DESCRIPTION

The PM301 series of AC-DC switching power supplies in a package of 3 x 6 x 1.5 inches are capable of delivering 300 watts of continuous power at 10 CFM forced air cooling or 200 watts at convection cooling. A L-bracket or cover-and-fan assembly can be added during manufacturing. They are specially certified for IEC /EN /UL /CSA 60601-1 for medical applications. The units are design also to IEC /EN /UL /CSA 60950-1 and suitable for data networking, industrial and telecommunication applications.

FEATURES

- BF Class insulation
- Operation altitude up to 5000 meters
- 3 x 6 inch footprint with 1.5 inch low profile
- Less than 220 μA leakage current
- Meet EN55011 /55022 and FCC Class B
- Power Factor 0.98 typical
- 100% burn-in at full load
- Short-circuit protection (Latch)
- Power Fail Detect (PFD) signal
- Inhibit - TTL high to disable output
- Compliant with RoHS requirements
- High Efficiency 92% typical
- Power consumption in standby mode less than 1 W at standby power 5 V /100 mA

INPUT SPECIFICATIONS

Input voltage:	90-264 VAC
Input frequency:	47-63 Hz
Input current:	4.0 A (rms) for 115 VAC 2.0 A (rms) for 230 VAC
Earth leakage current:	220 μA max. @ 264 VAC, 63 Hz
Touch current:	100 μA max. @ 264 VAC, 63 Hz

OUTPUT SPECIFICATIONS

Output voltage/current:	See rating chart.
Total output power:	See rating chart.
Ripple and noise:	1% peak to peak maximum
Remote sense	Compensation for cable losses up to 0.5 V
Overvoltage protection:	Set at 112-140% of its nominal output voltage
Overcurrent protection:	Output protected to short circuit conditions
Temperature coefficient:	All outputs ±0.04% /℃ maximum
Transient response:	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 us after a 25% step load change
Fan power:	12 V at 1.0 A maximum (isolated)
Standby power:	5 V at 2.0 A maximum or 12 V at 1.0 A maximum

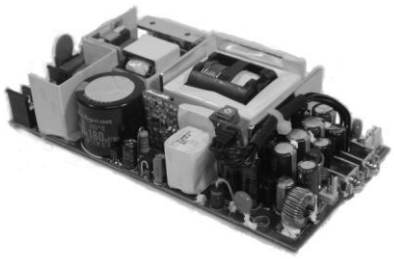
ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	0℃ to +70℃
Storage temperature:	-40℃ to +85℃
Relative humidity:	5% to 95% non-condensing
Derating:	Derate from 100% at +50℃ linearly to 50% at +70℃, applicable to convection and forced-air cooling conditions

PM301 SERIES

CE

RoHS



SAFETY STANDARD APPROVAL

c UL us	UL ES 60601-1, CSA C22.2 No. 60601-1 File No. E178020
IEC 60601-1	TÜV EN 60601-1
TÜV Rheinland of North America, Inc. c US	UL 60950-1, CSA C22.2 No. 60950-1
TÜV Rheinland Product Safety · BAUART GEPRÜFT · TYPE APPROVED	TÜV EN 60950-1

GENERAL SPECIFICATIONS

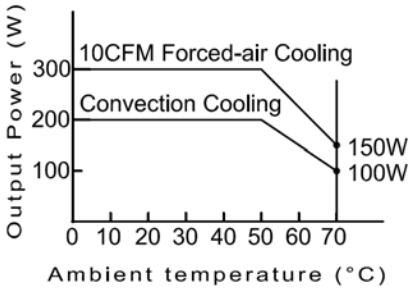
Switching frequency:	100 KHz (typical)
Efficiency:	87% minimum on all models
Turn on delay time	3 s maximum at 100 VAC
Hold-up time:	10 ms minimum at 110 VAC
Line regulation:	±0.5% maximum at full load
Inrush current:	20 A @ 115 VAC or 40 A @ 230 VAC, at 25℃ cold start
Withstand voltage:	4000 VAC from input to output (2MOPP) 1500 VAC from input to ground (1 MOPP) 1500 VAC from output to ground
MTBF:	250,000 hours at full load at 25℃ ambient, calculated per MIL-HDBK-217F
EMC Performance	
EN55011/EN55022:	Class B conducted, class B radiated
FCC:	Class B conducted, class B radiated
VCCI:	Class B conducted, class B radiated
EN61000-3-2:	Harmonic distortion, class A and D
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

INTERFACE SIGNALS

PFD: TTL logic high for normal operation and TTL logic low upon loss of input power. This signal appears at least 1ms prior to V1 output dropping 5% below its nominal value. This signal also provides a minimum delay of 100 ms after V1 is within regulation.

Inhibit: Requires an external TTL high level signal to inhibit outputs for standard models

OUTPUT POWER DERATING CURVE



OUTPUT VOLTAGE/CURRENT RATING CHART

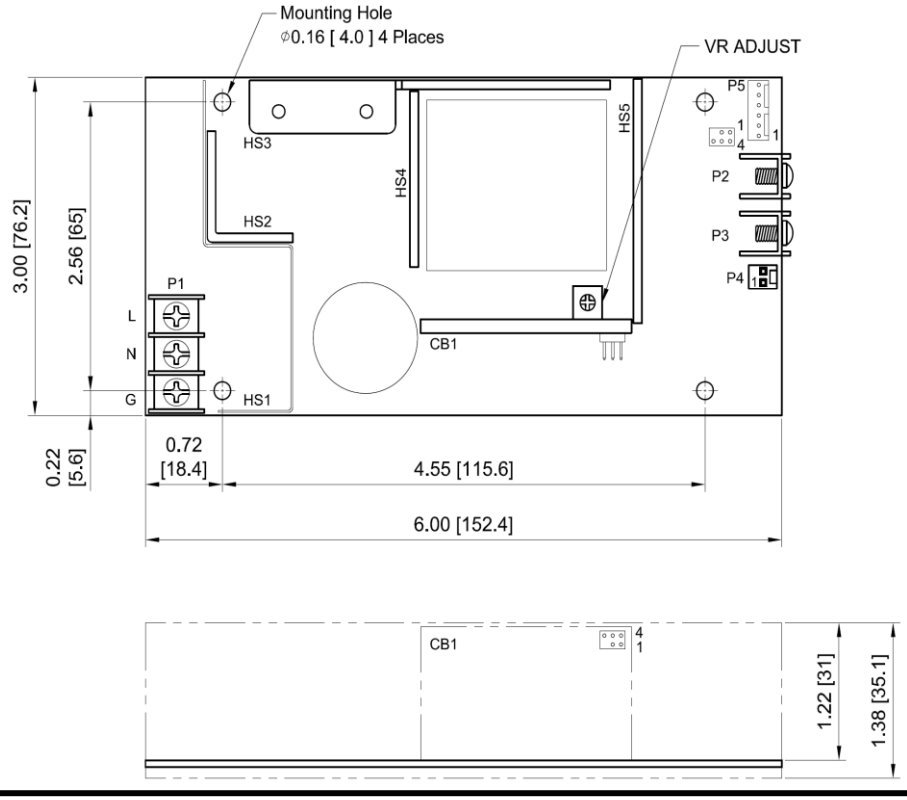
Model[1] [3]	Output								Efficiency (typical) 115/230 Vac
	V1	Min. Current	Max. Current at Convection[2]	Max. Current at 10 CFM [2]	Peak Current[5]	Tol.	Ripple & Noise[4]	Max. Power	
PM301-12A	12 V	0 A	16.67 A	25.00 A	30.0 A	±2%	120 mV	200 /300 W	89 /91%
PM301-13A	15 V	0 A	13.34 A	20.00 A	24.0 A	±2%	150 mV	200 /300 W	89 /92%
PM301-13-2A	19 V	0 A	10.53 A	15.80 A	18.9 A	±2%	190 mV	200 /300 W	89 /91%
PM301-14A	24 V	0 A	8.34 A	12.50 A	14.5 A	±2%	240 mV	200 /300 W	89 /92%
PM301-16A	30 V	0 A	6.67 A	10.00 A	11.0 A	±2%	300 mV	200 /300 W	89 /92%
PM301-17A	36 V	0 A	5.56 A	8.34 A	9.6 A	±2%	360 mV	200 /300 W	89 /92%
PM301-18A	48 V	0 A	4.17 A	6.25 A	7.5 A	±2%	480 mV	200 /300 W	90 /92%

NOTES:

1. Suffix “A” in model numbers denotes PCB constructed form. Change suffix “A” to “B” for L-bracket form, e.g. PM301-14B. Change “A” to “C” for enclosed form with cover and fan assembly, e.g. PM301-14C.
2. 200 W without moving air or 300 W with 10 CFM forced air provided by user for “A” and “B” versions, 300 W for “C” version with cover and fan assembly.
3. Standby power output 5 V at 2 A. Add suffix “-12” for standby power output 12 V at 1.0 A, e.g. PM301-12A-12
4. Ripple and noise is maximum peak to peak voltage value measured at output within 20 MHz bandwidth, at rated line voltage and output load ranges, and with a 10 µF tantalum capacitor in parallel with a 0.1 µF ceramic capacitor across the output.
5. Peak output current with 10% duty cycle maximum for less than 15 seconds, average power not to exceed maximum power rating.

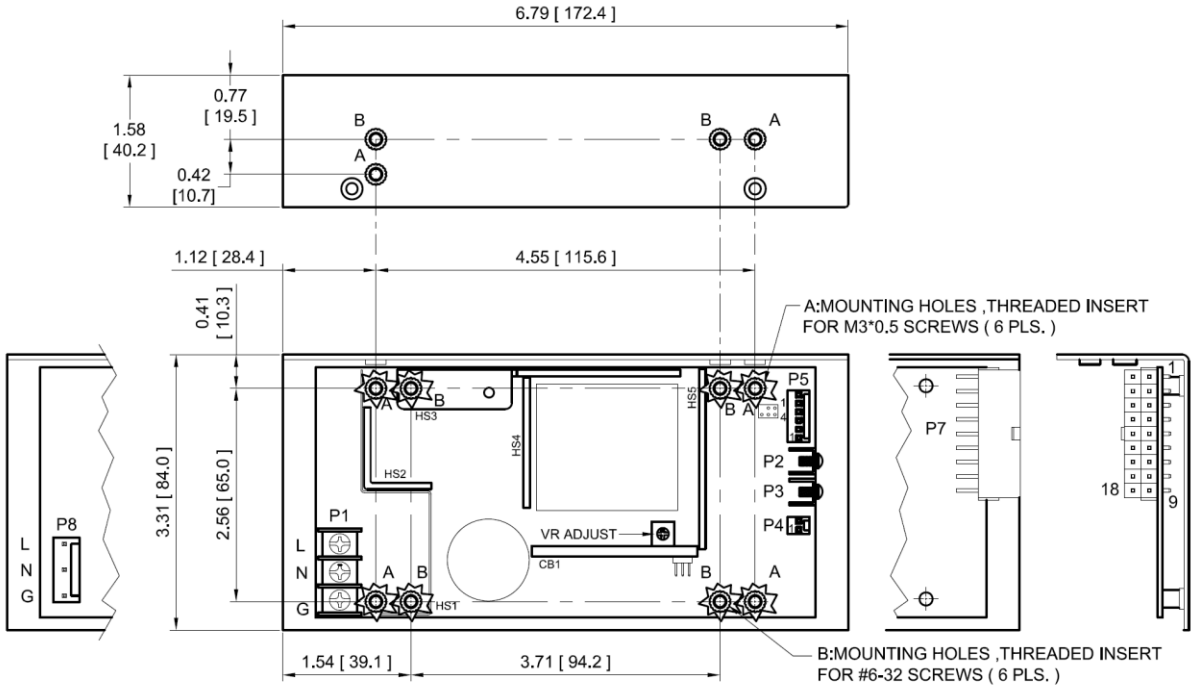
MECHANICAL SPECIFICATIONS

PCB constructed Form

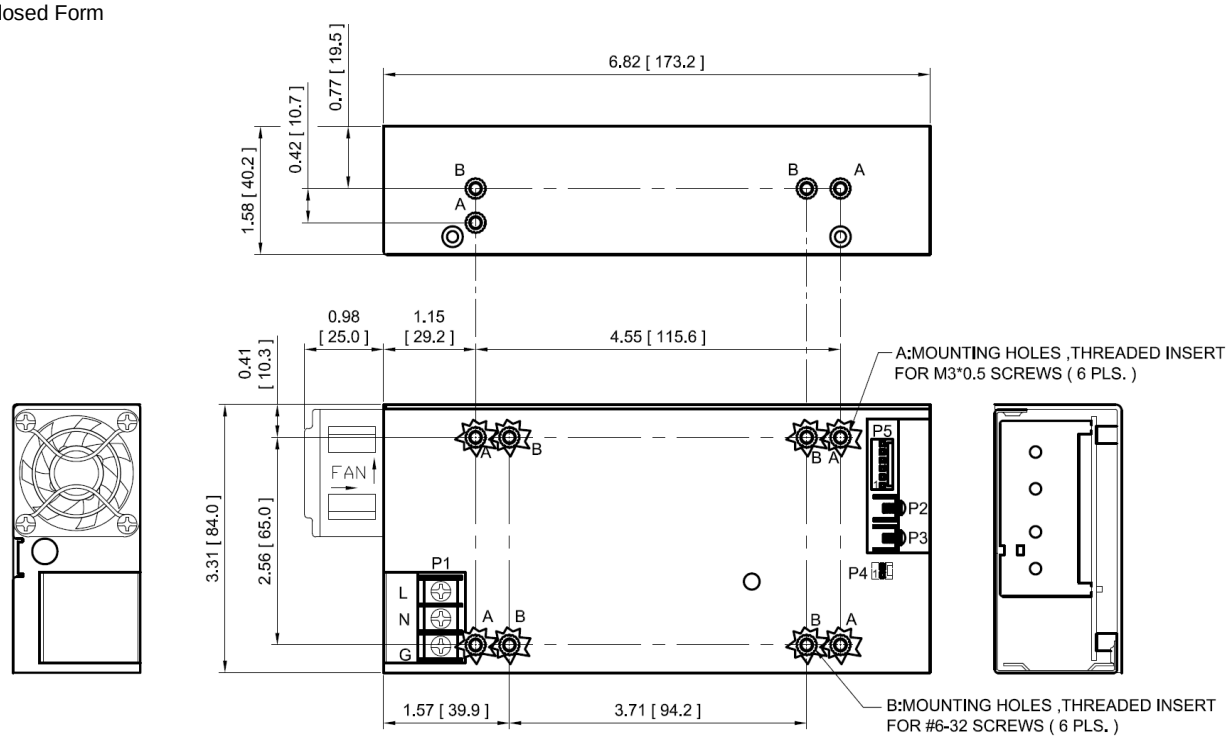


MECHANICAL SPECIFICATIONS

L-bracket Form



Enclosed Form



NOTES:

1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Input connector P1 is Dinkle DT-35-B01W-03 with M3, nickel-plated screws.
4. Output connector P2 and P3: M3 x 0.5 screw connections
5. Fan connector P4: Molex header 22-04-1021 or equivalent, mating with Molex housing 22-01-1022 or equivalent.
6. Connectors P5: Molex header 22-04-1061 or equivalent, mating with Molex housing 22-01-1062 or equivalent.
7. Optional output connector P7: Molex header 39-30-1180 or equivalent, mating with Molex housing 39-01-2185 or equivalent.
8. Optional input connector P8: Molex header 26-60-4050 or equivalent, mating with Molex housing 09-50-8050 or equivalent.
9. Weight: 510 grams (1.12 lbs.) approx. for PCB form, 612 grams (1.35 lbs.) approx. for L-bracket form, 744 grams (1.64 lbs.) approx. for enclosed form.
10. Maximum penetration depth of fixing screws is 4 mm from the outer surface of chassis.

PIN CHART

Connector	P1, P8			P2	P3	P4	
PIN NO.	1	2	3			1	2
Polarity	Live	Neutral	Ground	+V1	Common Return	+12V Fan (isolated)	Fan Return (isolated)

Connector	P5					
PIN NO.	1	2	3	4	5	6
Polarity	-Sense	+Sense	PFD	Inhibit	+5V/+12V Standby	Common Return

Connector	P7								
PIN NO.	1	2	3	4	5	6	7	8	9
Polarity	+5V/+12V Standby	Inhibit	+V1	+V1	+V1	+V1	+V1	+V1	Fan Return
PIN NO.	10	11	12	13	14	15	16	17	18
Polarity	Standby Return	PFD	Common Return	Common Return	Common Return	Common Return	Common Return	Common Return	+12V Fan