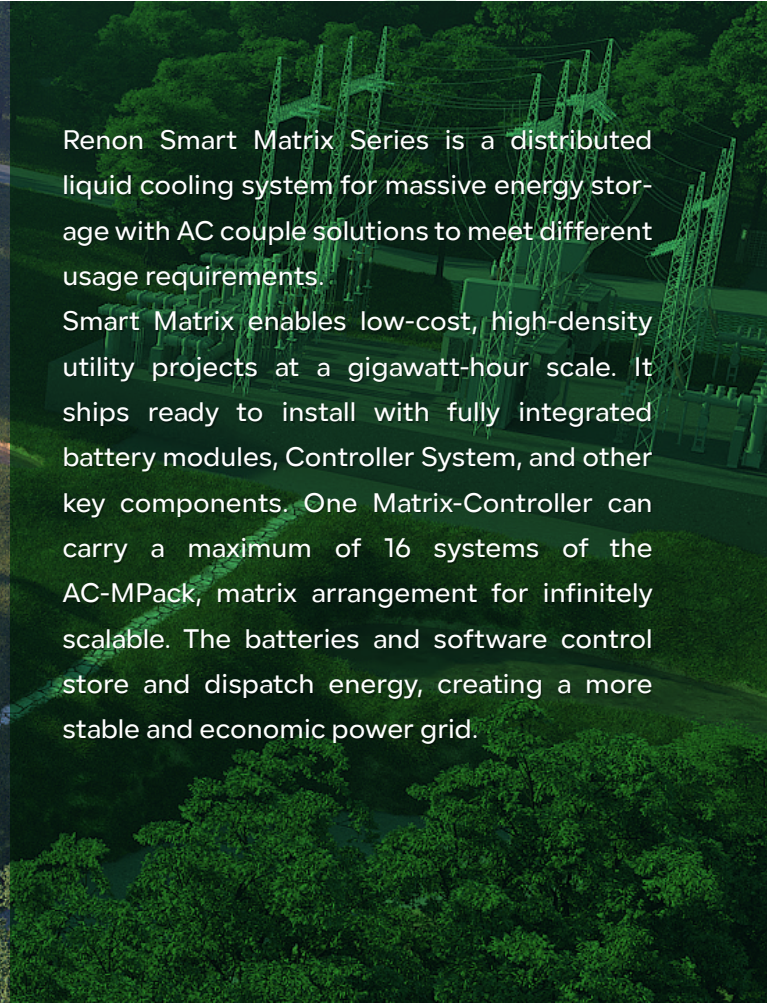
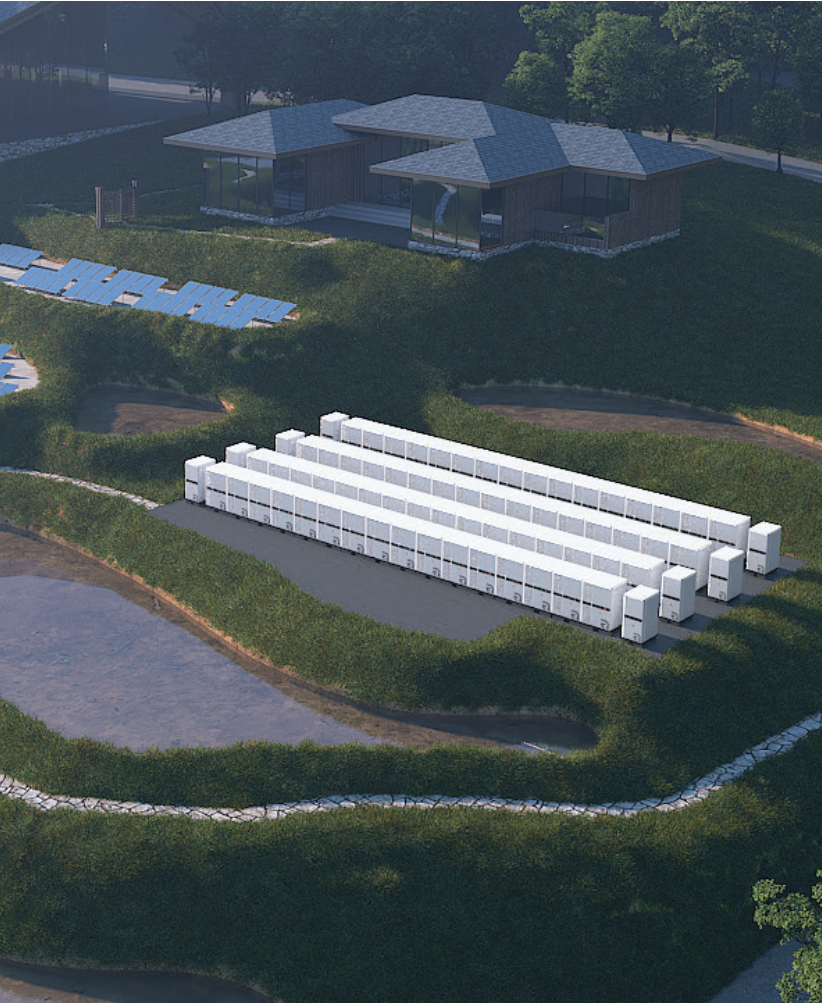


AC Coupling

Smart Matrix

Distribution Power System



Renon Smart 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 battery modules, Controller System, and other key components. One Matrix-Controller can carry a maximum of 16 systems of the AC-MPack, matrix arrangement for infinitely scalable. The batteries and software control store and dispatch energy, creating a more stable and economic power grid.

Strong Capacity

Utility-size distributed ESS solution, supporting 56MW of output power and 104MWh of capacity in a standard array.

Flexible Usage

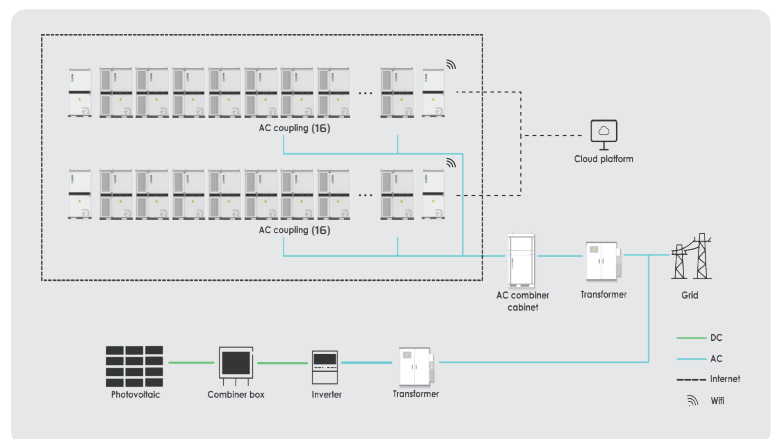
Flexible use such as grid storage battery and VPP is possible.

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-MPack Specification

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
C-rate and D-rate	0.8C
Nominal AC Voltage (Vac)	690, 3W+PE
Range AC Voltage (Vac)	586.5~759
Nominal AC Power (kW)	200
Max. AC Power (kW)	220
Max. AC Current (A)	184.1
Nominal Frequency (Hz)	50/60
Factor Range	-1~ +1
Max System Efficiency	99%
Switching Time (ms)	<100
Cycle Life	>8000 Cycles
Communication Interface	Ethernet
Enclosure	IP65
Noise level	< 80dB(A)
DOD	90%
THDi	<1.5%
Altitude	2000m / 6561ft
Thermal Management (PCS)	Air Cooling
Thermal Management (Battery)	Liquid Cooling

General Parameters

Operating Temperature	-20°C~50°C
Operating Humidity (RH)	0~100% (non-condensing)
Certifications	UL9540, UL9540A, UL1973, UL1741+SA, IEEE1547, UN 38.3
Warranty[1]	3 years free, paid from the 4th to the 15th year

[1] Please refer to the warranty letter for details

Matrix-Controller Specification

Nominal AC Voltage (Vac)	690
Rated Power (kW)	2976
Rated Current (A)	2490
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
Transformer Vector	Dy11
Transformer Cooling Type	ONAN (Oil Natural Air Natural)
Oil Type	Mineral oil (PCB free) or degradable oil on request
Communication Interface	Ethernet, Wifi, 4G
Certifications	UL9540, UL9540A, UL1973, UL1741+SA, IEEE1547
Enclosure	IP65
Noise Level	<50db(A)
Altitude	2000m / 6561ft

D-AESS Standard Array

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

D-AESS Distributed Matrix

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