Micro-Grid Series

Battery Storage System

Our integrated micro-grid solutions offer autonomous energy storage and management for commerce and industry.

Combining energy storage systems and smart control technologies, we provide a customized decentralized power grid that reduces electricity costs, and ensures a stable power supply.

Master Battery

Paseo de Extremadura, 39 - 28935 Móstoles, Madrid - España
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CONTENT

207 kWh ESS Platforms

SCSCabinet

SCSCabinet 207kWh Platforms

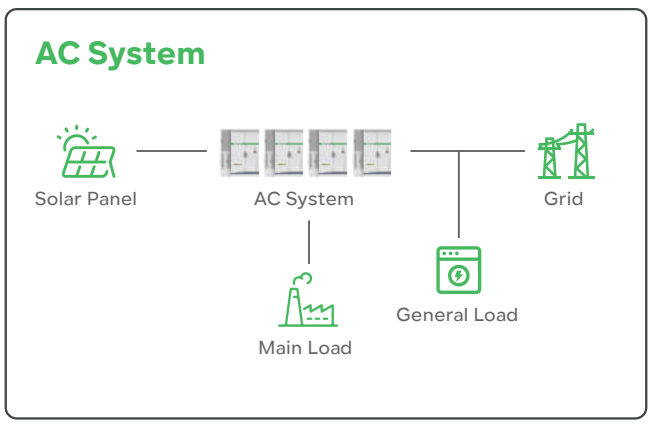
State-of-the-art microgrid energy storage solution caters to businesses seeking optimized energy usage with high efficiency, reliability, and scalability options.

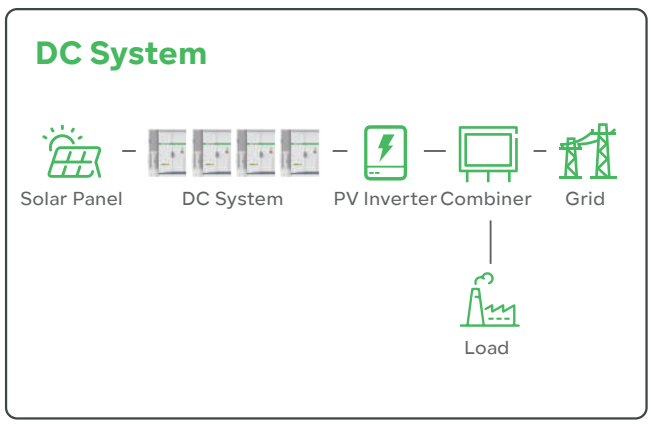
AC System

Empowering with Solar Energy: Harness the sun's power efficiently with MPPT technology.
Cost-Effective and Sustainable: Connect to the grid, input energy when prices are low, and export excess renewable energy when it's abundant. Our energy storage box delivers two-way energy flow, reducing electricity costs and enhancing sustainability

DC System

Empowering with Solar Energy: Harness the sun's power efficiently with MPPT technology.
Wide Voltage Range: Adjustable output voltage to accommodate diverse application scenarios





207 kWh ESS Platforms

Battery Energy Storage

Cell Type	LFP 3.2V/280AH
Module Combination	1P8S
System Combination	29 modules in series
Capacity (kWh)	207.872
Nominal Voltage (V)	742.4
Voltage Range (Vdc)	679.76~823.6
Discharge Depth	90% DoD
Service Life	>8000 cycles@80%DoD
Thermal Management Mode	Air Conditioner
Thermal Control Management	Aerosol Extinguishing(optional)

General Parameters (Battery cabinet)

Dimensions(W*D*H)	1295*1154*2237mm / 51*45*88in
Total Weight	2450kg / 5401lb
Cooling	Forced Air Cooling
Operation Altitude	2000m / 6561ft
Noise Level @1m	<75 dB(A)
IP Rating	IP54
Operating Temperature	–20°C to 55°C
Operating Humidity (RH)	0 to 95%
Storage Conditions	–20°C to 30°C Up to 95% RH, non-condensing State of Energy (SoE): 50% initial

AC System(With PCS & MPPT)(optional)

Dimensions(W*D*H)	1780*1154*2237mm / 70*45*88in
Total Weight	2600kg / 5732lb

PV Input

Input Voltage(V)	300~825
Max Input Current(A)	50*4
Rated Power (kW)	120
Number of MPPT	4
No. of PV Strings per MPP Trackers	4
Alarm and Protection	Over voltage and low voltage alarm with shut down protection

AC Output

Rated Grid Voltage (Vac)		230/400, 3P+N+PE
Maximum Continuous Input Current(Aac)		172
Rated frequence(Hz)	Grid-tied: 50	Off-grid: 50/60
Rated Power (kW)		120
Power Factor		0.8cap-0.8ind
Off-grid Unbalanced Load Capacity		100%
Overload Capacity	35°C 110%~120%@10 min,120%@1 min	
Switching Time	from grid-connected to off-grid≤ 20ms	

System Characteristic

Communication Interface	CAN, RS485, Wi-Fi, LTE
Warranty	3 years free, paid from the 4th to the 15th year
Battery Certifications	UL1973, UL9540 UL9540A, IEC62619, UN38.3
Grid-tied Standard	EN50549
Safety Certification	CE
EMC Standard	FCC

DC System(With DCDC & MPPT)(optional)

Dimensions(W*D*H)	1780*1154*2237mm / 70*45*88in
Total Weight	2600kg / 5732lb

PV Input

Input Voltage(V)	300~825
Max Input Current(A)	50*4
Rated Power (kW)	120
Number of MPPT	4
No. of PV Strings per MPP Trackers	4
Alarm and Protection	Over voltage and low voltage alarm with shut down protection

DCDC Output

Maximum Load Power	90kW@Voltage >300Vdc
voltage Range (Vdc)	150~1000
Current Range (A)	0-300
Current Sharing	<±1 A
Voltage Stabilized Accuracy	<±0.5%
Current Stabilized Accuracy	≤±1%(output power in 20%～100%)

System Characteristic

Number of parallel connections	10
Communication Interface	CAN, RS485, Wi-Fi, LTE
Warranty	3 years free, paid from the 4th to the 15th year
Safety Certification	UL2202, EN61851-1, EN61851-23
EMC Standard	EN61851-21-2, class B
Battery Certifications	IEC62619/UN38.3

38 kWh ESS Platforms

SCSCabinet

SCSCabinet 38kWh Platforms

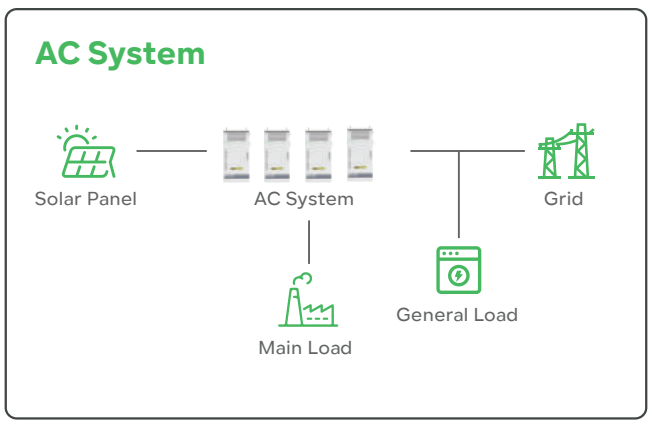
State-of-the-art microgrid energy storage solution caters to businesses seeking optimized energy usage with high efficiency, reliability, and scalability options.

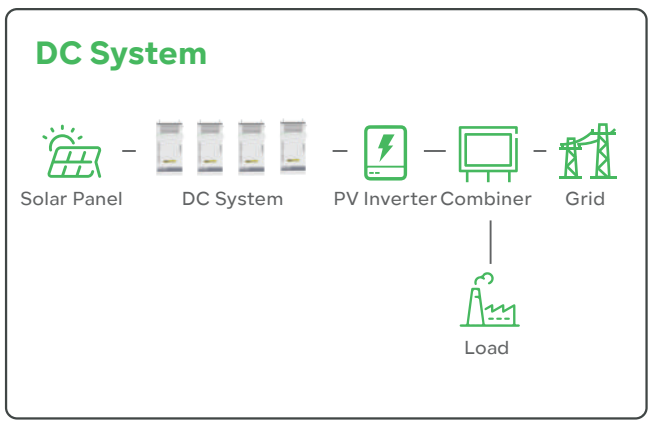
AC System

Multiple Input Sources: It can accept power from various sources, including the grid and solar panels with MPPT technology.
Grid Integration: Equipped with a Power Conversion System (PCS), it seamlessly connects to the grid, allowing it to import power when needed and export excess energy, enhancing efficiency and potentially generating revenue.

DC System

Diverse Input Channels: Beyond its grid connection, it is capable of efficiently capturing energy from photovoltaic sources through MPPT technology, thereby ensuring a sustainable energy intake.
Wide Voltage Range: The system offers adjustable output voltage, affording a high degree of adaptability and versatility, making it suitable for a wide range of applications and operational scenarios.





38 kWh ESS Platforms

Battery Energy Storage

Cell Type	LFP 3.2V/100AH
Module Combination	1P30S
System Combination	4 modules in series
Capacity (kWh)	38.4
Nominal Voltage (V)	384
Voltage Range (Vdc)	351.6~426
Discharge Depth	90% DoD
Service Life	>8000 cycles@80%DoD

Alarm and Protection

Input/Output Voltage Protection	Over/under voltage will automatic shut down and restart when voltage return to normal
Over Current/ Short Circuit Protection	Automatic shutdown and lock, need power off to restart to unlock
Over Temperature Protection	Automatic shutdown, automatic restart when the temperature return to normal

AC System(With PCS)(optional)

Dimensions(W*D*H)	654*780*1400mm / 26*31*55in
Total Weight	520kg / 1146lb

AC Input Parameters

Rated Voltage (Vac)	400/480, 3L+PE
Rated Power (kW)	22
Voltage Range (Vac)	260~530
Frequency Range (Hz)	45~65
Power Factor	≥0.99 Full-load output power of @50%~100%
THD	≤5% Full-load output power of @50%~100%

AC Output parameters

Rated Voltage (Vac)	400/480, 3L+PE;
Rated Power (kW)	22@320 to 530Vac linear derating to 11@260 to 320Vac
Voltage Range (Vac)	260~530
Frequency Range (Hz)	50 Hz/60 Hz
Output Power Factor	User Setting scale, 0.8~1, -0.8~-1
THDi	<5%
Efficiency (max)	≥96.5%
(Off Grid)Voltage accuracy and distortion	1% & <3%
(Off Grid)Power factor	>0.7
(Off Grid)Dynamic voltage stability and recovery time	5% & 20ms

System Characteristic

Number of parallel connections	8
Communication Interface	CAN, RS485, Wi-Fi, LTE
Warranty	3 years free, paid from the 4th to the 15th year
Safety Certification	UL2202, CSA C22.2 No. 107.1, UL9741, UL1741
EMC/EMI	EN61851-21-2, class A IEC62909EN62477 IEC61000
Grid Connection	VDE-AR-N 4105, UL 1741 SA/SB: 2021,
Battery Certifications	IEEE 1547: 2018, IEEE 1547.1: 2020IEC62619,UN38.3

General Parameters

Operation Altitude	2000m / 6561ft
IP Rating	IP54
Operating Temperature	–20°C to 55°C
Operating Humidity (RH)	0 to 95%
Storage Conditions	–20°C to 30°C Up to 95% RH, non-condensing State of Energy (SoE): 50% initial

PV input parameters

Topology	Isolation
Input Voltage(V)	300~825
Starting Voltage(V)	375
Max Input Current(A)	50
Rated Power (kW)	30
Number of MPPT	1
No. of PV Strings per MPP Trackers	4
Alarm and Protection	Over voltage and low voltage alarm with shut down protection

DC System(With DCDC)(optional)

Dimensions(W*D*H)	654*780*1400mm / 26*31*55in
Total Weight	520kg / 1146lb

DCDC Output	Optional 1	Optional 2
Voltage Range (V)	351.6~426	150~1000
Current Range(A)	0~95	0~100
Rated Current (A)	95	50
Maximum Load Power(kW)	20	15
Load Regulation		<+0.5%
Stable Currenf Accuracy		<+1% (output load 20%~100% rated range)

System Characteristic

Communication Interface	CAN, RS485, Wi-Fi, LTE
Cycle	8000 times @ 80% DoD
Warranty	3 years free, paid from the 4th to the 15th year
Protective Function	Overcharge, Overdischarge, Overcurrent, High Temperature Low Temperature, Short Circuit, etc.
Number of parallel connections	10

DC 20ft Container Energy Storage Battery

SCSContainer

High security

Adopting high-security lithium iron phosphate battery, built-in module level fire unit, to ensure the safe and reliable operation of the system.

Efficient equalization BMS technology

Adopt high-efficiency equalization technology to eliminate series loss and reduce the inconsistency between modules.

Support parallel expansion of capacity and power

The battery system has a built-in bi-directional DC/DC, which can realize parallel expansion of DC bus power and wider application scenarios.

Long life cycle

The battery cell has more than 8000 cycles and adopts a laser welding process, which ensures that the service life of the system can be more than 15 years.

Convenient installation

Integrated design, standardized product shipments, and product installation is extremely simplified, user-friendly deployment.

Convenient operation

Adopting a fully modularized design, after-sales personnel can complete after-sales work by simply replacing the corresponding module. It can realize operation and maintenance from the local end to Renon Smart.

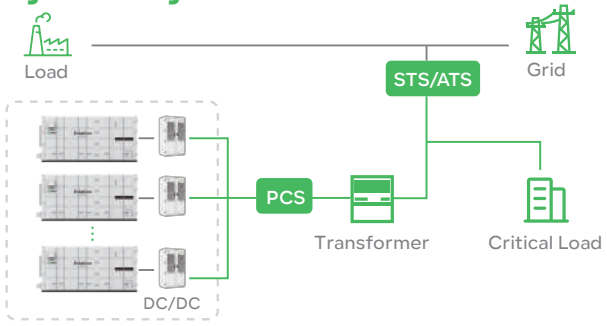
Battery Energy Storage

Cell Type	LFP 3.2V/280AH
Battery Module	1P20S
Module QTY	17S
Battery Rack	8S
Nominal Capacity	2437kWh(304.6kWh*8)
Total Voltage/Capacity(V)	1088
Max Voltage Range	996.2~1207
Max Charge/Discharge Current(A)	280
Charge/Discharge Rate	90% DoD
Service Life	>8000 cycles@80%DoD

DC/DC

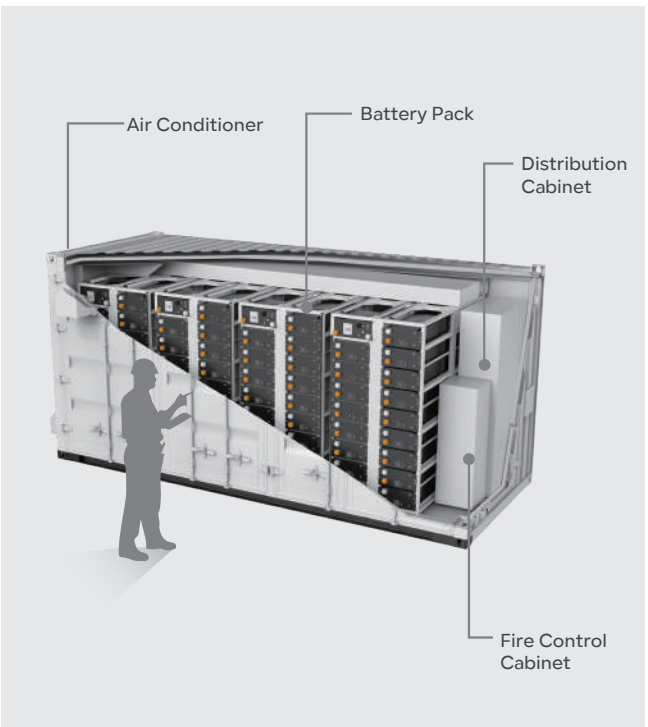
Voltage Range(Vdc)	500~1500
Rated Voltage(Vdc)	1000
Max Current Range (A)	825
Rated Power (kW)	750
Maximum Output power (kW)	825@10S
Output efficiency	99%

System Layout



General Parameters

Dimensions (W*D*H)	6052*2438*2896mm / 238*96*114in
Total Weight	27000kg / 59525lb
Cooling	Air Conditioner
Operation Altitude	2000m / 6561ft
Noise Level @1m	<75 dB(A)
IP Rating	IP54
Operating Temperature	–20°C to 55°C
Operating Humidity (RH)	0 to 95%
Storage Conditions	–20°C to 30°C Up to 95% RH, non-condensing State of Energy (SoE): 50% initial
Communication Interface	CAN, RS485, Wi-Fi, LTE
Warranty	3 years free, paid from the 4th to the 15th year
System Certifications	IEC62619/UN 38.3



AC 20ft Container Energy Storage Battery

SCSContainer

High security

Adopting high-security lithium iron phosphate battery, built-in module level fire unit, to ensure the safe and reliable operation of the system.

Efficient equalization BMS technology

Adopt high-efficiency equalization technology to eliminate series loss and reduce the inconsistency between modules.

Long life cycle

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Convenient installation

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Convenient operation

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Battery Energy Storage

Cell Type	LFP 3.2V/280AH
Battery Module	1P20S
Module QTY	12S
Battery Rack	8S
Nominal Capacity	1720kWh(215kWh*8)
Total Voltage/Capacity(V)	768
Max Voltage Range(V)	703.2~852
Max Charge/Discharge Current(A)	280
Charge/Discharge Rate	90% DoD
Service Life	>8000 cycles@80%DoD

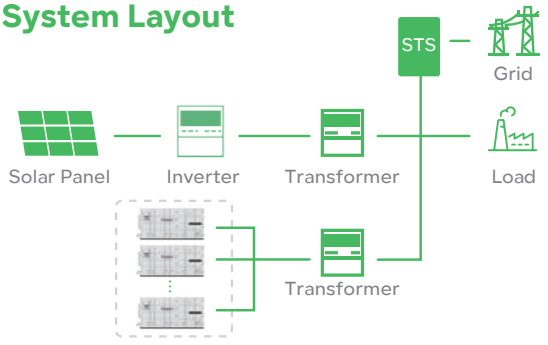
AC Output

Nominal AC Power(kW)	500
Nominal Grid Voltage(Vac)	380/400
Permissible Grid Voltage	±8%
Nominal Grid Frequency(Hz)	50/60

Off-Grid Output

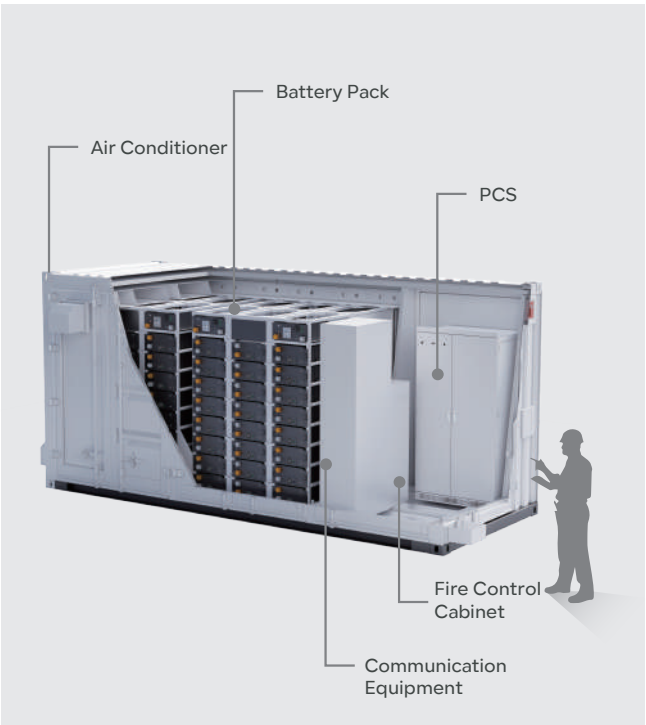
AC Off Grid Voltage(Vac)	400
Voltage Range	±8%
AC Off Grid Frequency(Hz)	50/60

System Layout



General Parameters

Dimensions (W*D*H)	6052*2438*2896mm / 238*96*114in
Total Weight	19000kg / 41887lb
Cooling	Air Conditioner
Operation Altitude	2000m / 6561ft
Noise Level @1m	<75 dB(A)
IP Rating	IP54
Operating Temperature	–20°C to 55°C
Operating Humidity (RH)	0 to 95%
Storage Conditions	–20°C to 30°C Up to 95% RH, non-condensing State of Energy (SoE): 50% initial
Communication Interface	CAN, RS485, Wi-Fi, LTE
Warranty	3 years free, paid from the 4th to the 15th year
System Certifications	IEC62619 UN 38.3



AC 40ft container energy storage battery

SCSContainer

High security

Adopting high-security lithium iron phosphate battery, built-in module level fire unit, to ensure the safe and reliable operation of the system.

Efficient equalization BMS technology

Adopt high-efficiency equalization technology to eliminate series loss and reduce the inconsistency between modules.

Long life cycle

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Convenient installation

Integrated design, standardized product shipments, and product installation is extremely simplified, user-friendly deployment.

Convenient operation

Adopting a fully modularized design, after-sales personnel can complete after-sales work by simply replacing the corresponding module.

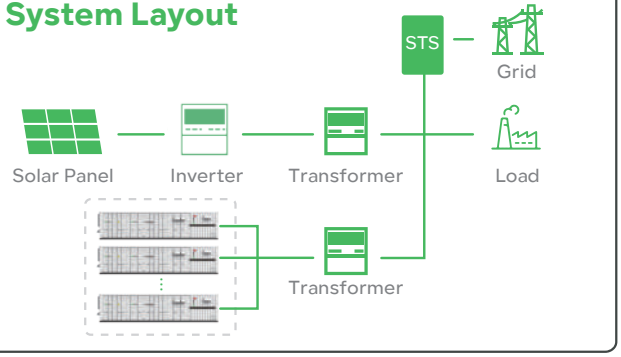
Battery Energy Storage

Battery Cell	LFP 3.2V/280AH
Battery Module	1P20S
Module QTY	12S
Battery Rack	16S
Nominal Capacity	3440kWh(215kWh*16)
Total Voltage/Capacity(V)	768
Max Voltage Range(V)	703.2~852
Max Charge/Discharge Current(A)	280
Charge/Discharge Rate	90% DoD
Service Life	>8000 cycles@80%DoD

AC Output

Nominal AC Power(kW)	1000
Nominal Grid Voltage(Vac)	380/400
Permissible Grid Voltage	±8%
Nominal Grid Frequency(Hz)	50/60

System Layout



Off-Grid Output

AC Off Grid Voltage(Vac)	400
Voltage Range	±8%
AC Off Grid Frequency(Hz)	50/60

General Parameters

Dimensions (W*D*H)	12200*2438*2896mm / 480*96*114in
Total Weight	36000kg / 79366lb
Cooling	Air Conditioner
Operation Altitude	2000m / 6561ft
Noise Level @1m	<75 dB(A)
IP Rating	IP54
Operating Temperature	–20°C to 55°C
Operating Humidity (RH)	0 to 95%
Storage Conditions	–20°C to 30°C Up to 95% RH, non-condensing State of Energy (SoE): 50% initial
Communication Interface	CAN, RS485, Wi-Fi, LTE
Warranty	3 years free, paid from the 4th to the 15th year
System Certifications	IEC62619 UN 38.3

AC 60kWh Air-Cooling Battery(EU)

SCSCabinet

Optimized Temperature Control Under Full Power

During full power operation, the Ecube maintains the battery's maximum temperature below 40°C, ensuring efficient and safe performance even under heavy load.

Advanced Integrated Technologies for Versatile Power Management

Advanced integrated technologies setup includes a redundant power supply design, enabling black start capability and off-grid operation, making it ideal for situations that demand frequent and intense charging and discharging.

High-Safety Lithium Iron Phosphate (LFP) Batteries with Fire Suppression

The Ecube uses Lithium Iron Phosphate batteries, known for their stability and safety. It's further equipped with an aerosol fire extinguishing system, which covers both the battery pack and the entire system, enhancing safety measures.

Comprehensive Safety Features with Fire and Gas Detection

The system includes robust safety mechanisms like detection systems for combustible gases, smoke, and temperature variations. It also has active exhaust and fire alarm systems, providing a multi-layered safety approach.

Scalable Battery Capacity for Enhanced Storage

The design of the Ecube allows for battery expansion, with the potential to scale up to a maximum capacity of 360KWh. This scalability makes it suitable for a wide range of power needs, from moderate to extensive.

Ideal for High-Rate Energy Cycling

Given its high-rate charging and discharging capabilities, the Ecube is particularly well-suited for applications that require frequent and intensive energy cycling, ensuring reliability and efficiency in demanding scenarios.

Battery

Cell Chemistry	LiFePO4
Module Energy (kWh)	5.12
Module Nominal Voltage (V)	51.2
Module Capacity (Ah)	100
Battery Module Qty In Series (Optional)	12
System Nominal Voltage (V)	614.4
System Operating Voltage (V)	562.5~681.6
System Energy (kWh)	61.44
System Usable Energy (kWh) [1]	55.29
Charge/Discharge[2] Current (A)	Recommend: 50 Nominal: 100 Peak Discharge(2 mins, 25°C): 125

PV Input (DC)

Maximum DC Voltage	1000 VDC
Start-up Voltage Initial Feeding Voltage	320 VDC / 350 VDC
MPP Voltage Range	350 VDC ~ 900 VDC
Number of MPP Trackers Maximum Input Current	4/ A: 32A, B: 32A, C: 32A, D:32A

On-Grid AC Output

Reted Output Power	50kW
Nominal Output Voltage	230 VAC (P-N) / 400 VAC (P-P)
Output Voltage Range	184 - 265 VAC per phase
Nominal Output Current	73 A per phase

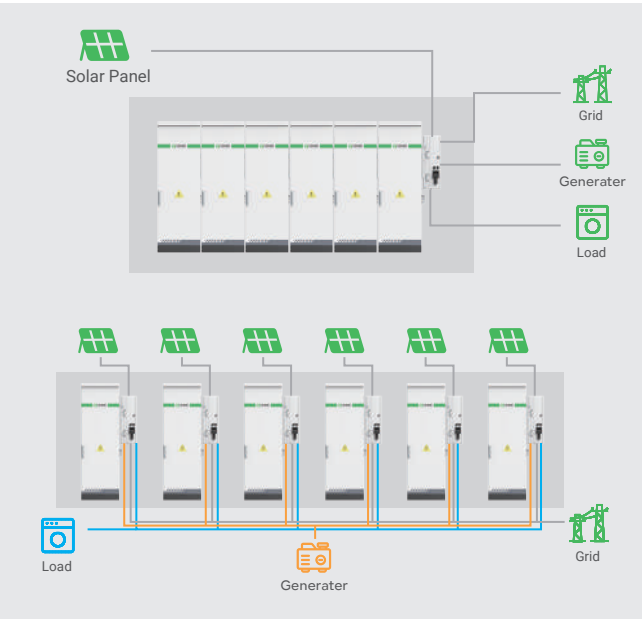
Off-Grid AC Output

Nominal Output Voltage	230 VAC (P-N) / 400 VAC (P-P)
Efficiency (DC to AC)	97%

General Parameters

Working Temperature	-20~55°C
Communication Interface	CAN, RS485, Wi-Fi, LTE
Humidity	5%~85%RH
Altitude	≤2000m
IP Rating	IP55
Dimension (W*D*H)	1030*1050*2170mm / 40.6*41*85.4in
Weight Approximate	1093kg / 2409.7lb
Storage Temperature	-20~35°C
Recommend Depth of Discharge	90%
Cycle Life	>8000 cycles
Warranty	3 years free, paid from the 4th to the 15th year
Certification	UL1973 /UL9540A/UN38.3

1. DC Usable Energy, test conditions: 90% DOD, 0.3C charge & discharge at 25°C. System usable energy may vary due to system configuration parameters.
2. The current is affected by temperature and SOC.
3. The warranty is due whichever reached first of warranty period or life cycle power.



AC 60kWh Air-Cooling Battery(US)

SCSCabinet

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Ideal for High-Rate Energy Cycling

Given its high-rate charging and discharging capabilities, the Ecube is particularly well-suited for applications that require frequent and intensive energy cycling, ensuring reliability and efficiency in demanding scenarios.

Battery

Cell Chemistry	LiFePO4
Module Energy (kWh)	5.12
Module Nominal Voltage (V)	51.2
Module Capacity (Ah)	100
Battery Module Qty In Series (Optional)	12
System Nominal Voltage (V)	614.4
System Operating Voltage (V)	562.5~681.6
System Energy (kWh)	61.44
System Usable Energy (kWh) [1]	55.29
Charge/Discharge[2] Current (A)	Recommend: 50 Nominal: 100 Peak Discharge(2 mins, 25°C): 125

AC Output

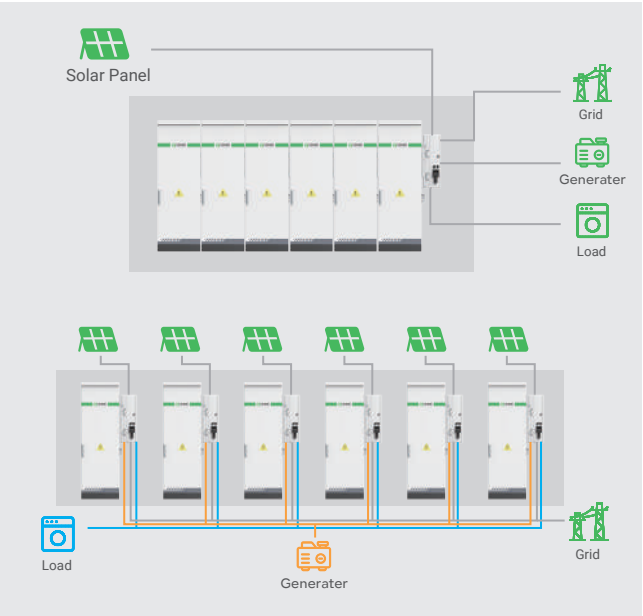
Connections	277V / 480V Three Phase
Continuous AC Power with PV	60,000W | 72.2A (480V)
Continuous AC Power from Batteries	60,000W | 72.2A (480V)
Surge AC Power | 7 sec	"120,000VA | 144.4A x 277V x3"
Parallel Stacking	Yes - Up to 12*
Frequency	60/50Hz
Continuous AC Power with Grid or Generator	132,000W | 160A L-N (277V)
CEC Efficiency	96.5% (Peak 97.5%)
Idle Consumption Typical—No Load	60W
Sell Back Power Modes	Limited to Household/Fully Grid-Tied
Design (DC to AC)	Transformerless DC
Response Time (Grid-Tied to Off-Grid)	5ms
Power Factor	± 0.8 - 1.0

PV Input

Max Allowed PV Power	78,000W
Max PV Power Delivered to Battery & AC	60,000W
Outputs	1,000V @ 36A
Max DC Voltage (Voc)	200-850V
MPPT Voltage Range	180V
Starting Voltage	4
Number of MPPT	2
Max Solar Strings Per MPPT	36A
Max DC Current per MPPT (Self Limiting)	120kVA w/ no PVdc
Max AC Coupled Input (Micro / String Inverters)	60kVA w/ 78kW PVdc

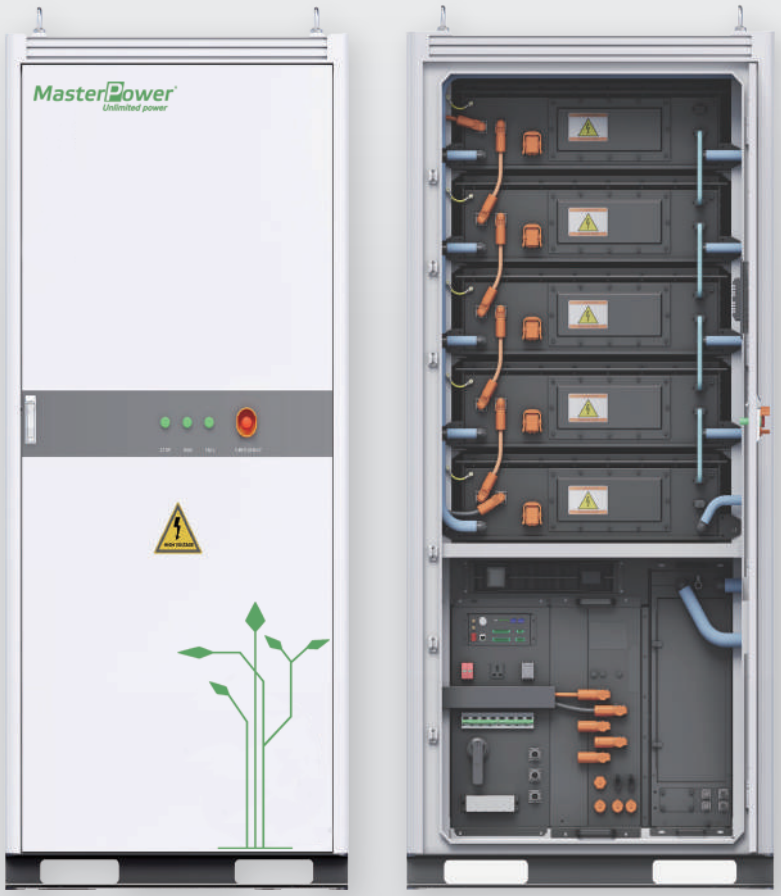
General Parameters

Working Temperature	-20~55°C
Communication Interface	CAN, RS485, Wi-Fi, LTE
Humidity	5%~85%RH
Altitude	≤2000m
IP Rating	IP55
Dimension (W*D*H)	1030*1050*2170mm / 40.6*41*85.4in
Weight Approximate	1093kg / 2409.7lb
Storage Temperature	-20~35°C
Recommend Depth of Discharge	90%
Cycle Life	>8000 cycles
Warranty	3 years free, paid from the 4th to the 15th year
Certification	UL1973, UL9540A, UN38.3



AC 233kWh Liquid-Cooling Battery(EU)

SCSCabinet



Highly integrated

Combining an all-in-one design with high power density, our system requires only minimal space . It offers flexibility in transportation, ease in on-site installation, and can be freely combined for expanded capacity and power output.

Efficient and Flexible

Designed for efficiency, our system boasts a modular structure for reduced failure and high uptime, enhanced by high-efficiency liquid cooling. It is adaptable to various extreme environments, maximizing battery life and discharge capacity.

Safety and Reliability

Our system ensures safety with comprehensive battery monitoring, multi-level fire prevention, and a top venting design for explosion risk mitigation. Additionally, it features proactive cell-level AI management to prevent thermal runaway.

Intelligent Operation and Maintenance

Equipped with a full EMS for easy upgrades and big data-managed intelligent inspection systems, our product offers proactive handling and warnings. Its intelligent SOC calibration ensures optimal performance without the need for downtime.

Battery Energy Storage

Cell Type	LFP 3.2V/280AH
Module Combination	1P52S
System Combination	5 modules in series
Capacity (kWh)	233
Nominal Voltage (V)	832
Operation Voltage Range (Vdc)	761~923
Discharge Depth	90% DoD
Thermal Management Mode	liquid cooling
Thermal Control Management	Aerosol Extinguishing

AC Output

Rated AC output power(kW)	100
Max. AC output power(kVA)	110
Rated output voltage(Vac)	400
Output voltage range(Vac)	-15%~+10%(settable)
Rated grid frequency(Hz)	50/60Hz(settable)
Max. output current(A)	158
Adjustable power factor	>0.99
THDi	<3%

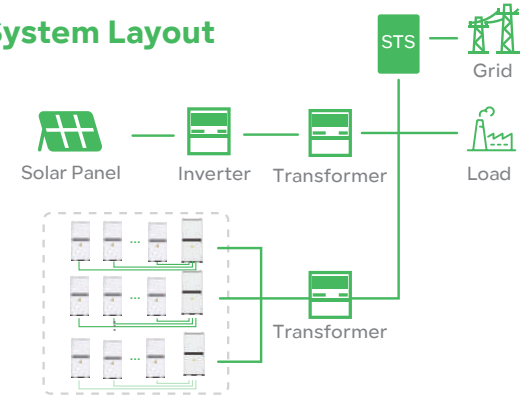
System Characteristic

PCS Cooling	Forced Air Cooling
PCS Topology	Non-isolation
AC/DC start function	Integration
Switch from Grid-connected to Off-grid	Integration
Communication Interface	CAN, RS485, Wi-Fi, LTE
Warranty	3 years free, paid from the 4th to the 15th year
Certifications	IEC62619, UN38.3, IEC, EN 62477-1, IEC EN, 61000-6-2, IEC, EN 61000-6-4

General Parameters

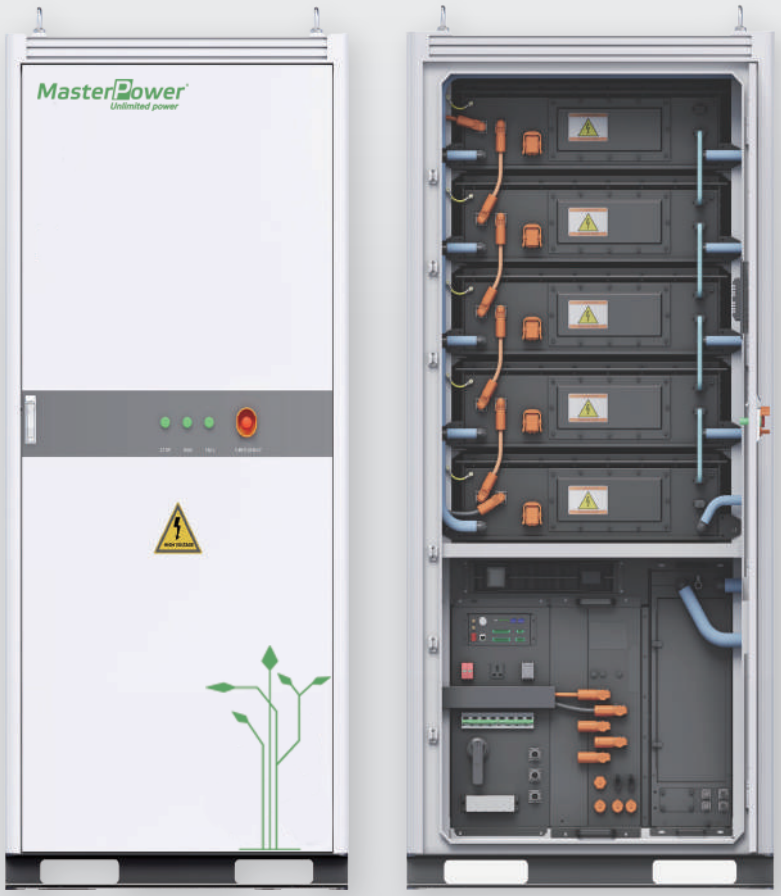
Dimensions (W*D*H)	1100*1450*2350mm / 43*57*92.5in
Total Weight	2950kg /6503lb
Operation Altitude	2000m / 6561ft
Noise Level @1m	<75 dB(A)
IP Rating	IP54
Operating Temperature	-20°C to 55°C
Operating Humidity (RH)	0 to 95%
Storage Conditions	-20°C to 30°C Up to 95% RH, non-condensing State of Energy (SoE): 50% initial

System Layout



AC 233kWh Liquid-Cooling Battery(US)

SCSCabinet



Highly integrated

Combining an all-in-one design with high power density, our system requires only minimal space . It offers flexibility in transportation, ease in on-site installation, and can be freely combined for expanded capacity and power output.

Safety and Reliability

Our system ensures safety with comprehensive battery monitoring, multi-level fire prevention, and a top venting design for explosion risk mitigation. Additionally, it features proactive cell-level AI management to prevent thermal runaway.

Efficient and Flexible

Designed for efficiency, our system boasts a modular structure for reduced failure and high uptime, enhanced by high-efficiency liquid cooling. It is adaptable to various extreme environments, maximizing battery life and discharge capacity.

Intelligent Operation and Maintenance

Equipped with a full EMS for easy upgrades and big data-managed intelligent inspection systems, our product offers proactive handling and warnings. Its intelligent SOC calibration ensures optimal performance without the need for downtime.

Battery Energy Storage

Cell Type	LFP 3.2V/280AH
Module Combination	1P52S
System Combination	5 modules in series
Capacity (kWh)	233
Nominal Voltage (V)	832
Operation Voltage Range (Vdc)	761~923
Discharge Depth	90% DoD
Thermal Management Mode	liquid cooling
Thermal Control Management	Aerosol Extinguishing

AC Output

Rated AC output power(kW)	125
Max. AC output power(kVA)	137.5
Rated output voltage(Vac)	480
Output voltage range(Vac)	-15%~+10%(settable)
Rated grid frequency(Hz)	60Hz(settable)
Max. output current(A)	165.4
Adjustable power factor	>0.99
THDi	<3%

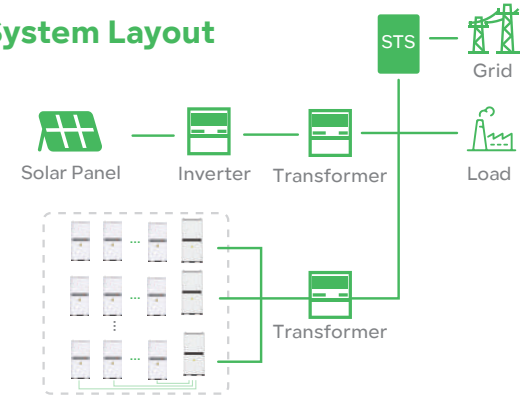
System Characteristic

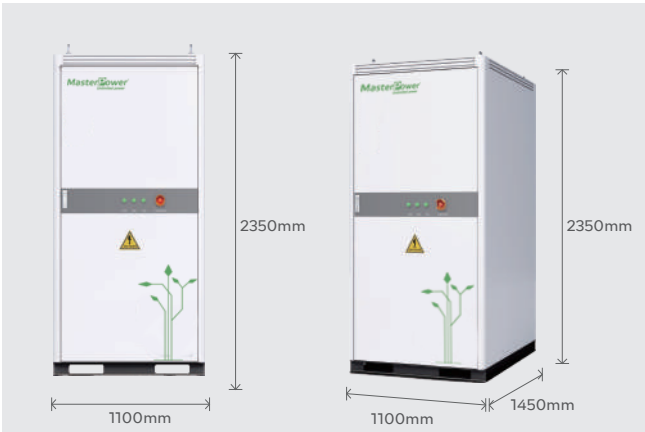
PCS Cooling	Forced Air Cooling
PCS Topology	Non-isolation
AC/DC start function	Integration
Switch from Grid-connected to Off-grid	Integration
Communication Interface	CAN, RS485, Wi-Fi, LTE
Warranty	3 years free, paid from the 4th to the 15th year
Certifications	UL1741, CSA C22.2 No 107.1, IEEE1547/UL1973/UL9540/UL9540A

General Parameters

Dimensions (W*D*H)	1100*1450*2350mm / 43*57*92.5in
Total Weight	2950kg /6503lb
Operation Altitude	2000m / 6561ft
Noise Level @1m	<75 dB(A)
IP Rating	IP54
Operating Temperature	-20°C to 55°C
Operating Humidity (RH)	0 to 95%
Storage Conditions	-20°C to 30°C Up to 95% RH, non-condensing State of Energy (SoE): 50% initial

System Layout

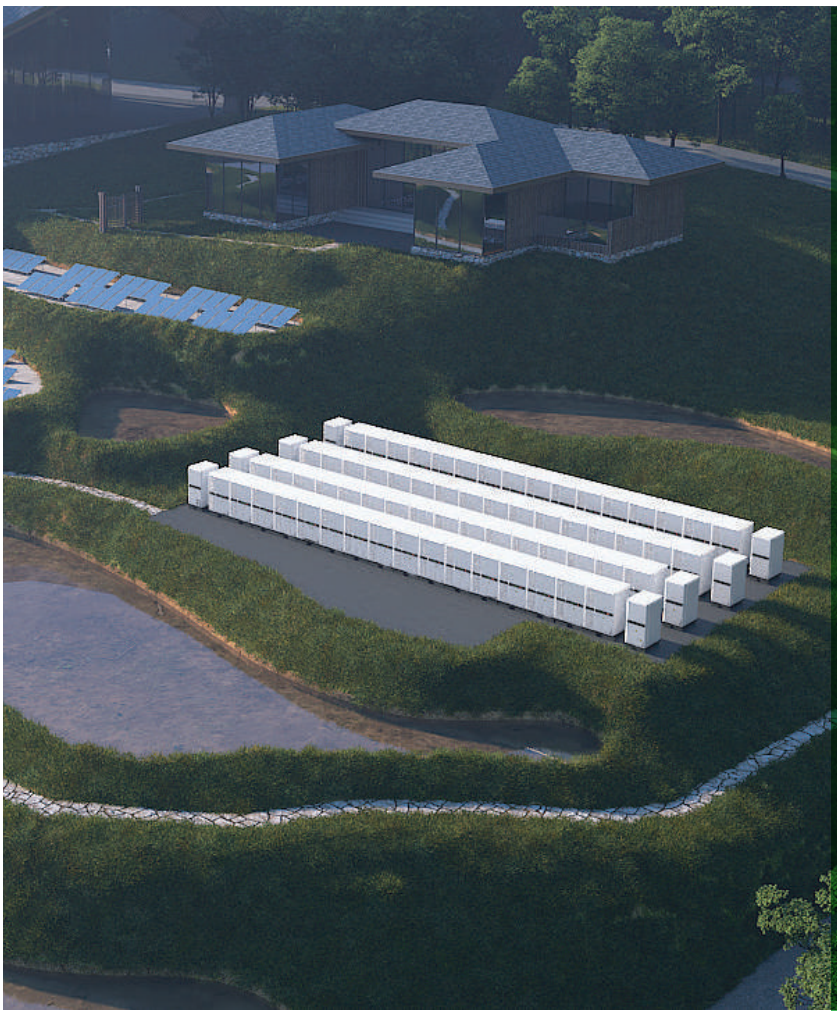




AC Coupling

SCS Matrix

Distribution Power System



SCS Matrix Series is a distributed liquid cooling system for massive energy storage with AC couple solutions to meet different usage requirements. Smart Matrix enables low - cost, high - density utility projects at a gigawatt - hour scale. It ships ready to install with fully integrated battetry modules, Controller System, and other key components. One Matrix - Controller can carry a maximum of 16 system of the AC-MPack, matrix arrangement for infinitely scalable. The batteries and software control store and dispach energy, creating a more stable and economic power grid.

Flexible Usage

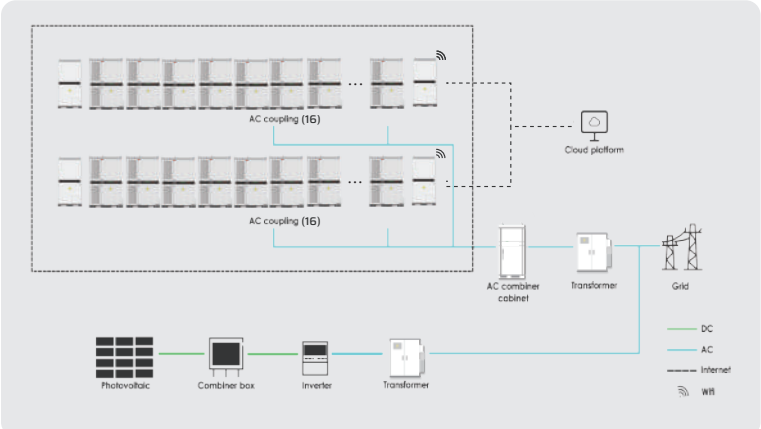
Flexible use such as grid storage battery and VPP is possible.

Excellent Performance

Liquid cooling heat management system for longer life, cell averaging, and efficiency.

Technology Developed by RENON

Self-developed BMS offers outstanding safety from the detection of voltage, current and temperature.



AC-SCSCabinet - 372kWh Specification(EU/US)

Battery Combination	1P416S
Cell Capacity (Ah)	280
Nominal Energy (kWh)	372.736
Nominal DC Voltage (Vdc)	1331.2
Battery Voltage Range(V)	1248~1476.8
DOD	0.9
Cycle Life	＞8000 Cycles
Nominal AC Voltage (Vac)	690,3P3W / 600,3P3W
Range AC Voltage	-15%~10% (settable)
Nominal AC Power (kW)	200 / 175
Max. AC Power (kVA)	220 / 192.5
Max. AC Current (A)	184 / 185.2
Nominal Frequency (Hz)	50/60 (settable) / 60
Power Factor	>0.99 (at rated power)
Adjustable Power Factor	1 (leading)~1 (lagging)
THDi	<3% (at rated power)
Overloading Capability	110%
Max System Efficiency	98.8%
Communication Interface	RS485, Ethernet, CAN,LTE
Enclosure	IP54
Noise Level	＜80dB(A)
Altitude	2000m / 6561ft
Thermal Management (PCS)	Intelligent forced air cooling
Thermal Management (Battery)	Liquid Cooling
Operating Temperature	-20°C~50°C/-4°F~122°F
Operating Humidity (RH)	0~100% (non-condensing)
Certifications	EU: IEC62619,UN38.3 IEC/EN 62477-1, IEC/EN 61000-6-2, IEC/EN 61000-6-4 US: UL9540, UL9540A, UL1973,UN 38.3, UL1741, CSA C22.2 No 107.1, IEEE1547
Warranty	3 years free, paid from the 4th to the 10th year

Matrix-Controller Specification(EU/US)

Nominal AC Voltage (Vac)	600
Rated Power (kW)	2976
Rated Current (A)	2490 / 2865
Short-circuit Protection	YES
AC Access/Output Channel	16/1
Isolation Method	Transformer
Transformer Rated Power (kVA)	2750
LV, MV Voltage (kV)	0.69,35 / 0.69,35
Transformer Vector	Dy11
Transformer Cooling Type	ONAN (Oil Natural Air Natural)
Oil Type	Mineral oil (PCB free)or degradable oil on request
Communication Interface	CAN, RS485, Wi-Fi, LTE
Enclosure	IP55 / IP54
Noise Level	＜80dB(A)
Altitude	2000m / 6561ft

D-AESS Standard Array(EU/US)

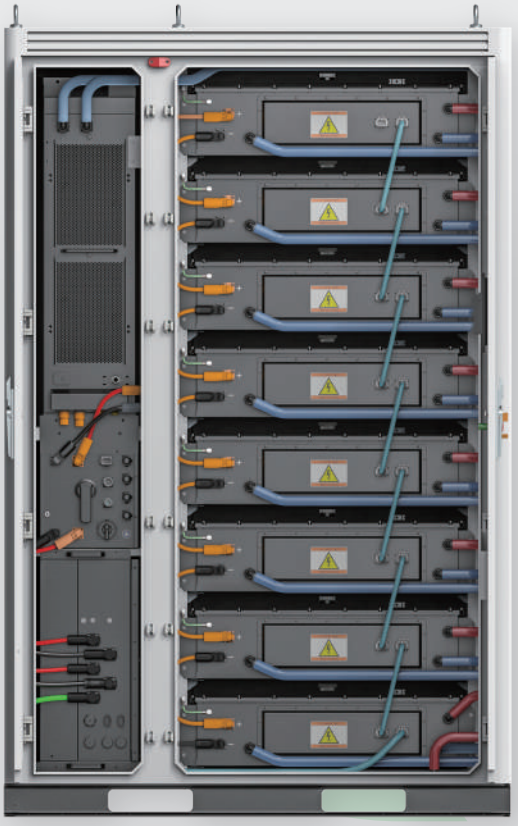
AC-MPack Quantity	16
Matrix-Controller Quantity	1
Nominal Energy (MWh)	5.96
Nominal AC Power (MW)	3.2 / 2.8
Nominal AC Voltage (Vac)	35KV, 3W+PE

D-AESS Distributed Matrix(EU/US)

D-AESS Standard Array	20
Matrix-Controller Quantity	1
Nominal Energy (MWh)	104
Nominal AC Power (MW)	64 / 56
Nominal AC Voltage (Vac)	35KV, 3W+PE

AC 372kWh Liquid-Cooling Battery(EU)

SCSCabinet



High security

Using high-safety lithium iron phosphate batteries, battery pack partition safety isolation, built-in module-level fire protection unit, system-level fire protection unit, active safety early warning system, to ensure safe and reliable operation of the system.

Efficient and balanced BMS technology

Using high-efficiency equalization technology to eliminate series loss, the power consumption of BMS sampling chips is the lowest in the industry and has good consistency, reducing the inconsistency between modules.

Efficient thermal management system

Internally integrates a high-efficiency liquid cooling and liquid heating system. After 416 cells are connected in series, the temperature difference of the cells is less than 3℃, which can effectively ensure the consistency of the single cells.

Highly integrated

The whole machine is highly integrated battery system, PCS energy module, AC contactor switching module, EMS energy management system, which can be directly and quickly installed and deployed by end users.

On-off grid switching

The system supports on-grid and off-grid switching. When the grid is powered off, it can be switched from on-grid to off-grid power supply, and supports off-grid load power supply.

Long life cycle

The cycle times of the battery cell is more than 8000 times, and the laser welding process is adopted to ensure that the service life of the system can reach more than 15 years.

Easy installation

Integrated all-in-one cabinet design, standardized product shipments, building block building of the power station system, extremely simplified product installation, and convenient deployment by users.

Convenient operation and maintenance

With a fully modular design, after-sales personnel only need to simply replace the corresponding modules to complete the after-sales work. From local operation and maintenance to cloud operation and maintenance, operation and maintenance are extremely simplified.

SCSCabinet(EU)

the liquid cooling battery storage cabinet that offers high safety, efficiency, and convenience. Equipped with high-quality phosphate iron lithium battery cells and advanced safety features, it ensures safe and reliable operation. The high-efficiency BMS technology eliminates series losses and reduces module inconsistency, resulting in a longer lifespan of more than 15 years. Additionally, the efficient thermal management system maintains a temperature difference of less than 3°C among cells. With its standardized design and modular structure, it's easy to install and maintain, making it an ideal solution for businesses seeking to optimize their energy usage and reduce costs.

Battery Energy Storage

Single Cell Type	LFP 3.2V/280AH
Module Combination	1P52S
System Combination	8 modules in series
Capacity (kWh)	372.736
Nominal Voltage (Vdc)	1331.2
Voltage Range (Vdc)	1,218.88~1,476.8 (2.93V~3.55V)
Charge/Discharge Current	0.5C
Discharge Depth	90% DoD
Service Life	>8000 cycles@80%DoD
Thermal Management Mode	Liquid cooling technology
Thermal runaway management	Aerosol Extinguishing or PFH

AC Output

Rated AC Output Power(kW)	200
Max. AC Output Power(kVA)	220
Rated Output Boltage(Vac)	690
Output Voltage Range	-15%~+10%(settable)
Grid Frequency Range(Hz)	50/60
Max. Output Current(A)	185.2
Power Factor	>0.99(at rated power)
Adjustable Power Factor	1(leading)~1(lagging)
THDi	<3%(at rated power)
Overloading Capability	110%

*Supports off-grid use, additional transformers need to be configured when off-grid.

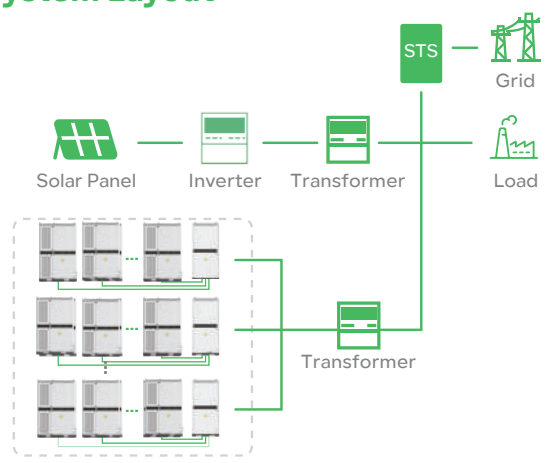
System Characteristic

PCS Cooling	Forced Air Cooling
PCS Topology	Non-isolation
Communication Interface	CAN, RS485, Wi-Fi, LTE
Warranty	3 years free, paid from the 4th to the 15th year
Certifications	IEC62619/UN38.3/IEC62619/UN38.3/IEC/EN 62477-1, IEC/EN 61000-6-2, IEC/EN 61000-6-4

General Parameters

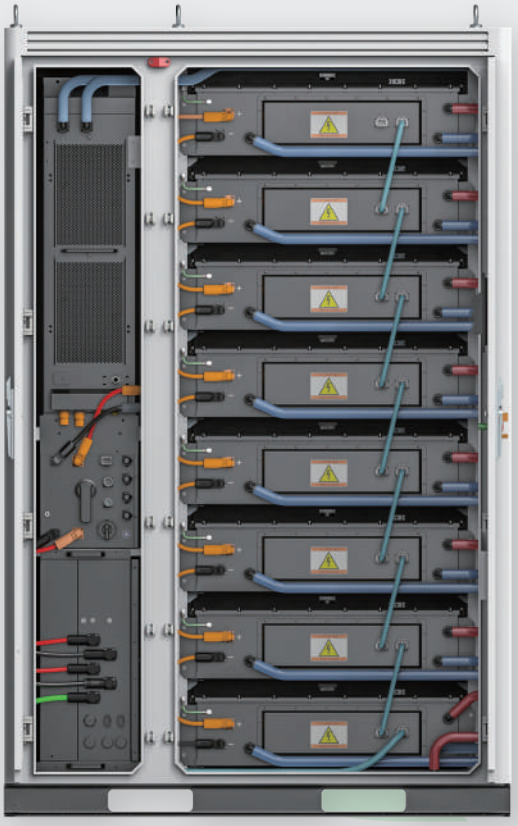
Dimensions (W*D*H)	1510*1450*2350mm / 59*57*93in
Total Weight	4100kg / 9039lb
Operation Altitude	2000m / 6561ft
Noise Level @1m	<75 dB(A)
IP Rating	IP54
Operating Temperature	-20°C to 55°C
Operating Humidity (RH)	0 to 95%
Storage Conditions	-20°C to 30°C Up to 95% RH,non-condensing State of Energy (SoE): 50% initial

System Layout



AC 372kWh Liquid-Cooling Battery (US)

SCSCabinet



High security

Using high-safety lithium iron phosphate batteries, battery pack partition safety isolation, built-in module-level fire protection unit, system-level fire protection unit, active safety early warning system, to ensure safe and reliable operation of the system.

Efficient and balanced BMS technology

Using high-efficiency equalization technology to eliminate series loss, the power consumption of BMS sampling chips is the lowest in the industry and has good consistency, reducing the inconsistency between modules.

Efficient thermal management system

Internally integrates a high-efficiency liquid cooling and liquid heating system. After 416 cells are connected in series, the temperature difference of the cells is less than 3℃, which can effectively ensure the consistency of the single cells.

Highly integrated

The whole machine is highly integrated battery system, PCS energy module, AC contactor switching module, EMS energy management system, which can be directly and quickly installed and deployed by end users.

On-off grid switching

The system supports on-grid and off-grid switching. When the grid is powered off, it can be switched from on-grid to off-grid power supply, and supports off-grid load power supply.

Long life cycle

The cycle times of the battery cell is more than 8000 times, and the laser welding process is adopted to ensure that the service life of the system can reach more than 15 years.

Easy installation

Integrated all-in-one cabinet design, standardized product shipments, building block building of the power station system, extremely simplified product installation, and convenient deployment by users.

Convenient operation and maintenance

With a fully modular design, after-sales personnel only need to simply replace the corresponding modules to complete the after-sales work. From local operation and maintenance to cloud operation and maintenance, operation and maintenance are extremely simplified.

SCSCabinet (US)

the liquid cooling battery storage cabinet that offers high safety, efficiency, and convenience. Equipped with high-quality phosphate iron lithium battery cells and advanced safety features, it ensures safe and reliable operation. The high-efficiency BMS technology eliminates series losses and reduces module inconsistency, resulting in a longer lifespan of more than 15 years. Additionally, the efficient thermal management system maintains a temperature difference of less than 3°C among cells. With its standardized design and modular structure, it's easy to install and maintain, making it an ideal solution for businesses seeking to optimize their energy usage and reduce costs.

Battery Energy Storage

Cell Type	LFP 3.2V/280AH
Module Combination	1P52S
System Combination	8 modules in series
Capacity (kWh)	372.736
Nominal Voltage (Vdc)	1331.2
Voltage Range (Vdc)	1,218.88~1,476.8 (2.93V~3.55V)
Charge/Discharge Current	0.5C
Discharge Depth	90% DoD
Service Life	>8000 cycles@80%DoD
Thermal Management Mode	Liquid cooling technology
Thermal runaway management	Aerosol Extinguishing or PFH

AC Output

Rated AC Output Power(kW)	175
Max. AC Output Power(kVA)	192.5
Rated Output Boltage(Vac)	600
Output Voltage Range	-15%~+10%(settable)
Grid Frequency Range(Hz)	60
Max. Output Current(A)	185.2
Power Factor	>0.99(at rated power)
Adjustable Power Factor	1(leading)~1(lagging)
THDi	<3%(at rated power)
Overloading Capability	110%

*Supports off-grid use, additional transformers need to be configured when off-grid.

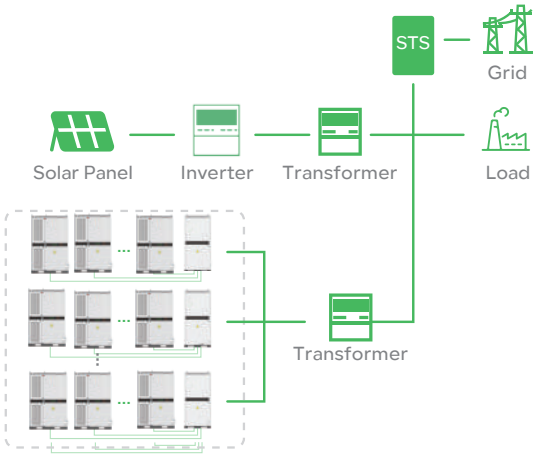
System Characteristic

PCS Cooling	Forced Air Cooling
PCS Topology	Non-isolation
Communication Interface	CAN, RS485, Wi-Fi, LTE
Warranty	3 years free, paid from the 4th to the 15th year
Certifications	UL1741, CSA C22.2 No 107.1,IEEE1547 UL1973/UL9540/UL9540A

General Parameters

Dimensions (W*D*H)	1510*1450*2350mm / 59*57*93in
Total Weight	4100kg / 9039lb
Operation Altitude	2000m / 6561ft
Noise Level @1m	<75 dB(A)
IP Rating	IP54
Operating Temperature	-20°C to 55°C
Operating Humidity (RH)	0 to 95%
Storage Conditions	-20 °C to 30°C Up to 95% RH,non-condensing State of Energy (SoE): 50% initial

System Layout



DC 5MWh Liquid-Cooling Container Solution

SCSContainer

High Density and Efficiency

Our 5MWH container features a compact 2.5MW/5MWH integrated block design, ensuring minimal land usage. It incorporates a full liquid-cooling intelligent temperature control system, maintaining a charge/discharge temperature difference of ≤3℃ for extended system life. With a 2% increase in cycle efficiency, it's more energy-efficient and environmentally friendly. The design also supports back-to-back installation, saving up to 30% in installation space.

Safety and Reliability

The container is equipped with multi-level fire suppression to effectively prevent thermal runaway, along with a top venting design for active ventilation, minimizing explosion risks. Cell-level AI management provides proactive early warnings for failing cells, enhancing overall safety.

Intelligent Operation and Maintenance

The container is equipped with a full EMS (Energy Management System), supporting one-click station-wide upgrades within 15 minutes. An automatic liquid replenishment system eliminates the need for manual intervention. It also includes intelligent SOC calibration and correction capabilities, requiring no downtime for operations.

Efficient and Flexible

Featuring a fully modular design, the container reduces failure losses and maintains high system uptime. The high-efficiency liquid cooling system significantly improves battery life and discharge capacity. With IP55/C5 protection, it's highly adaptable to various extreme environments. The 'cluster-by-cluster' management approach minimizes the impact of the barrel effect.

Battery Energy Storage

Cell Type	LFP 3.2V
Capacity(Ah)	314Ah
Configuration	416S12P
Rated Voltage(Vdc)	1331.2Vdc
Voltage Range(Vdc)	1218.88 ~ 1476.8Vdc
Rated Capacity(kWh)	5018kWh
System Charge/Discharge	≤0.5C
System Efficiency	≥97%
Thermal Management Mode	liquid cooling

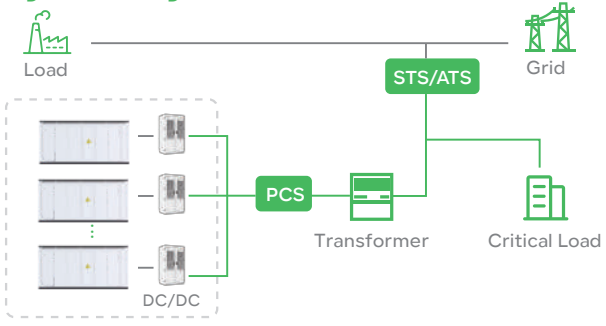
Operating Environment

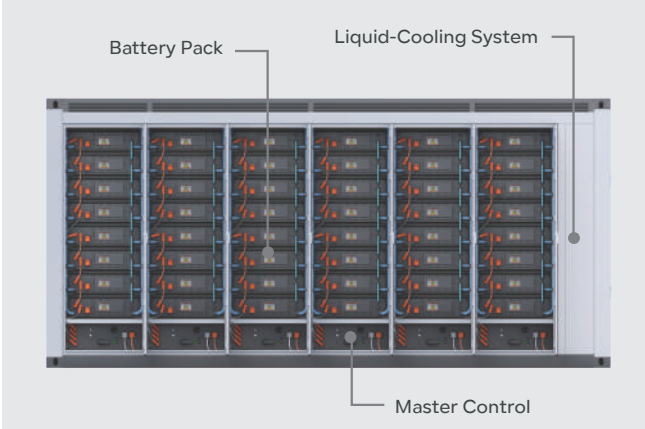
IP Rating	IP54
Noise Level @1m	<85dB
Operating Temperature	-25°C~55°C
Relative Humidity	≤95%, No condensation
Operation Altitude	2000m / 6561ft

System Parameters

Dimensions (W*D*H)	6058*2438*2896mm / 238.5*96*114in
Total Weight	42000±500kg / 92594±1100lb
Multi-level Fire Suppression	Combustible Gas Detection Accident Ventilation Gas Fire Fighting Water Fire Fighting
Communication Protocol	CAN, RS485, Wi-Fi, LTE
Certification	IEC62619, UN38.3, UL1973,UL9540A

System Layout





Intelligent STS

120KW

Rated Grid Voltage(Vac)	380/480 ±15%
Rated AC Current(A)	180
AC frequency(Hz)	50/60±5
Switch Time	Switch from grid-connected to off-grid <20ms When off-grid to grid-connected the load is uninterrupted (0ms)

240KW

Rated Grid Voltage(Vac)	380/480 ±15%
Rated AC Current(A)	360
AC frequency(Hz)	50/60±5
Switch Time	Switch from grid-connected to off-grid <20ms When off-grid to grid-connected the load is uninterrupted (0ms)

Intelligent PCS

30KW

Battery Voltage Range(Vdc)	150~750
AC Output Voltage(Vac)	3W3P+PE, 480 (±15%)
AC frequency(Hz)	60 (±2.5)
Number of Parallel	10PCS

50-250KW

Battery Voltage Range(Vdc)	250~520
AC Output Voltage(Vac)	380/400(±15%)
AC frequency(Hz)	50/60(±2.5)
Number of Parallel	2PCS

500KW

Battery Voltage Range(Vdc)	600~900
AC Output Voltage(Vac)	380(±15%)
AC frequency(Hz)	50/60(±2.5)
Number of Parallel	8PCS

60KW

Battery Voltage Range(Vdc)	680Vdc~1000Vdc
AC Output Voltage(Vac)	230/400, 3P+N+PE
AC frequency(Hz)	50/60
Number of Parallel	5PCS

100KW

Battery Voltage Range(Vdc)	600~1500
AC Output Voltage(Vac)	400, 3P+PE
AC frequency(Hz)	50/60
Number of Parallel	8PCS

Intelligent Master Control

750VDC100A

Rated Voltage(Vdc)	750
Voltage Range(Vdc)	80~750
Rated Current(A)	100
Weight	19kg / 42lb
W*D*H	820*268*229mm / 32*10*9in

750VDC150A

Rated Voltage(Vdc)	750
Voltage Range(Vdc)	200~750
Rated Current(A)	150
Weight	25kg / 55lb
W*D*H	485*440*132mm / 19*17*5in

750VDC300A

Rated Voltage(Vdc)	750
Voltage Range(Vdc)	200~750
Rated Current(A)	300
Weight	38kg / 84lb
W*D*H	525*530*210mm / 20*21*8in

1000VDC300A

Rated Voltage(Vdc)	1000
Voltage Range(Vdc)	200~1000
Rated Current(A)	300
Weight	39kg / 86lb
W*D*H	525*530*210mm / 20*21*8in

Flexible Battery Module

32Ah 1P18S

Rated Capacity(kWh)	1.843
Rated Voltage(V)	57.6
Max. Charge Rate	≤1C
Peak Charging Current	≤2C 10s
Max. Discharge Current	≤1C
Peak Discharge Current	≤2C 30s
Weight	16kg / 35lb
W*D*H	564*158*130mm 22*6*5in

50Ah 1P12S

Rated Capacity(kWh)	1.92
Rated Voltage(V)	38.4
Max. Charge Rate	≤1C
Peak Charging Current	≤2C 20s
Max. Discharge Current	≤1C
Peak Discharge Current	≤2C 30s
Weight	18kg / 40lb
W*D*H	558*187*130mm 21*7*5in

100Ah 1P16S

Rated Capacity(kWh)	5.12
Rated Voltage(V)	51.2
Max. Charge Rate	≤1C
Peak Charging Current	≤2C 10s
Max. Discharge Current	≤1C
Peak Discharge Current	≤3C 10s
Weight	39kg / 86lb
W*D*H	520*187*216mm 20*7*8.5in

280Ah 1P7S

Rated Capacity(kWh)	6.272
Rated Voltage(V)	22.4
Max. Charge Rate	≤1C
Peak Charging Current	≤2C 10s
Max. Discharge Current	≤1C
Peak Discharge Current	≤2C 30s
Weight	40kg / 88lb
W*D*H	588*186*220mm 23*7*8.6in

280Ah 1P8S

Rated Capacity(kWh)	7.168
Rated Voltage(V)	25.6
Max. Charge Rate	≤1C
Peak Charging Current	≤2C 10s
Max. Discharge Current	≤1C
Peak Discharge Current	≤2C 30s
Weight	45kg / 99lb
W*D*H	661*186*220mm 26*7.3*8.6in

280Ah 1P10S

Rated Capacity(kWh)	8.96
Rated Voltage(V)	32
Max. Charge Rate	≤1C
Peak Charging Current	≤2C 10s
Max. Discharge Current	≤1C
Peak Discharge Current	≤2C 30s
Weight	56kg / 123lb
W*D*H	807*186*220mm 32*7.3*8.6in

High Energy Density Battery Cell

RF32

Rated Capacity(Ah)	32
Rated Voltage(V)	3.2
Max. Charge Rate	2C
Internal Resistance	< 1.5mΩ
W*D*H	148*94.3*26.7mm / 6*3.7*1in

RF50

Rated Capacity(Ah)	50
Rated Voltage(V)	3.2
Max. Charge Rate	2C
Internal Resistance	≤ 1mΩ
W*D*H	101.6*148*39.5mm / 4*5.8*1.5in

RF100

Rated Capacity(Ah)	100
Rated Voltage(V)	3.2
Max. Charge Rate	2C
Internal Resistance	≤ 0.8mΩ
W*D*H	207*174.7*27.2mm / 8.1*6.8*1in

RF280

Rated Capacity(Ah)	280
Rated Voltage(V)	3.2
Max. Charge Rate	1C
Internal Resistance	≤ 0.3mΩ
W*D*H	207*174.7*71mm / 8.1*6.8*2.8in

Memo No. _____
Date / /