WE MAKE GREEN ENERGY STRONG

STRONG Energy

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Oasis Matrix
Oasis Nova

Oasis Conflux

STRONG Energy
Commercial & Industrial Energy Storage Solutions
Product Brochure

ABOUT
STRONG Energy

Strong Energy, as part of the Strong Group, has deep roots in the European market since 1986, serving more than 20 million European families. Based on the advantages and experience of the parent company Skyworth in the field of new energies and its service team localized in Europe, Strong Energy started to introduce inverters, energy storage batteries and system solutions in Europe from mid-2023, following the trend of clean energy development to make a positive contribution to global environmental protection. Strong Energy's parent company Skyworth is already world-renowned as a consumer electronics company for its smart tvs, digital set-top boxes and other products.

The company has more than 40,000 employees worldwide, 20 national high-tech companies and two publicly traded companies. With its powerful intelligent manufacturing and its system integration and supply chain management capabilities, the company entered the household photovoltaic market in 2020.

Why STRONG Energy?

We Make Green Energy Strong

Service

We give our customers confidence and security based on our high-quality requirements. Our local Germany team offers 360° premium quality in pre-sales and after-sales support.

Experience

As part of the Strong Group, we have been deeply rooted in the European market since 1986, supporting more than 20 million European families. We are a fast-growing group with more than 5 GW of experience in photovoltaic construction from our parent company Skyworth.

Strong Capacity

Our production capacity allows us to manufacture over 20,000 photovoltaic systems in a single month.

Single Source

We offer our customers, tailor-made clean energy solutions and comprehensive services from a single source.

*Pictures may differ from real products

What is Commercial & Industrial Energy Storage?

Commercial & Industrial Energy Storage System is a modern energy storage technology that provides a reliable and efficient energy backup and supply system for the commercial and industrial areas. Commercial and Industrial Energy Storage Systems utilize various types of energy storage technologies to convert surplus electricity into stored energy and release it when needed to meet the electricity demand of commercial and industrial users.

Application Scenarios & Values

Industrial Parks

Grid-connected Microgrid

1

Emergency Power Supply
Intelligent operation of the system, realized in combination with the EMS, is applicable for emergency power supply and green emergency.

Saving Electricity Costs
It is applicable for peak load shaving, resulting in saving electricity costs.

Energy Conservation and Emission Reduction
With the flexibility of load expansion, it reduces power demand, benefits in energy conservation and emission reduction, and saves investment.

Areas Lacking Electricity

Off-grid Microgrid

2

Frictionless Switching
Outdoor integrated battery energy storage cabinet, and millisecond-class switching when grid is off, realizing frictionless switching between mains and wind/photovoltaic energy storage system.

Energy Storage and Power Supply
It is suitable for remote islands and farms with no power deployment or unstable power. The energy storage system buffers excess energy generated from wind and photovoltaic, and supplies power to load when generation is insufficient.

Backup Power Supply
The system provides access to diesel/petrol generators and other standby power supplies.

Commercial Areas & Buildings

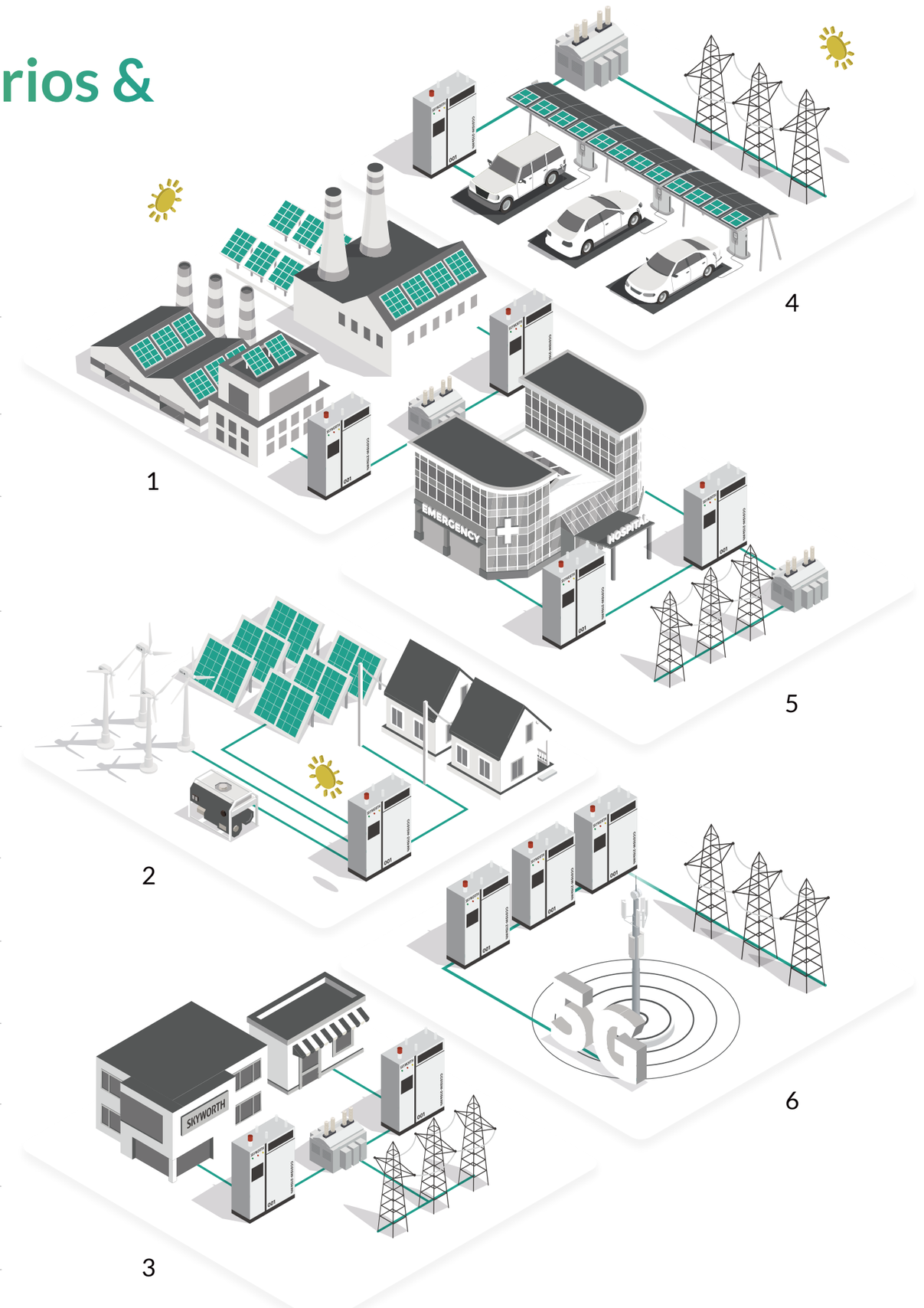
3

Patented Design
Patented safety design based on automotive-grade LFP batteries with high safety and reliability.

Green Buildings
Photovoltaic modules are directly connected to help develop green buildings.

Reducing Electricity Costs
Peak-valley operation mode effectively reduces electricity expenses.

Off-grid Operation
Off-grid mode keeps on powering the buildings and charging the vehicles when the grid is off.



Integrated Storage & Charging Power Stations

4

Integrated Design
Integrated design of photovoltaic and energy storage, available for photovoltaic access.

Priority Charging
Priority is given to charging vehicles by clean photovoltaic power.

Energy Shifting
Surplus photovoltaic power can be shifted to peak period of commercial electricity consumption to further reduce electricity costs.

Reducing Electricity Costs
Charging costs are reduced by electrical energy shifting and peak load shaving.

Transformer Less Capacity Expansion
To address high power demands without the need for transformer capacity expansion.

Hospitals

5

Save Energy and Reduce Emissions
Hospitals consume a significant amount of energy. Thus, the efficiency of energy management is crucial for the operational costs and sustainability of hospitals.

Grid Load Balancing
It can be achieved by storing energy and releasing it during peak demand periods, thereby reducing electricity peaks, avoiding overload occurrences, and enhancing grid stability.

Emergency Backup Power
Ensuring uninterrupted power supply to critical loads in hospitals and providing a solid power guarantee for smooth hospital operations.

5G Base Stations

6

Staggering Power Consumption
5G base station adopts intelligent staggering for power distribution and storage to solve the problem of power supply that has prevented the 5G base station construction from being implemented smoothly.

Stable Communication
The peak power of 5G base station is 3-4 times that of 4G base station. 5G base station + energy storage is designed to meet the growing number of 5G base stations and power demand, and to ensure the stable operation of base stations.

Oasis Product Overview

215kWh
Rated battery capacity

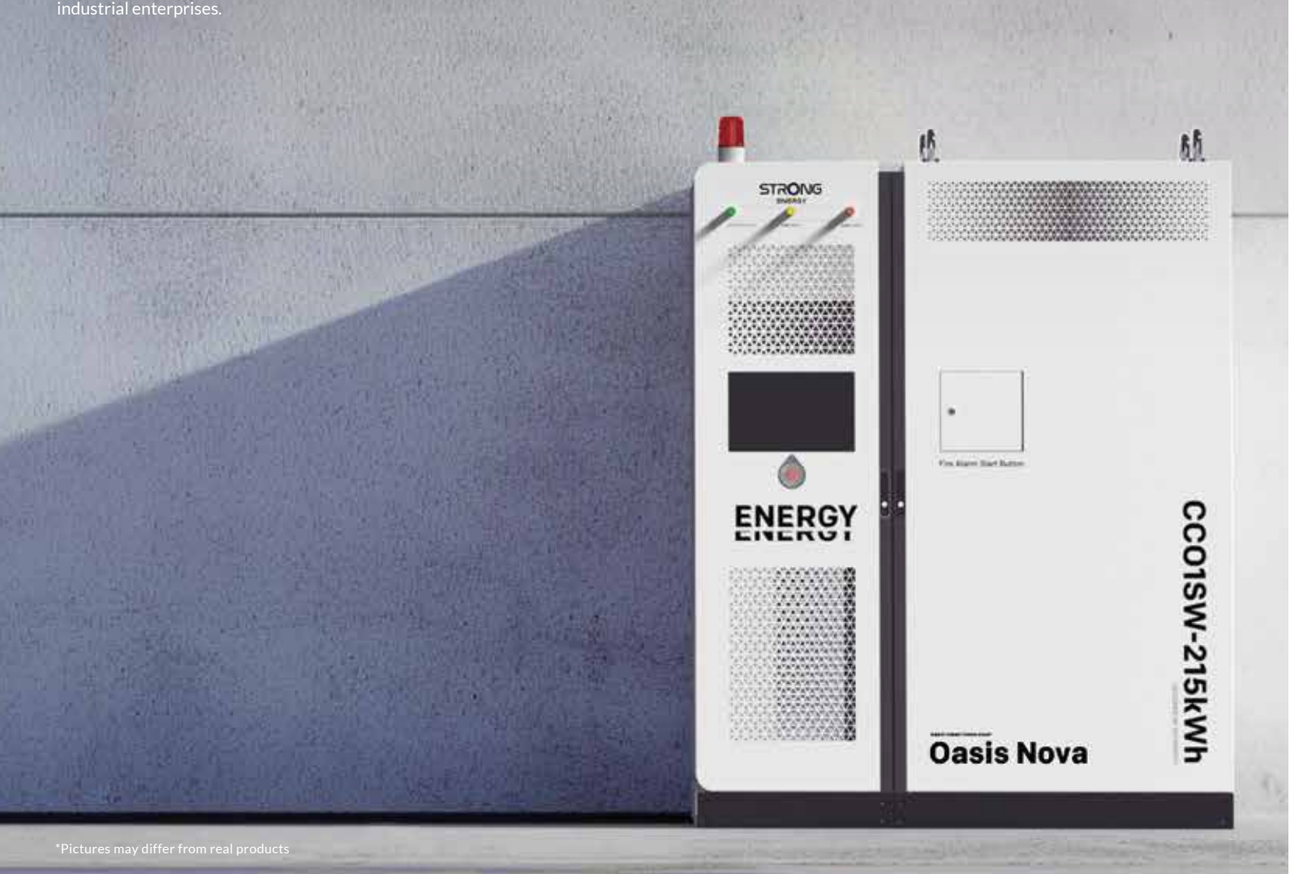
Oasis is an AC-coupling distributed energy storage system with a rated battery capacity of 215 kWh, and it can provide 100 kW grid-connected output power.

1P20S Modules
12 units of 1P20S modules & liquid cooling scheme

The high consistency and reliability of batteries are ensured, and the safety and return on investment are improved by extending the service life of the system. At the same time, modular design is adopted to achieve simple installation, flexible distribution and convenient maintenance.

1MW/2.15MWh
System solutions

With the ability of parallel scalability, it contributes system solutions up to 1000kW/2.15MWh to commercial and industrial enterprises.



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Core Components & Features

LFP Cell

Safety Function	No fire or explosion against most strict safety tests. LFP has high thermal stability, low heating speed and less heat generation with no oxygen release under overcharge and over-discharge conditions.
Long Service Life	280Ah LFP cell adopted for mature safety and reliability with long service life.
High Heat Resistance	LFP has high heat resistance and no oxygen release.
Low Electro-chemical Risk	The long-term electrochemical risk is minimized with the top-level technology of electrode plate winding process.

PCS
Power Conversion System

Flexible Application	Compatible for both 3-phase 3-wire system and 3-phase 4-wire system. Customized communication bus monitors all module data. Reactive power and three-phase imbalance compensations are supported.
Excellent Conversion Efficiency	High efficient IGBT, low internal resistance filter, low heat generation, module sleep control.
Safe & Reliable	Comprehensive fault protection functions, low battery circular current, multi-parallel automatic current sharing.
Battery Friendly	Different battery clusters can work independently, with low battery parallel circular current, higher battery utilization rate and longer service life.
Easy Maintenance	When the battery or PCS module fails, the faulty branch does not affect the operation and fast maintenance of other branches.

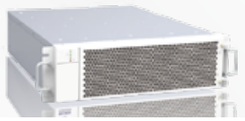
EMS
Energy Management System

Three-level Energy Management System Architecture	Each cabin is equipped with a local monitoring system. The combiner box is equipped with a station-level monitoring system, and the cloud hosts the backend monitoring system, with unique topology and edge alarm function.

BMS
Battery Management System

Real-time Monitoring	Real-time monitoring of voltage and temperature of cells, total voltage and current of system, ambient temperature, fire protection state, air conditioning state, and insulation state.
Real-time Computation	In real time, the SOC, SOH and DCIR of cells are calculated, and the SOC, SOH, SOP and SOF of the system are calculated.
Remote Monitoring	The modules send data and alarm information through CAN communica-tion interface in real time for remote monitoring of the battery packs.
Battery Equalization	Passive equalization extends the battery life.

MPPT
Solar Energy Controller



Independent Multiple Branches	Multi-branch photovoltaic input function gives independence to each branch as not to be affected by light, dust, damage, etc.

6 Core Advantages of Oasis

Oasis can be flexibly deployed in various commercial and industrial scenarios to help save electricity costs and improving power quality through Peak-value Arbitrage, Demand Response, Capacity Management, and Dynamic Scaling.

I Integrated
Integrated Design

E Economic
Low Operation Costs

S Safe
Intelligent Fire Suppresion System

L Long Life Span
Long Life Span

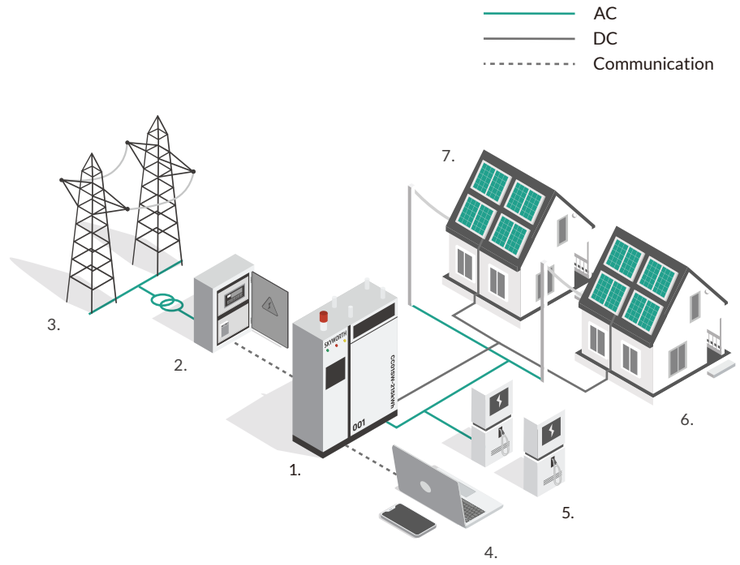
R Reliable
Multi-layer Safety Design

W Wide
Wide Application Scenarios

Integrated
Integrated Design

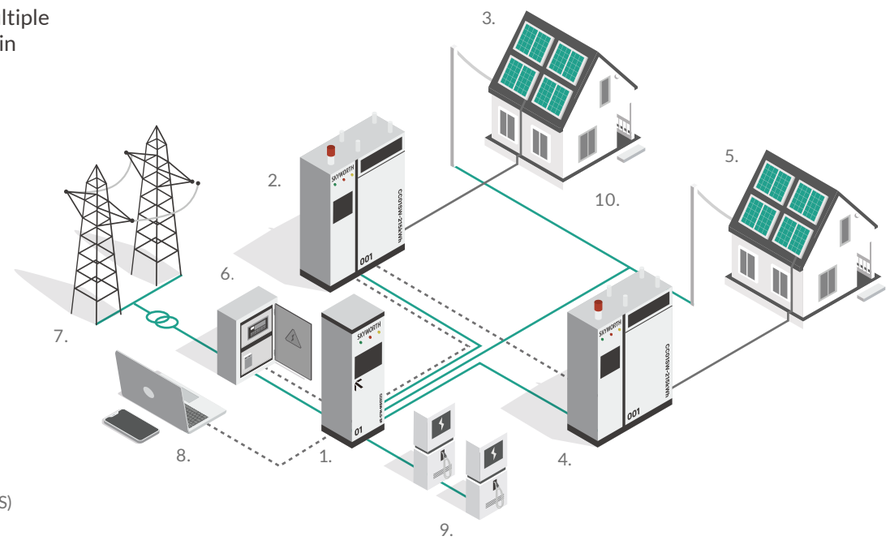
Integrated Design Flexible Scalability Supports Multiple Parallel Connections

The typical system topology is suitable for 100kW/215kWh demand scenarios with a single Oasis ESS unit.



1. Oasis ESS
2. Smart Electricity Meter
3. Grid
4. Energy Management System (EMS)
5. EV Charger
6. General Load
7. PV Panel Arrays

The typical system topology is suitable for scenarios with demands ranging from 200kW/430kWh up to 1000kW/2150kWh, where multiple Oasis ESS units are connected in parallel via an AC combiner.



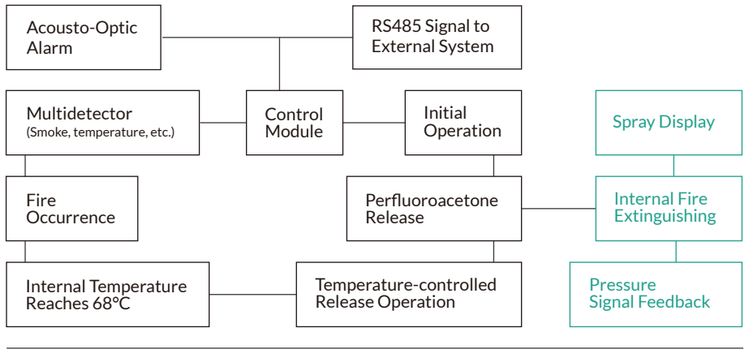
1. AC-Combiner Conflux
2. Oasis ESS #1
3. PV Panel Array#1
4. Oasis ESS #N (2≤N≤6)
5. PV Panel Array#2
6. Smart Meter
7. Grid
8. Energy Management System (EMS)
9. EV Charger
10. General Load

Intelligent Fire Suppression System Guarding Safety at All Time

S Safe
Intelligent Fire Suppresion System

Active Fire Extinguishing System

The battery pack and the battery cabinet are equipped with a fire extinguishing system respectively. In case of a fire, the active fire extinguishing system automatically triggers to extinguish the fire.



Perfluoroacetone Fire Extinguisher
YF0.13-Q-Y-01

PACK LEVEL

Protected Space	Spraying Time	Startup Mode	Working Environment
≤ 0.2m³	≤ 3s	Hot Start	-40°C - 70°C

Dimession (W) x (D) x (H)	Weight	Validity Period
150 x 96 x 16 mm	≤1 kg	10 years

Initial Temperature	Weight of Extinguishing Agent
190 ± 15°C	160 g

Perfluoroacetone Fire Extinguisher
YF0.5-Q-F-HS

CLUSTER LEVEL

Protected Space	Spraying Time	Startup Mode	Working Environment
1m³	≤ 10s	Hot start/ Electrical start	-10°C - 50°C

Dimession (W) x (H)	Weight	Validity Period
60 x 397 mm	≤ 2kg	10 years

Multiple Safety Design Reduce Failures Stable and Reliable

R Reliable
Reliable Design

Separate Battery Cabinet

The battery cabinet is designed on the right side while the electrical cabinet on the left side separately, so that fire can be blocked even if in case the one side catches fire, thus obtaining more fire extinguishing time.

Explosion-proof Design

The product is designed with an explosion relief window, pressure relief valve and explosion-proof fan, so that no explosion risk will be caused in emergencies.

Water-fire Protection (Optional)

Water-fire protection module is designed at the bottom of the cabinet, and the interface is compatible with standard fire hoses. In case of emergencies such as combustion, the temperature can be quickly reduced by water immersion to extinguish fire .

EMS Three-layer Energy Management System Structure

Three-layer Energy Management System Structure with slave control and master control with multi-protection system design, including cluster-level and pack-level dual fire extinguishing system, ensuring stability and reliability.

10+ Years Service Life

The customized liquid cooling system with optimized coolant formula, ensures 10+ years Service Life.

Easy Installation
Low Operation Costs

E Economic
Low Operation Costs

All in one
Less interfaces and channels to connect

The product is an all-in-one design including PCS, MPPT, UPS, STS, FSS, etc. with minimum interfaces and channels reserved for installation, which reduces EPC effort and cost.

DOD 90%
The system provides up to 90% DOD

DOD 90% enhances the LCOS performance for better ROI.

12
Small battery pack design schemes

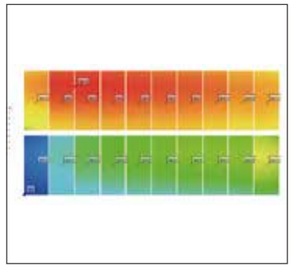
Each cabinet adopts 12 small battery packs, which allows easy maintanance with load cost maintained even in areas with poor operating conditions.

Intelligent
Liquid Cooling System
Ultra-long Service Life

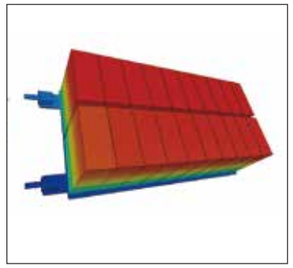
L Long Life Span
Long Life Span

Intelligent
Liquid Cooling System

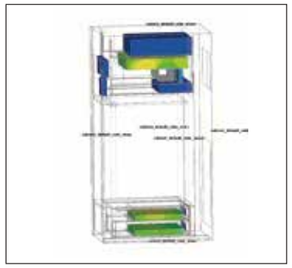
The cell temperature difference in pack is controlled to below 2 degrees, and 3 degrees in the system, which significantly improves the safety and life of the battery system.



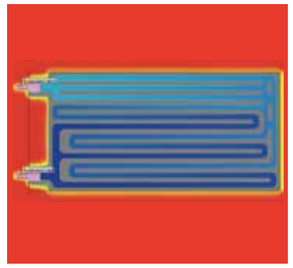
Cell surface
Δt = 1.1℃



Highest temperature point
with 29.1℃



Thermal simulation analysis
of the whole pack



Liquid inflow and outflow
Δt = 1.6℃

SGCC
SGCC Materials

The sheet metal of the outer box is made of SGCC galvanized steel sheet material, and the spraying process meets the requirements for C3 protection level. Higher standards can be customized to meet the long-life requirements for different environments.

Versatile Applications
Strong Adaptability

W Wide
Wide Application Scenarios

Wide Range
Wide Application From Seaside to Plateau

Wide Temperature
-30℃ - 55℃

(All parts can meet the wide temperature requirements)

Energy Storage System O&M Platform

which can remotely monitor the operation of the platform.

Cloud Platform Management System

which supports remote/local monitoring and intelligent cloud-based operation and maintenance with no need for on-site maintenance by expert.

Easier & Less Time-consuming Operation and Maintenance

- OMS edge computing
- Proactive alarm system
- Proactive reminders before maintenance
- Intelligent equalization strategy to ensure consistency throughout battery lifecycles
- Prefabrication by the factory as well as complete-machine delivery and transportation make it convenient for installation and maintenance, thereby reducing transportation

System Description

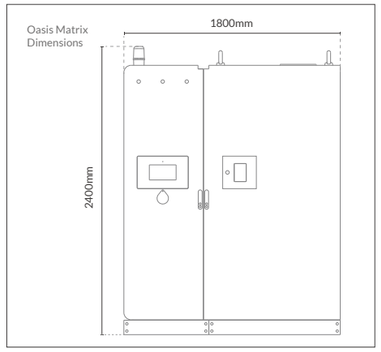
CC01SW-215kWh Datasheet

Oasis Matrix

Liquid-cooled Energy Storage
All-in-one Cabinet with MPPT

An integrated system with high energy density consists of:

- PV-Input (MPPT)
- Power Conversion System (PCS)
- Battery Cluster Unit (BCU)
- Battery Management System (BMS)
- Energy Management System (EMS)
- Fire Suppression System (FSS)
- HVAC Thermal Management System
- Low-voltage Distribution System



Power Conversion System — PCS

Current Distortion Rate	< 3%
Rated Power	100 kW
Rated Voltage	380V / 400Vac (-15% - 15%), 3P+N
Rated Grid Frequency	50Hz / 60Hz
DC Component	< 0.5%
Power Factor	0.8 (Leading) - 1 (Lagging)

Energy Storage System — ESS

Battery Configuration	LFP-3.2V-280Ah, 1P20S*12S
Nominal Capacity	215 kWh
Rated DC Voltage	768Vdc (684 - 876Vdc)
DC Protection	Circuit Breaker / Fuse / MSD

PV-Input — MPPT

Maximum Input/Output Power	60 kW (120 kW Optional)
Input Voltage Range	300 - 850Vdc
Number of MPPTs	6 (12 optional)
Maximum Input Current	200A (400A Optional)
High-low Voltage Start Function	Available
Operating Temperature Range	-30°C ~ 55°C
Protection Level	IP20
Maximum Efficiency	98.5%

System

*Additional combiner cabinet is required

Parallel Scalability	Up to 10 (1MW / 2.15MWh)*
Cooling Method	Intelligent Liquid Cooling
Protection Level	IP55 (IP67 for Battery Cabinet)
Warranty	10 Years (> 7000 cycles)
Dimension (W) x (D) x (H)	1800 x 1100 x 2400 mm
Weight	2850 kg
Battery Cycle Times	≥ 7000
Charge-discharge Rate	≤ 0.5C
Maximum System Efficiency	≥ 88%
Discharge Depth	90% DOD
Fire-fighting System	Cluster Level + PACK Level Perfluorinated Ketone Three-in-one Detection + Active Fire-fighting
Working Temperature	-30°C ~ 55°C
Relative Humidity	5% - 95%RH
Noise	< 70dB
Working Altitude	< 2,000m (Over 2,000m Deduction)

Maximum 10 cabinets can be connected as parallel expansion with an additional AC combiner cabinet, supporting the requirements from 100kW/215kWh up to 1MW/2.15MWh.

*Pictures may differ from real products

System Description

CC01SW-215kWh Datasheet

Oasis Nova

Liquid-cooled Energy Storage
All-in-one Cabinet

An integrated system with high energy density consists of:

- Power Conversion System (PCS)
- Battery Cluster Unit (BCU)
- Battery Management System (BMS)
- Energy Management System (EMS)
- Fire Suppression System (FSS)
- HVAC Thermal Management System
- Low-voltage Distribution System

Maximum 10 cabinets can be connected as parallel expansion with an additional AC combiner cabinet, supporting the requirements from 100kW/215kWh up to 1MW/2.15MWh.

Power Conversion System — PCS

Current Distortion Rate	< 3%
Rated Power	100 kW
Rated Voltage	380V / 400Vac (-15% - 15%), 3P+N
Rated Grid Frequency	50Hz / 60Hz
DC Component	< 0.5%
Power Factor	0.8 (Leading) - 1 (Lagging)

Energy Storage System — ESS

Battery Configuration	LFP-3.2V-280Ah, 1P20S*12S
Nominal Capacity	215 kWh
Rated DC Voltage	768Vdc (684 - 876Vdc)
DC Protection	Circuit Breaker / Fuse / MSD

System

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Dimension (W) x (D) x (H)	1800 x 1100 x 2400 mm
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Charge-discharge Rate	≤ 0.5C
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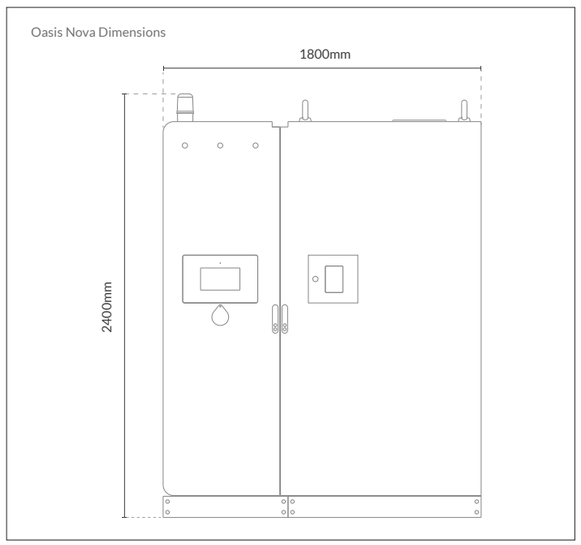

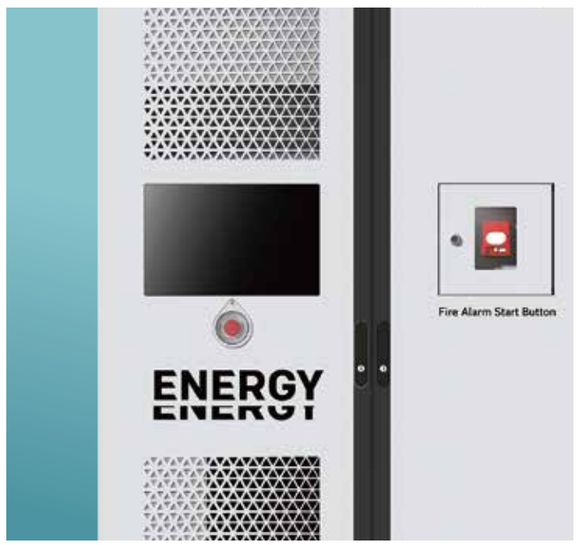

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System Description

CC02SW-HLG-3P Datasheet

Oasis Conflux

Combiner Cabinet

The battery collection panel of a multi-container energy storage system is composed of the following parts:

- Energy Management System (EMS)
- Flooding Protection System
- Collection of Energy from Multiple Matrix or Nova
- Low-voltage Distribution System

Uninterruptible Power Supply — UPS

Rated Capacity	1.0 kVA
Rated Voltage	220 Vac
Efficiency	91 %

Lightning Protection System — LPS

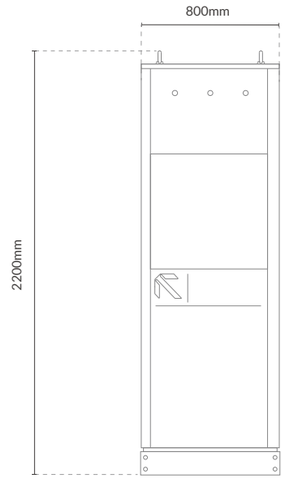
Lightning Protection	Class II
Protection Mode	3+1
Backup Protection Fuse	100 kA

System Parameters

Dimension (W) x (D) x (H)	800 x 700 x 2200mm
Rated Voltage	400Vac ± 15%
Rated Frequency	50 / 60HZ
Ingress Protection Grade	IP55
Weight	240 kg
Operating Temperature	-30°C ~ 55°C
Maximum Current	1600 A
Support Maximum Cabinet Number	10
Intelligent Bidirectional Electricity Meter	0.5S Level
Water Leakage Detection	Water Immersion Sensor

It supports parallel expansion of up to 10 Oasis 100kW/215kWh Energy Storage Cabinets from 100kW/215kWh up to 1MW/2.15MWh.

Oasis Conflux Dimensions



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Please note that products are subject to change, and errors may occur.