

# All-in-one Residential ESS



## X3-IES-P

8kW / 10kW / 12kW / 15kW



### 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)\*\*
- 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



### 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



### 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

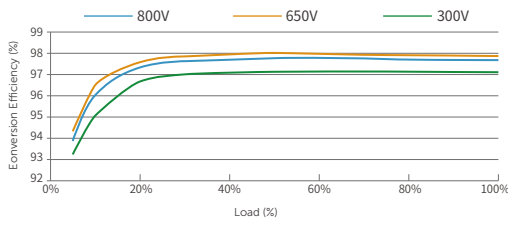


### Flexible Adaptability

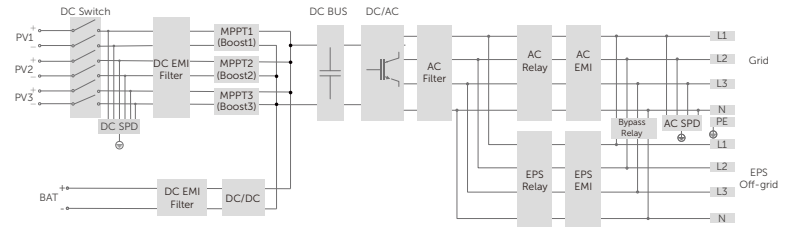
- All-in-one, plug-and-play design
- Support smart scene functions (e.g., heat pump, EV charger)
- Versatile installation for varied needs

*\*Additional Datahub1000 required  
\*\*Feature to be upgraded in the future*

## Efficiency Curve



## Circuit Diagram



## SYSTEM OVERVIEW

System schematic



Rated output power	8 / 10 / 12 / 15 kW				
Number of batteries	2	3	4	5	6
Nominal capacity <sup>①</sup>	10.2 kWh	15.3 kWh	20.4 kWh	25.6 kWh	30.7 kWh
Usable energy <sup>②</sup>	9.2 kWh	13.8 kWh	18.4 kWh	23.0 kWh	27.6 kWh
Max. charge / discharge power <sup>③</sup>	10.2 kW	15.0 kW	15.0 kW	15.0 kW	15.0 kW
Degree of protection	IP66				
Operating temperature range	-30 ~ 53°C				
Allowable relative humidity range	5 ~ 95% (No condensation)				
Max. operating altitude	3000 m				
Net weight <sup>④</sup>	147.2 kg	194.2 kg	147.2 / 103.5 kg	147.2 / 150.5 kg	194.2 / 150.5 kg
Dimension (W x H x D)	730 x 1281 x 209.5 mm	730 x 1599 x 209.5 mm	730 x 1281 x 209.5 mm / 730 x 809 x 150 mm	730 x 1281 x 209.5 mm / 730 x 1127 x 150 mm	730 x 1599 x 209.5 mm / 730 x 1127 x 150 mm
Display	LCD				
Cooling concept	Natural cooling				
Topology	Non-isolated				
Communication	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 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

PV INPUT				
Max. recommended PV array power	16 kWp	20 kWp	24 kWp	30 kWp
Max. PV input voltage <sup>①</sup>	1000 V			
Nominal PV input voltage	600 V			
Operating voltage range	90 ~ 950 V			
MPPT voltage range <sup>②</sup>	110 ~ 950 V			
Start-up voltage	140 V			
No. of MPP trackers / Strings per MPP tracker	3 / (1 / 1 / 1)			
Max. input current per MPPT (MPPT1//2/3)	20 A / 20 A / 20 A			
Max. input short circuit current per MPPT (MPPT1/2/3)	25 A / 25 A / 25 A			
AC INPUT & OUTPUT (ON-GRID)				
Rated output power	8 kW	10 kW (AS4777 9999)	12 kW	15 kW (AS4777 9999)
Rated output current	11.6 A	14.5 A	17.4 A	21.8 A
Max. output apparent power	8800 VA	10000 VA (AS4777 9999)	13200 VA	16500 VA
Max. output continuous current	13.4 A	15.2 A	20.0 A	25.0 A
Nominal AC voltage	3 / N / PE, 220 / 380 V 3 / N / PE, 230 / 400 V			
Max. AC input apparent power	16 kVA	20 kVA	20 kVA	20 kVA
Max. AC input current	25.8 A	32.0 A	32.0 A	32.0 A
Nominal AC frequency	50 Hz / 60 Hz			
AC frequency range <sup>③</sup>	50 ± 5 Hz / 60 ± 5 Hz			
Adjustable power factor range	~ 1 (0.8 lagging to 0.8 leading)			
THDi (rated power)	< 3%			
BATTERY				
Battery voltage range	160 ~ 800 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	Li-ion (LFP)			
Nominal capacity / Nominal capacity <sup>④</sup>	5.1 kWh / 50 Ah			
Usable energy <sup>⑤</sup>	4.6 kWh			
Standard power	3 kW			
Max power	5.1 kW			
Max. charge / discharge current <sup>⑥</sup>	50 A			
Cycle life	> 6000 cycles			
Warranty	10 years			
Safety	CE, RCM, TUV (IEC62619), RoHS, REACH			
TBMS-MCS0800E dimensions (W x H x D) / Weight	730 x 165 x 150 mm / 9.3 kg			
TP-HS50E dimensions (W x H x D) / Weight	730 x 318 x 150 mm / 47 kg			
Base dimensions (W x H x D) / Weight	730 x 75 x 150 mm / 3.9 kg			
Series box dimensions (W x H x D) / Weight	167 x 91.5 x 121 mm / 1.3 kg			

**EPS (OFF-GRID) OUTPUT (WITH BATTERY)**

Rated EPS output voltage, frequency	230 V / 400 V, 50 Hz / 60 Hz			
Rated EPS output power	8 kVA	10 kVA	12 kVA	15 kVA
Peak EPS output power	2 times of rated power, 10 s			
Switchover time	< 10 ms			

**EFFICIENCY**

Max. efficiency	98.0%			
European efficiency	97.7%			

**ENVIRONMENT LIMIT**

Ingress protection	IP66			
Operating ambient temperature range <sup>⑦</sup>	-35 ~ 60°C			
Max. operating altitude	3000 m			
Relative humidity	0 ~ 100% RH (condensing)			
Overvoltage Category	Mains: III, Battery: II, PV: II			

**GENERAL**

Dimensions (W × H × D)	717 × 405 × 209.5 mm			
Net weight	40 kg			
Cooling concept	Nature cooling			
Communication interfaces	RS485, Pocket-X, CAN + RS485, DO, DI			
Power consumption (night)	< 40 W for hot standby, < 5 W for cold standby			
Topology	Non-isolated			
Certificates and approvals	IIEC62109-1 / IEC62109-2, VDE 0126-1-1 A1:2012 / VDE-AR-N 4105 / G98 / G99 / AS4777 / EN50549 / CEI 0-21			
AC auxiliary power supply (APS)	Built-in			

**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			
Active anti-islanding method	Frequency shift			
Surge protection (DC / AC)	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°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

⑦ Derating above +45°C