PDAM120 Series 120W Power Supplies

Features:

- Very High Power Density : 15.27 W/in ^{3}
- Class I or Class II configuration
- UL/EN60601-1 Medical Approval #
- Small 2” x 3” package
- Efficiencies up to 91%
- Suitable for BF Applied Part Applications
- Meets Efficiency Level VI Requirements
- No load power consumption <300mW

Description:

The PDAM120 series of compact, open-framed AC-DC switching power supplies offers a high power density to fit in a small space. This dense 3” x 2” platform offers up to 120W of continuous power across a wide range of operating temperatures, all while maintaining a low emissions profile. All models meet EN55011 class B emission limits, and comply with UL, IEC, CE, and more.

Model Number [1]	Output Voltage	Maximum Load with Convection Cooling [2]	Maximum Load with 10CFM Forced Air	Output load regulation	Ripple & Noise (Vp-p) [3]	Max Capacitive Load (µF)	Typical Efficiency AT 230 VAC
PDAM120-12A	12V	8.333A	10.000A	±1%	160mV	3000	90%
PDAM120-14A	24V	4.167A	5.000A	±1%	240mV	1500	90%
PDAM120-18A	48V	2.083A	2.500A	±1%	480mV	500	91%
PDAM120-12B	12V	7.500A	10.000A	±1%	160mV	3000	90%
PDAM120-14B	24V	3.750A	5.000A	±1%	240mV	1500	90%
PDAM120-18B	48V	1.875A	2.500A	±1%	480mV	500	91%
PDAM120-12C	12V	7.083A	10.000A	±1%	160mV	3000	90%
PDAM120-14C	24V	3.541A	5.000A	±1%	240mV	1500	90%
PDAM120-18C	48V	1.770A	2.500A	±1%	480mV	500	91%

NOTES:

1. Model number ending with “A” indicates open frame format.
   Model number ending with “B” indicates U-channel format.
   Model number ending with “C” indicates enclosed format
2. Derate convection only output power by 10% for U-Channel models.
   Derate convection only output power by 15% for Enclosed models.
3. Measured at 20MHz bandwidth with a 47uF electrolytic and 0.1uF ceramic capacitor in parallel with the DC output rails.

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Specifications	
Safety Standards & EMC Specifications	
Safety Standards Approved to USA/Canada	UL60601-1—1.3.1 Edition UL62368-1 (Pending)
Safety Standards Approved to Europe	IEC/EN 60601-1 3rd Edition, CB Report EN62368-1 (Pending)
EMI Standard	EN55011 Class B conducted, class A radiated
EMC Performance	EN61000-3-2: Harmonic distortion, class A EN61000-3-3: Line flicker EN61000-4-2: ESD, ±15 KV air and ±8 KV contact EN61000-4-3: Radiated immunity, 10 V/m EN61000-4-4: Fast transient/burst, ±2 KV EN61000-4-5: Surge, ±1 KV diff., ±2 KV com EN61000-4-6: Conducted immunity, 10 Vrms EN61000-4-8: Magnetic field immunity, 30 A/m EN61000-4-11: Voltage dip immunity, 30% reduction for 500 ms, 100% reduction for 10 ms
*Consult with TT Electronics for information on additional country safety approvals	
Isolation	
Input to Output	4000VAC / 5656VDC[4] (2 x MOPP)
Input to Ground	2000VAC / 2828VDC[4] (1 x MOPP)
Output to Ground	1500VAC / 2121VDC[4] (1 x MOPP)
Touch Current	<100µA max. @ 264VAC
Input Specifications	
Input Voltage Range	90 to 264 VAC[5]
Input Frequency Range	47 to 63Hz
Input Current	2A max @ 115VAC; 1A max @ 230VAC
Inrush Current	45A max @ 115VAC; 90A max @ 230 VAC
No Load Power Consumption	<300mW
Power Factor	>0.9 @ 240VDC and 120VDC

NOTES:
4. Derate convection only output power by 10% for U-Channel models.
   Derate convection only output power by 15% for Enclosed models.
5. Derate output power by 0.8%/V below 115VAC

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Specifications Continued	
Output Specifications	
Total Output Power	120W with 10CFM Forced Air 100W Convection Only[2]
Output Voltage	See models and ratings table.
Hold Up Time	10mS minimum
Efficiency	Up to 91%. See models and ratings table.
Line Regulation	±1%
Voltage Adjustability	±4%
Setpoint accuracy	±2%
Minimum Load	No Minimum Load
Protection Features	
Over Voltage Protection	Latch off
Overtemperature	Latch off
Over Current Protection	Hiccup Mode. OCP Threshold typically 150%.
Short Circuit	Hiccup Mode
Environmental Specifications	
Operating Temperature	-30ºC to +70ºC[6]
Storage Temperature	-30ºC to +85ºC
Operating Humidity	20% - 90% RH
Operating Altitude	<5000m
MTBF	>250K hours per MIL-HDBK-217F at full load and 25ºC ambient
Physical Specifications	
Dimensions	3.04”L x 2”W x 1.31”H Typical [7]
Weight	6.4oz Typical.

NOTES:
6. See derating curves for operation above 50°C
7. Dimensions given are those of PCB.
   I/O conductors extend slightly beyond PCB edge.

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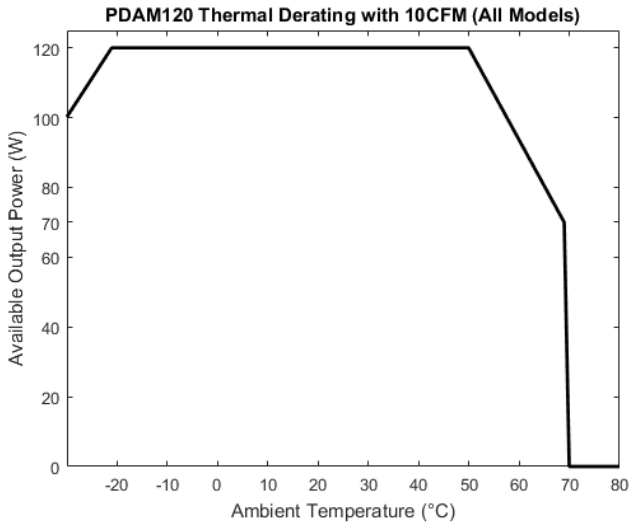
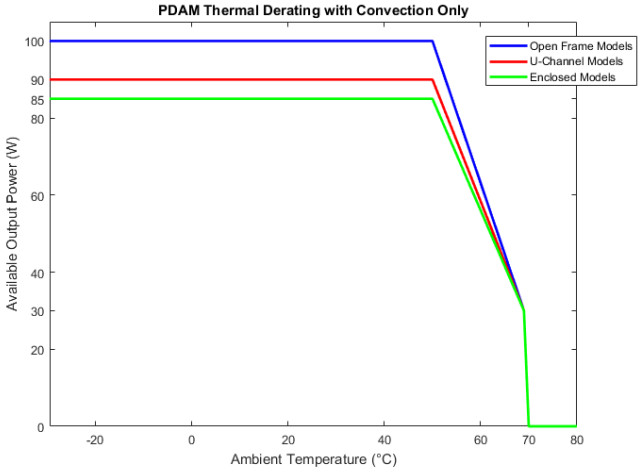
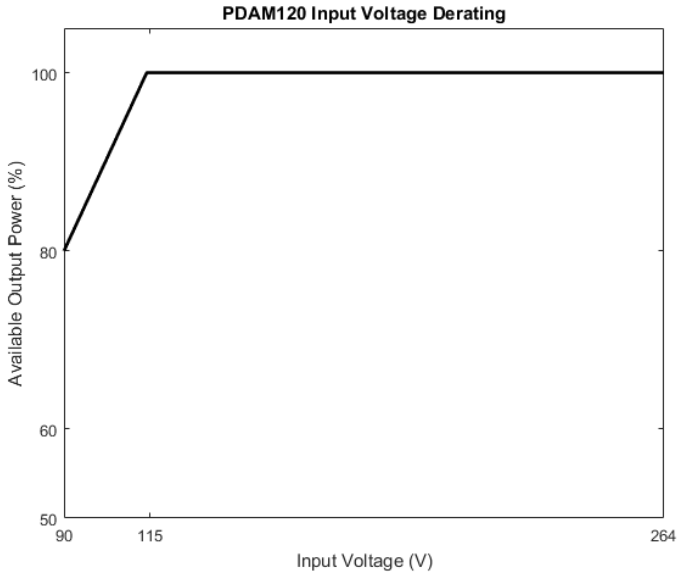
Diagrams

Derating Curves

Note: Input voltage derating and thermal derating are superimposed. The PDAM120 cannot operate with input voltages below 99VAC in thermal environments below –10°C







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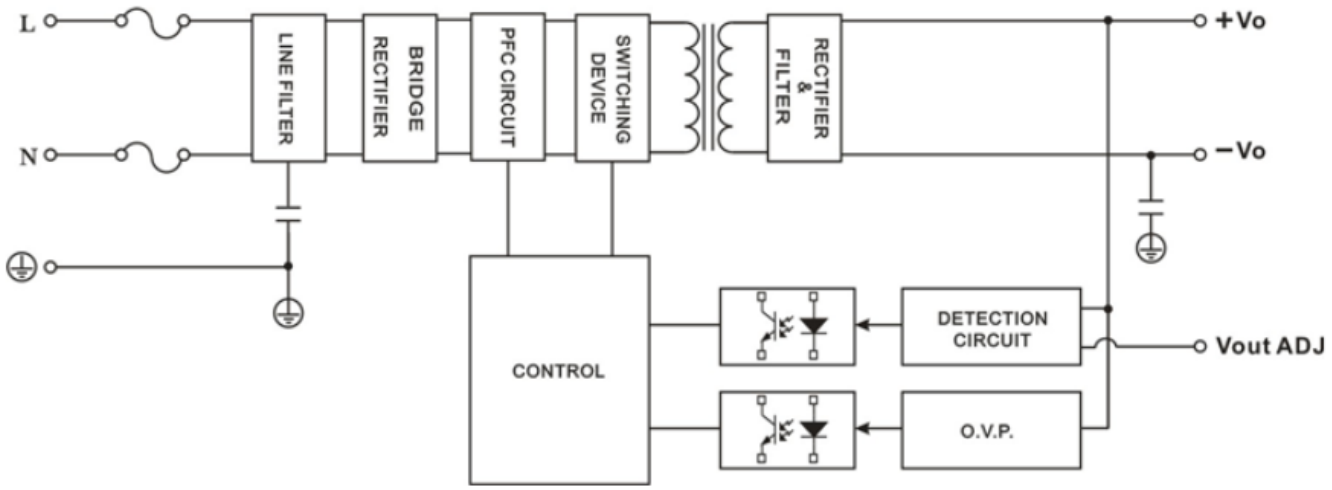
Diagrams

Simplified Block Diagram



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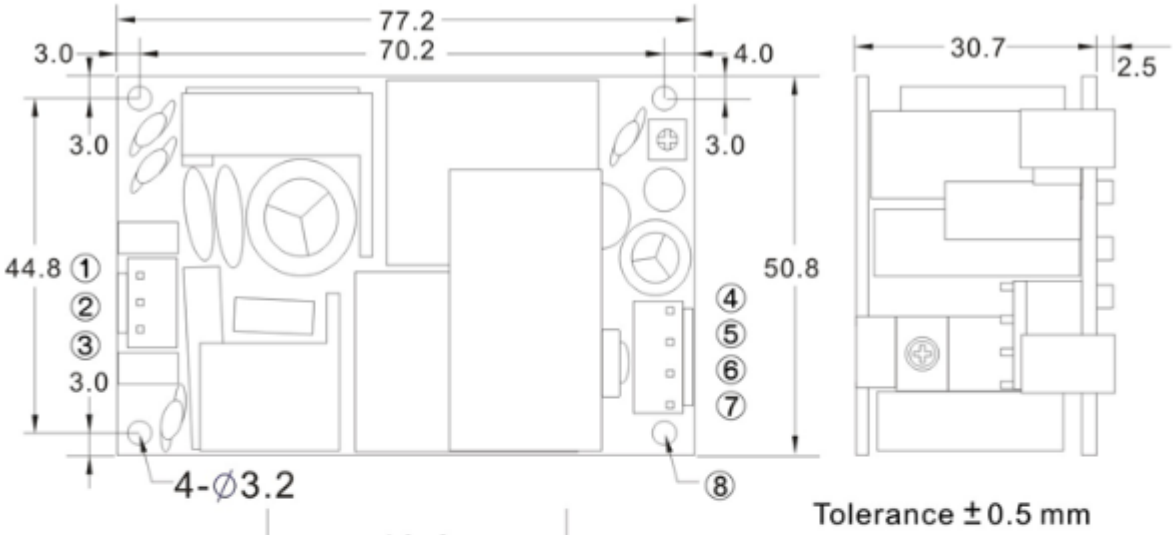
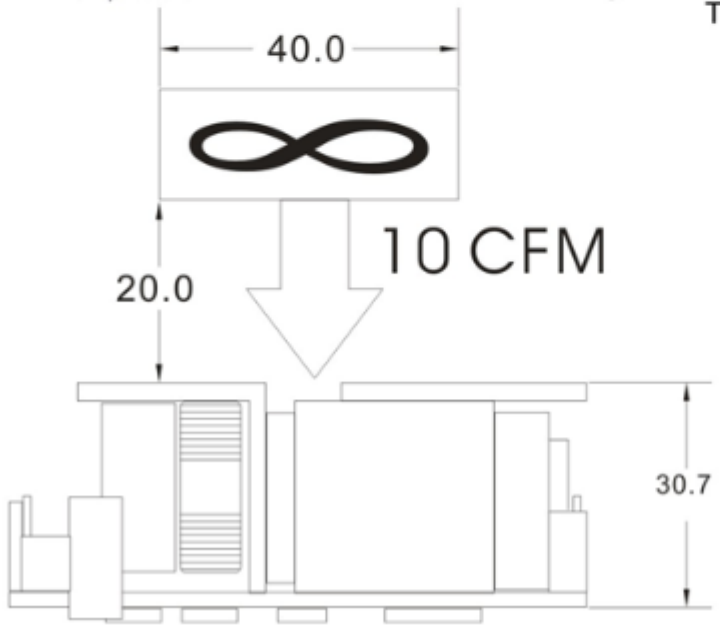
Mechanical Drawing & Pin-out (Open Frame Models)





Pin #	Function
1	AC Input (N)
2	No Pin
3	AC Input (L)
4	DC+ Output
5	DC+ Output
6	DC Return
7	DC Return
8	Protective Earth[9]

Notes (continued from second page):

9. All four mounting holes must secured to a conductive metal surface to establish protective earth continuity.
10. All dimensions in mechanical drawings are given in mm unless otherwise specified

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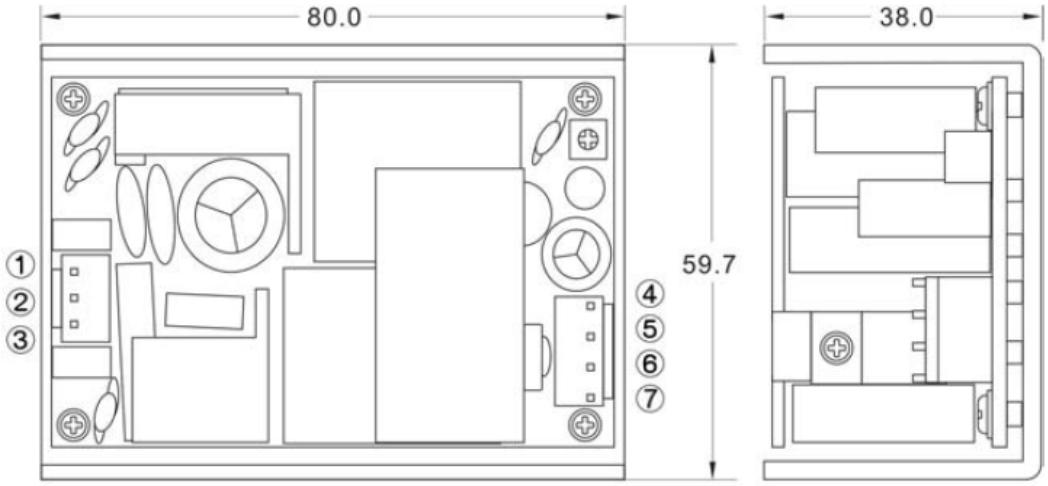
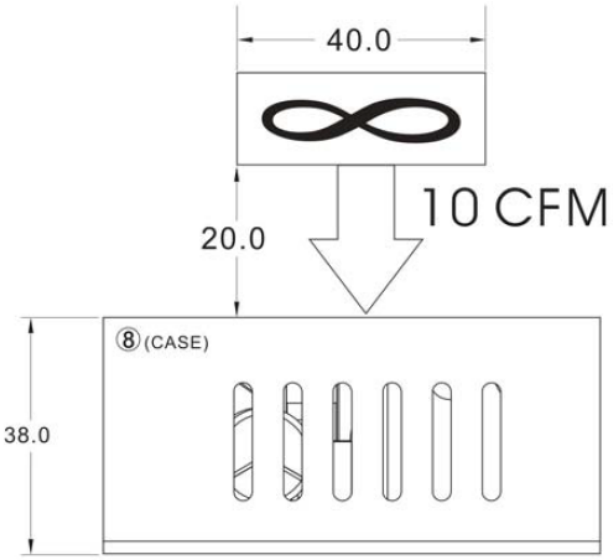
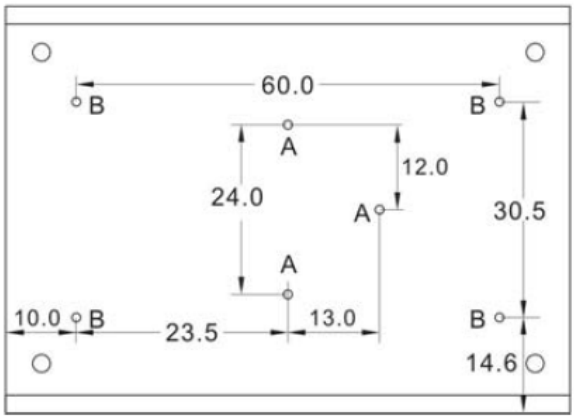
Mechanical Drawing & Pin-out (U-Channel Models)







A=For fixture to din rail clip only
B=For fixture to pcb/chassis only
A=M3x0.5P
B=M3x0.5P

Pin #	Function
1	AC Input (N)
2	No Pin
3	AC Input (L)
4	DC+ Output
5	DC+ Output
6	DC Return
7	DC Return
8	Protective Earth

Notes (continued from fourth page):

11. Do not screw more than 2.5mm deep into threads of base plate for U-Channel or Enclosed models.
12. Headers on all models as seen below. Use mates or equivalent.

		ALEX		JST	
1	AC IN (N)	9396-3	96T series	VHR-3N	SVH-41T-P1.1
2	NO PIN				
3	AC IN (L)				
4~5	+DC OUT	9396-4	96T series	VHR-4N	SVH-41T-P1.1
6~7	-DC OUT				
8	PE	—	—	—	—

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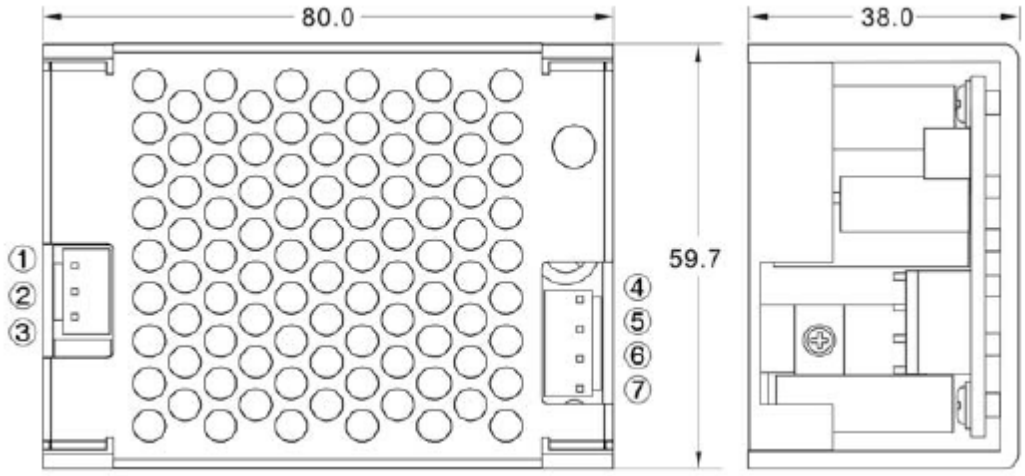
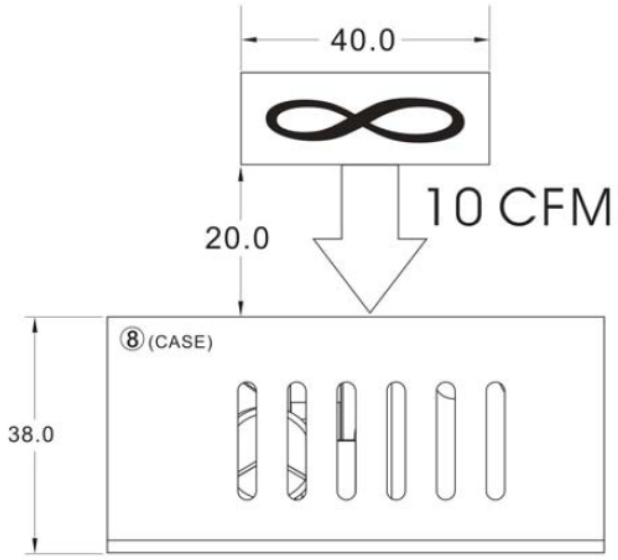
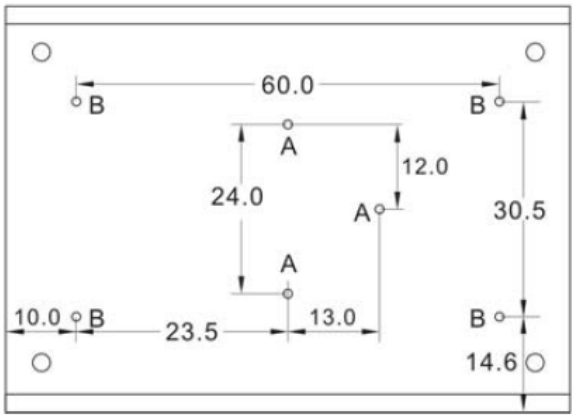
Mechanical Drawing & Pin-out (Enclosed Models)







A=For fixture to din rail clip only
B=For fixture to pcb/chassis only
A=M3x0.5P
B=M3x0.5P

Pin #	Function
1	AC Input (N)
2	No Pin
3	AC Input (L)
4	DC+ Output
5	DC+ Output
6	DC Return
7	DC Return
8	Protective Earth

Notes (continued from fourth page):

11. Do not screw more than 2.5mm deep into threads of base plate for U-Channel or Enclosed models.
12. Headers on all models as seen below. Use mates or equivalent.

		ALEX		JST	
1	AC IN (N)	9396-3	96T series	VHR-3N	SVH-41T-P1.1
2	NO PIN				
3	AC IN (L)				
4~5	+DC OUT	9396-4	96T series	VHR-4N	SVH-41T-P1.1
6~7	-DC OUT				
8	PE	—	—	—	—

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