Alphaess

your smart energy

Development of Large-Scale Energy Storage Projects in Germany:

Battery Technology and Corporate Services as Key Success Factors

The successful development of large-scale energy storage projects in Germany depends not only on regulatory processes, but also on the selection of the appropriate battery technology and the associated corporate services.

This speech analyses the technical requirements for battery storage systems, the role of providers offering specialized services, and strategies for optimizing project development. Particular emphasis is placed on integration into the German energy system and the economic opportunities for companies.

About AlphaESS

AlphaESS is a leading global smart energy storage solution provider. The company excels in providing tailored products and solutions for residential, C&I and utility projects. With 200,000+ systems actively running in over 90 countries and 15+ subsidiaries in the globe, AlphaESS provides local support and enables millions of people to live with reliable, accessible and clean energy.

11
Years of Experience

90+
Countries & Regions

200,000+
Active ESS Systems Globally

180+
Patents in ESS Technology

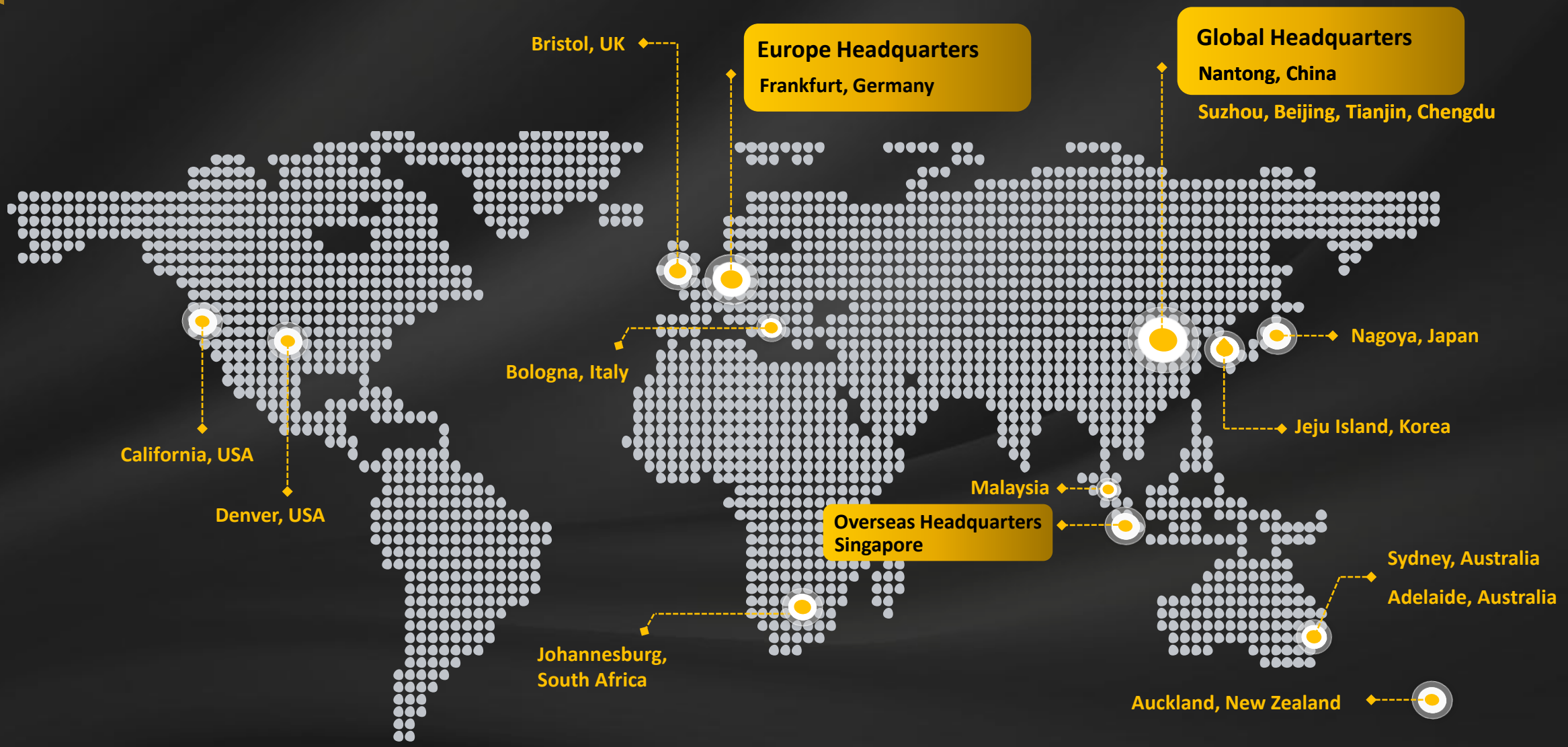
4
Product Development Units

15+
Subsidiaries Worldwide

1,500+
Employees in the Globe

10 GWh
Annual Production Capacity

Global Presence



Our expertise and major applications

Our Expertise

Major Applications

Utility

Generation

- Peak-Valley Arbitrage
- Generation Peak-shaving
- Black Start

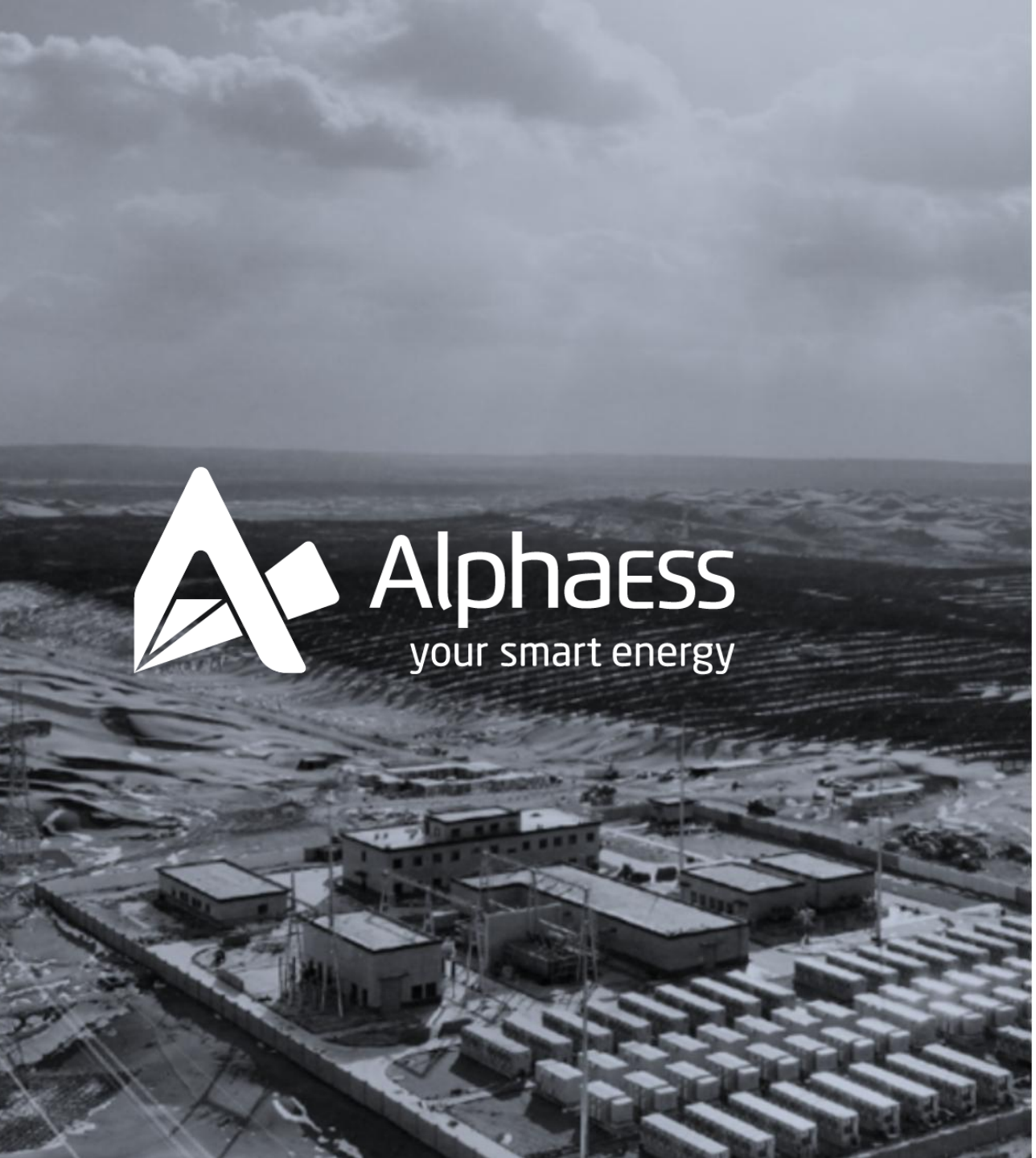
Transmission & Distribution

- Auxiliary Service
- Frequency Regulation
- Grid Booster

Residential/C&I

Prosumer

- Self-consumption
- Peak-shaving
- Load-shifting
- Micro-grid
- Back-up / UPS
- VPP



5MWH BESS

INTRODUCTION

AlphaESS your smart energy

AlphaCS-H20-DC-LC-EX

Aster 5000

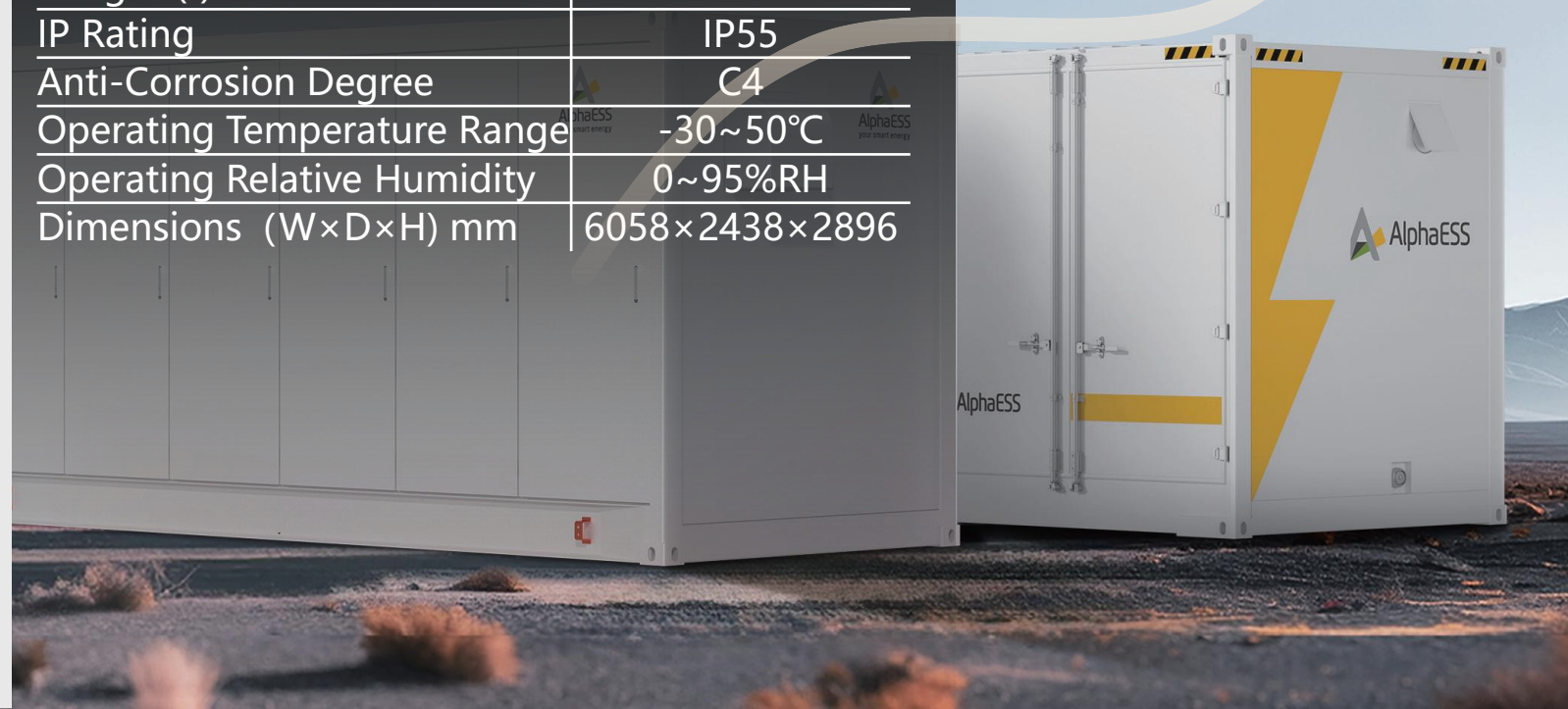
Features

- Active Balance
- Intelligent Thermal Management Strategy
- Safer Dual Fire Fighting Design
- High-Level System Integration
- Dehumidification Design
- High Energy Density

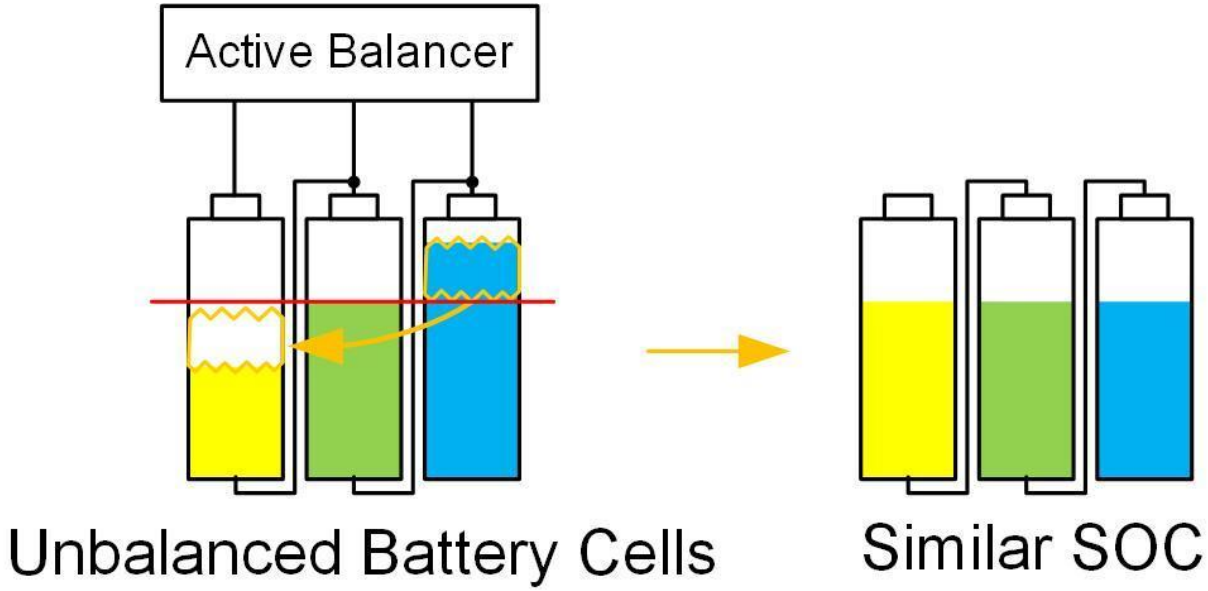
Item	Value
Nominal Capacity（kWh）	5015.9
C-rate	0.5P
Configuration	12P416S
Battery Modules Per Rack	4
Racks Number	12
Rated Voltage (V)	1331.2
Operating Voltage Range (V)	1123.2~1497.6
Cooling	Liquid Cooling
Weight (t)	42.5
IP Rating	IP55
Anti-Corrosion Degree	C4
Operating Temperature Range	-30~50℃
Operating Relative Humidity	0~95%RH
Dimensions（W×D×H) mm	6058×2438×2896

More than 20% Development Cost Reduction 1)

5 MWh



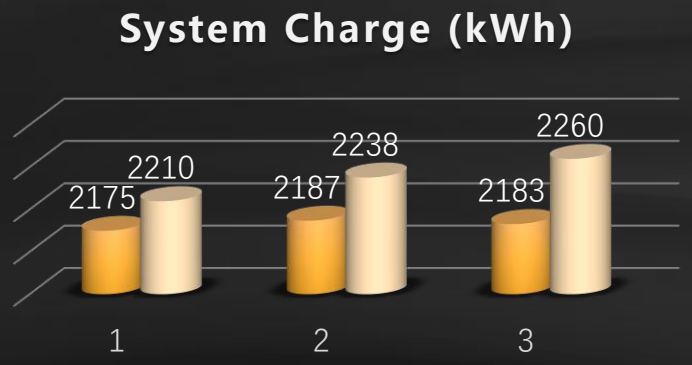
Active Balancing BMS

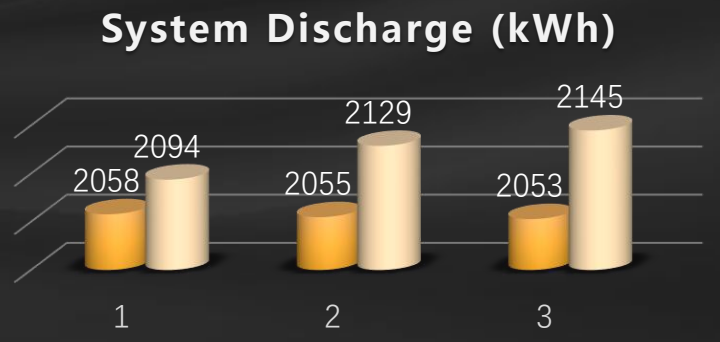


Active Balancing BMS

Comparing Active Balancing and Passive Balancing

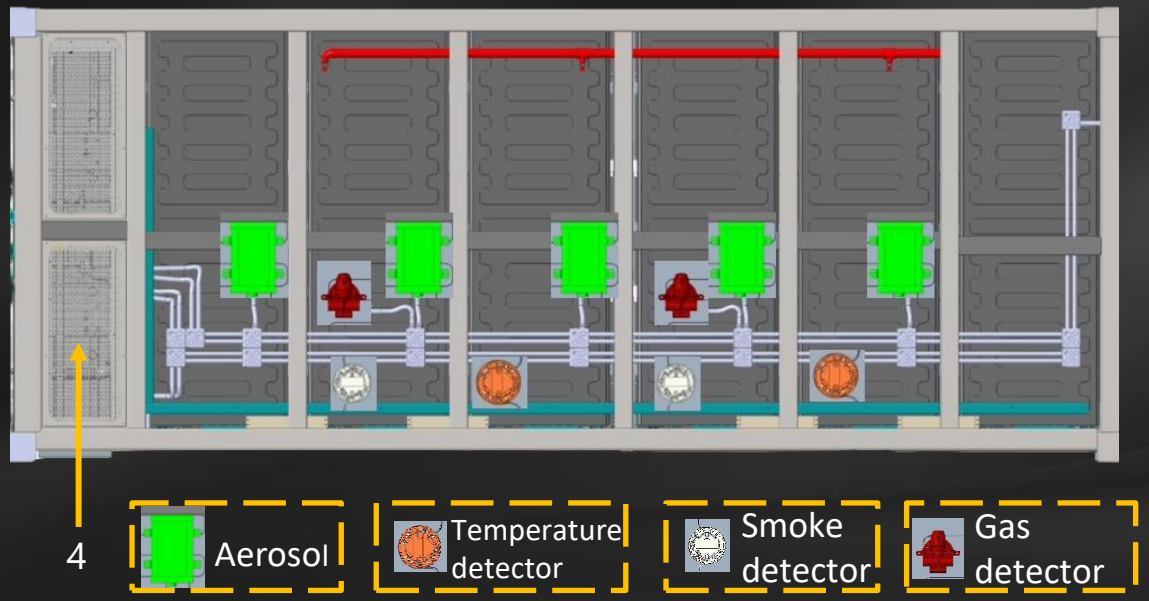
No.	Type	Active Balancing	Passive Balancing
1	Principle	The bidirectional balancing is achieved through the DC-DC converter, transferring energy between battery cells.	Parallel resistors at both ends of the battery cells convert excess energy into heat for dissipation.
2	Balancing Current	**≥±2A**	≥+80mA
3	Balancing Range	Battery Cells within the Battery Cluster (including cells within the module)	Battery Cells within the Module
5	System-wide BLMU Total Cost	**3 times more than passive balancing**	





System Introduction

System Components

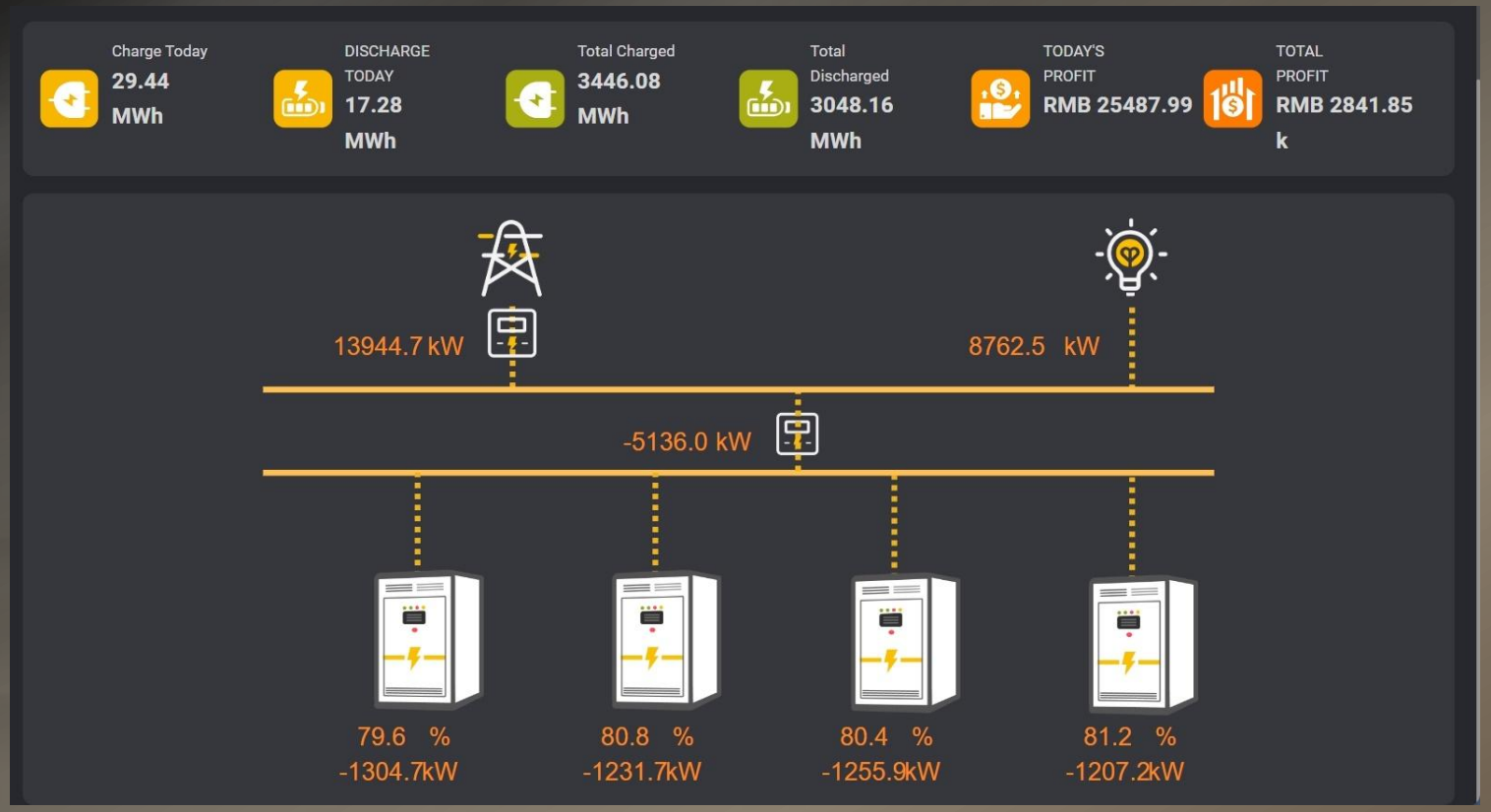


No	Type	Quantity	Configuration	Remarks
1	Tempe-rature detector	2	Standard	Detection of temperature, in the battery compartment
2	Smoke detector	2	Standard	Detection of smoke particles, two in the battery compartment, and one in the electrical compartment
3	Gas detector	2	Standard	Detection of hydrogen, in the battery compartment
4	Fire control panel	1	Standard	Receive detector signals and control fire extinguishing system and explosion-proof system, in the electrical compartment
5	Aerosol	5	Standard	When activated, the aerosol power will be released rapidly to extinguish thermal runaway

Cloud-based Control

Achieving Intelligent Operation and Management of the Energy Storage System with Real-Time Monitoring, Data Analysis, and Remote Software Upgrades for Online Maintenance

- Real-Time Monitoring
- Data Analysis
- Online Maintenance
- Remote Software
- Upgrades



Alpha Premium

Service & Training

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Remote Maintenance

Troubleshooting

Product Training

Warranty Service

Repair Service

Automatic Updates

+49 152 36223388

Alpha ESS Service Content

	Services	Basic Warranty	Alpha Premium Service (APS)	Alpha Premium Training (APT)
Product Warranty	• Battery Module • Thermal Management System • Fire Fighting System • BMS • PCS • EMS • Time-based availability guarantee	●		
Performance Warranty	• Capacity-based guarantee • SOH-based Guarantee • Temperature-based guarantee	●		
Customer service	• Continuous dialogue with personal account manager • Access to the Alpha Cloud • Access to Alpha Service Center	●		
Active status monitoring	• State Monitoring System • Remote monitoring		●	
Repair	• Battery system Repair • Junction Repair • PCS Repair		●	
Maintenance	• According to maintenance requirement specification • Incl. dust clean and spare parts		●	
Safety Training	• Onsite safety		●	
Design Support	• SLD Drawing Support • Grounding Requirements Training		●	
Function Training	• BESS System • PCS • Fire Fighting System			●
Repair Training	• PCS Component • Fuse Replacement • HVAC • UPS • FFS			●
BMS Training	• SOC Calibration • SOH Calibration • Voltage Calibration • SOC Algorithms • PCS Communication			●

Introduction of the team

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