Fully-Enclosed Conduction Cooled Power Supplies Deliver Full Useable Power at High Temperatures

Fully-enclosed 250 W fanless ac-dc power supplies featuring a 12 Vdc output and a wide operating temperature range of -40 to +85 degrees Celsius are available from Emerson Network Power. Ideal for demanding sealed box and outdoor applications, the new LCC250 embedded power supply series includes conduction-cooled models providing full useable power at elevated temperatures, offering a very cost-effective alternative to conventional power supplies.

The Emerson Network Power LCC250 power supplies are housed in a robust fully-sealed enclosure offering IP64 protection against the ingress of dust and water. This makes them ideal for applications that require the power supply to be located in the same outdoor environment as the equipment it is powering, such as bulk power for outdoor signage and for telecom installations such as antenna and base station equipment.

The power supplies are equally suitable for indoor use, such as in control consoles, indoor signage and desktops for medical applications, where the absence of cooling fans can help minimize dust and noise. LCC250 power supplies are fully approved to the international EN60601-1 safety standard for medical electrical equipment.

LCC250 power supplies have a very compact form factor, enabling them to be accommodated easily in end users' equipment. There is a choice of mounting types; conduction-cooling and convection-cooling. All models have a small 7 inch by 4 inch (178 mm by 101 mm) footprint; the conduction-cooled versions have a height of just 1.1 inch (28 mm), while the convection-cooled versions feature an integral low profile heatsink which raises their overall height to 1.5 inch (38 mm). Both imperial and metric mounting holes are provided as standard, and the use of substantial 6 inch length (150 mm) cables for the ac input, dc output and control connections further simplify installation.

The conduction-cooled models introduce a new level of power flexibility. Unlike many power supplies on the market, which typically require output derating above approximately 55 degrees Celsius, Emerson LCC250 supplies fed from a nominal 115 Vac input are capable of maintaining their full 250 W load capacity up to their maximum baseplate temperature of 85 degrees Celsius. This makes them especially cost-effective for users who would otherwise need to budget for larger or additional power supplies.

LCC250 power supplies feature a universal 90 to 264 Vac, 47 to 63 Hz input - enabling them to be used virtually anywhere in the world without adjustment - and produce a single 12 Vdc output, adjustable by plus or minus 10 percent, capable of delivering 250 W max. For maximum safety, both live and neutral lines feature internal fuses.

Active power factor correction is employed to minimize input harmonic current distortion. The power supplies have a safety-ground leakage current of less than 275 µA when fed with a 250 Vac input, and provide an output hold-up time of at least 16 ms when fed with a 115 Vac input and delivering full load. The Emerson LCC250 is able to accommodate and tolerate capacitive loading of up to 330 µF/Amp - equivalent to approximately two 3,300 µF 25 V capacitors on the output.

All Emerson LCC250 power supplies are high efficiency designs, typically achieving 89 percent at full load, and featuring very tight regulation that maintains output to within two percent for all permissible line, load and temperature conditions. Output ripple and noise are held to less than one percent. Capable of operating in constant-voltage or constant-current mode - frequently a requirement for LED lighting applications - power supply output voltage can be adjusted to within 10 percent of nominal, and in constant current mode the output current can be reduced by up to 50 percent, supported by the supply's ability to take its output voltage as low as -10 V.

All user adjustment facilities, including output voltage and output current trim pots and user-selectable positive or negative logic remote output on/off, are readily accessible beneath a rubber seal on the unit's end plate. The supply comes with differential remote sensing and can compensate for a drop of up to 0.5 Vdc between the output cable termination and the load.

Emerson Network Power LCC250 power supplies are extensively protected against fault conditions. Overcurrent and overtemperature protection are fully auto-recovering; overvoltage protection is latching and requires the ac input to be recycled before output power can be restored.

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