

# Hzsolar

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# Hzsolar



## 杭州索乐

### HANGZHOU SOLAR

做好清洁能源产品，造福全球人类

 杭州索乐光电有限公司  
www.hzsolar.net

# 新能源 新世界 新愿景

New Energy  
New World  
New Vision



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# 做好清洁能源产品 造福全球人类

MANUFACTURE GREAT CLEAN  
ENERGY PRODUCTS  
BENEFIT ALL THE HUMAN BEINGS.

## 主营业务 Main Business



### Main Business

- R&D and production of solar modules
- R&D and production of hybrid inverters
- R&D and production of lead batteries and lithium ion batteries
- Design and production of distributed generation and battery energy storage system (BESS)
- Investment and construction of distributed photovoltaic power station
- Multiple energy generation and storage solutions for households and industries
- Other kinds of DC appliances: water pumps, lights, freezers, refrigerators, air conditioners etc.

# 光伏组件

Solar Modules

## 210系列电池片



通过高水平生产工艺，  
获得组件高转换效率  
(最高至665w)



PID free 组件  
·抗PID封装材料技术  
·抗PID电池技术



0~+5%的功率输出



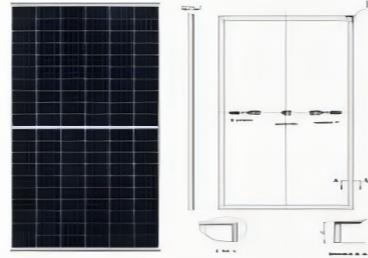
使用防水等级IP68的接  
线盒，保证长期的系统  
可靠性



优异的弱光发电能力



组件通过2400帕风压  
和5400帕雪压测试

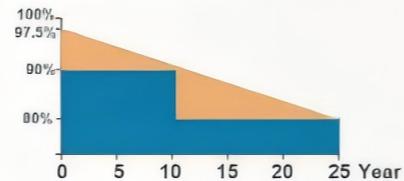


## 产品认证

- 通过ISO 9001质量管理体系认证
- 通过TUV体系认证
- 取得IEC 61215 和 IEC 61730 A等级证书
- CE认证
- 线性质保带来的增益值

更低的年度功率衰减 和更好的可靠性 **80%+**  
25年保证功率输出

- 第一年功率衰减2.5%，之后每年功率衰减0.7%
- 25年保证功率输出80%以上。



### 电气参数

|            | STC          | STC    | STC          | STC    | STC          | STC    | STC        | STC    |
|------------|--------------|--------|--------------|--------|--------------|--------|------------|--------|
| 最大功率       | 665W         | 650W   | 640W         | 630W   | 600W         | 590W   | 580W       | 570W   |
| 最大功率时的工作电流 | 17.32A       | 17.29A | 17.09A       | 16.94A | 16.67A       | 16.86A | 16.77A     | 16.72A |
| 最大功率时的工作电压 | 38.41V       | 37.60V | 37.45V       | 37.20V | 36.0V        | 35.0V  | 34.6V      | 34.1V  |
| 短路电流       | 18.33A       | 18.27A | 18.11A       | 17.94A | 17.67A       | 17.71A | 17.61A     | 17.55A |
| 开路电压       | 46.09V       | 45.12V | 45.10V       | 44.64V | 43.20V       | 42V    | 41.52V     | 41.0V  |
| 组件转换效率     | 20.90-21.40% |        | 20.60-20.28% |        | 19.31-18.99% |        | 20.5-20.1% |        |
| 组件功率公差     | 0/+5%        |        |              |        |              |        |            |        |
| 组件工作温度     | -40℃~+85℃    |        |              |        |              |        |            |        |
| 最大系统电压     | 1000VDC(IEC) |        |              |        |              |        |            |        |
| 最大额定熔丝电流   | 20A          |        |              |        |              |        |            |        |
| 应用等级       | A            |        |              |        |              |        |            |        |

STC (标准测试环境):

辐照度 1000 W/m<sup>2</sup>, 组件温度 25℃, AM 1.5

### 温度参数

|           |           |
|-----------|-----------|
| 额定电池工作温度  | 45±2℃     |
| 最大功率的温度系数 | -0.43%/℃  |
| 开路电压的温度系数 | -0.33%/℃  |
| 短路电流的温度系数 | +0.067%/℃ |

### 机械参数

|       |                               |
|-------|-------------------------------|
| 电池片类型 | 210×105 mm 单晶硅电池片             |
| 电池片数量 | 132/120                       |
| 组件尺寸  | 2384x1303x35mm/2172x1303x35mm |
| 重量    | 32kg/29kg                     |
| 前板玻璃  | 3.2mm (0.13 inches) 钢化玻璃      |
| 边框    | 阳极氧化铝合金                       |
| 接线盒   | IP68 等级 (3 个二极管)              |
| 线缆    | TUV                           |

### 182系列电池片



通过高水平生产工艺，  
获得组件高转换效率(最  
高至540W)



0~+5%的功率输出



优异的弱光发电能力



PID free 组件  
·抗PID封装材料技术  
·抗PID电池技术



使用防水等级IP68的接  
线盒，保证长期的系统  
可靠性



组件通过2400帕风压  
和5400帕垂压测试

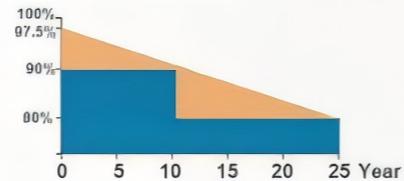


### 产品认证

- 通过ISO 9001质量管理体系认证
- 通过TUV体系认证
- 取得IEC 61215 和 IEC 61730 A等级证书
- CE认证
- 线性质保带来的增益值

更低的年度功率衰减  
和更好的可靠性 **80%+**  
25年保证功率输出

- 第一年功率衰减2.5%，之后每年功率衰减0.7%
- 25年保证功率输出80%以上。



### 电气参数

|            | STC          | STC    | STC          | STC    | STC         | STC    | STC         | STC    |
|------------|--------------|--------|--------------|--------|-------------|--------|-------------|--------|
| 最大功率       | 540W         | 530W   | 520W         | 510W   | 500W        | 460W   | 450W        | 430W   |
| 最大功率时的工作电流 | 12.86A       | 12.65A | 12.45A       | 12.24A | 12.02A      | 11.17A | 13.72A      | 13.53A |
| 最大功率时的工作电压 | 42.0V        | 41.90V | 41.80V       | 41.70V | 41.60V      | 41.20V | 32.80V      | 31.80V |
| 短路电流       | 13.76A       | 13.53A | 13.30A       | 13.10A | 12.86A      | 11.95A | 14.68A      | 14.47A |
| 开路电压       | 51.66V       | 51.53V | 51.41V       | 51.29V | 51.17V      | 50.67V | 40.34V      | 39.41V |
| 组件转换效率     | 20.90-20.50% |        | 20.10-19.74% |        | 19.36-17.8% |        | 20.6-19.67% |        |
| 组件功率公差     | 0/+5%        |        |              |        |             |        |             |        |
| 组件工作温度     | -40°C—+85°C  |        |              |        |             |        |             |        |
| 最大系统电压     | 1000VDC(IEC) |        |              |        |             |        |             |        |
| 最大额定熔丝电流   | 20A          |        |              |        |             |        |             |        |
| 应用等级       | A            |        |              |        |             |        |             |        |

STC (标准测试环境):

辐照度 1000 W/m<sup>2</sup>, 组件温度 25°C, AM 1.5

### 温度参数

|           |            |
|-----------|------------|
| 额定电池工作温度  | 45±2°C     |
| 最大功率的温度系数 | -0.43%/°C  |
| 开路电压的温度系数 | -0.33%/°C  |
| 短路电流的温度系数 | +0.067%/°C |

### 机械参数

|       |                               |
|-------|-------------------------------|
| 电池片类型 | 182×91 mm 单晶硅电池片              |
| 电池片数量 | 144/120                       |
| 组件尺寸  | 2278x1134x35mm/1928x1134x35mm |
| 重量    | 26.8kg/20.8kg                 |
| 前板玻璃  | 3.2mm 钢化玻璃                    |
| 边框    | 阳极氧化铝铝合金                      |
| 接线盒   | IP68 等级 (3个二极管)               |
| 线缆    | TUV                           |

### 非标组件系列



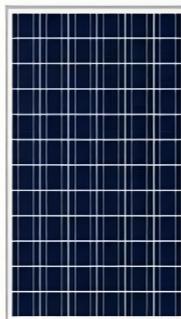
通过高水平生产工艺，  
获得组件高转换效率(最  
高至400W)



0~+5%的功率输出



优异的弱光发电能力



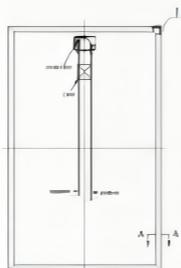
PID free 组件  
·抗PID封装材料技术  
·抗PID电池技术



使用防水等级IP68的接  
线盒，保证长期的系统  
可靠性



组件通过2400帕风压  
和5400帕雪压测试



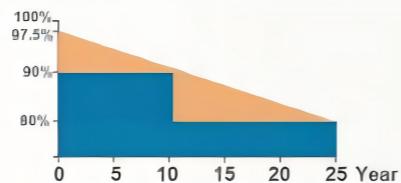
### 产品认证

- 通过ISO 9001质量管理体系认证
- 通过TUV体系认证
- 取得IEC 61215 和 IEC 61730 A等级证书
- CE认证
- 线性质保带来的增益值

### 更低的年度功率衰减 和更好的可靠性

**80%+**  
25年保证功率输出

- 第一年功率衰减2.5%，之后每年功率衰减0.7%
- 25年保证功率输出80%以上。



#### 电气参数

|            | STC          | STC    | STC    | STC    | STC    | STC    | STC    | STC   |
|------------|--------------|--------|--------|--------|--------|--------|--------|-------|
| 最大功率       | 400W         | 350W   | 300W   | 250W   | 200W   | 150W   | 100W   | 3W    |
| 最大功率时的工作电流 | 9.83A        | 9.10A  | 8.27A  | 7.97A  | 10.21A | 7.71A  | 5.15A  | 0.5A  |
| 最大功率时的工作电压 | 40.7V        | 38.50V | 36.28V | 31.40V | 19.60V | 19.46V | 19.43V | 6.0V  |
| 短路电流       | 10.52A       | 9.74A  | 9.12A  | 8.53A  | 10.92A | 8.25A  | 5.51A  | 0.53A |
| 开路电压       | 50.06V       | 46.20V | 45.26V | 37.68V | 23.52V | 23.35V | 23.30V | 7.38V |
| 组件功率公差     | 0/+5%        |        |        |        |        |        |        |       |
| 组件工作温度     | -40℃——+85℃   |        |        |        |        |        |        |       |
| 最大系统电压     | 1000VDC(IEC) |        |        |        |        |        |        |       |
| 最大额定熔丝电流   | 20A          |        |        |        |        |        |        |       |
| 应用等级       | A            |        |        |        |        |        |        |       |

STC (标准测试环境):

辐照度 1000 W/m<sup>2</sup>, 组件温度 25℃, AM 1.5

#### 温度参数

|           |           |
|-----------|-----------|
| 额定电池工作温度  | 45±2℃     |
| 最大功率的温度系数 | -0.43%/℃  |
| 开路电压的温度系数 | -0.33%/℃  |
| 短路电流的温度系数 | +0.067%/℃ |

#### 机械参数

|       |                          |
|-------|--------------------------|
| 电池片类型 | 单/多晶硅电池片                 |
| 电池片数量 | 12~144                   |
| 前板玻璃  | 3.2mm (0.13 inches) 钢化玻璃 |
| 边框    | 阳极氧化铝铝合金                 |
| 接线盒   | IP67 等级/滑盖               |

# HZS SERIES

Hybrid Solar Inverter



WIFI(optional)



## »» Features

- Pure sine wave inverter
- Programmable supply priority for PV, battery or Grid
- High PV input voltage range(55-450VDC)
- Built-in Max 110A(3.0KW/6.2KW) MPPT solar charge
- Compatible with lithium-ion battery
- Support BMS communication with Lithium battery
- Smart battery charge design to optimize battery life
- Overload,high temperature,inverter output short circuit protection
- Cold start function
- Intelligent fan speed adjustment
- Built-in anti-dusk lit for harsh environ(optional)
- WIFI gprs available for IOS and android

## »» Solar System Connection

■ Operation with battery connected  
Solar Power and AC Power available



Solar Power and AC Power not available



## »» Overview



SP-2200  
SP-3200



SP-4000  
SP-7000

|   |                              |   |                                |                         |               |                            |
|---|------------------------------|---|--------------------------------|-------------------------|---------------|----------------------------|
|   |                              |   |                                |                         |               |                            |
| Max PV Input<br>2000V/10000W              | Max PV Voltage 450VDC        | Max PV Input Current 20A<br>(For 100W/120W) | MPPT Range<br>55-450VDC        | MPPT Controller         | 12/24/48 Volt | Works with Lithium battery |
|   |                              |   |                                |                         |               |                            |
| AC Output<br>1800VA/1000W<br>380V/16-200V | Max Charging Current 50/110A | Monitor & Control (Optional)                | Communication Port RS232/RS485 | Pure Sine Wave Inverter | Wi-Fi Option  | BMS                        |

## »» Overview

| MODEL                                 | HZS-2200  | HZS-3200     | HZS-4200      | HZS-4200      | HZS-7000     |
|---------------------------------------|---|--------------|---------------|---------------|--------------|
| Rated Power                           | 2200VA/1800W  | 3200VA/3000W | 4200VA/3800W  | 4200VA/3800W  | 7000VA/6200W |
| <b>INPUT</b>                          |   |              |               |               |              |
| Voltage                               | 250VAC  |              |               |               |              |
| Selectable Voltage Range              |   |              |               |               |              |
| Frequency Range                       | 50Hz/60 Hz (Auto sensing)                                   |              |               |               |              |
| <b>OUTPUT</b>                         |   |              |               |               |              |
| AC Voltage Regulation (Batt. Mode)    | 230VAC±5%   |              |               |               |              |
| Surge power                           | 4400VA  | 6400VA       | 8000VA        | 8000VA        | 14000VA      |
| Transfer Time                         | 10ms (for personal computers)<br>20ms (for home appliances) |              |               |               |              |
| Wave form                             | Pure Sine Wave  |              |               |               |              |
| <b>BATTERY &amp; AC CHARGER</b>       |   |              |               |               |              |
| Battery Voltage                       | 12VDC   | 24VDC        | 24VDC         | 48VDC         | 48VDC        |
| Floating Charge Voltage               | 13.5VDC   | 27VDC        | 27VDC         | 54VDC         | 54VDC        |
| Overcharge Protection                 | 15.5VDC   | 31VDC        | 31VDC         | 61VDC         | 61VDC        |
| Maximum charge current                | 60A   |              | 80A           | 60A           | 80A          |
| <b>SOLAR CHARGER</b>                  |   |              |               |               |              |
| MAX PV Array Power                    | 2000W   | 3000W        | 6000W         |               |              |
| MPPT Range@ Operating Voltage         | 55-450VDC   |              |               |               |              |
| Maximum PV Array Open Circuit Voltage | 450VDC  |              |               |               |              |
| Maximum Charging Current              | 80A   | 110A         | 80A           | 110A          |              |
| Maximum Efficiency                    | 98%   |              |               |               |              |
| <b>PHYSICAL</b>                       |   |              |               |               |              |
| Dimension D*W*H (mm)                  | 405x286x98mm  |              | 423x290x100mm | 423x290x105mm |              |
| Net Weight (kg)                       | 4.5kg   | 5.0kg        | 6.8kg         | 6.9kg         | 7.5kg        |
| Communication Interface               | RS232/RS485(Standard)<br>WIFI(Optional)                     |              |               |               |              |
| <b>ENVIRONMENT</b>                    |   |              |               |               |              |
| Humidity                              | 5% to 95% Relative Humidity(Non-condensing)                 |              |               |               |              |
| Operating Temperature                 | -10°C to 55°C   |              |               |               |              |
| Storage Temperature                   | -15°C to 60°C   |              |               |               |              |

# HZS PRO SERIES

## Hybrid Solar Inverter



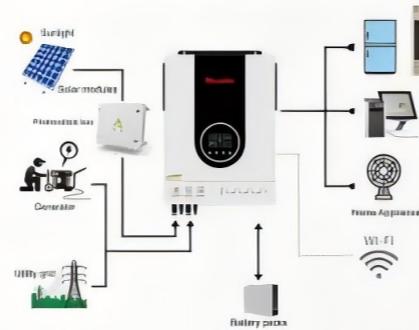
### »» Features

- Pure sine wave solar inverter(on/off grid)
- Inverter running without battery
- Output power factor 1.0
- High PV input voltage range(90-500VDC)
- WIFI&GPRS available for IOS and Android
- Built-in anti-dusk kit for harsh environment
- Built-in 120A for 6.2KW/160A for 8.2KW/180A for 10.2KW/180A PPT solar charge
- Smart battery charge design to optimize battery life
- One click restoration to factory settings
- Dual output
- Built-in lithium battery automatic activation
- Touch button

### »» Overview



### »» Solar System Connection



### »» Overview

| MODEL   | HZS PRO 6.2KW           | HZS PRO 8.2KW | HZS PRO 10.2KW |
|---|-------------------------|---------------|----------------|
| Phase   | 1-phase                 |               |                |
| Maximum PV Input Power                        | 6500W                   | 8200W         | 10200W         |
| Rated Output Power                            | 6200W                   | 8200W/8200VA  | 10200W/10200VA |
| Maximum Solar Charging Current                |                         | 160A          | 180A           |
| <b>GRID-TIE OPERATION</b>                     |                         |               |                |
| <b>PV Input(DC)</b>                           |                         |               |                |
| Nominal DC Voltage/Maximum DC Voltage         | 360VDC/500VDC           |               |                |
| Start-up Voltage/Initial Feeding Voltage      | 90VDC/110VDC            |               |                |
| MPPT Voltage Range                            | 90VDC-450VDC            |               |                |
| Number Of MPPT Trachers/Maximum Input Current | 1/27A                   |               |                |
| <b>GRID OUTPUT(AC)</b>                        |                         |               |                |
| Nominal Output Voltage                        | 200/250/240VAC          |               |                |
| Output Voltage Range                          | 195.5-253VAC            |               |                |
| Nominal Output Current                        | 27.0A                   | 35.6A         | 44.3A          |
| Power Factor                                  | >0.99                   |               |                |
| Feed-in Grid Frequency Range                  | 49 - 51±1Hz             |               |                |
| <b>EFFICIENCY</b>                             |                         |               |                |
| Maximum Conversion Efficiency(DC/AC)          | 98%                     |               |                |
| <b>TWO LOAD OUTPUT POWER(V2.0)</b>            |                         |               |                |
| Full Load                                     | 6200W                   | 8200W         | 10200W         |
| Maximum Main Load                             | 6200W                   | 8200W         | 10200W         |
| Maximum Second Load(Battery mode)             | 2067W                   | 2733W         | 3400W          |
| Main Load Cut Off Voltage                     | 44VDC                   | 44VDC         | 44VDC          |
| Main Load Return Voltage                      | 52VDC                   | 52VDC         | 52VDC          |
| <b>OFF-GRID OPERATION</b>                     |                         |               |                |
| <b>AC INPUT</b>                               |                         |               |                |
| AC Start-up Voltage/Auto Restart Voltage      | 120-140VAC/180VAC       |               |                |
| Acceptable Input Voltage Range                | 90-280VAC or 170-280VAC |               |                |
| Maximum AC Input Current                      | 50A                     | 40A           | 50A            |
| Nominal Operating Frequency                   | 50/60Hz                 |               |                |
| Surge Power                                   | 10000W                  | 16400W        | 20400W         |
| <b>PV INPUT(DC)</b>                           |                         |               |                |
| Maximum DC Voltage                            | 500VDC                  |               |                |
| MPPT Voltage Range                            | 90VDC-450VDC            |               |                |
| Number of MPPT Trachers/Maximum Input Current | 1/27A                   |               |                |
| <b>BATTERY MODE OUTPUT(AC)</b>                |                         |               |                |
| Nominal Output Voltage                        | 48VDC                   | 48VDC         | 48VDC          |
| Output Waveform                               | Pure sine wave          |               |                |
| Efficiency(DC to AC)                          | 94%                     |               |                |
| <b>BATTERY &amp; CHARGER</b>                  |                         |               |                |
| Nominal DC Voltage                            | 9.0                     | 48VDC         | 48VDC          |
| Maximum Solar Charging Current                | 160A                    | 160A          | 160A           |
| Maximum AC Charging Current                   | 140A                    | 140A          | 140A           |
| <b>PHYSICAL</b>                               |                         |               |                |
| Dimension(D x W XH)                           | 420*310*110             |               |                |
| Net Weight(kgs)                               | 9.0                     | 14.2          | 14.5           |

# 12-20kW Hybrid Inverter / Three-phase

Suitable for medium and big-sized household systems and intelligent switching on/off



Easy Installation



Ultra-Silent



IP65 Protection



## Product Model

HZS-EST12KH    HZS-EST17KH  
 HZS-EST15KH    HZS-EST20KH

### ◆ PV & storage system

Integrate PV and storage system modern, support multiple batteries, integrate with EMS Smart energy management systems;

### ◆ Smart switching

UPS function, support three-phase imbalance, on/off grid switch within 10ms;

### ◆ Wide voltage input range

Wide PV voltage input range 180V-900V; wide batteries voltage range 180V-700V;

### ◆ Safe and reliable

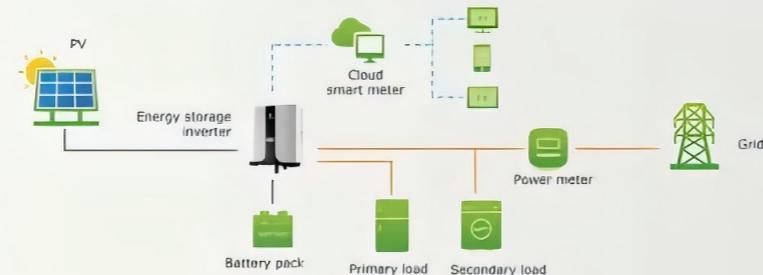
IP65 protection, aluminum housing, Built-in lightning protection, high-precision leakage protection;

### ◆ Smart and simple

Ultra silent, flexible communications, support remote/local USB upgrade;

### High-efficiency

support bifacial panels, max DC current 15A, max PV input power upto 1.5 X rated power.



| Model                          | HZS-EST12KH  | HZS-EST15KH | HZS-EST17KH   | HZS-EST20KH |
|--------------------------------|--|-------------|---------------|-------------|
| <b>PV Input Data</b>           |  |             |               |             |
| Max. Input Power               | 18000W   | 22500W      | 25500W        | 30000W      |
| Max. Input Voltage             | 1000V  |             |               |             |
| MPPT Operating Voltage Range   | 180-900V   |             |               |             |
| Start-up Voltage               | 120V   |             |               |             |
| Max. Input Current             | 15A/15A  | 15A/21A     | 26A/26A       | 28A/28A     |
| Max. Short Circuit Current     | 18A/18A  | 18A/32A     | 32A/32A       | 32A/32A     |
| Number of MPPT Trainers        | 2  | 2           | 2             | 2           |
| Number of Strings per MPPT     | 1/1  | 1/2         | 2/2           | 2/2         |
| <b>Battery Input Data</b>      |  |             |               |             |
| Battery Voltage Range          | 180-700V   |             |               |             |
| Max. Charge/Discharge Current  | 50A/50A  |             |               |             |
| Max. Charge/Discharge Power    | 12kW/12kW  | 15kW/15kW   | 17kW/17kW     | 20kW/20kW   |
| Battery Type                   | Li-ion/LiFePO4   |             |               |             |
| <b>AC Output Data(On-grid)</b> |  |             |               |             |
| Nominal Output Power           | 12000W   | 15000W      | 17000W        | 20000W      |
| Max. Apparent Power            | 12000VA  | 15000VA     | 17000VA       | 20000VA     |
| Nominal Output Voltage         | 300V/400V, 3L/N/PE   |             |               |             |
| Nominal Output Frequency       | 50Hz/60Hz  |             |               |             |
| Max. Output Current            | 18A  | 22A         | 25A           | 31A         |
| Power Factor                   | -110.8 lead to 0.8 lag (can be set)  |             |               |             |
| Total Harmonic Distortion      | ≤3%  |             |               |             |
| <b>AC Output Data(Back-up)</b> |  |             |               |             |
| Nominal Output Power           | 12000W   | 15000W      | 17000W        | 20000W      |
| Max. Apparent Power            | 12000VA  | 15000VA     | 17000VA       | 20000VA     |
| Nominal Output Voltage         | 300V/400V, 3L/N/PE   |             |               |             |
| Nominal Output Frequency       | 50Hz/60Hz  |             |               |             |
| Max. Output Current            | 18A  | 22A         | 25A           | 31A         |
| <b>Efficiency</b>              |  |             |               |             |
| Max. Efficiency                | 98.40%   |             |               |             |
| European Efficiency            | 97.50%   |             |               |             |
| <b>Protection</b>              |  |             |               |             |
| AC Overcurrent Protection      | Integrated   |             |               |             |
| Ground Fault Protection        | Integrated   |             |               |             |
| Power Network Monitoring       | Integrated   |             |               |             |
| Residual Current Monitoring    | Integrated   |             |               |             |
| <b>General Data</b>            |  |             |               |             |
| Operating Temperature Range    | -25°C~60°C(≤45°C Derating)   |             |               |             |
| Altitude                       | ≤4000m   |             |               |             |
| Noise Emission                 | ≤40dB  |             |               |             |
| Topology                       | Transformerless Isolation  |             |               |             |
| Cooling                        | Intelligent Fan  |             |               |             |
| Ingress Protection Rating      | IP65   |             |               |             |
| Relative Humidity              | 0~90%  |             |               |             |
| DC Connector Type              | MC4/Amphenol/Phoenix   |             |               |             |
| AC Connector Type              | Plug-in Connector  |             |               |             |
| Display                        | LCD  |             |               |             |
| Cloud Communication            | RS485(WiFi/4G/GPRS optional)   |             |               |             |
| BMS Communication Mode         | CAN  |             |               |             |
| Communication with Meter       | RS485  |             |               |             |
| Installation                   | Wall-mounted   |             |               |             |
| Self-consumption At Night      | ≤10W   |             |               |             |
| Dimension(W*D*H)               | 600*220*650mm  |             | 600*220*650mm |             |
| Weight                         | 34kg   |             | 36kg          |             |
| <b>Certification</b>           |  |             |               |             |
| Safety Standards               | IEC62109-1/-2  |             |               |             |
| EMC Standards                  | EN61000-6-1/-2, IEC61000   |             |               |             |
| On-grid Standard               | AS4777.2:2020, IHS09T-2:12017, PV-ENG0619-1:2019, VDE-AR N4106:2018, EN50549-1:2019, AC 2019-4 |             |               |             |

# 30-60kW Hybrid Inverter

Suitable for industrial energy storage system, on/off-grid seamless switching, stable operation



Easy Installation



Ultra-Silent



IP54 Protection

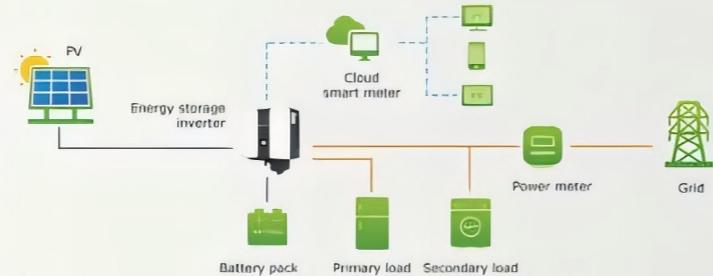
## Product Model

- HZS-EST30KH    HZS-EST50KH
- HZS-EST40KH    HZS-EST60KH



- ◆ **PV & storage system**  
Integrated PV and storage system model, supporting various kinds of batteries, and integrates EMS smart energy management system;
- ◆ **Smart switching**  
Modular design, supporting multiple parallel connections, expandable power and capacity;
- ◆ **Wide voltage input range**  
Wide PV voltage input range 180V-900V; wide batteries voltage range 220V-800V;

- ◆ **Safe and reliable**  
IP54 protection, all-aluminum design, built-in anti-lightning protection, high precision leakage protection;
- ◆ **Smart and simple**  
Ultra silent, flexible communications, support remote/local USB upgrade;
- ◆ **Efficient power generation**  
High-current instantaneous charge-discharge switching to improve power generation efficiency.



| Model                           | HZS-EST30KH                       | HZS-EST40KH | HZS-EST50KH     | HZS-EST60KH |
|---------------------------------|-----------------------------------|-------------|-----------------|-------------|
| <b>PV Input Data</b>            |                                   |             |                 |             |
| Max. Input Power                | 45000W                            | 60000W      | 75000W          | 90000W      |
| Max. Input Voltage              | 1000V                             |             |                 |             |
| MPPPT Operating Voltage Range   | 180V-900V/630V                    |             |                 |             |
| Start-up voltage                | 180V                              |             |                 |             |
| Max. Input Current              | 36A/36A/36A                       |             | 36A/36A/36A/36A |             |
| Max. Short Circuit Current      | 42A/42A/42A                       |             | 42A/42A/42A/42A |             |
| Number Of MPPPT Trackers        | 3                                 |             | 4               |             |
| Number Of Strings Per MPPPT     | 2/2/2                             |             | 2/2/2/2         |             |
| <b>Battery Input Data</b>       |                                   |             |                 |             |
| Battery Voltage Range           | 220-800V                          |             |                 |             |
| Max. Charge/Discharge Current   | 100A/100A                         |             |                 |             |
| Max. Charge/Discharge Power     | 30000W                            | 40000W      | 50000W          | 60000W      |
| Battery Type                    | Li-ion/LiFePO4                    |             |                 |             |
| <b>AC Output Data(On-grid)</b>  |                                   |             |                 |             |
| Nominal Output Power            | 30000W                            | 40000W      | 50000W          | 60000W      |
| Max. Apparent Power             | 30000VA                           | 40000VA     | 50000VA         | 60000VA     |
| Nominal Output Voltage          | 380V/400V, 3L/3N/PE               |             |                 |             |
| Nominal Output Frequency        | 50Hz/60Hz                         |             |                 |             |
| Max. Output Current             | 45A                               | 60A         | 75A             | 87A         |
| Power Factor                    | >10.8 lead to 0.8 lag can be set  |             |                 |             |
| Total Harmonic Distortion       | <3%                               |             |                 |             |
| <b>AC Output Data(Back-up)</b>  |                                   |             |                 |             |
| Nominal Output Voltage          | 380V/400V, 3L/3N/PE               |             |                 |             |
| Nominal Output Frequency        | 50Hz/60Hz                         |             |                 |             |
| Nominal Output Current          | 45A                               | 60A         | 75A             | 87A         |
| Nominal Output Power            | 30000W                            | 40000W      | 50000W          | 60000W      |
| Max. Apparent Power             | 30000VA                           | 40000VA     | 50000VA         | 60000VA     |
| Max Single-phase Apparent Power | 10000VA                           | 13000VA     | 17000VA         | 20000VA     |
| Switching Time                  | <10ms                             |             |                 |             |
| <b>Efficiency</b>               |                                   |             |                 |             |
| Max. Efficiency                 | 98.40%                            |             | 98.60%          |             |
| European Efficiency             | 97.50%                            |             | 97.80%          |             |
| <b>Protection</b>               |                                   |             |                 |             |
| AC Overcurrent Protection       | Integrated                        |             |                 |             |
| Ground Fault Protection         | Integrated                        |             |                 |             |
| Power Network Monitoring        | Integrated                        |             |                 |             |
| Residual Current Monitoring     | Integrated                        |             |                 |             |
| <b>General Data</b>             |                                   |             |                 |             |
| Operating Temperature Range     | -25°C~+60°C(+45°C Derating)       |             |                 |             |
| Altitude                        | <4000m(+2000m Derating)           |             |                 |             |
| Noise Emission                  | <45dB                             |             |                 |             |
| Topology                        | Transformerless Isolation         |             |                 |             |
| Cooling                         | Integrated Fan                    |             |                 |             |
| Ingress Protection Rating       | IP54                              |             |                 |             |
| Relative Humidity               | 0-90%, No Condensation            |             |                 |             |
| DC Connector Type               | Quick-plug Terminal               |             |                 |             |
| AC Connector Type               | Terminal                          |             |                 |             |
| Display                         | LCD                               |             |                 |             |
| Cloud Communication             | RS485(WiFi/4G/GPRS Optional)      |             |                 |             |
| BMS Communication Mode          | CAN                               |             |                 |             |
| Communication with Meter        | RS485                             |             |                 |             |
| Installation                    | Wall mounted/standing             |             |                 |             |
| Self-consumption at Night       | <10W                              |             |                 |             |
| Dimension(W*D*H)                | 800*350*875mm                     |             |                 |             |
| Weight                          | 102kg                             |             |                 |             |
| <b>Certification</b>            |                                   |             |                 |             |
| Safety Standards                | IEC62109-1/2                      |             |                 |             |
| EMC Standards                   | EN61000-6-1/2/3, IEC61000         |             |                 |             |
| On-grid Standard                | NR9097-2-1-2017, CGC    GB10-2014 |             |                 |             |

# Rack-Mounted Energy Storage (Home/Industrial)

Pack modular design, strong universality, convenient installation, simple operation, independent maintenance, high reliability, safety, large space, conducive to ventilation and heat dissipation, is the main component of household power supply, lithium iron phosphate battery has a long life, enough stability, more security and other characteristics.



Safe



Easy Mounting



Independent Maintenance



Good Heat Dissipation

| Model                               | HZSA-4850  | HZSA-48100    | HZSA-48150    | HZSA-48200    |
|-------------------------------------|--|---------------|---------------|---------------|
| Standard Voltage                    | 48VDC  |               |               |               |
| Voltage                             | 37.5-54.75VDC  |               |               |               |
| Norminal Capacity                   | 50Ah   | 100Ah         | 150Ah         | 200Ah         |
| Rated Capacity                      | 2.4kWh   | 4.8kWh        | 7.2kWh        | 9.6kWh        |
| Communication Protocol              | CAN / RS485 / WIFI / 4G / Blue Tooth   |               |               |               |
| Efficiency (at 0.5C)                | 98%  |               |               |               |
| Cell Self-Discharge                 | ≤5 % / Month   |               |               |               |
| Maximum Allowed Modules in Parallel | 15 (36kWh)   | 15 (72kWh)    | 15 (108kWh)   | 15 (144kWh)   |
| Depth of Discharge                  | Up to 100%   |               |               |               |
| Useful Life                         | 8-10 Years   |               |               |               |
| Cycle Life                          | 6000 (@ 80% DoD)   |               |               |               |
| Protection                          | Over temperature, overcurrent, short circuit, over-charging, over-discharging, Low voltage |               |               |               |
| <b>Charge Specifications</b>        |  |               |               |               |
| Recommended Charge Current          | 25A  | 50A           | 50A           | 50A           |
| Maximum Charge Current              | 50A  | 100A          | 100A          | 100A          |
| Recommended Charge Voltage          | 54V  | 54V           | 54V           | 54V           |
| Maximum Charge Voltage              | 54.75V   | 54.75V        | 54.75V        | 54.75V        |
| <b>Discharge Specifications</b>     |  |               |               |               |
| Recommended Discharge Current       | 25A  | 50A           | 50A           | 50A           |
| Maximum Discharge Current           | 50A  | 100A          | 100A          | 100A          |
| Recommended Low Voltage Disconnect  | 41.25V   |               |               |               |
| Battery Low Voltage Protection      | 39.75V   |               |               |               |
| Battery Recovery Voltage            | 45V  |               |               |               |
| <b>Mechanical Specifications</b>    |  |               |               |               |
| Dimensions:                         | 484*410*120mm  | 484*410*178mm | 484*590*178mm | 484*590*178mm |
| Weight                              | 24.5kgs  | 38.5kgs       | 59kgs         | 70.5kgs       |
| Terminal Type                       | M6   |               |               |               |
| Case Material                       | Industrial Grade Iron  |               |               |               |
| Enclosure Protection                | IP20   |               |               |               |
| Installation                        | Cabinet  |               |               |               |
| Cell Type Chemistry                 | LiFePO4  |               |               |               |
| <b>Compliance Specifications</b>    |  |               |               |               |
| Certifications                      | CE, FCC, CCC   |               |               |               |
| Shipping Classification             | UN 38.3, UN 3480, Class 9  |               |               |               |
| <b>Temperature Specifications</b>   |  |               |               |               |
| Discharge Temperature               | -20-65°C   | -20-65°C      | -20-65°C      | -20-65°C      |
| Charge Temperature                  | 0-55°C   | 0-55°C        | 0-55°C        | 0-55°C        |
| Storage Temperature                 | -20-45°C   | -20-45°C      | -20-45°C      | -20-45°C      |

# Wall Mounted Energy Storage (Home)

Light and convenient household energy storage option, light weight, small size, integrated body design, plug and play, easy installation, more convenient space optimization energy storage scheme.



-   
Long Life
-   
Mobility
-   
Space Saving
-   
Home Appliance Style

| Model                               | HZSB-48100  | HZSB-48150    | HZSB-48200    |
|-------------------------------------|---|---------------|---------------|
| Standard Voltage                    | 48VDC   |               |               |
| Voltage                             | 37.5-54.75VDC   |               |               |
| Norminal Capacity                   | 100Ah   | 150Ah         | 200Ah         |
| Rated Capacity                      | 4.8kWh  | 7.2kWh        | 9.6kWh        |
| Communication Protocol              | CAN / RS485 / WIFI / 4G / Blue Tooth  |               |               |
| Efficiency (at 0.5C)                | 98%   |               |               |
| Cell Self-Discharge                 | <5 % / Month  |               |               |
| Maximum Allowed Modules in Parallel | 15 (72kWh)  | 15 (108kWh)   | 15 (144kWh)   |
| Depth of Discharge                  | Up to 100%  |               |               |
| Useful Life                         | 8-10 Years  |               |               |
| Cycle Life                          | 6000 (@ 80% DoD)  |               |               |
| Protection                          | Over thermal protection, overcurrent, short circuit, over-charging, over discharging, Low voltage |               |               |
| <b>Charge Specifications</b>        |   |               |               |
| Recommended Charge Current          | 25A   | 50A           | 50A           |
| Maximum Charge Current              | 50A   | 100A          | 100A          |
| Recommended Charge Voltage          | 54V   | 54V           | 54V           |
| Maximum Charge Voltage              | 54.75V  | 54.75V        | 54.75V        |
| <b>Discharge Specifications</b>     |   |               |               |
| Recommended Discharge Current       | 25A   | 50A           | 50A           |
| Maximum Discharge Current           | 50A   | 100A          | 100A          |
| Recommended Low Voltage Disconnect  | 41.25V  |               |               |
| Battery Low Voltage Protection      | 39.75V  |               |               |
| Battery Recovery Voltage            | 45V   |               |               |
| <b>Mechanical Specifications</b>    |   |               |               |
| Dimensions:                         | 510*440*220mm   | 690*530*215mm | 690*530*215mm |
| Weight                              | 50kgs   | 70kgs         | 90kgs         |
| Terminal Type                       | M6  |               |               |
| Case Material                       | Industrial Grade Iron   |               |               |
| Enclosure Protection                | IP20  |               |               |
| Installation                        | Cabinet or Wall Installation  |               |               |
| Cell Type Chemistry                 | LiFePO4   |               |               |
| <b>Compliance Specifications</b>    |   |               |               |
| Certifications                      | CE,FCC, CCC   |               |               |
| Shipping Classification             | UN 38.3, UN 3480, Class 9   |               |               |
| <b>Temperature Specifications</b>   |   |               |               |
| Discharge Temperature               | -20~65°C  | -20~65°C      | -20~65°C      |
| Charge Temperature                  | 0~55°C  | 0~55°C        | 0~55°C        |
| Storage Temperature                 | -20~45°C  | -20~45°C      | -20~45°C      |

## Stacked Energy Storage (Home)

Integrated household appliance design is adopted, which is exquisite and beautiful and easy to install. Modular stack design, flexible matching of energy storage unit, capacity expansion on demand, integrated inverter, convenient and portable, strong mobility, saving household electricity costs.



Long Life



Mobility



Space Saving

Home Appliance  
Style

| Model                               | HZSHV-p10.2                             | HZSHV-p15.3  | HZSHV-20.4   |
|-------------------------------------|---|--------------|--------------|
| Stacking quantity                   | 2                                       | 3            | 4            |
| Rated power kWh                     | 10.24                                   | 15.36        | 20.48        |
| Rated voltage V                     | 204.8                                   | 307.2        | 409.6        |
| working voltageRange V              | 160-233.6                               | 240-350.4    | 320-467.2    |
| Size mm                             | 530×190×1186                            | 530×190×1569 | 530×190×1952 |
| Weight kg                           | 106                                     | 150          | 195          |
| Discharge rate max                  | 0.8C/40A                                |              |              |
| Charging rate max                   | 0.5C/25A                                |              |              |
| working temperature                 | Discharge: -20℃-55℃<br>Charging: 0℃-55℃ |              |              |
| Rated capacity                      | >50Ah@23℃ BOL                           |              |              |
| Protection level                    | IP54                                    |              |              |
| Charging and discharging efficiency | ≥96%                                    |              |              |
| Communication method                | CAN/RS485                               |              |              |

## Stacked Energy Storage (Home)

Lead-acid batteries are widely used, but because of their high maintenance costs, short battery life and great environmental pollution, they are gradually replaced by lithium ion batteries. Lithium iron phosphate battery with the same volume has higher energy density and lighter weight, which is the best alternative to lead acid.



Safe



Long Life



Light Weight



IP67

| Model                        | HZSC-1212       | HZSC-3012   | HZSC-5012   | HZSC-10012  | HZSC-13012  | HZSC-20012  | HZSC-10024  | HZSC-10048  |
|------------------------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Capacity                     | 12V12Ah         | 12V30Ah     | 12V50Ah     | 12V100Ah    | 12V130Ah    | 12V200Ah    | 24V100Ah    | 48V100Ah    |
| Continuous Discharge Current | 8A              | 15A         | 25A         | 50A         | 65A         | 100A        | 50A         | 50A         |
| Peak Protection Current      | 16A             | 30A         | 50A         | 100A        | 130A        | 200A        | 100A        | 100A        |
| Working Voltage              | 10-14.6V        |             |             |             |             |             | 20-29.2V    | 37.5-54.75V |
| Standard Voltage             | 12.8V           |             |             |             |             |             | 25.6V       | 48V         |
| Continuous Work Current      | 8A              | 15A         | 25A         | 50A         | 65A         | 100A        | 50A         | 50A         |
| Max Charge Voltage           | 14.6V           |             |             |             |             |             | 29.2V       | 54.75V      |
| Suggested DoD Model          | 80%             |             |             |             |             |             |             |             |
| Size(mm)                     | 155*99*94       | 195*133*171 | 229*158*208 | 256*165*210 | 330*172*215 | 521*238*218 | 345*190*245 | 520*267*220 |
| Weight                       | 1.5kgs          | 3.2kgs      | 4.5kgs      | 10kgs       | 13kgs       | 19kgs       | 22kgs       | 33kgs       |
| Humidity                     | ≤85%            |             |             |             |             |             |             |             |
| Cooling Type                 | Natural Cooling |             |             |             |             |             |             |             |
| IP                           | IP67            |             |             |             |             |             |             |             |
| Useful Life                  | 8-10 Years      |             |             |             |             |             |             |             |

# Indoor/Outdoor energy storage system (Industrial)

For the energy storage power station, peak valley regulation can be carried out among industrial users to relieve the burden of transformers during the summer peak power consumption. In addition, the difference between peak and valley power can be used to obtain certain benefits. In addition, for users with important loads, the energy storage system can be used as a backup power supply to ensure the continuity of power supply for important loads.



Safe



Highly Integrated



Cost Effective



Smart And Friendly

| Technical indicators        | Parameter                                |  |
|-----------------------------|--|--|
| Battery Parameter           |  |  |
| Battery Model               | 384V100Ah                                | 512V200Ah                                |
| Rated Capacity              | 38.4kWh                                  | 102.4kWh                                 |
| Voltage Range               | 324-438V                                 | 432-584V                                 |
| BMS Communication Interfac  | CAN,RS485                                | CAN,RS485                                |
| Weight                      | 400kgs                                   | 1100kgs                                  |
| Solar Power Parameter       |  |  |
| Rated Power                 | 20kw                                     | 50kw                                     |
| MAX OUTPUT                  | 22kw                                     | 55kw                                     |
| Rated Output Voltage        | 3/N/PE,230/400                           | 3/N/PE,230/400                           |
| MPPT Voltage Range          | 250-900V                                 | 650-900V                                 |
| Weight                      | 100kgs                                   | 100kgs                                   |
| System Parameter            |  |  |
| Inverter Carton Size        | 600*900*1500mm                           | 600*900*1500mm                           |
| Battery Container Size      | 600*600*2000mm                           | 600*1000*2000mm                          |
| IP Code                     | IP20/IP54                                | IP20/IP54                                |
| Operating Temperature Range | -20-55°C                                 | -20-55°C                                 |
| Cooling Mode                | Air Cooled/Natural cooling/Water-cooling | Air Cooled/Natural cooling/Water-cooling |
| Certificates                | CE/UN38.3/RoHS                           | CE/UN38.3/RoHS                           |

# Container Energy Storage (Industrial)

Cost effective: peak shaving and valley filling, efficient conversion, deep power supply, seamless switching  
 Safe: real-time monitoring, perfect mechanism, multi-level protection, comprehensive management  
 Intelligent: multiple modes, intelligent control, real-time monitoring, rapid response



Safe



Cost Effective



Intelligent

| Technical Indicators  | HZS525KWH-250                                     | HZS1051KWH-250                                    |
|---|---|---|
| <b>Battery Parameter</b>                                      |   |   |
| Battery Model   | 3.2V120Ah   | 3.2V120Ah   |
| System Battery Configuration                                  | 228S6P  | 228S12P   |
| Rated Capacity  | 525kWh  | 1051kWh   |
| Voltage Range   | 616-832V  | 616-832V  |
| BMS Communication Interface                                   | Ethernet,RS485                                    | Ethernet,RS485                                    |
| BMS Protocol  | Modbus RTU Modbus TCP                             | Modbus RTU Modbus TCP                             |
| <b>AC Side Parameter</b>                                      |   |   |
| Rated Power   | 250kWh  | 250kWh  |
| MAX OUTPUT  | 275kWh  | 275kWh  |
| THID  | < 3% (At rated power)                             | < 3% (At rated power)                             |
| DC Component  | < 0.5% (At rated power)                           | < 0.5% (At rated power)                           |
| Rated Output Voltage  | 400V  | 400V  |
| Grid Voltage Range  | 310-450V  | 310-450V  |
| Power Factor  | > 0.99 (At rated power)                           | > 0.99 (At rated power)                           |
| Adjustable Range of Power Factor                              | 0.9 (Leading)-0.9 (Lagging)                       | 0.9 (Leading)-0.9 (Lagging)                       |
| Rated Grid Frequency  | 50Hz  | 50Hz  |
| Power Grid Frequency Range                                    | 45-55Hz   | 45-55Hz   |
| Isolation Way   | Transformer Isolation                             | Transformer Isolation                             |
| Off Grid Rated Output Voltage                                 | 400V  | 400V  |
| Distortion Rate of Off Grid Output Voltage                    | < 3% (Linear Load)                                | < 3% (Linear Load)                                |
| <b>System Parameter</b>                                       |   |   |
| Inverter Carton Size  | 600*900*1500mm                                    | 600*900*1500mm                                    |
| Battery Container Size  | 600*600*2000mm                                    | 600*1000*2000mm                                   |
| Weight of Converter Container                                 | 2.8T  | 2.8T  |
| Weight of battery container<br>(With battery/Without battery) | 9.6T/5.0T   | (9.6T/5.0T)*2                                     |
| IP Code   | IP54  | IP54  |
| Operating Temperature Range                                   | -30 ~ +50°C                                       | -30 ~ +50°C                                       |
| Operating Humidity Range                                      | 0 ~ 95% (Non-condensing)                          | 0 ~ 95% (Non-condensing)                          |
| Max Working Altitude  | 2000m<br>( > 2000m Frequency reduction required ) | 2000m<br>( > 2000m Frequency reduction required ) |
| Battery Temperature Control Mode                              | Industrial temperature controlled air conditioner | Industrial temperature controlled air conditioner |
| Inverter Cooling Mode   | Temperature controlled forced air cooling         | Temperature controlled forced air cooling         |
| Fire Alarm System (Battery Container)                         | FM200   | FM200   |
| System Communication Interface                                | Ethernet,RS485                                    | Ethernet,RS485                                    |
| System Communication Protocol                                 | Modbus RTU Modbus TCP, IEC 104                    | Modbus RTU Modbus TCP, IEC 104                    |

## 分布式光伏电站的投资与工程建设

Investment and Construction of Distributed Photovoltaic Power Station

### 工程介绍

杭州索乐光电有限公司旗下的杭州墨然新能源有限公司致力于分布式光伏与储能电站的投资与建设也可以接受客户定制的关键工程。公司目前已经在世界各地建设完成分布式电站100多座。具有丰富的建设经验。



我们一直致力于为客户提供低成本，高稳定性，良好运营的太阳能电站！

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