

SIEMENS



SINAMICS DCP

The innovative DC-DC converter for industry and smart grid applications

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SINAMICS DCP — the innovative DC-DC converter for industry and the smart grid



With the SINAMICS DCP, Siemens starts a new generation of bidirectional DC-DC converters. This combines our expertise in DC technology and the advantages of the well-proven SINAMICS family.

SINAMICS DCP is suitable for industrial applications as well as for multi-generator applications in the domain of renewable energies. As bidirectional combined buck/boost converter with scalable power, it combines several functions in a single device.

This means that for variable voltage levels, current can flow in both directions making DCP the ideal solution for charging and discharging batteries and supercapacitors. Internal protective mechanisms ensure that batteries or supercapacitors are neither overcharged nor deep-discharged. The high internal switching frequency facilitates a compact device design and low weight.

For power generating solutions, SINAMICS DCP also maximizes the amount of power fed back into the grid as a result of its very high efficiency. PROFIBUS is used as the standard communication interface, however, PROFINET can be optionally added as additional interface. The BOP20 basic operator panel is available for commissioning and as local operator panel.



SINAMICS DCP in industry

Alternative to a braking chopper

With cranes, for example, recovered braking energy is used for the next hoisting operation, instead of being converted into heat as was previously the case. A SINAMICS DCP serves as interface to the energy storage system.

Coupling DC buses

DC buses at different voltage levels can be intelligently coupled using SINAMICS DCP. This means that the infeed can be implemented with significantly lower associated costs.

Reducing peak loads

In many applications, for example presses and centrifuges, a high peak power is drawn from the line supply in short time intervals with high associated power tariffs. Based on SINAMICS DCP, energy storage systems that briefly provide the high overload required can be implemented, therefore improving the cost situation.

Battery test stands

Battery test stands — where the performance of batteries and rechargeable batteries is tested — can be implemented using bidirectional DC-DC converters.

SINAMICS DCP for energy management

ESS (energy storage system)

Fixed battery energy storage systems can be implemented using the SINAMICS DCP (DC Power Converter). As DC-DC converter, they couple the battery modules to a common grid inverter, which in turn injects the total energy into the power grid, industrial grid or island grid.

SINAMICS DCP in the marine domain

Battery-powered ships

Environmental regulations are becoming increasingly important, especially in ports and harbors. Air pollution from ships represents a considerable problem in these environments. In battery-powered ships, SINAMICS DCP is the coupling element between the energy storage system and the motor.

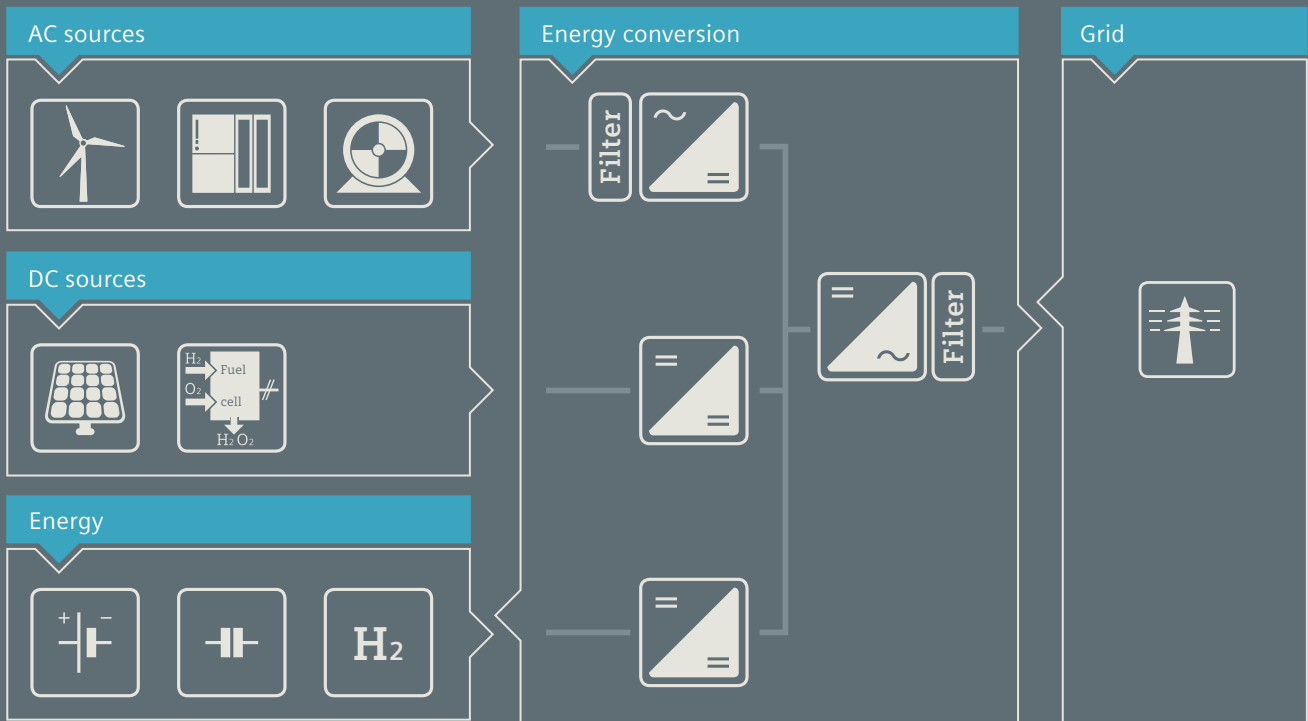
SINAMICS DCP for the eCar infrastructure

Externally charging electric vehicles and buses

DCP can be used to charge and discharge vehicle batteries in a fixed infrastructure.



Flexible integration and a wide range of combination options



Features and advantages of the SINAMICS DCP at a glance

- Combined buck / boost converter in one device
- Wide voltage range
- Bi-directional
- Integrated Control Unit
- Reactors integrated in the device
- Scalable power rating
- Small footprint
- PROFIBUS as standard / PROFINET as option
- Communication via DRIVE-CLiQ interface and OALINK to the CU320-2
- Can be expanded using additional SINAMICS components, for example Active Line Modules

An overview of the technical data

	30 kW DCP	120 kW DCP
Input/output voltage	30–800V DC	30–800V DC
Max. input voltage	1,000V DC ($I_{max} = 5$ A for 30 s, every 5 min)	920V DC (with derating)
Current / voltage / power	$I_{max} = 50$ A @ $U_e = U_a = 600$ V, $P = 30$ kW	$I_{max} = 200$ A @ $U_e = U_a = 600$ V, $P = 120$ kW
Power supply	24V DC (18–30V), $I = 5$ A	24 V DC (18–30V), $I = 20$ A
Current ripple	< 3 %	
Scalability	4x parallel at both sides (input/output)	
Efficiency 30 kW / 120 kW	> 98 %	
Temperature range	0°–40°C, up to 55°C with derating	
Installation altitude	Up to 2,000 m without derating, up to 5,000 m with current / voltage derating	
Communication	PROFIBUS, PROFINET, DriveCLiQ with OALINK connection to CU320-2	
Closed-loop control type	Closed-loop current-controlled: Setpoint can be entered for the input or output.	
Control module	Own Control Unit	
Electrical isolation	No	
Weight	Approx. 38 kg	Approx. 118 kg
Dimensions	600 mm x 155 mm x 545 mm (incl. mounting)	900 mm x 205 mm x 500 mm
Degree of protection	IP20	IP00
Certifications/approvals	CE, cURus, EAC	
Standards	IEC 62109-1, IEC 61800-5-1, IEC 61800-3, UL 61800-5-1	

Part numbers

	30 kW DCP	120 kW DCP
SINAMICS DCP Basis device without options	6RP0000-0AA25-0AA0	6RP0010-1AA32-0AA0
Fan assembly	6RY1801-5AA00	6RY1801-5AA01
Memory card (spare part for option S03)	6RX1800-0AS50	
PROFINET module	6SL3055-0AA00-2EB0	
Terminal Module Cabinet (TMC)	6RY1803-0AB05	

