STARTORUS FUSION
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Supercapacitor Integrated Unit

Introduction

The Supercapacitor Integrated Unit is engineered as a high-performance core component for advanced magnet power supply systems, seamlessly integrating energy storage, rapid charging, and controlled discharging functions into a single compact platform. It delivers exceptional power density, extended operational lifespan, and proven reliability under demanding conditions.The unit features an integrated architecture that combines supercapacitor modules, dedicated charging power supplies, precision discharging components, and a comprehensive monitoring system. Equipped with a built-in display and RS485 communication interface, it offers distinct advantages such as high integration, elimination of external management devices, true plug-and-play operation, and simplified maintenance.Ideal for a wide range of high-power applications, this product is particularly suited for use in new energy systems, grid-scale power storage, pulsed power systems, and related advanced technical fields.

Parameters

Energy Storage Unit	
Rated Capacitance	56.6 F
Capacitance Tolerance	0~20%
Stored Energy	270 Wh
Rated Voltage	180 V
Recommended Operating Voltage	168 V
Module Equivalent DC Internal Resistance	12 mΩ
Continuous Current	116 A
1s Maximum Peak Current	2500 A

Charging Unit	
Output Voltage	0~180 VDC
Output Current	0~6 A
Input Voltage	220 VAC ± 20%
Input Current	5.5 A
Cooling Method	Air Cooling

Discharging Unit	
Discharge Resistance	23 Ω
Cooling Method	Water Cooling

Environment	
Operating Temperature	-40℃~ 65℃
Storage Temperature	-40℃ ~ 70℃
Humidity	90% RH

Product Functions	
Voltage Monitoring	Real-time monitoring of individual cell voltage
Temperature Monitoring	Real-time monitoring of internal temperature changes
Communication	RS485 communication; Real-time data and alarm upload; Control of charging unit's voltage andcurrent; Remote energy discharge of the storage unit

Others	
Insulation Withstand Voltage	3000 VDC
Weight	68 kg
Dimensions	1180 mm × 500 mm × 157 mm

Application Scenarios

This product is primarily designed for powering TF, PF, and CS magnets in fusion devices. Benefiting from its highly integrated architecture, it is also well-suited for other industrial pulsed power applications, including electromagnetic forming and energy recovery systems in heavy machinery.