

450 Watt Medical



Features

- 4 x 6.5 x 1.61 inches
- Approval to EN60601 3rd Edition
- Dual Fusing
- Current Sharing Option
- Cover and Fan Options
- Peak Power Capability
- Class B EMI & Medical (BF) Safety Approvals

Electrical Specifications

Input Voltage	90–264 VAC/120–390 VDC, Universal	
Input Frequency	47–63 Hz	
Input Current	120 VAC: 4.5 A max.	230 VAC: 2.3 A max.
Input Protection	Dual Fusing, T8A/250 V in Live & Neutral	
No Load Power	120 VAC: 0.4	230 VAC: 0.8
Inrush Current	120 VAC: 40 A max.	230 VAC: 75 A max.
Leakage Current	Earth Leakage Current - 270 μ A, Touch Leakage Current - 45 μ A @ 120 VAC / 63 Hz	
Efficiency	120 VAC: 88% (24 V, 48 V, 30 V) 86% (12 V) 83% (5 V) Typical 230 VAC: 90% (24 V, 48 V, 30 V)	
Hold-up Time	120 VAC: 10 ms	230 VAC: 10 ms
Power Factor	120 VAC: 0.98	230 VAC: 0.95
Output Power	155 to 450 W (475 W for 24 V, 30 V & 500 W for 48 V model only for 5 seconds max.)	
Line Regulation	+/-0.5%	
Load Regulation	+/-3%	
Transient Response	< 10%, 50% to 100% load change, 50 Hz, 50% duty cycle, 0.1 A/ μ s, recovery time < 5 ms	
Rise Time	< 100 ms	
Set Point Tolerance	+/-1%	
Output Adjustability	+/-3%	
Over Current Protection	120 to 150%, Hic-Up Type	
Over Voltage Protection	114%, Latch Type	
Short Circuit Protection	Short term, autorecovery	
Over Temperature Protection	130°C primary heat sink, autorecovery	
Current Share	Upto 2 Supplies connected in parallel (optional)	
Switching Frequency	PFC converter: Variable, 45-160 kHz typical Resonant converter: Variable, 35–250 kHz; 90 kHz typical	
Operating Temperature	–0 to +70°C, refer derating curve	
Storage Temperature	–40 to +85°C	
Relative Humidity	95% Rh, noncondensing	
Altitude	Operating: 10,000 ft.; Nonoperating: 40,000 ft.	
MTBF	> 250 kh; Bellcore TR–332	
Isolation Voltage	2MOPP 5940 VDC between input to output, 1MOPP 2121 VDC input to Earth (Ref. Note: 9)	
Cooling	Convection: 300 W; 420 LFM: 450 W (24 V, 30 V & 48 V model) Convection: 250 W; 420 LFM: 450 W (12 V & 15 V model) Convection: 155 W; 420 LFM: 275 W (5 V model)	

Model Number	Type	Voltage	Max. Load (Convection)	Max. Load (420 LFM)	Min. Load	Ripple ²
LFMWLT450-1000	U-Channel	5 V	31.0 A	55.0 A	0.0 A	2%
LFMWLT450-1000-I	U-Channel + OR-ing MOSFET	5 V	31.0 A	55.0 A	0.0 A	2%
LFMWLT450-1000-T	Top Fan	5 V	31.0 A	55.0 A	0.0 A	2%
LFMWLT450-1000-I-T	Top Fan + OR-ing MOSFET	5 V	31.0 A	55.0 A	0.0 A	2%
LFMWLT450-1000-S	Side Fan	5 V	31.0 A	55.0 A	0.0 A	2%
LFMWLT450-1000-I-S	Side Fan + OR-ing MOSFET	5 V	31.0 A	55.0 A	0.0 A	2%
LFMWLT450-1001	U-Channel	12 V	20.83 A	37.5 A	0.0 A	2%
LFMWLT450-1001-I	U-Channel + OR-ing MOSFET	12 V	20.83 A	37.5 A	0.0 A	2%
LFMWLT450-1001-T	Top Fan	12 V	20.83 A	37.5 A	0.0 A	2%
LFMWLT450-1001-I-T	Top Fan + OR-ing MOSFET	12 V	20.83 A	37.5 A	0.0 A	2%
LFMWLT450-1001-S	Side Fan	12 V	20.83 A	37.5 A	0.0 A	2%
LFMWLT450-1001-I-S	Side Fan + OR-ing MOSFET	12 V	20.83 A	37.5 A	0.0 A	2%
LFMWLT450-1002	U-Channel	15 V	16.66 A	30.0 A	0.0 A	2%
LFMWLT450-1002-I	U-Channel + OR-ing MOSFET	15 V	16.66 A	30.0 A	0.0 A	2%
LFMWLT450-1002-T	Top Fan	15 V	16.66 A	30.0 A	0.0 A	2%
LFMWLT450-1002-I-T	Top Fan + OR-ing MOSFET	15 V	16.66 A	30.0 A	0.0 A	2%
LFMWLT450-1002-S	Side Fan	15 V	16.66 A	30.0 A	0.0 A	2%
LFMWLT450-1002-I-S	Side Fan + OR-ing MOSFET	15 V	16.66 A	30.0 A	0.0 A	2%
LFMWLT450-1003	U-Channel	24 V	12.3 A	18.75 A	0.0 A	2%
LFMWLT450-1003-I	U-Channel + OR-ing MOSFET	24 V	12.3 A	18.75 A	0.0 A	2%
LFMWLT450-1003-T	Top Fan	24 V	12.3 A	18.75 A	0.0 A	2%
LFMWLT450-1003-I-T	Top Fan + OR-ing MOSFET	24 V	12.3 A	18.75 A	0.0 A	2%
LFMWLT450-1003-S	Side Fan	24 V	12.3 A	18.75 A	0.0 A	2%
LFMWLT450-1003-I-S	Side Fan + OR-ing MOSFET	24 V	12.3 A	18.75 A	0.0 A	2%
LFMWLT450-1004	U-Channel	48 V	6.25 A	9.37 A	0.0 A	2%
LFMWLT450-1004-I	U-Channel + OR-ing MOSFET	48 V	6.25 A	9.37 A	0.0 A	2%
LFMWLT450-1004-T	Top Fan	48 V	6.25 A	9.37 A	0.0 A	2%
LFMWLT450-1004-I-T	Top Fan + OR-ing MOSFET	48 V	6.25 A	9.37 A	0.0 A	2%
LFMWLT450-1004-S	Side Fan	48 V	6.25 A	9.37 A	0.0 A	2%
LFMWLT450-1004-I-S	Side Fan + OR-ing MOSFET	48 V	6.25 A	9.37 A	0.0 A	2%
LFMWLT450-1005	U-Channel	30 V	10.0 A	15.0 A	0.0 A	2%
LFMWLT450-1005-I	U-Channel + OR-ing MOSFET	30 V	10.0 A	15.0 A	0.0 A	2%
LFMWLT450-1005-T	Top Fan	30 V	10.0 A	15.0 A	0.0 A	2%
LFMWLT450-1005-I-T	Top Fan + OR-ing MOSFET	30 V	10.0 A	15.0 A	0.0 A	2%
LFMWLT450-1005-S	Side Fan	30 V	10.0 A	15.0 A	0.0 A	2%
LFMWLT450-1005-I-S	Side Fan + OR-ing MOSFET	30 V	10.0 A	15.0 A	0.0 A	2%



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Connectors		
J1	Pin 1	AC LINE
	Pin 3	AC NEUTRAL
	Pin 5	EARTH
Spade Connector (J5)		
J2	Pin 1	V1
	Pin 2	RTN
J3	Pin 1	NC
	Pin 2	PF OK
	Pin 3	POWER GOOD
	Pin 4	DC RETURN
	Pin 5	+5 VSTBY
	Pin 6	+VE REMOTE SENSE
	Pin 7	-VE REMOTE SENSE
	Pin 8	CS
	Pin 9	DC RETURN
	Pin 10	REMOTE ON/OFF
J4 (FAN OUTPUT)	Pin 1	+ VE
	Pin 2	- VE

Notes

1. Ripple is peak to peak with 20 MHz bandwidth and 10 μ F (Tantalum capacitor) in parallel with a 0.1 μ F capacitor at rated line voltage and load ranges.
2. Combined output power of main output, fan supply and standby supply shall not exceed max. power rating.
3. Standby output voltage 5 V/ 1.5A(convection) / 2A(420LFM) with tolerance including set point accuracy, line and load regulation is +/-10%.
Ripple and noise is less than 5%.
4. Fan supply output voltage 12V/ 500mA with tolerance including set point accuracy, line and load regulation is +/-30% and needs min. 1% load on main output to be within regulation band. Ripple and noise is less than 10%.
5. Specifications are for nominal input voltage, 25°C unless otherwise stated.
6. PSU is supplied with J3, pin-9 and pin-10 shorted to enable main output without remote on/off feature.
7. Derate output power linearly to 80% from 90 VAC to 80 VAC input.
8. For ordering current sharing with OR-ing option add -I suffix with the model number.
9. Output to GND- 1500VAC for type BF.
10. The J5(Earth) spade connector can be used for U-Channel option products only. When fan options are required the earth connection provided in the input AC connector should be used (Pin 5 – J1)



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Mechanical Specifications

AC Input Connector (J1)	Tyco: 1-1123724-3 Mating: 1-1123722-5
EARTH (J5)	Molex: 19705-4301 Mating: 190030001
DC Output Connector (J2)	6-32 inches Screw Pan HD Mating: 16 AWG wire crimped to Ring Tongue Terminal AMP: 8-31886-1
Signal Connector (J3)	Molex: 22-23-2081 Mating: 22-01-2087; Pins: 08-50-0113
Dimensions	4.0 x 6.5 x 1.61 inches (101.6 x 165.1 x 41.0 mm)
Weight	900 g

EMC

CE Mark	Complies with LVD Directive
Conducted Emissions	EN55022-B, CISPR22-B, FCC PART15-B
Static Discharge	EN61000-4-2, Level-3
RF Field Susceptibility	EN61000-4-3, Level-3
Fast Transients/Bursts	EN61000-4-4, Level-3
Radiated Emissions	EN55022-B, CISPR22-B, FCC PART15-B To be controlled in end system
Surge Susceptibility	EN61000-4-5, Level-3
Harmonic Current	EN61000-3-2, Class D

Safety

Safety Standard(s)	EN60601-1, IEC 60601-1 (ed.3), ANSI / AAMI ES 60601 - 1, CSA C22.2 No. 60601-1
Approval Agency	Nemko, UL, C-UL
Safety File Number(s)	Under Approvals in file : E173812 & E150565

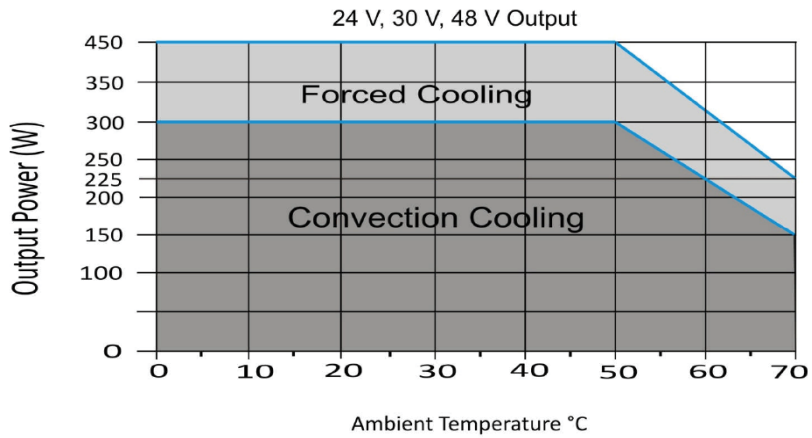
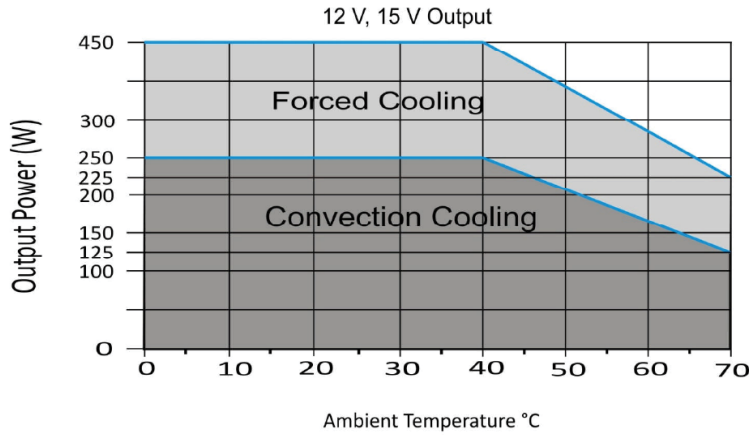
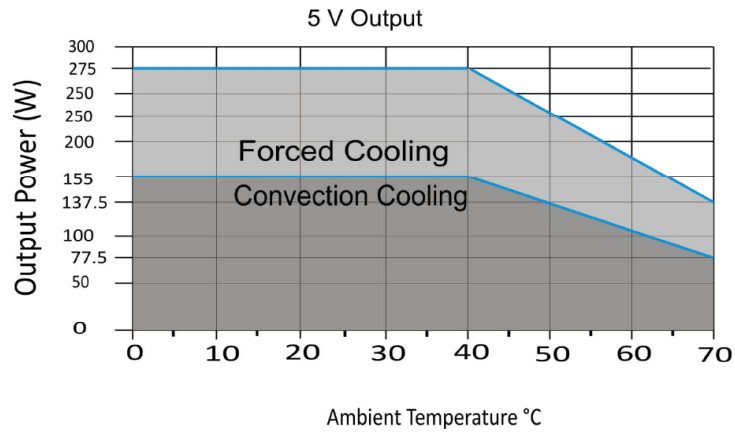
Signal(s)

Power Good Signal	TTL signal goes high after main output is within regulation band, delay is 0.1 to 0.3 s
Remote Sense	Compensates for 200 mV drop
Remote on/off	To turn on PSU short remote pin to ground

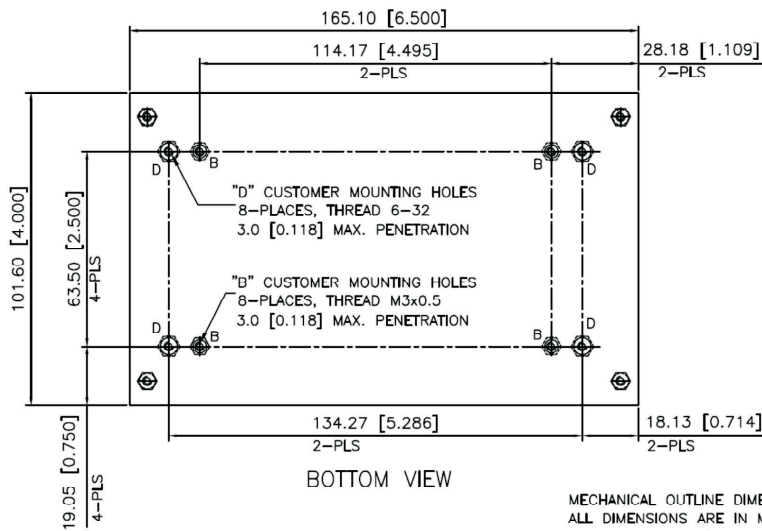
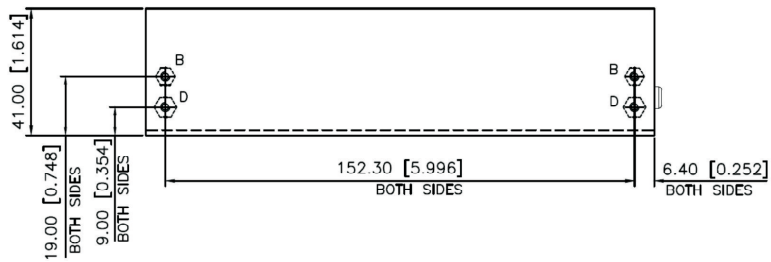
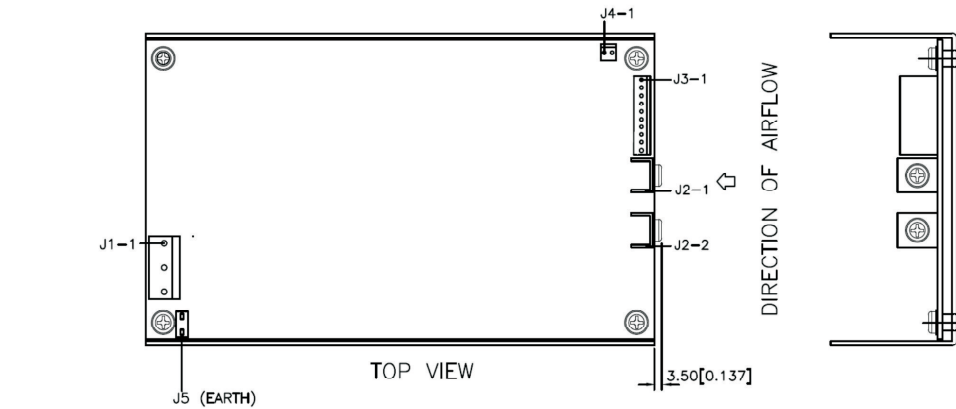


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Derating Curve (From 90 V to 264 V AC I/P)

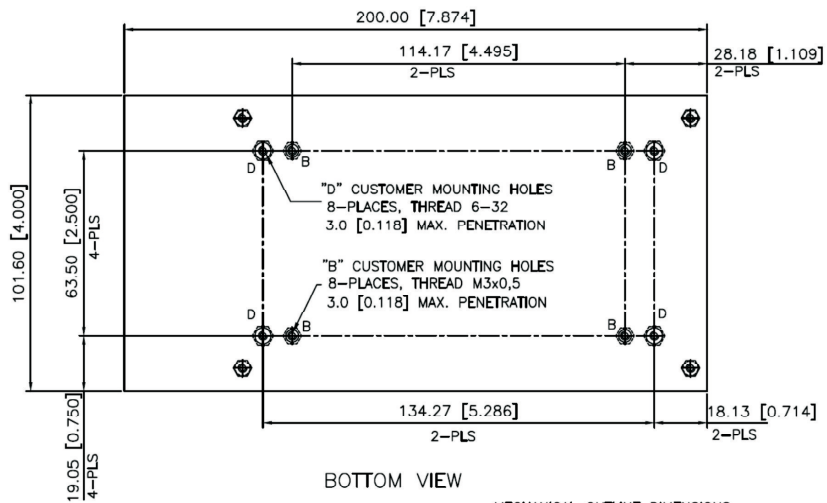
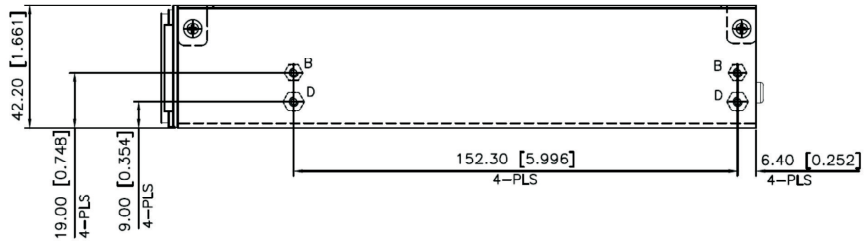
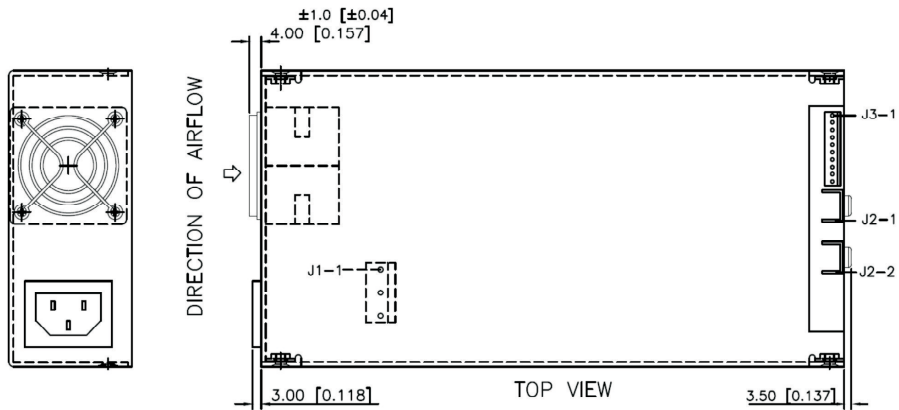


Option 1: Without Fan Mounting



MECHANICAL OUTLINE DIMENSIONS
ALL DIMENSIONS ARE IN MM [INCHES]
GEN.TOLERANCE: +/-0.5 MM [0.02]

Option 2: Side Fan Mounting



MECHANICAL OUTLINE DIMENSIONS
ALL DIMENSIONS ARE IN MM [INCHES]
GEN.TOLERANCE: +/-0.5 MM [0.02]

Option 3: Top Fan Mounting

