

All-in-one Residential ESS



X1-IES

2.5kW / 3.0kW / 3.7kW / 5.0kW /
6.0kW / 8.0kW



Smart Management

- AI ready, forecasting solar generation and home consumption for smart energy management strategy control*
- VPP ready with a variety of compatibility(OpenADR, IEEE2030.5, FCAS, API)**
- Smart loads management (e.g., heat pump, smart EV charger)
- Micro-grid support for real-time grid/off-grid balancing
- Wireless meter compatibility
- Global MPP scan for optimal energy harvest



High Performance

- Max. 50A charge/discharge current
- 200% oversizing and 200% PV input power
- Up to 200% EPS output for 10s
- Low start-up voltage for longer operation
- Cycle life > 6000 cycles



Assured Reliability

- IP66 ingress protection
- Type II SPD on AC&DC side
- AFCI protection (optional)
- UPS-level switchover time <10ms



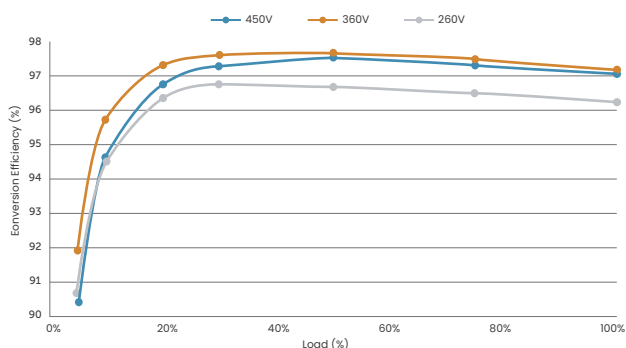
Flexible Adaptability

- All-in-one, plug-and-play design
- Max. 20A DC input current for high power solar panel

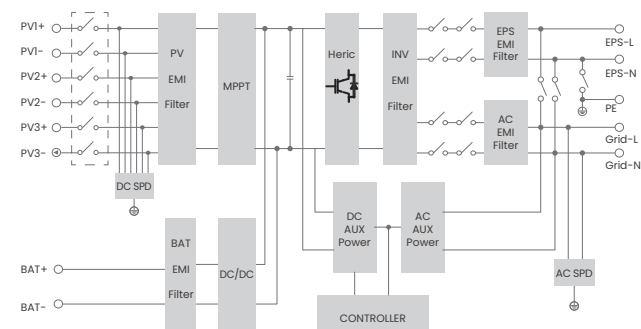
*Additional XHUB required

**Feature to be upgraded in the future

Efficiency Curve

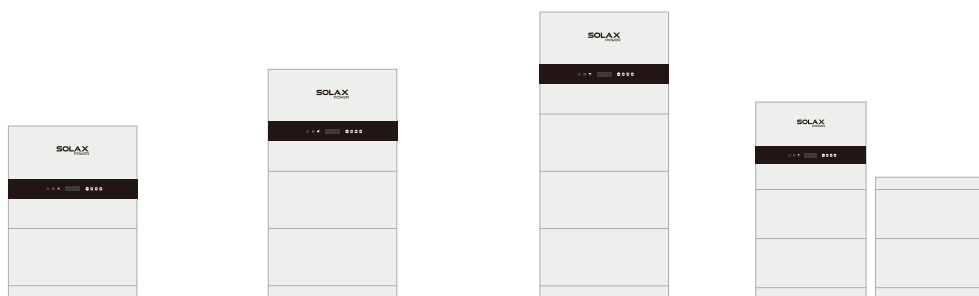


Circuit Diagram



SYSTEM OVERVIEW

System schematic



Rated power	2.5 / 3.0 / 3.7 / 5.0 / 6.0 / 8.0 kW			
Number of batteries	1	2	3	4
Rated energy ^①	5.1 kWh	10.2 kWh	15.3 kWh	20.4 kWh
Usable energy ^②	4.6 kWh	9.2 kWh	13.8 kWh	18.4 kWh
Max. power ^③	5.1 kW	8.0 kW	8.0 kW	8.0 kW
Ingress protection	IP66			
Operation temperature range	-30 ~ 53°C			
Relative humidity	5 ~ 95% (No condensation)			
Max. operation altitude	3000 m			
Net weight ^④	87.2 kg	134.2 kg	181.2 kg	134.2 kg / 99.2 kg
Dimensions (W x H x D)	730 x 908 x 210 mm	730 x 1226 x 210 mm	730 x 1544 x 210 mm	730 x 1226 x 210 mm / 730 x 809 x 150 mm
Display	LCD			
Cooling concept	Natural cooling			
Topology	Non-isolated			
Communication interface	RS485, Pocket-X, CAN, DO, DI			

① Test conditions: 25°C, 100% depth of discharge (DoD), 0.2C charge & discharge

② System usable energy may vary with inverter different setting

③ The max.charge/discharge power must not exceed the rated output power (the table takes the maximum power inverter as an example)

④ Different inverter models have different weights. The heaviest one is taken as an example

X1-IES-2.5K
X1-IES-3K
X1-IES-3.7K
X1-IES-5K
X1-IES-6K
X1-IES-8K

PV INPUT						
Max. recommended PV array power	5.0 kWp	6.0 kWp	7.4 kWp	10.0 kWp	12.0 kWp	16.0 kWp
Max. PV input voltage ^①	600 V					
Rated PV input voltage	360 V					
MPPT voltage range ^②	40 ~ 560 V					
Start-up voltage	50 V					
No. of MPP trackers / Strings per MPP tracker	2 / (1 / 1)			3 / (1 / 1 / 1)		
Max. input current per MPPT	20 A / 20 A			20 A / 20 A / 20 A		
Max. input short circuit current per MPPT	30A / 30A			30A / 30A / 30 A		
AC INPUT & OUTPUT (ON-GRID)						
Rated output power	2500 W	3000 W	3680 W	5000 W (4600 for VDE4105, 4999 for AS4777)	6000 W	8000 W
Rated output current	10.9 A	13.1 A	16.0 A	21.8 A	26.1 A	34.8 A
Max. output apparent power	2500 VA	3300 VA	3680 VA	5000 VA (4600 for VDE4105, 4999 for AS4777, 5000 for C10/11)	6600 VA	8000 VA
Max. output continuous current	10.9 A	14.4 A	16.0 A	21.8 A	28.7 A	34.8 A
Rated AC voltage	1 / N / PE, 220 / 230 / 240 V					
Max. AC input apparent power	6300 VA	6300 VA	7360 VA	9200 VA	9200 VA	9200 VA
Max. AC input current	27.4 A	27.4 A	32.0 A	40.0 A	40.0 A	40.0 A
Rated AC frequency	50 Hz / 60 Hz					
AC frequency range ^③	50 ± 5 Hz / 60 ± 5 Hz					
Adjustable power factor range	~ 1 (0.8 lagging to 0.8 leading)					
THDi (rated power)	< 3%					
BATTERY						
Operation voltage range	80 ~ 480 V					
Communication interfaces	CAN / RS485					
BMS module	TBMS-MCS0800E					
Battery module	TP-HS50E					
Composition	TBMS-MCS0800E + TP-HS50E × n + Base Dimensions + Series Box （Required for two columns）					
Battery type	Li-ion (LFP)					
Rated capacity / rated capacity ^④	5.1 kWh / 50 Ah					
Usable energy ^⑤	4.6 kWh					
Rated power	3 kW					
Max. power	5.1 kW					
Max. charge / discharge current ^⑥	50 A					
Cycle life	> 6000 cycles					
Warranty	10 years					
Certifications	CE, RCM, TUV (IEC62619), RoHS, REACH					
TBMS-MCS0800E dimensions (W × H × D) / net weight	730 × 165 × 150 mm / 9.3 kg					
TP-HS50E dimensions (W × H × D) / net weight	730 × 318 × 150 mm / 47 kg					
Base dimensions (W × H × D) / net weight	730 × 75 × 150 mm / 3.9 kg					

BATTERY						
Series box dimensions (W × H × D) / net weight	167 × 91.5 × 121 mm/ 1.3 kg					
EPS (OFF-GRID) OUTPUT (WITH BATTERY)						
Rated EPS output voltage, frequency	220 V, 230 V, 240 V, 50 Hz / 60 Hz					
Rated EPS output power	2500 VA	3000 VA	3680 VA	5000 VA	6000 VA	8000 VA
Peak EPS output power	2 times of rated power, 10 s					
Switchover time	< 10 ms					
EFFICIENCY						
Max. efficiency	97.6%					
European efficiency	97.0%					
ENVIRONMENT LIMIT						
Ingress protection	IP66					
Operation temperature range	-35 ~ 60°C (> 45°C derating)					
Max. operation altitude	3000 m					
Relative humidity	0 ~ 100% RH (condensing)					
GENERAL						
Dimensions (W × H × D)	717 × 350 × 210 mm					
Net weight	26.2 kg			26.4 kg		
Cooling concept	Natural cooling					
Communication interfaces	RS485, Pocket-X, CAN, DO, DI					
Power consumption (night)	< 40 W for hot standby, < 5 W for cold standby					
Topology	Non-isolated					
Certifications	IEC62109-1 / IEC62109-2, VDE 0126-1-1 A1:2012 / VDE-AR-N 4105 / G98 / G99 / AS4777 / EN50549 / CEI 0-21					
PROTECTION						
Protections	Over voltage protection, DC reverse-polarity protection, Residual current detection, Over temperature protection					
Active anti-islanding method	Frequency shift					
Surge protection	DC: Type II , AC: Type II					

① The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage the inverter

② Input voltage exceeding the MPPT voltage range may trigger inverter protection

③ The AC frequency range may vary from different country codes

④ Test conditions: 25°C, 100% depth of discharge (DoD), 0.2C charge & discharge

⑤ System usable energy may vary with inverter different settings

⑥ Discharge: In case of the battery cell's temperature range of -20°C~10°C and 45°C~53°C, the discharge current will be reduced; Charge: In case of the battery cell's temperature range of 0°C~25°C and 45°C~53°C, the charge current will be reduced. Product charge or discharge power depends on the actual temperature of the battery pack