



COMPARISON METHOD DUST MONITORING SYSTEM

Product Overview

Pollutants accumulated on the glass surface of solar modules are one of the key factors rapidly reducing power generation efficiency and economic benefits of photovoltaic power stations. This system realizes intelligent monitoring of solar PV modules via comparison between clean reference value and polluted value.

By comparing the deviation between benchmark cleanliness and soiling value, it directly reflects dust contamination on solar panels and enables quantitative analysis of dust accumulation degree.

It can operate sustainably without manual intervention, with data synchronously uploaded to the management platform.

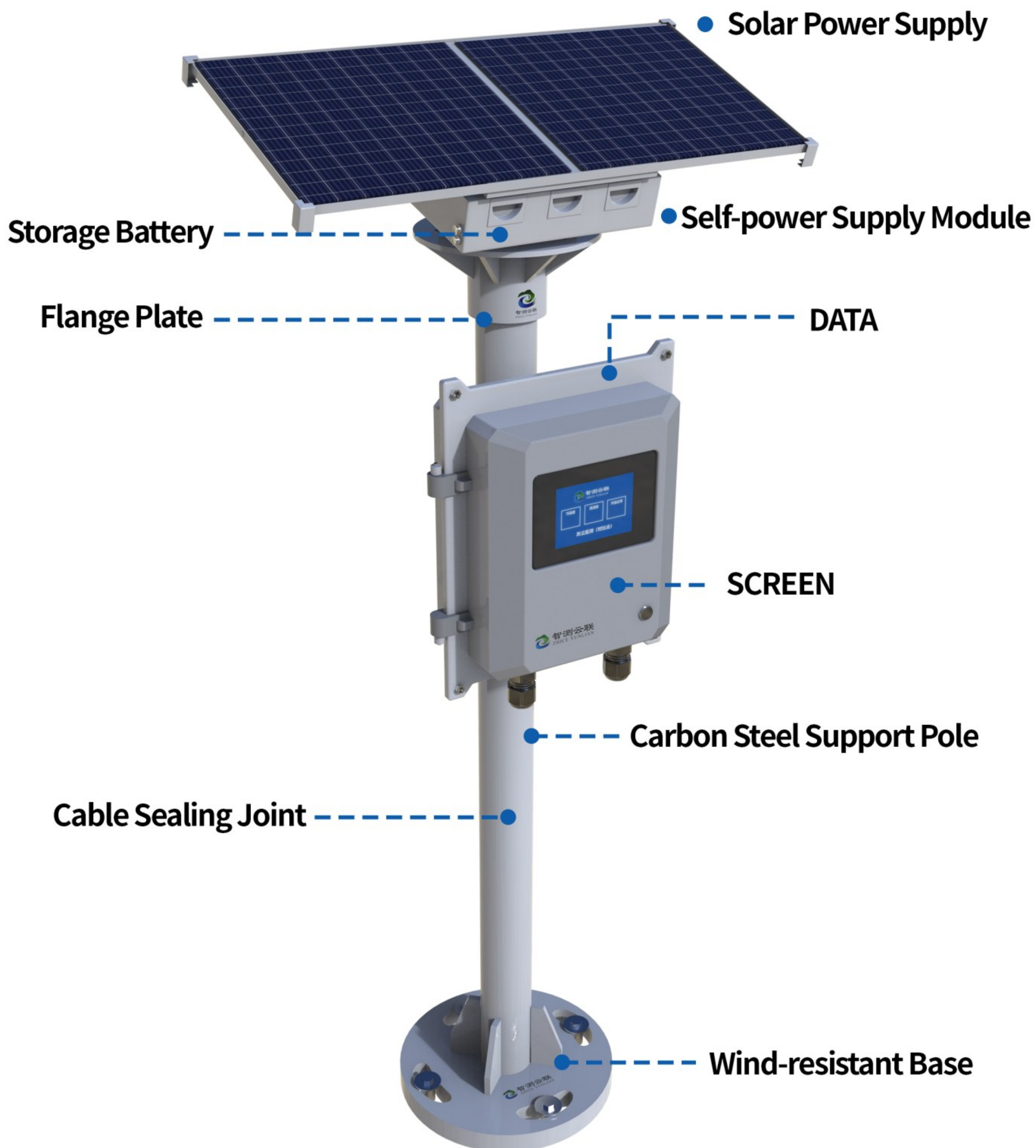
The system helps power stations accurately evaluate dust impact on power output, arrange cleaning and maintenance schedules timely, and boost power generation revenue & site management efficiency.

Product Advantages

- Precise monitoring
- Integrated all-in-one assembly
- No on-site debugging required
- Stable and reliable data transmission



Structure





Product Function Description

1. High measurement accuracy. Its working principle is one of the most complete and internationally published dust measurement methods compliant with IEC standards.
2. Long-term stable operation with strong anti-interference performance. It calculates power generation efficiency based on the attenuation of output current caused by dust coverage.
3. Automatic cleaning function. Traditional comparison-type devices require daily manual wiping with high operation costs. This unit supports automatic cleaning, equipped with water pump and controller to set cleaning cycles freely. Operators only need to replenish cleaning liquid periodically, greatly cutting labor workload and site labor costs.
4. Compact size, easy installation and movable for periodic spot measurement.
5. Built-in solar power system. It works normally at sites without grid power, no extra wiring or bracket-mounted PV panels that may shade surrounding modules.
6. Booster water pump with high pressure for thorough, residue-free cleaning.
7. Low-liquid automatic alarm for the cleaning tank. It reminds operators to add detergent regularly to guarantee normal operation and avoid pump dry running which shortens service life.

Equipment Maintenance Instructions

Complete appearance and function inspection at least every 4 weeks.

Check liquid level regularly: remove the tank cap and visually inspect liquid volume. A liquid level sensor is installed inside the water supply unit; a low-liquid alarm will trigger once the sensor is activated.

The water supply tank holds a maximum of 60 liters of flushing liquid.

Recommended fluids:

Distilled water

Filtered RO/DI water (preferred), TDS (Total Dissolved Solids) < 2

Notice: Tap water must never be used. Minerals in tap water will deposit on solar glass after cleaning, interfering with irradiance and cleanliness measurement.

Add proper antifreeze to the tank when ambient temperature drops below 0°C to prevent equipment damage and measurement errors caused by frozen flushing liquid.

