

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 or EtherNet/IP 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.



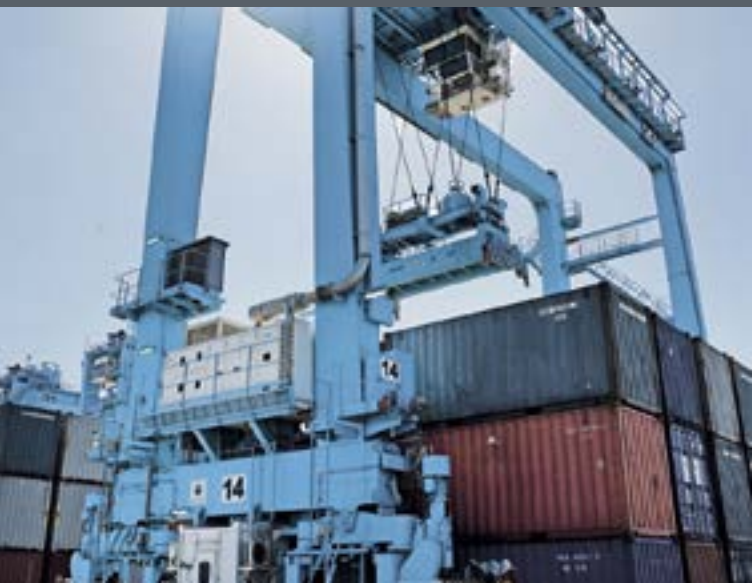
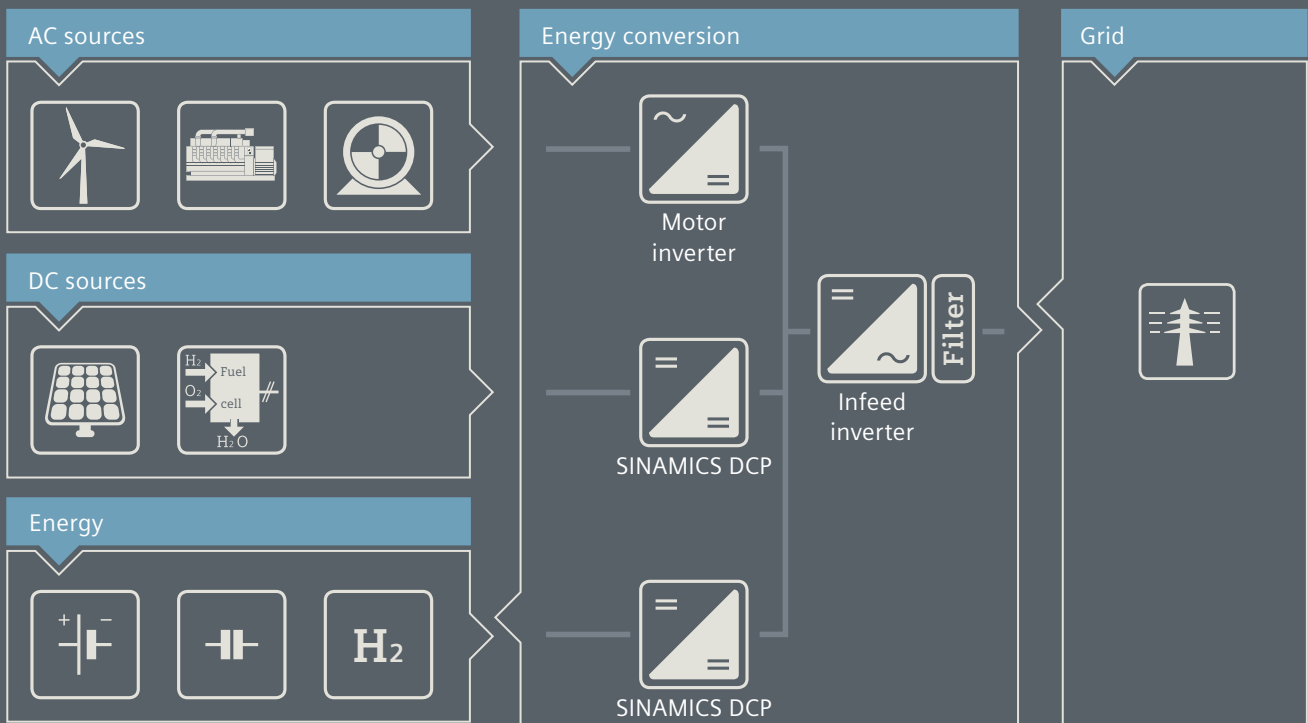
Software Features

- Can be used as adjustable voltage source by using the voltage control
- Power peaks can be briefly provided as a result of the overload capability
- Highest process reliability by maintaining the DC link voltage
- Efficiency optimization and energy efficiency in partial load operation using a temperature-controlled fan (120 kW)
- Power optimization of a PV array when using an MPPT (maximum power point tracker)
- No-load voltage limiting of a PV array
- Optimum adaptation to the battery using the parameterizable load characteristic

An overview of the technical data

	30 kW DCP	120 kW DCP
Input/output voltage	0 V – 800 V DC	0 V – 800 V DC
Max. input voltage	1,000 V DC ($I_{\max} = 5 \text{ A}$ for 30 s, every 5 min)	920 V DC (with derating)
Current / voltage / power	$I_{\max} = 50 \text{ A}$ @ $U_e = U_a = 600 \text{ V}$, $P = 30 \text{ kW}$	$I_{\max} = 200 \text{ A}$ @ $U_e = U_a = 600 \text{ V}$, $P = 120 \text{ kW}$
Power supply	24 V DC (18 V – 30 V), $I = 5 \text{ A}$	24 V DC (18 V – 30 V), $I = 20 \text{ A}$
Current ripple	< 3 %	
Scalability	4x parallel at both sides (input/output)	
Efficiency 30 kW / 120 kW	> 98 %	
Temperature range	0°C – 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, EtherNet/IP, DriveCLiQ with OALINK connection to CU320-2	
Closed-loop control	Closed-loop control current, voltage and power	
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	

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
- Bidirectional
- Integrated Control Unit
- Reactors integrated in the device
- Scalable power from 30 to 480 kW
- 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

Advantages of
SINAMICS DCP
at a glance



You can find additional information about SINAMICS DCP at

www.siemens.com/sinamics-dcp

You can find your contact partner addresses at
www.siemens.com/automation/partner

You can directly order electronically through the Internet
by visiting the Industry Mall
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Siemens AG
Process Industries and Drives
Large Drives
P.O. Box 47 43
90025 NUERNBERG
GERMANY

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