

# SpaceOne EnergyPower Rack

All-in-one off-grid energy storage system



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All-in-one off-grid energy storage system

- 10kW, 20kW
- DC-AC Inverter
- AC-DC Battery Charger
- Solar MPPT Battery Charger
- 19-inch Rack Type
- Automatic Transfer Switch (ATS)
- Static Battery

**35 YEARS**  
OF ENSURING A SAFER AND  
CONNECTED WORLD



# SpaceOne EnergyPower Rack

Electricity supply to remote villages



AC Output



Unmanned Lighthouse



**RAMCAR**  
Batteries, Inc.



Battery

Power source



Solar Module



Diesel Generator

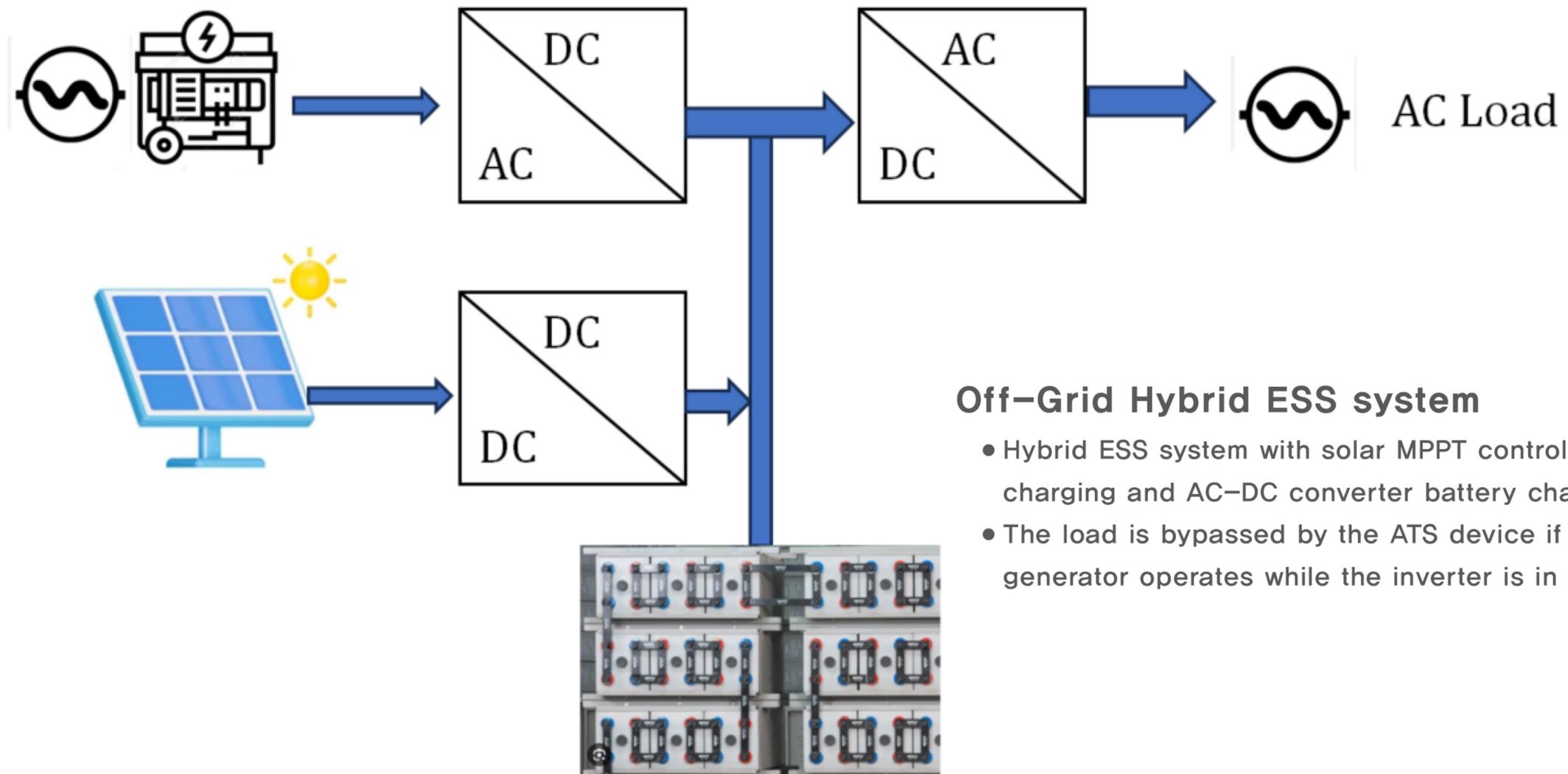
 **SpaceOne**

Founding year: 1990

Web : <http://spaceone.kr/>

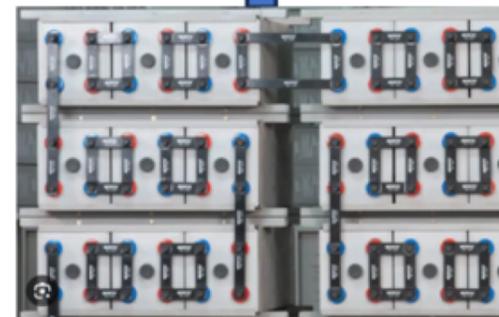
e-mail : 1990sp@daum.net

# SpaceOne EnergyPower Rack Block Diagram



## Off-Grid Hybrid ESS system

- Hybrid ESS system with solar MPPT control battery charging and AC-DC converter battery charging.
- The load is bypassed by the ATS device if the generator operates while the inverter is in use.



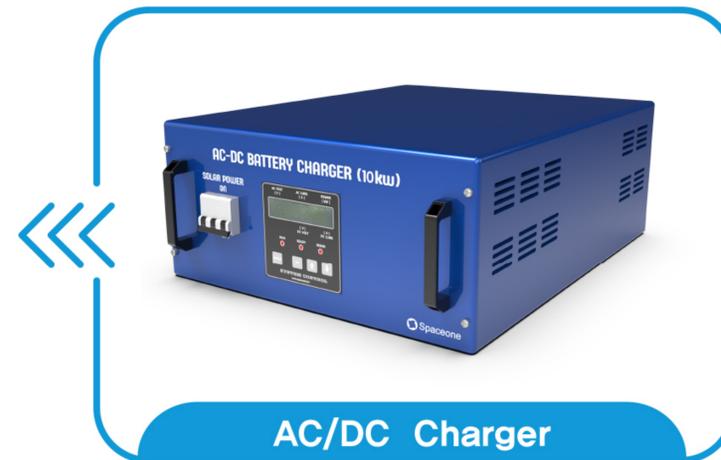
**Battery Bank**

Option : 48V / 72V / 110V / 240V

# 19-inch Rack-Mount

## — Batteries and Inverter housed in a Standardized Rack

- The stacks of Battery and Inverter are built to the standard 19-inch rack, so anyone can easily assemble it anywhere.



## — Standard 19-inch Rack Specification

- Width: 600mm
- Depth: 750mm
- Height: 1600mm

# Battery Bank



Battery Volt.	Item	Charging Power
48V	Inverter	5~7kW
	AC-DC Charger	5~10kW
	MPPT Charger	Up to 10kW
72V	Inverter	Up to 10kW
	AC-DC Charger	Up to 10kW
	MPPT Charger	Up to 10kW
110V	Inverter	Up to 20kW
	AC-DC Charger	Up to 20kW
	MPPT Charger	Up to 20kW
240V	Inverter	Full range
	AC-DC Charger	Full range
	MPPT Charger	Full range

## — Battery Rack

- Users can use these Racks with 4, 6, and 9 batteries to match 48V, 72V, 110V and 240V respectively.

# System Specifications



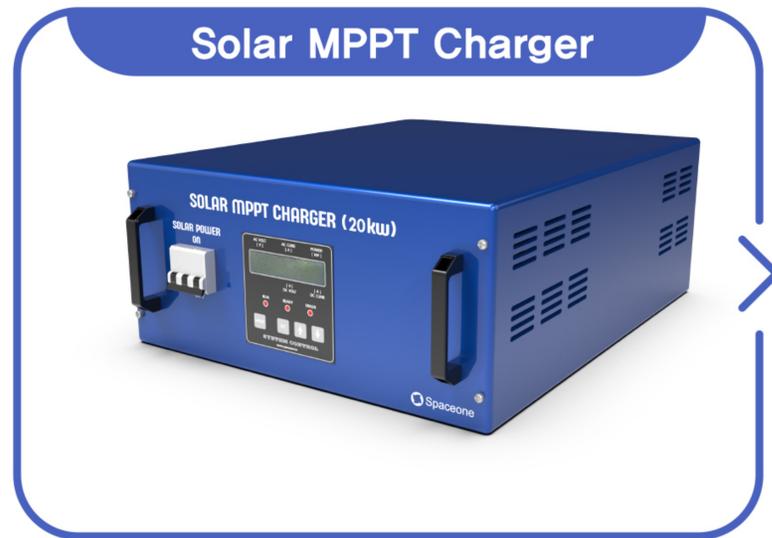
Categories	Specifications	Key Features
<ul style="list-style-type: none"> <li>● DC Input Volt(Battery)</li> <li>● AC Output Volt/Frequency</li>   <li>● Output Power</li> <li>● Protection Circuit</li>   <li>● Humidity</li> <li>● Temperature</li> <li>● Communication</li> <li>● Weight</li> </ul>	<ul style="list-style-type: none"> <li>● DC 48V/72V/120V ±20%</li> <li>● AC 220V 1P/380V 3P 50/60Hz</li>   <li>● 10kW/20kW/30kW</li> <li>● Input Overvoltage</li> <li style="padding-left: 20px;">Input Undervoltage</li> <li style="padding-left: 20px;">Output Overvoltage</li> <li style="padding-left: 20px;">Overcurrent</li> <li style="padding-left: 20px;">Overtemperature</li>   <li>● 95%Min</li> <li>● -20℃ ~ 40℃</li> <li>● RS485</li> <li>● 30Kg</li> </ul>	<ul style="list-style-type: none"> <li>● Versatile Energy Integration : This hybrid inverter offers a pure sine wave AC output of 220V, 380V meeting the CE, KS standard for safety and performance.</li>   <li>● Efficient Power Management :Leverage intelligent power management features that allow you to prioritize how and when energy is stored or used. Whether maximizing solar energy use, ensuring battery longevity with BMS communication, this inverter offers flexibility to meet your energy needs while optimizing cost savings and efficiency.</li> </ul>

# System Specifications



Categories	Specifications	Key Features
<ul style="list-style-type: none"> <li>• AC Input Volt</li> <li>• DC Output Volt</li> <li>• Charger Volt</li> <li>• Protection Circuit</li> </ul>	<ul style="list-style-type: none"> <li>• AC 220V 1P/380V 3P 50/60Hz</li> <li>• 48V, 72V, 120V, 240V</li> <li>• Battery Rated Voltage 115% (Setting)</li> <li>• Input Overvoltage Input Undervoltage Output Overvoltage Overcurrent Overtemperature</li> </ul>	<ul style="list-style-type: none"> <li>• Customizable Charging and Load Priorities</li> <li>• The right amount of charge: variable absorption time : When only shallow discharges occur the absorption time is kept short in order to prevent overcharging of the battery. After a deep discharge the absorption time is automatically increased to make sure that the battery is completely recharged.</li> <li>• Cooling System : Passive cooling(Heatsinks) or active cooling (fans) to manage heat dissipation.</li> </ul>
<ul style="list-style-type: none"> <li>• Cooling Mechanism</li> <li>• Efficiency</li> <li>• Weight</li> </ul>	<ul style="list-style-type: none"> <li>• Heat Sink, Fans</li> <li>• &gt;92%</li> <li>• 30Kg</li> </ul>	

# System Specifications



Categories	Specifications	Key Features
<ul style="list-style-type: none"> <li>• Solar Volt</li>   <li>• Charger Volt</li>   <li>• Maximum Current</li> <li>• Control Method</li>   <li>• Protection Circuit</li>   <li>• Efficiency</li> <li>• Weight</li> </ul>	<ul style="list-style-type: none"> <li>• 150V~60V: Battery Volt: 48V</li> <li>• 200V~80V: Battery Volt: 72V</li> <li>• 250V~120V: Battery Volt: 110V</li>   <li>• Battery Rated Voltage 115% (Setting)</li>   <li>• Rated Current x 120%</li> <li>• Constant Voltage (CV)</li> <li>• Constant Current (CC)</li> <li>• Input Overvoltage</li> <li>• Input Undervoltage</li> <li>• Output Overvoltage</li> <li>• Overcurrent</li> <li>• Overtemperature</li>   <li>• &gt;95%</li> <li>• 30Kg</li> </ul>	<ul style="list-style-type: none"> <li>• Auto-detect System Voltage : Automatically detects and adjust to the system voltage (48V, 72V, 110V, 240V etc.), simplifying installation and configuration.</li>   <li>• Data Logging and Analysis : This MPPT chargers can log performance data over time, allowing users to analyze system efficiency and make informed decisions about system maintenance or upgrades.</li> </ul>

# System Specifications

DC-AC Inverter



+

AC/DC Charger



+

Solar MPPT Charger

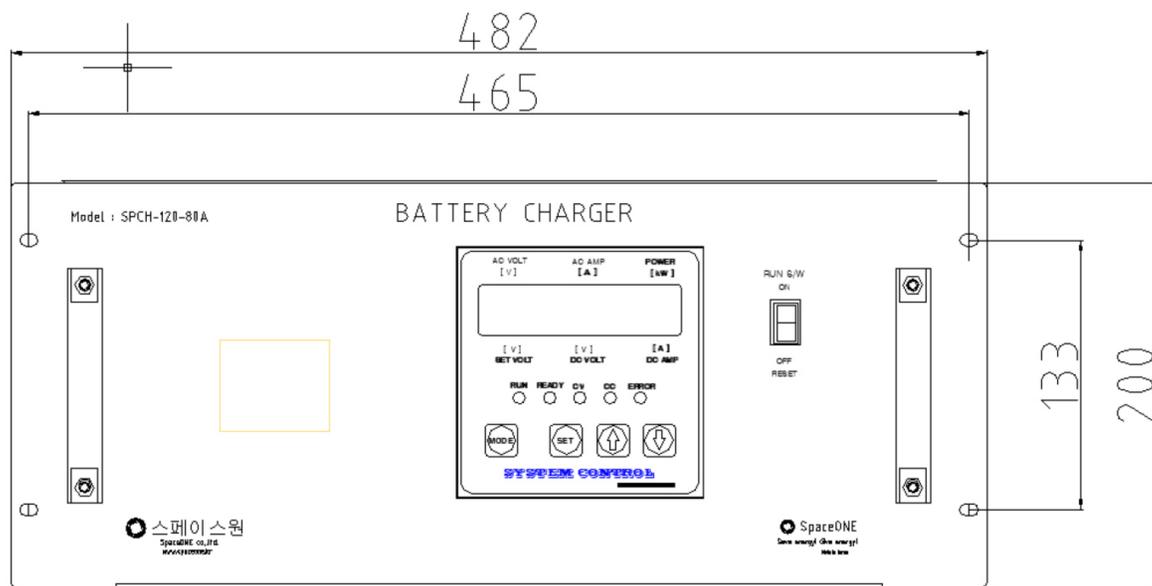


## Key Features

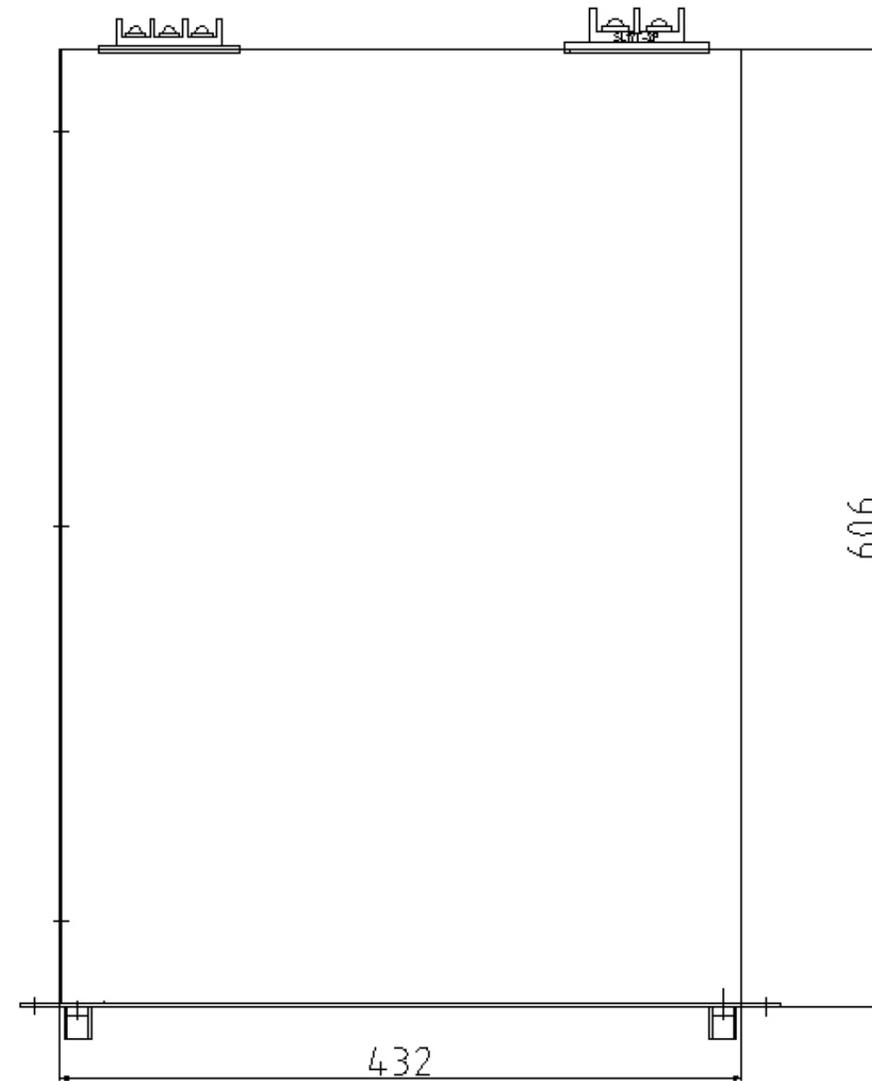
- 10kW, 20kW AC-DC power supply system
- Cooling via temperature controlled fans
- Manufactured for insertion into 19 " sub-rack
- Client specific mechanical & electrical design
- Mains ON push button on front plate
- Emergency OFF switch on front plate
- Output voltage & current adjustable via potentiometer on front plate
- Digital V- and A-meter for output voltage & current on front plate
- Additional connectors on back plate for mains distribution
- Operational under environmental temperatures of  $-20^{\circ}$  C to  $+40^{\circ}$  C

# Dimensions

## Front View



## Top View



# Diesel Generator



Categories	Specifications
<ul style="list-style-type: none"><li>• Generator Voltage</li><li>• Generator Power</li> <li>• Maximum Current</li><li>• Control Method</li> <li>• Protection Circuit</li></ul>	<ul style="list-style-type: none"><li>• 220V/380V</li><li>• 3P 10kW, 20kW, 30kW</li> <li>• Rated Current x 120%</li><li>• Constant Voltage (CV) Constant Current (CC)</li><li>• Input Overvoltage Input Undervoltage Output Overvoltage Overcurrent Overtemperature</li></ul>

# Benefits and Effectiveness

## Cost Reduction

- Low cost generator required to be held in reserve to be sold more power.
- Spinning reserves can be reduced due to the fast and accurate response.
- High efficiency battery charging - approx. 95%
- Can be retrofitted to 'some' existing solar installations

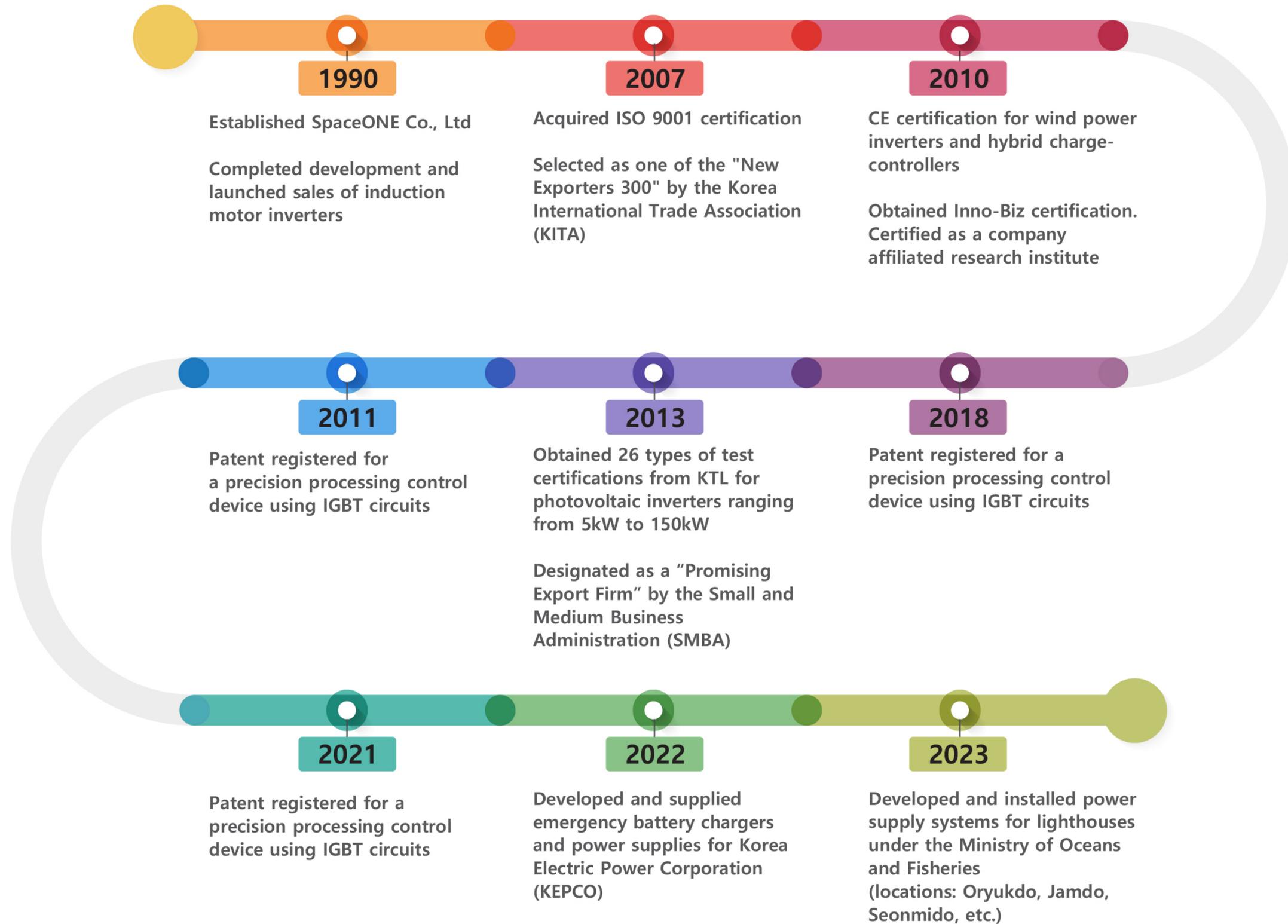
## Power Quality

- Increases efficiency and co-optimization of the resources.
- High efficiency battery charging - approx. 95%
- Enable to accept even more renewable generation to the system

## Improve Reliability

- Provide enormous flexible ramping capacity.
- Charge for off-peak time.
- Discharge for peak time.

# Company History



# Reference

## Energy independence book (Charger, Inverter)

- 65kW, Yokjido Gukdo(Island), Tongyeong-si, South Korea in 2020
- 25kW, Oryukdo (Island) Lighthouse, Busan, South Korea in 2022
- Electric Charger, Jamdo Village, Jinhae-si, South Korea in 2023
- 20kW: Deokjeokdo (Island) Lighthouse, Incheon, South Korea in 2023

## Korea Electric Power Corporation

- DC POWER 120V 120A charger power - 100 units in 2022-2023

## Department of Defense Power Supply ( 5ton Truck )

- Off-Grid power supplies: 25kW 20 units in 2022

## For communication power supply to offshore wind power devices

- DC power supplies: 50A 5 units in 2023



Oryukdo (Island) Lighthouse



5ton truck

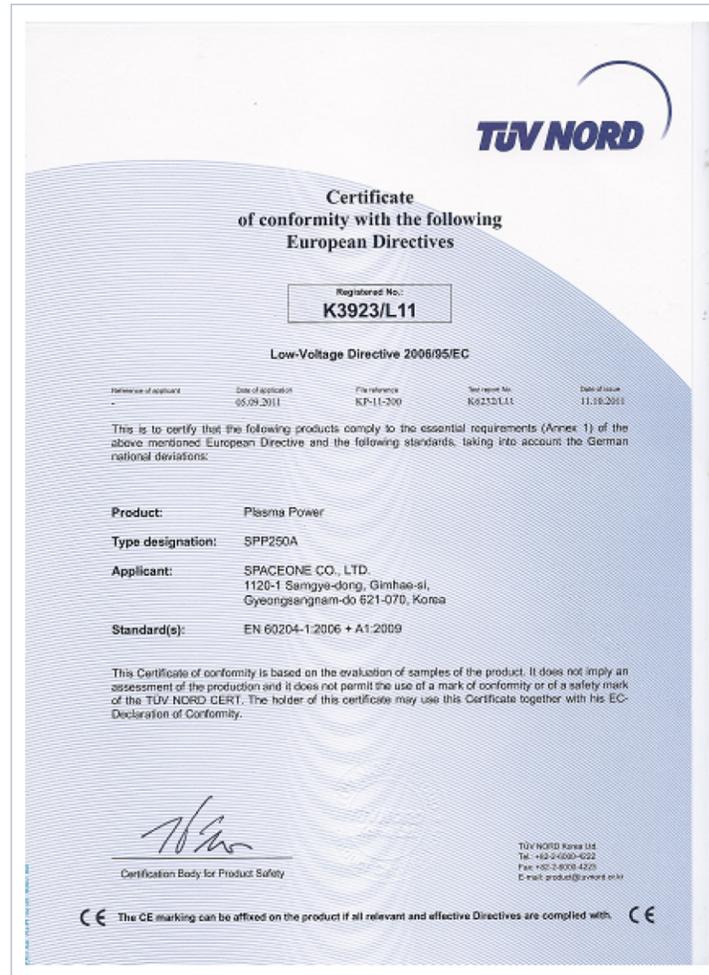


Korea Electric Power



Offshore wind power device

# Certificate



**CE**



**ISO9000, 9001**



**ISO9000, 9001**



Founding year: 1990

Web : <http://spaceone.kr/>

e-mail : 1990sp@daum.net