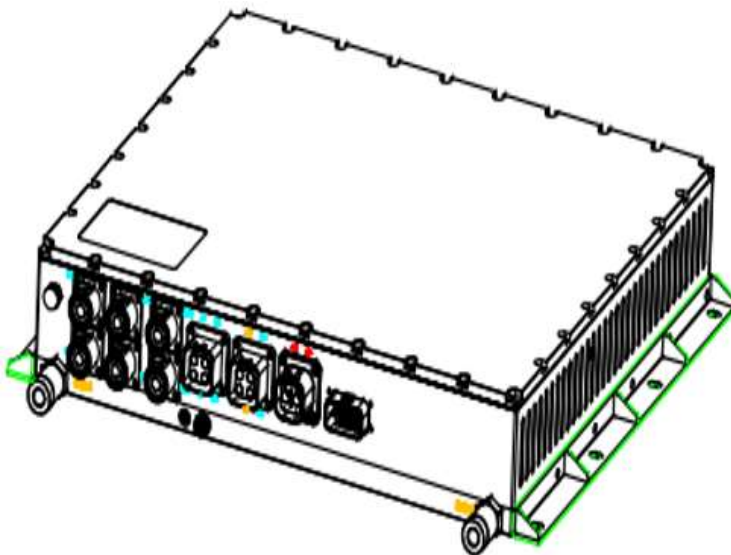




150 KW Fuel Cell DC/DC Converter Model No. ATD150K03-W



Features

1. Output Power: 150KW
2. Input Voltage: 90~500VDC
3. Output Voltage: 400-750VDC
4. Rated Output Current : 300A
5. Dimensions: 605x545x105mm
6. Weight: ≤33KG
7. Cooling System: Liquid, flow rate ≥20L/min
8. Protection Level: IP67
9. Communication Method: CAN-BUS
10. Enclosure: Aluminum alloy
11. Software: Digital software design

Specification

一、 Product Overview

燃料電池 (DC 90V-500V) 輸入，輸出給高壓電池 (DC 400V~750V) 充電；
Fuel cell (DC 90V-500V) input, output to high-voltage battery (DC 400V~750V) for charging

二、 Reference Standards

產品的設計、製造、檢驗、貯存、運輸、使用條件等應符合或優於以下標準（使用標準的優先順序是：本訂貨技術協議的具體要求、專用技術條件、通用技術條件；沒有標年號的標準或技術條件，使用最新的同名的標準或技術條件）：

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 電動車輛的電磁場發射強度的限值 and 測量方法

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



GB/T 18384.1-2001 電動汽車 安全要求

GB/T 18384.1-2001 Safety requirements for electric vehicles

QC/T 413-2002 汽車電氣設備基本技術條件

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

QC/T 29106-2004 汽車低壓電線束技術條件

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

GB 18488.1-2006 電動汽車用電機及其控制器

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

GB/T 24347-2009 電動汽車 DC/DC 變換器

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

三、 Technical Parameters

Item	Description
Thermal/Cooling System	
工作溫度 Operating Temperature	-40~85°C
儲存溫度 Storage Temperature	-40~85°C
相對濕度 Relative Humidity	5%~95% (不凝露) 5%~95% (non-condensing)
海拔高度 Altitude	≤4000m
散熱方式 Cooling Method	水冷 Water cooling
冷卻液 Coolant	水/乙二醇混合比：50/50 Water/ethylene glycol mixture ratio: 50/50
輸入口冷卻液溫度 Coolant Inlet Temperature	-40~65°C
冷卻液進、出口管徑 Coolant Inlet and Outlet Pipe Diameter	Φ25(可根據使用者要求調整) Φ25 (adjustable according to user requirements)
冷卻水流量速率 Cooling Water Flow Rate	20L/分鐘 20L/minute
冷卻系統最大壓力 Maximum Pressure of Cooling System	3.5Bar



電氣特性 Electrical Characteristics	
輸入電壓 Input Voltage	90~500V 低壓輸入端配置直流接觸器、預充電 Low-voltage input end is equipped with a direct current contactor and pre-charging
輸入電流 Input Current	系統的輸入電流限制值可調節範圍 0~600A，峰值電流 680A The adjustable range of the system's input current limit value is 0~600A, with a peak current of 680A
回應時間 Response Time	<150ms，
輸入電壓測量精度 Input Voltage Measurement Accuracy	1%額定輸入電壓 1% of the rated input voltage
輸入電流測量精度 Input Current Measurement Accuracy	1%額定輸入電流 1% of the rated input current
輸入電流紋波 Input Current Ripple	輸入電流紋波小於 1%（有效值） Input current ripple is less than 1% (RMS value)
輸出方式 Output Method	輸出端可防倒灌，防止外部電源通過輸出端向輸入端灌入電流。 The output end can prevent backflow to prevent external power from being fed back to the input end through the output end.
輸出功率 Output Power	額定 150KW Rated 150KW
主路輸出 Main Output	輸出端可防倒灌，當 dc 升壓模組內部出現單點故障，鋰電池不得出現反灌過壓而損壞燃料電池，輸出端外加直流 1200v 反灌電壓 10 秒，dc 升壓模組不能損壞。 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.
輔助輸出 Auxiliary Output	最大支持 6 路輔助輸出，一路 60A（相容 4/6 方線）+五路 30A（相容 2.5/4 方線），內部帶熔斷器。 Supports up to 6 auxiliary outputs, one 60A (compatible with 4/6 square wires) + five 30A (compatible with 2.5/4 square wires), with internal fuses.
輸出電壓 Output Voltage	400-750V
輸出額定電流 Rated Output Current	300A
輸出電壓測量精度 Output Voltage Measurement Accuracy	1%額定輸出電壓 1% of the rated output voltage
輸出電流測量精度 Output Current Measurement Accuracy	1%額定輸出電流 1% of the rated output current
升壓 DCDC 效率 Boosting DC-DC Efficiency	≥98%



DCDC 保護特性 DC-DC Protection Features	輸入過壓/欠壓保護，輸入過壓/欠壓恢復，輸出過壓/欠壓保護，輸入輸出過流保護，短路保護，過溫保護 Input overvoltage/undervoltage protection, input overvoltage/undervoltage recovery, output overvoltage/undervoltage protection, input/output overcurrent protection, short circuit protection, overheating protection
耐電壓能力 Dielectric Strength	高壓接線端子對地（外殼）和的介電強度 $\geq$ DC3000V. The dielectric strength between the high-voltage terminal connectors and the ground (enclosure) is $\geq$ DC3000V. DCDC 高壓接線端子對控制電源及 CAN 通訊介面的介電強度 $\geq$ DC3000V The dielectric strength between the DC-DC high-voltage terminal connectors and the control power and CAN communication interface is $\geq$ DC3000V
控制電路 Control Circuit	
控制電路輸入電壓 Control Circuit Input Voltage	工作電壓：16-36V, 額定 24V. Operating voltage: 16-36V, rated 24V.
控制電源功耗 Control Power Consumption	<40W
通信方式 Communication Method	CAN 通信，協議共同確定 CAN communication, protocol to be determined jointly
機械參數 Mechanical Parameters	
防護等級 Protection Level	IP67
重量（不包括水冷） Weight (excluding water cooling)	33kg
長 x 寬 x 高（mm） Length x Width x Height (mm)	545x500x105(mm)。高壓輸入輸出介面、水冷管道、低壓通信介面在同一側 545x500x105(mm). High-voltage input and output interfaces, water cooling pipeline, low-voltage communication interface are on the same side.
標準要求 Standard Requirements	
環境適應性 Environmental Adaptability	1.溫度：Temperature: ● DCDC 變換器工作溫度：-40~85°C; DC-DC converter operating temperature: -40~85°C; ● 儲存溫度：-40~85°C。Storage temperature: -40~85°C. 2.濕度：按照 GBT24347-2009 中 5.1.2 的要求，工作環境相對濕度為5%~95%，不結露 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.鹽霧：按照 GBT24347-2009 中 5.1.3 的要求 Salt spray: According to the requirements of GBT24347-2009 section 5.1.3. 4.雜訊：按照 GBT24347-2009 中 5.5 的要求，DCDC 工作雜訊不大於 60dBA。 Noise: According to the requirements of GBT24347-2009 section 5.5, the operating noise of the DC-DC converter should not exceed 60dBA.



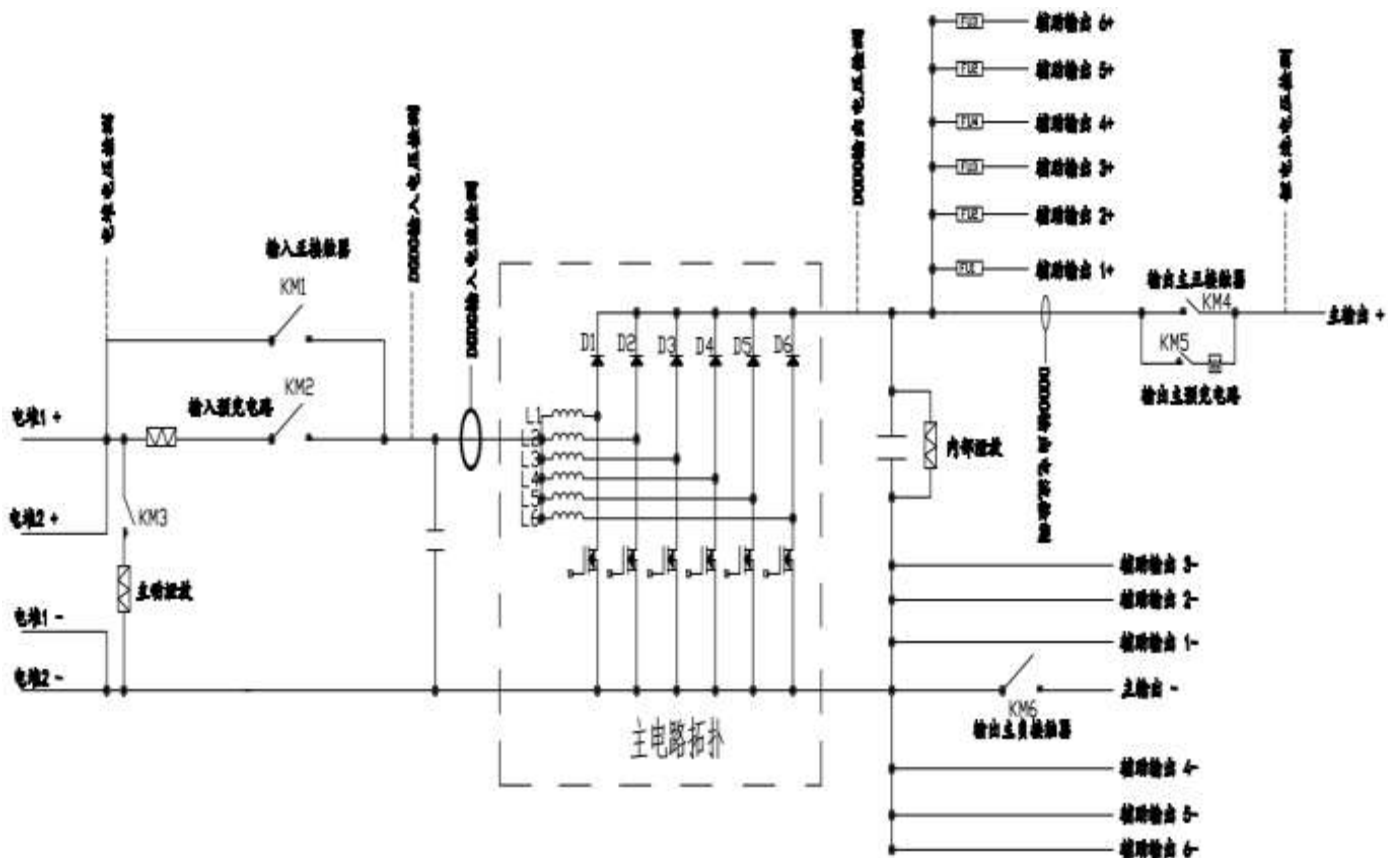
機械要求 Mechanical Requirements	1. 耐振性：滿足 QC/T 413-2002 中 3.12 的要求 Vibration resistance: Meet the requirements of QC/T 413-2002 section 3.12. 2. 殼體機械強度：按照 GBT24347-2009 中 5.3 的要求 Housing mechanical strength: According to the requirements of GBT24347-2009 section 5.3.
安規要求 Safety Requirements	1. 絕緣性能：>30M(1000VDC) Insulation performance: >30M(1000VDC) 2. 耐電壓性能：耐線端子對（外殼）和彼此無電連接的電路之間的介電強度，應能耐受 3000V 的試驗 1min，輸入和輸出引線應滿足 GB14711-2006 中 5.7 的要求。 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. 外殼接地：M8 接地螺絲，10~25 平方毫米接地 Enclosure grounding: M8 grounding screw, grounding with 10~25 square millimeters. 4. 內部配置放電電阻，斷電後可在 5 分鐘內將直流電壓泄放到 36V 以下 Internal discharge resistor is configured, and the DC voltage can be discharged to below 36V within 5 minutes after power off. 5. 低壓 24v，主回路，通訊電路三者之間需做到相互電氣隔離 Low voltage 24V, main circuit, communication circuit should be electrically isolated from each other. 6. 高壓連接器須具備互鎖功能 High-voltage connectors must have interlocking functions.
可靠性 Reliability	按照 GBT24347-2009 中 5.14 的要求，DCDC 應無故障工作時間不小於 30000h 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.
外觀品質 Appearance Quality	按照 GBT24347-2009 中 5.17 的要求 According to the requirements of GBT24347-2009 section 5.17.
標誌、包裝、運輸、儲存 Signs, Packaging, Transportation, Storage	按照 GBT24347-2009 中 8 的要求 According to the requirements of GBT24347-2009 section 8.



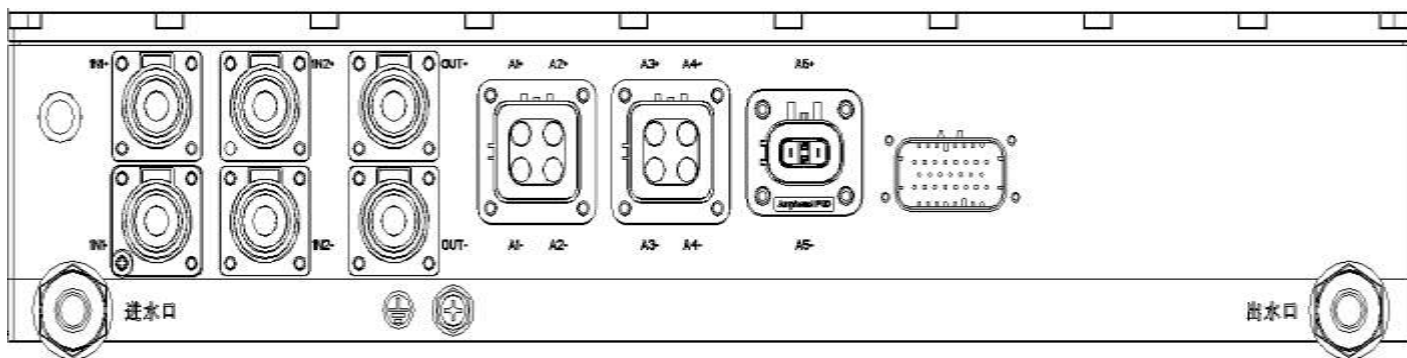
四、 拓撲圖 Topology Diagram

新能源車用 DCDC 拓撲圖如下：

The topology diagram of the new energy vehicle DC-DC converter is as follows:



五、 Interface Definition





5.1 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 power supply
A1+	4 芯對插 4-core plug-in	2.5mm ²	20Amax	HVSL364024A (Terminal C310026002, C310003614)	HVSL364064A10 3I(配插孔 C310026003, 防水堵頭 P03BP00068)	1: 輔助 1 正
A2+		2.5mm ²	20Amax			2: 輔助 2 正
A1-		2.5mm ²	20Amax			3: 輔助 1 負
A2-		2.5mm ²	20Amax			4: 輔助 2 負
						1: Auxiliary 1 positive 2: Auxiliary 2 positive 3: Auxiliary 1 negative 4: Auxiliary 2 negative
A3+	4 芯對插 4-core plug-in	2.5mm ²	20Amax	HVSL364024B (Terminal C310026002, C310003614)	HVSL364064A10 3I(Terminal C310026003 Stopper P03BP00068)	1: 輔助 3 正
A4+		2.5mm ²	20Amax			2: 輔助 4 正
A3-		2.5mm ²	20Amax			3: 輔助 3 負
A4-		2.5mm ²	20Amax			4: 輔助 4 負
						1: Auxiliary 3 positive 2: Auxiliary 4 positive 3: Auxiliary 3 negative 4: Auxiliary 4 negative
A5+	2 芯對插	6~10mm ²	60Amax	HVSL362022A(Terminal C310003614 C3100235011)	HVSL362062A11 0I (Terminal C3100235021)	1: 輔助 5 正
A5-	2-core plug-in	6~10mm ²	60Amax			2: 輔助 5 負
						1: Auxiliary 5 positive 2: Auxiliary 5 negative
	M8 Bolt	25 mm ²	100A	M8 Bolt	OT25-8	Ground

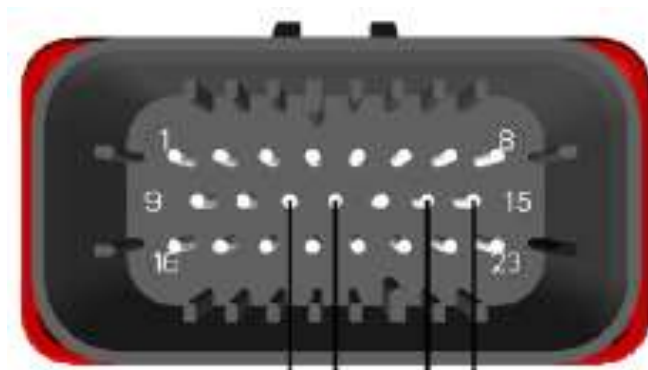
注：輔助輸出 1~4 可以相容 2.5~6mm² 線纜，需要匹配相應的插針等配件；
輔助輸出 5 用作空壓機介面。

Note: Auxiliary outputs 1~4 can be compatible with 2.5~6mm² cables, and corresponding pins and other accessories are required.

Auxiliary output 5 is used as an air compressor interface.



DC/DC Converter Control Signal Connector



Signal Classification	Pin Number	Wire Gauge	Rated Current	Definition	Remarks
23 芯 連接器 23-core Connect	1	0.5 mm ²	1A	低壓供電 24V- Low-voltage power supply 24V-	
	2	0.5 mm ²	1A	低壓供電 24V+ Low-voltage power supply 24V+	
Signal Classification	Pin Number	Wire Gauge	Rated Current	Definition	Remarks
or (TYCO 770680- 1)	3	0.5 mm ²	1A	低壓供電 24V- Low-voltage power supply 24V-	
	4	0.5 mm ²	1A	低壓供電 24V+ Low-voltage power supply 24V+	
	9	3*0.5 mm2 shielded wire	10mA	CANL	shielded wire
	10		10mA	CANH	
	11			CAN_COM	



六、 Installation Dimensions

