

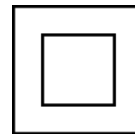
High Performance
Series III and IV

Installation Guide

Monocrystalline Silicon Photovoltaic Module



- Qualified, IEC 61215
- Safety tested, IEC 61730
- Periodic inspection



AS5033
Compliant

About this Guide

This *Installation Guide* provides product and safety information. Transform Solar Pty Ltd recommends you read this guide carefully and completely before installing and using your solar electric SLIVER™ module. Please retain this *Installation Guide*, storing it in a safe place, for future reference.

The information contained in this guide is based on the knowledge and experience of Transform Solar and is believed to be reliable. At any time, Transform Solar reserves the right to make changes to the product, specifications, or guide without prior notice.

Module part types covered in this *Installation Guide* are the following:

Series III	Series IV	
SVR146	SVR-HP150IV	SVR-HP150-4110
SVR154	SVR-HP157IV	SVR-HP157-4110
SVR161	SVR-HP165IV	SVR-HP165-4110
		SVR-HP170-4110
		SVR-HP175-4110

General Handling & Safety Requirements

Follow all local, state, and national safety regulations and standards. **Only qualified persons should install or perform maintenance on SLIVER modules.**



DANGER! Electricity can kill. Observe the following guidelines:

- **SHOCK HAZARD:** Modules are live parts whenever they are illuminated. Work only in dry conditions, and ensure that modules/wiring/tools are dry prior to beginning work.
- **Fire Protection:** Do not disconnect modules under load. Do not install modules where flammable gases/vapors/dust may be present.

Warning:

- Electrical hazards from live parts exist when installing, wiring, operating, and maintaining illuminated modules.
- Only qualified persons using appropriate protective equipment (gloves, clothing, and tools) should perform these actions.
- Work only in dry conditions and ensure that modules, wiring, and tools are dry prior to beginning work.
- DO NOT use damaged modules (such as cracked or broken frames, glass, wiring, or connectors).
- DO NOT connect or disconnect modules under load.
- DO NOT deliberately concentrate any source of light on the SLIVER module.

Caution:

- Never stand or place objects onto the SLIVER modules.
- Use caution when unpacking, moving, and installing the SLIVER module to avoid injury or dropping the module.
- Keep the SLIVER module in packaging until ready to install.
- Keep unqualified persons away from any electrical installation.
- Never disassemble or remove any labels affixed to the SLIVER module.

Mechanical Installation

Your SLIVER module will not provide optimum performance unless it is properly installed.

Only qualified individuals should install SLIVER modules. Do not attempt to install the module unless you have the appropriate qualifications. For more information about qualified installers, please contact Transform Solar.

Installer Responsibility: the installer takes full responsibility for any and all damage to equipment, the SLIVER module, and injury that might occur during installation.

Air Circulation: when fixing a SLIVER module to a mounting frame, leave sufficient space for air flow between the mounting surface (e.g. roof) and the back of the module.

Technical Specifications

Characteristic	Value
Dimensions	1518 x 839 x 46 mm (59.8 x 33.0 x 1.8 inches)
Weight	approx. 17 kg (~37.5 lbs)
PV Cable Length (each)	1000 mm (39.4")
PV Cable Area	2.5 mm ² (#14AWG)

Location Selection

In order to achieve optimal performance, your SLIVER module must be mounted and installed:

- facing north in the southern hemisphere or facing south in the northern hemisphere.
- at an appropriate angle to maximize year-round solar capture.
- secured to a structure appropriately designed to withstand high temperatures, high winds, icy conditions, snow, and other loads.
- in a position clear of shade (as from trees, buildings, or other permanent structures).
- with all modules in the same orientation.

Mounting Kits

Careful selection of mounting hardware is important. It must be able to withstand conditions such as: high temperatures, high winds, icy conditions, and snow loads.

Transform Solar recommends a clamping method for mounting your SLIVER module as part of a universal retrofit mounting system (Figure 1). It is recommended that the module be clamped to the rails in four locations and at $\frac{1}{4}$ the distance of the long side's top and bottom to limit the stress on the span of the modules.

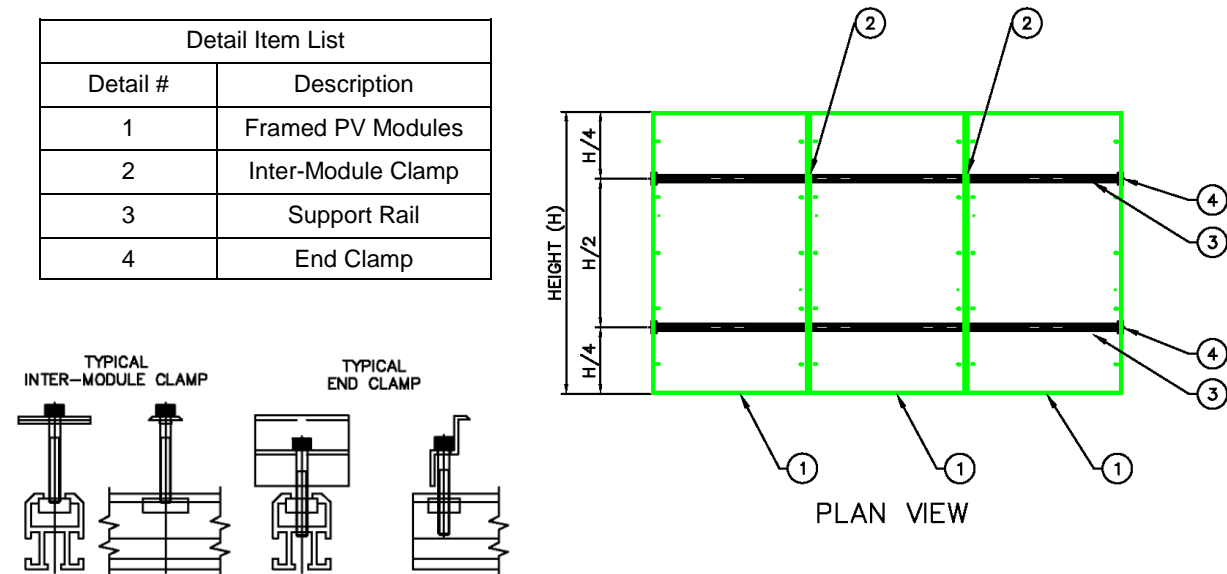


Figure 1: Recommended mounting system using clamps

If a clamping method is NOT used, there are five (5) holes on each long side of the frame spaced 300mm apart. It is recommended that the two (2) outside holes and the middle hole be used to bolt the modules.

Fasteners should be a high-grade stainless steel (e.g. 316 grade) to minimize corrosion. Each fastener must engage a minimum of two full screw threads into the frame of the SLIVER module.

DO NOT install this module as an integral part of a roof or wall of a habitable structure. The SLIVER module must be installed over a regulatory approved, fire resistant (or just fire resistant) roof. Consult local building regulations to determine approved roofing materials.

Electrical Installation

Positive Ground: the PV source circuits (strings) must be bonded to ground on the DC positive side. Prior to installation, ensure that the chosen inverter supports a positive ground connection.

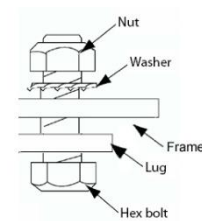
For detailed Electrical Characteristics, see our product datasheets available at www.transformsolar.com.

Junction box (j-box): located on the back of the SLIVER module. It is fixed and permanently sealed; do not tamper with it. Orient and mount the module oriented so that the j-box is on the high side and not along the bottom to prevent moisture from pooling.

Connectors: the cables are fitted with polarized connectors to aid in the connection of cables. One of the connectors is labeled with Positive “+” polarity and the other is labeled with Negative “-” polarity.

Cabling: for all wiring to the SLIVER module, use insulated, stranded copper wire rated for temperatures from -40°C to +90°C. Minimum of 14AWG/2.5mm² cable must be used to meet the system requirement. Wire insulation should be chosen for maximum temperature and environmental conditions, including sunlight and UV exposure. Halogen-free cables are recommended. It is recommended that all j-boxes have suitable strain relief for cables and carry a suitable IP rating.

Frame Grounding (Earthing): If the module frame is to be grounded, one of the pre-drilled grounding holes can be used. Securely attach the ground cable using a 3mm diameter high-grade stainless steel hex bolt. A star washer must be placed, as shown, between the surface of the frame and the securing nut in order to achieve a reliable electrical connection.



Series wiring: modules may be wired in series subject to equipment and code requirements for system voltage and current. Overcurrent protection requirements are determined by locally applicable codes.

Parallel wiring: modules may be wired in parallel subject to equipment and code requirements for system voltage and current. Overcurrent protection requirements are determined by locally applicable codes.

Bypass diode: a bypass diode is pre-assembled in the sealed junction box of each SLIVER module.

Maintenance and Cleaning

SLIVER modules are designed for long life and require very little maintenance, but we recommend that once a year a qualified person checks the mounting for: tightness of terminal screws, general wiring condition, and confirmation that the mounting hardware is still tight and free of corrosion.

In typical installations, standard rainfall is sufficient to keep the module glass surface clean. If soiling becomes excessive, modules may be sprayed clean or wiped with a soft cloth using a mild detergent and water. DO NOT pressure-wash modules.

Warranty and Disclaimers

The *Transform Solar Warranty Certificate* contains warranties by Transform Solar regarding workmanship and electrical performance of the SLIVER module.

The warranties in the *Transform Solar Warranty Certificate* are the only warranties made by Transform Solar in relation to the SLIVER module.

Except as set out in the *Transform Solar Warranty Certificate*, Transform Solar makes no representations or warranties, expressed or implied, in relation to SLIVER module or its fitness for purpose or merchantability and, except as required by statute, Transform Solar specifically disclaims all warranties in relation to the SLIVER module (including, but without limitation, any warranty of merchantability or fitness for purpose).

The performance of your SLIVER module will depend on the method of installation and maintenance. Transform Solar recommends that only appropriately qualified persons should install and maintain SLIVER modules.

Transform Solar does not accept any responsibility or liability for loss that results from installation or maintenance that is not in accordance with recommendations from Transform Solar including the requirement for system grounding.

Failure to follow instructions and recommendations contained in this *Installation Guide* may void the Warranty contained in the *Transform Solar Warranty Certificate*. Please refer to the *Transform Solar Warranty Certificate* for further details.



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