

Power Supplies

2" x 4" 250W industrial and medical power supplies can be convection or conduction cooled

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TDK Corporation (TSE:6762) announces the introduction of the 250W rated TDK-Lambda brand CUS250M series of power supplies in the industry standard 2" x 4" footprint. The product's mechanical configurations enables both convection and conduction cooling through the product's baseplate to provide silent cooling. The CUS250M is certified to the industrial IEC 62368-1 and medical IEC 60601-1 standards for both Class I and Class II (no earth ground required) installations. Applications include medical, home healthcare, dental, test, measurement, broadcast, professional audio and industrial equipment.

Initially, 12V and 24V output voltages are available, with 15V, 18V, 28V, 36V and 48V models later. The output can be adjusted to accommodate non-standard voltages. The CUS250M operates from an 85 to 264Vac input and has a low earth leakage current of less than 150 μ A - including all tolerances. Touch current is <10 μ A (Class I) and <70 μ A (Class II).

The CUS250M can provide up to 250W in -20°C to +50°C ambient temperatures when conduction cooled without external air. Operation at up to +80°C is also possible with appropriate derating. Utilizing 1m/s external airflow, or the optional integral fan, enables an output power of up to 125W at +70°C. This is possible as the power supplies have efficiencies up to 94%, generating less internal heat. Average efficiency, measured at 25, 50, 75 and 100% loads, is greater than 91%. Offload power consumption is less than 0.5W when the output is inhibited.

Options for the CUS250M include a 5V 0.1A standby voltage, remote on/off (inhibit or enable), DC OK and AC Fail signals and a choice of open frame, U channel, U channel with cover or top mounted fan mechanical constructions.

The product has been designed to minimize electrolytic capacitor heat degradation. Polymer output capacitors are used, providing low ESR and high ripple current tolerance. The high-voltage bulk storage capacitor is situated on the edge of the pcb for minimum heat rise. Component layout enables more effective cooling for both convection and forced air applications, again enhancing reliability and field life. Careful component layout on the underside of the PCB distributes heat evenly across the base, improving thermal transmission. A unique output terminal / choke combination (patent pending) reduces common mode output noise.

The input to output isolation is 4,000Vac (2 x MoPP), input to ground isolation 1,500Vac (1 x MoPP) and the output to ground isolation is 1,500Vac (1 x MoPP) for suitability in B and BF rated medical equipment. Safety certification is to IEC/EN 60601-1, ES 60601-1. IEC/EN/CSA/UL 62368-1 and is CE / UKCA marked to the Low Voltage, EMC and RoHS Directives. The CUS250M is compliant to IEC/EN 60335-1 and IEC/EN 61010-1. The

series meets EN 55011-B, EN 55032-B radiated and conducted emissions with significant margins (both Class I and Class II) and complies with the EN 60601-1-2:2015 (Edition 4) and EN 61000-4 immunity standards.

More information on the CUS250M series, including distributor inventory, can be obtained from the TDK-Lambda Americas website at <https://www.us.lambda.tdk.com>.

Main applications

- Medical, home healthcare, dental, test, measurement, broadcast, professional audio and industrial equipment.

Main features and benefits

- Up to 250W utilizing convection and conduction cooling
- Class B conducted and radiated EMI with significant margins
- Certified to IEC 62368-1 & IEC 60601-1 standards, compliant to IEC/EN 60335-1 & IEC/EN 61010-1
- Compact 2 x 4 x 1.56" size
- Enclosure and cooling options

Key data

Model		CUS250M
Input voltage range	Vac	85 to 264
Output voltages	Vdc	12 and 24 initially. 15, 18, 28, 36 and 48 later
Maximum output power	W	250
Efficiency	%	Up to 94
Isolation	Vac	Input - ground 1,500, input - output 4,000, output - ground 1,500
Size (W x L x H)	mm	50.8 x 101.6 x 39.5
Safety certification		IEC 62368-1, 60601-1, compliant to 60335-1, 61010-1

About TDK Corporation

TDK Corporation is a world leader in electronic solutions for the smart society based in Tokyo, Japan. Built on a foundation of material sciences mastery, TDK welcomes societal transformation by resolutely remaining at the forefront of technological evolution and deliberately "Attracting Tomorrow." It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK's comprehensive, innovation-driven portfolio features passive components such as ceramic, aluminum electrolytic and film capacitors, as well as magnetics, high-frequency, and piezo and protection devices. The product spectrum also includes sensors and sensor systems such as temperature and pressure, magnetic, and MEMS sensors. In addition, TDK provides power supplies and energy devices, magnetic heads and more. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK focuses on demanding markets in automotive, industrial and consumer electronics, and information and communication technology. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2022, TDK posted total sales of USD 15.6 billion and employed about 117,000 people worldwide.

About TDK-Lambda Corporation

TDK-Lambda Corporation is a trusted, innovative leader and global supplier of highly reliable power conversion products for industrial and medical equipment worldwide.

TDK-Lambda Corporation is aligned for fast responses to any customer need with R&D, manufacturing, sales and service locations in five key geographic regions, namely Japan, EMEA, Americas, China and ASEAN.

For more details, please pay a visit to: www.jp.lambda.tdk.com/en/

Contacts for regional media

Contact		Phone	Mail
Tom Tillman	TDK-Lambda Americas	(619) 575 4400	tom.tillman@tdk.com