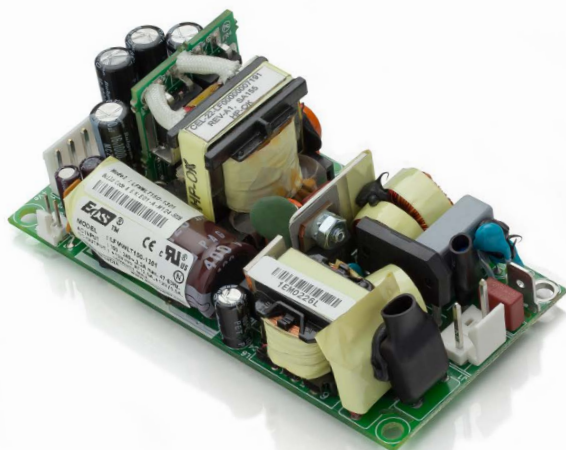




## Features

- 4 x 2 x 1.3 inches form factor
- 150 W with forced-air cooling
- Class 1 & Class 2 options
- 12 V @ 0.5 A fan voltage auxiliary output
- High Efficiency > 86%
- Low conducted and radiated noise
- Light weight
- Medical approvals
- Meets standard IEC60601-1-2 : 2014 (4th Edition)

## Electrical Specifications

|                                  |                                                                                                                 |                        |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------|
| Input Voltage                    | 90–264 VAC/120–390 VDC, Universal                                                                               |                        |
| Input Frequency                  | 47–63 Hz                                                                                                        |                        |
| Input Current                    | 120 VAC: 1.7 A max.                                                                                             | 230 VAC: 0.85 A max.   |
| No Load Power                    | 1.2 W                                                                                                           |                        |
| Inrush Current                   | 120 VAC: 35 A max.                                                                                              | 230VAC: 65 A max.      |
| Leakage Current                  | 120 VAC: < 140 $\mu$ A                                                                                          | 230 VAC: < 250 $\mu$ A |
| Efficiency                       | 120 VAC: 84% typical                                                                                            | 230 VAC: 86% typical   |
| Hold-up Time                     | 120 VAC: 6 ms                                                                                                   | 230 VAC: 10 ms         |
| Power Factor                     | 120 VAC: 0.99                                                                                                   | 230 VAC: 0.95          |
| Output Power                     | 150 W                                                                                                           |                        |
| Peak Power                       | 170 W for 0.2 s                                                                                                 |                        |
| Line Regulation                  | +/-0.5%                                                                                                         |                        |
| Load Regulation                  | +/-2.0%                                                                                                         |                        |
| Transient Response               | < 10%, 50% to 100% load change, 50 Hz, 50% duty cycle, 0.1 A/ $\mu$ s, recovery time < 5 ms                     |                        |
| Rise Time                        | < 100 ms                                                                                                        |                        |
| Set Point Accuracy (Main Output) | +/-1%                                                                                                           |                        |
| Output Adjustability             | +/-3.0 %                                                                                                        |                        |
| Over Current Protection          | 110% typical above rating                                                                                       |                        |
| Over Voltage Protection          | 110 to 150%                                                                                                     |                        |
| Short Circuit Protection         | Short term, autorecovery                                                                                        |                        |
| Switching Frequency              | PFC converter: Variable, 35–250 kHz; 90 kHz typical<br>Resonant converter: Variable, 35–250 kHz; 90 kHz typical |                        |
| Operating Temperature            | -20 to +70°C, refer derating curve, -20 to 0°C, start-up is guaranteed                                          |                        |
| Storage Temperature              | -40 to +70°C                                                                                                    |                        |
| Relative Humidity                | 95% Rh, noncondensing                                                                                           |                        |
| Altitude                         | Operating: 10,000 ft.; Nonoperating: 40,000 ft.                                                                 |                        |
| MTBF                             | 2.4m Hours, Telcordia -SR332-issue 3                                                                            |                        |
| Isolation Voltage                | Min. 5900 VDC between input to output                                                                           |                        |
| Cooling                          | Convection: 80 W; 300 LFM: 100 W (5 V model)<br>Convection: 100 W; 300 LFM: 150 W (other model)                 |                        |

| Model Number                          | Description                 | Voltage | Max. Load <sup>1</sup><br>(Convection) | Max. Load <sup>1</sup><br>(300 LFM) | Min. Load | Ripple <sup>2</sup> |
|---------------------------------------|-----------------------------|---------|----------------------------------------|-------------------------------------|-----------|---------------------|
| LFMWLT150-1000                        | Class 1 with Screw Terminal | 5 V     | 16.0 A                                 | 20.0 A                              | 0.0 A     | 1%                  |
| LFMWLT150-1000-2                      | Class 2 with Screw Terminal |         |                                        |                                     |           |                     |
| LFMWLT150-1300                        | Class 1 with JST Connector  |         |                                        | 16.0 A                              |           |                     |
| LFMWLT150-1300-2                      | Class 2 with JST Connector  |         |                                        |                                     |           |                     |
| LFMWLT150-1001                        | Class 1 with Screw Terminal | 12 V    | 8.33 A                                 | 12.5 A                              | 0.0 A     | 1%                  |
| LFMWLT150-1001-2                      | Class 2 with Screw Terminal |         |                                        |                                     |           |                     |
| LFMWLT150-1301                        | Class 1 with JST Connector  |         |                                        |                                     |           |                     |
| LFMWLT150-1301-2                      | Class 2 with JST Connector  |         |                                        |                                     |           |                     |
| LFMWLT150-1002                        | Class 1 with Screw Terminal | 15 V    | 6.67 A                                 | 10.0 A                              | 0.0 A     | 1%                  |
| LFMWLT150-1002-2                      | Class 2 with Screw Terminal |         |                                        |                                     |           |                     |
| LFMWLT150-1302                        | Class 1 with JST Connector  |         |                                        |                                     |           |                     |
| LFMWLT150-1302-2                      | Class 2 with JST Connector  |         |                                        |                                     |           |                     |
| LFMWLT150-1003                        | Class 1 with Screw Terminal | 24 V    | 4.17 A                                 | 6.25 A                              | 0.0 A     | 1%                  |
| LFMWLT150-1003-2                      | Class 2 with Screw Terminal |         |                                        |                                     |           |                     |
| LFMWLT150-1303                        | Class 1 with JST Connector  |         |                                        |                                     |           |                     |
| LFMWLT150-1303-2                      | Class 2 with JST Connector  |         |                                        |                                     |           |                     |
| LFMWLT150-1004                        | Class 1 with Screw Terminal | 48 V    | 2.08 A                                 | 3.13 A                              | 0.0 A     | 1%                  |
| LFMWLT150-1004-2                      | Class 2 with Screw Terminal |         |                                        |                                     |           |                     |
| LFMWLT150-1304                        | Class 1 with JST Connector  |         |                                        |                                     |           |                     |
| LFMWLT150-1304-2                      | Class 2 with JST Connector  |         |                                        |                                     |           |                     |
| LFWLT100-CK metal cover kit accessory |                             |         |                                        |                                     |           |                     |

## Notes

1. Combined output power from V1 and VFAN should not exceed the total output power rating.
2. Ripple is 2% up to 20% load and < 1% above 20% load. Ripple is peak to peak with 20 MHz bandwidth and 10  $\mu$ F (Electrolytic capacitor) in parallel with a 0.1  $\mu$ F capacitor at rated line voltage and load ranges.
3. Fan output voltage tolerance is +/-20%.
4. Peak current for fan output is 1 A.
5. Class 1 products have an Earthing tab. Class 2 version available, Add "-2" suffix at the end of the Model Number.
6. Specifications are for nominal input voltage, 25°C and max. load unless otherwise stated.
7. Derate output power linearly to 80% from 90 VAC to 80 VAC input.
8. When used in Cover Kit, de-rate output power to 70 % under all operating conditions.



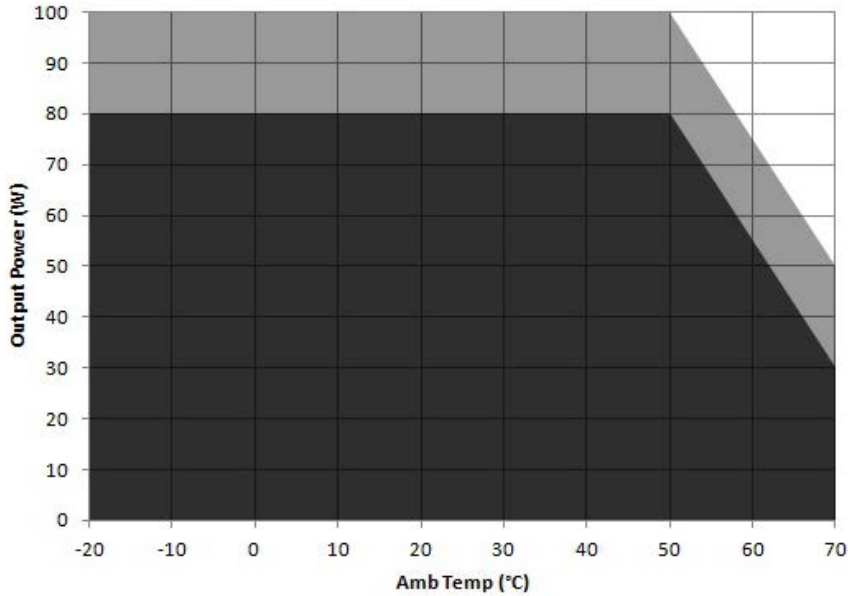
Innovations in Power

| Connectors                                |          |                   |
|-------------------------------------------|----------|-------------------|
| J1                                        | Pin 1    | AC LINE           |
|                                           | Pin 2    | AC NEUTRAL        |
| Spade Connector<br>(Class 1 product only) |          | EARTH             |
| J2                                        | Pin 1, 2 | V1                |
|                                           | Pin 3, 4 | RTN               |
| J3                                        | Pin 1    | VFAN (12 V/0.5 A) |
|                                           | Pin 2    | RTN               |

| Mechanical Specifications          |                                                                                                                                                                             |                      |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| AC Input Connector (J1)            | Molex: 26–60–4030 or equivalent<br>Mating: 09–50–3031; Pins: 08–50–0106                                                                                                     |                      |
| EARTH                              | Molex: 19705–4301 or equivalent<br>Mating: 190030001                                                                                                                        |                      |
| DC Output Connector (J2)           | Option 1: Tyco: 1776112–4 or equivalent<br>Mating: 13 AWG wire<br>Option 2: JST: B4P–VH–B (LF) (SN) or B4P–VH (LF) (SN) or equivalent<br>Mating: VHR–4M; Pins: SVH–41T–P1.1 |                      |
| Fan Connector (J3)                 | Tyco: 640456–2 or equivalent<br>Mating: 640440–2                                                                                                                            |                      |
| Dimensions                         | 4.0 x 2.0 x 1.324 inches<br>(101.6 x 50.8 x 33.63 mm)                                                                                                                       |                      |
| Weight                             | 150 g                                                                                                                                                                       |                      |
| EMC                                |                                                                                                                                                                             |                      |
| Parameter                          | Conditions/Description                                                                                                                                                      | Criteria             |
| Conducted Emissions                | EN 55011-B,CISPR22-B, FCC PART15-B                                                                                                                                          | Pass                 |
| Radiated Emissions                 | EN 55011 B                                                                                                                                                                  | Pass                 |
| Input Current Harmonics            | EN 61000-3-2                                                                                                                                                                | Class D              |
| Voltage Fluctuation and Flicker    | EN 61000-3-3                                                                                                                                                                | Pass                 |
| ESD Immunity                       | EN 61000-4-2                                                                                                                                                                | Level 4, Criterion A |
| Radiated Field Immunity            | EN 61000-4-3                                                                                                                                                                | Level 3, Criterion A |
| Electrical Fast Transient Immunity | EN 61000-4-4                                                                                                                                                                | Level 3, Criterion A |
| Surge Immunity                     | EN 61000-4-5                                                                                                                                                                | Level 3, Criterion A |
| Conducted Immunity                 | EN 61000-4-6                                                                                                                                                                | Level 3, Criterion A |
| Magnetic Field Immunity            | EN 61000-4-8                                                                                                                                                                | Level 4, Criterion A |
| Voltage dips, interruptions        | EN 61000-4-11                                                                                                                                                               | Criterion A & B      |
| Safety                             |                                                                                                                                                                             |                      |
| CE Mark                            | Complies with LVD Directive                                                                                                                                                 |                      |
| Approval Agency                    | Nemko, UL, C–UL                                                                                                                                                             |                      |
| Safety Standard(s)                 | EN60601–1, IEC60601–1 (ed.3),<br>ANSI / AAMI ES 60601 - 1, CSA C22.2 No. 60601-1                                                                                            |                      |
| Safety File Number(s)              | Nemko: P16220661; CB: NO90218<br>UL: E173812                                                                                                                                |                      |

## Derating Curve

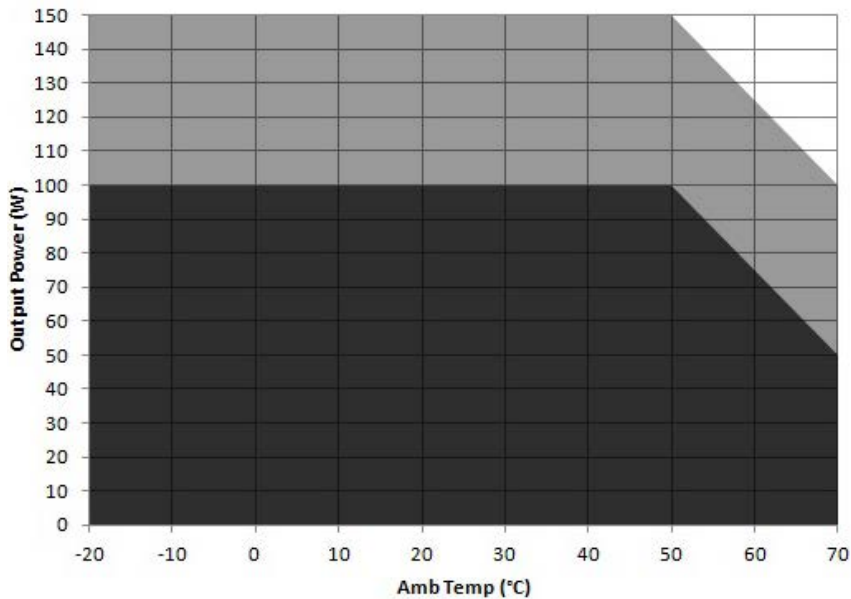
**Power de-rating : 5V output**



Convection load: 80W up to 50 °C  
De-rate above 50 °C @ 3.125% per °C

Forced air cooled load : 100W up to 50°C  
De-rate above 50 °C @ 2.5% per °C

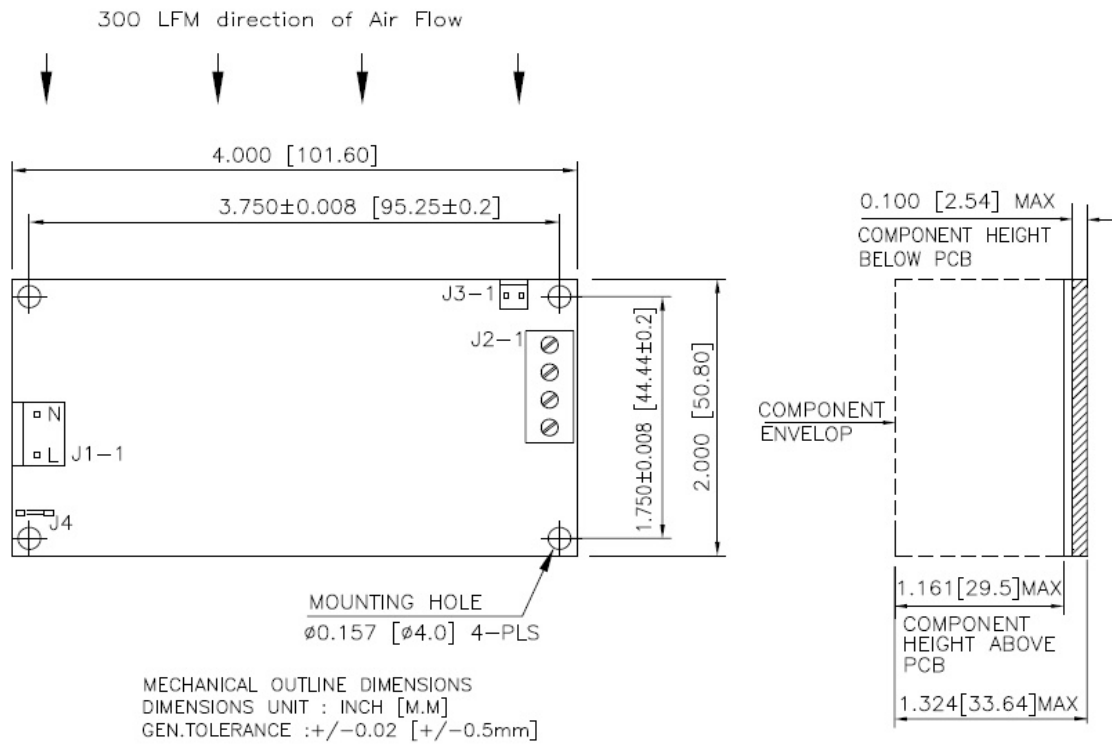
**Power de-rating : 12V, 15V, 24V, 48V output**



Convection load: 100W up to 50 °C  
De-rate above 50 °C @ 2.5% per °C

Forced air cooled load : 150W up to 50°C  
De-rate above 50 °C @ 1.67% per °C

## Mechanical Drawing



Notes: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following

1. Stand off, used to mount PCB has OD of 5.4 mm max.
2. Screws, used to fix PCB on stand off, have head dia of 6.0 mm max.
3. Washer, if used, to have dia of 6.5 mm max.