



PA621 SOLAR MODULE INSTALLATION AND OPERATION MANUAL

Professional use only

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Overview

Thank you for choosing products from Shenzhen Sungold Solar Co., Ltd. This manual provides important safety guidance for the installation, maintenance, and usage of the PA621 RV solar modules from Sungold (Shenzhen) (hereinafter referred to as "Shenzhen Sungold Solar Co., Ltd."). Users and installers are responsible for thoroughly reading and understanding the installation methods outlined in this manual and completing necessary on-site technical assessments to ensure the suitability of the installation method for the specific project. Failure to comply with the safety guidelines in this manual may result in personal injury or property damage. Please read the safety and installation instructions carefully before using and operating the modules.

Disclaimer

If the customer fails to strictly follow the requirements listed in the installation manual (including any updates published on the official website of Shenzhen Sungold Solar Co., Ltd.) during the installation process, the limited warranty provided with the product will be rendered void. Shenzhen Sungold Solar Co., Ltd. makes no warranties, express or implied, regarding any information contained in this manual.

Users and installers are required to perform an on-site technical assessment to ensure that the installation methods comply with local laws and building standards.

Scope of Responsibility

Regardless of whether the installation of the components follows the instructions in the installation manual (including any updates published on the official website of Shenzhen Sungold Solar Co., Ltd.), Shenzhen Sungold Solar Co., Ltd. assumes no legal liability for any damages incurred during installation, including but not limited to personal injury or property damage resulting from component operation or system installation.

In the event of discrepancies between different language versions of this manual, the Chinese version shall prevail. This manual is provided solely for installation guidance and, whether explicitly or implicitly stated, does not constitute any warranty commitment.

Security precautions



Warning: Before installing, wiring, operating, or maintaining the component, please carefully read and fully understand all safety guidelines to avoid risks of property damage or even personal injury. When exposed to sunlight or other light sources, the component generates direct current (DC) electricity. Regardless of whether the component is connected, direct contact with live parts, such as terminals, can lead to serious injury or even fatal risk.

Safety Guidelines

- All installation work must fully comply with local and regional regulations as well as relevant national or international electrical standards.

- Use insulated tools to reduce the risk of electric shock.



- Wear appropriate protective gear (such as non-slip gloves and work clothing) to avoid direct contact with DC voltages of 30V or higher, and avoid sharp edges during installation to protect the installer's hands.



- Do not wear metal jewelry during installation to prevent piercing the component and causing an electric shock hazard.



- If installing or operating the component in rainy conditions, strong winds, or early mornings with dew, take adequate protective measures to prevent harm to both the component and personnel.



- Do not allow children or unauthorized personnel near the installation area or component storage area.

- Do not use or install damaged components.

- If the surface material is damaged or worn, direct contact with the component's surface may result in electric shock.

- Do not attempt to repair any part of the component, as it contains no user-serviceable parts.

- The junction box cover should always remain closed.

- Do not disassemble the component or move any part of it.

- Do not artificially concentrate light on the component.

- Do not connect or disconnect the component when there is current present or an external current is applied.

- Ensure that the substrate has been tested and is compatible with the adhesives or bonding methods recommended in the manual. If uncertain, consult and confirm with Shenzhen Sungold Solar Co., Ltd.

Component Installation

Environmental Conditions

- The installation surface should be flat, without pits or protrusions.
- Components should not be installed near flames or flammable materials.
- Do not expose the component to artificial concentrated light sources.
- Components should not be submerged in water (fresh or saltwater) or installed in environments where they are continuously exposed to water (such as fountains, spray, etc.) or in areas prone to water accumulation (such as pits or drainage outlets).
- Components placed in salty (marine environments) or sulfurous (e.g., volcanic) environments may be at risk of corrosion.

Installation Requirements

- Ensure the component meets the overall technical requirements of the system.
- Ensure that other system components do not exert damaging mechanical or electrical impacts on the component.
- Series connections are allowed to increase voltage, and parallel connections to increase current. In a series connection, the positive terminal of one component connects to the negative terminal of the next. In a parallel connection, the positive terminals of each component connect to one another.
- The number of bypass diodes provided varies by component model.
- To avoid (or reduce) array mismatch effects, it is recommended to connect components with similar electrical performance within the same string.
- Components should be securely fixed to withstand all potential loads, including wind and snow.
- Failure to follow the installation standards outlined in this manual may result in micro-cracks, fire hazards, or other component damage.

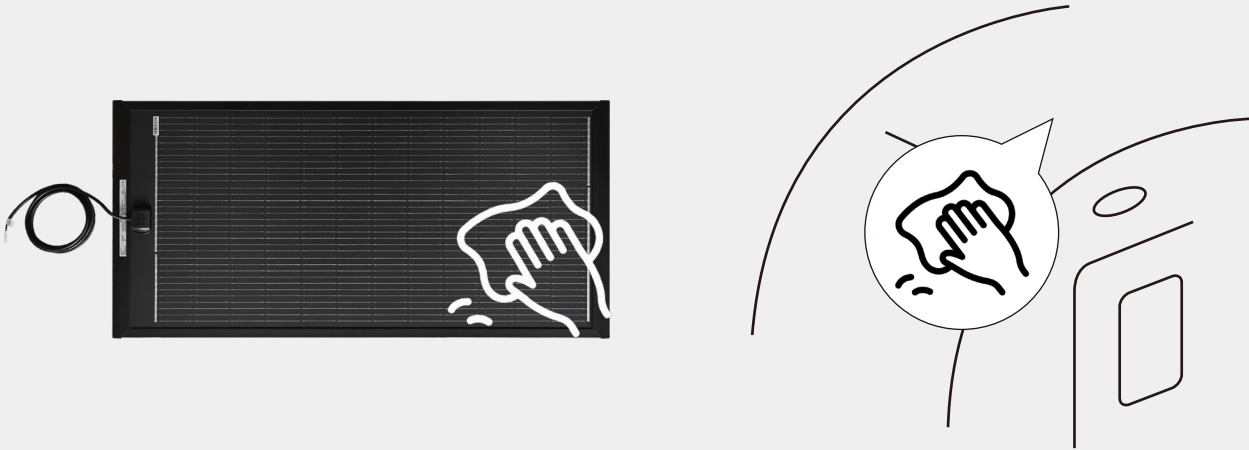
Avoiding Shading

- Even minimal shading (such as from dust) can reduce power generation. A component can be considered “shade-free” if all surfaces remain unshaded throughout the year. Ensure that even on the shortest day of the year, sunlight can still reach the component.

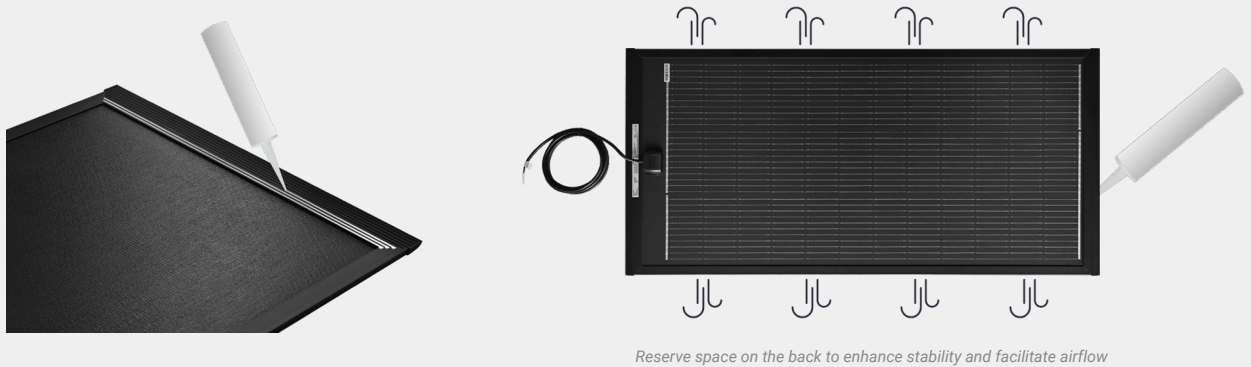
- Frequent shading can lead to EVA degradation and prolonged heating of diodes, affecting the component's lifespan. Therefore, ensure the installation location is free from year-round shading.

How To Install

Step 1: Clean the solar panel and the installation position.



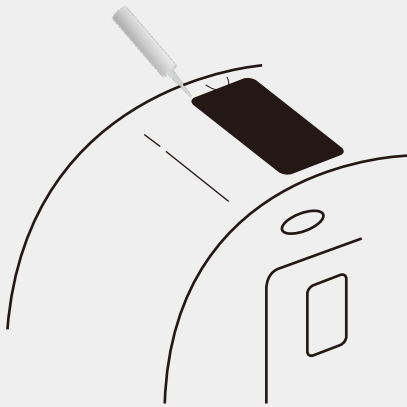
Step 2: Adhesive width $\geq 10\text{mm}$, height $\geq 5\text{mm}$, Structural adhesive height 3-10mm.
Cures 2-3mm within 48 hours, Apply and assemble within ≤ 5 minutes.



Step 3: Place the solar panels in the desired position at the top and press down with foam to ensure that the adhesive fully adheres to the roof surface.



Step 4: Apply adhesive to the windward edge of the panel for extra protection.



Step 5: Let it sit for 48 hours to ensure that adhesive is fully in contact with the roof.



Component Wiring

Correct Electrical Wiring

- Before starting the system, check that all wiring is correct. If the measured open-circuit voltage (Voc) and short-circuit current (Isc) do not match the provided specifications, there may be a wiring fault.

Proper Connector Connection

- Ensure connectors are securely and correctly connected. Use a specialized wrench to tighten the connector nuts, with the tightening torque matching the photovoltaic cable used. Typical values range between 3.4Nm and 3.5Nm (refer to the connector supplier's instructions for specific steps). Connectors should not be subjected to external pressure. They are for circuit connections only and should not be used to open or close the circuit. Do not insert other metal objects into connectors or attempt electrical connections in any other way.

- Connector connections should be kept dry and clean to prevent moisture or rain exposure. Avoid submerging connectors in water.

- Keep the junction box and connectors away from organic solvents, oily substances, or other corrosive materials that may impair functionality. If the junction box or connectors become contaminated, discontinue use immediately.

Installation Guidelines

Components and Construction Tools

- **Construction Tools**

Structural adhesive, cleaning tools, measuring tape, etc.

Structural adhesive



Electric caulking gun



Unboxing, Handling, and Inspection Considerations

- To ensure the safety of the components during transport, please do not open the packaging until you arrive at the installation site.
- Before unboxing, check for any damage to the packaging.
- It is recommended that unboxing personnel wear non-slip gloves.
- Under no circumstances should the junction box or connecting cables be used as handles for lifting or transporting the component.
- Handle the component carefully during transport to avoid the edges hitting the ground or other sharp, hard objects.
- Inspect the surface of the component for damage. If there is any damage or wear, do not use it.
- Check for any damage to the junction box, connectors, and cables, and ensure the cover is securely fastened. If any damage is found, do not use.
- It is strictly prohibited to paint, apply adhesives, or affix labels on the surface of the component.

Construction Considerations

- It is recommended to conduct construction within a temperature range of 5 to 40°C and humidity below 80% (specific temperature ranges should follow the adhesive manufacturer's guidelines).
- The base surface must be cleaned or wiped dry, free from dust, oil, and other contaminants.
- Do not tear or peel the bonded areas within 24 hours after construction.
- The bonding surface should be flat, without pits or protrusions.
- When storing auxiliary materials used for construction, follow the storage specifications for those materials.
- Ensure that the substrate has been tested and is compatible with the adhesives or bonding methods recommended in the manual. If uncertain, consult and confirm with Shenzhen Sungold Solar Co., Ltd.

Structural Adhesive Application Guidelines

- After cleaning the construction surface, ensure it is free of moisture before applying adhesive.
- The application must be even and continuous; do not smooth out the adhesive strip before application. Rely on the weight of the component to compress the adhesive.

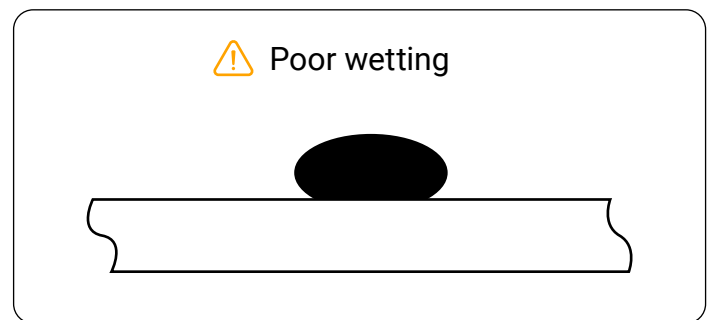
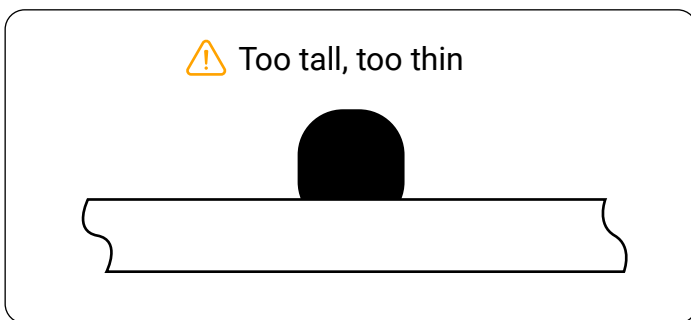
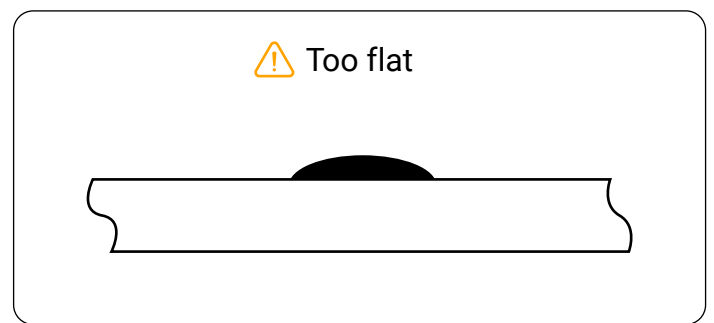
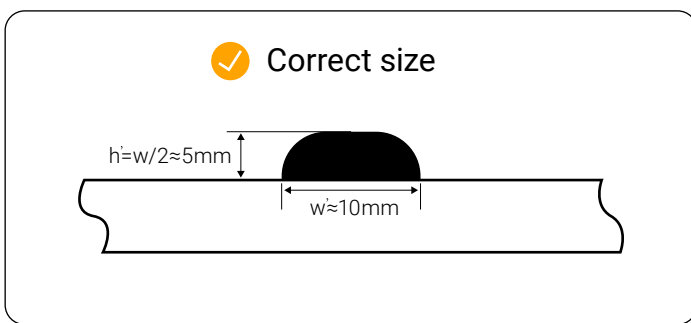
- The adhesive width should be no less than 10mm and height no less than 5mm. After application, the structural adhesive height must reach 3-10mm; it should not be too high or too flat. If too high, the curing time will be excessively long; if too flat, the adhesive strength may fail. Do not use feet or any non-designated tools to compress the structural adhesive

- The time for applying adhesive and assembling should be kept to a minimum (not exceeding 5 minutes).

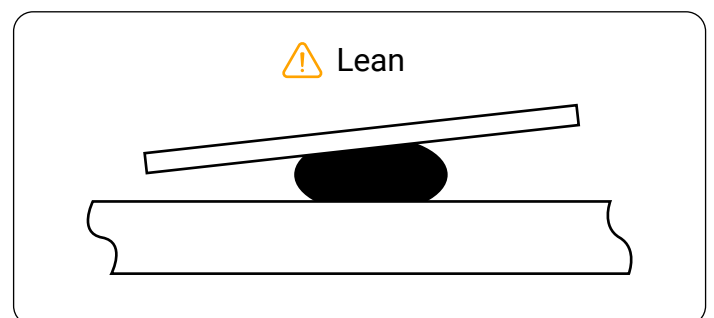
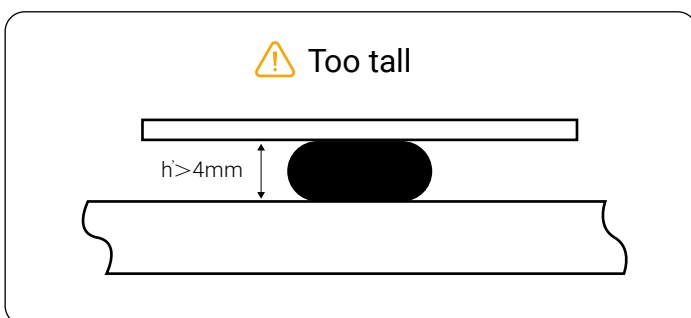
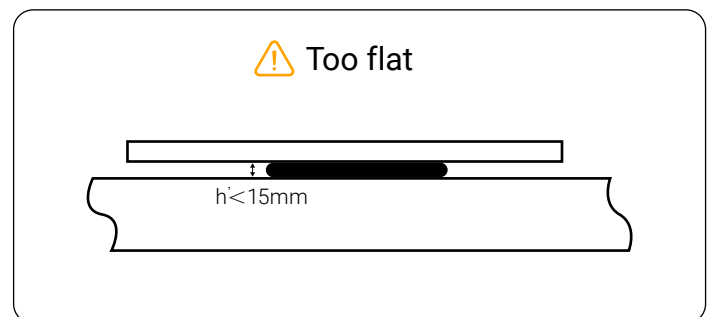
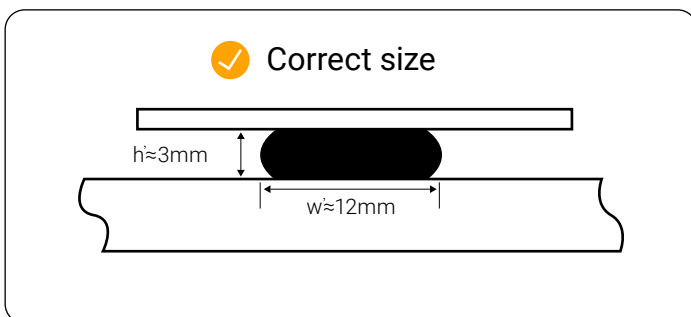
- Within 48 hours, the adhesive will cure to a depth of 2-3mm. Do not apply any force, move the component, or conduct pull tests before it has fully cured..

Structural Adhesive Application

- Please read the following to understand the correct application of structural adhesive.



- Proper Form of Structural Adhesive After Component Bonding.



● Product picture

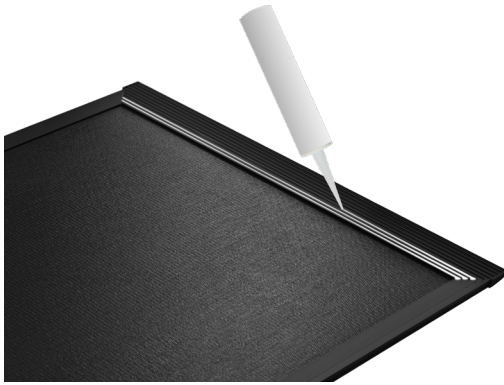
Correct size:



Too flat:



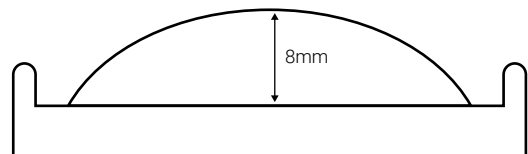
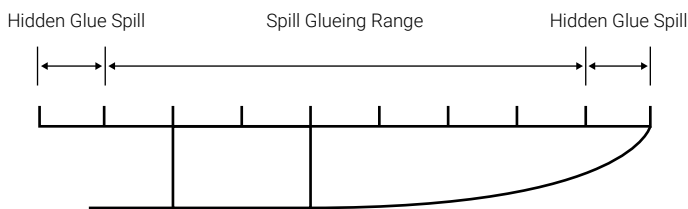
● Adhesive precautions



Fill the grooves in the short edge frames evenly with structural adhesive, as illustrated below.

The adhesive application area should follow the red-marked boxes in the diagram, leaving one groove empty at each end. During installation, the silicone will overflow into the empty grooves when compressed.

Ensure that the adhesive is centered in each groove, with the height of the silicone raised to at least 8mm.



● Adhesive precautions

For the long edge frames, 3M VHB 4991 can be used for bonding.

