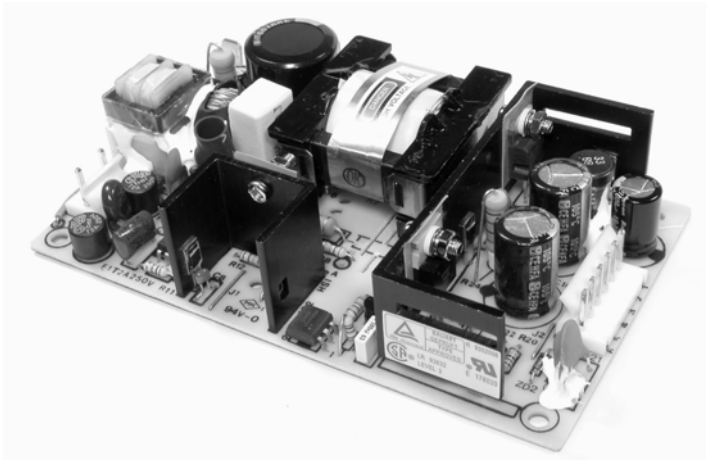
40 WATT MEDICAL POWER SUPPLIES

PM40AL SERIES CE (MDD)



DESCRIPTION

The PM40AL series of compact, open PCB constructed, AC-DC switching power supplies are capable of delivering 40 watts of continuous output power. They operate at 85 to 264 VAC input voltage without the need of voltage selection. They are ideally suited for use in medical equipment, safety systems and monitoring equipment, not for patient contact.

FEATURES

- **Low safety ground leakage current**
- **100% burn-in**
- **Wide input range 85 to 264 VAC**
- **Input surge current protection**
- **Overvoltage protection**
- **Overcurrent protection**
- **Open PCB construction**

INPUT SPECIFICATIONS

Input voltage：	85 to 264 VAC
Input frequency：	47 to 63 Hz
Input current：	1.20A（rms）for 115VAC 0.70A（rms）for 230VAC
Leakage current：	150uA max. @ 230VAC, 50Hz 90 uA max. @ 115VAC, 60Hz

OUTPUT SPECIFICATIONS

Output voltage/current：	See rating chart
Total output power：	40 watts maximum
Ripple and noise：	1% peak to peak maximum
Overvoltage protection：	Provided on output #1 only; set at 112 - 132% of its nominal output voltage
Overcurrent protection：	All outputs 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 500us after a 25% step load change

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℃

Safety Standard Approvals：

UL 2601-1

CSA C22.2 No. 601.1

TÜV EN60601-1

GENERAL SPECIFICATIONS

Switching frequency：	36KHz ±5KHz
Efficiency：	70% minimum on single output models with Vo≧15V, 65% minimum on the others
Hold-up time：	10 msec minimum at 110VAC
Line regulation：	±0.5% maximum at full load
Inrush current：	15 amps @ 115VAC, or 30 amps @ 230VAC, at 25℃ cold start
Withstand voltage：	4000VAC from input to output 1500VAC from input to ground 500VAC from output to ground
MTBF：	600,000 hours minimum at full load at 25℃ ambient, calculated per MIL-HDBK-217F
EMC Performance (EN60601-1-2: 2001)	
EN55011	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, ± 8KV air and ± 6KV contact
EN61000-4-3	Radiated immunity, 3V/m for 80~2500MHz
EN61000-4-4	Fast transient/burst, ± 2KV
EN61000-4-5	Surge, ± 1KV diff., ± 2KV 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

Tumbler Technologies + TRUMPower
3350 Scott Blvd., Bldg. 13, Santa Clara, California 95054, USA
Phone: 408-988-6616 ● sales@trumpower.com ● www.TRUMPower.com

MEDICAL GRADE PM40AL SERIES

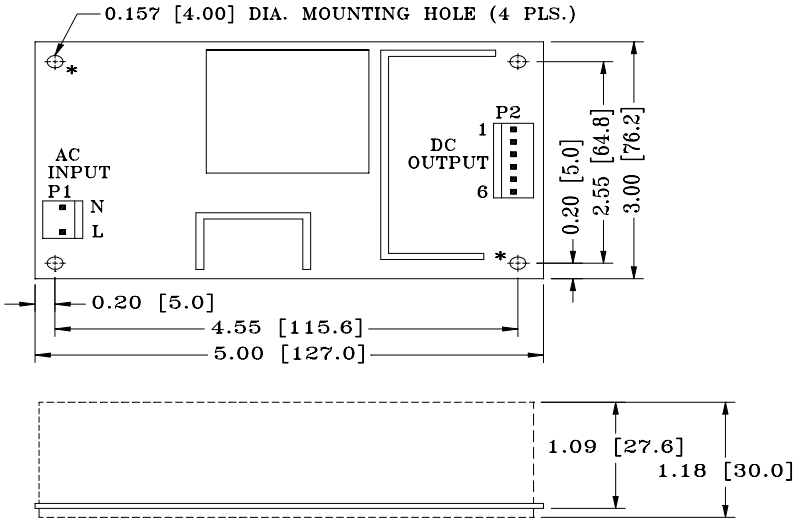
OUTPUT VOLTAGE/CURRENT RATING CHART

(1)(2) Model	Output #1 Vnom.	Imin.	Imax.	Tol.	Output #2 Vnom.	Imin.	Imax.	Tol.	Output #3 Vnom.	Imin.	Imax.	Tol.	Maximum Output Power
PM40-10AL	5V	0A	8.0A	2%		(N/A)				(N/A)			40W
PM40-12AL	12V	0A	3.5A	1%		(N/A)				(N/A)			40W
PM40-13AL	15V	0A	3.0A	1%		(N/A)				(N/A)			40W
PM40-14AL	24V	0A	2.0A	1%		(N/A)				(N/A)			40W
PM40-18AL	48V	0A	0.9A	1%		(N/A)				(N/A)			40W
PM40-23AL	+5V	0.5A	3.0A	3%	+12V	0.2A	2A	5%		(N/A)			40W
PM40-24AL	+5V	0.5A	3.0A	3%	+15V	0.2A	2A	5%		(N/A)			40W
PM40-25AL	+5V	0.5A	3.0A	3%	+24V	0.1A	1A	5%		(N/A)			40W
PM40-30AL	+5V	0.5A	3.0A	3%	+12V	0.2A	2A	5%	-5V	0.05A	0.3A	10%	40W
PM40-31AL	+5V	0.5A	3.0A	3%	+12V	0.2A	2A	5%	-12V	0.05A	0.3A	10%	40W
PM40-32AL	+5V	0.5A	3.0A	3%	+15V	0.2A	2A	5%	-15V	0.05A	0.3A	10%	40W
PM40-33AL	+5V	0.5A	3.0A	3%	+15V	0.2A	2A	5%	-12V	0.05A	0.3A	10%	40W
PM40-39AL	+5V	0.5A	3.0A	3%	+24V	0.1A	1A	5%	-12V	0.05A	0.3A	10%	40W

Notes: (1) All multiple output models may be operated at no-load without damage. At no-load, output voltage tolerance increases to 10%

(2) Safety agency approvals are for the above listed models in PCB format. To order a model with a metallic L-bracket or box, change suffix "AL" to "BL" for L-bracket format or to "CL" for enclosed format (mechanical details shown in page 7-1), e.g. PM40-14BL.

MECHANICAL SPECIFICATIONS



NOTES:
1. Dimensions shown in inch [mm]
2. Tolerance 0.02 [0.5] maximum
3. Input connector mates with Molex housing 09-50-3031 and Molex 2878 series crimp terminal.
4. Output connector mates with Molex housing 09-50-3061 and Molex 2878 series crimp terminal.
5. Weight: 230 grams (PCB format)
6. It's strongly recommended to connect the two "＊" marked mounting holes to system chassis through metallic stand-offs. This helps reduce greatly output noise.

PIN CHART

PIN / MODEL	1	2	3	4	5	6
PM40-10AL PM40-12AL PM40-13AL PM40-14AL PM40-18AL	OUTPUT #1	OUTPUT #1	OUTPUT #1	RETURN	RETURN	RETURN
PM40-23AL PM40-25AL PM40-24AL	OUTPUT #2	OUTPUT #1	OUTPUT #1	COMMON RETURN	COMMON RETURN	N.C.
PM40-30AL PM40-32AL PM40-39AL PM40-31AL PM40-33AL	OUTPUT #2	OUTPUT #1	OUTPUT #1	COMMON RETURN	COMMON RETURN	OUTPUT #3

Tumbler Technologies + TRUMPower
3350 Scott Blvd., Bldg. 13, Santa Clara, California 95054, USA
Phone: 408-988-6616 • sales@trumpower.com • www.TRUMPower.com