

Server Processors | FPGAs | Supercomputers | Telecom, Networking, Datacenter | Graphics & Video Processors

LGA80D Digital DC-DC Converter Module



The LGA80D from Artesyn Embedded Technologies is the first DC-DC converter module of its kind on the market. This innovative non-isolated unit offers two independent and configurable 40 amp, 100 watt outputs, which can also be combined to a single configurable 80 amp, 200 watt output. With a footprint of 1 x 0.5 inches or 25.4 x 12.5 mm, the product has one of the highest current density ratings in the industry.

You can generate higher current rated rails by connecting up to four units in parallel so that up to 320 amps can be supplied as a single power rail. The unit's efficiency is market-leading,

with 95.5% typical, one of the highest available in this product category. Both analog control and digital control functions are enabled on this unit so that the LGA80D can be controlled with resistors, or controlled and monitored by using the industry-standard PMBus® digital interface.

Graphics, data or video processing applications, as well as applications using high power devices such as server processors, FPGAs, supercomputers, network, storage and telecom equipment, can benefit from the current density, efficiency and flexibility of control of Artesyn's LGA80D digital DC-DC converter.

**200 W
Max Power**

**Input
7 – 14 Vdc**

**Output
0.6 – 5.2 Vdc**

**Two 40 A or a
Single 80 A Output**

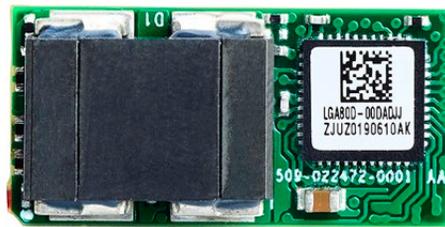
**Digital or
Analog Control**

A New Era for Non-Isolated POL Converters

As the circuit boards in telecom and data center systems have become more complex and densely populated, every component is under pressure to provide maximum value with the additional target of reducing the physical size. The key is to increase the amps per square inch current density of non-isolated converters with the objective of freeing up space that can be used to increase the computing power of a board by reducing the amount of real estate used for power conversion. Adding one square inch can make a significant difference, with the released space available to be used for additional processing functions.

Technical Details

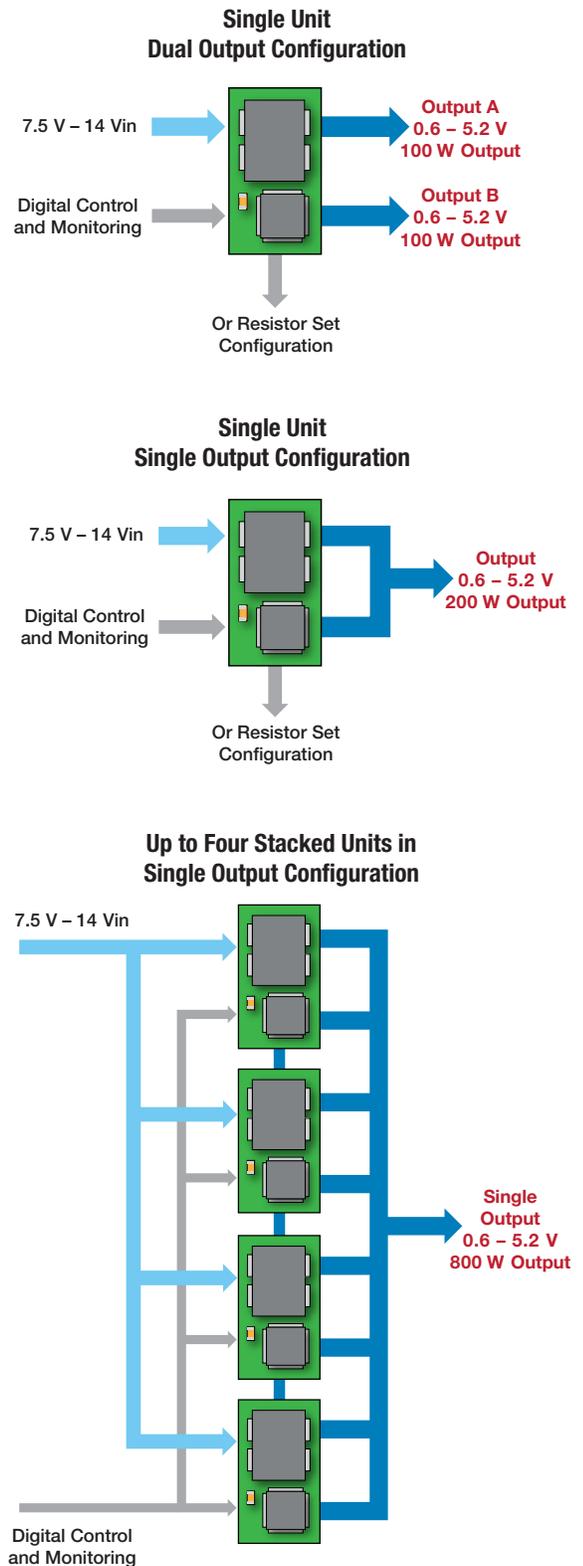
The Artesyn LGA80D is designed with a voltage mode dual-phase synchronous buck topology. It can accommodate a wide range of ambient temperatures thanks to extremely high power conversion efficiency and resultant low power dissipation, combined with the excellent thermal management design of the unit.

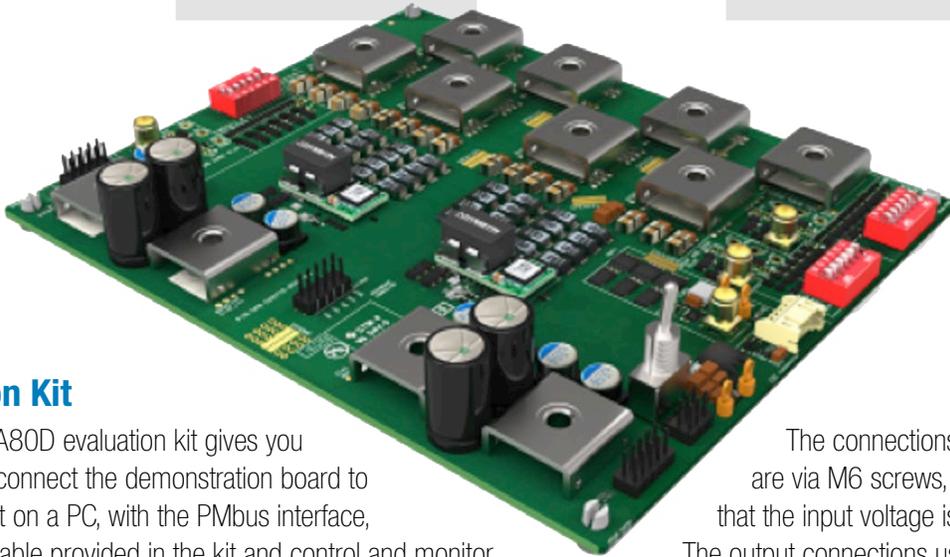


Each module offers two independent and configurable 40 amp, 100 watt outputs, which can also be combined to a single configurable 80 amp, 200 watt output. You can generate higher current rated rails by connecting up to 4 units in parallel so that up to 320 amps can be supplied as a single power rail.

The input voltage and output voltage specifications remain the same in any configuration, so the input is defined as 7.5 V to 14 V and the output voltage can always be adjusted within the range of 0.6 V to 5.2 Vdc, meaning that a broad range of semiconductor devices and applications can be supported. In a dual output configuration, the LGA80D can be controlled (by either PMBus or external resistor control) to supply up to 100 W per channel. In single output configuration, each module can support 200 W. This is the power rating of the blocks that can be stacked together, so you can achieve 200 W with a single unit, 400 W with two units, 600 W with three units or 800 W with four units.

The maximum output power that the module delivers will depend on a number of parameters, primarily the output voltage setting, ambient air temperature and velocity (forced airflow or natural convection). The LGA80D module has an operating temperature range of -40 °C to 85 °C with a derating curve that starts at ambient conditions of 65 °C under one meter/sec airflow.





Evaluation Kit

Artesyn's LGA80D evaluation kit gives you the ability to connect the demonstration board to a USB socket on a PC, with the PMbus interface, dongle and cable provided in the kit and control and monitor the LGA80D units as they would be used in an application.

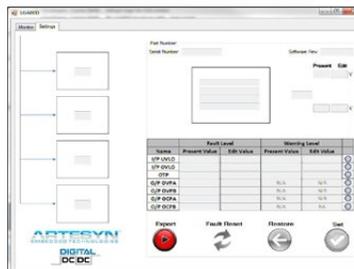
There are hardware functions on the demonstration board that allow you to enable and select an output voltage by simple dip-switch settings, and the board provides voltage and ripple measurement points.

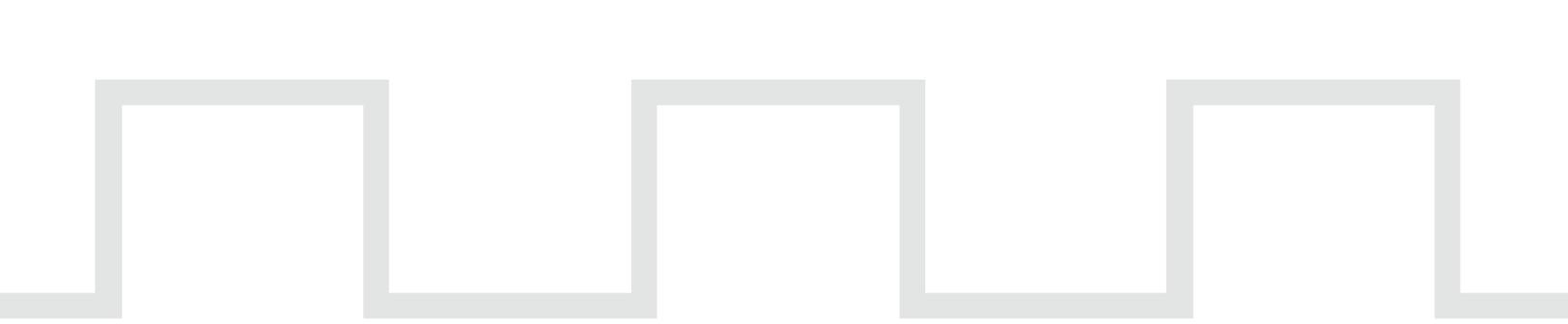
The connections to the evaluation board are via M6 screws, with the only provision being that the input voltage is in the 7.5 V to 14 V range. The output connections use the same M6 screws, however, if you want to connect the outputs in parallel or you wish to stack the modules, they are placed in such a way to make the operation of placing a link between them as easy as possible. The demonstration board is populated with two LGA80D modules, allowing you to test independent channel or stacked-module operation.



Module Management GUI Software

For simple evaluation, configuration and monitoring, Artesyn offers a PC-based graphical software package in conjunction with the evaluation kit. Two intuitive tabs allow you to enter the required settings for individual converters and to monitor the status and parameters.





Artesyn Embedded Technologies

Artesyn Embedded Technologies is a global leader in the design and manufacture of highly reliable power conversion solutions for a wide range of industries including communications, computing, consumer electronics, medical, aerospace and industrial automation.

Artesyn is one of the world's largest and most successful power supply companies, embracing the well-known Astec brand. The company's extensive standard AC-DC product portfolio covers a power range of 3 watts to 24 kilowatts and includes open-frame and enclosed models, highly configurable modular power supplies, rack-mounting bulk front end units, DIN rail power supplies, external power adapters and power supplies for LED lighting. Many of these products are available in medically approved versions and many of the higher power models feature extensive built-in intelligence.

As an industry leader in distributed power applications, Artesyn produces an exceptionally wide range of DC-DC power conversion products. These include isolated DC-DC converters, covering industry-standard sixteenth- to full-brick

form factors with power ratings from 3 watts to 800 watts. Artesyn also offers three application-optimized families of non-isolated DC-DC converters, non-isolated memory power, and processor voltage regulator modules (VRMs).

As a pioneer in low power switch mode adapters, Artesyn has designed and manufactured solutions for almost every major mobile phone supplier. With well over one billion chargers shipped from its best-cost facilities, Artesyn has aligned itself to meet the demands for the next billion chargers through new platforms, automated manufacturing methodology and unsurpassed quality and reliability.

For more than 40 years, customers have trusted Artesyn to help them accelerate time-to-market and shift development efforts to the deployment of new, value-add features and services.

Headquartered in Tempe, Arizona, Artesyn has over 16,000 employees worldwide across multiple engineering centers of excellence, wholly-owned world-class manufacturing facilities, and global sales and support offices.

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