DomesticPower®

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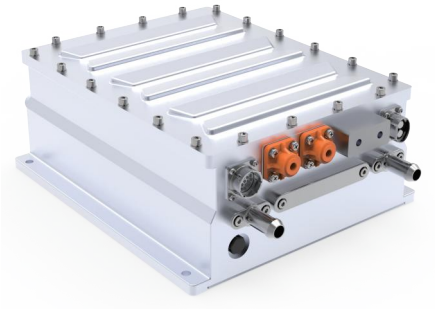
POLARIS®
BALANCE OF PLANT
POWER CONVERTER



Introduction

Balance of Plant (BOP) power is a key component in the hydrogen based applications. This DC/DC down converter is responsible for stepping down the high-voltage DC output from the power battery or the fuel cell system to provide low-voltage DC output for fans and other loads in electric vehicles, and also to charge the battery.

The converter is controlled by the main controller to ensure stable voltage, high conversion efficiency, and high reliability.

It also features protection functions such as input over/under voltage protection, output over/under voltage protection, output short circuit protection, input reverse connection protection, and overtemperature protection.

Smart Features

- Flexible configuration, suitable for various power battery specifications and applications;
- Support the vehicle fault diagnosis, communication method: CAN;
- Small size, lightweight, applicable to various type of vehicles.

Protection & Performance

- The input, output and communication interfaces of the system are isolated from each other, ensuring increased safety and reliability;
- The digitized control system features flexible algorithms that fully leverage the performance of the power circuit;
- The maximum conversion efficiency reaches up to 95%;
- Both input and output come with built-in protection circuits.

Rev 1.0, 2024.06.18

Specifications

MODEL	SDL6-500-24	SDL9-500-24	SDL12-500-24
Nominal Input Voltage	500VDC	500VDC	500VDC
Input Voltage Range	250VDC-750VDC	250VDC-750VDC	250VDC-750VDC
Full Power Input Voltage Range	415VDC-750VDC	415VDC-750VDC	415VDC-750VDC
Maximum Input Current	16A (full load input 415V)	24A (full load input 415V)	32A (full load input 415V)
Input Discharge Time	Voltage drop ≤ 60V within 5 min	Voltage drop ≤ 60V within 5 min	Voltage drop ≤ 60V within 5 min
LOW VOLTAGE OUTPUT			
Rated Output Voltage	27V	27V	27V
Rated Power Point Efficiency	≥ 95%	≥ 95%	≥ 95%
Rated Output Current	222.2A	333.3A	444.4A
Rated Output Power	6KW	9KW	12KW
Maximum Output Power	6.6KW (peak power 6 min)	9.9KW (peak power 6 min)	13.2KW (peak power 6 min)
Output Ripple Voltage (Peak-to-Peak Value)	≤ 500mV	≤ 500mV	≤ 500mV
AUXILIARY POWER			
Auxiliary Power Voltage Range	12-36V		
SYSTEM			
IP Level	/		
Communication Interface	CAN-BUS, supports UDS and BootLoader		
Operating Temperature Range	-40°C ~ 85 °C		
Storage Temperature Range	-40°C ~ 105 °C		
Cooling Method	Liquid cooling		
Reference Standards	GB/T 24347, GB/T 18488, GB/T 18384, QC/T 413, QC/T 895, GB/T 18655, GB/T 17619		
Protection	Input undervoltage protection, input overvoltage protection, input overcurrent protection, LV output undervoltage protection, LV output overvoltage protection, LV output overcurrent protection, overtemperature protection, output short circuit protection, communication failure protection.		
DIMENSIONS & WEIGHT			
Dimensions (W*D*H, inch)	10.8*11.1*5.1	14.8*11.1*5.1	14.8*11.1*5.1
Weight	22.05lb	28.66lb	35.27lb
Design Standard	ISO 6469-3, ISO 16750-1, GB/T 24347-2021, CISPR 25		
SYSTEM BLOCK DIAGRAM