ABOUT ARBARR

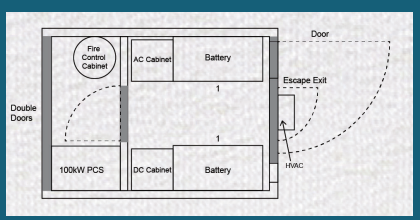
Arbarr Electronics have been operating at the forefront of Electrical Energy Storage for over 25 years. Established in 1989, the company provides an end-to-end service with full design and manufacturing capabilities. Arbarr's patented technologies have been utilized across many industries including Electric Vehicles, Aviation, Marine, Portable Electrical Equipment, Off-Grid Power Provision, Hybrid Vehicles, Container Energy Storage from 1MW, Emergency Lighting & Marshalling, and for Increased Self-Consumption of Renewable Energy.

Capable of providing the charging layer, inverter layer, energy storage layer, and the energy storage management layer, Arbarr takes care of the detail so you don't have to; offering true plug & play systems with data interfacing options to enable full integration to parallel systems. We're with you every step of the way to ensuring project success.

CONTAINERIZED COMMERCIAL ENERGY STORAGE SOLUTIONS

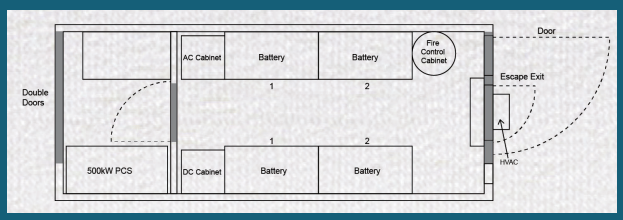
The highly customised inter-modal container will be provided by Arbarr to make an enclosure of the energy storage system, with the protection class of NEMA 3R. This will be the combination of Battery room with air conditioners, PCS/Inverter room are cooled by forced air and Transformer room with EMS.

10' Container ESS Solution



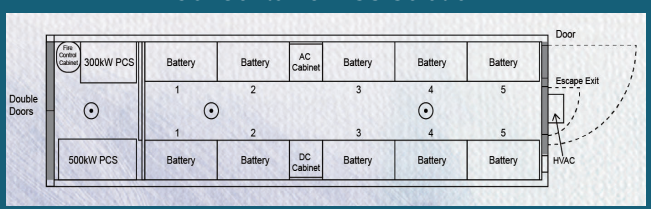
AR10x9.5P327kWh - 100kW/327kWh
(10x8x9.5 feet)

20' Container ESS Solution



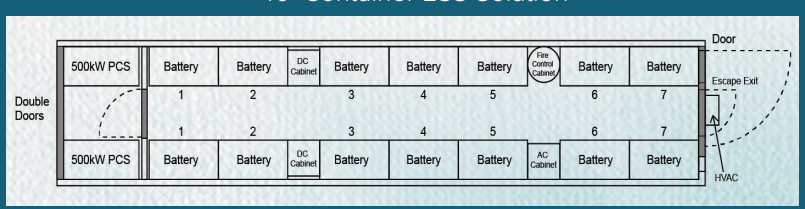
AR20x9.5P763kWh - 250kW/763kWh
(20x8x9.5 feet)

30' Container ESS Solution



AR30x9.5P1600kWh - 500kW/1000kWh or 750kW/1600kWh
(30x8x9.5 feet)

40' Container ESS Solution



AR40x9.5P2000kWh - 1000kW/1000kWh or 1000kW/2000kWh
(40x8x9.5 feet)

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ENERGY STORAGE SYSTEMS

LOW COSTS

- Highly integrated ESS for easy transportation
- All pre-assembled, no battery module handling on site
- 16 hour installation to commission, drop on a pad and make electrical connections

EFFICIENT AND FLEXIBLE

- Intelligent liquid cooling ensures higher efficiency and longer battery cycle life
- Modular design supports parallel connection and easy system expansion
- IP55 outdoor cabinet and optional C5 anti-corrosion

SAFE AND RELIABLE

- DC electric circuit safety management includes fast breaking and anti-arc protection
- Multi level battery protection layers formed by discreet standalone systems offer impeccable safety

SMART AND ROBUST

- Fast state monitoring and faults record enables pre-alarm and faults location
- Integrated battery performance monitoring and logging

Arbarr ESS systems can be placed to enable smoother integration of renewable energy sources, but they also help balance electricity supply and demand. With Arbarr ESS, energy is available in real time when primary power sources have been interrupted. The solution provides benefits for the entire power system, from generation, transmission and distribution to micro grid operators, all the way to end consumers.

Battery Room - The battery room takes most of the spaces in the 40ft container and temperature controlled by 2 air conditioners. The battery room is divided into 2 symmetrical independent rooms, each room will be cooled by one air conditioner. There is one air duct on top of each battery room, delivering the cooled air to the top of the battery racks.

Inverter Room - The energy storage inverters will be mounted in the inverter room. The inverters are cooled by forced air, the cool air is sucked from the front of the inverter, and the heated air exhausts via the rear of the inverter. Centrifugal fans are used to pump the heated air out of the inverter room.

Transformer Room - Half of the transformer room will be occupied by fire suppression systems and other parts such as EMS etc.

Energy Storage DC/DC Converter

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ENERGY STORAGE SYSTEMS

HIGH YIELD

- ✓ Max efficiency over 99%
- ✓ Wide DC input voltage range, flexible for battery configuration
- ✓ Modular design, compatible with rack level battery management

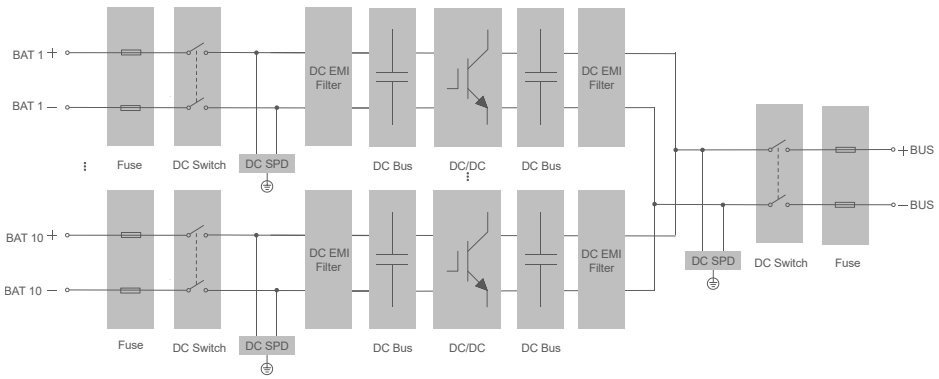
SMART O&M

- ✓ High protection degree (IP65/NEMA 4X, C5) Compact design and light weight for easy installation

FLEXIBLE APPLICATION

- ✓ Full digital control technology, higher data processing accuracy and speed
- ✓ High frequency switches, low current ripples and high voltage quality
- ✓ Multiple communication interfaces of ethernet/WIFI/GPRS/CAN.

CIRCUIT DIAGRAM



Model	PMDE0050	PMDE0100	PMDE0150	PMDE0200	PMDE0250	PMDE0300	PMDE0500
Bi-direction DC parameter							
Max. power	55KW	110KW	165KW	220KW	275KW	330KW	550KW
Rated power	50KW	100KW	150KW	200KW	250KW	300KW	500KW
DC voltage range	150-850V						
Full load voltage range	420-850V						
PV or Battery branches	1	2	3	4	5	6	10
Max. current	120A	240A	360A	480A	600A	720A	1200A
System parameter							
Max. efficiency	99%						
Transformer	no						
Protection degree	IP20						
Display	Touch screen						
Operation temperature	- 30°C~+60°C						
Cooling	Intelligent air cooling						
Relative humidity	0-95% non-condensing						
Max. altitude	5000m(derated above 3000m)						
Protection function							
Over current protection	yes						
Short circuit protection	yes						
Overvoltage and undervoltage protection	yes						
Module overtemperature protection	yes						
DC switch	yes						
Lightning protection	yes						
General information							
Dimension(WXDXH)	600×720× 1350mm			600×720× 2050mm			1200×720× 2050mm
Weight	250kg	300Kg	350Kg	400Kg	450Kg	500Kg	850Kg

Application Scenario

Solar-storage-EV charge

Echelon utilization

PV controller

ENERGY STORAGE SYSTEMS

Unit 3, Aghanloo Industrial Estate
Limavady, Northern Ireland, BT49 0HE
United Kingdom

Energy Storage PCS (Without Transformer)

arbarr ENERGY STORAGE SYSTEMS

HIGH YIELD

- ✓ Advanced three-level technology, max. efficiency 98.7%
- ✓ Support black start , support multi - machine parallel function.
- ✓ Wide DC voltage operation window

FLEXIBLE APPLICATION

- ✓ Bidirectional power conversion system with full four-quadrant operation
- ✓ Compatible with high voltage battery system, low system cost
- ✓ Battery charge & dis-charge management and black start function integrated

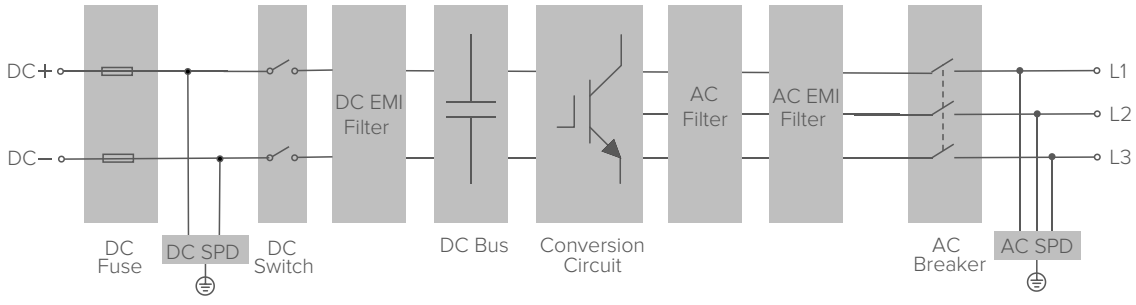
SAFE AND RELIABLE

- ✓ DC electric circuit safety management includes fast breaking and anti-arc protection
- ✓ Multi level battery protection layers formed by discreet standalone systems offer impeccable safety

SMART AND ROBUST

- ✓ Fast state monitoring and faults record enables pre-alarm and faults location
- ✓ Integrated battery performance monitoring and logging

CIRCUIT DIAGRAM



Model	ARMEGA0500	ARMEGA0630
DC (Battery)		
Battery voltage range	500V-850V	
Max. current	1128A	1404A
AC (On-grid)		
Max. output power	550kVA	693kVA
Rated power	500KW	630KW
Rated voltage	400V（315V、360V,Optional ）	
Voltage range	320V-460V	
Rated current	722A	909A
Max. output current	800A	1000A
Rated frequency	50/60Hz	
Frequency range	45-55/55-65Hz	
THDI	<3%	
PF	1lagging-1leading	
AC connection	3W+PE	
AC (Off-grid ）		
Rated voltage	400V	
THDU	<1% linear <5% non-linear	
Rated frequency	50/60Hz	
Overload capability	110%-continous	
General information		
Maximum Efficiency	98.7%	
Protection degree	IP21	
Noise emission	<75dB	
Operation temperature	-30°C~+55°C	
Cooling	Forced air	
Relative Humidity	0-95% non-condensing	
Maximum Altitude	5000m(derated above 3000m)	
Dimension (WXDXH)	1200X800X2050mm	
Weight	1000kg	1100kg
Transformer	No	
Self-consumption	< 10W	
On/off grid transfer	Manual (default) & Automatic (optional)	
Communication		
Display	Touch screen LCD	
BMS interface	RS485/CAN	
Device interface	RS485，TCP/IP	
Certificates	CE, CGC, TUV	

Application Scenario


Industrial


Microgrid system


Solar/Storage EV charge


Echelon Utilisation

Unit 3, Aghanloo Industrial Estate
Limavady, Northern Ireland, BT49 0HE
United Kingdom

Energy Storage PCS (With Transformer)

arbarr ENERGY STORAGE SYSTEMS

HIGH YIELD

- ✓ Advanced three-level technology, max. efficiency 98.7%
- ✓ Support black start , support multi - machine parallel function.
- ✓ Wide DC voltage operation window

FLEXIBLE APPLICATION

- ✓ Bidirectional power conversion system with full four-quadrant operation
- ✓ Compatible with high voltage battery system, low system cost
- ✓ Battery charge & dis-charge management and black start function integrated

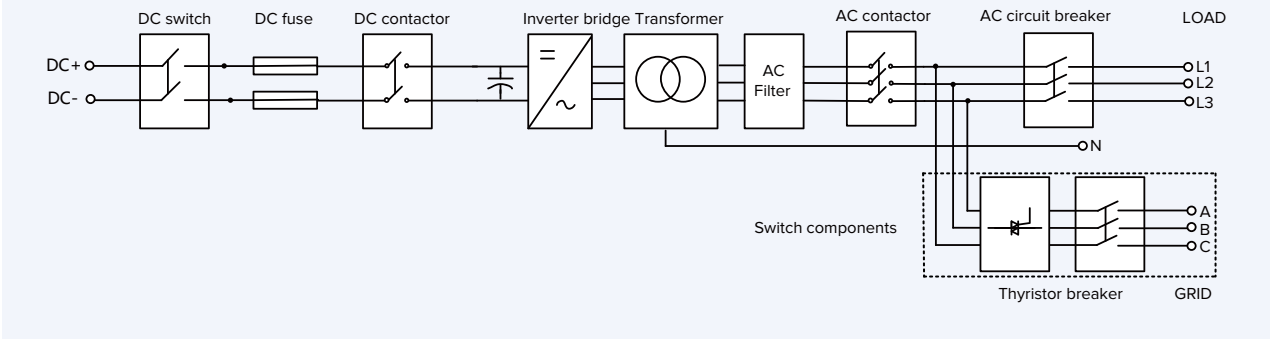
SAFE AND RELIABLE

- ✓ DC electric circuit safety management includes fast breaking and anti-arc protection
- ✓ Multi level battery protection layers formed by discreet standalone systems offer impeccable safety

SMART AND ROBUST

- ✓ Fast state monitoring and faults record enables pre-alarm and faults location
- ✓ Integrated battery performance monitoring and logging

CIRCUIT DIAGRAM



Model AR	MEGA0030TS	MEGA050TS	MEGA0100TS	MEGA0150TS	MEGA0250TS	MEGA0500TS
DC (Battery)						
Battery voltage range	150V-850V	150V-850V	320V-850V	420V-850V	420V-850V	500V-850V
Max.current	232A	385A	362A	404A	673A	1128A
AC (On-grid)						
Max. output power	33kVA	55kVA	110kVA	165kVA	275kVA	550kVA
Rated power	30KW	50KW	100KW	150KW	250KW	500KW
Rated voltage	400V					
Voltage range	320V-460V					
Rated current	43A	72A	144A	216A	361A	722A
Max. output current	48A	80A	160A	240A	400A	800A
Rated frequency	50/60Hz					
Frequency range	45-55/55-65Hz					
THDI	<3%					
PF	1lagging-1leading					
AC connection	3W+N+PE					
AC (Off-grid)						
Rated voltage	400V					
THDU	<1% linear <5% non-linear					
Rated frequency	50/60Hz					
Overload capability	110%-continous					
General information						
Max. Efficiency	96.3%	96.5%	97.1%	97.2%	97.3%	97.5%
Protection degree	IP21					
Noise emission	<75dB					
Operation temperature	-30℃~+55℃					
Cooling	Forced air					
Relative humidity	0-95% non-condensing					
Max. Altitude	5000m(derated above 3000m)					
Dimension (WXDXH)	800X800X2050mm				1200X800X2050mm	1600X1050X2050mm
Weight	600kg	650kg	910kg	950kg	1350kg	2460kg
Transformer	yes					
Self-consumption	<10W					
On/off grid transfer	Manual(default)Automatic(optional)					
Communication						
Display	Touch screen LCD					
BMS interface	RS485/CAN					
Device interface	RS485，TCP/IP					
Certificates	CE, TUV					

Application Scenario


Industrial


Microgrid system


Solar/Storage EV charge


Echelon Utilisation

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United Kingdom

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Energy Storage Container PCS (Booster Integrator)

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ENERGY STORAGE SYSTEMS

HIGH YIELD

- ✓ Advanced three-level technology, max. efficiency 98.7%
- ✓ Support black start , support multi - machine parallel function.
- ✓ Wide DC voltage operation window

FLEXIBLE APPLICATION

- ✓ Bidirectional power conversion system with full four-quadrant operation
- ✓ Compatible with high voltage battery system, low system cost
- ✓ Battery charge & dis-charge management and black start function integrated

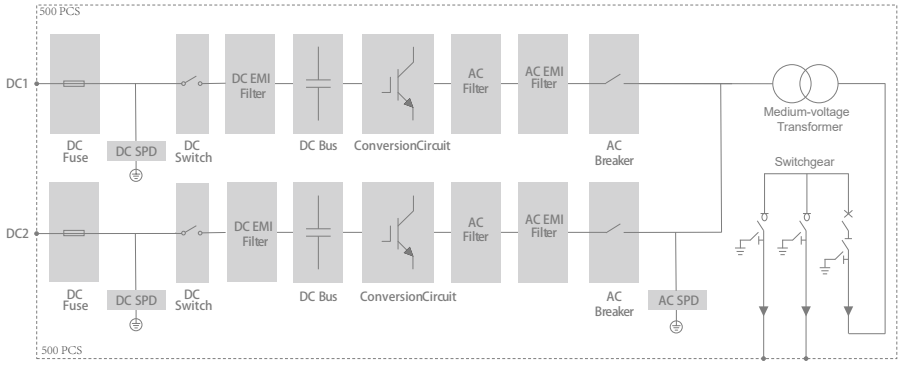
SAFE AND RELIABLE

- ✓ DC electric circuit safety management includes fast breaking and anti-arc protection
- ✓ Multi level battery protection layers formed by discreet standalone systems offer impeccable safety

SMART AND ROBUST

- ✓ Fast state monitoring and faults record enables pre-alarm and faults location
- ✓ Integrated battery performance monitoring and logging

CIRCUIT DIAGRAM



Model	ARMEGA1000-MV	ARMEGA1260-MV	ARMEGA2000-MV	ARMEGA2500-MV
DC (Battery)				
Battery voltage range	500V-850V			
Max. current	1860A	2400A	3720A	4800A
AC				
Max. Apparent power	1100KVA	1386KVA	2200KVA	2750KVA
Rated power	1000KW	1260KW	2000KW	2500KW
Rated voltage	35KV			
Voltage range	38.5±2×2.5%KV(6KV,10KV, 22KV optional)			
Rated current	16.5A	20.8A	33A	41.2A
Max. output current	18.1A	22.9A	36.3A	45.4A
Rated frequency	50/60Hz			
Frequency range	45-55/55-65Hz			
THDI	<3%			
PF	1lagging-1leading			
AC connection	3W+PE			
General information				
Max. effi ciency	98%			
Protection degree	IP54			
Noise emission	<75dB			
Operation temperature	-30°C~+55°C			
Cooling	Forced air			
Relative humidity	0-95% non-condensing			
Max. altitude	5000m(derated above 3000m)			
Dimension(WXDXH)	4300×2438×2591mm	4300×2438×2591mm	6058×2438×2591mm	6058×2438×2591mm
Weight	9000kg		12000kg	
Transformer	yes			
Communication				
Display	Touch screen LCD			
BMS interface	RS485/CAN			
Local communication	RS485, TCP/IP			
Certifi cates	CE, TUV			

Application Scenario

PV station

Wind
power station

Frequency
regulation

Grid side

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United Kingdom

Energy Storage Container Battery and PCS (with Transformer)

arbarr™
ENERGY STORAGE SYSTEMS

HIGH INTEGRATION

- ✓ Highly integrated energy storage system for easy transportation and O&M
- ✓ Advanced integration technology ensures optimal system performance and lower cost

SAFE AND RELIABLE

- ✓ DC electric circuit safety management includes fast breaking and anti-arc protection
- ✓ Multi-state monitoring and linkage actions ensure battery system safety

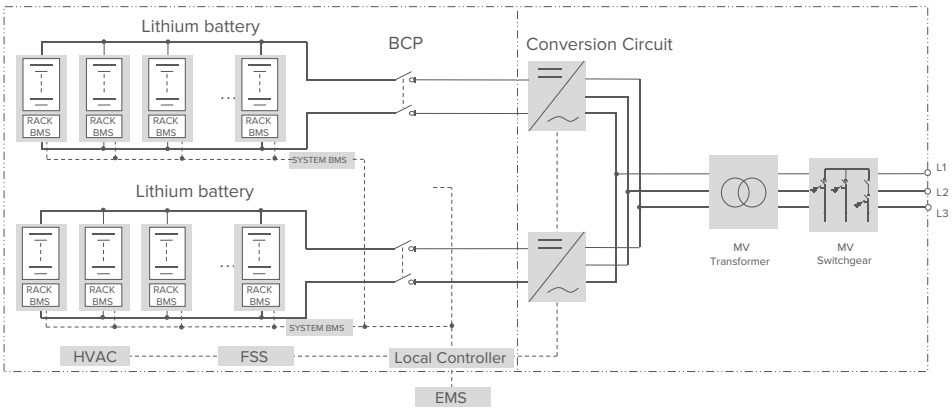
EFFICIENT AND FLEXIBLE

- ✓ Intelligent cell-level temperature control ensures higher efficiency and longer battery cycle life
- ✓ Modular design supports parallel connection and easy system expansion

SMART AND FRIENDLY

- ✓ Integrated local controller enables single point of communication interface
- ✓ Fast state monitoring and faults record enables pre-alarm and faults location

CIRCUIT DIAGRAM



Model	ARBATT1045A	ARBATT2611A
Container battery capacity	1.045MWH	2.61MWH
Voltage range	600V-876V	
Dimensions (w×d×h)	6058 ×2438×2896mm	12192 ×2438×2896mm
Protection degree	IP54	
Relative humidity	0 ~95% non-condensing	
Operation temperature	-30~+55°C	
Communication protocol	CAN, RS485, TCP/IP	
Battery cluster		
Battery pack name	240S2P	
Battery type	LiFePO4	
Rated voltage	768V	
Operating voltage range	600V-876V	
Core capacity	340Ah	
Capacity	261KWh	
Working temperature range	Charge : 0~45°C Discharge : -20°C~60°C	
Dimensions (w×d×h)	1738× 576× 2550mm	

BATTERY PACK

Quality assurance services

We pursue high quality all the time. Every product is under quality inspections during manufacturing process, and needs to pass the complete machine test before shipment to ensure that it can be stably operated. Detailed and rapid warranty services are guaranteed by on-line monitoring system, hardware/software upgrades, regular inspection and training.

Training services

We provide customers with comprehensive, professional technical training and guidance by delivering the knowledge of power system and equipment's daily use and maintenance.

On-site service

Our technical service engineers can provide customers with professional and rapid installation and debugging services according to requirements, to ensure that customers' projects are successfully completed and connected to the grid perfectly.

Application Scenario

PV station

Wind power station

Frequency regulation

Grid side

Industrial and commercial

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