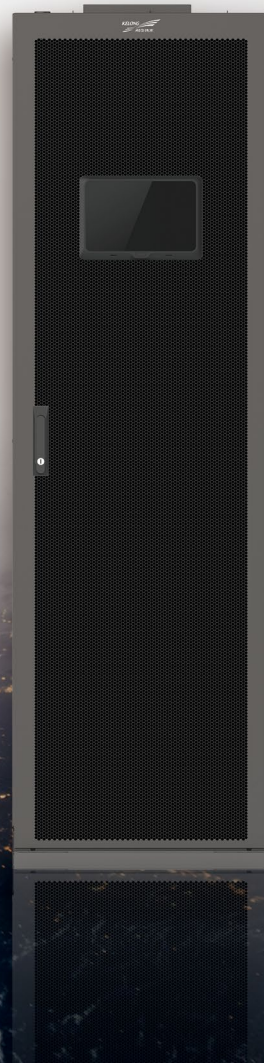


Kehua S³ Smart Backup Lithium-ion Battery System Solution

Lithium-ion Battery Solution with
High Safety and Reliability



S³ Smart Backup Lithium-ion Battery System Solution

Product Introduction

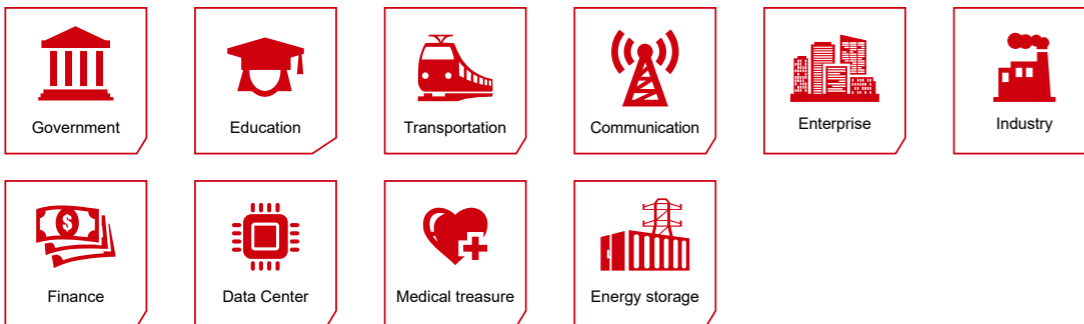
“Carbon Peaking • Carbon Neutrality” has become a global priority for all countries and industries, and the concept of green energy saving has also been widely recognized by the people. Thanks to the new infrastructure and ‘dual carbon’ goals, the lithium-ion battery industry has developed geometrically at an astonishing pace. Lithium-ion iron phosphate walks in the forefront for its safety and stability, and has constantly carried out security upgrades. By following the nuclear-grade safety design concept and leveraging its over 30 years of professional experience in the power field, Kehua deeply applied power electronics to the lithium-ion battery technology and released lithium-ion battery solution with high safety and reliability - Kehua S³ Smart Backup Lithium-ion Battery System Solution (Safety-Li, Smart-Li, Simple-Li).



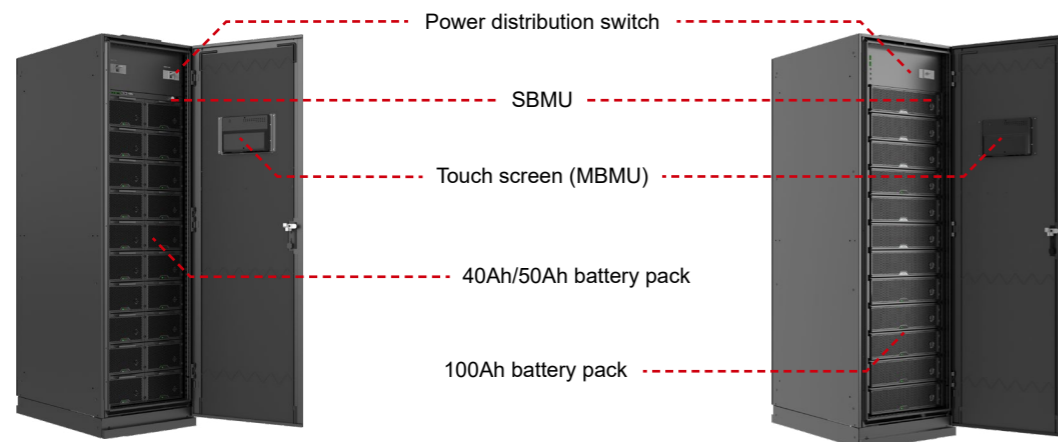
S³ Smart Backup Lithium-ion Battery System Solution

Application

Government, education, transportation, communication, finance, data center, medical treasure, enterprise, industry, etc.



Product Configuration



40Ah/50Ah lithium-ion battery system cabinet

100Ah lithium-ion battery system cabinet

Kehua S³ Smart Backup Lithium-ion Battery System Solution

Product Features

The S³ smart backup lithium-ion battery system solution adopts the modular parallel design, Safe, smart and simple, which can compatible with the full range of Kehua UPS, with power ranging from 6kW to 1200kW.

Safe

- **Electrical and physical double isolation**
 - Reduces the fault scope to an effective space without diffusion
 - Port zero voltage, no risk of short circuit shock
- **Two-level fire linkage**
 - Module fire protection
 - Can quickly, accurately and effectively detect and extinguish the fire source will extinguish the fire in the initial stage
- **Failure module exit automatically**
 - Modular parallel design, failure module exit automatically, will not affect the system. Other modules can work normally. Improve the reliability



Concerted operation with modular parallels

Smart

- **Module design, plug and play**
 - 5mins maintenance, reduce the OPEX cost
- **Flexible for expansion**
 - Module design, can expand the capacity of modules or cabinets.
 - Reduce the CAPEX cost
- **Smart battery test**
 - Parallel design, the battery can test the capacity Separately. No need to cut off the power supply, improve the reliability



Module-level expansion with fine granularity

Simple

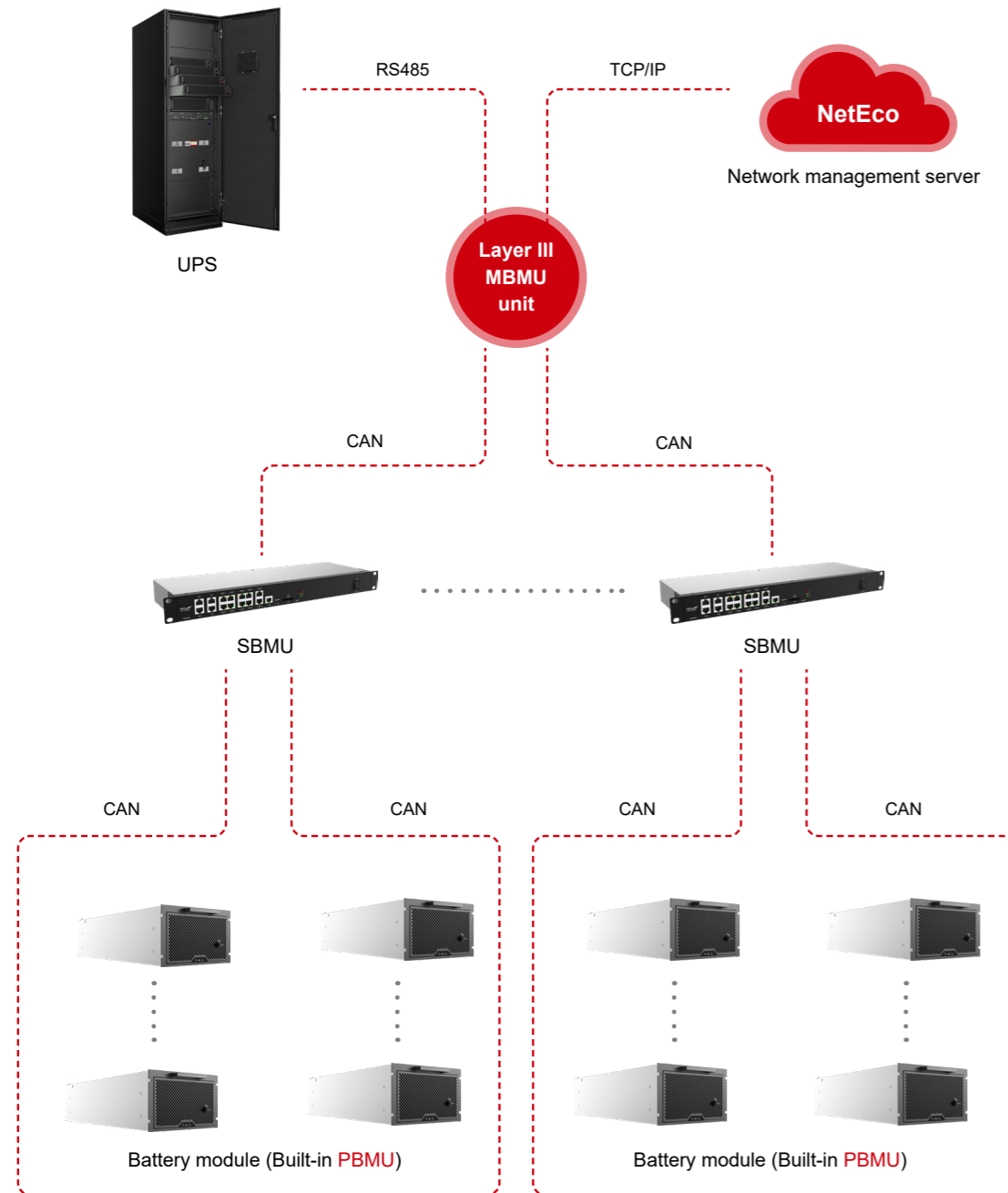
- **Intelligent current equalization**
 - Can be used with new and old batteries
 - Can be used with lithium-ion batteries from different suppliers
- **Intelligent voltage equalization**
 - Intelligent voltage equalization module, no barrel effect
 - Prolong the backup time, improve battery utilization
- **Fault recording, early warning**
 - Fault recording, early warning, accurate and quick fault location, reduce the OPEX cost
- **Adaptive SOC management**
 - Intelligent charge and discharge management, avoid over charge and over discharge
 - Detects the battery internal temperature. Improve the safety and reduce the OPEX cost



More flexible mixing of old and new batteries

Featured Three-layer BMS Architecture

The adopted three-layer BMS architecture (PBMU/SBMU/MBMU) ensures the reliability of lithium-ion battery system from cell, module and system layers.



Battery Configuration Table

1. 40Ah battery module for short time power backup

Meeting the required backup time according to the initial capacity

UPS capacity (kW)	12min (initial)		25min (initial)	
	Cabinet	Battery module	Cabinet	Battery module
≤60	1	6	1	12
≤80	1	8	1	16
≤100	1	10	1	20
≤200	1	20	2	40
≤300	2	30	3	60
≤400	2	40	4	80
≤500	3	50	5	100
≤600	3	60	6	120
≤800	4	80	8	160

Remark: This configuration is calculated with theoretical values, and the actual configuration needs 10% margin: Actual backup time = theoretical backup time * 0.9

2. 50Ah battery module for short time power backup

Meeting the required backup time according to the initial capacity

UPS capacity (kW)	15min (initial)		30min (initial)	
	Cabinet	Battery module	Cabinet	Battery module
≤60	1	6	1	12
≤80	1	8	1	16
≤100	1	10	1	20
≤200	1	20	2	40
≤300	2	30	3	60
≤400	2	40	4	80
≤500	3	50	5	100
≤600	3	60	6	120
≤800	4	80	8	160

Remark: This configuration is calculated with theoretical values, and the actual configuration needs 10% margin: Actual backup time = theoretical backup time * 0.9

3. 100Ah battery module for long time power backup

Meeting the required backup time according to the initial capacity

UPS capacity (kW)	1h (initial)		2h (initial)		4h (initial)	
	Cabinet	Battery module	Cabinet	Battery module	Cabinet	Battery module
≤6	1	1	1	2	1	4
≤10	1	2	1	4	1	8
≤15	1	3	1	6	2	12
≤20	1	4	1	8	2	16
≤40	1	8	2	16	/	/

Remark: This configuration is calculated with theoretical values, and the actual configuration needs 10% margin: Actual backup time = theoretical backup time * 0.9

Technical parameters

Battery Cell	40Ah	50Ah	100Ah
Type	LFP		
Dimensions (mm)	27.0×148.5×133.0		50.5×160.3×120.0
Weight (kG)	1.01±0.1	1.11±0.1	1.95±0.1
Rated capacity (Ah)	40	50	100
Discharge rate (C)	6	4	1
Charge rate (C)	1	1	0.5
Rated voltage (V)	3.2		
Cycle life	5,000 times (@50% DOD)		
Battery Pack	S3M040-6C-240-X	S3M050-4C-240-X	S3M100-1C-240-X
Battery rated voltage (V)	57.6		
Battery capacity (Ah)	40	40	100
Max. energy (kWh)	2.3	2.3	5.7
DC/DC rated output voltage (V)	240*2 (In series or parallel)		
DC/DC rated output power (kW)	10		5
Dimensions (W*D*H) (mm)	223×665×153		440×665×132
Weight (kG)	36±2	38±2	50±2
Battery Cabinet	S3C040-6C-20-MX	S3C050-4C-20-MX	S3C100-1C-10-MX
Battery max energy (kWh)	46	58	69
Rated output voltage (V)	240/±240/480		
System rated output power (kW)	200		60
Number of battery modules	20		12
Current-unbalance	≤5%		
SOC accuracy	≥95%		
Communication	RS485, CAN, TCP/IP and dry contact		
Working temperature (°C)	0~40 (+15~+30 recommended)		
Altitude (m)	0~4000m, above 2000m derate		
Dimensions (W*D*H) (mm)	600×860×2000		
Weight (kG)	960±10	1000±10	860±10
Maximum number of paralleled cabinets	8		
Optional	Distribution cabinet, Fire edge cabinet, IT rear frame		
Self-discharge rate	≤3% (0-30°C/1 month)		

- Specifications are subject to change without notice;

Reliable • Flexible • Responsible

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