

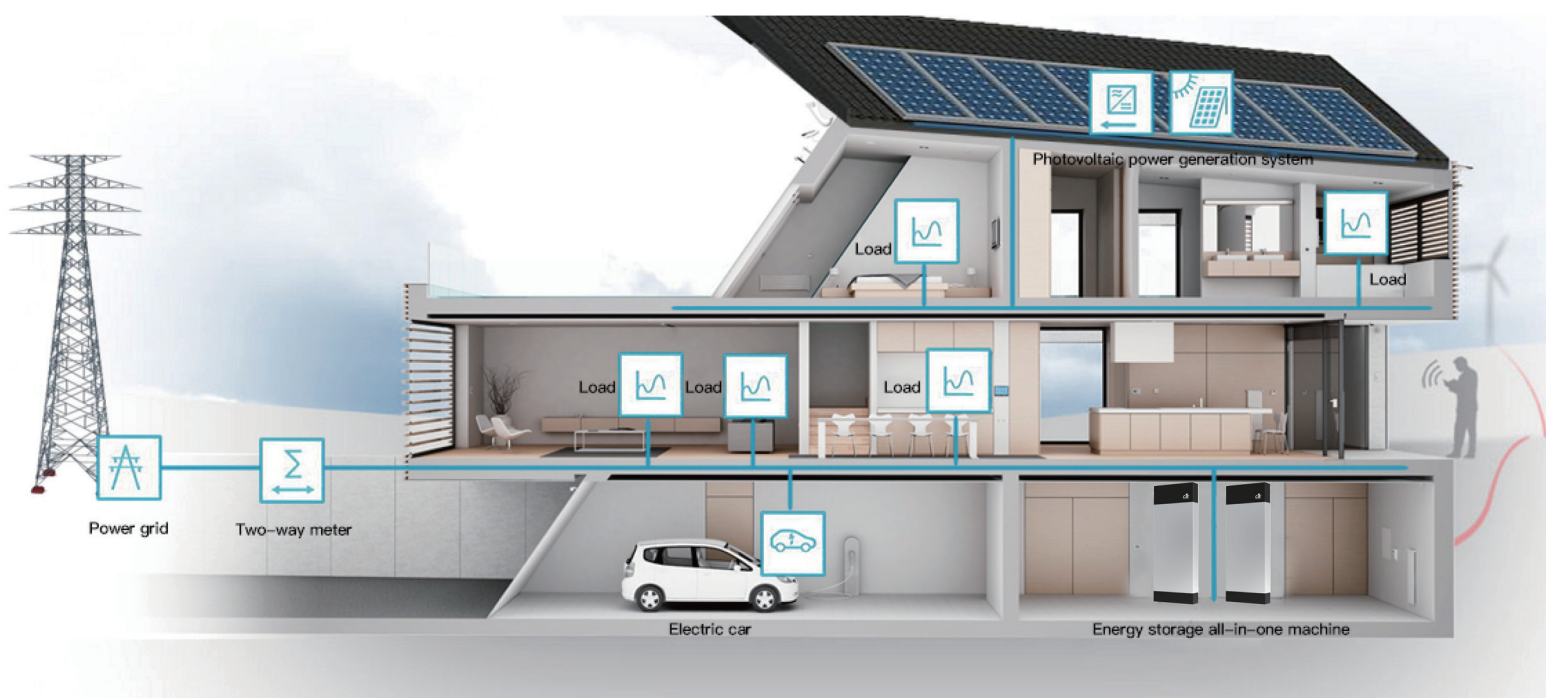


# BESS Residential Solution



# Top Li-ion Battery manufacturer in China

- More than 200 experienced engineers team
- R&D investment exceeds 6% of sales revenue
- 12GWh annual fully automatic lithium battery production capacity
- The R&D management team has more than 20 years of experience in the clean energy industry





### Safety

LFP(Lithium ion Phosphate) the highest safety



### Up to 8 Series or Parallel

Flexible to increase voltage capacity without any other equipments or settings



### Cycle Life

80% of initial capacity after 3500



### WiFi & APP

Integrated WiFi Modem  
OTA online upgrade convenient after-sales service



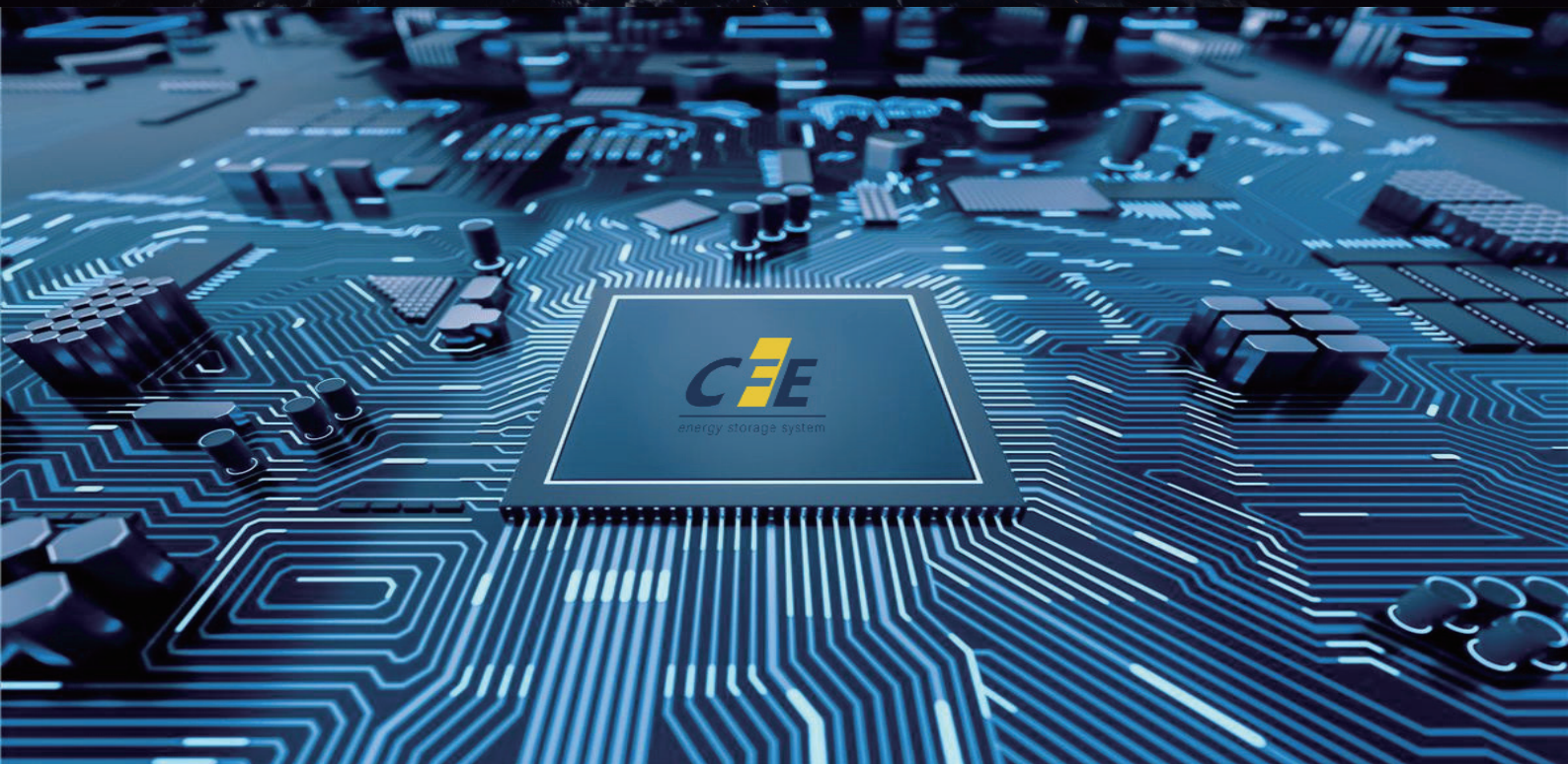
### Installation

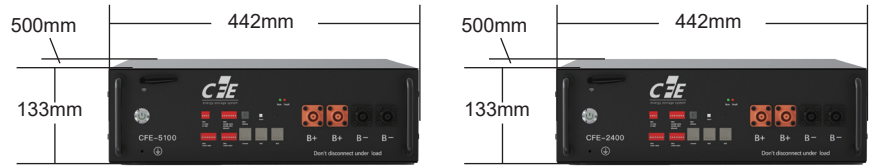
Simple buckle fixing  
minimize the installation time and cost



### High-precision SOC

Accurate sampling of voltage and current SOC mathematic more accurate and never jump





Basic Parameters	CFE 5100	CFE2400
Nominal Voltage(V)	51.2	51.2
Nominal Capacity (Wh)	5120	2457
Usable Capacity(Wh)	4608	2211
Dimension(mm)	442*500*133	442*500*133
Weight(Kg)	42	27
Voltage(V)	48 ~ 56	48 ~ 56
Charge/Discharge Current(A)	60(Recommend)	30(Recommend)
	60(Max)	48(Max)
	100(Peak@15s)	60(Peak@15s)



Commucation Port	CAN / RS485
Single string quantity(pcs)	8
Working Temperature/°C (Charge)	0~45
Working Temperature/°C (Discharge)	-10~55
Shelf Temperature/°C	-20~60
Humidity	5~85%
Altitude(m)	<2000
IP Rating	IP20
Warranty	10 years
Cycle life [1]	6000
Authentication Level	CE & TUV(IEC 62619, IEC 62040) UN38.3
Cooling Type	Ambient Cooling
Installation	Cabinet or Wall Mounting

[1] Test conditions: 0.2C Charging/Discharging, @25°C, 80% DOD



Basic Parameters	Powercube(Parallel)			Powercube(Series)		
	2 Modules	3 Modules	4 Modules	2 Modules	3 Modules	4 Modules
Battery Module	2 Modules	3 Modules	4 Modules	2 Modules	3 Modules	4 Modules
CFE-2400 Battery Capacity [Ah]	96	144	192	48	48	48
CFE-5100 Battery Capacity [Ah]	200	300	400	100	100	100
CFE-2400 Nomial Battery Energy [kWh]	4.914	7.317	9.828	4.914	7.317	9.828
CFE-5100 Nomial Battery Energy [kWh]	10.24	15.36	20.48	10.24	15.36	20.48
Working Voltage [V]	48~56	48~56	48~56	96~112	114~168	192~224
Nominal Voltage [V]	51.2	51.2	51.2	102.4	153.6	204.8
Operating Temp. Range [°C]	-20 ~ 50					
IP Rating	IP55					
Color	White / Silver					
Installation	Cabinet or Wall Mounting					

[1] Test conditions: 0.2C Charging/Discharging, @25°C, 80% Dod

Battery Specifications	CREEK2-5-A	CREEK2-10-A	CREEK5-10-A	CREEK5-15-A	CREEK5-20-A
Capacity [KWh]	4.91	9.83	10.24	15.36	20.48
Battery voltage range [V]	48 ~ 56	48 ~ 56	48 ~ 56	48 ~ 56	48 ~ 56
Recommended battery voltage [V]	51.2	51.2	51.2	51.2	51.2
Cut Off Voltage [V]	48	48	48	48	48
Max. charging Voltage [V]	56	56	56	56	56
Max. Protective Voltage [V]	58	58	58	58	58
Dimension (W/D/H[mm])	580*350*1280	580*350*1800	580*350*1280	580*350*1800	580*350*1800
System Weight[kg]	110	167	149	197	245
Max. charge/discharge current [A]	60/60	120/120	120/120	120/120	120/120
Peak charge/discharge current [A]	60/60	120/120	120/120	120/120	120/120
Communication interfaces	CAN/RS485/WIFI/LAN/DRM				
Reverse connect protection	Yes	Yes	Yes	Yes	Yes
Warranty	10 Year Performance Warranty				



5-20KWh flexible portfolio  
 Fast installation  
 High energy density  
 All in one  
 Scalability  
 WIFI & APP

## Efficiency

MPPT efficiency 99.90%  
 Euro efficiency 97%  
 Max. efficiency 97.60%  
 Max. Battery charge efficiency 95%  
 Max. Battery discharge efficiency 95%

PCS Specifications	CREEK2-5-A	CREEK2-10-A	CREEK5-10-A	CREEK5-15-A	CREEK5-20-A
<b>DC input</b>					
Max. recommended DC power [W]	4600	6000	6000	6000	7000
Max. DC voltage[V]	500	500	500	500	500
Norminal DC operating voltage[V]	360	360	360	360	360
MPPT voltage range [V]	125 ~ 500	125 ~ 500	170 ~ 500	170 ~ 500	220 ~ 500
MPPT voltage range@full load [V]	150 ~ 500	150 ~ 500	150 ~ 500	150 ~ 500	150 ~ 500
Max. input current [A]	14/14	14/14	14/14	14/14	14/14
Max. short circuit current [A]	17.5/17.5	17.5/17.5	17.5/17.5	17.5/17.5	17.5/17.5
Start input voltage [V]	125	125	125	125	125
No. of MPP trackers	2	2	2	2	2
Strings per MPP tracker	1	1	1	1	1
Max. inverter backfeed current to array	0	0	0	0	0
DC disconnection switch	/	/	/	/	/
<b>AC output</b>					
Norminal AC power [VA]	3600	4000	4000	5000	5000
Max. apparent AC power [VA]	3600	4000	4000	5000	5000
Rated grid voltage(range) [V]	230 (176 to 270)				
Rated grid frequency [Hz]	50/60	50/60	50/60	50/60	50/60
Norminal AC current [A]	16	16	16	16	16
Max.AC current [A]	16	16	16	16	16
Displacement power factor	0.99 leading...0.99 lagging				
Total harmonic distortion (THDI)	< 2%	< 2%	< 2%	< 2%	< 2%
Load control	optional	optional	optional	optional	optional
<b>AC input</b>					
Norminal AC power [VA]	3600	4000	4000	5000	5000
Rated grid voltage(range) [V]	230 (176 to 270)				
Rated grid frequency [Hz]	50/60	50/60	50/60	50/60	50/60
Norminal AC current [A]	16	17.4	17.4	21.7	21.7
Max.AC current [A]	16	17.4	17.4	21.7	21.7
Displacement power factor	0.99 leading...0.99 lagging				
AC inrush current	35	35	35	35	35
<b>EPS output</b>					
EPS rated power [VA]	3600	4000	4000	5000	5000
Max. EPS power [VA]	3600	4000	4000	5000	5000
EPS rated voltage, Frequency	230VAC, 50/60Hz				
EPS rated current [A]	16	17.4	17.4	21.7	21.7
Max. EPS current [A]	16	17.4	17.4	21.7	21.7
Switch time [s]	<500ms	<500ms	<500ms	<500ms	<500ms
Total harmonic distortion (THDv)	<2%	<2%	<2%	<2%	<2%
Parallel operation	Yes	Yes	Yes	Yes	Yes
Compatible with the generator	Yes(signal provided only)				



**Flexible**

- ✓ Wide input voltage range
- ✓ Compatible with lead-acid or lithium-ion batteries or other battery

**Grace**

- ✓ Fashion appearance, light weight, smart operation
- ✓ Natural cooling, low noise
- ✓ IP65 , wall mounted design, saving space
- ✓ Touch screen LCD

**Reliable**

- ✓ Compatible anti counter flow function
- ✓ Battery reverse connect protection

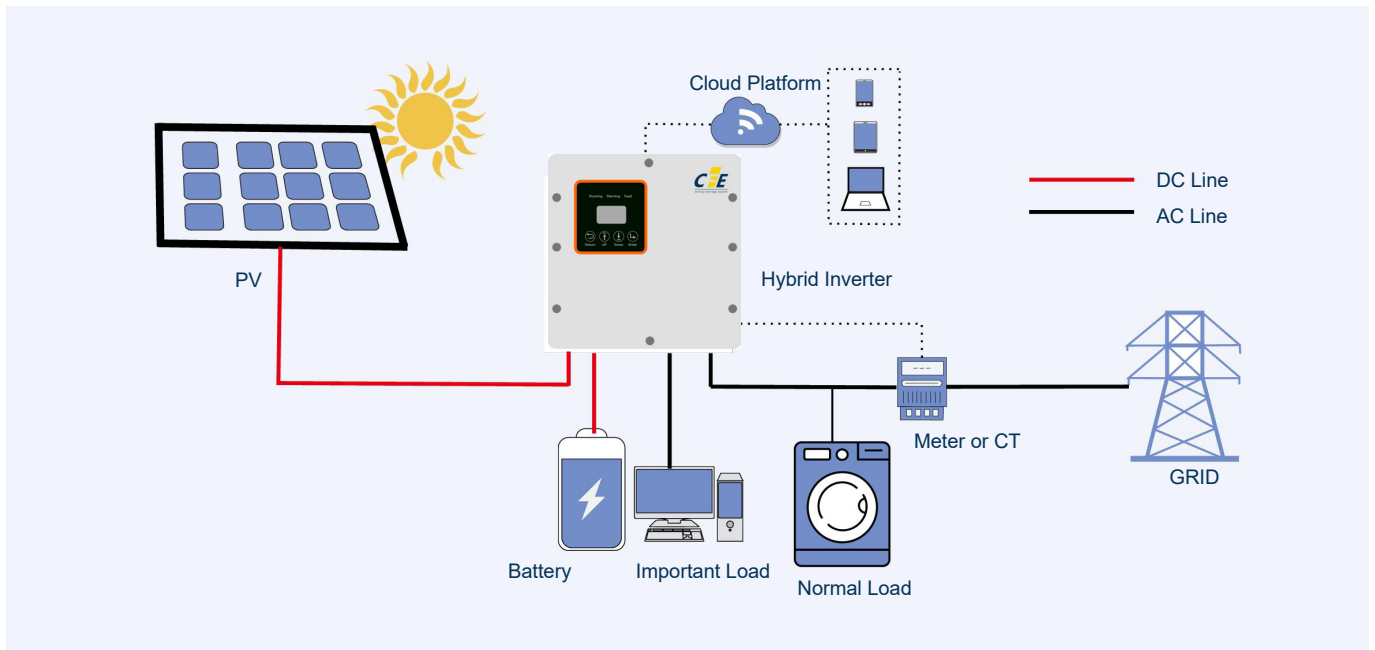
**Advanced**

- ✓ Intelligent energy management system for home
- ✓ Power dispatching and demand side response management
- ✓ Distributed virtual power station management

**Application Scenario**



**Product Topology**



Model	CF8KH3	CF10KH3	CF12KH3
<b>DC Input</b>			
Max. Input Power	10KW	13KW	15K.6W
Max. PV Voltage	1000V		
MPPT Range	125V-850V		
Max. Input Current	12.5A*2		
MPPT Tracker/Strings	2/1		
<b>AC Output</b>			
max output Power W/VA	8.8KVA	11KVA	13.2KVA
Max. output Current	12.7A	15.9A	19.1A
max input Power W/VA	8.8KVA	11KVA	13.2KVA
Nominal Voltage/Range	400V /360V~440V		
Frequency	50 /60Hz		
PF	1(0.8lagging-0.8leading)		
THDI	<3%		
AC Output Topology	3W+N+PE		
<b>Battery</b>			
Battery Voltage Range	125V~600V		
Max. Charging Voltage	600V		
Charge/Discharge Current	50A	50A	50A
Charge/Discharge power	8.8KW	11KW	13.2KW
Battery Type	lithium /Lead-acid		
Communication Interface	CAN		
<b>EPS Output</b>			
Rated Power	8.8KVA	11KVA	13.2KVA
Rated Voltage/Frequency	400Vac/50Hz /60Hz		
Rated Current	12.7A	15.9A	19.1A
Rated Frequency	50Hz		
Automatic Switchover Time	<20ms		
THDU	<2%		
Parallel Operation	yes		
<b>General Data</b>			
Battery Chage/Dischage	96.6%		
DC Max. Efficiency	97.9%		
Euro Efficiency	97.2%		
MPPT Efficiency	99.5%		
Protection class	IP65		
Noise Emission (Typical)	<35dB		
Operation Temperature	-25 ~ +60°C		
Cooling	Natural		
Relative Humidity	0 ~95% (non-condensing)		
Altitude	2000m		
Dimensions (W/D/H) mm	530/200/560mm		
Weight	29kg		
Inverter Topology	transformerless		
Self-Consumption	<3W		
<b>Features</b>			
Display	LCD		
Interface: RS485/Wifi/LAN/CAN/DRM	yes /opt/opt/yes/yes		
Certificates	CE, TUV		



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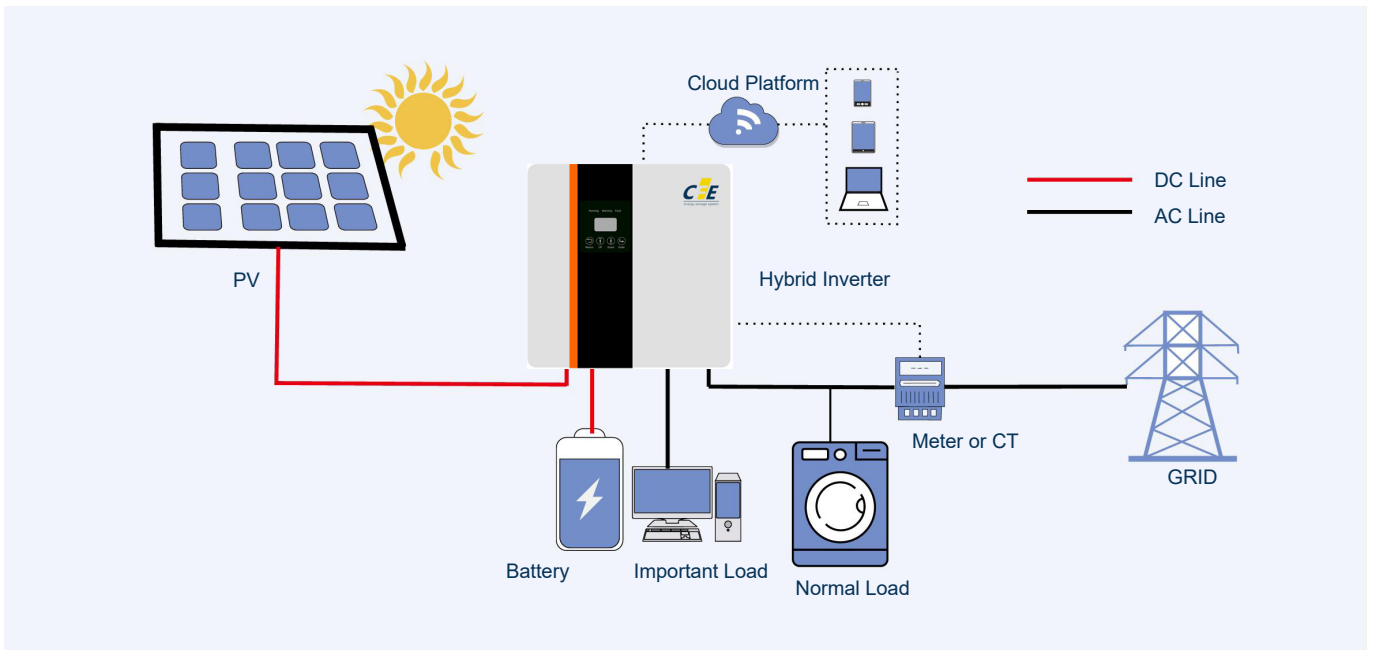
**Advanced**

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**Application Scenario**



**Product Topology**



Datasheet	CF3KL1	CF3K6L1	CF4KL1	CF4K6L1	CF5KL1	CF6KL1
<b>DC Input</b>						
Max. Input Power	4600W		6000W		7000W	
Start-up Voltage	125V					
Max. PV Voltage	550V					
MPPT Range/Nominal	125V-500V /360V					
Max. Input Current	14A/14A					
MPPT Tracker/Strings	2/1					
<b>AC Output</b>						
Rated Power W/VA	3000VA/3000W	3600VA/3600W	4000VA/4000W	4600VA/4600W	5000VA/5000W	6000VA/6000W
Max. Output Current	13A	16A	17.4A	20A	21.7A	26A
Nominal Voltage/Range	230Vac /176Vac~270Vac					
Frequency	50 /60Hz					
PF	1(0.8lagging-0.8leading)					
THDI	<3%					
AC Output Topology	L+N+PE					
<b>Battery</b>						
Battery Voltage Range	40~58V					
Max. Charging Voltage	58V					
Charge/Discharge Current	95A/62.2A	95A/75A	95A/83.3A	95A/95.8A	95A/104.2A	95A/110A
Battery Type	lithium /Lead-acid					
Communication Interface	CAN					
<b>EPS Output</b>						
Rated Power W/VA	3000VA/3000W	3600VA/3600W	4000VA/4000W	4600VA/4600W	5000VA/5000W	6000VA/6000W
Rated Voltage	230Vac					
Rated Current	13A	16A	17.4A	20A	21.7A	26A
Rated Frequency	50Hz					
Automatic Switchover Time	<20ms					
THDU	<2%					
Overload capacity	110%,60S/120%,30s/150%,10s					
<b>General Data</b>						
Battery Chage/Dischage	95%					
DC Max. Efficiency	97.6%					
Euro Efficiency	97%					
MPPT Efficiency	99.9%					
Protection class	IP65					
Noise Emission (Typical)	<35dB					
Operation Temperature	-25 ~ +60°C					
Cooling	Natural					
Relative Humidity	0 ~95% (non-condensing)					
Altitude	2000m					
Dimensions (W/D/H) mm	550/200/515mm					
Weight	25kg					
Inverter Topology	transformerless					
Self-Consumption	<3W					
<b>Features</b>						
Display	LCD					
Interface: RS485/Wifi/LAN/CAN/DRM	yes /opt/opt/yes/yes					
Certificates	CE, TUV, SAA, IEC62166:2014, IEC61683: 1999					



### High efficiency

- ✓ Advanced MPPT technology with an efficiency of 99.9% topology, to maximize battery performance.
- ✓ Multiple working mode are optional for different working priority (Grid 1 battery / energy saving mode).
- ✓ Electricity bypass quick charging function.
- ✓ Solar panel MPPT Charging technology.

### Intelligence

✓ file, computer, Internet/remote operation.

### Reliable

- ✓ Over-load and short-circuit protection.
- ✓ Capable of providing the continuous power to linear load or non-linear load of lamp, computer, fridge, air-conditioner, fans, and household appliances and industrial power.

### Application Scenario



Communication base station

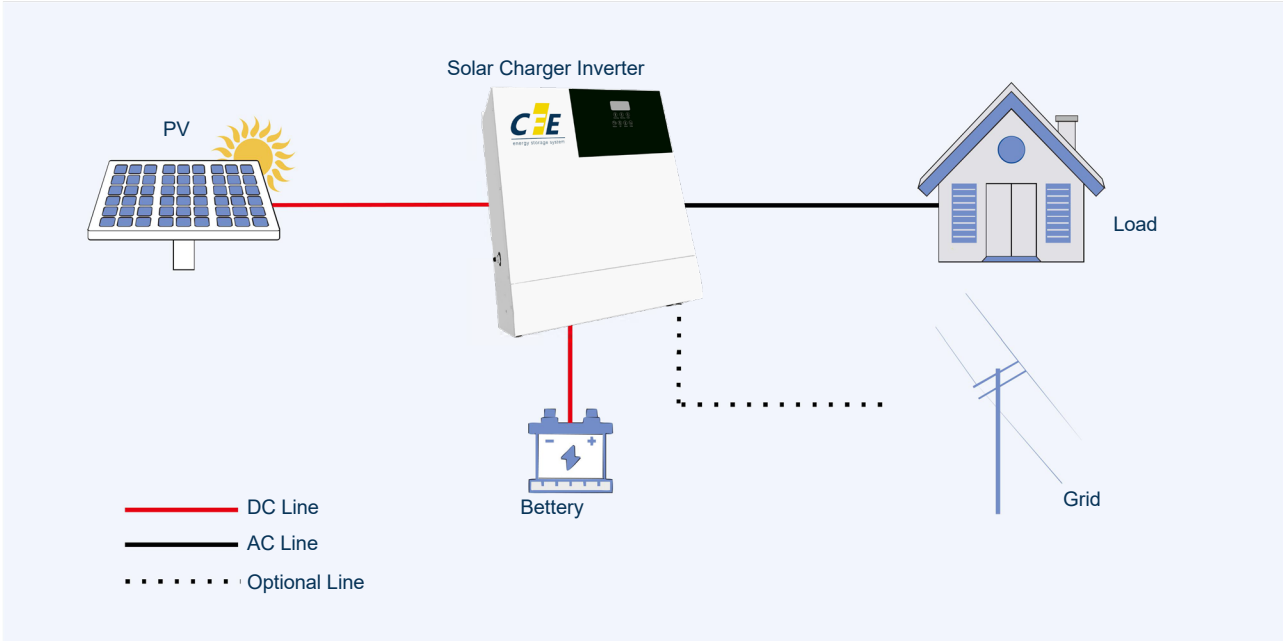


Nomadic area



Farm

### Product Topology



Datasheet	CF4830S60-H	CF4850S80-H
<b>Line mode</b>		
AC input voltage	220/230Vac	
AC input voltage range	(170Vac~280Vac) $\pm$ 2%;(90Vac~280Vac) $\pm$ 2%;	
Rated frequency	50HZ/60HZ (auto detection)	
Frequency range	47 $\pm$ 0.3Hz~55 $\pm$ 0.3Hz for 50Hz;(57 $\pm$ 0.3Hz~65 $\pm$ 0.3Hz for 60Hz)	
Over-Koad/short-circuit protection	circuit break	
Efficiency	>95%	
Transfer time	(AC to DC to DC to AC): 10ms (typical)	
Bypass reday current	30A	40A
<b>Invert mode</b>		
Output voltage waveform	Sine wave	
Rated output power	3000VA/3000W	5000VA/5000W
Power factor	1	
Rated output voltaga	220/230( $\pm$ 5%)Vac	
Rated output frequency	50Hz $\pm$ 0.3Hz/60Hz $\pm$ 0.3Hz	
Efficiency	>92%	
Over-load protection	(102%<Load<125%) $\pm$ 10%:fault(shutdown output) after 5 min;(125%<Load<150%) $\pm$ 10%:fault(shutdown output) after 10S;Load > 150% $\pm$ 10%:fault(shutdown output)after 50S	
Peak power (10s)	6000VA	10000VA
Capable of starting electric motor	2HP	4HP
Output short-circuit protection	circuit breaker	
Output breaker current	30A	40A
DC input voltage / Min.dc start vlotage	48VDC(minimum starting vlotage 44V)	
Battery voltage range	40Vdc~60Vdc $\pm$ 0.6Vdc	
Power saving mode	load $\leq$ 25w	
<b>Charge(line)</b>		
Battery tybe	lead acid or lithium battery	
Charge current	60A	
Charge curren regulation	$\pm$ 5A <sub>dc</sub>	
Battery voltage range	40-58Vdc	
Charge short-circuit protection	circuit breaker and blown fuse	
Breaker current	40A	
Over charge protection	alam and turn off charging after 1 minute	
<b>Charge(solar)</b>		
MPPT voltage range	60-115Vdc	
Max. PV input voltago	145Vdc	
Max. PV open circuit voltage	145Vdc	
Battery voltage range	40V-60Vdc	
Max. output power	3200W	4200W
Pv charging current range	0-60A	0-80A
Battery sthort-circuit protection	Blown Fuse	
Wring protection	Anti reverse connecting protection	
<b>Othors</b>		
Dirmension(LXWD)	430X338X126mm	
Weight	10kg	
Degree of protection	IP20(force air,variable speed fan)	
Operation temperature range	-15~40°C(-25°C~60°C for storage)	
Relative humidity	5%-95%	
Communication interface	RS-485/GPRS/WIFI	
safe certificate / emc certificates	CE(EN62040-1,EN62040-2)/C2	



**Flexible**

- ✓ Compatible lithium battery and lead-acid battery
- ✓ Wireless communication,flexibe control and monitoring system through APP

**Reliable**

- ✓ No Fan Design, IP65 Protection Level
- ✓ Battery and AC electrical isolation, safe and reliable

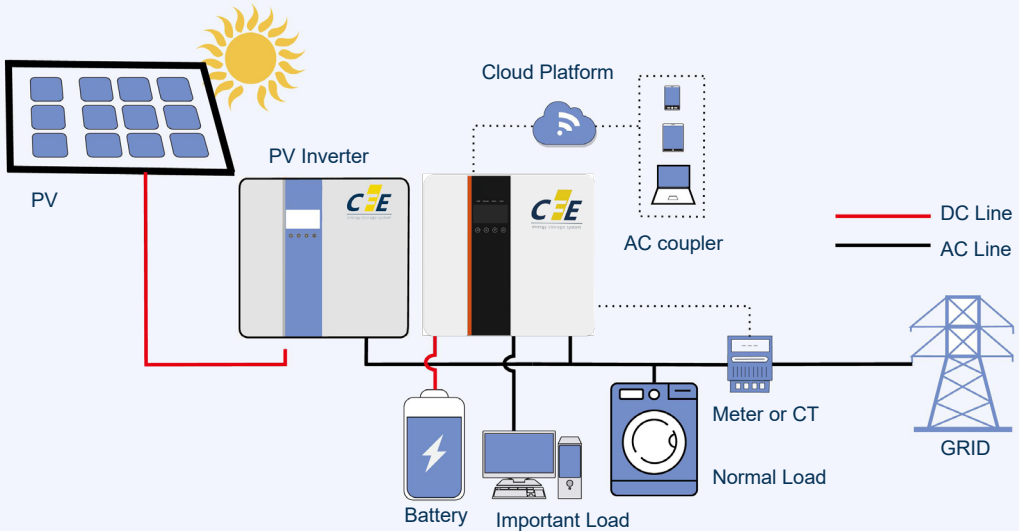
**Superior performance**

- ✓ Full power charging and discharging current of battery can reach 100A
- ✓ Off-grid, grid-connected dual-output
- ✓ Out-of-network THDU is better than 3%, with inductive load

**Application Scenario**



**Product Topology**



Datasheet	CF3K-BP	CF3K6-BP	CF4K-BP	CF4K6-BP	CF5K-BP
<b>AC output</b>					
Rated power w/va	3000VA/3000W	3600VA/3600W	4000VA/4000W	4600VA/4600W	5000VA/5000W
Max. output current	13A	16A	17.4A	20A	21.7A
Nominal voltage/range	230V /180Vac~280Vac				
Frequency	50 /60Hz				
PF	0.99lagging-0.99leading				
THDI	<3%				
AC output topology	L+N+PE				
<b>Battery</b>					
Battery voltage range	40~58V				
Max. charging voltage	58V				
Charge/discharge current	95A/62.2A	95A/75A	95A/83.3A	95A/95.8A	95A/104.2A
Battery type	Lithium /Lead-acid				
Communication interface	CAN/RS485				
<b>EPS output</b>					
Rated power w/va	3000VA/3000W	3600VA/3600W	4000VA/4000W	4600VA/4600W	5000VA/5000W
Rated voltage	230Vac				
Rated current	13A	16A	17.4A	20A	21.7A
Rated frequency	50 /60Hz				
Automatic switchover time	<20ms				
THDU	<2%				
Overload capacity	110%.60S/120%.30s/150%.10s				
<b>General data</b>					
Max. efficiency	97.6%				
Protection class	IP65				
Noise emission (typical)	<35dB				
Operation temperature	-25°C~+60°C				
Cooling	Natural				
Relative humidity	0~95% (non-condensing)				
Altitude	2000m				
Dimensions (WDXH)	550X200X515mm				
Weight	22kg				
Inverter topology	Without transformer				
Self-consumption	<3W				
<b>Features</b>					
Display	LCD				
Interface:rs485/wifi/lan/can/drm	yes /opt/opt/yes/yes				
Certificates	CE/TUV				



First-class power battery system supplier  
First-class supplier of energy storage and microgrid



**CNBM**

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Global Exclusive Distributor

Contact Us

CNBM INTERNATIONAL CORPORATION

Claire Huang

Cell phone: +8613521257950

E: [clairehuang@cnbmcmax.com](mailto:clairehuang@cnbmcmax.com)

Address: 17th Floor, NO.4 Building, Zhuyu Business  
Center, Shouti South Road, Haidian District, Beijing, China

Postcode: 100048