

MPack 261 One-Stop Solution (US)

Prefabricated One-Stop Turnkey Energy Storage Solution

Covering system configuration, key components, application scenarios, and grid-connected/off-grid topology diagrams.

Core Energy Storage Unit

- MPack 261A: 261 kWh/135 kW liquid-cooled C&I energy storage cabinet
- MPack 261D: 261 kWh liquid-cooled C&I energy storage cabinet

Key Components (forming a complete system)

- STS Cabinet
- MPPT PV Input Cabinet
- Array Combiner Cabinet
- Matrix Combiner Cabinet
- Communication Cabinet
- Transformer (Choose One)
 - Standard Transformer
 - SST Cabinet
- DC Charging Station (Optional)
- Auxiliary Power Distribution Cabinet



Renon Power USA LLC

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Product Overview

The Renon MPack series is a liquid-cooled energy storage system for commercial and industrial (C&I) applications. Using lithium iron phosphate (LFP) cells, it offers high safety, long life, and a highly integrated design. Built around the MPack 261A and MPack 261D, it supports four solutions: low-voltage AC grid-connected, low-voltage AC grid-tied/off-grid, 13.8 kV medium-voltage grid-connected, and DC grid-connected systems.

■ Core Energy Storage Unit



MPack 261A
P07



MPack 261D
P08

■ Key Components (forming a complete system)



Array Combiner
P09



Matrix Combiner
P09



STS Cabinet
P10



Communication Cabinet
P11



US Standard Transformer
P12



SST Cabinet
P12



DC Charging Station
P13



Auxiliary Power
Distribution Cabinet



MPack 261 Series

261kWh Liquid-cooled Battery

Core Energy Storage Unit

High energy density: 1P52S 314Ah LFP cells, system capacity 261.2 kWh
Long service life: $\geq 8,000$ cycles @ 90% DOD, 10-year design life
High-efficiency conversion (261A): THDi $\leq 3\%$, millisecond-level response, rated power 135 kW
Safe and reliable: IP54 protection, aerosol fire suppression, UL9540A/UL1973/UL9540/UL1741/IEEE1547 certified
Liquid-cooled temperature control: Wide operating temperature range -30°C to +55°C



Product Function



Advanced Energy Storage

Provides 261 kWh of energy storage capacity and supports multiple power inputs, including solar PV, diesel generators, and the utility grid, enabling flexible deployment across a wide range of applications.



Smart Load Management

Enables peak shaving, time-of-use arbitrage, and demand response, helping users optimize energy consumption and reduce electricity costs.



Intelligent Energy Management

Integrated EMS and STS Control Box, the system supports remote monitoring, dispatch, and operational management for smarter energy control.



Reliable Backup Power

Delivers seamless grid-to-off-grid switching within ≤ 20 ms (Optional STS), ensuring uninterrupted protection for critical loads and maintaining power continuity when it matters most.



Independent Off-Grid Power

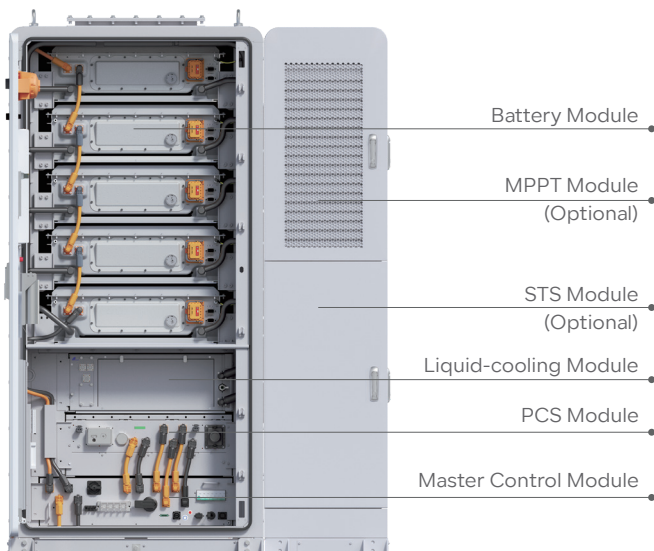
Supports standalone off-grid operation and is well suited for microgrid applications, providing stable and reliable power in remote or grid-constrained environments.



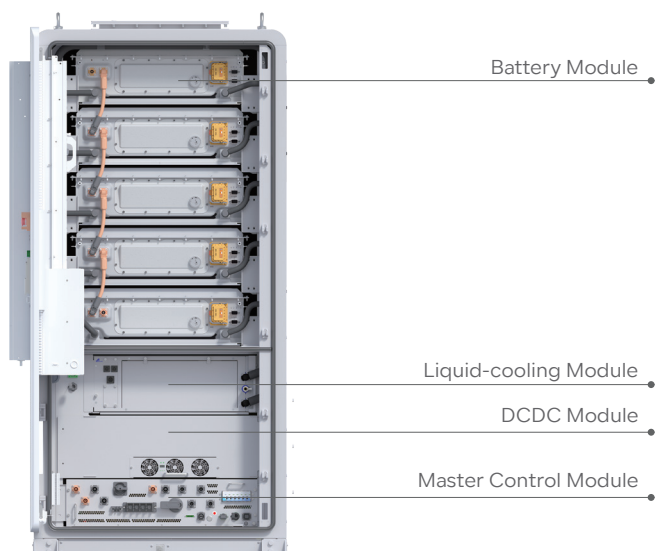
Scalable & Flexible Design

Features a modular parallel architecture that allows flexible system expansion, supporting 2, 5, or up to 10 units in parallel to meet different capacity requirements.

AC System Overview

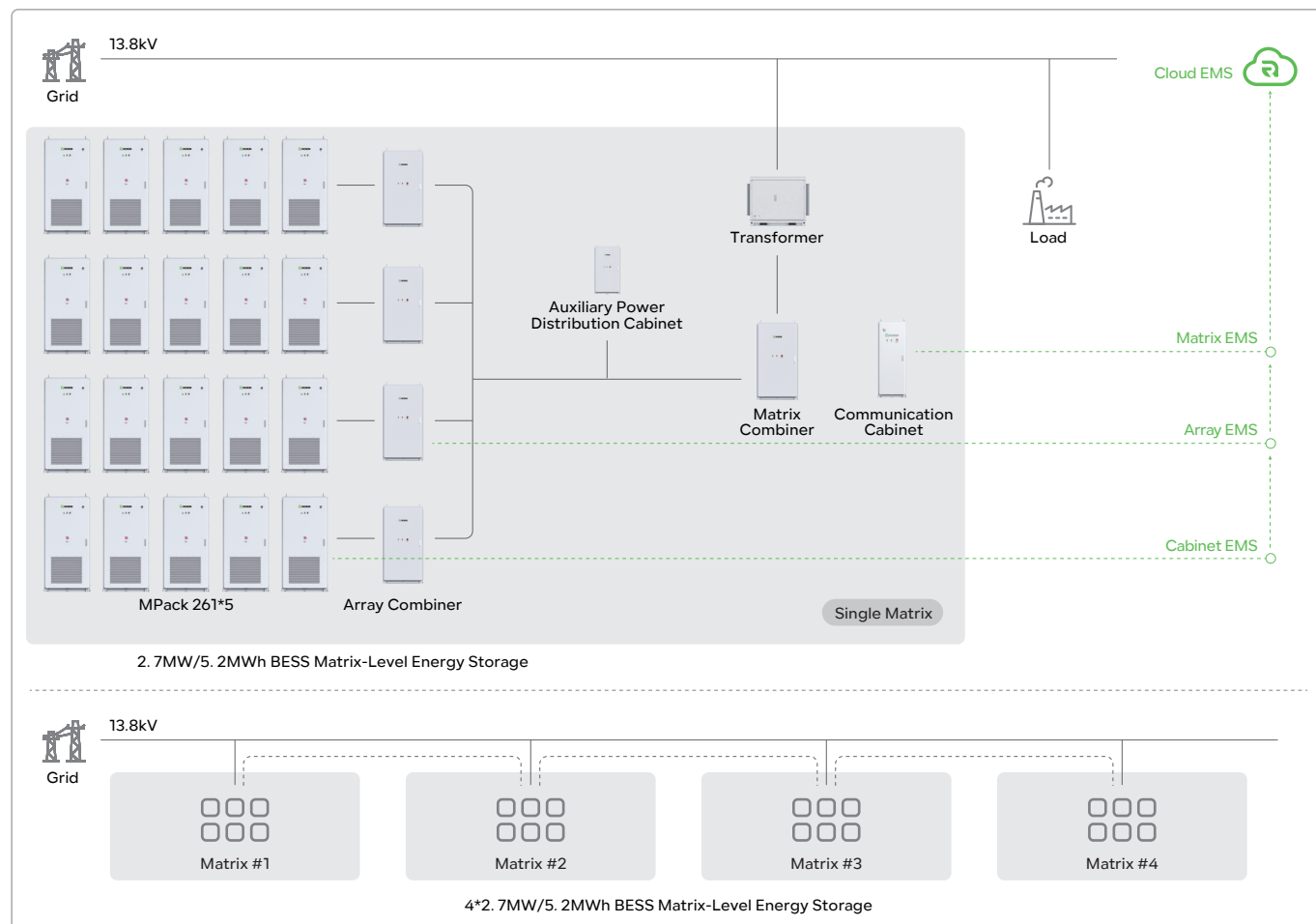


DC System Overview



On-Grid Applications

The MPack 261A (including PCS) is designed for On-Grid applications such as peak shaving and load shifting, VPP, demand management, and export limitation. It provides 480 VAC output, with the outputs combined through a distribution cabinet and connected directly to the grid. The distribution cabinet is configured according to the parallel system scale. In this configuration, an STS cabinet is not included, and grid-tied/off-grid switching is not supported.



Configuration List (Single Matrix)

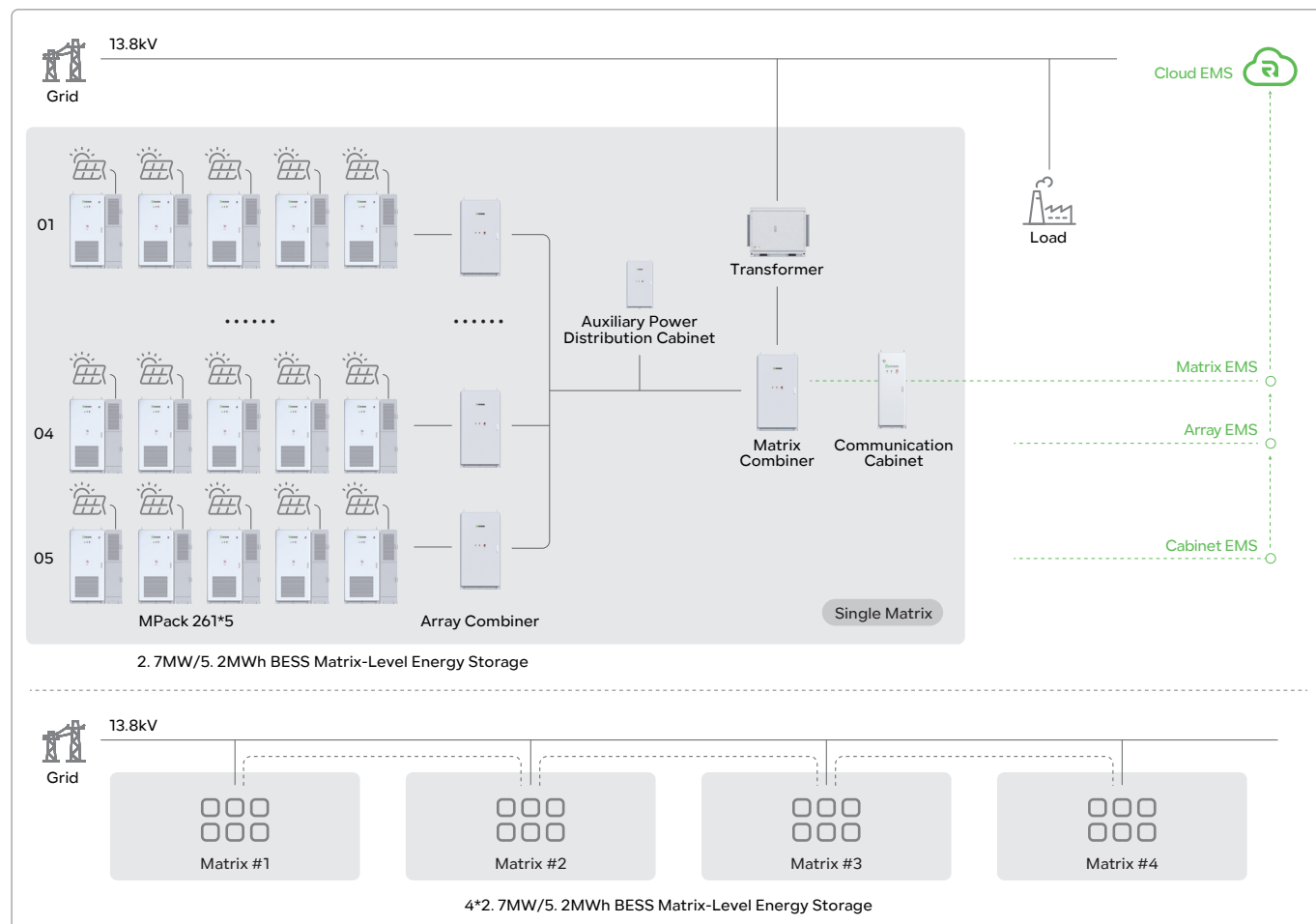
Components	Quantity	Remarks
MPack 261A	20 units	261 kWh/135 kW per unit, 480V output
Array Combiner	4 units	/
Matrix Combiner	1 unit	Optional if PV integration is required
Communication Cabinet	1 unit	/
Transformer	1 unit	/
Auxiliary Power Distribution Cabinet	1 unit	/

Configuration List (Max. Matrix Configuration)

Components	Quantity	Remarks
MPack 261A	20*4 units	261 kWh/135 kW per unit, 480V output
Array Combiner	4*4 units	/
Matrix Combiner	1*4 units	Optional if PV integration is required
Communication Cabinet	1*4 units	/
Transformer	1*4 units	/
Auxiliary Power Distribution Cabinet	1*4 units	/

On-Grid Applications (PV+BESS)

The MPack 261A (including PCS) is designed for On-Grid applications such as peak shaving and load shifting, VPP, demand management, and export limitation. It provides 480 VAC output, with the outputs combined through a distribution cabinet and connected directly to the grid. The distribution cabinet is configured according to the parallel system scale. In this configuration, AC PV inverter or AC PV inverter is included, and grid-tied/off-grid switching is not supported.



Configuration List (Single Matrix)

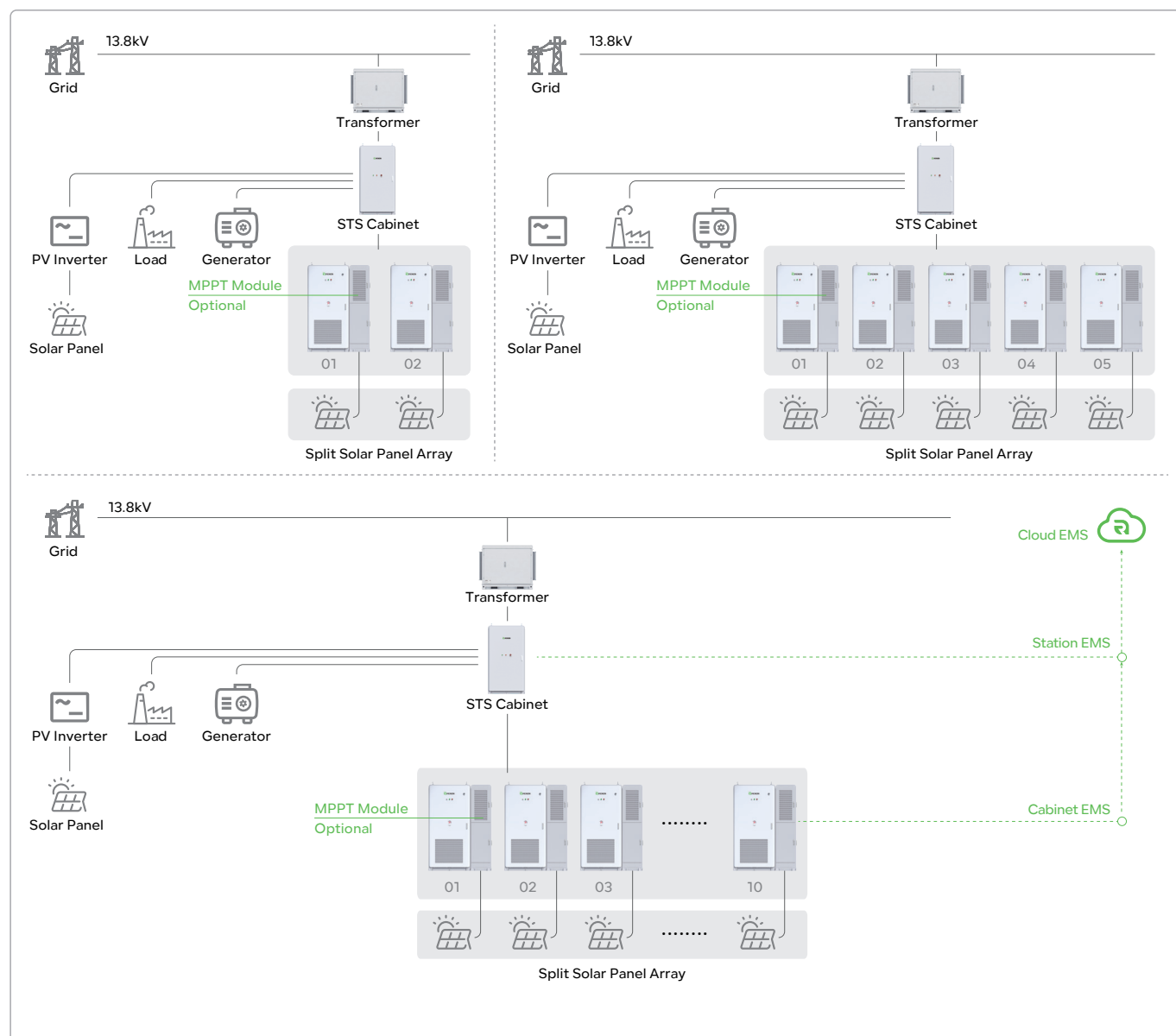
Components	Quantity	Remarks
MPack 261A	20 units	261 kWh/135 kW per unit, 480V output
Array Combiner	4 units	/
Matrix Combiner	1 unit	Optional if PV integration is required
Communication Cabinet	1 unit	/
Transformer	1 unit	/
Auxiliary Power Distribution Cabinet	1 unit	/

Configuration List (Max. Matrix Configuration)

Components	Quantity	Remarks
MPack 261A	20*4 units	261 kWh/135 kW per unit, 480V output
Array Combiner	4*4 units	/
Matrix Combiner	1*4 units	Optional if PV integration is required
Communication Cabinet	1*4 units	/
Transformer	1*4 units	/
Auxiliary Power Distribution Cabinet	1*4 units	/

On/off-Grid Applications

The MPack 261A is designed for On-Grid and Off-Grid applications, with 480 VAC output. The AC outputs of multiple units are combined and connected to the low-voltage distribution system. The system supports On-Grid/Off-Grid switching for 2-unit, 5-unit, and 10-unit parallel configurations, with a transfer time of ≤ 20 ms. It is suitable for applications requiring continuous power supply, such as hospitals and island power systems. During grid disturbances or outages, the system switches to Off-Grid mode to support critical loads, and reconnects to the grid when conditions recover. It can also connect to PV and diesel generators. If an isolation transformer is required, it can be supplied by either the customer or RENON, depending on the project. No separate communication cabinet is required.

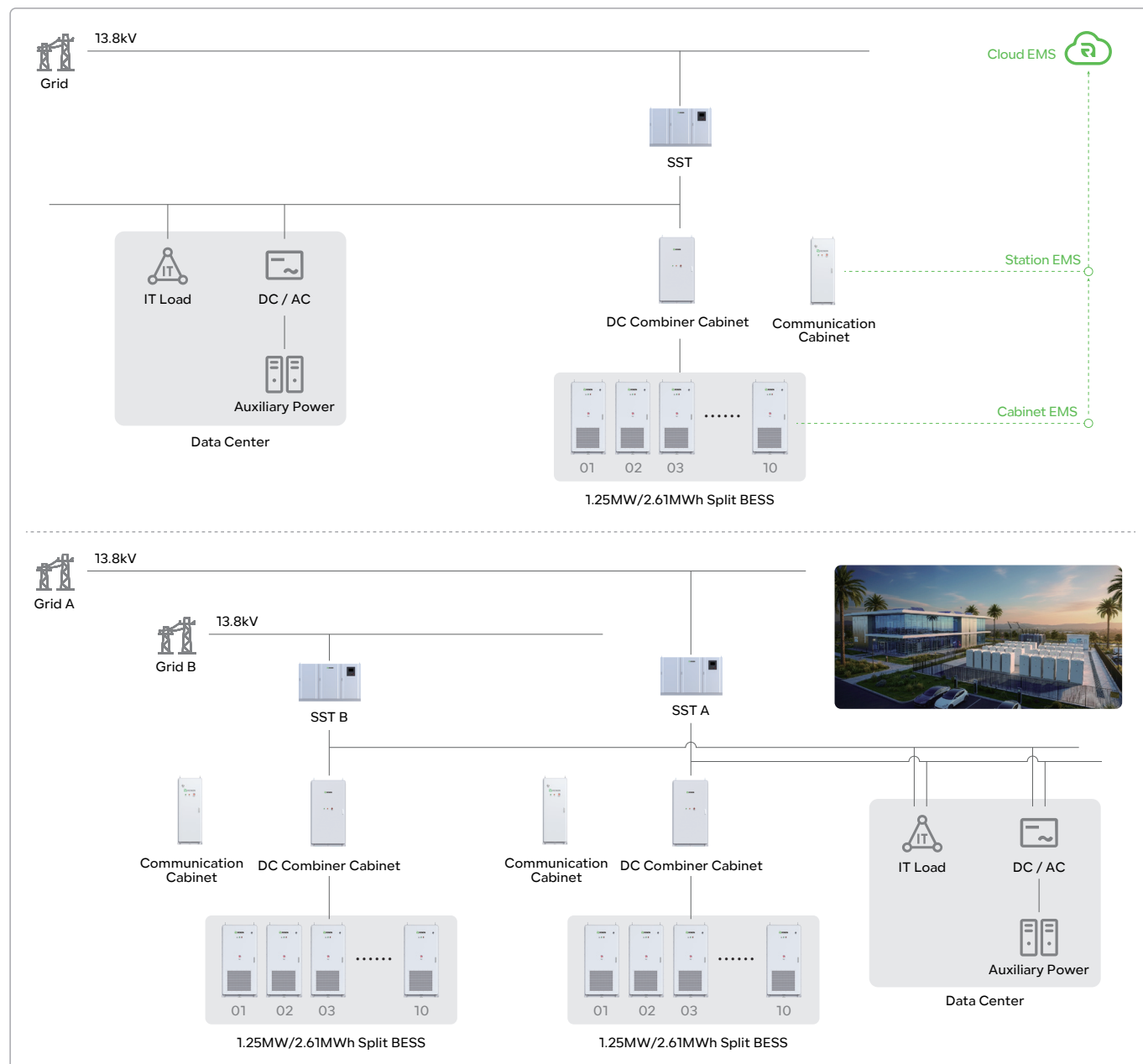


Configuration List

Components	Quantity	Remarks
MPack 261A	2/5/10 units	261 kWh/135 kW per unit, 480V output
STS Cabinet	1 unit	Designed for 2/5/10-units parallel operation, includes diesel generator and PV interfaces
MPPT Combiner	Optional	Optional PV connection available
Generator	Optional	To be provided by the buyer
Transformer	1 unit	/
Auxiliary Power Distribution Cabinet	1 unit	/

Data Center Applications

In data center applications, a step-up transformer is added to raise the voltage to 13.8kV for connection to the campus medium-voltage distribution system or the medium-voltage grid. The transformer may be implemented as either a conventional low-frequency transformer or a solid-state transformer (SST). In this configuration, the SST is used only for DC bus power coupling and distribution. It does not support power flow from the DC side to the 13.8kV AC grid.



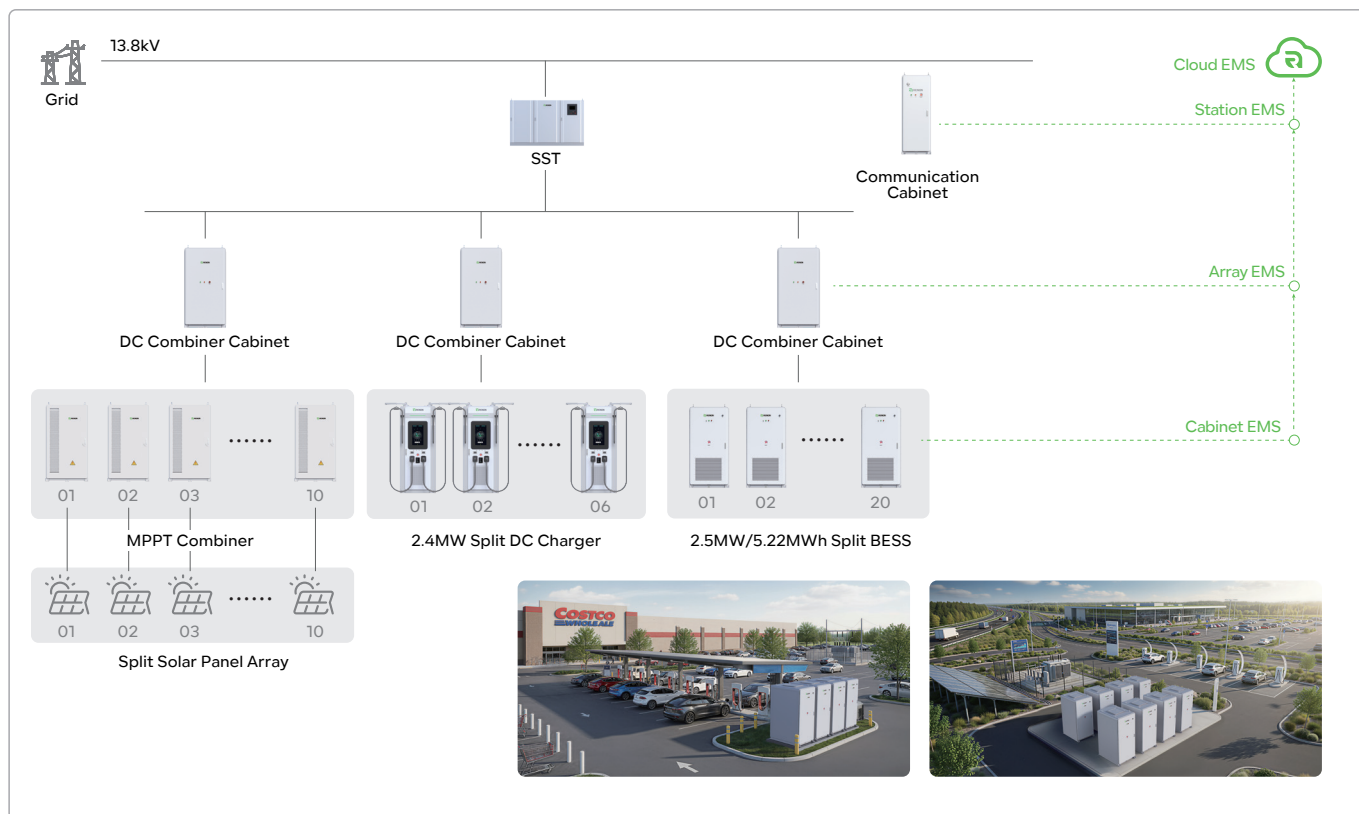
Configuration List (Single Array)

Components	Quantity	Remarks
MPack 261D	10 units	The DC output is converted into usable power for the IT load.
DC Combiner Cabinet	Configure as needed	Determined by the number of DC output ports on the SST cabinet
SST Cabinet	1 unit	800 VDC / 13.8kV AC, 2,520 kW
Communication Cabinet	1 unit	/
Auxiliary Power Distribution Cabinet	1 unit	/

*Dual-route input, above configuration ×2

Solar Storage & Charging Applications

A transformer is added for integration with the 13.8kV medium-voltage AC grid. The transformer may be implemented as a solid-state transformer (SST). In this scenario, the SST is used only for DC bus power coupling and distribution, and does not support power flow from the DC side to the 13.8 kV AC grid.



Configuration List

Components	Quantity	Remarks
MPack 261D	20 units	For the energy consumption of electric vehicles connected to charging stations
DC Combiner Cabinet	Configure as needed	Determined by the number of DC output ports on the SST cabinet
DC Charging Station	6 units	Two guns per unit
MPPT Cabinet	10 units	One unit per energy storage cabinet; total PV capacity: 2.4 MW
SST Cabinet	1 unit	800 VDC / 13.8kV AC, 2520 kW
Communication Cabinet	1 unit	/
Auxiliary Power Distribution Cabinet	1 unit	/

MPack 261A Parameters



Battery Energy Storage

Cell Type	LFP 3.2V/314Ah
Module configuration	1P52S
System Combination (Modules)	5 in series
Capacity (kWh)	261.2
Nominal Voltage (V)	832
Operation Voltage Range (Vdc)	702~936
Discharge Depth	90% DoD
Thermal Management Mode	Liquid-Cooled
Thermal Control Management	Aerosol Extinguishing

AC Output

Rated AC Output Power (kW)	135
Max.AC Output Power (kVA)	148.5
Rated Output Voltage (Vac)	480
Output Voltage Range (Vac)	408~528
Rated Grid Frequency (Hz)	60(-5~5)Hz
Adjustable Power Factor	0.99/-1~1
THDi	≤3%

Battery DC Port Input/Output

Max. Power (kW)	270
Voltage Range (V)	702~936
Max. Current(A)	314

MPPT (Optional)

Product Model	R-MP03DM24000-US
Rated Power (kW)	240
Number of Inputs	36 PV inputs (6 strings per MPPT)
MPPT Modules	40kW*6
Meter	DC meter
Installation Method	Outdoor wall-mounted
Ingress Protection Rating	IP54
Certifications	US standard
Operating Temperature	-30°C to 55°C

System Characteristic

Grid-connected & Off-grid Switching Time (With STS)	≤20mS
Communication Interface	CAN, RS485, Ethernet
Warranty	5 years free, paid from the 6th to the 15th year
Certifications	UL9540A:2025, NFPA 855, NFPA 68 ANSI/CAN/UL1973:2022, ANSI/CAN/UL9540:2023 UL1741:2012 Ed.3+R:19May2023, UL1741:2021 Ed.3(Supplement SB) CSA C22.2#1071:2016 Ed.4+U1 IEEE 1547:2018,IEEE 15471:2020

General Parameters

Battery Model	R-MP261135A1-US
Dimensions - W*D*H (in)	~43.3*57.5*93.5 (±0.5)
Total Weight (lb)	~6393 (±5%)
Operation Altitude	≤4000m/13122ft (2000m/6561ft derating)
Noise Level @1m	<75 dB(A)
IP Rating	IP54
Operating Temperature (°C/°F)	-30~55/-22~131
Operating Humidity (RH)	0 to 95%, non-condensation
Storage Conditions	-20~30°C/-4~86°F Up to 95% RH, non-condensation State of Energy (SoE): 50% initial

MPack 261D Parameters

Battery Energy Storage

Cell Type	LFP 3.2V/314Ah
Module configuration	1P52S
System Combination (Modules)	5 in series
Capacity (kWh)	261.2
Nominal Voltage (V)	832
Operation Voltage Range (Vdc)	702~936
Discharge Depth	90% DoD
Thermal Management Mode	Liquid-Cooled
Thermal Control Management	Aerosol Extinguishing

DCDC

Max. Output Power (kW)	240
Rate Output Power (kW)	125
Peak Efficiency	≥ 99%
DC Bus-side Output Voltage Range (Vdc)	500~1000
DC Bat.-side Output Voltage Range (Vdc)	150~1000

System Characteristic



Communication Interface	CAN, RS485, Ethernet
Warranty	5 years free, paid from the 6th to the 15th year
Certifications	UL9540A:2025, NFPA 855, NFPA 68 ANSI/CAN/UL1973:2022, ANSI/CAN/UL9540:2023 UL1741:2012 Ed.3+R:19May2023, UL1741:2021 Ed.3(Supplement SB) CSA C22.2#1071:2016 Ed.4+U1 IEEE 1547:2018, IEEE 15471:2020

General Parameters

Battery Model	R-MP261240D1-US
Dimensions - W*D*H (in)	~43.3*57.5*93.5 (±0.5)
Total Weight (lb)	~6393 (±5%)
Operation Altitude	≤4000m/13122ft (2000m/6561ft derating)
Noise Level @1m	<75 dB(A)
IP Rating	IP54
Operating Temperature (°C/°F)	-30~-55/-22~-131
Operating Humidity (RH)	0 to 95%, non-condensation
Storage Conditions	-20~30°C/-4~86°F Up to 95% RH, non-condensation State of Energy (SoE): 50% initial

■ Array Combiner Cabinet Parameters



General Parameters

Product Model	R-MC625ACC01-US
Rated Power (kW)	625
Functions	Array-level low-voltage AC power distribution and combiner
Cable Entry/Exit Method	5 incoming(from Battery), 1 outgoing(to Grid)
Grid-Side (A)	1000
Operating Temperature	-20°C to 55°C
Ingress Protection Rating (IP Rating)	IP54
Corrosion Protection Rating	C5
Certifications	US standard

■ Matrix Combiner Cabinet Parameters



General Parameters

Product Model	R-MC2500ACC01-US
Rated Power (kW)	2500
Functions	Matrix-level low-voltage AC power distribution and combiner
Cable Entry/Exit Method	4 incoming(from Battery), 1 outgoing(to Grid)
Grid-Side	Built-in
Operating Temperature	-20°C to +55°C
Ingress Protection Rating (IP Rating)	IP54
Corrosion Protection Rating	C5
Certifications	US standard

■ STS Cabinet Parameters (2 units in parallel)



General Parameters

Product Model	R-ST02S63003-US
Core Switch	Fast Transfer Switch, 630 A ×2 in parallel, 4-pole, 1071 A
Control Box	STS Control Box
External Switch	630 A ×2
Diesel Generator Interface	MCCB, supports remote open/close control
PV Interface	MCCB, supports remote open/close control
Electric Meter	AC Meter
Ingress Protection Rating	IP54
Certifications	US standard
Installation Method	Floor-mounted or wall-mounted

■ STS Cabinet Parameters (5 units in parallel)



General Parameters

Product Model	R-SS05G200003-US
Core Switch	2000A*4 (A/B/C/N each)
Input-Side ACB (Air Circuit Breaker) (A)	2500
Output Load Switch (A)	1200
Manual Maintenance Bypass	1200A switch
Diesel Generator Switch	1200A, supports remote open/close control
PV Switch	1200A, supports remote open/close control
Control Box	STS Control Box
Auxiliary Configuration	Built-in UPS, air-cooled air conditioner
Ingress Protection Rating	IP54
Certifications	US standard
Installation Method	Outdoor floor-mounted

■ STS Cabinet Parameters (10 units in parallel)



General Parameters

Product Model	R-SS10G400003-US
Core Switch	2000A*2*4 (2 in parallel for each A/B/C/N phase)
Input-Side ACB (A)	4000
Output ACB (A)	2500
Maintenance Bypass ACB (A)	2500
Diesel Generator ACB	4000A, supports remote open/close control
PV ACB	4000A, supports remote open/close control
Control Box	STS Control Box
Auxiliary Configuration	Built-in UPS, air-cooled air conditioner
Ingress Protection Rating	IP54
Certifications	US standard
Installation Method	Outdoor floor-mounted

Communication Cabinet Parameters



General Parameters

Product Model	R-CC01C00800
Applicable Area	EU/US
Built-in Equipment	Internal/external switches, routers, EMS industrial PC, small UPS module, 600 W air-cooled air conditioner
Functions	Supports integration with Station EMS and third-party EMS equipped with multiple RS485 and Ethernet ports for data acquisition, communication, and control
Installation Method	Outdoor floor-mounted
Operating Temperature	-30°C to 55°C
Ingress Protection Rating	IP55
Corrosion Protection Rating	C5

■ US Standard Transformer



General Parameters

Product Model	R-MT3000PT01-US
Rated Capacity (kVA)	3000
Number of Phases	3-phase
Frequency (Hz)	60
Primary Voltage (kV)	13.8
Secondary Voltage (V)	480
Impedance	5.75%–7.5%
Cooling Method	KNAN
Insulating Liquid	High fire point liquid (FR3)
Ingress Protection Rating	IP54
Dimensions - W*D*H (mm)	1850*3260*2500
Weight (kg)	~7500
Certifications	ANSI/IEEE C57.12, DOE 2016

■ SST Parameters



General Parameters

Product Model	R-ST01T252003-US
Input Voltage (kV)	13.8
Frequency (Hz)	60
Output Voltage (Vdc)	800
Rated Capacity (kW)	2520
Configuration	AC input cabinet, power cabinet, DC output cabinet
Ingress Protection Rating	IP54
Certifications	US standard

■ DC Charging Station



General Parameters

Rated Power (kW)	400
Peak Efficiency	≥97% (800Vdc input, 800Vdc output @ full load)
Input Voltage (Vdc)	650~962
Output Voltage (Vdc)	200~1000
Maximum Current per Connector (A)	400
Number of Charging Connectors	2 connectors (dual gun, CCS1 / NACS)
Cable Length	5 m
Cooling Method	Forced air cooling
Communication Protocol	OCPP 1.6J, supports Ethernet/LTE
User Authentication	RFID (ISO/IEC 14443A), POS terminal
Safety Protection	Input over/under voltage protection, output overcurrent protection, overtemperature protection short-circuit protection, surge protection, access control protection
Ingress Protection Rating	IP55 (system), IK08 (screen), IK10 (enclosure impact protection)
Operating Temperature	-30°C to 50°C (derating above 50°C)
Storage Temperature	-40°C to 75°C
Relative Humidity	5% – 95% (non-condensing)
Altitude	≤2000m
Noise	<80 dB (at 1 m)
Dimensions - W*D*H (mm)	950*1150*2400 (including cable management system)
Additional Features	Cable management system, fan PWM dynamic control, door-open safety button

■ Auxiliary Power Distribution Cabinet



General Parameters

Function	Provides low-voltage auxiliary power for control, lighting, HVAC, and heating of the energy storage system
Input Voltage (Vac)	480 (sourced from the point of interconnection or the low-voltage side of the transformer)
Output Voltage (Vac)	400 (typical, customizable as required)
Capacity	Determined by system configuration (typically 30 kVA–120 kVA)
Supply Method	Can be supplied by the customer or optionally provided by Renon
Installation Method	Floor-mounted
Ingress Protection Rating	IP54 or higher recommended

Renon Power USA LLC

580 McIntyre Rd. McKinney, TX 75071

Renon Power Technology B.V.

Rietbaan 10, 2908 LP Capelle aan den IJssel

Renon Power 株式会社

東京都中央区日本橋箱崎町 20-5 VORT 箱崎 5F



Linkedin



Website