



Extended datasheet

## EasyIn 60M style

### Glass-Glass-Module for roof integration Module frame = Mounting assembly

The SOLARWATT glass-glass modules EasyIn 60M style produce solar power and at the same time replace conventional roofing. High aesthetics, resistance to weathering and longevity of the modules make the EasyIn system a good alternative to conventional on-roof systems.

The high-performance PERC solar cells are embedded almost indestructibly in the glass-glass composite and thus optimally protected against all weather effects and mechanical stress. SOLARWATT can therefore offer a 30-year warranty on performance and product quality.

The SOLARWATT FullCoverage insurance is included for 5 years and free of charge. It insures almost all risks and takes effect even if the modules do not produce electricity or deliver less than expected in the event of damage.

### Product Quality

- ammonia resistant
- intensive hailstorm resistant
- salt mist resistant
- 100 % plus-sorting
- 100 % PID protected



### Service

**FullCoverage insurance**  
included (up to 1,000 kWp\*)

**Simple returns policy**  
as per „Delivery terms for SOLARWATT solar modules“

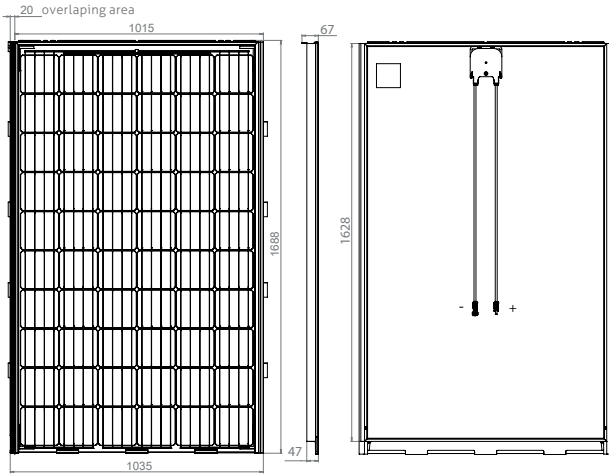
\* country-specific deviations apply

**30 Year Product Warranty**  
as per „Warranty conditions for SOLARWATT solar modules“

**30 Year Performance Warranty**  
on 87 % of nominal power as per „Warranty conditions for SOLARWATT solar modules“

# Technical data sheet EasyIn 60M style

## Dimensions



The roof constructions must comply with the general requirements of the directives of local construction regulations; the system is designed for 40 x 60 mm roof battens.

|                   |   |
|-------------------|---|
| Application site  | In upright position as roof integration in pitched roofs; 22° - 65° roof pitch; 16° minimum roof pitch with usage of a water-tight sub-roof according to the guidelines of the local construction regulations |
| System Components | Solar modules with special frame, seals, wind suction retainers, special screws, sarking membrane, aluminum guide rail and bearing  |

## General data

|  |   |
|--|---|
| Module technology                                      | Glass-glass laminate; aluminum frame, black   |
| Covering material<br>Encapsulation<br>Backing material | Tempered solar glass with anti-reflective finish, 2mm<br>EVA-solar cells-EVA, transparent<br>Tempered glass, 2 mm |
| Solar cells  | 60 monocrystalline high power PERC solar cells  |
| Cell dimensions  | 157 x 157 mm  |
| L x W  | Module dimensions (total length): 1.688 x 1.035 mm<br>Cover dimensions: 1.642 x 1.015 mm                          |
| Height   | module height at side without junction box: 47 mm<br>module height of side without junction box: 67 mm            |
| Weight   | appr. 24 kg   |
| Connection technology                                  | Cables 2 x 1,0 m/4 mm <sup>2</sup><br>Stäubli Electrical MC4-connectors   |
| Bypass diodes  | 3   |
| Max. system voltage                                    | 1,000 V   |
| Application class                                      | II (acc. to IEC 61730)  |
| Fire resistance test                                   | DIN ENV 1187  |
| Hail resistance  | Tested with simulated hailstones<br>(Ø 25 mm, at -83 km/h)  |
| Certified mechanical ratings as per IEC 61215          | Suction load up to 2,400 Pa (test load 3,600 Pa)<br>Pressure load up to 5,400 Pa (test load 8,100 Pa)             |
| Qualifications   | IEC 61215   IEC 61730 (incl. Protection Class II)   |

## Electrical data (STC)

STC (Standard Test Conditions): Irradiation intensity 1,000 W/m<sup>2</sup>, spectral distribution AM 1,5 | Temperature 25±2°C, in accordance to EN 60904-3

|                                       |         |         |         |
|---------------------------------------|---------|---------|---------|
| Nominal power P <sub>max</sub>        | 305 Wp  | 310 Wp  | 315 Wp  |
| Nominal voltage V <sub>MP</sub>       | 32,7 V  | 32,9 V  | 33,0 V  |
| Nominal current I <sub>MP</sub>       | 9,42 A  | 9,52 A  | 9,62 A  |
| Open circuit voltage V <sub>OC</sub>  | 40,1 V  | 40,3 V  | 40,4 V  |
| Short circuit current I <sub>SC</sub> | 10,00 A | 10,12 A | 10,22 A |
| Module efficiency                     | 18,5 %  | 18,8 %  | 19,1 %  |

Measurement tolerances: P<sub>max</sub> ±5 %; V<sub>oc</sub> ±10 %; I<sub>sc</sub> ±10 %, I<sub>MP</sub> ±10 %

Reverse-current power rating I<sub>r</sub>: 20 A, operating modules with an external power source is only permissible if using a phase fuse with a tripping current of ≤ 20 A.

## Electrical data (NMOT and weak light)

NMOT (Nominal Module Operation Temperature): Irradiation intensity 800 W/m<sup>2</sup>, spectral distribution AM 1,5, Temperature 20°C  
Weak light conditions: Irradiation intensity 200 W/m<sup>2</sup>, Temperature 25°C, Wind speed 1m/s, load operation

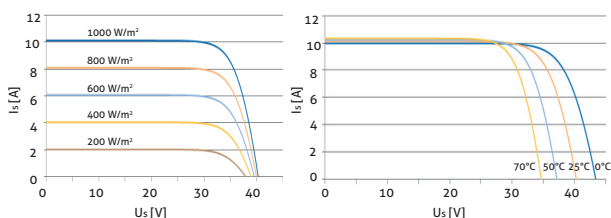
|   |        |        |        |
|---|--------|--------|--------|
| Nominal power P <sub>max @NMOT</sub>                | 226 W  | 230 W  | 233 W  |
| Nominal power P <sub>max @200 W/m<sup>2</sup></sub> | 60,8 W | 61,8 W | 62,8 W |

Measurement tolerances: P<sub>max</sub> ±5 %; V<sub>oc</sub> ±10 %; I<sub>sc</sub> ±10 %, I<sub>MP</sub> ±10 %

Reduction of module efficiency when irradiance is reduced from 1000 W/m<sup>2</sup> to 200 W/m<sup>2</sup> (at 25°C): 4 ± 2 % (relative) / -0,6 ± 0,3 % (absolute).

## Characteristic lines (Performance Class 310 Wp)

Voltage characteristic line at different temperatures and irradiances



## Thermal Features

|  |                |
|--|----------------|
| Operating temperature range              | -40 ... +85 °C |
| Ambient temperature range                | -40 ... +45 °C |
| Temperature coefficient P <sub>max</sub> | -0,39%/K       |
| Temperature coefficient V <sub>OC</sub>  | -0,31%/K       |
| Temperature coefficient I <sub>SC</sub>  | 0,05%/K        |
| NMOT                                     | 44 °C          |

## EasyIn 60M style - replace conventional roof tiles

### Premium glass-glass-modules

- Durable and innovative glass-glass composite
- Weatherproof roofing replacing roof tiles
- Rear ventilation for high yields
- Resistant and resilient

### Fast and simple installation

- No additional mounting components required
- Fastened directly to the roof battens
- Limited number of separate parts
- Universal roof-module connection profiles included
- Metal framing components for tile connection optionally available

### FullCoverage insurance

- Insurance protecting against all damage
- Compensates for lost earnings
- Makes up the shortfall if yields fall below minimum
- Available within the EU



## Mounting and rear ventilation

### Sarking membrane

The sarking membrane is laid free of crimps and wrinkles parallel to the eaves and fastened to the rafters or the roof boards.

### Aluminium guide rail

One aluminum rail is installed for each module row for dimensionally stable mounting and for simple grounding of the solar modules.

### Placing the modules

The modules with the upper module frame can now be hooked into the aluminum guide rail and pushed together laterally with a tongue-and-groove connection. They are mounted with suction anchors screwed directly to the module and the roof battens.



### Module-roof connection

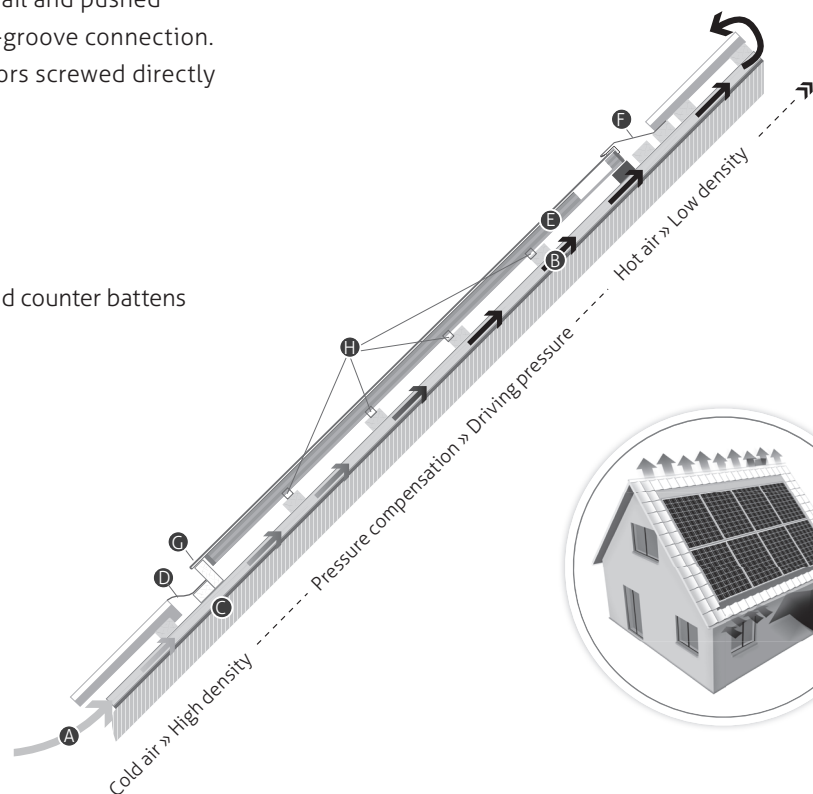
The final integration of the module field in the roof is carried out by universal module-roof connection profiles. The result is a weatherproof, rainproof and well ventilated roof covering.

### Roofing frame (flashing)

The final integration takes place with the tinplate. Adapted to a large number of roof tile models, SOLARWATT optionally offers a color and geometrically optimally adjusted tinplate set.

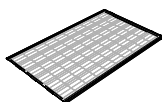
- A Cold air flow
- B Warm air flow
- C Rafters with sarking membrane and counter battens
- D Lower enclosure frame
- E EasyIn Module
- F Upper enclosure frame
- G Supporting board 98 x 20 mm
- H Attachment angle

-  Roof battens
-  Aluminum guide rail

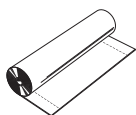


# System components

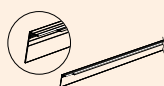
Solar module



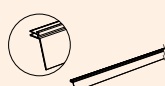
Sarking membrane



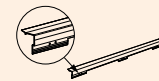
Module-roof connection left



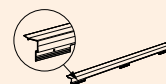
Module-roof connection right



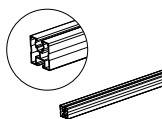
Module-roof connection top long



Module-roof connection top short



Aluminum guide rail



Fastening plate for aluminum guide rail



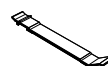
Wood screws



Mounting bracket



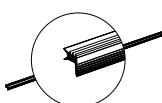
Spacer



Self-tapping screws



Transverse seal



Transverse seal clip



## Information about the roofing frame

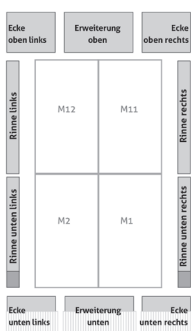
### Technical data and requirements for module area

|                                  |   |
|----------------------------------|---|
| Materials/Color                  | Aluminum/black  |
| Flashing technology              | Crimped metal   |
| Joint seal technology            | UV and fire proof prefab soft foam sealing, bitumen bonding |
| Temperature requirements         | Bitumen bonding should not be installed at less than 5° C   |
| Ambient temperature range        | -40°C to +45°C  |
| Shape of the installation        | Square or rectangular                                       |
| Openings within the installation | Not supported   |
| Installation size                | Unlimited number of rows and columns                        |
| Installation edges               | Roof tiles on all 4 sides                                   |

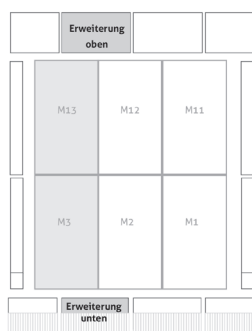
### Requirements for roof tiles and roof

|                          |   |
|--------------------------|---|
| Max. tile thickness      | contoured tiles with max. 50 mm thickness above roof batton   |
| Covering length          | Cover length and width must be adaptable for varying plant sizes, a nominal covering length of 330 mm is recommended  |
| Covering width           |   |
| Recommended tile styles* | e.g. Topas 13, Frankfurter Pfanne, Domino, Cantus, Z10<br><small>*depending on the individual roof layout</small>   |
| Roof pitch               | 22° to 29° / 30° to 65°   |
| Roof battens             | <ul style="list-style-type: none"> <li>• According to German roofing standards</li> <li>• 3 additional roof battens necessary above modules to secure the installation</li> </ul> |
| Sarking membrane         | see EasyIn Installation Manual  |

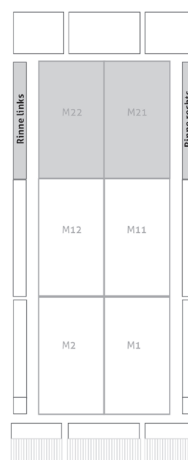
### Erweiterungs-Sets



Basic set for 2 x 2 modules



Horizontal extension set for an extra column



Vertical extension set for an extra row

Subject to change | Errors excepted

AZ-TDB-PMS-1458 | 2019 SOLARWATT GmbH | This data sheet fulfills the requirements listed in IEC 61215-1-1 | REV 003 | 10/2019 | EN

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