

EC Declaration of Conformity

Directive 2006/95/EC

Directive of the Council for the Approximation of the Laws of the Member States regarding electrical equipment for use within certain voltage limits (low voltage directive)

SOLARWATT AG
Maria-Reiche-Straße 2a
01109 Dresden

hereby declares, under sole responsibility, that the solar module types listed below

M220-60 GET AK
M230-96 GET AK
M250-60 GET AK

M140-36 GET AK
M180-48 GET AK
M270-72 GET AK

P210-60 GET AK
P220-96 GET AK

P130-36 GET AK
P170-48 GET AK

meet the requirements of the following norms

DIN EN 61215:2006-02; EN 61215 :2005-08
DIN EN 61730-1:2007-10; EN 61730-1:2007-05
DIN EN 61730-2:2007-10; EN 61730-2:2007-05
IEC 61215 (ed.2)
IEC 61730-1 (ed.1)
IEC 61730-2 (ed.1)

and are therefore in agreement with the conditions of the aforementioned EC directive.



Dresden, on 02/11/2009

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Certified in accordance with
ISO 9001 and ISO14001

Installation and operating manual

for framed SOLARWATT solar modules

M140-36 GET AK	P130-36 GET AK
M180-48 GET AK	P170-48 GET AK
M220-60 GET AK	P210-60 GET AK
M230-96 GET AK	P220-96 GET AK
M250-60 GET AK	
M270-72 GET AK	

Issue D, A, CH



General

Congratulations on your purchase of a SOLARWATT solar module. SOLARWATT solar modules are produced to high quality standards with the most dependable materials and highest value solar cells. With proper handling, you will enjoy many decades of satisfactory service life with your SOLARWATT solar modules. Please observe the following instructions regarding installation and operation of the solar modules, as non-compliance can lead to the guarantees and warranty becoming invalid and to the exclusion of any resultant damage compensation claims and liability claims.

Safety

Electrical connection and commissioning may only be carried out by a qualified, professional electrician. Improper installation or commissioning can lead to damages with a resultant risk to persons. Suitable fall-protection equipment must be used when working on the solar generator on roofs. Please observe the following instructions for your own safety and to safeguard your solar module:

- Comply with the valid regulations and safety instructions for the installation and maintenance of electrical equipment and systems.
- Since the modules are connected in series, voltage levels can occur above the safety extra-low voltage level.
- Nearly full no-load voltage levels in the modules must be assumed even at low illumination levels.
- When working on the modules, they must be covered or electrically insulated from the user, as there is an electric arc hazard on cables conducting a direct current.
- The solar module is a glass product and must not be stepped on.

Installation

In order to achieve the highest possible annual energy yield, the following is recommended for networked systems:

- Align the front side of the module towards the south
- Calculate the angle of inclination based on the following formula:
Angle of inclination = Line of latitude for the installation site - 20 °
- In order to achieve a good self-cleaning affect from precipitation, the angle of inclination should be at least 20°.
- Avoid even partial shade and heat accumulation on the back of the module, as both can result in a considerable loss of yield!
- Focusing or concentrating the sun's rays through the use of lenses or mirrors, for example, is not permitted!
- Only mount the modules on a suitable support structure. The structure must ensure that no mechanical stress is transferred from the actual building (e.g. roof truss) to the modules.
- Maintain a minimum distance of 5 mm between the modules in order to compensate for material expansion.
- Generally speaking, the module frame may not be drilled, nailed or welded to. Exceptions required the written approval of SOLARWATT AG.
- The support points of the carrier profiles onto which the modules are secured e.g. using clamps, must match each other in distance to the location of the fixing bored on the module with a discrepancy allowance of max. 100 mm.
- Only use non-corrosive bolts. Use a torque wrench and tighten them to 20 Nm.
- Never lift the module by the cable.
- Route the cable line so that the plug connector is not in areas inside the frame profile where condensation or rainwater can accumulate.

- We recommend installing lightning protection at exposed locations. If there is already a lightning protection system, the solar modules must be connected to it. Observe the appropriate valid regulations.
- The drainage openings on the module frame may not be covered.
- Modules must be installed in such a way that, in particular with regard to the cable, no water can flow in the direction of the cable terminals.
- Produce a plan - for any maintenance and repair work - for documenting the module installation layout, including serial number allocation and cable layout.

Electrical connection

The solar module is equipped at the factory with high-quality solar cables and is also equipped with a reverse polarity proof and fully insulated Tyco or MC[®] plug connector system.

ATTENTION!

Any type of dirt on the plug contacts before or during installation (dust, moisture, saline aerosols, etc.) negatively influence the system's functioning ability over the target service life of the unit, and must therefore be avoided.

Manipulating the preassembled connector elements has a detrimental effect on the quality of the connection.

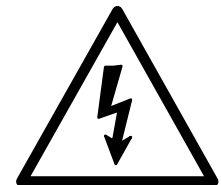
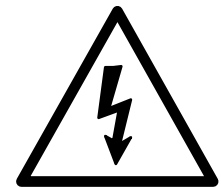
ATTENTION!

It is prohibited to open the junction box or to modify or remove the cables and plugs. Non-compliance can nullify the warranty and guarantee.

To ground the unit, secure an appropriate cable (cross section at least 16 mm²) with a oval tapping screw (DIN 7981; length: 9-32 mm; diameter: a) 4.85 mm b) 5 mm; tightening torque: for a) 3 Nm for b) 6 Nm) to the designated grounding holes, while complying with all applicable regulations.

ATTENTION!

Never insert or remove plug contacts while they are live! Inserting or removing plug contacts while they are exposed to voltage is possible. Non-compliance with this warning is LIFE THREATENING!



Maintenance and care

The transparency of the module's front side and therefore the output of the solar cells is reduced over the course of time by soiling and dirt. For heavy soiling, we recommend cleaning the front glass surfaces. In order to avoid damage to the hardened glass surface, plenty of water and a soft brush should be used. Do not use caustic cleaning agents or metal objects!

Occasionally check the electrical lines for damage, corrosion and secure seating!