

Preliminary



ENERGY STORAGE SOLUTION

Megawatt PCS / PCS3000

Features

- Power capacity 3110-4150 kVA
- 98.4% efficiency for bi-directional power conversion
- Advanced P/Q, Frequency/Voltage, increase power quality
- Modular design realizes scalability and availability
- Battery independence provide high adaptability for energy storage
- Utility-grade protection designed for harsh environment
- AC coupled storage application



Utility Grid

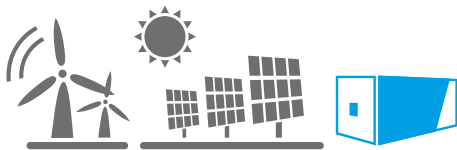


Optimizing the Value & Efficiency of Energy Storage System in Grid Applications

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 PCS provides power capacity from 3110 to 4150 kVA with 98.4% efficiency. Featuring high availability and adaptability, the PCS is battery technology independent and can control energy storage system exactly when it is required.



Applications



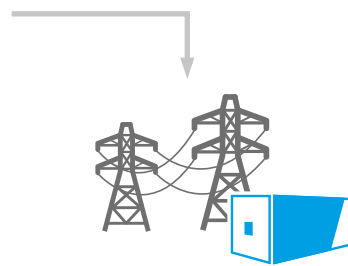
Renewable Power Plant Integration

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



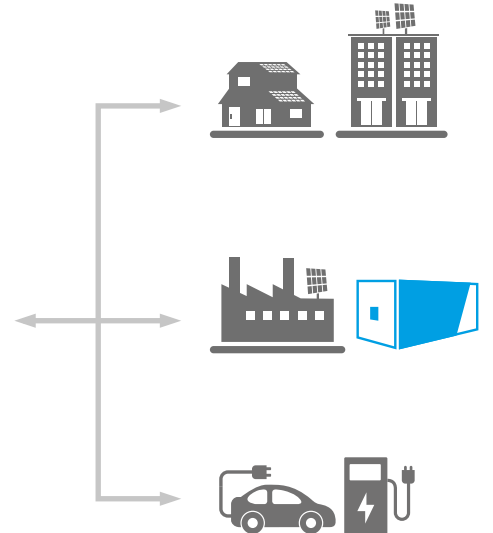
Hybridized Thermal Power Plant

- Black start



Grid Ancillary Control

- Frequency regulation
- Peak shaving



Distributed Network and Microgrid

- Peak shaving

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

Specifications

Part Number	DWE3110-EV-US	DWE4150-EV-US
DC Connection		
Input Voltage VDC Range (1)	875 - 1500 V	
Input Voltage V _{DC, max}	1500 V	
Max. Input Current I _{DC, max} (at 50°C)	3269 A	4359 A
Number of DC Inputs	1/2 (optional)	
AC Connection		
AC Power (25°C / 35°C / 50°C)@ PF=1, 600Vac	3117 kVA / 3117 kVA / 2805 kVA	4156 kVA / 4156 kVA / 3741 kVA
Max. AC Current I _{AC, max} (25°C / 35°C / 50°C)	3000A / 3000A / 2700A	4000A / 4000A / 3600A
Max. Total Harmonic Distortion (2)	< 3% at full load	
Nominal AC Voltage	600 V	
AC Power Frequency	60 Hz	
Power Factor (depending on voltage)	0 to 1 leading or lagging	
Performance		
Max. Efficiency (3)	98.4%	
CEC Efficiency	98%	
Standby Loss (4)	< 350 W	
Protection		
Input-side DC	DC load breaker switch + fuses	
Output-side AC	AC circuit breaker	
DC Overvoltage	Surge arrester, class II	
AC Overvoltage	Surge arrester, class II	
Ingress Protection	Type 4X	
General		
Dimensions (W x H x D)	4450 x 2300 x 1650 mm / 175 x 90.5 x 65 inches	
Weight	6000 kg / 13228 lbs	7000 kg / 15432 lbs
Power Module	3	4
Environment		
Operating Temperature	-30°C to +60°C, de-rating > 50°C	
Storage Temperature	-40°C to +70°C	
Relative Humidity	5 to 100% RH	
Altitude	< 3000 m, de-rating > 2000 m	
Acoustic Noise (5)	< 85 dB(A)	
Cooling	Liquid cooling (integration)	
Compliance		
Safety	UL 1741	
EMC	FCC class A	
Grid Interconnection	IEEE 1547	

* This is a draft version and subject to change based on customer's final specification.

* Specifications are subject to change without prior notice.

(1) Consult Delta for derating curves

(2) I_{thd} measured under grid short current ratio≥5

(3) Efficiency measured without internal auxiliary power loss

(4) Standby loss measured under external power supply

(5) Noise measured at the distance of 3m





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