

## FIRST SOLAR – FS-262 / FS-265 / FS-267 / FS-270 / FS-272 / FS-275

Solar modules are the key element of every solar power system as they convert sunlight into electricity. Their quality, reliability and performance are therefore critical for the yield and profit of your system. Solar modules based on thin-film technology absorb a particularly wide spectrum of sunlight. This enables the effective use of the sun's power – even under less than ideal sunlight conditions.

Phoenix Solar selects the best solar modules from leading international manufacturers based on strict quality criteria. They are tested by our own technical experts as well as independent institutes. This provides you with investment security whilst optimising your return at the same time.



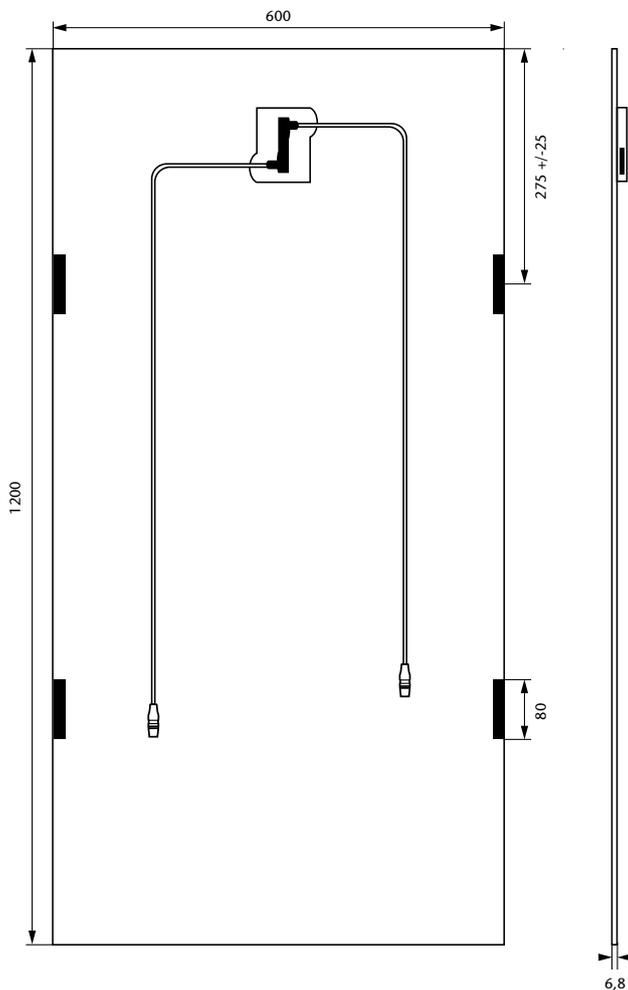
### The advantages at a glance:

- 62.5; 65; 67.5; 70; 72.5 and 75 Wp power output available
- Tested independently from the manufacturer
- Reliable power generation through high temperature tolerance and high performance, even in diffuse sunlight
- High efficiency and stable output power provide reliably high performance over a period of many years
- 25-year performance guarantee\* at 80 % of the minimal rated power output
- 10-year performance guarantee\* at 90 % of the minimal rated power output
- Frameless solar module
- Pre-funded end-of-life take back and recycling

\* The manufacturer's warranty conditions apply

### Experience that pays

Phoenix Solar or your local Phoenix Solar partner individually match the solar modules and all additional system components to ensure that you get the ideal system to meet your requirements. All of our sales partners have a considerable amount of expertise and many years of experience in solar technology and have been personally chosen by us according to the strictest quality criteria.



## Mechanical parameters

Length [mm]	1200
Width [mm]	600
Depth [mm]	6.8
Depth with connection socket [mm]	19.9
Weight [kg]	12
Connection socket (manufacturer)	First Solar
Positive cable (manufacturer/length [mm]/ cable cross-section [mm <sup>2</sup> ])	General Cable/610/3.2
Negative cable (manufacturer/length [mm]/ cable cross-section [mm <sup>2</sup> ])	General Cable/610/3.2
Plug connector (manufacturer/type)	Multi-contact/MC3
Front cover (material/thickness [mm])	Tempered glass/3.2
Cell type (quantity/technology)	116/CdS/CdTe
Cell embedding (material)	Ethylene vinyl acetate (EVA) with edge seal
Rear cover (material/thickness [mm])	Tempered glass/3.2
Frame (material/profile type)	Frameless

## Warranties

Product warranty	5-year product limited warranty*
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Performance guarantee      10 years at 90% of the minimal rated power output\*  
 25 years at 80% the minimal rated power output\*

\* The manufacturer's warranty conditions apply

## Qualifications and Certificates

IEC 61646

TÜV safety class II



First Solar has consistently focused on thin-film technology and is one of the international leading manufacturers of solar modules, primarily in the larger solar power plant sector. The company manufactures solar modules using a highly-developed semi-conductor coating process that reduces module manufacturing costs whilst ensuring high performance yields in the field.



## Electrical parameters

Electrical parameters for STC (1000 W/m<sup>2</sup>, 25 (+/- 2)°C, AM 1.5 according to EN 6090-4)

Article number	100285	100284	100287	100288	100270	100271
Power output [ $P_{mpp}$ ]	62.50	65.00	67.50	70.00	72.50	75.00
Power output tolerances [%]	+/- 5	+/- 5	+/- 5	+/- 5	+/- 5	+/- 5
Efficiency [%]	8.68	9.03	9.38	9.72	10.07	10.42
Max. voltage $V_{mpp}$ [V]	62.50	63.70	64.60	67.10	67.90	69.40
Max. current $I_{mpp}$ [A]	1.00	1.02	1.05	1.04	1.07	1.08
Open circuit voltage $V_{oc}$ [V]	86.00	87.00	87.00	89.00	90.00	92.00
Short circuit current $I_{sc}$ [A]	1.17	1.17	1.18	1.19	1.19	1.20

Electrical parameters for 800 W/m<sup>2</sup>, NOCT, AM 1.5 NOCT = Nominal Operating Cell Temperature, cell temperature under nominal operating conditions

Max. power output $P_{max}$ [Wp]	46.90	48.80	50.60	52.50	54.40	56.30
Max. voltage $V_{max}$ [V]	59.00	60.00	61.00	63.00	64.00	66.00
Max. current $I_{mpp}$ [A]	0.80	0.82	0.84	0.83	0.85	0.85
Open circuit voltage $V_{oc}$ [V]	80.00	81.00	80.00	83.00	83.00	86.40
Short circuit current $I_{sc}$ [A]	0.96	0.96	0.97	0.97	0.97	0.97
Reverse current loading capability $I_r$ [A]	2					
Max. permissible system voltage $V_{max}$ [V]	1000					

Efficiency variance from 1000 W/m<sup>2</sup> to 200 W/m<sup>2</sup> (T<sub>module</sub> = 25° C), + 2 (increase!)

### Parameters of the thermal characteristics

NOCT [° C]	45
Temperature coefficient of the short circuit current $I_{sc}$ [%/K]	+ 0.04
Temperature coefficient of the open circuit voltage $V_{oc}$ [%/K]	- 0.25
Temperature coefficient of the MPP power $P_{mpp}$ [%/K]	- 0.25

## Operating conditions

Max. operating temperature [° C]	- 40 to + 85
Max. snow load [Pa]	according to IEC 61646
Max. wind load [Pa]	according to IEC 61646

## PLANNING GUIDE

The module array displayed below applies specifically to First Solar modules, including the distances for connecting them together (using the Tecto-Sun mounting system, scale: 1:100).

**Notes on use:** Draw a scale diagram of the roof (1:100) with all the details (windows, dormer windows, chimneys, etc.) on transparent paper and place it over this module

array. Copy the intersecting points of the grid on the roof diagram and connect them with a line. If the roof diagram is larger than the grid, it can be moved as required. Doing this allows you to determine the maximum allocation of modules while taking shading and objects on the roof into account.

Number of modules	1	2	3	4	5	6	7	8	9	10	11	12	
Module array dimensions	1.21	2.42	3.63	4.84	6.05	7.26	8.47	9.67	10.88	12.09	13.30	14.51	Width (m)
1													
0.62													
2													
1.24													
3													
1.86													
4													
2.48													
5													
3.10													
6													
3.72													
7													
4.34													
8													
4.96													
9													
5.58													
10													
6.20													
11													
6.82													
12													
7.44													
13													
8.06													
14													
8.68													
15													
9.30													
16													
9.92													
17													
10.54													
	Length (m)												

Subject to modifications and errors

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Making energy together