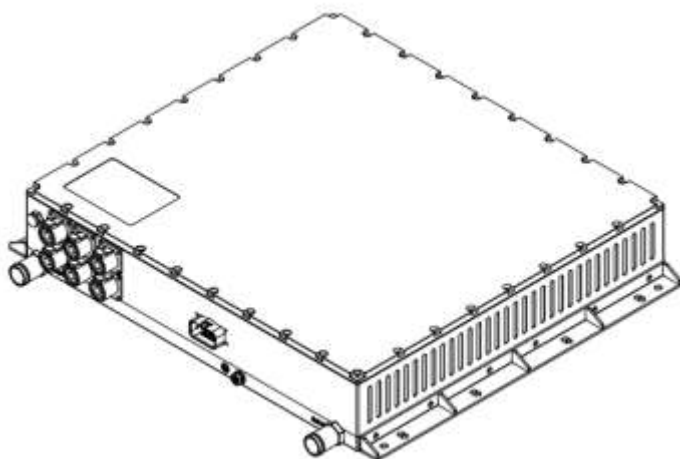




150 KW Fuel Cell DC/DC Converter Model No. ATD150K-90S900-W

Specification



Features

1. Output Power: 150KW
2. Input Voltage: 90~500VDC
3. Output Voltage: 400-900VDC
4. Max Output Current : 300A
5. Max Input Current: 600A
6. Dimensions: 545x410x100mm
7. Weight: ≤ 25 KG
8. Cooling System: Liquid, flow rate ≥ 12 L/min
9. Connector IP Rating: IP6k9k Protection Level: IP67
10. With pre-charge & without galvanically isolated
11. Communication Method: CAN-BUS J1939
12. Enclosure: Aluminum alloy
13. Software: Digital software design



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1、Product Overview

Fuel cell (DC 90V-500V) input, output to high-voltage battery (DC 400V~900V) for charging

2、Reference Standards

The design, manufacture, inspection, storage, transportation, and use conditions of the product should comply with or be superior to the following standards (the priority order of use standards is specific requirements of this ordering technical agreement, special technical conditions, general technical conditions. For standards or technical conditions without a marked year, use the latest edition of the same name standard or technical condition).

GB/T 18387-2008 Limits and measurement methods for electromagnetic field emission intensity of electric vehicles

GB/T 18384.1-2001 Safety requirements for electric vehicles

QC/T 413-2002 Basic technical conditions for automotive electrical equipment

QC/T 29106-2004 Technical conditions for automotive low-voltage wire harnesses

GB 18488.1-2006 Electric motors and their controllers for electric vehicles

GB/T 24347-2009 DC/DC converters for electric vehicles

3、Technical Parameters

Description	Parameters
Operating Temperature	-40~85°C
Storage Temperature	-40~85°C
Relative Humidity	5%~95% (non-condensing)
Altitude	≤4000m
Cooling Method	Liquid cooling
Coolant	Water/ethylene glycol mixture ratio: 50/50
Coolant Inlet Temperature	-40~65°C
Coolant Inlet and Outlet Pipe Diameter	Φ25 (adjustable according to user requirements)
Cooling flow rate	≥12L/min
Maximum Pressure of Cooling System	3.5Bar
Electrical Characteristics	
Input Voltage	90~500V Low-voltage input end is equipped with a direct current contactor and pre- charging
Input Current	The adjustable range of the system's input current limit value is 0~600A, with a peak current of 680A
Response Time	<150ms
Input Voltage Measurement Accuracy	1% of the rated input voltage
Input Current Measurement Accuracy	1% of the rated input current
Input Current Ripple	Input current ripple is less than 1% (RMS value)
Output Method	The output end can prevent backflow to prevent external power from being fed back to the input end through the output end
Rated Output Power	150KW



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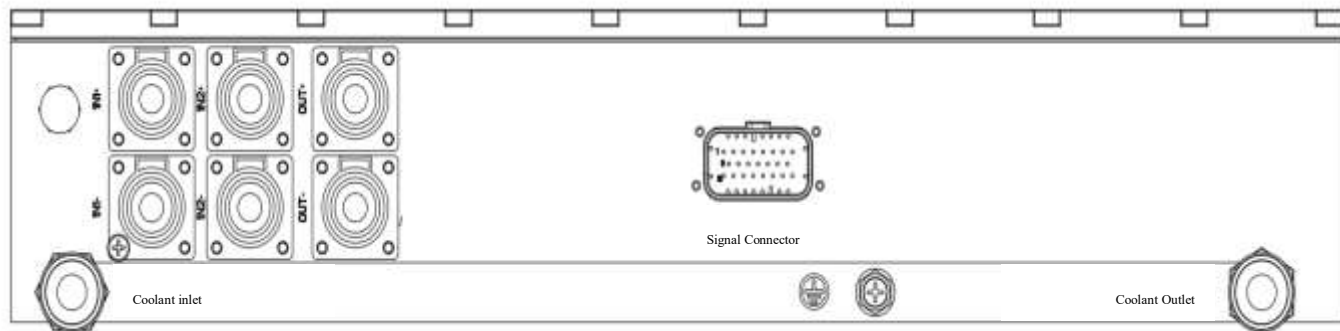
Output Voltage Range	400-900Vdc
Rated Output Current	300A
Main Output	The output end can prevent backflow; when a single-point failure occurs inside the DC boosting module, the lithium battery should not be damaged due to reverse overvoltage. The output end is subjected to an additional DC reverse voltage of 1200V for 10 seconds, and the DC boosting module should not be damaged.
Output Voltage Measurement Accuracy	1% of the rated output voltage
Output Current Measurement Accuracy	1% of the rated output current
Boosting DC-DC Efficiency	≥98.50%
DC-DC Protection Features	Input overvoltage/undervoltage protection, input overvoltage/undervoltage recovery, output overvoltage/undervoltage protection, input/output overcurrent protection, short circuit protection, overheating protection
Dielectric Strength	The dielectric strength between the high-voltage terminal connectors and the ground (enclosure) is ≥DC3000V. The dielectric strength between the DC-DC high-voltage Terminal connectors and the control power and CAN communication interface is ≥DC3000V
Control Circuit	
Control Circuit Input Voltage	Operating voltage: 16-36V, rated 24V. Sleep Mode 0.1mA
Control Power Consumption	<40W
Communication Method	CAN communication J1939, protocol to be defined with the customer
Mechanical Parameters	
Protection Level	IP6k9k
Weight (excluding water cooling)	≤ 25kg
Length x Width x Height (mm)	545x410x100(mm)
Standard Requirements	
Environmental Adaptability	<ol style="list-style-type: none">1. Temperature: DC-DC converter operating temperature: -40~85°C;2. Humidity: According to the requirements of GBT24347-2009 section 5.1.2, the relative humidity of the working environment is 5%~95%, non- condensing.3. Salt spray: According to the requirements of GBT24347-2009 section 5.1.3.4. Noise: According to the requirements of GBT24347-2009 section 5.5, the operating noise of the DC-DC converter should not exceed 60dBA
Mechanical Requirements	<ol style="list-style-type: none">1. Vibration resistance: Meet the requirements of QC/T 413-2002 section 3.12.2. Housing mechanical strength: According to the requirements of GBT24347-2009 section 5.3.

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Safety Requirements	<ol style="list-style-type: none"> 1. Insulation performance: >30M(1000VDC) 2. Dielectric strength: The dielectric strength between the terminal connectors (enclosure) and the circuits that are not electrically connected to each other should withstand a 3000V test for 1 minute. The input and output leads should meet the requirements of GB14711-2006 section 5.7. 3. Enclosure grounding: M8 grounding screw, grounding with 10~25 square millimeters. 4. Internal discharge resistor is configured, and the DC voltage can be discharged to below 36V within 5 minutes after power off. 5. Low voltage 24V, main circuit, communication circuit should be electrically isolated from each other. 6. High-voltage connectors must have interlocking functions.
Reliability	According to the requirements of GBT24347-2009 section 5.14, the DC-DC should have a fault-free operation time of not less than 30000h.
Appearance Quality	According to the requirements of GBT24347-2009 section 5.17.

4 、 Interface Definition




4.1 Main Circuit Interface

Items	Connect or	Cable Size	Rated Current	Socket Model	Plug Model	Description
IN1+	Plug-in	95mm ²	300A	PRC00X-301-10D10	PRC18X-301-95	Positive 1 of the fuel cell
IN2+	Plug-in	95mm ²	300A	PRC00X-301-10D10	PRC18X-301-95	Positive line 2 of the fuel cell
IN1-	Plug-in	95mm ²	300A	PRC00Y-301-10D10	PRC18Y-301-95	Negative line 1 of the fuel cell
IN2-	Plug-in	95mm ²	300A	PRC00Y-301-10D10	PRC18Y-301-95	Negative line 2 of the fuel cell
OUT+	Plug-in	70mm ²	300A	PRC00U-301-10D10	PRC18U-301-70	Positive line of the main output of the DC600V power supply
OUT-	Plug-in	70mm ²	300A	PRC00V-301-10D10	PRC18V-301-70	Negative line of the main output of the DC600V



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						power supply
	M8 Bolt	25 mm ²	100A	M8 Bolt	OT25-8	Ground
Note: Auxiliary outputs 1~4 can be compatible with 2.5~6mm ² cables, and corresponding pins and other accessories are required. Auxiliary output 5 is used as an air compressor interface.						

4.2 DC/DC Converter Control Signal Connector

Signal Classification	Pin Number	Wire Gauge	Rated Current	Definition	Remarks
23-core Connect or (TYCO 770680-1)	1	0.5 mm ²	1A	Low-voltage power supply 24V-	
	2	0.5 mm ²	1A	Low-voltage power supply 24V+	
	3	0.5 mm ²	1A	Low-voltage power supply 24V-	
	4	0.5 mm ²	1A	Low-voltage power supply 24V+	
	9	3*0.5 mm ² shielded wire	10mA	CANL	shielded wire
	10		10mA	CANH	
	11		10mA	CAN_COM	

5. Installation Dimensions

