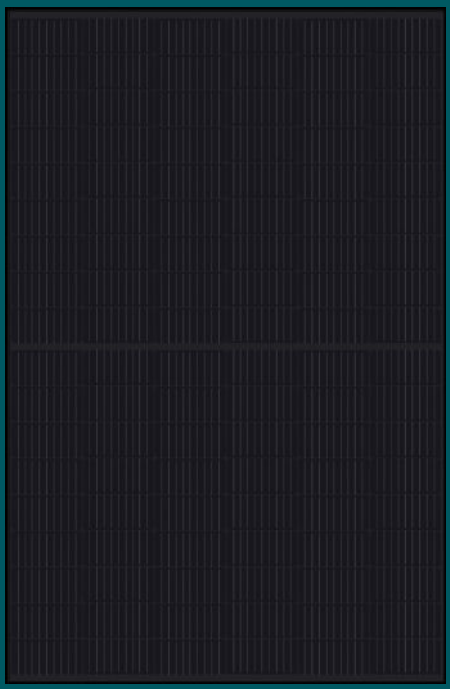
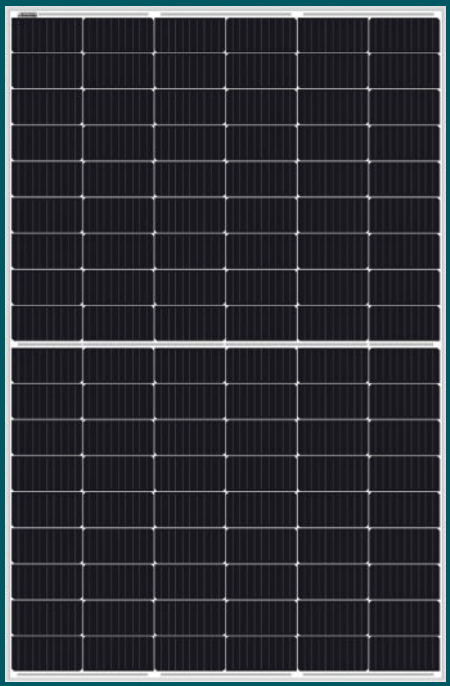
SOLARWATT®

SOLARWATT Panel classic H 2.0 black
SOLARWATT Panel classic H 2.0 pure

DE Montageanleitung für gerahmte Glas-Folie Module

EN Installation Instructions for framed glass-foil modules





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The following directives and standards must be complied with when planning, setting up, and maintaining grid-connected PV systems:

EU-Standards
EUROCODE 1 (EN 1991-1)
Actions on structures
EN 13501
Fire behavior of building materials and building component
EN 60728-11
Setting up and operating (grounding) aerial systems
EN 62305
Lightning protection
EN 62446
Grid-coupled photovoltaic systems
IEC 60364
Erection of low-voltage systems

EXCLUSION OF LIABILITY
The warranty terms available at solarwatt.com apply.

You can check the current status of the installation instructions at solarwatt.com.

Please find other languages at solarwatt.com.

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CONGRATULATIONS ON THE PURCHASE OF YOUR SOLAR MODULES

These instructions describe the assembly, connection, maintenance, and disposal of solar modules. Please read them carefully and comply with them accordingly.

The installation and electrical connection of photovoltaic systems may only be carried out by specialist personnel, who are familiar with this work through their professional qualifications. For the operation, installation, use and maintenance of the other components, comply with the relevant installation instructions from the manufacturer.
Incorrect installation can cause damage to property, which could consequently pose a risk to people. Solarwatt accepts no responsibility or liability for losses, damage, or costs resulting from incorrect installation, operation, use, or maintenance or losses, damage, or costs which are connected to any of the above in any way. The Solarwatt installation instructions should be made available to the operator as part of the solar power system documentation and stored by the operator.

WARNING

Failure to comply with the installation instructions results in the warranty and guarantee becoming null and void.

Comply with the guidelines, laws, and regulations valid in the relevant country when planning, setting up, and operating grid-connected PV systems. For information on additional requirements, please contact the responsible local authorities and the network operator.

Panel classic modules are manufactured according to Solarwatt specifications. The modules are tested by independent accredited institutes and fulfill the requirements of the extended test standard IEC 61215, as well as the safety standard IEC 61730. In addition, the module deliveries are checked by our quality management according to a defined monitoring plan and additionally tested in our laboratory in Dresden for their quality and long-term reliability. If treated correctly, your Solarwatt solar modules will offer you several decades of service.

Solarwatt recommends insuring the PV system against reduced yields or damage with SOLARWATT Full Coverage for complete security. Further information is available from your Solarwatt partner or online at solarwatt.com.

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INFORMATION ON THE SOLAR MODULE

Detailed electrical and mechanical properties for your specific module type can be found on the relevant data sheet. The key technical data under standard test conditions [STC, solar cell temperature: 25°C, irradiation: 1,000 Watt/m², air mass: 1.5 (corresponds to a sun elevation angle of 41.8°)] can also be found on the nameplate of the solar module.

TRANSPORT AND STORAGE

Solarwatt solar modules are made from high-quality materials and are therefore extremely stable and long-lasting. The solar modules should nevertheless be left in the packaging until installation to help prevent any damage. The modules should be stored in a dry place and protected from weather conditions. The packaging (film, tape, pallet, etc.) should be recycled. Contact the responsible local waste disposal company.
You are responsible for checking the goods and packaging for transport damage immediately on receipt. If any damage is discovered, note it on the shipping papers describing each pallet in detail, and take photographs as documentary evidence. Have the driver counter-sign these notes. If more than 33 % solar modules on one pallet are damaged, refuse to accept the pallet. Please fill out the complaint form for transport damages (solarwatt.com) and send it to Solarwatt.

INSTALLATION

During installation, please take into account the locally valid construction regulations, accident prevention regulations, the relevant, generally accepted rules of technology and safety regulations for working on roofs and buildings, as well as electrical installations.
The modules may be installed at altitudes up to 2,000 m above sea level.
Solarwatt solar modules must be fixed to suitable substructures, which are designed for the relevant mechanical wind and snow loads, as well as the weight of the solar modules. The instructions from the installation system manufacturer must also be complied with.
No mechanical stresses from the actual building (e.g., roof truss) must be transferred to the solar module. The frame must not be mechanically or chemically processed.

NOTE

Have the structural suitability of the building for the installation of a solar power system checked by a specialist.

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NOTE

Do not remove any parts or nameplates from the solar module. Do not install damaged solar modules.

Also not allowed are modifications of the solar module, such as the conversion to the use of the heat generated in the form of a thermal solar collector. If there is no approval in the form of a manufacturer's declaration or exceptional approval, the solar modules may not be installed in locations where there are aggressive ambient conditions. Furthermore, the use of the products on mobile units such as vehicles or ships is not permitted.

During installation, avoid creating shades with the module clips or installation system to improve the energy yield. Comply with the minimum distance of 5 mm between the solar modules to allow the material to expand without tension. Make sure that there are no components such as cable ties, fasteners or similar materials between the mounting rails and the backside of the module.

WARNING

The solar module is a glass product and should be handled with appropriate care. Do not stand on the solar module. Do not allow any objects to fall or place any objects on the solar module, as it can cause microcracks in the cells. Never hold or transport the solar module by the junction box or connection cables. For installation Solarwatt strongly recommends the usage of clean, fat and silicone oil free gloves!

WARNING

The solar modules are not designed for concentrated irradiation. Bundling or concentrating solar irradiation through lenses or mirrors is therefore not permitted and can damage the solar modules.

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Solarwatt solar modules fulfill all the requirements of the extended test standard IEC 61215. The test load for the mechanical load test was increased by the factor of 1.5. The local regulations or the standard EUROCODE 1 (EN 1991-1) should be used for the calculation of the snow loads on the module. It is important to note that these standards are designed for impact on structures and do not explicitly take into account the installation of solar modules.

NOTE

The solar module heats up during operation. Ensure that there is sufficient rear ventilation to avoid reductions in yield. Also ensure that no flammable gases can escape or accumulate close by.

In regions with particularly high snowfall, the pressure load calculated in accordance with the standard based on local snow load information may be significantly exceeded due to snow overhang or build-up on the solar modules, which could result in above-average stress on the bottom frame edge. Solarwatt therefore tests its modules above and beyond the standard IEC 61215 and in accordance with additional standards, taking into account additional loads in the event of snow overhang or build-up to reflect the actual loads encountered in practice and to ensure that our products work safely throughout their entire service life. For system documentation, note the positions of the modules and their serial numbers. Before commissioning, a final inspection of the entire system is recommended.

The following tables show for each installation situation:

- the way of fastening (screws, clamps, insertion system)
- the frame areas, approved for fastening
- the maximum permitted pressure- and suction load on the modules

Information on the tightening torque of the clamping screw can be found in the documentation of the clamp manufacturer. Fastenings must not deform the solar modules. Clamps must not touch the front glass.

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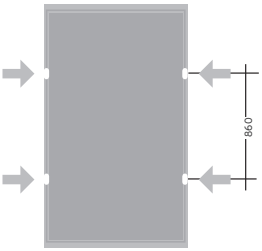
The module clamps must be completely positioned in the clamping areas shown. If the module clamps are not all within the clamping area approved for one maximum load, the lower permitted load applies.
The solar modules can be installed both vertically (portrait) and horizontally (landscape).

1. Mounting with 4 bolts

areas approved for fastening

Only use the holes (long hole 14 x 9 mm) provided in the frame

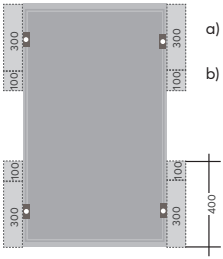


Max. permitted pressure load up to: 3,600 Pa (test load 5,400 Pa)
Max. permitted suction load up to: 1,600 Pa (test load 2,400 Pa)

2. Mounting with 4 module clamps (long side)

areas approved for fastening

Min. clamp surface area: 8 x 40 mm



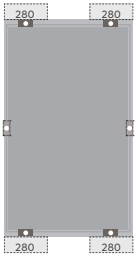
a) 0-300 mm
Max. permitted pressure load up to: 1,600 Pa (test load 2,400 Pa)
Max. permitted suction load up to: 1,067 Pa (test load 1.600 Pa)

b) 300-400 mm
Max. permitted pressure load up to: 3,600 Pa (test load 5,400 Pa)
Max. permitted suction load up to: 1,600 Pa (test load 2,400 Pa)

3. Mounting with 4 module clamps (short side)

areas approved for fastening

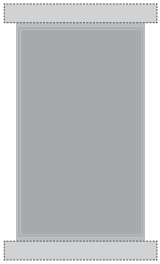
Min. clamp surface area: 8 x 40 mm



with no central support
Max. permitted pressure load: up to 1,600 Pa (test load 2,400 Pa)
Max. permitted suction load: up to 1,067 Pa (test load 1,600 Pa)

with central support
Max. permitted pressure load: up to 3,600 Pa (test load 5,400 Pa)
Max. permitted suction load: up to 1,600 Pa (test load 2,400 Pa)

4. Mounting with an insertion system



Max. permitted pressure load up to: 1,600 Pa (test load 2,400 Pa)
Max. permitted suction load up to: 1,067 Pa (test load 1,600 Pa)

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NOTE

The solar modules can be installed both vertically (portrait) and horizontally (landscape).

vertical installation
(portrait)

horizontal installation
(landscape)

NOTE

When used with flat roof systems, the same clamping areas and permitted loads are valid as for mounting variants 2 and 3. Please ensure that the mounting systems are suitable for the specific purpose.

NOTE

It is not permitted to use SOLARWATT Panel classic solar modules as overhead glazing. For roof installation, these solar modules must be installed over a fire-resistant roof covering („hard roofing").

NOTE

Under mechanical load, no contact between solar glass and hard materials (eg. metal, glass) may occur. The drainage holes in the module frame must not be covered, as it could cause frost damage on the module frame. Do not place any plug connectors in the frame.

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ELECTRICAL CONNECTION AND POTENTIAL EQUALIZATION

Solarwatt solar modules are equipped at the factory with high-quality solar cables and reverse-polarity protected, shock proof plug connectors. The connection of the string line has to be done with identical connectors manufacture and type as to the module connecting cable. To be able to ensure this, the module connector at the beginning and the end of the string may be removed and replaced (More information in the download area at solarwatt.com). The allowed cross-section and outer-diameter of the cable and instruction of the manufacturer have to comply. Suitable cable sets, plugs, cables and installation accessories can be found in the shop on our website solarwatt.com.
When connecting the modules, ensure that the plugs engage with an audible click. The common bending radii of at least 5 times the outer cable diameter must be complied with. It is recommended to lay the cable firmly so that they are not subjected to mechanical loads. The cable and connector must not exposed to moisture and will not rest on the ground or floor.

WARNING

Solar modules generate electrical energy on the front side during incidence of light. A system with multiple solar modules can generate life-threatening voltages and electrical currents. Do not touch the electrical connections or cable ends while the solar module is exposed to light.

To ensure safety and compliance with the technical data of the products, only original tools of the manufacturer may be used in the self-assembly of solar cables.
Connection of modules in series is only permitted up to the maximum system voltage as listed in applicable data sheet. The maximum number of solar modules installed parallel without string fuse is two. Please comply with the value specified in the data sheet for reverse current feed and only use standardized photovoltaic cables (recommendation: at least 4 mm^2 cable cross-section).
The modules must not be allowed to operate on a short circuit permanently.
The solar modules correspond to application class II and can therefore be operated in systems with dangerous DC voltages (larger than 120 VDC in accordance with IEC 61730). Solar modules in this application class can be used in systems with unrestricted access, the relevant regulations must be complied with. Solarwatt solar modules qualified within this application class in accordance with IEC 61730 fulfill the requirements of protection rating II with correct electrical installation.
Under normal installation conditions, a solar module can deliver a higher current and/or higher voltage than under standardized test conditions. Consequently, the specified values on the solar module for short circuit current ISC should be multiplied by 1.25 and the open circuit voltage UOC should be multiplied by a factor of up to 1.25, based on the lowest expected ambient temperature for the given installation location, to determine the

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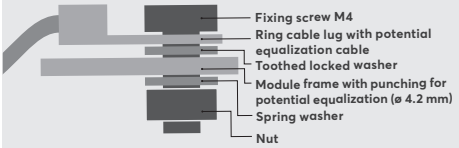
rated voltage values of components, the rated current values of conductors, the size of fuses and for dimensioning control units connected to the solar modules.
Any type of soiling on the plug contacts before or after installation (dust, moisture, aerosols containing salt, etc.) has a negative influence on the system function over the intended service period. For this reason it is necessary to pay particular attention to cleanliness during installation. The use of lubricants is not permitted. Always protect unplugged connectors against soiling of any type during transport, storage, and during installation, as the connectors only satisfy the requirements for their protection category when plugged in. It is forbidden to open the junction box or modify or remove the cable or frame.

WARNING

The plug contacts must not be connected or disconnected under load. Failure to comply with this warning could result in DEATH!

Potential equalization of the solar generator is prepared in the factory and is recommended. It can be carried out using the existing punchings for potential equalization on the long sides of the frame (see figure) or suitable clamps with integrated grounding pins in accordance with the valid local regulations.

Detailed view potential equalization:



NOTE

It is advisable to install lightening protection in exposed locations. The solar modules should be incorporated in existing lightening protection equipment. For this, take into account the relevant valid regulations (e.g. EN 62305 and VDE 100).

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MAINTENANCE AND SERVICING

A photovoltaic system needs practically no maintenance, as the solar modules are cleaned by the rain at the recommended minimum angle of 15°. To avoid reductions in yield, we do, however, recommend carrying out a regular visual check on the module surfaces. Particularly heavy soiling (e.g., leaves) can cause shades which reduce performance and should therefore be removed. Clean the glass surface with softened, low lime water, a water-ethanol- or water-isopropanol intermixture and a soft nonabrasive cloth only. In exceptional cases, a conventional cleaning agent may also be used in the recommended dose. Do not use aggressive cleaning agents or metal objects, as they can be particularly damaging to the hardened glass surface. The electric cables should (where accessible) be checked regularly for damage, corrosion, and firm hold. Pay particular attention to DGUV regulation 3 and DIN VDE 0105-100.

DISPOSAL

Dispose of defective or old solar modules properly; they should never be disposed of with domestic waste. The national disposal directive must be observed. The disposal of solar modules is regulated in the EU Waste Electrical and Electronic Equipment Directive (WEEE). Old solar modules can be mostly returned in usual commercial quantities to nearby municipal collection sites and local civic waste collection points at no charge. The WEEE Directive is nationally oriented, meaning that each EU Member State has its own legal regulations and practical handling for the sale and return of PV modules.
Contact us by e-mail at info@solarwatt.com and specify the number and type of modules to be returned. We will then coordinate all further details for returning your modules.

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Any questions?
Please contact us.

We want to make it as easy as possible to actively participate in the energy revolution. Feel free to use the support area on our website. If you still have questions about the installation, commissioning or maintenance of our products, our technical customer service is looking forward to your call.

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