

# **PSC SOLAR UK**

## **Battery Inverter & ESS Series**

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### **Product Pamphlets**

# catalogue



## SP Series Battery Inverter

<b>SP5.0/7.5HA Hybrid Inverter</b>	<b>01</b>
<b>SP30HA / SP30HB Battery Inverter</b>	<b>04</b>
<b>SP62.5HA / SP62.5HB Battery Inverter</b>	<b>07</b>
<b>SP125HB Battery Inverter</b>	<b>10</b>



## Energy Storage Series

<b>SPBD ESS</b>	<b>15</b>
<b>SPBC-90Ah ESS</b>	<b>18</b>
<b>SPBC-280Ah ESS</b>	<b>21</b>
<b>SP5.0/7.5B10 ESS</b>	<b>24</b>
<b>SPBGD Series</b>	<b>27</b>
<b>SPBD Genset Mate</b>	<b>30</b>

## SP5.0/7.5HA Hybrid Inverter

Single phase PV-BAT hybrid inverter, embedded EMS, up to 10pcs parallel operation, support multi units combined for three phase application as well. Compatible with generators.

Embedded EMS is widely configurable for hybrid system. Monitoring function presents full system operation status through phone APP. External command from other EMS is also compatible.



Residential Level



Commercial & Industrial Level



Mobile power station



Micro-grid system

## Highlights

- |  |   |
|--|---|
| <b>1</b> *Embedded EMS                           | <b>5</b> Multi units combined for three phase application |
| <b>2</b> Up to 10pcs series/ parallel operation  | <b>6</b> <10ms switch time                                |
| <b>3</b> Parallel operation with generators/grid | <b>7</b> Virtual synchronous generator (VSG) function     |
| <b>4</b> **Compatible with mixed batteries       | <b>8</b> 150% overload for 30s                            |

\*Control logic include: Active/ reactive power control, managing power priority, power quality management, peak shaving, fuel saving, PV-BAT-GEN hybridization, emergency backup, etc.

\*\*Different type, lifetime, capacity batteries mixed application, keep SOC unbalance ratio within 5%.

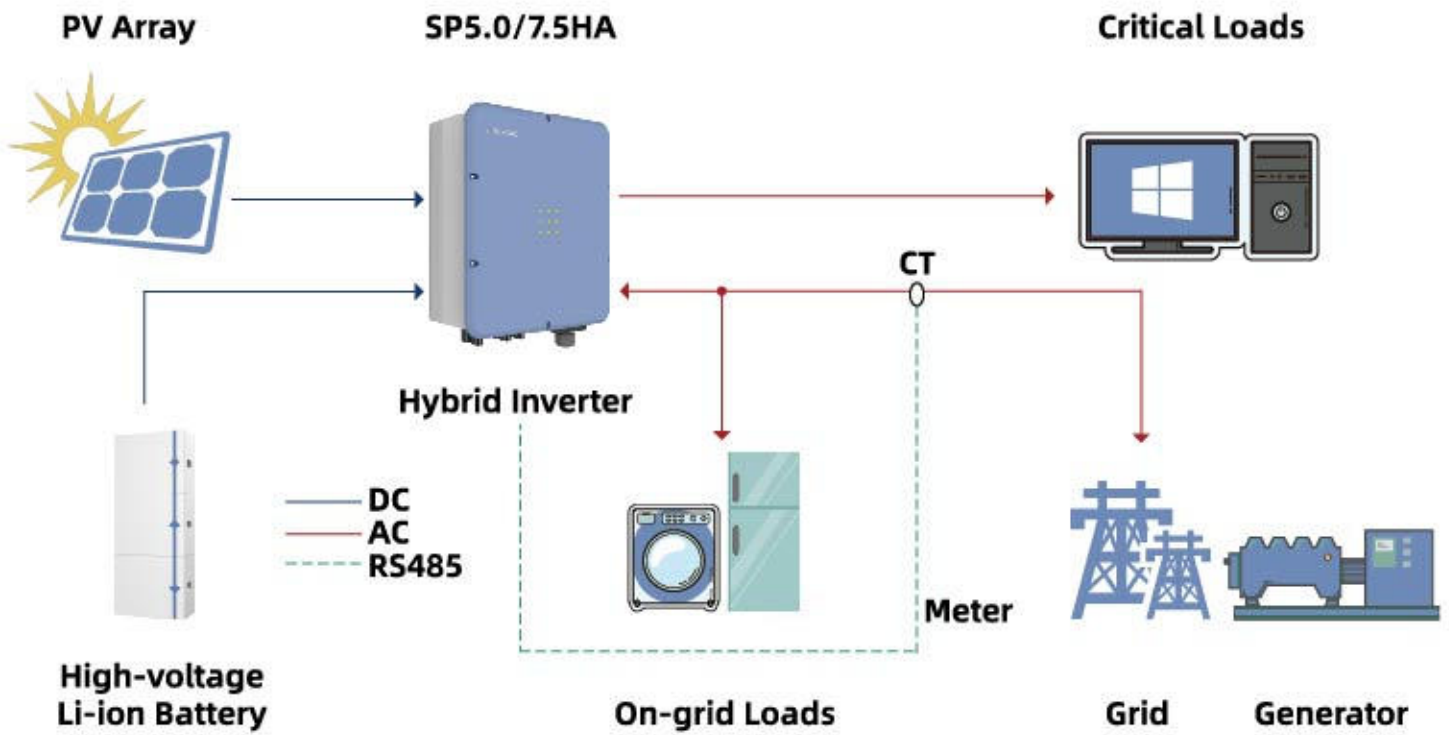


Type Designation	SP5.0HA	SP7.5HA
<b>Input (PV)</b>		
Recommended max. PV input power	10kW	
Max. PV input voltage	500V	
Rated PV input voltage	360V	
MPPT voltage range	100V~450V	
Number of MPPT inputs	2	
Max. PV input current	32A(16A/16A)	
Max. DC short-circuit current	20A/20A	
<b>Input / Output (AC)</b>		
Max. AC power from grid	10kW	10kW
Rated AC power	5kW	7.5kW
Rated AC current (230VAC)	21.7A	32.6A
Rated AC voltage	220/230/240V (-20%~15%)	
AC voltage range	180V~276V	
Rated grid frequency	50Hz(47Hz~52Hz)/60Hz(57Hz~62Hz)	
Harmonic (THD)	< 3% (at rated power)	
Power factor at rated power / Adjustable power factor	-1~1	
Max. efficiency	97.7%	
<b>Protection &amp; Function</b>		
DC reverse polarity protection	Yes	
Surge protection	DC Type II AC Type II	
DC switch(solar)	Yes	
DC fuse(battery)	Yes	
Battery input reverse polarity protection	Yes	
<b>Battery Data</b>		
Battery voltage range	150V ~ 460V	
Max charge / discharge current	30A	40A
Max charge / discharge power	6.6kW	8.25kW
<b>Backup Data (off-grid mode)</b>		
Rated voltage	220V/230V/240V	
Frequency	50Hz(45~55HZ)/60Hz(55~65HZ)	
Harmonic (THD)	< 2%	
Switch time to emergency mode	< 10ms	
Rated output power	5kW	7.5kW
Peak output power@30s	7.5kW	11.25kW
<b>EMS interface</b>		
TCP	Modbus TCP *1, WIFI	
COM	Modbus RTU*3	
CAN	CAN2.0B*1	
DIDO	DO*5, DI*2	
<b>General Data</b>		
Dimensions (W*H*D)	490*420*170mm / 19.3*16.5*6.7in	
Weight	20kg	
Mounting method	Wall-mounting bracket	
Topology (Solar / Battery)	Transformerless / Transformerless	
Standby self-consumption	< 10W	
Degree of protection	IP 65	
Operating temperature	-30 ~ 60 °C (> 45 °C derating)	
Relative humidity	0 ~100%	
Cooling	Natural convection	
Max. operating altitude	4000m (> 3000m derating)	
Compliance	IEC/EN 62109, IEC/EN 61000, IEC/EN 62477, IEC/EN 61727, G99, VDE4105	
Grid support	LVRT, active & reactive power control and power ramp rate control	

Data may change without prior notice\*



## SP5.0/7.5HA Hybrid Inverter



## SP30HA / SP30HB Battery Inverter

Three phase bi-directional battery inverter, embedded EMS, up to 20pcs parallel operation. Compatible with generators. On/Off grid mode operation.

Easy for installation and maintenance.

Configurable for system operation. Monitoring function presents full system operation status through phone APP. External command from other EMS is also compatible.



## Highlights

- 1** \* Embedded EMS
- 2** 150% overload for 30s
- 3** Parallel operation with generators/grid
- 4** <4ms switch time
- 5** \*\*Compatible with mixed batteries
- 6** \*\*\*Grid-tied three phase decoupling control
- 7** Virtual synchronous generator (VSG) function
- 8** Support 100% three phase imbalance
- 9** Up to 20pcs parallel operation for both DC&AC side

\*Control logic include: Active/ reactive power control, managing power priority, power quality management, peak shaving, fuel saving, PV-BAT-GEN hybridization, emergency backup, etc.

\*\*Different type, lifetime, capacity batteries mixed application, keep SOC unbalance ratio within 5%.

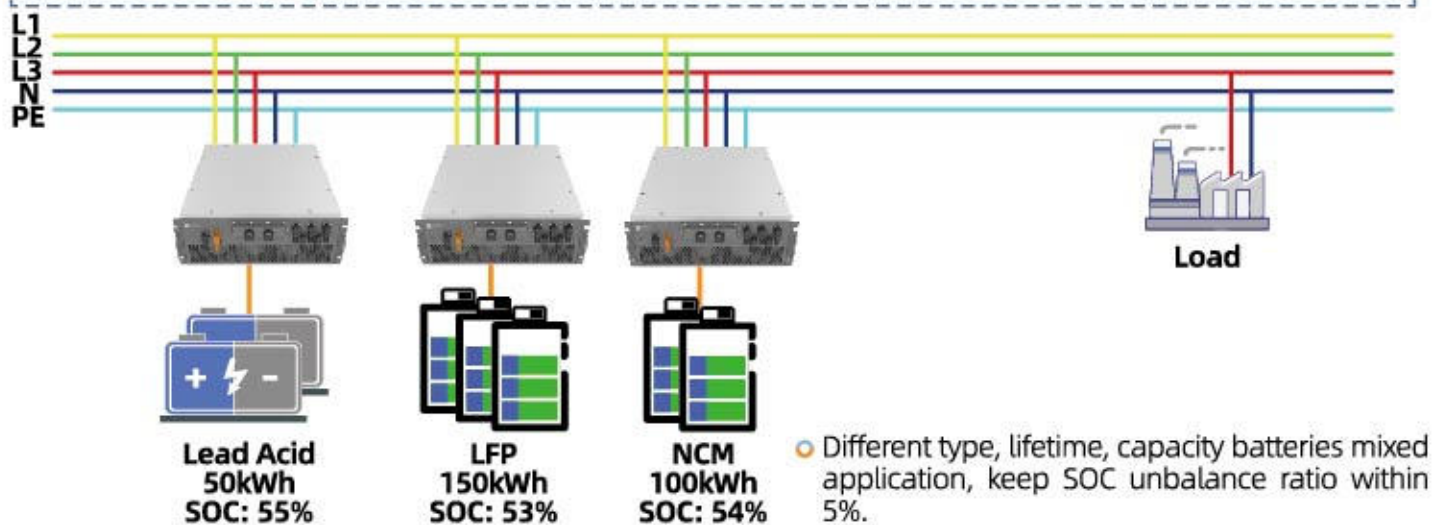
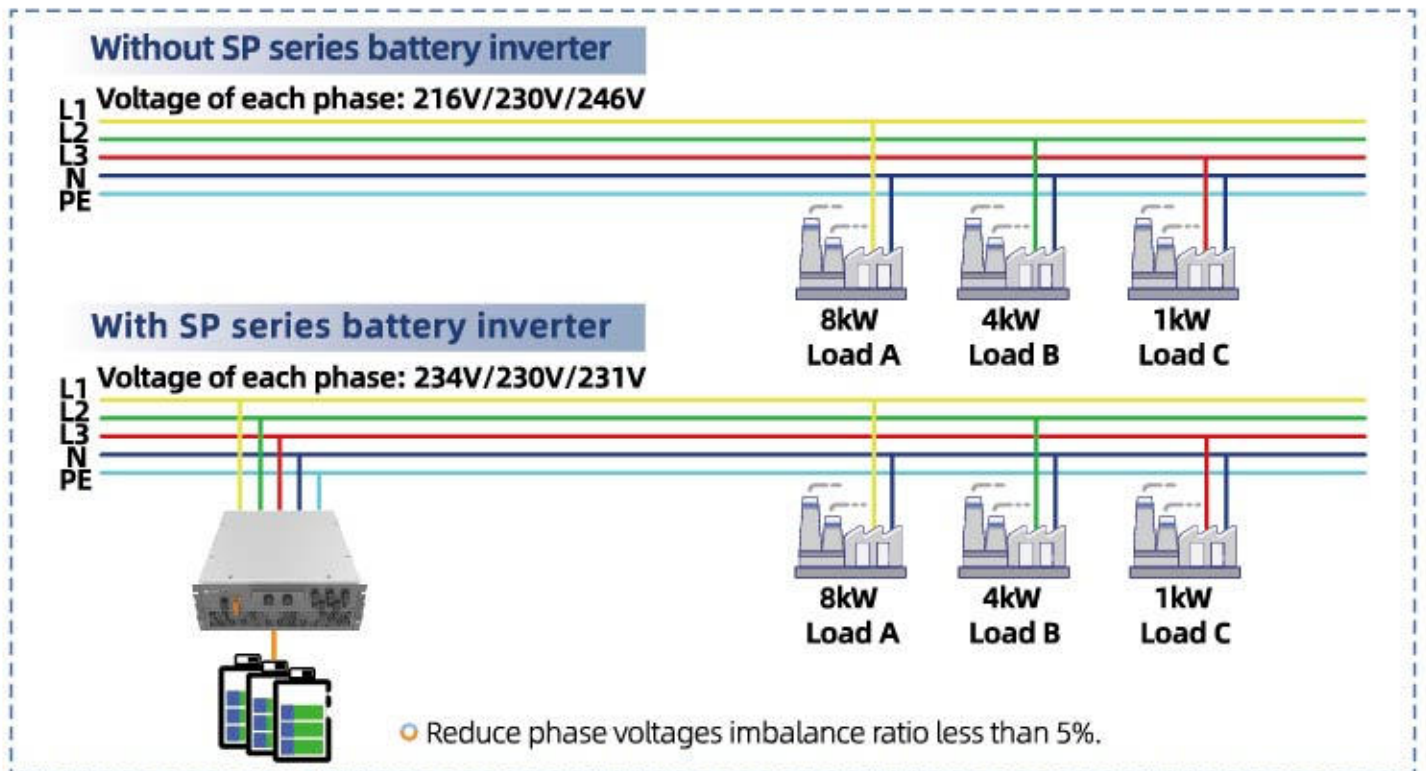
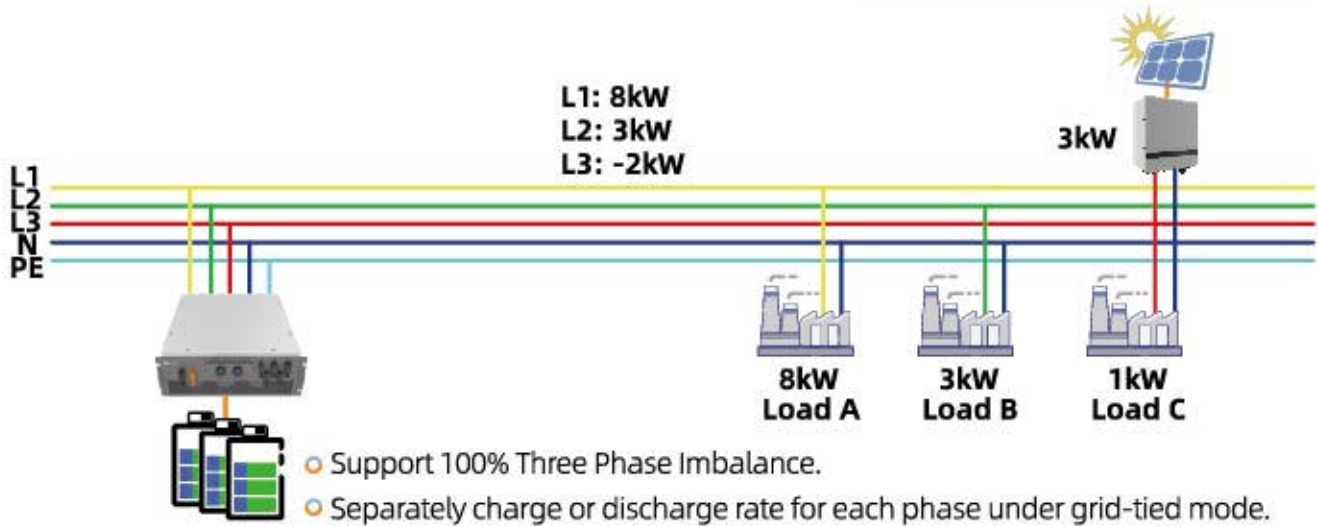
\*\*\*Separately charge or discharge rate for each PHASE under grid-tied mode.

Type Designation	SP30HA / SP30HB
<b>DC side</b>	
Max. DC voltage	850V
Min. DC voltage	400V
DC voltage range for rated power	500~850V
Max. DC current	62A
Max. DC power	33kW
<b>AC side (Grid)</b>	
AC output power	33kW @ 45°C
Rated AC current	50A
Rated AC voltage (range)	400V / 230V (-20%~15%)
Rated grid frequency (range)	50Hz (47Hz~52Hz) / 60Hz (57Hz~62Hz)
Three phase imbalance	100%
Three phase balancing function	Yes
Switch time to emergency mode	< 4ms
Harmonic (THD)	< 3% (at rated power)
Power factor at rated power/ Adjustable power factor	-1 ~ 1
<b>AC side (Micro-grid)</b>	
AC output power	33kW @ 45°C
AC voltage	400V / 230V(-20%~15%)
Rated AC current	50A
Harmonic (THD)	< 1% (Resistance load)
Three phase imbalance	100%
Three phase balancing function	Yes
Rated frequency (range)	50Hz (47Hz~52Hz) / 60Hz (57Hz~62Hz)
Max. AC power	45kW/30s
<b>Efficiency</b>	
Max. efficiency	98%
<b>Protection</b>	
Reverse polarity protection	Yes
DC switch	(SP*HA) Yes / (SP*HB) No
AC switch	(SP*HA) Yes / (SP*HB) No
Surge protection	DC Type II AC Type II
Grid monitoring / Ground fault monitoring	Yes / Yes
Insulation monitoring	Yes
Overheat protection	Yes
<b>EMS interface</b>	
TCP	Modbus TCP*1, 4G (optional )
COM	Modbus RTU*3
CAN	CAN2.0B*1
DIDO	DO*5, DI*2
<b>General Data</b>	
Dimensions (W*H*D)	(SP*HA) 550*768*230mm / 21.7*30.2*9.1in (SP*HB) 520*580*220mm / 20.6*22.8*8.7in
Weight	(SP*HA) 37kg / 82lb (SP*HB) 35kg / 77lb
Degree of protection	IP 65
Coating	C5
Operating temperature	-30 ~ 60 °C (> 45 °C derating)
Relative humidity	0 ~ 100 %
Cooling	Temperature controlled forced air cooling
Max. operating altitude	4000m (> 3000m derating)
Display	LED, HMI (optional)
Standby self-consumption	< 10W
Compliance	IEC 62109, IEC 62103, IEC 62477, EN 62477, IEC 62116, IEC 61727, IEC 61000, G99, CIG 023, VDE 4105
Grid support	LVRT, active & reactive power control and power ramp rate control

Data may change without prior notice\*



## SP30HA / SP30HB Battery Inverter



## SP62.5HA / SP62.5HB Battery Inverter

Three phase bi-directional battery inverter, embedded EMS, up to 20pcs parallel operation. Compatible with generators. On/Off grid mode operation.

Easy for installation and maintenance.

Configurable for system operation. Monitoring function presents full system operation status through phone APP. External command from other EMS is also compatible.



Commercial & Industrial level



Mobile power station



Small-Middle Scale Mini Grid System



Balancing PV Plant

## Highlights

- 1** \* Embedded EMS
- 2** Up to 20pcs parallel operation
- 3** 150% overload for 30s
- 4** <4ms switch time
- 5** \*\*Compatible with mixed batteries
- 6** \*\*\*Grid-tied three phase decoupling control
- 7** Virtual synchronous generator (VSG) function
- 8** Support 100% three phase imbalance
- 9** Parallel operation with generators/grid

\*Control logic include: Active/reactive power control, managing power priority, power quality management, peak shaving, fuel saving, PV-BAT-GEN hybridization, emergency backup, etc.

\*\*Different type, lifetime, capacity batteries mixed application, keep SOC unbalance ratio within 5%.

\*\*\*Separately charge or discharge rate for each PHASE under grid-tied mode.

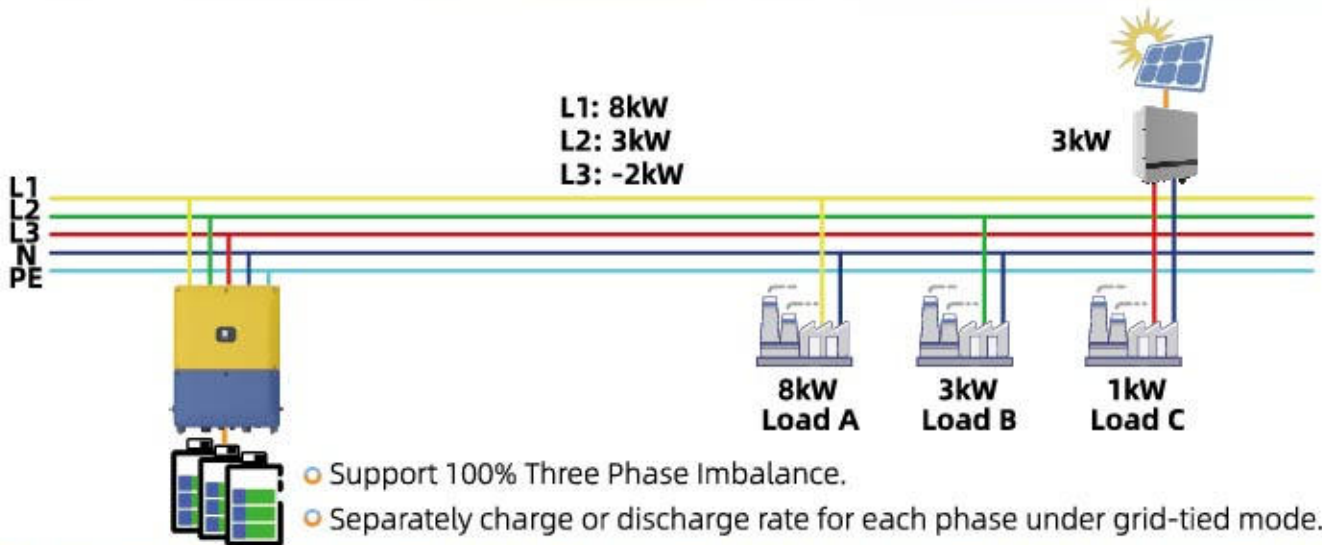


Type Designation	SP62.5HA / SP62.5HB
<b>DC side</b>	
Max. DC voltage	1200V
Min. DC voltage	700V
DC voltage range for rated power	700 ~ 1200V
Max. DC current	90A
Max. DC power	62.5kW
<b>AC side (Grid)</b>	
AC output power	62.5kW @ 45°C
Rated AC current	100A
Rated AC voltage (range)	400V / 230V (-20%~15%)
Rated grid frequency (range)	50Hz (47Hz~52Hz) / 60Hz (57Hz~62Hz)
Three phase imbalance	100%
Three phase balancing function	Yes
Switch time to emergency mode	< 4ms
Harmonic (THD)	< 3% (at rated power)
Power factor at rated power/ Adjustable power factor	- 1 ~ 1
<b>AC side (Micro-grid)</b>	
AC output power	62.5kW @ 45°C
AC voltage	400V / 230V(-20%~15%)
Rated AC current	100A
Harmonic (THD)	< 1% (Resistance load)
Three phase imbalance	100%
Three phase balancing function	Yes
Rated frequency (range)	50Hz (47Hz~52Hz) / 60Hz (57Hz~62Hz)
Max. AC power	93.75kW/30s
<b>Efficiency</b>	
Max. efficiency	98.5%
<b>Protection</b>	
Reverse polarity protection	Yes
DC switch	(SP*HA) Yes / (SP*HB) No
AC switch	(SP*HA) Yes / (SP*HB) No
Surge protection	DC Type II AC Type II
Grid monitoring/ Ground fault monitoring	Yes / Yes
Insulation monitoring	Yes
Overheat protection	Yes
<b>EMS interface</b>	
TCP	Modbus TCP*1,4G (optional )
COM	Modbus RTU*3
CAN	CAN2.0B*1
DIDO	DO*5, DI*2
<b>General Data</b>	
Dimensions (W*H*D)	(SP*HA) 550*768*230mm / 21.7*30.2*9.1in (SP*HB) 520*580*220mm / 20.6*22.8*8.7in
Weight	(SP*HA) 37kg / 82lb (SP*HB) 35kg / 77lb
Degree of protection	IP 65
Coating	C5
Operating temperature	-30 ~ 60 °C (> 45 °C derating)
Relative humidity	0 ~ 100 %
Cooling	Temperature controlled forced air cooling
Max. operating altitude	4000m (> 3000m derating)
Display	LED, HMI (optional)
Standby self-consumption	< 10W
Compliance	IEC 62109, IEC 62103, IEC 62477, EN 62477, IEC 62116, IEC 61727, IEC 61000, G99, CIG 023, VDE 4105
Grid support	LVRT, active & reactive power control and power ramp rate control

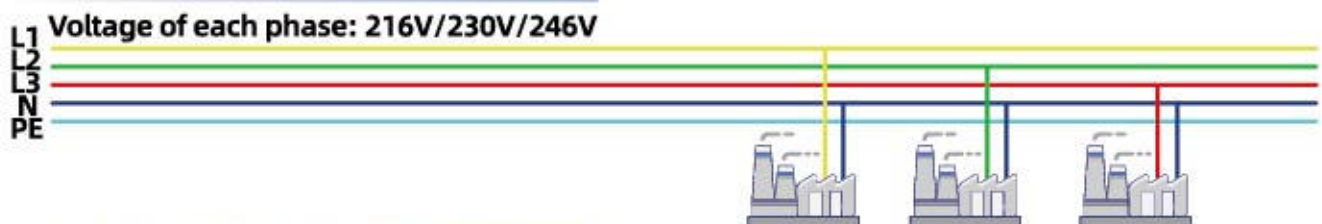
Data may change without prior notice\*



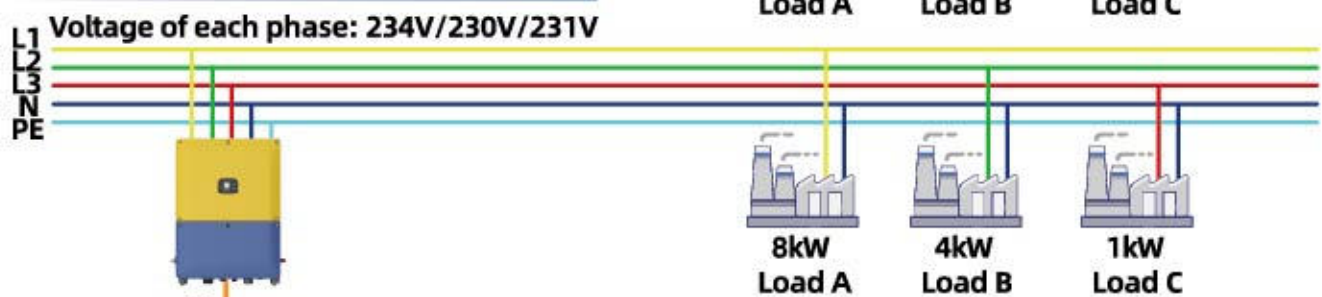
## SP62.5HA / SP62.5HB Battery Inverter



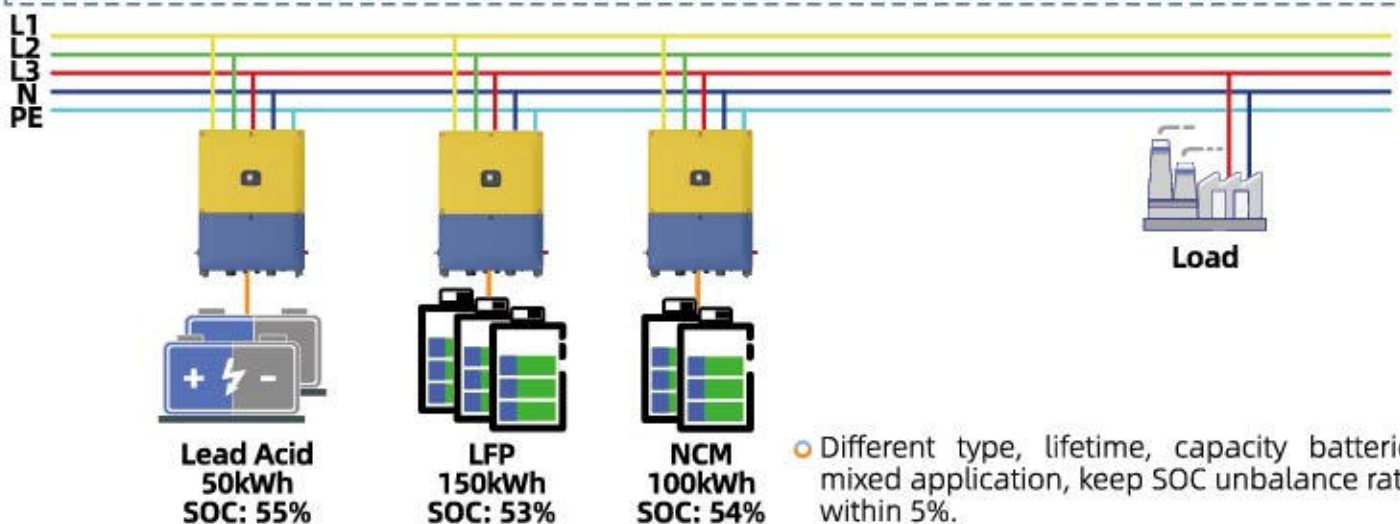
### Without SP series battery inverter



### With SP series battery inverter



- Reduce phase voltages imbalance ratio less than 5%.



## SP125HB Battery Inverter

Three phase bi-directional battery inverter, embedded EMS, up to 20pcs parallel operation. Compatible with generators. On/Off grid mode operation.

Easy for installation and maintenance.

Configurable for system operation. Monitoring function presents full system operation status through phone APP. External command from other EMS is also compatible.



Commercial & Industrial level



Mobile power station



Middle-Large Scale Mini Grid System



Balancing PV Plant

## Highlights

- 1 \* Embedded EMS
- 2 Up to 20pcs parallel operation
- 3 150% overload for 30s
- 4 <4ms switch time
- 5 \*\*Compatible with mixed batteries
- 6 \*\*\*Grid-tied three phase decoupling control
- 7 Virtual synchronous generator (VSG) function
- 8 Support 100% three phase imbalance
- 9 Parallel operation with generators/grid

\*Control logic include: Active/reactive power control, managing power priority, power quality management, peak shaving, fuel saving, PV-BAT-GEN hybridization, emergency backup, etc.

\*\*Different type, lifetime, capacity batteries mixed application, keep SOC unbalance ratio within 5%.

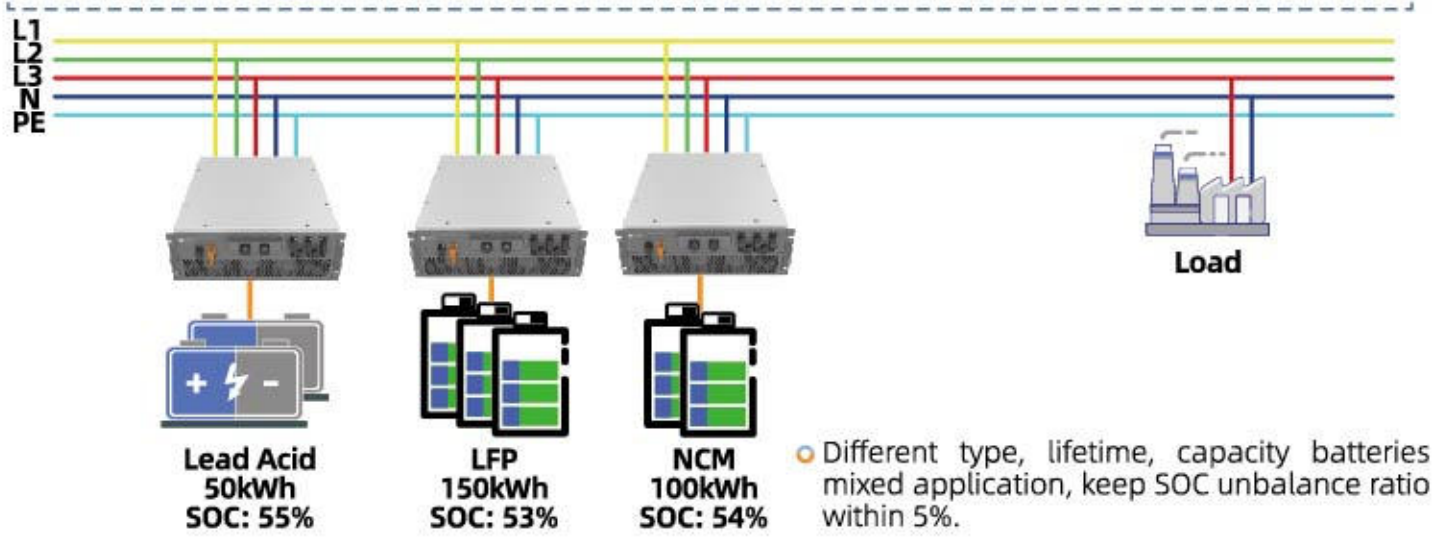
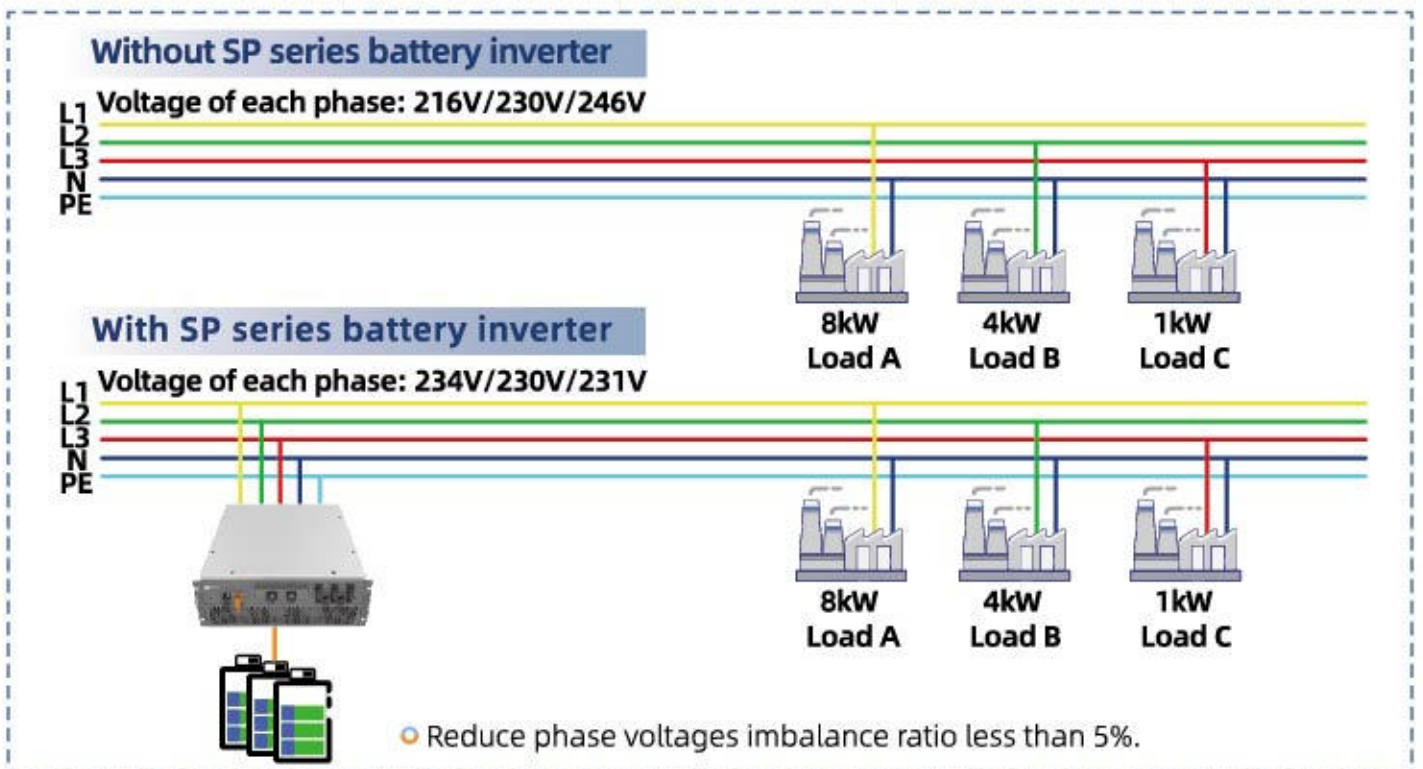
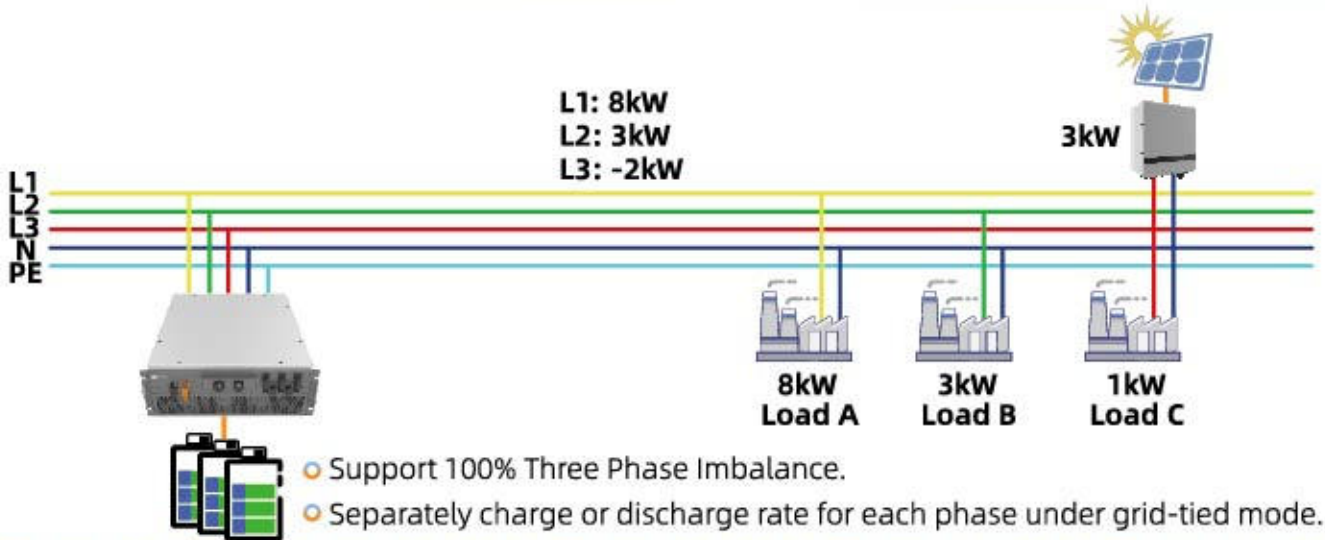
\*\*\*Separately charge or discharge rate for each PHASE under grid-tied mode.

Type Designation	SP125HB
<b>DC side</b>	
Max. DC voltage	1200V
Min. DC voltage	700V
DC voltage range for rated power	700 ~1200V
Rated DC current	180A
Max. DC power	125kW
<b>AC side (Grid)</b>	
AC output power	125kW @ 45°C
Max. AC current	180A
Rated AC voltage (range)	400V / 230V (-20%~15%)
Rated grid frequency (range)	50Hz (47Hz~52Hz) / 60Hz (57Hz~62Hz)
Three phase imbalance	100%
Three phase balancing function	Yes
Switch time to emergency mode	< 4ms
Harmonic (THD)	< 3% (at rated power)
Power factor at rated power/ Adjustable power factor	-1 ~ 1
<b>AC side (Micro-grid)</b>	
AC output power	125kW @ 45°C
AC voltage	400V / 230V(-20%~15%)
Max. AC current	180A
Harmonic (THD)	< 1% (Resistance load)
Three phase imbalance	100%
Three phase balancing function	Yes
Rated frequency (range)	50Hz (47Hz~52Hz) / 60Hz (57Hz~62Hz)
Max. AC power	185kW/30s
<b>Efficiency</b>	
Max. efficiency	98.5%
<b>Protection</b>	
Reverse polarity protection	Yes
Surge protection	DC Type II AC Type II
Grid monitoring/ Ground fault monitoring	Yes / Yes
Insulation monitoring	Yes
Overheat protection	Yes
<b>EMS interface</b>	
TCP	Modbus TCP*1, 4G(optional)
COM	Modbus RTU*3
CAN	CAN2.0B*1
DIDO	DO*5, DI*2
<b>General Data</b>	
Dimensions (W*H*D)	800*800*280mm / 31.5*31.5*11in
Weight	90kg / 198lb
Degree of protection	IP 65
Coating	C5
Operating temperature	-30 ~ 60°C (> 45°C derating)
Relative humidity	0 ~100%
Cooling	Temperature controlled forced air cooling
Max. operating altitude	4000m (> 3000m derating)
Display	LED, HMI (optional)
Standby self-consumption	< 10W
Compliance	IEC 62109, IEC 62103, IEC 62477, EN 62477, IEC 62116, IEC 61727, IEC 61000, G99, CIG 023, VDE 4105
Grid support	LVRT, active & reactive power control and power ramp rate control

Data may change without prior notice\*

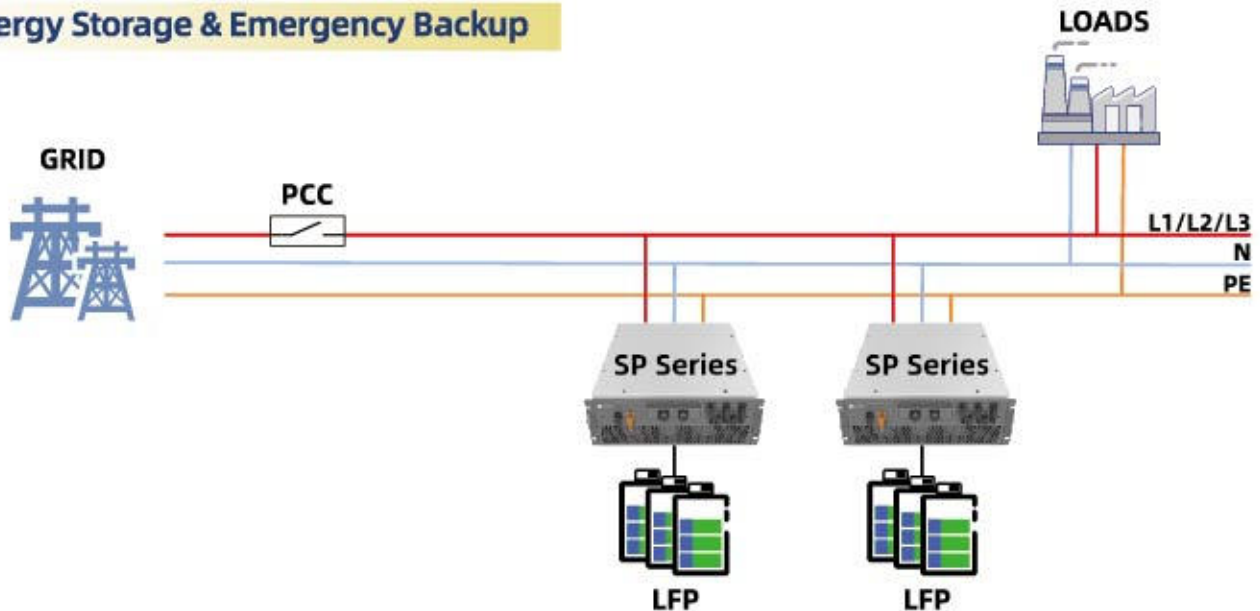


## SP125HB Battery Inverter



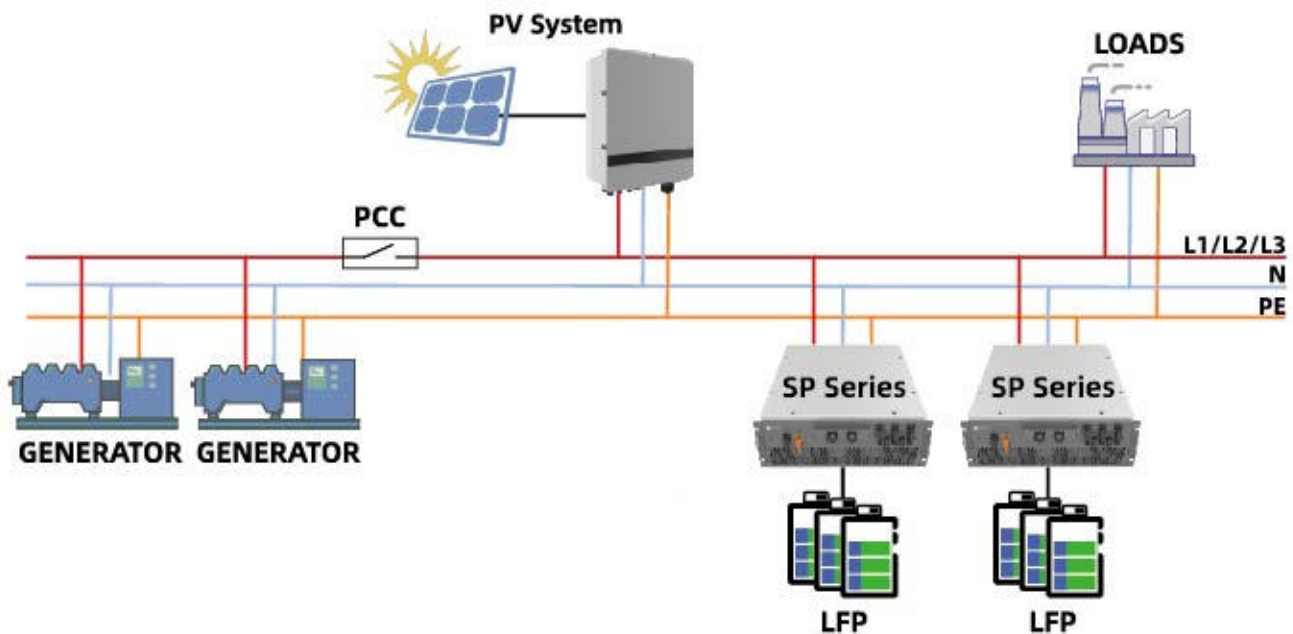
## SP Series Battery Inverter

### Energy Storage & Emergency Backup



- Grid On: Peak Shaving, reduce three phase imbalance, reactive power compensation, etc.
- Grid Off: Timeless transfer to off grid mode as backup, support blackout start.
- Suitable for mobile power plant, grid capacity expansion, three phase imbalance reduction, etc.

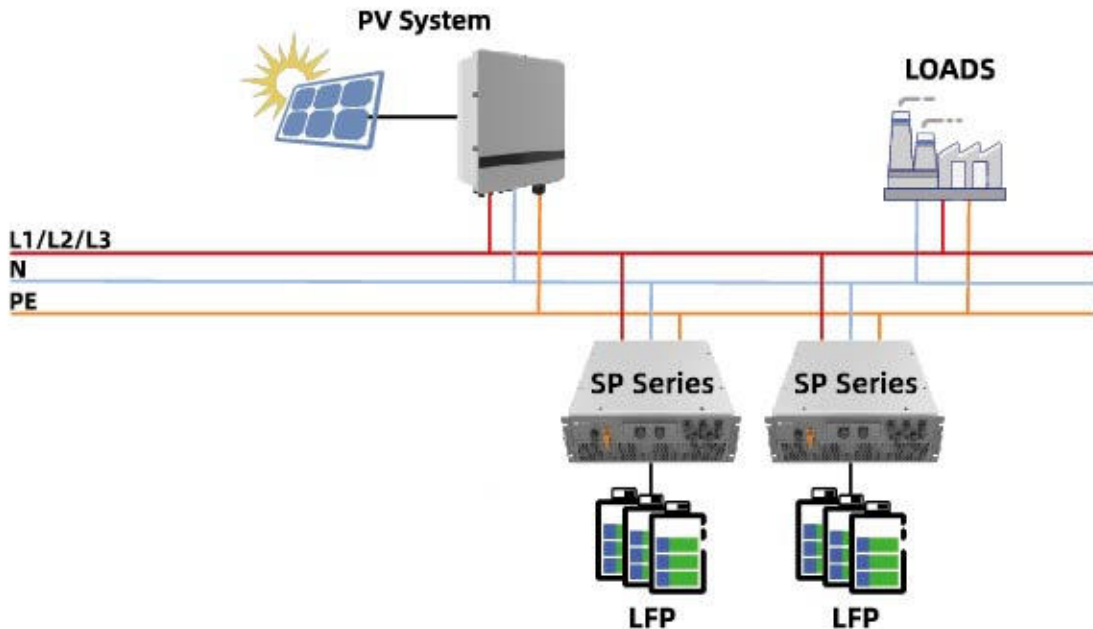
### PV-DIESEL-BATTERY Hybrid System



- Grid On: PV is the highest priority to power the load, extra power to charge the battery, the battery and SP series inverter can achieve peak shaving, three phase imbalance reduction, reactive power compensation, etc.
- Grid Off: Timeless transfer to off grid mode. PV is the highest priority to power the load, extra power to charge the battery. Battery start discharging to power the load when PV is not sufficient, Generator auto start/stop based on battery SOC and load variation.
- Suitable for stabilizing small grid.

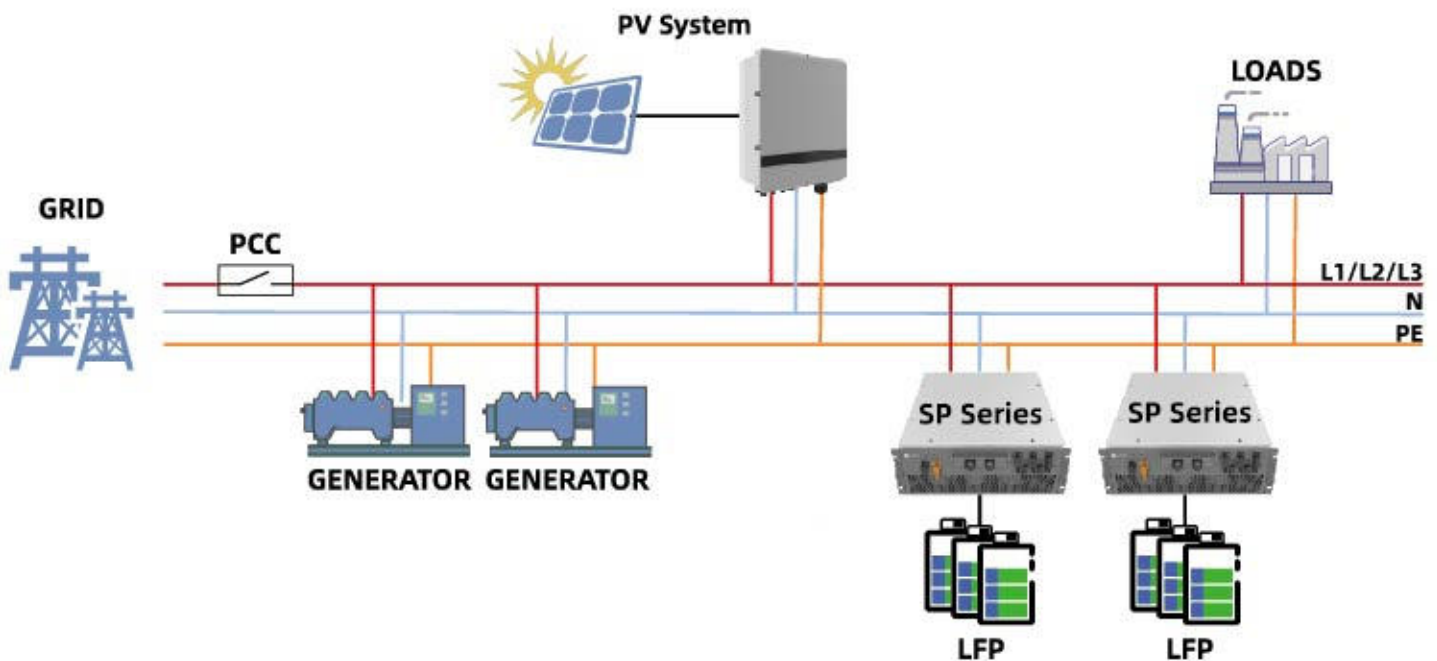
## SP Series Battery Inverter

### PV-BATTERY Hybrid System



- Battery forms grid, PV is the highest priority to power the load, extra power to charge the battery, battery start discharging to power the load when PV is not sufficient.
- SP series inverter limits the PV output through frequency adjustment when battery is fully charged and PV output is higher than demand.

### PV-DIESEL-BATTERY-Grid Hybrid System



- Grid On: PV is the highest priority to power the load, extra power to charge the battery, the battery and SP series inverter can achieve peak shaving, three phase imbalance reduction, reactive power compensation, etc.
- Grid Off: Timeless transfer to off grid mode. PV is the highest priority to power the load, extra power to charge the battery. Battery start discharging to power the load when PV is not sufficient, Generator auto start/stop based on battery SOC and load variation.
- Suitable for stabilizing small grid.



## SPBD ESS

All-in-one design, integrated with the battery, BMS, battery inverter, EMS, fire fighting system, thermal management system and distribution panel.

IP54, easy installation. C3/C4/C5 coating.



Emergency Backup



Commercial & Industrial level



Mobile power station



Micro-grid system

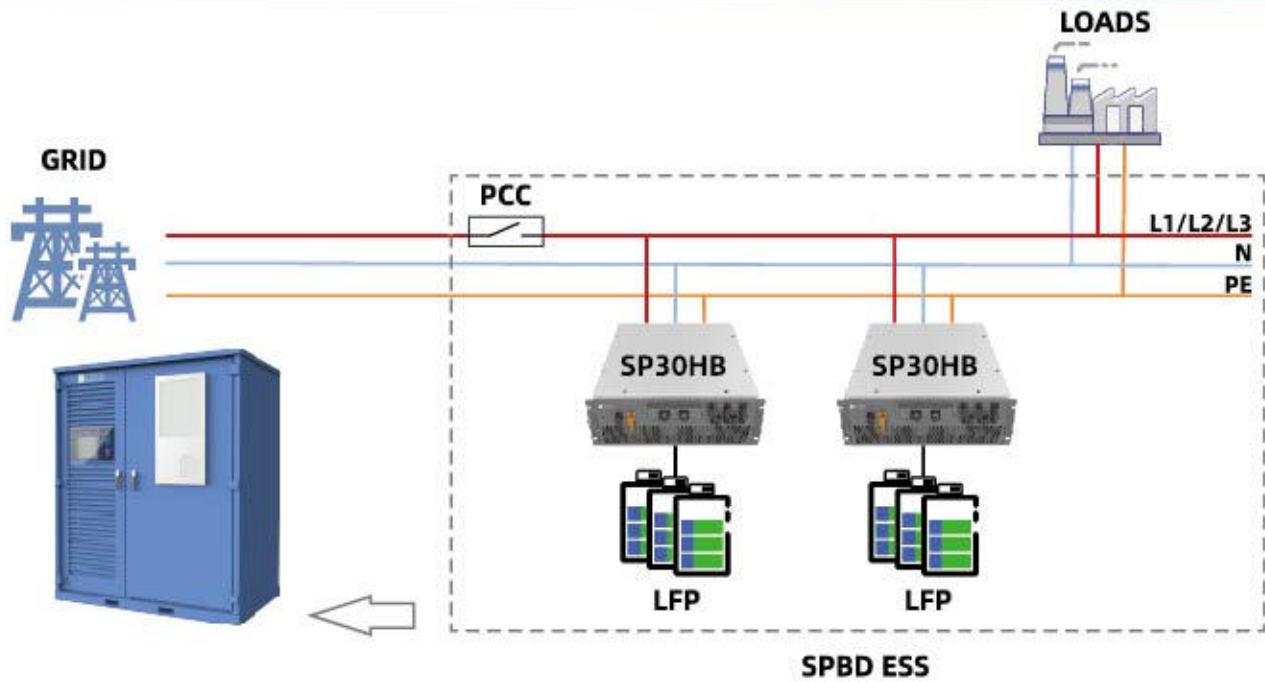
## Highlights

- 1 All-in-one Design, fast deployment, pre-commissioned
- 2 <4ms switch time
- 3 Transformerless
- 4 Generators remote control
- 5 PV plant remote control
- 6 Can directly connect with busbar for grid adjustment
- 7 Increase renewable penetration

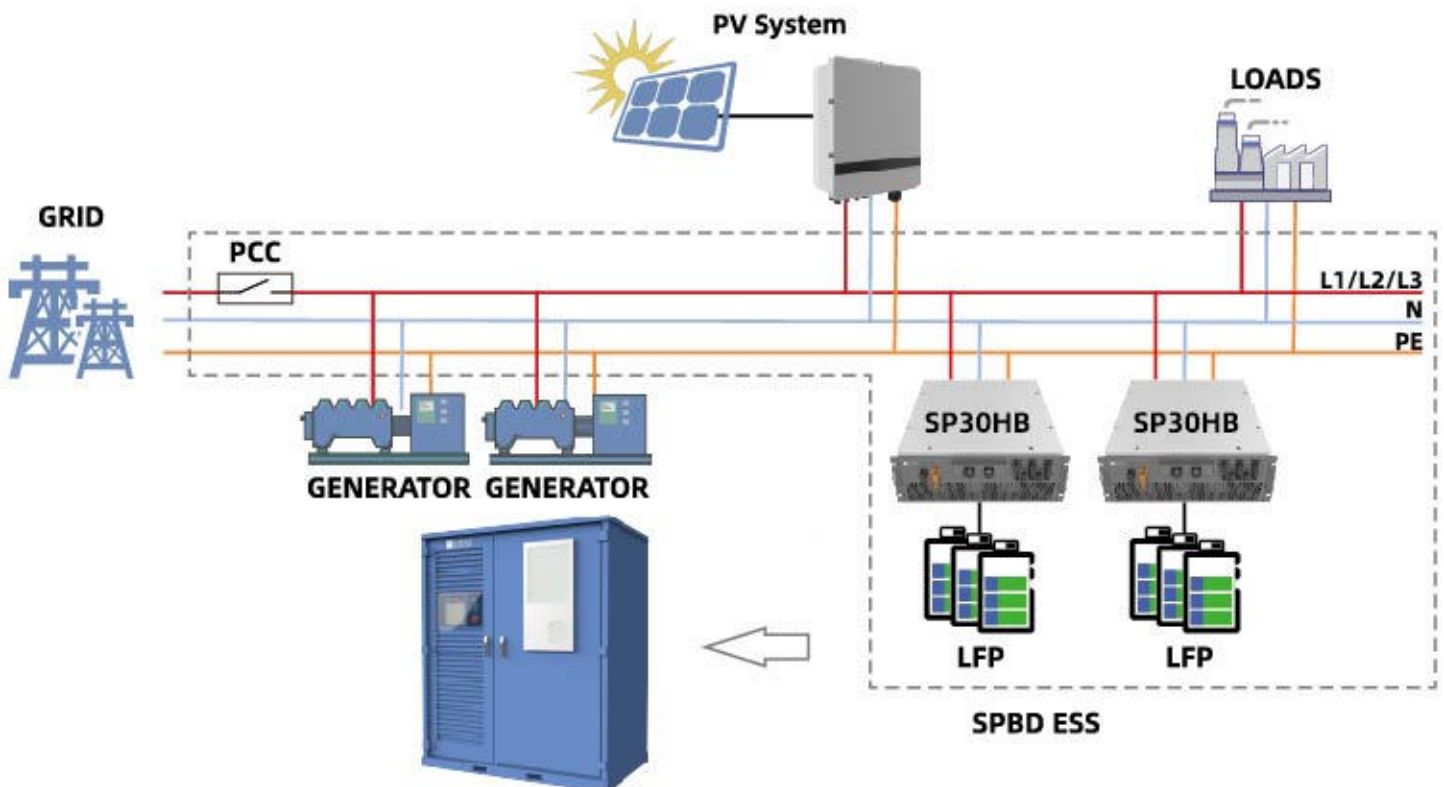
Type Designation	SP30BxxD	SP60BxxD	SP90BxxD	SP120BxxD
Rated power	30kW	60kW	90kW	120kW
Rated capacity	65kWh	65kWh	109kWh	138kWh
	109kWh	109kWh	138kWh	200kWh
	138kWh	138kWh	200kWh	
		200kWh		
Rated voltage AC (range)	400V/230V (-20%~15%)			
Rated frequency (range)	50Hz(47Hz~52Hz)/60Hz(57Hz~62Hz)			
Accessible capacity PV (AC couple)	33kW	66kW	99kW	132kW
Accessible capacity PV (DC couple)	75kW		150kW	
Accessible capacity GRID/Generator	50A	100A	160A	200A
Max. load	125A	200A	300A	400A
Operation temperature range	-20 to 50°C			
HMI	7inch LCD+button(optional)			
Sound level	≤45dB			
Degree of protection	IP54			
Coating	C3/C4/C5			
Altitude	4000m(> 3000m derating)			
Dimension(W*H*D)	2000*2050*1050mm/78*81*42in			
Weight	1.2t/1.6t/1.8t	1.2t/1.6t/1.8t/2.5t	1.6t/1.8t/2.5t	1.8t/2.5t
Grid support	LVRT, active & reactive power control and power ramp rate control			
<b>Battery</b>				
Battery type	LFP			
DoD	90%			
Cycle life	≥5000@25°C@1C, Ret. ≥70%			
Cooling	Industrial AC			
Certificate	UL1973, UL9540A, IEC62619, UN38.3			
<b>Battery inverter</b>				
DC voltage range	400-850V			
Rated Power	30kW	60kW	90kW	120kW
Surge power@30s	45kW	90kW	135kW	180kW
Rated output voltage AC	400V/230V			
Switch time to emergency mode	< 4ms			
THDi	< 3%			
THDu	< 1.5%			
Three phase imbalance	100%			
Three phase balancing function	Yes			
Certificate	IEC 62109, IEC 62103, IEC 62477, EN 62477, IEC 62116, IEC 61727, IEC 61000, G99, CIG 023, VDE 4105			
<b>EMS interface</b>				
TCP	Modbus TCP*1, 4G(optional)			
COM	Modbus RTU*3			
CAN	CAN2.0B*1			
DIDO	DO*5,DI*2			

Data may change without prior notice\*

## SPBD ESS



- Grid On: Peak Shaving, reduce three phase imbalance, reactive power compensation, etc.
- Grid Off: Timeless transfer to off grid mode as backup, support blackout start.
- Suitable for mobile power plant, grid capacity expansion, three phase imbalance reduction, etc.



- Grid On: PV is the highest priority to power the load, extra power to charge the battery, the battery and SP series inverter can achieve peak shaving, three phase imbalance reduction, reactive power compensation, etc.
- Grid Off: Timeless transfer to off grid mode. PV is the highest priority to power the load, extra power to charge the battery. Battery start discharging to power the load when PV is not sufficient, Generator auto start/stop based on battery SOC and load variation.
- Suitable for stabilizing small grid.



## SPBC-90Ah ESS

All-in-one design, integrated with the battery, BMS, battery inverter, EMS, fire fighting system, thermal management system and distribution panel.

IP54, easy installation. C5 coating, suitable for coast area application.



Emergency Backup



Commercial & Industrial level



Mobile power station



Micro-grid system

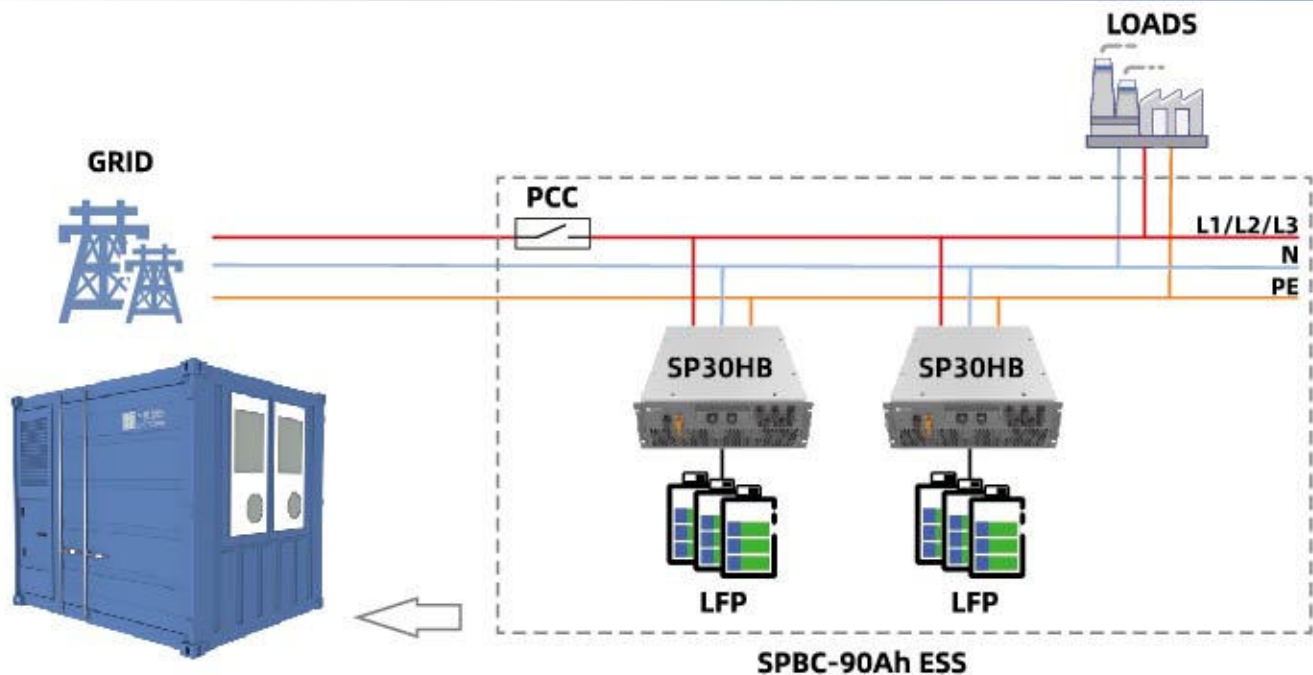
## Highlights

- 1** All-in-one Design, fast deployment, pre-commissioned
- 2** <4ms switch time
- 3** Transformerless
- 4** Generators remote control
- 5** PV plant remote control
- 6** Can directly connect with busbar for grid adjustment
- 7** Increase renewable penetration

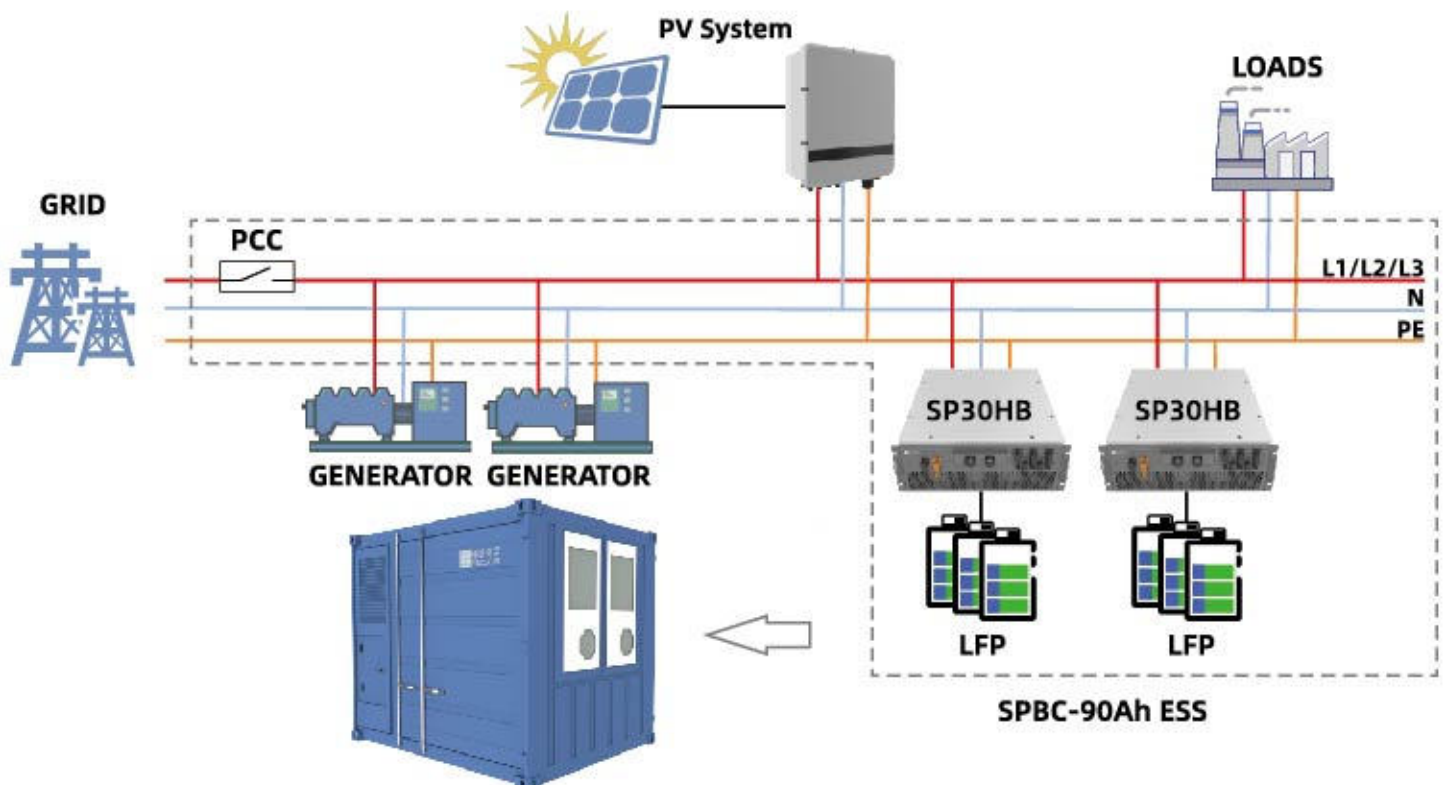
Type Designation	SP120B138C05	SP180B414C10	SP240B552C10
Rated power	120kW	180kW	240kW
Rated capacity	138kWh	414kWh	552kWh
Rated voltage AC (range)	400V/230V (-20%~15%)		
Rated frequency (range)	50Hz(47Hz~52Hz) / 60Hz(57Hz~62Hz)		
Accessible capacity PV	132kW	198kW	264kW
Accessible capacity GRID/Generator	200A	360A	480A
Max. load	200A	360A	480A
Operation temperature range	-20 to 50°C		
HMI	7inch LCD+button(optional)		
Sound level	≤45dB		
Degree of protection	IP54		
Coating	C5		
Altitude	4000m( > 3000m derating)		
Dimension(W*H*D)	1850*1300*2490mm/73*52*98in	2991*2438*2591mm/118*96*102in	
Weight	7.5t	9.7t	11.2t
Grid support	LVRT, active & reactive power control and power ramp rate control		
<b>Battery</b>			
Battery type	LFP		
DoD	90%		
Cycle life	≥5000@25°C@1C, Ret. ≥70%		
Cooling	Industrial AC		
Certificate	UL1973, UL9540A, IEC62619, UN38.3		
<b>Battery inverter</b>			
DC voltage range	400-850V		
Rated Power	120kW	180kW	240kW
Surge power@30s	180kW	270kW	360kW
Rated output voltage AC	400V/230V		
Switch time to emergency mode	< 4ms		
THDi	< 3%		
THDu	< 1.5%		
Three phase imbalance	100%		
Three phase balancing function	Yes		
Certificate	IEC 62109, IEC 62103, IEC 62477, EN 62477, IEC 62116, IEC 61727, IEC 61000, G99, CIG 023, VDE 4105		
<b>EMS interface</b>			
TCP	Modbus TCP*1, 4G(optional)		
COM	Modbus RTU*3		
CAN	CAN2.0B*1		
DIDO	DO*5, DI*2		

Data may change without prior notice\*

## SPBC-90Ah ESS



- Grid On: Peak Shaving, reduce three phase imbalance, reactive power compensation, etc.
- Grid Off: Timeless transfer to off grid mode as backup, support blackout start.
- Suitable for mobile power plant, grid capacity expansion, three phase imbalance reduction, etc.



- Grid On: PV is the highest priority to power the load, extra power to charge the battery, the battery and SP series inverter can achieve peak shaving, three phase imbalance reduction, reactive power compensation, etc.
- Grid Off: Timeless transfer to off grid mode. PV is the highest priority to power the load, extra power to charge the battery. Battery start discharging to power the load when PV is not sufficient, Generator auto start/stop based on battery SOC and load variation.
- Suitable for stabilizing small grid.



## SPBC-280Ah ESS

All-in-one design, integrated with the battery, BMS, battery inverter, EMS, fire fighting system, thermal management system and distribution panel.

IP54, easy installation. C5 coating, suitable for coast area application.



Emergency Backup



Commercial & Industrial level



Mobile power station



Micro-grid system

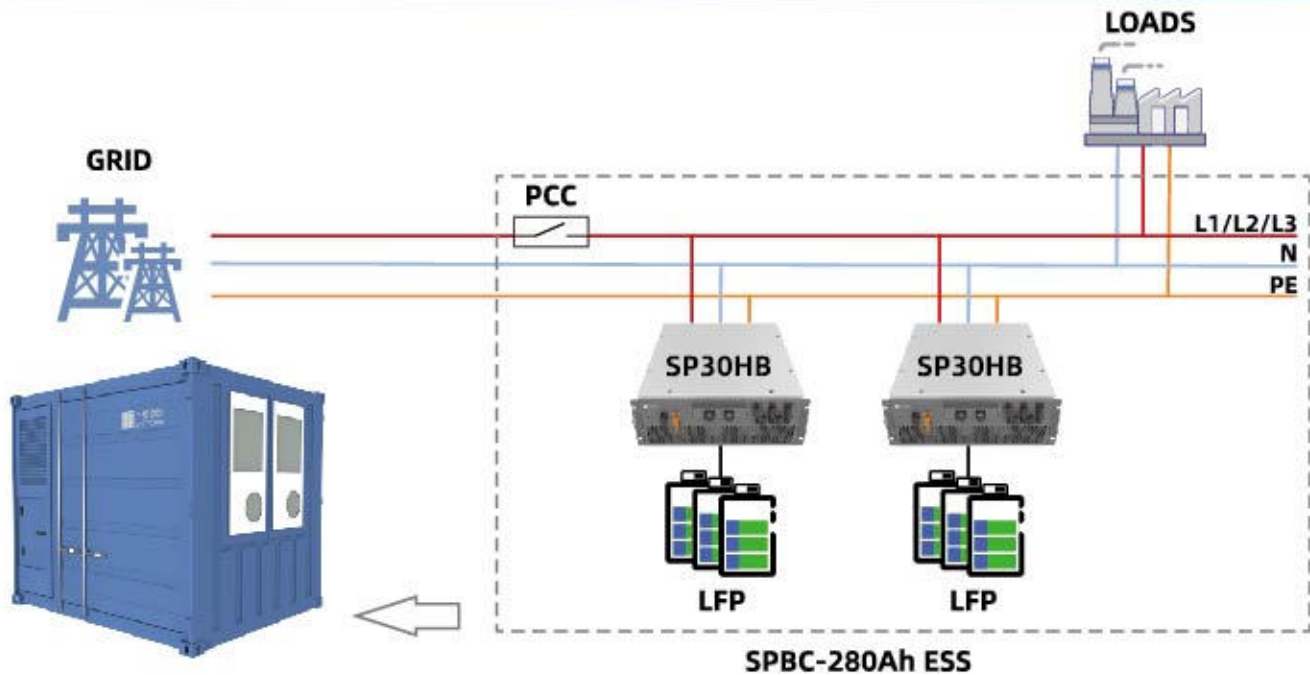
## Highlights

- 1** All-in-one Design, fast deployment, pre-commissioned
- 2** <4ms switch time
- 3** Transformerless
- 4** Generators remote control
- 5** PV plant remote control
- 6** Can directly connect with busbar for grid adjustment
- 7** Increase renewable penetration

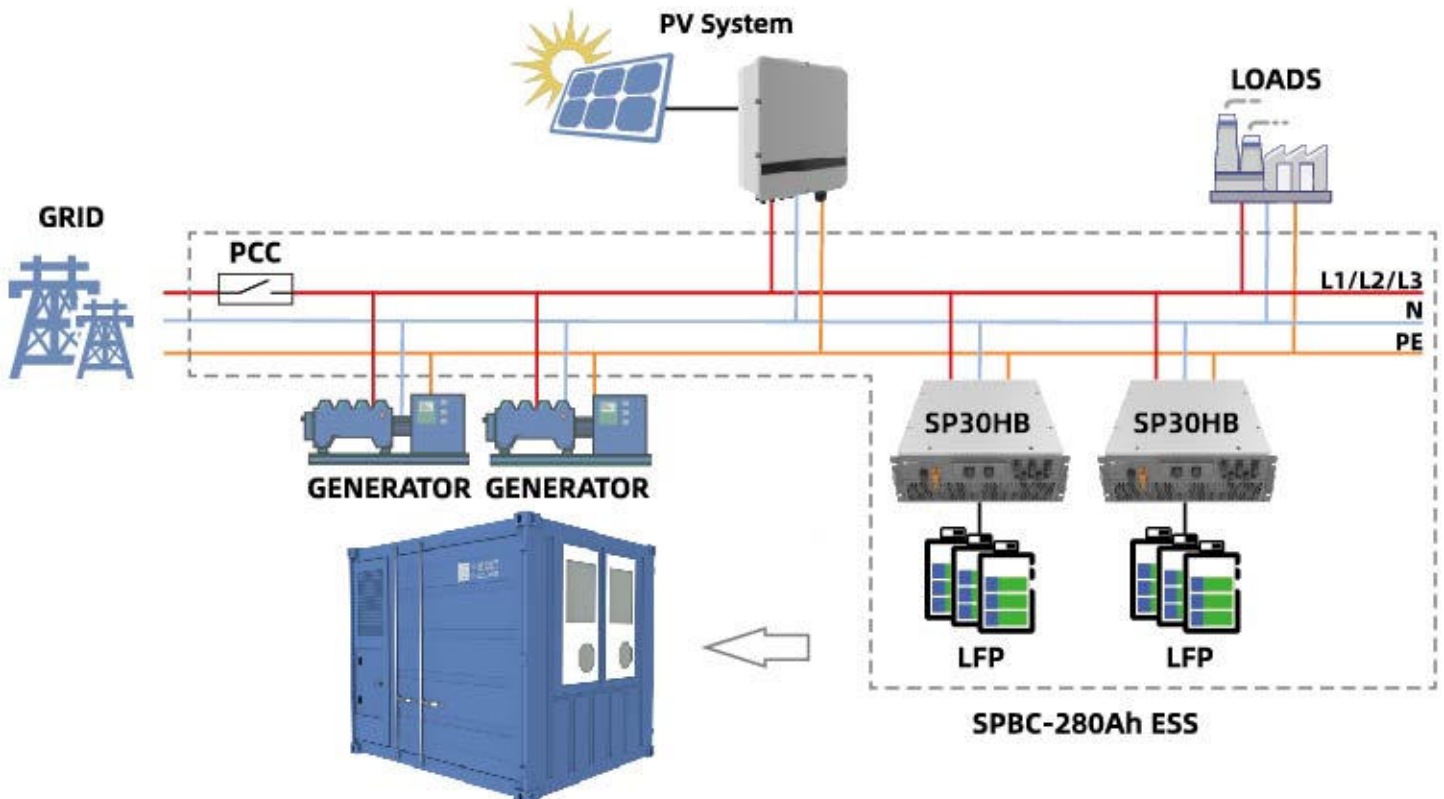
Type Designation	SP90B215C10	SP180B430C10	SP270B645C10
Rated power	90kW	180kW	270kW
Rated capacity	215kWh	430kWh	645kWh
Rated voltage AC(range)	400V/230V (-20%~15%)		
Rated frequency(range)	50Hz(47Hz~52Hz) / 60Hz(57Hz~62Hz)		
Accessible capacity PV	99kW	198kW	297kW
Accessible capacity GRID/Generator	180A	360A	540A
Max. load	180A	360A	540A
Operation temperature range	-20 to 50°C		
HMI	7inch LCD+button(optional)		
Sound level	≤45dB		
Degree of protection	IP54		
Coating	C5		
Altitude	4000m( > 3000m derating)		
Dimension(W*H*D)	2991*2438*2591mm/118*96*102in		
Weight	7.2t	9.1t	11.2t
Grid support	LVRT, active & reactive power control and power ramp rate control		
<b>Battery</b>			
Battery type	LFP		
DoD	90%		
Cycle life	≥5000@25°C@0.5C, Ret. ≥70%		
Cooling	Industrial AC		
Certificate	UL1973, UL9540A, IEC62619, UN38.3		
<b>Battery inverter</b>			
DC voltage range	400-850V		
Rated Power	90kW	180kW	270kW
Surge power@30s	135kW	270kW	405kW
Rated output voltage AC	400V/230V		
Switch time to emergency mode	< 4ms		
THDi	< 3%		
THDu	< 1.5%		
Three phase imbalance	100%		
Three phase balancing function	Yes		
Certificate	IEC 62109, IEC 62103, IEC 62477, EN 62477, IEC 62116, IEC 61727, IEC 61000, G99, CIG 023, VDE4105		
<b>EMS interface</b>			
TCP	Modbus TCP*1, 4G(optional)		
COM	Modbus RTU*3		
CAN	CAN2.0B*1		
DIDO	DO*5,DI*2		

Data may change without prior notice\*

## SPBC-280Ah ESS



- Grid On: Peak Shaving, reduce three phase imbalance, reactive power compensation, etc.
- Grid Off: Timeless transfer to off grid mode as backup, support blackout start.
- Suitable for mobile power plant, grid capacity expansion, three phase imbalance reduction, etc.



- Grid On: PV is the highest priority to power the load, extra power to charge the battery, the battery and SP series inverter can achieve peak shaving, three phase imbalance reduction, reactive power compensation, etc.
- Grid Off: Timeless transfer to off grid mode. PV is the highest priority to power the load, extra power to charge the battery. Battery start discharging to power the load when PV is not sufficient, Generator auto start/stop based on battery SOC and load variation.
- Suitable for stabilizing small grid.



## SP5.0/7.5B10 ESS

All-in-one design, integrated with the battery, BMS, hybrid inverter, EMS, fire fighting system, thermal management system and distribution panel. IP65, easy installation.



Residential level



Commercial & Industrial level



Mobile power station



Micro-grid system

## Highlights

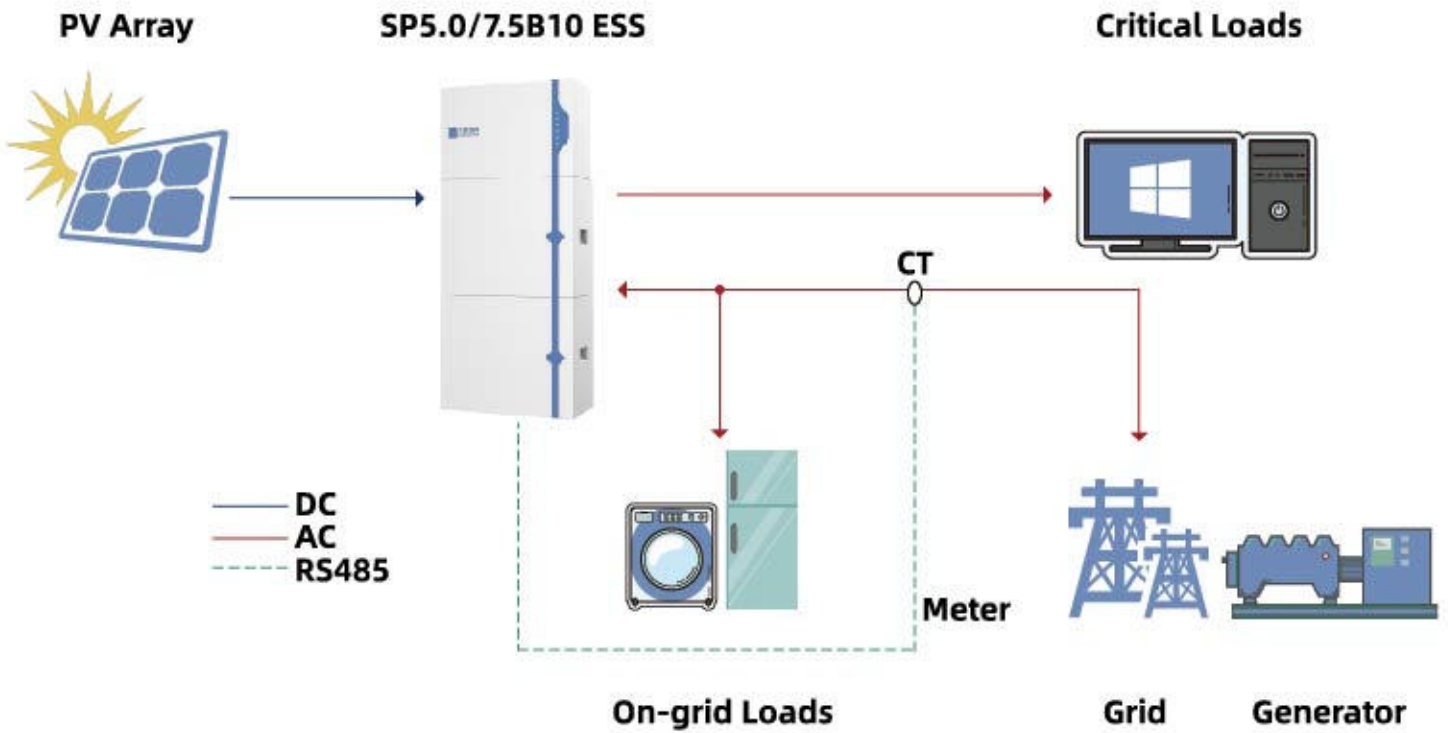
- 1** All-in-one design
- 2** \*Embedded EMS
- 3** <10ms switch time
- 4** Up to 10pcs series/ parallel operation
- 5** APP for status monitoring
- 6** 150% overload for 30s
- 7** Intelligent prioritizing power, improve PV usage & battery lifetime

\*Control logic include: Active/ reactive power control, managing power priority, power quality management, peak shaving, fuel saving, PV-BAT-GEN hybridization, emergency backup, etc.

Type Designation	SP5.0B10 ESS	SP7.5B10 ESS
<b>Input (PV)</b>		
Recommended max. PV input power	10kW	
Max. PV input voltage	500V	
Rated PV input voltage	360V	
MPPT voltage range	100V~450V	
Number of MPPT inputs	2	
Max. PV input current	32A(16A/16A)	
Max. DC short-circuit current	20A/20A	
<b>Input / Output (AC)</b>		
Max. AC power from grid	10kW	10kW
Rated AC power	5kW	7.5kW
Rated AC current (230VAC)	21.7A	32.6A
Rated AC voltage	220/230/240V(-20%~15%)	
AC voltage range	180V~276V	
Rated grid frequency	50Hz(47Hz~52Hz)/60Hz(57Hz~62Hz)	
Harmonic (THD)	< 3% (at rated power)	
Power factor at rated power/ Adjustable power factor	-1~1	
Max. efficiency	97.7%	
<b>Protection &amp; Function</b>		
DC reverse polarity protection	Yes	
Surge protection	DC Type II AC Type II	
DC switch(solar)	Yes	
DC fuse(battery)	Yes	
Battery input reverse polarity protection	Yes	
<b>Battery Data</b>		
Battery voltage range	150V ~ 460V	
Max charge / discharge current	30A	40A
Max charge / discharge power	6.6kW	8.25kW
Battery module capacity	10.0kWh	
Usable capacity	9.5kWh	
Cycle life	10000	
Operating ambient temperature range	- 10 ~ 55°C	
Certifiante	UL1973, UL9540A, IEC62619, UN38.3	
<b>Backup Data (off-grid mode)</b>		
Rated voltage	220V/230V/240V	
Frequency	50Hz(45~55HZ)/60Hz(55~65HZ)	
Harmonic (THD)	< 2%	
Switch time to emergency mode	< 10ms	
Rated output power	5kW	7.5kW
Peak output power@30s	7.5kW	11.25kW
<b>EMS interface</b>		
TCP	Modbus TCP *1, WIFI	
COM	Modbus RTU*3	
CAN	CAN2.0B*1	
DIDO	DO*5, DI*2	
<b>General Data</b>		
Dimensions (W*H*D)	500*1300*190mm / 20*51.2*7.5in	
Weight	130kg/286.6lb	
Mounting method	Ground mounted	
Topology (Solar / Battery)	Transformerless / Transformerless	
Standby self-consumption	< 10W	
Degree of protection	IP 65	
Operating temperature	-30 ~ 60 °C (> 45 °C derating)	
Relative humidity	0 ~100%	
Cooling	Natural convection	
Max. operating altitude	4000m (> 3000m derating)	
Compliance	IEC/EN 62109, IEC/EN 61000, IEC/EN 62477, IEC/EN 61727, G99, VDE4105	
Grid support	LVRT, active & reactive power control and power ramp rate control	

Customized battery capacity available upon request\*  
 Data may change without prior notice\*

## SP5.0/7.5B10 ESS





## SPBGD Series

All-in-one design, integrated with the genset, battery, BMS, battery inverter, EMS, thermal management system and distribution panel, IP54. Various connection method, with PV or busbar, easy installation & one button start.



Rural/ Construction Power Supply



Emergency Backup



Island Micro/Off Grid

## Highlights

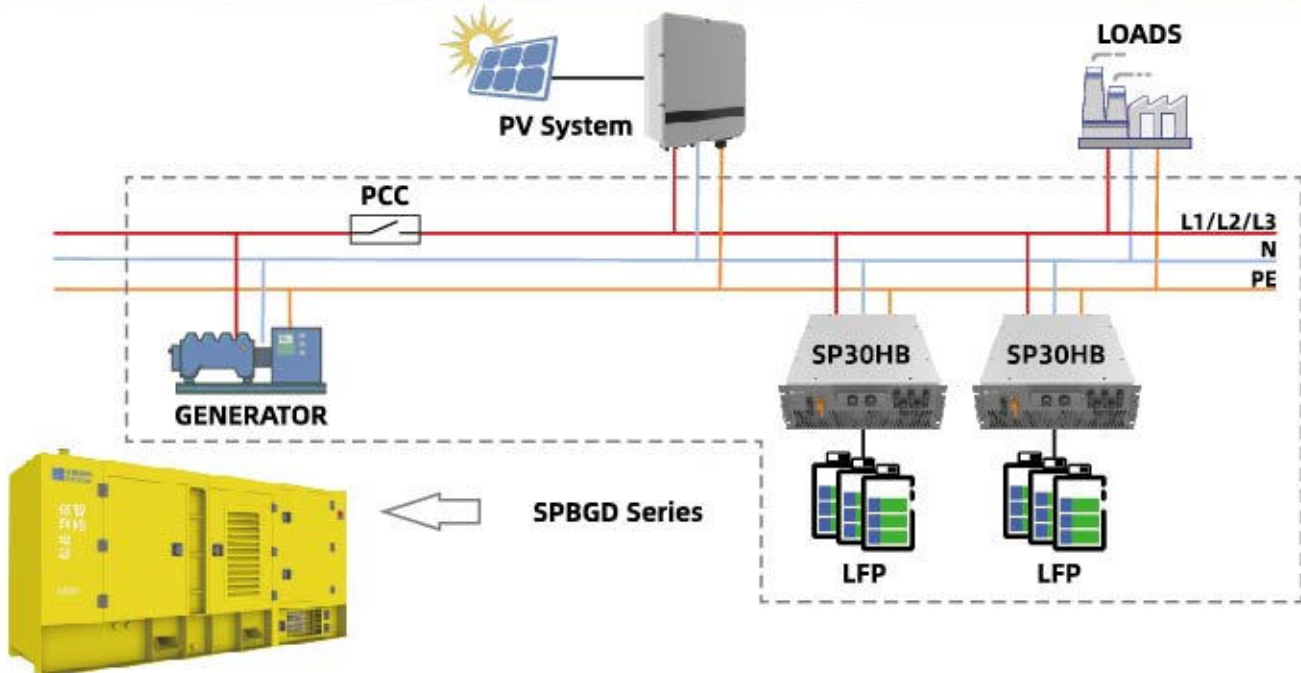
- 1** Timeless switch (0ms), multi-generating resource hybridizing
- 2** 1C charge / discharge rate, maximum 2C rate, provide high efficiency
- 3** Up to 30% fuel saving under hybrid mode
- 4** Stabilizing genset operation, reduce impact to genset
- 5** All in one design, ready for depoly & installation
- 6** Embedded mechine learning algrithum, increase renewable peneratrion through operation

Type Designation	SP30B30G50D	SP60B60G100D	SP90B90G250D
Rated power	80kW	160kW	340kW
Continuous power	70kW	140kW	290kW
Surge power@30s	95kW	190kW	385kW
Rated voltage AC (range)	400V/230V (-20%~15%)		
Rated frequency (range)	50Hz(47Hz~52Hz) / 60Hz(57Hz~62Hz)		
Accessible capacity PV	33kW	66kW	99kW
Accessible capacity GRID	50A	100A	160A
Max. load	125A	250A	630A
Max. No. in parallel operation	20	10	6
Operation temperature range	-20 to 50°C		
HMI	7inch LCD+button(optional)		
Sound level	≤70dB	≤75dB	
Degree of protection	IP54		
Coating	C5		
<b>Battery</b>			
Battery type	LFP		
Rated capacity	30.72kWh	61.44kWh	92.16kWh
Rated DC voltage	614.4V		
Charge and discharge rate	1C		
DoD	90%		
Cycle life	≥5000@25°C@1C, Ret. ≥70%		
Cooling	Industrial AC		
<b>Battery inverter</b>			
DC voltage range	400-850V		
Rated Power	30kW	60kW	90kW
Surge power@30s	45kW	90kW	135kW
Rated output voltage AC	400V/230V		
Switch time to emergency mode	< 4ms		
THDi	< 3%		
THDu	< 1.5%		
Three phase imbalance	100%		
Three phase balancing function	Yes		
<b>Diesel generator</b>			
Rated power(PRP)	50kW	100kW	250kW
Continuous power(COP)	40kW	80kW	200kW
Engine	Cummins GII		
Alternator	Stanford		
Emission standard	III		
<b>General data</b>			
Dimension(W*H*D)	3500*1710*1100mm/ 138*68*44in	5000*2000*1300mm/ 197*79*52in	6500*2200*1500mm/ 256*87*59in
Weight	3000kg	4000kg	5000kg

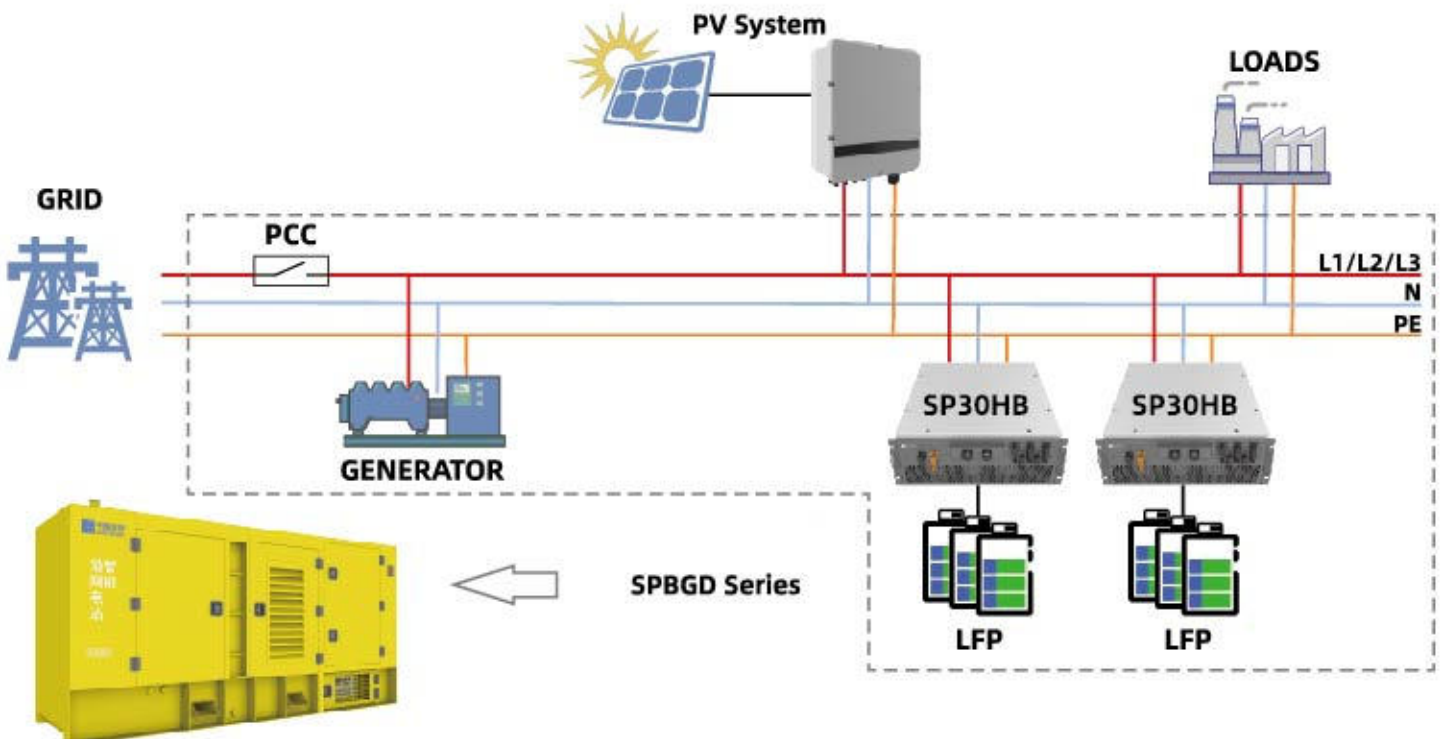
Customized genset power and brand available upon request\*

Data may change without prior notice\*

## SPBGD Series



- PV is the highest priority to power the load, extra power to charge the battery. Battery start discharging to power the load when PV is not sufficient. Generator auto start/stop based on battery SOC and load variation. Form/ build grid for remote area, especially electrification is not available.
- Suitable for islands electrification, remote utility electrification, remote field construction, mining, etc.



- Grid On: PV is the highest priority to power the load, extra power to charge the battery, the battery and SP series inverter can achieve peak shaving, three phase imbalance reduction, reactive power compensation, etc.
- Grid Off: Timeless transfer to off grid mode. PV is the highest priority to power the load, extra power to charge the battery. Battery start discharging to power the load when PV is not sufficient, Generator auto start/stop based on battery SOC and load variation.
- Suitable for stabilizing small grid.



## SPBD Genset Mate

All-in-one design, integrated with the battery, BMS, battery inverter, EMS, thermal management system and distribution panel, IP54. Various connection method, with PV, Genset or busbar, easy installation & one button start.



Rural/ Construction Power Supply



Emergency Backup



Island Micro/Off Grid

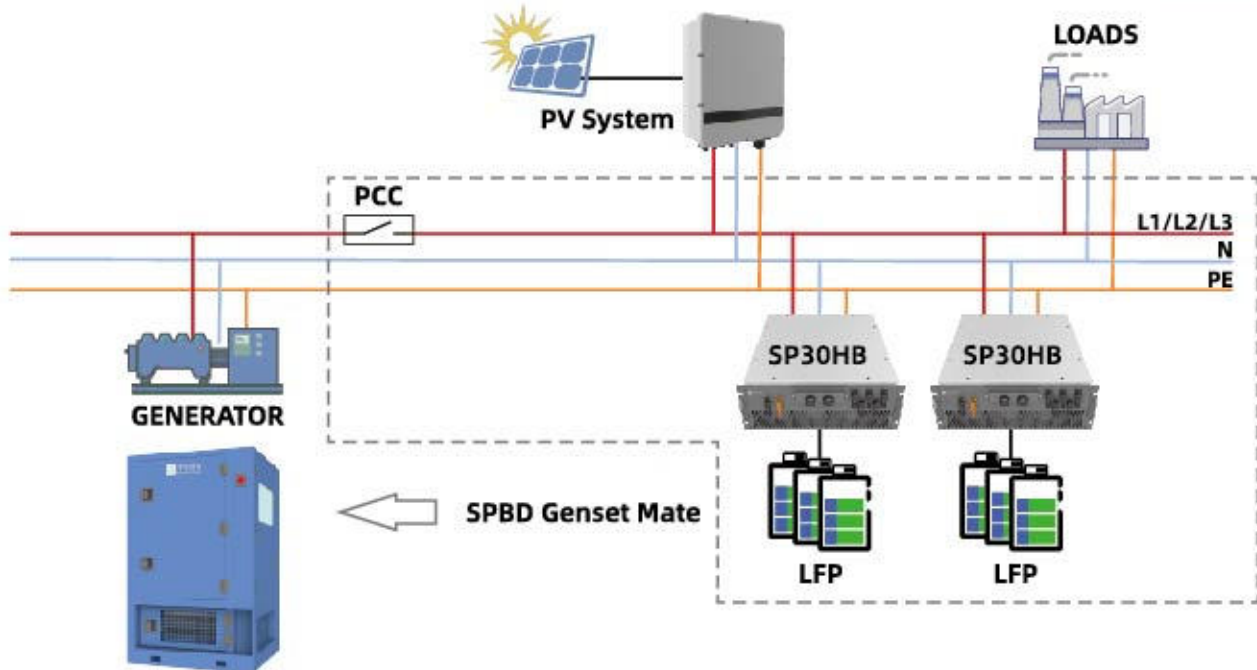
## Highlights

- 1 Timeless switch (0ms), multi-generating resource hybridizing
- 2 1C charge/ discharge rate, maximum 2C rate, provide high efficiency
- 3 Up to 50% fuel saving under hybrid mode
- 4 Stabilizing genset operation, reduce impact to genset
- 5 All in one design, ready for depoly & installation
- 6 Embedded mechine learning algrithum, increase renewable peneratrion through operation

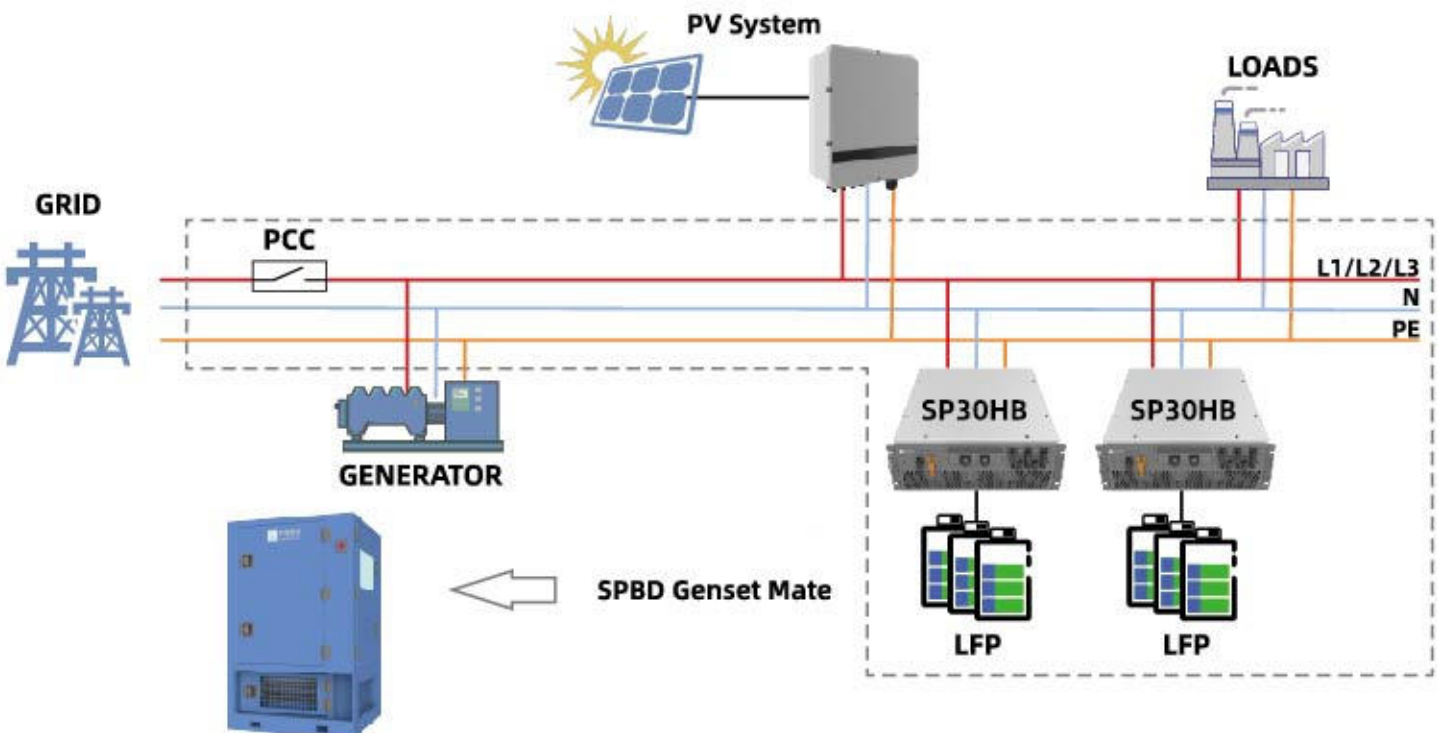
Type Designation	SP30B23/30/37.5D	SP60B37.5D
Rated power	30kW	60kW
Rated capacity	23kWh	37.5kWh
	30kWh	
	37.5kWh	
Rated voltage AC (range)	400V/230V (-20%~15%)	
Rated frequency (range)	50Hz(47Hz~52Hz) / 60Hz(57Hz~62Hz)	
Accessible capacity PV	33kW	66kW
Accessible capacity GRID/Generator	50A	100A
Max. load	125A	200A
Operation temperature range	-20 to 50°C	
HMI	7inch LCD+button(optional)	
Sound level	≤45dB	
Degree of protection	IP54	
Coating	C3/C4/C5	
Altitude	4000m (> 3000m derating)	
Dimension(W*H*D)	1000*1000*1800mm/40*40*71in	
Weight	300/390/490kg	530kg
Grid support	LVRT, active & reactive power control and power ramp rate control	
<b>Battery</b>		
Battery type	LFP	
DoD	90%	
Cycle life	≥5000@25°C@1C, Ret. ≥70%	
Cooling	Industrial AC	
Certificate	UL1973, UL9540A, IEC62619, UN38.3	
<b>Battery inverter</b>		
DC voltage range	400-850V	
Rated Power	30kW	60kW
Surge power@30s	45kW	90kW
Rated output voltage AC	400V/230V	
Switch time to emergency mode	< 4ms	
THDi	< 3%	
THDu	< 1.5%	
Three phase imbalance	100%	
Three phase balancing function	Yes	
Certificate	IEC 62109, IEC 62103, IEC 62477, EN 62477, IEC 62116, IEC 61727, IEC 61000, G99, CIG 023, VDE 4105	
<b>EMS interface</b>		
TCP	Modbus TCP*1, 4G(optional)	
COM	Modbus RTU*3	
CAN	CAN2.0B*1	
DIDO	DO*5, DI*2	

Data may change without prior notice\*

## SPBD Genset Mate



- PV is the highest priority to power the load, extra power to charge the battery. Battery start discharging to power the load when PV is not sufficient. Generator auto start/stop based on battery SOC and load variation. Form/ build grid for remote area, especially electrification is not available.
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- Suitable for stabilizing small grid.





***Power the world with hybrid energy***



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