ANRI POWER LIMITED

POWERING THE GREEN FUTURE.

Energy Storage System Solution Provider

Anri Power Limited

No. 1588, Maixin Road, Songjiang District, Shanghai, China

info@anripower.com

+86 189 0192 7816

http://www.anripower.com

ANPL

Powering the Green Future.

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About Us

About ANPL

Powering the green future.

ANRI POWER Co., Ltd. (ANPL) specializes in the research and development, production, integration and application of lithium battery energy storage systems. ANPL provides comprehensive energy storage products, including batteries, BMS, EMS, TMS, and PCS, and also supports various system solutions for commercial & industrial, residential, and UPS backup energy. Through independent R&D of smart energy management systems and liquid cooling technology, ANPL dedicated to pushing the boundaries of energy storage products to a higher level of reliability, efficiency and sustainability.

Our headquarter in Shanghai, China, as well as offices in APAC and Europe, enable us to deliver innovative and comprehensive energy storage solutions to clients worldwide.

About KALE

Create excellent products and provide quality service.

Founded in 2010, Kale Environmental Technology Co., Ltd. (stock code: 301070) is one of the leading company in the HVLS fan industry. We've been specializing in manufacture of advanced HVLS FANS for 12+ years. Through constant innovation, Kale Fans has taken a leading position in the global market and served 10,000+ customers including 100+ Fortune Global 500 in worldwide.

Kale Group is committed to provide overall intelligent solution for green industry including HVLS fans, distributed solar power farm, energy storage solution and smart power control system. Kale Group leverages its advantages in technology innovation as well as localized operation and maintenance, which facilitates the rapid development of ANPL.

Global Business

KALE's products are exported to more than 80 countries and regions in Asia, America, Africa and Europe.


SHANGHAI HEADQUARTER


ZHEJIANG PRODUCTION BASE II


INDIA PRODUCTION BASE

MEXICO PRODUCTION BASE

R&D Strength

The temperature control technology and intelligence level are the most critical factors that determine the safety and LCOE of energy storage. Through independent R&D and cooperation with industry-leading suppliers, ANPL has mastered the **All-in-one** design concept of「BMS, EMS, TMS, and PCS」full system integration.

Modular design

High level of standardization and modularization

Easy production, installation and management

Composable and replaceable energy units

Self-developed EMS

Intelligent control of charging and discharging

Real-time tracking of energy consumption

Grid loads for both users and the power grid

Self-developed BMS

Adjustment of the capacity differences

Predictive analysis of battery performance

Extending the lifespan of the battery

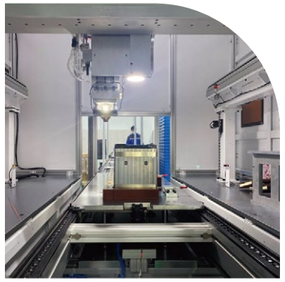
Proactive alerts reporting

Self-developed TMS

Liquid cooling system for all units

Precise temperature contral

Long-lasting stability

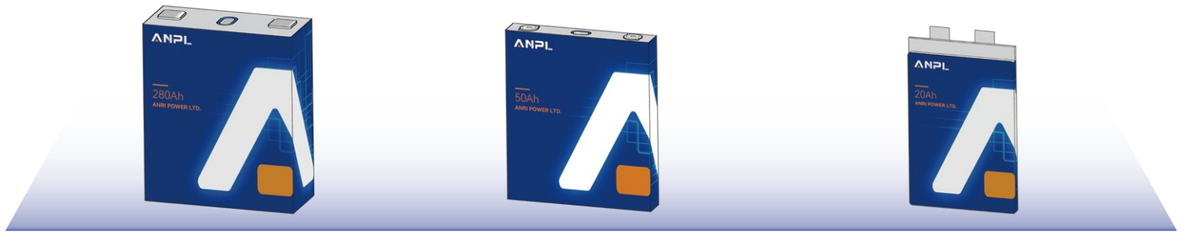


Manufacture Capability

Our production bases have comprehensive battery production lines with advanced industrial equipment including withstand voltage tester, laser welding machine and internal resistance meter. Multiple tests have been taken in the process of turning batteries into modules, packs and the final products to ensure absolute safety. Cutting-edge equipment and rigorous testing process guarantee the quality of the products.

2.
Products

Batteries

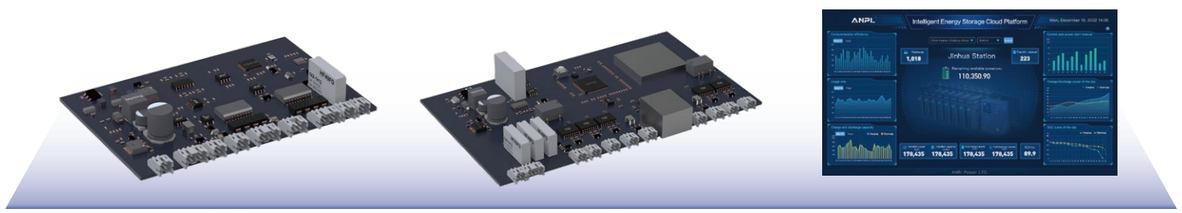


280Ah 50Ah 20Ah

Energy Storage System

ANPL-HULK SERIES ANPL-HKU SERIES ANPL-HKHM SERIES

Intellectual Control System



BMS EMS ANPL-CLOUD

ANPL-HULK-233kWh

LIQUID COOLING ENERGY STORAGE SYSTEM

Large capacity

Advanced LFP battery

Stand-alone capacity of 233kWh

Expandable to MWh

Intellectual management

Self-developed **BMS** & **EMS**

Smart **ANPL-CLOUD**

High security

Full liquid cooling heat dissipation

Four-level fire protection

Integrated design

Modularized production

Simple installation and O&M

Economic value

Longer life span from liquid cooling

More profit from larger capacity

Multi-scenario application

Full power operation from -30℃ to 60℃

Parallel use of multiple units

Quadruple protection for safety

Cell safety

All-round thermal insulation pad (Aerogel)

Pack safety

Stand-alone fire protection module

System safety

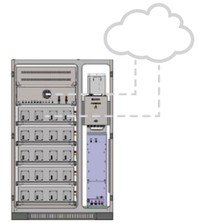
System-level stand-alone fire protection module

Cloud monitoring

Real-time data for each cell

Remote monitoring of SOH

Predictive diagnosis of risks



Superior liquid cooling

Air cooling

Tempreture rise of cell: 10-15℃

Tempreture difference between cells: 6-8℃

Set tempreture for system to startup: 30℃

Maximum tempreture when cell is operating: 40-50℃

Liquid cooling

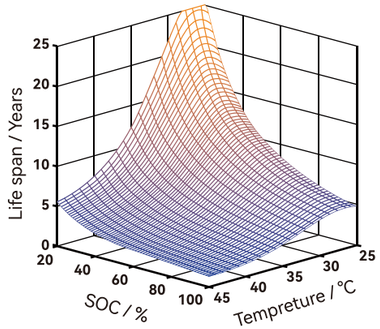
Tempreture rise of cell: **5-8℃**

Tempreture difference between cells: **2-3℃**

Set tempreture for system to startup: **18-19℃**

Maximum tempreture when cell is operating: **20-30℃**

In addition to **higher heat dissipation efficiency**, liquid cooling also has the advantages of **wider working temperature range, wider voltage range** and **easier O&M**. Since precise temperature control can greatly improve the service life of the battery, the long-term ROI of liquid cooling is obviously higher.

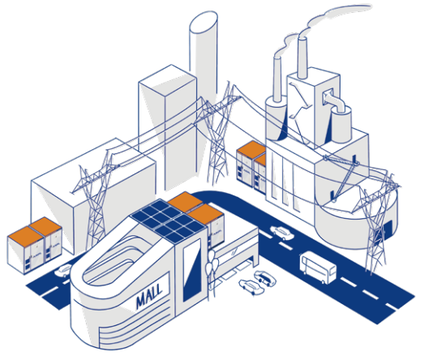


Experiments shows that inaccurate thermal control in long term may cut the actual service life of batteries in half.

Application Scenarios

Industrial & Commercial ESS

- Peak-valley arbitrage
- Mitigate the variable availability of renewables
- Provide reliable backup power during emergencies
- Assist with load management



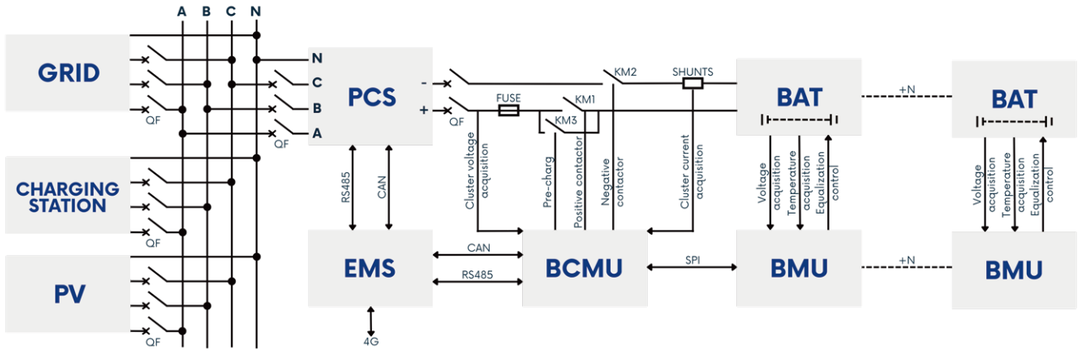
PV Storage & EV Charging

- PV generation for self-use
- Supporting dynamic transformer expansion
- Save electicity bill
- Reduces dependence on the grid

Microgrid

- Flexible and reliable power supply
- Integration of distributed clean energy
- Local climate resilience
- Affordable energy for remote area

Topology diagram



Technical Parametres

Grid Side(On/Off Grid)

Grid Voltage Range	AC380V (-15%~+10%)
Grid Frequency Range	50Hz/60Hz±5Hz
AC Mode	3-phase 4-wire (with zero wire N)
Isolation Mode	No isolation connected to the grid
Maximum Charge/Discharge Power	110kW/AC, 120KW(1min) ,130kW(1S)
Charge/Discharge Switching time	< 20ms

Battery Terminal

Battery Type	Lithium-ion Battery (LFP)
Normal Capacity	233kWh
Rated Voltage	DC 832V
Voltage Range	DC 728V~DC 936V
Maximum Discharge Capacity	DOD 95%
Maximum charge/discharge current	151A (0.5P)
Rated charge/discharge power	110KW
Cycle life	8000 70%

System Efficiency Function

System Max Efficiency	>90%
Charge Max Efficiency	>98%
Discharge Max Efficiency	>98%

Overall Parameters

System Cabinet Dimension (W x D x H)	1400*1350*2200mm
Weight	≤2500kg
Working Altitude	3000m(100% AC Output)
Cooling concept of battery chamber	All Liquid cooling(Battery+PCS)
Protection Class	≥IP65
Standard	IEC62619, IEC63056:2000, IEC61000-6-2&-6-4, IEC624777-1, UN38.3

ANPL-HULK-SERIES

LIQUID COOLING BATTERY CABINET SYSTEM

ANPL HULK SERIES provide two solutions: ESS and BESS according to various needs of different scenarios. In addition to the 233kWh All-in-one energy storage system, we also offer the option of a DC-side battery cabinet system. This battery cabinet contains battery packs, liquid cooler, BMS and high-voltage controller, which can be adapted to different PCS. The modular design of this product enables flexible capacity from 183kWh to 372kWh.

Flexible capacity

Opitional capacity from 4~8 packs

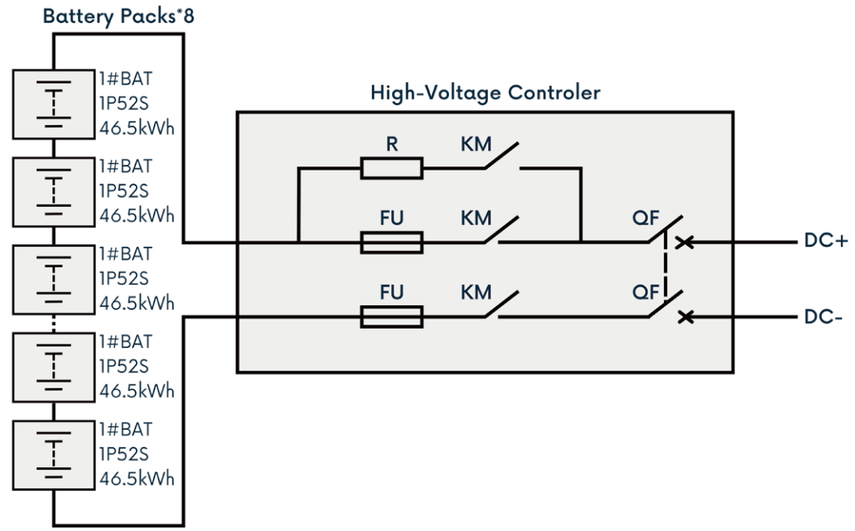
Support voltage from 665.6V~1331.2V

Adapted to various PCS

Communication system compatibility

（CAN, Modbus, TCP/IP, RS485）

Topology diagram



Technical Parametres

Model	HULK-A4	HULK-A5	HULK-A6	HULK-A7	HULK-A8
Rack Configuration	1P52S*4	1P52S*5	1P52S*6	1P52S*7	1P52S*8
Rated capacity [Ah]	280	280	280	280	280
Rated voltage [V]	665.6	832	998.4	1164.8	1331.2
Rated energy [kWh]	183.3	233	279.6	326.2	372.7
Weight [kg]	1930	2250	2520	2840	3160
IP Level	IP65				
Dimensions [mm]	1300*1300*2280 [L*W*H]				

ANPL-HKU-SERIES

UPS BACKUP ENERGY

High security

Advanced cell design enables thermal stability

Proactive BMS monitor and control

Preventing short circuit breakers

High reliablity

Auxiliary power available for black start

Minimized discharging temperature rise

Individual rack replaceable

Super flexibility

3-phase or 2-phase optional

Compatible with wide voltage range of 320-691V

Flexible configuration of 32.768-49.152kWh for individual rack

Intelligent management

Proactive balancing of the capacity difference

Supports maximum equalization rate of ±2A

Discharge efficiency

Discharge ratio ≥5C

Uninterrupted discharge

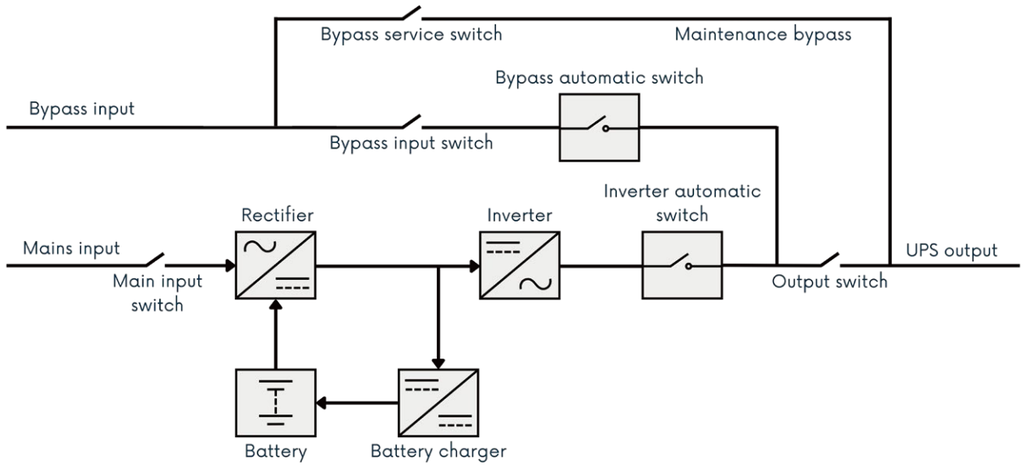
Application Scenarios

Bank　Hospital　Base station　Factory

Technical Parametres

Item	Cell	Pack	Rack (8/10/12 Packs)		
Configuration	/	4P16S	4P128S	4P160S	4P192S
Dimensions [mm]	46*145[D*L]	480*750*130[W*D*H]	600*900*2000[W*D*H]		
Weight [kg]	0.53	50	600	700	800
Rated voltage [V]	3.2	51.2	410	512	614
Voltage range [V]	2.5~3.6	40~57.6	320~461	400~576	480~691
Rated capacity [Ah]	20	80	80		
Rated energy [kWh]	0.064	4.096	32.768	40.96	49.152
Standard	IEC62619, IEC63056:2000, IEC61000-6-2&-6-4, IEC624777-1, UN38.3				

Topology diagram



ANPL-HKHM-SERIES

RESIDENTIAL ENERGY STORAGE

Efficient energy

High voltage

90%DoD

Expandable configuration

Easy installation

Longer life-cycle

Technical Parametres

MODEL	HKHM-A2	HKHM-A3	HKHM-A4	HKHM-A5	HKHM-A6	HKHM-A7
Electrical Characteristics						
Battery Type	LiFePO4 Prismatic Cell					
Battery Module	1*CM2800 1*CS2800	1*CM2800 2*CS2800	1*CM2800 3*CS2800	1*CM2800 4*CS2800	1*CM2800 5*CS2800	1*CM2800 6*CS2800
Nominal Capacity[Wh]	5530	8290	11060	13820	16590	19350
Nominal Voltage [V]	115.2	172.8	230.4	288	345.6	403.2
Operating Voltage[V]	104.4 ~ 132.4	156.6 ~ 198.7	208.8 ~ 264.9	261.0 ~ 331.2	313.2 ~ 397.4	365.4 ~ 463.6
Recommend Discharge Current [A]	24					
Max.Charge/Discharge Current [A]	48					
Peak Discharge Current [A]	65 @60sec					
Battery Pack Round-Trip Efficiency	>95					
Depth of discharge [%]	90					
Cycle Life*1	≥6000					
Communication	CAN					
Display	CS: LED*1, CM: LED*6					
Scalability	Max. 7 Modules in Series					
Operating Conditions						
Installation Location	Outdoor/ Indoor (Stand)					
Operating Temperature [℃]*2	Charge: 0 ~ 55 Discharge: -10 ~ 55					
Storage Temperature [℃]	-20 ~ 55					
Cooling method	Natural Convection					
Humidity [%]	5 ~ 95 (No Condensing)					
Altitude [m]	Max. 2,000					
Mechanical Characteristics						
Dimensions (W*H*D) [mm]	570*350*380	570*470*380	570*590*380	570*710*380	570*830*380	570*950*380
Weight [kg]	65±1	95.5±1.5	126±2	157±2.5	187±3	217±3.5
Certificates						
Safety	IEC 62619					
EMC	IEC 61000-6-1/2/3/4					
Transportation	UN38.3					
Ingress Protection	IP65					

3.
Projects

100kW/200kWh - Zhejiang Province, Transformer Capacity: 2000+1250kVA

200kW/466kWh - Zhejiang Provice, Transformer Capacity: 500+500+400kVA

100kW/233kWh - Zhejiang Provice, Transformer Capacity: 400kVA

100kW/233kWh - Zhejiang Provice, Transformer Capacity: 500kVA

2.8MW/6.24 MWh - Zhejiang Provice Industrial Park, Transformer Capacity: 10*2000kVA