

CONSNANT[®]

HYBRID TELECOM POWER SYSTEM

OD-TRSS Series



Hybrid Telecom Power System



Product Description

OD-TRSS series telecom power system integrates solar & rectifier power system, cooling system, site monitor system to provide safe and reliable environment for telecom equipment. It can be widely used in outdoor site.

Application Field

Communication Base Station

Product Features

Multi-Energy Complementary Power Supply Solution

According to the site environment, accesses different complementary power supply systems of solar energy, mains electricity, and generator.

Modular Design

The solar modules and rectifier modules adopt a modular hot-swappable design, enabling flexible configuration, convenient expansion, and easy maintenance.

Excellent MPPT Function

Maximum power tracking accuracy is greater than 99.5%, system conversion efficiency is greater than 96% (solar mode).

Energy Saving Management Mode

Maximizes energy saving, according to the operation mode of the solar energy priority, mains (generator) supplement, and and battery backup. Makes full use of green solar energy, achieving the purposes of energy saving and emission reduction.

Intelligent Battery Management

It has battery protection function, automatic voltage regulation, current limiting, battery capacity calculation, automatic equalizing and floating charge conversion, online battery test, ect. A series of complete battery management functions ensure long service life of batteries in harsh power grid environment.

All-Round Lightning Protection

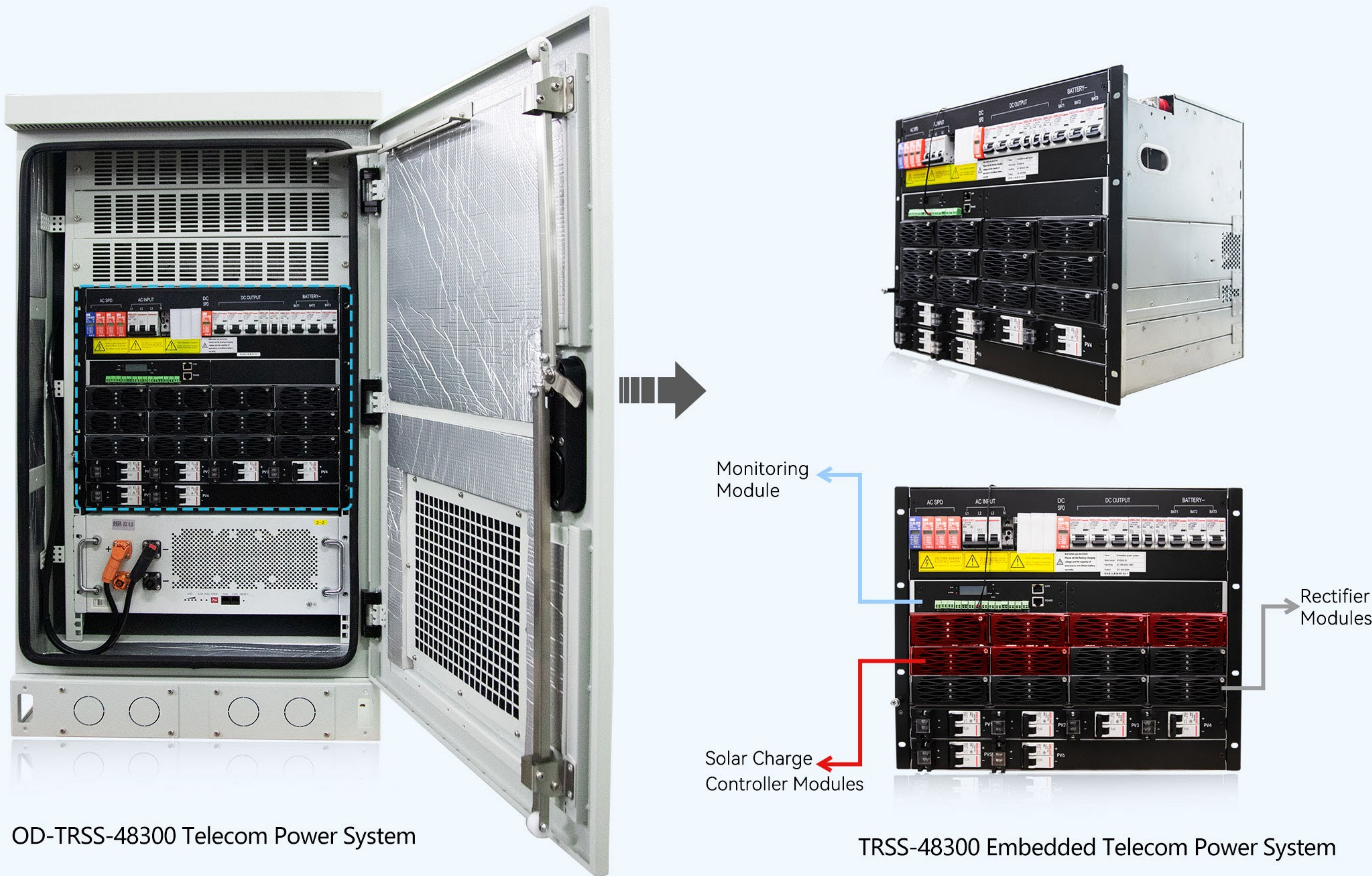
The system provides all-round lightning protection on the AC input side, solar input side, DC side, and signal side.

Protection Design

IP55 high protection grade cabinet and advanced temperature control design ensure reliable operation of the system in harsh outdoor environments.

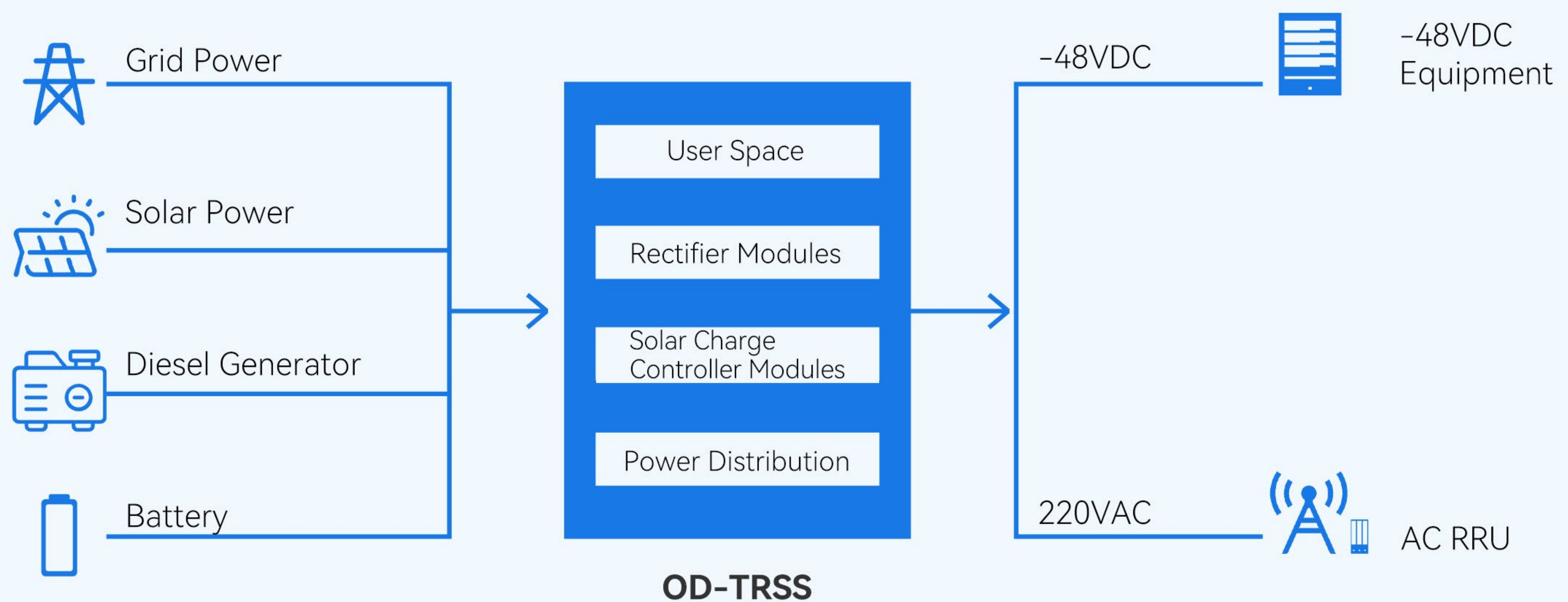
Flexible Monitoring Networking

The system can realize local monitoring and remote monitoring control, providing dry contacts, CAN communication and RS232 intelligent ports. The monitoring unit adopts centralized monitor to manage the solar module, mains power, rectifier, and generator.



Model	Configuration	Input Voltage Range	Output Voltage (Typical)	Output Current(Max)	Output Power(Max)	Modules Quantity(pcs)
TRSS-48300	Solar Charge Controller Modules	120~425 VDC	-54.5VDC	300A	18KW	1~6
	Rectifier Modules	85~300 VAC	-53.5VDC	300A	18KW	1~6

Working Diagram



Working Mode

- **AC+PV+Bat Mode:**

Normally, the power system runs in a parallel floating charge state, that is, the rectifier module, solar module, load, and battery work in parallel. Solar modules and rectifier modules provide floating charge current for power communication devices and batteries. If the output power of the solar module is insufficient to feed all the loads, the rectifier module will provide supplementary power for the communication devices.

- **PV+Bat Mode:**

When the mains power is off, the rectifier module stops working. If the solar power supply is normal, the solar module will feed the communication devices and charge the battery. If the output power of the solar module is insufficient to feed all the loads, the battery will provide supplementary power for the communication devices.

- **Gen+Bat Mode:**

When the mains power is off, the rectifier module stops working. If the solar energy fails at the same time, the communication devices will be powered by batteries. When the battery discharge continues for a period of time to the point of the generator start, the monitor sends start signal to the generator. Generator provides AC input power for the rectifier module, then the rectifier can supply power to the communication devices again and charge the battery to compensate for the consumption. When reaching the stop point of the generator, the monitor unit sends out a stop signal to the generator, and the generator turns off.

Technical Specifications

Model	OD-TRSS-48300		OD-TRSS-48600	
Cabinet				
Size(mm)	W*D*H = 759*693*1430 mm (without air conditioner) W*D*H = 759*817*1430 mm (with air conditioner)			
User Equipmet Space (U)	17U		13U	
Weight (kg)	130/145kg (without/with air conditioner)		160/175kg (without/with air conditioner)	
Rectifier Module				
Rated Power	3000W(standard) / 4000W(Optional)			
Number (pcs)	1 to 6		1 to 12	
Size (mm)	W*D*H=106.5*286*41.5 (±0.5mm)			
Weight (kg)	< 2kg			
Solar MPPT Module				
Rated Power	3000W			
Number (pcs)	1 to 6		1 to12	
Size (mm)	W*D*H=106.5*286*41.5 (±0.5mm)			
Weight (kg)	< 2kg			
AC Input				
AC Input Rated Voltage	Single-Phase 220Vac / Three-Phase 380Vac			
AC Input Voltage Range	85Vac~300Vac			
AC Input Maximum Current	40A (1 phase supply 2 modules maxmiumly)		80A (1 phase supply 4 modules maximumly)	
AC Input Voltage Frequency	45~65Hz (Typical value 50 / 60Hz)			
AC Power Factor	≥0.99 (220 Vac rated Load)			
PV Input				
PV Input Ranges	120Vdc~425Vdc (Starting voltage over 160Vdc)			
PV-Rated Input Voltage	340Vdc			
MPPT Voltage Range	120Vdc to 340Vdc			
Maximum Input Current of PV	17A			
Maximum Input Voltage of PV	450Vdc (Power supply cannot be damaged)			
Photovoltaic Module Reverse Pole Protection	Error input polarity, no damage			
Photovoltaic Module Input Protection	Positive and negative fuse			
Output				
Rectifier Output Voltage Range	-43.2Vdc~-57.6Vdc (Typical value-53.5Vdc)			
System Capacity (Max.)	18kW		36kW	
PV Output Voltage Range	-42Vdc~-58Vdc (Typical value-54.5Vdc)			
Voltage Stabilization Accuracy	≤±1%			
Output Ripple & Noise	≤200mVp-p (Rated input voltage and load and bandwidth limit of 20 MHz)		≤100mVp-p (Rated input voltage and load and bandwidth limit of 20 MHz)	
Current-Sharing Imbalance	≤±5% (Within the 50-100% load range)		≤±3% (Within the 50-100% load range)	
Rectifier Module Efficiency	≥93% / ≥95% / ≥96% Optional			
PV Module Efficiency	≥96%			
Startup Time	3~10S (The rated input voltage starts to the output voltage establishes to the setting value, the starting output needs to use the pre-flow limit function)			

Technical Specifications

On/Off Overshoot Amplitude		the system output voltage fluctuates ≤±5%, during hot swap of any module (At this time the load current should not be greater than the total output current of the working modules).	the system output voltage fluctuates ≤±3%, during hot swap of any module (At this time the load current should not be greater than the total output current of the working modules).
Dynamic Response	Overshoot Amplitude	≤±5% (25%-50%-25% or 50%-75%-50% load change)	≤±1% (25%-50%-25% or 50%-75%-50% load change)
	Recovery Time	≤200μs (25%-50%-25% or 50%-75%-50% load change)	≤10μs (25%-50%-25% or 50%-75%-50% load change)
Temperature Coefficient		≤±0.02%/℃ （For every 10 ℃ change in temperature,the difference between the DC output voltage and the output voltage setting value should not exceed ±0.02% of the output voltage setting value.）	
Psophometrically Weighted Noise Voltage		≤2mV	
Wide-Band Noise Voltage	3.4~150KHz	≤50mV	≤3mV
	0.15~30MHz	≤20mV	≤5mV
Discrete Noise Voltage	3.4~150KHz	≤5mV	≤2mV
	150~200KHz	≤3mV	≤1mV
	200~500KHz	≤2mV	≤1mV
	0.5~30MHz	≤1mV	≤1mV
Recovery Time		≤500mV	
Protection			
AC Input Overvoltage Protection		300Vac (Can self-recovery, the return difference of not less than 10 Vac)	
Photovoltaic Input Overvoltage Protection		430Vdc (Can self-recovery, the turn difference of not less than 15 Vac)	
AC Input Undervoltage Protection		85Vac (Can self-recover with a return difference of not less than 5 Vac)	80Vac (Can self-recover with a return difference of not less than 5 Vac)
Photovoltaic Input Undervoltage Protection		110Vdc (Can self-recovery, the return difference of not less than 40 Vac)	
Recfier Output Overvoltage Protection		-59Vdc~-61Vdc (Lock, can not recover, need to restart)	
Photovoltaic Output Overvoltage Protection		Internal-58.5 to -60.5Vdc, External: 63Vdc (Lock, can not recover, need to restart)	
Output Undervoltage Protection		Battery disconnect protection (Through monitoring, the battery can be powered down, and the protection point can be set)	
Output Limit Protection		Have	
Output Short Circuit Protection		Have (Can long-term short circuit, can recover automatically)	
Overtemperature Protection		It can recover automatically at the ambient temperature of 75℃	
Battery Polarity is Connected to Reverse Protection		Not have (According to the user needs can have the battery polarity reverse connection protection function)	
PV Underpower Protection		Input power <50W and shutdown for 5 minutes (The module starts when the input voltage is greater than 160 Vdc for 5 minutes.)	
Temperature Control			
Cooling	Single or dual fan of 48 Vdc, 100W, P44, PWM with temperature regulation. (optional)		
	5000W 1000W 1500W AC/DC air conditioner (optional)		
	500W 1000W heat exchanger (optional)		
Heating (Optional)		Heater (500W)	
Environmental			
Operating Temperature		-40℃-50℃	-15℃-45℃
Storage Temperature		-45℃-70℃	-40℃-70℃
Relative Humidity		5%-95%	
Altitude(m)		≤4000m (3000~4000m capacity derated output)	