TK solar systems

Email:tkopes@t-online.de

Provide customers with the best energy solutions

Energy Storage System Turn-key Solution

Production Status

Product classification

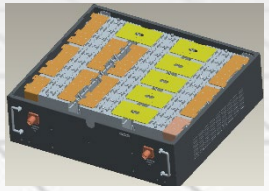
PCS

EMS,SCADA

RACK

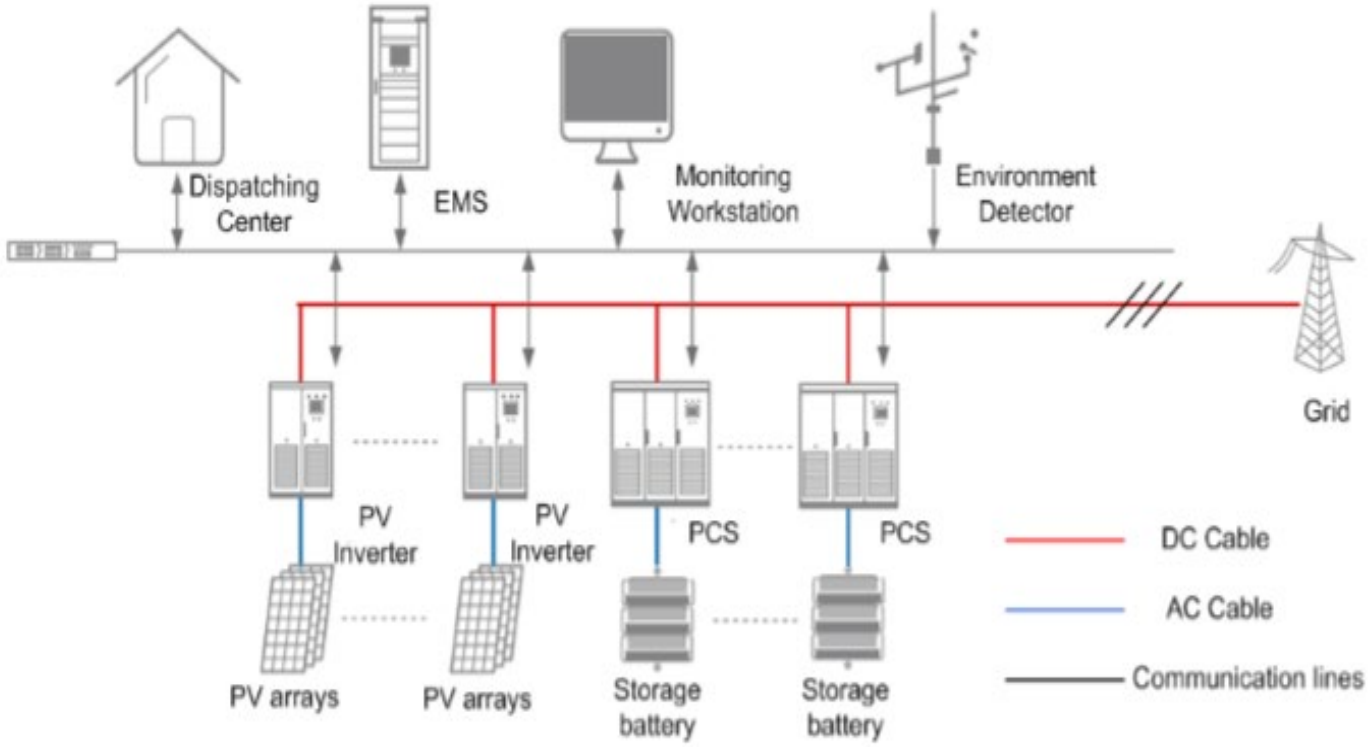
Cell

PACK



System Solution / Energy shifting

AC Bus Solution



Applications

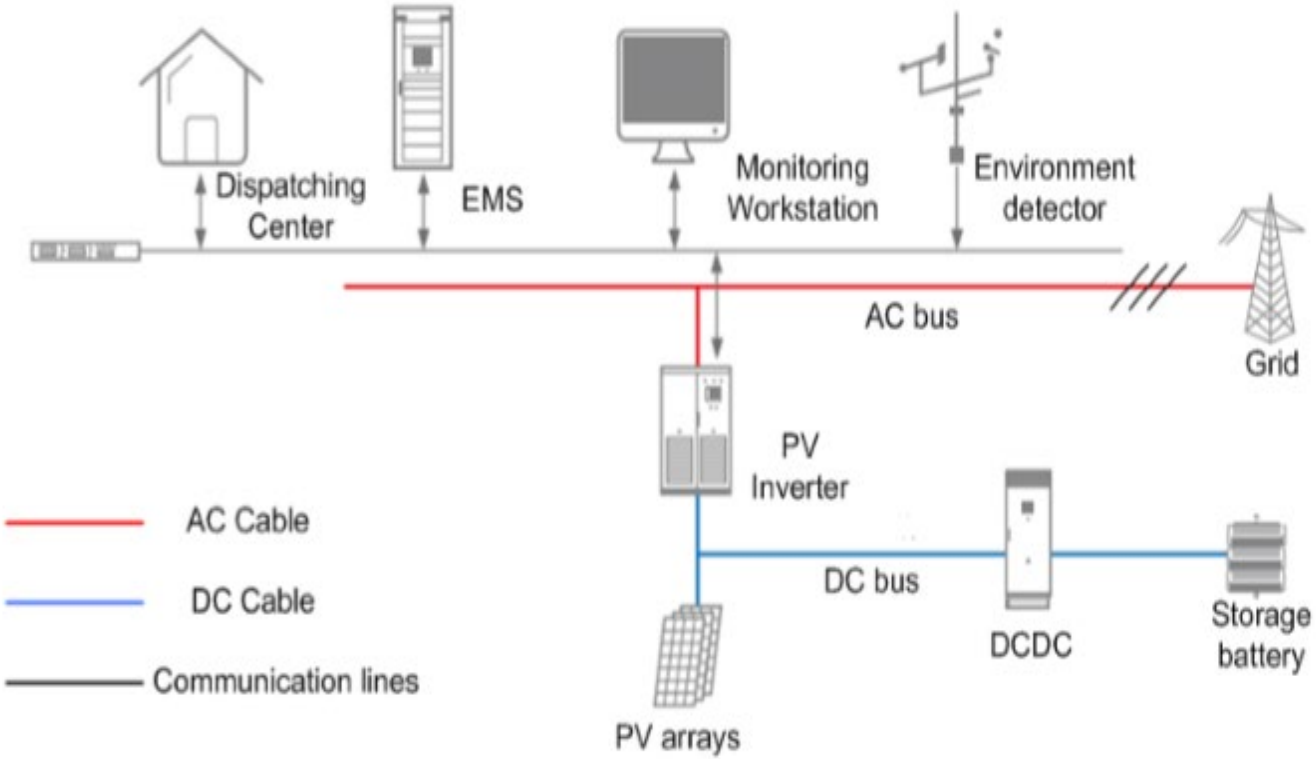
- Large-scale solar power plant
- Peak shifting in industrial/commercial
- Centralized charge and discharge

Features

- AC bus, centralized management
- Traceable dispatch schedule, improving on-grid controllability

System Solution / Energy shifting

DC Bus Solution



Applications

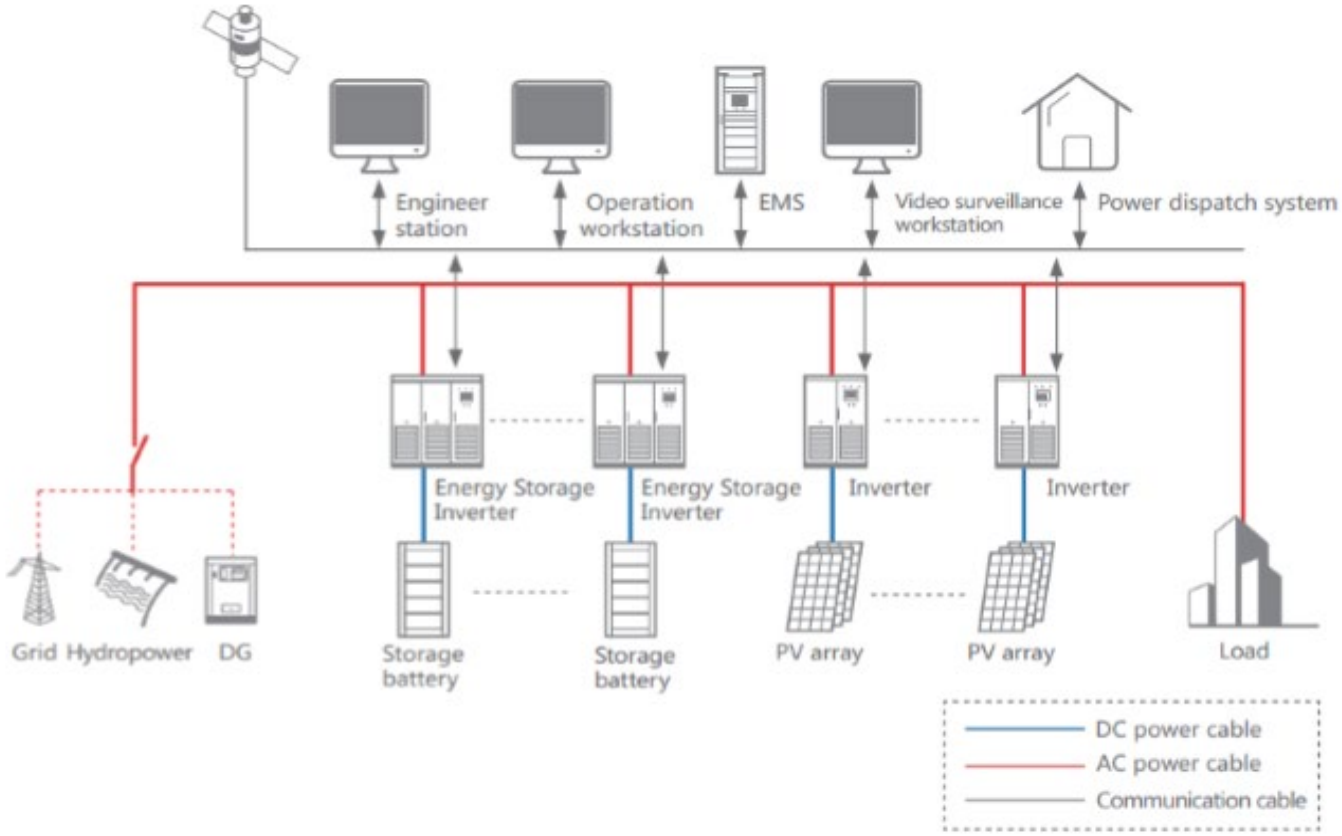
- Centralized solar power plant
- Centralized inverter system

Features

- DC bus, flexible configuration
- Convenient upgrade of solar power plant
- High efficiency, low ESS expense

System Solution / Micro-grid

AC Bus Solution



Applications

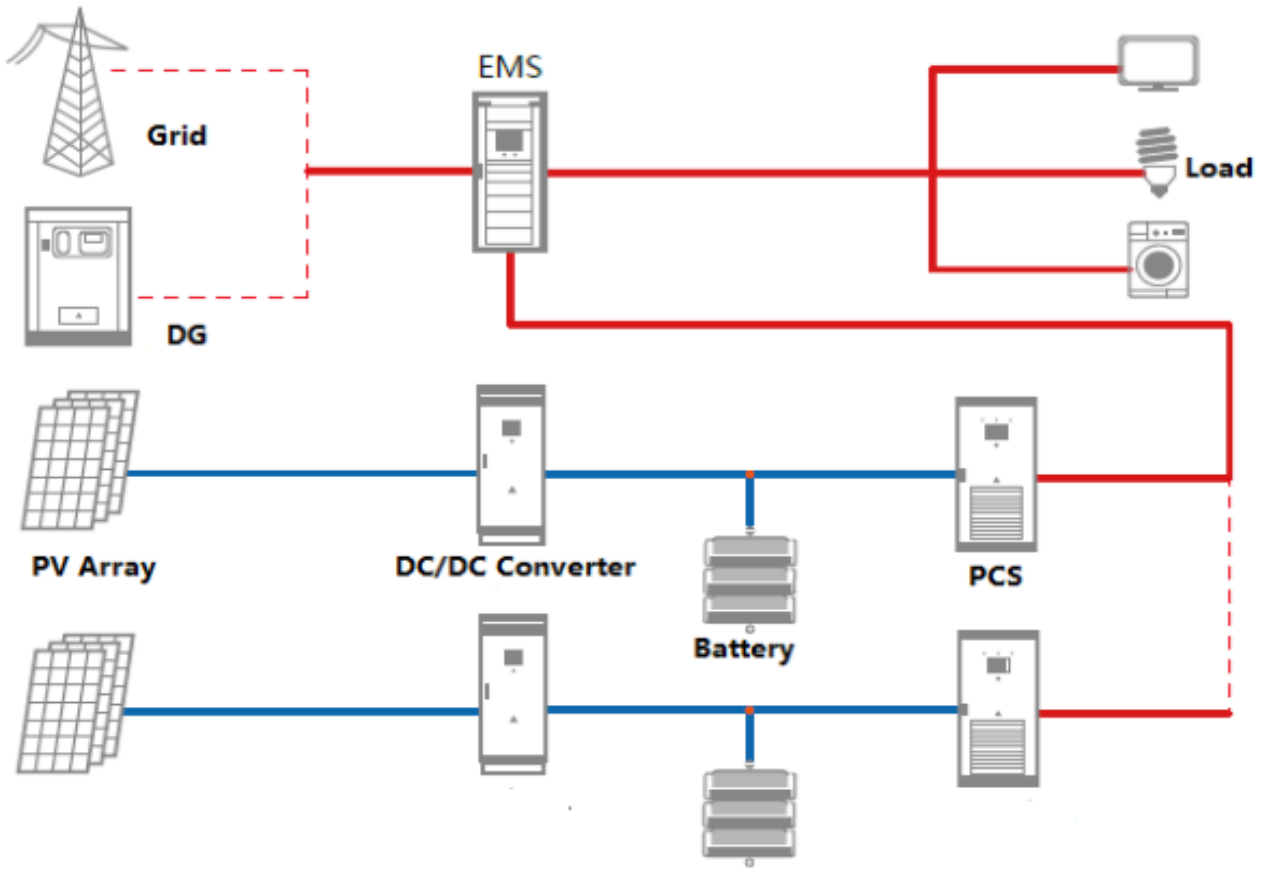
- Large-scale micro-grid in remote area without electricity
- Multiple power source, on-grid/off-grid mode

Features

- AC bus, centralized management
- High efficiency, flexibility, easy to integrate different renewable power sources
- Avoid update of transmission network

System Solution / Micro-grid

DC Bus Solution



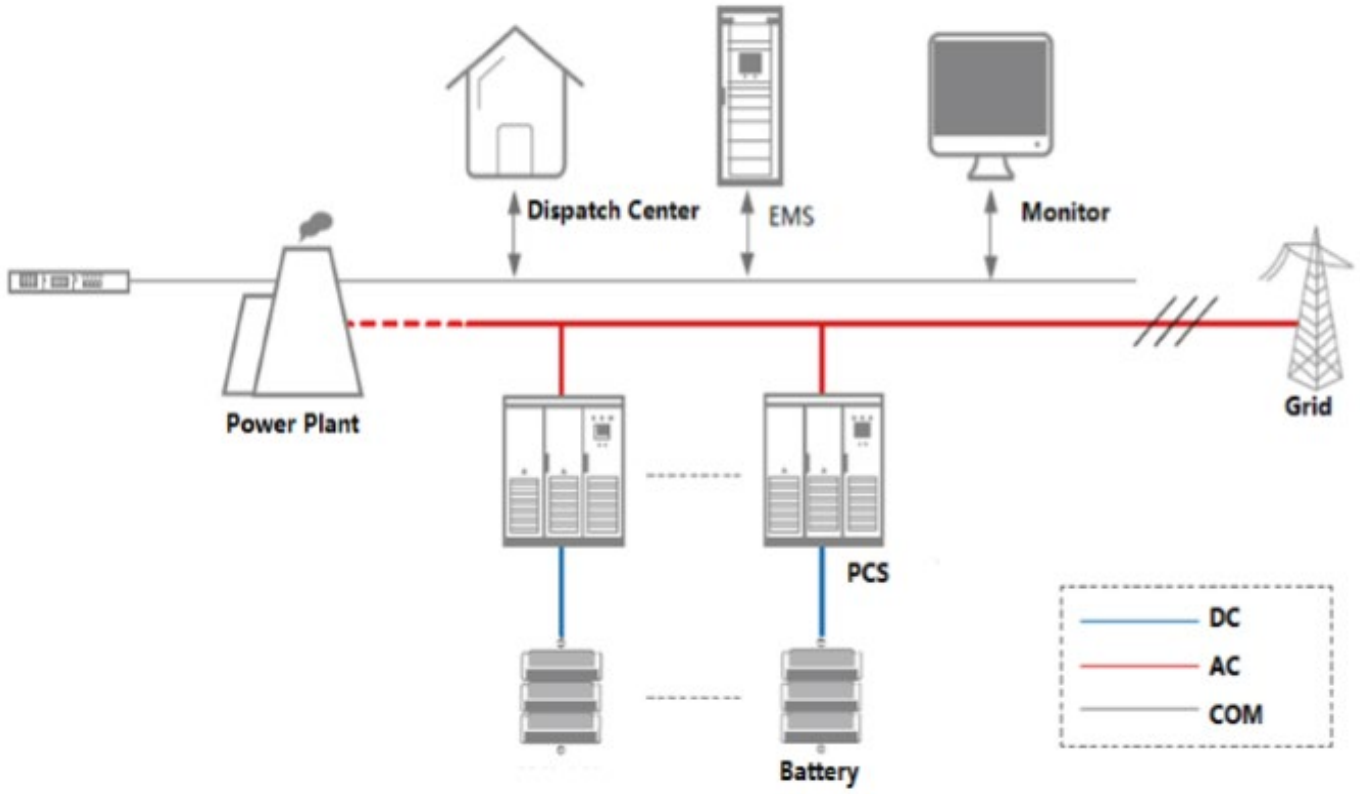
Applications

- Large-scale micro-grid in remote area without electricity
- Multiple power source, on-grid/off-grid mode
- MW level micro-grid

Features

- DC bus, flexible configuration
- Short switch time between on on-grid/off-grid mode

Frequency Regulation and Peak Load Cutting



Applications

- Cooperate with generator for primary & secondary frequency regulation
- Cooperate with generator for peak load cutting

Features

- Precise detection of frequency deviation
- Response time in ms, fast and precise response to AGC dispatch orders
- Improve grid frequency & voltage stability

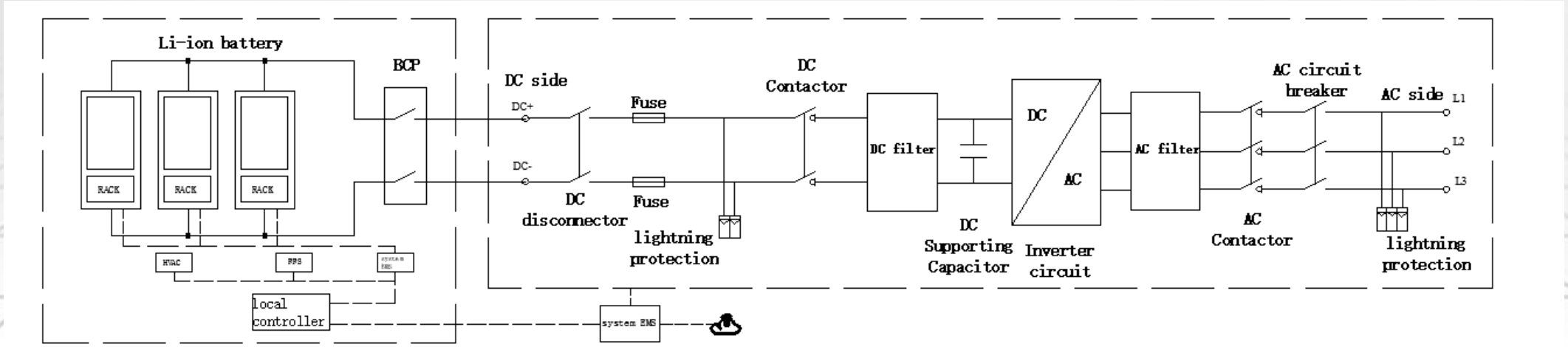
Production Status

Products & Service / System integration (250kW / 274kWh)

System Components

250kW PCS, 274kWh Li-ion Battery System
(Temperature control system, Fire fighting system, Battery control system)

- Frequency Regulation
- Grid Support
- UPS Function
- Peak Load Shifting
- Stabilize Voltage
- Cost-effective



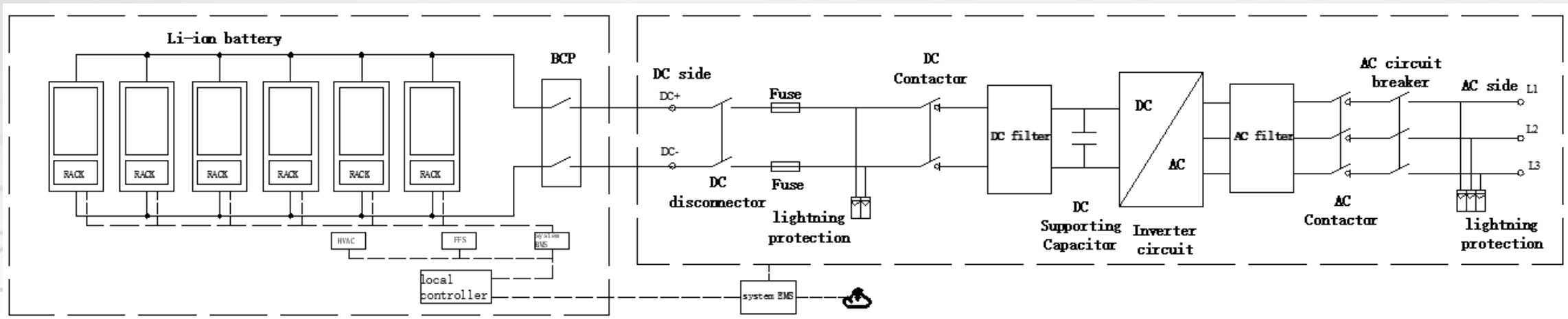
Production Status

Products & Service / System integration (250kW / 548kWh)

System Components

250kW PCS, 548kWh Li-ion Battery System
(Temperature control system, Fire fighting system, Battery control system)

- Frequency Regulation
- Grid Support
- UPS Function
- Peak Load Shifting
- Stabilize Voltage
- Cost-effective



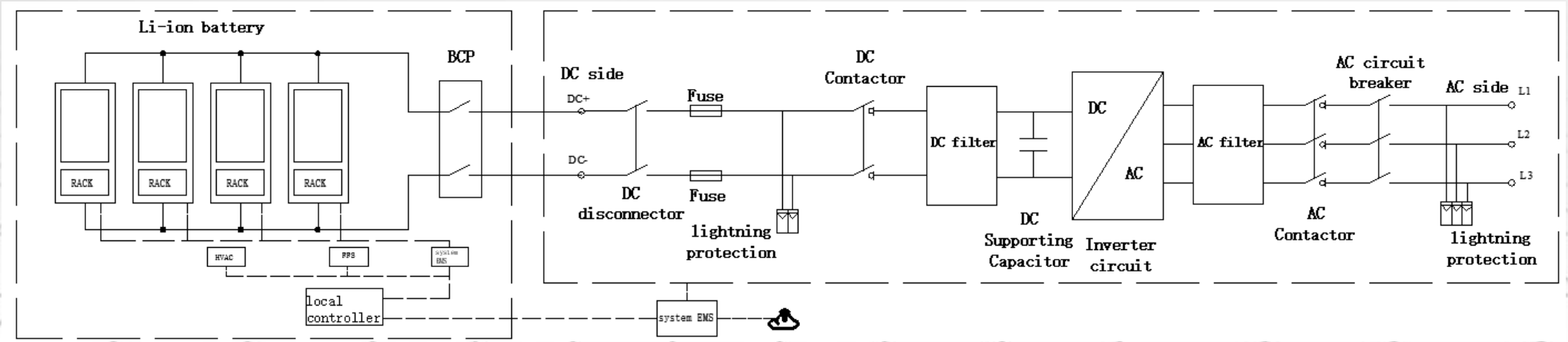
Production Status

Products & Service / System integration (500kW / 548kWh)

System Components

500kW PCS, 548kWh Li-ion Battery System
(Temperature control system, Fire fighting system, Battery control system)

- Frequency Regulation
- Grid Support
- UPS Function
- Peak Load Shifting
- Stabilize Voltage
- Cost-effective



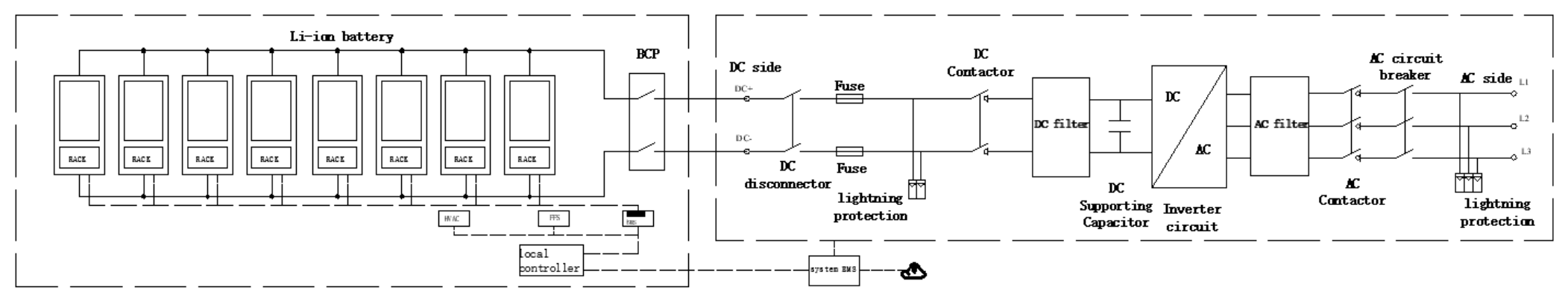
Production Status

Products & Service / System integration (500kW / 1048kWh)

System Components

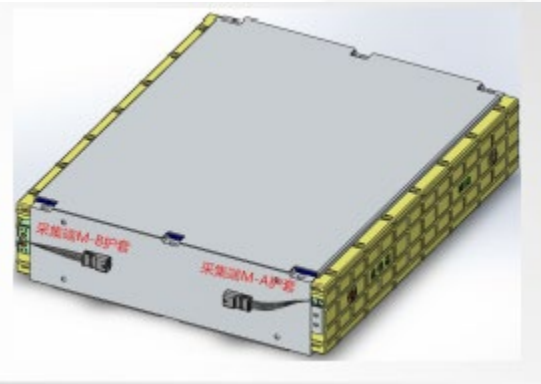
500kW PCS, 1048kWh Li-ion Battery System
(Temperature control system, Fire fighting system, Battery control system)

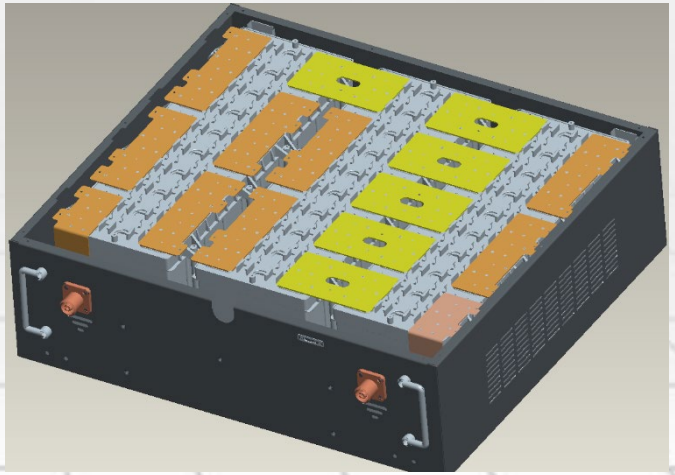
- Frequency Regulation
- Grid Support
- UPS Function
- Peak Load Shifting
- Stabilize Voltage
- Cost-effective

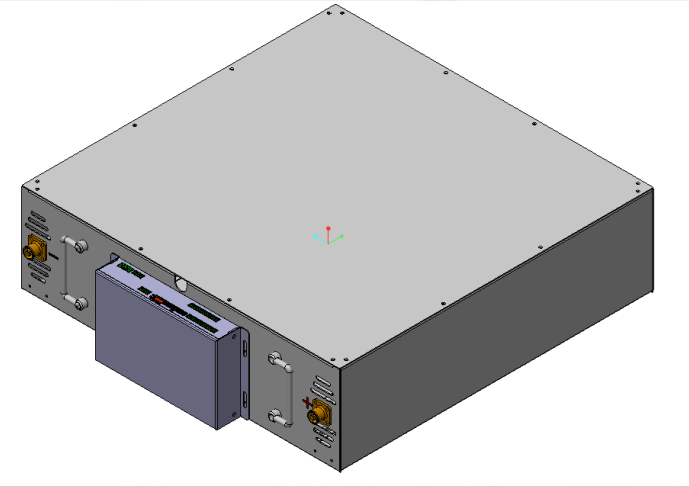


Production Status

Excellent structure for Li Battery cells

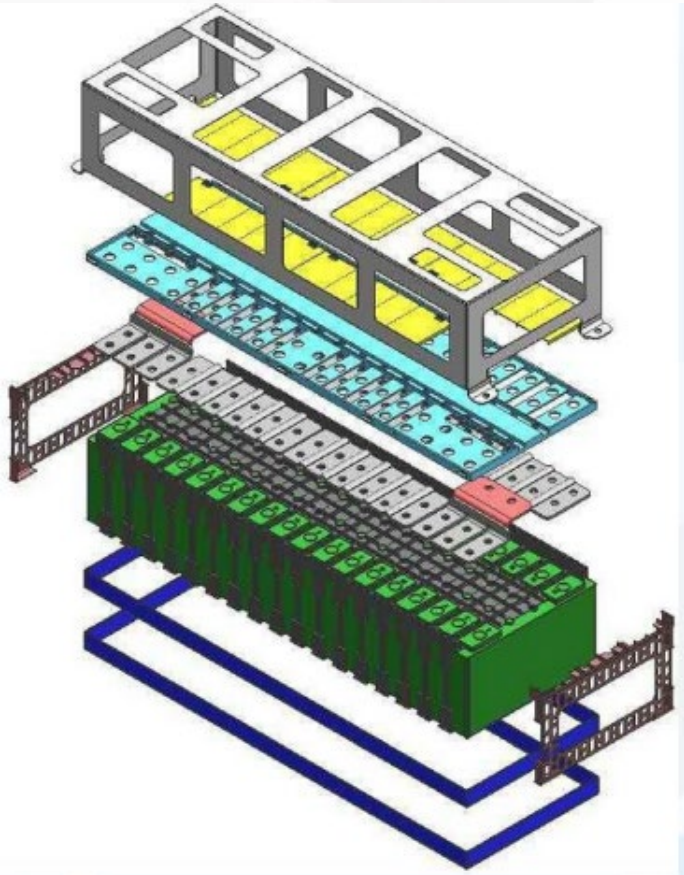


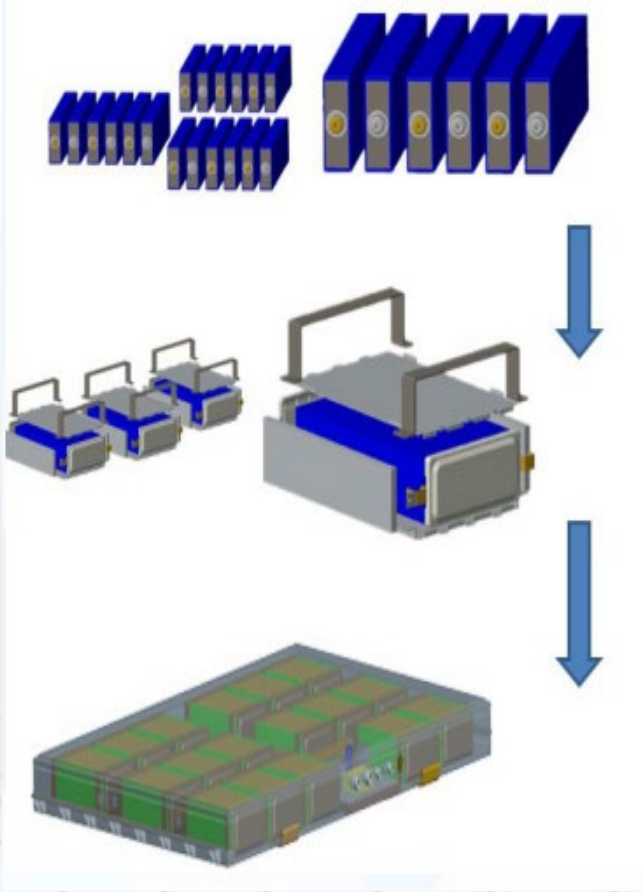


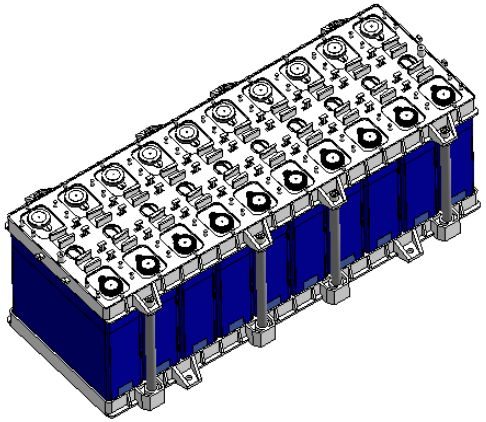


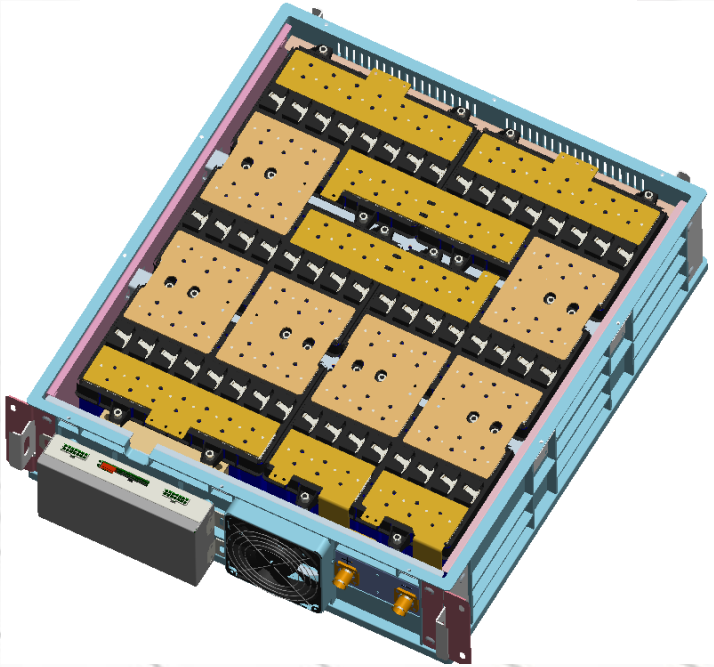
Production Status

Excellent structure for Li Battery cells



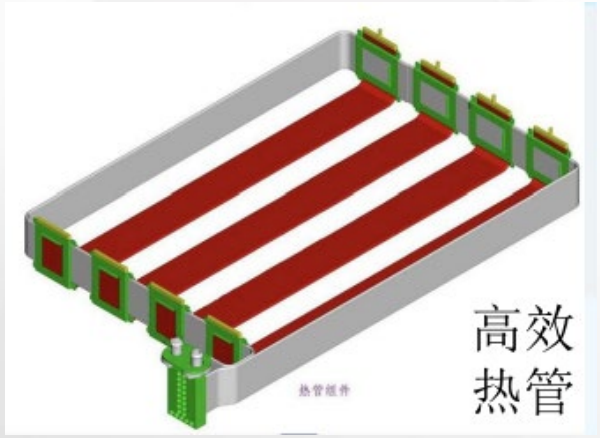




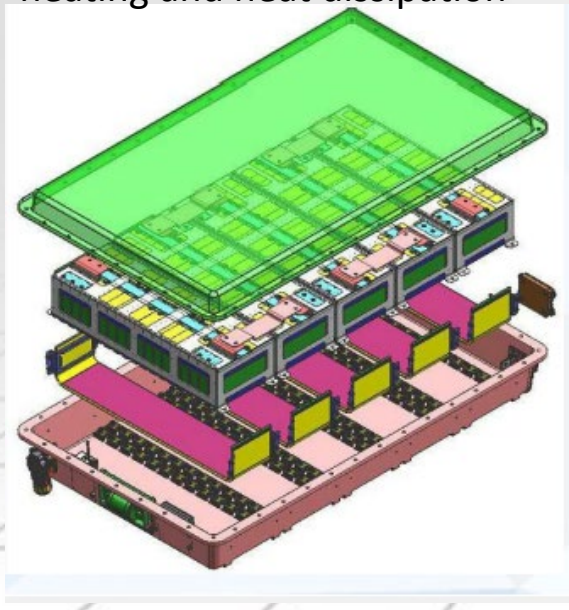


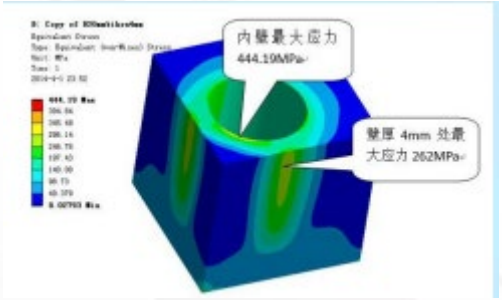
Production Status

Excellent structure for Li Battery cells

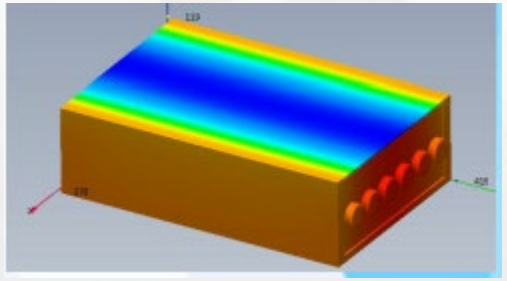


Integrated design of soaking, heating and heat dissipation

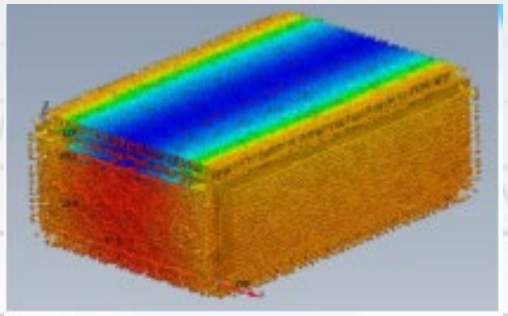




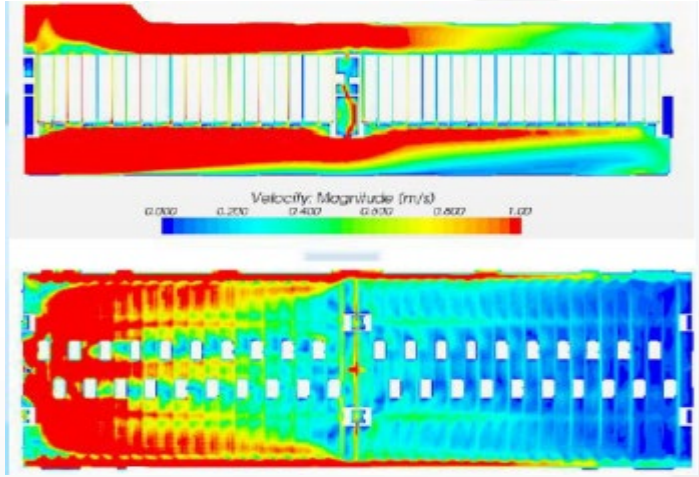
Stress Analysis of structure



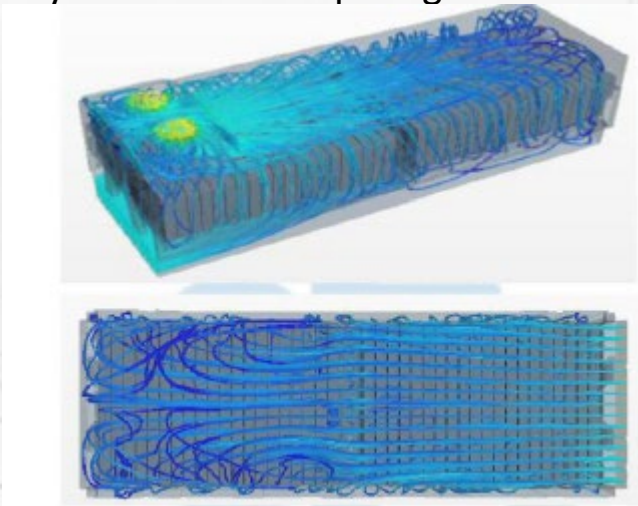
Heat dissipation analysis



Thermal Stress Analysis of PACK



Analysis of Heat Dissipating Wind Velocity

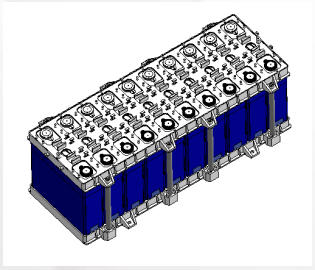


Analysis of Heat Dissipation Air Flow

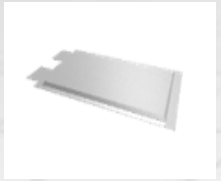
Production Status

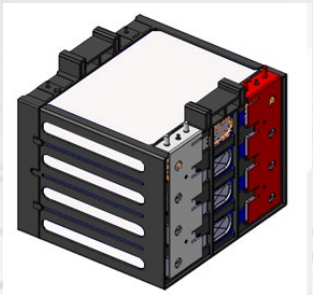
Excellent structure for Li Battery cells

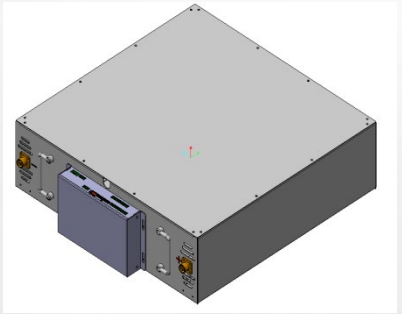
CELL



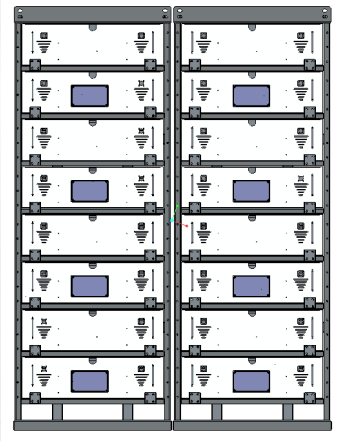
MODULE







PACK

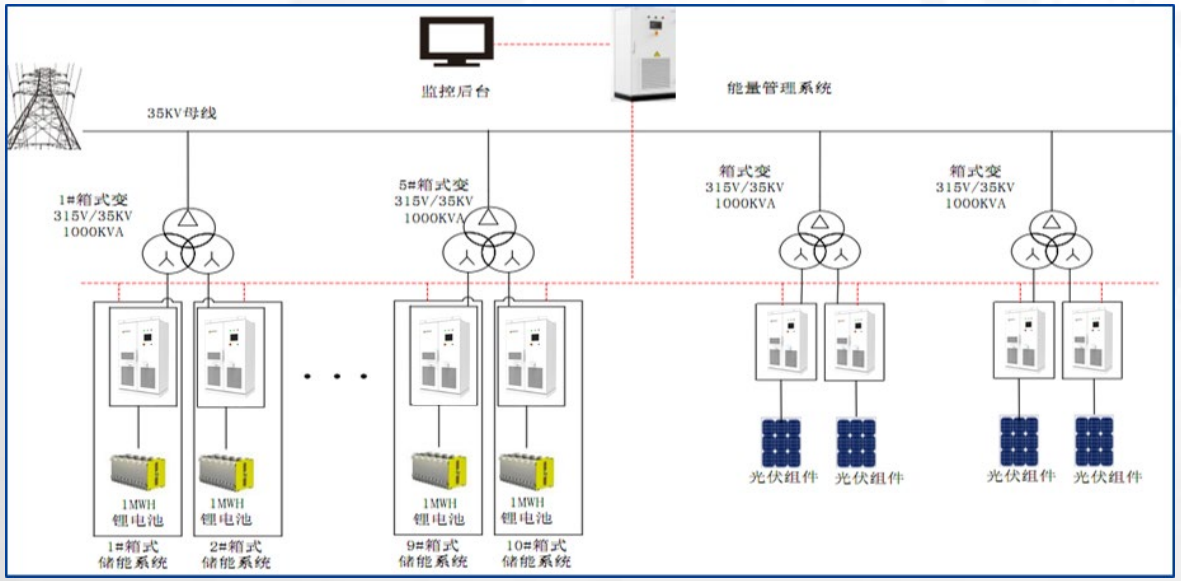


Cluster

Storage System

5MW/10MWh Large-scale Ground Energy Storage Project

Case Reference



Time: 2017

Composition: 5 MW PCS / 10 MWh Battery

Significance:

- Solution for PV power generation abandonment
- Smooth output
- Frequency regulation

500kW/1000kWh Energy Storage Project

Case Reference

Time: 2018

Composition: 500 KW PCS / 1000 KWh Battery

Significance:

- Peak load shifting for users

2MW/8.8MWh Energy Storage Project

Case Reference

Time: 2019

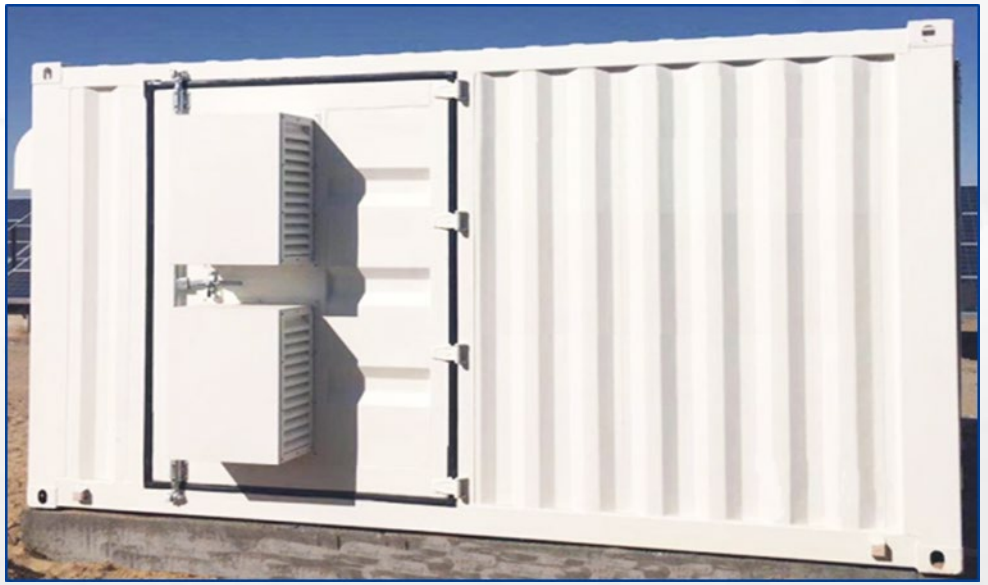
Significance:

- Peak load shifting for users

Composition: 2 MW PCS / 8.8 MWh Battery

DC/DC 100KW/500KWh Energy Storage Project

Case Reference



Time: 2019

Composition: 100 KW PCS / 500KWh Battery

Significance:

- Spontaneous use
- Solution for PV + Storage to realize good IRR

1.5MW/4MWh Energy Storage Project

Case Reference

Time: 2017

Composition: 1.5 MW PCS 4MWh Battery

Significance:

- Solution for PV + Storage to realize good IRR
- Frequency regulation
- Peak load shifting