



# DELTA Magic Cube LFP Battery System Instruction Manual

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**Energy Storage System Solution**



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- Rotational design of standard 10ft shipping container for easy transportation and installation
- Built-in fire protection system and meeting UL 9540A safety test standard
- Battery system with built-in site controllers, offering flexible scalability from 708kWh to 7.7MWh



Ancillary Services



Solar-Plus  
Storage



Energy-Heavy  
Industries



Microgrids

## Fully-Integrated Battery Solutions

Redefining Safety and Performance with Effortless Installation, Remarkable Scalability, and Integrated Fire Protection System

Delta's Magic Cube battery system is designed for grid-scale and medium to large-scale industrial energy storage applications. Built on a standard 10ft shipping container with unique designs and simple installation procedure, the battery system can be rapidly deployed. Magic Cube battery system is high energy density, offering scalability from 708 kWh to 7.7 MWh. This flexibility allows it to accommodate varying spatial and capacity requirements for different sites, optimizing land utilization. In addition, Magic Cube features a redundant communication support for the field site with built-in site controllers, enhancing the communication stability of the energystorage system. It also incorporates several environmental sensors and a fire protection system to ensure the safety of the energy storage system.



## Features

### High Energy Density with Flexible Scalability Configuration

- High energy density, effectively utilizing land resources
- Flexible configuration ranging from 708 kWh to 7.7 MWh battery capacity

### Easy Transportation and Installation

- Whole-container transport without the need to dismantle battery modules
- Rotational design of standard 10ft shipping container
- Containers connected by flexible duct connectors on the top, tolerating positioning errors and reducing on-site installation time

### Built-in Fire Protection System Enhancing Inherent Safety

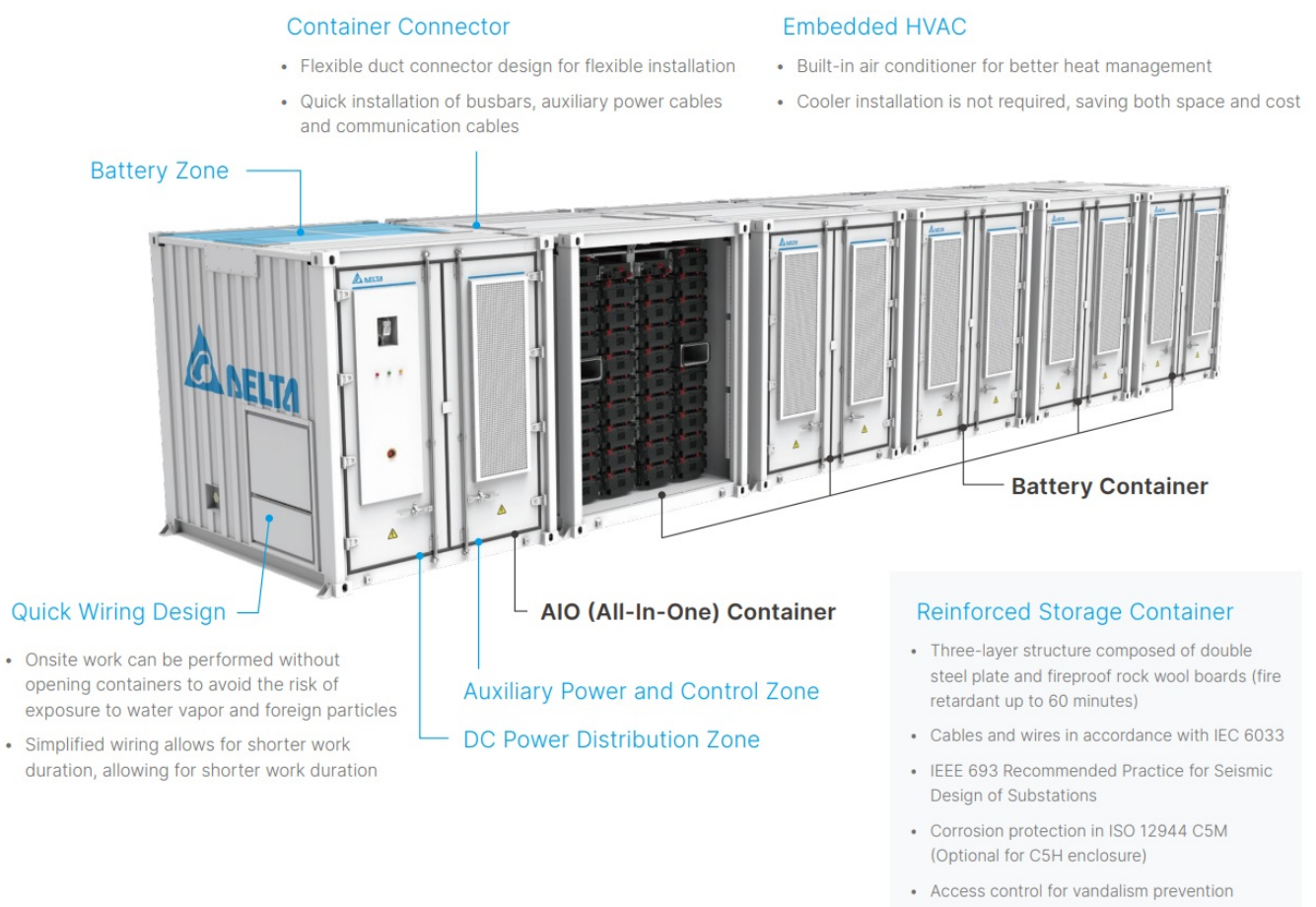
- Real-time cell monitoring: temperature, voltage, and current of each cell
- Dual-redundant environmental sensors: smoke, temperature, humidity, hazardous gas, and flood
- Fire protection system: detection system, off-gas ventilation system, aerosol and fire sprinkler system

## Integrated Control and Monitoring

- Built-in site controllers seamlessly integrating battery and PCS without the need for additional space
- Built-in Human-Machine Interface (HMI): on-site access to real-time field information
- Dual-redundant communication: enhancement of communication stability and monitoring efficiency

## Product Configuration and Design

### Battery System



### Battery Container

### Redundancy Detection System

- Smoke detectors
- Hazardous gas detectors
- Temperature sensors
- Door sensors
- Flood detectors
- Humidity sensors

## Battery Module Protection

- Real-time monitoring of each battery cell
- Big data for aging/abnormality detection
- Insulation design of battery module
- Built-in fuse
- Cell balancing mechanism



## Fire Safety Protection

- Off-gas ventilation system
- Aerosol
- Fire sprinkler system
- Fire alarm horn & strobe

## Safety Certification

- UL 9540A
- UL 1973
- IEC 62619 include fire propagation
- UN38.3
- IEC 60730

## Software Interface

## Human Machine Interface (HMI)

- Easy Commissioning

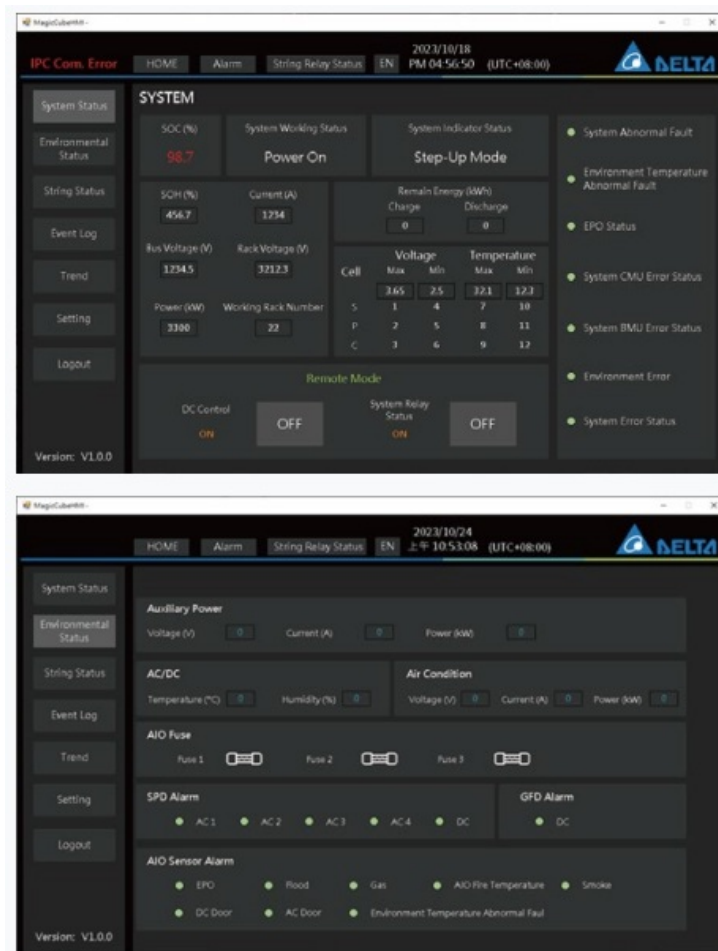
On-site view of real-time information on the battery system

- Real-time Monitoring

Operation information, environment status, UPS status, warnings, and battery information (ex. SOC, SOH, voltage, current, temperature), etc

- Convenient Maintenance

Service mode option enables technicians to maintain the battery system easily



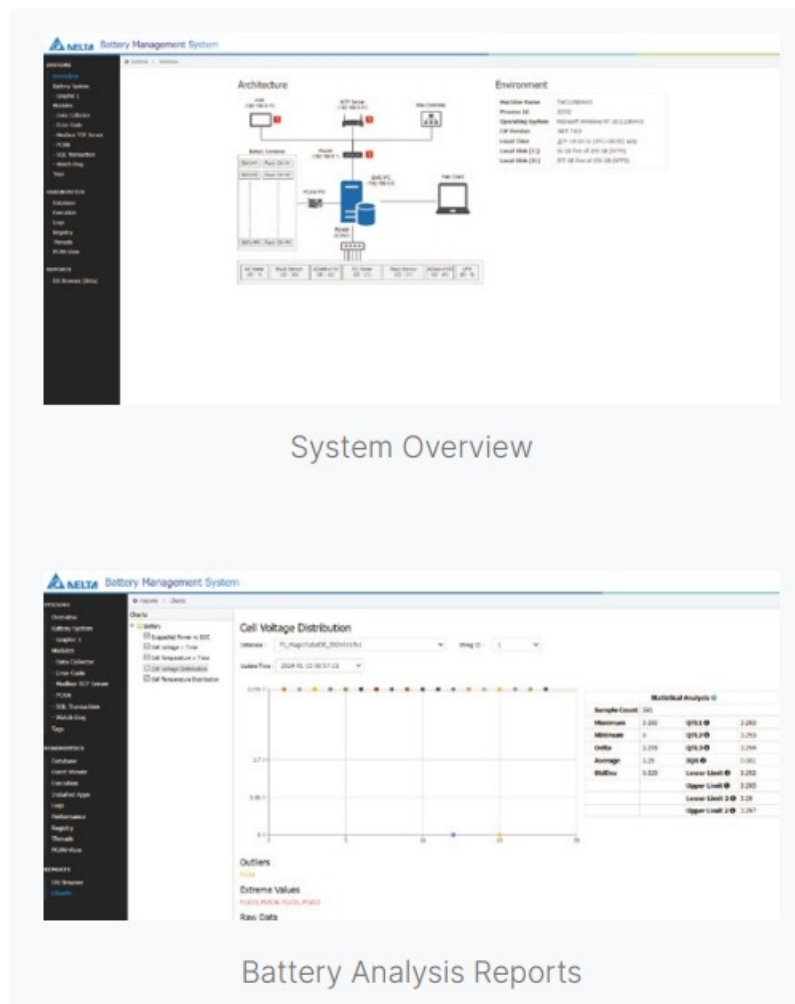
## Battery Management System (BMS)

- Clear Overview of Battery Status

Intuitive UI for real-time display of battery string parameters

- Quick Diagnosis and Debugging

Easy access to error codes, database, daily logs, and entry records



## Specifications – Battery System

Model Name	EBSU-CE2818S22P00		EBSB-CE2818S4P00
Battery System Specification	Battery System (6 Containers with 22 Strings Battery)		Battery Container with 4 Strings Battery
Battery Cell	LFP 280Ah Cell		
DC Voltage Range	1069 –1400 Vdc		
Per String Configuration	396S-1P		
Per String Modules	18 Modules		
Installed Capacity	7788 kWh	1416 kWh	
DC Usable Capacity	6666 kWh	1212 kWh	
Rated Power	3333 kW @0.5CP	606 kW @0.5CP	
Max. Charging/Discharge Current	3080A		
Recommend DoD	90%		
Aux. Power	220/380 Vac (3P4W) +/-5% (source: OVC II)		
Environment			

Environment Condition	Outdoor
Altitude	< 2000m
Operating Temperature	-30°C to +50°C
Environment Humidity	0 – 100 % RH (No condensing)
Storage Temperature	1 month: -20°C ~ +45°C, <70% RH humidity; 1 year: 0°C ~ +35°C, <70% RH humidity
Ingress Protection	IP54; Type 3R, NEMA 3R compliance
Corrosion Resistance	Comply with Severity-1 (IEC 60068-2-52); Pass 720-hour salt mist test (ISO 9227), ISO 12944 Level C5M
Container Standard	ISO 668
Seismic Level	IEEE 693 (Tai-power, 0.5G, 2% damping)
<b>Monitoring &amp; Operating</b>	
Measurement Accuracy	Voltage: $\pm 0.5\%$ ; Current: $\pm 1\%$ ; Temperature: $\pm 2^{\circ}\text{C}$ ; SOC: $\leq 5\%$
HMI	Display of the information on the battery system
BMS Log	90 days
BMS Power Backup	UPS power backup for 60 minutes
Time Calibration	Built-in NTP server
<b>Safety Protection</b>	
Fire Safety Equipment	Off-gas ventilation system, aerosol and fire sprinkler system
Detection Sensor (Per Container)	Temperature (x2), smoke (x2), gas (x2), flood (x2), humidity (x4), door (x4)
<b>Mechanical Information</b>	
Dimension (W x D x H)	2438 x 2990 x 2896mm (Per Container)
Weight	< 16,000kg (Per Container)



More Information



**Delta Electronics**

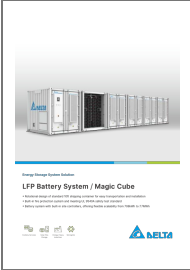
16 Tungyuan Road, Chungli Industrial Zone, Taoyuan City 32063, Taiwan

TEL: +886 3 4526107

[EISBG.Marketing@deltaww.com](mailto:EISBG.Marketing@deltaww.com)

[www.deltaww.com](http://www.deltaww.com)

**Documents / Resources**

	<p><b><a href="#">DELTA Magic Cube LFP Battery System</a></b> [pdf] Instruction Manual Magic Cube LFP Battery System, Magic, Cube LFP Battery System, LFP Battery System, Battery System, System</p>
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**References**

- [User Manual](#)

[Manuals](#), [Privacy Policy](#)

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