

Any part of this manual, including text, pictures, graphics, etc., shall not be excerpted, copied, translated, or modified in whole or in part by any unit or individual in any way without written permission. Unless otherwise agreed, the company does not provide any express or implied statement or guarantee in this manual.

#### About this manual

The products described in this manual are only for sale and use in mainland China and internationally. Use this manual as a guide. The photos, graphs, charts and illustrations provided in the manual are only for the purpose of explanation and description, and there may be differences with the specific products, please refer to the actual product. Due to product version upgrade or other needs, the company may update this manual. If you need the latest version of the manual, please log in to the company's official website to check.

It is recommended that you use this manual under the guidance of professionals.

#### Responsibility Statement

To the maximum extent permitted by law, the products described in this manual (including its hardware, software, firmware, etc.) are provided "as is" and may have defects, errors or malfunctions, and the company does not provide any form of express or implied Guarantees, including but not limited to warranties of merchantability, quality satisfaction, fitness for a particular purpose, non-infringement of third-party rights, etc.; and no compensation for any special, incidental, incidental or indirect damages caused by the use of this manual or the use of the company's products, including but not limited to loss of business profits, loss of data or documents.

If you connect the product to the Internet at your own risk, including but not limited to the product may be subject to network attacks, hacker attacks, virus infection, etc., the company is not responsible for the abnormal operation of the product, information leakage and other problems caused by this, but the company will provide you with product-related technical support in a timely manner.

When using this product, please strictly follow the applicable laws. The company shall not be held responsible if this product is used for infringement of the rights of third parties or for other improper purposes.

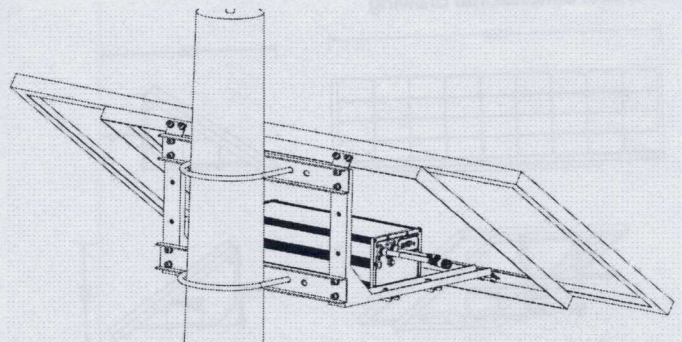
In the event of a conflict between the contents of this manual and applicable law, the law shall prevail.

## Solar Power System accessories

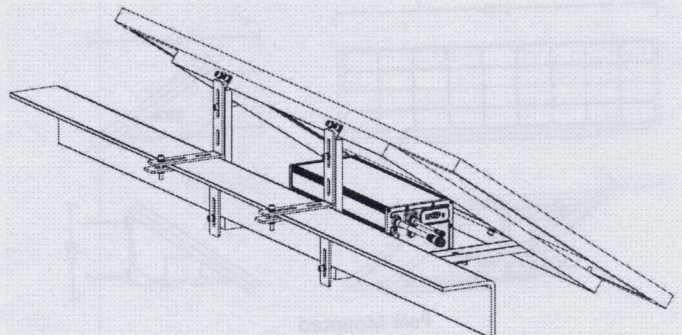
### User Manual

## Chapter 1 Precautions

- Please do not use gasoline or other organic solvents to clean this product, use a soft and dry cloth
- This product does not contain any user maintenance parts. Please do not disassemble or modify the lithium battery circuit without authorization, otherwise the product warranty will be lost. If there are quality or technical problems, please contact the dealer or return the product to our company for maintenance. Our company implements the "Three Guarantees" for the product within one year.
- The product installation must be firm and stable to avoid accidents and unnecessary losses.
- This product reserves the right to continuously improve, subject to change without notice



Pole Mounted



Tower Mounted



## Chapter 2 Product Introduction

### 2.1 Product overview and features

- This product is a professional solar intelligent power supply system, which consists of three parts: solar panel, lithium battery and mounting bracket. It has the product features of two easy and two high (easy to install, easy to use; long life, high reliability). In the case of not connecting to the mains, it can provide stable and reliable power output for the device, which is widely used in urban construction, road monitoring, new rural reconstruction, environmental governance, water source protection, forest fire prevention and other scenarios.
- This product is suitable for tower types and monitoring pole installation scenarios. It is installed with brackets or hoops, and it is firmly fixed without loosening.
- This product can be used in parallel with multiple sets of equipment, with a variety of combinations, equipped with parallel modules, to achieve large-capacity configuration to supply power to the camera, to meet the needs of different cloudy and rainy environments;
- This product meets the sunshine angle all over the world, and gives full play to the requirements of the best use of clean energy;
- This product has a strong wind resistance level, and the equipment still maintains a stable body without loosening in harsh weather environments;
- The lines of this product are designed with waterproof wire ends, fully considering the outdoor rain and snow weather, equipment failure caused by short circuit, and meet IP67;
- This product adopts a high-performance controller chip, with lithium battery activation and pre-charging functions, which can monitor and protect the battery in real time, and the circuit conversion efficiency is over 90%;
- This product has its own monitoring indicator light, which can realize real-time feedback of solar panels, batteries, and monitoring work conditions, which is convenient for viewing;
- This product supports RS485 communication with the device, and obtains information such as voltage, remaining power, and current in real time; equipped with an expansion integrated module, it can manage the power generation and remaining power of each single machine, and the system with sufficient power will give priority to power supply.
- The power generation unit of this product adopts high-efficiency monocrystalline silicon solar panel, and the efficiency of the whole solar panel is over 20%.
- The energy storage unit of this product adopts lithium battery, which is safe and reliable, with deep cycle, 2000 cycles, and a service life of more than 5 years;
- This product is made of galvanized steel and is made of precision work, which is stable and reliable without shaking;
- The heating version of this product is optional, which supports automatic heating under 0 °C, and does not strike in low temperature areas;
- Working temperature

Regular version: discharge temperature: -20~60°C, charging temperature: 0°C~60°C,

Heated version: Discharge temperature: -20~60°C, Charge temperature: -20°C~60°C.

### 2.2 Introduction

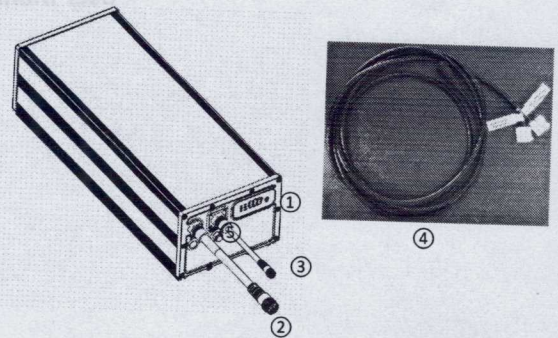
A complete solar power system consists of the following parts:

- Solar panel: Convert light energy into DC power to charge the battery.
- Battery: The function of the battery is to store electrical energy, and to ensure the normal power consumption of the system load when the solar energy is insufficient or the solar panel does not generate electricity.
- Load: It can be connected to 12V DC loads such as monitoring, monitoring equipment, and low-power audio.
- BMS: Energy conversion of the entire power supply system, switching device for charging and discharging lines, and control components for low temperature heating.
- Parallel module: battery line switching and output conversion control of the entire capacity expansion power supply system

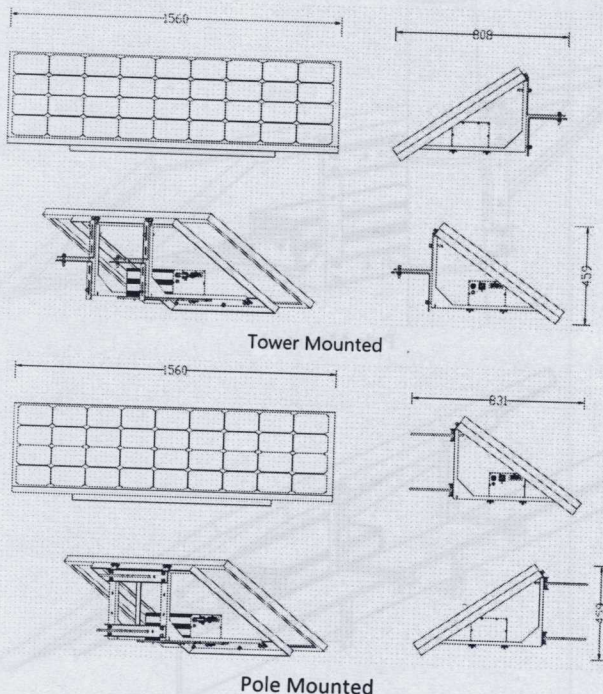
The specific system wiring method is determined by the actual application scenario.

### 2.3 Product Features

①	Indicator light	③	Output interface
②	Solar panel interface	④	Output adapter cable
⑤	Respirator		



### 2.4 Product dimensional drawing



Pole Mounted

### 2.5 Technical parameter

Accessories	Technical Parameters/Specifications	TY-TF200100-W-R/TY-TF200100-W-H-R
Solar Panel	Solar cell	166 mono (Mono-crystalline silicon)
	Power	200W±3%
	Open circuit voltage	21.24V
	Operating voltage	18V
	Max. operating current	11.11A
	Cell conversion rate	21.8%
	Glass specification	3.2mm
	Applicable environment	-40°C ~ 85°C
Battery	Hail impact test	23m/s, 7.53g
	Cell Type	LiFePO4
	Rated capacity	100Ah (0.5C@ RT)
	Rated voltage	3.2V
	Cells in series and parallel	4S1P
	Rated capacity	100Ah
	Rated voltage	12.8V
	Battery internal resistance	≤50mΩ (AC Tested at 1kHz)
	Charging mode	Constant current / constant voltage
	Charging voltage	14.6±0.05V
	Discharge cut-off voltage	11±0.05V
	Standard charge current	20A
	Max. continuous discharge current	10A
	Max. instantaneous discharge current	25A
	Weight	≈11.6Kg
	Dimensions (L x W x H)	345×120×140 mm



	Storage temperature		Charge capacity 40~50%, no more than 6 months (0°C ~ +35°C)
	Operating temperature	Charging: 0°C ~ 60°C, Heating: -20°C ~ 60°C	
		Discharge: -20°C ~ 60°C, Heating: -20°C ~ 60°C	
	Cycle life		≥2000 times (@0.5C 25°C)
	Communication function		RS485 baud rate 9600/115200 (MODBUS), OSD
	Heating function		optional
Controller boards	Charging	Charging mode	DC charging
		Max. charging current	30A
		Over-voltage	30V
	Discharge	Max. discharge current	10A
		System voltage	12V
		Battery over-discharge voltage	11V
		Over-discharge return voltage	12.5V
	Wire Specification		14 AWG
	Operating Temperature		-40°C ~ 70°C
	Redundancy		/
Other parameters	Self-depleting	Sleeping state	≤200uA
		Operating state	≤20mA
	Environmental reliability indicators		-30 °C ~ 60 °C Humidity less than 90%; Waterproof: IP67
	Wind resistance rating		Level 12
Cargo transport condition qualification		General Cargo	

	Power generation system installation methods		Corner mount bracket or monitor pole hoop fixing
	Camera mounting method		Hoop + gun bracket or other means
	Equipment size		1560×808×459 mm or 1560×831×459mm
	Package size		Main part: 940×730×200 mm Accessories: 1650×750×130 mm
	Main parts	Gross weight	21.2kg
		Net weight	18.4kg
	Attachment	Gross weight	19.9 kg
		Net weight	15.9kg
Certifications	Safety regulations		CE
	Environmental		ROSH 2.0

## Chapter 3 Product Installation and Maintenance

### 3.1 Product installation and maintenance instructions

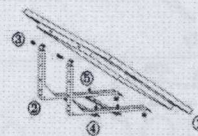
- The installation angle is generally 5-10° to the south and west of the solar panel; facing the affected area of the installation environment, it is not necessary to follow this rule and install it in the direction of the sun as much as possible.
- The male and female connectors of the monitor and the solar panel should not be hard inserted, and the corresponding holes should be connected properly.
- Please avoid the shadow of obstacles such as houses and trees during installation, otherwise the power generation efficiency of the solar panel will be reduced, resulting in lower monitoring efficiency.
- The power generation efficiency of solar panels with clean surfaces is high, so the surface (ash layer, leaves, oil stains, etc.) needs to be cleaned up. In winter, the snow on solar panels needs to be removed in time.
- Monitor the battery indicator, the green light is always on, it belongs to the charging state, and the red light is always on, it is in a state of power loss. (See Figure 1-3 for details)
- Plug in the male and female plugs of the solar panel, monitor the power supply activation, charge status during the day, and output 24 hours a day.
- We shall not be liable for any loss caused by the failure caused by the combined use of equipment unrelated to this product and the modification of the circuit.

### 3.2 Mounting method

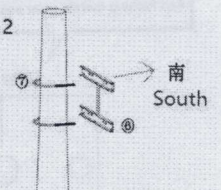
The pole mounted scenario equipment installation is shown in Figure 1-1. The tower scenario equipment installation is shown in Figure 1-2. Preparation: Check if the products are all set.

#### 1. Pole mounted

##### Step 1



##### Step 2



**Step 1:** Before installation, check whether the accessories are all in one set according to the packing list, after confirming that they are all in one set, take out the solar kit (1), take out the 90 degree support bracket (2) 2 pieces, use the M8 hexagonal combination screws (3) 8 pieces to install according to the diagram, use the M8 hexagonal spanner to fix it, after fixing the two support brackets, take out the U-shaped straight bracket (4) 2 pieces, use the M8 hexagonal combination screws (5) 4 pieces to install according to the diagram.

**Step 2:** Take out the I-shaped fixing bracket (6), take out the U-shaped hoop (7) and pass it through the monitoring rod, and adjust the fixing bracket (6) to the south or the sun direction (with the help of the compass inside the accessories), and put the U-shaped hoop Tighten the washer and nut slightly, and then use the compass to confirm the alignment to the south, and then fully tighten the screw.



## Step 3

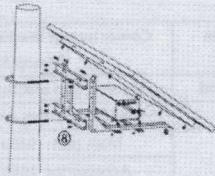
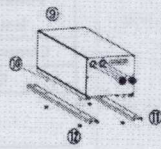


Figure 1-1 Installation diagram

## Step 4

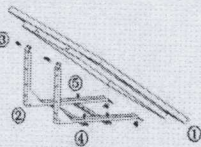


Step 3: Connect the solar panel kit assembled in step 1 with the I-shaped support in step 2. Mounting with 8 M8 socket head cap screws (8) as shown in the figure. Install, use the accessory M8 hex wrench to tighten the screws.

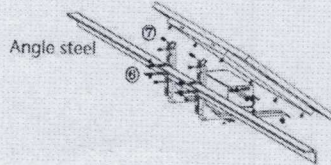
Step 4: Finally, take out the battery box (9), take out 4 M6 hexagon screws (10), install 2 in each of the two screw slots at the bottom of the aluminum case, and align them with the U-shaped straight bracket (11). After placing the 4 mounting holes of the straight bracket (11), use the hexagonal nuts (12) to tighten them diagonally in turn, and then take out the output extension cable. Insert it into the output socket, connect the other end to the output adapter cable and connect the electrical products, and finally connect the solar panel cable to the output of the battery box (9). Incoming port connection, the installation is complete.

## 2. Angle Steel Scene

## Step 1



## Step 2



Step 1: Before installation, check the accessories according to the packing list. After confirming that they are in the same set, take out the solar kit (1), and take out two 90-degree support brackets (2).

Use 8 M8 socket head cap screws (3) to install as shown in the figure. Use the accessory M8 hexagon wrench to fix it. After fixing the two support brackets. Take out 2 U-shaped straight brackets (4). Use 4 M8 socket head cap screws (5) to install as shown in the figure.

Step 2: Take out the 4 fixing brackets (6) and adjust the solar panel to face south or sunrise (with the help of the compass inside the kit). (with the help of the compass inside the accessory).

Install 6 sets of M8 hexagonal screws, spacers and nuts (7) according to the diagram and tighten them with an M8 hexagonal spanner.

## Step 3

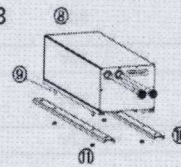


Figure 1-2 Installation diagram

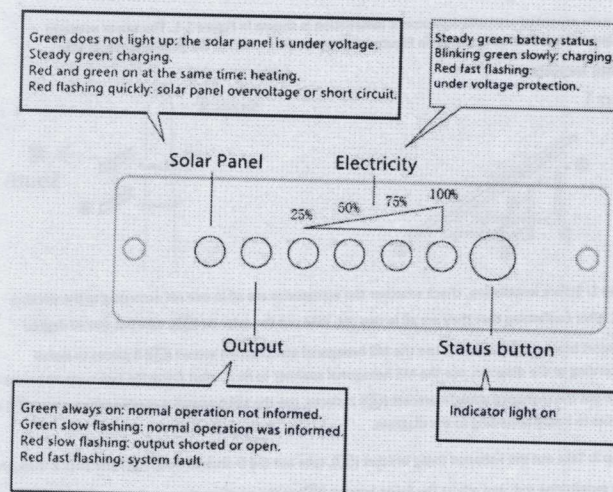
Step 3: Finally, take out the battery box (8), and take out the M6 outer hexagon screw (9)

4 pieces, respectively installed into the two screw slots at the bottom of the aluminum case, 2 pieces each, aligned with the U shape. After placing the 4pcs mounting holes of the straight bracket (10), use the hexagonal nuts (11) to tighten them diagonally in turn, and then take out the output extension cable.

Insert it into the output socket, connect the other end to the output adapter cable and connect the electrical products, and finally connect the solar panel cable to the output of the battery box (8).

Incoming port connection, the installation is complete.

## 3. Indicator description and common exception handling



Common exception handling is shown in the figure

Phenomenon	problem	Approach
Indicator light does not light up	Faulty battery supply	Check that the solar panel is plugged in
	Controller is dormant	Connect the solar panel to charge the battery to activate it
The battery indicator light is red and the monitoring light does not light up.	Low battery	<ul style="list-style-type: none"> <li>Check that the battery panel is charging properly and that the panel is not shaded.</li> <li>Check that the battery panel wiring is not disconnected or loose</li> </ul>
Short output time	Low battery	Check that the battery plate is charging properly and that the battery plate is correctly configured
	Excessive output power	Check the power consumption of the device, if the power consumption is too high replace the solar specification
Output indicator light flashes fast	Output wiring shorted	Check that the output wiring is correct and that the output is not connected backwards
Output only works for one night	Battery plate not connected	Check if the battery plate connection is correct, if the wiring is reliable and if the solar panel is covered
	Battery plate connected backwards	Reverse the wiring of the battery board during the day and observe if the battery board indicator does not light up
The battery panel indicator does not always light up for charging during the day when there is sunlight	Faulty battery plate or incorrect battery plate wiring	Check that the solar panel connection is correct and reliable and that the solar panel is not covered.
Charging indicator light flashes fast, no charging current	Lithium battery BMS protection board is overcharged	Wait for the lithium battery voltage to drop to the overcharge return voltage and then automatically resume charging
Camera is not online	No power supply to the camera	Check if there is voltage output from the power supply line of the power generation system
	Flow is exhausted	Check if the traffic card is running out and needs to be topped up
	The camera antenna is not connected properly	Check that the antenna is not loose and tightened and secured
	The local communication base station does not support the network service provider of the service	Change the appropriate network service provider for the installation site
	SIM card is not inserted properly	Check if the SIM card is installed correctly from new, chip position to PCB board orientation.
Dome does not rotate	Adjustment device using PTZ control, not rotating. Dome communication signal is unstable, signal is not strong and there is a delay	Re-apply power for inspection, if not rotate the camera has a fault. Change the installation place suitable network service provider.