



Smarter Monitoring for Better PV Performance

Overview

The **BS210-03 Dust Monitoring System** is designed to monitor dust and pollutant accumulation on the glass surfaces of photovoltaic (PV) modules, a key factor affecting solar power generation efficiency.

Using advanced blue-light measurement technology, the system measures the reduction in sunlight reaching the PV module and determines the Soiling Ratio (SR). Mounted directly on the PV module frame, it can be easily installed within the PV array and integrated with the power plant management system.

The **BS210-03** enables operation and maintenance teams to identify critical soiling levels and determine when module cleaning is required, supporting timely maintenance and efficient power generation.

The system requires minimal maintenance, with only periodic cleaning of its external components. For large-scale PV plants, where soiling levels may vary across different areas, multi-point monitoring can be implemented in accordance with IEC 61724-1.

The **BS210-03** offers a cost-effective solution for reliable PV soiling monitoring with minimal maintenance.

Features

- ✓ Continuous Optical Measurement
- ✓ Multi-Filter Technology
- ✓ Closed-Loop Optical Structure
- ✓ Simultaneous Cleaning with PV Panels
- ✓ 24-Hour Monitoring
- ✓ High Monitoring Sensitivity
- ✓ Temperature Compensation
- ✓ On-Site Calibration

Applications

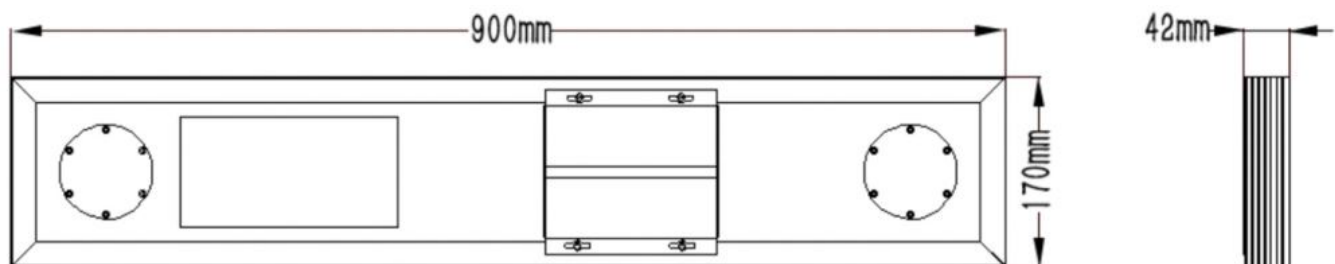
- ✓ Utility-Scale Solar PV Power Plants
- ✓ Commercial and Industrial Solar Installations
- ✓ Solar Farms and Large PV Arrays
- ✓ PV Performance Monitoring
- ✓ Soiling Loss Assessment
- ✓ Cleaning and Maintenance Optimization
- ✓ Multi-Point Soiling Monitoring

Technical Specifications

Item	Specification	Remarks
Technical Principles	Continuous Multi Frequency Blue Light Diffuse Scattering Closed-Loop Technology	
Execution Standard	IEC61724-1:2017	
Soiling Ratio (SR) Range	100% ~ 50%	SR = 100 ~ TL (Transmission Loss)
Accuracy	± 1%	90-100%
	± 3%	50 ~ 80%
	± 5%	50 ~ 80%
PV Module Temperature	Principle: PT100	
	Measurement Range : -50 ~ 150°C	Optional
	Accuracy: ± 0.5° C Resolution: 0.1°C	
GPS	Positioning Accuracy: 10m	Optional
Output	RS-485	
	Relay	Optional
Communication	Modbus-RTU	
Supply	12 ~ 24VDC	
Maximum Power Consumption	<2.5W @ DC12V	Low-Power Design
Alarm Threshold	Can Set Upper and Lower Threshold Values	
Stability	±1%/year	
Operating Environment	-40°C ~ 60°C @ 0 ~ 90%RH	
Weight	3.5kg	Net Weight
Size	900 * 170 * 42mm	
Cable Length	20m	
Ingress Protection	IP65	
Storage Condition	10°C ~ 60°C @ 20% ~ 90% RH	

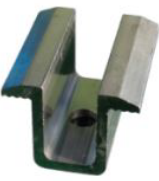
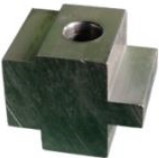
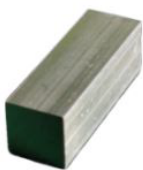
Parameter Selection Table

Unit: mm

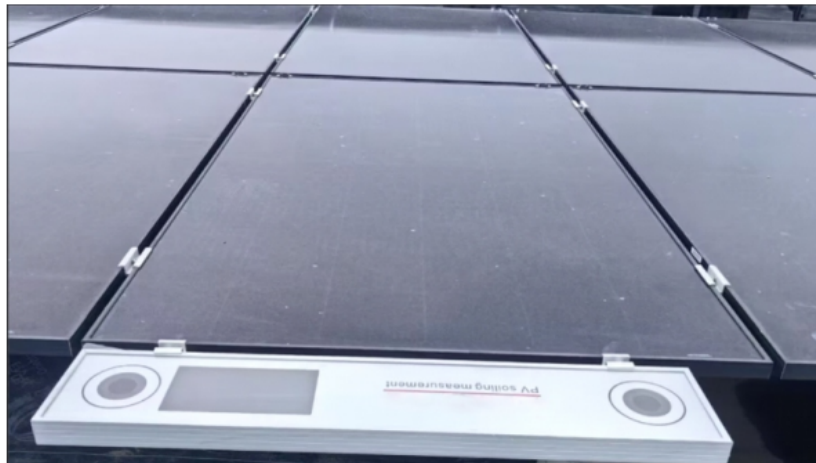
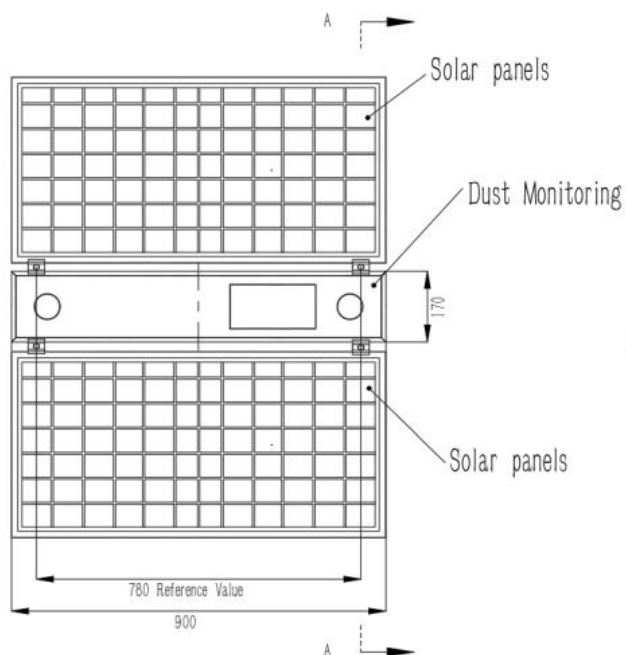


Installation

1. Installation Accessories Description

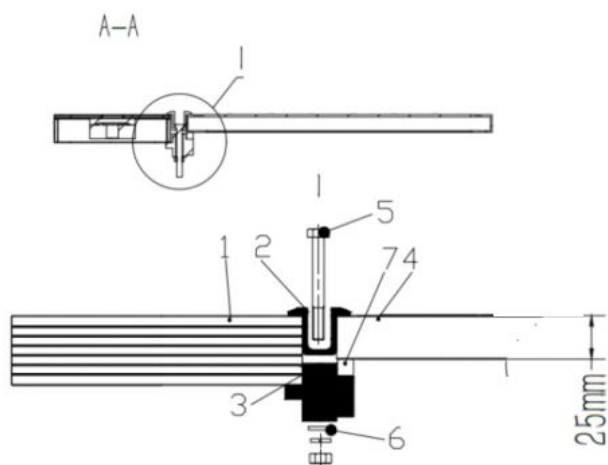
Accessories	Description
	4×M8×70mmHex Screws
	4×Dust Monitoring Mounting Bracket Type A
	4 × Dust Monitoring Mounting Bracket Type C
	4 × Dust Monitoring Mounting Bracket Type D
	4 × M8 Flat Washers
	4 × M8 Spring Washers
	4 × M8 Hex Nuts

2. Installation Diagram

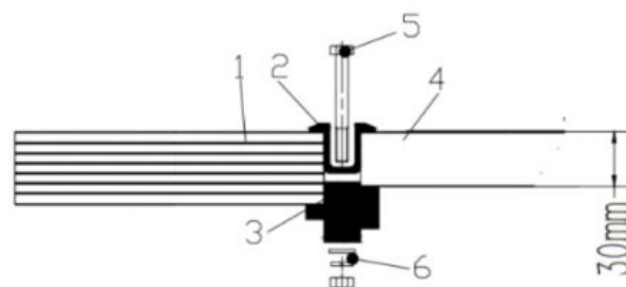


3. Installation methods for solar panels with varying thicknesses

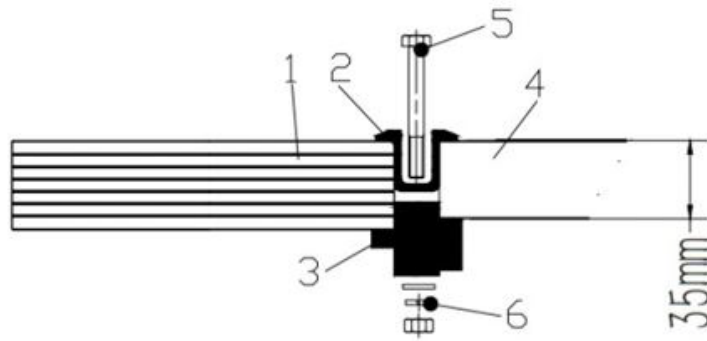
Installation Diagram for 25, 30, 35mm-Thick Solar Panels



25mm-thick photovoltaic module



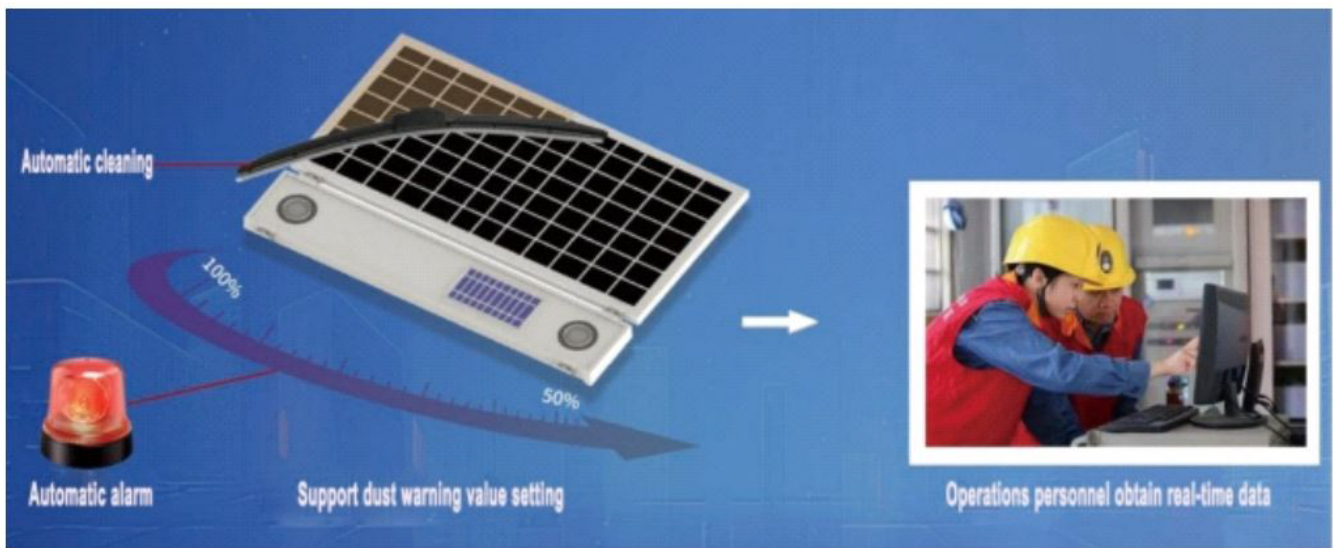
30mm-thick photovoltaic module



35mm-thick photovoltaic module

1	Dust Monitoring System	5	M8×70mmHex Screws
2	Dust Monitoring Mounting Bracket Type A	6	M8 Hex Nut, M8 Flat Washer, M8 Spring Washer
3	Dust Monitoring Mounting Bracket Type C	7	Dust Monitoring Mounting Bracket Type D
4	Solar panels		

Dust Threshold Warning Linkage



For comprehensive details, visit: www.buraq.com/BS210-03



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