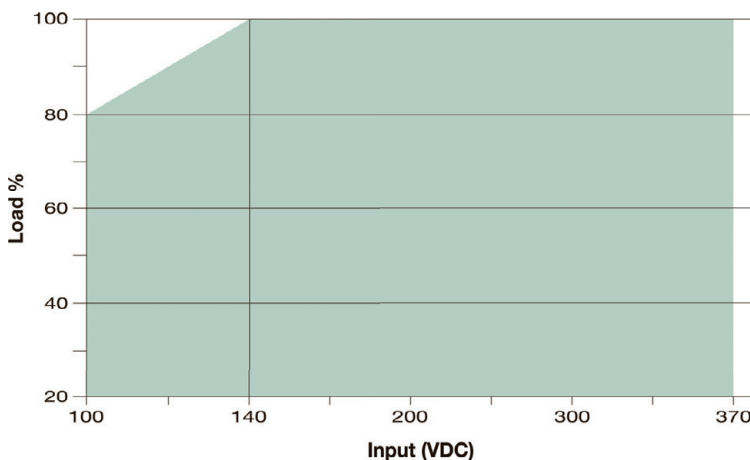
Notes:

1. Output ripple is specified as a maximum of $<0.2\%V_{OUT} + 40\text{ mV (Vp-p)}$. Output noise is specified as a maximum of $<0.5\%V_{OUT} + 40\text{ mV (Vp-p)}$. Ripple and noise is measured at 20 MHz bandwidth using a $0.1\ \mu\text{F}$ and $47\ \mu\text{F}$ capacitor connected in parallel as close to the power supply terminals as possible.
2. Overload protection is provided by a "hiccup mode" circuit. The unit recovers automatically when the fault condition is removed.
3. Over voltage protection is provided by a zener diode clamp.
4. These units will operate at no load without damage, however, they may not meet all specifications. MPD recommends that a minimum 1% load always be used.
5. Each unit includes an input fuse. Since this fuse is not field replaceable, it is recommended that an external fuse be used on the input of the power supply for protection. For these units, a 3.15A/250V slow blow fuse is recommended.

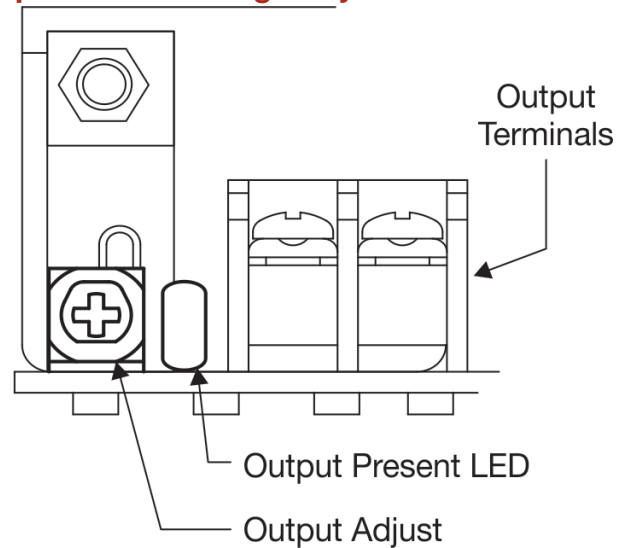
Output Load vs Input Voltage: AC Input



Output Load vs Input Voltage: DC Input



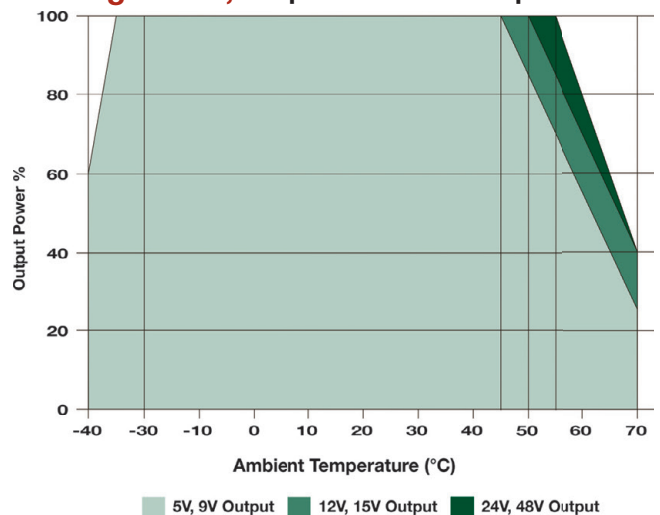
Output LED & Voltage Adjust



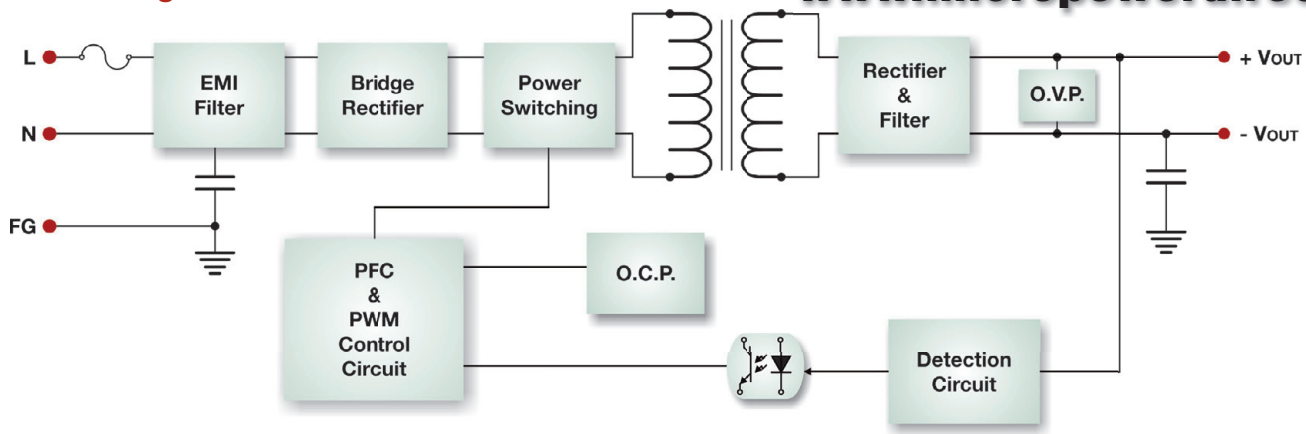
Output LED: An LED lamp next to the output connector. The LED is on (Green) during normal operation. If the LED is not lit, it indicates a problem with the supply.

Output Adjust: The output voltage of the MPU-60S can be adjusted by $\pm 10\%$ by using the trim pot located to the side (and just behind) of the output connector. Great care should be taken not to use excessive force when making any adjustment. Too much force may damage the wiper arm of the pot, rendering the power supply inoperable.

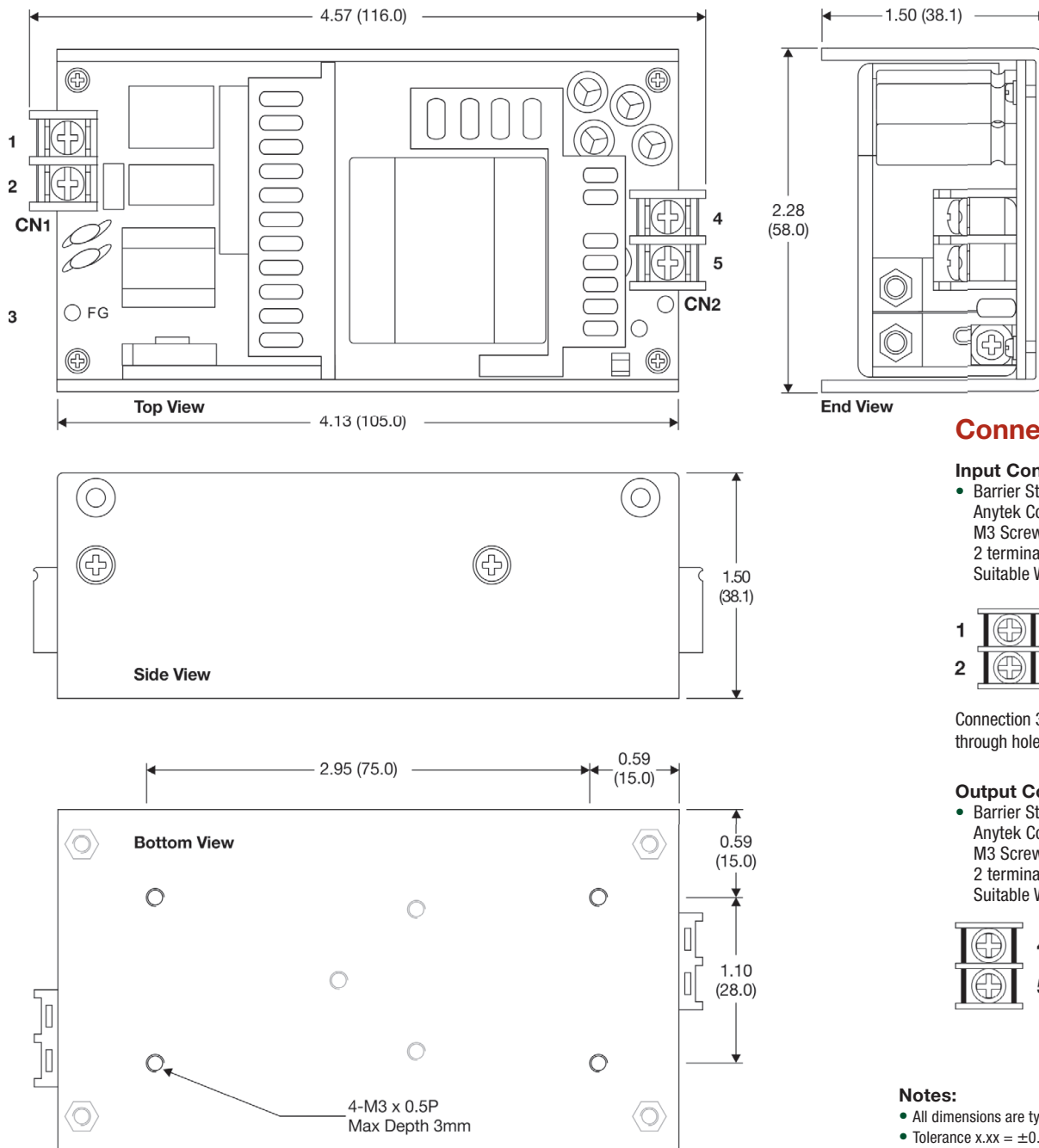
Derating Curve, Output Power vs Temperature



Block Diagram



Mechanical Dimensions



Connections

Input Connector (CN1):

- Barrier Strip Terminal Block: Anytek Connector: DG28S-B-02P
M3 Screws
2 terminals, 7.62 mm Centers
Suitable Wire = 22 - 14 AWG

Pin	Function
1	AC-Neutral
2	AC-Line

Connection 3 (Field Ground) is a plated through hole on the PC Board.

Output Connector (CN2):

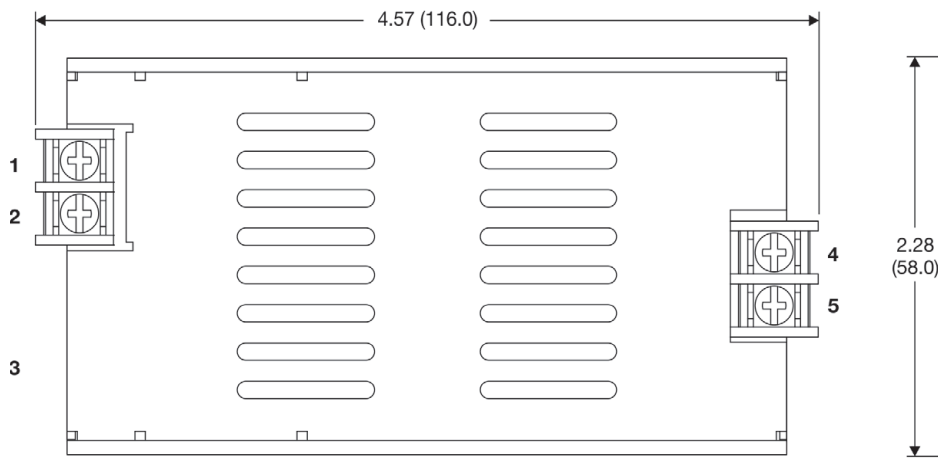
- Barrier Strip Terminal Block: Anytek Connector: DG28S-B-02P
M3 Screws
2 terminals, 7.62 mm Centers
Suitable Wire = 22 - 14 AWG

Pin	Function
4	+VOUT
5	-VOUT

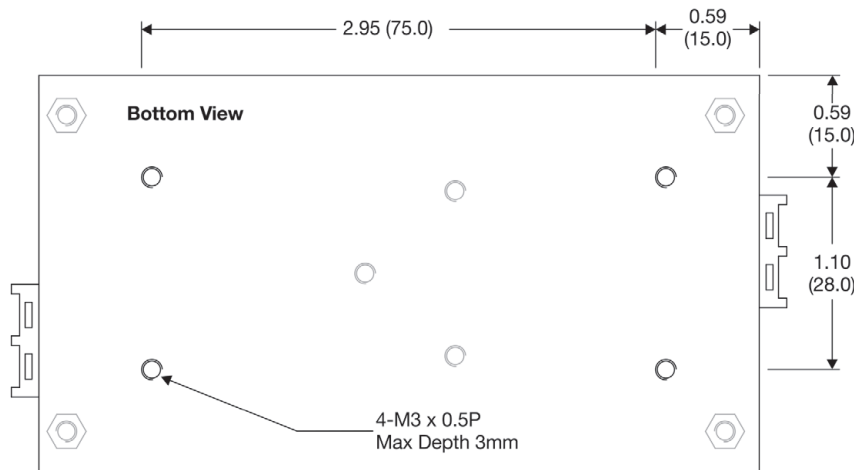
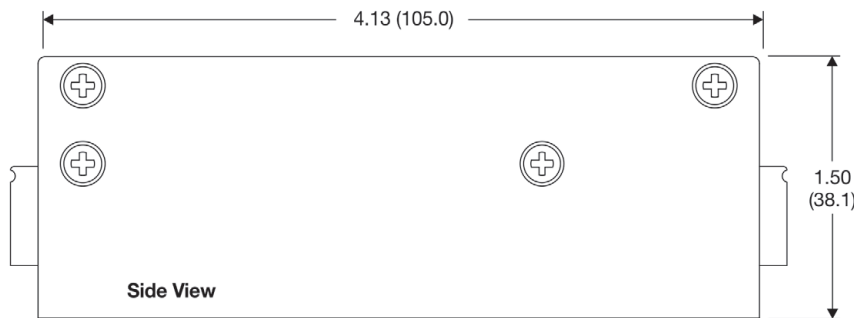
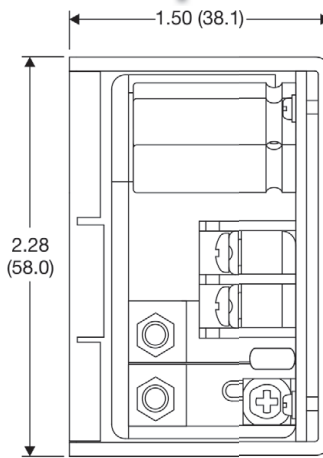
Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ± 0.02 (± 0.50)

Mechanical Dimensions



www.micropowerdirect.com



Connections

Input Connector (CN1):

- Barrier Strip Terminal Block: Anytek Connector: DG28S-B-02P
M3 Screws
2 terminals, 7.62 mm Centers
Suitable Wire = 22 - 14 AWG

Pin	Function
1	AC-Neutral
2	AC-Line

Connection 3 (Field Ground) is a plated through hole on the PC Board.

Output Connector (CN2):

- Barrier Strip Terminal Block: Anytek Connector: DG28S-B-02P
M3 Screws
2 terminals, 7.62 mm Centers
Suitable Wire = 22 - 14 AWG

Pin	Function
4	+V _{OUT}
5	-V _{OUT}

Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.02 (±0.50)

Related products that may be of interest:

MPO-60S



- 60W Output Power
- Universal 90 - 264 VAC Input
- 4" x 2" Open Frame Construction
- EN 60950 Approved

MPO-120S



- 180W Output Power
- Universal 90 - 264 VAC Input
- Compact Open Frame
- EN 60950 Approved

MPU-120S



- 180W Output Power
- Compact U-Channel Construction
- Cover & DIN Rail kit available
- EN 60950 Approved

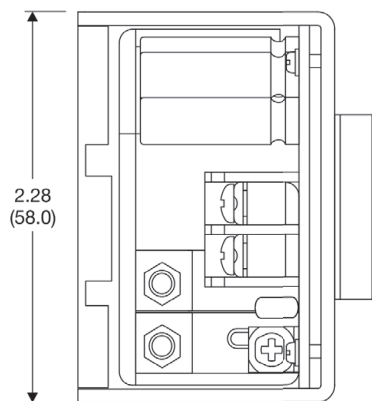
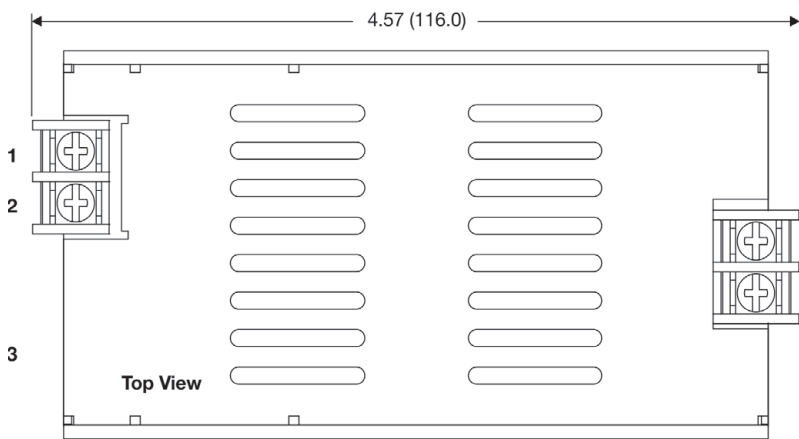
MPU-240S



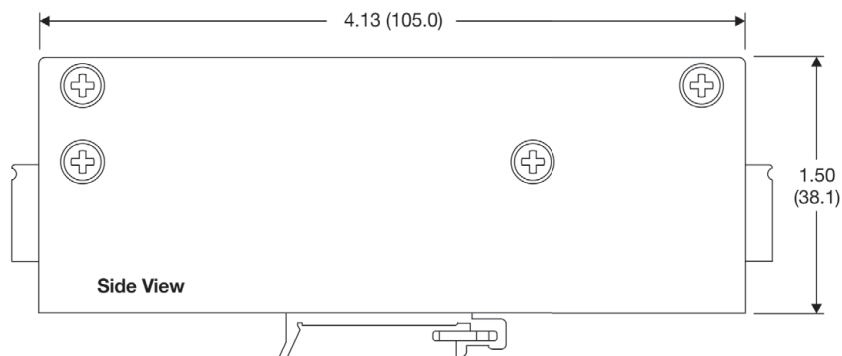
- 240W Output Power
- EN 60950 Approved
- Compact U-Channel Construction
- Cover & DIN Rail Kit Available

OPTIONAL DIN Rail Mounting Kit

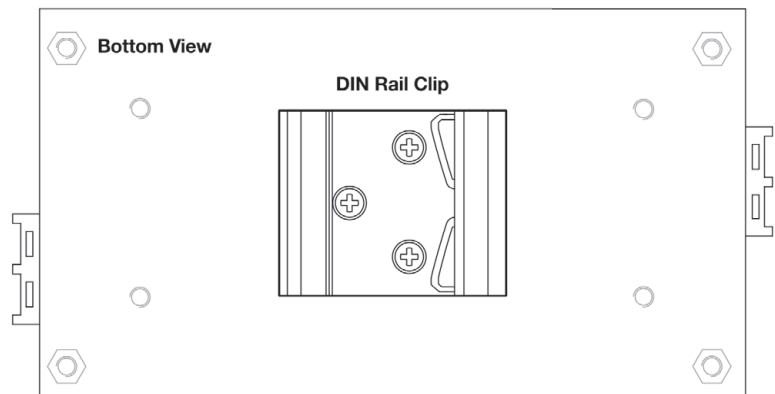
www.micropowerdirect.com



End View



Side View



Bottom View

DIN Rail Clip

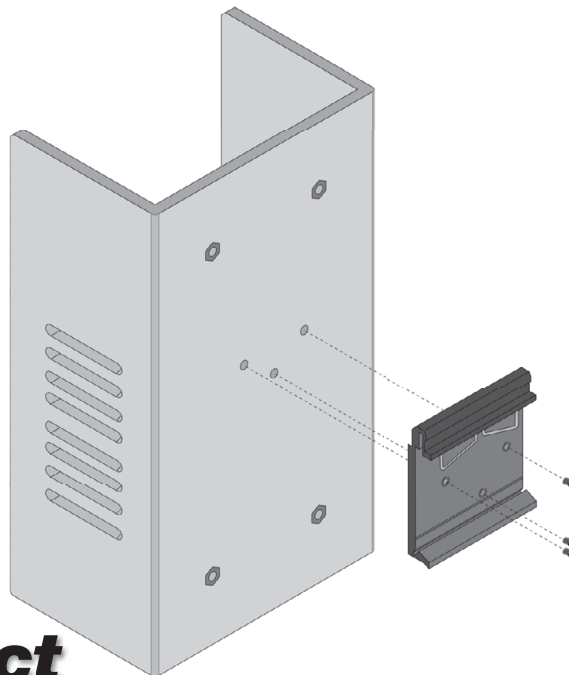


DIN Rail Mounting Kit

A DIN Rail Mounting kit is available from **MPD**, for use with **MPU-60S "C"** models. The kit contains a mounting clip and three screws.

The clip is attached to the bottom of the unit using the three threaded holes marked "A" on the mechanical diagrams. Screws should not be inserted over 2 mm into the threaded inserts,

To order the kit, ask for part no: **MPU-60S-DRK**



MPD **MicroPower Direct**
We Power Your Success - For Less!