Hybrid ESS Cabinet



ESS-AELIO

50kW / 60kW
100~400kWh

Smart Management

- AI-driven intelligent algorithms for high SOC and accuracy
- VPP ready with SolaX Cloud (2030.5, OpenADR)
- Support micro-grids and diverse scenarios
- Smart Schedule, Smart Scene and 7×24h TOU
- Wireless meter compatibility

Assured Reliability

- Four-level fire safety protection
- IP66 for inverter, IP55 for cabinet
- Type II SPD on AC&DC side
- Smart IV Curve scan for early panel diagnosis
- Optional AFCI protection*
- Support three-phase unbalance output

High Performance

- Max. 200% PV oversizing input
- Global MPP scan for optimal energy harvest
- Single cabinet with up to 200kWh, expandable to MWh-scale capacity
- Dual battery ports, extend anytime 2/4/6/8h

Flexible Adaptability

- Grid-connected and off-grid support
- Expandable design with modular capacity options
- Max. 40A DC input current for high power solar panel

** Feature to be upgraded in the future*

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**V1.0.1 Information may be subject to modify without notice. 650.00074.00*

	AELIO-P50B100	AELIO-P50B200	AELIO-P60B100	AELIO-P60B200
DC SIDE				
Max. recommended PV array power	100 kWp		120 kWp	
Max. PV input voltage①	1000 V			
Start-up voltage	200 V			
Nominal PV input voltage	650 V			
MPPT voltage range②	160 ~ 950 V			
No. of MPP trackers / Strings per MPP tracker	5 / 2		6 / 2	
Max. input current per MPPT	40 A			
Isc PV array Short Circuit Current per MPPT③	50 A			
AC SIDE				
Rated output power	50 kW		60 kW	
Rated output current	72.2 A		86.6 A	
Max. apparent power	55 kVA		66 kVA	
Max. output continuous current	83.6 A		100.3 A	
Nominal AC voltage	3 / N / PE, 220 / 380 V 3 / N / PE, 230 / 400 V			
Nominal AC frequency	50 Hz / 60 Hz			
Adjustable Power Factor range	~ 1 (0.8 lagging to 0.8 leading)			
THDi (rated power)	< 3%			
BATTERY SIDE				
Battery type	LFP / 280Ah			
Rated battery capacity	100 kWh	200 kWh	100 kWh	200 kWh
Rated battery voltage	358.4 V	716.8 V	358.4 V	716.8 V
Battery voltage range	280 ~ 408.8 V	560 ~ 817.6 V	280 ~ 408.8 V	560 ~ 817.6 V
Rated charge/discharge current	140 A			
Max charge/discharge current	160 A (80 A × 2)			
GENERAL				
Dimensions (with inverter) (W × H × D)	1310 × 2300 × 1140 mm	2070 × 2420 × 1200 mm	1310 × 2300 × 1140 mm	2070 × 2420 × 1200 mm
Dimensions (without Inverter) (W × H × D)	1020 × 2300 × 1150 mm	1680 × 2420 × 1200 mm	1020 × 2300 × 1150 mm	1680 × 2420 × 1200 mm
Weight (with inverter)	1600 kg	2800 kg	1600 kg	2800 kg
Weight (without inverter)	1500 kg	2700 kg	1500 kg	2700 kg
Operating ambient temperature range	-30 ~ 55°C	-30 ~ 50°C	-30 ~ 55°C	-30 ~ 50°C
Relative humidity	0 ~ 95% RH (non-condensing)			
Max. operating altitude	3000 m			
Cooling concept	Smart air cooling			
Ingress protection	Cabinet: IP55; Inverter: IP66			
Fire protection	Aerosol (Optional: Novec1230) / Water			
Topology	Non-isolated			
Standard	IIEC62619, IEC63056:2000, IEC61000, IEC62477-1, UN38.3			

① The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter
② Input voltage exceeding the MPPT voltage range may trigger inverter protection
③ Isc current for single PV input string is 35A

HYBRID ESS CABINET **INVERTER**

	X3-AELIO-49.9K	X3-AELIO-49.9K-P	X3-AELIO-50K	X3-AELIO-60K	X3-AELIO-61K
PV INPUT					
Max. recommended PV array power	100 kWp	120 kWp	100 kWp	120 kWp	
Max. PV input voltage①	1000 V				
Nominal PV input voltage	650 V				
MPPT voltage range②	160 ~ 950 V				
Start-up voltage	200 V				
No. of MPP trackers / Strings per MPP tracker	5 / 2	6 / 2	5 / 2	6 / 2	
Max. input current per MPPT	40 A				
Max. input short circuit current per MPPT	50 A				
AC INPUT & OUTPUT (ON-GRID)					
Rated output power	49.9 kW	49.9 kW	50 kW	60 kW	61 kW
Rated output current	72.3 A	72.0 A	72.5 A	87.0 A	88.4 A
Max. output apparent power	49.9 kVA	49.9 kVA	55 kVA	66 kVA	66 kVA
Max. output continuous current	83.2 A	76.0 A	83.3 A	100.0 A	100.0 A
Nominal AC voltage	3 / N / PE, 220 / 380 V 3 / N / PE, 230 / 400 V				
Nominal AC frequency	50 Hz / 60 Hz				
AC frequency range③	50 ± 5 Hz / 60 ± 5 Hz				
Adjustable Power Factor range	~ 1 (0.8 lagging to 0.8 leading)				
THDi (rated power)	< 3%				
BATTERY					
Battery type	Lithium				
Battery voltage range	180 ~ 820 V				
Max. charge / discharge current	160 A (80 A × 2)				
EPS (OFF-GRID) OUTPUT					
Rated EPS output voltage, frequency	230 / 400 V, 220 / 380 V, 50 Hz / 60 Hz				
Rated EPS output power	49.9 kVA	49.9 kVA	50.0 kVA	60.0 kVA	61.0 kVA
Peak EPS output power	55 kVA, continuous 75 kVA, 10s	55 kVA, continuous 75 kVA, 10s	55 kVA, continuous 75 kVA, 10s	66 kVA, continuous 90 kVA, 10s	66 kVA, continuous 90 kVA, 10s
Switchover time	< 10 ms				
EFFICIENCY					
Max. efficiency	98.0%				
European efficiency	97.2%				
ENVIRONMENT LIMIT					
Ingress protection	IP66				
Operating ambient temperature range④	-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)	820 × 670 × 257 mm				

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	X3-AELIO-49.9K	X3-AELIO-49.9K-P	X3-AELIO-50K	X3-AELIO-60K	X3-AELIO-61K
Net weight	< 100 kg	< 105 kg	< 100 kg	< 105 kg	< 105 kg
Cooling concept	Smart air cooling				
Communication interfaces	RS485, CAN, Ripple Control, DI, DO				
Topology	Non-isolated				
Certificates and approvals	CE, VDE4105, G99, AS4777, EN50549, CEI 0-21, IEC61727, PEA/MEA, NRS-097-2-1, RD1699, TOR				
Protection					
Over / under voltage protection	Yes				
DC isolation protection	Yes				
DC reverse-polarity protection	Yes				
Grid monitoring	Yes				
DC injection monitoring	Yes				
Back feed current monitoring	Yes				
Residual current detection	Yes				
Over temperature protection	Yes				
Active anti-islanding method	Frequency shift				
Surge protection (DC / AC)	DC: Type II, AC: Type II				
Arc-fault circuit interrupter (AFCI)	Yes				
AC auxiliary power supply (APS)	Built-in				

① The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter
② Input voltage exceeding the MPPT voltage range may triggers inverter protection
③ The AC frequency range may vary from different country codes
④ Derating above +45°C

HYBRID ESS CABINET **PACK**

	TB-HR140
Battery type	LFP 280Ah
Battery capacity	14.3 kWh
Battery configuration	1P16S
Rated cattery voltage	51.2 V
Battery voltage range	40 ~ 58.4 V
Weight	115 kg
Charge / discharge rate	≤ 0.5 C
Dimensions (W × H × D)	461 × 228 × 778 mm
Operating temperature range	-20 ~ 53°C
Relative humidity	0 ~ 95% RH (non-condensing)
Max. operating altitude	3000 m
Ingress protection	IP20
Communication to PCS	CAN