



ABC Module Cleaning Manual

Bifacial Dual-glass Modules



1. Overview

Thank you very much for choosing the products of Zhejiang Aiko Technology Co., Ltd. (hereinafter referred to as "AIKO"). This Cleaning Manual contains important information regarding photovoltaic (PV) modules cleaning which you shall know before cleaning the modules. It also contains some other safety information that you must be familiar with. AIKO reserves the right to make revisions to the product specification and this Cleaning Manual without prior notice.

2. Maintenance

Module shall be inspected and maintained on a regular basis, especially within the warranty period, which is an obligatory responsibility of the user. Any damage or other visible abnormalities of the module shall be reported to AIKO customer service upon discovery.

2.1 Cleaning

- 2.1.1 The power output of modules is related to incident light intensity and can be reduced by dust collection or other shadings. Dirt on modules must be cleaned up immediately.
- 2.1.2 The cleaning frequency depends on the degree of dirt collection. Modules installed at an adequate tilt angle will allow rainwater to clean the module surfaces, thereby reducing the cleaning frequency.
- 2.1.3 We recommend cleaning the glass surface of the module with a clear water-netted sponge. Do not clean modules with a detergent containing acid or alkali. Do not clean modules with a hair brush or other rough surface tools.
- 2.1.4 We recommend cleaning modules in the early morning or late afternoon or other periods of time when the light is weak and the module temperature is comparatively lower.

2.2 Method A: High Pressure Water Cleaning

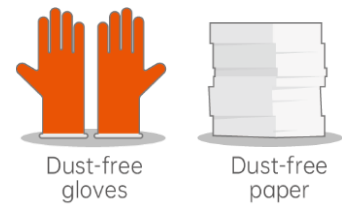
The Water quality requirement:

- PH: 6-8
- Water hardness - calcium carbonate concentration: <600mg/L;
- Recommended use of soft water cleaning;
- Recommended maximum water pressure is 4MPa(40bar)



2.3 Method B: Wet Test Cleaning

- 2.3.1 If there is too much stain on the surface of the module, it's recommended to carefully use an insulating brush, sponge or other soft cleaning tool.
- 2.3.2 Ensure that any brushes or agitating tools are made of insulating material to minimize the risk of electric shock and that they do not scratch the glass or aluminum frame.
- 2.3.3 For oil stains, it's recommended to use an environmentally friendly cleaner.



2.4 Method C: Robot Cleaning

- 2.4.1 If the cleaning robot is used for dry cleaning, the brush material is required to be soft plastic, so that the glass surface and aluminum alloy frame of the module will not be scratched during and after cleaning.
- 2.4.2 The weight of the cleaning robot should not be more than 40kg, the component damage and power attenuation caused by improper cleaning with the cleaning robot are not covered by the warranty of AIKO.

3. Visual Inspection

3.1 In Visually checks for visual defects on modules, such as:

- Check whether the module's glass is broken,
- Check whether the junction box is damaged or the cable is broken,
- Check whether the module is shaded by foreign matter or shadows,
- Check whether the fixing bolts of the module to the racking are loose or corroded and adjust or replace them if necessary,
- Check whether the modules are well-grounded.

3.2 Connectors and Cables

It is recommended to perform preventive examinations every six months, such as:

- Check whether the connectors are properly sealed and the cables are properly fastened,
- Check whether the sealant of the junction box is cracked.

4. Customer Service

4.1 Customer Service

In order to request Technical Support:

- Collect evidences of the issue as (a) photos and (b) measurements,
- Be prepared to show the purchase invoice and module serial number,
- Contact your Installer, or
- Submit a written notice to AIKO's unified public E-mail (cs@aikosolar.com).

