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# **EnergyPal**

## **Solar Panel Guide Specification Data Sheet**

**Sunset Energietechnik GmbH**

**AS-60 220-250**

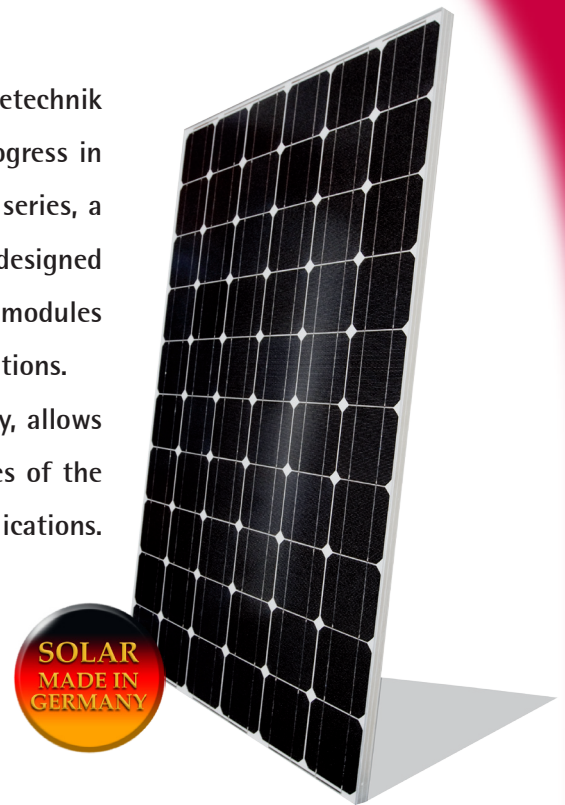
**AS 235/60**

Also available on the web at  
[EnergyPal.com/sunset-energietechnik-gmbh-solar-panels/as-235-60](http://EnergyPal.com/sunset-energietechnik-gmbh-solar-panels/as-235-60)

# SUNSET

## AS Series 220 - 250 W<sub>p</sub>

As a solar specialist with over 35 years of experience, SUNSET Energietechnik GmbH makes a significant contribution to a ground breaking progress in solar technology. A result of our long term experience is the AS series, a photovoltaic module with mono crystalline cells. The AS series is designed for applications with high power requirements. These outstanding modules produce a continuous and reliable yield, even under extreme conditions. The permanently sealed laminate protects the cells from humidity, allows thermal expansion and provides electrical insulation. The modules of the SUNSET AS series are suitable for on-grid and special off-grid applications.



### SUNSET AS series at a glance

- 60 high-performance mono crystalline silicon solar cells made from SUNsilicon® with an efficiency up to 21 %
- Textured cell surface for particularly high electricity yields
- Use of tempered white high resistant solar glass, EVA plastic and an anodised aluminium frame for long-term use
- Certified production facility in Germany
- Also suitable for SUNpower Roof integration system and SUNpremium® field mounting system

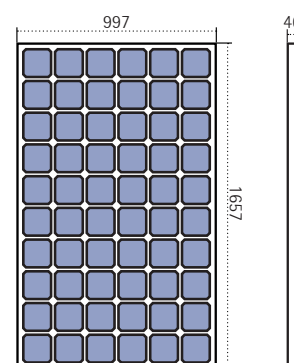
The world's future energy<sup>®</sup> by

## Module series /60

### AS 220, 225, 230, 235, 240, 245, 250/60

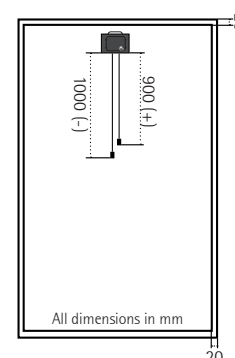
Technical specifications AS (STC)*			220	225	230	235	240	245	250
Nominal power (±5% production tolerance)	$P_{max}$	[W <sub>p</sub> ]	220	225	230	235	240	245	250
Rated current	$I_{MP}$	[A]	7.40	7.55	7.70	7.83	7.95	8.05	8.17
Rated voltage	$V_{MP}$	[V]	29.8	29.9	29.9	30.1	30.3	30.4	30.5
Short circuit current	$I_{SC}$	[A]	8.10	8.15	8.20	8.35	8.50	8.65	8.80
Open circuit voltage	$V_{OC}$	[V]	36.6	36.8	36.9	37.1	37.2	37.3	37.4

Rated values under Standard Test Conditions (STC: 1000 W/m<sup>2</sup>, 25°C, spectrum AM 1,5)\*



Technical specifications AS (NOCT)*			220	225	230	235	240	245	250
Nominal power	$P_{max}$	[W <sub>p</sub> ]	159	163	166	170	174	177	181
Rated current	$I_{MP}$	[A]	5.95	6.07	6.19	6.30	6.39	6.47	6.57
Rated voltage	$V_{MP}$	[V]	26.8	26.9	26.9	27.1	27.2	27.3	27.4
Short circuit current	$I_{SC}$	[A]	6.49	6.53	6.57	6.69	6.81	6.93	7.05
Open circuit voltage	$V_{OC}$	[V]	33.7	33.9	34.0	34.1	34.2	34.3	34.4

Rated values under Nominal Operating Cell Temperature (NOCT: 800 W/m<sup>2</sup>, 51± 2°C, spectrum AM 1,5)\*



### Characteristics for system design\*

Protection class		II	Temperature range (TC)	[°C]	-40 ... +85 (± 0)
System voltage	$V_{SYS}$	[V]	1000	Temperature coefficient $I_{SC}$	$\alpha$ [%/K] + 0.040
Reverse current	$I_R$	[A]	20	Temperature coefficient $V_{OC}$	$\beta$ [%/K] - 0.332
Relative efficiency ratio (@200W/m <sup>2</sup> based on STC efficiency)		[%]	98.5	Temperature coefficient $P_{MPP}$	$\gamma$ [%/K] - 0.47

### Mechanical characteristics\*

Front covering	4 mm solar glass (Anti Reflective)	Protection class	junction box IP 65
Back covering	multi layer foil	Cable connection	Multi Contact MC4 or compatible
Type of cell	mono crystalline	Heavy load test	5400 Pa
Dimensions	1657 x 997 x 46 mm (± 3 mm)	Bypass-Diodes (no./voltage)	3 / 1000 V
Weight	21.7 kg (± 1 kg)	Frame (material/colour)	aluminium / silver (black as option)

Over the years SUNSET Energietechnik GmbH has set high benchmarks with its high quality standards.

Continuous tests guarantee a consistently high level of quality. All modules undergo visual, mechanical, and electrical inspections. Each module is high voltage (HV) tested and examined by electro luminescence (EL). This is recognisable by means of the original SUNSET label, the serial number and the SUNSET guarantee:

- 5 years product warranty
- 10 years linear warranty for a power output of 90% (according to warranty terms)
- 25 years linear warranty for a power output of 80% (according to warranty terms)
- Our warranty terms will be handed out on request or can be found on our homepage (see below)
- EL picture and HV test of each module
- Registered at PV-Cycle, WEEE-Nr.: DE 68887899
- Certified according to IEC 61215 and IEC 61730
- Production facility certified according to ISO 9001, 14001 and 18001



- Qualified, IEC 61215
- Safety tested, IEC 61730
- Heavy Snow Load tested
- Periodic inspection



Partner:

Specifications subject to technical changes.

\* All values/parameters vary up to ±10%, unless stated otherwise