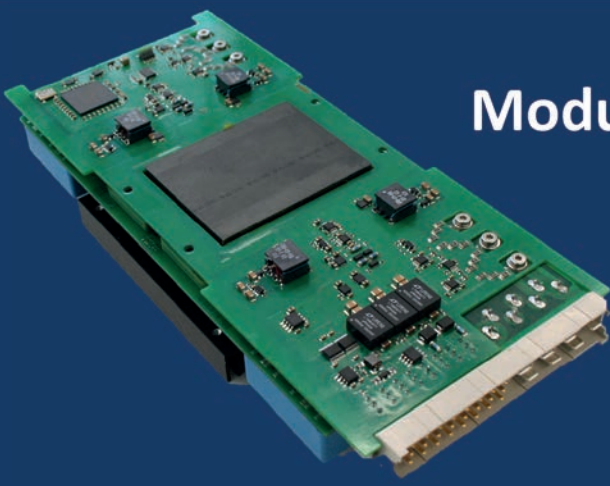


Modular Power Distribution System for $\pm 380 \text{ V}_{\text{DC}}$ Microgrids





Modular Power Distribution System for $\pm 380\text{ V}_{\text{DC}}$ Microgrids

Description

Modular Power Distribution System provides a scalable and flexible solution for connecting various renewable energy sources and storage systems to $\pm 380\text{ V}_{\text{DC}}$ microgrids ranging from a few kilowatts up to hundred kilowatts. The system consists of several power modules and an **Energy Flow Controller** and is housed in a 19" system with only 3 HU.

The power module is a DC/DC converter, which is connected between the microgrid and energy sources and storage. It also compensates power imbalances between the two phases of the $\pm 380\text{ V}_{\text{DC}}$ microgrid. Each power module is hot-pluggable. For applications requiring higher power, the power modules can be connected in parallel.

Voltage regulation in the **Modular Power Distribution System** is performed by a **Voltage Droop Control** algorithm. The **Energy Flow Controller** communicates with all power modules and system components as a superordinate controller of the microgrid.

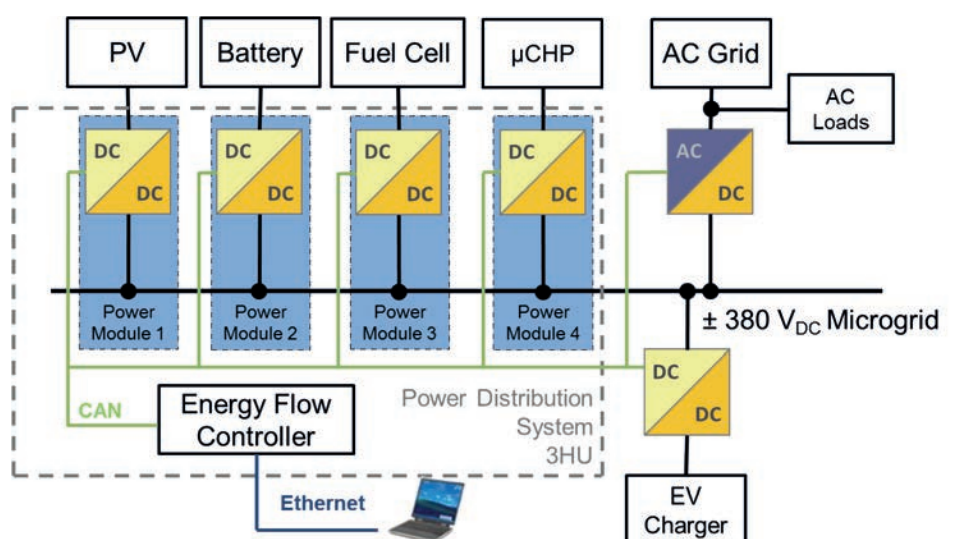
Technical Data

Maximum Power per Power Module	12 kW
Number of Power Modules per 3 HE	4
Maximum Current of Power Module	20 A
Maximum Power between two phases	4 kW
Efficiency of individual DC ports	up to 98.5%
Voltage of DC Microgrid	$\pm 330\text{--}450\text{ V}$
Communication interface	CAN, Ethernet, RS 485
Dimension	19" (3 Height units)

Features

- 12 kW bidirectional Power Module, 4 modules per 3HU
- Scalable and flexible configuration for the connection of PV strings, battery storage and other renewable energy sources
- Integrated balancing capability for two-phase $\pm 380\text{ V}_{\text{DC}}$ Microgrids
- Hot-pluggable power modules
- Temperature monitoring
- Overcurrent protection
- Integrated mechanical switches for each channel
- Air cooled

Typical DC Grid Architecture



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