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300W Open Frame type Medical power supply < PM300

DESCRIPTION

The PM300 series comprising single and multiple output models for 200-300 watts of continuous output power is specially designed for medical and ITE applications, not for life-supporting equipment. They operate at 90-264 VAC input voltage without the need of a selector strap. All auxiliary outputs are with magnetic amplifier to keep regulation. The units are constructed on a printed circuit board with a U-bracket for mechanical support and heat sinking. A cover-and-fan assembly can be added during manufacturing.

FEATURES

- EN61000-3-2 class A and D compliant
- Power Factor 0.98 typical
- Overvoltage protection
- Short-circuit protection
- Power Fail Detect (PFD)
- 100% burn-in at full rated load
- Remote sense on output #1 and output #2
- Remote inhibit – TTL high disables output
- Compliant with RoHS requirements

INPUT SPECIFICATIONS

Input voltage :	90-264 VAC
Input frequency:	47-63 Hz
Input current :	4.7A (rms) for 115 VAC 2.3A (rms) for 230 VAC
Earth leakage current:	100 uA max. @ 115 VAC, 60 Hz 220 uA max. @ 230 VAC, 50 Hz

OUTPUT SPECIFICATIONS

Output voltage/current :	See rating chart
Total output power :	See rating chart
Ripple and Noise :	2% peak to peak maximum
Overvoltage protection :	Provided on output #1 only; set at 115-140% of its nominal output voltage
Overcurrent protection :	All outputs protected to short circuit conditions
Temperature coefficient :	All outputs $\pm 0.04\%$ / $^{\circ}\text{C}$ maximum
Transient response :	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500us after a 25% step load change
PFD signal :	TTL logic high for normal operation and TTL logic low upon loss of input power. This signal appears at least 1ms prior to master output dropping 5% below its nominal value. This signal also provides a minimum delay of 100ms after master output is within regulation.
Remote inhibit :	Requires an external TTL high level signal to inhibit outputs for standard models.

PM300 SERIES

CE (LVD)
RoHS



Safety Standard Approvals :



UL60601-1, CSA C22.2 No. 601.1
File No. E178020
UL 60950-1
File No. E137410



TÜV EN60601-1



TÜV EN60950-1

ENVIRONMENTAL SPECIFICATIONS

Operating temperature :	0 $^{\circ}\text{C}$ to +70 $^{\circ}\text{C}$
Storage temperature :	-40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$
Relative humidity :	5% to 95% non-condensing
Derating :	Derate from 100% at +50 $^{\circ}\text{C}$ linearly to 50% at +70 $^{\circ}\text{C}$
Cooling :	200/250/300 watts continuous output power at 35 CFM forced air cooling or 100/125/150 watts at convention cooling

GENERAL SPECIFICATIONS

Switching frequency :	70 KHz ± 10 KHz
Power factor :	0.98 typical
Efficiency :	70% minimum on all models
Hold-up time :	12 msec minimum at 110 VAC
Line regulation :	$\pm 0.2\%$ maximum at full load
Inrush current :	30A @ 115 VAC or 60A @ 230 VAC, at 25 $^{\circ}\text{C}$ cold start
Withstand voltage :	4000 VAC from input to output 1500 VAC from input to ground 500 VAC from output to ground
MTBF :	300,000 hours minimum at full load at 25 $^{\circ}\text{C}$ ambient, calculated per MIL-HDBK-217F
EMC Performance (EN60601-1-2: 2001)	
EN55011:	Class B conducted, Class B radiatec
EN61000-3-2:	Harmonic distortion, Class A and D
EN61000-3-3:	Line flicker
EN61000-4-2:	ESD, ± 8 KV air and ± 6 KV contact
EN61000-4-3:	Radiated immunity, 3 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, 3 Vrms
EN61000-4-8:	Magnetic field immunity, 3 A/m
EN61000-4-11:	Voltage dips, 30% reduction for 500 ms, 60% reduction for 100 ms and >95% reduction for 10 ms



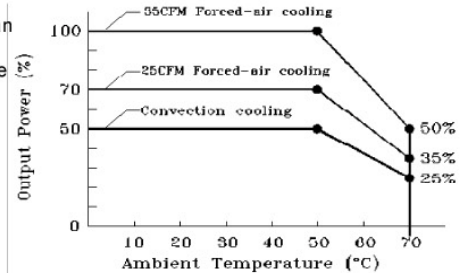
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OUTPUT VOLTAGE/CURRENT RATING CHART

(1) (2) (6) Model	Output # 1 (3)				Output # 2 (3)				Output # 3 (4)				Output # 4 (4)				Maximum Output Power (5)
	Vnom.	Imin.	Imax.	Tol.	Vnom.	Imin.	Imax.	Tol.	Vnom.	Imin.	Imax.	Tol.	Vnom.	Imin.	Imax.	Tol.	
PM300-10-3	3.3V	3.0 A	60 A	3%													200 W
PM300-10	5.1V	3.0 A	60 A	2%													300 W
PM300-12	12V	1.2 A	25 A	2%													300 W
PM300-13	15V	1.0 A	20 A	2%													300 W
PM300-14	24V	0.6 A	12.5 A	2%													300 W
PM300-16	30V	0.5 A	10 A	2%													300 W
PM300-18	48V	0.5 A	6.3 A	2%													300 W
PM300-40-3	3.3V	3.0 A	35 A	3%	5.1 V	2.0 A	22 A	2%	12 V	0 A	4 A	4%	12 V	0 A	4 A	4%	250 W
PM300-40	5.1V	2.0 A	35 A	2%	12 V	1.0 A	10 A	2%	12 V	0 A	4 A	4%	5.1 V	0 A	4 A	4%	300 W
PM300-41	5.1V	2.0 A	35 A	2%	15 V	0.8 A	8 A	2%	15 V	0 A	4 A	4%	24 V	0 A	2.5 A	4%	300 W
PM300-42	5.1V	2.0 A	35 A	2%	12 V	1.0 A	10 A	2%	12 V	0 A	4 A	4%	12 V	0 A	4 A	4%	300 W
PM300-45	5.1V	2.0 A	35 A	2%	12 V	1.0 A	10 A	2%	12 V	0 A	4 A	4%	24 V	0 A	2.5 A	4%	300 W
PM300-46	5.1V	2.0 A	35 A	2%	12 V	1.0 A	10 A	2%	12 V	0 A	4 A	4%	15 V	0 A	4 A	4%	300 W
PM300-47	5.1V	2.0 A	35 A	2%	24 V	0.5 A	5 A	2%	12 V	0 A	4 A	4%	12 V	0 A	4 A	4%	300 W
PM300-48	5.1V	2.0 A	35 A	2%	24 V	0.5 A	5 A	2%	5.1 V	0 A	4 A	4%	15 V	0 A	4 A	4%	300 W
PM300-49	5.1V	2.0 A	35 A	2%	12 V	1.0 A	10 A	2%	5.1 V	0 A	4 A	4%	24 V	0 A	2.5 A	4%	300 W
PM300-410	24V	0.5 A	6.3 A	2%	12 V	1.0 A	10 A	2%	5.1 V	0 A	4 A	4%	12 V	0 A	4 A	4%	300 W
PM300-411	24V	0.5 A	6.3 A	2%	12 V	1.0 A	10 A	2%	5.1 V	0 A	4 A	4%	24 V	0 A	2.5 A	4%	300 W
PM300-412	24V	0.5 A	6.3 A	2%	12 V	1.0 A	10 A	2%	12 V	0 A	4 A	4%	12 V	0 A	4 A	4%	300 W
PM300-413	24V	0.5 A	6.3 A	2%	24 V	0.5 A	5 A	2%	5.1 V	0 A	4 A	4%	15 V	0 A	4 A	4%	300 W
PM300-414	24V	0.5 A	6.3 A	2%	24 V	0.5 A	5 A	2%	12 V	0 A	4 A	4%	12 V	0 A	4 A	4%	300 W

NOTES:

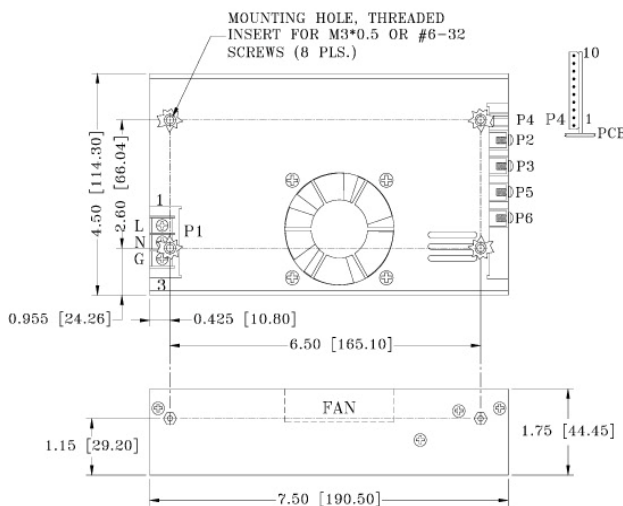
- Add suffix "B" for U-bracket format or "C" for enclosed format with optional fan control, e.g. PM300-45C.
- All outputs are floating. It can be connected externally for positive or negative output.
- Output #1 & #2 can be adjusted within $\pm 5\%$ of their nominal voltage.
- Output #3 & #4 can be adjusted within $\pm 15\%$ of their nominal voltage.
- 300 watts for "C" version with cover-and-fan assembly. 150 watts for "B" version without moving air (maximum current of output #1 & #2 derated to 50%), or 300 watts with 35 CFM forced air provided by user.
- PM300-10-3 is rated 200 watts with 35 CFM forced air cooling or 100 watts convection cooled. PM300-40-3 is rated 250 watts with 35 CFM forced air cooling (maximum current of output #1 & #2 derated to 50%) or 125 watts convection cooled.
- Single output models may be operated at no-load. At no-load, output voltage tolerance increases to 10%.



DERATING CURVE

MECHANICAL SPECIFICATIONS

Single Output Models



NOTES:

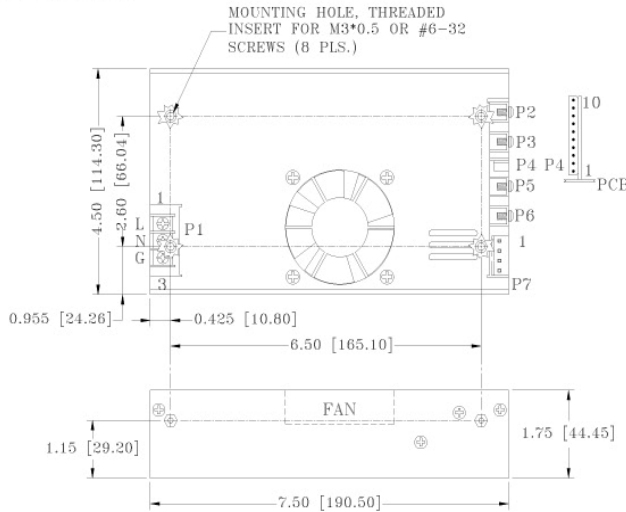
- Dimensions shown in inches [mm]
- Tolerance 0.02 [0.5] maximum
- Input connector P1 is Dinkle DT-35-B01W-03 with M3, nickel-plated screws.
- Connector P4 mates with Molex housing 50-37-5103 and pins 5263.
- Connectors P2, P3, P5 and P6: M3*0.5 screw connections
- Weight: 1.20 Kgs. (2.64 lbs.) approx.
- DC fan on P4 is rated at 12 V /0.1 A.



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MECHANICAL SPECIFICATIONS

Multiple Output Models



NOTES:

1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Input connector P1 is Dinkle DT-35-B01W-03.
Screws are M3, nickel plated.
4. Connector P4 mates with Molex housing 50-37-5103 and pins 5263.
5. Connectors P2, P3, P5 and P6: M3*0.5 screw connections
6. Output connector P7 mates with Molex housing 09-50-3041 and Molex 2878 series crimp terminal.
7. Weight: 1.24 Kgs. (2.73 lbs.) approx.
8. DC fan on P4 is rated at 12 V / 0.1 A.

PIN CHART

Single Output Models

MODEL	CONN PIN	P1 (AC)			P2	P3	P4			
		1	2	3			1	2	3	4
PM300-10-3	PM300-10	LIVE	NEUTRAL	GROUND	+VO1	+VO1	SIGNAL GROUND			
PM300-12	PM300-13						(-VO1)			
PM300-14	PM300-16						+S (VO1)			
PM300-18	PM300-16						-S (VO1) PFD			

MODEL	CONN PIN	P4						P5	P6	P7			
		5	6	7	8	9	10			1	2	3	4
PM300-10-3	PM300-10	INHIBIT	N.C.	N.C.	N.C.	0V (FAN)	FAN	-VO1	-VO1	VOID			
PM300-12	PM300-13									VOID			
PM300-14	PM300-16									VOID			
PM300-18	PM300-16									VOID			

Multiple Output Models

MODEL	CONN PIN	P1 (AC)			P2	P3	P4			
		1	2	3			1	2	3	4
PM300-40-3	PM300-40	LIVE	NEUTRAL	GROUND	+VO1	-VO1	SIGNAL GROUND			
PM300-41	PM300-42						(-VO1)			
PM300-45	PM300-46						+S (VO1)			
PM300-47	PM300-48						-S (VO1) PFD			
PM300-49	PM300-410						VOID			
PM300-411	PM300-412						VOID			
PM300-413	PM300-414						VOID			

MODEL	CONN PIN	P4						P5	P6	P7			
		5	6	7	8	9	10			1	2	3	4
PM300-40-3	PM300-40	INHIBIT	N.C.	+S (VO2)	-S (VO2)	0V (FAN)	FAN	+VO2	-VO2	VOID			
PM300-41	PM300-42									VOID			
PM300-45	PM300-46									VOID			
PM300-47	PM300-48									VOID			
PM300-49	PM300-410									VOID			
PM300-411	PM300-412									VOID			
PM300-413	PM300-414									VOID			