

3.2 System Parameters

3.2.1 System Parameter Table



Figure 3-3 System Appearance Diagram

Table 3-1 Basic System Parameters

Item	Name type	Parameters	Parameter value	Remark
1	DC side parameters	Cell type	LFP 3.2V/ 314 Ah	
2		Rated capacity	112.537 kWh	
3		System Configuration	7*1P16S	
4		Voltage range	302.4V~403.2V	
5		Depth of discharge	90% DOD	
6	AC side parameters	Rated power	50kW	
7		Rated voltage	400Vac	
8		Communication access methods	3W3P/N/PE	

9		Rated power grid frequency	$50 \pm 5\text{Hz}$	
10		Power factor	0.8 (leading) ~ 0.8 (lagging)	
11		Voltage harmonics	<2%	
12		Current distortion rate	<3%	
13		DC component	<0.5%	
14	PV parameters	Maximum allowable input power	96kW	
15		Maximum input current	40A*4	
16		Maximum short-circuit current	60A*4	
17		Maximum input voltage	1000V	
18		MPPT voltage range	150~850V	
19		Start-up voltage	180V	
20		MPPT quantity	4	
21	System parameters	System efficiency	$\geq 85\%$	0.5P
22		Operating temperature	-20~50℃	45℃ drop
23		relative humidity	5%~90%RH	No condensation
24		Altitude	<2000m	Depreciation greater than 2000m
25		Protection level	IP54	
26		Corrosion resistance level	C4	
27		Cooling method	air-cooled	
28		Fire protection system	aerosol	
29		noise	$\leq 75\text{dB}$	
30		Customer interaction methods	LCD, App	
31		Dimensions (width * height * depth)	650*1100*2150mm	
32		Weight	<3T	
33		Cycle life	$\geq 8,000$ Cycles	80% SOH @ Standard
34		Number of parallel operation	≤ 10	Parallel operation requires the configuration of EMS and a switch.

3.2.2 Component Parameter Table

3.2.2.1 Cell Parameters



Figure 3-4 Cell Appearance Diagram

Table 3-2 Basic Parameters of Battery Cells

Item	Parameters	Parameter value	Remark
1	Cell model	MB31	
2	Nominal capacity	314 Ah	
3	Nominal voltage	3.2V	
4	Battery internal resistance	$\leq 0.25\text{m}\Omega$	
5	Charging limit voltage	3.65V	
6	Discharge cutoff voltage	2.5VT $> 0^\circ\text{C}$ 2.0VT $\leq 0^\circ\text{C}$	
7	Standard charging power	502.4 W	0.5P
8	Standard discharge power	502.4 W	0.5P
9	25 °C standard cycle	8,000 Cycles	Under a clamping force of 300±20 kgf, at 25 °C $\pm 2^\circ\text{C}$, with 0.5P/0.5P and a voltage of 2.5~3.65V, the energy retention rate is $\geq 80\%$.
10	Charging operating temperature	0~60 °C	
11	Discharge operating temperature	-30~60 °C	
12	Storage temperature	0~35°C (1 year) -20~45°C (1 month)	
13	Battery weight	5490g±300g	
14	Dimensions(W*H*D)	173.7×207.2×71.7mm	Error: $\pm 0.5\text{mm}$

3.2.2.2 Battery Module Parameters



Figure 3-5 Battery module appearance diagram

Table 3-3 Basic Parameters of Battery Module

Item	Parameters	Parameter value	Remark
1	Grouping	1P16S	16 cells connected in series
2	Rated capacity	314 Ah	
3	Rated voltage	51.2V	
4	Voltage range	43.2~57.6V	Corresponding to a single cell voltage of 2.7~3.6V.
5	Rated energy	16.076 kWh	
6	Maximum continuous charge and discharge current	157 A	0.5CP
7	Operating temperature range	0~40 °C	
8	Storage temperature range	-20~45 °C	
9	Dimensions (width * height * depth)	475×230×704mm	
10	Weight	110 kg	

3.2.2.3 Battery Cluster Parameters

Table 3-4 Battery Cluster Parameter Table

Item	Parameters	Parameter value	Remark
1	Grouping	1P16S	
2	Rated capacity	314 Ah	
3	Rated voltage	51.2V	
4	Voltage range	302.4~403.2V	Corresponding to a single cell voltage of 2.7~3.6V.
5	Rated energy	112.837 kWh	
6	Rated charge and discharge current	157 A	
7	Operating temperature range	Charging : 5℃ ~ 48 ℃ Discharge: -10 ℃ ~ 48 ℃	Limited to 0 power output at: 48 ℃, -10 ℃

3.2.2.4 Inverter Parameters (Compatible with Multiple Inverters)



Figure 3-6 Appearance of the SAJ hybrid inverter

Table 3-5 Mixing and Reverse Parameters

Item	Parameter type	Parameters	Parameter value	Remark
1	DC side	Maximum input voltage	1000Vdc	
2		Battery voltage range	180 ~ 850Vdc	
3		Input number	2	
4		Max charging and discharging current	150A	
5	AC side (On-Grid)	Voltage range	380/400Vac	Rated 400V
6		Rated power	50kW	
7		Maximum apparent power	55 kVA	
8		Rated output current @ 230V	72.5A	
9		Maximum output current @ 230V	79.8A	
10		Power factor	> 0.99	Adjustment range (-1 , 1)
11		Alternating current harmonics THDi	< 3%	
12		Overload capacity	110%	10 minutes
13		DC component	0.5%	
14		Max discharge efficiency	98.9%	
15	AC side (Off-grid)	Rated output voltage	380/400Vac	
16		AC voltage harmonics THD v	<3%	
17		Output frequency	50, 60/45 ~ 55, 55 ~ 65Hz	

18		AC max. output power	55VA	Linear load
19	System parameters	Operating temperature	-40 °C to +60 °C	Power derating at range 45°C to 60°C.
20		Ambient humidity	0%~100%RH	No condensation
21		Cooling method	Intelligent air cooling	
22		Protection level	IP66	
23		Altitude	≤3000m	
24		Communication interface	Wi-Fi/Ethernet/ CAN/RS485	
25		Dimensions (W*D*H)	630*630*290mm	
26		Weight	76kg	
27		Certification	IEC , EN, VDE	



Figure 3-6 Solis Hybrid inverter Appearance Diagram

Table 3-5 Inverter Parameter Table

Item	Parameter type	Parameters	Parameter value	Remark
1	DC side	Max. input voltage	1000Vdc	
2		Battery voltage range	150 ~ 800Vdc	

3		Input number	2	
4		Max charge and discharge current	70A	
5	AC side (On-grid)	Voltage range	380/400Vac	Rated 400V
6		Rated power	50kW	
7		Maximum apparent power	50 kVA	
8		Rated output current	76 A / 72.2 A	
9		Maximum output current	76 A / 72.2 A	
10		Power factor	>0.99	(0.8 Leading - 0.8 Lagging)
11		Alternating current harmonics THDi	<3%	
12		Max discharge efficiency	97.5%	
13	AC side (Off-grid)	Rated output voltage	3/N/PE, 220V/380V; 3/N/PE, 230V/400V	
14		AC voltage harmonics THDv	<2%	
15		Output frequency	50 Hz / 60 Hz	
16		AC max. output power	1.6 times the rated power	Last 2 seconds
17	System parameters	Operating temperature	-25 ~ +60°C	
18		Ambient humidity	0 - 95%	
19		Cooling method	Intelligent fan cooling	
20		Protection level	IP66	
21		Altitude	≤4000m	
22		Communication interface	CAN, RS485, Ethernet, Optional: Wi-Fi, Cellular, LAN	
23		Dimensions (W*D*H)	530 × 880 × 290 mm	
24		Weight	73 kg	
25		Certification	IEC , EN, VDE	



Figure 3-6 External view of Deye Hybrid inverter

Table 3-5 Parameters for Mixed Reactors in SUN-50K-SG01HP3-EU-BM4

Item	Parameter type	Parameters	Parameter value	Remark
1	PV side	Maximum access power	100kW	
2		Maximum input power	80kW	
3		Maximum input voltage	1000Vdc	
4		PV rated voltage	600V	
5		Battery voltage range	150 ~ 850 Vdc	
6		Input number	4	
7		Maximum input current	36 A *4	
8	AC side	Input/output voltage range	220/380V, 230/400V	0.85Un~1.1Un
9		Input/output frequency range	50/45-55Hz, 60/55-65Hz	
10		Power grid connection type	3L+N+PE	
11		Rated power	50kW	
12		Maximum apparent power	55k VA	
13		Rated input/ output current	75.8 A / 72.5 A	
14		Maximum input/ output current	83.4 A / 79.8 A	
15		Power factor	-0.8~0.8	
16		Alternating current harmonics THDi	<3%	
17		Off-grid peak power	1.5*rated current, 10s	
18		Maximum continuous AC bypass current	200A	

19		DC component	<0.5%In	
20	System parameters	Maximum efficiency	97.6%	
21		European efficiency	97%	
22		MPPT efficiency	>99%	
23		Operating temperature	-40 ~ +60°C	
24		Ambient humidity	0 - 95%	
25		Isolation method	non-isolation	
26		Protection level	IP6 5	
27		Altitude	2,000m	
28		Communication interface	CAN, RS485, RS232	
29		Dimensions (W*D*H)	5 27 × 8 94 × 29 4 mm	
30		Weight	80 kg	
31		Certification	EC/EN 61000-6-1/2/3/4, IEC/EN 62109-1, IEC/EN 62109-2	

3.2.2.5 LC Parameters (Selected for Parallel Operation)



Figure 3-7 Schematic diagram of LC (Lightweight EMS)

Table 3-8 LC parameter table

Item	Parameters	Parameter value
1	External communication interface	Ethernet /RS485
2	External communication protocol	Modbus TCP/IP
3	DI quantity	Route 8
4	DO quantity	Route 6
5	Interface	Comes with
6	Power supply	DC24V
7	Operating temperature	-20~60 ℃
8	Ambient humidity	10~90%RH , non-condensing
9	Installation method	Screw fixing installation
10	IP Level	IP20
11	Size	220*175*55mm
12	Certification	CE , RoHS