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base de donnée "Photovoltaïque et Bâtiment"

Easy In System

INGENIOUSLY SIMPLE

SOLAR MODULES REPLACE ROOF COVERING

Product information

SOLARWATT®

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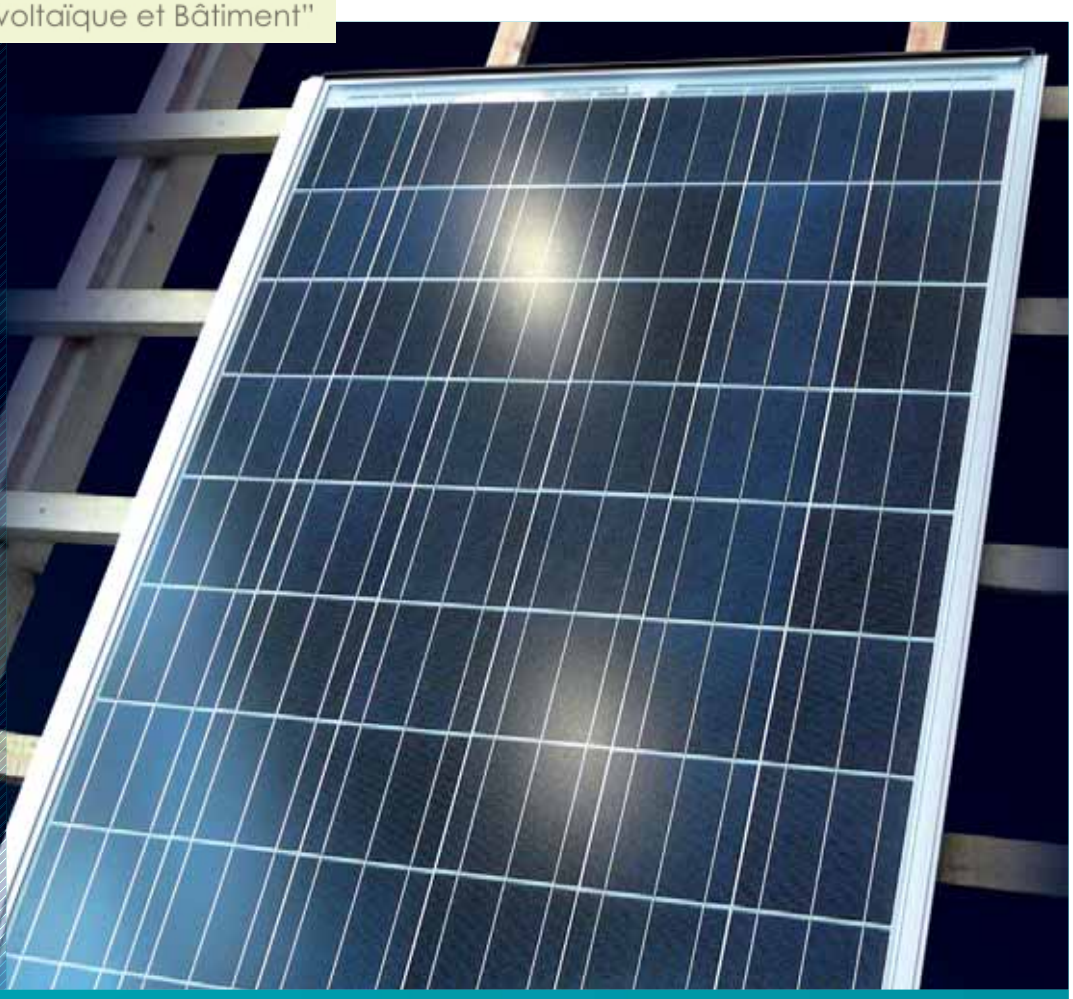
PRODUCT INFORMATION

CONTENTS

THE SYSTEM P.02
THE ASSEMBLY P.04
THE MODULES P.05



SOLARWATT EASY-IN SYSTEM SETS NEW STANDARDS.

WITH THIS INNOVATION SOLARWATT DEVELOPED A MODERN SYSTEM IN THE ROOF THAT IS ABLE TO COMPLETELY REPLACE ROOFING WITH TRADITIONAL ROOF COVERING.

THEREBY THIS SYSTEM HAS A DOUBLE ADVANTAGE: IT IS A WEATHERPROOF ROOFING PRODUCING ELECTRICITY.

» www.solarwatt.de/easy-in

SOLARWATT Easy-In M

SOLARWATT Easy-In P

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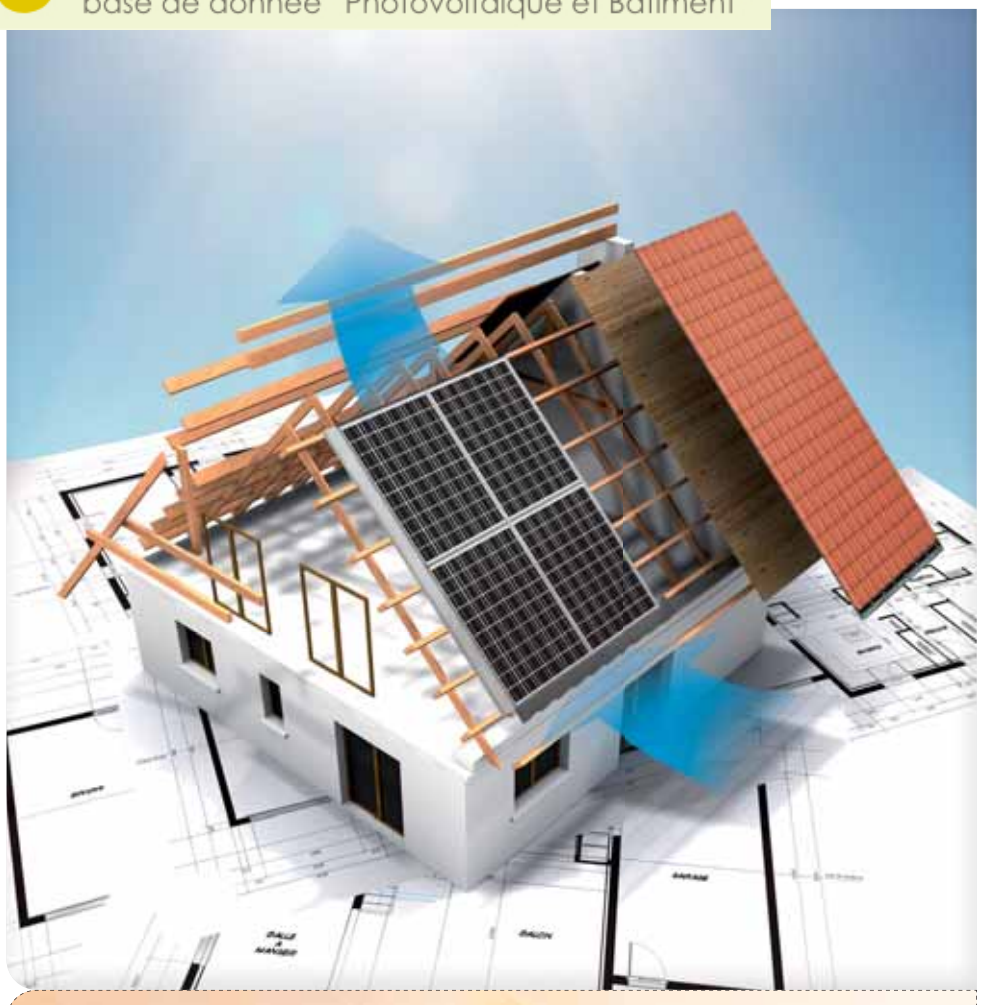


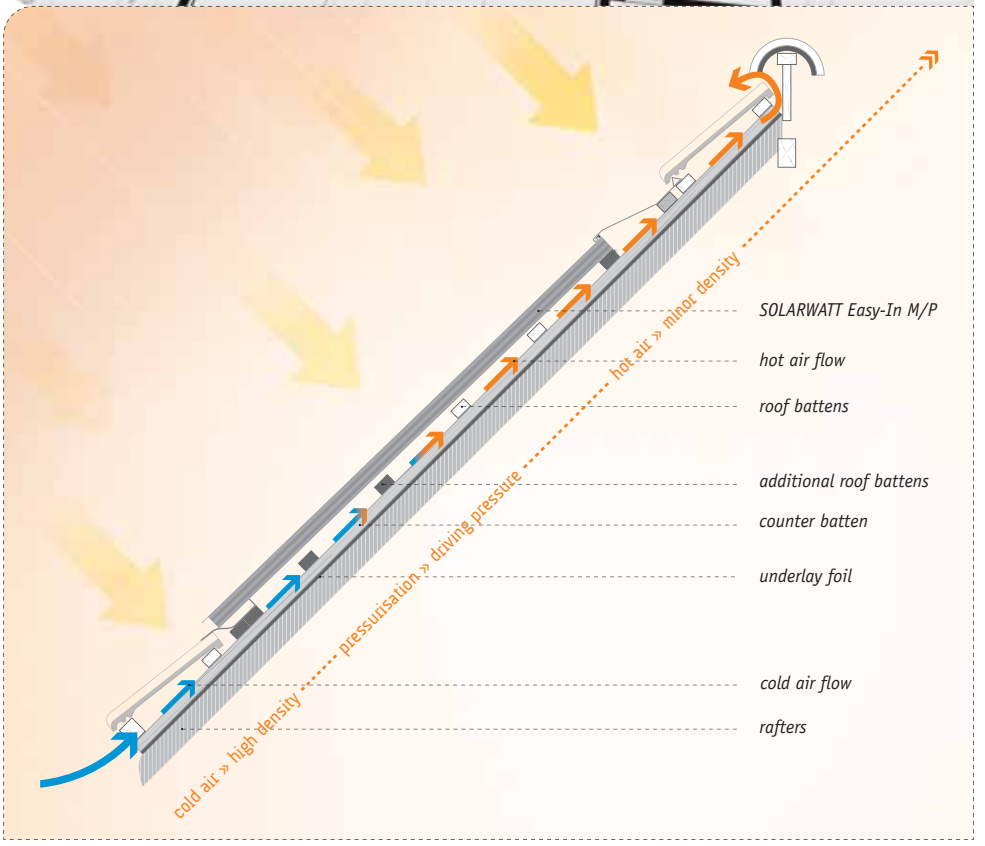
NEW DEVELOPMENT

The SOLARWATT Easy-In system is designed for slanted roofing of 22° to 65° inclination and is based on the standard modules SOLARWATT Easy-In M or SOLARWATT Easy-In P.

That's special about the SOLARWATT Easy-In modules: The module frame is at the same time the assembly system.

BENEFITS:

- **No additional assembly system required:** The module frames are functioning as assembly system.
- **Manageable number of components**
- **Less time needed for installation**
- **Easy attachment:** Screwing is done directly at the roof battens.
- **Easy assembly:** The modules are fitted into each other via a groove-feather-connection.
- **High electricity yield** because of very good back ventilation of the modules
- **Certified module quality**
- **Secure investment:** for years attractive returns



PRINCIPLE OF BACK VENTILATION

In conjunction with a correctly constructed roof the SOLARWATT Easy-In system guarantees an optimal back ventilation of the roof.

With air inlets put at the rainwater pipes the streaming in ambient air gets between the system and the roof substructure. Because of its minor density the air that is heating up rises up and disappears via the ventilation ridge.

Due to the pressurisation at the hot air/cold air-transition colder air (with higher density) flows in from the bottom. This natural convection (=stack effect) provides that the SOLARWATT Easy-In system is sufficiently cooled and that an optimal performance is also guaranteed in case of high temperatures.

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» EASY SLIDING SYSTEM

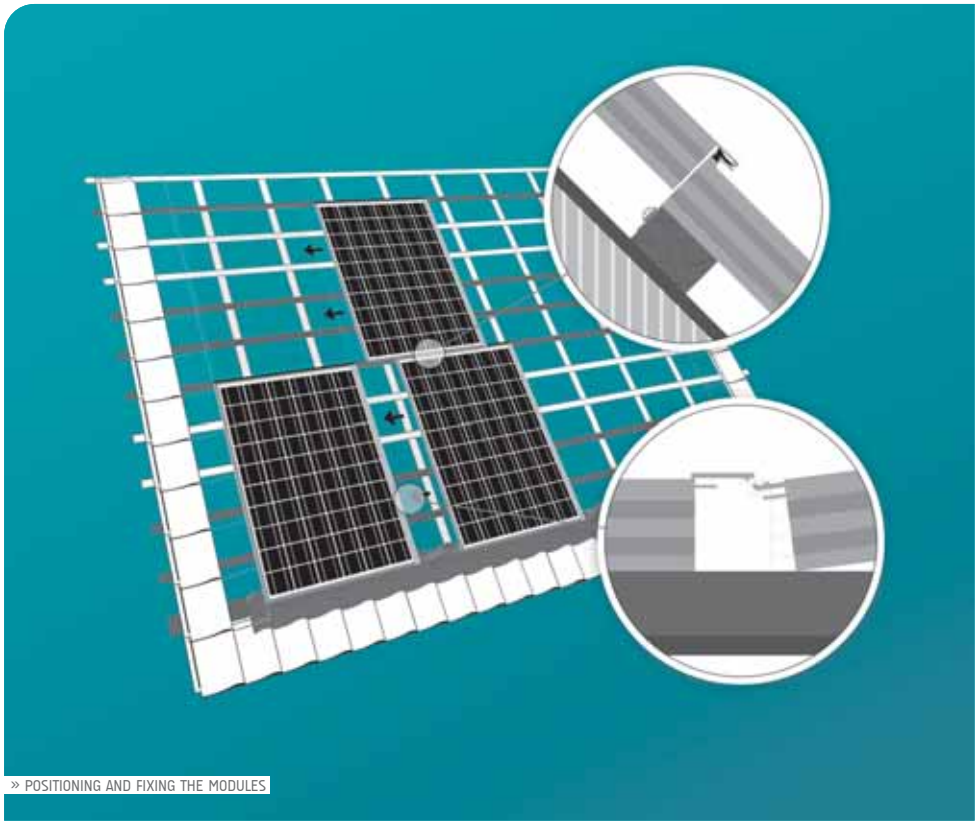
» ROOF INTEGRATION THROUGH CLADDING THE MODULES

THE ASSEMBLY

SIMPLE AND UNCOMPLICATED

Together with the upper module frame the modules are mounted into the roof battens and are fitted into each other via a groove-feather-connection.

They are fixed by wind suctions that are directly screwed together with the roof battens. The integration of the module area into the roof is done through cladding as it is done with skylights. So a weatherproof, rainproof and good back ventilated roofing is generated.



» POSITIONING AND FIXING THE MODULES

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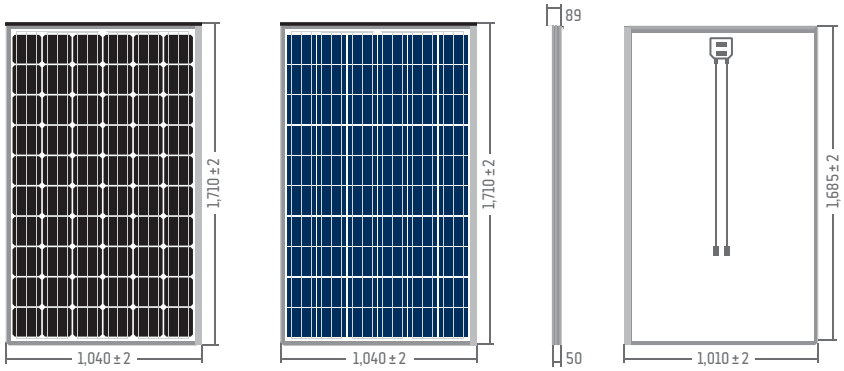
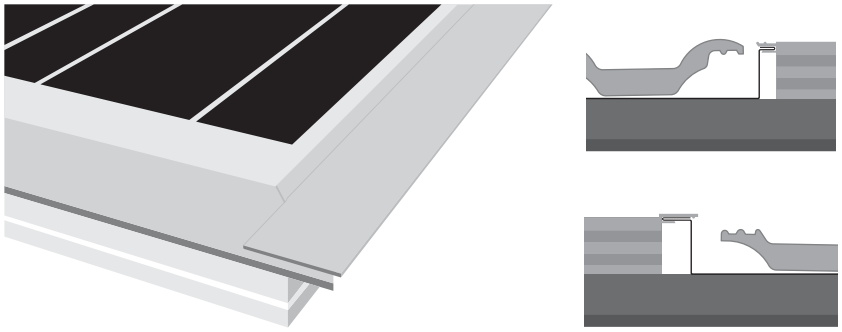
THE MODULES

TECHNICAL DATA





» DIMENSIONS, FRAME DETAIL AND ROOF CLADDING

Basis of the SOLARWATT Easy-In modules are laminates of the models M220 and P210. SOLARWATT combines the high quality and performance of this laminates with a specially formed frame.

GENERAL FEATURES

Installation site	Roof integration / slanted roof
Roof covering	Suitable for almost every roof covering, up to 25 m building height
Roof pitch min.	22 °
Roof pitch max.	65 °
Module-/Covering-Dimensions	1,710 x 1,040 x 50 mm / 1,685 x 1,010 x 50 mm The modules overlap 30 mm in the horizontal and 25 mm in the vertical connections.
Module alignment	edgewise; continuous surface; coverage of the entire roof surface may be possible based on prior inspection
Frame color	Aluminium (anodized)
Roof construction	Wind suction securing devices and screw mounting connections are designed for 40 x 60 mm roof battens.
System components	Solar module with special frame profile and sealing, wind suction securing devices, drilling screws
Warranty	see warranty terms on www.solarwatt.de
Fire control	Fire control acc. to DIN ENV 1187 (in preparation)
Raintightness	Raintightness acc. to DIN EN 1027, RAL and pr EN 15601
Lift-off resistance	Lift-off resistance acc. to DIN 14437 > 2,400 Pa

[STAND: 06/2009]

Änderungen vorbehalten.

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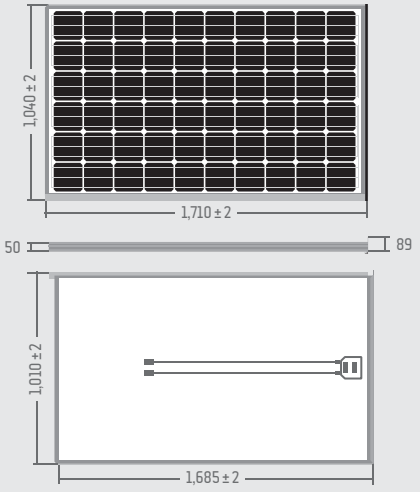
DIMENSIONS

SOLARWATT EASY-IN M



GENERAL DATA

Module Technology	Glass-Foil-Laminate; Aluminium Frame
Cover material Encapsulation Back material	High transparent solar glass (tempered), 4 mm EVA-Solar Cells-EVA Tedlar-Polyester-Tedlar, white
No. and Type of Cells	60 monocrystalline solar cells
Dimensions of Cells	156 x 156 mm
Cables	Junction box with tyco plug connector cables 2 x 1.20 m/4 mm²
Bypass-Diodes	3 pcs.
Weight	24 kg
Max. System Voltage	1,000 V
IP Protection Level	IP 65
Mechanical Ratings	Suction pressure of 2,400 Pa approved (Wind speed 130 km/h with safety factor 3) Load of 5,400 Pa approved
Qualifications	IEC 61215 Ed. 2, IEC 61730 (incl. Safety Class II)

ELECTRICAL DATA (STC)

STC: Standard Test Conditions: measurement conditions: Radiation strength 1,000 W/m², spectral distribution AM 1.5, temperature 25±2°C, in accordance with EN 60904-3

Specification	SOLARWATT Easy-In M			
Nominal Power P_{max}	225 Wp	230 Wp	235 Wp	240 Wp
Nominal Voltage U_{mpp}	28.8 V	29.1 V	29.3 V	29.5 V
Nominal Current I_{mpp}	7.82 A	7.92 A	8.03 A	8.15 A
Open Circuit Voltage U_{OC}	36.1 V	36.3 V	36.5 V	36.7 V
Short Circuit Current I_{SC}	8.32 A	8.48 A	8.62 A	8.76 A
I_R*	17 A	17 A	17 A	18 A

Measuring tolerances P_{max}±5%;
*Reverse current power rating: Operation of the modules with an external power source is only permitted with a string fuse with a release current of < 2 x I_{SC} ⊃ NOCT

Reduction in the module efficiency with reduction in radiation strength of 1,000 W/m² to 200 W/m² (25 °C): 4±2% (relativ) / -0.6±0.3% (absolute).

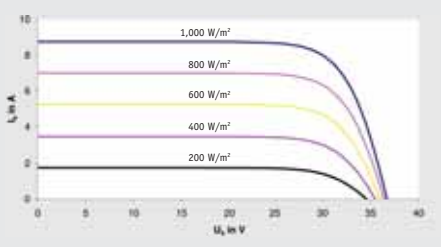
ELECTRICAL DATA (NOCT)

NOCT: Normal Operation Cell Temperature, measurement conditions: Radiation strength 800 W/m², AM 1.5, temperature 20°C, wind speed 1 m/s, electrical open-circuit operation

Specification	SOLARWATT Easy-In M			
Nominal Power P_{max}	162 W	166 W	169 W	173 W
Nominal Voltage U_{mpp}	26.1 V	26.4 V	26.6 V	26.8 V
Open Circuit Voltage U_{OC}	33.4 V	33.6 V	33.8 V	34.0 V
Short Circuit Current I_{SC}	6.70 A	6.82 A	6.94 A	7.05 A

CHARACT. LINE

Voltage charact. line with different irradiations



Performance class 240 Wp

THERMAL FEATURES

Operating Temperature Range	-40 ... +80 °C
Ambiente Temperature Range	-40 ... +45 °C
Temperature Coefficient of P_N	-0.50 %/K
Temperature Coefficient of U_{OC}	-0.37 %/K
Temperature Coefficient of I_{SC}	0.03 %/K
NOCT	45 °C

[THIS DATA SHEET CONFORMS TO DIN EN 50380:2003; 2009/06]

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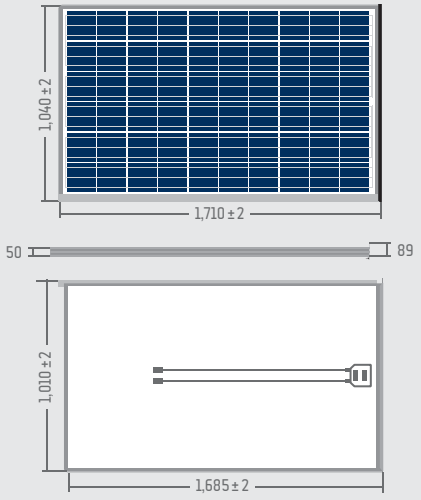
DIMENSIONS

SOLARWATT EASY-IN P



GENERAL DATA

Module Technology	Glass-Foil-Laminate; Aluminium Frame
Cover material **Encapsulation** **Back material**	High transparent solar glass (tempered), 4 mm EVA-Solar Cells-EVA Tedlar-Polyester-Tedlar, white
No. and Type of Cells	60 polycrystalline solar cells
Dimensions of Cells	156 x 156 mm
Cables	Junction box with tyco plug connector cables 2 x 1.20 m/4 mm²
Bypass-Diodes	3 pcs.
Weight	24 kg
Max. System Voltage	1,000 V
IP Protection Level	IP 65
Mechanical Ratings	Suction pressure of 2,400 Pa approved (Wind speed 130 km/h with safety factor 3) Load of 5,400 Pa approved
Qualifications	IEC 61215 Ed. 2, IEC 61730 (incl. Safety Class II)

ELECTRICAL DATA (STC)

STC: Standard Test Conditions: measurement conditions: Radiation strength 1,000 W/m², spectral distribution AM 1.5, temperature 25±2°C, in accordance with EN 60 904-3

Specification	SOLARWATT Easy-In P			
Nominal Power P_{max}	225 Wp	230 Wp	235 Wp	240 Wp
Nominal Voltage U_{mpp}	28.6 V	28.8 V	29.1 V	29.4 V
Nominal Current I_{mpp}	7.87 A	8.00 A	8.08 A	8.17 A
Open Circuit Voltage U_{OC}	36.7 V	36.9 V	36.9 V	37.0 V
Short Circuit Current I_{SC}	8.42 A	8.50 A	8.56 A	8.61 A
I_R*	17 A	17 A	17 A	17 A

Measuring tolerances P_{max}±5%;
*Reverse current power rating: Operation of the modules with an external power source is only permitted with a string fuse with a release current of < 2 x I_{SC} ⊜ NOCT.

Reduction in the module efficiency with reduction in radiation strength of 1,000 W/m² to 200 W/m² (25 °C): 4±2% (relative) / -0.6±0.3% (absolute).

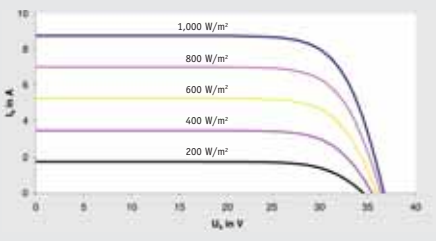
ELECTRICAL DATA (NOCT)

NOCT: Normal Operation Cell Temperature, measurement conditions: Radiation strength 800 W/m², AM 1.5, temperature 20°C, wind speed 1 m/s, electrical open-circuit operation

Specification	SOLARWATT Easy-In P			
Nominal Power P_{max}	163 W	167 W	171 W	174 W
Nominal Voltage U_{mpp}	26.0 V	26.2 V	26.5 V	26.8 V
Open Circuit Voltage U_{OC}	34.1 V	34.3 V	34.3 V	34.4 V
Short Circuit Current I_{SC}	6.81 A	6.87 A	6.92 A	6.96 A

CHARACT. LINE

Voltage charact. line with different irradiations



Performance class 230 Wp

THERMAL FEATURES

Operating Temperature Range	-40 ... +80 °C
Ambiente Temperature Range	-40 ... +45 °C
Temperature Coefficient of P_N	-0.46 %/K
Temperature Coefficient of U_{OC}	-0.35 %/K
Temperature Coefficient of I_{SC}	0.05 %/K
NOCT	45 °C

[THIS DATA SHEET CONFORMS TO DIN EN 50380:2003; 2009/06]

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