

ALL-IN-ONE PV ESS CONVERTER

Smart Ess Unit - M50-100

Introduction

"The Smart ESS Unit - M50-100 is an all-in-one PV ESS Converter", expertly designed for optimal performance and longevity. It features a state-of-the-art Long Life Lithium battery equipped with top-grade, fresh Grade A+ LiFePO4 cells. This unit integrates a sophisticated Battery Management System (BMS), a versatile Hybrid inverter, and an advanced Energy Management System (EMS). It also incorporates a temperature control system, a comprehensive fire protection system, and an efficient load distribution system. With an AC output of 400VAac, this compact, all-in-one solution is perfect for a variety of applications. It excels in power expansion and providing backup power supply. This makes it an ideal choice for On-grid and off-grid locations like mines, islands, farms, and power-deficient villages, ensuring a reliable and sustainable energy supply in challenging environments."

Features

Safe:

- Verified by a number of destructive tests such as short circuit, burning, fire resistance, etc., making the product safe and reliable;
- Electrical multi-dimensional fusion perception, multi-level fuse protection;
- Internal integration of PV/ESS/PCS equipment, more unified bus control, improving system stability;
- Early thermal runaway prewarning design, integrating detection, fire suppression, combustible gas detection, smoke prevention and explosion relief functions, which interacts with BMS and EMS to realize PACK-level targeted fire extinguishing;
- Smart temperature control system, system temperature difference $\leq 5^{\circ}\text{C}$, battery cycle life increased by 12%.

Simple:

- All-in-one design and modular installation, single cabinet covering an area of just 1.21m²;
- Applicable to multiple industrial scenarios and easy to connect to the grid;
- Anti-installation short-circuit error, convenient and safe for maintenance;
- Easily plug and play with aviation plug and simple capacity expansion covering power range from 50kW to 800kW;
- Factory prefabrication and integrated transportation to reduce the transportation, installation and commissioning fees by 15%.

Smart:

- Remote cloud operation and maintenance, supporting remote and local monitoring;
- Smart balancing strategy and system AI prewarning to ensure the consistency of battery life cycle;
- Support black start function with reliable power supply in off-grid/micro-grid mode;
- Support multiple operation modes (VPP, grid-connected, off-grid) to improve revenue.



*The product diagram is for reference only !



Commercial Premises



Industrial Park



Mine



Pastoral



Petrol Station



Island



Data center

Technical Parameters

MODEL		Smart Ess Unit - M50-100
PV Parameters		
Max. Input Power		50KW
Start-up Voltage		135V
PV Max.voltage		1000Vdc
PV Rated Voltage		620Vdc
MPPT Operating Voltage Range		200 ~ 850Vdc
MPPT Qty.		4
Qty. Of Single MPPT Input Channels		2
Max.input Current		30A
Max.short Circuit Current		40A
ESS Parameters		
Rated Power		100KWh
Rated Capacity		160Ah
Rated Voltage		614.4Vdc
Battery Voltage Range		537.6 ~ 691.2 Vdc
Rated Charge / Discharge Current		80A
Max.charge / Discharge Current		160A
AC Parameters		
Rated Output Power		50KW
Max.input Apparent Power		60 KVA
Grid-connected Max.output Apparent Power		55 KVA
Off-grid Max.output Apparent Power		55KVA
Max.output Current		83A
Rated Voltage (Input & Output)		3L/N/PE; 220/380V; 230/400V; 240/415V
Grid Frequency		50HZ / 60HZ
THDU		<3%@ Rated Power & Linear Load
Efficiency Parameters		
Max.PV Conversion Efficiency		98.8%
EU Efficiency		98.3%
Ambient Parameters		
Operating Temperature		-25°C~55°C
Storage Temperature		-20°C~45°C
Humidity		5~95%, No Condensing
Altitude		2000m (2000m Derating)
Cooling Mode		Smart Air Conditioner, Smart Fan
Other Parameters		
LiFePO4 Cell Cycle Life (0.5C/0.5C, RT 25 C)		6000 Cycles @ DOD 80%
Maximum in parallel		16 units (Up to 800KW)
Dimension (W*D*H)		1100*1100*2000mm
Weight		1300 kg
Ingress Protection		IP54
Communication Mode		CAN, RS485, WiFi / LAN

Product continues to iterate, specifications may be updated without prior notice.