

Auto-Tuning 60-A POL Improves Dynamic Performance

From [TDK-Lambda](#), the 60-A iJB series point-of-load converters (POLs) feature intelligent auto-tuning technology that enables better dynamic performance and improved system stability, while PMBus-enabled monitoring supports highly accurate current read-back. Operating from an 8- to 14-V input, the iJB series POLs generate output voltages of 0.6 V to 2 V, with a precision set point accuracy of 0.5%. These surface-mount converters occupy only one square inch of board space, representing an industry-leading current density according to the manufacturer (Fig. 1.)

The series is designed to meet the requirements of a wide range of applications, including servers, routers and other information & communication technology (ICT) equipment, semiconductor manufacturing equipment, measuring equipment and general industrial equipment. Optimization of components using digital control enables high-current output in high-temperature environments. The data sheet specifies an operating temperature range of -40°C to 120°C.

The PMBus functionality of the converter provides real-time monitoring of voltage, current and temperature, and allows full programmability of the iJB parameters. PMBus readings for current and temperature are accurate to within 1%. In addition, function-setting pins make these functions easy to use in applications where PMBus communication is not implemented, including parallel operation for output currents up to 100 A. For development support, a GUI is available.

The design of the iJB series is based on the PV3012 digital controller IC from Powervation. David Norton, vice president of marketing for TDK-Lambda Americas notes the impact of this device.

"Using Powervation's intelligent auto-tuning technology, Auto-Control, the iJB POL modules bring better dynamic performance and system stability to the application—autonomously managing circuit and load variations due temperature, component tolerances, aging and board impedances." Norton elaborates by noting that the key benefit of auto-tuning is the POL's "better transient response and the ability to automatically adapt to different capacitive loads on different boards." (See Fig. 2.)

Other specifications include an efficiency ranging from 85% to 93% at 2 V output. Units measure 26.8 mm x 24.08 mm x 9.68 mm (1.05 in. x 0.95 in. x 0.381 in.)

For more information, see the TDK-Lambda Americas [website](#). Product availability for the iJB converters can be found via the link to TDK-Lambda's distributor [network](#) (see "Check Distributor Stock to Buy.")



Fig. 1. The 60-A iJB series point-of-load converters (POLs) feature intelligent auto-tuning technology that enables better dynamic performance and improved system stability. These PMBus-enabled units, which measure just 1.05 in. x 0.95 in. x 0.381 in., also provide real-time monitoring of voltage, current and temperature.

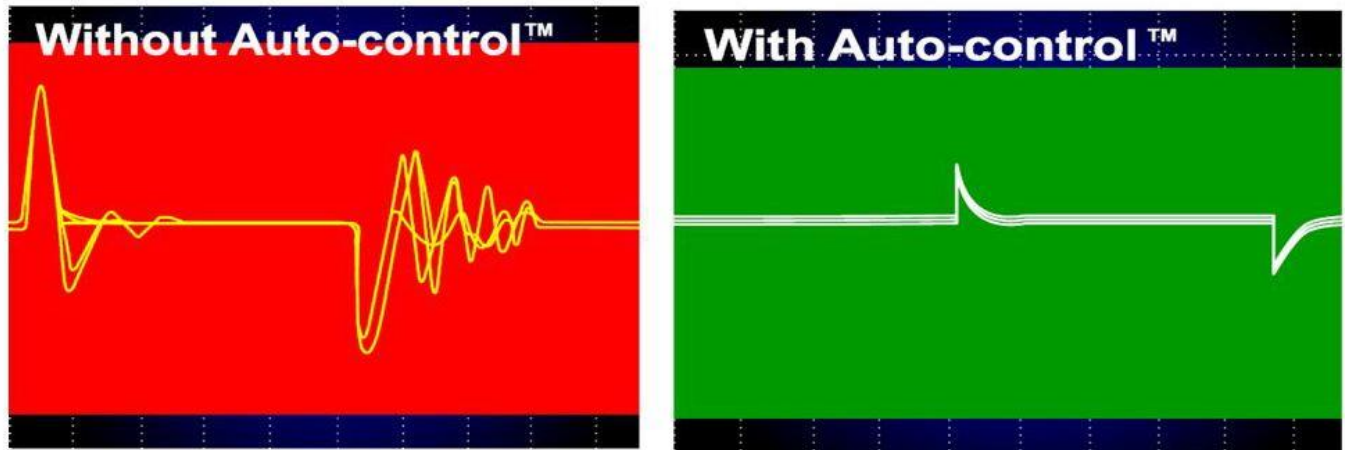


Fig. 2. By adjusting loop compensation in real-time, Auto-control adapts POL operation to different load impedances and load capacitors while also adjusting for variability in component values due to temperature or aging.