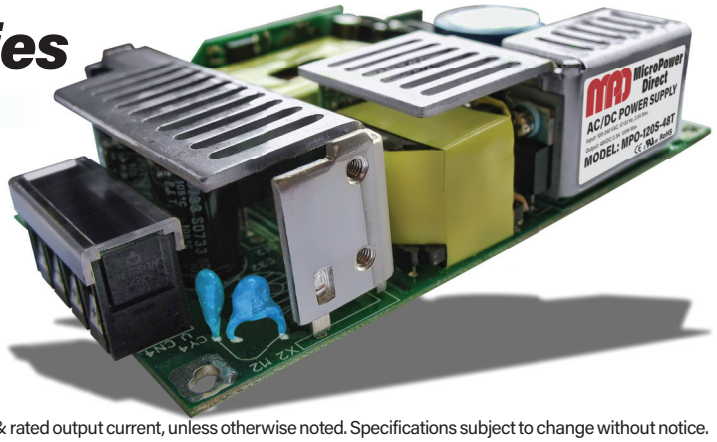
MPO-120S Series

Single Output, 180W Compact, Open Frame AC/DC Power Supplies



Key Features:

- 180W Output Power
- Universal AC Input
- Power Factor Correction
- EN 62368 Approved
- High Efficiency
- Five Single Output Models
- Meets EN 55022 B
- >120 kHour MTBF

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			60.0	
Power Factor Correction, See Note 1	115 VAC	0.99			W/VA
	230 VAC	0.95			
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 2	See Model Selection Guide				
Hold-Up Time	115 VAC	15			mSec
Temperature Coefficient			±0.03		%/°C
Over Voltage Protection	>125% VOUT (Autorecovery)				
Overload Protection	See Note 3	130		180	%IOUT
Short Circuit Protection	Continuous (Autorecovery)				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	Input to Output	4,000			VAC
		5,656			VDC
	Input to Ground	2,000			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	-25	+25	+70	°C
Storage Temperature Range		-25		+85	°C
Cooling	Free Air Convection (See Derating Curve)				
Humidity	RH, Non-condensing			95	%

Physical

Size	See Mechanical Drawings (Page 4)	
Weight	5 VOUT Model	12.33 Oz (350g)
	All Other Models	9.87 Oz (280g)

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	120			kHours
Safety Standards	UL/cUL 62368 recognition (UL certificate, except 5 & 15 VOUT models)				
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)	Voltage Adjust Range (VDC)	Max Ripple & Noise (mV)	Max Capacitive Load (μF)	Efficiency (%, Typ)
	Current (A)		Voltage (VDC)	Current (A)								
	115 VAC	230 VAC		W/0 CFM	W/30 CFM	W/18 CFM	% Min.					
MPO-120S-05Y	2.0	1.0	5.0	20.0	30.0	---	5.00	150	4.7 - 5.3	100	100,000	87
MPO-120S-12Y	2.0	1.0	12.0	10.0	---	15.0	1.00	180	11.4 - 13.2	50	40,000	90
MPO-120S-15Y	2.0	1.0	15.0	8.0	---	12.0	1.00	180	13.5 - 16.0	50	35,000	90
MPO-120S-24Y	2.0	1.0	24.0	5.0	---	7.5	1.00	180	22.8 - 26.4	100	20,000	93
MPO-120S-48Y	2.0	1.0	48.0	2.5	---	3.75	1.00	180	45.6 - 52.0	200	1,200	93

For U-channel and enclosed models, see **MPU-120S** Datasheet

Notes:

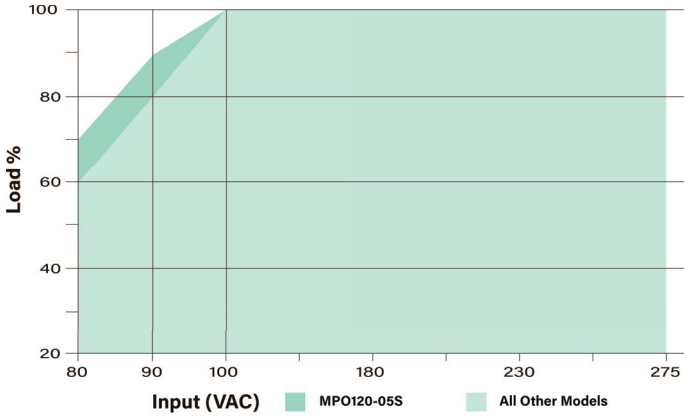
1. PFC meets EN61000-3-2.
2. Ripple and noise is measured at 20 MHz bandwidth using a 0.1 μF and a 47 μF capacitor connected in parallel as close to the power supply terminals as possible.
3. Overload protection is provided by a "hiccup mode" circuit. The unit recovers automatically when the fault condition is removed.
4. These units will operate at no load without damage. However they may not meet all specifications. The recommended minimum load is given in the model selection chart above.
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 3A/250V slow blow fuse is recommended.

Model Number

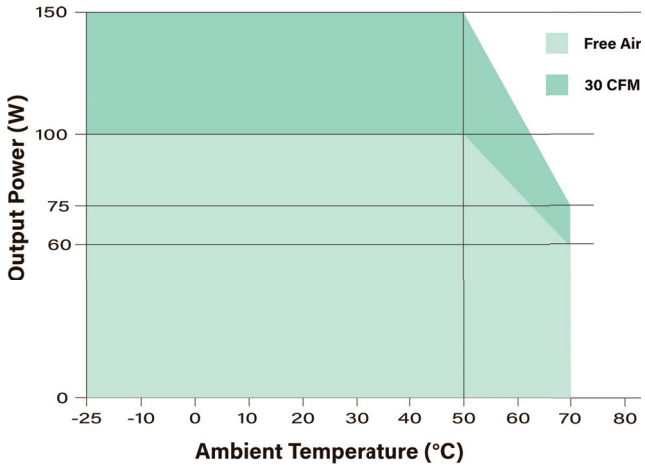
MPO-120S-XXY

- Mechanical Configuration: O = Open Frame; U = U-Channel
- Outputs: S = Single
- Output Voltage Selection: 05 = 5 VDC; 12 = 12 VDC; 15 = 15 VDC; 24 = 24 VDC; 48 = 48 VDC
- Connector Type: T = Terminal Block; A = Molex; B = Clamp Terminal Block

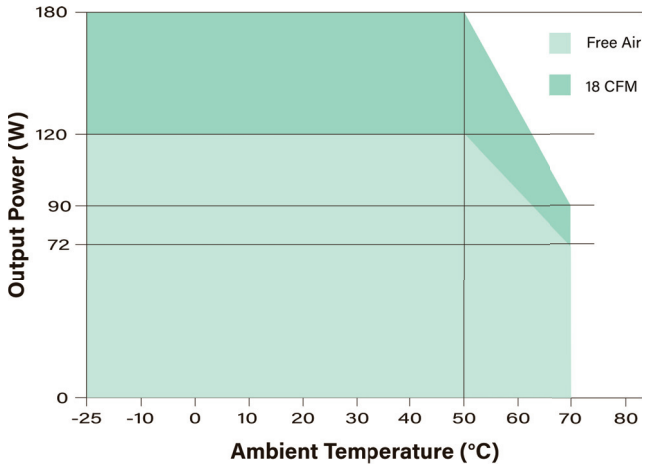
Load vs Input Voltage



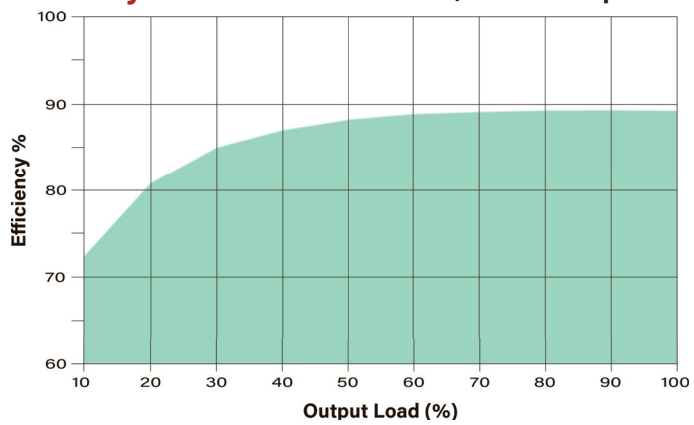
Temperature Derating: MPO-120S-05



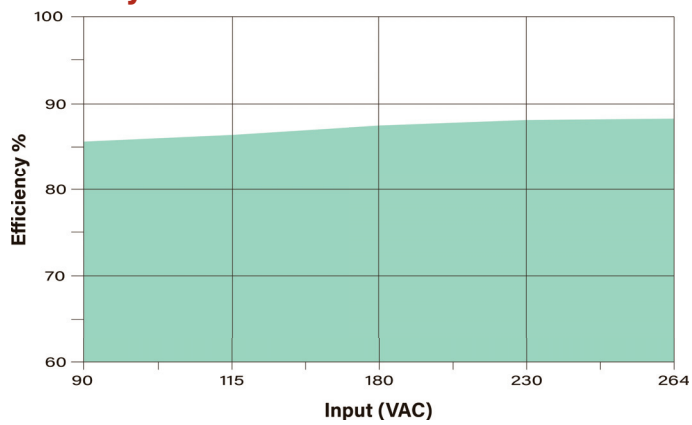
Temperature Derating: All Other Models



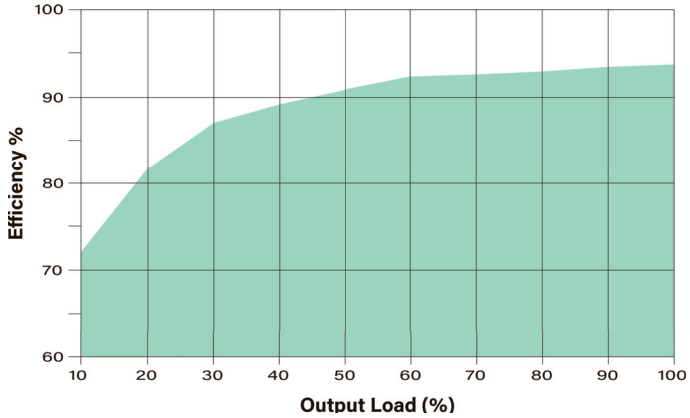
Efficiency vs Load: MPO-120S-05, 230 VAC Input



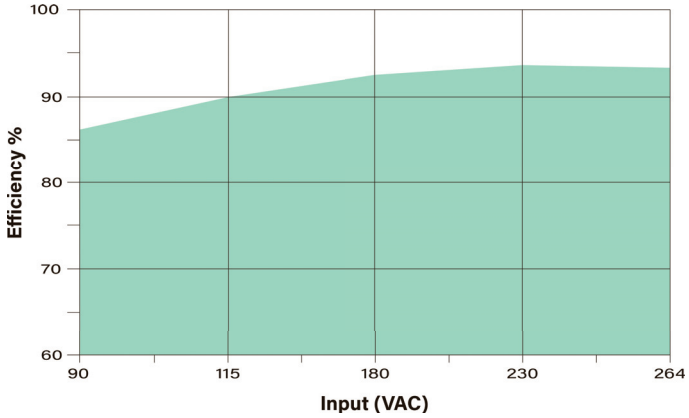
Efficiency vs VIN: MPO-120S-05



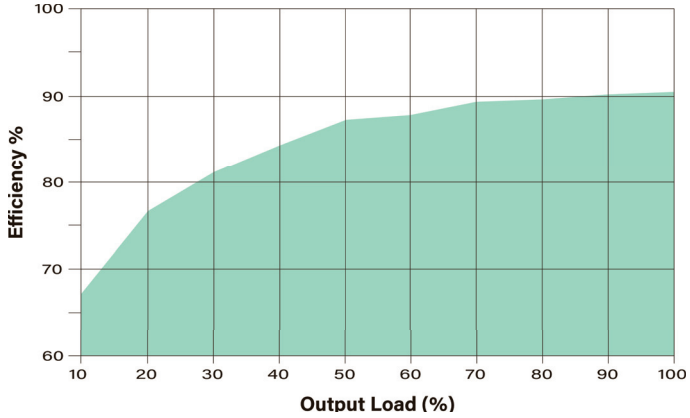
Efficiency vs Load: MPO-120S-12, 230 VAC Input



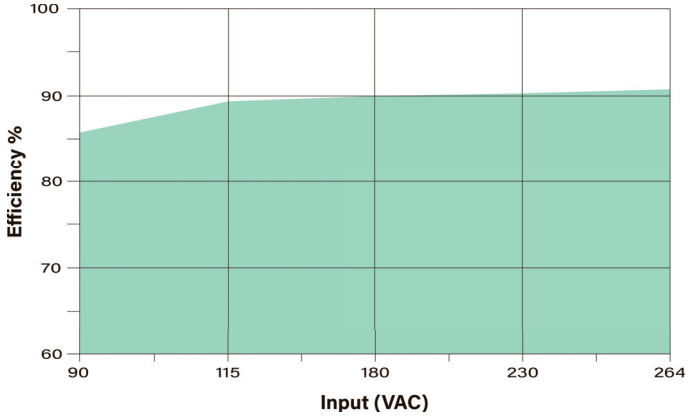
Efficiency vs VIN: MPO-120S-12



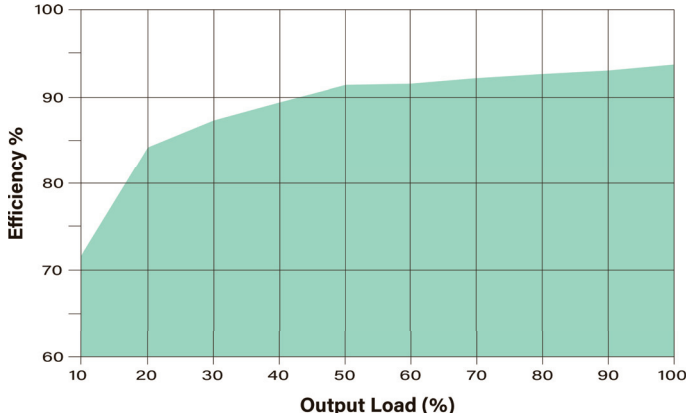
Efficiency vs Load: MPO-120S-15, 230 VAC Input



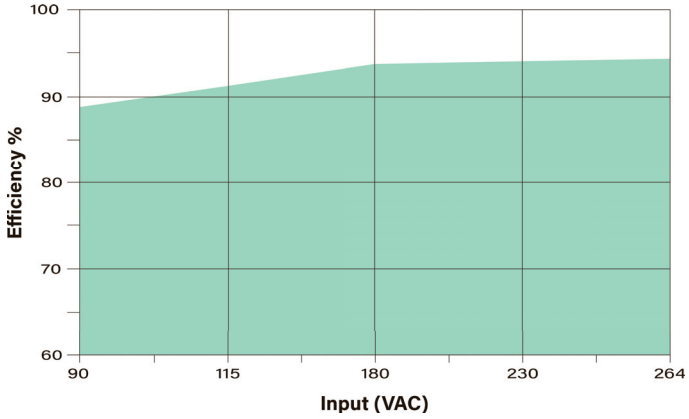
Efficiency vs VIN: MPO-120S-15



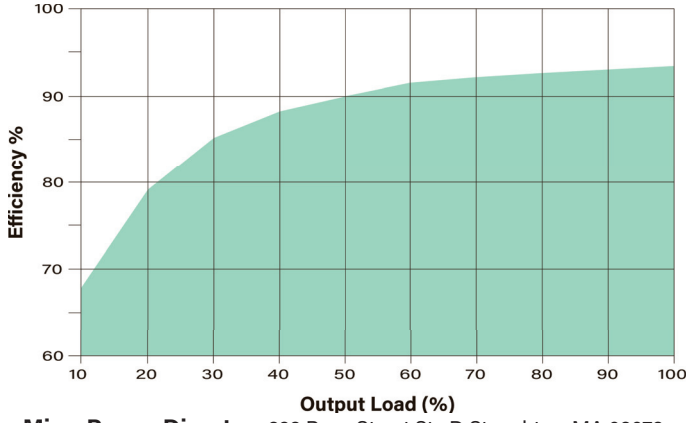
Efficiency vs Load: MPO-120S-24, 230 VAC Input



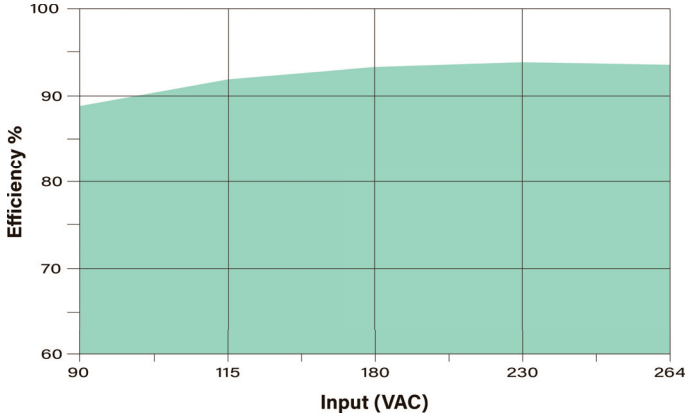
Efficiency vs VIN: MPO-120S-24



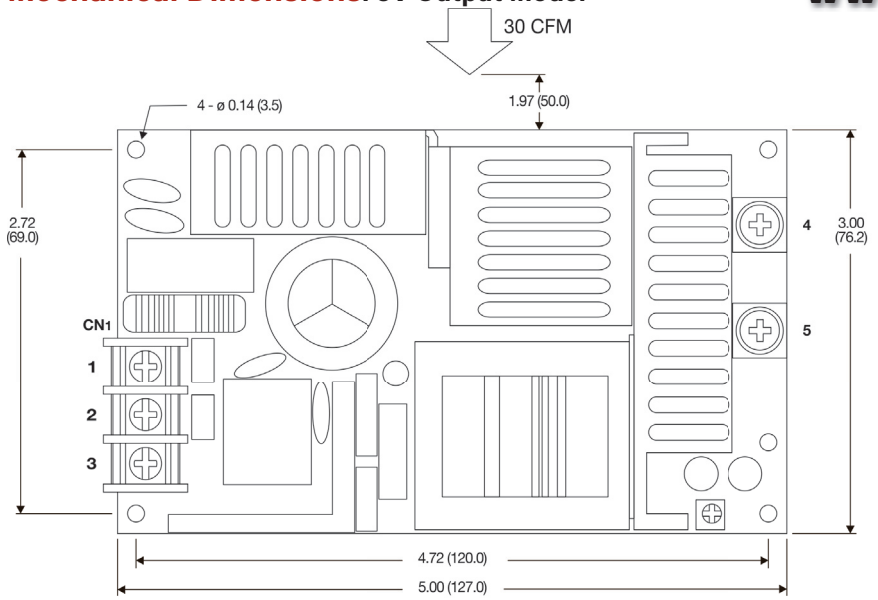
Efficiency vs Load: MPO-120S-48, 230 VAC Input

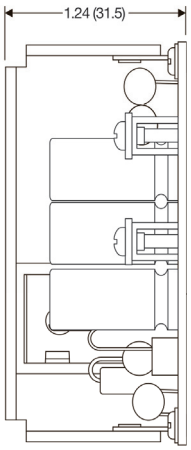


Efficiency vs VIN: MPO-120S-48



Mechanical Dimensions: 5V Output Model

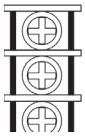




Connections

Input Connector (CN1):

- Barrier Strip Terminal Block:
  Anytek Connector: DG28S-B-03P:
  M3 Screws
  3 terminals, 7.62 mm Centers
  Suitable Wire = 22 - 14 AWG

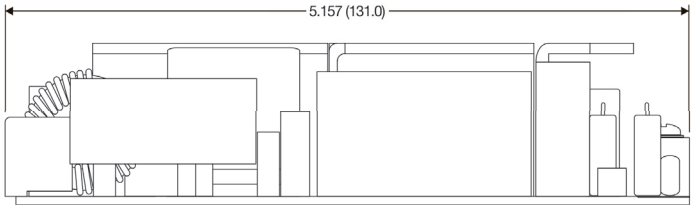


Term.	Function
1	AC-Line
2	AC-Neutral
3	Field Grnd

Output Connectors:

- Two PCB Terminals (Wire Lugs):
  PCB-50 (M5 Screws)
  Suitable Wire = 22 - 14 AWG

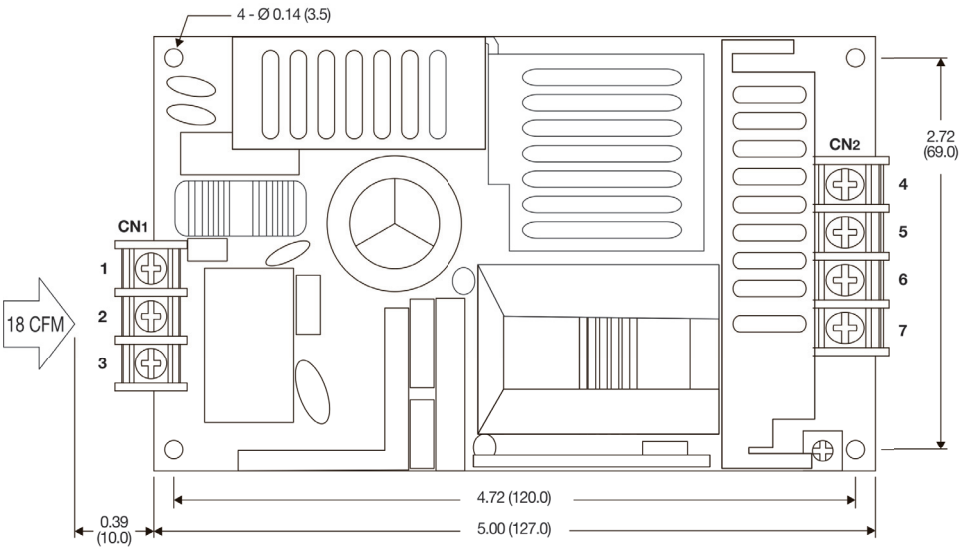
Term.	Function
4	+VOUT
5	-VOUT

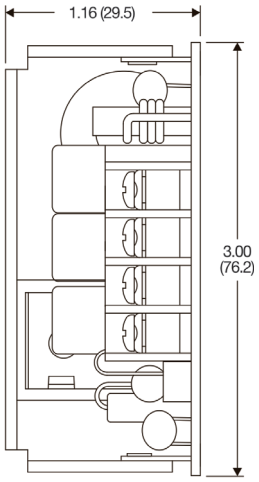


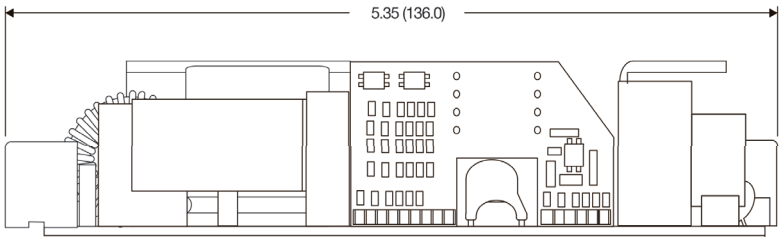
Notes:

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

Mechanical Dimensions : 12, 15, 24 & 48V Output Models





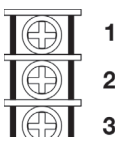


Notes:

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

Input Connector (CN1):

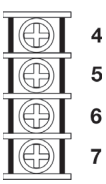
- Barrier Strip Terminal Block:
  Anytek Connector: DG28S-B-03P:
  M3 Screws
  3 terminals, 7.62 mm Centers
  Suitable Wire = 22 - 14 AWG



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

Output Connector (CN2):

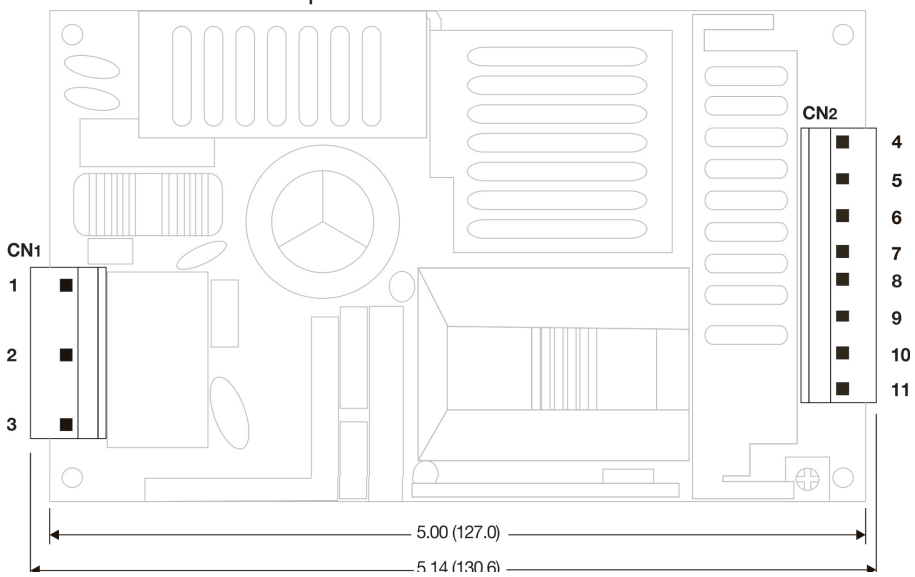
- Barrier Strip Terminal Block:
  Anytek Connector: DG28S-B-04P:
  M3 Screws
  4 terminals, 7.62 mm Centers
  Suitable Wire = 22 - 14 AWG



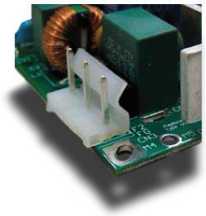
Term.	Function
4	+VOUT
5	+VOUT
6	-VOUT
7	-VOUT

OPTIONAL CONNECTOR - "MOLEX" TYPE

* Not available for 5V output models



Input



Output

Connections

Input Connector (CN1):

- "Molex" type connector:
  Alex Connector: 8673W-050220
  5 pins, 2 Removed
  Mating Connector: 8639 type or equiv.

Pin	Function
1	AC-Line
2	AC-Neutral
3	Field Grnd

Output Connector (CN2):

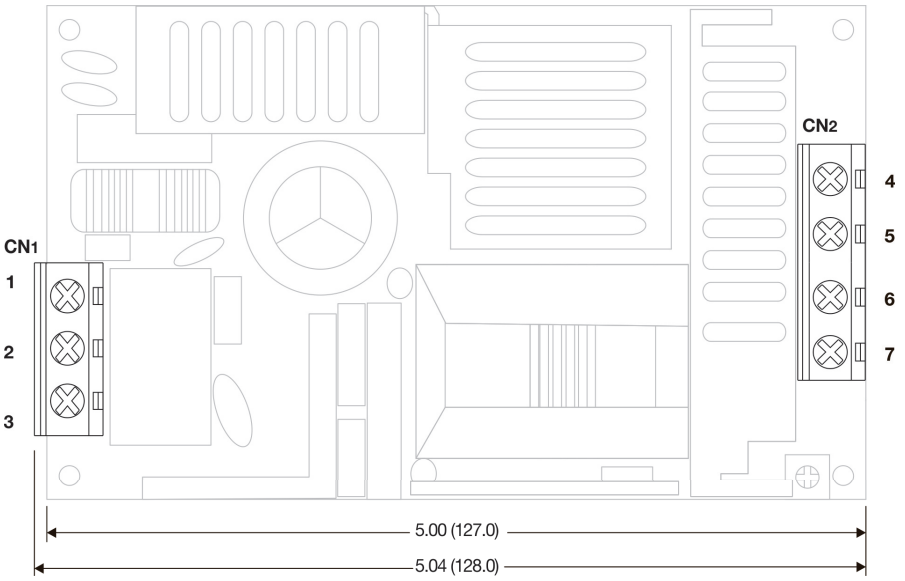
- "Molex" type connector:
  Alex Connector: 8673W-080020
  8 pins
  Mating Connector: 8639 type or equiv.

Pin	Function
4	+VOUT
5	+VOUT
6	+VOUT
7	+VOUT

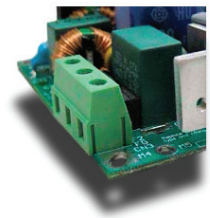
Pin	Function
8	-VOUT
9	-VOUT
10	-VOUT
11	-VOUT

OPTIONAL CONNECTOR - Clamp TYPE

* Not available for 5V output models



Input



Output

Connections

Input Connector (CN1):

- Clamp type connector:
  Anytek Connector: TI03245
  3 terminals, 7.5 mm Centers
  Suitable Wire = 22 - 14 AWG

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

Output Connector (CN2):

- Clamp type connector:
  Anytek Connector: TI04245
  4 terminals, 7.5 mm Centers
  Suitable Wire = 22 - 14 AWG

Term.	Function
4	+VOUT
5	+VOUT
6	-VOUT
7	-VOUT