

650-700 WATT MEDICAL SWITCHING POWER SUPPLIES

DESCRIPTION

The PM650 series comprising single and multiple output models for 650 700 watts of continuous output power is specially designed for medical and ITE applications, not for life support. They operate at 90 to 264VAC input voltage without the need of a selector strap. 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
- Thermal 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 to 264VAC
Input frequency :	47 to 63Hz
Input current :	10A (rms) for 115VAC 5A (rms) for 230VAC
Earth leakage current :	100uA max. @ 115VAC, 60Hz 165uA max. @ 230VAC, 50Hz

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 100 ms after master output is within regulation.
Remote inhibit :	Requires an external TTL high level signal to inhibit outputs for standard models.

PM650 SERIES

CE (LVD)
RoHS



Safety Standard Approvals :



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



UL 60950-1, CSA C22.2 No. 60950-1



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 $^{\circ}\text{C}$

GENERAL SPECIFICATIONS

Switching frequency :	70KHz $\pm 10\text{KHz}$
Power factor :	0.98 typical
Efficiency :	80% minimum on all models
Hold-up time :	12 msec minimum at 110VAC
Line regulation :	$\pm 0.2\%$ maximum at full load
Inrush current :	50amps @115VAC or 100 amps @ 230VAC at 25 $^{\circ}\text{C}$ cold start
Withstand voltage :	4000VAC from input to output 1500VAC from input to ground 500VAC 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)	
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

UNIVERSAL INPUT

PM650 SERIES

OUTPUT VOLTAGE/CURRENT RATING CHART

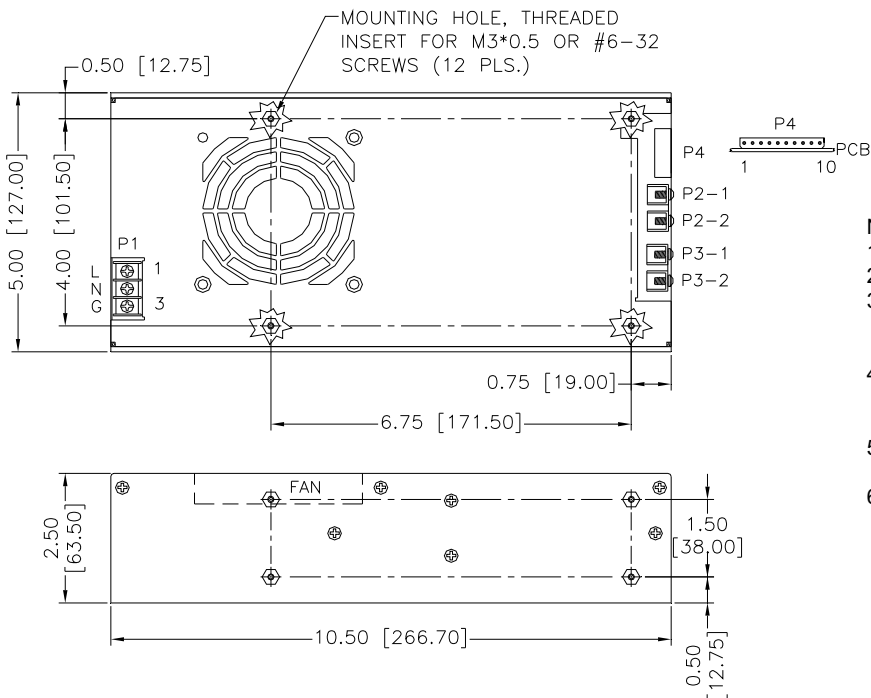
MODEL	Output # 1				Output # 2				Output # 3				Maximum Output Power
	Vnom.	Imin.	Imax.	Tol.	Vnom.	Imin.	Imax.	Tol.	Vnom.	Imin.	Imax.	Tol.	
PM650 12	12V	0A	54.2A	2%									650W
PM650 14	24V	0A	27.1A	2%									650W

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%.

MECHANICAL SPECIFICATIONS

Single Output Models



NOTES:

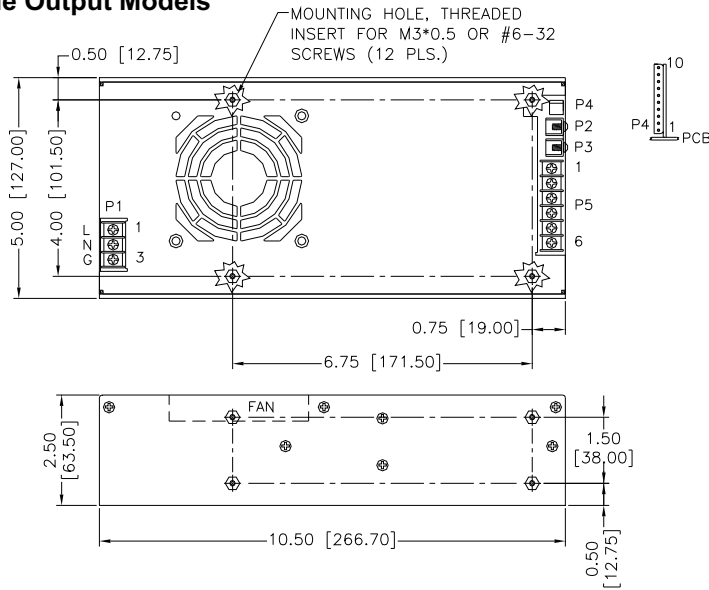
1. Dimensions shown in inch [mm]
2. Tolerance 0.02 [0.5] maximum.
3. Input connector P1 is Dinkle DT 4C B01N 03 screws are M3, Nickel plated.
4. Connector P4 mates with Molex housing 50 37 5103 and pins 5263.
5. P2 1, P2 2, P3 1 & P3 2: M3*0.5 screw connections.
6. Weight: 2,040 gms.

UNIVERSAL INPUT

PM650 SERIES

MECHANICAL SPECIFICATIONS

Multiple Output Models



NOTES:

1. Dimensions shown in inch [mm]
2. Tolerance 0.02 [0.5] maximum
3. Input connector P1 is Dinkle DT 4C B01N 03 screws are M3, Nickel plated
4. Connector P4 mates with Molex housing 50 37 5103 and pins 5263.
5. P2, P3: M3*0.05 screw connections.
6. Output connector P5 is Dinkle DT 35 B01W 06 screws are M3, Nickel plated.
7. Weight: 2,140 gms.

PIN CHART

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 PM650 30	INHIBIT +Ve	INHIBIT -Ve	+S (V2)	-S (V2)	0V (FAN)	FAN	+V2	+V2	-V2	-V2	N.C.	N.C.
PM650 31 PM650 32 PM650 34 PM650 36	PM650 31 PM650 33 PM650 35 PM650 37							+V2	+V2	-V2	-V2	+V3	-V3