

# LITHIUM BATTERY SOLAR ENERGY STORAGE SYSTEM CATALOGUE 2024

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Shanghai Pvsys New Energy Co.,Ltd is the professional manufacturer of solar panel,solar storage system in the market for more than 13 years.

With our newest technology of Topcon,HJT, our customers can get higher efficiency with best performance through the lifespan of the solar panel.

Our solar storage system is with built in solar hybrid inverter, mppt controller and LifePO4 battery with BMS(Battery Management System), it can be used in Nopower areas and it also helps our cusotmer to save their energy bill.We are offering the customization of our solar system based on different needs from our customers. We blieve that "a suitable one for you!"

We have acquired the certificates of CE,IEC61215-1-1:2021,IEC61730-1:2018,IEC 61730-2:2018 and Fire safety Class.

With high quality solar products and best service, we have customers from Italy, Germany, Sweden, Spain, England, Dub ai, South Africa, New Zeland, Australian, Japan, Indonesia.etc more than 50 countries and areas.

We always seem "Quality is our life", without good quality, we can not go any further. We blieve with our effort, we will make the world better.



700KW in Japan



6KW in Tahiti



300KW in Japan



14.76KW in Sweden



13KW in Japan



39.6KW-15.12kWh in Iraq





## PERC MONOCRYSTALLINE SOLAR PANEL PVS-410W/420W-M10H



### Introduction:

Redefined the high-efficiency module series by integrating 182mm silicon wafers with PERC cell technologies. Our panel combined creative technology effectively and extremely improved the module efficiency and power output.

#### **Key Features:**

- Less mismatch to get more power
- Less power loss by minimizing the shading impact projectsby reduced BoS and improved ROI
- Competitive low light performance
- Anti-PID

- Ideal choice for utility and commercial scale

Current-Voltage Characteristic (I-V Curve)

• Outstanding reliability proven by PVEL for stringent Environment condition:Sand , acid, salt and hail stones, 2400Pa wind load and 5400Pa snow load

Electrical Characteristics: STC:Irradiance 1000 W/m<sup>2</sup> module temperature 25 C AM=1.5

| Module Type                 | PVS-410W-M10H | PVS-420W-M10H |
|-----------------------------|---------------|---------------|
| Maximum Power (Pmp)         | 410W          | 420W          |
| Open Circuit Voltage (Voc)  | 37.50V        | 37.90V        |
| Short Circuit Current (Isc) | 13.84A        | 13.97A        |
| Maximum Power Voltage (Vmp) | 31.30V        | 31.70V        |
| Maximum Power Current (Imp) | 13.10A        | 13.26A        |
| Module Efficiency at STC(%) | 22.37%        | 22.53%        |
| Maximum System Voltage      | 1500VDC       |               |
| Maximum Series Fuse Rating  | 25A           |               |
| Power Tolerance             | 0~+3%         |               |

#### **Mechanical Specifications:**

| External Dimensions | 1722x1134x30mm                        |  |
|---------------------|---------------------------------------|--|
| Solar Cells         | Mono 108cells                         |  |
| Front Glass         | 3.2mm tempered glass                  |  |
| Frame               | Anodized aluminum alloy               |  |
| Junction Box        | IP68, 3 diodes                        |  |
| Output Cables       | 4.0mm2                                |  |
| Weight              | 22kg                                  |  |
| Mechanical Load     | Front side 5400Pa<br>Rear side 2400Pa |  |
| Packing             | 36pcs/pallet, 936pcs/40HQ             |  |

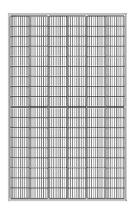
#### Product warranty:

15 years guarantee on product material and workmanship 25 years guarantee on Liner power output

Cells temp. = 25°C 420.4 W 12 ent Irrad. = 800 W/m Incident Irrad. = 600 W/m cent [A] 252.4 Incident Irrad. = 400 W/m<sup>1</sup> 167.2 Incident Irrad. = 200 W/m<sup>2</sup> 81.9 W

20 Voltage [V]

PV module: PVSYS Energy, PVS-420W-M10H





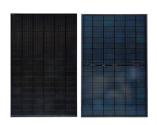
#### Temperature ratings (STC):

| Temperature Coefficient of Isc  | +0.040%/°C |
|---------------------------------|------------|
| Temperature Coefficient of Voc  | -0.270%/°C |
| Temperature Coefficient of Pmax | -0.350%/°C |

# 3 times EL test to ensure best quality



## **N-TYPE MONOCRYSTALLINE SOLAR PANEL** PVS-430W/440W-M10HDT



### Introduction:

Redefined the high-efficiency module series by integrating 182mm silicon wafers with N-type cell technologies. Our panel combined creative technology effectively and extremely improved the module efficiency and power output.

### **Key Features:**

- Less mismatch to get more power
- Competitive low light performance
- 3 times EL test to ensure best quality
- Ideal choice for utility and commercial scale
- Less power loss by minimizing the shading impact projectsby reduced BoS and improved ROI

Current-Voltage Characteristic (I-V Curve)

• Outstanding reliability proven by PVEL for stringent Environment condition:Sand , acid, salt and hail stones, 2400Pa wind load and 5400Pa snow load

Electrical Characteristics: STC:Irradiance 1000 W/m<sup>2</sup> module temperature 25 C AM=1.5

| Module Type                 | PVS-430W-M10HDT | PVS-440W-M10HDT |
|-----------------------------|-----------------|-----------------|
| Maximum Power (Pmp)         | 430W            | 440W            |
| Open Circuit Voltage (Voc)  | 38.16V          | 39.57V          |
| Short Circuit Current (Isc) | 13.65A          | 13.80A          |
| Maximum Power Voltage (Vmp) | 32.58V          | 32.99V          |
| Maximum Power Current (Imp) | 13.20A          | 13.34A          |
| Module Efficiency at STC(%) | 22.02%          | 22.53%          |
| Maximum System Voltage      | 1500VDC         |                 |
| Maximum Series Fuse Rating  | 25A             |                 |
| Power Tolerance             | 0~+3%           |                 |

#### **Mechanical Specifications:**

| External Dimensions | 1722x1134x30mm                        |  |
|---------------------|---------------------------------------|--|
| Solar Cells         | Mono 108cells                         |  |
| Front Glass         | 3.2mm tempered glass                  |  |
| Frame               | Anodized aluminum alloy               |  |
| Junction Box        | IP68, 3 diodes                        |  |
| Output Cables       | 4.0mm2                                |  |
| Weight              | 22kg                                  |  |
| Mechanical Load     | Front side 5400Pa<br>Rear side 2400Pa |  |
| Packing             | 36pcs/pallet, 936pcs/40HQ             |  |

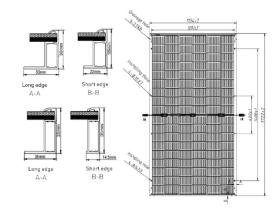
#### Product warranty:

15 years guarantee on product material and workmanship 30 years guarantee on Liner power output

Cells temp. = 25°C nt Irrad. = 1000 W/m 442.0 W ent Irrad. = 800 W/n 351.0 ent Irrad. = 600 W/ Ξ 260.5 Turrent ent Irrad. = 400 W/n 170.7 W ent Irrad. = 200 W 82.6 W

20 Voltage [V]

PV module: PVSYS Energy, PVS-440W-M10HDT



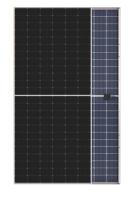
#### Temperature ratings (STC):

| Temperature Coefficient of Isc  | +0.048%/°C |
|---------------------------------|------------|
| Temperature Coefficient of Voc  | -0.270%/°C |
| Temperature Coefficient of Pmax | -0.350%/°C |

# Anti-PID



## **N-TYPE MONOCRYSTALLINE SOLAR PANEL** PVS-575W/580W-M10HDT



#### Introduction:

Redefined the high-efficiency module series by integrating 182mm silicon wafers with N-type cell technologies. Our panel combined creative technology effectively and extremely improved the module efficiency and power output.

#### **Key Features:**

- Less mismatch to get more power
- Less power loss by minimizing the shading impact projectsby reduced BoS and improved ROI
- Competitive low light performance
- 3 times EL test to ensure best quality
- Anti-PID

- Ideal choice for utility and commercial scale
- Outstanding reliability proven by PVEL for stringent Environment condition:Sand , acid, salt and hail stones, 2400Pa wind load and 5400Pa snow load

Electrical Characteristics: STC:Irradiance 1000 W/m<sup>2</sup> module temperature 25 C AM=1.5

| Module Type                 | PVS-575W-M10HDT | PVS-580W-M10HDT |
|-----------------------------|-----------------|-----------------|
| Maximum Power (Pmp)         | 575W            | 580W            |
| Open Circuit Voltage (Voc)  | 51.27V          | 51.47V          |
| Short Circuit Current (Isc) | 14.31A          | 14.37A          |
| Maximum Power Voltage (Vmp) | 42.44V          | 42.59V          |
| Maximum Power Current (Imp) | 13.55A          | 13.62A          |
| Module Efficiency at STC(%) | 22.26%          | 22.45%          |
| Maximum System Voltage      | 1500VDC         |                 |
| Maximum Series Fuse Rating  | 30A             |                 |
| Power Tolerance             | 0~+3%           |                 |

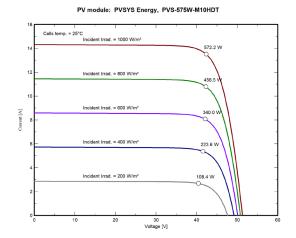
#### **Mechanical Specifications:**

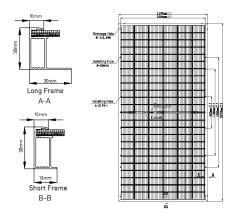
| -                   |                                       |  |
|---------------------|---------------------------------------|--|
| External Dimensions | 2278x1134x30 mm                       |  |
| Solar Cells         | N-Type Mono 144cells(6*24)            |  |
| Front Glass         | 3.2mm tempered glass                  |  |
| Frame               | Anodized aluminum alloy               |  |
| Junction Box        | IP68, 3 diodes                        |  |
| Output Cables       | 4.0mm2 (300mm+/300mm-)                |  |
| Weight              | 32kg                                  |  |
| Mechanical Load     | Front side 5400Pa<br>Rear side 2400Pa |  |
| Packing             | 36pcs/pallet, 720pcs/40HQ             |  |

### Product warranty:

15 years guarantee on product material and workmanship 30 years guarantee on Liner power output

Current-Voltage Characteristic (I-V Curve)

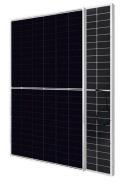




| Temperature Coefficient of Isc  | +0.046%/°C |
|---------------------------------|------------|
| Temperature Coefficient of Voc  | -0.250%/°C |
| Temperature Coefficient of Pmax | -0.290%/°C |



## N-TYPE MONOCRYSTALLINE SOLAR PANEL PVS-600W/610W-M10HDT



### Introduction:

Redefined the high-efficiency module series by integrating 182mm silicon wafers with N-type cell technologies. Our panel combined creative technology effectively and extremely improved the module efficiency and power output.

#### **Key Features:**

- Less mismatch to get more power
- Less power loss by minimizing the shading impact
- Competitive low light performance
- 3 times EL test to ensure best quality
- Anti-PID

- Ideal choice for utility and commercial scale
- projectsby reduced BoS and improved ROI
- Outstanding reliability proven by PVEL for stringent Environment condition:Sand , acid, salt and hail stones, 2400Pa wind load and 5400Pa snow load

Electrical Characteristics: STC:Irradiance 1000 W/m<sup>2</sup> module temperature 25 C AM=1.5

| Module Type                 | PVS-600W-M10HDT | PVS-610W-M10HDT |
|-----------------------------|-----------------|-----------------|
| Maximum Power (Pmp)         | 600W            | 610W            |
| Open Circuit Voltage (Voc)  | 51.80V          | 52.20V          |
| Short Circuit Current (Isc) | 14.54A          | 14.66A          |
| Maximum Power Voltage (Vmp) | 44.00V          | 44.40V          |
| Maximum Power Current (Imp) | 13.64A          | 13.74A          |
| Module Efficiency at STC(%) | 22.22%          | 22.60%          |
| Maximum System Voltage      | 1500VDC         |                 |
| Maximum Series Fuse Rating  | 25A             |                 |
| Power Tolerance             | 0~+3%           |                 |

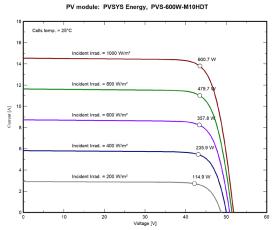
#### Mechanical Specifications:

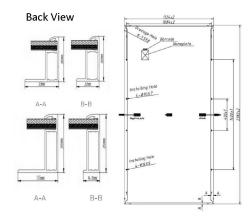
| External Dimensions | 2382x1134x30 mm                       |  |
|---------------------|---------------------------------------|--|
| Solar Cells         | N-Type Mono 144cells(6*24)            |  |
| Front Glass         | 3.2mm tempered glass                  |  |
| Frame               | Anodized aluminum alloy               |  |
| Junction Box        | IP68, 3 diodes                        |  |
| Output Cables       | 4.0mm2 (300mm+/300mm-)                |  |
| Weight              | 33.5kg                                |  |
| Mechanical Load     | Front side 5400Pa<br>Rear side 2400Pa |  |
| Packing             | 36pcs/pallet, 720pcs/40HQ             |  |

#### **Product warranty:**

15 years guarantee on product material and workmanship 30 years guarantee on Liner power output

Current-Voltage Characteristic (I-V Curve)





#### Temperature ratings (STC):

| Temperature Coefficient of Isc  | +0.046%/°C |
|---------------------------------|------------|
| Temperature Coefficient of Voc  | -0.250%/°C |
| Temperature Coefficient of Pmax | -0.290%/°C |

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## PERC MONOCRYSTALLINE SOLAR PANEL PVS-545W/550W-M10H



## Introduction:

Redefined the high-efficiency module series by integrating 182mm silicon wafers with PERC cell technologies. Our panel combined creative technology effectively and extremely improved the module efficiency and power output.

#### **Key Features:**

- Less mismatch to get more power
- Competitive low light performance
- 3 times EL test to ensure best quality
- Anti-PID

- Ideal choice for utility and commercial scale
- Less power loss by minimizing the shading impact projectsby reduced BoS and improved ROI

Current-Voltage Characteristic (I-V Curve)

• Outstanding reliability proven by PVEL for stringent Environment condition:Sand , acid, salt and hail stones, 2400Pa wind load and 5400Pa snow load

Electrical Characteristics: STC:Irradiance 1000 W/m<sup>2</sup> module temperature 25 C AM=1.5

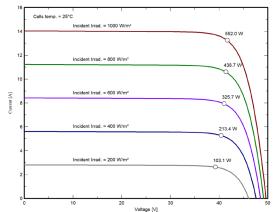
| Module Type                 | PVS-545W-M10H | PVS-550W-M10H |
|-----------------------------|---------------|---------------|
| Maximum Power (Pmp)         | 545W          | 550W          |
| Open Circuit Voltage (Voc)  | 49.52V        | 49.62V        |
| Short Circuit Current (Isc) | 13.94A        | 14.03A        |
| Maximum Power Voltage (Vmp) | 40.80V        | 40.90V        |
| Maximum Power Current (Imp) | 13.36A        | 13.45A        |
| Module Efficiency at STC(%) | 21.2%         | 21.4%         |
| Maximum System Voltage      | 1500VDC       |               |
| Maximum Series Fuse Rating  | 30A           |               |
| Power Tolerance             | 0~+3%         |               |

#### **Mechanical Specifications:**

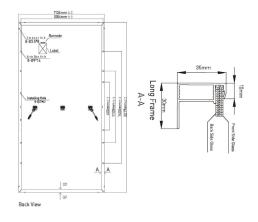
| External Dimensions | 2279x1134x35 mm                       |
|---------------------|---------------------------------------|
| Solar Cells         | Mono 144cells(6*24)                   |
| Front Glass         | 3.2mm tempered glass                  |
| Frame               | Anodized aluminum alloy               |
| Junction Box        | IP68, 3 diodes                        |
| Output Cables       | 4.0mm2                                |
| Weight              | 29.4kg                                |
| Mechanical Load     | Front side 5400Pa<br>Rear side 2400Pa |
| Packing             | 31pcs/pallet, 620pcs/40HQ             |

#### Product warranty:

15 years guarantee on product material and workmanship 25 years guarantee on Liner power output



PV module: PVSYS Energy, PVS-550W-M10H



| Temperature Coefficient of Isc  | +0.048%/°C |
|---------------------------------|------------|
| Temperature Coefficient of Voc  | -0.270%/°C |
| Temperature Coefficient of Pmax | -0.290%/°C |



## **HPBC MONOCRYSTALLINE SOLAR PANEL** PVS-590W/600W-M10HDT

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|   |      |   |  |

### Introduction:

Redefined the high-efficiency module series by integrating 182mm silicon wafers with HPBC cell technologies. Our panel combined creative technology effectively and extremely improved the module efficiency and power output.

#### **Key Features:**

- Less mismatch to get more power
- Less power loss by minimizing the shading impact projectsby reduced BoS and improved ROI
- Competitive low light performance
- 3 times EL test to ensure best quality
- Anti-PID

- Ideal choice for utility and commercial scale
- Outstanding reliability proven by PVEL for stringent Environment condition:Sand , acid, salt and hail stones, 2400Pa wind load and 5400Pa snow load

Electrical Characteristics: STC:Irradiance 1000 W/m<sup>2</sup> module temperature 25 C AM=1.5

| Module Type                 | PVS-590W-M10HDT | PVS-600W-M10HDT |
|-----------------------------|-----------------|-----------------|
| Maximum Power (Pmp)         | 585W            | 600W            |
| Open Circuit Voltage (Voc)  | 52.49V          | 52.79V          |
| Short Circuit Current (Isc) | 14.34A          | 14.47A          |
| Maximum Power Voltage (Vmp) | 44.38V          | 44.68V          |
| Maximum Power Current (Imp) | 13.30A          | 13.43A          |
| Module Efficiency at STC(%) | 22.8%           | 23.2%           |
| Maximum System Voltage      | 1500VDC         |                 |
| Maximum Series Fuse Rating  | 25A             |                 |
| Power Tolerance             | 0~+3%           |                 |

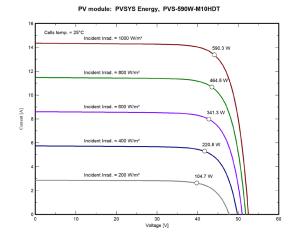
#### **Mechanical Specifications:**

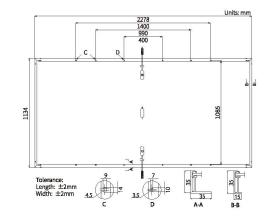
| External Dimensions | 2278x1134x35 mm                       |
|---------------------|---------------------------------------|
| Solar Cells         | Mono 144cells(6*24)                   |
| Front Glass         | 3.2mm tempered glass                  |
| Frame               | Anodized aluminum alloy               |
| Junction Box        | IP68, 3 diodes                        |
| Output Cables       | 4.0mm2                                |
| Weight              | 27.5kg                                |
| Mechanical Load     | Front side 5400Pa<br>Rear side 2400Pa |
| Packing             | 31pcs/pallet, 620pcs/40HQ             |

#### Product warranty:

15 years guarantee on product material and workmanship 25 years guarantee on Liner power output

Current-Voltage Characteristic (I-V Curve)



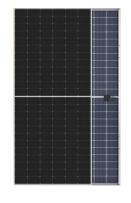


| Temperature Coefficient of Isc  | +0.050%/°C |
|---------------------------------|------------|
| Temperature Coefficient of Voc  | -0.230%/°C |
| Temperature Coefficient of Pmax | -0.290%/°C |





## HJT MONOCRYSTALLINE SOLAR PANEL PVS-695W/700W-M12HDT



#### Introduction:

Redefined the high-efficiency module series by integrating 210mm silicon wafers with HJT cell technologies. Our panel combined creative technology effectively and extremely improved the module efficiency and power output.

#### **Key Features:**

- Less mismatch to get more power
- Less power loss by minimizing the shading impact projectsby reduced BoS and improved ROI
- Competitive low light performance
- 3 times EL test to ensure best quality
- Anti-PID

- Ideal choice for utility and commercial scale
- Outstanding reliability proven by PVEL for stringent Environment condition:Sand , acid, salt and hail stones, 2400Pa wind load and 5400Pa snow load

Electrical Characteristics: STC:Irradiance 1000 W/m<sup>2</sup> module temperature 25 C AM=1.5

| Module Type                 | PVS-695W-M12HDT | PVS-700W-M12HDT |
|-----------------------------|-----------------|-----------------|
| Maximum Power (Pmp)         | 695W            | 700W            |
| Open Circuit Voltage (Voc)  | 49.98V          | 50.13V          |
| Short Circuit Current (Isc) | 17.37A          | 17.43A          |
| Maximum Power Voltage (Vmp) | 41.95V          | 42.10V          |
| Maximum Power Current (Imp) | 16.57A          | 16.63A          |
| Module Efficiency at STC(%) | 22.37%          | 22.53%          |
| Maximum System Voltage      | 1500VDC         |                 |
| Maximum Series Fuse Rating  | 35A             |                 |
| Power Tolerance             | 0~+3%           |                 |

#### **Mechanical Specifications:**

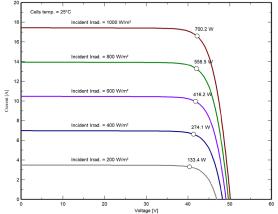
| External Dimensions | 2385x1303x35 mm                       |
|---------------------|---------------------------------------|
| Solar Cells         | Mono 132cells                         |
| Front Glass         | 3.2mm tempered glass                  |
| Frame               | Anodized aluminum alloy               |
| Junction Box        | IP68, 3 diodes                        |
| Output Cables       | 4.0mm2                                |
| Weight              | 38.7kg                                |
| Mechanical Load     | Front side 5400Pa<br>Rear side 2400Pa |
| Packing             | 31pcs/pallet, 558pcs/40HQ             |

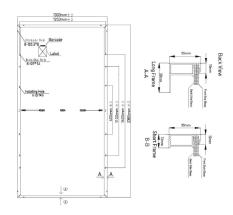
#### Product warranty:

15 years guarantee on product material and workmanship 30 years guarantee on Liner power output

PV module: PVSYS Energy, PVS-700W-M12HDT Cells temp. = 25°C nt Irrad. = 1000 W/m

Current-Voltage Characteristic (I-V Curve)

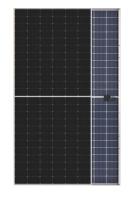




| Temperature Coefficient of Isc  | +0.040%/°C |
|---------------------------------|------------|
| Temperature Coefficient of Voc  | -0.240%/°C |
| Temperature Coefficient of Pmax | -0.260%/°C |



## HJT MONOCRYSTALLINE SOLAR PANEL PVS-710W/720W-M12HDT



### Introduction:

Redefined the high-efficiency module series by integrating 210mm silicon wafers with HJT cell technologies. Our panel combined creative technology effectively and extremely improved the module efficiency and power output.

#### **Key Features:**

- Less mismatch to get more power
- Less power loss by minimizing the shading impact projectsby reduced BoS and improved ROI
- Competitive low light performance
- 3 times EL test to ensure best quality
- Anti-PID

- Ideal choice for utility and commercial scale
- Outstanding reliability proven by PVEL for stringent Environment condition:Sand , acid, salt and hail stones, 2400Pa wind load and 5400Pa snow load

Electrical Characteristics: STC:Irradiance 1000 W/m<sup>2</sup> module temperature 25 C AM=1.5

| Module Type                 | PVS-710W-M12HDT | PVS-720W-M12HDT |
|-----------------------------|-----------------|-----------------|
| Maximum Power (Pmp)         | 710W            | 720W            |
| Open Circuit Voltage (Voc)  | 50.44V          | 50.95V          |
| Short Circuit Current (Isc) | 17.55A          | 17.66A          |
| Maximum Power Voltage (Vmp) | 42.40V          | 42.70V          |
| Maximum Power Current (Imp) | 16.75A          | 16.86A          |
| Module Efficiency at STC(%) | 22.85%          | 23.17%          |
| Maximum System Voltage      | 1500VDC         |                 |
| Maximum Series Fuse Rating  | 35A             |                 |
| Power Tolerance             | 0~+             | -3%             |

#### **Mechanical Specifications:**

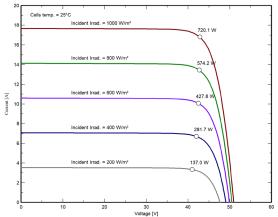
| External Dimensions | 2385x1303x35 mm                       |
|---------------------|---------------------------------------|
| Solar Cells         | Mono 132cells                         |
| Front Glass         | 3.2mm tempered glass                  |
| Frame               | Anodized aluminum alloy               |
| Junction Box        | IP68, 3 diodes                        |
| Output Cables       | 4.0mm2                                |
| Weight              | 38.7kg                                |
| Mechanical Load     | Front side 5400Pa<br>Rear side 2400Pa |
| Packing             | 31pcs/pallet, 558pcs/40HQ             |

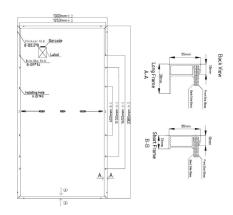
#### Product warranty:

15 years guarantee on product material and workmanship 30 years guarantee on Liner power output

PV module: PVSYS Energy, PVS-720W-M12HDT Cells temp. = 25°C

Current-Voltage Characteristic (I-V Curve)





| Temperature Coefficient of Isc  | +0.040%/°C |
|---------------------------------|------------|
| Temperature Coefficient of Voc  | -0.240%/°C |
| Temperature Coefficient of Pmax | -0.260%/°C |





## **ON/OFF GRID PV INVERTER**

## Hybrid Inverter PSX series



#### Product introduction:

PSX series is a new all-in-one solar charge inverter, which integrates solar energy storage & utility charging energy storage and AC sine wave output. Thanks to DSP control and advanced control algorithm, it has high response speed, high reliability and high industrial standard. Four charging modes are optional, i.e. Only Solar, Mains Priority, Solar Priority and Mains & Solar hybrid charging; and two output modes are available, i.e. inverter and Mains, to meet different application requirements

- Three output modes, when the grid-connected function is enabled, grid-connected power generation or anti-reverse-current can be set, and it can also be set to off-grid output mode.
- Four charging modes, mains priority charging, solar priority charging, mains solar hybrid charging and solar only charging.
- Emergency function, support battery-free output and only PV start and load, with battery activation function.
- Parallel function, It can be flexibly combined to achieve up to 9 parallel machines.
- Protection function, perfect hardware and software protection function.
  - The host computer and the APP cloud communication.

| Model                               | PSX-2.5KW                       | PSX-3.5KW                  | PSX-5.5KW                  | PSX-10KW      |
|-------------------------------------|---------------------------------|----------------------------|----------------------------|---------------|
| model                               |                                 | VERTER OUTPUT              | 137-3.380                  | 137-1000      |
| Rated output power (W)              | 2500                            | 3500                       | 5500                       | 10000         |
| Rated output power (VA)             | 2500                            | 3500                       | 5500                       | 10000         |
| Maximum Peak Power (W)              | 5000                            | 6000                       | 10000                      | 15000         |
| Load Capacity with Motors           | 2HP                             | 2HP                        | 4HP                        | 6HP           |
| Rated AC Output                     |                                 | 230 Vac (200 / 208 / 220   |                            | 0             |
| Dutput Voltage Waveform             |                                 | Pure Sine                  | •••••                      |               |
| nverter and Bypass Switching Time   |                                 | 10ms (ty                   |                            |               |
| Parallel Capacity                   |                                 | 9                          |                            |               |
| Maximum Battery Inverter Efficiency |                                 | 93%                        | )                          |               |
| Overload Protection                 | Load>                           | 150% ± 10%: error and outp | out shut down after 2 secc | onds .        |
|                                     |                                 | BATTERY                    |                            |               |
| Battery Type                        |                                 | Lithium / Lead-acid        | / User Defined             |               |
| Rated Battery Voltage               | 24V                             |                            | 48V                        |               |
| Battery Voltage Range               | 20-33Vdc                        |                            | 40-60Vdc                   |               |
| Max.MPPT Charging Current           | 60A                             | 60A                        | 100A                       | 200A          |
| Max.Mains Charging Current          | 60A                             | 60A                        | 60A                        | 120A          |
| Max.Hybrid Charging Current         | 120A                            | 120A                       | 100A                       | 200A          |
| ·                                   |                                 | PV CHARGING                |                            | ·             |
| VIPPT Quantity                      | 1                               | 1                          | 1                          | 2             |
| /lax. PV array power                | 1700W                           | 3400W                      | 5500W                      | 5500W+5500W   |
| Max. PV input current               | 50A                             | 50A                        | 22A                        | 22A+22A       |
| Max. Open Circuit Voltage           | 100Vdc                          | 145Vdc                     | 500Vdc                     | 500Vdc+500Vdc |
| VIPPT Voltage Range                 | 30-85Vdc                        | 60-115Vdc                  | 120-45                     | 0Vdc          |
| MPPT Tracking Efficiency            |                                 | 99.99                      | %                          |               |
|                                     |                                 | MAINS INPUT                |                            |               |
| nput Voltage Range                  |                                 | 90-280Vac/17               | 70-280Vac                  |               |
| requency Range                      |                                 | 50/60Hz±                   | :0.3Hz                     |               |
| Output Short Circuit Protection     |                                 | Circuit br                 | eaker                      |               |
| Bypass Overload Current             | 24A                             | 30A                        | 40A                        | 63A           |
|                                     | S                               | PECIFICATIONS              |                            |               |
| Dimensions (W*D*H-mm)               | 280*1                           | .05*360                    | 350*130*455                | 445*130*630   |
| Veight (kg)                         | 6                               | 7                          | 12                         | 27            |
| Classification of waterproof        |                                 | IP20                       |                            |               |
| Operating Temperature Range         |                                 | -10 °C~5                   | 55 °C                      |               |
| loise                               |                                 | <60d                       | В                          |               |
| leat Dissipation                    |                                 | Forced air cooling (var    | iable speed of fan)        |               |
|                                     | CC                              | OMMUNICATION               |                            |               |
| mbedded interface                   | RS485 / CAN / USB / Dry contact |                            |                            |               |
| External module                     | WIFI/GPRS                       |                            |                            |               |





## High frequency PST series



#### Product introduction:

The PST series inverter control integrated is a pure shine wave photovoltaic off-grid power generation equipment that integrates the functions of a photovoltaic controller, a mains charger and a high-frequenc inverter. The battery is charged through the controller or mains charger, and the battery supplies power to the inverter, which them supplies AC power to the AC load.

- Small size and light weight
- High efficiency
- Pure sine wave inverter
- Selectable voltage input range, inverter output voltage can be used for home and PC
- The priority of AC, solar battery charging can be set through LCD settings
- Compatible with mains voltage or generator power supply
- Auto restart function, can be not guarded
- Overload and short circuit protection

| Model                               | РЅТ48-ЗК                          | PST48-5K                    |  |  |  |  |
|-------------------------------------|-----------------------------------|-----------------------------|--|--|--|--|
| Output voltage(kVA)                 | 3                                 | 5                           |  |  |  |  |
| Battery type(Option)                |                                   |                             |  |  |  |  |
| Rated voltage(VDC)                  | 48                                |                             |  |  |  |  |
| Under voltage protection point(VDC) | Lead-acid battery 42, lithium b   | pattery 45(default setting) |  |  |  |  |
| Under voltage recovery point(VDC)   | Lead-acid battery 51.2, lithium   | battery 50(default setting) |  |  |  |  |
| Over voltage protection point(VDC)  | lead-acid battery 58, lithium b   | attery 53(default setting)  |  |  |  |  |
| Over voltage recovery point(VDC)    | Lead-acid battery 56, lithium b   | pattery 51(default setting) |  |  |  |  |
|                                     | PV input                          |                             |  |  |  |  |
| PV input power(Wp)                  | 3000                              | 1                           |  |  |  |  |
| Way of working                      | MPP                               | Г                           |  |  |  |  |
| Starting voltage(VDC)               | >66                               |                             |  |  |  |  |
| Voltage range(VDC)                  | 70-25                             | 6                           |  |  |  |  |
| Maximum open circuit voltage(VDC)   | 256                               |                             |  |  |  |  |
| Float voltage(VDC)                  | Lithium bat                       | tery 54                     |  |  |  |  |
| Equalizing Voltage(VDC)             | Lead-acid battery 55/lit          | thium battery 52.2          |  |  |  |  |
|                                     | Mains bypass (optional)           |                             |  |  |  |  |
| Input voltage allowable range(VAC)  | 220±15                            | 5%                          |  |  |  |  |
| Input frequency(Hz)                 | 50/60±                            | 1%                          |  |  |  |  |
|                                     | Mains charging (optional)         |                             |  |  |  |  |
| Mains charging current(A)           | 10                                |                             |  |  |  |  |
|                                     | AC output                         |                             |  |  |  |  |
| Output waveform                     | L+N pure sine wave                |                             |  |  |  |  |
| Output voltage(VAC)                 | 220±3%                            |                             |  |  |  |  |
| Output frequency(Hz)                | 50/60±                            | 1%                          |  |  |  |  |
| Output waveform distorition(THD)    | ≤5%(linear                        | load)                       |  |  |  |  |
| Inverter efficiency                 | ≥1%                               |                             |  |  |  |  |
| Overload capacity                   | 110%1r                            | nin                         |  |  |  |  |
| Display method                      | LCD+LED,                          | /LED                        |  |  |  |  |
| Protective function                 | under voltage, over voltage, over | load,short circuit,overheat |  |  |  |  |
|                                     | Environment                       |                             |  |  |  |  |
| Protection class                    | IP20                              |                             |  |  |  |  |
| Altitude(m)                         | ≤5000 (1% derating for even       | ry 100m above 1000m)        |  |  |  |  |
| Allowable relative humidity         | <95% Non-co                       |                             |  |  |  |  |
| Ambient temperature(°C)             | -10/+40                           |                             |  |  |  |  |
| Noise(dB)                           | ≤50                               |                             |  |  |  |  |
|                                     | Communication                     |                             |  |  |  |  |
| Communication method                | CAN,232,485, W                    | /i-Fi, GPRS                 |  |  |  |  |
| Max. Size(D*W*H)mm                  | 130*400*520 130*360*580           |                             |  |  |  |  |
| Weight(kg)                          | 8                                 | 9                           |  |  |  |  |





## **PV INVERTER&CONTROLLER INTEGRATED**

## Single-phase power frequency PSA Series



### Product introduction:

The photovoltaic control and inverter integrated is a new type of photovoltaic power generation device that organically combines a photovoltaic charge controller and an inverter.

It consists of a charge controller, an inverter and a protection circuit, and the output is a pure sine wave voltage. It has the advantages of small total installation space, few connection lines, safety and reliability. Photovoltaic charge controller is a high-performance step-down device that uses MPPT (Maximum Power Point Tracking) algorithm to make full use of solar photovoltaic energy. The PV input voltage range is wide, which can charge a variety of batteries, and the three-stage charging effectively improves the life of the battery.

- MPPT solar charging controller, which can make the most use of solar photovoltaic
- Three-stage charging, effectively prolonging the life of the battery
- It has the functions of power generate record, Event recording, Time switch, Auto sleep function
- Photovoltaic priority or utillty power priority mode can be set by users
- Pure sine wave output&completely protection
- Low frequency circuit design, good system reliability, low breakdown rates and long life time
- Higher ability to anti-attack from the loads
- Supporting city power/ Diesel generator input port(Optional)
- AC charger function(Optional)

| Series                                  | PSA96   | PSA192/220  |  |
|---|---|---|--|
| Output power(KVA)                       | 6/8   | 6/10/15/20/25/30  |  |
|   | Battery   | ·   |  |
| Rated voltage(VDC)                      | 96  | 192/220   |  |
|   | PV Input  | · ·   |  |
| Maximum input power(KWP)                | 6   | 12/24   |  |
| Maximum charge current                  | 50/100  |   |  |
| Start voltage(VDC)                      | 120   | 270   |  |
| Mppt voltage range(VDC)                 | 110-280   | 260-450   |  |
| Maximum open circuit voltage(VDC)       | 300   | 480   |  |
|   | AC bypass(Optional)                                 |   |  |
| Allowable input voltage range(VAC)      | 220±15%/110±5% (Other                               | input voltage can be customized                         |  |
| Input frequency(Hz)                     | 5   | 0/60±3%   |  |
| AC charger                              |   | Optional  |  |
|   | AC Output   |   |  |
| Output waveform                         | Pur   | e Sine Wave   |  |
| Output voltage(VAC)                     | 220±1%/110±1% (Other o                              | output voltage can be customized)                       |  |
| Output Frequency(HZ)                    | 5   | 0/60±1%   |  |
| Output wave form distortion rate(THD)   | ≤2%(Liner Load)                                     |   |  |
| Convert Efficiency (80% Resistive load) |   | ≥85°C   |  |
| Current Peak Factor                     |   | 3:1   |  |
| Overload Ability                        | 105-110%,600Seconds;110                             | )-125%,60Seconds;>125%,1Second                          |  |
| Display method                          |   | LCD+LED   |  |
| Protection                              | Input reverse, low voltage, over voltage protection | on;Output overload,short circuit ,over hating protectic |  |
| Communication Function                  |   | Optional  |  |
|   | Surroundings  |   |  |
| Protective level                        |   | IP20  |  |
| Applied Altitude(m)                     | ≤5000 (above 1000meters,rate                        | d power derating 1% every 100meters                     |  |
| Humidity                                | <95% No   | on-condensation   |  |
| Environment temperature(°C)             |   | -10~50  |  |
| Noise(dB)                               |   | ≤60   |  |
|   | Appearance  |   |  |
| Dimensions(D*W*H)mm                     | 640*305*770   | 700*405*980   |  |
| Weight(KG)                              | 80-85   | 55-155  |  |





**PV INVERTER&CONTROLLER INTEGRATED** 

## Three phase power frequency PSA Series



#### Product introduction:

The solar photovoltaic control inverter integrated power supply is a new generation o dedicated power supply for new energy power generation systems. It is mainly designed and manufactured according to the characteristics and requirements of new energy power generation systems, and is suitable for the high quality and high reliability requirements of solar photvoltaic power generation systems for power supply equipment. The system uses photovoltaic cells to convert light energy into electrical energy, and charges the battery through the charging circuit. At the same time, the battery supplies power to the inverter, and the inverter provides AC power to the AC load.

- · Advanced DSP digital control technology can effectively improve product performance and system reliability
- Excellent industrial environment protection pefformance
- Perfect protection function to provide safe and reliable power protection for the load
- Intelligent battery management function can effectively detect whether the battery is good or bad, prolong the battery life
- Economical and safe mode operation can make the whole machine more efficient than 98%
- High-performance large-screen LCD interface, intuitive and convenient operation
- Powerful communication interface and network remote monitoring,etc
- A wealth of optional accessories, which can be flexibly configured according to actual needs

| Series                      |            | PSA  |                         |                          |                       |               |
|-----------------------------|------------|--|-------------------------|--------------------------|-----------------------|---------------|
| Output power(KVA)           | 10         | 10 20 30 40 50                                 |                         |                          |                       |               |
|                             | AC Input   |  |                         |                          |                       |               |
| Phase                       |            |  | Three ph                | ase+N+G                  |                       |               |
| Volt range(VAC)             |            |  | 380/400/                | 415±20%                  |                       |               |
| Frequency (Hz)              |            |  | 50/60                   | 0±5%                     |                       |               |
| Soft-start                  |            |  | 0~100                   | % 5sec                   |                       |               |
|                             |            |  | PV Input                |                          |                       |               |
| MPPT volt range (VDC)       |            |  | 230-                    | -450                     |                       |               |
| Max.Open circuit volt(VDC)  |            |  | 48                      | 80                       |                       |               |
| Input paths                 |            |  | 1,                      | /2                       |                       |               |
| Max.Input power(kWp)        |            |  | 12,                     | /24                      |                       |               |
| Full charge protection volt |            | The battery                                    | voltage can be set acc  | cording to the actual co | onfiguration          |               |
| Charging voltage(VDC)       |            |  | 216/243/27              | 70(Settable)             |                       |               |
|                             |            |  | DC                      |                          |                       |               |
| Nominal volt(VDC)           |            |  | 192/22                  | 20/240                   |                       |               |
|                             | Inverter   |  |                         |                          |                       |               |
| Phase                       |            | Three phase+N+G                                |                         |                          |                       |               |
| Nominal volt(VAC)           |            | 380/400/415                                    |                         |                          |                       |               |
| Nominal frequency(Hz)       |            | 50±0.5 (Powered on by battery)                 |                         |                          |                       |               |
| Frequency stability(Hz)     |            | <±0.5 (Battery mode)                           |                         |                          |                       |               |
| Peak factor                 |            | 3:1  |                         |                          |                       |               |
| Output wave                 |            | Pure sine wave                                 |                         |                          |                       |               |
| THD                         |            |  | Line load<3%; N         | on-line load<5%          |                       |               |
| Voltage transient           |            | <  | ±3% (steady state load  | l), <± 5% (dynamic load  | (b                    |               |
| Over-load ability           |            |  | 125% 10mins             | s, 150% 1min             |                       |               |
|                             |            |  | System                  |                          |                       |               |
| Communication interface     |            | RS485(RS232, Network remote monitoring Option) |                         |                          |                       |               |
| Interface and instructions  |            |  | touch screen, LED statu |                          | ,                     |               |
| Operating environment       | Temperatur | e:0-40°C; Humidity:209                         | %~90% (non-condensin    | ng);<1000 meters (pow    | er decreases by 1% pe | er 100 meters |
| Cooling method              |            | Forced ventilation                             |                         |                          |                       |               |
| Noise(dB)                   |            |  | 40-                     | -65                      |                       |               |
| Size(D*W*H)mm               |            | 600*600*1600                                   |                         |                          | 600*800*2000          |               |





## **OFF GRID INVERTER**

## Single-phase power frequency PSI Series



#### **Product introduction:**

PSI series inverter power supply is the fourth generation power frequency intelligent inverter power supply developed with new digital technology. The system adopts SPWM pulse width modulation technology, IGBT power module and output isolation transformer, so that the output of the inverter power supply is a pure sine wave power supply with stable frequency and voltage regulation, filtering noise and low distortion. It has the characteristics of strong load capacity, good load compatibility, and wide DC input voltage range, which greatly meets the nees of various electrical environments. The perfect protection device improves the stability of the system operation; the user-friendly LCD liquid crystal interface design enables man-machine communication zero-distance.

- Pure sine wave output, sufficient power output
- Protection function: output overload protection; output short circuit protection; input over/under voltage, over temperature protection and a series of alarm and protection
- Power frequency circuit design, good system stability, low failure rate and long life
- Good translent response, low waveform distortion, high inverter efficiency, stable output voltage, and excellent EMI indicators; this series of
  products have strong load resistance and load capacity. In addition to driving various resistive loads, they can also load all kinds of inductive
  devices, such as motors, air conditioners, electric drills, etc; it can drive almost all loads.
- Intelligent empty load automatic sleep function

| Series                                | PSI96  | PSI220   |  |  |  |  |
|---------------------------------------|--|--|--|--|--|--|
| Output power (KVA)                    | 6/8  | 6/10/15/20/25/30                                       |  |  |  |  |
| Battery                               |  |  |  |  |  |  |
| Rated voltage (VDC)                   | 96   | 220  |  |  |  |  |
| Under voltage protection value (VDC)  | 86.4   | 194.4  |  |  |  |  |
| Under voltage recovery value (VDC)    | 104  | 234  |  |  |  |  |
| Over voltage protection value (VDC)   | 124  | 279  |  |  |  |  |
| Over voltage recovery value (VDC)     | 120  | 270  |  |  |  |  |
|                                       | Mains bypass (optional)                              |  |  |  |  |  |
| Input voltage allowable range (VAC)   | 220±   | 15%  |  |  |  |  |
| Input frequency (Hz)                  | 50/60  | D±3%   |  |  |  |  |
| Mains charging                        | Opti   | onal   |  |  |  |  |
|                                       | AC output  |  |  |  |  |  |
| Output waveform                       | Pure sir   | ne wave  |  |  |  |  |
| Output voltage (VAC)                  | 220:   | ±1%  |  |  |  |  |
| Output frequency (Hz)                 | 50/60  | D±1%   |  |  |  |  |
| Output waveform distortion rate (THD) | ≤2% (Lin   | er load)   |  |  |  |  |
| Inverter efficiency                   | ≥85%   |  |  |  |  |  |
| Current peak factor                   | 3  | 1  |  |  |  |  |
| Overload capacity                     | 105%-110%; 10min;110                                 | 0%-125%,1min>125%,1s                                   |  |  |  |  |
| Display method                        | LCD+LED  |  |  |  |  |  |
| Protective function                   | Input reverse connection, input undervoltage, overvo | Itage, overload, short circuit, overheating portection |  |  |  |  |
| Communication function                | RS485/GPR  | S (Optional)   |  |  |  |  |
|                                       | Environment  |  |  |  |  |  |
| Protection level                      | IP   | 20   |  |  |  |  |
| Operating altitude (m)                | ≤5000 (1% derating for e                             | ver 100m above 1000m)                                  |  |  |  |  |
| Humidity                              | <95% No co   | ndensation   |  |  |  |  |
| Environment temperature (°C)          | -10^   | · +40  |  |  |  |  |
| Noise (dB)                            | ≤50  |  |  |  |  |  |
|                                       | Volume and weight                                    |  |  |  |  |  |
| Dimensions(D*W*H) mm                  | 645*305*770  | 645*305*770/700*405*980                                |  |  |  |  |
| Weight (KG)                           | 75-85  | 55-100/135-155   |  |  |  |  |





## **OFF GRID INVERTER**

### PSI Series three phases inverter



#### Product introduction:

This series of three-phases off-grid inverters are high-efficiency and high-performance three-in-three-out inverter products. They are new generation dedicated power supplies for new energy power generation systems. They integrate digitization, informatization and networking. They have powerful information acquisition system, signal processing system, detection system and perfect protection system. They have wide input DC voltage, stable output voltage and frequency, which are mainly used in photovoltaic power stations, wind power stations, wind, light, oil, storage complementary power generation systems, household photovoltaic power supply system and other fields, especially places that require three-phase four-wire AC power.

- Advanced DSP digital control technology effectively improve the product feature and system stability
- Excellent industrial ambient protection performance, applicable to all kinds of working environment
- · High performance big LCD screen, smart boot prompts and operation error alert function, operate visually and easily
- Powerful communication interfaces and network remote monitoring
- Wealth of optionas can be flexibly configured according to the actual needs
- Independent airtight duct, optimized ventilation design, internal modular installation, all devices required maintenance can be maintained from the front side. Machine can be installed three faces against the wall or parallel

| Series                           |                             |   | PS                    | il                    |                |                |
|----------------------------------|-----------------------------|---|-----------------------|-----------------------|----------------|----------------|
| Output power(KVA)                | 10/15/20/30                 | 40/50/60  | 80/100/120            | 160/200               | 250/300        | 400            |
| Rated DC voltage(VDC)            | 220/36                      | 50/384  | 360,                  | /384                  | 38             | 34             |
| Phase                            |                             |   | Three pha             | ses+N+G               | `              |                |
| Nominal voltage(VAC)             |                             |   | 380/                  | 400                   |                |                |
| Nominal frequency(Hz)            |                             |   | 50/                   | 60                    |                |                |
| Current peak factor              |                             |   | 3:                    | 1                     |                |                |
| Output waveform                  |                             |   | Pure sin              | e wave                |                |                |
| THD                              |                             |   | Liner load<3%; No     | n-liner load < 5%     |                |                |
| Dynamic load voltage transients  |                             |   | <±5                   | 5%                    |                |                |
| Load voltage                     |                             | <±:   | 3% (Balanced load); < | ±5% (unbalanced loa   | d)             |                |
| Overload capacity                |                             |   | 125% 10mins           | , 150% 1min           |                |                |
| Inverter efficiency, load 100%   |                             |   | >92                   | 2%                    |                |                |
| Computer communication interface |                             | RS23  | 32 (485 Network rem   | ote monitoring option | nal)           |                |
| Operating temperature(°C)        |                             |   | 10~                   | 40                    |                |                |
| Humidity                         |                             |   | 20%~                  | 90%                   |                |                |
| Altitude                         |                             | ≤5000 (above 1000 meters. rated power derating 1% every 100 meters) |                       |                       |                |                |
| Cooling                          | Forced cool air             |   |                       |                       |                |                |
| Noise(dB)                        | 45~65 (1m from the machine) |   |                       |                       |                |                |
| Weight(KG)                       | 220-390                     | 490-780   | 850-1050              | 1200-1400             | 1600-1800      | 2100           |
| Dimension(D*W*H) mm              | 600*600*1350                | 600*800*1350  | 800*805*1800          | 900*1005*1800         | 1100*1150*1920 | 1100*1250*1920 |





## **ENERGY STORAGE SYSTEM**

## PPCS Energy Storage Converter



#### Product introduction:

PPCS50/100/150/250K energy storage converter is a product developed for industrial and commercial energy storage applications, which can meet the diversifiled needs of users and provide asistance for comprehensive energy services. PPCS500/630K energy storage converter can be applied to various cenario such as power generation side and power grid side, and can quickly realize AC/DC bidirectional energy conversion. The multi branch input technology can reduce the battery parallel numbers, reduce battery circulation, and extend the service life of battery packs.

- Modular design. The product adopts the modlar design concept. Each module can operate independently, providing n+1 redundancy and improving system stability. The capacity can be expanded according to the users' need.
- Intelligent matching. The product is suitable for various types of batteries. The system can realize different charging and discharging strategies according to different battery types, to prolong the battery life span.
- Distributed in demand. The energy dispatching can be regulated, and the user can change the charging and discharging logic according to the power consumption policies in different periods of time in the region.
- Independent regulation of active and reactive power. The product can realize independent regulation of active and reactive power, meet different load requirements, ensure power factor and avoid fines.
- On/Off grid seamless switching. Realize seamless switching between grid and off grid connection, ensure the continuity of power consumption, and avoid economic losses caused by power failure.

| Model                             | PPCS 50KW                     | PPCS 100KW      | PPCS 150KW      | PPCS 250KW     | PPCS 500KW | PPCS 630KW |
|-----------------------------------|-------------------------------|-----------------|-----------------|----------------|------------|------------|
| DC side parameters                |                               |                 |                 |                |            |            |
| DC voltage range(V)               |                               | 500-850         |                 |                | 600-900    |            |
| Maximum DC current(A)             | 110                           | 220             | 330             | 550            | 873        | 958        |
| Battery branches number           |                               |                 | 1               |                | 1/2/4/8    | 1          |
|                                   |                               | AC grid connect | tion parameters |                |            |            |
| Rated output power(KW)            | 50                            | 100             | 150             | 250            | 500        | 630        |
| Rated grid voltage(V)             |                               | 400±            | :15%            |                | 380±       | 15%        |
| Rated grid frequency(Hz)          |                               |                 | 50/60           | )±2.5          |            |            |
| AC rated current(A)               | 72                            | 144             | 216             | 360            | 727        | 916        |
|                                   |                               | System pa       | arameters       |                |            |            |
| Wiring mode                       |                               |                 | Three phase     | s four wires   |            |            |
| Isolation                         |                               |                 | Power freque    | ency isolation |            |            |
| Cooling                           |                               |                 | Forced ai       | r cooling      |            |            |
| Temperature range (°C)            |                               |                 | -20′            | ~50            |            |            |
| Protection level                  |                               |                 | IP              | 20             |            |            |
| Size(D*W*H) mm                    | 800*800*2160 800*1200*2160 80 |                 |                 |                | 800*110    | 00*2260    |
|                                   |                               | Commu           | nication        |                |            |            |
| Upper computer communication mode | ModBus TCP/IP                 |                 |                 |                |            |            |
| Communication interface           | Net port, RS485, CAN          |                 |                 |                |            |            |





## **ENERGY STORAGE SYSTEM**

## PPG2 PV&Battery energy storage integrated machine



#### **Product introduction:**

PPG2 optical storage integrated machine products integrate energy storag converters and photovoltaic inverters, which can efficiently utilize photovoltaic power generation, reduce the workload of installation sites, reduce the integration difficulty of integrate for supplier, and meet the storage integration application needs of small and medium-sized microgrids and industrial and commercial buildings.

- Intelligent switching operation strategy. It can be directly connected to the photovoltaic panel for charging, eliminating the loss in the power transmission process and improving the stability of the output current; it can also be applied to the photovoltaic storage integrated machine to convert the photovoltaic output current into the available electricity of the grid, improving economic benefits.
- Flexible configuration. The maximum power that can be connected to twice the equipment capacity, up to 200KW, improves the flexibility of product configuration in areas without electricity.
- MPPT photovoltaic maximum power tracking. It can detect the power generation voltage of the photovoltaic panel in real time, so that the system can charge the battery with the maximum power output and increase the power generation of the system.
- Optional outdoor version. It can effectively reduce the construction cost in remote areas. IP54 protection grade, can perfectly deal with various types of outdoor weather

| Model                              | 50KW   | 100KW          |  |  |  |  |
|------------------------------------|--|----------------|--|--|--|--|
| Battery side parameters            |  |                |  |  |  |  |
| DC voltage range (V)               | 250-520 (F                                     | Rated 400)     |  |  |  |  |
| DC maximum current (A)             | 150  | 300            |  |  |  |  |
|                                    | PV side parameters                             |                |  |  |  |  |
| PV voltage range (V)               | 520-   | 900            |  |  |  |  |
| Maximum PV current (A)             | 110  | 220            |  |  |  |  |
| Maximum PV power (KW)              | 100  | 200            |  |  |  |  |
|                                    | AC grid connection parameters                  |                |  |  |  |  |
| Rated grid voltage (V)             | 400±15%  |                |  |  |  |  |
| Grid frequency range (Hz)          | 50/60±2.5                                      |                |  |  |  |  |
|                                    | System parameters                              |                |  |  |  |  |
| Isolation method                   | Power freque                                   | ency isolation |  |  |  |  |
| Cooling method                     | forced ai                                      | r cooling      |  |  |  |  |
| Protection class                   | IP20/  | /IP54          |  |  |  |  |
| Dimensions (D*W*H) mm              | 800*800*2160 / 800*1000*2160 (outdoor version) |                |  |  |  |  |
|                                    | Communication method                           |                |  |  |  |  |
| Host computer communication method | ModBus C TCP/IP                                |                |  |  |  |  |
| Communication interface            | Ethemet port, RS485, CAN                       |                |  |  |  |  |





## **ENERGY STORAGE SYSTEM**

## PDS DC Converter



#### Product introduction:

The PDS400KW DC-DC converter converts the direct current of the photovoltaic module array into direct current that can charge the battery. Adopt single-stage topology, wide photovoltaic voltage input range with 250-650V; output voltage range to battery with 600-900V with MPPT photovoltaic maximum power tracking function.

#### Performance characteristics

For the DC conversion protection strategy, it meets the relevant standards of the photovoltaic industry, and has but is not limited to the following protection functions:

- PV input overvoltage protection
- PV input under-voltage protection
- Output overload protection
- Output current control
- Output short circuit protection
- DC reverse protection

At the same time, according to the BMS requirements of different batteries, the battery side charging status is protected according to its control strategy, including overcharge, overdischarge, capacity protection, etc.

| Model  | PDS  |  |  |  |  |
|--|--|--|--|--|--|
| Rated power (KW)                                   | 400  |  |  |  |  |
| Low voltage side connected to PV input             |  |  |  |  |  |
| HVDC bus voltage (V)                               | 750 (Low side voltage+40~850)  |  |  |  |  |
| HVDC bus current (A)                               | 67*8 (maximum 100*8)   |  |  |  |  |
| DC bus power (KW)                                  | 50*8   |  |  |  |  |
| Low voltage charge and discharge voltage (V)       | 500 (250-840)  |  |  |  |  |
| Low voltage charge and discharge current (A)       | 100*8 (maximum 120*8)  |  |  |  |  |
| The low voltage side is con                        | nected to the battery input  |  |  |  |  |
| HVDC bus voltage (V)                               | 750 (Low side voltage+40~850)  |  |  |  |  |
| HVDC bus current (A)                               | 67*8 (maximum 100*8)   |  |  |  |  |
| DC bus power (KW)                                  | 50*8   |  |  |  |  |
| Low voltage charge and discharge voltage (V)       | 500 (250-840)  |  |  |  |  |
| Low voltage charge and discharge current (A)       | 100*8 (maximum 120*8)  |  |  |  |  |
| System pa  | arameters  |  |  |  |  |
| Protection   | Protection for over temperature, overload, emergency stop, fan failure |  |  |  |  |
| Maximum efficiency (refer to the efficiency curve) | 98.6%  |  |  |  |  |
| Isolation  | No isolation   |  |  |  |  |
| Refrigeration                                      | Forced air cooling   |  |  |  |  |
| Noise  | ≤ 70dB   |  |  |  |  |
| Communication method                               | RS485/CAN/Ethernet network port  |  |  |  |  |
| Operating temperature (°C)                         | -20~50 (Derating above 45)   |  |  |  |  |
| Humidity   | 0~95% (No condensation)  |  |  |  |  |
| Altitude (m)                                       | 3000   |  |  |  |  |
| Protection class                                   | IP20   |  |  |  |  |
| Size (D*W*H) mm                                    | 800*1100*2060  |  |  |  |  |
| Weight (KG)  | 600  |  |  |  |  |





## **ENERGY STORAGE SYSTEM**

## PSWD on-grid and off grid switch cabinet system



#### **Product introduction:**

The PSWD on-grid and off-grid switch cabinet system consists of AC power distribution cabinet, photovoltaic inverter (optional), local load and energy storage converter to form a set of AC micro-grid system. The microgrid switching cabinet can work in different modes as required.

The PSWD on-grid and off-grid switching cabinet plays a central role in the whole system, with the characteristics of energy dispatch management, fast on-grid and off-grid switching and convenient maintenance. At the same time, it has perfect protection functions, such as over temperature, AC over and under voltage, AC reverse sequence, emergency shutdown, fan failure, output overload, etc., to meet the requirements of off-grid operation. The micro-grid switching cabinet includes on road power grid input.

When the thyristor of the micro-grid switching cabinet breaks down, the bypass switch can be closed for emergency power supply. Note: the bypass switch and the grid switch cannot be closed at the same time. The microgrid switching cabinet includes a PCS switch, which is specially used to connect the energy storage converter. It is equipped with four load switches at most, and can be optionally connected to photovoltaic grid-connected inverters, wind turbines, diesel generators and local loads. The external communication of the switching cabinet includes RS485, and the Ethernet can exchange data with the background PC to form an energy management system, which can dispatch and manage energy and switch between on-grid and off-grid.

| Model                              | PSWD-800KW   |
|------------------------------------|--|
| Rated power (KW)                   | 800400   |
| Rated voltage (V)                  | -25%~15%   |
| Input voltage range                | -25%~15%   |
| Output voltage range               | 1155   |
| Rated input current (A)            | 1270 (1.1 times)   |
| Maximum input current (A)          | 50/60  |
| Rated frequency (Hz)               | 47~52/57~62  |
| On and off grid switching time     | <20ms  |
| Overall efficiency                 | 99.5% (full load)  |
| Protection class                   | IP20   |
| Design life                        | 10 years   |
| Cooling method                     | air cooling  |
| Grid access                        | 1 road   |
| PCS/PV access                      | 1 road (not more than 500KW)   |
| Load access                        | 4 roads  |
| Maximum load switching power (KW)  | 300 (RCD load, pure capacitive or inductive load is less than 100)   |
| Wiring                             | Three phases four wires system   |
| Protection                         | Protection for over temperature, AC over and under voltage, AC reverse sequence emergency shutdown, fan failure, output overload, etc. |
| Host computer communication method | ModBus TCO/IP protocol   |
| Communication Interface            | Ethernet port/ RS485   |
| Cabinet size (D*W*H) mm            | 800*800*2160   |
| Noise                              | 70dB   |
| Temperature range (°C)             | -20~45   |
| Altitude (m)                       | 3000   |
| Humidity                           | 0-95%  |
| Weight (KG)                        | 300  |

#### Introduction of PSTS Microgrid Controller:

The micro-grid controller (PSTS) consists of four parts: fast switching, high-precision detection, login control, and external communication. It can automatically complete on-off-grid switching and on-grid synchronization. The active switching and off-grid time is 0ms, the passive switching time is 20ms (typical), and the switching can be realized within 5ms through customization (at this time, the system mainly guarantees the power supply waveform).

| Project                           | PSTS-100KW  | PSTS-200KW | PSTS-300KW | PSTS-800KW   |
|-----------------------------------|-------------|------------|------------|--------------|
| Input voltage range (VAC) 340-460 |             | 340-460    | 340-460    | 340-460      |
| Rated output voltage(V)           | 400         | 400        | 400        | 400          |
| Rated output current (A)          | 153         | 306        | 459        | 1215         |
| Communication method              | CAN         |            |            |              |
| Size (D*W*H) mm                   | 220*585*482 |            |            | 800*800*2160 |





## SOLAR CHARGING CONTROLLER

## **MPPT** Controller



#### **Product introduction:**

MPPT sereis photovoltaic controller is a high-performance step-down solar power generation equipment, which adopts MPPT algorithm to make full use of solar photovoltaic energy. The PV input voltage rangeis wide, which can charge a variety of batteries, and the three-stage charging effectively improves the life of the battery. The modular design of the controller allows multiple units to be used in parallel, allowing customers to configure freely and flexibly.

#### **Performance characteristics**

Memory function, save the settings, date and time, power generation etc function

Charging mode: three-stage charging (constant current, constant voltage, float), effectively extending the battery life

LCD and LED display various parameters, such as model, PV input voltage, the battery type, charging voltage, charging current, charging power, working condition etc

Photovoltaic input adopts MPPT tracking technology

Can be operated in parallel, expanding the range of use and meeting the charging requirements under high power Available for communication power supply field

| Model                               | PSM48   | PSM96                                  |  |  |
|-------------------------------------|---|--|--|--|
| Rated voltage (VDC)                 | 48  | 96                                     |  |  |
| Over voltage protection point (VDC) | 62  | 124                                    |  |  |
| Over voltage resumption point (VDC) | 60  | 120                                    |  |  |
| Float voltage (VDC)                 | 54  | 108                                    |  |  |
| Bulk voltage (VDC)                  | 56.8  | 113.6                                  |  |  |
| Maximum charging current (A)        | 60/120  | (50/100)/(150/200)                     |  |  |
| Charging mode                       | Three-stage; constant currer  | it (MPPT), constant voltage, float     |  |  |
| Maximum input power (kWp)           | 3.4/6.8   | 5.7/11.4/17.1/22.8                     |  |  |
| Starting voltage (VDC)              | 60  | 120                                    |  |  |
| MPPT voltage range (VDC)            | 50-150  | 110-280                                |  |  |
| Maximum open-circuit voltage(VDC)   | 170 300   |  |  |  |
| Maximum efficiency                  | >98%  |  |  |  |
| MPPT efficiency                     | >99%  |  |  |  |
| Noise (dB)                          | <55   |  |  |  |
| Display                             | LCD+LED   |  |  |  |
| Communication                       | RS485(optional)   |  |  |  |
| Working temperature (°C)            | -10~+40   |  |  |  |
| Humidit                             | 0~95% (Non-condensing)  |  |  |  |
| Altitude(m)                         | ≤5000m, abov  | ≤5000m, above 1000m derating           |  |  |
| Protection level                    | IP20  |  |  |  |
| Dimension (D*W*H) mm                | 225*475*640(Wall-mounted type)  | (225*475*640)/(530*530*1150) (vertical |  |  |
| Weight (KG)                         | 13-16 13-50   |  |  |  |
| Protection                          | PV array reverse polarity protection; reverse battery proterction; battery overcharge protection over-discharge protection; output overload protection; output short circuit protection |  |  |  |





## **SOLAR CHARGING CONTROLLER**

## **MPPT** Controller



### **Product introduction:**

MPPT sereis photovoltaic controller is a high-performance step-down solar power generation equipment, which adopts MPPT algorithm to make full use of solar photovoltaic energy. The PV input voltage rangeis wide, which can charge a variety of batteries, and the three-stage charging effectively improves the life of the battery. The modular design of the controller allows multiple units to be used in parallel, allowing customers to configure freely and flexibly.

#### **Performance characteristics**

In order to increase reliability, multiple protections are used

Input over voltage protection

Input under voltage protection

Output over voltage protection

Output over current protection

Stand-alone two-phase current unbalance protection Single-phase output over current hardware protection

• Display mode can be LED light or LCD screen

- Support multi-module parallel work
- Relevant parameters can be set freely
- A controller cabinet is optional, and control cabinets of different specifications can be selected according to the required charging power. The control cabinet comes standard with photovoltaic input circuit beakers, battery circuit breakers, fuses, etc.

| Series                              | PSM192   | PSM220      | PSM240  | PSM360     | PSM384               |
|-------------------------------------|--|-------------|---------|------------|----------------------|
| Rated volt(VDC)                     | 192  | 220         | 240     | 360        | 384                  |
| Float charging volt(VDC)            | 216  | 243         | 270     | 405        | 432                  |
| Bulk charging volt                  | 227  | 256         | 284     | 426        | 454                  |
| Charging mode                       | Three stage: Constant current, constant voltage, floating  |             |         |            |                      |
| Max.Input power(kWp)                |  | 12/24       |         | 42         | 45                   |
| Start voltage(VDC)                  | 250  | 280         | 310     | 470        | 490                  |
| MPPT volt range(VDC)                | 230-450  | 260-450     | 290-450 | 450-800    | 480-800              |
| Max.open circuit voltage (VDC)      |  | 480         |         | 8          | 50                   |
| Max.efficiency                      |  |             | >98%    |            |                      |
| MPPT efficiency                     |  | >99%        |         |            |                      |
| Noise(dB)                           | <65  |             |         |            |                      |
| Display                             | LCD+LED  |             |         |            |                      |
| Communication                       | RS485 (Optional)   |             |         |            |                      |
| Working temperature (°C)            | -10~+50  |             |         |            |                      |
| Humidity                            | ≤95% (Non-condensing)  |             |         |            |                      |
| Altitude(m)                         | ≤5000m, above 1000m derating   |             |         |            |                      |
| Protection level                    | IP20   |             |         |            |                      |
| Protection function                 | PV array aiti-reverse connection, Night anti-reverse charging, Battery over-charging, Over-temperature protection, etc |             |         |            | ature protection,etc |
|                                     | 10KW Wall-mount  | 470*36      | 50*100  | Wall-mount | 490*423*203          |
|                                     | 10KW Ract-mount  | 403*482*87  |         | Rack-mount | 527*480*219          |
| Dimension(D*W*H) mm                 | 20KW Wall-mount  | 517*40      | 00*181  |            |                      |
| Weight (KG)                         | 10KW:9 ; 20KW: 18  |             |         | :          | 25                   |
|                                     | 4 Modules  | 550*550*900 |         |            |                      |
| Optional cabinet size<br>(D*W*H) mm | 6 Modules  | 600*60      | 0*1600  | 4 Modules  | 700*550*1300         |





## **ENERGY STORAGE SYSTEM**

## EMS-A7 Micro-grid controllers



#### Product introduction:

The EMS-A7 series of micro grid controller is an energy management system for monitoring and controlling other devices such as PCS, batteries and smart meters in the entire micro grid system, which can be used in both on grid and off-grid modes. EMS-A7 can be used to monitor switching devices, which enable the system to switch between on grid and off-grid states, but switching commands maynot be sent by the EMS-A7.

The EMS-A7 series micro grid controllers can also be used in off-grid systems containing diesel generators.

## Performance characteristics

For the DC conversion protection strategy, it meets the relevant standards of the photovoltaic industry, and has but is not limited to the following protection functions:

- PV input overvoltage protection
- PV input under-voltage protection
- Output overload protection
- Output current control
- Output short circuit protection
- DC reverse protection

At the same time, according to the BMS requirements of different batteries, the battery side charging status is protected according to its control strategy, including overcharge, overdischarge, capacity protection, etc.

| Model                      | EMS-A7  |  |  |  |
|----------------------------|---|--|--|--|
| Basic configuration        |   |  |  |  |
| Input (AC)                 | 100V~240Vac L/N/PE                            |  |  |  |
| RS485                      | 4 path  |  |  |  |
| Ethernet                   | 1 path 100M Network port; Expandable switches |  |  |  |
| CAN                        | 2 path  |  |  |  |
| USB                        | 1 path  |  |  |  |
| Digital input              | 5 path  |  |  |  |
| Digital output             | 5 path  |  |  |  |
| Operation system           | Linux   |  |  |  |
| Other                      | parameters                                    |  |  |  |
| CPU                        | ARM Cortex-A7, 528MHz                         |  |  |  |
| RAM                        | 256MB DDR3                                    |  |  |  |
| Hard disk                  | 256MB   |  |  |  |
| RTC                        | Built-in real time clock                      |  |  |  |
| Indicator light            | Power indicator light: Always on at power up  |  |  |  |
| IP grade                   | IP20  |  |  |  |
| Size (D*W*H) mm            | 210*290*42                                    |  |  |  |
| Weight                     | 3   |  |  |  |
| Installation form          | Wall/rack Installation                        |  |  |  |
| Operating temperature (°C) | -10~60  |  |  |  |
| Storage temperature (°C)   | -40~85  |  |  |  |
| Altitude (m)               | 4000  |  |  |  |
| Humidity                   | 10~90%  |  |  |  |





## **PV&BATTERY ENERGY STORAGE INTEGRATED**

## Lithium Iron Phosphate Battery PSL Series



#### Product introduction:

Lithium battery integrated machine, integrated lithium battery and photovoltaic inverter controller integrated machine, canrealize photovoltaic and mains power supply mode, battery or bypass priority can be set, with multiple protections, such as inputbattery over-voltage protection, under-voltage protection, over-current protection, output under-voltage protection, over-currentthree-level protection (peak high current, RMS current, peak over-current soft start).

Built-in lithium battery can store excess power to meet the uninterrupted use of small outdoor equipment

- Modular structure design, easy to assemble and maintain, and the volume is half of that of conventional lead-acid batteries
- Pure sine wave output, perfect pretection function
- Optional fingerprint lock with anti-theft function
- High efficiency, low stadby loss
- Standard 60A MPPT photovoltaic controller, optional 10A charger

| Model  | PSL-0.5/1KVA-2.5KWh                             | PSL VII-5KW                                  |  |  |  |
|--|---|--|--|--|--|
| Input  |   |  |  |  |  |
| Rated mains input voltage(VAC)                 | 230 Single phase                                |  |  |  |  |
| Mains input voltage range(VAC)                 | 170-280(Computer); 90-280(Household appliances) |  |  |  |  |
| Mains input frequency range(Hz)                | 50/   | /60  |  |  |  |
|  | Output  |  |  |  |  |
| Inverter output voltage(VAC)                   | 230±5% Si                                       | ngle phase                                   |  |  |  |
| Maximum efficiency                             | 90%~93%(Peak)                                   | 94%(Peak)                                    |  |  |  |
| Output waveform                                | Pure sir  | le wave                                      |  |  |  |
| Switching time(ms)                             | 10(Computer);20(Household appliances)           | ≤10  |  |  |  |
| Peak   | 3:  | 1  |  |  |  |
|  | Battery   |  |  |  |  |
| Battery type                                   | Lithium iron                                    | phosphate                                    |  |  |  |
| Battery capacity(kWh)                          | 2.5   | 10/20/30                                     |  |  |  |
| Rated voltage(VDC)                             | 48  |  |  |  |  |
| Charging voltage(VDC)                          | 52.5  |  |  |  |  |
| Mains charging+photovoltaic charging           |   |  |  |  |  |
| Maximum photovoltaic power(KW)                 | 3   | 6  |  |  |  |
| MPPT range(VDC)                                | 70-256  | 120-450                                      |  |  |  |
| Maximum photovoltaic open circuit voltage(VDC) | 256   | 500  |  |  |  |
| Maximum PV charging current(A)                 | 60  | 100  |  |  |  |
| Maximum AC charging current(A)                 | 10(Optional)                                    | 60   |  |  |  |
|  | Appearance                                      |  |  |  |  |
| Dimnsions(D*W*H)mm                             | 210*510*695                                     | 301*693*(860/1325/1790)                      |  |  |  |
| Net weight(KG)                                 | 32  | 67/115/163                                   |  |  |  |
| Communication interface                        | RS485   | RS485 communication/mobile App(Wifi or GPRS) |  |  |  |
| Environment                                    |   |  |  |  |  |
| Humidity                                       | 0~95% No co                                     | ondensation                                  |  |  |  |
| Operating temperature(°C)                      | -10~40  |  |  |  |  |
| Storage temperature(°C)                        | -15~60  |  |  |  |  |





## LOW VOLTAGE SERIES LITHIUM BATTERY MODULE

## GBP-L2 Power wall type lithium iron phosphate battery



#### **Product introduction:**

The product adopts modular design, higher integration, aves installation space; adopts high-performance lithium iron phosphate positive electrode material, the battery cell has good consistency, and the designed service life is more than 10 years. One-key switch machine, front operation, front wiring, easy installation convenient maintenance and operation. Various functions, over-temperature alarm protection, over-charge and over-discharge protection, short-circuit protection, over-charge and over-discharge protection, short-circuit protection with UPS.

- Wall-hanging installation, save space
- Multiple in parallel, easy for expand, Automatic addressing, no need to dial a code
- Standard configuration with LCD display, real time knowing battery status, Screen direct selection of inverter communication
- Environmentally friendly non-polluting materials, free of heavy metals, green and environmentally friendly
- Standard cycle life is more than 5000 times
- Remote viesing of errors and online software upgrades

| Model                                     | GBP48V-100AH-W (optional 51.2V) | GBP48V-200AH-W(Optional 51.2V) |  |  |
|---|---------------------------------|--------------------------------|--|--|
| Nominal voltage (V)                       | 48                              |                                |  |  |
| Nominal capacity (AH)                     | 105                             | 210                            |  |  |
| Nominal energy capacity(kWh)              | 5                               | 10                             |  |  |
| Operating voltage range (V)               | 42-52                           | .5                             |  |  |
| Recommended charging voltage (V)          | 52.5                            |                                |  |  |
| Recommended discharge cut-off voltage (V) | 45                              |                                |  |  |
| Standard charging current (A)             | 50                              | 100                            |  |  |
| Maximum continuous charging current (A)   | 100                             | 200                            |  |  |
| Standard discharge current (A)            | 50                              | 100                            |  |  |
| Maximum discharge current (A)             | 100                             | 200                            |  |  |
| Applicable temperature (°C)               | -30 ~ 60 (Recommended 10~35)    |                                |  |  |
| Humidity range (%rh)                      | 0 ~ 95% No condensation         |                                |  |  |
| Storage temperature (°C)                  | 20 ~ 65 (Recomm                 | ended 10~35)                   |  |  |
| Protection level                          | IP20                            |                                |  |  |
| Cooling method                            | Natural air cooling             |                                |  |  |
| Life cycles                               | 5000+ times at 80% DOD          |                                |  |  |
| Maximum size (D*W*H) mm                   | 628*410*186                     | 682*465*276                    |  |  |
| Weight (KG)                               | 45.7                            | 89.6                           |  |  |





## LOW VOLTAGE SERIES LITHIUM BATTERY MODULE

## GBP-L1 RACK Type Lithium Iron Phosphate Battery



#### **Product introduction:**

This product is composed of high-quality lithium iron phosphate cells (by series and parallel) and advanced BMS management system. It can be used as an independent DC power supply or as a "basic unit" to form a variety of energy storage lithium battery power system. High reliability and longer life. It can be used as backup power supply of communication base station, backup power supply of digital center, household energy storage power supply, industrial energy storage power supply, etc. It can be seamlessly connected with main equipment such as UPS and photovoltaic power generation.



- Small size and light weight
- Screen direct selection of inverter communication
- Standard cycle life is more than 5000 times
- Accurately estimate the state of charge of the battery pack, that is the remaining power of the battery, to ensure that the power
  of the battery pack is maintained within a reasonable range
- Multiple in parllel, easy for expand, Automatic addressing, no need to dial a code
- Easy for installation and maintenance

| Model                                     | GBP24V-200AH                   | GBP48V-100AH-R (optional 51.2V) | GBP48V-200AH-R(Optional 51.2V) |  |
|---|--------------------------------|---------------------------------|--------------------------------|--|
| Nominal voltage (V)                       | 25.6                           | 48                              |                                |  |
| Nominal capacity (AH)                     | 210                            | 105 210                         |                                |  |
| Nominal energy capacity(kWh)              | 5.3                            | 5                               | 10                             |  |
| Operating voltage range (V)               | 22.4-29.2                      | 52.5                            |                                |  |
| Recommended charging voltage (V)          | 28                             |                                 |                                |  |
| Recommended discharge cut-off voltage (V) | 24                             |                                 | 45                             |  |
| Standard charging current (A)             | 100                            | 50                              | 100                            |  |
| Maximum continuous charging current (A)   | 200                            | 100 200                         |                                |  |
| Standard discharge current (A)            | 100                            | 50 100                          |                                |  |
| Maximum discharge current (A)             | 200                            | 100 200                         |                                |  |
| Applicable temperature (°C)               | -30 ~ 60 (Recommended 10 ~ 35) |                                 |                                |  |
| Humidity range (%rh)                      | 0~95% no condensation          |                                 |                                |  |
| Storage temperature (°C)                  |                                | 20 ~ 65 (Recommended 10 ~ 35)   |                                |  |
| Protection level                          | IP20                           |                                 |                                |  |
| Cooling method                            | Natural air cooling            |                                 |                                |  |
| Life cycles                               | 5000+ times at 80% DOD         |                                 |                                |  |
| Maximum size (D*W*H) mm                   | 596*545*155                    | 540*545*155 610*510*246         |                                |  |
| Weight (KG)                               | 48                             | 44.5                            | 88.3                           |  |





GHV1 SERIES HIGH VOLTAGE LITHIUM BATTERY STACK SYSTEM



#### Product introduction:

The product is mainly composed of high-quality lithium iron phosphate battery and smart energy storage inverter. When the sunlight is sufficient during the day, the excess power generation of the rooftop potovoltaic system is stored in the energy storage system, and the energy of the energy storage system is released at night to supply power for houshold loads, so as to achieve self-sufficiency in household energy management and greatly improve the economical performance of the new energy system. At the same time, in the event of sudden power outage/power failure of the power grid, the energy storage system can take over the electricity demand of the whole house in time. The capacity of a single battery is 5.32kWh, and the total capacity of the largest battery stack is 26.6kWh, providing a stable power supply for the family

#### **Battery pack performance indicators**

| Performance   | Item Parameter                                 |              | Remarks                              |  |
|---------------|--|--------------|--------------------------------------|--|
|               | Standard capacity (Ah)                         | 52           | 25±2°C 0.5C, New battery state       |  |
|               | Rated working volt (V)                         | 102.4        |                                      |  |
|               | Power (kWh)                                    | 86.4 ~ 116.8 | Temperature T>0°C, Theoretical value |  |
| Dettory pools | Packing size (D*W*H) mm 420*                   |              | 25*175                               |  |
| Battery pack  | Weight (KG)                                    | 45           |                                      |  |
|               | Self-discharging                               | ≤3%/month    | 25, 50% SOC                          |  |
|               | Battery pack internal resistance (m $\Omega$ ) | 19.2-38.4    | New battery state 25°C±2°C           |  |
|               | Staticvolt difference (mV)                     | 30           | 25°C, 30% ≤ SOC ≤ 80%                |  |

## GLV1 SERIES LOW-VOLTAGE LITHIUM BATTERY STACK SYSTEM



#### Product introduction:

This product is mainly composed of high-quality lithium iron phosphate battery module and intelligent PDU. When there is sufficient sunlight during the day, the excess power generated by the rooftop photovoltaic system will be stored in the energy storage system, and the energy from the battery is released at night to supply power for household loads, so as to achieve self-sufficiency in household energy management, the economy of the new energy system is greatly improved. At the same time, in case of sudden power outage/power failure of the power grid the energy storage system can take over the electricity demand of the whole house in time. With a single battery capacity of 5kWh/10kWh and a maximum stacked capacity of 20kWh/40kWh , the system can be used seamlessly with mains equipment such as photovoltaic power generation, as well as with a UPS to provide a table power supply for home.





## PSO50-80/100-200 Modular outdoor integrated cabinet



#### Product introduction:

The modular energy storage integrated cabinet can achieve efficient and safe design of building blocks from 100KWH small energy storage unit to MWH large-scale energy storage power station, solving the industry common problems such as low system safety, high parallel loss rate, short system life and so on existing in the traditional centralized energy storae solution, and defining a new solution for energy storage system integration.

- Highly integrated. All in one, factory prefabricated design. Flexible deployment, plug and play
- Safe and efficient. High efficient neutral point clamped topological structure. Support EMS and BMS system linkage
- Intelligent and friendly. Programmable working mode, touch screen control. Support photovoltaic AC coupling, DC coupling access
- Grid friendly. Equipped with four-quadrant adjustment function for active and reactive power. Equipped with LVRT and HVRT functions

| Model  | PSO-50-80  | PSO-100-200       |  |  |
|--|--|-------------------|--|--|
|  | Efficiency   |                   |  |  |
| Maximun efficiency                             | 95%  |                   |  |  |
|  | Battery cluster parameters   |                   |  |  |
| String formation method                        | 85   | 14/16S            |  |  |
| Rated voltage (V)                              | 768  | 672/768           |  |  |
| Working voltage (V)                            | 696-852  | 609-745.5/696-852 |  |  |
| Rated capacity (kWh)                           | 80   | 150-240           |  |  |
| Support charging and discharging power         | ≤:   | 1C                |  |  |
|  | AC grid connection parameters  |                   |  |  |
| Grid connection                                | 3 phase 4 wires,   | / 3 phase 3 wires |  |  |
| Rated output power (KW)                        | 50   | 100               |  |  |
| Maximum apparent power (KVA)                   | 55   | 110               |  |  |
| Grid voltage range (V)                         | 400±15%  |                   |  |  |
| Rated grid frequency (Hz)                      | 50/60  |                   |  |  |
| Maximum output current (A)                     | 145  |                   |  |  |
| Adjustable power factor                        | -0.99 ~ +0.99  |                   |  |  |
| Maximum total current harmonic distortion rate | <3   |                   |  |  |
|  | AC off-grid parameters   |                   |  |  |
| Rated output power (KW)                        | 50   | 100               |  |  |
| Maximum apparent power (KVA)                   | 55   | 110               |  |  |
| Rated output voltage (V)                       | 4  | 00                |  |  |
| Rated grid frequency (Hz)                      | 50   | /60               |  |  |
|  | Other parameters   |                   |  |  |
| Working temperture range (°C)                  | -25 ~ +55  |                   |  |  |
| Humidity (% RH)                                | 0 ~ 95, non  | -condensing       |  |  |
| Altitude (m)                                   | 4000 (De-rating power from 2000)   |                   |  |  |
| Cooling Type                                   | Industrial air conditioning (battery storage)/Intelligent Air cooling (electrical storage) |                   |  |  |
| Display  | 10 inch display screen   |                   |  |  |
| Communication                                  | CAN/485/TCP IP   |                   |  |  |
| Weight (KG)                                    | 2000   | 3600              |  |  |
| Size (D*W*H) mm                                | 900*1500*2300  | 900*2230*2300     |  |  |
| Protection grade                               | IP54 (Key c  | levice IP65)      |  |  |





LOW VOLTAGE SERIES LITHIUM BATTERY MODULE

## GBP-L1 RACK Type Lithium Iron Phosphate Battery



#### **Product features:**

- Equipped with a touchable screen to visually display the operating status of the battery pack
- Modular convenient installation
- Cycle life of over 5000 cycles
- With low power consumption mode, one-key restart is guaranteed within 5000 hours duing standby, and data is retained
- Full life cycle fault and data recording, remote viewing of error reports, online software upgrades and GPS positioning.

## Product advantage:

- Modular design, higher integration, saving installation space
- High-performance lithium iron phosphate cathode material, with good consistency of the core and a design life of more than 10 years
- One-touch switching, front operation, front wiring, eae of installation, maintenance and operation
- Various functions, over-temperature alarm protection, over-charge and over-discharge protection, short-circuit protection
- Highly compatible, seamlessly interfacing with mains equipment such as UPS and photovoltaic power generation, various forms of communication interfaces, CAN/RS485 etc. can be customized according to customer.
- Requirements, easy for remote monitoring. Flexible using range, can be used as a stand-alone DC power supply
- Spcification of energy storage power supply systems and container energy storage systems

| Model Number   | GBP9650     | GBP48100  | GBP32150 | GBP96100 | GBP48200    | GBP32300 |
|--|-------------|-----------|----------|----------|-------------|----------|
| Cell version (Ah)  | 52          |           |          | 105      |             |          |
| Nominal power(kWh)   | 5           | 5         | 5        | 10       | 10          | 10       |
| Nominal capacity(Ah)   | 52          | 104       | 156      | 105      | 210         | 315      |
| Operating voltage range (VDC)  | 96          | 48        | 32       | 96       | 48          | 32       |
| Operating temperature(°C)  | 87-106.5    | 43.5-53.2 | 29-35.5  | 87-106.5 | 43.5-53.2   | 29-35.5  |
| IP grade   | IP21        |           |          |          |             |          |
| Reference weight (KG)  | 47.1 86.6   |           |          |          |             |          |
| Reference size (D*W*H) mm  | 630*475*162 |           |          |          | 640*510*252 |          |
| Note: Battery pack is used in a system, cycle life≥5000, under working condition of 25°C 80% DOD |             |           |          |          |             |          |





## **CONTAINER ENERGY STORAGE SYSTEM**

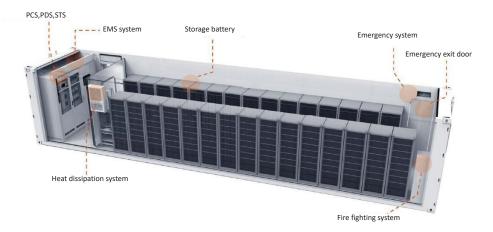
## 20FT AND 40FT CONTAINERS



#### **Product introduction:**

The containerized energy storage system includes :Battery management system (BMS), Power conversion system(PCS), Power distribution system(PDS), Micro-grid switching system(STS), Energy management system(EMS), and Auxiliary power distribution system, air conditioning system, fire protection system. It is widely used in scenarios such as power security, peak shaving and valley filling, new energy consumption and grid load smoothing.

- Flexible configuration of battery system types and capacities according to customer requirements
- The PCS has a modular architecture, simple maintenance and flexible configuration, allowing for myltiple parallel machines support parallel and off-grid operation mode, seamless switching
- Black start support
- EMS unattended system, locally controlled, cloud-monitored operation, with highly customized features
- Various modes including peak and valley reduction, demand response, backflow prevention, back-up power, command response, etc
- Complete gas fire extinguishing system and automatic fire monitoring and alarm system with audible and visual alarm and fault uploading
- Complete thermal and temperature control system to ensure that the battery compartment temperature is within the optimum operating range
- Access control system with remote control and local operation



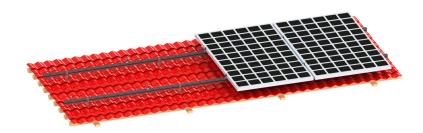
| Model                    | 20ft   | 40ft  |  |
|--------------------------|--|---|--|
| Output volt (V)          | 380/400 ±15%   |   |  |
| Gird frequency (Hz)      | 50/60 (±2.5)   |   |  |
| Output power (KW)        | 50-300   | 250-630   |  |
| Battery capacity (kWh)   | 200-600  | 600-2000  |  |
|                          | LiFePO4  |   |  |
| Size (m)                 | Inside size (D*W*H) : 2.352*5.898*2.385<br>Outside size (D*W*H): 2.438*6.058*2.591 | Inside size (D*W*H) : 2.352*12.032*2.385<br>Outside size (D*W*H) : 2.438*12.192*2.591 |  |
| Protection level         | IP54   |   |  |
| Humidity (% rh)          | 0-95   |   |  |
| Altitude (m)             | 3000   |   |  |
| Working temperature (°C) | -25 ~ 50   |   |  |
| Battery volt range (V)   | 500  | -850  |  |
| Max. DC current (A)      | 500  | 1000  |  |
| Connect method           | 3P 4W  |   |  |
| Power factor             | -1~1   |   |  |
| Communication method     | RS485, CAN, Ethernet   |   |  |
| Isolation method         | Low frequency isolation with transformer   |   |  |





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## PRA 1- RF2 Tile roof mounting system



#### **Technical specification**

Installation place:Tile roof Fixed way:Hook Installation angle:0° Standard wind:35m/s Standard snow:200mm Max snow: 1200mm Design standard: JISC 8955:2017 GB50009-2012, GB50797-2012 Main material:AL6005-T5 Fastener material:SUS 304



#### Advantages

- High-strength aluminum
- Ultra light-weight design
- Easy to install

**Main Components** 







Rail

Earthing plate

Rail joiner





Hook





Mid clamp

Earthing lug



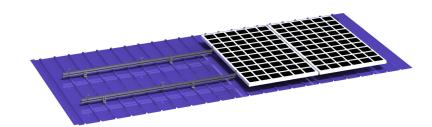
End clamp





Co..Ltc

PRA 2- TD T Type Tin roof mounting system



### **Technical specification**

Advantages

Easy to install

• High-strength aluminum

• Ultra light-weight design

Installation place:T-type Tin roof Fixed way:L-feet/ T-clamp Installation angle:0° Max wind:88m/s Max snow: 800mm Design standard: JISC 8955:2017 GB50009-2012, GB50797-2012, AS/NZS1170 Main material:AL6005-T5 Fastener material:SUS 304





Rail

End clamp

Mid clamp



Rail joiner





Earthing plate



Earthing lug





Rubber

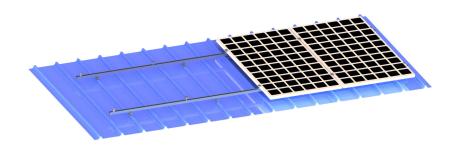
Cable clip





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## PRA 2- CR Cliplok tin roof mounting system



#### **Technical specification**

Installation place:Cliplok/Seamlok Tin roof Fixed way:Clamp Installation angle:0° Max wind:88m/s Max snow: 800mm Design standard: JISC 8955:2017 GB50009-2012, GB50797-2012,AS/NZS1170 Main material:AL6005-T5 Fastener material:SUS 304





Rail



End clamp



Rail joiner







Advantages

- High-strength aluminum
- Ultra light-weight design
- Easy to install

Earthing lug

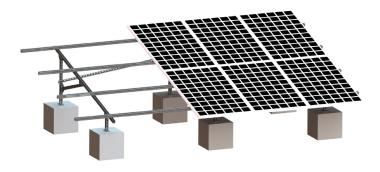
Clamp

Mid clamp





## PGC Steel ground mounting system



#### **Technical specification**

Installation place: Cement roof or flat ground Fixed way:Ground screw/Concrete base Installation angle: 0-35° Standard wind:31m/s Max wind: 55m/s Standard snow: 800mm Design standard: JISC 8955:2017 GB50009-2012, GB50797-2012 Main material:Q235B Fastener material:SUS 304







Rail\_beam

Triangle joiner







Advantages

- Strong compatibility
- High cost performance
- Patent design
- High-strength carbon steel
- Easy to install



Diagonal support

Column foundation



Column



Installation step

\*\*\*\*\*

1. Install the pile/concrete base

4. Install the rail



2. Install the column



5. Install the panel



3. Install the beam

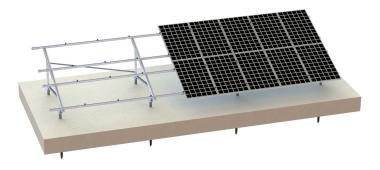
6. Complete





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## PGA 4 Aluminum ground mounting system



#### **Technical specification**

Installation place: Cement roof or flat ground Fixed way:Ground screw/Concrete base Installation angle: 5-45° Standard wind:35m/s Max wind: 88m/s Standard snow: 1200mm Design standard: JISC 8955:2017 GB50009-2012, GB50797-2012 Main material:AL6005-T5 Fastener material:SUS 304



#### Advantages

- Strong compatibility
- High cost performance
- Patent design
- High-strength carbon steelUltra light-weight design
- Easy to install





Beam

• •



Adjustable gasket

Rail 65



Joiner



Rear diagonal tie



Ŷ

Mid clamp



Clip

Column

Foundation



End clamp





Co..Lto

## PGA S-I Aluminum ground mounting system



#### **Technical specification**

Advantages

Patent design

• High-strength aluminum

• Ultra light-weight design • Easy to install

Installation place: Cement roof or flat ground Fixed way:Ground screw/Concrete base Installation angle: 5-45° Standard wind:35m/s Standard snow: 500mm Design standard: JISC 8955:2017 GB50009-2012, GB50797-2012 Main material:AL6005-T5 Fastener material:SUS 304

• Suit for all kinds of scale PV power station









Foundation

Adjustable gasket 1

Mid clamp

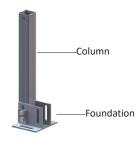


Beam

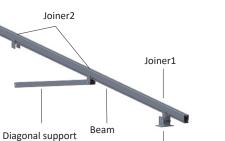
Adjustable gasket 2











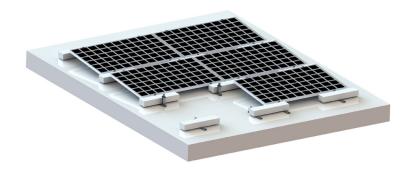
Foundation





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## PRA3-A4 Concrete roof mounting system



#### **Technical specification**

Installation place:Cement roof Fixed way:Concrete base Installation angle: 5°/10° Standard wind:35m/s Standard snow: 1200mm Design standard: JISC 8955:2017 GB50009-2012, GB50797-2012 Main material:AL6005-T5 Fastener material:SUS 304



#### Advantages

- High-strength aluminum
- Ultra light-weight design













End clamp

Clip

Front support



Mid support



Rear support



Installation effect 5°

















Installation effect 10°















**CPT Aluminum carport** 



#### **Technical specification**

Advantages

Installation place: Cement roof or flat ground Fixed way:Ground screw/Concrete base Installation angle: 5-45° Standard wind:36m/s Standard snow: 800mm Design standard: JISC 8955:2017 GB50009-2012, GB50797-2012 Main material:AL6005-T5 Fastener material:SUS 304

• Suit for all kinds of scale PV power station

• Pre-installed as more as possible • High-strength aluminum • Ultra light-weight design • Easy to install







Beam



Longitudinal beam





Adjustable gasket1

Adjustable gasket 2



Clip

Column

Joiner



Installation step



4.Install the rail







5.Install the panel



3.Install the beam



6.Complete



Foundation





Japan 700KW



Japan 13KW



Japan 300KW



Japan 224KW



Japan 250KW



Sweden 14.76KW



Iraq 39.6KW-15.12kWh



Japan 76KW



Italy 900KW



Sweden 15.58KW



Indonesia 5KW-10.24kWh



Tahiti 6KW



Sweden 15.99KW





Sweden 85.28KW





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