SOLAR INNOVA

looking for the future

CORPORATE PROFILE PV PANELS

COMPANY

Solar Innova is a global company in the Renewable Energy sector, mainly in the Solar fiel, both Photovoltaic and Thermal Energy, enabling our customers to improve efficiency facilities and energy while reducing environmental impact.

Technology plays a key role in **Solar Innova**.

We develop products with advanced technologies that allow us to be more competitive and to respect the environment. We are committed to providing our customers high quality services to meet your expectations and guarantee your complete satisfaction.

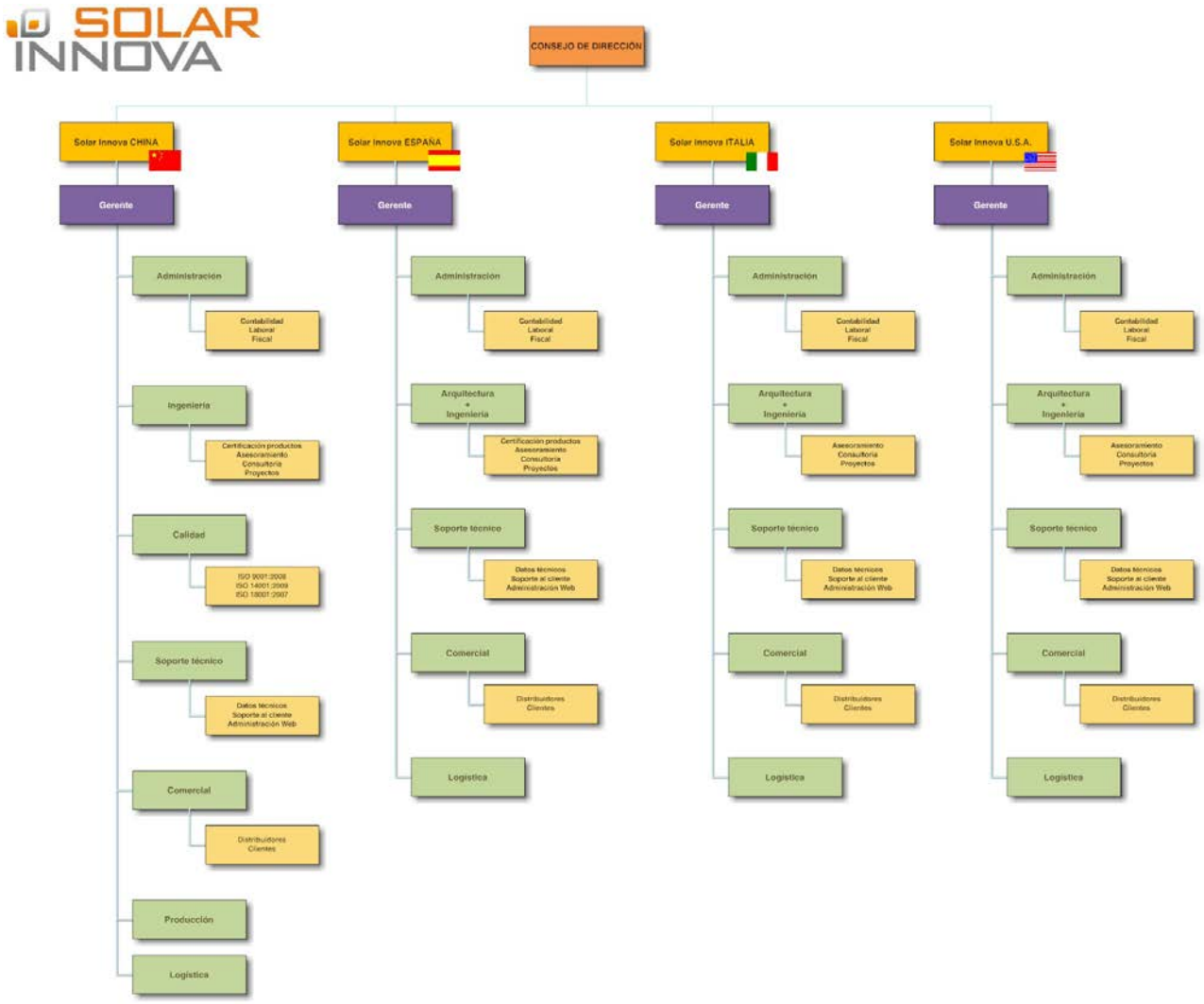
We have a distribution network in constant growth, to provide a service with maximum quality and speed.

We want to be present in all areas where is the development of alternative energy, offering added value to our products and services such as:

- √ Advice
- √ Competitiveness
- √ Sustainability
- √ Professionalism
- √ Service quality
- √ Certified by internationally recognized laboratories

We have a distribution network in constant growth, to provide the highest quality care and speed.

MANUFACTURING AND COMMERCIAL NETWORK



MONOCRYSTALLINE

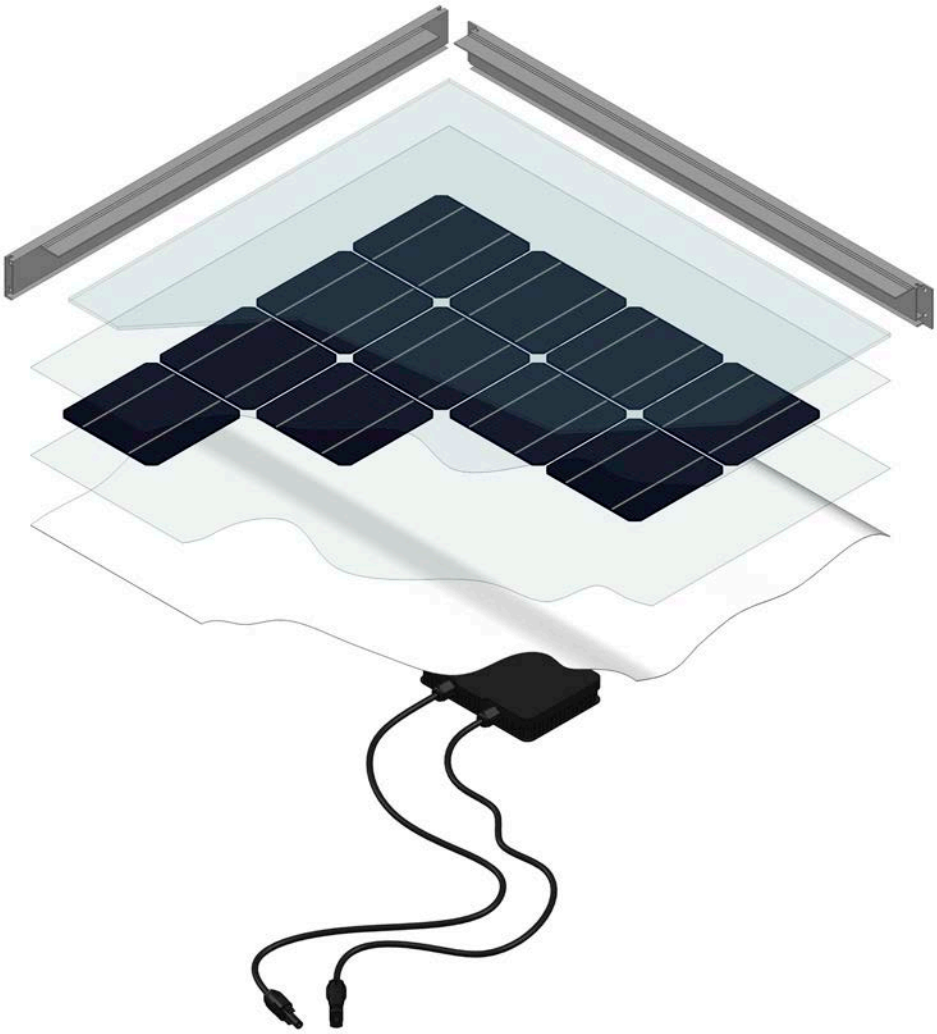




POLICRYSTALLINE

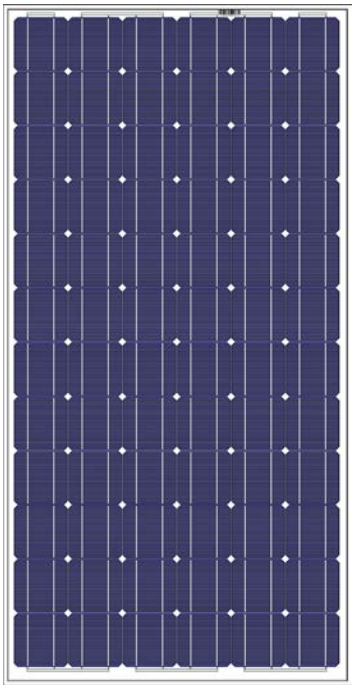


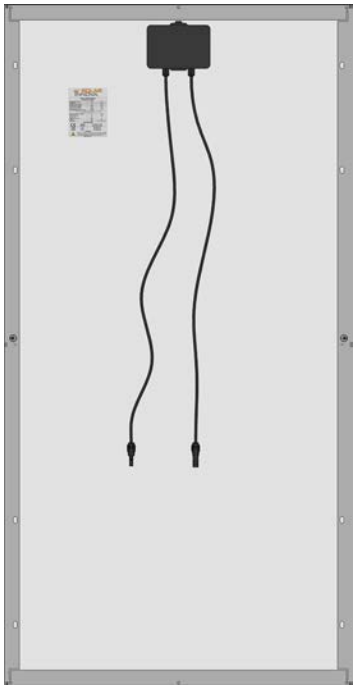
MONOCRYSTALLINE MODULES WITH FRAME



COMPONENT	DESCRIPTION
Glass	Tempered and ultra-transparent, gives rigidity to the whole and protects the active surface of cells.
EVA (Ethylene Vinyl Acetate)	Its function is to encapsulate cell circuit.
Cells	Composed of high efficiency crystalline Silicon. Is the electricity generator.
EVA (Ethylene Vinyl Acetate)	Its function is to encapsulate cell circuit.
TPT	Provides the electrical insulation rear of the module.
Junction Box	With IP-65 specification. Provides simple method of electrically connecting the module to other installation.
Connectors	Easy and quickly connection.
Frame	Anodized aluminum. Offers a system anchorage module to the structure.

MONOCRYSTALLINE 72 CELLS 125X125 MM.

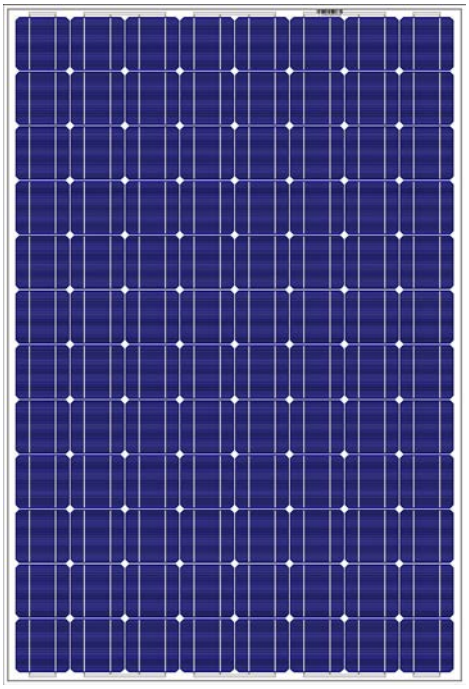


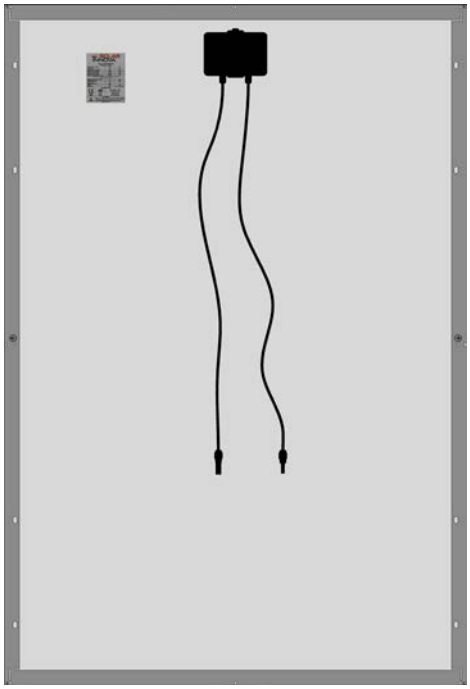


CARACTERÍSTICAS ELÉCTRICAS							
Maximum power (Pmpp)	Watts	180	185	190	195	200	205
Tolerance	%	0 ~ + 3					
Voltage at maximum power (Vmpp)	Volts	36.16	36.28	36.68	36.68	36.80	37.09
Current at maximum power (Impp)	Amperes	4.98	5.10	5.18	5.32	5.43	5.53
Open circuit voltage (Voc)	Volts	44.64	44.78	45.29	45.29	45.43	45.79
Short circuit current (Isc)	Amperes	5.40	5.56	5.59	5.62	5.67	5.72
Maximum system Voltage (Vsyst)	Volts	600 (UL) / 1000 (IEC)					
Diodes (By-pass)	Quantity	3					
Maximum series fuse	Amperes	10					
Efficiency (ηm)	%	14.10	14.49	14.88	15.27	15.67	16.06
Form Factor	%	≥ 73					

MECHANICAL CHARACTERISTICS			
Size	Height	1580 mm.	62.2 inches
	Width	808 mm.	31.8 inches
	Thickness	40 mm.	1.57 inches
Weight	Net	15.5 kg.	34.2 pounds
Structure	Material	Anodized aluminum AL6063-T5, minim 15 µm	
Front	Material	High transmissivity toughened glass	
	Thickness	3.2 ± 0.2 mm.	0.13 inches
Cells	Type	Monocrystalline	
	Quantity	6 x 12 = 72	
	Size	125 x 125 mm.	5 inches
Serial connection	Quantity	72	
Parallel connection	Quantity	1	
Encapsulation	Materials	Glass/EVA/Cells/EVA/TPT	
Junction box	Type	IP-65	
	Isolation	Versus humidity and inclement weather	
Cables	Type	Polarized and symmetric in length	
	Length	900 mm.	35,4 inches
	Section	4 mm^2	0,006 $inches^2$
	Features	Low contact resistance Minimal losses for voltage drop	
Connectors	Type	Type IV	

MONOCRYSTALLINE 88 CELLS 125X125 MM.

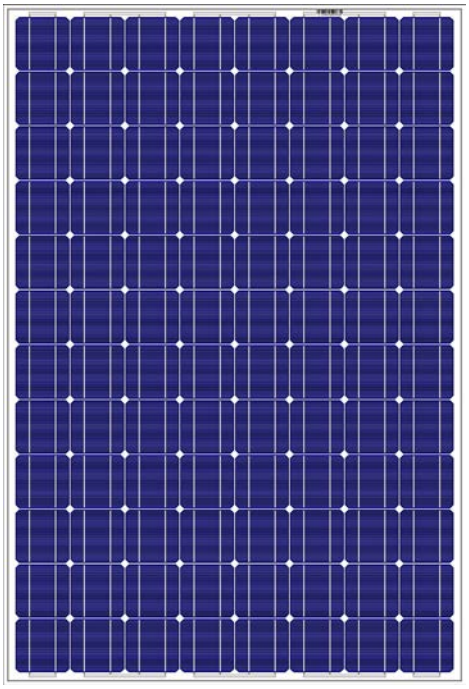


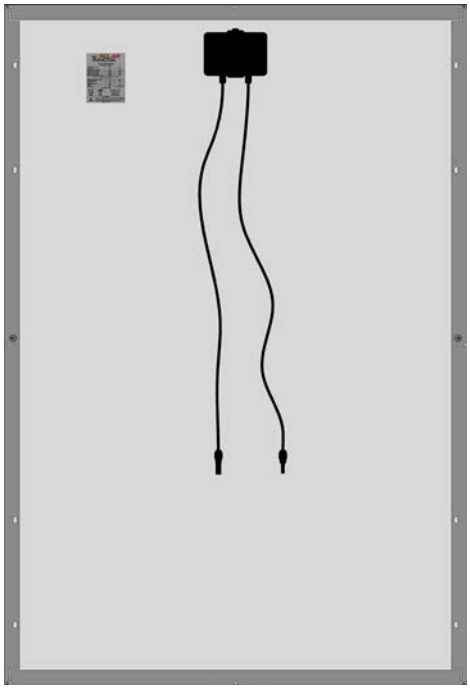


ELECTRICAL CHARACTERISTICS								
Maximum power (Pmpp)	Watts	220	225	230	235	240	245	250
Tolerance	%	0 ~ + 3						
Voltage at maximum power (Vmpp)	Volts	44.19	44.34	44.62	44.84	44.91	44.98	45.33
Current at maximum power (Impp)	Amperes	4.98	5.07	5.15	5.24	5.34	5.45	5.51
Open circuit voltage (Voc)	Volts	54.56	54.74	55.09	55.35	55.44	55.53	55.97
Short circuit current (Isc)	Amperes	5.32	5.56	5.58	5.59	5.63	5.67	5.72
Maximum system Voltage (Vsyst)	Volts	600 (UL) / 1000 (IEC)						
Diodes (By-pass)	Quantity	4						
Maximum series fuse	Amperes	15						
Efficiency (ηm)	%	14.14	14.47	14.79	15.11	15.43	15.75	16.07
Form Factor	%	≥ 73						

MECHANICAL CHARACTERISTICS			
Size	mm.	1455 mm.	57.3 inches
	mm.	1069 mm.	42.1 inches
	mm.	40 mm.	1.57 inches
Weight	kg.	17 kg.	37.5 pounds
Structure	Material	Anodized aluminum AL6063-T5, minim 15 µm	
Front	Material	High transmissivity toughened glass	
	mm.	3.2 ± 0.2 mm.	0.13 inches
Cells	Type	Monocrystalline	
	Quantity	8 x 11 = 88	
	Size	125 x 125 mm.	5 inches
Serial connection	Quantity	88	
Parallel connection	Quantity	1	
Encapsulation	Materials	Glass/EVA/Cells/EVA/TPT	
Junction box	Type	IP-65	
	Isolation	Versus humidity and inclement weather	
Cables	Type	Polarized and symmetric in length	
	mm.	900 mm.	35,4 inches
	mm^2	4 mm^2	0,006 $inches^2$
	Features	Low contact resistance Minimal losses for voltage drop	
Connectors	Type	Type 4	

MONOCRYSTALLINE 96 CELLS 125X125 MM.

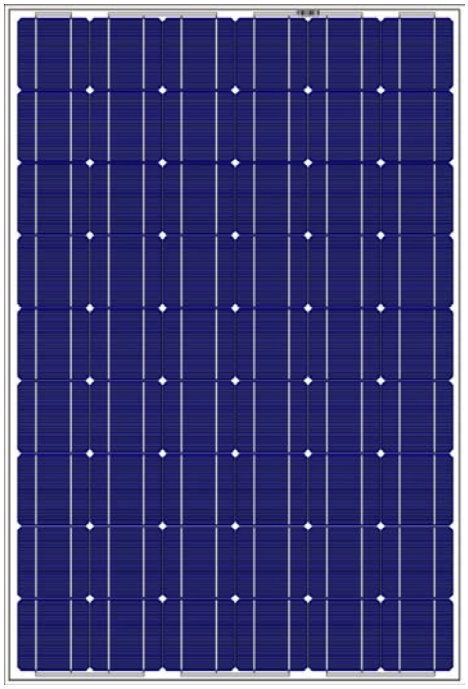


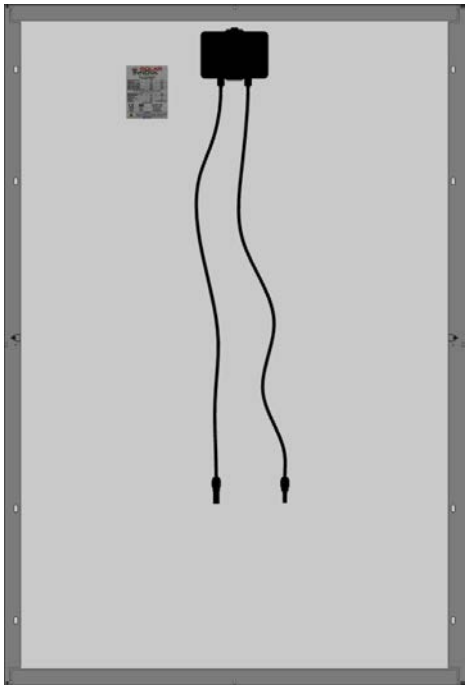


ELECTRICAL CHARACTERISTICS						
Maximum power (Pmpp)	Watts	255	260	265	270	275
Tolerance	%	0 ~ +3				
Voltage at maximum power (Vmpp)	Volts	48.91	48.99	49.07	49.46	49.54
Current at maximum power (Impp)	Amperes	5.21	5.31	5.40	5.46	5.55
Open circuit voltage (Voc)	Volts	60.38	60.48	60.58	61.06	61.16
Short circuit current (Isc)	Amperes	5.59	5.63	5.64	5.72	5.75
Maximum system Voltage (Vsyst)	Volts	600 (UL) / 1000 (IEC)				
Diodes (By-pass)	Quantity	4				
Maximum series fuse	Amperes	15				
Efficiency (ηm)	%	15.10	15.39	15.69	15.99	16.28
Form Factor	%	≥ 73				

MECHANICAL CHARACTERISTICS			
Size	Height	1580 mm.	62.2 inches
	Width	1069 mm.	42.1 inches
	Thickness	45 mm.	1.77 inches
Weight	Net	25 kg.	55.1 pounds
Structure	Material	Anodized aluminum AL6063-T5, minim 15 µm	
Front	Material	High transmissivity toughened glass	
	Thickness	3.2 ± 0.2 mm.	0.13 inches
Cells	Type	Monocrystalline	
	Quantity	8 x 12 = 96	
	Size	125 x 125 mm.	5 inches
Serial connection	Quantity	96	
Parallel connection	Quantity	1	
Encapsulation	Materials	Glass/EVA/Cells/EVA/TPT	
Junction box	Type	IP-65	
	Isolation	Versus humidity and inclement weather	
Cables	Type	Polarized and symmetric in length	
	Length	900 mm.	35,4 inches
	Section	4 mm^2	0,006 $inches^2$
	Features	Low contact resistance Minimal losses for voltage drop	
Connectors	Type	Type 4	

MONOCRYSTALLINE 54 CELLS 156X156 MM.

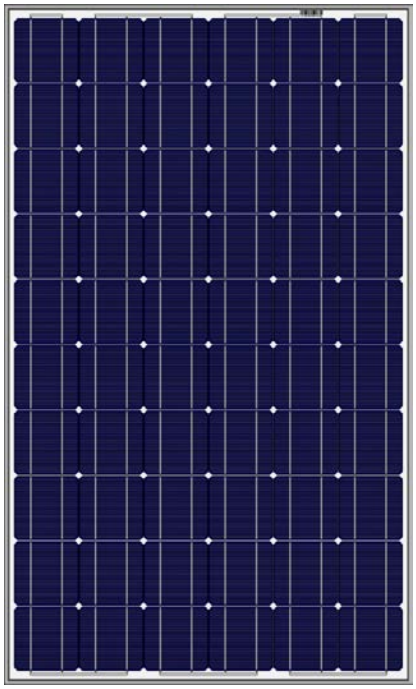


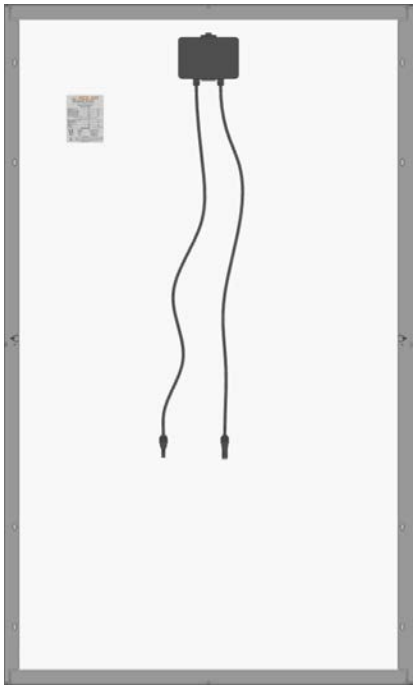


ELECTRICAL CHARACTERISTICS								
Maximum power (Pmpp)	Watts	210	215	220	225	230	235	240
Tolerance	%	0 ~ + 3						
Voltage at maximum power (Vmpp)	Volts	27.34	27.34	27.47	27.51	27.56	27.73	27.73
Current at maximum power (Impp)	Amperes	7.68	7.86	8.01	8.18	8.35	8.47	8.65
Open circuit voltage (Voc)	Volts	33.75	33.75	33.91	33.97	34.02	34.24	34.24
Short circuit current (Isc)	Amperes	8.50	8.53	8.63	8.71	8.79	8.97	9.11
Maximum system Voltage (Vsyst)	Volts	600 (UL) / 1000 (IEC)						
Diodes (By-pass)	Quantity	6						
Maximum series fuse	Amperes	15						
Efficiency (ηm)	%	14.28	14.62	14.96	15.30	15.64	15.98	16.32
Form Factor	%	≥ 73						

MECHANICAL CHARACTERISTICS			
Size	Height	1482 mm.	58.3 inches
	Width	992 mm.	39.1 inches
	Thickness	40 mm.	1.57 inches
Weight	Net	17.5 kg.	38.6 pounds
Structure	Material	Anodized aluminum AL6063-T5, minim 15 µm	
Front	Material	High transmissivity toughened glass	
	Thickness	3.2 ± 0.2 mm.	0.13 inches
Cells	Type	Monocrystalline	
	Quantity	6 x 9 = 54	
	Size	156 x 156 mm.	6 inches
Serial connection	Quantity	54	
Parallel connection	Quantity	1	
Encapsulation	Materials	Glass/EVA/Cells/EVA/TPT	
Junction box	Type	IP-65	
	Isolation	Versus humidity and inclement weather	
Cables	Type	Polarized and Symmetric in length	
	Length	900 mm.	35,4 inches
	Section	4 mm^2	0,006 $inches^2$
	Features	Low contact resistance Minimal losses for voltage drop	
Connectors	Type	Type 4	

MONOCRYSTALLINE 60 CELLS 156X156 MM.

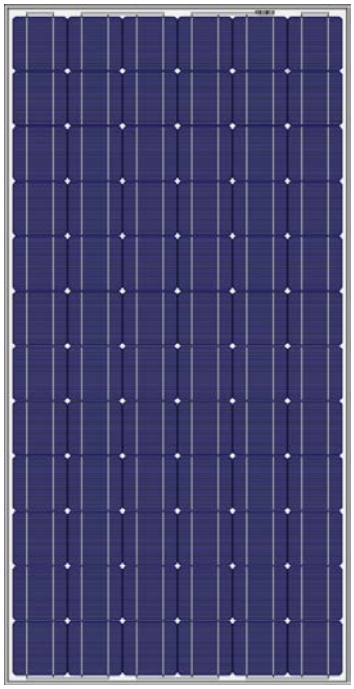


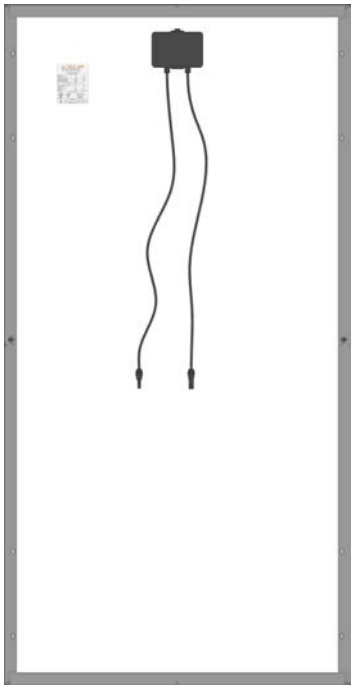


ELECTRICAL CHARACTERISTICS						
Maximum power (Pmpp)	Watts	245	250	255	260	265
Tolerance	%	0 ~ + 3				
Voltage at maximum power (Vmpp)	Volts	30.52	30.57	30.62	30.81	30.81
Current at maximum power (Impp)	Amperes	8.03	8.18	8.33	8.44	8.60
Open circuit voltage (Voc)	Volts	37.68	37.74	37.80	38.04	38.04
Short circuit current (Isc)	Amperes	8.63	8.71	8.79	8.97	9.11
Maximum system Voltage (Vsyst)	Volts	600 (UL) / 1000 (IEC)				
Diodes (By-pass)	Quantity	6				
Maximum series fuse	Amperes	15				
Module-Efficiency	%	14.92	15.23	15.53	15.84	16.14
Form Factor	%	≥ 73				

MECHANICAL CHARACTERISTICS			
Size	Height	1655 mm.	65.2 inches
	Width	992 mm.	39.1 inches
	Thickness	40 mm.	1.57 inches
Weight	Net	20 kg.	41.1 pounds
Structure	Material	Anodized aluminum AL6063-T5, minim 15 µm	
Front	Material	High transmissivity toughened glass	
	Thickness	3.2 ± 0.2 mm.	0.13 inches
Cells	Type	Monocrystalline	
	Quantity	6 x 10 = 60	
	Size	156 x 156 mm.	6 inches
Serial connection	Quantity	60	
Parallel connection	Quantity	1	
Encapsulation	Materials	Glass/EVA/Cells/EVA/TPT	
Junction box	Type	IP-65	
	Isolation	Versus humidity and inclement weather	
Cables	Type	Polarized and symmetric in length	
	Length	900 mm.	35,4 inches
	Section	4 mm^2	0,006 $inches^2$
	Features	Low contact resistance Minimal losses for voltage drop	
Connectors	Type	Type 4	

MONOCRYSTALLINE 72 CELLS 156X156 MM.

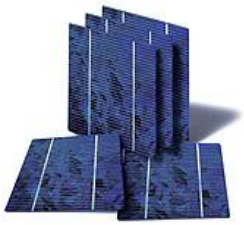




ELECTRICAL CHARACTERISTICS									
Maximum power (Pmpp)	Watts	280	285	290	295	300	305	310	315
Tolerance	%	0 ~ + 3							
Voltage at maximum power (Vmpp)	Volts	36.45	36.45	36.51	36.62	36.68	36.74	36.97	36.97
Current at maximum power (Impp)	Amperes	7.68	7.82	7.94	8.05	8.18	8.30	8.38	8.52
Open circuit voltage (Voc)	Volts	45	45	45.07	45.22	45.29	45.36	45.65	45.65
Short circuit current (Isc)	Amperes	8.50	8.53	8.62	8.66	8.71	8.79	8.97	9.11
Maximum system Voltage (Vsyst)	Volts	600 (UL) / 1000 (IEC)							
Diodes (By-pass)	Quantity	6							
Maximum series fuse	Amperes	15							
Efficiency (ηm)	%	14.43	14.69	14.95	15.20	15.46	15.72	15.98	16.23
Form Factor	%	≥ 73							

MECHANICAL CHARACTERISTICS			
Size	Height	1956 mm.	77 inches
	Width	992 mm.	39.1 inches
	Thickness	45 mm.	1.77 inches
Weight	Net	29 kg.	63.9 pounds
Structure	Material	Anodized aluminum AL6063-T5, minim 15 µm	
Front	Material	High transmissivity toughened glass	
	Thickness	4 ± 0.2 mm.	0.13 inches
Cells	Type	Monocrystalline	
	Quantity	6 x 12 = 72	
	Size	156 x 156 mm.	6 inches
Serial connection	Quantity	72	
Parallel connection	Quantity	1	
Encapsulation	Materials	Glass/EVA/Cells/EVA/TPT	
Junction box	Type	IP-65	
	Isolation	Versus humidity and inclement weather	
Cables	Type	Polarized and symmetric in length	
	Length	900 mm.	35,4 inches
	Section	4 mm^2	0,006 $inches^2$
	Features	Low contact resistance Minimal losses for voltage drop	
Connectors	Type	Type 4	

POLYCRYSTALLINE MODULES WITH FRAME



COMPONENT	DESCRIPTION
Glass	Tempered and ultra-transparent, gives rigidity to the whole and protects the active surface of cells.
EVA (Ethylene Vinyl Acetate)	Its function is to encapsulate cell circuit.
Cells	Composed of high efficiency crystalline Silicon. Is the electricity generator.
EVA (Ethylene Vinyl Acetate)	Its function is to encapsulate cell circuit.
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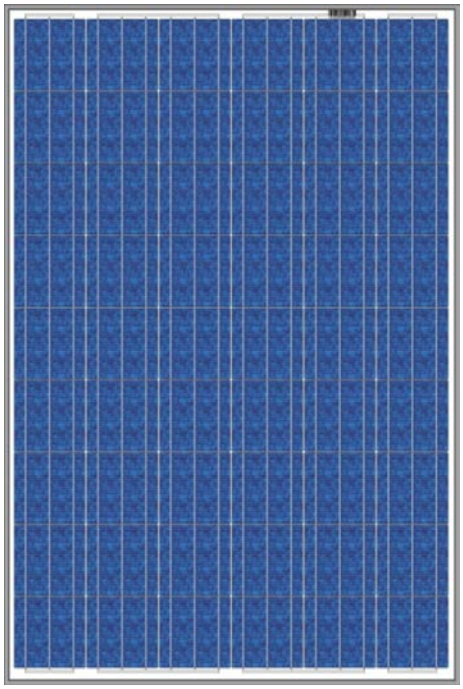
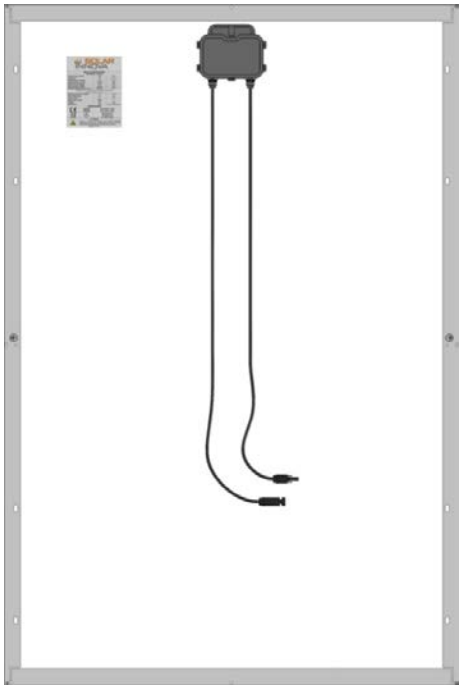
Junction Box	With IP-65 specification. Provides simple method of electrically connecting the module to other installation.
Connectors	Easy and quickly connection.
Frame	Anodized aluminum. Offers a system anchorage module to the structure.

POLYCRYSTALLINE 54 CELLS 156X156 MM.

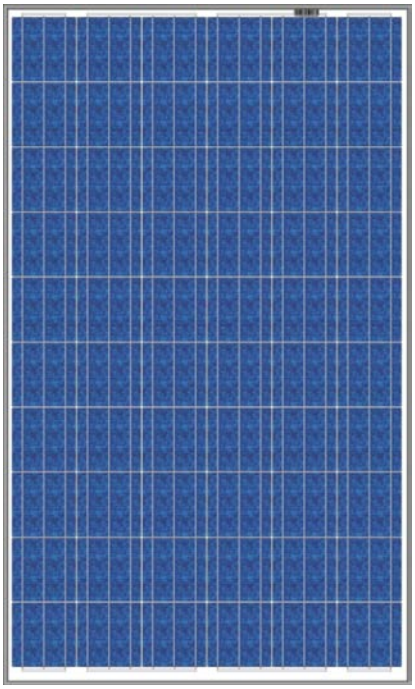


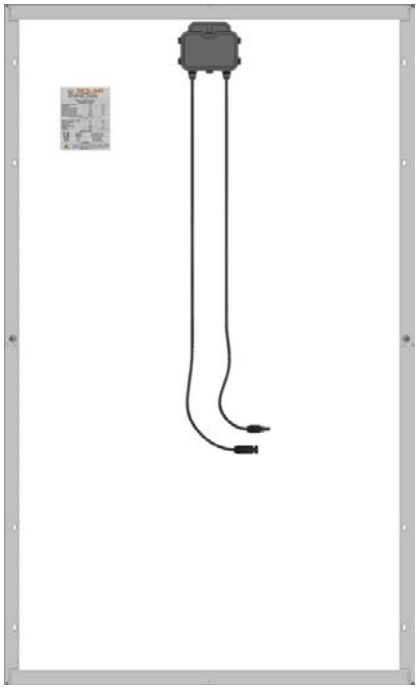


ELECTRICAL CHARACTERISTICS						
Maximum power (Pmpp)	Watts	215	220	225	230	235
Tolerance	%	0 ~ + 3				
Voltage at maximum power (Vmpp)	Volts	26.81	26.99	27.08	27.38	27.56
Current at maximum power (Impp)	Amperes	8.02	8.15	8.31	8.40	8.53
Open circuit voltage (Voc)	Volts	33.10	33.32	33.43	33.80	34.02
Short circuit current (Isc)	Amperes	8.50	8.63	8.70	8.83	8.97
Maximum system voltage (Vsyst)	Volts	600 (UL) / 1000 (IEC)				
Diodes (By-pass)	Quantity	6				
Maximum series fuse	Amperes	15				
Efficiency (ηm)	%	14.62	14.96	15.30	15.64	15.98
Form Factor	%	≥ 73				

MECHANICAL FEATURES			
Size	Height	1482 mm.	58.3 inches
	Width	992 mm.	39.1 inches
	Thickness	40 mm.	1.57 inches
Weight	Net	17.5 kg.	38,6 pounds
Structure	Material	Anodized aluminum AL6063-T5, minim 15 µm	
Front	Material	High transmissivity toughened glass	
	Thickness	3.2 ± 0.2 mm.	0.13 inches
Cells	Type	Polycrystalline	
	Quantity	6 x 9 = 54	
	Size	156 x 156 mm.	6 inches
Serial connection	Quantity	54	
Parallel connection	Quantity	1	
Encapsulation	Materials	Glass/EVA/Cells/EVA/TPT	
Junction box	Type	IP-65	
	Isolation	Versus humidity and inclement weather	
Cables	Type	Polarized and Symmetric in length	
	Length	900 mm.	35,4 inches
	Section	4 mm^2	0,006 $inches^2$
	Features	Low contact resistance Minimal losses for voltage drop	
Connectors	Type	Type 4	

POLYCRYSTALLINE 60 CELLS 156X156 MM.

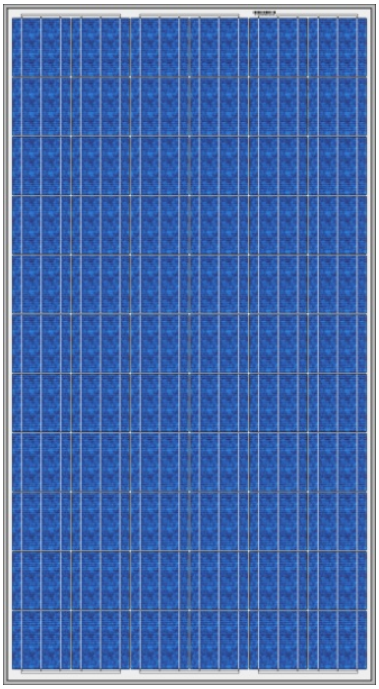


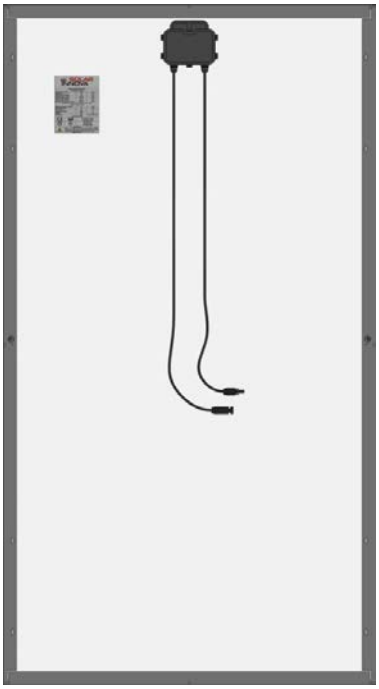


ELECTRICAL CHARACTERISTICS						
Maximum power (Pmpp)	Watts	240	245	250	255	260
Tolerance	%	0 ~ + 3				
Voltage at maximum power (Vmpp)	Volts	29.84	29.99	30.23	30.42	30.62
Current at maximum power (Impp)	Amperes	8.04	8.17	8.27	8.38	8.49
Open circuit voltage (Voc)	Volts	36.84	37.02	37.32	37.56	37.80
Short circuit current (Isc)	Amperes	8.56	8.63	8.77	8.83	8.97
Maximum system voltage (Vsyst)	Volts	600 (UL) / 1000 (IEC)				
Diodes (By-pass)	Quantity	6				
Maximum series fuse	Amperes	15				
Efficiency (ηm)	%	14.62	14.92	15.23	15.53	15.84
Form Factor	%	≥ 73				

MECHANICAL CHARACTERISTICS			
Size	Height	1655 mm.	65.2 inches
	Width	992 mm.	39.1 inches
	Thickness	40 mm.	1.57 inches
Weight	Net	20 kg.	44,1 pounds
Structure	Material	Anodized aluminum AL6063-T5, minim 15 µm	
Front	Material	High transmissivity toughened glass	
	Thickness	3.2 ± 0.2 mm.	0.13 inches
Cells	Type	Polycrystalline	
	Quantity	6 x 10 = 60	
	Size	156 x 156 mm.	6 inches
Serial connection	Quantity	60	
Parallel connection	Quantity	1	
Encapsulation	Materials	Glass/EVA/Cells/EVA/TPT	
Junction box	Type	IP-65	
	Isolation	Versus humidity and inclement weather	
Cables	Type	Polarized and Symmetric in length	
	Length	900 mm.	35,4 inches
	Section	4 mm^2	0,006 $inches^2$
	Features	Low contact resistance Minimal losses for voltage drop	
Connectors	Type	Type IV	

POLYCRYSTALLINE 66 CELLS 156X156 MM.

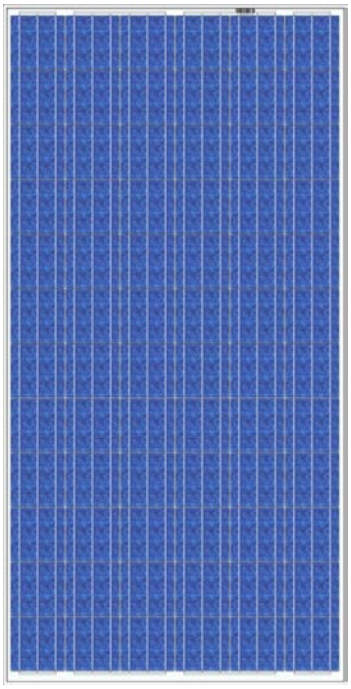


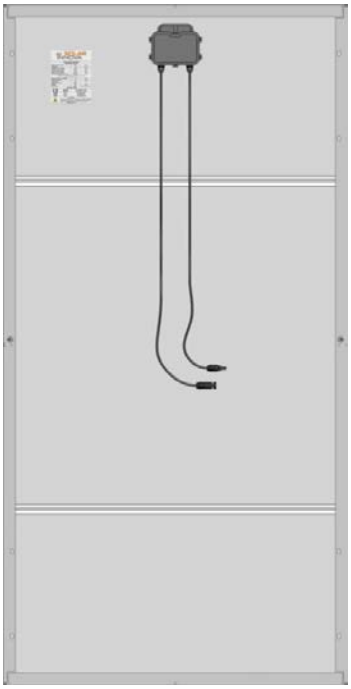


ELECTRICAL CHARACTERISTICS							
Maximum power (Pmpp)	Watts	265	270	275	280	285	290
Tolerance	%	0 ~ + 3					
Voltage at maximum power (Vmpp)	Volts	32.82	32.98	33.09	33.25	33.57	33.68
Current at maximum power (Impp)	Amperes	8.07	8.19	8.31	8.42	8.49	8.61
Open circuit voltage (Voc)	Volts	40.52	40.72	40.85	41.05	41.45	41.58
Short circuit current (Isc)	Amperes	8.56	8.63	8.70	8.77	8.90	8.97
Maximum system voltage (Vsyst)	Volts	600 (UL) / 1000 (IEC)					
Diodes (By-pass)	Quantity	6					
Maximum series fuse	Amperes	15					
Efficiency (ηm)	%	14.73	15.01	15.29	15.57	15.85	16.12
Form Factor	%	≥ 73					

MECHANICAL CHARACTERISTICS			
Size	Height	1813 mm.	71.4 inches
	Width	992 mm.	39.1 inches
	Thickness	45 mm.	1.77 inches
Weight	Net	24 kg.	52.9 pounds
Structure	Material	Anodized aluminum AL6063-T5, minim 15 µm	
Front	Material	High transmissivity toughened glass	
	Thickness	3.2 ± 0.2 mm.	0.13 inches
Cells	Type	Polycrystalline	
	Quantity	6 x 11 = 66	
	Size	156 x 156 mm.	6 inches
Serial connection	Quantity	66	
Parallel connection	Quantity	1	
Encapsulation	Materials	Glass/EVA/Cells/EVA/TPT	
Junction box	Type	IP-65	
	Isolation	Versus humidity and inclement weather	
Cables	Type	Polarized and Symmetric in length	
	Length	900 mm.	35,4 inches
	Section	4 mm^2	0,006 $inches^2$
	Features	Low contact resistance Minimal losses for voltage drop	
Connectors	Type	Type 4	

POLYCRYSTALLINE 72 CELLS 156X156 MM.





ELECTRICAL CHARACTERISTICS					
Maximum power (Pmpp)	Watts	295	300	305	310
Tolerance	%	0 ~ + 3			
Voltage at maximum power (Vmpp)	Volts	35.98	36.28	36.51	36.62
Current at maximum power (Impp)	Amperes	8.20	8.27	8.35	8.46
Open circuit voltage (Voc)	Volts	44.42	44.78	45.07	45.22
Short circuit current (Isc)	Amperes	8.63	8.77	8.83	8.90
Maximum system voltage (Vsyst)	Volts	600 (UL) / 1000 (IEC)			
Diodes (By-pass)	Quantity	6			
Maximum series fuse	Amperes	15			
Efficiency (ηm)	%	15.20	15.46	15.72	15.98
Form Factor	%	≥ 73			

MECHANICAL CHARACTERISTICS			
Size	Height	1956 mm.	77 inches
	Width	992 mm.	39.1 inches
	Thickness	45 mm.	1.77 inches
Weight	Net	29 kg.	63.9 pounds
Structure	Material	Anodized aluminum AL6063-T5, minim 15 µm	
Front	Material	High transmissivity toughened glass	
	Thickness	4.0 ± 0.2 mm.	0.16 inches
Cells	Type	Polycrystalline	
	Quantity	6 x 12 = 72	
	Size	156 x 156 mm.	6 inches
Serial connection	Quantity	72	
Parallel connection	Quantity	1	
Encapsulation	Materials	Glass/EVA/Cells/EVA/TPT	
Junction box	Type	IP-65	
	Isolation	Versus humidity and inclement weather	
Cables	Type	Polarized and Symmetric in length	
	Length	900 mm.	35,4 inches
	Section	4 mm^2	0,006 $inches^2$
	Features	Low contact resistance Minimal losses for voltage drop	
Connectors	Type	Type 4	

COMMON TECHNICAL FEATURES

THERMAL FEATURES MONOCRYSTALLINE		
Temperature coefficient of short circuit current α (Icc)	%/º C	+ 0.028
Temperature coefficient of open circuit voltage β (Voc)	%/º C	- 0.347
Temperature coefficient of power γ (Pmpp)	%/º C	- 0.471
Maximum power temperature coefficient (Impp)	%/º C	+ 0.10
Voltage temperature coefficient of maximum power (Vmpp)	%/º C	- 0.38
NOCT (Nominal Operating Cell Temperature)	º C	+ 47 ± 2

THERMAL FEATURES POLYCRYSTALLINE		
Temperature coefficient of short circuit current α (Icc)	%/º C	+ 0,055
Temperature coefficient of open circuit voltage β (Voc)	%/º C	- 0,347
Temperature coefficient of power γ (Pmpp)	%/º C	- 0,48
Maximum power temperature coefficient (Impp)	%/º C	+ 0,10
Voltage temperature coefficient of maximum power (Vmpp)	%/º C	- 0,38
NOCT (Nominal Operating Cell Temperature)	º C	+ 47 ± 2

TOLERANCES		
Working temperature	º C	- 40 ~ + 85
Dielectric Isolation Voltage	V	3000
Relative humidity	%	0 ~ 100
Wind resistance	m/s	60
	kg./m^2	2400
	lbs./$pies^2$	491.56
Mechanical load-bearing capacity	kg./m^2	551 (5400 Pa) IEC
	lbs./$pies^2$	75,2 (3600 Pa) UL
Fire resistance	Class	C

MEASUREMENTS PERFORMED IN ACCORDANCE WITH ASTM STANDARD TEST METHODS E1036, CORRECTED TO STANDARD TEST CONDITIONS (STC)		
Air quality/Spectral Distribution	AM	1,5 ASTM G173-03e1 (2008)
Luminous intensity/Radiation	W/m^2	1000
Cell temperature	º C	25

STRUCTURAL CHARACTERISTICS	
Cells	High efficiency cells with anti-reflective layer of Silicon Nitride.
Electric conductors	Flat Copper (Cu) bath in a Tin (Sn) and Silver (Ag) alloy, which improves weldability.
Welds	Cell and drivers in installments for stress relief.
Laminate	Composed of ultra-clear tempered glass on the front and rear, EVA encapsulant thermostable embedding cells and electrical insulation on the back formed by a compound of tedlar and polyester.
Junction box	Hoses and quick connectors with anti-error. Include bypass diodes, interchangeables thanks to the wiring system has no welds, all electrical contacts are made by pressure, thus avoiding the possibility of cold welding.

CHARACTERISTICS OF WORK
- The power of solar cells varies in the output of the production process. The different power specifications of these modules reflect this dispersion.
- Cells during the early months of light exposure, may experience a degradation photonics could decrease the value of the maximum power the module up to 3 %.
- The cells, in normal operating conditions, reach a temperature above the standard measurement conditions of the laboratory. The NOCT is a quantitative measure of the increase. NOCT measurement is performed under the following conditions: radiation of 0.8 kW/m, temperature 20º C and wind speed of 1 m/s.
- The electrical data reflect typical values of the modules and laminates as measured at the output terminals at the end of the manufacturing process.

WARRANTIES OF QUALITY

Solar Innova products are made with the highest quality components and the latest technology, thanks to the excellent factory equipment and control of the entire manufacturing process. In addition, our products offer excellent design and finishes.
Solar Innova has a wide range of photovoltaic solar panels that cover all market needs both feeding operation as isolated facilities. Besides offering panels that develop, manufacture and market, we give you and your company the opportunity to advise you on everything you may require, through our engineering department.

Manufacturing defects: 12 years
Performance:
Minimal Rated Power (%/Years)
90 % at 12 years, 80 % at 25 years.

Solar Innova has obtained in its factory in Spain a multitude of distinctive quality independent standardization bodies and control, demonstrating continued compliance with high standards of safety and quality in their products. Outstanding quality, reliability above average and superior performance distinguish the Innova Solar modules. For this to continue to keep well, the modules are regularly a series of thorough tests and trials not only in the R & D and factory quality, but also through independent certification institutes.
In Solar Innova, production efficiency and supreme quality contribute decisively to the high degree of international competitiveness.

The effectiveness and excellence in all our manufacturing processes are the main guarantee that ensures the highest quality solar modules Innova.
Our production in Spain (certified according to ISO 9001:2008, ISO 14001:2004 and BS OHSAS 18001:2007) meets stringent quality requirements that our organization has set: full supervision in each individual phase of the production process.

The CE or European Conformity is a European brand for certain groups of services or industrial products. It relies on the directive 93/68/EEC. It was established by the European Community and the testimony by the manufacturer that the product meets the minimum legal requirements and technical security of the Member States of the European Union.

All our panels are manufactured under strict quality control and classification. Certificates IEC 61215 and IEC 61730 by TÜV Rheinland and characterization reports made in testing laboratories based on these standards, certify that all of our panels successfully pass the tests that have been and are suitable for use in any type of installation.

The MCS (The Microgeneration Certification Scheme) certification is a system of EN45011, which certifies the Solar Innova PV modules for use in photovoltaic systems in the UK.
BRE Global Laboratories and TUV Rheinland have granted the MCS certificate after an audit of the factory and testing modules.
The MCS is a set of internationally recognized quality assurance demonstrating the quality and reliability of products certified to exacting standards.
The MCS certificate involves evaluation of products, manufacturing processes, materials, procedures and staff training. It is also a requirement to market photovoltaic market in the UK within the program of government financial support.

Standard UL 1703 refers photovoltaic panels that meet the National Electrical Code (NEC) and the National Fire Prevention Association (NFPA) in the United States of America.
The American National Standards Institute ANSI/UL 1703 covers North American requirements for the design and testing of PV modules on the rating of the safe electrical and mechanical operation throughout their expected lifetime. The tests also demonstrate that the efficiency of the panels is tested and confirmed to reach 90 % or more of the power indicated by the manufacturer.

PV CYCLE is a non-for-profit association managing a fully operational collection and recycling scheme for end-of-life photovoltaic modules throughout Europe. They are independent and work on behalf of PV module manufacturers and importers active in all European markets. Solar Innova is a member of PV CYCLE from the year 2010

Producing high-quality PV modules requires much precision in selecting all the materials individually. Our commitment to precision goes beyond manufacturing right through to delivering the products to our customers. We offer all the knowledge about our products to distributors, technicians and installers, with which we have close cooperation for long-term sustainable growth. All of our products are manufactured on our own production facilities and are subject to the highest quality standards. In our own laboratory we test modules to ensure compliance with all international standards and to ensure stable quality and performance of our products.

The strictest quality management is applied throughout the complete production sequence to a visual, micro-optical, mechanical, and electrical final inspection continuously insuring the premium quality of photovoltaic panels. Solar Innova guarantees you faultless module delivery and avoids drops in performance as a result of mechanical damage through proper module packaging. All modules are manufactured on our own production facilities at our headquarters and delivered from there to our worldwide subsidiaries. Solar Innova takes over the entire logistics to the end customer thus guaranteeing the traceability of the modules. We monitor the production process and flow of each module and ensuring the high quality of our modules.

Solar cells directly convert sunlight into direct current electrical energy and the generator are of the module. The quality of cells directly influences the characteristics of a solar module is therefore essential silicon composition used.
Solar Innova cells used exclusively highly efficient with minimal variations in the process of optimizing the production reproducibility of the separation of cells. Is a determining factor for the quality of the cell constant for stable profits. The high resistance multipliers and fill factors used cells provide a good source of energy radiation especially low.
Each cell is checked, and classified electrically calibrated prior to interconnection to optimize the behavior of the module.

Our modules are completed self-supporting compact frame made of aluminum anodized aluminum pressure 5 series to achieve an optimum weight moment of inertia, in order to obtain greater rigidity and resistance to torsion and bending. This variant consists entirely of aluminum frame provides maximum stability and protects the materials fatigue.
The frame plays a key role within the module. On the one hand, protects the laminated housed inside thermal and mechanical stress, and secondly, serves as fixation point for connecting to the substructure.
The frames are designed for easy transport and installation. The distance between the end of the frame is optimized to ensure both a good seal as the maximum loss reduction.
It has several holes to fasten the module to the support structure and ground if necessary.

Prismatic tempered glass 3.2 mm. thick with the following characteristics:

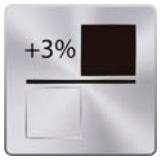
- ✔ Microprism surface structure.
- ✔ High transmissivity.
- ✔ Low reflectivity.
- ✔ Low iron.

The junction box installed is made high temperature resistant plastics. The box is sealed and ready for the weather. Has a degree IP-65, which provides the insulation system against moisture, inclement weather, dirt and ultraviolet radiation. Inside are installed bypass diodes.

Our PV modules are equipped with connectors and sockets MC-T4 100 % compatible with the connectors and sockets used to connect electrical systems. Only MC-T4 connector or compatible and special solar cables may be used to lengthen the cables connected to the module. These must meet the electrical requirements of the interconnection design.

With a special electro-luminescence test, a type of X-ray, Solar Innova ensures 100 % cell quality. By examining all cells and finished laminates for any internal damage, micro-cracks, hot spots, soldering errors and other imperfections, which are not visible to the naked eye, are eliminated.

Solar Innova offers its products for maximum performance photovoltaic sure of a good quality product Over the course of their lifespan, of 25 years or more, photovoltaic modules are subjected to severe environmental conditions. Come hail, snow or heat, they need to continually deliver peak performance in order to achieve maximum profits. In order to achieve this, the use of high-quality components is crucial. At Solar Innova we only use the best materials and first-class, weatherproof components from certified suppliers and market leaders. At Solar Innova each delivered component is checked intensively, ensuring long life and high current yields of our solar modules and only offer them with plus tolerances of 0 / + 3 Wp.



All Solar Innova modules are characterized by a positive tolerance of 0/+ 3 % of rated power, which guarantees high energy yield over the life, and resistance to the return current, which minimizes material needs Interconnection and time.

This quality standard is implemented by Solar Innova cell use grade "A" of high efficiency.

The ideal conditions for a photovoltaic system is blue sky and sunshine. Unfortunately for solar these are not the most common conditions. About two-thirds of the average annual radiation is in the range of weak light. Weak light describes the intensity of radiation that is considerably lower than 1000 W/m². Of course, a photovoltaic system produces electricity anyhow, however the current yield decreases. Solar Innova modules have superior weaklight performance with an above average efficiency, generating you extra yeild in these conditions.

Each solar cell loses performance when being exposed to the sun. Solar Innova modules are characterized by a very low degradation securing you a permanently stable yield. The use of high-quality raw materials ensures the low degradation of the nominal power of our modules, particularly at the beginning of the operating life. For this reason, we can offer a 25 year linear performance guarantee. In the first year, Solar Innova guarantees a performance of at least 97 % of the nominal power. In the following 24 years, Solar Innova guarantees a maximum performance reduction of 0.7 % of the nominal power per year. With this performance bond, Solar Innova guarantees quality and performance from its own production and provides you with security in your investment.

In photovoltaics, the hot-spot effect refers to an overheating of a specific area of a solar module which can result in a fire in extreme cases. Solar Innova executes a 100 % test of all cells by applying a reverse current. This specially developed and defined procedure, allows us to identify potentially defective hot-spot cells and reducing the risk of incidents occuring.

Conventional solar systems inherently have differences in voltage between the system framework and solar cells. These differences can lead to unwanted leakage currents which reduce the capacity of the cells and can cause a loss of yield of 20 % or more. This effect is called Potential-Induced Degradation (PID). The use of high-quality encapsulation materials and state-of-the-art plant technology at Solar Innova ensures a consistent production of PID-resistant modules.

Excessive snow pressure is actually one of the most important damage categories for photovoltaic systems, alongside storm damage and damage due to theft, overvoltage, hail or fire. The problem: Especially on sloping roofs, the snow load on photovoltaic systems is unevenly distributed. In fact, the snow slides down to the bottom part of the module frame, causing extreme loads on the modules and mounting parts here. The consequence: “This causes an increased occurrence of serious damage especially to the frame and glass surfaces of the modules – and not just in mountainous regions, but also in flat areas”.

All our photovoltaic modules have been tested by TUV Rheinland Laboratory who has certified that offer a Class C fire resistance and eligible for installation on roofs Class A, as determined by UL 1703.

TÜV Rheinland Laboratory in Germany Solar subjected Solar Innova modules to a salt spray test of 60 days according to the IEC 61701 standard to ensure consistent performance and corrosion resistance under the most adverse environmental conditions. The salt spray test corresponds to an operating time of more than 20 years in a marine environment installation.

Livestock farming releases ammonia and dust particles which accelerates the ageing of photovoltaic modules, leading to declining energy generation and lower yields for the plant operator. Solar Innova modules withstand the effects of barn air over a period of at least 20 years and have passed the test “Ammonia Resistance”.

INTERNATIONAL CERTIFICATES

All of our photovoltaic modules are designed and manufactured in accordance with IEC/EN 61215 and meet the qualification standards of safety for photovoltaic modules IEC/EN 61730 Class A (Class II). To meet these international standards have been used durable and high quality materials. Solar Innova has also established a series of stringent quality checks at every stage of production process and a final inspection of the power output of all modules manufactured.

All products are produced in a environment ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007, tested by TÜV Rheinland Laboratory in Germany (accredited by the Accreditation Spanish Entity ENAC).

All products are been approved for use in the European Union environment, tested by TÜV Rheinland Laboratory in Germany, issuing the appropriate certificate on conformity CE.

All products are been tested by TÜV Rheinland Laboratory in Germany, issuing the appropriate certification on compliance with the rules IEC/EN 61215:2005, IEC/EN 61730-1-2:2004 and IEC/EN 61730-1-2:2007 (accredited by DAR in Germany).

All products are been tested by BRE Global of UK and TÜV Rheinland Laboratory in Germany, issuing the appropriate certification on compliance with the rules MCS 010-1.2 y MCS 005-2.3.

All products are been tested by TÜV Rheinland Laboratory in Germany, issuing the appropriate certification on compliance with the rules ANSI/UL 1703:2002 R4.08.

Solar Innova, continuing with its program of continuous improvement and efficiency in terms of Quality and Environment is committed to the PV-Cycle Association.

In this way, Solar Innova takes a step further its awareness of environmental issues, giving their product a seal that makes it doubly green and providing its customers a viable solution for those modules that have reached the end of its useful life.

PV-Cycle Association's main objective is to implement a voluntary collection and recycling of photovoltaic modules at the end of its useful life installed in the EU and EFTA countries. Their program describes how from the recycling of these modules, it is possible to manufacture new modules with a useful life another 25 years. Hence its slogan "Making Photovoltaics Double Green".

Solar Innova is supplying clean, renewable energy through the most powerful natural resource: the sun, but wants to close the circle and give, through PV-Cycle, a clean exit at the final destination of its modules.

Solar Innova modules have a lifespan of 25 years, require minimal maintenance and have a low emission of CO2 into the atmosphere. Furthermore, when the time comes for them to be disposed of, they will be collected for recycling.

Thus, Solar Innova, through its pact and adherence agreement to PV-Cycle, ensures that your product will be removed and recycled at the end of its useful life, further consolidating its strong commitment to environmental responsibility.

SERVICES

Solar Innova is constituted by a team of highly qualified and specialized in renewable energy commitment to the implementation of clean energy to enable sustainable growth and a better future for all, not forgetting the fair return on its investors and customers.

The main advantage that report **Solar Innova** services comes from its professional and specialized management, which allows obtaining higher and safer returns, reducing risks, optimizing and streamlining processes and, above all, avoiding hassles and concerns to their clients. Have the same advantage, any company or person with a small investment, you will have access to investments in renewable energy, inexhaustible and clean.

Solar Innova, born with the firm purpose of contributing to a more sustainable future. Energy saving is the first way to combat the changes that are happening on our planet.

Alternative energy, now fully consolidated as a viable way to preserve the environment, is the only solution for eliminating pollution and CO2.

The world needs systems based on solar power with improved quality and efficiency. This is the definitive answer to a paradigm shift cleaner energy, sustainable and economically.

Besides thinking about how to produce clean energy, we must learn to make rational use of energy as a priority.

Full customer satisfaction is our commitment, and he devoted one hundred percent of our time and effort. We monitor daily performance and quality in products and services.

We have a rigorous internal quality control in order to offer the customer the best service.

INSTALLATIONS

Italy: 4 kW
16 monocrystalline modules of 260 Wp

Italy: 12 kW
45 monocrystalline modules of 260 Wp

Italy: 1 MW
2661 monocrystalline modules of 260 Wp

Greece: 630 kW
2535 monocrystalline modules of 260 Wp

Greece: 800 kW
3330 monocrystalline modules of 245 Wp

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