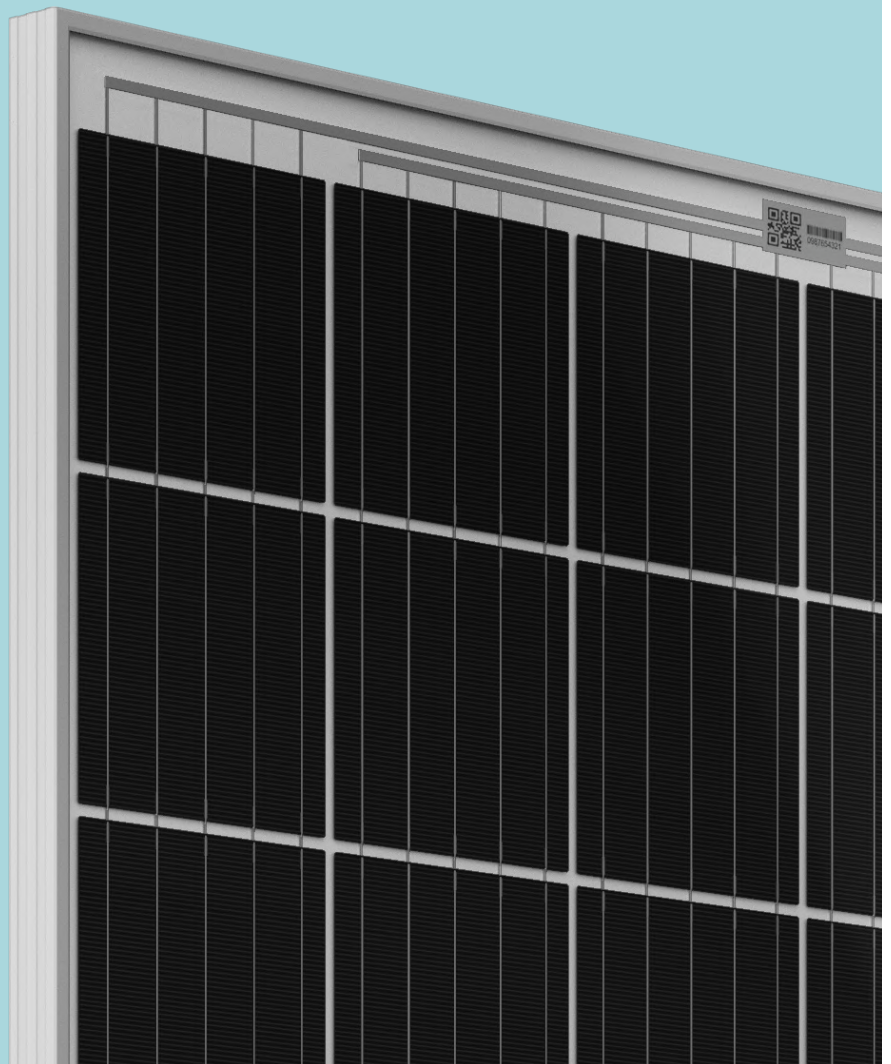


# P23

## 320 - 330 W





 **Made in GERMANY**



### GERMAN ENGINEERING AND MANUFACTURING

Incorporated in 2001, aleo is recognized as one of the most trustworthy manufacturers of solar panels. We produce all our products in our certified production plant in Prenzlau, Germany.

### POWERFUL AND RELIABLE. FOR YEARS.

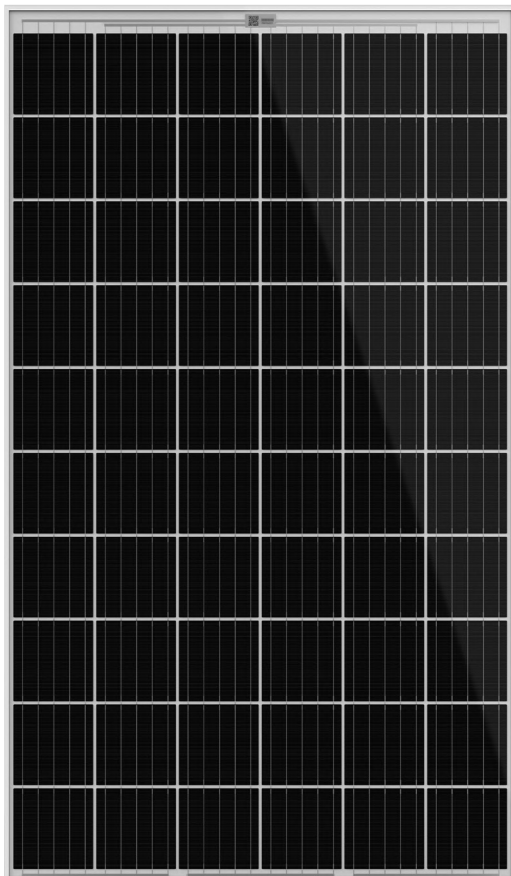
-  25 Years linear Performance Guarantee
-  12 Years Product Guarantee upgradeable to 25 Years as a premium option

### OUR QUALITY IS CERTIFIED

This module is certified according to the latest international standards: **IEC 61215:2016** and **IEC 61730:2016**.

Additionally, this module obtained the following certificates:

- + Snail Trail Free
- + Salt mist corrosion resistance
- + Ammonia corrosion resistance
- + Sand and dust resistance
- + PID resistance
- + LeTID resistance
- + Hail resistance class 4
- + Dynamic mechanical load test



# aleo solar module P23

ELECTRICAL DATA (STC)		P23L320	P23L325	P23L330
Rated power	$P_{MPP}$ [W]	320	325	330
Rated voltage	$V_{MPP}$ [V]	32.6	32.8	33.1
Rated current	$I_{MPP}$ [A]	9.81	9.90	9.97
Open-circuit voltage	$V_{OC}$ [V]	40.3	40.5	40.6
Short-circuit current	$I_{SC}$ [A]	10.32	10.40	10.49
Efficiency	$\eta$ [%]	18.2	18.5	18.8

Electrical values measured under standard test conditions (STC): 1000 W/m<sup>2</sup>; 25°C; AM 1.5

ELECTRICAL DATA (NMOT)		P23L320	P23L325	P23L330
Power	$P_{MPP}$ [W]	236	240	244
Voltage	$V_{MPP}$ [V]	30.2	30.4	30.7
Current	$I_{MPP}$ [A]	7.82	7.90	7.95
Open-circuit voltage	$V_{OC}$ [V]	37.7	37.9	38.0
Short-circuit current	$I_{SC}$ [A]	8.31	8.38	8.45
Efficiency	$\eta$ [%]	16.8	17.1	17.4

Electrical values measured under nominal module operating temperature: 800 W/m<sup>2</sup>; 20°C; AM 1.5; wind 1 m/s; Module temperature NMOT : 44.5°C

ELECTRICAL DATA (LOW IRRADIANCE)		P23L320	P23L325	P23L330
Power	$P_{MPP}$ [W]	62	63	64

Electrical values measured under: 200 W/m<sup>2</sup>; 25°C; AM 1.5

### TEMPERATURE COEFFICIENTS

Temperature coefficient $I_{SC}$	$\alpha (I_{SC})$	[%/K]	+0.05
Temperature coefficient $V_{OC}$	$\beta (V_{OC})$	[%/K]	-0.29
Temperature coefficient $P_{MPP}$	$\gamma (P_{MPP})$	[%/K]	-0.40

### BASIC DATA JUNCTION BOX

Length x width x height	[mm]	148 x 123 x 27
IP class		IP67
Cable length	[mm]	1200 (+), 800 (-)
Connectors		Genuine MC4
Bypass diodes		3

### CLASSIFICATION

	P23L320	P23L325	P23L330
Classification range (positive classification) [W]	0/+4.99	0/+4.99	0/+2.99

BASIC MODULE DATA	
Length x width x height	[mm] 1716 x 1023 x 35
Weight	[kg] 19.3
Number of cells	60
Cell size	[mm] 158.75 x 158.75
Cell material	Monocrystalline Si, PERC
Number of bus bars	5
Front sheet	3.2 mm Solar glass (TSG)
Back sheet	Polymer sheet, white
Frame material	Al alloy, silver

### CERTIFICATIONS

Fire Resistance	Class C
Protection Against Electric Shock	II
IEC 61215:2016, IEC 61730:2016	
IEC 62716 – Ammonia Resistance	
IEC 61701 – Salt mist Resistance	
IEC 62804 – PID Resistance	
LeTID Resistance	
IEC/TS 62782:2016 - Dynamic mechanical load testing	
IEC 60068-2-68:1994 - Sand and Dust test	
Hail resistance class 4 (40 mm hailstones)	
Snail trail free (AgNP Test)	

### LOADS

Max. module pressure load (Testload)	[Pa]	5400 <sup>1</sup>
Max. module pressure load (Designload) <sup>2</sup>	[Pa]	3600 <sup>1</sup>
Max. module suction load (Testload)	[Pa]	2400 <sup>1</sup>
Max. module suction load (Designload) <sup>2</sup>	[Pa]	1600 <sup>1</sup>
Max. system voltage	[V <sub>DC</sub> ]	1000
Reverse current load	$I_R$ [A]	20

Mechanical load acc. to IEC/EN 61215:2016

<sup>1</sup> Please observe the mounting conditions in the installation manual

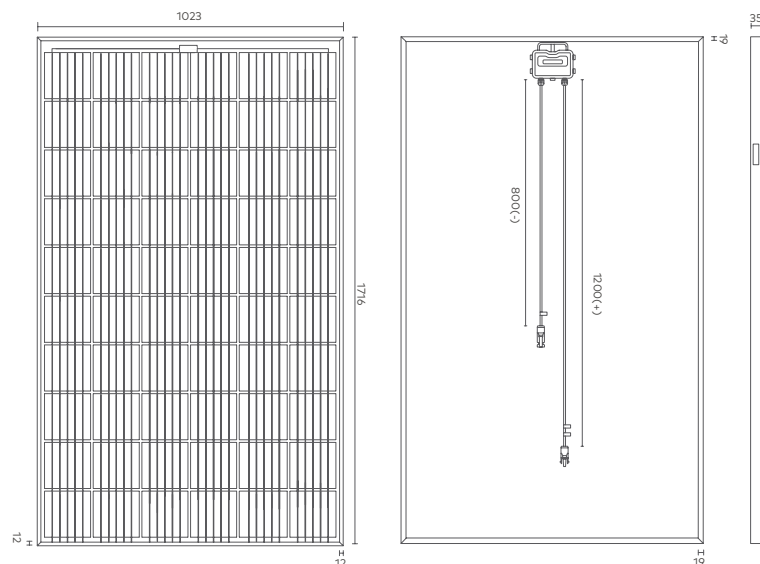
<sup>2</sup> Testload/ Safety factor 1.5 = Designload

Measurement tolerance of  $P_{MPP}$  under STC -3/+3% |

Accuracy of other electrical values -10/+10%

Efficiency relating to gross module area

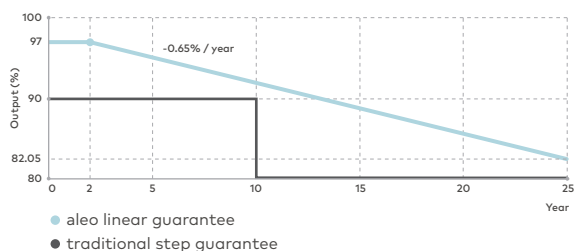
### DIMENSIONS [mm]



### GUARANTEES

Product Guarantee	12 years, optional 25 years
Power Guarantee	25 years – Linear

### PERFORMANCE GUARANTEE



PLEASE CONTACT YOUR AUTHORISED ALEO DEALER

**ALEO SOLAR GMBH**  
 Marius-Eriksen-Straße 1  
 17291 PRENZLAU  
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**aleo**