



# Product presentation

## KAC50DP & BC100DE



Product presentation  
C&I ESS All in one machine  
KAC50DP & BC100DE

# KSTAR C&I ALL-IN-ONE ESS SOLUTION

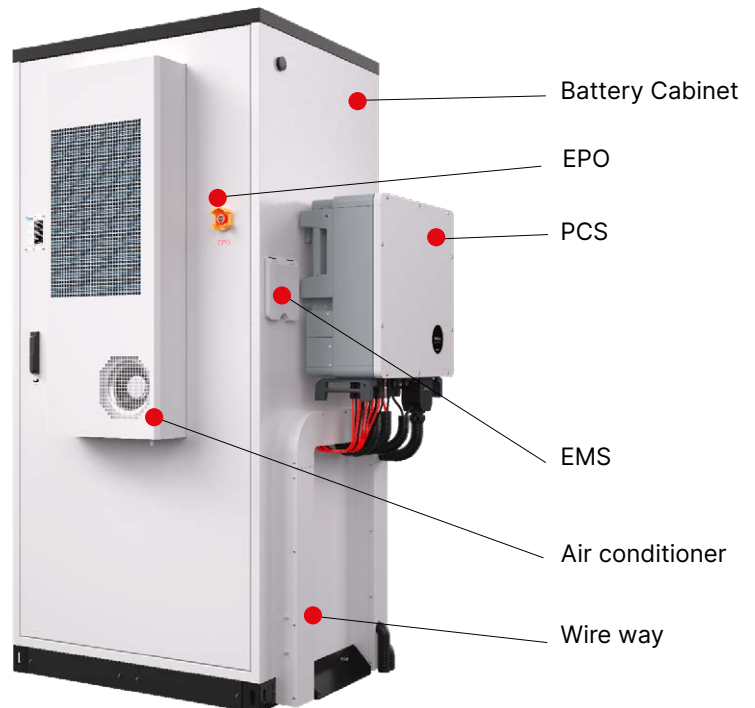
## HIGHLIGHTS:

### SAFE&RELIABLE

- CATL LFP battery cell
- Double fire suppression system design
- 1+1 redundancy design

### SIMPLE&USER-FRIENDLY

- Pre-installed in factory for easy installation on site
- Integrated EMS, suitable for various applications
- Effortless operation, cloud control



## SOLUTION DESCRIPTION

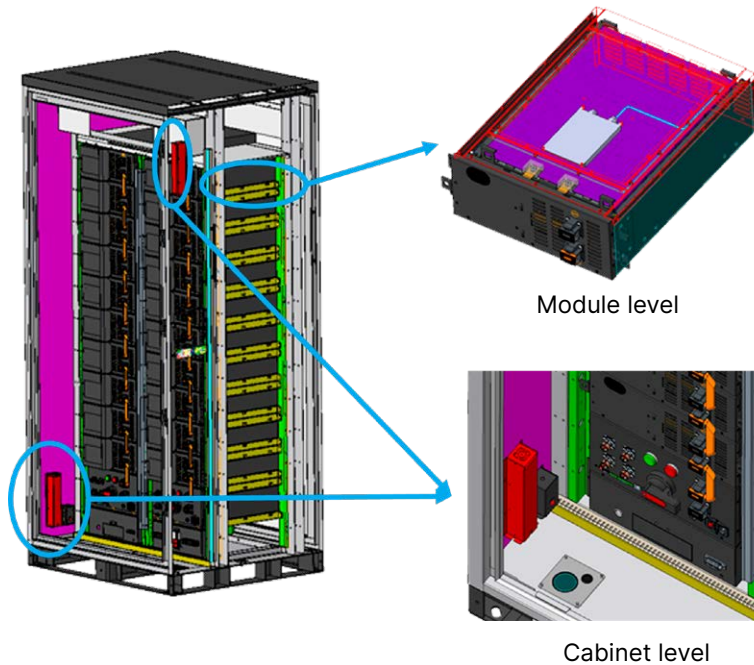


### BUILT-IN EMS WITH CLOUD CONTROL INTERFACE, FITTED WITH BMS OF 1+1 REDUNDANCY DESIGN

- 1+1 redundancy design
- Better cooperation between BMS and EMS
- Quicker response with less communication distance
- Attentive protection function
- User friendly EMS design with multiple work mode
- 7 inches EMS screen with simple operation
- More reliable communication with less risks of external affects
- Provide third party communication interface for upper level monitoring and control

## DOUBLE FIRE EXTINGUISHING SYSTEM

Automatic and fast response fire extinguishing system on both module and cabinet level



### MODULE LEVEL

- Each module is fitted with efficient, environmentally friendly aerosol that is released when sensor detects abnormal temperature to minimize fire effects.

### CABINET LEVEL

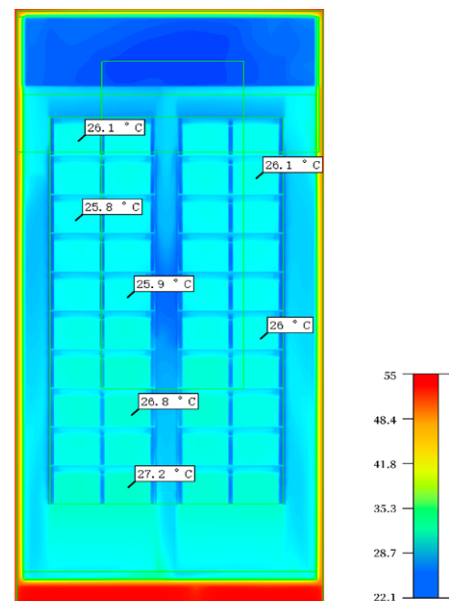
- The two corners of the battery cabinet are also placed in the aerosol, this dual fire extinguishing design makes the entire ESS safer.

## BUILT-IN HVAC SYSTEM

High efficiency temperature and humidity management system for batteries' better performance

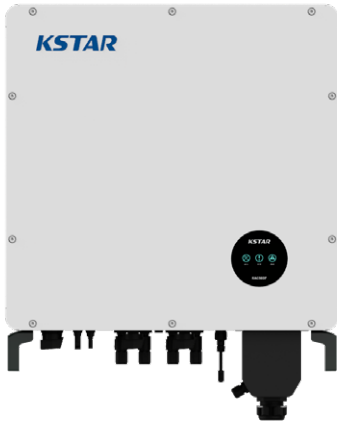


- Smart cooling with Tier 1 industrial air conditioning system
- Compact design with wall mounted
- Optimum wind path to ensure high cooling efficiency and low temperature difference(max. <math>< 5 \text{ }^\circ\text{C}</math>)
- Enclosed cabinet for better HVAC performance



## KAC50DP

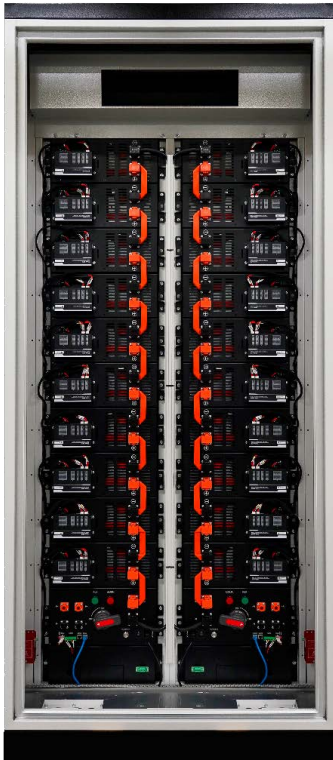
KSTAR 50kW modular hybrid power converter



PV Side	
Max. Input Voltage	1000V
MPPT Voltage Range	350V~800V
Max. Current per MPPT	36A
Number of MPPT	3
Number of Inputs Per MPPT	2
Battery Side	
Max. Input Voltage	750V
Min. Input Voltage	350V
DC Voltage at Nominal Operation	500V~750V
Max. DC Current	55A*2
Max. DC Input Power	55kW
Number of DC Inputs	2
AC Side(On Grid)	
Nominal AC Output Power	50kW
Max. AC Output Power	55kVA
Max. AC Current	80A
Nominal AC Voltage	400V
AC Voltage Range	50/60Hz±5Hz
Nom. Grid Frequency/Frequency Range	-1(Lagging)~1(Leading)
THDv	<3%(100% load)
Adjustable PF Range	340V~440V
Efficiency	
Max. Efficiency	97.5%
Protection	
Reverse Connection Protection	Yes
DC Switch	Yes
Over-Temperature Protection	Yes
Grid Monitoring/ Earthing Fault Detection	Yes
Insulation Monitoring	Yes
DC/AC Surge Protection	Yes
Reverse Connection Protection	DC Type II; AC Type III
General Parameters	
Dimensions(WxHxD)	650×715×325mm
Weight	75 kg
Topology	Transformerless
IP Protection	IP65
Operation Temperature Range	-25~60°C (>45°C Derating)
Operation Humidity Range	0~100% (No Condensing)
Cooling Method	Intelligent Air Cooling
Max. Operation Altitude	3000m
Communication Port	RS485/CAN
Standards	IEC62477; IEC61000; CE; GB/T; IEC62109; IEC61683; IEC60068; IEC61727; IEC62116; EN50549; VDE4105; G99

## BC100DE

KSTAR 100kWh outdoor battery cabinet



### Technical Parameters

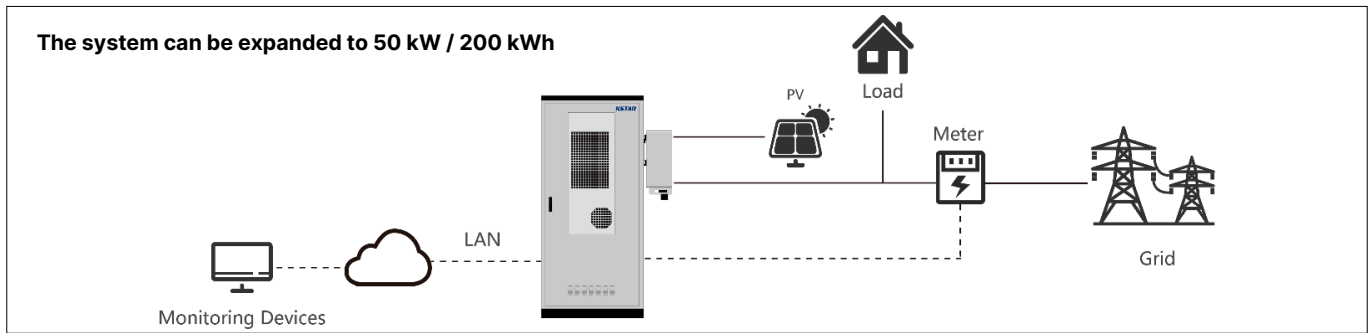
Battery type	LFP
Battery module capacity	5.12kWh
Number of modules	10*2
Total battery capacity	102.4kWh
Nominal voltage	512V
Operating voltage range	448V~565V
Charge/Discharge rate	Max. 0.5C
DoD	90%

### General Parameters

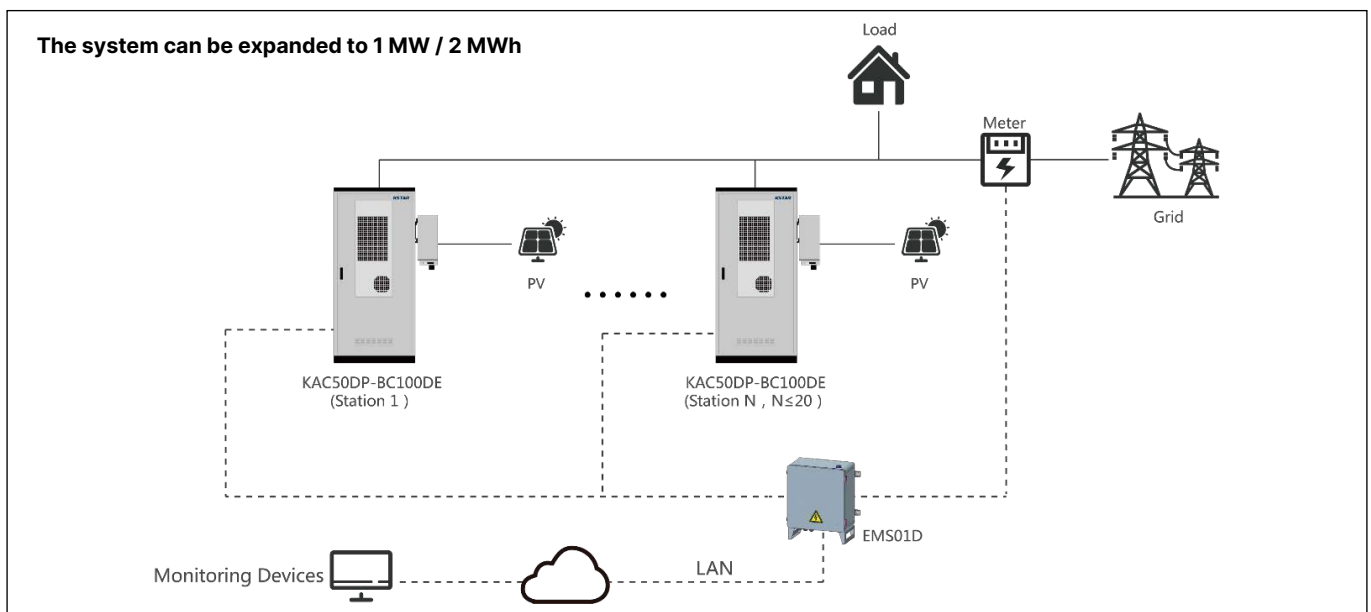
Dimensions(WxDxH)	1100 x 1100 x 2380 mm
Weight	< 1500 kg
Installation site	Outdoor
IP protection	IP54
Anti corrosion level	C4
Operation humidity	5%~95% (No condensing)
Operation temperature	-30°C~+50°C
Max. operation altitude	4000m (>3000m derating)
Communication port	Ethernet;CAN
Communication protocol	CAN;MODBUS TCP/IP
Cooling method	Air conditioner
Standards	IEC62619-2017; UN38.3; IEC61000-6-2/4



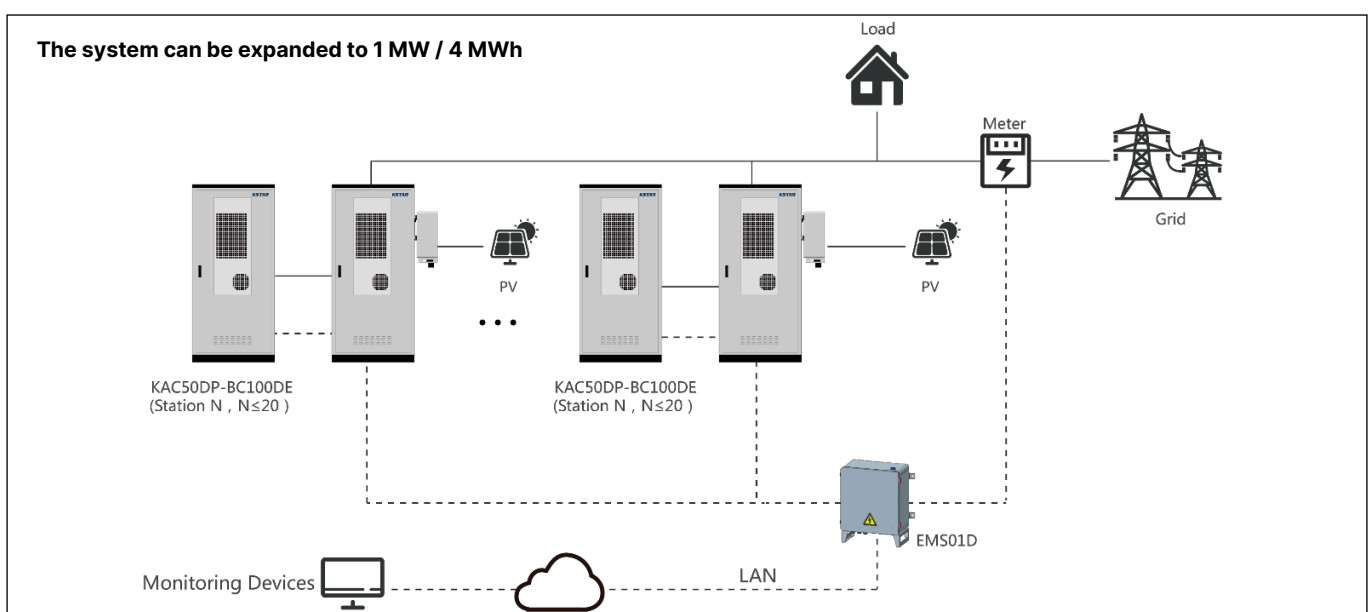
## Single PCS and single cabinet operation



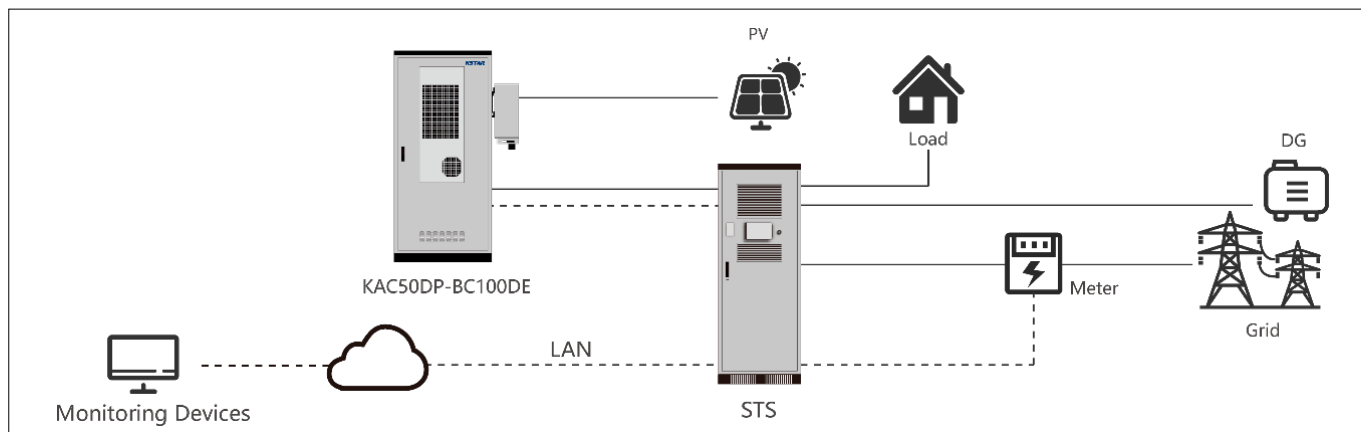
## Single PCS and single cabinet parallel operation



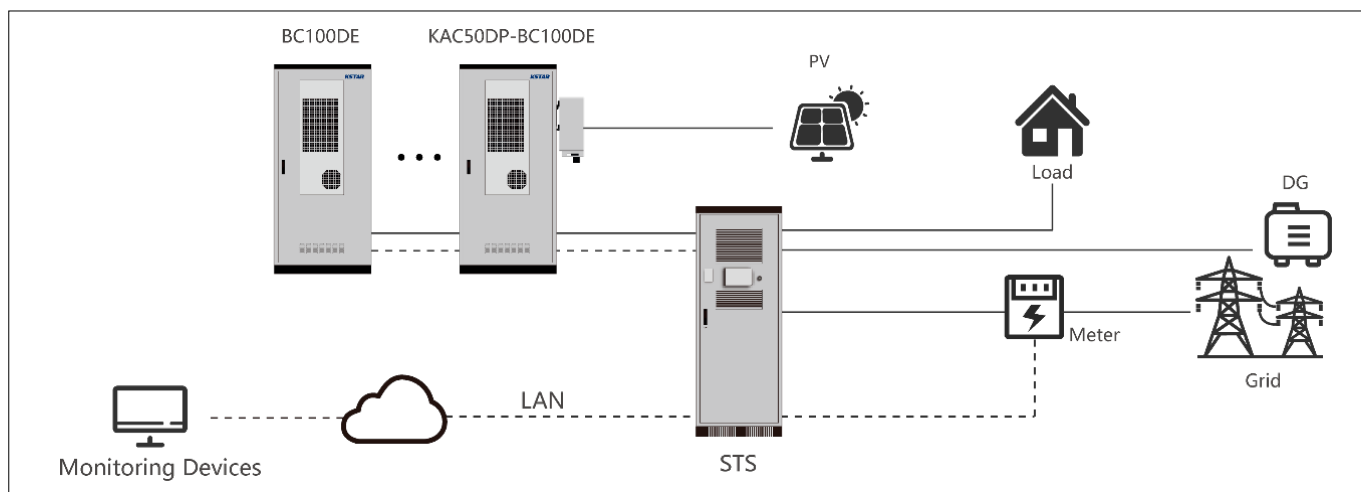
## Single PCS and double cabinet parallel operation



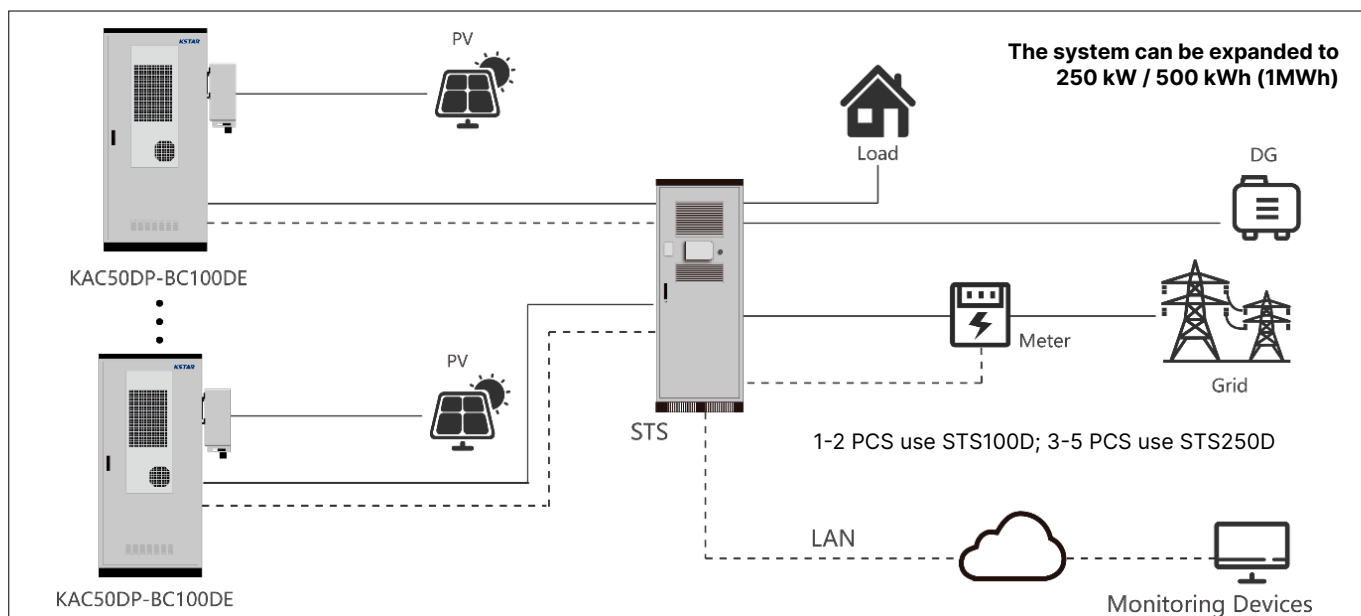
## Single PCS and single cabinet operation



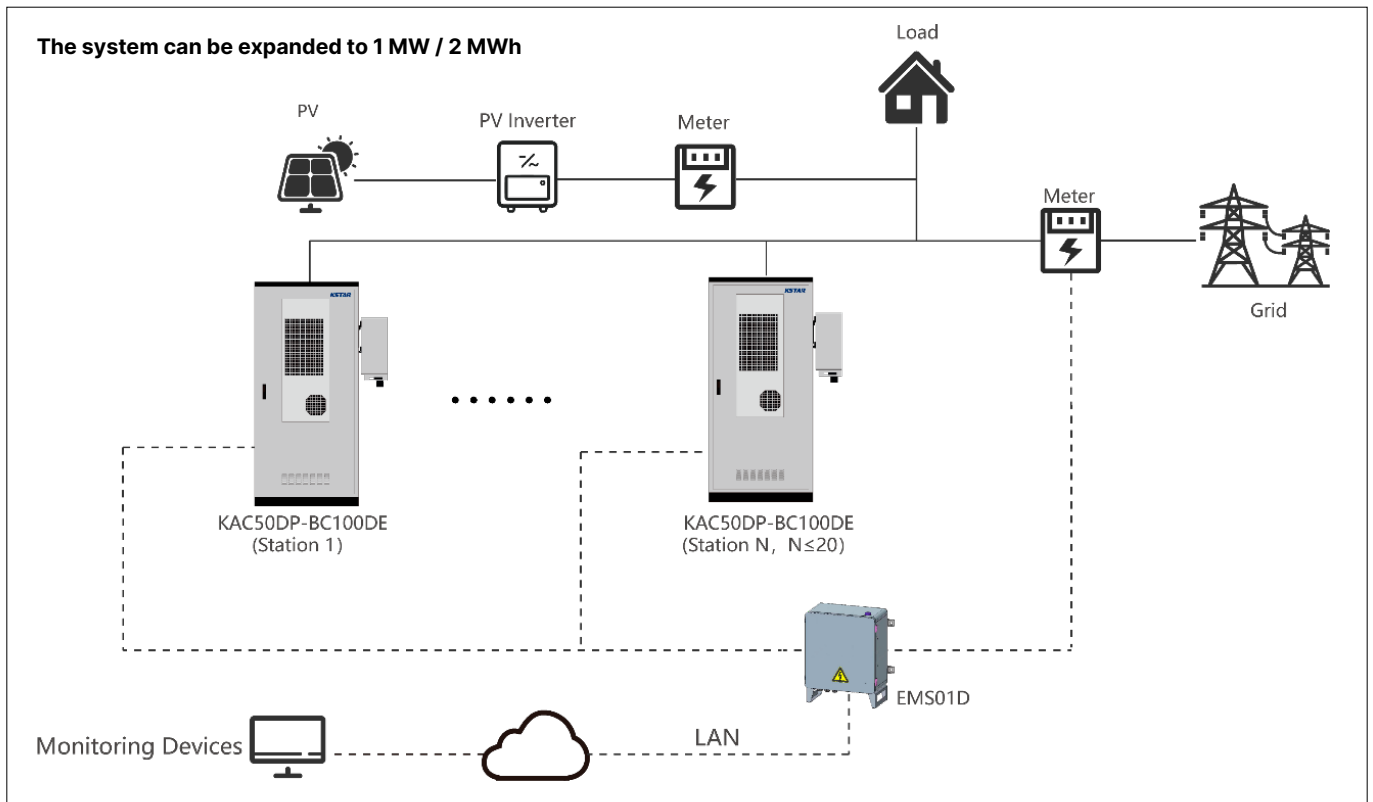
## Single PCS and double cabinet operation



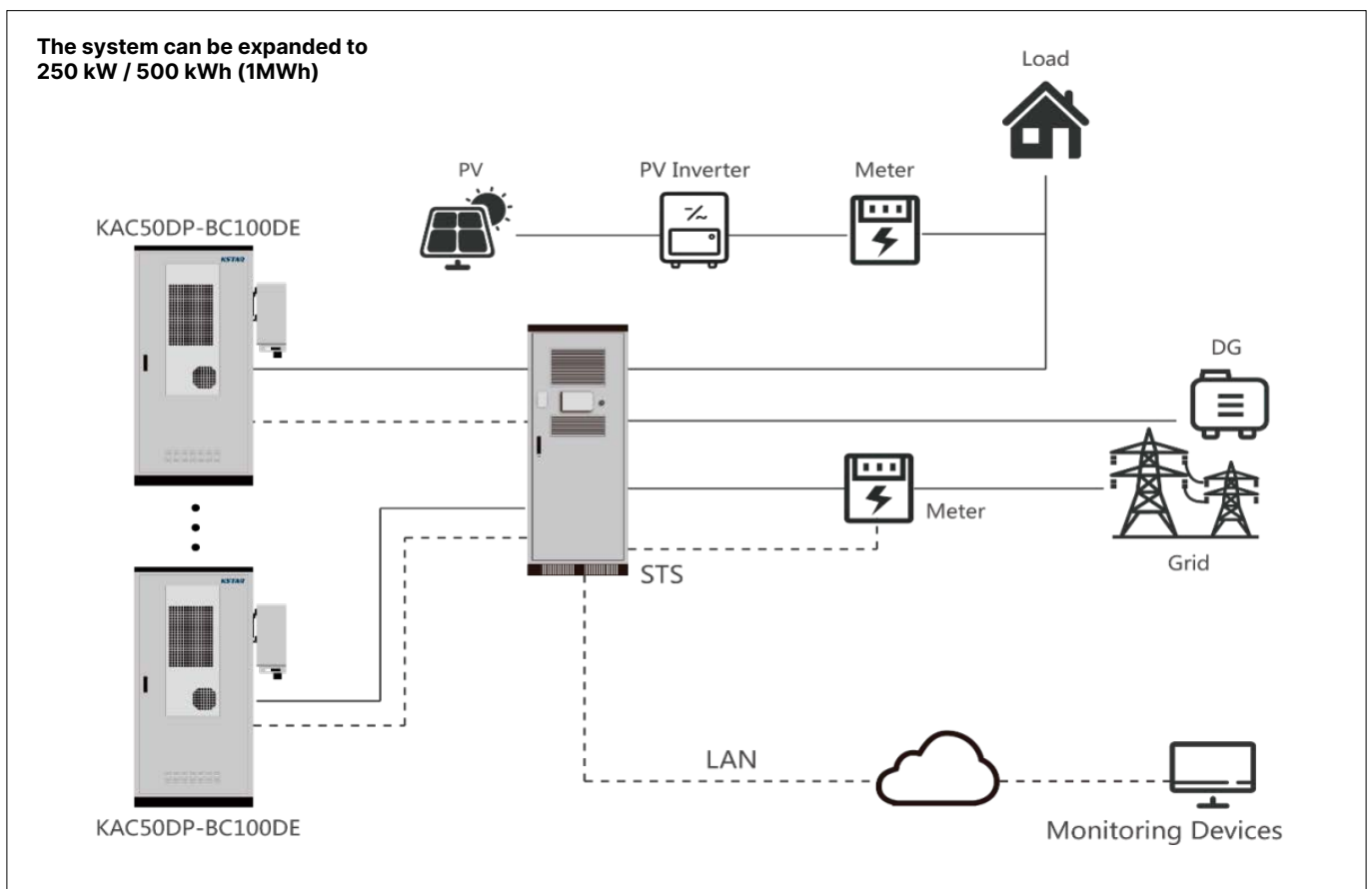
## Single PCS and single cabinet parallel operation



## On-Grid work mode (AC coupling)

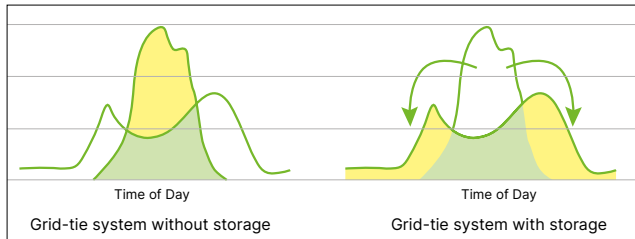


## off-Grid work mode (AC coupling)





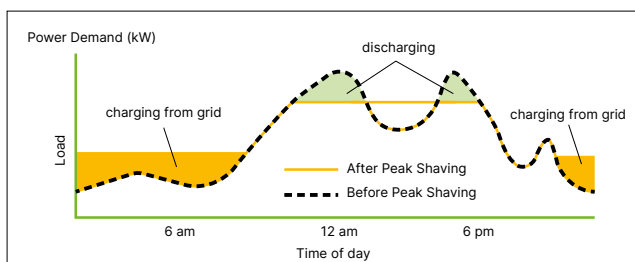
## Self Consumption



**Strategy:** PV generation meets the demand of the loads in priority, and the excessive PV power will be stored for later use.

**Purpose:** Cut electricity bill by minimizing the energy consumption from the grid.

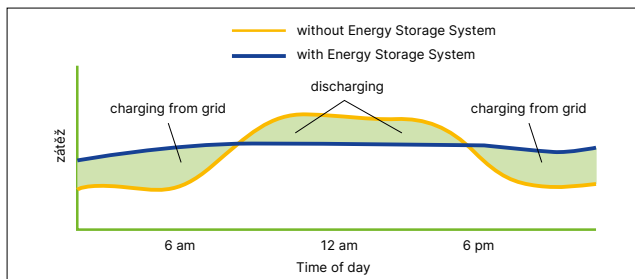
## Peak Shaving



**Strategy:** When the power extracted from the grid falls outside the peak/valley range, the battery starts to discharge/charge.

**Purpose:** Avoid extra charge caused by extreme high demand and make good use of power capacity contracted with DNO/DSO.

## Time of Use



**Strategy:** Preset a time schedule for the system to charge and discharge with selectable time range and power ratings

**Purpose:** Make good use of electricity arbitrage to minimize the unit electricity price

## Battery Priority



**Strategy:** PV generation and Grid meet the demand of battery charging; Battery discharges only after grid failure.

**Purpose:** Ensure longer backup operation time and reliable power source.

### BULGARIA PROJECT 50 kW-100kWh

This project is a KAC50DP-BC100DE stand-alone operation.



#### LOCATION

- Bulgaria

#### PROJECT OVERVIEW

- This project is located in Bulgaria

#### HIGHLIGHT

- Single system connected to the grid, and the mode of Self-consumption is controlled by the built-in EMS.
- Customers start making profit 5 to 6 years after installation

### ENGLAND PROJECT 50kW-100kWh

This project is a KAC50DP-BC100DE stand-alone operation.



#### LOCATION

- West Meadow Lane, Farwellshire, Cornwall, England

#### PROJECT OVERVIEW

- This project is located in the West county of England, placed in a semi-outdoor space, the project is a stand-alone operation.

#### HIGHLIGHT

- Based on the customer's existing grid-connected PV inverters, we provide customers with AC-coupled, Self Consumption working mode systems.
- Under self Consumption mode customers begin to make profits in about 6 years.

## IRELAND PROJECT 100kW-200kWh

This project has two parallel KAC50DP-BC100DE units



### LOCATION

- 22 South Village, Dublin, Ireland

### PROJECT OVERVIEW

- This project is located in the south country of Dublin, Northern Ireland, and the user placed the ESS machine in the factory.

### HIGHLIGHT

- Two System, On grid, Parallel operation.
- Under self Consumption working mode customers began to make profits in about 4 years.

## HUNGARY PROJECT 150kW-300kWh

The project scale has three KAC50DP-BC100DE parallel operation units



### LOCATION

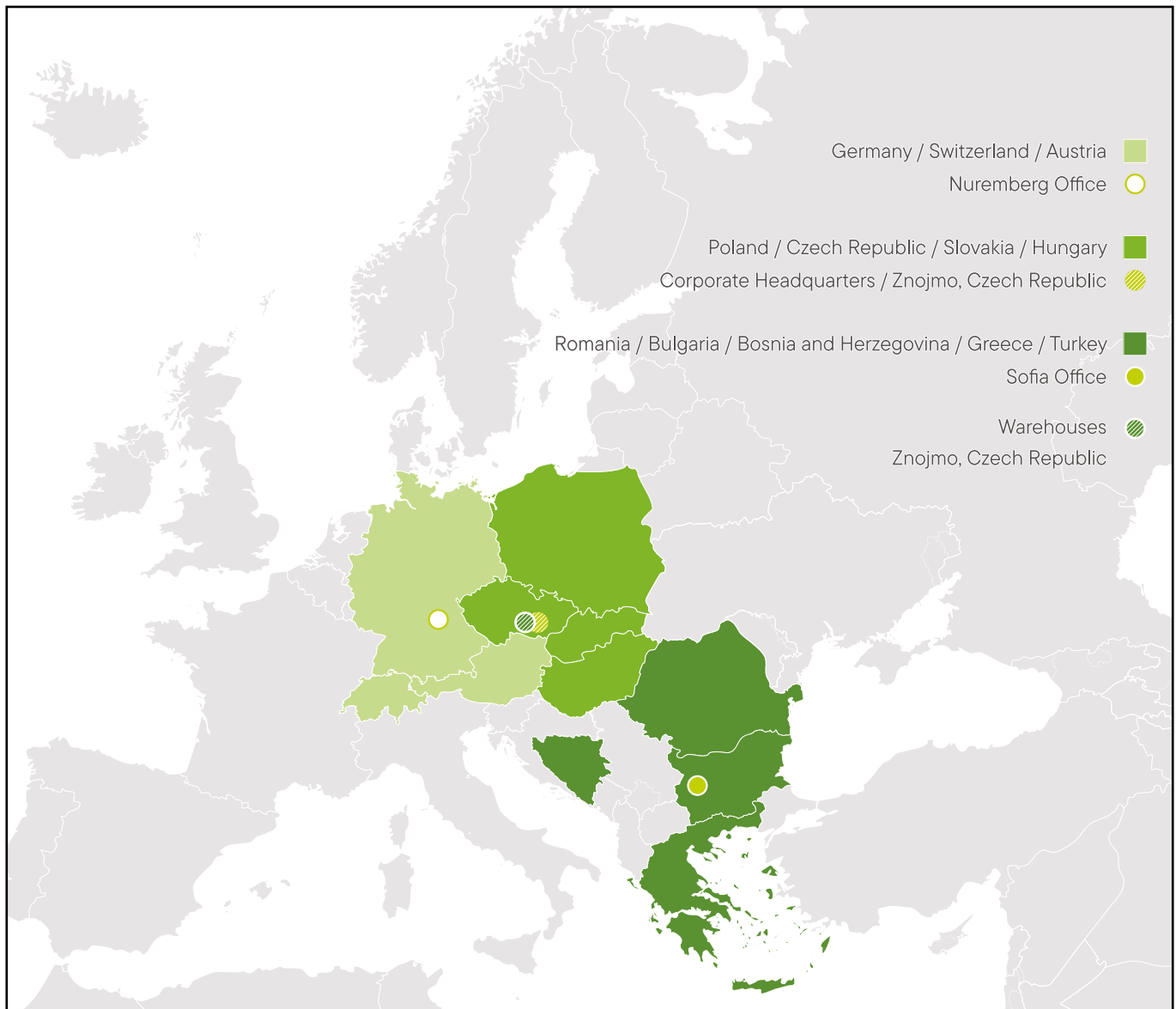
- Dunavecse, Hungary

### PROJECT OVERVIEW

- This project is located in the Dunavecse of Hungary.

### HIGHLIGHT

- Three System, On grid, Parallel operation.
- Under self Consumption working mode Customers start to make a profit between 3 and 4 years later



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