



A Brand of Unisun Group

# Empowering Smart Energy



Optimal Energy Storage Solution Provider

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## About OPESS

With years of experience in research and development, OPESS has more than 300 national invention patents and independent intellectual property transformation capabilities within the industrial chain. With advantages in rapid delivery and value-added services, OPESS provides industrial and commercial customers with smarter, more affordable and stable products and services, focusing on the scene adaptation, safety, and stability.



## Leading provider of utility-scale and commercial energy storage solutions

- National High-tech Enterprise
- Key Enterprise in the G60 Science and Technology Innovation Corridor
- Standard Management System Certification: ISO9001, ISO14001 and ISO45001 Software
- Enterprise & Software Product Certification
- Energy products passed TUV certification test
- Energy management software passed KETOP certification test
- Governing unit of Chinese Society of Power Engineering
- Participating in formulating the General Requirement for Field Acceptance Inspection of Electrochemical Energy Storage System

## Invention Patents



OPESS has obtained a number of international patents to protect our intellectual properties

**20+**

- Software copyrights
- Covering various energy storage management systems

**300+**

- Patents
- Building the OPESS one-stop energy storage system
- A set of intellectual properties

# One-stop Energy Storage Products

OPESS provides services throughout the entire cycle with the principle of safety first

OPESS has been committed to the research and development related to energy storage safety technology for many years. With a deep understanding of the battery, power systems, and software and hardware control systems, OPESS has made a series of one-stop energy storage products with safety as their core. Focusing on the safety of the full life cycle of the energy storage system, OPESS attaches importance to all procedures and details, including battery cell and pack production, system integration, and system operation and maintenance, to provide users with reliable, green and efficient energy services.



Optimized battery cell parameter



Comprehensive protection against systematic crisis



Accurate frequency regulation and peak shaving algorithm



Accurate battery cell temperature and deformation measurement



Redundant fire and explosion-proof configuration



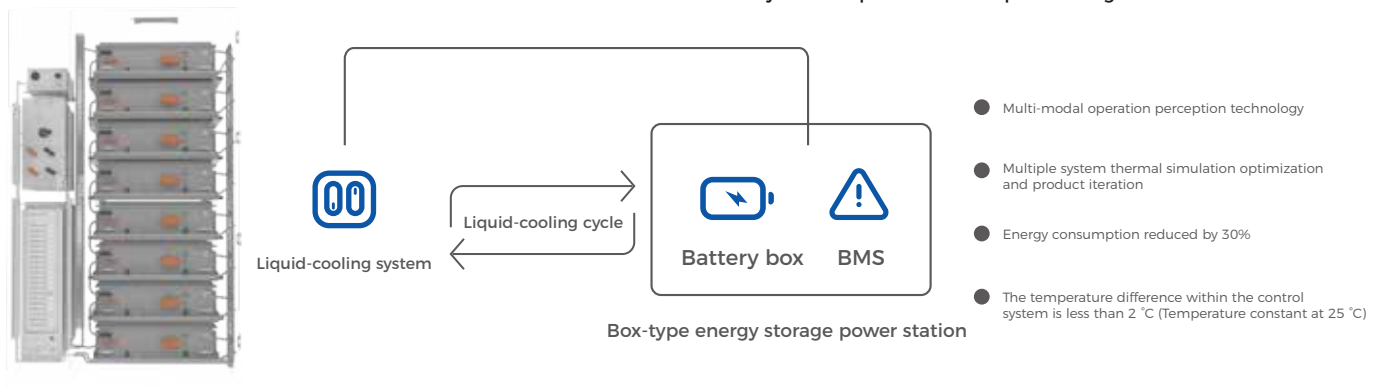
Available for large-scale application



Good network-related performance

## Unique Liquid-cooling Technology

The communication between real-time collection of battery box temperature and liquid-cooling unit



Flexible grouping

Modular design for different scenarios  
It is available to use one or more of our products as a group



Integrated liquid-cooling system

Integrated design preventing coolant leakage  
More reliable long-term usage



Comprehensive fire control

More reliable intelligent fire fighting method  
Gas + aerosol



Online management

Self-developed software  
APP notifications

# Ocube One-stop Energy Storage Magic Cube

Suitable for multiple scenarios of industrial and commercial energy storage



**High safety standards**  
Redundancy protection



**Integration**  
AC or DC output



**Intelligent self-developed**  
EMS and liquid-cooling  
temperature control



**Suitable for outdoor**  
IP54 outdoor installation



**Easy to mount**  
Modular design PCS and PACK



## ONE FOR ALL

Floor area saved by more than 30%

Product life extended by more than 30%

Maximum system efficiency rate of 90%

Product model	Ocube-75	Ocube-215	Ocube-372	Ocube-419
System rated energy	75 kWh	215 kWh	372 kWh	419 kWh
System output power	60 kW	100 kW	200 kW (AC optional)	
System rated output voltage	AC 400 (-20%~+15%)		DC 900-1500 V	
Discharge depth	95% DoD	95% DoD	95% DoD	95% DoD
Maximum system efficiency	≥95%	≥95%	≥95%	≥95%
Communication interface	CAN/RS485/LAN	CAN/RS485/LAN	CAN/RS485/LAN	CAN/RS485/LAN
Ingress protection (IP)	IP54	IP54	IP54	IP54
Noise	<73 db	<75 db	<65 db	<65 db
Operating temperature range	-30~55°C	-30~55°C	-30~55°C	-30~55°C
Operating humidity range	0~95% (no condensation)			
Battery temperature control methods	Air-cooling	Air-cooling	Liquid-cooling	Liquid-cooling
Fire protection system	Perfluorohexanone			
Dimensions (W*D*H)	1700*1150*2000 mm	1780*1270*2100 mm	1850*1580*2500 mm	1850*1600*2500 mm
Weight	1825 kg	2300 kg	3300 kg	3500 kg
EMS	Ocloud	Ocloud	Ocloud	Ocloud
<b>Battery module</b>				
Battery module	OH-1680	OH-20140	OH-52140	OH-52150
Cell capacity	100 Ah	280 Ah	280 Ah	315 Ah
Maximum charge-discharge current	0.8C/80 A	0.5C/140 A	0.5C/140 A	0.5C/150 A
Cycle count	6000	6000	8000	8000
Battery capacity	5 kWh	18 kWh	46.5 kWh	52.4 kWh
<b>BMS module</b>				
BMU Model	CH-900-A	CH-900-A	CH-1500-A	CH-1500-A
Voltage range	650-900 VDC	650-900 VDC	1100-1500 VDC	1100-1500 VDC
Maximum current	80 A	140 A	140 A	150 A
Number of series	15	12	8	8
<b>PCS</b>				
PCS configuration	60 kW	100 kW	200 kW (optional)	

# Obank One-stop Energy Storage Cube

Diversified Commercial Energy Storage System



## More flexible

customize capacity combinations and feature options to achieve expansion from MWh to GWh



## More convenient

Friendly interactive interface, remote control, and fast operation and maintenance



## Broader

multi-scenario applications, providing diversified commercial energy storage solutions



## Safer

Advanced LFP battery, redundancy protection, and stable and long service life



## More efficient

high energy density design and advanced thermal simulation management system



## More intelligent

self-developed EMS + BMS dual control integration and a number of unique technologies to achieve intelligent system

Product model	Obank-2500	Obank-3700	Obank-5000	Obank-3500L	Obank-6700L
<b>DC-side parameters</b>					
Battery capacity	220 Ah	280 Ah	280 Ah	220 Ah	280 Ah
System configuration	10*1P360S	20*1P208S	14*1P400S	12*1P416S	18*1P416S
System rated energy	2.5 MWh	3.7 MWh	5.0 MWh	3.5 MWh	6.7 MWh
System voltage range	1008~1314 V	582.4~759.2 V	1120~1460 V	1164.8~1497.6 V	1164.8~1497.6 V
Charge and discharge rate	1 C	0.3 C	0.5 C	1 C	0.5 C
<b>AC-side parameters</b>					
AC-side rated power	2500 kVA	1260 kVA	2500 kVA	3450 kVA	3450 kVA
AC-side maximum power	2750 kVA	1386 kVA	2750 kVA	3795 kVA	3795 kVA
AC current distortion rate	<3% (at rated power)	<3% (at rated power)	<3% (at rated power)	<3% (at rated power)	<3% (at rated power)
AC-side voltage	400 V	400 V	550 V	690 V	690 V
Power grid rated frequency	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz
Power factor	>0.99 (at rated power)	>0.99 (at rated power)	>0.99 (at rated power)	>0.99 (at rated power)	>0.99 (at rated power)
<b>System parameters</b>					
Dimensions	40 feet	40 feet	50 feet	25 feet	45 feet
Weight	Approximately 30 T	Approximately 37 T	Approximately 50 T	Approximately 40 T	Approximately 68 T
Ingress protection (IP)	IP54	IP54	IP54	IP54	IP54
Operating temperature range	-20~50°C				
Operating humidity range	0~95% (no condensation)				
Maximum working altitude	2000 m	2000 m	2000 m	2000 m	2000 m
Thermal management methods	Air-cooling	Air-cooling	Air-cooling	Liquid-cooling	Liquid-cooling
Fire protection system	It contains heptafluoropropane standard configuration, and fine water mist is optional				
System communication interface	RS485, LAN, CAN				
System communication protocol	Modbus, IEC104, etc.				

# Obox One-stop Energy Storage Cube

Enhance power supply stability and reduce energy costs  
Light your house



## High efficiency

high-voltage power grid,  
high energy density design, and  
access support



## Flexibility

customized capacity combinations  
to cover the range of 10-60 kWh



## Safety

LFP battery, covering multiple  
safety innovation PACK technology



## Intelligent

unique algorithms to monitor the cell health  
and ensure the long-term service



## Online

management with mobile phone  
lightweight body, plug and play, and mobile cloud management



## Model

## Obox

Battery module	OH-3250 (5 kWh, 50 Ah)
Cell type	LiFePO <sub>4</sub>
Battery module quantity nominal	2-12 (Max. 4S3P)
Voltage (V)	205-410
Nominal output energy (kWh)	10 kWh-60 kWh
Voltage range (V)	166-460
Net weight (±1.0 kg)	134.5-807
Dimension (W*D*H, ±2.0 mm)	695*235* (918-1554)

## General

Charging and discharging current (A)	25@continue (Recommended)
Max charging and discharging current (A)	50A
Ingress protection (IP)	IP54
Cooling	Natural Cooling
Environment temperature (°C)	Charge: 0-55, Discharge: -10-55
Operation humidity (RH) altitude (m)	5-95%
Mounting type	<2000
Warranty	Floor-mounted
Warranty period	10 years

## BMS Controller

Weight (±1.0 kg)	8 kg
Communication port	CAN/RS485
Dimension (W*D*H, ±2.0 mm)	695*235*200 mm

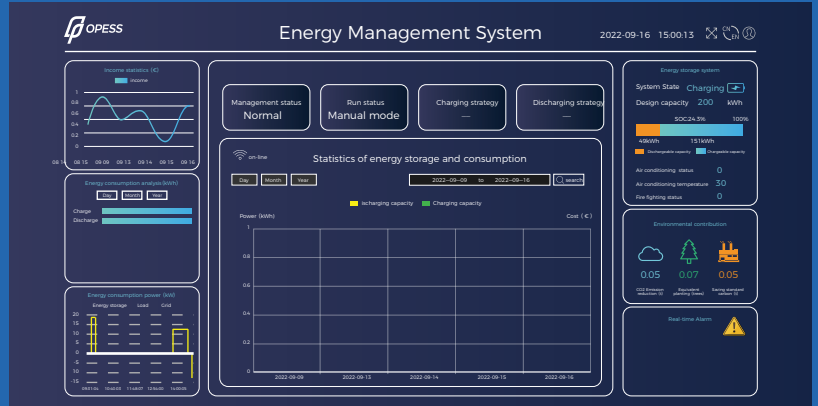
## Certificates & Standards

IEC62619, IEC60730, IEC62040, EN61000-6-1, EN61000-6-3, UN38.3

# Digital Energy Management Platform

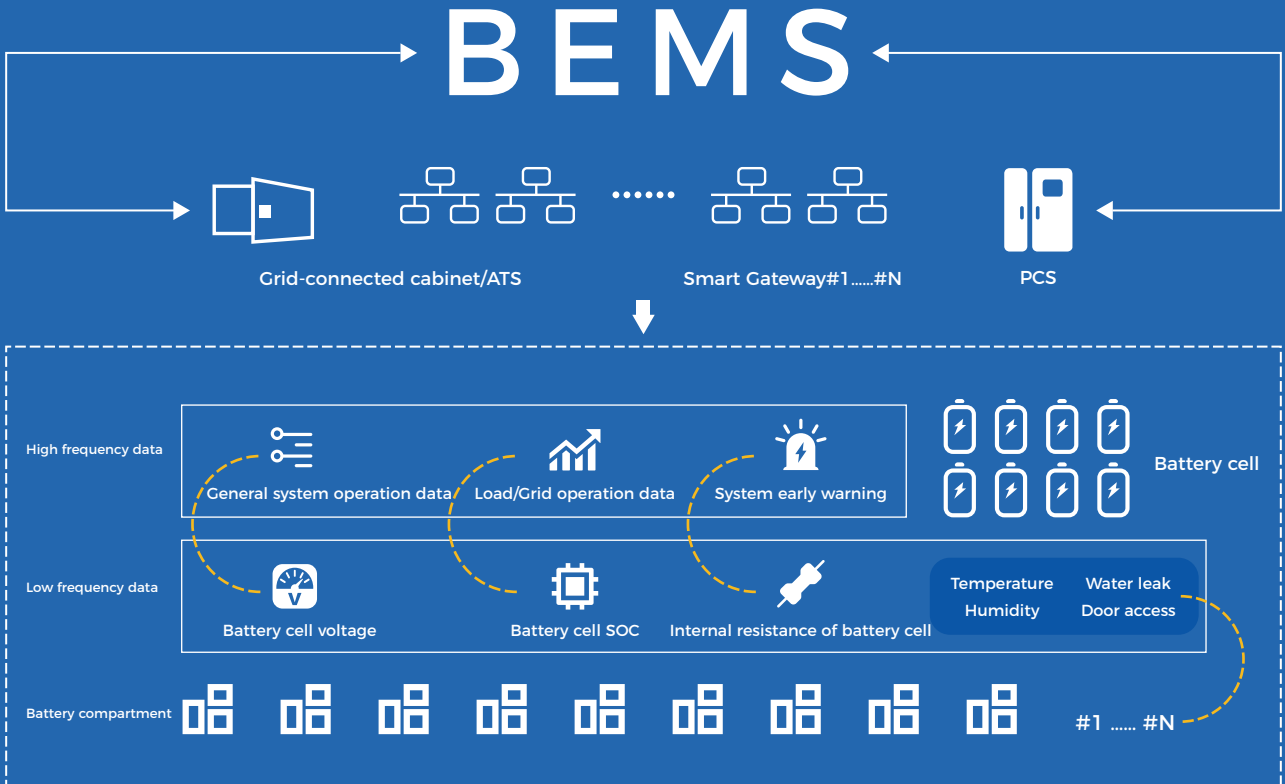
Digital Energy Management Platform

OP-Energy Cloud



## BEMS dual control integration and SaaS-like software service model

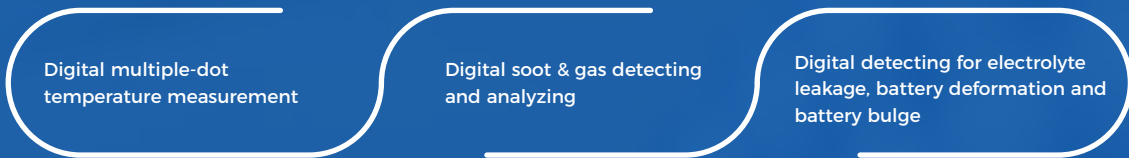
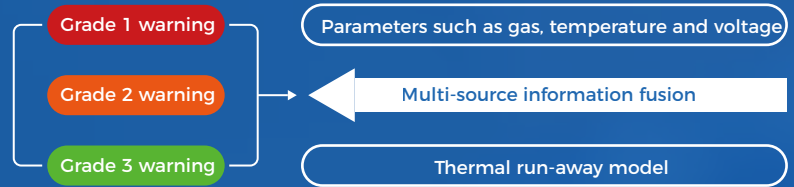
The OP-Energy Cloud energy management platform independently developed by OPESS adopts digital twin technology to present the operation information of energy storage power stations to users with three-dimensional visualization system. The platform can load algorithm modules according to users' needs, realize advanced functions such as remote dispatching, black start, smoothing the output of the wind-PV power generation system, and form a virtual power plant through the platform integrating power generation, grids, demand, and storage.



# Battery Health Examination System

## Diversified Digital Early Warnings

The battery health evaluation model is established based on massive test data and projects. The battery health status is accurately evaluated based on resistance detection and SOH algorithm, and potential safety hazards can be found in time.



## Battery Safety Visualization System (BSVS)

As the core of the whole energy storage system, BSVS displays energy storage power stations, battery clusters, packs and even battery cells in 3D form through digital twinning technology, so that users clearly and quickly learn about the whole operation. Besides, the system is configured with advanced algorithms and operation strategies, which can be applied to various application scenarios such as new energy storage, user-side energy storage, and grid-side frequency regulation and peak shaving.



### Safety & Stability

All energy storage systems are equipped with the Intelligent Battery Protection System (IBPS) to improve stability and safety level



### Flexibility

BSVS can be applied to various application scenarios such as new energy storage, user-side energy storage, and grid-side frequency regulation and peak shaving



### Smart operation and maintenance

Visualization and modular design lowers the threshold of operation and maintenance. Quick troubleshooting can be achieved by multi-level analysis



### Algorithm based on big data

Powerful calculation and analysis capacity. Helping users understand the status of the system from various dimensions



### Easy operation

The B/S architecture supports a variety of main browsers, and poses no software-use threshold

# Application Scenarios and Cases



Lonfon User-side  
Energy Storage Project in Puyang City

**5 MW/14.9 MWh**

Energy Storage Project  
in GDS Pujiang Data Center

**2.5 MW/7.2 MWh**

Thermal Power Energy Storage Frequency  
Regulation Project in Wuhai City

**9 MW/4.5 MWh**

Thermal Power Energy Storage Frequency  
Regulation Project in Hohhot

**9 MW/4.5 MWh**

Thermal Power Energy Storage Frequency  
Regulation Project in Fengzhen City

**9 MW/4.5 MWh**

Shared Energy Storage Project in Hengshui City,  
Hebei Province

**100 MW/200 MWh**

# Application Scenarios and Cases



Centralized Photovoltaic Project in Hungary

**6.76 MW**



Centralized Photovoltaic Project in India

**15 MW**



Centralized Photovoltaic Project in Netherlands

**11.76 MW**



Centralized Photovoltaic Project in Japan

**0.5 MW**



Centralized Photovoltaic Project in Japan

**1.99 MW**



Centralized Photovoltaic Project in Japan

**0.88 MW**

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