Naps Saana 240-250 TP3 MBW

Naps Systems' 30 years of solar power experience in all continents and conditions provide the highest level of quality and power in an attractive and dependable package.

High power and efficiency

Naps Saana series of solar modules contain 60 high efficiency polycrystalline solar cells. The cells are carefully selected to assure a narrow and positive power range, thus minimising mismatch losses in the system.

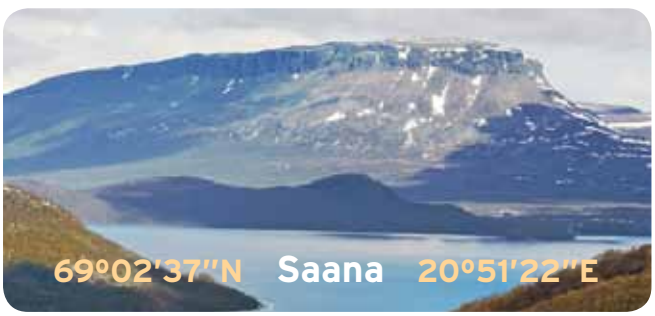
The high transmission structured glass has a light texture on the front and a deeper texture inside, which improves the adhesion of the EVA encapsulant. This combination of textures also gives improvement to the performance of the solar module compared to smooth glass.

Dependable construction and long life

Featuring the highest standards of construction and materials, Naps Saana solar modules are able to withstand the harshest environments and continue to perform efficiently. Properly installed, these modules have a design life well beyond the power warranty. Limited power warranties are given for both 10 and 25 years. The modules are tested to meet or exceed all relevant international standards and the highest requirements for quality and performance.

Glass type: MATT (M) | Frame colour: BLACK (B) | Backsheet colour: WHITE (W)

- Carefully selected polycrystalline silicon solar cells for close tolerance
- Solar cells treated for reduced reflection and for efficient conversion of both direct and diffuse light
- Electrical circuit laminated between layers of ethylene vinyl acetate (EVA) for electrical isolation, moisture resistance and UV stability
- Low iron content, tempered glass for mechanical protection and high light transmission
- The light textured surface of the matt glass improves the performance of the module
- The deep texture inside of the glass improves the adhesion of the EVA encapsulant
- Multi-layered polymer backsheet for resistance to abrasion, tears and punctures and dependable electrical insulation
- Rugged and lightweight anodised aluminium frame with mounting, grounding and drainage holes
- Junction box with pre-fitted cables and quick connectors designed for ease and safety
- Wired-in bypass diodes to reduce potential loss of power and damage from partial array shading
- Tested for a wide range of operating conditions (-40°C to +85°C)
- Tested to withstand the highest wind, hail storm and snow load requirements (5400 N/m^2)
- Designed to meet or exceed the environmental requirements of IEC61215
- Designed to meet the requirements of IEC61730, including Safety Class II to IEC61140



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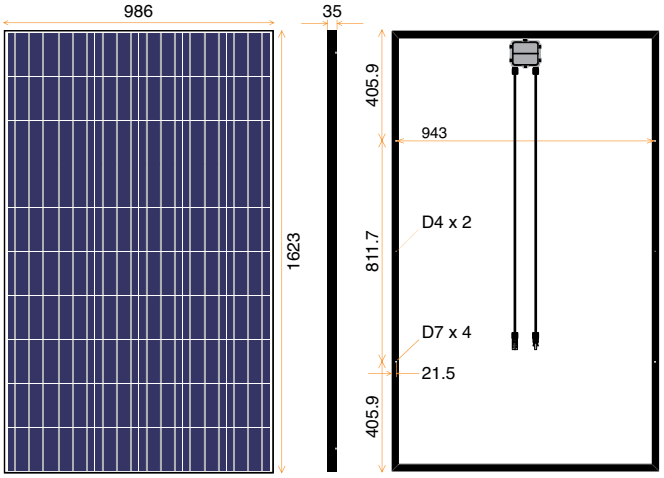
NAPS
Power of Light

Specifications

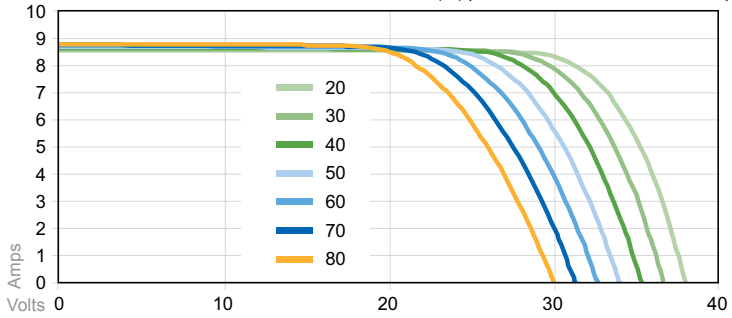
Performance at STC	240 TP3 MBW	245 TP3 MBW	250 TP3 MBW
Maximum power (W/Pmax)	240	245	250
Maximum power tolerance (W)	+5/-0	+5/-0	+5/-0
Current (typical at max power) (A/Ip)	8.03	8.13	8.23
Voltage (typical at max power) (V/Vp)	29.9	30.1	30.4
Short circuit current (typical) (A/Isc)	8.50	8.58	8.66
Open circuit voltage (typical) (V/Voc)	37.1	37.3	37.6
Module efficiency (minimum) (%)	15.0	15.3	15.6
Module efficiency (maximum) (%)	15.3	15.6	15.9
Performance at NOCT and 800 W/m²	**240 TP3 MBW**	**245 TP3 MBW**	**250 TP3 MBW**
Maximum power (W/Pmax)	175.0	178.9	182.7
Current (typical at max power) (A/Ip)	6.43	6.52	6.60
Voltage (typical at max power) (V/Vp)	27.2	27.4	27.7
Short circuit current (typical) (A/Isc)	6.90	6.96	7.02
Open circuit voltage (typical) (V/Voc)	34.3	34.6	34.9

Module Dimensions



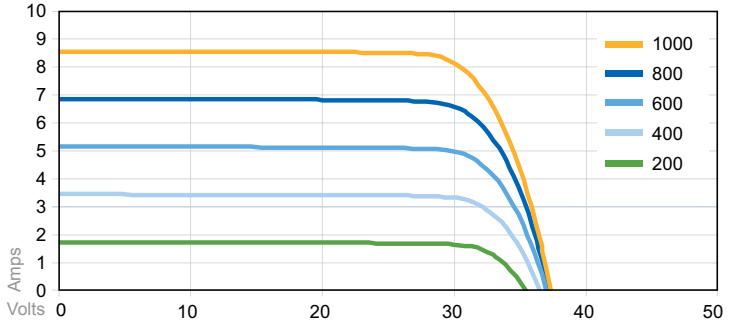
Voltage / Current Dependence on Temperature

1 kW/m² IRRADIANCE, VARYING CELL TEMPERATURE (°C) **(TYPICAL FOR SAANA 245 TP3 MBW)**



Voltage / Current Dependence on Irradiance

25°C CELL TEMPERATURE, VARYING IRRADIANCE (W/m²) **(TYPICAL FOR SAANA 245 TP3 MBW)**



Made in EU

Mechanical Details

Overall length (mm)	1623
Overall width (mm)	986
Area (m²)	1.601
Thickness at edge (mm)	35
Weight (kg)	21.1

Construction

Cell type	polycrystalline 3BB
Cells	60
Cell dimensions (mm)	156 x 156
Cell electrical circuit (series x parallel)	60 x 1
Cell layout (horizontal x vertical)	6 x 10
Glass thickness (mm)	4.0
Junction box type	Hercules HBH
Bypass diodes factory fitted	3
Cables (4.0 mm²)	2 x 1 m
Connector type	H4C

Other connector options available to special order

Protection Class

IEC61730 Application Class A, equivalent to Safety Class II

Maximum System Voltage

Voltage (V)	1000

Overcurrent Protection

Series fuse protection rating (A)	15
Reverse current maximum (A)	15

Mechanical Load

Tested to (N/m² = Pa)	5400

According to IEC 61215-2 extended test for heavy snow load

Temperature Coefficients at STC

Open circuit voltage (V/K)	-0.125
Short circuit current (A/K)	0.00477
Maximum power (%/K)	-0.48

Efficiency Reduction from STC

Reduction (approximately) (%)	3
Cell temperature (°C)	25
Irradiance change (W/m²)	from 1000 to 200
Air Mass	1.5

STC = Standard Test Conditions

Cell temperature (°C)	25
Irradiation (W/m²)	1000
Air Mass	1.5

NOCT = Normal Operating Cell Temperature

Cell temperature (°C)	46
Irradiation (W/m²)	800
Ambient temperature (°C)	20
Wind speed (m/s)	≤1

Free air access to module rear

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