

### ***Digitally Controlled Eighth Bricks Boast Better Dynamic Performance, Fewer Parts***

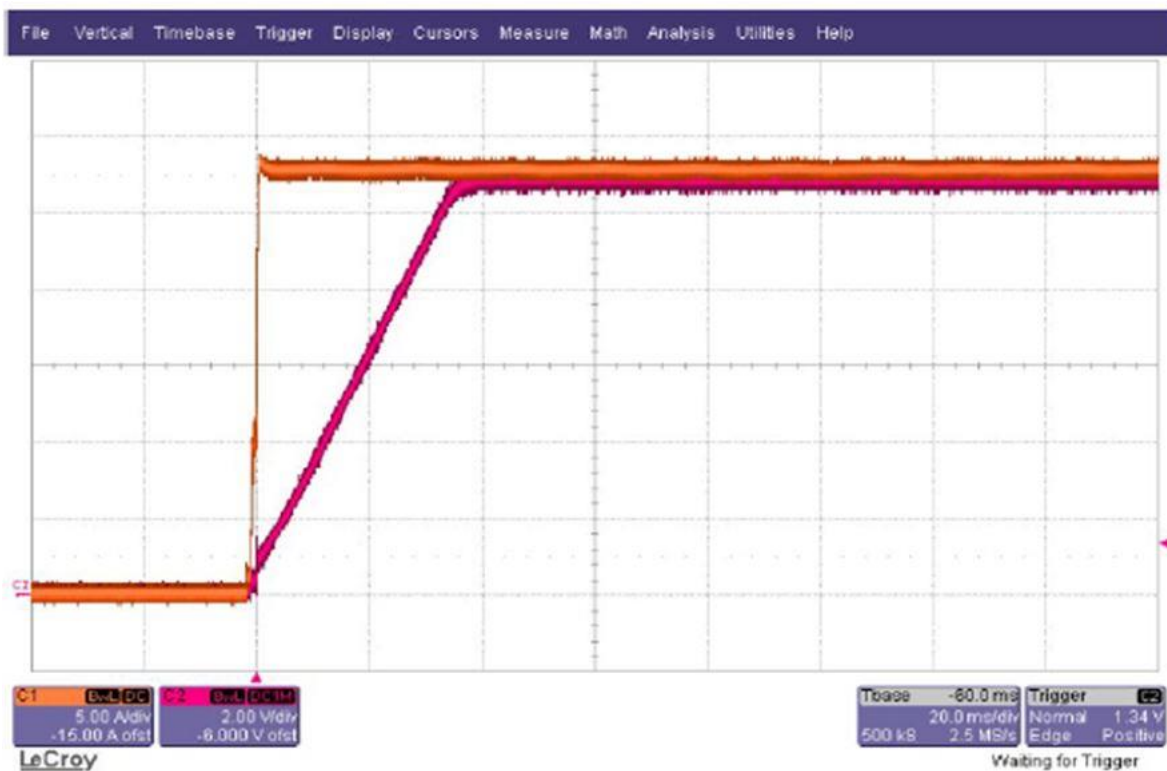
[TDK's](#) 300-W TDK-Lambda iEH series of isolated dc-dc converters feature digital nonlinear adaptive control, enabling these converters to provide better dynamic performance, improved system stability and reduced component count, according to the vendor. Elaborating on these benefits, David Norton, VP of marketing at TDK-Lambda Americas, adds that the use of digital control enables about a 15% reduction in component count versus a traditional analog-controlled converter design. Norton points to the transient response in Fig. 1 below—achieved with no output capacitors—as evidence of the iEH series' dynamic performance.

Operating from a 48-V nominal input, the iEH series can provide output voltages of 9.6 V to 12 V with currents up to 33 A. The series is designed to meet a wide range of applications, including information and communication technology (ICT), semiconductor manufacturing, measuring and general industrial equipment.

These converters come in the industry-standard eight brick package and include a baseplate with mounting holes for use with an external heatsink (Fig. 2.) Optimization of components using digital control enables up to 192 W of output power with only 200 LFM airflow in an 85°C ambient. The units operate with up to 94.6% efficiency. Key specifications are summarized in the table.

Input-to-output isolation is 2,250 V dc and input-to-baseplate isolation is 1,500 V dc. All models feature remote on/off, and overcurrent, input under/overvoltage protection, output overvoltage protection and overtemperature protection.

More information can be obtained at the TDK-Lambda Americas [website](#).



(a)



(b)

Fig. 1. With its use of digital control, the iEH series eighth-brick dc-dc converters achieve a high level of dynamic performance, while reducing component count by about 15% versus a conventional, analog-controlled design. Shown here is the transient response of the iEH48028A108V with 200- $\mu$ F input capacitors, but no output caps. The top screenshot (a) shows the transient response on a 20-ms time scale, while the bottom screenshot (b) shows a magnified view at 200  $\mu$ s/div.



Fig. 2 These eighth-brick converters, which include a baseplate with mounting holes for an external heatsink, deliver up to 192 W of output power with only 200 LFM of airflow in an 85°C ambient.

Table. Key specifications for the iEH series of 300-W eighth-brick dc-dc converters.

Model	iEH48033A096V	iEH48025A120V
Input voltage range	45 to 55 V	36 to 75 V
Nominal output voltage	9.6 V	12 V
Maximum output power	317 W	300 W
Efficiency (48-V input)	94%	94.6%
Cooling	Convection or forced air	
Operating Temperature	-40°C to +85°C	
Safety certifications	UL/CSA/EN60950-1	
Size (L x W x H)	58.4 mm x 22.9 mm x 13.5 mm	