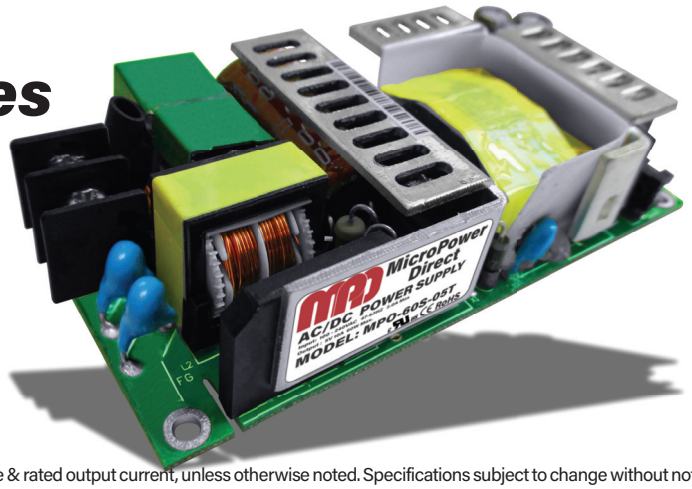
MPO-60S Series

Single Output, 60W Compact, Open Frame AC/DC Power Supplies



Key Features:

- 60W Output Power
- Universal 90-264 AC Input
- EN 60950 Approved
- Low Leakage Current
- Six Single Output Models
- Meets EN 55022 B
- >130 kHour MTBF
- Available In U-Channel

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		264	VAC
		120		370	VDC
Input Frequency		47		63	Hz
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				0.50	mA

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage/Current	See Model Selection Guide				
Output Voltage Accuracy			±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 Note 2	See Model Selection Guide				
Overload Protection	See Note 3	125		180	%
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
	Output to Ground	500			
Switching Frequency			65		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		+85	°C
Cooling	Free Air Convection (See Derating Curve)				
Humidity	RH, Non-condensing			95	%

Physical

Size	See Mechanical Drawing (Page 3)
Weight	5.29 Oz (0.150 kg)

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	130			kHours
Safety Standards	UL/cUL 60950 recognition (UL certificate)				
Vibration	10~500 Hz, 2G 10 min/1 Cycle. Period of 60 min each along X, Y &Z Axis				

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Model Selection Guide

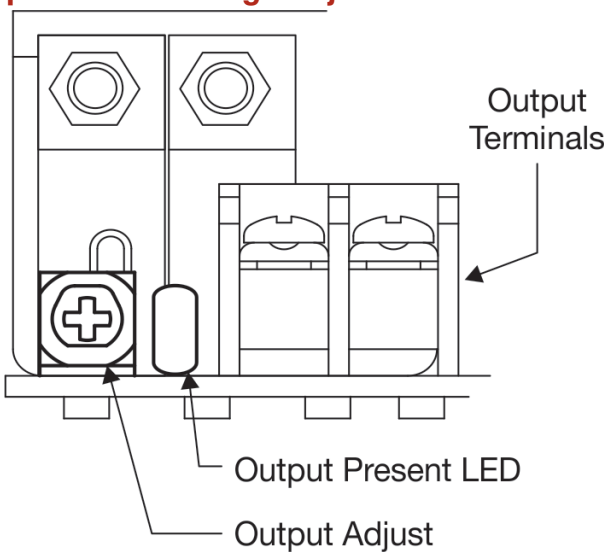
Model Number	Input		Output			Max Output Power (W)	Over Voltage Protection (VDC)	Efficiency (%, Typ)
	Current (A)		Voltage (VDC)	Current (A)				
	115 VAC	230 VAC		Rated	% Min.			
MPO-60S-05T	2.0	1.0	5.0	10.00	1.00	50	6.2	82
MPO-60S-09T	2.0	1.0	9.0	6.66	1.00	60	12.0	84
MPO-60S-12T	2.0	1.0	12.0	5.00	1.00	60	15.0	86
MPO-60S-15T	2.0	1.0	15.0	4.00	1.00	60	18.0	86
MPO-60S-24T	2.0	1.0	24.0	2.50	1.00	60	30.0	86
MPO-60S-48T	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 %VOUT + 40 mV (Vp-p). Output noise is specified as a maximum of <0.5 %VOUT + 50 mV (Vp-p). Ripple and noise is measured at 20 MHz bandwidth using a 0.1 μF and 47 μF capacitor connected in parallel as close to the power supply terminals as possible.
2. Over voltage protection is provided by a zener diode clamp. Limits are given in the Model Selection Guide above.
3. Overload protection is provided by a "hiccup mode" circuit. The unit recovers automatically when the fault condition is removed.
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 3.0A/250V slow blow fuse is recommended.

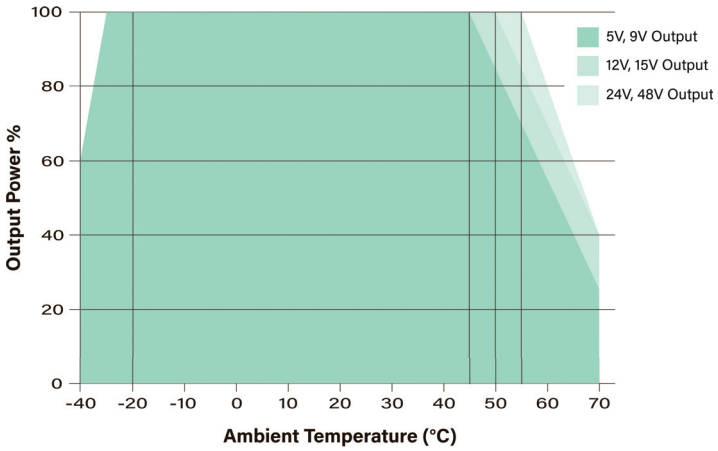
Output LED & Voltage Adjust



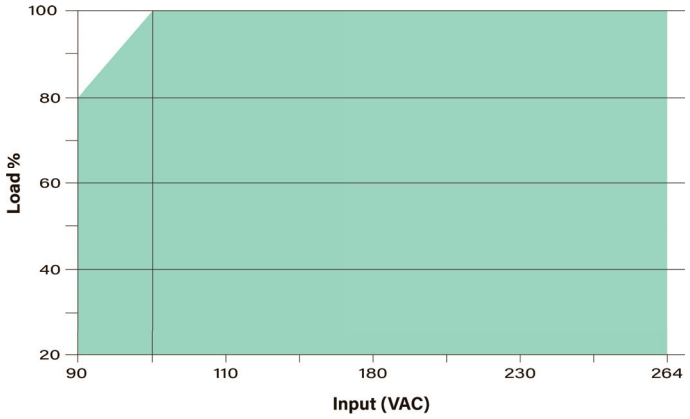
Output LED: An LED lamp next to the output connector. The LED is on (Green) during normal operation. If the LED is not lit, it indicates a problem with the supply.

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

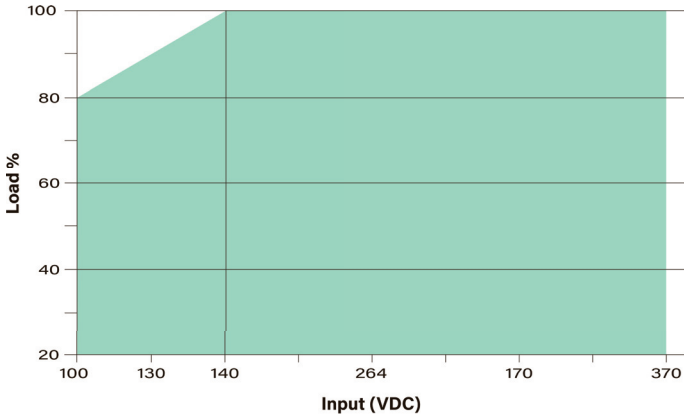
Derating Curve



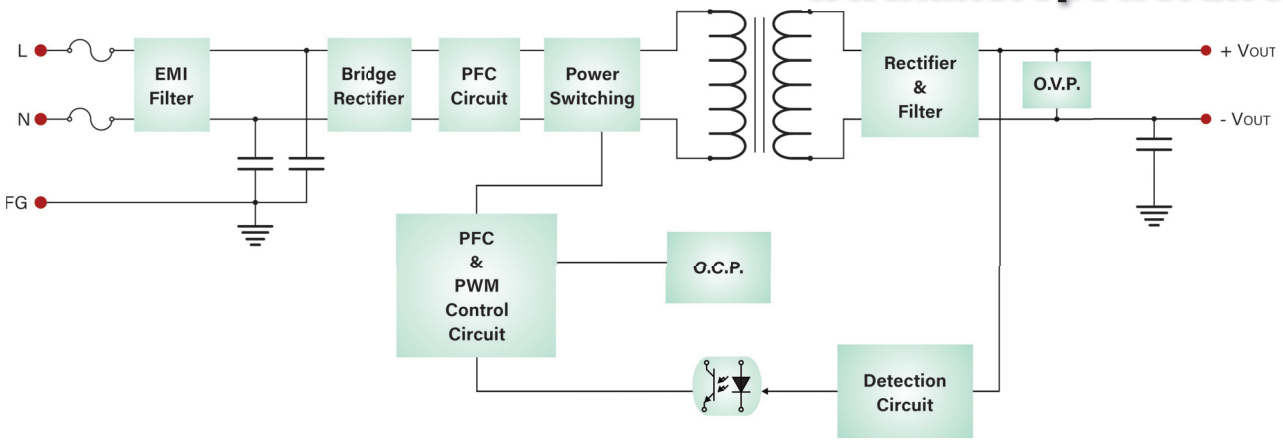
Load vs Input Voltage (AC)



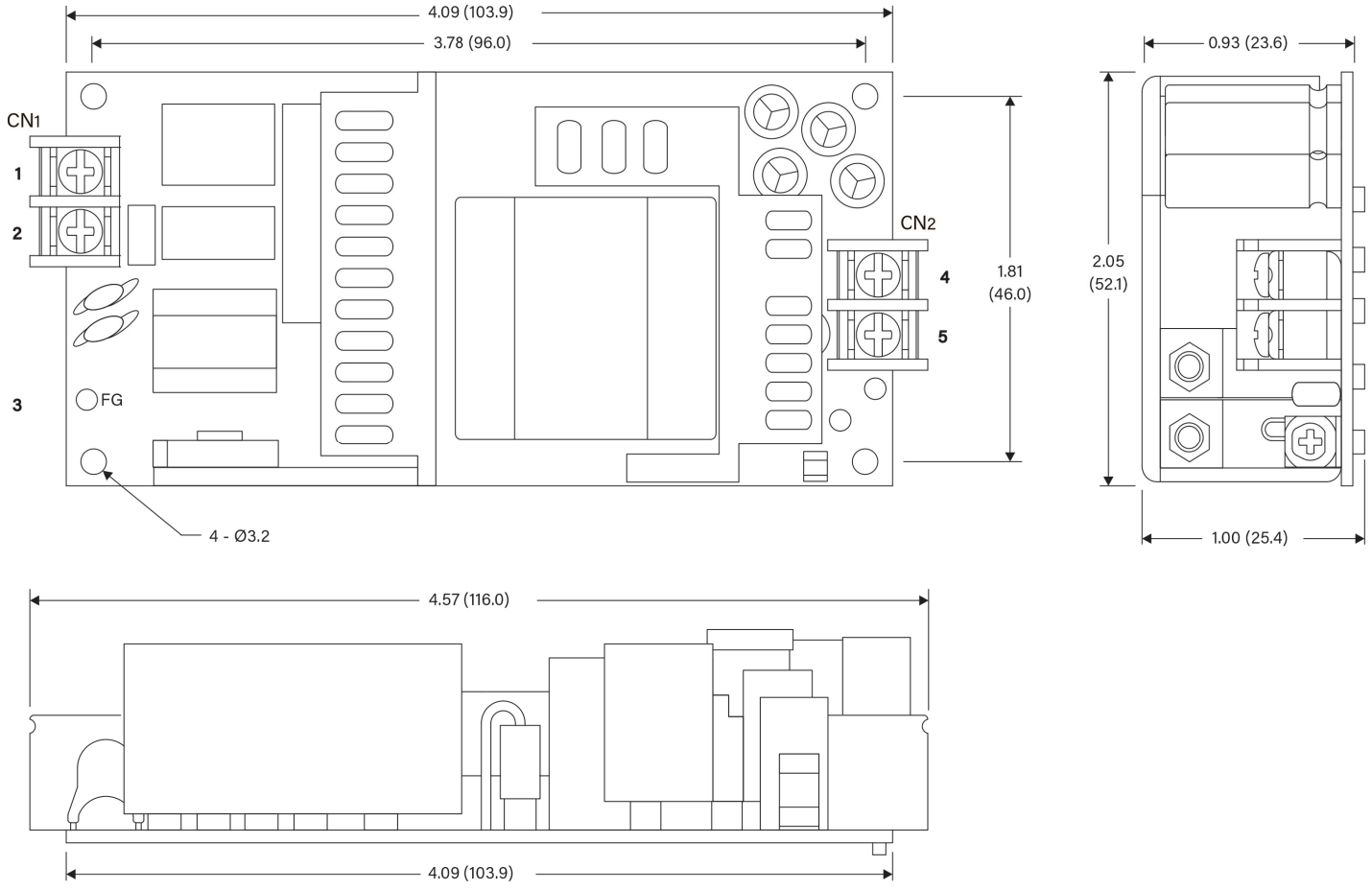
Load vs Input Voltage (DC)



Block Diagram



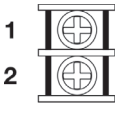
Mechanical Dimensions



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

Connections

Input Connector (CN1):
- Terminal Block:
  Dinkle DT-2C-B07W-02: M3 Screws
  2 terminals, 7.62 mm Centers
  Suitable Wire = 22 - 14 AWG



Term.	Function
1	AC-Neutral
2	AC-Line
3	Field Grnd

Output Connector (CN2):
- Terminal Block:
  Dinkle DT-2C-B07W-02: M3 Screws
  2 terminals, 7.62 mm Centers
  Suitable Wire = 22 - 14 AWG

Term.	Function
4	+VOUT
5	-VOUT

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

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