Preliminary

Energy Storage Solution

Energy Storage System / AiO Box for C&I

- All-in-One solution integrating PCS, Battery and EMS as optional
- Parallel for scalability from 125 kW / 2-hr to 1.25 MW / 6-hr
- Liquid-cooled battery modules improve efficiency, performance, and lifetime

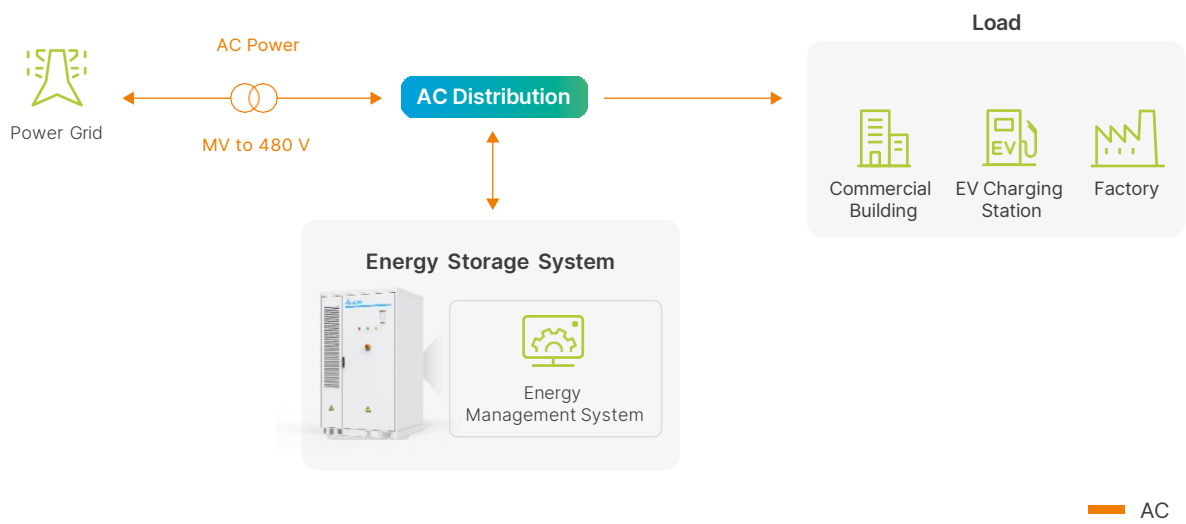
Commercial Building | Charging Station | Campus | Factory

All-in-One Energy Storage System

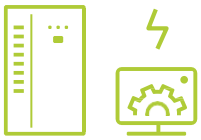
Delta's AiO Box, with a capacity of 125 kW / 279 kWh, is an energy storage system that seamlessly integrates power conditioning system (PCS), advanced battery system with built-in BMS, and cooling system into a compact, all-in-one solution. Designed for superior power efficiency and space optimization, the AiO Box features liquid-cooled battery modules that maintain optimal temperature uniformity, enhancing performance and extending battery life.

Its robust construction allows it to withstand harsh environmental conditions. This versatile system is scalable and suitable for various configurations, including grid-tied and off-grid scenarios such as power backup, peak shaving, load shifting, PV self-consumption, and PV smoothing.

System Architecture

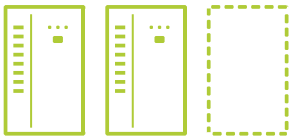


Feature Highlights



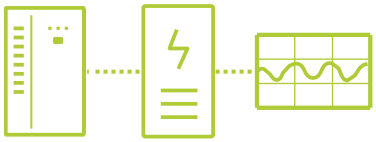
Efficient and Precise Power Control

- Capacity: 125 kW / 279 kWh
- AC input: 480 Vac 3P3W or 3P4W



Flexible System Configuration

- Scalable configuration with multiple units
- 125 kW / 279.5 kWh parallel up to 10 for 1.25 MW 2-hr runtime
- Each box supports up to 2 additional 279.5 kWh batteries for 6-hr runtime



Advanced EMS for Storage Applications

- **Peak Shaving**
  Reduces the need to purchase high-cost electricity during peak demand periods.

- **Valley Filling**
  By consuming energy when prices are low, users can take advantage of off-peak rates.

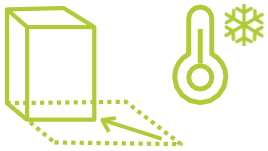
- **Priority Policy**
  All the excess energy generated by the system is sent to the grid.

- **TOU Optimization**
  Set different energy strategies according to different time periods

- **Demand Response (optional)**
  Limits maximum site demand to avoid tariff penalties by shaving peaks dynamically.

- **VPP (optional)**
  Executes dispatch commands from aggregators or utilities for 3rd party VPP.

- **Grid Support Functions**
  Supports voltage regulation, very fast FCAS and ramp-rate control based on grid requirements.



Compact, Capable System

- Compact design and liquid cooling optimize footprint
- IP66 battery module and IP65 power module
- -25 °C to 55 °C operating temperature range
- Up to 4000M altitude

Specifications

Model Name	AIOA279K125L
System Configuration	
Rated Input Rating	125 kVA / 125 kW
Battery Capacity (BOL)	279.5 kWh
AC Connection	
Rated Grid Voltage	480 Vac (3P-N-PE or 3P-PE)
Rated Grid Frequency	60 Hz
Rated AC Active Power	125 kVA / kW
Rated AC Current	150.4 A
Current THD	< 3%
DC Current Injection	< 0.5% of rated current
Power Factor	-1 to 1, continuously adjustable
Battery Information	
Type of Battery	LFP
DC Voltage Range (Full load)	873.6~1123.2 Vdc
Rated Discharge / Charge Power	128 kW / 122 kW
Max. Continuous Discharge / Charge Current	148 A / 140 A
Prate	≤0.5P
Standalone Operation	
Rated Output Voltage(1)	480 Vac
Rated Output Power	125 kVA / kW with linear load; 100 kVA / kW with non-linear loads
Rated Output Current	150.4 A
Overload Capability	110% for 30 mins
Output Voltage THD	< 3% @ rated linear load
Environment	
Maximum Altitude	4,000 m, de-rating > 2,000 m
Operating Temperature	-25 ºC to +55 ºC, de-rating > 45 ºC
Humidity	0 to 95% RH, non-condensing
Cooling	Liquid cooling for Battery / Forced air cooling with speed control for PCS
Enclosure Rating	Control Box of Liquid Chiller: IP55, Battery room: IP55, Power modules: IP65
General	
User Interface	LED, Ethernet
Communication	Ethernet, Modbus TCP
Dimensions (W x D x H)	1400 × 1300 × 2400 mm
Protection	DC reverse protection, OVP, UVP, OCP, DC insulation detection, Flood sensor, Residual current protect
Fire Suppression device	Aerosol, Smoke detector, flammable gas detector, exhausting system and deflagration panel
Net Weight	~3,265kg
Certification (in Progress)	Safety: UL1741 Grid code: IEEE1547, UL1741SB Battery: UL1973, UL9540A System: UL9540
Compliance (in Progress)	System: NFPA68, NFPA69, NFPA855(2)

* Specifications are subject to change without prior notice.
* (1) In Standalone mode, (a) single AiO can operates in 3P4W without a transformer; (b) multiple AiOs in parallel can operate in 3P3W by adding a transformer
* (2)Customer need to add fire control panel and some backup battery for detecting and supplying backup power for fire suppression device.

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