



ESS-AELIO

HYBRID C&I ESS CABINET

SolaX New Commercial Energy Storage Solutions

Robust

- Support both on-grid and off-grid operation
- Robust back-up ability, switch over time < 10ms, up to 150% EPS output for 10s
- Support unbalanced loads on three phases

Safe

- Four-level fire safety protection
- IP66 protection for Inverter and IP55 for cabinet
- AFCI optional
- AC&DC SPD type II, always guarding the inverter
- Smart IV Curve scan for early panel diagnosis

Intelligent

- AI ready, forecasting solar generation and load consumption, smart energy management strategy*
- Support smart scene function, intelligent loads management (e.g., Heat pump, EV charger)*
- VPP ready, SolaX cloud supports resource aggregator (2030.5, OpenADR)
- Support micro-grid and a variety of scenarios
- Support 7x24h remote O&M and schedule deployment
- Support wireless meter solution

Economic

- Maximum 200% PV oversized input
- Maximum 40A input current per MPPT, support high power solar panel
- Global MPP SCAN boost solar energy harvest
- Advanced LFP battery, single cabinet with up to 200kWh, expandable to MWh

* Under development

ESS-AELIO

“ INTRODUCTION ”



The ESS-AELIO (AELIO in short) series is a highly integrated, all-in-one hybrid energy storage cabinet designed for commercial and industrial (C&I) applications. It offers exceptional benefits such as intelligent charge and discharge management, enhanced safety and reliability, and simplified operation and maintenance.

The AELIO cabinet features high-density, high-safety, and high-performance LFP (Lithium Iron Phosphate) batteries. Available in two models with capacities of 100kWh and 200kWh, it ensures stable charging and discharging whether used as a single unit or in multiple cabinet configurations. The 280Ah large-capacity battery cells help reduce the system's initial cost.

Equipped with a self-developed Energy Management System (EMS), the cabinet can monitor the real-time status and issue alerts for each battery cell, PCS (Power Conversion System), and fire protection system. The EMS provides local data storage for up to one year, facilitating data analysis and verification. It also excels in smart operation strategies, autonomous scheduling based on local electricity prices, and comprehensive management of photovoltaic systems, energy storage, EV charging, and generators at the power plant level.

These features significantly enhance overall system efficiency and shorten the investment return period.

The cabinet incorporates multiple safety protection measures, including built-in functions to prevent overvoltage, overcurrent, and overheating. It is constructed with fireproof materials and a comprehensive Four-level fire protection system that quickly detects and responds to potential fire hazards, effectively controlling fire spread and minimizing safety risks.

Suitable for various C&I PV&ESS (Photovoltaic & Energy Storage System) scenarios, the AELIO cabinet supports peak shaving, demand control, backup power, diesel-generator backup, and stabilization of load consumption curves. Additionally, it is compatible with applications such as virtual power plants (VPP), peak regulation, and frequency regulation.

In summary, the AELIO series is an advanced energy storage solution that combines intelligent management, robust safety features, and versatile application support, making it an ideal choice for modern commercial and industrial energy needs.



AELIO-P50B100

AELIO-P50B200

AELIO-P60B100

AELIO-P60B200

DC Side				
Max. recommended PV array power[kWp]	100		120	
Max. PV input voltage [V]①	1000			
Start-up voltage [V]	200			
Nominal PV input voltage [V]	650			
MPPT voltage range [V]②	160 ~ 950			
No. of MPP trackers / Strings per MPP tracker	5 / (2 per MPPT)		6 / (2 per MPPT)	
Max. input current per MPPT [A]	40			
Isc PV array Short Circuit Current per MPPT [A]③	50			
AC Side				
Rated output power [kW]	50		60	
Rated output current [A]	72.2		86.6	
Max. apparent power [kVA]	55		66	
Max. output continuous current [A]	83.6		100.3	
Nominal AC voltage [V]	3P4W, 400 / 230, 380 / 220			
Nominal AC frequency [Hz]	50 / 60			
Adjustable Power Factor range	1 (0.8 Leading ~ 0.8 Lagging)			
THDi (Rated power) [%]	< 3			
Battery Side				
Battery type	LFP / 280Ah			
Rated battery capacity [kWh]	100	200	100	200
Rated battery voltage [V]	358.4	716.8	358.4	716.8
Battery voltage range [V]	280 ~ 408.8	560 ~ 817.6	280 ~ 408.8	560 ~ 817.6
Discharge depth [%]	90			
Rated charge/discharge current [A]	140			
Max charge/discharge current [A]	160 (80 × 2)			
General				
Dimensions(with Inverter) (W×H×D) [mm]	1310 × 2300 × 1140	2070 × 2420 × 1200	1310 × 2300 × 1140	2070 × 2420 × 1200
Dimensions (without Inverter) (W×H×D) [mm]	1020 × 2300 × 1150	1680 × 2420 × 1200	1020 × 2300 × 1150	1680 × 2420 × 1200
Weight (with Inverter) [kg]	1600	2800	1600	2800
Weight (without Inverter) [kg]	1500	2700	1500	2700
Operating ambient temperature range [°C]	-30 ~ 55			
Relative humidity(Non-condensing) [%]	0 ~ 95			
Max. operating altitude [m]	3000			
Cooling concept	Smart air cooling			
Ingress protection	Cabinet: IP55; Inverter: IP66			
Fire protection	Aerosol(Optional:Novtec1230) / Water			
Topology	Non-isolated			
Standard	IEC62619, 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 triggers inverter protection

③ Isc current for single PV input string is 35A

HYBRID C&I ESS CABINET INVERTER



Safe

- IP66 protection level
- AC&DC SPD type II, always guarding the inverter
- AFCI optional
- Smart IV Curve scan for early panel diagnosis



Robust

- Robust back-up ability, switch over time < 10ms, up to 150% EPS output for 10s
- Support off-grid operation



Intelligent

- AI ready, forecasting solar generation and load consumption, smart energy management strategy*
- VPP ready, SolaX cloud supports resource aggregator (2030.5, OpenADR)
- Support smart scene function, intelligent loads management(e.g., Heat pump, EV charger)*
- Micro-grid ready, supporting a variety of scenarios, both on-grid and off-grid, balancing power between PCS and Hybrid in real time
- Support 7x24h scheduling mode
- Support Wireless meter solution
- Dual independent battery ports are ready to expand more capacity



Economic

- Maximum 200% PV input
- Maximum 40A input current per MPPT, support high power solar panel

* Under development

X3-AELIO-49.9K

X3-AELIO-50K

X3-AELIO-60K

X3-AELIO-61K

	PV INPUT			
Max. recommended PV array power[kWp]	100		120	
Max. PV input voltage [V]①	1000			
Start-up voltage [V]	200			
Nominal PV input voltage [V]	650			
MPPT voltage range [V]②	160 - 950			
No. of MPP trackers / Strings per MPP tracker	5 / (2 per MPPT)		6 / (2 per MPPT)	
Max. input current per MPPT [A]	40			
Isc PV array Short Circuit Current per MPPT [A]③	50			
	AC OUTPUT			
Rated output power [kW]	49.9	50	60	61
Max. apparent power [kVA]	49.9	55	66	66
Rated output current [A]	72.3	72.5	87.0	88.4
Max. output continuous current [A]	83.2	83.3	100.0	100.0
Nominal AC voltage [V]	3P4W, 400/230, 380/220			
Nominal AC frequency [Hz]	50 / 60			
Adjustable Power Factor range	1 (0.8 Leading ~ 0.8 Lagging)			
THDi (Rated power) [%]	< 3			

X3-AELIO-49.9K

X3-AELIO-50K

X3-AELIO-60K

X3-AELIO-61K

Battery Side				
Battery type	Lithium - ion			
Battery voltage range [V]	180 - 820			
Max. charge / discharge current [A]	160 (80x2)			
Max. charge / discharge power [kW]	49.9 / 49.9	50 / 50	60 / 60	60 / 60
EPS OUTPUT (WITH BATTERY)				
Peak EPS output power [kVA]	55, long term / 75, 10s		66, long term / 90, 10s	
Rated EPS output voltage [V], frequency [Hz]	3P4W, 400/230V, 380/220V; 50/60Hz			
Rated EPS output power [kW]	49.9	50	60	61
Switchover time [ms]	< 10			
General				
Max. efficiency [%]	98			
European Efficiency [%]	97.2			
Ingress protection	IP66			
Operating ambient temperature range [°C]	- 35 ~ 60			
Max. operating altitude [m]	3000			
Relative humidity [%]	0~100			
Dimensions (WxHxD) [mm]	820x670x257			
Net weight [kg]	< 100		< 105	
Cooling concept	Smart air cooling			
Topology	Non-isolated			
Power consumption (night) [W]	< 10			
Over voltage Category Mains / Battery / PV	O.V.C III / O.V.C II / O.V.C II			
Display	LCD (optional)			
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			
Anti-islanding protection	Yes			
Over temperature protection	Yes			
Surge protection (DC / AC)	Type II / Type II			
Arc-fault circuit interrupter(AFCI)	Optional			
Standard				
Safety	EN/IEC 62109-1/-2			
EMC	EN 61000-6-1/2/3/ 4, EN 61000-3-11/12, EN 55011, IEC 62920			
Certification	VDE4105, G99, AS4777, EN50549, CEI 0-21, IEC61727, PEA/MEA, NRS-097-2-1, RD1699, TOR			

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

③ Isc current for single PV input string is 35A

HYBRID C&I ESS CABINET PACK



TB-HR140

Battery type	LFP 280Ah
Battery capacity [kWh]	14.3
Battery Configuration	1P16S
Rated cattery voltage [V]	51.2
Battery voltage range [V]	40-58.4
Weight [kg]	115
Charge / Discharge Rate	≤ 0.5C
Dimensions (WxHxD) [mm]	461 x 228 x 778
Operating temperature range [°C]	-20 ~ 53
Relative humidity (non-condensing) [%]	0 ~ 95
Max. operating altitude [m]	3000
Ingress protection	IP20
Communication to PCS	CAN



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