



Every system is equipped only one high voltage box for managing high voltage circuit and carry second level BMS



**SOLE 15000 Battery pack**  
51.2 V / 280 AH / 14.33 KWH



**High voltage box with BMS**  
Max voltage : 1500 V Max current: 250A

## FFD Power Tec Co., LTD

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## Ang Li

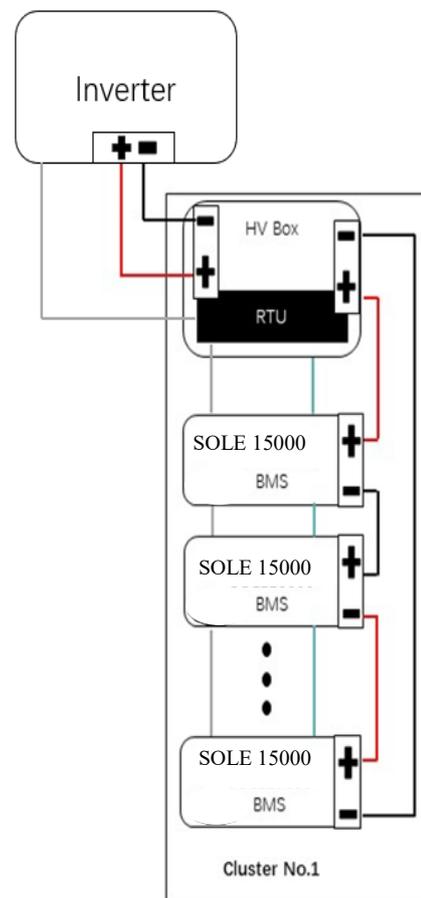
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## SOLE 15000-XS

### High voltage energy storage system

The SOLE 15000-XS is a high-voltage energy storage system comprising multiple LFP battery modules, specifically the SOLE 15000 model, each with a capacity of 51.2Vdc/280 AH. This system includes a high-voltage enclosure designed for energy storage and distribution, supplying power to inverters, PCS units, chargers, and dischargers.

- SOLE 15000-4S: 57.32KWH ; 204.8V 280AH
- SOLE 15000-5S: 71.65KWH ; 256V 280AH
- SOLE 15000-6S: 85.98KWH ; 307.2V 280AH
- SOLE 15000-7S: 100.13KWH ; 358.4V 280AH
- SOLE 15000-8S: 114.64KWH ; 409.6V 280AH
- SOLE 15000-9S: 128.97KWH ; 460.8V 280AH
- SOLE 15000-10S: 143.3KWH ; 512V 280AH
- SOLE 15000-11S: 157.63KWH ; 563.2V 280AH
- SOLE 15000-12S: 171.96KWH ; 614.4V 280AH
- SOLE 15000-13S: 186.29KWH ; 665.6V 280AH
- •  
•
- SOLE 15000-20S: 286.6KWH ; 1024V 280AH
- SOLE 15000-21S: 300.93KWH ; 1075.2V 280AH
- SOLE 15000-22S: 315.26KWH ; 1126.4V 280AH
- SOLE 15000-23S: 329.59KWH ; 1177.6V 280AH
- SOLE 15000-24S: 343.92KWH ; 1228.8V 280AH





Ref. Certif. No.

NL-90990

**IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME**

**CB TEST CERTIFICATE**

Product

Lithium Battery Energy Storage

Name and address of the applicant

SHENZHEN FFD POWER TEC CO., LTD  
ROOM 308, XINTIAN STREET 70, XINTIAN DISTRICT, FUHAI, BAOAN, SHENZHEN, GUANGDONG, China

Name and address of the manufacturer

DONGUAN FABFREDE TECHNOLOGY CO., LTD.  
ROOM 302, BUILDING NO.1, SANZHUANG 3RD STREET NO.6, HOUJIE DISTRICT, DONGGUAN CITY, GUANGDONG PROVINCE, China

Name and address of the factory

DONGUAN FABFREDE TECHNOLOGY CO., LTD.  
ROOM 302, BUILDING NO.1, SANZHUANG 3RD STREET NO.6, HOUJIE DISTRICT, DONGGUAN CITY, GUANGDONG PROVINCE, China

Note: When more than one factory, please report on page 2

Additional information on page 2

Ratings and principal characteristics

SOLE 15000-1S: 51,2 Vdc, 280 Ah, 14,33 KWh;  
SOLE 15000-2S: 102,4 Vdc, 280 Ah, 28,67 KWh;  
SOLE 15000-3S: 153,6 Vdc, 280 Ah, 43,008 KWh;  
SOLE 15000-4S: 204,8 Vdc, 280 Ah, 57,344 KWh;  
SOLE 15000-5S: 256,0 Vdc, 280 Ah, 71,68 KWh;  
SOLE 15000-6S: 307,2 Vdc, 280 Ah, 86,016 KWh;  
SOLE 15000-7S: 358,4 Vdc, 280 Ah, 100,352 KWh;  
SOLE 15000-8S: 409,6 Vdc, 280 Ah, 114,688 KWh;  
SOLE 15000-9S: 460,8 Vdc, 280 Ah, 129,024 KWh;  
SOLE 15000-10S: 512,0 Vdc, 280 Ah, 143,36 KWh;  
SOLE 15000-11S: 563,2 Vdc, 280 Ah, 157,696 KWh;  
SOLE 15000-12S: 614,4 Vdc, 280 Ah, 172,032 KWh;  
SOLE 15000-13S: 665,6 Vdc, 280 Ah, 186,368 KWh;  
SOLE 15000-14S: 716,8 Vdc, 280 Ah, 200,704 KWh;  
SOLE 15000-15S: 768,0 Vdc, 280 Ah, 215,04 KWh;  
SOLE 15000-16S: 819,2 Vdc, 280 Ah, 229,376 KWh;  
SOLE 15000-17S: 870,4 Vdc, 280 Ah, 243,712 KWh;  
SOLE 15000-18S: 921,6 Vdc, 280 Ah, 258,048 KWh;  
SOLE 15000-19S: 972,8 Vdc, 280 Ah, 272,384 KWh;  
SOLE 15000-20S: 1024,0 Vdc, 280 Ah, 286,72 KWh;  
SOLE 15000-21S: 1075,2 Vdc, 280 Ah, 301,056 KWh;  
SOLE 15000-22S: 1126,4 Vdc, 280 Ah, 315,392 KWh;  
SOLE 15000-23S: 1177,6 Vdc, 280 Ah, 329,728 KWh;  
SOLE 15000-24S: 1228,8 Vdc, 280 Ah, 344,064 KWh;  
SOLE 15000-25S: 1280,0 Vdc, 280 Ah, 358,40 KWh.

Trademark / Brand (if any)



Customer's Testing Facility (CTF) Stage used

Model / Type Ref.

SOLE 15000-1S, SOLE 15000-2S, SOLE 15000-3S, SOLE 15000-4S, SOLE 15000-5S, SOLE 15000-6S, SOLE 15000-7S, SOLE 15000-8S, SOLE 15000-9S, SOLE 15000-10S, SOLE 15000-11S, SOLE 15000-12S, SOLE 15000-13S, SOLE 15000-14S, SOLE 15000-15S, SOLE 15000-16S, SOLE 15000-17S, SOLE 15000-18S, SOLE 15000-19S, SOLE 15000-20S, SOLE 15000-21S, SOLE 15000-22S, SOLE 15000-23S, SOLE 15000-24S, SOLE 15000-25S

Additional Information (if necessary may also be reported on page 2)

Additional information on page 2

A sample of the product was tested and found to be in conformity with

IEC 62619:2022

As shown in the Test Report Ref. No. which forms part of this Certificate

4903105.50

This CB Test Certificate is issued by the National Certification Body

DEKRA Certification B.V.  
Meander 1051  
Arnhem, 6825 MJ  
Netherlands



*Miranda Zhou*

Signature: Miranda Zhou

Date: 2023-09-05

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## SOLE 15000

### High voltage energy storage system module

The high voltage energy storage system module is a reliable and efficient solution designed to meet the energy storage needs of industrial and commercial applications. With a basic parameter of 51.2V/ 280AH, this module is equipped with cutting-edge EVE cell technology, renowned for its high energy density, long cycle life, and exceptional safety features.

Together with our management system , Sole 15000 can be easily connected with other modules, enabling it to provide energy storage capacity of from 43 KWH to 344KWH, making it an ideal solution for large-scale energy storage



### Product features

- **High Reliability** : 6500 cycles guaranteed
- **Connection mode** : In series
- **Cell** : A grade EVE 280AH \* 16 Series
- **Monitor** : 8 temperature sensor , 16 voltage sensor
- **Easy connection**: Automatic ID generating
- **Equalizing system** : Passive standard (Active optional)
- **Pack and Cell detection** : Voltage , current , temperature, short circuite , isolation alarm , protection

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## Technical data

<b>Model</b>	<b>SOLE 15000</b>
<b>Battery Type</b>	Lithium-Iron-Phosphate (LiFePo4)
<b>Usable Storage Capacity</b>	14.3 kWh
<b>Nominal Voltage</b>	51,2 VDC
<b>Standard Charge Current</b>	140A
<b>Standard Discharge Current</b>	140A
<b>Dimensions [L.W.H mm]</b>	700 x 480x 230
<b>Weight</b>	115 kg
<b>Ambient Temperature</b>	Charge: 0°C--55°C
<b>Cycles</b>	>= 6000 cycles @ 80% DoD
<b>Communication Interface</b>	CAN
<b>Approvals and Standards</b>	IEC62619 / UN38.3 / CE-EMC
<b>Warranty</b>	7 years
<b>Possible Applications</b>	OFF-Grid + Hybrid

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## HV BOX

### SOLE 15000 Cluster management system

HV Box - the ultimate solution for managing high voltage clusters with ease and safety! Specifically designed for the Sole 15000 lithium battery high voltage cluster, this multi-functional electrical box is built with the latest technology to ensure reliable performance and electrical safety.

With an electrical level of 1500 V/250A , the HV Box includes advanced features such as battery cluster voltage and current acquisition, switch control (general positive, general negative, pre-charge, and disconnecter), fan driver, BMS power supply, and communication with BMS and SCU. The HV Box is the perfect solution for labs, industrial applications who require a reliable and easy-to-use high voltage energy storage system with a capacity of up to 344KW.H.

In large-scale energy storage systems with multiple clusters, the HV Box serves as the necessary execution unit of the single cluster under the control of SCU. Whether you're managing a small or large-scale energy storage system, the HV Box delivers optimal performance, reliability, and safety.

#### Function features

- **Cluster detection** : Cluster voltage and current
- **Power supply** : BMS , Fan DC power supply
- **Switch checking** : General positive , general negative , pre-charge , fan switch status checking
- **Cluster shut-down** : Disconnector to shut down cluster for emergency and maintenance
- **Charge and discharge management** : By communication with BMS on Sole 15000 , manage charge and discharge logic and protection



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## Technical data

<b>Model</b>	HVB1500V
<b>Working temperature</b>	-20°C-+65°C
<b>Storage temperature</b>	-40°C-+125°C
<b>Working humidity</b>	5-95% RH
<b>Working altitude</b>	0-4000 m
<b>Max Voltage</b>	1500Vdc
<b>Max Current</b>	250A
<b>Power supply</b>	220Vac
<b>Fan in</b>	220Vac
<b>Fan out</b>	0~24Vdc
<b>Max capacity</b>	SOLE 15000*20 Units @ 286Kwh
<b>Pre-charge</b>	5Ω/200W
<b>Voltage aquisition</b>	0~1500Vdc Cluster voltage $\leq 1000V$ ( $\leq \pm 1\%$ FS ) Cluster voltage $> 1000V$ ( $\leq \pm 0.5\%$ FS )
<b>Current aquisition</b>	0~250A (FS $\pm 1\%$ FS )
<b>CAN 1</b>	Communication with BMS
<b>CAN 2</b>	Communication with SCU or inverter
<b>RS 485</b>	Communication with inverter

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## Energy storage management system for industrial use

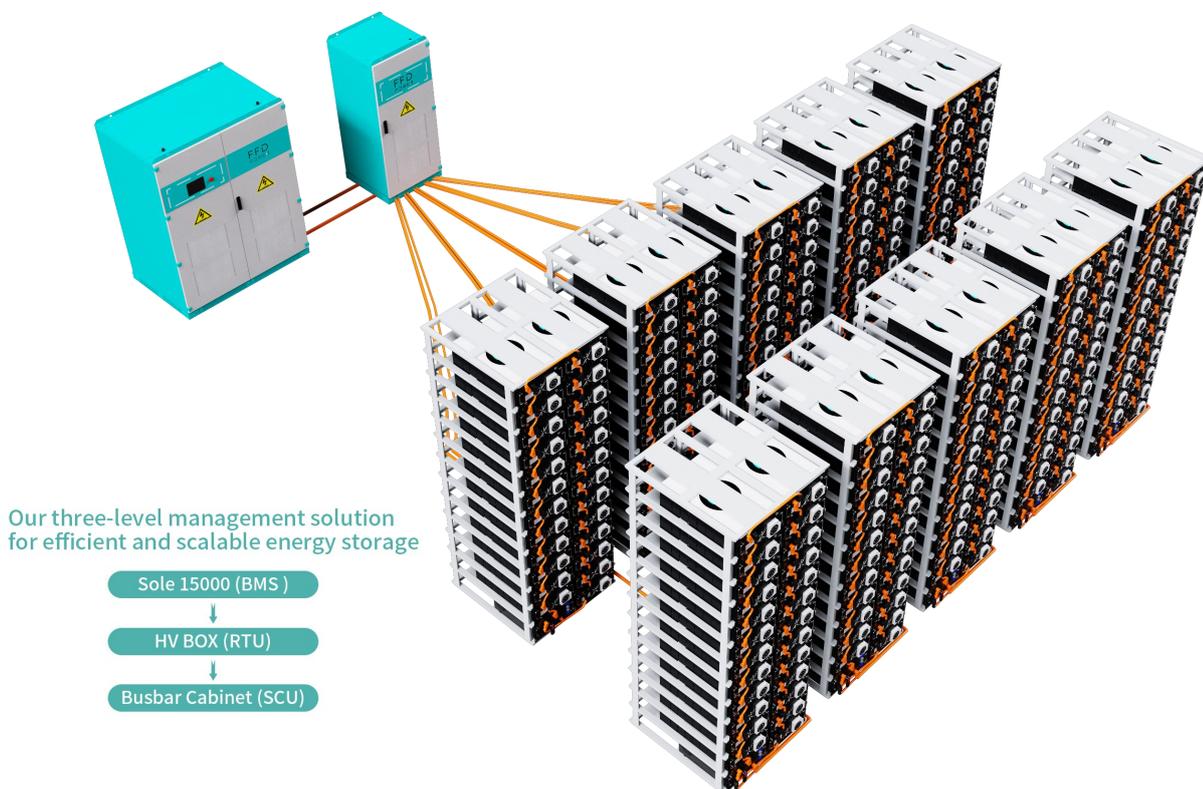
### Cluster 1228.8V @ 3439.2KWH

Our three-level management solution for efficient and scalable energy storage is based on a Battery Management System (BMS), Remote Terminal Unit (RTU), and System control unit (SCU).

At the core of the system, the BMS provides essential cell control, monitoring, and protection for reliable and safe operation of Sole 15000 units with 14.33 KWH energy storage capacity.

The second level of the system features an RTU, integrated into the high voltage box, for cluster management of up to 24 units of Sole 15000 with 343.9KWH energy storage capacity. This enables easy monitoring and control of multiple energy storage clusters.

For large-scale energy storage, our system offers a third level of management, featuring a comprehensive SCU integrated into the busbar box. This system can efficiently manage up to 10 battery clusters in parallel, with a total energy storage capacity of 3439.2KWH. By optimizing energy usage and reducing energy costs, our system is ideal for commercial and industrial applications.



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