



Aster TB250/TB500

EQUIPMENT PARAMETERS

④ PCS	
Model	PWS1-500KTL-EX
Battery Voltage Range	600 – 900 V
Max. Charging / Discharging Current	880A DC
Nominal Power	500 kW
Rated Voltage	400 V
Grid Voltage Range	400 VAC (±15%)
Power Factor Range	0.99 / -1 ~ 1
Rated Output Frequency	50 Hz / 60 Hz (±2.5Hz)
Dimensions (W×D×H)	1100 × 800 × 2160 mm
Certification	CE (LVD) - IEC 62477, CE (EMC) - IEC 61000, EN 50549-1:2019, G99, AS/NZS 4777

⑤ Transformer	
Model	WT500K
Rated Capacity	500 kVA
Input Voltage	380 V
Output Voltage	400 / 800 V
Group of Connections	Dyn11
Insulation Class	H
Full-Load Efficiency	≥97%
Weight	1300 kg
Dimensions (W×D×H)	1100 × 800 × 2050 mm

The PV inverter in the AC coupling solution can be either customer-furnished or procured from AlphaESS.

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YOUR
SMART
ENERGY

Aster TB250/TB500

1000V Liquid-Cooled Energy Storage System

CAPACITY

Battery Module: 52.24 kWh

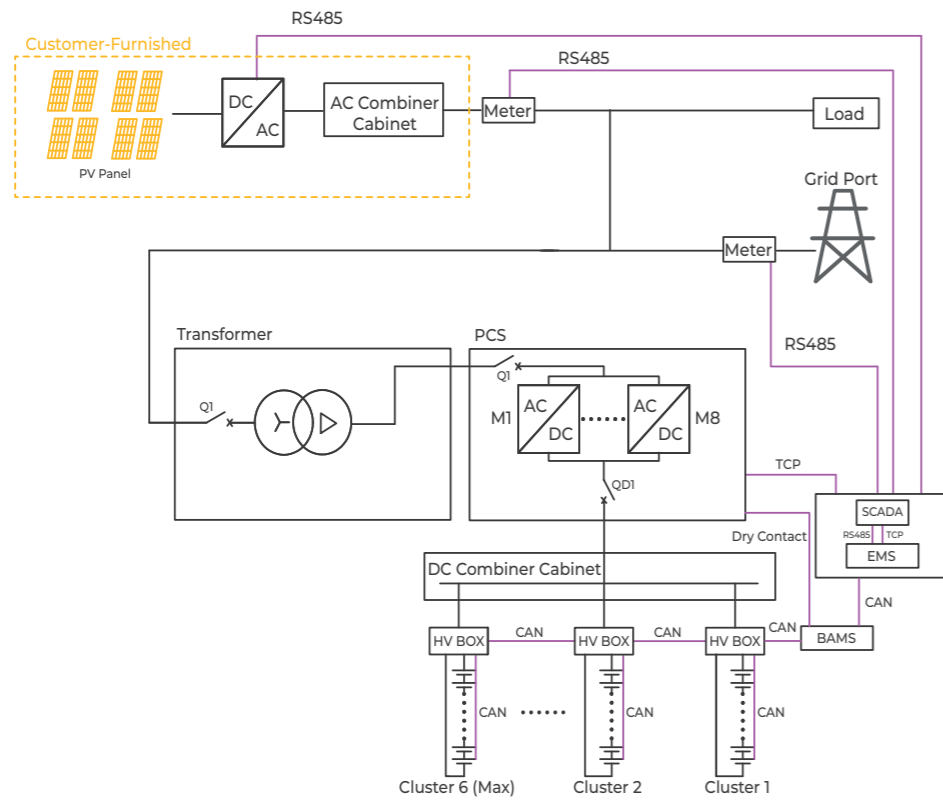
AC-Coupled 20ft Container | 250–500 kW / 705–1410 kWh



- All-in-One, Pre-Assembled Design
- Easy Installation & Commissioning
- Simple Parameter Configuration
- Intelligent Liquid Cooling Thermal Management
- Multiple Selectable Operating Modes
- 400V / 800V AC Output Options

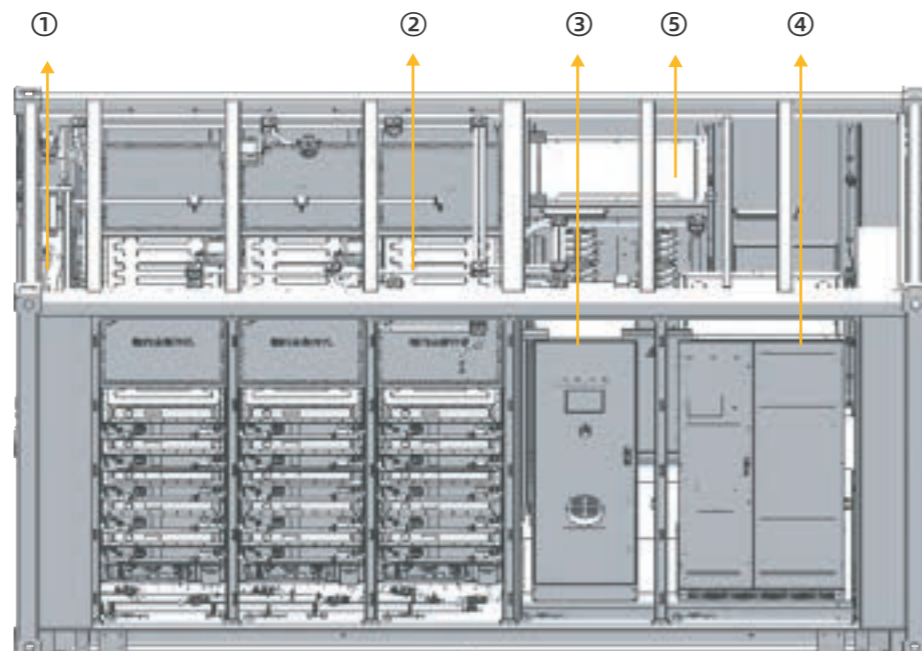
Aster TB250/TB500

TOPOLOGY DIAGRAM



STRUCTURAL DIAGRAM

- ① Liquid Cooling Unit
- ② Battery Cluster
- ③ DC Combiner Cabinet
- ④ PCS
- ⑤ Transformer



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Model	Aster TB500-EX01
DC Parameters	
Nominal Capacity	Max. 1410.73 kWh
Battery Cluster Connection	Max. 6 Clusters in Parallel
Rated Voltage	748.8 VDC
Working Voltage Range	631.8 – 842.4 VDC
Battery Chemistry	LFP (LiFePO ₄)
Battery Cooling Method	Liquid Cooling
AC Parameters	
Rated Charging and Discharging Power	500 kW
AC Current	880 A
AC Frequency	50 Hz / 60 Hz (±2.5Hz)
Rated Grid voltage	400 VAC (±15%)
Physical Parameters	
Dimensions (W × D × H)	6058 × 2438 × 2896 mm
Ingress Protection	IP55
Product Type	Outdoor (Container)
Fire Suppression System	Aerosol
System Weight	23 t
Battery Parameters	
Battery Model	M166314-52S-EX
Rated Voltage	166.4 V
Nominal Capacity	52.24 kWh
Rated Charging and Discharging Power	26.12 kW (0.5 P)
Ingress Protection	IP67
Weight	340 kg
Dimensions (W × D × H)	810 × 1125.5 × 237.5 mm
Operating Temperature Range	-30 °C – 50 °C *
Certification	
Safety	UN38.3, UN3536, IEC 62619, IEC 62477, IEC 61000, UL 9540A

*The optimum temperature range is 15~35 C. If the ambient temperature is too high or too low, the battery performance may deteriorate.