

Preliminary



ENERGY STORAGE SOLUTION

Megawatt PCS / PCS1500

Features

- Power capacity 1000-1725 kVA
- High DC voltage up to 1500V
- 98.4% efficiency for bi-directional power conversion
- Advanced P/Q, Frequency/Voltage, VSG control increase power quality
- Modular design realizes scalability and easy maintenance
- Utility-grade protection designed for outdoor use in harsh environment
- DC and AC coupled storage application



Utility Grid



PV Plant

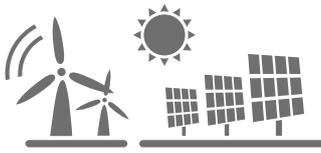


Optimizing the Value & Efficiency of Energy Storage System in Grid Applications

Delta Power Conditioning System (PCS) is a bi-directional energy storage inverter for grid applications including power backup, peak shaving, PV self-consumption, PV smoothing, etc. Delta Megawatt PCS1500 series provides power capacity from 1000 to 1750 kVA with maximum efficiency 98.4%. Featuring high availability and adaptability, it is battery technology independent and can control energy storage system exactly when it is required.



Applications



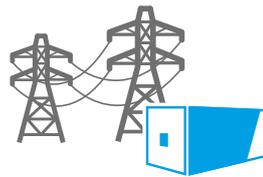
Renewable Power Plant Integration

- Ramp rate control
- Energy shifting
- Smoothing
- Capacity firming



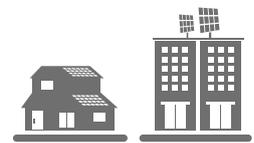
Hybridized Thermal Power Plant

- Black start
- AGC improvement



Grid Ancillary Control

- Frequency regulation
- Peak shaving



Distributed Network and Microgrid

- Peak shaving
- Autonomous operation

Operating Modes

1. Power Dispatch Mode

Respond to External Power Demand

PCS can provide the optimal output to meet the system load at the short-term determination

3. Frequency-Watt / Voltage-Watt / Voltage-Var Mode

Dynamically Output Power Adjustment

PCS can monitor grid frequency or voltage continuously and adjust its output power based on the user-configured parameters dynamically

2. Peak Shaving Mode

Schedule for Demand Charge Reduction

PCS will dispatch battery power to shave the peak and avoid high demand charge once detected consumption overload

4. Standalone Mode

A Reliable Backup Power

PCS will disconnect itself from grid when grid blackouts. With an external UPS supplying emergency power, PCS can black start and continuously provide power from battery to critical loads

Advance Power Control for Improving Power Quality

- Automatic voltage and frequency regulation
- Active and reactive power compensation
- Anti-Islanding detection, islanding control operation
- VSG control

Specifications

Part Number	EPCS1000-IEC	EPCS1200-IEC	EPCS1500-IEC	EPCS1725-IEC
DC Connection				
Full Power DC Voltage Range ⁽¹⁾	577 - 1400 V	695-1400 V	865 - 1400 V	995 - 1400 V
Max. DC Voltage	1500 V			
Max DC Continuous Current @50°C	1778 A			
Max DC Continuous Current @35°C	1866 A			
Max DC Continuous Current @25°C	1955 A			
AC Connection				
AC Output Power @50°C	1000 kW / kVA	1200 kW / kVA	1500 kW / kVA	1725 kW / kVA
AC Output Power @35°C	1050 kW / kVA	1260 kW / kVA	1575 kW / kVA	1811 kW / kVA
AC Output Power @25°C	1100 kW / kVA	1320 kW / kVA	1650 kW / kVA	1898 kW / kVA
Max Ac Output Continuous Current @50°C	1473 A			
Max Ac Output Continuous Current @35°C	1547 A			
Max Ac Output Continuous Current @25°C	1620 A			
Normal Grid Voltage Vrms	400 V	480 V	600 V	690 V
Normal Grid Frequency	50 / 60 Hz			
Current Harmonic Distortion (THDi) ⁽²⁾	<3% IEEE519			
Power Factor	Four quadrants			
Efficiency				
Max. Efficiency	98.30%	98.35%	98.50%	98.60%
CEC Efficiency	98.00%	98.14%	98.37%	98.40%
Standby Loss	< 300 W	< 300 W	< 300 W	< 300 W
Protection				
DC Side	DC Load breaker + DC Fuse			
AC Side	AC circuit breaker			
DC Overvoltage	Surge arrester, class II as standard			
AC Overvoltage	Surge arrester, class II as standard			
Ingress Protection	IP55/IP34/IP34 electronics/air duct /connection area			
General				
Dimensions (W x H x D)	2200 x 2260 x 1100 mm			
Weight Appr.	2600 kg			
Environment				
Operating Temperature ⁽³⁾	-30°C to +60°C			
Storage Temperature	-30°C to +70°C			
Relative Humidity	0% to 100% RH, non-condensing			
Altitude ⁽⁴⁾	< 4000 m			
Acoustic Noise (1m)	< 79 dB(A) @25°C, full power			
Cooling	Forced air cooling			
Compliance				
Safety / EMC	IEC 62477 / IEC 61000-6-2, IEC 61000-6-4			
Grid Interconnection	VDE AR-N 4110 / G99			

* Specifications are subject to change without prior notice

* Subject to change based on customer's requirements

(1) Minimum DC voltage for normal grid AC voltage and power factor=1, The minimum DC voltage depends on AC voltage and power factor

(2) THDi at nominal power

(3) Power de-rating above 50°C

(4) Power de-rating above 2000m



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