



Commercial and Industrial Battery Storage Cabinets

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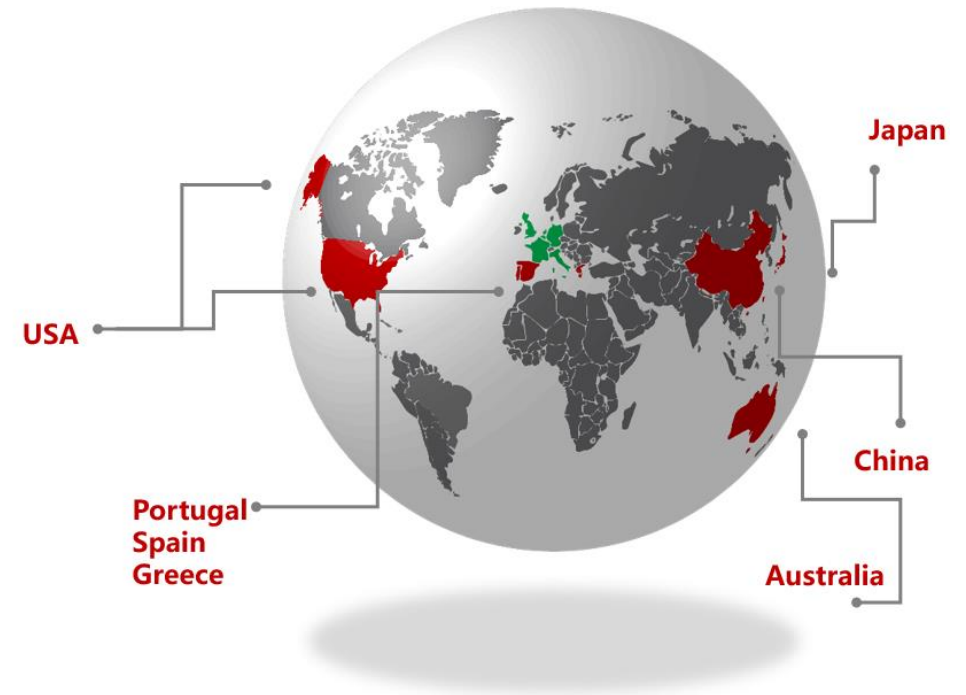
Chelion Story



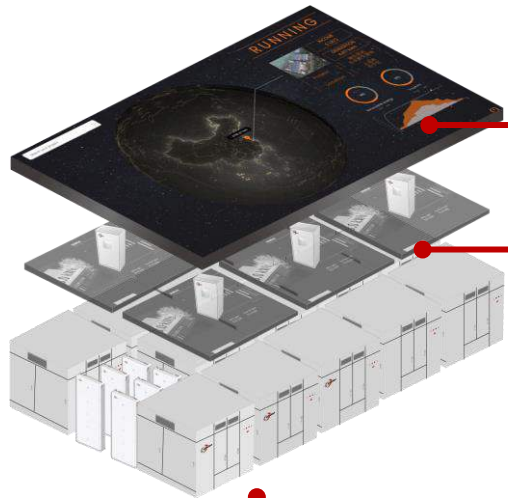
Founded by veterans in the renewable energy space, Chelion provides access to Global Leading Storage Solutions by integrating energy management technology with domestic & international market resources.

Chelion Australia is committed to advancing the future of renewable energy by empowering our customers with quality solar and storage solutions. Our team holds decades of energy experience and is committed to being your leading energy storage solutions provider.

With a large investment backing Chelion battery storage subsidiary companies launched worldwide.



Products and Services



Service
Smart Energy Driver



Software
Digital Energy Platform



Hardware
iHome and Matrix



Planning Development

Financing Services

- Project Development
- Investment planning
- Operational Planning
- Technical Policy



Financial analytical software



Construction Maintenance

Maintenance Services

- EPM
- Asset Management
- Exception Reporting
- Maintenance Services
- AI Control



Residential energy management software



C&I / Utilities energy management software



Operation Trading

Operation Services

- Asset-backed
- Securitisation
- Project Transaction
- Energy Trading
- VPP
- Carbon Emissions Trading
- New Energy Points Trading



Digital energy trading software



Residential iHome products

Matrix C&I / Utilities Products

Matrix CAIO Series



- **All In One** design with a highly integrated ESS and a protective structural design for outdoor applications
- Indoors or Outdoor Use
- Modular design that includes Optional DC/DC converter, supporting DC coupling solution with ESS and PV.
- Three-level BMS structure guarantees highly efficient cooperation and safety performance
- Easy on-site installation saves costs
- HVAC and Fireproofing



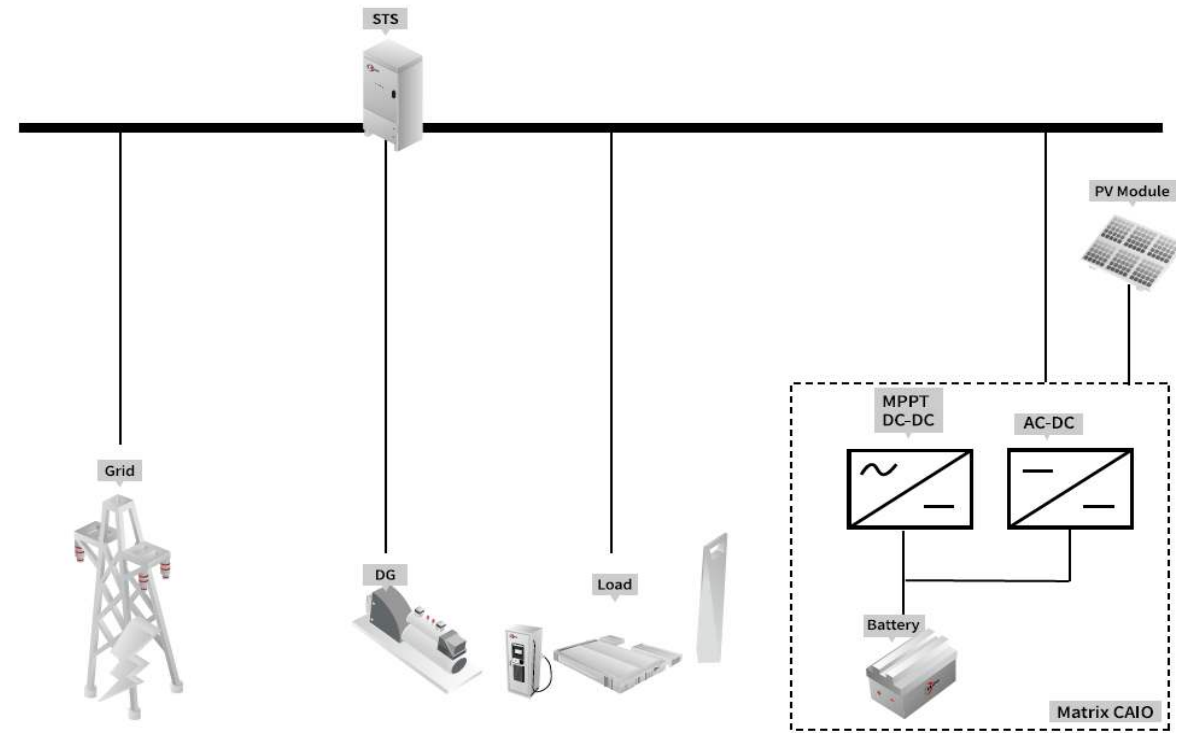
Specifications - Cabinet



General Data	
Dimension (W*H*D mm)	1450*2000*1100
Weight(kg)	700kgs
Enclosure Protection Rating	IP65 (battery room)+IP54 (PCS room)
Anti-Corrosion	C3 (Optional upgrade to C5)
Operation Temperature Range (°C)	-20 to +60
Humidity	0~95% or 5%~95%
Altitude(m)	< 3000
Cooling Concept (PCS Cabinet)	Forced Air Cooling
Cooling Concept (Battery Cabinet)	HVAC
Auxillary System Peak Power Requirement (kW)	3.5
Communication	Ethernet / Modbus TCP
Certification	CE / IEC62619 / UN38.3 / UN3536
On/Off Grid Switch	Optional STS module, switching time <20ms



System Diagram & Applications

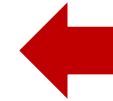


AC-Coupled:
Batteries and PV modules have their own inverters and can either share one point of connection (POC) or have separate POCs (a standalone ESS).
→ more operational flexibility

Specification - Battery Bank



113kWh Battery Stack + BMS



Bidirectional Storage Inverter
30kW PCS x 4

Specifications – Battery Bank



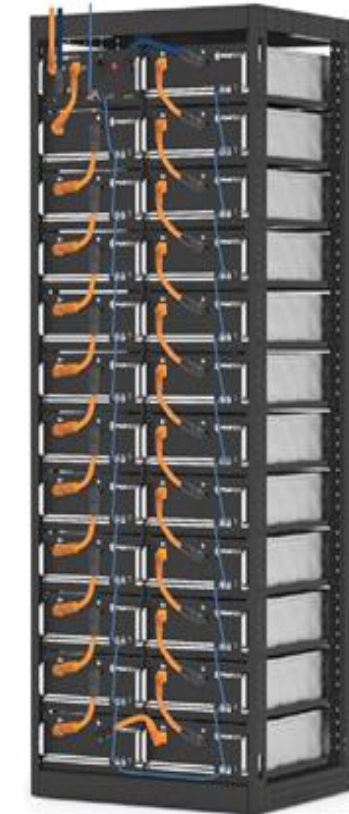
General Data	
Dimension(W*H*D mm)	1500*2320*1107.5
Weight(Kg)	2600 (incl. battery)
Working Temperature Range ()	-20~60
Protection Class	IP54
Altitude	3000
Humidity	0~95%
Fire Extinguishing	Perfluoro
Air Conditioner	2kW
Anti-Corrosion	C3 (Optional upgrade to C5)
Authentication level	CE/IEC62619/UN38.3/UN3536
Battery Data	
Battery Type	Li-ion (LFP)
Nominal Capacity (kWh)	113.7
Battery Item	Powercube-M1C
Battery Module Qty.	24
DC Voltage Range(V)	696~864
Max. Operation Current (A)	148
Efficiency	95%



Specifications – Battery Bank



PCS DC/AC Data On-grid Mode	
Rated AC Power (KW)	60 (expandable to 4*60)
Rated AC Output Voltage(V)	400
Rated AC Output Frequency (Hz)	50/60
Max. AC Current(A)	86
Overload Capacity	110%@1min
AC PF	0.8leading~0.8lagging
THDi	3%
Isolation Type	Non-isolation
Peak Efficiency	98.5%
Unbalanced capacity	100%
PCS DC/AC Data Off-grid Mode	
Output voltage accuracy	1%
Unbalanced capacity	100%
Voltage harmonic distortion	2% @line load
Overload capacity	≤110%
PV DC/DC Data Parameter	
Rated Power(kW)	60 (expandable to 4*60)
PV Input Voltage(Vdc)	200 - 850
Max. current(A)	100
Max. Efficiency(%)	98.5%
Operation Mode	
On/off-grid Switch	Optional STS module, switching time<20ms
EMS	10 inch LCD Touch Panel Self-Consumption; Micro-grid control; Demand response; Remote Control; Time of use;
Communication Type	Modbus TCP/IP



Specifications – PCS 30kW



AC Off-grid Output	
Rated Output Power	30kW
Maximum Apparent Power	33kVA
Maximum Active Power	33kW
Rated Grid Voltage	3W3P+PE, 480 (±5% configurable) Vac
Rated frequency	60 (±5 configurable) Hz
Power Factor	Listed: 0.8~1 leading or lagging Actual: 0.1~1 leading or lagging
Overload Capacity	110%~120%, 10 min 120%~150%. 200 ms

Battery Side	
Charging and Discharging voltage range	150V-750V(350V-750V @full load)
Rated Power	30kW
Maximum Power	33kW
Maximum Charging and Discharging Current	90A
Battery Switch-off Mode	Relay
Over Voltage Protection	Software Protection
Over Current Protection	Software Protection & DC Fuse

DC Bus Side	
Rated Power	45kW
Input Voltage Range	700V-830V
Maximum Input Current	32.5A*2

AC Grid-tied Output	
Rated Output Power	30kW
Maximum Apparent Power	33kVA
Maximum Active Power	33kW
Rated Grid Voltage	3W3P+PE, 480 (±15%) Vac
Rated frequency	60 (±2.5) Hz
Power Factor	Listed: 0.8~1 leading or lagging Actual: 0.1~1 leading or lagging
THDi	<3%

Specifications – PCS 30kW



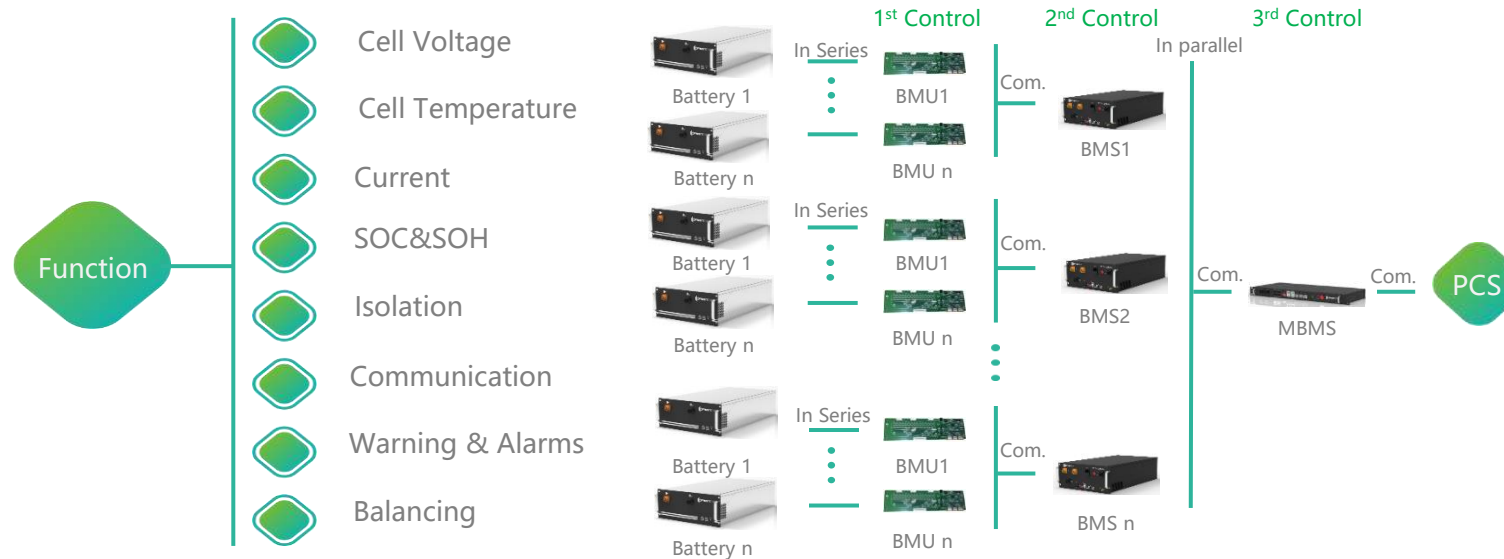
Off-grid and parallel mode		
	Droop control parallel	Communication parallel
External transformer	Yes	No
Maximum number of parallel	10	10
Total length of parallel lines	No limit	7m
Efficiency		
Efficiency curve		
	Peak Efficiency	97.3%
CEC Measured Efficiency	96.5%	
Communication		
Communication Port	CAN/RS485/Ethernet/WIFI	

General Specification	
Dimension(W*H*D)	440*173*596mm
Cooling	Forced Air Cooling
Weight	33kg
Topology	Non-isolation
Operation Altitude	3000m(>3000m derating)
Operation Environment Contamination Level	≤2
Temperature & Humidity	-30°C~60°C (>45°C derating) & 0-95%
Noise	≤75dB
IP Rating	IP20
Certification	
Grid-tied Standard	IEEE1547; UL1741SA; RULE 21
Safety Certification	UL1741; UL9540
EMC Standard	FCC

BMS Structure diagram



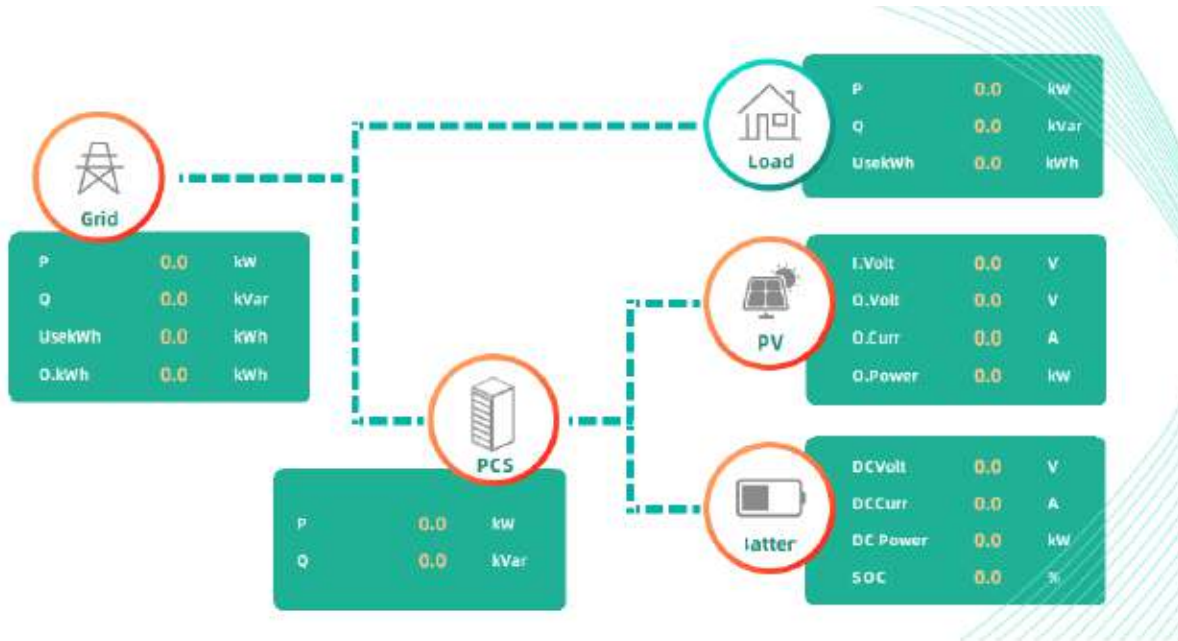
Three level BMS structure(BMU, BMS and MBMS), MBMS will collect all battery BMS situation and information, and communicate with PCS or/and EMS for good cooperation and better operation performance.



Energy Management System



- Full solar PV & BESS management with flexible data access.
- Full plant supervision via multi dimensional analysis
- Hierarchical access management with real time fault and reports
- Battery peak demand shaving management



PCS

Battery

No.1 String

No.2 String

No.3 String

Data Export

GroupState	Relay Status	Module_Per_String	Cell_Per_String	Cycle Times	DC Volt	DC Current	Cell Max Volt	Cell Min Volt	Module Max Volt	Module Min Volt	Max_Ch_Volt	Min_Disch_Volt	Max_Ch_Amps	Max_Disch_Amps	SOH	String SOC	BMS Temp	Cell Max Temp	Cell Min Temp	Module Max Temp	Module Min Temp	Module>>	Ch Forbid Flag	Disch Forbid Flag	Force Ch Flag	Balance Ch Flag	String SOE
		0	0	0	0.0 V	0.0 A	0.000	0.000	0.00	0.00	0.0 V	0.0 V	0.0 A	0.0 A	0 %	0 %	0.0 °C	0.0	0.0	0.0	0.0					0 %	

Case Studies

Location: Moomba, South Australia [Conversion of Remote Crude Oil Beam Pumps to Solar & Battery - Australian Renewable Energy Agency \(ARENA\) Santos](#)

Time of installation: Jan 2020

Power: PWG2-100kW Hybrid Storage Inverter

Battery configuration: 400kWh lithium-ion batteries

Location: NSW, Australia

Time of installation: Jan 2020

Power: PWG2-50kW Hybrid Storage Inverter

Battery configuration: LFP

Location: New York, USA

Time of installation: April 2021

Power: 250kW storage Inverter

Battery configuration: LFP, 300kWh

EV charger: 160kW x 2





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