All-in-one Residential ESS



X3-IES-P

4kW / 5kW / 6kW / 8kW /
10kW / 12kW / 15kW

Smart Management

- AI ready, forecasting solar generation and home consumption for smart energy management strategy control①
- VPP ready with a variety of compatibility (OpenADR, IEEE2030.5, FCAS, API)②
- Micro-grid support for real-time balance in grid/off-grid
- Wireless meter solution
- Smart Schedule, Smart Scene, and 7*24h TOU
- Global MPP scan for optimal energy harvest

Assured Reliability

- IP66 protection degree
- Type II SPD on AC&DC side
- AFCI protection (optional)
- Unique battery heating tech and wide temperature tolerance
- Up to 200% EPS output for 10s
- UPS-level switchover time <10ms

High Performance

- Max. 3 MPPTs for versatile application scenarios
- 200% oversizing and 200% PV input power
- Max. 20A PV input per MPPT
- Low startup voltage for higher energy harvest

Flexible Adaptability

- All-in-one, plug-and-play design
- Support smart scene functions (e.g., heat pump, EV charger)
- Versatile installation for varied needs

①Additional XHUB required
②Feature to be upgraded in the future

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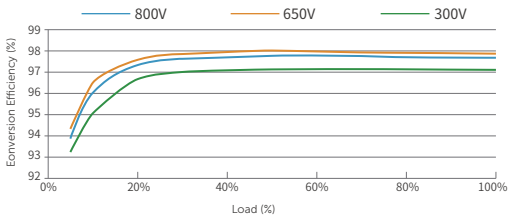
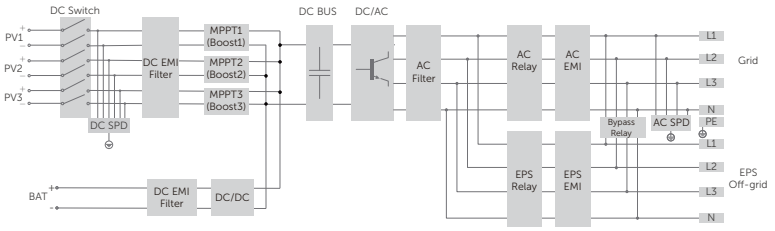
V2.0 Information may be subject to modify without notice. 650.00083.00

Efficiency Curve



Circuit Diagram



SYSTEM OVERVIEW

System schematic



Rated power	4 kW / 5 kW / 6 kW / 8 kW / 10 kW / 12 kW / 15 kW					
Number of batteries	1	2	3	4	5	6
Rated energy①	5.1 kWh	10.2 kWh	15.3 kWh	20.4 kWh	25.6 kWh	30.7 kWh
Usable energy②	4.6 kWh	9.2 kWh	13.8 kWh	18.4 kWh	23.0 kWh	27.6 kWh
Max. charge / discharge power③	5.1 kW	10.2 kW	15.0 kW	15.0 kW	15.0 kW	15.0 kW
Ingress protection	IP66					
Operation temperature range	-30 ~ 53°C					
Relative humidity	4 ~ 100% (Condensing)					
Max. operation altitude	3000 m					
Net weight④	100.2 kg	147.2 kg	194.2 kg	241.2 kg	147.2 kg / 146.2 kg	194.2 kg / 146.2 kg
Dimensions (W x H x D)	730 x 963 x 209.5 mm	730 x 1281 x 209.5 mm	730 x 1599 x 209.5 mm	730 x 1917 x 209.5 mm	730 x 1281 x 209.5 mm / 730 x 1120.5 x 150 mm	730 x 1599 x 209.5 mm / 730 x 1120.5 x 150 mm
Display	LCD					
Cooling concept	Natural cooling					
Topology	Non-isolated					
Communication interface	RS485, Pocket-X, USB, 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 settings.
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 dfferent weights. The heaviest one is taken as an example.

	X3-IES-4K-P	X3-IES-5K-P	X3-IES-6K-P	X3-IES-8K-P	X3-IES-10K-P	X3-IES-12K-P	X3-IES-15K-P
PV INPUT							
Max. recommended PV array power	8 kWp	10 kWp	12 kWp	16 kWp	20 kWp	24 kWp	30 kWp
Max. PV input voltage ①	1000 d.c. V						
Rated PV input voltage	600 d.c. V						
Operation voltage range	90 ~ 950 d.c. V						
MPPT voltage range ②	110 ~ 950 d.c. V						
Start-up voltage	140 d.c. V						
No. of MPP trackers / Strings per MPP tracker	2 / (1 / 1)			3 / (1 / 1 / 1)			
Max. input current per MPPT	20 / 20 d.c. A			20 / 20 / 20 d.c. A			
Max. input short circuit current per MPPT	25 / 25 d.c. A			25 / 25 / 25 d.c. A			
AC INPUT & OUTPUT (ON-GRID)							
Rated output apparent power	4 kVA	5 kVA (AS4777 4.999 kVA)	6 kVA	8 kVA	10 kVA (AS4777 9.999 kVA)	12 kVA	15 kVA (AS4777 14.999 kVA)
Rated output current	5.8 a.c. A @230 / 400 a.c. V	7.3 a.c. A @230 / 400 a.c. V	8.7 a.c. A @230 / 400 a.c. V	11.6 a.c. A @230 / 400 a.c. V	14.5 a.c. A @230 / 400 a.c. V	17.4 a.c. A @230 / 400 a.c. V	21.8 a.c. A @230 / 400 a.c. V
Max. output apparent power	4 kVA	5.5 kVA (AS4777 4.999 kVA)	6.6 kVA	8.8 kVA	10 kVA (AS4777 9.999 kVA)	13.2 kVA	16.5 kVA (AS4777 14.999 kVA)
Max. output continuous current	6.1 a.c. A @230 / 400 a.c. V	8.4 a.c. A @230 / 400 a.c. V	10 a.c. A @230 / 400 a.c. V	13.4 a.c. A @230 / 400 a.c. V	15.2 a.c. A @230 / 400 a.c. V	20.0 a.c. A @230 / 400 a.c. V	25.0 a.c. A @230 / 400 a.c. V
Rated AC voltage	3W / N / PE, 220 / 380 a.c. V 3W / N / PE, 230 / 400 a.c. V						
Max. AC input apparent power	10 kVA		12 kVA	16 kVA	20 kVA		
Max. AC input current	16.1 a.c. A		19.3 a.c. A	25.8 a.c. A	32.0 a.c. 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 ~ 800 d.c. V						
Communication interfaces	CAN / RS485						
BMS module	TBMS-MCS0800E						
Battery module	TP-HS50E						
Composition	TBMS-MCS0800E + TP-HS50E x n + Base Dimensions + Series Box（Required for two columns）						
Battery type	Lithium						
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 d.c. A						
Cycle life	> 6000 cycles						
Warranty	10 years						
Certifications	CE, RCM, TUV (IEC62619), RoHS, REACH						
TBMS-MCS0800E dimensions (W x H x D) / net weight	730 × 165 × 150 mm / 9.3 kg						
TP-HS50E dimensions (W x H x D) / net weight	730 × 318 × 150 mm / 47 kg						
Base dimensions (W x H x D) / net weight	730 × 75 × 150 mm / 3.9 kg						
Series box dimensions (W x H x D) / net weight	167 × 91.5 × 121 mm / 1.3 kg						

	X3-IES-4K-P	X3-IES-5K-P	X3-IES-6K-P	X3-IES-8K-P	X3-IES-10K-P	X3-IES-12K-P	X3-IES-15K-P
EPS OUTPUT(WITH BATTERY)							
Rated EPS output voltage, frequency	230 a.c. V / 400 a.c. V, 50 Hz / 60 Hz						
Rated EPS apparent power	4 kVA	5 kVA	6 kVA	8 kVA	10 kVA	12 kVA	15 kVA
Peak EPS output power	2 times of rated power, 10s						
Switchover time	< 10 ms						
EFFICIENCY							
Max. efficiency	98.00%						
European Efficiency	97.70%						
ENVIRONMENT LIMIT							
Ingress protection	IP66						
Operating temperature range	-35 ~ 60°C (> 45°C derating)						
Max. operating altitude	3000 m						
Relative humidity	4 ~ 100% RH (condensing)						
Overvoltage category	Mains: Ⅲ, Battery: Ⅱ, PV: Ⅱ						
GENERAL							
Demensions(W x H x D)	717 × 405 × 209.5 mm						
Net weight	40kg						
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						
Cetifications	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, DC isolation protection, Grid monitoring, DC injection monitoring, Back feed current monitoring						
Surge protection	DC: Type Ⅱ, AC: Type Ⅱ						
Arc-fault circuit interrupter (AFCI)	Optional						

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°Cand 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