

SIEMENS

Ingenuity for life

SINAMICS PCS

The Power Conversion System for
industrial and public power grids

[siemens.com/sinamics-pcs](https://www.siemens.com/sinamics-pcs)

SINAMICS PCS

The new grid converter for your battery storage system.

**Energy-efficient.
Rugged. Certified.**

As energy generation moves further in the direction of decentralized feed-in from renewables, the situation faced by industrial customers and operators of small public grids is growing more and more challenging.

Simply high-performance

SINAMICS PCS offers answers to all your challenges: How can load peaks be handled effectively? How can the procurement costs from battery storage systems be reduced over the long term? How can we keep voltage fluctuations under control? And how can we improve the energy efficiency of our power distribution system?

That's exactly why we developed the new SINAMICS PCS (PCS = power conversion system) grid inverter: both to serve as a powerful system for energy use and to ensure grid stability. SINAMICS PCS was designed to enable the system to connect battery storage devices to existing grids with a minimum effort and take over a number of functions. In addition, a unit certificate in accordance with VDE-AR-N 4110 enables simplified plant certification.



Global support

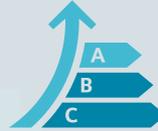
- Global 24/7 service offering, both on-site and via remote support
- Standardized components based on the SINAMICS S120 keep the variety of spare parts to a minimum
- Comprehensive product documentation for customers

Rugged and reliable



- Designed for reliable grid operation in industrial and public grids
- Technically optimized series device based on the proven SINAMICS S120 platform
- High-efficiency liquid cooling for operation in harsh environments

Extremely energy-efficient



- Effective liquid cooling ensures optimal heat dissipation from passive components
- Extremely energy-efficient, thanks to a low auxiliary power requirement
- Efficient liquid cooling makes it easy to integrate in containers or electrical rooms

Extremely easy



- Type-tested cabinet system, ready to connect
- Just one order number makes selection, configuration, and ordering easy
- Based on the standardized SINAMICS S120 series to keep the variety of spare parts to a minimum

Certified according to VDE-AR-N 4110



- Connect battery storage systems to industrial or public medium-voltage grids
- Availability of unit certificate ensures simplified plant certification and faster project planning and implementation
- Validated simulation model of the power generation unit is included in the scope of delivery

Simply digital



- Important operating status information displayed and monitored via the PROFINET communication interface derived from more than 1,000 converter parameters
- Simulation using a validated simulation model
- Easy integration thanks to SINAMICS Startdrive in the TIA Portal



SINAMICS PCS for industrial grids:

Lower costs, less CO₂

Operators of industrial power grids have specific challenges that SINAMICS PCS satisfies perfectly, thanks to its comprehensive profile of properties.



Optimized electricity costs, thanks to peak shaving

Cover peak loads with power that's stored when usage is lower. This lets you take the best possible advantage of the contractually agreed infeed and avoid additional costs for peak loads.

Back-up power for improved plant safety

In the event of a power outage, an appropriately dimensioned battery storage system provides you with sufficient power to stabilize ongoing processes and coordinate their termination – or keep them operating until the grid is available again. This helps you to avoid potential damage to your plants and the resulting production outage.

Make the best use of your resources

If you have your own plant to generate power from renewables, a battery storage system is the ideal solution for offsetting the volatility of systems like PV and wind turbines. You can cover your own requirements with the maximum proportion of carbon-free electricity and improve your carbon footprint.

STATCOM: Compensate reactive power

You can use SINAMICS PCS to compensate reactive power in the industrial grid, allowing you to comply with the power factor in accordance with the grid operator's specifications. As the operator, you don't need to draw additional reactive power from the grid, so you can substantially reduce your energy costs.

SINAMICS PCS for public grids:

Improved performance and stability of supply

For applications in the energy sector, the combination of SINAMICS PCS and battery storage systems also offers you many opportunities for improving performance and supply reliability. In some cases, storage systems can enable you to avoid investing in the expansion of your existing power generation capacities.



Battery storage for peak shaving

Optimize your power distribution with battery storage systems and SINAMICS PCS. The benefit: The additional power is quickly available and can be temporarily stored during times of low capacity utilization. More fully utilizing your generation systems not only saves you generation costs: The long-term coverage of peak loads with stored energy also potentially allows you to avoid costly expansions of your power distribution or generation system – among other benefits.

Frequency regulation

Fluctuations between supply and demand in the power grid result in instabilities in grid frequency. A combination of battery storage and SINAMICS PCS can compensate for these frequency fluctuations, supplying instant power to the grid when the frequency is low and absorbing excess energy from the grid when the frequency is too high. The result is happy customers, smooth grid operation, and dynamic frequency regulation with no need for rotating phase shifters.

Support for blackstart

You'll also benefit from the combination of battery storage and SINAMICS PCS when you have to restart a power plant. Simply draw on stored energy instead of a diesel generator, which is highly maintenance-intensive.

Greater stability in the microgrid

Use a battery storage system in conjunction with SINAMICS PCS specifically to stabilize a microgrid consisting of just a few power generators. This guarantees a high-quality power supply and high supply reliability, even with no connection to higher-level distribution systems.

SINAMICS PCS:

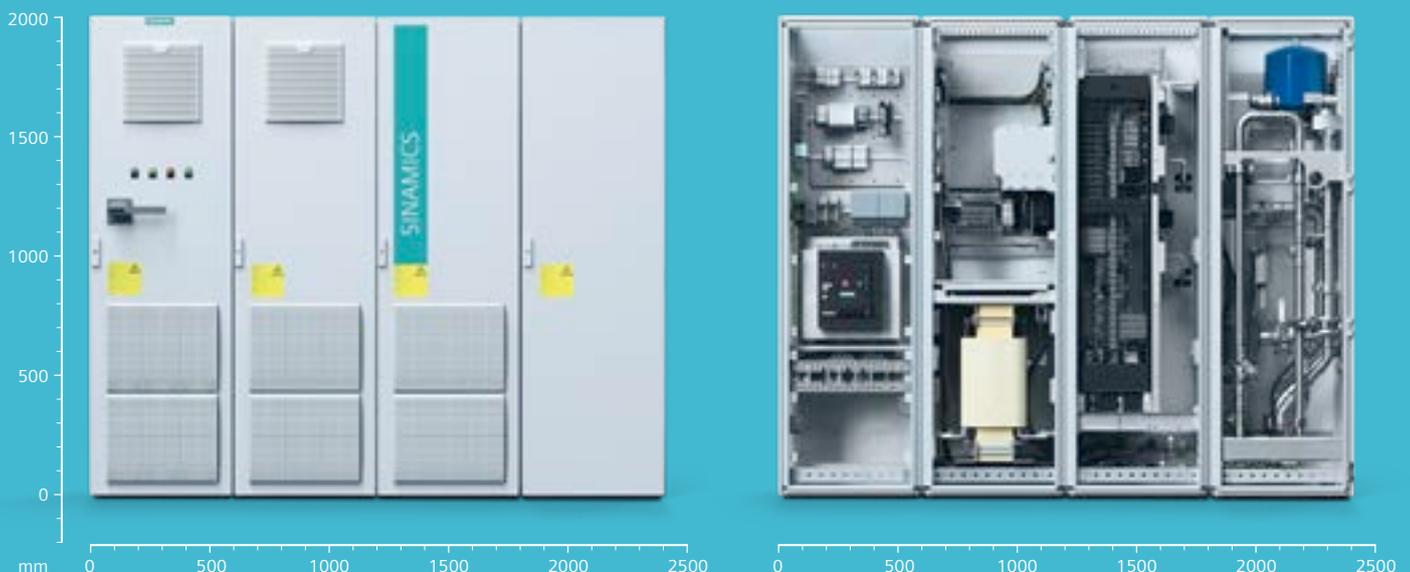
Technical data and dimensions

Compact and versatile: The SINAMICS PCS offers a wide range of potential uses with minimal space requirements.

Technical data	
Rated power	870 kW (@ 500 V AC)
Maximum DC current (depending on AC voltage)	1,050 A
DC voltage range	850–1,100 (@ 500 V AC)
Dimensions (width x height x depth)	2,400 x 2,000 x 600 mm
Degree of protection	IP21
Order code	6RD1725-7AA41-1AA0

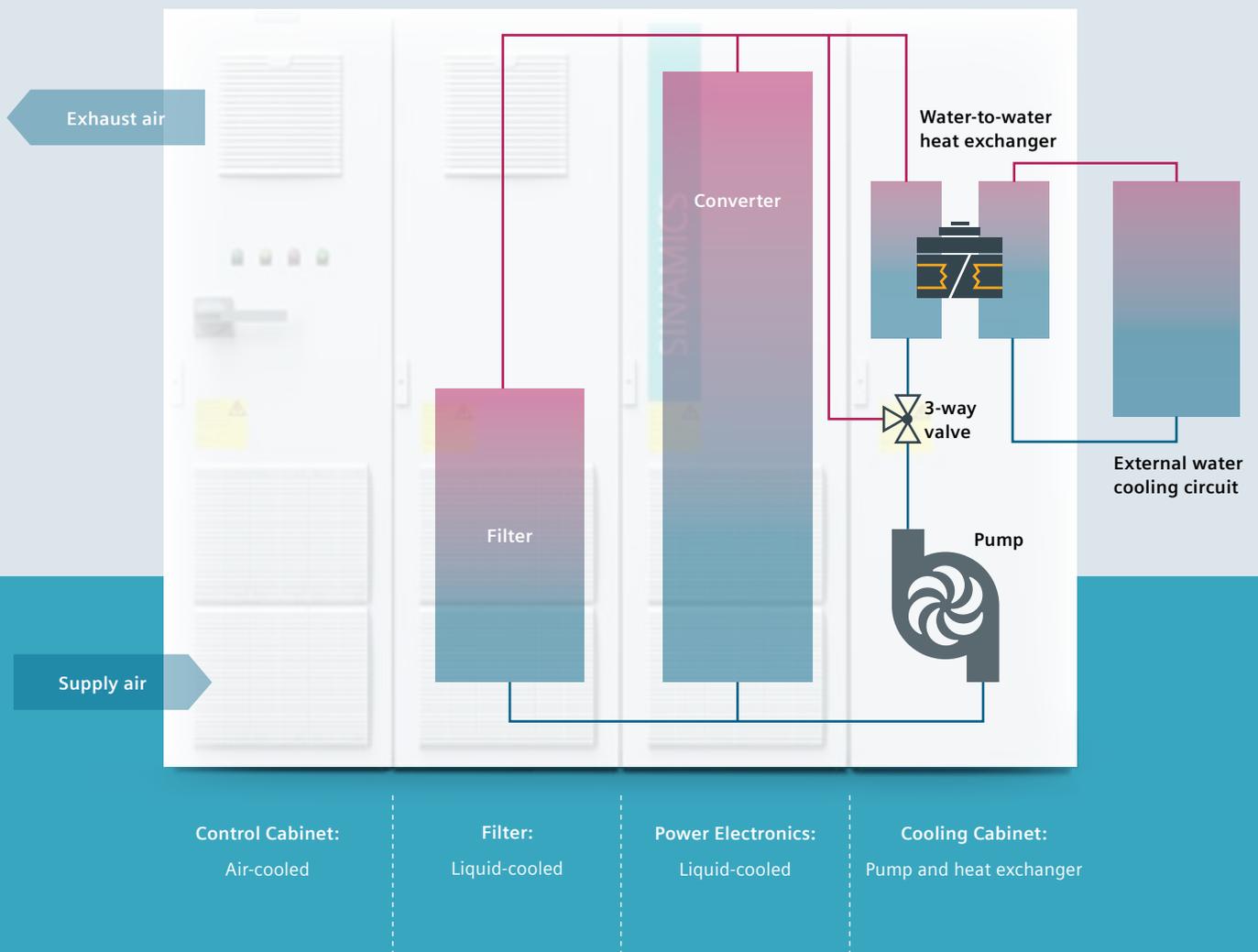
Especially flexible: A variety of AC supply voltage possibilities allow for a broad range of battery voltages.

Rated supply voltage and DC voltage range						
U_{AC} [V]	S [kVA]	P [kW]	$Q_{\text{underexcited}}$ [kVar]	$Q_{\text{overexcited}}$ [kVar]	$U_{DC, \text{min}}$ [V]	$U_{DC, \text{max}}$ [V]
500	933	870	247	337	850	1,100
450	842	783	218	308	772	1,100
400	750	696	190	280	694	1,080
350	659	609	161	251	616	945
300	567	522	132	222	538	810
250	476	435	104	194	460	675



SINAMICS PCS: Liquid cooling

SINAMICS PCS offers efficient liquid cooling, which expands its range of uses to include areas with challenging climates and high ambient temperatures.



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