

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

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	
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%

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
J4	Pin 8	CS
	Pin 9	DC RETURN
	Pin 10	REMOTE ON/OFF
J4	Pin 1	+ VE
	Pin 2	- VE

Notes

1. Peak current rating on main output is 120% of max., lasting < 30 s with a maximum 10% duty cycle.
2. 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.
3. Combined output power of main output, fan supply and standby supply shall not exceed max. power rating.
4. Standby output voltage tolerance including set point accuracy, line and load regulation is +/-10%. Ripple and noise is less than 5%.
5. Fan supply output voltage 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%.
6. Specifications are for nominal input voltage, 25°C unless otherwise stated.
7. PSU is supplied with J3, pin-9 and pin-10 shorted to enable main output without remote on/off feature.
8. Derate output power linearly to 80% from 90 VAC to 80 VAC input.
9. For ordering current sharing with OR-ing option add -I suffix with the model number.

Mechanical Specifications

AC Input Connector (J1)	Tyco: 1-1123724-3 Mating: 1-1123722-3
EARTH (J4)	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

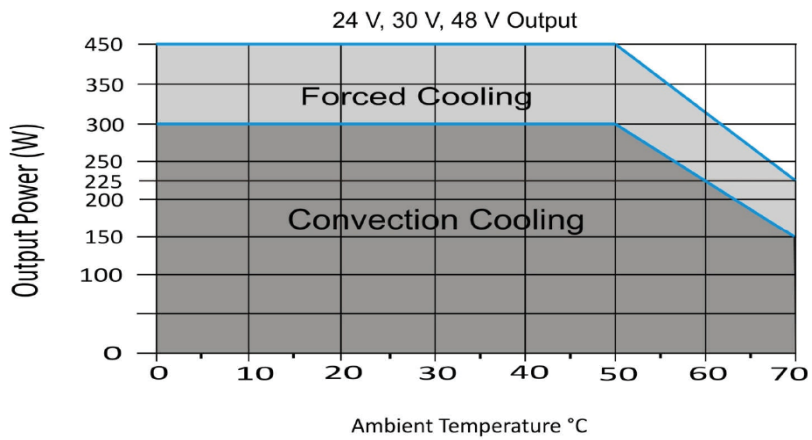
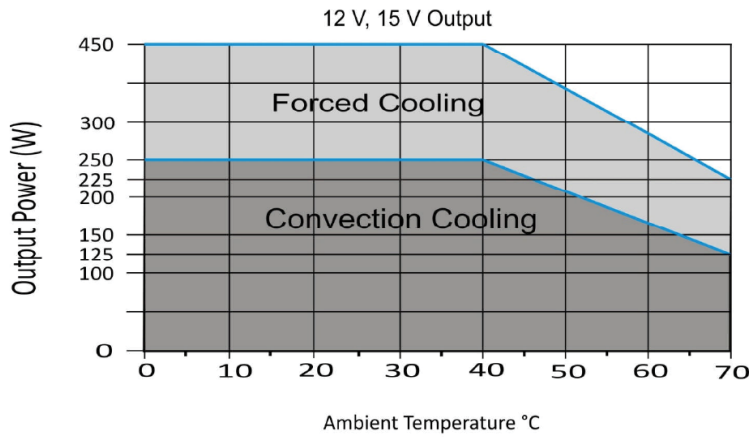
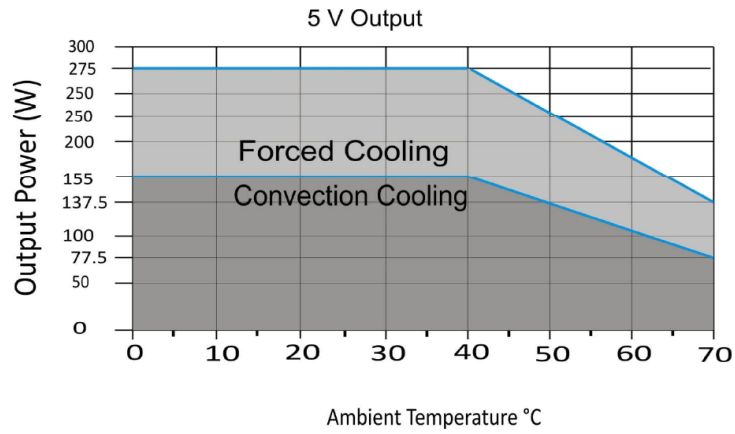
Safety

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

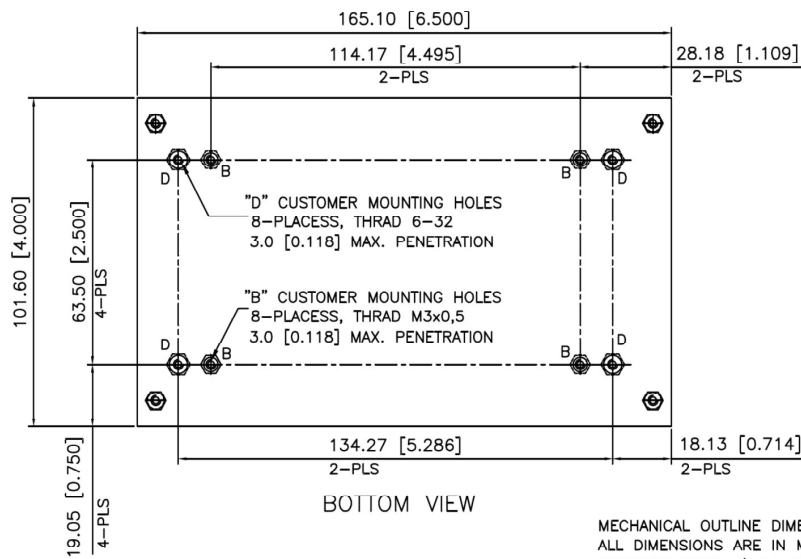
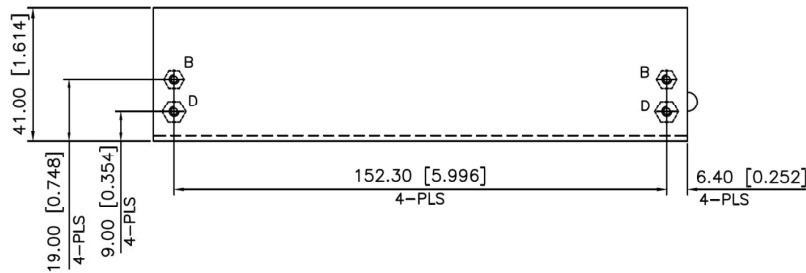
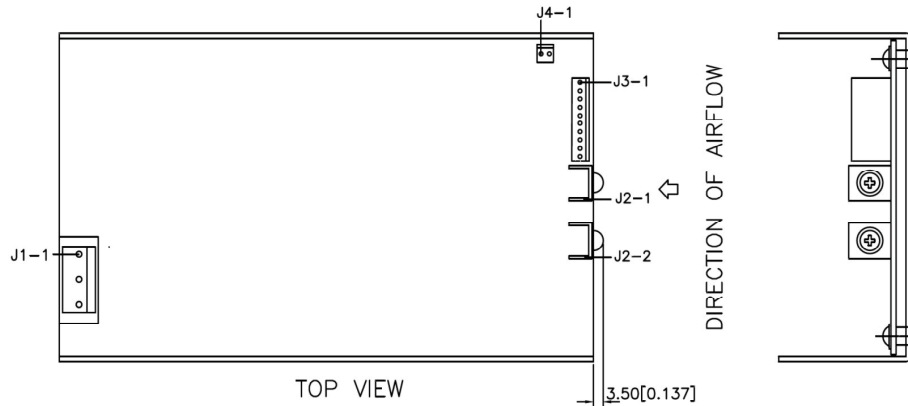
Signal(s)

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

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

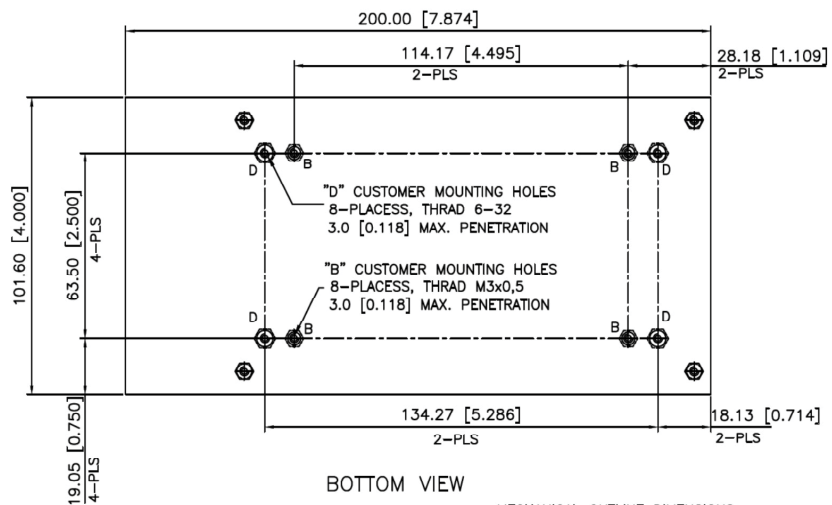
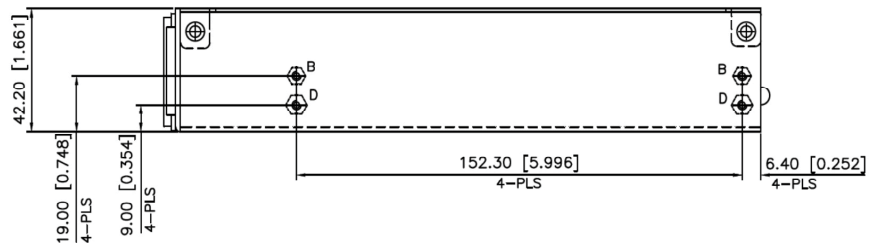
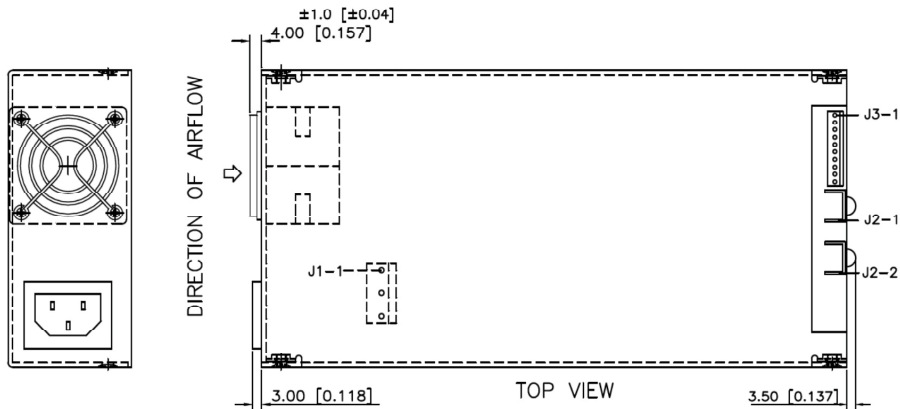


Option 1: Without Fan Mounting



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

