300-400 W Medical Power Supplies Meet UL60601-1 3rd Edition

TDK Corporation announces that the new TDK-Lambda CFE400M series are now available. These new digitally-controlled, 300 to 400 watt single output, medical power supplies are available in convection and fan cooled versions. Combining a 4kVac reinforced input-to-output isolation with dual fusing and an output-to-ground isolation of 1500Vac, the CFE400M meets IEC/EN/UL/CSA 60601-1 Editions 2 & 3 safety approvals, suitable for medical and dental applications. In addition, these units are well suited for other applications including ITE and laboratory/process control equipment.

When convection cooled (without fans), the CFE400M is rated at 300W for operating temperatures from 0°C to +40°C (250W to +50°C). When fan cooled with either an integral quiet fan or customer forced air (1.5 m/s), the power supply is rated at 400W from 0°C to +50°C. These units also have a 450W peak power rating for up to 10 seconds for both cooling options.

Available in field-adjustable 12V, 24V and 48Vdc versions with a 12Vdc / 0.25A fan supply, the CFE400M has a 5V/80mA standby output or a 5V/2A option. The 5V/80mA option meets the ErP Directive with less than 0.5W standby power consumption. All models meet or exceed the Climate Savers Gold Level. Other features include high efficiency (94% typical), remote On/Off and remote sense. These features combined with a small 7.0 x 3.94 x 1.6 inch size make the CFE400M well suited for many types of medical/dental equipment and other high integrity applications including laboratory, process controls, ATE, automation, broadcast, instrumentation, routers, servers and security networks.

The interleaved boost converters, which operate at 180 degrees to each other, halve the current through each PFC choke and reduce the ripple current in the boost capacitor – this in turn reduces the temperature of these components and extends their life. Below half load, one converter is disabled, reducing losses and increasing

efficiency. At lower loads (around 50W), the PFC burst mode function operates, which increases the low load efficiency of the CFE400M still further.

The zero-voltage-switching (ZVS) resonant converter on the output stage reduces switching losses and noise, improves EMC, and enhances overall efficiency.

The microprocessor within the CFE400M controls the output of the resonant converter as well as the current limit and peak current operation, which enables the supply to provide power to inductive as well as capacitive loads. The micro also controls housekeeping routines, such as controlling the timing to turn power on/off and monitoring the PFC section, thereby reducing the control circuit component count by 25%.

All models in TDK-Lambda's CFE400M range are certified to IEC/EN/UL/CSA 60950-1 Edition 2 for general-purpose applications, IEC/EN/UL/CSA 60601-1 Editions 2 & 3 for medical equipment, and meets IEC/EN/UL/CSA 61010-1 Edition 2 for laboratory and process control applications. In addition, the units are CE marked to the LV Directive and come with a 5-year warranty.

TDK-Lambda
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