■ Introduction

In order to meet Energy storage market requirement, BYD developed 500kVA PCS (Power Conversion System) with years' experiences. This PCS is usually used for medium to large energy storage power station with high efficiency, reliable operation, high stability, and supplied for the following services: peak load shifting, adjustable reactive power etc.

■ PCS Topology

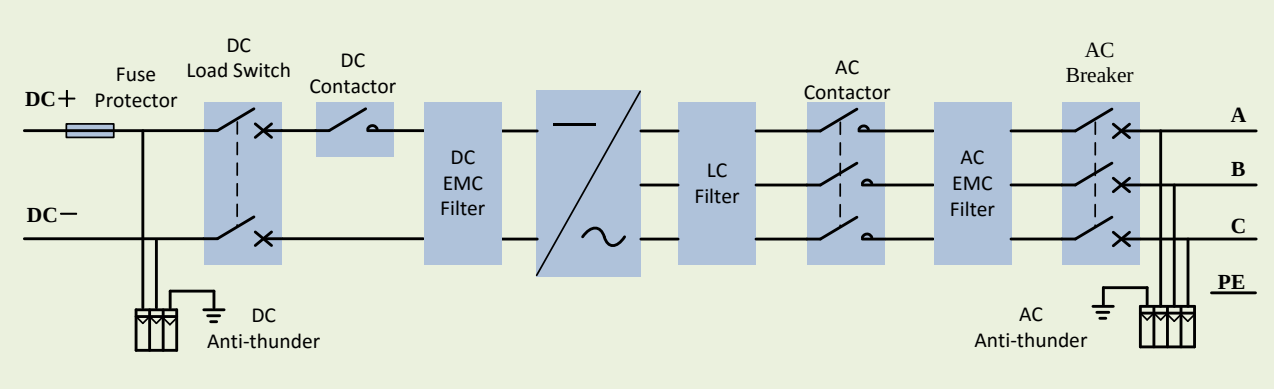

Figure 1: PCS Topology

■ System Parameters

No.	Item	Parameter	Remark
1	Type	BEG500KTL-U	
Parameters at DC side			
2	DC Voltage range	780～1000Vdc	
3	Max. DC current	700A	
Parameters at AC side			
4	Nominal AC voltage	480Vac	
5	Max.AC current	600A	
6	AC power	500kW	
7	Nominal Grid Frequency	60Hz	
8	Power Factor	0.95（leading）～0.95（lagging）	
9	THD	<5%	at nominal power
System parameter			
10	Isolation Method	Transformer less	

11	Max. Efficiency	97.5%	
12	Nominal power	97%	
13	Enclosure Protection Grade	IP20（indoor）	
14	Allowable Environment Temperature	-25～+55℃	Nominal output under 50℃
15	Allowable Relative Humidity	5～95% （no frozen）	
16	Allowable Max. Altitude	6000m	Power derating over 3000m
17	Noise	<75dB	
18	Cooling	Air cooling	
19	Fresh Air Consumption	10000m^3/h	
20	Display	Touch screen	
21	Communication Interface	RS485/Ethernet	
保护功能			
22	Short-circuit Protection	√	
23	Over-load Protection	√	
24	DC Over-voltage and Under-voltage Protection	√	
25	Grid Monitoring	√	
26	Insulation Monitoring	√	
27	Over-temperature Protection	√	
28	DC Reverse Polarity Protection	√	
29	Islanding Protection	Active and Passive Detection	
Mechanical Parameter			
30	Dimension (W/L/D) (mm)	2000/600/2150	
31	Weight (kg)	1700	
Reference Standard			
32	Safety	UL 1741-2nd Ed (January 28, 2010)	
33	On-grid	IEEE 1547（2003） IEEE 1547.1(2005)	

■ Performance features

- Wide DC voltage input range, max. voltage is 1000V
- Output harmonic wave is small, max. efficiency is up to 97.5%
- Very short switch time of charging and discharging at full power
- Adjustable reactive power
- Active power derating
- Thin-film capacitor design improve the system service life

■ Topology

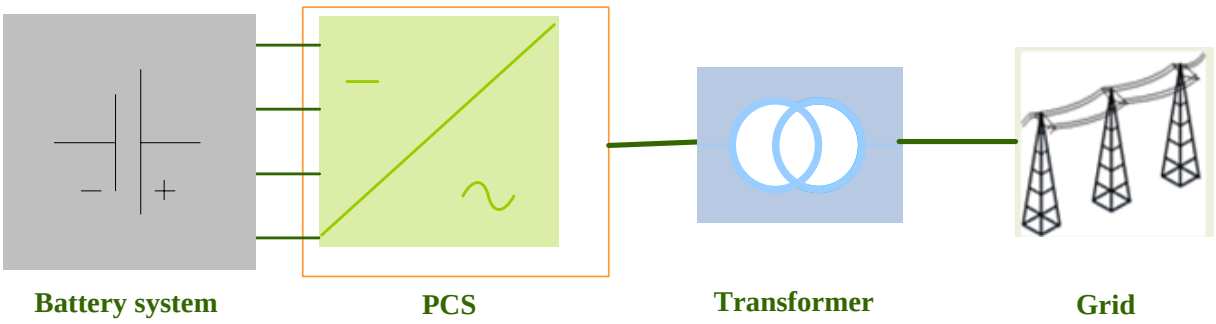

Figure 2: System Application