ISSUE: February 2026

4500-W Power Supplies Offer Three-Phase Input, Single Or Dual Outputs, And PMBus Interface

TDK's TDK-Lambda TPS4500 single- or dual-output industrial power supplies deliver 4500-W output. The modules can be configured to share the loads in any proportion, up to the rated output specifications, and are designed to operate in series or in parallel to increase the output voltage or power (see the figure).

The TPS4500 series is fully featured with isolated ac fail, dc good and dropped phase signals, remote on/off, remote sense, and a 12-V, 0.3-A standby supply. The PMBus communications interface enables comprehensive remote monitoring and control. It provides real-time visibility of key parameters such as output voltage, output current, internal temperature, status signals, and fan speed.

Additionally, PMBus allows programming of critical settings, including output voltage, overcurrent limit, and remote on/off functionality. Nominal outputs of 92 V, 49 A and 184 V, 24.5 A are fully adjustable via PMBus: 92 V can be set from 10 to 96.5 V, and 184 V from 20 to 193 V.

The TPS4500 models have a typical efficiency of 93%. The power supply can start up in -40°C temperatures and operate in ambient temperatures from -10°C to +70°C, derating linearly from 100% to 80% load from 50°C to 60°C, and from 80% to 55% at 70°C. The TPS4500 series' enclosure measures 107 x 85 x 335 mm (W x H x D), making it suitable for 2U high racking systems.

Safety certifications include IEC/UL/CSA/EN62368-1 and carry the CE and UKCA marking for the Low Voltage, EMC and RoHS Directives. The units also comply with EN55032-A conducted and radiated emissions standards in the end system, meet IEC 61000-4 immunity standards, plus SEMI F47-0706 at 480 Vac nominal (Criteria B). The power supply has isolation ratings of 3 kVac input-to-output, 2 kVac input-to-ground, and 500 Vdc output-to-ground.

The TPS4500 series is designed to meet MIL-STD-810H, Method 514.8, Proc I, Category 1, 10 (vibration), and MIL-STD-810H, Method 516.8, Procedure I, IV (Logistics) and VI (shock) standards, ensuring exceptional durability and reliability in harsh environments.

For further information, see the datasheet.

Figure. Capable of operating from a high-voltage three-phase input in a 360- to 528-Vac delta or wye configuration, the TPS4500 series can be used in multiple applications, including test and measurement equipment, semiconductor fabrication, additive manufacturing, printers, lasers, and RF power amplifiers. The high-voltage, three-phase input avoids the requirement for costly stepdown transformers and assists phase load current balancing.