

Power Supplies

300W 1/16th brick pinout buck-boost DC-DC converter series enhanced with adjustable current limit option for parallel operation

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TDK Corporation (TSE 6762) announces the addition of adjustable current limit models to the TDK-Lambda brand 300W rated i7C non-isolated DC-DC converter series. These buck-boost board mount power modules have input ranges of 9 up to 53Vdc with output voltage adjustment from 5 to 28V, 8 to 24V or 9.6 to 48V depending upon the output current rating. The i7C topology enables a seamless transition from buck (voltage reduction) to boost (voltage increase) operation. The “Itrim” output current limit function enables parallel operation of modules for higher power requirements, operation in constant current, or reducing device stress where overloading may occur due to charging large capacitive loads.

The new models are ideal for generating additional high-power DC outputs from 12, 24, and 48V system voltages in medical, automated guided vehicles (AGV), Industrial Mobile Robots (IMR), drones, industrial, test, measurement, and battery-powered equipment.

Having high efficiencies of up to 97% reduces waste heat, allowing the product to operate and deliver high useable power in demanding thermal environments. Under light load conditions, the i7C’s control techniques significantly reduce power consumption. Under zero load conditions, the typical input current for these modules is 5mA. When the module is inhibited, this current can be further reduced to approximately 0.25mA. The low quiescent current allows battery-powered equipment to remain functional longer during periods of non-operation.

These additional models include output voltage adjustment, negative logic remote on-off, output current monitoring, positive remote sense, plus input under-voltage, over-current and thermal protection. A sync function enabling a common operating switching frequency between multiple converters to reduce system noise is also included.

Three mechanical configurations are available; low profile open frame measuring 34 x 36.8 x 14.7mm (LxWxH), baseplate construction for conduction cooling (15.5mm in height), or integral heat sink for convection or forced air cooling (24.9mm in height). The i7C converters have the industry standard 1/16th brick pin-out.

All models are certified to IEC/UL/CSA/EN 62368-1 and carry the CE and UKCA marks for the Low Voltage and RoHS Directives.

More information on the i7C Itrim models can be found at [i7C Series Datasheet \(tdk.com\)](https://www.tdk.com/i7c-series-datasheet)

Main applications

- Medical, automated guided vehicles (AGV), Industrial Mobile Robots (IMR), drones, industrial, test, measurement and battery-powered equipment.

Main features and benefits

- Up to 300W in a 1/16th brick pin-out
- High efficiency - Up to 97%
- Wide 5 to 28V, 8 to 24V or 9.6 to 48V output adjustment
- Wide 9 to 36V or 9 to 53V input range
- Low component count with minimal external components

Key data

Model		i7C -Px3-R suffix
Input voltage range	Vdc	9 to 36V or 9 to 53V
Output voltages	Vdc	5 to 28V, 8 to 24V or 9.6 to 48V
Maximum output power	W	300
Efficiency	%	Up to 97
Isolation		Non-isolated
Size (W x L x H)	mm	34 x 36.8 x 14.7 (open frame model 20A model)
Safety certification		IEC / EN / UL / CSA /EN 62368-1

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 2024, TDK posted total sales of USD 14.6 billion and employed about 101,000 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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