

Power Supplies

2" x 4" 250W medical and industrial power supply series extended to include five additional output voltages

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TDK Corporation (TSE:6762) announces additional output voltage models to the 250W rated TDK-Lambda brand CUS250M series of power supplies in the industry standard 2" x 4" footprint. The full range now covers 12V, 15V, 18V, 24V, 28V, 36V and 48V and is certified to the IEC 62368-1 and IEC 60601-1 safety standards for industrial and medical applications. This includes both Class I and Class II (no earth ground required) installations.

The CUS250M has mechanical configurations that enable convection and/or conduction cooling through the product's baseplate to provide silent cooling. Applications include medical, home healthcare, dental, test, measurement, broadcast, professional audio and industrial equipment.

The output can be adjusted to accommodate non-standard voltages, either by the factory or using the on-board potentiometer. The CUS250M operates across an 85 to 264Vac input and has a low earth leakage current of less than 150µA - including all tolerances. The touch current is <10µA (Class I) and <70µA (Class II).

In ambient temperatures of -20°C to +45°C the CUS250M can deliver up to 250W conduction cooled without external air. With appropriate derating, operation at up to +80°C is also possible. With 1m/s of external airflow, or the optional integral fan, at +70°C the series can provide an output power of up to 125W. As the efficiency is up to 94%, less internal heat is generated, reducing component temperatures. The average efficiency, measured at 25, 50, 75 and 100% loads, is greater than 91%, and 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 design reduces electrolytic capacitor heat degradation, including the use of polymer output capacitors that offer a low ESR and high ripple current tolerance. The high-voltage energy storage capacitor is mounted on the edge of the PCB for minimum heat rise. The component layout enables more effective cooling for both convection and forced air applications, 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.

Input to output isolation is 4000Vac (2 x MoPP), input to ground isolation 1500Vac (1 x MoPP) and the output to ground isolation is 1500Vac (1 x MoPP) for B and BF rated medical equipment. Safety certification is to IEC/EN 60601-1, ES 60601-1. IEC/EN/CSA/UL 62368-1 standards and the CUS250M is CE / UKCA marked to the Low Voltage, EMC and RoHS Directives. The series is compliant with IEC/EN 60335-1 and IEC/EN 61010-1, meeting

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 can be found at [CUS250M Series Datasheet \(tdk.com\)](https://www.tdk.com/CUS250M-Series-Datasheet)

Main applications

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

Main features and benefits

- Up to 250W using convection and conduction cooling
- Medical certifications (2 x MOPP)
- High efficiency, up to 94%
- Class B conducted and radiated EMI with significant margins
- Compact 2 x 4 x 1.56" / 50.8 x 101.6 x 39.5mm size

Key data

Model		CUS250M
Input voltage range	Vac	85 to 264
Output voltages	Vdc	12, 15, 18, 24, 28, 36 and 48
Maximum output power	W	250
Efficiency	%	Up to 94
Isolation	Vac	Input - ground 1500, input - output 4000, output - ground 1500
Size (W x L x H)	mm	50.8 x 101.6 x 39.5 (open frame model)
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 2023, TDK posted total sales of USD 16.1 billion and employed about 103,000 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/

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