

650W Medical Power Supply



Features:

- EN61000-3-2 Class A and D Compliant
- Power Factor 0.98 Typical
- Overvoltage Protection
- Overcurrent Protection
- Thermal Protection
- Power Fail Detection
- 100% Burn In at Full Load
- Remote Sense (Outputs #1 & #2)
- Remote Inhibit
- RoHS Compliant
- CE Mark / CB Report



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



TÜV EN60601-1

OUTPUT VOLTAGE/CURRENT RATING CHART:

Model	Output 1				Output 2				Output 3				Max Output Power
	Vnom	Imin	Imax	Tol	Vnom	Imin	Imax	Tol	Vnom	Imin	Imax	Tol	
PM650-12	12V	0A	54.2A	2%									650W
PM650-13	15V	0A	43.4A	2%									650W
PM650-14	24V	0A	27.1A	2%									650W
PM650-15	27V	0A	24.1A	2%									650W
PM650-16	30V	0A	21.7A	2%									650W
PM650-17	36V	0A	18.1A	2%									650W
PM650-18	48V	0A	14.6A	2%									700W
PM650-20	24V	1.5A	18A	2%	12V	1.2A	22A	5%					650W
PM650-21	24V	1.5A	18A	2%	15V	1.0A	18A	5%					650W
PM650-22	48V	0.75A	9A	2%	24V	0.6A	12A	5%					650W
PM650-23	48V	0.75A	9A	2%	12V	1.2A	22A	5%					650W
PM650-24	48V	0.75A	9A	2%	15V	1.0A	18A	5%					650W
PM650-30	24V	1.5A	18A	2%	12V	1.2A	22A	5%	3.3V	0A	10A	3%	650W
PM650-31	24V	1.5A	18A	2%	15V	1.0A	18A	5%	3.3V	0A	10A	3%	650W
PM650-32	24V	1.5A	18A	2%	12V	1.2A	22A	5%	5.1V	0A	10A	3%	650W
PM650-33	24V	1.5A	18A	2%	15V	1.0A	18A	5%	5.1V	0A	10A	3%	650W
PM650-34	48V	0.75A	9A	2%	12V	1.2A	22A	5%	3.3V	0A	10A	3%	650W
PM650-35	48V	0.75A	9A	2%	15V	1.0A	18A	5%	3.3V	0A	10A	3%	650W
PM650-36	48V	0.75A	9A	2%	12V	1.2A	22A	5%	5.1V	0A	10A	3%	650W
PM650-37	48V	0.75A	9A	2%	15V	1.0A	18A	5%	5.1V	0A	10A	3%	650W

NOTES:

1. Add suffix "B" for U- bracket format or "C" for enclosed format with fan control function, e.g. PM650-14C.
2. All outputs are floating. It can be connected externally for positive or negative output.
3. Output #1 can be adjusted within +/- 5% of their nominal voltage.
4. Output #3 can be adjusted within +/- 15% of their nominal voltage.
5. 650~700 watts for "C" version with cover-and-fan assembly. 325~350 watts for "B" version without moving air (maximum current of output #1 and #2 derated to 70%), or 650 watts with 50 CFM forced air provided by user.
6. All models may operated at no-load. At no-load, output voltage tolerance increases to 10%.



Specifications

INPUT SPECIFICATIONS:

Input voltage	90 to 264VAC
Input frequency	47 to 63Hz
Input current	10A (rms) for 115VAC 5A (rms) for 230VAC
Earth leakage current	100µA max. @115VAC, 60Hz 165µA max. @230VAC, 60Hz

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 500µs after a 25% step load change
PFD signal	TTL logic high for normal operation and TTL logic low upon loss of input power. Signal appears at least 1ms prior to master output dropping 5% below its nominal value. 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.

ENVIRONMENTAL SPECIFICATIONS:

Operating temperature	0°C to +70°C
Storage temperature:	-40°C to +85°C
Relative humidity	5% to 95% non-condensing
Derating	Derate from 100% at +50°C linearly to 50% at +70°C

GENERAL SPECIFICATIONS:

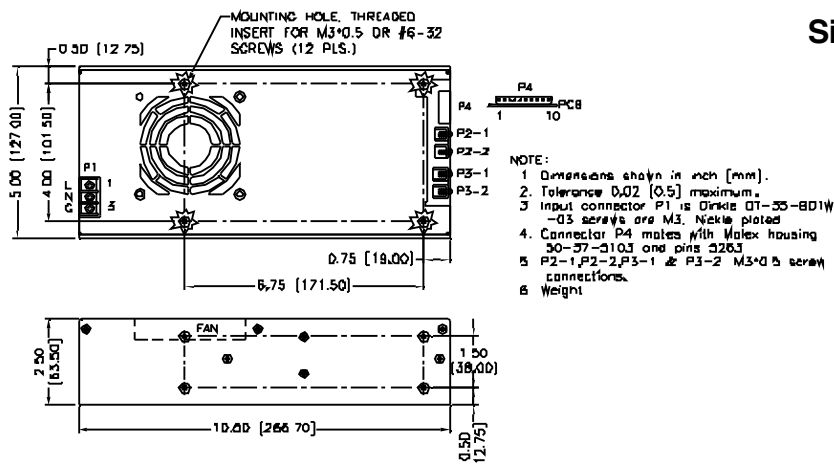
Switching frequency	70 KHz – 110 KHz
Power Factor	0.98 typical
Efficiency	80% minimum
Hold-up time	12 msec minimum at 110VAC
Line regulation	$\pm 0.2\%$ maximum at full load
Inrush current	50 amps @ 115VAC or 100 amps @ 230VAC, at 25°C cold start
Withstand voltage	4000VAC from input to output 1500VAC from input to ground 500VAC from output to ground
MTBF	300,000 hours at full load at 25°C ambient, calculated per MIL-HDBK-217F
EMC Performance	(EN60601-1-2:)
EN55011	Class B conducted, Class A radiated
EN61000-3-2	Harmonic distortion, Class A and D
EN61000-3-3	Line flicker
EN61000-4-2	ESD, $\pm 8\text{KV}$ air and $\pm 6\text{KV}$ contact
EN61000-4-3	Radiated immunity, 3V/m
EN61000-4-4	Fast transient/burst, $\pm 2\text{KV}$
EN61000-4-5	Surge, $\pm 1\text{KV}$ diff., $\pm 2\text{KV}$ com.
EN61000-4-6	Conducted immunity, 3Vrms
EN61000-4-8	Magnetic field immunity, 3A/m
EN61000-4-11	Voltage dips, 30% reduction for 500ms, 60% reduction for 100ms and >95% reduction for 10ms

SAFETY SPECIFICATIONS:

UL/c UL 60601-1, TUV EN60601-1
CE Mark(LVD)
CB Report

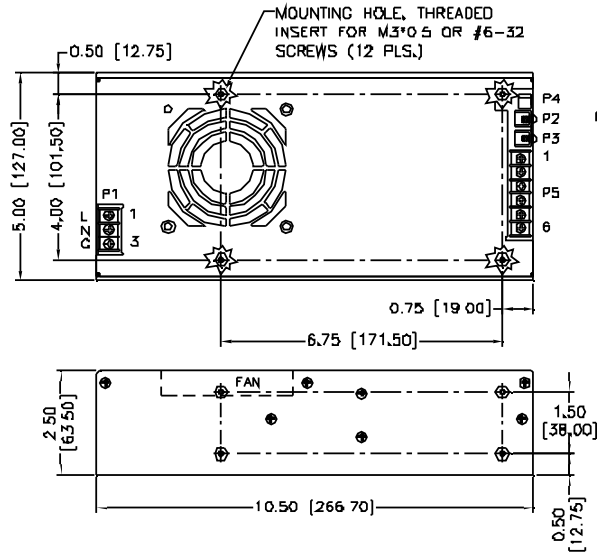
Note: Designed for medical applications, not life support equipment.

MECHANICAL SPECIFICATIONS



Single Output Models

MECHANICAL SPECIFICATIONS



Multiple Output Models

NOTE:

1. Dimensions shown in inch [mm]
2. Tolerance 0.02 [0.5] maximum.
3. Input connector P1 is Dinkie DT-35-B01W
-03 screws are M3, Nickel plated.
4. Connector P4 mates with Molex housing 50-37-5103 and pins 5263
5. P2,P3: M3*0.5 screw connections.
6. Output connector P5 is Dinkie DT-35-B01W-06 screws are M3, Nickel plated.
7. Weight:

PIN CHARTS

Single Output Models

MODEL	CONN PIN	P1 (AC)			P2	P3	P4			
		1	2	3			1	2	3	4
PM650-12 PM650-14 PM650-16 PM650-18	PM650-13 PM650-15 PM650-17	LIVE	NEUTRAL	GROUND	+V	-V	SIGNAL GROUND (-V)	+S (V)	-S (V)	PFD

MODEL	CONN PIN	P4					
		5	6	7	8	9	10
PM650-12 PM650-14 PM650-16 PM650-18	PM650-13 PM650-15 PM650-17	INHIBIT +Ve	INHIBIT -Ve	N.C.	N.C.	0V (FAN)	FAN

Multiple Output Models

MODEL	CONN PIN	P1 (AC)			P2	P3	P4			
		1	2	3			1	2	3	4
PM650-20 PM650-22 PM650-24 PM650-31 PM650-33 PM650-35 PM650-37	PM650-21 PM650-23 PM650-30 PM650-32 PM650-34 PM650-36	LIVE	NEUTRAL	GROUND	+V1	-V1	SIGNAL GROUND (-V)	+S (V1)	-S (V1)	PFD

MODEL	CONN PIN	P4						P5					
		5	6	7	8	9	10	1	2	3	4	5	6
PM650-20 PM650-22 PM650-24	PM650-21 PM650-23	INHIBIT +Ve	INHIBIT -Ve	+S (V2)	-S (V2)	0V (FAN)	FAN	+V2	+V2	-V2	-V2	N.C.	N.C.
PM650-30 PM650-32 PM650-34 PM650-36	PM650-31 PM650-33 PM650-35 PM650-37							+V2	+V2	-V2	-V2	+V3	-V3

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