



## Features

- Small 5 x 3 x 1.07 inches form factor
- Ultra high Efficiency > 82%
- 110 W universal input medical AC/DC
- Low leakage current < 250  $\mu$ A
- Nemko, UL & CSA approvals to IEC60601
- EN55022-B, CISPR22-B, FCC Part15 Level B, IEC60601-1-2
- Cover kit accessory available

## Electrical Specifications

|                                                              |                                                                                                |                        |
|--------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------|
| AC Input                                                     | 90–264 V, Universal                                                                            |                        |
| Input Frequency                                              | 47–63 Hz                                                                                       |                        |
| Input Current                                                | 120 VAC: 2.4 A max.                                                                            | 230 VAC: 1.2 A max.    |
| Inrush Current                                               | 120 VAC: 35 A max.                                                                             | 230 VAC: 65 A max.     |
| Leakage Current                                              | 120 VAC: < 140 $\mu$ A                                                                         | 230 VAC: < 250 $\mu$ A |
| Efficiency                                                   | 120 VAC: 80% typical                                                                           | 230 VAC: 82% typical   |
| Hold-up Time                                                 | 120 VAC: 15 ms                                                                                 | 230 VAC: 22 ms         |
| Output Power <sup>1</sup>                                    | 80 to 110 W                                                                                    |                        |
| Line Regulation                                              | +/-0.3%                                                                                        |                        |
| Load Regulation                                              | V1: +/-1%, V2: +/-5%, V3 and V4: +/-7%                                                         |                        |
| Transient Response                                           | < 10%, 50% to 100% load change, 50/60 Hz, 50% duty cycle, 0.1 A/ $\mu$ s, recovery time < 1 ms |                        |
| Rise Time                                                    | < 40 ms                                                                                        |                        |
| Set Point Tolerance                                          | V1: +/-3%, V2: +/-5, V3 & V4: +/-7%                                                            |                        |
| Over Current Protection                                      | 110 to 160%                                                                                    |                        |
| Over Voltage Protection<br>(For V1 & quad output model only) | 4.1 V +/-0.2 V for 3.3 V; 6.4 V +/-0.4 V for 5 V                                               |                        |
| Short Circuit Protection                                     | Short term, autorecovery                                                                       |                        |
| Switching Frequency                                          | Boost converter: 45 kHz typical<br>Resonant converter: 45 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                                                         | 1.97m Hours, Telcordia SR332 Issue-3                                                           |                        |
| Isolation Voltage                                            | Min. 5757 VDC between input to output                                                          |                        |
| Cooling <sup>1</sup>                                         | Convection: 80 W; 150 LFM: 110 W                                                               |                        |

| Model Number                         | Voltage                                       | Max. Load <sup>1</sup><br>(Convection)     | Max. Load <sup>1</sup><br>(150 LFM)         | Min. Load                                 | Ripple <sup>2</sup>        |
|--------------------------------------|-----------------------------------------------|--------------------------------------------|---------------------------------------------|-------------------------------------------|----------------------------|
| LFMVLT110-1300                       | V1=5.1 V                                      | 12.0 A                                     | 18.0 A                                      | 0.1 A                                     | 1%                         |
| LFMVLT110-1301                       | V1=12 V                                       | 6.8 A                                      | 9.2 A                                       | 0.4 A                                     | 1%                         |
| LFMVLT110-1302                       | V1=15 V                                       | 5.5 A                                      | 7.3 A                                       | 0.4 A                                     | 1%                         |
| LFMVLT110-1303                       | V1=24 V                                       | 3.33 A                                     | 4.6 A                                       | 0.1 A                                     | 1%                         |
| LFMVLT110-1304                       | V1=48 V                                       | 1.7 A                                      | 2.3 A                                       | 0.2 A                                     | 1%                         |
| LFMVLT110-4300                       | V1=5.1 V, V2=12.4 V,<br>V3=-5.1 V, V4=-12.5 V | V1=10.0 A, V2=3.0 A,<br>V3=0.8 A, V4=0.8 A | V1=15.0 A, V2=4.1 A,<br>V3=1.1 A, V4=1.1 A  | V1=1.0 A, V2=0.1 A,<br>V3=0.0 A, V4=0.0 A | 1%                         |
| LFMVLT110-4301                       | V1=5.1 V, V2=23.5 V,<br>V3=12.5 V, V4=-12.5 V | V1=10.0 A, V2=2.0 A,<br>V3=0.8 A, V4=0.8 A | V1=15.0 A, V2=2.75 A,<br>V3=1.1 A, V4=1.1 A | V1=1.0 A, V2=0.1 A,<br>V3=0.0 A, V4=0.0 A | 1%                         |
| LFMVLT110-4302                       | V1=5.1 V, V2=16 V,<br>V3=-5.1 V, V4=-16 V     | V1=10.0 A, V2=3.0 A,<br>V3=0.8 A, V4=0.8 A | V1=15.0 A, V2=4.1 A,<br>V3=1.1 A, V4=1.1 A  | V1=1.0 A, V2=0.1 A,<br>V3=0.0 A, V4=0.0 A | 1%                         |
| LFMVLT110-4303                       | V1=5.1 V, V2=12.4 V,<br>V3=24 V, V4=-12.5 V   | V1=10.0 A, V2=3.0 A,<br>V3=0.8 A, V4=0.8 A | V1=15.0 A, V2=4.1 A,<br>V3=1.1 A, V4=1.1 A  | V1=1.0 A, V2=0.1 A,<br>V3=0.0 A, V4=0.0 A | 1%                         |
| LFMVLT110-4304                       | V1=3.3 V, V2=5.1 V,<br>V3=12.5 V, V4=-12.5 V  | V1=10.0 A, V2=3.0 A,<br>V3=0.8 A, V4=0.8 A | V1=15.0 A, V2=4.1 A,<br>V3=1.1 A, V4=1.1 A  | V1=1.0 A, V2=0.1 A,<br>V3=0.0 A, V4=0.0 A | V1=1.5%,<br>V2, V3 & V4=1% |
| LFVLT80-CK metal cover kit accessory |                                               |                                            |                                             |                                           |                            |

| Connectors      |                |            |
|-----------------|----------------|------------|
| J1              | Pin 1          | AC NEUTRAL |
|                 | Pin 2          | AC LINE    |
| Spade Connector |                | EARTH      |
| J2              | Pin 1, 2, 3, 4 | V1         |
|                 | Pin 5, 6, 7, 8 | RTN        |
|                 | Pin 9, 10      | V2         |
|                 | Pin 11         | V3         |
| J3              | Pin 12         | V4         |
|                 | Pin 1          | RTN        |
|                 | Pin 2          | POWER FAIL |

## Notes

1. Maximum current per output channel. Do not exceed total output power rating.
2. 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. Power fail and power good signal for quad output models only and optional.
4. Specifications are for nominal input voltage, 25°C and max. load unless otherwise stated.
5. Derate output power linearly to 80% from 90 VAC to 80 VAC input.

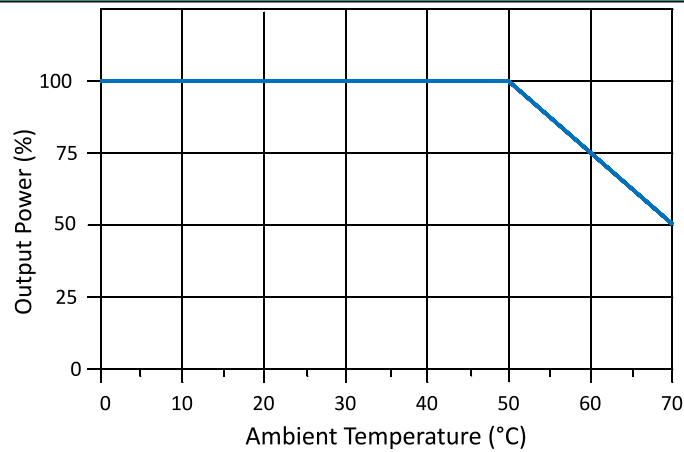


| Mechanical Specifications      |                                                                                        |
|--------------------------------|----------------------------------------------------------------------------------------|
| AC Input Connector (J1)        | Molex: 26-60-4030 or equivalent<br>Mating: 09-50-3031; Pins: 08-50-0106                |
| EARTH                          | Molex: 19705-4301 or equivalent<br>Mating: 190030001                                   |
| DC Output Connector (J2)       | Tyco: 1-640445-2 or equivalent<br>Mating: 1-647402-2; Pins: 3-647409-1                 |
| Signal Connector (J3)          | Molex: 22-23-2021 or equivalent<br>Mating: 22-01-2021                                  |
| Dimensions                     | 5.0 x 3.04 x 1.07 inches<br>(127.0 x 77.22 x 27.18 mm)                                 |
| Weight                         | 250 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<br>To be controlled in end system                   |
| Surge Susceptibility           | EN61000-4-5, Level-3                                                                   |
| Harmonic Current               | EN61000-3-2, Class A                                                                   |
| Safety                         |                                                                                        |
| Safety Standard(s)             | IEC60601-1 (ed.3), EN60601-1,<br>UL60601-1 (1st Edition), CSA C22.2 No. 601.1          |
| Approval Agency                | Nemko, UL, C-UL                                                                        |
| Safety File Number(s)          | Nemko: P12215289<br>UL: E173812                                                        |
| Signal                         |                                                                                        |
| Power Fail Signal <sup>3</sup> | Signal goes low 1 ms advance before output goes out of regulation due to mains failure |

### Total Output Power Rating<sup>1</sup>

| Cooling       | Convection | 150LFM, Vin < 100 V | 150 LFM, Vin > 100 V |
|---------------|------------|---------------------|----------------------|
| Single Output | 80 W       | 100 W               | 110 W                |
| Quad Output   | 75 W       | 100 W               | 110 W                |
| LFMVL110-4304 | 70 W       | 98 W                | 98 W                 |
| LFMVL110-1300 | 62 W       | 92 W                | 92 W                 |

### Derating Curve



### Mechanical Drawing

