



V1.2

# DPF-ISUN-T210



Production implementation standard

High accuracy single axis tracking controller  
**Technical Manual**

**DPF**  
**sensors**  
[www.dpfsensors.com](http://www.dpfsensors.com)

- Enterprise quality system standards: ISO9001: 2008 standard (certification number: 128101)
- CE certification: ATSZAWW190701002
- Angle tracking sensor production standard: GB/T 191 SJ 20873-2003 general specification
- Angle tracking measurement standard: JJF1119-2004 electronic level calibration specification
- Software development reference standard: GJB 2786A-2009 General requirements for military software development
- Product environmental testing standard: GJB150
- Electromagnetic anti-interference test standard: GB/T 17626
- Revised date: 2019-05-28
- Note: Product functions, parameters, appearance, etc. will be adjusted with the upgrade of the technology. Please contact the pre-sales business of the company for confirmation when purchasing.



## Product Introduce

The tracker controller developed by the DPF can calculate automatically the trajectory of the sun, the azimuth and elevation angle of the site at any time with the value of the local longitude, latitude and time. During the tracking, the system sends commands automatically according to the tracking range to control the operation of the electric actuator. The tracking angle is adjusted at intervals (usually about 5-10 minutes, which can guarantee sun tracking accuracy  $<2^\circ$  in the full-weather and full temperature  $<2^\circ$ ) to make the PV component face to the sun vertically all the time.

Under the harsh weather, the host computer informs the control system that there is wind, and issues a command to control system, then the control system commands the motor and the bracket reacts accordingly to avoid. When the sun is low, in order to avoid the shadow of the bracket, the system would enter the anti-shadow tracking phase.

The entire control process is fully automated and requires no man intervention (under "AUTO" mode).

## 4 Product features

- Half-tooth rotation is safer, no need to worry the overrun, easy to maintain;
- Adaptable to various component installations, especially double-sided components and double-glass components, unobstructed;
- Single row is flexible, adapting to the irregularly terrain;
- Good terrain adaptability, there is no terrain requirement for east to west, and terrain with slope less than 10° from north-south can be installed;
- With shadow avoidance function, it can greatly extend the illumination time and increase the system power generation;
- The power consumption is little, daily power consumption is less than 0.5KWh;
- With function of wind protection and automatic snow removal to ensure system safety;
- With heavy rain cleaning mode, which can use rainwater to clean components and reduce operation and maintenance costs;
- Single-row drive control, cost-effective, and easier maintenance;
- Soft limit protection, hard limit protection, overcurrent overload protection, safer;
- With 32-bit high-performance MCU.

## 4 Order information

ISUN-T210-200	DC controller, 1 controller equip 1 tilt sensor, RS485 wire control, 200W driving power
ISUN-W210-300	DC controller, 1 controller equip 1 tilt sensor, Zigbee wireless control, 300W driving power

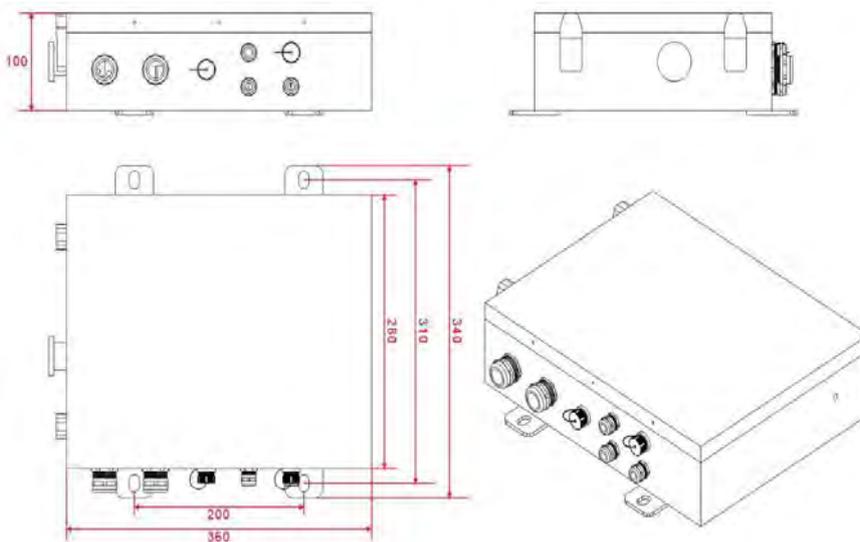
## □ Performance parameter

Technical index		Function and configuration	
bracket type	Horizontal single axis	Tracking type	Active tracking, closed loop control
Driving power	200W Optional	data acquisition	Wired (RS485) optional
	300W Optional		wireless (ZigBee) optional
Controller power supply	AC 110/220	Passage number of driving motor	1
Motherboard operating voltage	DC 24V	Control core	MCU (32-bit microcontroller)
Single set capacity(kW/set)	81~97.2KW	Tracking angle	<±45°~±60° optional
power consumption	0.06KW/H/天	Tracking accuracy	<±2°( Full temperature )
Power supply requirements	L +N (Two-phase input)	Night reset protection	yes (flattened)
East-west, south-north array size	According to location, component specifications	Rotary limit protection	yes ( Soft limit and hard limit, overcurrent, overload )
Applicable component type	Polycrystalline, single crystal, thin film, double sided, double	Anti-shadow function	Yes

	glass		
Covering area	24 acres /MW	Rain cleaning mode	Yes
Working wind speed	<10m/s	Snow mode	yes (Close to the maximum angle)
Survival wind speed	40m/s	Motor parameters	24VDC / 300W
Tracking accuracy	2 degree	Wireless/wired communication	Zigbee Technology /RS485
Component array	Single line 90 pieces	Working temperature	-30°-70°
Material	Q235B、Q345B (Hot dip galvanizing)	Gale protection	Yes
weight	<8kg (Hot dip galvanizing)	Automatic tracking mode	Yes
Protection grade	IP65(It can completely block dust, dust can't enter at 20 mA, and it will not cause damage to equipment by spraying water on any part.)	Manual tracking mode	Yes

#### Dimensions

##### 1 controller equip 1 tilt sensor type

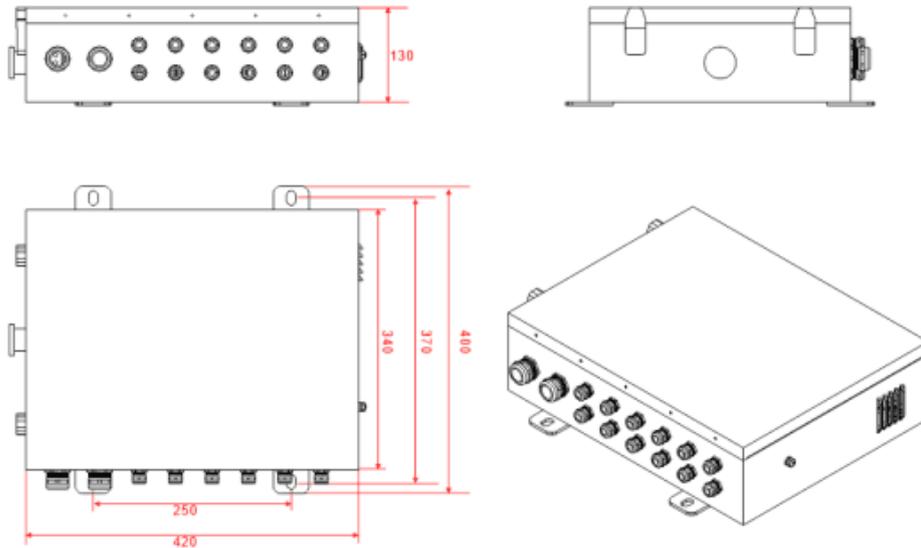


Product Size:340\*360\*100mm

Installation size:200\*310mm

Mounting screws:M12

**controller equip 3 tilt sensor**



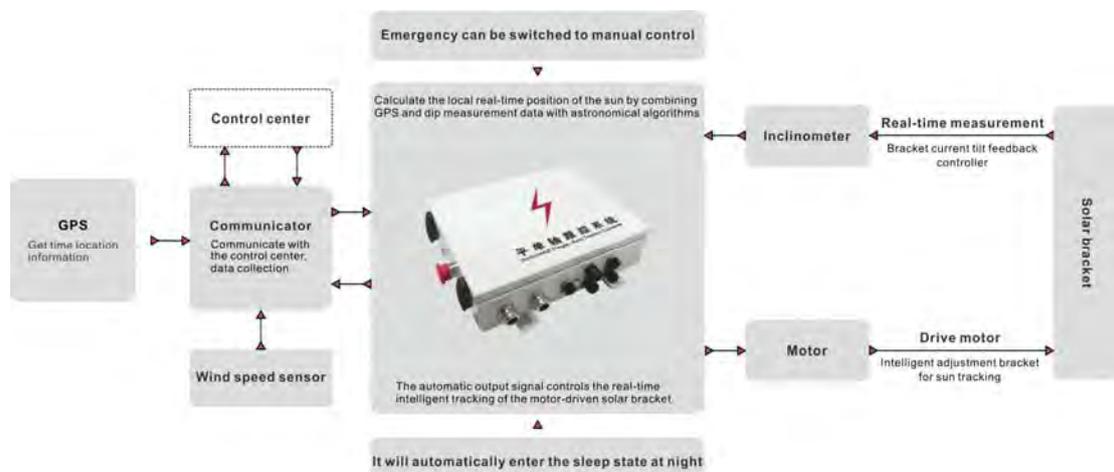
Product Size:340\*360\*100mm

Installation size:200\*310mm

Mounting screws:M12

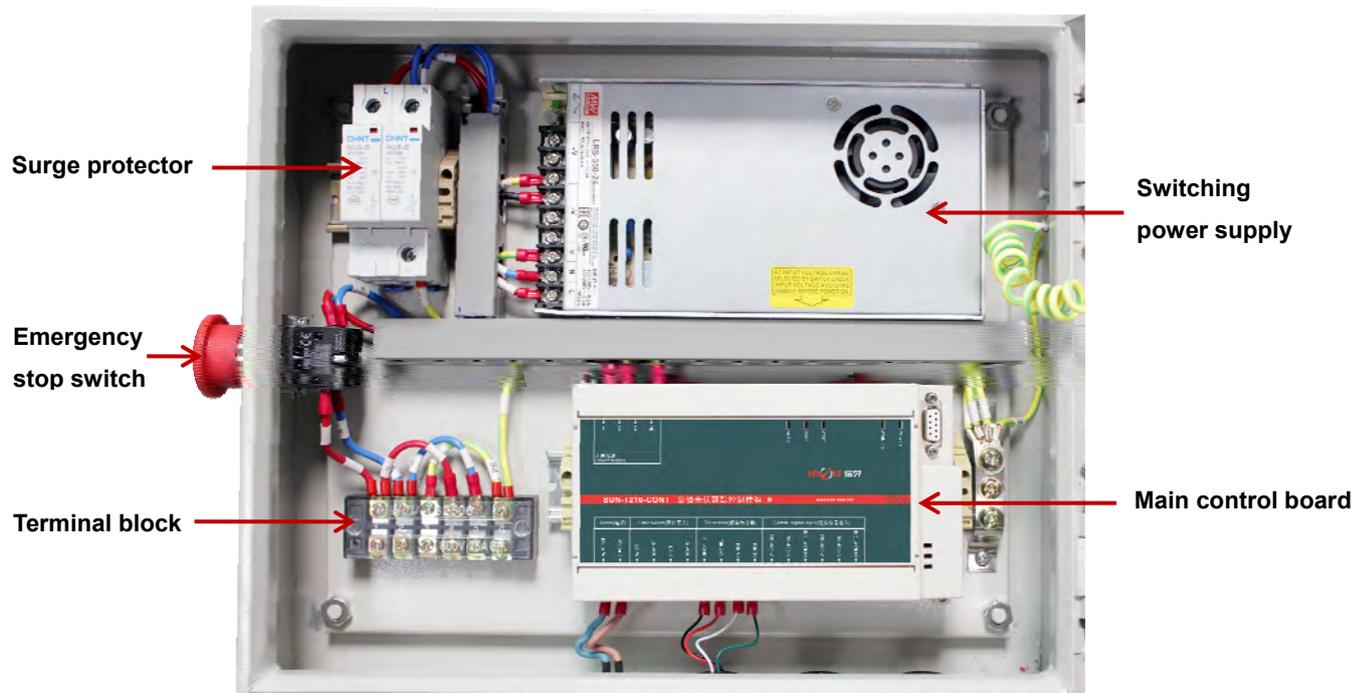
**4 Schematic diagram**

The single-axis tracking bracket is lined from north to south, and tracks sun from east to west. According to the astronomical algorithm, the motor drives the bracket to make the panel track the sunlight, the sunlight is irradiated on the surface of the photovoltaic module as much as possible, thereby improving power generation.

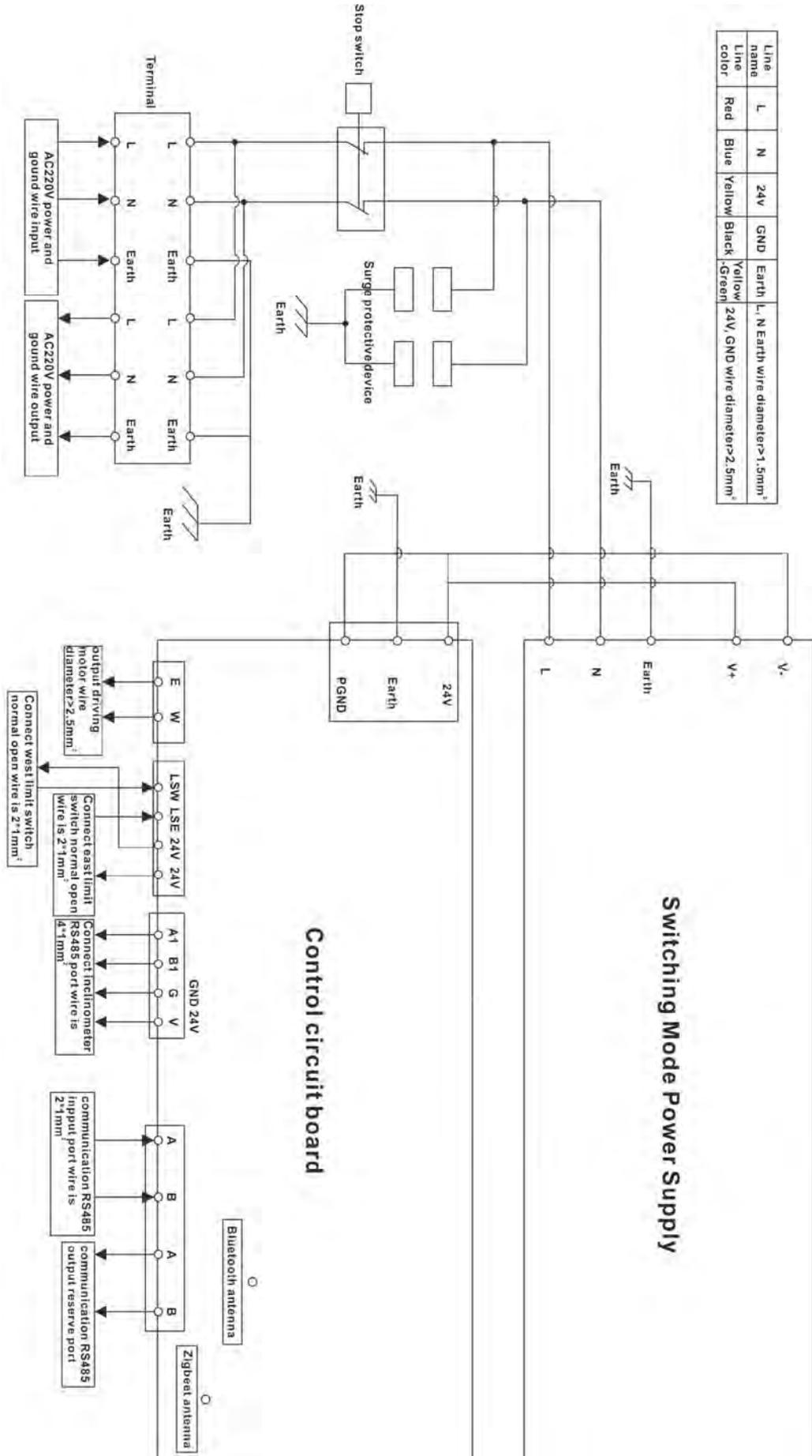


#### **4** Electrical diagram

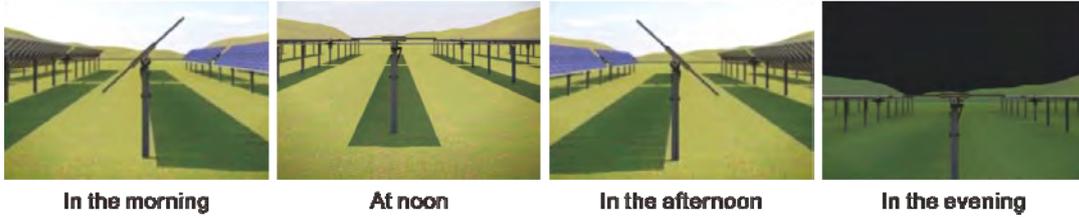
The tracker system is divided into three parts: the sensor part, the control box part and the asynchronous motor part. The control box receives and judges the signals from tilt sensor through program calculation to control the rotation of the motor, Achieving the purpose of tracking the sun. The internal components of the tracker control box are as follows:



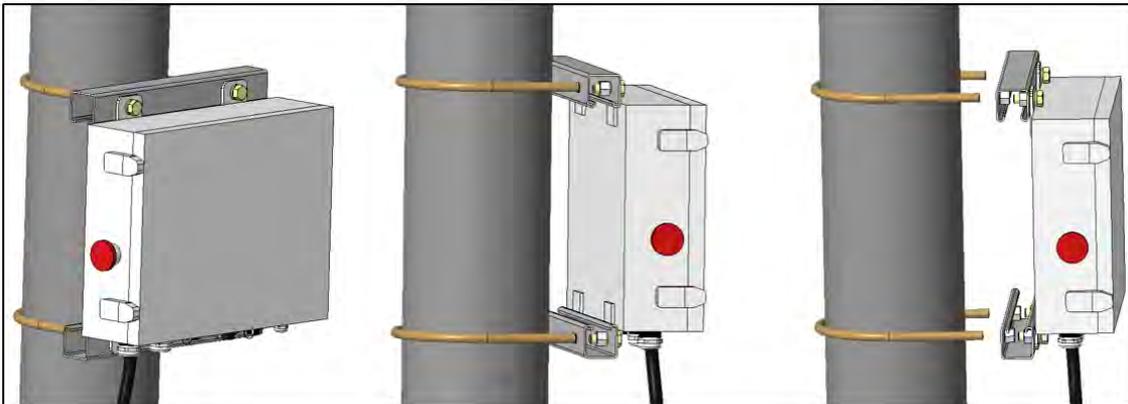
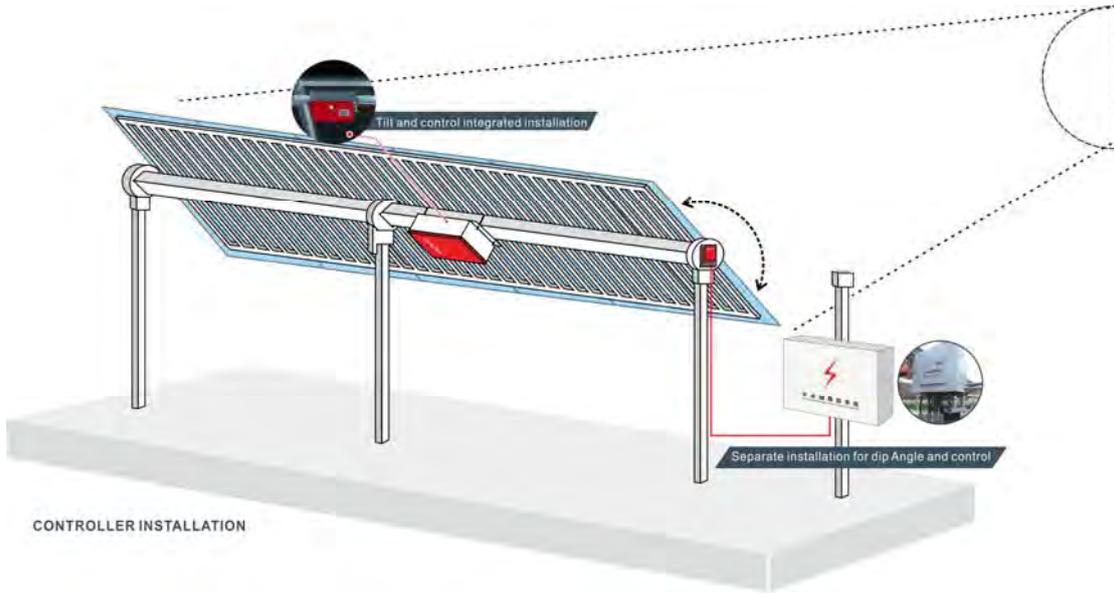
**4** Wiring definition



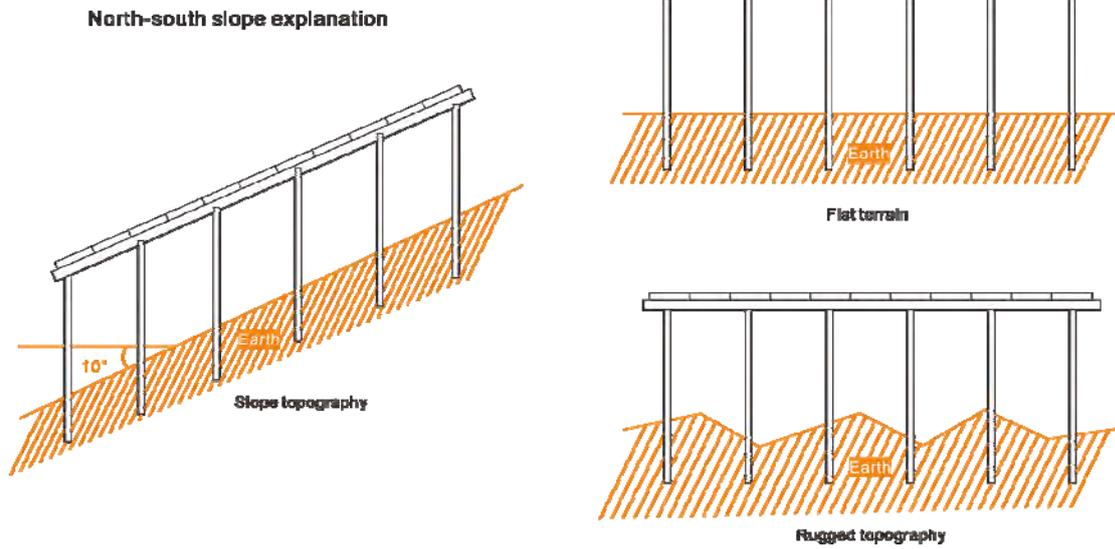
#### 4 Schematic diagram of tracking mode



#### 4 Site installation guidelines



#### 4. Adaptability description for north-south slope



#### 4. Adaptability description for east-west slope

