SOLARWATT Easy-In M

Monocrystalline solar cells, 230 Wp – 250 Wp, framed

ENGLISH

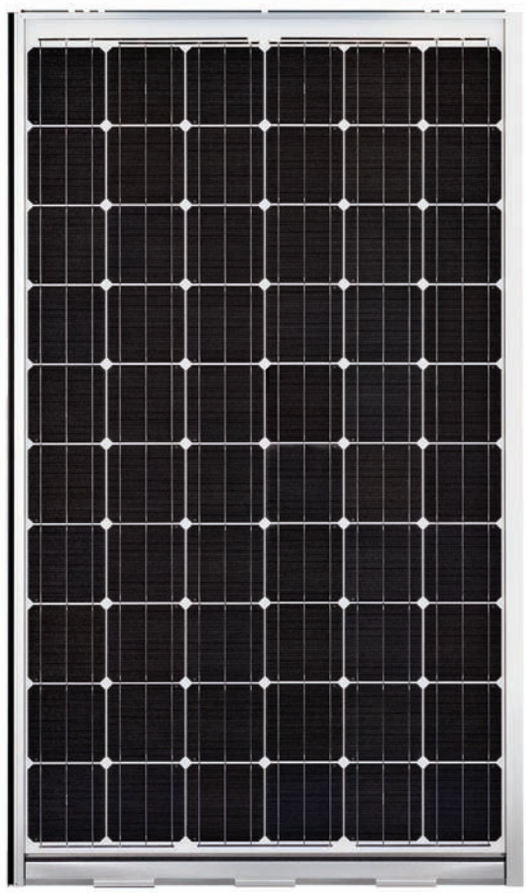
THE SOLARWATT PROMISE

Quality
Tested materials and thorough workmanship guarantee high yields and system longevity.

Made in Germany
SOLARWATT solar modules are exclusively produced in Germany.

Pure plus sorting (+0 Wp to +5 Wp)
The actual module output is guaranteed to be up to 5 Wp above the nominal value.

Simple assembly
The SOLARWATT Easy-In System is distinguished by its innovatively simple method for integrating solar modules in pitched roofs.



SOLARWATT WARRANTY

Standard warranty
10 year product warranty
staggered performance warranty covering 25 years

Extended warranty by purchasing SOLARWATT Full Coverage insurance
12 year product warranty
linear performance warranty covering 25 years

According to the „Special warranty conditions for SOLARWATT solar modules“

THE SOLARWATT ADVANTAGES

» Independent tests confirm resistance to hail, ammonia, salt mist, flame, and more
» Minimal dazzle effect thanks to structured solar glass
» Take-back service and module recycling

Please follow the SOLARWATT Easy-In System operating instructions when assembling, connecting, maintaining, and dismantling the system.

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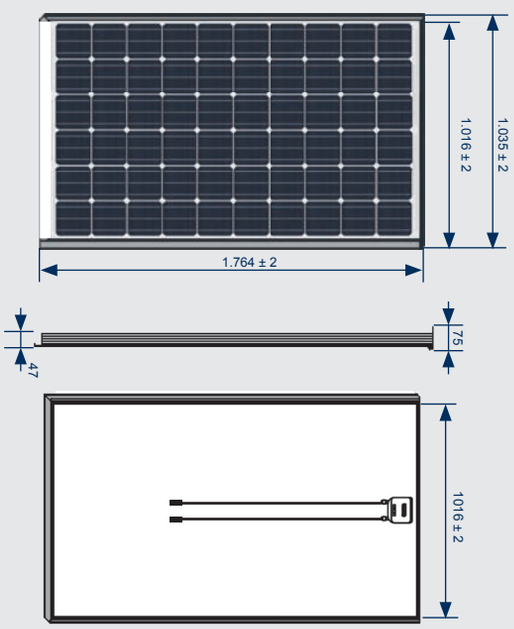
Certified acc. to:
DIN EN ISO 9001 und 14001

SOLARWATT®

SOLARWATT Easy-In M

Technical Data

DIMENSIONS



The roof constructions must comply with the general requirements of the directives of the Central Association of the German Roofing Trade (ZVDH); the system is designed for 40 x 60 mm roof battens.

GENERAL INFORMATION

Module construction	glass-foil laminate; aluminum frame (anodized; color: natural)
Covering material **Encapsulation** **Backing material**	Highly transparent solar glass (tempered), 4 mm EVA solar cells EVA Multi-layer composite film, white
Solar cells	60 monocrystalline solar cells 156 x 156 mm with up to 19% efficiency
Connection technology	Junction box with 2 cables, 1.00 m/4 mm² Lumberg LC4 connections
Bypass diodes	3 units
Application class	Application class A (in accordance with IEC 61730)
Module dimensions/cover dimensions	1,764 x 1,035 x 47 mm / 1,715 x 1,016 x 47 mm
Weight	24 kg
Max. system voltage	1000 V
Reverse-current feed I_R*	20 A
Mechanical ratings	Approved for loads up to 5,400 Pa Approved for suction loads up to 2,400 Pa (uplift resistance in accordance with DIN 14437) (Wind speed 130 km/h with safety factor 3)
Hail resistance	Tested with simulated hailstones (Ø 25 mm, at ~83km/h)
Certification	IEC 61215 Ed.2, IEC 61730 (incl. protection class II)
Application site	Upright as roof integration in pitched roofs on buildings up to 25 m high; 22° - 65° roof pitch; 16° minimum roof pitch with usage of a water-tight sub-roof according to the guidelines of the ZVDH (Central Association of German Roofers)
System components	Solar modules with special frame, seals, suction protection measures, special screws, sarking membrane, aluminum guide rail
Fire resistance test	DIN ENV 1187

* Reverse-current feed: The modules may only be used with electricity fed in from third parties if a line fuse with release current < 20 A is used.

ELECTRICAL PROPERTIES IN STC

STC: Standard Test Conditions: irradiance 1000 W/m², spectral distribution AM 1.5, temperature 25±2 °C, in accordance with EN 60904-3

Nominal capacity P_{max}	230 Wp	235 Wp	240 Wp	245 Wp	250 Wp
Nominal voltage U_{mpp}	28,4 V	28,5 V	28,7 V	29,0 V	29,2 V
Nominal current Impp	8,10 A	8,25 A	8,37 A	8,45 A	8,57 A
Open circuit voltage U_{OC}	36,2 V	36,4 V	36,5 V	36,7 V	36,8 V
Short circuit current I_{SC}	8,89 A	8,91 A	8,93 A	8,98 A	9,00 A

Measurement tolerances in reference to P_{max} ±5 %

ELECTRICAL PROPERTIES AT NOCT

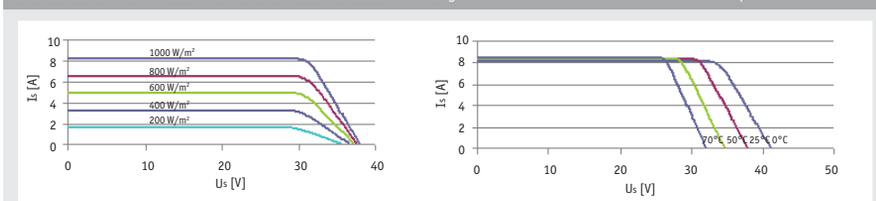
NOCT: Normal Operation Cell Temperature: irradiance 800 W/m², AM 1.5, temperature 20 °C, Wind speed 1m/s, electrical open circuit

Nominal capacity P_{max}	167 W	171 W	175 W	178 W	182 W
Nominal voltage U_{mpp}	25,7 V	25,8 V	26,0 V	26,3 V	26,5 V
Open circuit voltage U_{OC}	33,5 V	33,7 V	33,8 V	34,0 V	34,1 V
Short circuit current I_{SC}	7,17 A	7,19 A	7,20 A	7,24 A	7,26 A

Reduction of module efficiency when irradiance is reduced from 1,000 W/m² to 200 W/m² (at 25°C): $4^{\pm 2}$% (relative) / $-0.6^{\pm 0.3}$% (absolute).

CHARACTERISTIC LINES

Voltage at different irradiations and different temperatures



performance class 250 Wp

THERMAL PROPERTIES

Operating temperature range	-40 ... +80 °C
Ambient temperature range	-40 ... +45 °C
Temperature coefficient of P_{max}	-0,45%/K
Temperature coefficient of U_{OC}	-0,36%/K
Temperature coefficient of I_{SC}	0,03%/K
NOCT	45°C

[This data sheet complies with the requirements of DIN EN 50380:2003; VERSION: 11/2011]