

Solar systems of Schweizer: Factsheet – Dummy modules for BIPV roof system Solrif®

Use of dummy modules

Dummy modules are inactive modules optically adapted to active PV modules, typically consisting of a sheet metal inlay framed with the Solrif® profiles. By cutting the dummy modules on site, numerous connections to roof edges or roof installations (e.g. roof valley, skylights, chimneys, steam vents, dormers, etc.) can be tackled in standardised way.

The affected area is filled with a dummy module cut to shape and then covered with flashings, regardless of whether normal roofing (tiles) or Solrif® system.

Advantages of dummy modules

- A uniform appearance is created over the entire surface.
- Joints to roof installations or roof edges can be standardised.
- In full-roof solutions with Solrif®-framed PV modules, costly and large-area sheet metal roofing solutions can be avoided.
- In partial roof solutions, obstacles can be integrated and joints at the edge can be made as usual with available sheeting.

Dummy modules are delivered to the construction site in a standard dimension corresponding to the active module. Then, they are cut and installed on site according to the specific requirements.

Examples



Fig. 1: Finish to the ridge of a hip roof



Fig. 2: Formation of a roof valley



Fig. 3: Joints to chimneys



Fig. 4: Dummy modules in area shaded by the chimney

Snow barriers

Dummy modules can also be used for the installation of snow barriers. This application is described in detail in the fact sheet - "Snow guard for in-roof PV system Solrif®".

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Solrif®-framed metal sheets with a height of 400mm (grid dimension) are used for this purpose. These "400 dummy modules" are primarily intended for anchoring snow guards, but can also be used to compensate for a field in height.



Fig. 5: Eaves area with snow barrier on dummy modules



Fig. 6: Dummy modules with opening for ventilation outlets

Specifications of dummy modules

- Design: A dummy module consists of the Solrif® frame and an inlay framed in place of the PV laminate. The inlay can be a sheet metal, composite material or aluminium honeycomb of similar thickness.
- For each active module with Solrif® available on the market, a dummy module is available in the same dimensions (see reference below).
- Balancing in width is possible through the availability of blind modules of the same height and different widths (corresponding to 60-, 54- and 48-cells).
- Surfaces: The standard colour for Solrif® frame and inlay is black (RAL 9005). Other colours are available on request (minimum quantities and delivery times on request).
- Quality requirements: The materials and surfaces are of high quality and long-term stability for outdoor use. They meet the requirement for hard roofing (fire protection).
- Weight: Depending on the material of the inlay, the weight corresponds to approx. an active glass-film PV module.

Specification dummy modules for Solrif®

Description	DM_lengthxwidth	DM_lengthx400
Length over all [mm] ¹⁾	length	length
Width over all [mm] ²⁾	width	432
Use - approved materials	Peraluman 3 (or 4) mm / Design Composite TOP-tec 4.5/0.7/0.7 / Alucobond	
Mounting System	Solrif®	
Max. wind load	2'400 Pa	
Max. pressure ³⁾	5'400 Pa	
Rain tightness ⁴⁾	Rain tight like a tile roof (SIA 232/1, ZVDH)	
Fire classification ⁴⁾	corresponding hard roofing (B roof T1, Euro class)	
Suggested edge protection on the cut edge	Unbroken steel clamping profile type A3229 (Sand Profile GmbH) see Fig. 13	

¹⁾ Corresponds to width on the roof

²⁾ Corresponds to height on the roof

³⁾ With additional approx. middle support batten (caution: junction box)

⁴⁾ Does not apply to edge clamping profiles from SAND

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Optimal use of material

In roof situations with symmetrical edge areas, one dummy module can ideally be used for a left and right connection to the verge.

Dummy modules of module families: In module families, dummy modules are usually available for each size of the family. They can be used to fill in edge areas.

Planning process with SPT planning software from Schweizer

Active module fields can be automatically filled with dummy modules up to the roof edge ("Fill roof").

Individual, active PV modules can be defined as dummy modules (note: programme function Arrangement / Selection / diamond symbol).

"400 dummy modules" can be inserted at any point in a continuous line using the "Snow guard" function.

The "Fill roof" function also generates dummy modules of any height - especially against the ridge, which are not available in this form and cannot be cut from standard sizes. In the planning phase, it must be clarified whether these dummy modules should be produced object-specifically or left out (thin smith solution).

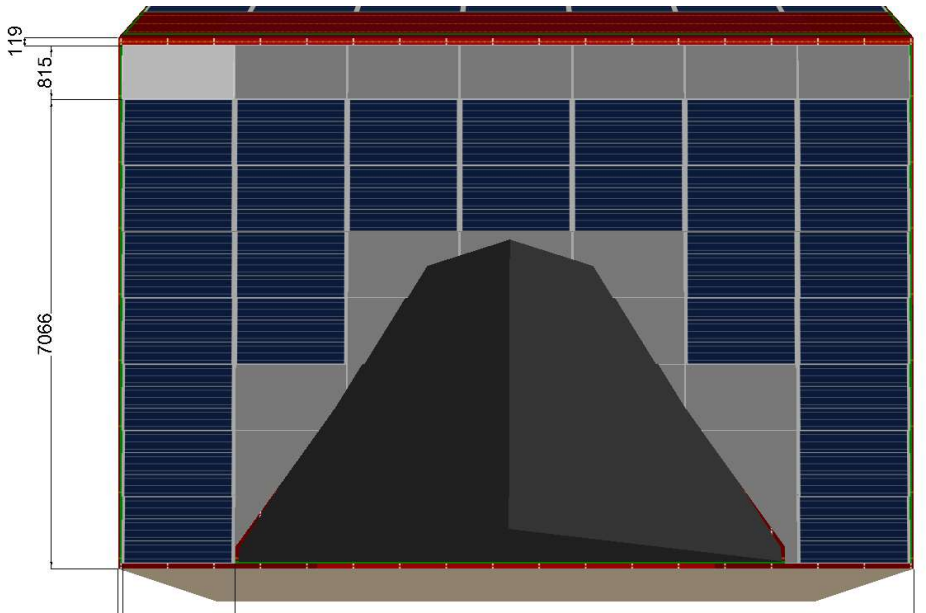


Fig. 7: Planning layout roof with dormer and automatically filled dummy modules.

- The dummy modules are listed in the proSolrif parts list in the "Modules" section without reference to the manufacturer and with the nominal dimensions (e.g. DM_1759x1048: dummy module 1759 mm x 1048 mm).
- ATTENTION: For dummy modules that have to be cut to size, no mounting brackets are added to the parts list. It may be useful to include additional mounting brackets manually in the purchase order. Consider the CAD plan.

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Processing the dummy modules for the construction site

- The dummy modules are cut to size on the construction site, e.g. with a angle grinder or hand-held circular saw.

Cutting

- Measure and mark the cut
- Cut the dummy module to size



Fig. 8: Cutting the dummy module



Fig. 9: Detail of the cut dummy module



Fig. 10: Cutting dummy module on site



Fig. 11: Cutting with angle grinder

Finishing the open edge

- The water drainage under the blind module must be solved by sheeting.
- If necessary, further measures are required to improve the rainproofing.

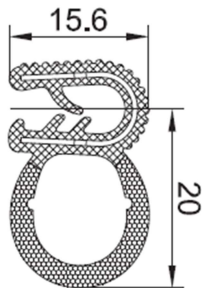


Fig. 12: Section of steel clamping strip A3229 unbroken



Fig. 13: Clip-on steel strip to finish the cut edge

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Recommendation and proposal: Connect electrically metal sheet with frame

To assure that all metal parts are connected electrically, we propose to connect the frame with the metal sheet. A proven alternative is to drill through the frame into the metal sheet and to insert a screw. Other solutions are allowed as far they provide a reliable and secured connection.

Use a flat countersunk head self-drilling screw ST3.5 x 13 or a flat countersunk head thread forming screw M4x10, Inox A2 to connect the parts. To get an more convenient mounting, the set screw in one of the two slot nuts of the bottom profile can be replaced with one of the described screws. This will help to guide the drill and the screw afterward.

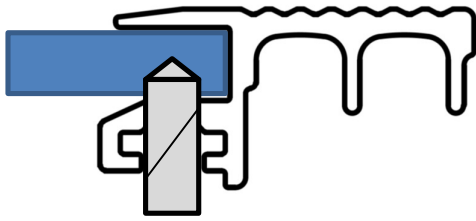


Fig. 14: Drill Ø3.3 mm hole

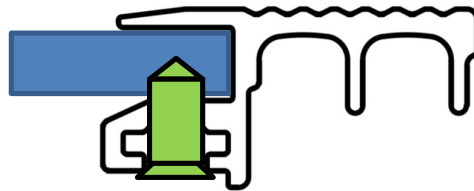


Fig. 15: insert the self-drilling screw ST3.5 x 13 or thread forming screws M4x10

Recommended tool

- Angle grinder or hand-held circular saw with guide
- Anvil shears for cutting sand profile
- Rubber mallet
- Drill Ø3.3 mm
- Screw driver

References

Specialist dealers:

Dealers also stock blind modules and accessories for the Solrif®-framed PV modules. See www.solrif.com .

PV module manufacturers:

Various PV module manufacturers who offer their Solrif®-framed PV modules directly also supply dummy modules and accessories.

See www.solrif.com .

Ernst Schweizer AG:

Ernst Schweizer AG supplies dummy modules and accessories to specialist dealers and PV module manufacturers minimum quantities, delivery times and prices on request.

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