



Energy Storage/ Micro-grid

Product Catalog

PV+ESS for the future

stock code

002335.SZ

Kehua Data Co.,Ltd



Top 500

Be listed in the Global Top 500 New Energy Enterprises for 5 consecutive years

6.3GW/5.4GWh

6.3GW/5.4GWh ESS installation

31+ GW

31+ GW PV installation worldwide

30+ Years

30+ years R&D and manufacturing experience of power electronic technologies

Certification

Passed ISO9001, ISO14001, ISO45001 system certification and CE, TUV, UL/ETL, TLC, Golden Sun product certification etc.

1000

1000 intellectual property rights including national patents and software copyrights

100+

Covering 100+ countries and regions worldwide

4

4 modern professional manufacturing bases

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ABOUT US

- Xiamen Kehua Digital Energy Tech Co., Ltd. (hereinafter referred to as Kehua), rooted in power electronics technology, has diversified solutions and rich project experience in photovoltaics, energy storage, microgrid, wind power and integrated energy services.
- With global awareness of carbon neutrality, Kehua is working with its partners in more than 100 countries around the world to promote the transformation of energy structure with technology, so that clean energy can become a force influencing the world. We provide comprehensive services such as products and equipment, system integration, overall scheme, planning and design, engineering construction, operation and maintenance for customers all over the world, and are committed to becoming an excellent integrated clean energy service technology enterprise in the world.

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Service System

Modular Energy Storage Converter (DC-AC)

BCS75K~125K-B-HM Series



High efficiency

- Advanced three-level technology, max. inverter efficiency 98.7%
- Advanced midpoint potential control technology
- Intelligent fault wave recording and online upgrade function



Flexible

- Light module design, easy for installation and O&M
- Multi-unit parallel connection technology
- Independent fan modular design



Intelligent management

- Integrated with BMS system and UPS unit, ensures stable operation of battery system
- Built-in DC pre-charging function, easy access for battery system



Green saving

- High/Low voltage ride-through function
- PF control function



Technical Specification

Items	BCS75K-B-HM	BCS100K-B-HM	BCS125K-B-HM
DC Input (PV)			
MAX. DC voltage	1500Vdc		
DC voltage range	700-1500Vdc	600-1000Vdc	1040-1500Vdc
Max. DC current	120A	186A	134A
Auto buffering function	Yes		
AC Output (On-grid)			
Rated AC output power	75kW	100kW	125kW
Max. AC output power	82.5kVA	110kVA	137.5kVA
Rated output voltage	480Vac	400Vac	690Vac
Output voltage range	-15%~10% (settable)		
Grid frequency range	50Hz/60Hz (settable)		
Max. output current	99.2A	158A	115A
Power factor	>0.99 (at rated power)		
Adjustable power factor	1 (leading)~1 (lagging)		
THDi	<3% (at rated power)		
Off-grid AC output			
Rated AC output voltage	480V	400V	690Vac
Output voltage accuracy	1%		
Max. output current	99.2A	158A	115A
THDu	<3% (linear load)		
Rated output frequency	50Hz/60Hz (settable)		
Overloading capability	110%Overload		
Efficiency			
Max. efficiency	98.7%		
General data			
Isolation mode	None		
IP rating	IP65		
Operation temperature	-30°C~60°C		
Relative humidity	0~100%		
Cooling type	Intelligent forced air cooling		
Dimensions (W×H×D)	700x960x267mm		
Weight	95kg		
Altitude	4000m(>3000m derating)		
Display	LED+APP		
Communication protocol	Modbus-RTU, Modbus-TCP, CAN2.0B, Bluetooth		
Communication interface	RS485, Ethernet, CAN		
Installation	Wall-mounted		
Standard	IEC/EN62477-1, IEC61000-6-2, IEC/EN 61000-6-4, EN 50549-1, NC RfG		

- Specification indexes may be subject to changes without further notice.

Modular Energy Storage Converter (DC-AC)

BCS75K~175K-B-HM-US X2 Series



Smart

- Fast power scheduling & Black start
- Intelligent air cooling
- Grid-forming & VSG function & Support multi-module parallel



Simple

- Fast Plug & Play, easy installation
- Support communication protocols such as SUNSPEC, etc
- Modular design, support rack-mounted



Safe

- Anti-island protection
- NEMA type 4X, high level of protection
- Balanced current conversion & Health status monitoring



Technical Specification

Items	BCS75K-B-HM-US X2	BCS125K-B-HM-US X2	BCS175K-B-HM-US X2
DC input			
Max. DC voltage	1500Vdc		
DC voltage range	720~1450Vdc	720~1300Vdc	920~1380Vdc
Max. DC current	117A	195A	214A
Auto buffering function	Yes		
DC breaker	No		
AC output			
Rated AC output power	75kW	125kW	175kW
Max. AC output power	82.5kVA	137.5kVA	192.5kVA
Rated output voltage	480Vac 3P3W	480Vac 3P3W	600Vac 3P3W
Output voltage range	-15%~10% (settable)		
Grid frequency range	60Hz		
Max. output current	99.2A	165.4A	185.2A
Power factor	>0.99 (at rated power)		
Adjustable power factor	1 (leading)~1 (lagging)		
THDi	<3% (at rated power)		
Overloading capability	110% (overload)		
Efficiency			
Max. efficiency	98.8%		
General data			
Isolation mode	None		
IP rating	NEMA type 4X		
Operation temperature	-35°C~60°C/-31°F~140°F		
Relative humidity	0~100%		
Cooling type	Intelligent forced air cooling		
Dimensions (W×H×D)	600x295x900mm/236.2x116.1x354.3in		
Weight	95kg/209.4lb		
Altitude	3000m/9843ft(>2000m/6562ft derating)		
Display	LED		
Communication protocol	Modbus-RTU, Modbus-TCP, SUNSPEC		
Communication interface	RS485, Ethernet, CAN, Bluetooth		
Installation	Rack-mounted		
Parallel function	Yes		
Grid-forming function	Yes		
Compliance	UL1741, CSA C22.2 No 107.1, IEEE1547		

- Specification indexes may be subject to changes without further notice.

Modular Energy Storage Converter (DC-AC)

BCS100K~200K-B-HM X2 Series



Smart

- Fast power scheduling & Black start
- Intelligent air cooling
- Grid-forming & VSG function & Support multi-module parallel



Simple

- Fast Plug & Play, easy installation
- Support communication protocols such as SUNSPEC, etc
- Modular design, support rack-mounted and wall-mounted



Safe

- Anti-island protection
- IP66 protection
- Balanced current conversion & Health status monitoring



Technical Specification

Items	BCS100K-B-HM X2	BCS200K-B-HM X2
DC input		
Max. DC voltage	1500Vdc	
DC voltage range	600~1000Vdc	1060~1450Vdc
Max. DC current	187A	212A
Auto buffering function	Yes	
AC output		
Rated AC output power	100kW	200kW
Max. AC output power	110kVA	220kVA
Rated output voltage	400Vac 3P3W	690Vac 3P3W
Output voltage range	-15%~10% (settable)	
Grid frequency range	50Hz/60Hz (settable)	
Max. output current	158A	184A
Power factor	>0.99 (at rated power)	
Adjustable power factor	1 (leading)~1 (lagging)	
THDi	<3% (at rated power)	
Overloading capability	110% (overload)	
Efficiency		
Max. efficiency	98.8%	
General data		
Isolation mode	None	
IP rating	IP66	
Operation temperature	-35°C~60°C	
Relative humidity	0~100%	
Cooling type	Intelligent forced air cooling	
Dimensions (W×H×D)	600x295x900mm	
Weight	95kg	
Altitude	4000m (>2000m derating)	
Display	LED	
Communication protocol	Modbus-RTU, Modbus-TCP, SUNSPEC, IEC61850, IEC104	
Communication interface	Ethernet, RS485, CAN, Bluetooth	
Installation	Rack-mounted & Wall-mounted (optional)	
Parallel function	Yes	
Grid-forming function	Yes	
Compliance	IEC/EN 62477-1, IEC/EN 61000-6-2, IEC/EN 61000-6-4	

- Specification indexes may be subject to changes without further notice.

Modular Energy Storage Converter (DC-DC)

SPT175K~200K-HM Series



Safe

- Advanced ANPC three-level topology, max. converter efficiency 99.03%
- Wide DC voltage range for 1500V system
- 1.1 times long-term overload, 45°C full load operation



Smart

- Adapt to high temperature, salt, and extreme cold etc. environment
- IP55 design, IP65 and C5 anti-corrosion grade optional
- Unified external communication interface, support IEC61850



Simple

- Smart online upgrade, easy for system maintenance
- Support multi-machine parallel connection, VSG, PQ, VF, black-start and other functions
- H/LVRT function, high adaptation ability to the grid
- Various applications such as peak shaving, frequency modulation, auxiliary grid connection for new energy system, etc.



Technical Specification

Items	SPT175K-HM	SPT200K-HM
DC input (BAT)		
Rated input power	175kW	200kW
DC voltage range	0-1500Vdc	
Operating voltage range at full load	1060~1400Vdc	1212~1400Vdc
Max. working current	180A	
Rated working current	140A	150A
DC buffer function	Yes	
DC input (Bus)		
DC voltage range	550-1500Vdc	
Operating voltage range at full load	1110Vdc~1450Vdc	1262dc~1450Vdc
Max. working current	180A	
Overload capacity	110% for long term, 120% for 1min (@45°C)	
Efficiency		
Max. efficiency	99%	
General data		
Dimension (W×H×D)	600×266×750mm	
Weight	≤75kg	
IP rating	IP65	
Operating temperature	-35~60°C	
Cooling type	Intelligent air cooling	
Relative humidity	0~95% (No condensation)	
Communication	WIFI, Bluetooth, RS485, CAN, Ethernet	
Altitude	4000m (>3000m derating)	
Display	LED, WEB, APP	
Parallel function	Support Bus side or both side parallel expansion	
Reverse connection protection	Yes	
Over-temperature protection	Yes	
Insulation monitoring	Yes	
Compliance	IEC62109-1, IEC62477-1	

- Specification indexes may be subject to changes without further notice.

1000Vdc Energy Storage Converter

BCS100K~500K-A Series



High efficiency

- Integrated output isolation transformer
- Bidirectional converter, charge & discharge batteries
- Multiple charge modes including constant current charging, equalized charging and float charging



Power grid adaptability

- Smart grid design & power grid dispatching
- Advanced islanding detection technology
- Reactive power compensation and other functions
- Off-Grid independent operation



System characteristics

- Isolation between batteries & grid
- Charging and discharging time setting for 12 segments, better for customer's on-site applications
- On/off grid switching time: general conditions <200ms; zero transition can be achieved under specific conditions (external connection of SCR)
- Four periods of time (peak, flat, valley and sharp) price setting, flexible calculation of user profitability



Technical Specification

Items	BCS100K-A	BCS250K-A	BCS500K-A
DC Input (PV)			
MAX. DC voltage	1000Vdc		
DC voltage range	500~900Vdc		
Max. DC current	228A	566A	1125A
Auto buffering function	13A/13A		
AC Output (On-grid)			
Rated AC output power	100kW	250kW	500kW
Max. AC output power	110kVA	275kVA	550kVA
Rated output voltage	400Vac		
Output voltage range	-15%~10% (settable)		
Rated grid frequency	50Hz/60Hz (settable)		
Max. output current	159A	397A	794A
Power factor	>0.99 (at rated power)		
Adjustable power factor	1 (leading)~1 (lagging)		
THDi	<3% (at rated power)		
Off-grid AC output			
Rated AC output voltage	400Vac		
Output voltage precision	1%		
Max. output current	159A	397A	794A
THDu	<3% (linear load)		
Rated output frequency	50Hz /60Hz		
Overloading capability	110% overload		
Efficiency			
Max. efficiency	96.40%	97.20%	97.60%
General data			
Isolation transformer	Yes		
IP rating	IP20		
Operation temperature	-30°C~65°C (>45°C derating)		-30°C~65°C (>40°C derating)
Relative humidity	0~95% (no condensation)		
Cooling type	Intelligent forced air cooling		
Dimensions (W×H×D)	800×1800×800mm	1000×1950×800mm	1400×1950×1000mm
Weight	730kg	1450kg	2050kg
Altitude	5000m (>3000m derating)		
Display	Touch screen		
Communication protocol	Modbus-RTU, Modbus-TCP		
Communication interface	RS485, Ethernet		
Standard	IEC62477-1, IEC61000, EN50549, VDE-AR-N4110		
Standard	IEC/EN62477-1, IEC61000-6-2, IEC/EN 61000-6-4, EN 50549-1, NC RfG		

- Specification indexes may be subject to changes without further notice.

1000Vdc Energy Storage Converter

BCS250K~630K-B Series



High efficiency

- Max. converter efficiency 99%
- Bidirectional converter, charge & discharge batteries
- Multiple charge modes for charging, including pre-charging, constant current charging, equalized charging and float charging



Power grid adaptability

- Smart grid design & power grid dispatching
- Advanced islanding detection technology
- Reactive power compensation and other functions
- Off-Grid independent operation



System characteristics

- Wide DC voltage range
- Compact size, light weight, easy for installation on the site
- Supporting multi-unit parallel connection function, expandable to MW power level
- Independent peak load shifting function without EMS system



Technical Specification

Items	BCS250K-B	BCS500K-B	BCS630K-B
DC Input (PV)			
Max. DC voltage	1000Vdc		
DC working voltage range	500~900Vdc		600~900Vdc
Max. DC current	463A	926A	1166A
Auto buffering function	Yes		
AC Output (On-grid)			
Rated AC output power	250kW	500kW	630kW
Max. AC output power	275kVA	550kVA	693kVA
Rated output voltage	315 (@500~900Vdc)/400Vac (@600~900Vdc)		400Vac
Output voltage range	-15%~10% (settable)		
Rated grid frequency	50Hz /60Hz (settable)		
Max. output current	397A (@400V)	794A (@400V)	1000A
Power factor	>0.99 (at rated power)		
Adjustable power factor	1 (leading)~1 (lagging)		
THDi	<3% (at rated power)		
Off-grid AC output			
Rated AC output voltage	315 (@500~900Vdc)/400Vac (@600~900Vdc)		400Vac
Output voltage precision	1%		
Max. output current	397A (@400V)	794A (@400V)	1000A
THDu	<3% (linear load)		
Rated output frequency	50Hz/60Hz		
Overloading capability	110% overload		
Efficiency			
Max. efficiency	98.80%	99.01%	99.03%
General data			
Isolation mode	None		
IP rating	IP20		
Operation temperature	-30°C ~65°C (>45°C derating)		
Relative humidity	0~95% (no condensation)		
Cooling type	Intelligent forced air cooling		
Dimensions (W×H×D)	1100×1950×700mm		
Weight	700kg		
Altitude	5000m (>3000m derating)		
Display	Touch screen		
Communication protocol	Modbus-RTU, Modbus-TCP, IEC61850		
Communication interface	RS485, Ethernet		
Standard	IEC62477-1, EN61000		

- Specification indexes may be subject to changes without further notice.

1000Vdc Containerized Energy Storage & Transformer Turnkey System

BCS1000K~2500K-B/T Series



High efficiency

- Efficient layout to improve space utilization
- Secondary circuit integration, unified measurement, protection and communication
- Integrated design of converter and transformer system to achieve integrated delivery



Efficient and stable

- Three-level topology, max. converter efficiency 99%
- Compatible with multi types of transformer, including 35kV and below 35kV transformer
- 1.1 times long-term overload, 50°C full load operation



Lean intelligence

- Unified external communication interface, rapid deployment and debugging
- Integrated data acquisition and optical fiber network, intelligent operation management
- H/LVRT function, high adaptation ability to the grid



Flexible configuration

- Support multi-machine parallel connection, PQ, VF and other modes
- Wide DC voltage range
- Various applications such as peak shaving, frequency modulation, auxiliary grid connection for new energy system, etc.



Technical Specification

Items	BCS1000K-B/T	BCS1260K-B/T	BCS2000K-B/T	BCS2500K-B/T
DC input				
Max. DC voltage	1000Vdc			
DC voltage range	600-900Vdc			
Max. DC current	1852A	2332A	3704A	4664A
Auto buffering function	Yes			
Grid-tied AC output				
Rated AC output power	1000kW	1260kW	2000kW	2500kW
Max. AC output power	1100kVA	1386kVA	2200kVA	2750kVA
Rated output voltage	400Vac			
Output voltage range	-15%~10% (settable)			
Grid frequency range	50Hz /60Hz (settable)			
Max. output current	1588A	2000A	3176A	4000A
Power factor	>0.99 (at rated power)			
Adjustable power factor	1 (leading)~1 (lagging)			
THDi	<3% (at rated power)			
Off-grid AC output				
Rated AC output voltage	400Vac			
Output voltage precision	1%			
Max. output current	397A	500A	794A	1000A
THDu	<3% (linear load)			
Rated output frequency	50Hz/60Hz			
Overloading capability	110% overload			
PCS Efficiency				
Max. efficiency	99.03%			
Transformer				
Rated power	1000kVA	1260kVA	2000kVA	2500kVA
Voltage transformation ratio	0.4/6-35kV			
Isolation mode	Oil-immersed transformer or dry type transformer			
General data				
IP rating	IP55			
Operation temperature	-35°C ~60°C (>45°C derating)			
Relative humidity	0~100% (no condensation)			
Cooling type	Intelligent forced air cooling			
Dimensions (W×H×D)	6058×2896×2438mm			
Weight	15000kg			
Altitude	5000m (>3000m derating)			
Display	Touch screen			
Communication protocol	Modbus-RTU, Modbus-TCP, IEC61850, IEC104			
Communication interface	RS485, Ethernet			
Standard	IEC62477-1, EN61000			

- Specification indexes may be subject to changes without further notice.

1500Vdc Energy Storage Converter

BCS1250K~1725K-B-HUD Series



High efficiency

- Advanced ANPC three-level topology, max. converter efficiency 99.03%
- Wide DC voltage range
- 1.1 times long-term overload, 45°C full load operation



Lean intelligence

- Smart online upgrade, easy maintenance
- Support multi-machine parallel connection, VSG, PQ, VF, black-start and other functions
- H/LVRT function, high adaptation ability to the grid
- Various applications such as peak shaving, frequency modulation, auxiliary grid connection for new energy system, etc.



Power grid adaptability

- Adapt to extreme environment, such as high temperature, salt, and extreme cold etc.
- IP55 design, optional IP65 and C5 design
- Unified external communication interface, support IEC61850



Technical Specification

Items	BCS1250K-B-HUD	BCS1500K-B-HUD	BCS1725K-B-HUD
DC input			
Max. DC voltage	1500Vdc		
DC voltage range	800-1500Vdc	900-1500Vdc	1000-1500Vdc
Max. DC current	1753A	1870A	1936A
Auto-buffering function	Yes		
Grid-tied AC output			
Rated AC output power	1250kW	1500kW	1725kW
Max. AC output power	1375kVA	1650kVA	1897.5kVA
Rated grid-tied voltage	550Vac	600Vac	690Vac
Grid voltage range	-15%~10% (settable)		
Rated grid frequency	50Hz/60Hz		
Max. output current	1443A	1588A	1588A
Power factor	>0.99 (at rated power)		
Adjustable power factor	1 (leading)~1 (lagging)		
THDi	<3% (at rated power)		
Off-grid AC output			
Rated AC output voltage	550Vac	600Vac	690Vac
Output voltage precision	1%		
Max. output current	1443A	1588A	1588A
THDu	<3% (liner load)		
Rated output frequency	50Hz/60Hz		
Overloading capability	110% overload		
PCS efficiency			
Max. efficiency	99%		
General data			
Isolation mode	None		
IP rating	IP55 (IP65 optional)		
Operation temperature	-35°C~60°C (>45°C derating)		
Relative humidity	0~100% (no condensation)		
Cooling type	Intelligent forced air cooling		
Dimensions (W×H×D)	860×2270×1725mm		
Weight	1500kg		
Altitude	4000m (>3000m customized)		
Display	Touch screen		
Communication protocol	Modbus-RTU, Modbus-TCP, IEC61850, IEC104		
Communication interface	RS485, Ethernet		
Standard	IEC62477-1, EN61000		

- Specification indexes may be subject to changes without further notice.

1500Vdc Containerized Energy Storage & Transformer Turnkey System

BCS2500K~3450K-B-HUD/T Series

High efficiency

- Efficient layout to improve space utilization
- Secondary circuit integration, unified measurement, protection and communication
- Integrated design of converter and transformer system to achieve the integrated delivery

Efficient and stable

- Advanced ANPC three-level topology, max. converter efficiency 99.03%
- Adapt to high temperature, salt, and extreme cold etc. environment
- 1.1 times long-term overload, 45°C full load operation

Lean intelligence

- Unified external communication interface, support IEC61850
- Integrated data acquisition and optical fiber network, intelligent operation management
- H/LVRT function, high adaptation ability to the grid

Flexible configuration

- Support multi-machine parallel connection, VSG, PQ, VF, cold start and other functions
- Wide DC voltage range for 1500V system
- Various applications such as peak shaving, frequency modulation, auxiliary grid connection for new energy system, etc.



Technical Specification

Items	BCS2500K-B-HUD/T	BCS3000K-B-HUD/T	BCS3450K-B-HUD/T
DC input			
Max. DC voltage	1500Vdc		
DC voltage range	800-1500Vdc	900-1500Vdc	1000-1500Vdc
Max. DC current	3206A	3742A	3872A
Auto-buffering function	Yes		
Grid-tied AC output			
Rated AC output power	2500kW	3000kW	3450kW
Max. AC output power	2750kVA	3300kVA	3795kVA
Rated grid-tied voltage	550Vac	600Vac	690Vac
Grid voltage range	-15%~10% (settable)		
Rated grid frequency	50Hz/60Hz		
Max. output current	2886A	3176A	3176A
Power factor	>0.99 (at rated power)		
Adjustable power factor	1 (leading)~1 (lagging)		
THDi	<3% (at rated power)		
Off-grid AC output			
Rated AC output voltage	550Vac	600Vac	690Vac
Output voltage precision	1%		
Max. output current	2886A	3176A	3176A
THDu	<3% (liner load)		
Rated output frequency	50Hz/60Hz		
Overloading capability	110% overload		
PCS efficiency			
Max. efficiency	99%		
Transformer efficiency			
Rated power	2500kVA	3000kVA	3450kVA
Voltage transformation ratio	0.55/(6-35)kV	0.6/(6-35)kV	0.69/(6-35)kV
Isolation mode	oil-immersed transformer or dry type transformer		
General data			
IP rating	IP55		
Operation temperature	-35°C~60°C (>45°C derating)		
Relative humidity	0~100% (no condensation)		
Cooling type	Intelligent forced air cooling		
Dimensions (W×H×D)	6058×2896×2438mm		
Weight	13000kg		
Altitude	4000m (>2000m customized)		
Display	Touch screen		
Communication protocol	Modbus-RTU, Modbus-TCP, IEC61850, IEC104		
Communication interface	RS485, Ethernet		
Standard	IEC62477-1, EN61000, EN62116		

- Specification indexes may be subject to changes without further notice.

C&I Energy Storage System

S³-EStore Series



Safe

- Cell status fully monitoring & multi-level fire protection
- System IP54 protection, PCS and battery IP6X protection
- Online insulation detection & Accurate positioning protection



Simple

- All-in-one design, high power density, only take up 1.3m²
- Flexible transportation & fast installation
- Free combination & flexible expansion



Smart

- Multi-mode operation & health status detection
- Refined thermal management means pack temperature difference within 3°C
- Online balanced management



Technical Specification

Items	EStore 100K-B215
DC parameter	
Cell technology	LiFePO4 3.2V/280Ah
Battery pack configuration	43kWh
Battery pack degree of protection	IP66
System battery string configuration	1P240S
DC protection	FUSE
Energy capacity	215kWh
Battery rated voltage	768Vdc
System battery voltage range	600-876Vdc
P rate	≤0.5P
Depth of discharge	0-95%
Cooling type	Liquid cooling
AC parameter	
Rated AC power	100kW
Rated AC voltage	400Vac, 3P3W+PE
AC voltage range	-15%-10%(settable)
Nominal grid frequency	50/60Hz
Nominal grid frequency range	45-55Hz/55-65Hz
THDI	<3%
DC component	<0.5%
IP rating	IP66
Cooling type	Intelligent force air cooling
General	
Max. efficiency	91%
Dimension (W*H*D)	1000×2250×1300mm
Weight	2100kg
Degree of protection	IP55
Anti-corrision grade	C3 (C5 optional)
Relative humidity	0 - 95 % (no condensation)
Operating temperature range	-20°C~55°C
Max. working altitude	3000m
Anti-explosion type	Anti-explosion valve
Fire safety equipment	NOVEC, Gas aerosol, Flammable gas detector (optional)
Communication interface	Ethernet/CAN/RS485
Communication protocol	Modbus TCP
Compliance	IEC62619, IEC62477, UN38.3

- Specification indexes may be subject to changes without further notice.

Liquid cooling Battery Energy Storage System

S³-EStation Series

Safe

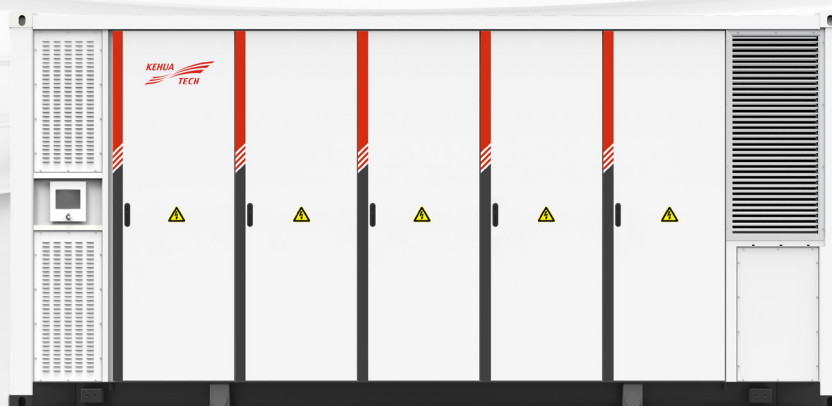
- All-round safety design of the system, including the battery cell, battery pack, BMS, fire protection, container system and energy storage power station
- The BMS+ cluster-level controller realizes intelligent power control and dispatching, and realizes active current sharing, intelligent switching, quick response and dual protection of BCUs
- Intelligent battery protection management, prediction of battery SOH, reduction of the probability of thermal runaway impact and improvement of system equipment safety

Simple

- Adaptive to the mainstream 3.45 MW energy storage converter, realizing standardized and integrated design from the battery end to the power grid end, which can be quickly configured and used
- Integrated design of battery system, unified external interfaces, remote online upgrade, cloud data analysis and visual management
- Adaptive to mainstream cells of 280 Ah and above in the industry, 20-year reliability design, DC/DC system cycle life and charge and discharge capacity improvement

Smart

- Gives full play to the flexible adaptation of power electronic technology, and combine software and hardware with 3S designs such as PCS, BMS and EMS to realize whole-process monitoring and management
- Full-life-cycle intelligent health control, insulation fault detection and protection, container level + pack level linkage fire protection
- An intelligent operation and maintenance platform, AI model predicting failure points and giving early warning and prevention, and a system easy to expand, maintain and install



Technical Specification

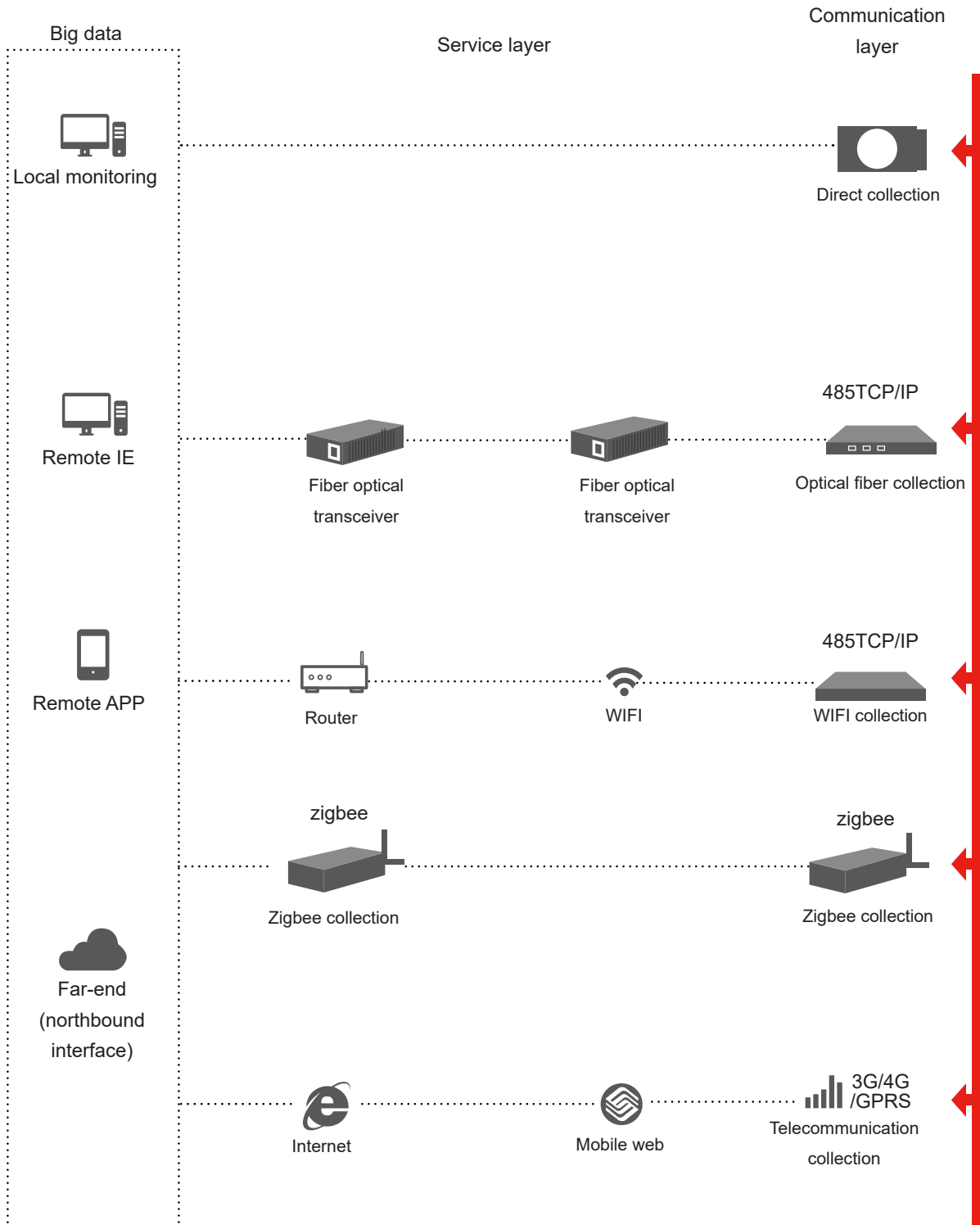
Items	S-R10-P8-48S1P-L280-B
Battery Module parameters	
Model	P-48S1P-L280-B
Standard charge-discharge rate	0.5C
Combination mode	1P48S
Rated energy	43kWh
Nominal voltage	153.6V
Charge and discharge efficiency	≥93%@25 ± 3°C, 0.5C
Thermal management mode	Liquid cooling
Temperature difference of a single battery pack cell	≤3°C
IP rating	IP66
Battery charge operating temperature	0°C~55°C
Battery discharge operating temperature	-20°C~55°C
Storage temperature	-20°C~45°C
Dimensions (W × D × H)	760×1050×270mm
Weight	310kg
Storage humidity	< 95%, no condensation
Altitude	≤ 4000m (>3000m derating)
Battery cluster parameters	
Model	R-P8-48S1P-L280-B
Standard charge-discharge rate	0.5C
Combination mode	1P384S
Rated energy	344kWh
Nominal voltage	1228.8V
Charge and discharge efficiency	≥92% @25±3 °C, 0.5 C (excluding auxiliary power consumption)
Thermal management mode	Liquid cooling
Communication mode	CAN
IP rating	IP66
Battery charge operating temperature	0°C~ 55°C
Battery discharge operating temperature	- 20 °C~55°C
Storage temperature	-20°C~45°C
Dimensions (W × D × H)	980×1100×2500mm
Weight	2600kg
Storage humidity	< 95%, no condensation
Altitude	≤ 4000m (>3000m derating)
Reference standards	IEC62619, UL60730-1
Container system parameters	
Model	S-R10-P8-48S1P-L280-B
Standard charge-discharge rate	0.5C
Combination mode	10P384S
Rated energy	3440kWh
Nominal voltage	1228.8V
Charge and discharge efficiency	≥92% @25±3 °C, 0.5 C (excluding auxiliary power consumption)
Thermal management mode	Liquid cooling
IP rating	IP54 (battery compartment)
Communication mode	CAN/RS485/Ethernet
Battery charge operating temperature	0°C~55°C
Battery discharge operating temperature	- 20°C~ 55°C
Storage temperature	-20°C~45°C
Dimensions (W × D × H)	6058×2438×2896mm
Weight	< 35T
Storage humidity	< 95%, no condensation
Altitude	≤4000m (>3000m derating)
Reference standards	IEC62477-1, IEC61000-6-2, IEC61000-6-4

- Specification indexes may be subject to changes without further notice.

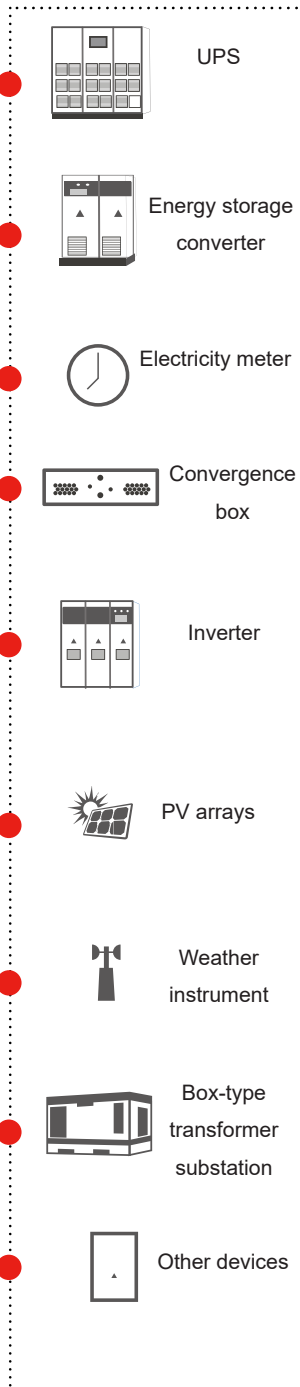
EMS Energy Management System

EMS energy management system can realize the functions of monitoring, controlling and power distribution for multiple sets of energy storage units. It can meet the needs of big data and cross-platform access, and rapid collection, mining and analysis of massive data. Safe, stable and efficient operation of the whole energy storage system is realized.

System Architecture



Mechanical floor



Application scenarios

- Management of power energy jointly generated through wind, light and storage
- Energy storage, frequency modulation and power control
- Comprehensive energy management in Smart Park
- Energy management of micro-grid system
- Off-grid/ island
- Reactive power regulation
- Dispatching target tracking
- Capacity control

System features

- System data capacity and functional modules are supported to be extended and added
- The distributed design is adopted and unattended operation, self-healing after failure and other functions are supported with the improvement of the system reliability
- With flexible deployment centralized/distributed deployment and single/dual redundant deployment are supported
- Flexible configuration of the system is supported, and the system configuration can be quickly adjusted with the reduction of debugging cycle

EMS Upper Computer Software

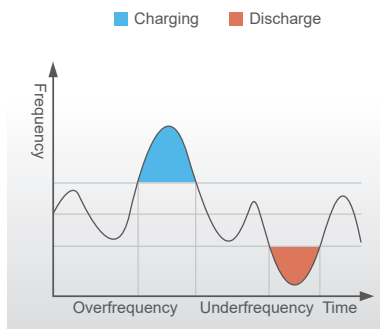
PowerSCADA3000

- The system adopts the non-relational timing sequence database as the history banks to quickly retrieve and build a whole view of fault recurrence
- HMI adopts the plug-in type technology and supports more complex basic graphic elements, such as curve graph/bar graph/pie chart/ hydrograph /instrument panel, etc.
- Javascript graphic design is adopted, balancing the system and the increasingly changed personalized needs
- The client HMI and Web publishing are supported

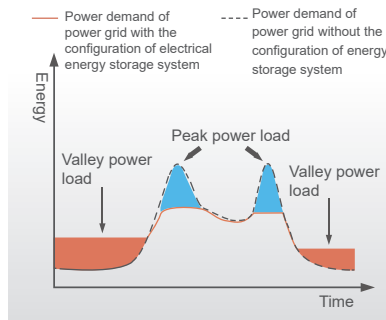


Major function

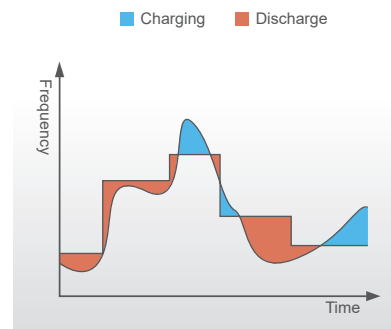
Frequency adjustment



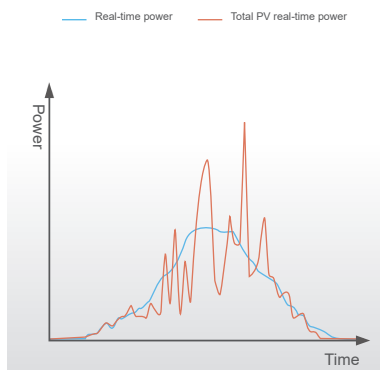
Peak shaving



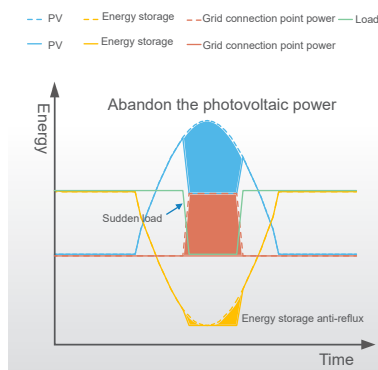
Correction of the generation plan curve



Smooth output



Anti-reflux

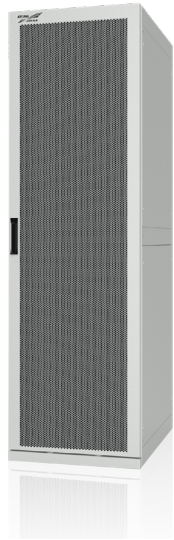


Anti-exceeding demand



EMS Cabinet

KM-EMS10/20



Product Features

- Rack-mounted hardware design, standardized software design and customized scheme design
- Support a variety of mainstream operating systems (Linux CentOS7.0, Windows 10, Windows Server2016)
- Support multiple communication modes (CAN, 485, Ethernet, etc.)
- Support a variety of mainstream communication protocols (IEC61850, Modbus, IEC60870-5, DNP, etc.)

Technical Specification

Items	KM-EMS10 (industrial computer)	KM-EMS20 (server)
Power supply		
Voltage	AC: 176-295Vac/50Hz	
Power consumption	≤1000W	
System configuration		
Server	Industrial personal computer/server	
Switch	Layer-2 switch	
Monitoring software	PowerSCADA3000	
Serial port server	RTU/TCP gateway	
Protocol converter	Optional	
UPS	3kVA	
Communication parameters		
Communication Interface	Ethernet, optical fiber, RS485	
Communication protocol	Modbus RTU/TCP, IEC101, IEC104, DLT645, CDT	
General parameters		
Protection Class	IP20	
Pollution level	2	
Operating temperature	-15-60°C	0-40°C
Operating humidity	0-85% (Without Condensation)	
Dimension (H x W x D)	2000x600x800mm	2000x600x1000mm

- Specification indexes may be subject to changes without further notice.

On/Off-grid Switching Cabinet

BTS100~1000K-K/S Series

Applicable System

- Small microgrid system
- User side commercial energy storage system
- Dual demand system of peak load shifting and emergency power supply

Product Features

- Quickly separate the system from the power grid (switching time < 10ms)
- No need for additional configuration of microgrid system controls, reducing additional investment
- With manual control mode, operation control necessary for various experiments and switching control failures
- There are two switching speed options (< 10ms and < 200ms)
- With cooling system with Kehua's proprietary technology ensures the reliability of the system in various applications



Technical Specification

Items	BTS-100K-K/S	BTS-200K-K/S	BTS-500K-K/S	BTS-1000K-K/S
Maximum AC power	100kVA	200kVA	500kVA	1000kVA
Maximum AC current	144A	289A	722A	1444A
Rated grid voltage	400Vac			
Grid voltage range	300~500Vac			
IP rating	IP 20			
Switch selection	BTS-K (Contactor version), BTS-S (SCR version)			
Switch time	<200ms (Contactor version), <10ms (SCR version)			
Operating temperature range	-25°C ~55°C			
Relative humidity	0~95% (no condensation)			
Protection	Overtemperature, overcurrent, short circuit, lightning protection, etc.			
Altitude	5000mm (>3000m derating)			
Dimensions (W×H×D)	800×1800×800mm	800×2000×800mm		800×2000×1000mm

- Specification indexes may be subject to changes without further notice.

Anti-counter Current Controller SPA1000



Applicable System

- Small microgrid system
- User side commercial energy storage system
- No EMS system for the microgrid, with anti-counter current controlling scheme

Product Features

- Quick anti-current control response, ms-level response
- Reducing system investment, without EMS energy management system, realizing small energy storage grid connection and anti-counter current controlling
- According to different power supply demands, the corresponding control strategy can be made
- Ensure maximizing revenue provided that the grid interconnection of the energy storage system is safe

Technical Specification

Items	SPA1000
Input data (inverter side)	
Monitor the maximum number of inverters	32 channels
Dry contact (reserved)	4 channels
Output data (grid side)	
Rated voltage	400Vac
Allowable grid frequency	47~51.5HZ
Rated frequency	50Hz
Reverse current protection	Yes
Communication interface	RS485
Human-machine interface	OCMJ8x15D liquid crystal
IP rating	IP20
Dimensions (W×H×D)	440×130×360mm

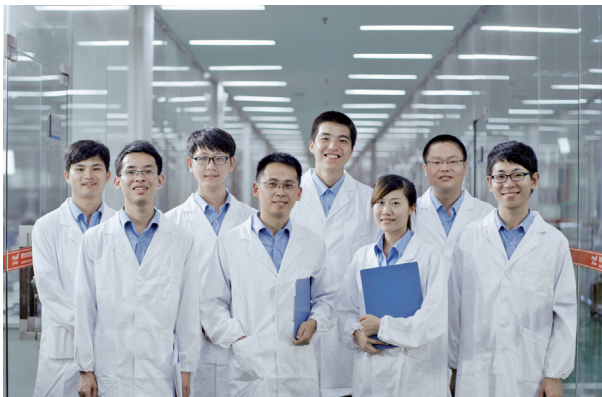
- Specification indexes may be subject to changes without further notice.

Service System



In more than 100 countries and regions around the world, over 500 professional engineers from KEHUA work at customer sites to create one outstanding project after another.

- More than 30 years of experience in power distribution solutions and product O&M



- Accumulation of maintenance practices for millions sets of equipment and systems

- 16 technical service centers

- 80+ technical service outlets globally

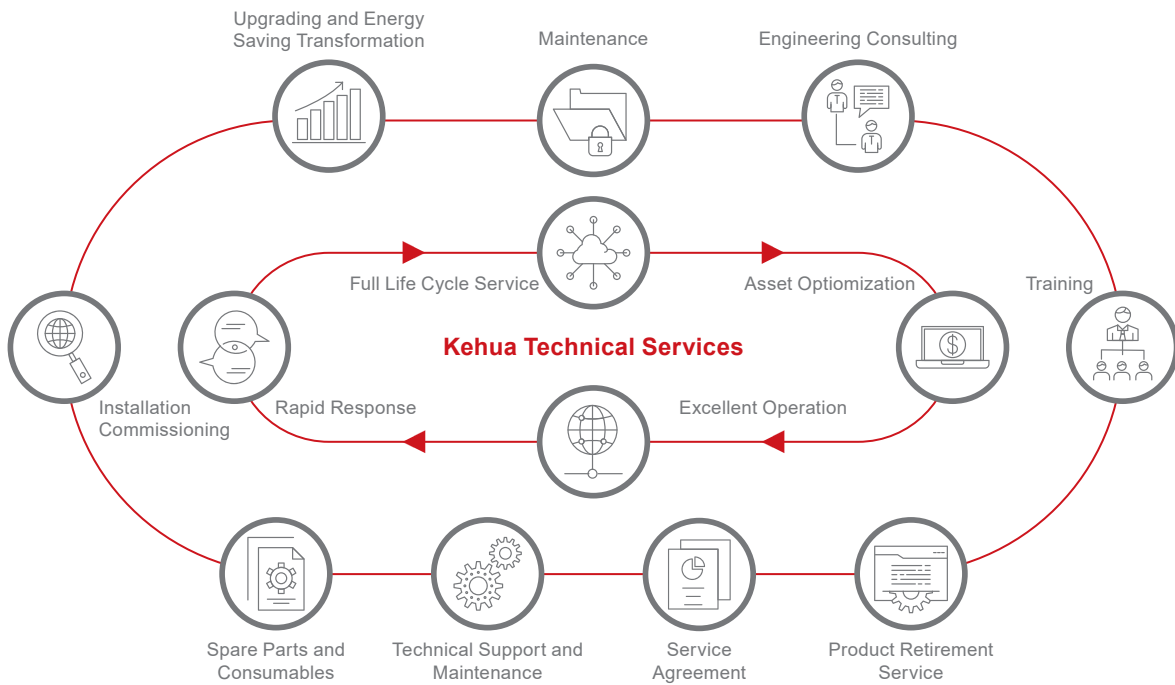
- More than 500 engineers and O&M experts



- 24x7 service

- One-stop supply of spare parts to minimize rush repair/operation and maintenance time

Distribution of Branches and Service Outlets



Reliable • Flexible • Responsible

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