PM202 200W Medical & ITE Power Supplies

Features:

- BF Class Insulation
- Operation altitude up to 5000 meters
- 3 X 5 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
- Short– circuit protection
- Power fail Detect (PFD) signal
- Inhibit-TTL high to disable output
- Compliant with RoHS requirements
- High Efficiency 925 typical

Description:

The PM202 series of AC-DC switching power supplies in a package 3 x 5 x 1.5 inches are capable of delivering 200 watts of continuous power at 5.3 CFM forced air cooling or 150 watts at convection cooling. 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 for 200 watt output. They are specially designed for medical applications. The units are certified also to IEC/EN/UL/CSA 60950-1 and suitable for data networking, industrial and telecommunication applications.

Model (1)	Output							Efficiency (typical) 115/230 VAC
	V1	Min Current (4)	Max. Current at convection	Max Current at 5.3 CFM (2)	Tol.	Ripple & Noise (3)	Max Power (2)	
PM202-12BN1	12V	0.1A	12.50A	16.67A	±2%	120mV	150 W/ 200 W	88/91 %
PM202-13BN1	15V	0.1A	10.00A	13.34A	±2%	150mV	150 W/ 200 W	88/91%
PM202-13-1BN1	18V	0.1A	8.34A	11.12A	±2%	180mV	150 W/ 200 W	88/91%
PM202-14BN1	24V	0.1A	6.25A	8.34A	±2%	240mV	150 W/ 200 W	88/91%
PM202-15BN1	28V	0.1A	5.36A	7.15A	±2%	280mV	150 W/ 200 W	88/91%
PM202-16-1BN1	32V	0.1A	4.69A	6.25A	±2%	320mV	150 W/ 200 W	88/91%
PM202-17BN1	36V	0.1A	4.17A	5.56A	±2%	360mV	150 W/ 200 W	88/92%
PM202-18BN1	48V	0.1A	3.13A	4.17A	±2%	480mV	150 W/ 200 W	88/92%

NOTES:

1. Suffix “BN1” in model numbers denotes U-bracket form. Change suffix “BN1” to “CN1” for enclosed form with cover and fan assembly, e.g. PM202-14CN1
2. 150W without moving air or 200 W with 5.3 CFM forced air provided by user for “BN1” version, 200 W for “CN1” version with cover and fan assembly. The adequacy of cooling air is judged by the measured core temperature of transformer T1 below 75□ at 25□ ambient, or below 100□ at 50□ ambient.
3. Ripple and noise is maximum peak to peak voltage value measured at output within 2 0 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.
4. All models may be operated at no-load without damage. At no load, output voltage fluctuates beyond 5% due to the burst-mode operation of the control IC in them for energy saving.

Specifications	
Safety Standards & EMC Specifications	
Safety Standard Approvals	UL ES 60601-1, CSA C22.2 No. 60601-1, File No. E178020 TUV EN 60601-1 UL 60950-1, CSA C22.2 No. 60950-1 (except PM202-16-1BN1 and PM202-16 -1CN1) TUV EN 60950-1 (except PM202-16-1BN1 and PM202-16-1CN1)
EMI Standard	EN55011/EN55022, FCC and VCCI Class B radiated and conducted
EMC Performance	EN61000-3-2: Harmonic distortion, Class A and D EN61000-3-3: Line flicker EN61000-4-2: ESD, ±15 KV air and ± 8KV contact EN61000-4-3: Radiated immunity, 10V/m EN61000-4-4: Fast transient/burst, ±2KV EN61000-4-5: Surge, ±1 KV diff., ±2 KV com. EN61000-4-6: Conducted immunity, 10Vrms EN61000-4-8: Magnetic field immunity, 30 A/m EN61000-4-11: Voltage dip immunity, 30% reduction for 500ms, and 100% reduction for 10ms
*Consult with TT Electronics for information on additional country safety approvals	
Input Specifications	
Input Voltage Range	90 to 264VAC
Input Frequency Range	47 to 63Hz
Input Current	2.5A (rms) @100VAC, 60 Hz 1.25A (rms) @240VAC, 50 Hz
Earth Leakage Current	220µA max. @ 264VAC, 63Hz
Touch Current	100µA max. @ 264 VAC, 63Hz
Output Specifications	
Ripple & Noise	1% peak to peak maximum
Remote sense	Compensation for cable losses up to 0.5V
Overvoltage Protection	Set at 112-140% of its nominal output voltage
Overcurrent Protection	All outputs protected to short circuit conditions
Temperature Coefficient	All outputs ±0.04%/°C 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 250 mA maximum for B version
Environmental Specifications	
Operating Temperature	-0°C to +70°C
Storage Temperature	-40°C to +85°C
Relative Humidity	5% to 95% non-condensing
Temperature Derating	De-rate from 100% at +50°C linearly to 50% at +70°C
General Specifications	
Switching Frequency	100KHz
Power Factor	0.98 typical
Efficiency	87% minimum on all models
Hold-up Time	10ms minimum at 110 VAC
Line Regulation	±0.5% maximum at full load
Inrush Current	20A @ 115 Vac or 40A @ 230 Vac at 25°C cold start
Withstand Voltage	4000 VDC from input to output (2 MOPP) 1500 VDC from input to ground (1 MOPP) 1500 VDC from output to ground (To verify AC strength, get correct test method to avoid power supply damage.)
MTBF	300,000 hours at full load at 25°C ambient, calculated per MIL-HDBK-217F

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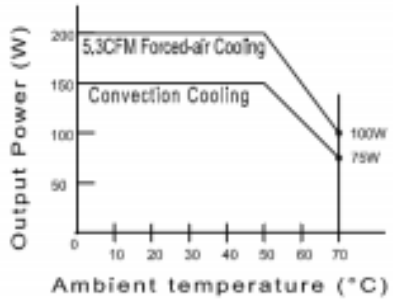
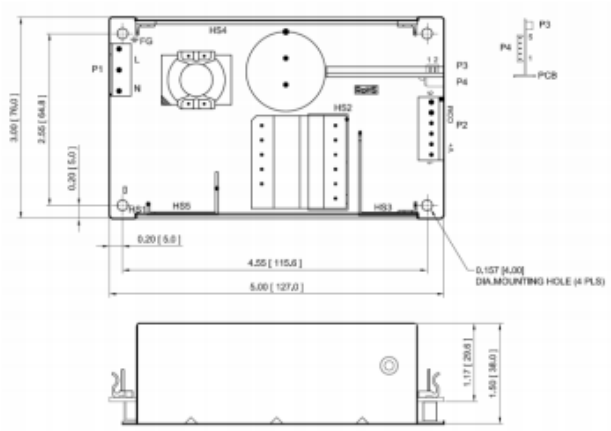
Diagrams

OUTPUT POWER DERATING CURVE

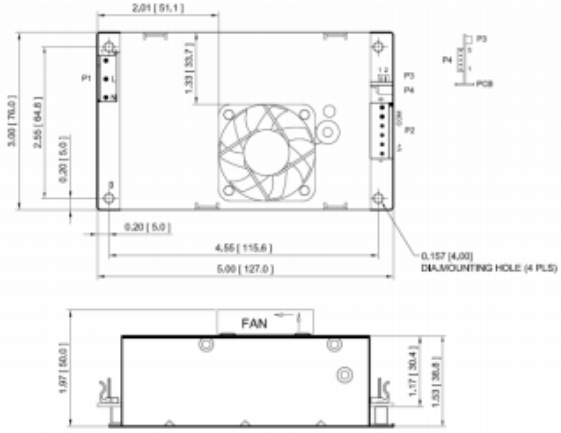


MECHANICAL SPECIFICATIONS

U-bracket Form



Enclosed Form



NOTES:

1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Input connector P1: Molex header 09-65-2058 or equivalent, mating with Molex housing 09-50-1051 or equivalent.
4. Output connector P2: Molex header 09-65-2068 or equivalent, mating with Molex housing 09-50-1061 or equivalent.
5. Fan connector P3: JST header S2B-ZR-3.4 or equivalent, mating with JST housing ZHR-2 or equivalent.
6. Connectors P4: Molex header 22-05-7055 or equivalent, mating with Molex housing 50-37-5053 or equivalent.
7. Weight: 390 grams (0.86 lbs.) approx. for U-bracket form, 440 grams (0.97 lbs.) for enclosed form
8. Fixing of units to end equipment is through standoffs and the four mounting holes in PCB.
9. Ground tab is 0.25 [6.35] × 0.032 [0.8] fast-on connector.

Issue	Change Description	Approval	Date
1	TR CREATED		17/02/2020
2	TR AMENDED– ADDED SAFETY APPROVALS ON SPEC TABLE		24/02/2020
3	Replaced specification table to match PM202	KB	JUN/1/2020