Front-End Power Supplies for Hot-Swap and Redundant Power Systems

TDK Corporation announces that the new TDK-Lambda HFE2500 series are now available. These 2.5kW front-end power supplies are ideal for distributed power, hot-pluggable and redundant power systems. The HFE2500 series operate off a universal AC input of from 85 to 265VAC, with active PFC, and provides a well regulated DC output of 12V, 24V or 48V. Operating efficiencies of up to 93% are typical.

With the 19-inch rack-mount enclosure, as many as four supplies can be paralleled with automatic load-sharing to provide up to 9.5kW of output power. A popular option is an integral MCU in each supply that allows for remote programming, monitoring, and status reporting via an isolated I2C and PMBus interface. In addition, an “energy-saving” feature of the I2C/PMBus interface is that rack-mounted HFE2500 supplies can be individually turned On/Off as the total system load demand varies over time (aka “load-shedding”).

Key applications for the HFE2500 series include data centers, wireless base stations, industrial automation, telecommunications, RF power amplifiers, network equipment, storage systems, defense (COTS) and distributed power architectures (DPA).

The HFE2500 supplies, each measuring only 1.61”H x 4.21”W x 12.8”L, can be used individually or as many as four (4) can be mounted in an 1U-high 19-inch rack enclosure to form a paralleled connected, load-sharing, hot-swap, N + M redundant 9.5kW power system. Should a fault occur each supply has an internal ORing MOSFET switch that will automatically disconnect it from the load and the other paralleled supplies. Plus, alarm signals and LED indicators are provided to indentify

a faulty unit.

When employing the model HFE2500-S1U rack-mount enclosure, the DC outputs and current-share lines of each plugged-in HFE2500 supply are automatically connected in parallel with the others. In this way, scalable and expandable power is easily achieved, even in the field.

For higher power applications, two 19” power racks containing up to eight (8) model HFE2500 supplies can be zero-stacked (no space required between racks) and connected in “parallel” or “series” to provide up to 19kW of total output power in a compact 2U vertical space.

Each HFE2500 supply has two temperature controlled variable-speed fans and can operate in temperatures ranging from -10°C to +70°C. The airflow is directed from the front to the rear of each unit, where the I/O connectors are located.

For system monitoring, in addition to the optional I2C/PMBus interface, opto-isolated signals are provided including DC-OK, AC-Fail and Over-Temperature. Front-panel mounted LED indicators provide a visual status for DC-OK and AC-OK conditions. A remote On/Off control is also standard, as well as remote-sense to compensate for voltage drops in the cables that connect the supply outputs to the load. Other standard features include single wire current-share and an auxiliary 12V/0.5A output that is diode OR’d. Remote programming of the output voltage and current can be accomplished via the I2C and PMBus interface, or with an external 0-5V signal or a 1k ohm potentiometer.

The 19-inch rack mount enclosure is available with AC inputs via IEC inlet, type C20 connectors or terminal blocks for each of the four power module slots. All units in the HFE2500 series are fully RoHS-compliant, carry the CE mark and meet UL/EN60950-1 safety specifications, as well as EN55022 and FCC class B EMC conducted specifications; radiated EMC performance complies with class A requirements.

The HFE2500 power supplies are available now and priced from $689.00 each in quantities of 100 units.

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