KSTAR Powering a green future

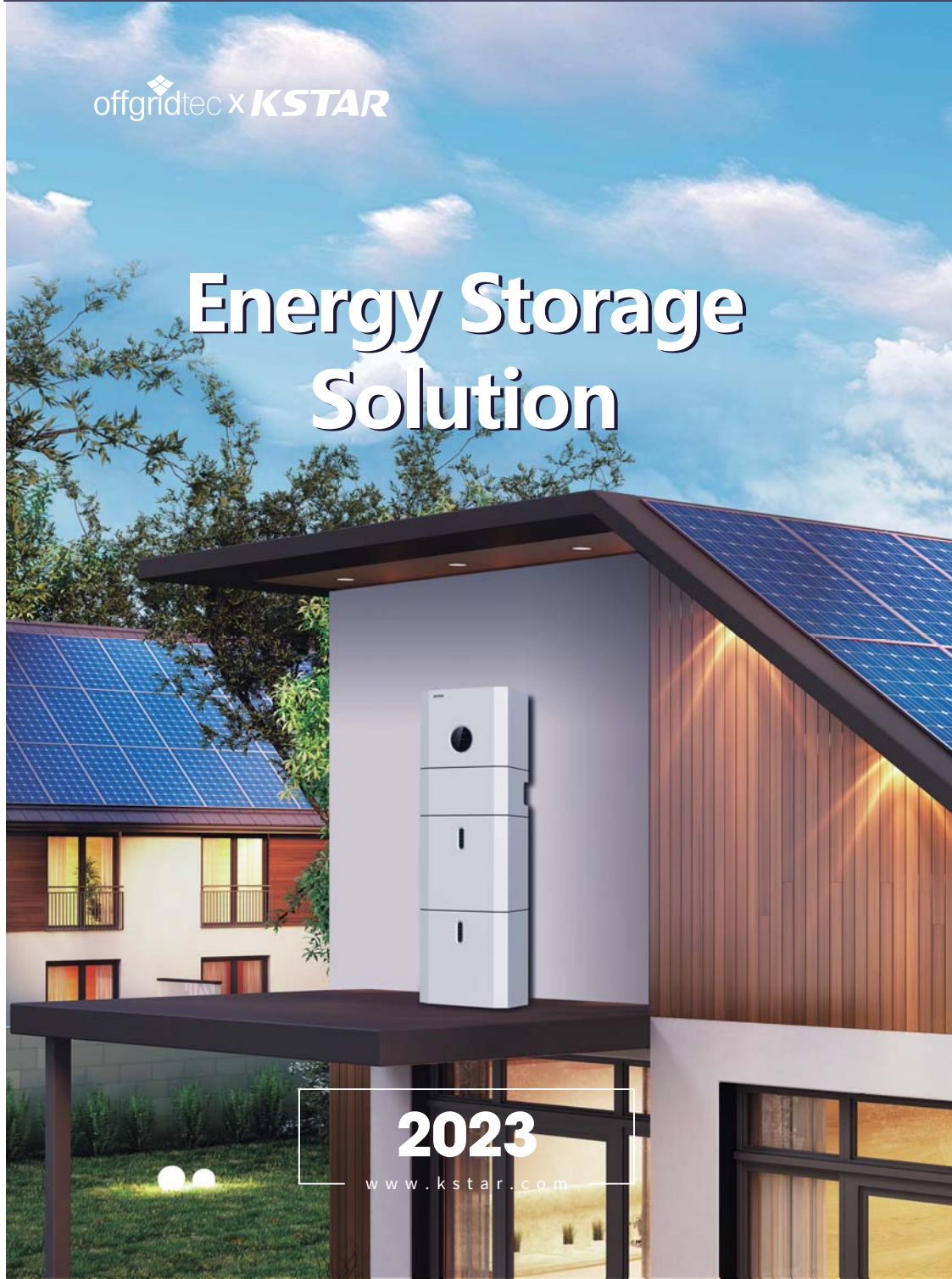
Shenzhen KSTAR New Energy Technology Co.,Ltd

Tel: +86-755-21389008 Ext 8508 **Fax:** +86-755-21389006
Web: www.kstar.com **E-mail:** sales@kstar.com

202212-V1

offgridtec x KSTAR

Energy Storage Solution



2023

www.kstar.com

About KSTAR

1993
Enter Offline UPS Company established

1995
Entery into US and EU markets

2000
Opened Guanlan Industrial Factory

2004
Enter High-power Online UPS

2009
Estabilish 1st PV Inverter

2010
Listed in Shenzhen Stock Exchange

2013
Opened Guangming Industrial Pack

2015
Certified by National Quality Management System

2018
Establish Joint Venture Factory with CATL

2019
CATL & KSTAR

TECHNOLOGY, INNOVATION AND THE HISTORICAL INDUSTRIAL EXPERIENCE OF KSTAR FROM TODAY AVAILABLE FOR EVERY HOME

Founded in 1993, Shenzhen KSTAR Science & Technology Co., Ltd (Stock Code:002518) is a National Torch Plan Key High-tech Enterprise, and also a pioneer of UPS industry and a total solution provider for Data Center Critical Infrastructure & PV Inverter Systems in Mainland China.

KSTAR is fully committed to the R&D and has been providing high-quality products with full service to over 90 countries and regions worldwide, leading the industrial development with innovation.

Office and service center globally

Residential
All in one ESS

BluE-S 3.68kW/5kW
E10KT 10kW

- CATL LFP Battery
- Modular Design
- Convenient & Light
- Type II SPD
- Built-in EPS
- API / VPP Ready

Powering a green future

offgridtec x KSTAR

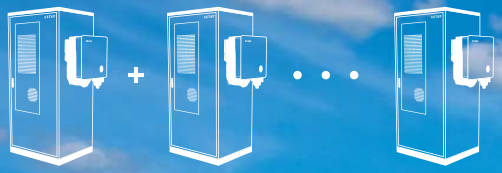
All In One Residential ESS
CATL Battery Solutions

Safety Simple Adaptable Efficient

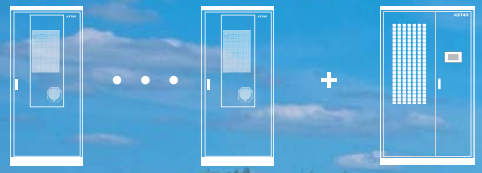
KAC Series PCS
BC100DME Battery

Expandable to
1MW / 2MW Ongrid
500kW / 1MW Offgrid

- Modular Design
- Flexible Configurotion
- Convenient & Light
- Type II SPD
- LVRT/HVRT Ability
- Built-in EPS



20 in parallel, 1MW/2MWh



250KW/500kWh

Powering a green future

offgridtec x KSTAR

All In One C&I Energy Storage System
CATL Battery Solutions

- Peaking shaving
- Time of Use
- Self consumption
- Demand control
- Battery priority
- Export limitation

BluE Residential ESS

All In One Energy Storage System
CATL Battery Solutions

Safety

CATL LFP Battery， stable and safe
Module, pack, system, triple protection
IP65, outdoor installation, away from living room

Simple

Modular design, single person can carry and install it.Plug and play, 30 min quick installation
Space saving; 0.15 sq. m foot print

Intercon -nection

Global cloud platform & Mobile APP
anytime and any where
Open API, support power internet applications

Battery Model	
Physical	
Battery Type	LFP (LiFePO4)
System Weight	54KG
Dimension (W x H x D)	540*490*240mm
IP Protection	IP65
Warranty	5 Year Product Warranty, 10 Year Performance Warranty
Electrical	
Energy Capacity	5.12kwh
Usable Capacity	4.6kwh
Depth of Discharge (DoD)	90%
Nominal Voltage	51.2V
DC Circuit Breaker	125A
Operating Voltage Range	44.8-56.5V
Internal Resistance	<20mΩ
Cycle Life	10000cycle

BluE-PACK5.1	
Operation	
Max. Charge/Discharge Current	50A/80A
Rated DC power	4096W
Max. Charge/Discharge Power	2825W/4096W
Operating Temperature Range	-10 to 50℃ charging -10 to 50℃ discharging
Humidity	0~95% (No condensation)
BMS	
Modules Connection	Max. 4
Capacity	100-400Ah
Power Consumption	<2W
Communication	CAN & RS485
Monitoring Parameters	System voltage, current, cell voltage, cell temperature, PCBA temperature measurement
Certificate	
Safety(Cell)	Pack: IEC/EN 62619;UN38.3 Cell: IEC/EN 62619;UN38.3;UL1973

*Maximum 4 battery pack in parallel.

Hybrid Inverter Model	BluE-S 3680D	BluE-S 5000D
PV String Input		
Max. DC Voltage	580V	580V
Nominal Voltage	400V	400V
MPPT Voltage Range	80V-560V	80V-560V
Start Voltage	130V	130V
Number of MPPT	2	2
Strings Per MPPT	1	1
Max. Input Current Per MPPT	15A	15A
Max. Short-circuit Current Per MPPT	18A	18A
AC Output (Grid)		
Nominal AC Output Power	3680W	5000W
Max. AC Apparent Power	7360VA (From Grid)	7360VA (From Grid)
Max. AC Output Power	3680W	5000W [1]
Nominal AC Voltage	230Vac	230Vac
AC Grid Frequency Range	50 / 60Hz±5Hz	50 / 60Hz±5Hz
Max. Output Current	16A	22A [2]
Max. Input Current	32A	32A
Power Factor (cosΦ)	0.8Leading-0.8Lagging	0.8Leading-0.8Lagging
THDi	<3%	<3%
Battery Input		
Battery Type	LFP (LiFePO4)	LFP (LiFePO4)
Nominal Battery Voltage	48V	48V
Charging Voltage Range	40-60V	40-60V
Max. Charging Current	50A	100A
Max. Discharging Current	80A	100A
Battery Capacity	100-400Ah	100-400Ah
Charging Strategy for Li-ion Battery	Depend On the BMS	Depend On the BMS
AC Output (Backup)		
Max. Output Apparent Power	4000VA	5000VA
Peak Output Apparent Power	6900VA 10sec	6900VA 10sec
Max. Output Current	16A	20A
Nominal Output Voltage	230V	230V
Nominal Output Frequency	50/60Hz	50/60Hz
Output THDv (@Linear Load)	<3% (Linear Load)	<3% (Linear Load)
Efficiency		
Max. PV Efficiency	97.6%	97.6%
Euro. PV Efficiency	97.0%	97.0%
Protection		
DC Switch	Bipolar DC Switch (125A/Pole)	Bipolar DC Switch (125A/Pole)
Anti-islanding Protection	Yes	Yes
Output Over Current Protection	Yes	Yes
DC Reverse Polarity Protection	Yes	Yes
String Fault Detection	Yes	Yes
DC/AC Surge Protection	DC Type II;AC Type III	DC Type II;AC Type III
Insulation Detection	Yes	Yes
AC Short Circuit Protection	Yes	Yes
General Specifications		
Dimensions W x H x D	540*590*240mm	
Weight	32kg	
Operating Temperature Range	-25℃~+60℃	
Noise (dB)	<25	
Cooling Type	Natural Convection	
Max. Operating Altitude	2000m	
Operating Humidity	0~95% (No Condensation)	
IP Class	IP65	
Topology	Battery Isolation	
Communication	RS485/CAN2.0/WIFI/4G	
Display	LCD/APP	
Certification & Standard	IEC/EN 62109-1&2;IEC/EN61000-6-1;IEC/EN61000-6-2;EN61000-6-3; IEC/EN61000-6-4;IEC/EN61000-3-11; EN61000-3-12;IEC60529;IEC 60068;IEC61683;IEC62116;IEC61727;EN50549-1; AS 4777.2;NRS 097;VDE-AR-N-4105;CEI0-21;G98;G99;C10/C11	

*1. Nominal AC output power is 4999W for Australia and 4600W for Germany and South Africa.
*2. Maximum output current is 21.7A for Australia and 20A for Germany and South Africa.

3-Ph BluE Residential ESS

All In One Energy Storage System
CATL Battery Solutions

Safety

CATL LFP Battery， Stable and Safe
Module, Pack, System, Triple Protection

Adaptable

Adjustable Power in Each Phase
Support Diesel Generator Control(DI/DO)

Simple

Modular Design， Plug and Play
Mobile APP Monitoring

Efficient

Supporting 200% Oversized PV Power
On&OFF Grid Parallel System

Battery Model	
Physical	
Battery Type	LFP (LiFePO4)
System Weight	54KG
Dimension (W x H x D)	540*490*240mm
IP Protection	IP65
Warranty	5 Year Product Warranty, 10 Year Performance Warranty
Electrical	
Energy Capacity	5.12kwh
Usable Capacity	4.6kwh
Depth of Discharge (DoD)	90%
Nominal Voltage	51.2V
DC Circuit Breaker	125A
Operating Voltage Range	44.8-56.5V
Internal Resistance	<20mΩ
Cycle Life	10000cycle

BluE-PACK5.1	
Operation	
Max. Charge/Discharge Current	50A/80A
Rated DC power	4096W
Max. Charge/Discharge Power	2825W/4096W
Operating Temperature Range	0 to 50℃ charging -10 to 50℃ discharging
Humidity	0~95% (No condensation)
BMS	
Modules Connection	Max.8
Capacity	200/400/600/800Ah
Power Consumption	<2W
Communication	CAN & RS485
Monitoring Parameters	System voltage, current, cell voltage, cell temperature, PCBA temperature measurement
Certificate	
Safety(Cell)	Pack: IEC/EN 62619;UN38.3 Cell: IEC/EN 62619;UN38.3;UL1973

Hybrid Inverter Model	E10KT
PV String Input	
Max. Continuous PV Input Power	20kW
Max. DC Voltage	1100V
Nominal Voltage	720V
MPPT Voltage Range	140V-1000V
MPPT Voltage Range (Full Load)	420V-850V
Start Voltage	200V
Number of MPPT	2
Strings Per MPPT	1
Max. Input Current Per MPPT	15A
Max. Short-circuit Current Per MPPT	20A
AC Output (Grid)	
Nominal AC Output Power	10kW
Max. AC Apparent Power	11kVA
Nominal AC Voltage	400Vac
AC Grid Frequency Range	50 / 60Hz±5Hz
Nominal Output Current	14.5A
Max. Output Current	16A
Power Factor (cosΦ)	0.8Leading-0.8Lagging *
THDi	< 3%
Battery Input	
Battery Type	LFP (LiFePO4)
Nominal Battery Voltage	51.2V
Charging Voltage Range	44-58V
Max. Charging Current	160A
Max. Discharging Current	200A
Battery Capacity	200/400/600/800Ah
AC Output (Backup)	
Nominal AC Output Power	9.2kW
Max. AC Output Power	10kVA
Nominal Output Current	13.3A
Max. Output Current	14.5A
Nominal Output Voltage	400V
Nominal Output Frequency	50/60Hz
Output THDv (@Linear Load)	<3% (Linear Load)
Efficiency	
Max. PV Efficiency	97.60%
Euro. PV Efficiency	97.00%
Protection	
Anti-islanding Protection	Yes
Output Over Current Protection	Yes
DC Reverse Polarity Protection	Yes
String Fault Detection	Yes
DC/AC Surge Protection	DC Type II;AC Type III
Insulation Detection	Yes
AC Short Circuit Protection	Yes
General Specifications	
Dimensions W x H x D	540*980*240mm
Weight	51kg
Operating Temperature Range	-25℃~+60℃
Cooling Type	Natural Convection
Max. Operation Altitude	2000m
Operation Humidity	0~95% (No Condensation)
IP Class	IP65
Topology	Battery Isolation
Communication	RS485/CAN2.0/WIFI/4G
Display	LCD/APP

* 0.95leading-0.95lagging for Germany

Powering a green future

KAC50DP

50KW modular power converter

Flexible Configuration

- Modular Design, Expanding as Required
- Small&Light, Wall Mounted
- Installed in Parallel for Expansion

Powerful Function

- Support PV+ESS
- Grid Support, Equipped with SVG Technology
- On-Grid and Off-Grid Operation

Reliable Protection

- Outdoor IP65 Design
- Sufficient Protection Functions Equipped

Product Specifications	KAC50DP
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	50A*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	340V~440V
Nominal Grid Frequency/Frequency Range	50/60Hz±5Hz
THDv	<3%(100% Load)
Adjustable PF Range	-1(Lagging)~1(Leading)
AC Side(Off Grid)	
Nominal AC Voltage	230/400V±3%; 3L+N+PE
THDv	<3%(Linear Load)
Nominal Grid Frequency/Frequency Range	50/60Hz
Nominal AC Output Power	50kW
Max. AC Output Power	55kVA
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	DC Type II;AC Type II
General Parameters	
Dimensions(WxHxD)	650*715*325mm
Weight	62KG
Topology	Transformerless
IP Protection	IP65
Operation Temperature Range	-25~60℃(>45℃ Derating)
Operation Humidity Range	0~100%(No Condensing)
Cooling Method	Intelligent Air Cooling
Max. Operation Altitude	4000m(>3000m Derating)
Communication Port	RS485/CAN
Standards	IEC 62477 , IEC61000 , CE , GB/T

BC100DME

100kWh outdoor All-in-one ESS cabinet

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 BMS/EMS, Suitable for Various Applications
- Effortless Operation, Cloud Control

Economical&Efficient

- Save Capex, Expanding as Required
- Efficient and Energy-saving HVAC Design

Outdoor battery cabinet parameters

Technical Parameters	BC100DME
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	BC100DME
Dimensions(WxDxH)	1100 x 1100 x2380 mm
Weight	<1.5T
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

KAC50DP-BC100DME

50kW/100kWh outdoor All-in-one ESS cabinet

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 BMS/EMS, Suitable for Various applications
- Effortless Operation, Cloud Control

Economical&Efficient

- Save Capex, Expanding as Required
- Efficient and Energy-Saving HVAC Design

Outdoor Battery Cabinet Parameters

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%

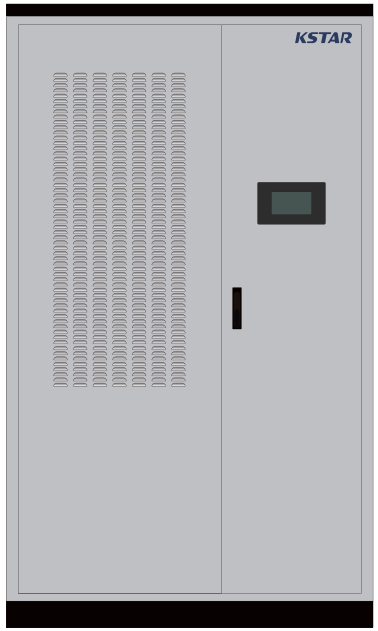
General Parameters	
Dimensions(WxDxH)	1100 x 1100 x2380 mm
Weight	<1.5T
Installation Site	Outdoor
IP Protection	IP54
Anti Corrosion Level	C4
Operation Humidity	5%~95% (No Condensing)
Operation Temperature	-30°C~+50°C
Max. Operation Altitude	4000m (>3000m Derating)
Communication Port	Ethernet;CAN
Communication Protocol	CAN;MODBUS TCP/IP
Cooling Method	Air Conditioner
Standards	IEC62619-2017;UN38.3;IEC61000-6-2/4

Product Specifications	KAC50DP
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	50A*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	340V~440V
Nominal Grid Frequency/Frequency Range	50/60Hz±5Hz
THDv	<3%(100% Load)
Adjustable PF Range	-1(Lagging)~1(Leading)
AC Side(Off Grid)	
Nominal AC Voltage	230/400V±3%; 3L+N+PE
THDv	<3%(Linear Load)
Nominal Grid Frequency/Frequency Range	50/60Hz
Nominal AC Output Power	50kW
Max. AC Output Power	55kVA
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	DC Type II;AC Type II
General Parameters	
Dimensions(WxHxD)	650*715*325mm
Weight	62KG
Topology	Transformerless
IP Protection	IP65
Operation Temperature Range	-25~60℃(>45℃ Derating)
Operation Humidity Range	0~100%(No Condensing)
Cooling Method	Intelligent Air Cooling
Max. Operation Altitude	4000m(>3000m Derating)
Communication Port	RS485/CAN
Standards	IEC 62477 , IEC61000 , CE , GB/T

Powering a green future

KAC50-250DS

50-250KW outdoor PCS cabinet



- IP54 Outdoor Design
- Modular PCS , Expanding as Required
- SVG Grid Support, Equipped with SVG Technology
- Built-in ATS&TRS, With Automatic On/Off Grid Switching
- Powerful Protection Functions with Perfect Parallel Ability
- Adjustable Setting of Active/Reactive Power

Product Specifications	KAC50S	KAC100S	KAC150S	KAC200S	KAC250S
Battery Side					
Max. Input Voltage	750V				
Min. Input Voltage	350V				
DC Voltage at Nominal Operation	500V~750V				
Max. DC Current	50A*2	50A*4	50A*6	50A*8	50A*10
Max. DC Input Power	275kW				
Number of DC Inputs	2	2*2	2*3	2*4	2*5
AC Side(On Grid)					
Nominal AC Output Power	50kW	100kW	150kW	200kW	250kW
Max. AC Output Power	55kVA	110kVA	165kVA	220kVA	275kVA
Max. AC Current	80A	160A	240A	320A	400A
Nominal AC Voltage	400V				
AC Voltage Range	340V~440V				
Nominal Grid Frequency/Frequency Range	50/60Hz±5Hz				
THDv	<3%(100% Load)				
Adjustable PF Range	-1(Lagging)~1(Leading)				
AC Side(Off Grid)					
Nominal AC Voltage	230/400V±3%; 3L+N+PE				
THDv	<3%(Linear Load)				
Nominal Grid Frequency/Frequency Range	50/60Hz				
Nominal AC Output Power	50kW	100kW	150kW	200kW	250kW
Max. AC Output Power	55kVA	110kVA	165kVA	220kVA	275kVA
Efficiency					
Max. Efficiency	97.5%				
Protection					
Reverse Connection Protection	Yes				
DC Switch	Yes				
AC Breaker	Yes				
Over-Temperature Protection	Yes				
Grid Monitoring/ Earthing Fault Detection	Yes				
Insulation Monitoring	Yes				
DC/AC Surge Protection	DC Type II;AC Type II				
General Parameters					
Dimensions(WxDxH)	1170*930*2380mm				
Weight	800KG	1000KG	1200KG	1400KG	1600KG
ON/Off Grid Switch	Yes				
Topology	Transformerless (Optional Off-Grid Isolation Transformer)				
IP Protection	IP54				
Operation Temperature Range	-30~60℃				
Operation Humidity Range	0~100%(No Condensing)				
Cooling Method	Intelligent Air Cooling				
Max. Operation Altitude	4000m(>3000m Derating)				
Display	LCD				
Communication Port	RS485/CAN				
Standards	IEC 62477 , IEC61000 , CE , GB/T				

KESS Series Integrated Energy Storage System

C&I KESS20HG/40HG

- LFP Battery System, PCS, Fire Suppression System
- Standard 20/40 Feet Container, Easy Transportation
- Smart and Efficient HVAC Design for Lower Loss and Better Safety
- Quicker One-stop Delivery with In-factory Installation and Commissioning
- HVRT/LVRT
- Standard Communication Portal, Fitting Third Party SCADA
- Equipped with PQ, VSG, VF, and Black Start
- IP54 Protection, Can Handle Harsher Outdoor Environment

Model	KESS20HG	KESS40HG
Power Range	50-630kW	100-1250kW
Battery Capacity	Customised	Customised
PV Input Access	Optional	Optional
On/Off-Grid Switching	Optional	Optional
PCS Chamber Cooling Method	Smart Fan Cooling	Smart Fan Cooling
Battery Chamber Cooling Method	Air Conditioner	Air Conditioner
Fire Suppression System in Battery Chamber	FM200/Novec 1230	FM200/Novec 1230
Ambient Temperature	-15°C-45°C	-15°C-45°C
Max Altitude	3000m	3000m
Relative Humidity Range	5%-95% (No Condensation)	5%-95% (No Condensation)
Protection Degree	IP54	IP54
Dimensions(L * W* H)	6058*2438*2896mm	12192*2438*2896mm
Communication to SCADA	Ethernet (IEC104)	Ethernet (IEC104)

EMS Energy Management System

EMS Cloud Platform

Friendly human interaction interface:

- Combined with comprehensive data acquisition and monitoring system functions.

24/7 real-time monitoring:

- Seamless accessing to the scheduling center, and receiving scheduling command.
- Realizing friendly data transmission between BMS and PCS devices.
- Real-time response fault alarm function.

Flexible application scenarios:

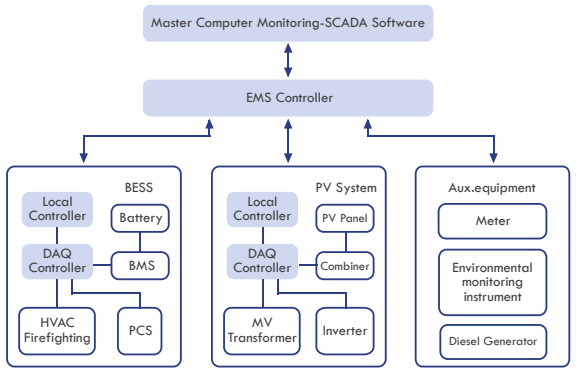
- Advanced control strategy to realize peak and frequency modulation, peak and valley arbitrage, demand management, etc.

Function Presentation:

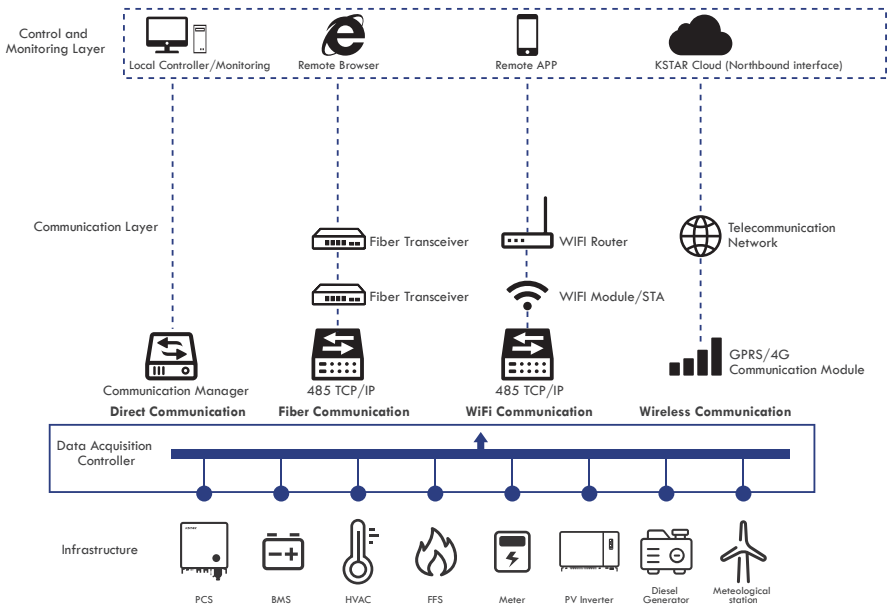
Platform Function	Detailed Presentation
Operation data acquisition and monitoring	EMS local controller collects the real-time information (i.e. PCS, BMS, transformer monitoring and control device), and the processed data (i.e. real-time values, historical statistics, trends, alarm events, etc.) can be displayed and forwarded in the monitoring screen, and saved to the historical data server.
Independent SOC control	When EMS cannot control operation of energy storage battery, PCS control charging and discharging of energy storage battery independently to keep SOC within reasonable range.
Smooth Output	Generation side - EMS controll the charge and discharge of BESS or the output of other power generation to smooth power output by real-time monitoring of power generation User side - EMS controll the charge and discharge of BESS to achieve peak shifting by real-time monitoring of power consumption.
Time-of-use price	EMS control the battery energy storage to perform different charging and discharging strategies at diffrent time of use price, so that the user can realize peak-valley arbitrage.
Power distribution control	In the on-grid mode, EMS follows power grid dispatching orders and data acquisition(i.e. current SOC, SOH, charging and discharging state, and alarm data) to implement power distribution control.
Anti-power reversal control	when the microgrid acess to power grid, EMS ensures the micro grid to meet load electricity consumption by increasing the energy storage charging power or reducing power generation output.
Power security boundary control	Due to the sudden load fluctuation in the micro-grid system (i.e. solar, wind), the system adopts emergency control measures to increase/decrease the system output to make it return to the safe operating range.

Energy Management System

Energy Management System



Data Acquisition and Communication Structure



50kW/200kWh BESS for EV Charger Station in Hebei

3MW/12MWh BESS Demonstration Project in Shenzhen

300kWH Storage Project of Brazilian Military Antarctic Research Station

Mobile Energy Storage Vehicle of OptimumNano Energy Company

500kWH Multi-energy Complementary Project of Beike Industrial Park

BESS for EV Charger Station in Harbin