

# Cubox 2.0

New Generation Of Mobile Energy  
Storage Power Supply

TESS-500-838-LME



[www.tecloman.com](http://www.tecloman.com)  
Tal 31, 80331 Munich, Germany

Cubox 2.0, a new generation of mobile energy storage power supplies, helps operators significantly reduce fuel consumption and CO<sub>2</sub> emissions while providing high performance, low noise, and extremely low maintenance. Utilizing high-density lithium-ion batteries and a high-efficiency inverter system, it achieves efficient energy storage and output. Compared to traditional products, Cubox 2.0 is more compact and lightweight, and its standard container size facilitates transportation. They are ideal for noise-sensitive environments such as construction sites in large cities, telecommunications leasing applications, and working with generators to address low-load challenges.



#### Supporting multiple sets

Supporting multiple sets to be used in parallel, covering a power range of 500kW~2MW.



#### Compact structure

10-foot standard-size container ships offer zero wasted direct transport space.



#### Lightweight

Minimum 10T forklift or crane transportable ocean shipping containers.



#### Quiet and environmentally friendly

The noise level is less than 60dB, far lower than that of a diesel engine (76dB), and the power generation has zero emissions.



The DC side is upgraded to 1500V, and the energy density is increased by 30%



The power configuration has been upgraded, increasing by 66% compared to the previous generation



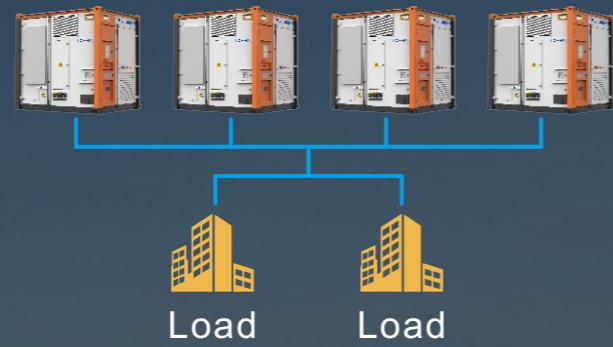
Air cooling has been upgraded to liquid cooling, which is more efficient in heat dissipation

## Features

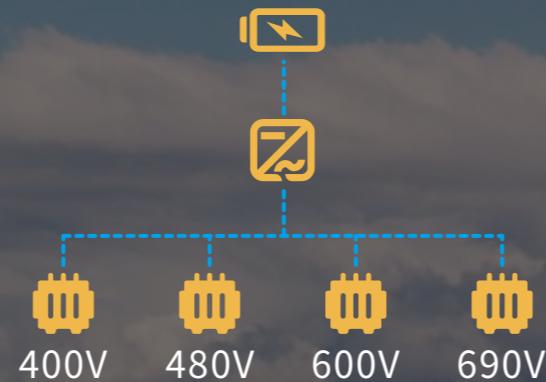
The system can be independently powered or connected to a diesel engine with synchronous functions to achieve an efficient hybrid power system.



The system has been upgraded to VSG technology, enabling multi-unit parallel and off-grid use without parallel lines, which can cover a wider range of power and capacity.



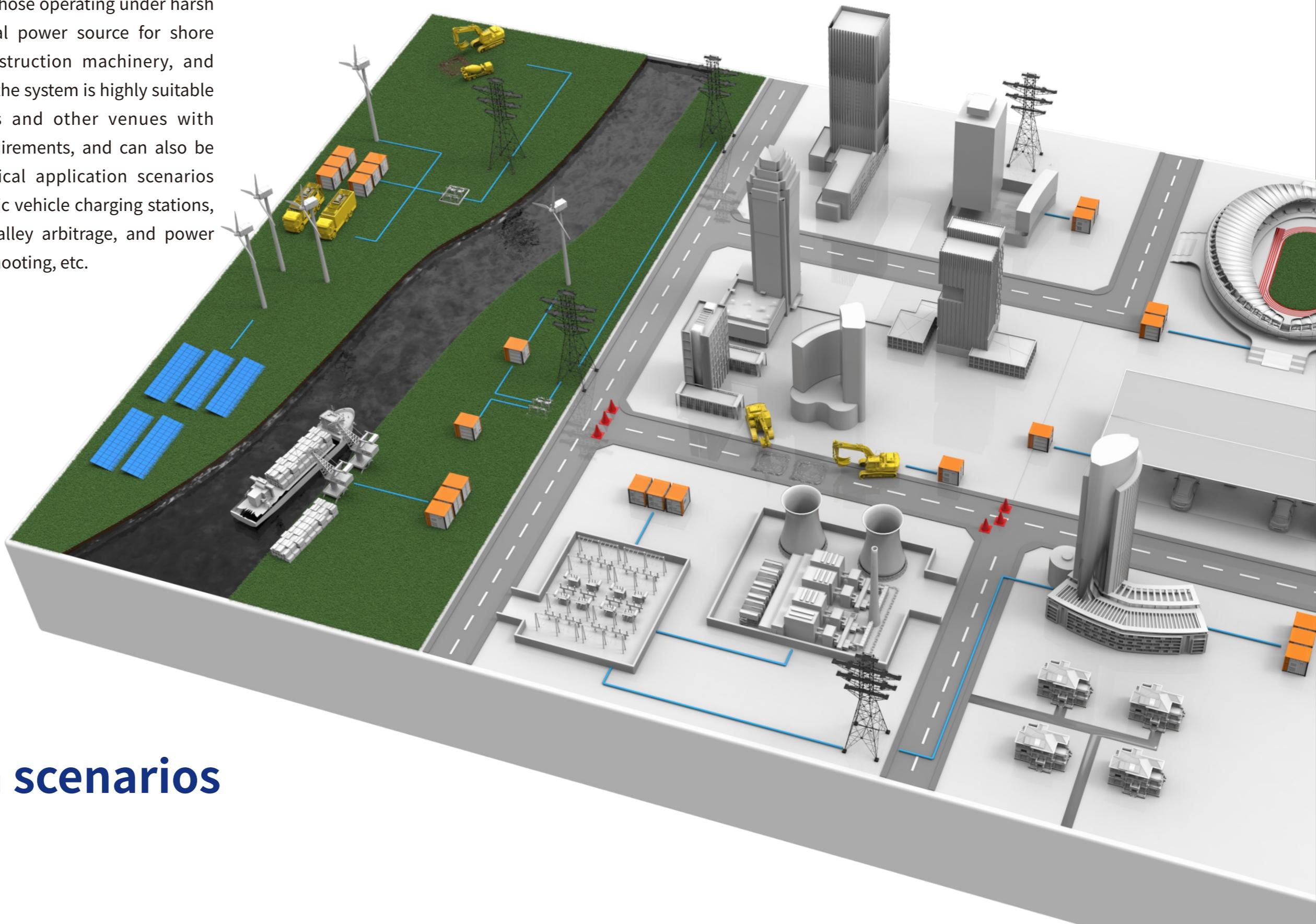
Adding an isolation transformer can flexibly match the output voltage and wiring system.



## Features



Cubox 2.0 is fully suitable for loads requiring continuous power supply and those operating under harsh conditions, making it an ideal power source for shore power at ports, electric construction machinery, and outdoor activities. Meanwhile, the system is highly suitable for noise-sensitive locations and other venues with environmental protection requirements, and can also be used in fixed scenarios. Typical application scenarios include peak shaving for electric vehicle charging stations, factory backup power, peak-valley arbitrage, and power supply for film and television shooting, etc.



## Application scenarios

# Generator Cooperative Mode

## (Hybrid Mode)

Adding a Cubox 2.0 system to a diesel generator system can reduce the diesel engine's start-up time, improve power generation efficiency, provide quiet power during rest periods, and save fuel consumption.

### Hybrid system

We offer a wide range of output interfaces, allowing for quick connection to generators and loads. Parallel connection of Cubox 2.0es provides flexible options for increasing power and capacity.

### Multifunction

The Cubox 2.0 energy storage system enables multi-functional intelligent load management. It helps generators reach peak power, optimizes their performance, extends their lifespan by 15%, and reduces routine maintenance and overhauls by 50%. This translates to a 40% reduction in generator usage. Cubox 2.0 is also ideal for managing low-load conditions.

### Environmental friendly

In hybrid mode, users can reduce fuel consumption by 80% per day and reduce carbon dioxide emissions by more than 260 tons over its lifespan.

# Work mode

### Environmental benefit:

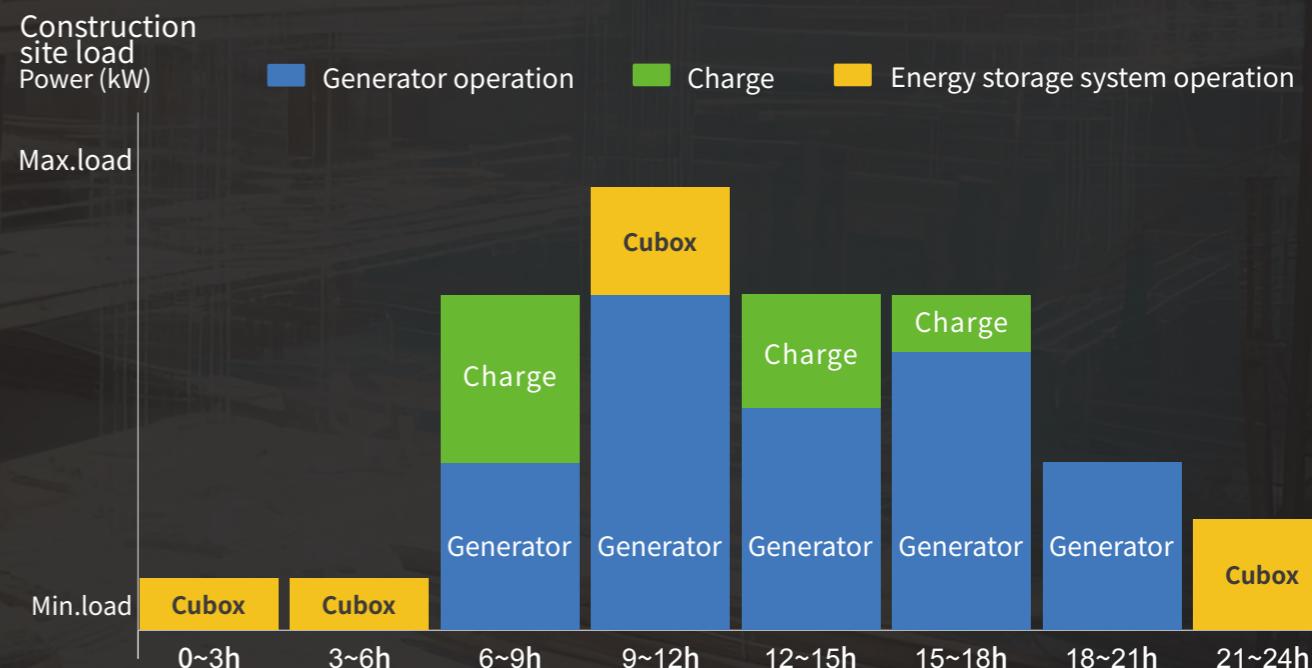
\*Each unit over its lifespan, in hybrid mode, can generate environmental benefits equivalent to

 260 tons of CO<sub>2</sub>

 1170 trees

 91 cars

 130 m<sup>3</sup> waste



Typical application models at construction sites

# Island Mode

It independently powers loads using electricity stored in its own batteries. Islanding mode allows the energy storage system to be used as a standalone power solution. It is ideal for meeting the needs of zero-noise environments (such as nighttime operation, remote telecommunications applications) or solving low-load challenges.

The compact design facilitates vehicle transport, enabling the physical transfer of electricity. It can replace or reduce the number of diesel engines. Charging from the grid during off-peak hours can significantly reduce electricity costs.

# Work mode

## Supporting multiple sets

Upgraded with VSG (Virtual Synchronous Generator) technology, it enables parallel output operation on the AC side in island mode, improving equipment utilization. The reliability of multi-unit parallel connection is enhanced, ensuring uninterrupted power supply even if a single unit fails. Featuring a wireless parallel connection design, it is simple and reliable, with a modular structure that facilitates transportation.

## Fast charging

In island mode, the device needs to complete charging as quickly as possible to reduce load interruptions and power outages. Cubox 2.0 is compatible with multiple power input methods and can be fully charged in less than 3 hours.

## Quiet and environmentally friendly

Cubox 2.0 operates very quietly, achieving ultra-low noise emissions and thus improving working conditions. They are the perfect choice for noise-sensitive applications such as commercial activities and urban construction sites, increasing working hours by more than 50%.

## High-energy density

Large capacity lithium-ion batteries enable us to achieve higher power density in a compact space, making products easier to transport and 50% lighter than other battery technologies.

## Cleaning technology

When used in islanded mode, CO<sub>2</sub> savings can reach 100% if the unit is charged with renewable energy. You can expand your energy solutions through the smart microgrid control system to meet your clean energy needs.

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## Microgrid mode

The Cubox 2.0 system can be directly embedded in microgrid systems to improve the power generation efficiency and power output stability of photovoltaic and wind power generation, and solve the problem of nighttime power generation in off-grid photovoltaic systems.

In microgrid systems, Cubox 2.0 can proactively and automatically adjust power based on load and power supply size. This balances system power and increases power supply capacity. Typical applications include: electric vehicle charging stations with rooftop solar panels; and islands, reefs, and construction sites with solar and wind power generation capabilities.



## Work mode

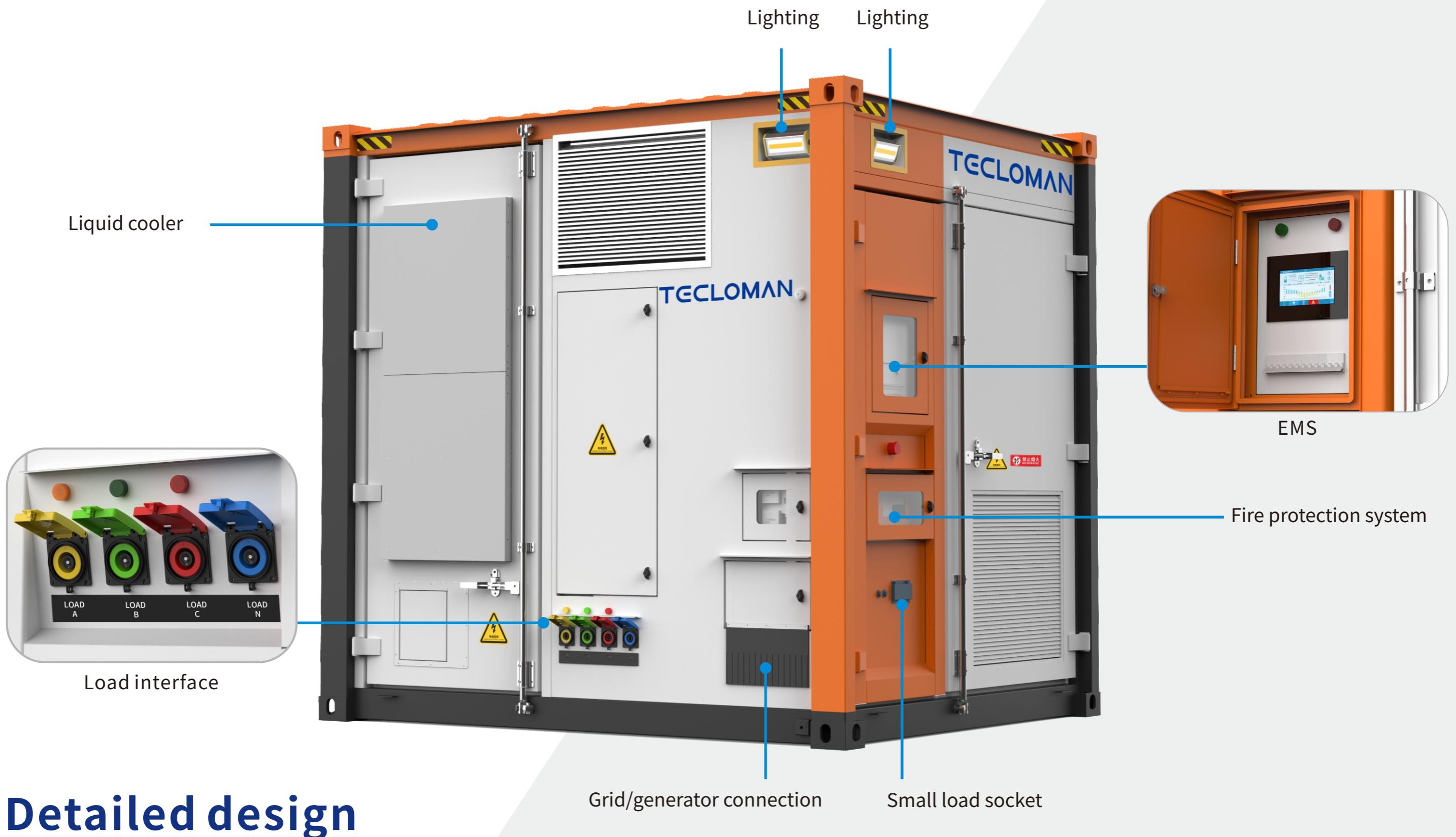
# Grid connection mode

The Cubox 2.0 system can be directly connected to the power grid, charging from the grid or feeding power to the grid. It can be used for load regulation, distribution transformer capacity expansion, peak-valley arbitrage, and other scenarios.

Its mobility makes it very suitable for seasonal and sudden distribution transformer capacity expansion needs.

# Work mode





Cubox 2.0 products utilize industrial touchscreen for centralized control, offering simple operation and cloud data support for remote equipment status monitoring.

The system is equipped with a rich array of interfaces, facilitating connection to various on-site loads and allowing for expansion with charging piles and site lighting.

## Cloud platform system





## Product specifications

Model	TESS-500-838-LME
AC (grid connection)	
Single unit rated power	500kW
Rated charging power of a single unit	419kW
Rated discharge power of a single unit	500kW
Rated voltage	400 / 480 / 600 / 690V AC
Rated current	721 / 601 / 481 / 418A
AC system	3L / N / PE or 3L / PE
Voltage range	-15% ~ +10%
Rated frequency	50 / 60Hz
THDI	<3%(at rated power)
Power factor range	1(Leading) ~ 1(Lagging)
Overload capacity	110% overload (10 min), 120% overload (1 min)
AC (Offline)	
Rated power	500kW
Peak power of single unit discharge	600kW(60s)
Parallel rated discharge power	450kW
Peak power of parallel discharge	540kW(60s)
Rated voltage	400 / 480 / 600 / 690V AC
Rated current	721 / 601 / 481 / 418A
Rated frequency	50 / 60Hz
THDU	<3% (linear load)
DC (battery)	
Cell type	LFP 3.2V / 315Ah
Cell life	6000 times in 10 years
Grouping	416S2P
Charge/discharge rate	≤0.5P
Peak Discharge Rate	0.7P
Battery rated voltage	1331.2V
Battery voltage range	1164.8V ~ 1497.6V DC
Basic parameters	
Noise	<75dB
Protection level	IP54
Corrosion resistance level	C3
Operating temperature	-20 ~ 55°C
Fire extinguishing	Aerosol / Perfluorohexanone
Cooling method	Module liquid cooling + PCS air cooling
Relative humidity	0 ~ 95%,non-condensing
Highest altitude	<2000m (reduction in amount if exceeding 2000m)
Dimensions (W×D×H)	2991×2438×2896mm
Weight	≤11000kg
Certification	Battery:IEC61000-6-2/4, IEC62477-1, IEC62619, UL1973, UL9540A, UN38.3 PCS:IEC62477-1:2022, IEC 61000-6-2:2016, EN IEC 61000-6-2:2019, IEC 61000-6-4:2018, ENIEC 61000-6-4:2019, EN 50549-1:2019+A1:2023, EN 50549-2:2019+A1:2023
Communication	
Display	Touch screen
Communication interface	1RS485 + 1LAN + 1 Dry Contact
Communication Protocol	Modbus TCP/RTU