DCDC-S Family

Modular DC/DC converter solution for stacks up to 90 V

Version 1.1 2021-10-06



DCDC-S Family is a modular solution for power DC/DC conversion developed specifically to address wide ranges of varying key parameters of hydrogen fuel cell and electrolyzer applications. This solution is based on modules that can be parallelized in required count. DCDC-S converters can be digitally controlled or monitored.

DCDC-S allows constant voltage control and constant current control or limitation. That is ideal for applications where a system battery is used, so the output can change modes according to battery charge status and application power demands. Current control feature can be used also for parallelization of more hydrogen fuel-cell sources, where each source can be enabled individually and can contribute with a different current or power.

We provide DCDC-S models with custom-specified parameters, with different cooling and mechanical setups, or with complete development services for custom projects and series production.

For detailed specifications of a solution for your project, please contact us and specify your key parameters – voltage and current range of input and output, preferred cooling, controller demands, application-specific parameters, etc.



Example solution: DCDC4S-24V model (input 12...60 V, fixed output 24 V, max. 144 A, air cooling)

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Quick summary

 \sim Topology

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- buck-boost (step-up & step-down)
- Isolation
- Input voltage
- ->-Output voltage
- Modularity
- Power •
- Efficiency
- Cooling
- Output control
- Controller **

- non-isolated
- 9...90 V
- 0...90 V
 - 1... 20 modules in parallel (virtually unlimited number)
 - 1 ... 2 kW per module (depends on max. current per module)
- up to 97 %
- Air or water
 - Constant voltage standard power supply mode
 - Constant current for battery charging or stack parallelization
 - Analog fixed output settings
 - Digital control by digital communication (RS485, CAN, ...)
 - compatible with KMS Kolibrik.net modular system

Available variants

- Stand-alone DC/DC converter with fixed output settings
- Digitally controlled DC/DC converter
- Open-frame setup for integration into systems
- Stand-alone modules for custom solutions
- Complete custom-developed solutions for mass production *

Applications

- Fuel-cell stack output power conversion for application power (e.g., fixed 24 V or 48 V output) \sim
- Ballance of plant (BoP) power supply \sim
- Intelligent conversion for application with battery in peak-shaving setup const. V/I mode depending on battery charge status and application power consumption
- Parallelization of more fuel-cell power sources each source can contribute with different power
- Electrolyzer power supply with current control and voltage limitation *
- Pre-convertors for 3rd-party industrial converters and inverters that have improper input voltage range for direct connection to fuel-cell stacks

Example: H2FC stack (35...72 V) \rightarrow DCDC-S converter (output 48 V) \rightarrow inverter 48 VDC / 230 VAC