



## ENERGY STORAGE SOLUTIONS

Residential

Commercial & Industrial

Utility



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## COMMERCIAL & INDUSTRIAL SMALL-SCALE SOLUTION





“MAKE CLEAN **ENERGY**

ACCESSIBLE TO 100 MILLION

PEOPLE IN 10 YEARS

## CONTENTS

|                                  |     |
|----------------------------------|-----|
| <b>01 ABOUT ALPHAESS</b>         | P01 |
| • GLOBAL SERVICE NETWORK         |     |
| <b>02 THE STORY OF "STORION"</b> | P05 |
| • APPLICATIONS                   |     |
| <b>03 PRODUCT INTRODUCTION</b>   | P09 |
| • STORION-G2-H30/50              |     |
| • STORION-LC-TB125               |     |
| <b>04 SMART ENERGY</b>           | P21 |
| • EMS 4.0                        |     |
| • ALPHACLOUD                     |     |



# 1 ABOUT ALPHAESS

Founded in 2012, AlphaESS is now one of the world-leading energy storage solution and service providers. The company specializes in delivering pre-eminent fit-for-purpose product solutions covering the full power range from small portable power stations all the way up to large utility-scale solutions. With 40+ subsidiaries in the globe, AlphaESS provides local services and supports 200,000+ systems actively running in over 130+ countries.

 **13+**  
Years since Establishment

 **250+**  
Patents in the ESS Field

 **200,000+**  
Systems Installed Globally

 **130+**  
Countries & Regions

## TOP 1

2022-2023 TOP 1  
Australia Market Share  
from SunWiz

## TOP 5

2023 H1 TOP 5  
Residential ESS Provider in Germany  
from EUPD Research

## TOP 6

2021 TOP 6 Supplier of  
Global Residential Storage Systems  
from IHS Markit



ESG Transparency  
Award



product  
design award 2018



reddot design award 2018



GOOD  
DESIGN  
AWARD

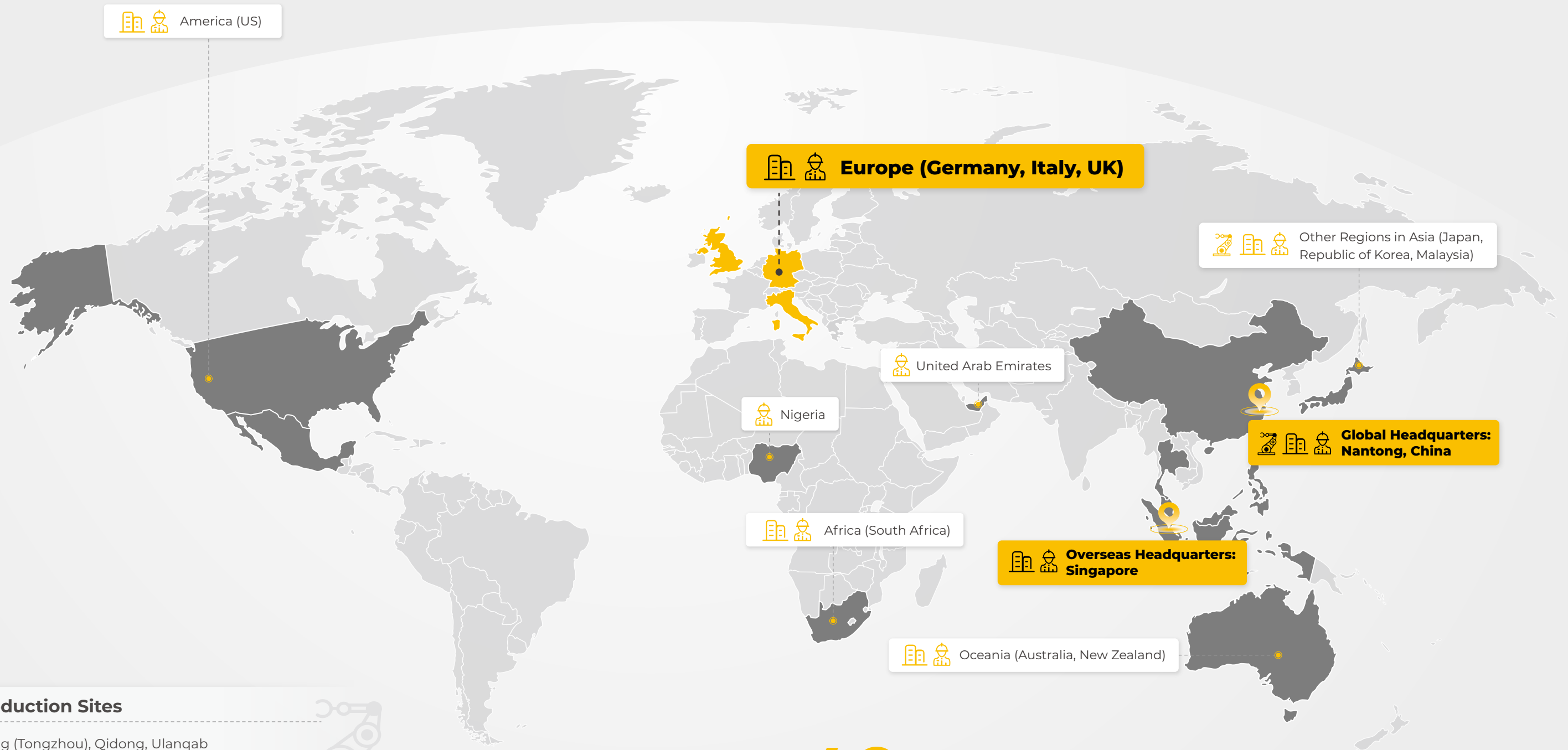
iF & Reddot & G-mark  
Design Award



TOP BRAND PV  
(STORAGE & INVERTERS)



# GLOBAL SERVICE NETWORK



## 4 Production Sites

China: Nantong (Tongzhou), Qidong, Ulanqab  
Malaysia: Penang

## 4 R&D Centers

Nantong (Tongzhou), Suzhou, Nanjing, Tianjin

## 40 Subsidiaries

China: Suzhou, Beijing, Tianjin, Shenzhen, Chengdu, and Nanjing.  
Global: European countries, including Germany, Italy, and the UK; Oceanian countries like Australia and New Zealand; the United States; Asian countries like Japan, Republic of Korea and Malaysia.

Note: The data shows the company's global presence as of the end of 2024.



# 2

## THE STORY OF "STORION" C&I SOLUTION

### 2024 1.5 GWh and LSES DEPLOYED WORLDWIDE

Since the launch of our Commercial and Industrial solutions until 2024, AlphaESS has installed a total of over 1.5 GWh C&I systems around the globe. The majority of these deployments have been in regions lacking reliable power infrastructure, providing millions of individuals access to dependable and sustainable clean energy sources.

### 2018 INTERNATIONAL RECOGNITION

Our rural electrification projects in Myanmar was selected by the Intersolar Europe committee as one of the 10 finalists for "outstanding projects award".

### 2017 MILESTONE PROJECT OVER 1 MWH

AlphaESS completed its first large C&I project in Cambodia, installing a 500kW/1.26MWh energy storage container. This milestone project provides steady and cheap electricity to a local pharmaceutical factory and its workers.

### 2015 THE FIRST C&I PROJECT

The first STORION series for commercial application were delivered in six petrol stations (20kW/60kWh × 6) in remote areas of Indonesia where power outages were frequent.

### 2013 THE ORIGIN OF THE NAME STORage + Lithium-ION = STORION

## TODAY

With a decade of evolution, the STORION is now a series dedicated for commercial and industrial applications in AlphaESS. Our STORION solution for rural electrification and power resilience applications today are ranging from 30kW to 500kW inverter power and 54kWh to 2MWh in storage capacity.



# APPLICATIONS



## RURAL ELECTRIFICATION

Lighting Up Villages,  
Powering Up Lives



## SCHOOLS, HOSPITALS AND BANKS

Energy Efficiency for Vital Spaces  
Where Every Watt Matters



## COMMERCIAL OFFICE BUILDINGS

Energy Resilience for  
Business Excellence



## SMALL FACTORIES

Fueling Industry,  
Energizing Growth



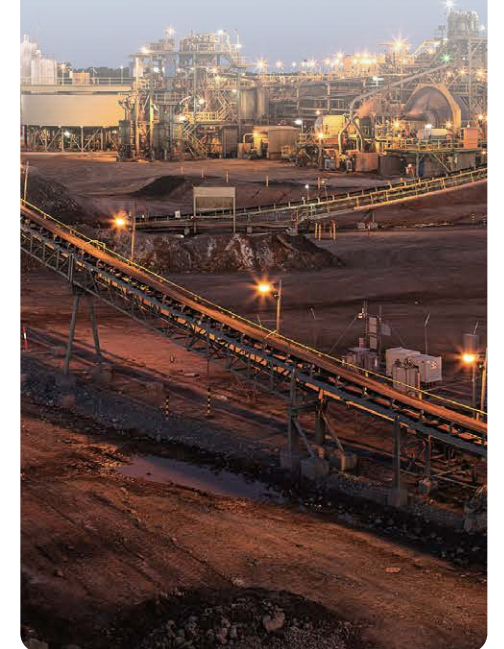
## ISLANDS

Island Energy Independence,  
Harnessing Power from Nature



## MINING SITES

Unearth the Power,  
Illuminate the Depths





# 3

## PRODUCT INTRODUCTION

### STRORION-G2-H30/50

**Indoor:** 30 kW: 64.5 ~ 209.6 kWh  
50 kW: 104.8 / 209.6 kWh

**Outdoor:** 30 kW: 64.5 ~ 193.5 kWh  
50 kW: 96.7 / 193.5 kWh



### STORION-LC-TB125-EX

125 kVA / 261 kWh





# STORION-G2-H30/50

Indoor / Outdoor

30 kW / 50 kW

STORION-G2-H30/50 is an AlphaESS air-cooling C&I product designed for small-scale applications. Battery modules, HV Box, PCS, DCDC, EMS and other components is integrated in one cabinet. The system is scalable to satisfy users' application scenarios. The system is scalable to meet diverse user application scenarios.

► **AC, DC, Hybrid-coupled solutions are all available**

► **High system integration**

High integration: built-in battery modules, HV Box, PCS, DCDC, EMS and other components.  
Easier transportation and installation.  
All-in-one design maximizes the utilization rate of space.

► **Safety**

Millisecond-level circuit protection.  
Outdoor cabinet system-level aerosol fire suppression.  
Indoor & outdoor smoke detection.

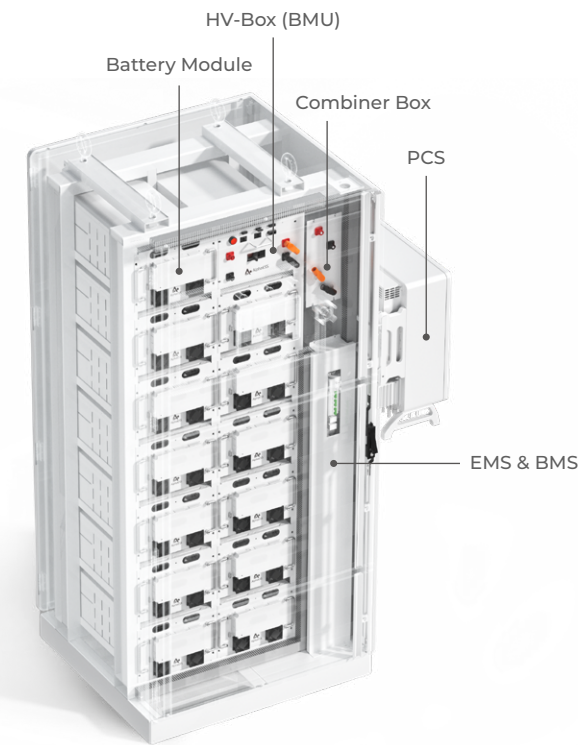
► **Scalability**

Max. 3 systems in On&Off-Grid mode.  
Max. 5 systems in On-Grid mode.



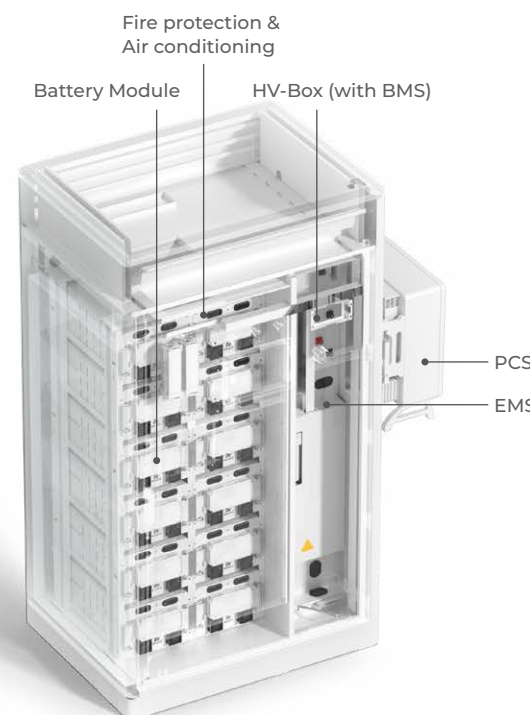
## SOLUTIONS

### Indoor Solutions



|                        |  |
|------------------------|--|
| Inverter Power         | 30 / 50 kW   |
| Battery Capacity       | 64.5 kWh ~ 209.7 kWh                                       |
| Rated Power            | 0.5 P  |
| Dimensions (W × D × H) | (950+300) × 900 × 2050 mm                                  |
| Expandability          | 5 systems in On-grid mode<br>3 systems in On&off-grid mode |

### Outdoor Solutions

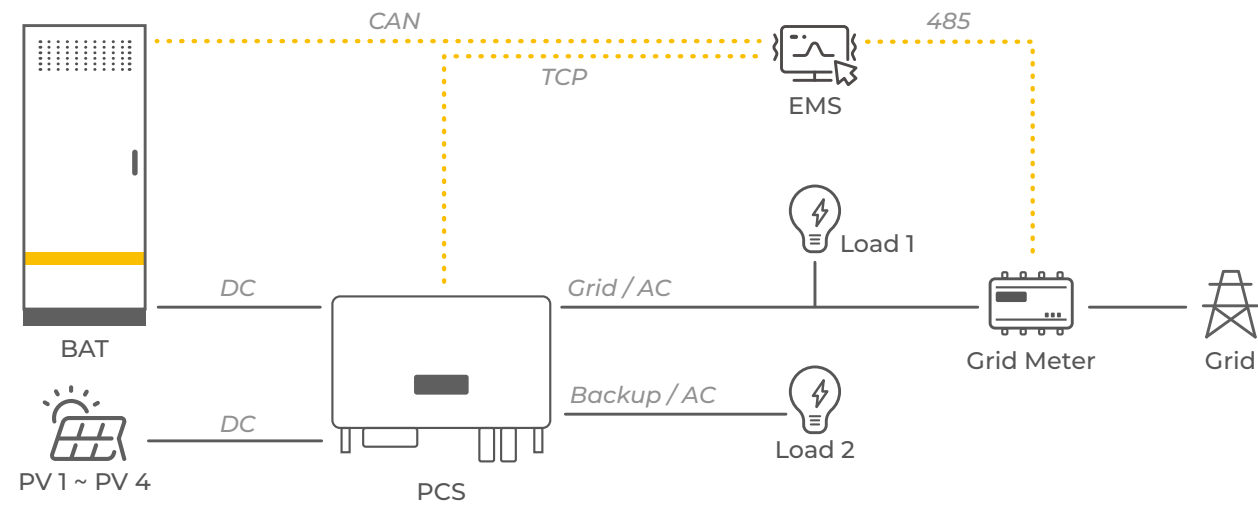


|                        |  |
|------------------------|--|
| Inverter Power         | 30 / 50 kW   |
| Battery Capacity       | 64.5 kWh ~ 193.5 kWh                                       |
| Rated Power            | 0.5 P  |
| Dimensions (W × D × H) | (1200+300) × 900 × 2160 mm                                 |
| Expandability          | 5 systems in On-grid mode<br>3 systems in On&off-grid mode |

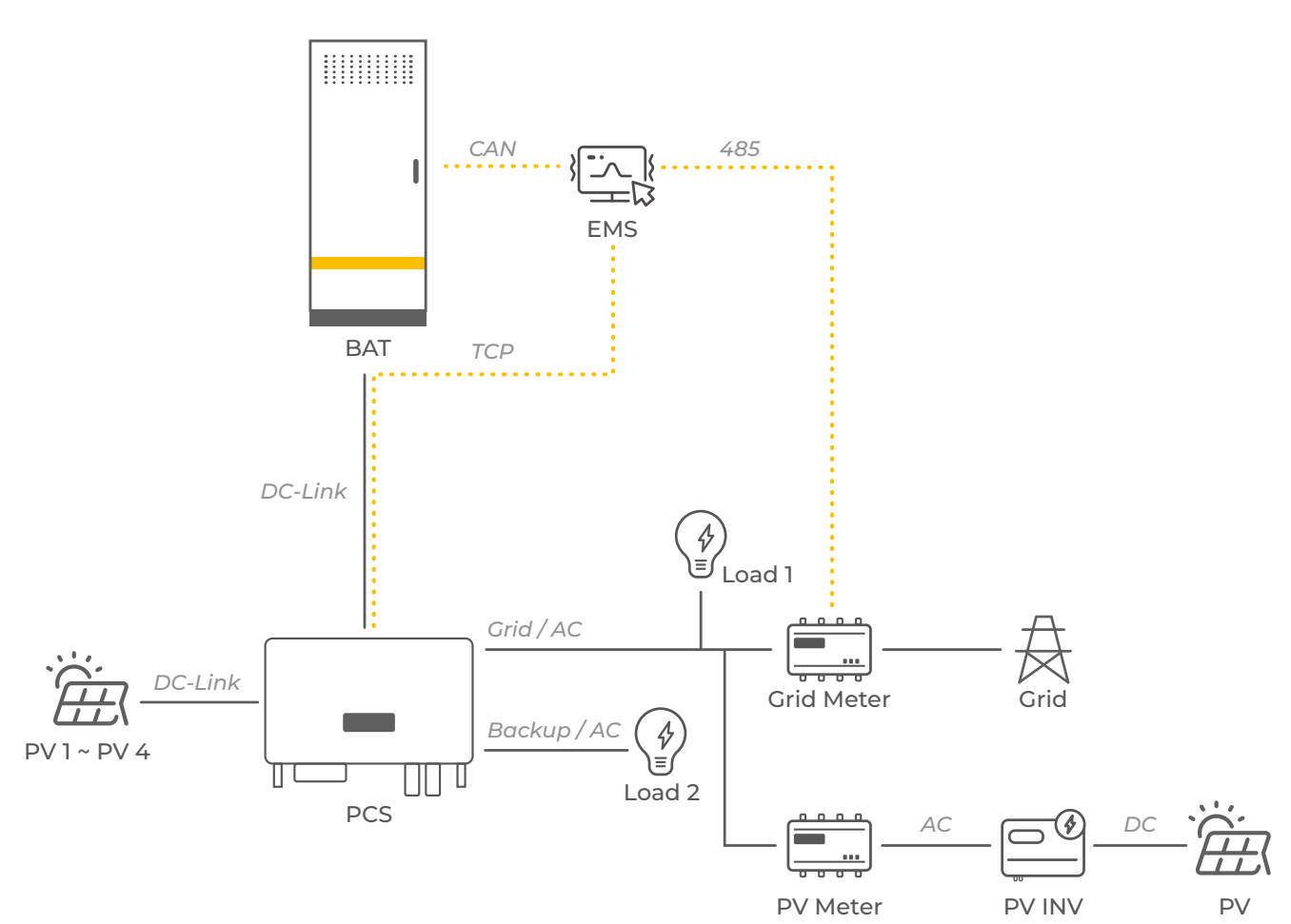


# SOLUTIONS

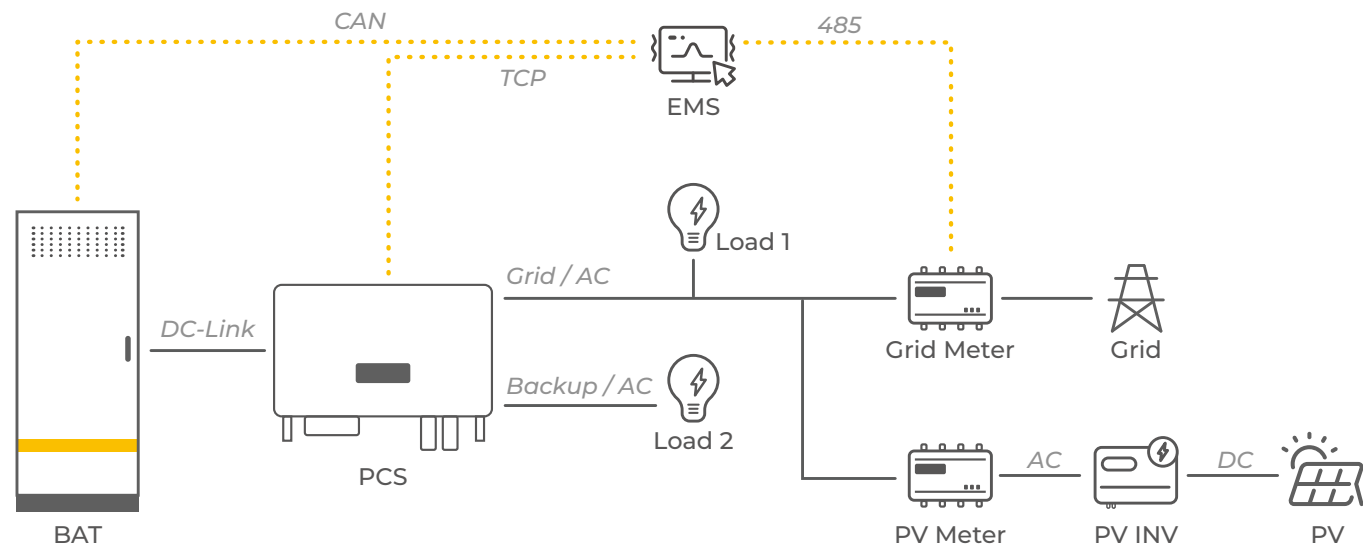
## DC-Coupled System



## Hybrid System



## AC-Coupled System



The G2-H30/50 uses a highly integrated hybrid inverter, supporting AC, DC, and Hybrid coupled solutions. This design is compatible with more complex application scenarios. Whether the customer has already installed a solar system or wants to expand the existing solar capacity, the G2-H30/50 can be smoothly connected to the site.



# COMPONENTS

## Battery Cluster System

### ► M38210-SC 0.5C

|                                   |                     |
|-----------------------------------|---------------------|
| Nominal Capacity                  | 8.064 kWh           |
| Max. Charging/Discharging Current | 105 A               |
| Depth of Discharge                | 90%                 |
| Battery Type                      | LiFePO <sub>4</sub> |
| Rated Voltage                     | 38.4 V              |
| Operating Voltage                 | 36 V ~ 43.2 V       |
| Dimensions (W×D×H)                | 325 × 658 × 232 mm  |



## Expansion Battery Cluster (Optional)

### ► ALPBC-105

|                                   |                      |
|-----------------------------------|----------------------|
| Battery                           | M38210-SC            |
| Cluster Capacity                  | 104.8 kWh            |
| Max. Charging/Discharging Current | 105 A                |
| Battery Cluster Voltage Range     | 468 V ~ 561.6 V      |
| Battery Rack                      | 2 x 7                |
| Fire-Fighting System              | Smoke or Temperature |
| Dimensions (W×D×H)                | 740 × 900 × 2160 mm  |
| Weight                            | 1115 kg              |



### ► ALPBC-105-O

|                                   |                             |
|-----------------------------------|-----------------------------|
| Battery                           | M38210-SC                   |
| Cluster Capacity                  | 96.76 kWh                   |
| Max. Charging/Discharging Current | 105 A                       |
| Battery Cluster Voltage Range     | 432 V ~ 518.4 V             |
| Battery Rack                      | 2 x 6                       |
| Fire-Fighting System              | Aerosol+Smoke / Temperature |
| Dimensions (W×D×H)                | 1200 × 900 × 2160 mm        |
| Weight                            | 1360 kg                     |



## Inverter

### ► PV Side

|                                 |                           |       |
|---------------------------------|---------------------------|-------|
| Max. Input power                | 45 kW                     | 75 kW |
| Start-up voltage                | 135 V                     |       |
| MPPT Voltage Range              | 200 V ~ 850 V             |       |
| Number of MPPT                  | 4                         |       |
| Number of Strings for Each MPPT | 2                         |       |
| Max. Input Current              | 30 A / 30 A / 30 A / 30 A |       |
| Max. Short-circuit Current      | 40 A / 40 A / 40A / 40 A  |       |



### ► AC Data

|                    |  |       |
|--------------------|--|-------|
| Rated Output Power | 30 kW                                    | 50 kW |
| Max. Input Power   | 36 kW                                    | 60 kW |
| Rated Grid Voltage | 3L / N / PE 220 V / 380 V; 230 V / 400 V |       |
| Grid Frequency     | 50 / 60 Hz                               |       |
| Rated Output Power | 30 kW                                    | 50 kW |
| Max. Current       | 50 A                                     | 83 A  |

### ► General Data

|                             |                                      |  |
|-----------------------------|--------------------------------------|--|
| Dimensions (W×D×H)          | 800 × 300 × 620 mm                   |  |
| Weight                      | 72 kg                                |  |
| Operating Temperature Range | -20 °C ~ 50 °C (PCS > 45°C derating) |  |
| Cooling Method              | Forced Air-Cooling                   |  |
| Communication Interfaces    | RS485, CAN, Modbus TCP, Ethernet     |  |



# STORION-LC-TB125-EX

261 kWh / Liquid-Cooling Outdoor Cabinet

The Storion-LC-TB125-EX is the first liquid-cooled C&I all-in-one cabinet from AlphaESS. Liquid-cooled battery modules, PCS, HV Box, BMS, EMS and other components are integrated in a cabinet that occupies only 1.5m<sup>2</sup>. Each cabinet can provide 125kW of power and 261kWh of battery capacity. In addition, the product is scalable to meet more complex application scenarios.

## ► High system integration

Easy Commissioning; No internal wiring required; minimizing installation difficulty  
 All-in-one design; high energy density; each cabinet only occupies 1.5 m<sup>2</sup>  
 Equipped with the latest EMS 5.0 platform, higher system efficiency, easier system maintenance, and more flexible benefit modes.

## ► Safety

UL and IEC battery safety certified  
 Three-level fire protection design, intelligent safety control  
 IP55 protection design for harsh installation environments  
 BMS integrates AI algorithms for smarter temperature management

## ► Scalability

Max. 25 units in parallel (On-grid)  
 Max. 2 units in parallel (Off-grid)



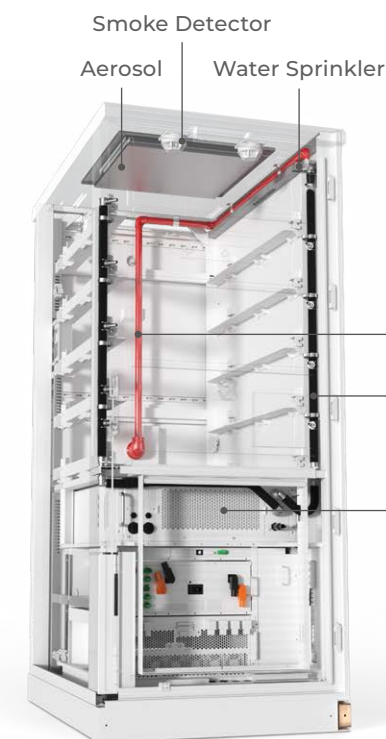
# SOLUTIONS

## System Parameter



|                    |                             |
|--------------------|-----------------------------|
| Inverter Power     | 125 kW                      |
| Battery Capacity   | 261.2 kWh                   |
| Rated Power        | 0.5 P                       |
| Dimensions (W×D×H) | (1050+400) × 1500 × 2450 mm |

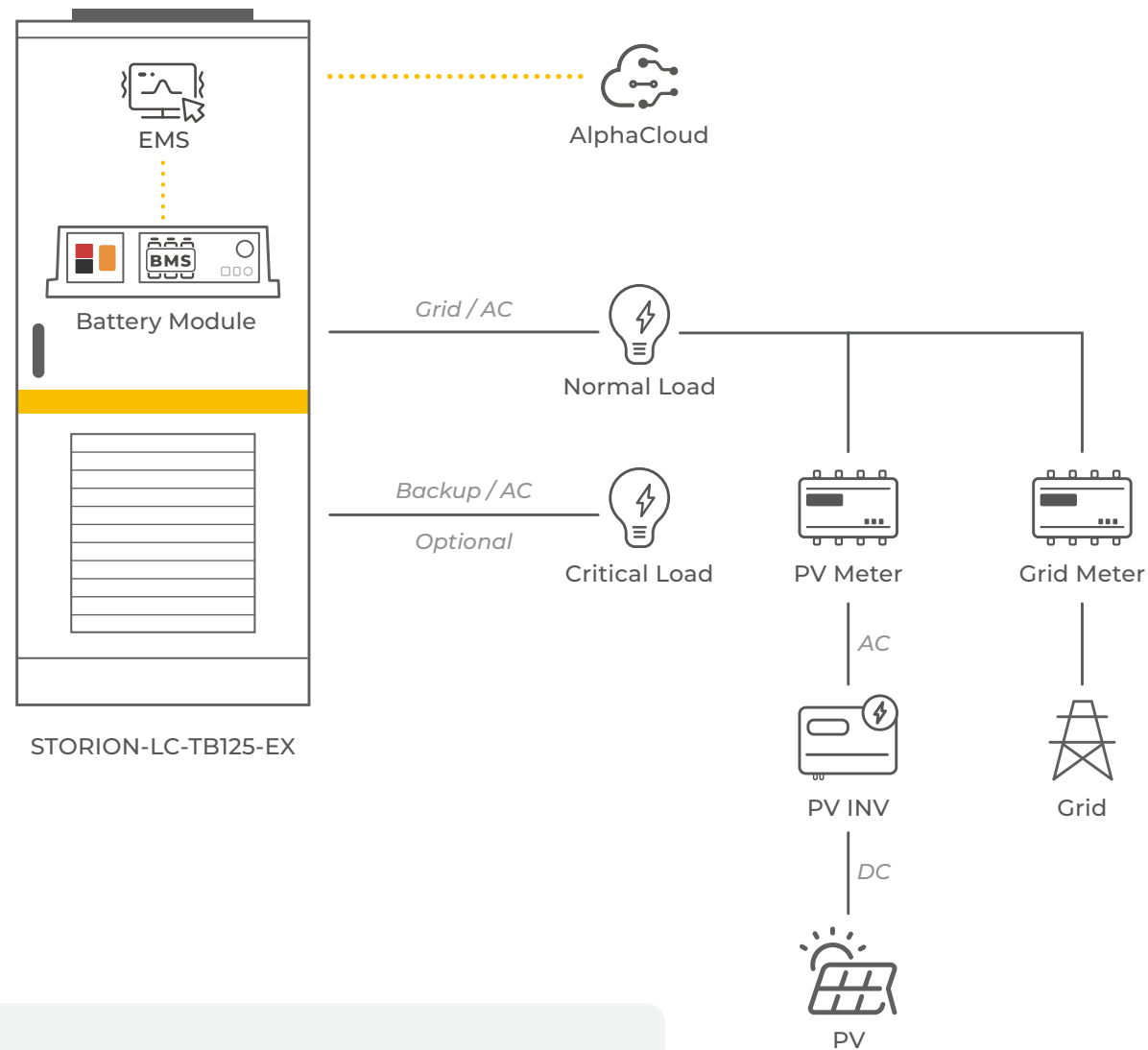
## Three-level Fire Protection



|               |                         |
|---------------|-------------------------|
| Battery-Level | Built-in Aerosol        |
| Rack-Level    | Liquid-cooling system   |
| System-Level  | Aerosol+Water Sprinkler |



## AC-Coupled System



The TB125 offers an AC-coupled solution which allows the customer to connect the PV panels to the system through PV inverters. Users can add battery storage system without any changes to the existing PV system. For new PV installations, the AC-coupled solution has less requirements on PV distribution and roof structure, so it is suitable for complex projects.

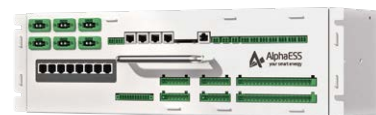
## STORION-LC-TB125-EX

| Model                                | STORION-LC-TB125-EX  |
|--------------------------------------|--|
| <b>System Parameter</b>              |  |
| Dimension(W×D×H)                     | (1050+400) × 1500 × 2450 mm  |
| Battery Modules Connection           | 5 Modules in Series  |
| Weight                               | 3.2 t  |
| Ingress Protection                   | IP55   |
| Operation Ambient Temperature Range  | -20°C ~ 50°C (>45°C Derating)  |
| Operation Humidity Range             | 0 - 95% RH   |
| Max Operation Altitude               | 3000m (>2000m Derating)  |
| Fire-Fighting System                 | Aerosol + Sprinkler  |
| Communication Protocols              | Modbus TCP   |
| <b>PCS Parameters</b>                |  |
| Nominal AC Power                     | 125 kVA@45°C   |
| Max. Output Power                    | 137.5 kVA  |
| Battery Voltage Range                | 630 V ~ 950 V  |
| Nominal Grid Voltage                 | 400 V (±15%), 3L/N/PE  |
| Nominal Grid Frequency               | 50 / 60 Hz (±5 Hz)   |
| Output THDu                          | < 3%   |
| Max. Efficiency                      | 99%  |
| Switching Time                       | ≤ 20 ms (With STS Cabinet)   |
| Overload                             | 110% long time; 120% 1 min   |
| Compliance                           | IEC 62477, IEC 61000, IEC 62109, EN 50549, VDE 4105, VED 4110, G99, G100 |
| <b>Battery Parameters</b>            |  |
| Battery Model                        | M166314-S  |
| Battery Chemistry                    | LFP (LiFePO <sub>4</sub> )   |
| System Battery Configuration         | 1P260S   |
| Operation Voltage Range              | 702 V ~ 936 V  |
| Nominal Capacity                     | 261.2 kWh  |
| Rated Charging and Discharging Power | 130.6 kW (0.5 P)   |
| Cycle Life                           | ≥8000@0.5 P 25°C   |
| Cooling                              | Liquid Cooling   |
| Compliance                           | IEC 62619, IEC 62477, IEC 61000, UL 9540A                                |

# 4 SMART ENERGY

## EMS 4.0

EMS4.0, the fourth generation of AlphaESS's EMS products, was officially released in 2024. Since the first release in 2013, the R&D team has continually updated the EMS to meet market demands and technological advancements. Its robust performance and features assist users in commercial and industrial sectors in tackling complex issues, adapting to various applications, and offering versatile solutions.



AlphaESS EMS 4.0

### • Rich Functions

Self-Consumption; Multiple time periods charging and discharging; SOC calibration; Pmeter Offset; Peak Shaving; Modbus scheduling (RTU); Battery-only function; Diesel control; Dual power supply function; API data reading; Remote upgrade

### • Friendly Display

A user-friendly SCADA monitoring system with a display screen running on a Windows operating system. Space-saving and Security.

### • Space-Saving and Security

The integrated battery DC convergence cabinet is enclosed within the box, complemented by an external SCADA HMI display. This design maximizes space efficiency while providing an additional layer of protection for enhanced security

### • Reserved Communication Port

It is convenient for users to control other equipments through the STORION system.



STORION-G2-H30/50 Indoor

## AlphaCloud

- ▶ Customizable schematics for clear energy flow visualization.
- ▶ Cell-level monitoring for comprehensive system insights.
- ▶ Real-time tracking of energy production & consumption.
- ▶ Remote configuration & upgrades, minimizing on-site visits.
- ▶ Centralized dashboard for efficient system management.

