



The Haute Couture of Photovoltaics

CIS Solar Modules

Technical Data Sheet



CIS-Photovoltaic Modules

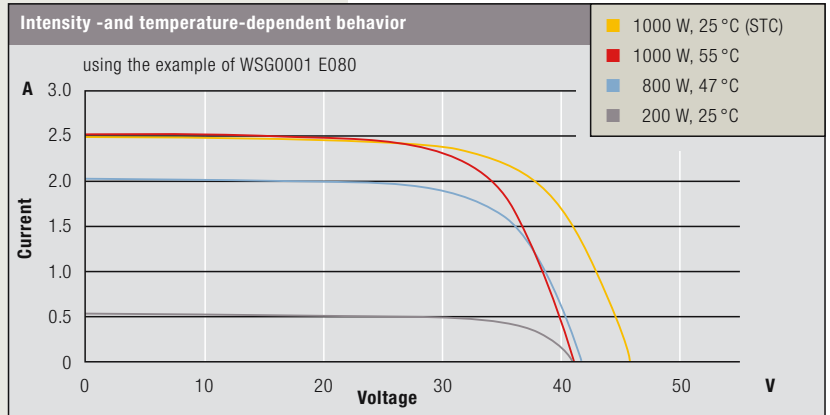
The CIS modules of Würth Solar consist of multilayered CIS (copper-indium-diselenide) solar cells that are connected in series. They absorb a wide spectrum of light energy and ensure maximum energy generation also under unfavorable weather conditions. Thanks to the great reliability and the long life of our CIS solar modules they are suitable for almost all fields of application and sizes of solar energy systems.

The CIS solar modules are offered as standard and customer-specific versions. They distinguish themselves by their homogeneous black module surface and thus meet the highest requirements on esthetics and product design.

General technical data:

Thermal parameters		
NOCT ¹	°C	47 ± 3
Temperature coefficient of short circuit current	% / °C	0.05
Temperature coefficient of open-circuit voltage	% / °C	-0.29
Temperature coefficient of nominal output	% / °C	-0.36

Limiting values		
Maximum module temperature	°C	-40 ... +85
Surface pressure	N/m ²	2,400
Maximum torsion	°	1.2



Technical data

	WSK0001	WSK0038	WSK0019	WSK0020
Nominal output (W)	5.5	12.0	23.0	35.0
Voltage MPP (V)	12.0	12.0	12.0	12.0
Current in MPP (A)	16.5	16.5	16.5	16.5
Strom im MPP (I_{MPP}) in A	0.33	0.73	1.40	2.12
Open-circuit voltage (V)	22.0	22.0	22.0	22.0
Short circuit current (A)	0.35	0.78	1.50	2.29
Open-circuit voltage (V) at -10 °C	24.3	24.3	24.3	24.3
MPP voltage (V) at +70 °C	13.8	13.8	13.8	13.8
Change of voltage per °C (%)	-0.29	-0.29	-0.29	-0.29
Change of power per °C (%)	-0.36	-0.36	-0.36	-0.36
Dimensions in mm (H x B x T)²	205 x 305 x 31	405 x 305 x 31	405 x 605 x 31	605 x 605 x 31
Weight (kg)	1.3	2.4	4.5	6.5
Connecting variant (see below)	①	①	①	①

The electrical data apply to standard test conditions (STC): 1,000 W/m², AM 1.5, 25 °C

¹⁾ Normal operating temperature of cells in case of irradiation: I = 800 W/m²
Environmental temperature: T_U = 20 °C
Wind velocity: V_W = 1 m/s

Frame Variants

- Frame made of anticorrosive aluminum, anodized black (standard)
- Frameless module (on request)

Due to permanent optimization of our modules changes to the data indicated in the technical data sheet are possible all times. Therefore please use the most current data sheets, which you may find under www.wuerth-solar.com or contact our sales representatives.

Modules in standard version

CIS modules of Würth Solar are delivered in glass/glass compound with or without frame. The front glass used is extremely translucent and protects the module even against toughest environmental conditions.

The standard modules are submitted to laboratory tests for a wide spectrum of operating conditions and are produced according to strict guidelines of quality. The customer can get a test certificate for each type of module.



It will be a pleasure for us to provide you with further information on request

WSK0021	WSG0036 E075	WSG0025 E080	WSG0035 E075
55.0	75.0	80.0	75.0
12.0	24.0	120.0	12.0
16.5	35.0	120.0	16.5
3.33	2.15	0.67	4.42
22.0	44.5	160.0	22.0
3.56	2.36	0.72	5.01
24.3	49.0	177.0	23.5
13.8	29.3	101.0	14.2
-0.29	-0.29	-0.29	-0.29
-0.36	-0.36	-0.36	-0.36
605 x 905 x 35	605 x 1,205 x 35	605 x 1,205 x 35	605 x 1,205 x 35
9.7	12.7	12.7	12.7
③	②	②	③

Connection variants		
① 2 connecting buttons with cable socket	② Socket (Bez. PV-JB / K-2 / N4SOL) Male plug (Bez. PV-KST4, PV-KBT4)	③ Socket
Dimension: 30 x 50 x 12 mm (W x L x D)	Dimension: 55 x 91 x 13 mm (W x L x D)	Dimension: 100 x 158 x 35 mm (W x L x D)

Tailor-made modules

Thanks to their esthetic design and their flexibility in size, form and output CIS modules are extremely suitable for the tailor-made integration in products of everyday life. Due to the special manufacturing procedure the technical properties can be adjusted to the desired system solution already in the process of production.



Technical data	
Module qualities	
Basic material	CIS on float glass
Connecting possibilities	Contact strips or connecting cables

Dimensions and weight	
min. dimension (mm)	120 x 120
standard dimension (mm)	600 x 1,200
max. dimension (mm)	2,400 x 2,600 (Special fabrications on request)
standard thickness of module (mm)	6.5
min. thickness of module (mm)	5.5 (Special fabrications on request)
Weight (g)	length (mm) x width (mm) x depth (mm) x 0,0025

Data of the individual cell		
Open-circuit voltage U_{oc}	V	0.65
Voltage at max. performance U_{max}	V	0.50
Short-circuit current I_{sc}	mA/cm ²	26
Current at max. performance I_{max}	mA/cm ²	23



What does the path from the idea to the product that is really driven by solar energy look like?

As manufacturer of innovative photovoltaic modules we search the contact with creative product designers. So if you could imagine having your product driven by photovoltaics or if you are interested in an alternative to the traditional silicone technology we should get in touch! **Just call us or get in contact with us over our website!**



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