



Alpha·ESS
smarten your energy



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About AlphaESS



Established in 2012, AlphaESS is specialized in providing advanced energy storage products and intelligent solutions for residential and commercial premises.

With years of experience in renewable energy and lithium battery industries, AlphaESS team aims to help families and business owners to manage their own energy generation, storage, and optimization so as to reduce energy cost and realize energy independence.

AlphaESS products have spread into more than 20 countries via hundreds of professional partners and have benefited thousands of families and businesses.

Why Choose Us

"Smarten Your Energy" is our vision. AlphaESS is pursuing an ambitious goal to build an energy internet where everyone can produce their own energy and support the community.



Safety

Certified by international authorities, AlphaESS products are well recognized with outstanding product safety and reliability. Integrated with visual interface and Alpha Cloud enables intelligent energy management which provides premium customer experience.



Leading Technology

We are fully integrated in Lithium battery industry providing advanced turn key energy storage solutions. AlphaESS aims to help all our customers access smarter, cleaner and economic energy.



Various Solutions

AlphaESS provides customized energy storage solutions for on-grid, off-grid and micro-grid applications at both residential and industrial & commercial levels, which helps customers to achieve energy independence and environmental responsibilities.



Global Energy Service Provider

AlphaESS is in the transition from an equipment provider to an energy service provider in the globe. We have set our footprint and been actively involved in the energy revolution in over 20 different countries and regions.



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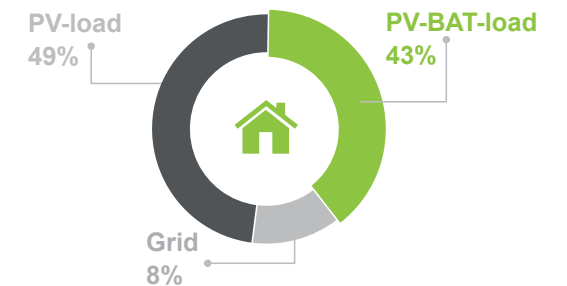


【China】 Alpha ESS Co., Ltd.
【Europe】 Alpha ESS Europe GmbH
【Australia】 Alpha ESS Australia PTY. Ltd.

System Function

Self-consumption

Help to maximize the utilization of PV energy generated and minimize the interaction with the grid. Say NO to increasing electricity price and unfair FIT.



Uninterrupted Power Supply

Electricity is essential to families and businesses, especially for kids and elderly people. Secure an uninterrupted power supply from AlphaESS system, and you will never experience a blackout until your neighbor knocks on the door and asks why only you got power.



Maximised Profit

Ask us for a tailored plan. Enjoy the free PV generated electricity and use it at any time. Take advantage from the Time-of-Usage tariff by storing the cheaper off-peak power to be consumed at peak time. Reduce demand charges for your business by shaving the peak.



Off-Grid/Micro-Grid

No power connection? Do not want to pay for the high connection fee? Want to avoid transformer upgrade fee? AlphaESS provides solutions to both residential and commercial scale applications, from a single home standalone system to a smart controlled micro-grid for a community. We deliver clean, smart and cost effective energy to everyone.



Residential Solution

Alpha Storion Series

Alpha Storion Series is a continuous development for residential applications which implements cutting edge technology in the industry. Its all-in-one design has been a popular feature for our installers as our system has been pre-engineered and prepared in the factory so that it saves a lot of time and minimizes the chance of errors during installation.

In addition, its flexibility to add on more battery unit with actual plug-and-play installation has been highly welcomed in the market.

Alpha uses only the safest battery chemistry available on the market - Lithium Iron Phosphate. As a safeguard we use extra casing for our batteries and have software integration to protect the battery from any potential damage.

Alpha also owns one of the world's leading Energy Management System (EMS) technology which is the brain of a PV + energy storage system. We are able to program to suit our customer requirements and we also have a remote control access to service or potentially gain arbitrage on the grid. We will provide 24/7 online monitoring on the system to help customer understand their energy usage and room for improvement.



Alpha ESS latest innovation: Storion SMILE 5
* Self sufficient / Modulated battery / Intelligent control / Long lifespan / Elegant design

Commercial Solution

For commercial buildings such as schools, factories and petrol stations that require higher energy demand, solar PV system with battery storage can enable businesses to maximise their energy independence and reduce peak power demand; for businesses without solar PV system, battery storage can enable business to store energy from the grid at off peak price and use at peak time.

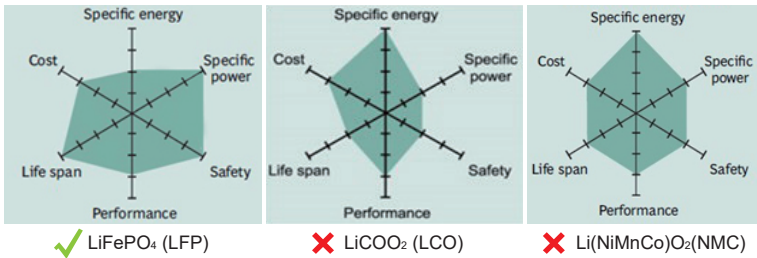


AlphaESS provides one-stop solutions for commercial and industrial facilities to reduce your electricity bill, protect your business from rising energy expenses; generate stable revenue from renewable energy production and subsidies, and ultimately reduce carbon footprint.

Superior Battery Choice

Safest Chemistry

AlphaESS selected LiFePO₄ mainly due to its superior safety feature. Although it slightly sacrifices in weight, energy density and cost, we consider LiFePO₄, which has higher performance in safety, reliability and robustness, is the most suitable formula for energy storage system.



Metal Can Battery Cells

Robust metal cans, with thick and strong package walls, give superior protection to the battery cells preventing leakage and short circuit. The table shows the robustness of different packages and AlphaESS only chooses the best.

Small Cylindrical	★ ★
Polymer Pouch	★
Plastic Cell	★ ★
Metal Can	★ ★ ★ ★

Comprehensive Battery Management System (BMS)

AlphaESS 3rd generation BMS system has incorporated redundancy controls to ensure safe, highly efficient, and reliable battery operation. It applies five levels of protection on both software & hardware, continuously monitors battery status and communicates with Alpha Could in real time. Every battery module has a built-in BMS, which provides comprehensive protection and monitoring at module level.

Multi-functional All-In-One System Design

Smart Energy Management System

- Compatible with multiple operation mode to suit different customer need
- Collection of data record to easily check all historical data since installation.

Multi-functional Hybrid Inverter

- Due MPPT, battery charger, DC/AC converter all in one
- Multiple operations: On-Grid, Off-Grid and On-Grid with backup
- High efficiency, fast response, and long service life

Advanced Battery

- Premium Lithium Iron Phosphate Chemistry provided by tier 1 manufacturers
- Ultra-safe housing provided by metal CAN cells
- Advanced battery management system designed to ensure safety and efficiency

Alpha-Cloud

APP/WEB MONITORING with Alpha-Cloud

Alpha-Cloud APP

Build on the Microsoft Azure cloud server.

Real time monitoring anywhere from Web and APP.

Remote control available.



Scan to download
(IOS/Android)



You can monitoring the system operation locally on the EMS touch screen or anywhere in the world through Alpha Cloud on the computer or mobile phone.



DATASHEET

Household Photovoltaic Energy Storage System (ESS)
is a new kind of power solution.

STORION SERIES SMILE 5



- Self Sufficient
- Modulated Battery
- Intelligent Control
- Long Lifespan
- Elegant Design

System Configuration

Cabinet	Storion-Smile 5
DOD	90 %
Installed Capacity	5.7/11.5/17.2/22.9/28.7/34.4 kWh
Usable Capacity	5.2/10.3/15.5/20.6/25.8/30.9 kWh
Cycle Life	≥6000
Product Warranty	5 Years
Performance Warranty	10 Years

Energy Storage System

Model	Storion-Smile 5
Phase	Single Phase
Display	LCD
Communication	Ethernet
Operating Temperature Range	-10℃ ~ 50℃
Humidity	15% ~ 85%
Protection Level	IP65
Dimensions (W x D x H)	600 x 250 x 1800 mm
Weight	220 kg (Two Batteries)
Warranty	5 Years
Nominal Output Power	5000 W / 4600 W (DE)
Output Voltage	180 ~ 270 Vac
Grid Frequency	50/60 Hz
Max. Input PV Power	6600 W
Max. Input PV Voltage	580 Vdc
Max. Input PV Current	2 x 15 A
Backup	UPS
Grid Regulation	VDE-AR-N 4105, VDE 0126-1-1, AS 4777.2/3, CEI 0-21:2014,G59/3
Safety	IEC 62109-1&-2

* When the temperature is below zero the battery are not allowed to charge.
And derating power output when the temperature is above 40°C.



Alpha·ESS

Industrial and Commercial
Energy Storage Solution

Turnkey Service

- Provides a flexible and integrated solution
- Professional and efficient service team
- Committed to respond within 24 hours

Core Competencies

- Self-developed Energy Management System (EMS) and Battery Management System (BMS)
- Proven technology with track record applications in many countries
- 24/7 online monitoring with remote diagnose and control

Product Advantages



Long Life Cycle
Battery

Safest lithium battery type - lithium iron phosphate battery cells manufactured by world's top tier supplier to ensure ≥6000 battery cycle life. The battery module uses advanced structural design with sophisticated thermal simulation and comprehensive software management to prolong the battery lifetime.



Precise Battery
Management

Adapting the Coulomb integral to calculate real time state of charge (SOC) with multi-parameter SOC correction model. Enable SOC auto-calibration and high current active balancing, combined with advanced control and operational management strategies to achieve accurate and efficient management.



Intelligent Energy
Management

Independently-developed EMS is capable to optimize operation algorithm under various application scenario, such as on-grid self-consumption, on grid UPS priority, on grid peak load shifting, off grid with PV, and off grid with backup generator. It also utilize PV generation forecasting, machine learning, load forecasting, and demand management algorithms to achieve greater savings.



High Reliability
Energy Storage System

The system has been integrated with the energy storage battery, BMS, power conversion system, temperature control, fire and lighting, and HVAC system to achieve flexible and stable operation under various environment. It comes with 5-year product warranty, 10-year battery performance warranty, with a design life of 20 years.



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Energy Storage System Major Application Areas

- **Industrial and Commercial Side**
Peak load shifting, improve power quality, and implement fast demand response.
- **Smart Grid**
Coordinate various power generation sources to form the foundation of smart grid and smart city.
- **New Energy Power Generation**
Effectively smooth power output and reduce the impact on the grid with planned output.
- **Other Application**
Frequency response, voltage adjustment, and emergency power supply.



Typical Case



Location: Apo island, Philippines
Energy Storage Capacity: 150kW/345.6kWh
PV : 150kWp
Diesel engine: 150kW (backup)

April 2017, AlphaESS provided photovoltaic + energy storage + diesel generator micro-grid system. Through the adaption of energy storage, and smart management of energy usage, the building achieved a 7/24 self-sufficient power supply.

Location: Tongzhou District, Nantong City
Owner: Jiangsu Deming New Materials Ltd
Scope: 500kW/1MWh 40 inch container energy storage system

Since October 2016, AlphaESS storage system has successfully helped Deming new materials Nantong factory secure the supply of electricity while cutting peak load to save more than ¥27,000 in monthly electricity bills.



DATASHEET

Battery Container Storage System

Alpha-CS



- Integrated Design
- Peak Load Shifting
- Long Lifespan

System Configuration

Container	Alpha-CS	
Cluster Module	HV-Cluster	
Battery Module	M48112-S	
Depth of Discharge DoD	90 %	
Battery Voltage	500-800 V	
Cluster Number	5~10	8~16
Installed Capacity	250~500 kWh	500~1000 kWh
Cycle Life	≥ 6000	

Warranty

Product Warranty	5 Years	
Performance Warranty	10 Years	



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Energy Storage System		
Model	Alpha-CS	
Phase	Three Phase	
Display	LCD, PC(option)	
Communication	Ethernet, RS-485	
Operating Temperature Range	-45℃ ~ 45℃	
Humidity	15 % ~ 85 %	
Protection Level	IP54	
Dimensions (Dx W x H)	5.9m×2.4m×2.4 m	12mx2.4mx2.7m
Weight	20T	30T
Warranty	5 Years	
Inverter		
Nominal Output Power	250-500k W	
Output Voltage	310-480 Vac (Option)	
Nominal Output Voltage	380Vac	
Output Frequency	45-55 Hz/55-65Hz	
NominalOutput Frequency	50 / 60Hz	
MAX.efficiency	97.70%	



Battery Cluster Control System

HV-Cluster

Feature :

- Modular design, front wiring, easy installation and maintenance
- Lithium iron phosphate battery makes it safer with longer cycle life
- BMS adapts a three-level modular control making it highly extendable
- With active cell balancer in battery, it can present the battery SOC within 8% error range
- Adapts advanced algorithm to calculate real time SOC and set up multi-parameters SOC correction model to make sure the accuracy of SOC



Control Box

Model	HV800112
DC Voltage Range	160~800 V
Maximum Current	112 A
Dimension (W x D x H)	450mmX520mmX165mm
Weight	15 kg
Monitoring Parameters	System Voltage, System Current, ISO Measurement
Function	Relay control, SOC Intelligent algorithm, Breaker control
Communication	CAN and RS-485

System Configuration	
System Configuration	Battery Array
	4~11
Battery Array Configuration	
Model	M48112-S
Battery In Seris	4~11
Installed Capacity	22.9/28.7/34.4/...../63 kWh
DOD	90%
Usable Capacity	20.6/25.8/31/...../56.9 kWhh
Warranty	
Product Warranty	5 Years
Performance Warranty	10 Years
Cabinet	
Model	19" Standard cabinet
Protection Level	IP20
Dimension (W x D x H)	565mmX620mmX2300mm
Weight(Without Battery)	70 kg
Max. Modules	11

