



BLUE LIGHT METHOD DUST MONITORING SYSTEM

Product Overview

The contaminants on the glass of solar panels are one of the major problems that rapidly affect photovoltaic power stations, reducing their efficiency and cost-effectiveness.

The ZCYL-D type photovoltaic dust monitoring system is a specialized dust pollution monitoring device for photovoltaic power stations. Its core technology is the blue light pollutant light closed-loop measurement method.

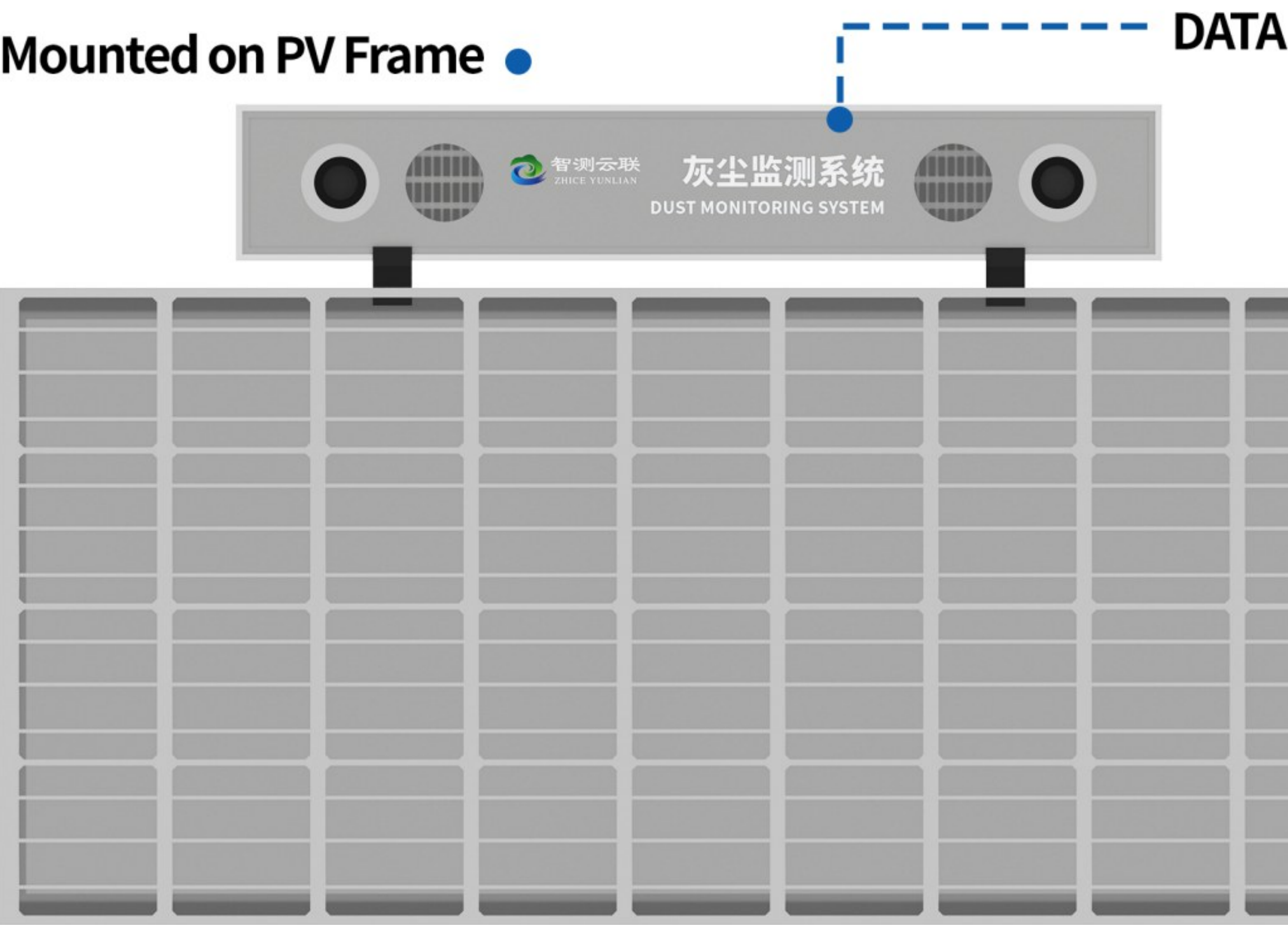
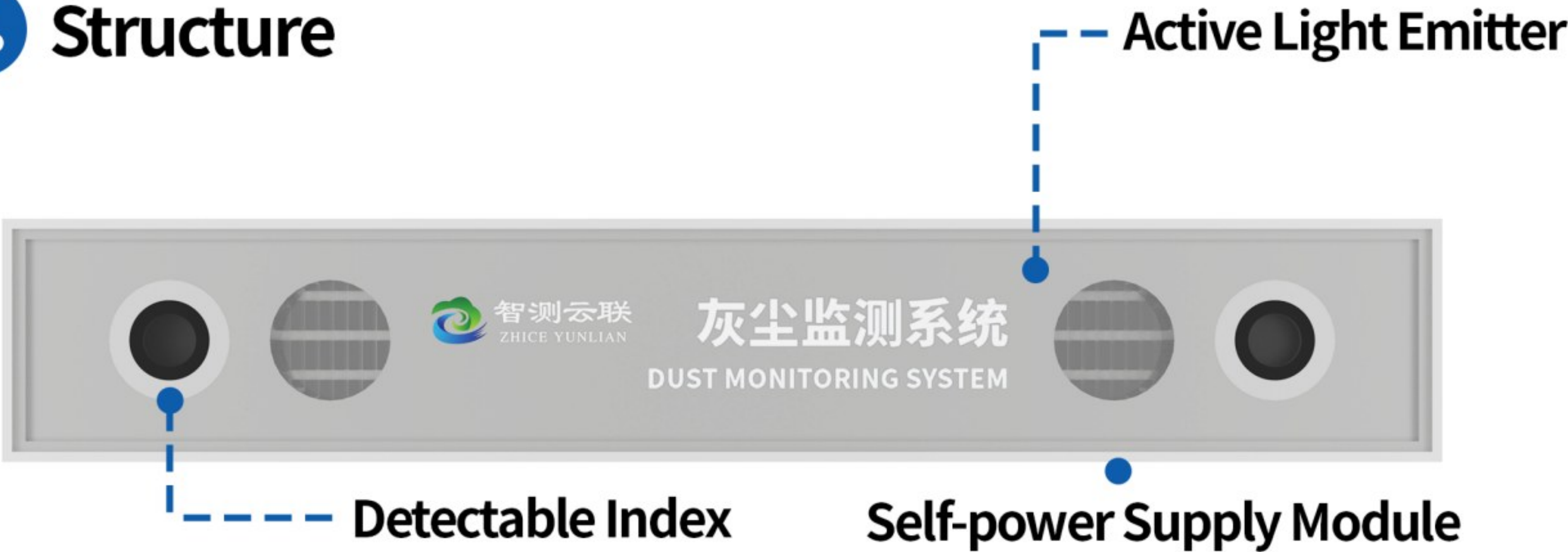
It can be easily installed on the frame of the photovoltaic array and seamlessly integrated into the photovoltaic power station management system.

This device continuously monitors the proportion of contaminants on the surface of the photovoltaic glass, converts the sunlight transmission attenuation into real-time data representing power loss.

It can operate continuously without the need for manual intervention. The data is then uploaded synchronously to the management platform, helping the power station precisely understand the impact of dust on power generation efficiency, promptly arrange cleaning and maintenance operations, and thereby enhancing the power generation revenue and management efficiency of the photovoltaic power station.



Structure



Mode	Wired / Wireless	Internet	LAN	Offline Adaptability
RJ45	Wired	Optional (customized)	Yes	Yes (intranet only)
4-20mA	Wired	No	No	Fully compatible
LoRa	Wireless	No	Yes (self-organized network)	Fully compatible
4G	Wireless	Yes	No	Not supported



Parameter

Dust Parameter	Specification Description
Supply Voltage	DC 12V
Average Power Consumption	1W
Instant Maximum Power	2.5W
Cleanliness Measurement Range	50%~100%
Resolution	0.5%
Accuracy	1%
Operating Temperature	-50°C ~ +80°C
Operating Humidity	30%~70% RH
Storage Temperature	-20~65°C
Protection Grade	IP65 / IP67 optional
Output Mode	RS485



Specifications

Item	Specification Details
Collector Power Interface	GX-12-4P plug, input voltage 8-16V, RS485, output JSON data format
Sensor MODBUS & RS485 Interface	GX-12-4P plug, output power supply 12V/1A
Solar Power Supply	Matched lead-acid battery; optional 30W20AH / 50W40AH / 100W100AH charge
Data Upload Interval	Adjustable from 1 minute to 1000 minutes



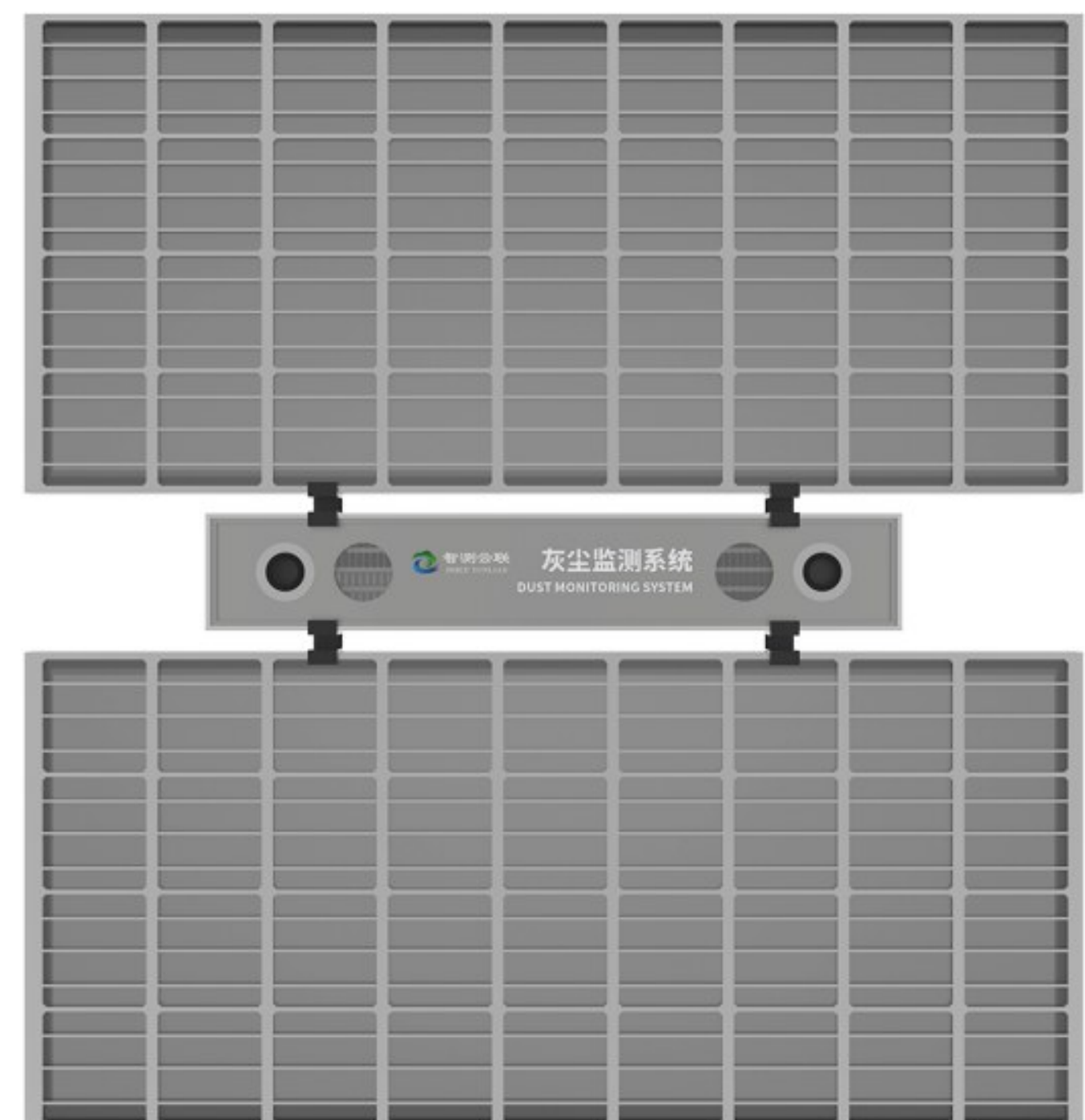
Operation Instructions

1. By measuring panel cleanliness, operation and maintenance staff can learn when dust reaches the critical threshold and optimize cleaning cycles.
2. Compact size, simple installation and low cost. Easy to install in photovoltaic arrays, meeting the requirements of multiple pollution monitoring points specified in the new IEC61724-1 standard, and optimizing panel cleaning plans across the whole site.
3. Made of industrial standard solar materials with strong compatibility to realize data sharing.
4. It can work as an independent dust monitoring system, be integrated into any existing system, or connect with existing environmental monitoring stations to form a multi-dimensional data sharing system for dust and meteorology.
5. Maintenance-free; only clean the sensor in the same way when cleaning PV modules.
6. Compact and sturdy, no rotating moving parts, waterproof and low power consumption.
7. 24-hour all-day monitoring day and night.

A: Top Mounting



C: Mounted Between PV Panels



B: Side Mounting

