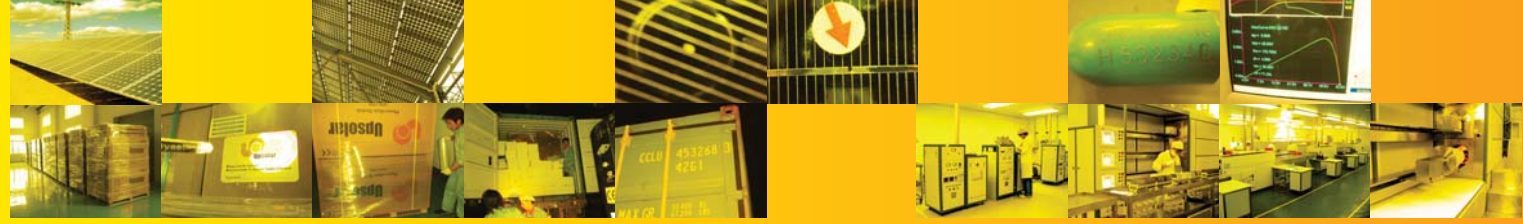




The Art of Quality



Upsolar,

the Upright module supply:

SUPPLY COMPETITIVE HIGH QUALITY MODULES

DOUBLE WARRANTY + WORLD CLASS INSURANCE

TOTAL QUALITY PROCESS

IN-HOUSE TESTING & DEVELOPMENT CENTER

INTERNATIONAL CUSTOMER SUPPORT

SUPPLY COMPETITIVE HIGH QUALITY MODULES

In order to ensure and provide the best price/quality ratio of the market, Upsolar designs, creates and produces high quality modules through its first-class vertically integrated manufacturing partners. Upsolar controls each stage of the production flow and continues its efforts in research & development to ensure high quality requirement.

Upsolar brand is a unique combination of high quality and technology expertise.

DOUBLE-WARRANTY + WORLD CLASS INSURANCE

In order to provide the most reliable 25-year warranty, Upsolar provides a unique double-warranty: All our products are contractually co-guaranteed both by Upsolar and our first-class vertically integrated manufacturing partners. These two warranties are equivalent and have independent legal effects to ensure the best Upsolar quality.

Upsolar provides world class insurance by an internationally recognized insurance company covering the quality insurance, civil reliability and products "errors and omission". In case of product quality default, the insurance will compensate our customers not only for the defeated modules, but also for the financial losses due to a lower power production.





TOTAL QUALITY PROCESS

Upsolar strictly executes its unique Online Quality Control System by checking the conformity of materials, the respect of assembling process, and the specifications of the final products. Upsolar uses its own quality control team of highly qualified engineers with permanent presence on the manufacturing site.

The Upsolar Online Quality Control Procedures are under constant audit by Bureau Veritas, every shipment of Upsolar product is traced by an inspection report witnessed by Bureau Veritas.

Upsolar executes also Offline Quality Control System, randomly and at any change of specifications, equipment and assembling process, by making tests on components, assembled parts and final products, to ensure the best continuous production quality flow.

IN-HOUSE TESTING & DEVELOPMENT CENTER

Upsolar tests and selects the highest quality components from the top photovoltaic material suppliers to produce our Upsolar high quality modules.

The second level is to have our modules enduring many tests to make sure and measure their ability to withstand the assault of time and weather for more than 25 years:

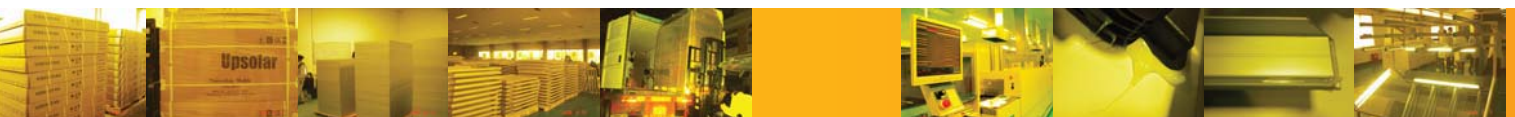
Thermal cycling (TC50 or TC200)	Hot-spot
Humidity freeze (HF10)	Bypass diode thermal test
Damp heat (DH1000)	Reverse current overload test
UV preconditioning test	Mechanical load test
Impulse voltage test	Infrared imaging test
Dielectric withstand	Cross linking extent
Wet leakage current	Peel strength test.

With foresighted researches and precise testing within our own Development Center, Upsolar is continuously upgrading its product range and developing tailor-made solutions to its customers.

INTERNATIONAL CUSTOMER SERVICES

Upsolar sold 60 MW in Europe in 2008 with a turnover of 165 Million EUR and plans to double its sales in 2009 by reaching 120MW. Upsolar maintains close links with its customers for a mutual long term partnership. Upsolar provides international services with European headquarters in Paris, and a unique local technical support with a team of engineers going on site. Upsolar announced in April 2009 the creation of Upsolar America Co to support more closely our North American customers.

Upsolar modules are a unique combination of high quality products, technology expertise, and international services, to provide you the best quality/price ratio for your investments.





Polycrystalline PV module 72 cells

Electrical Characteristics

Model	UP-M250P	UP-M260P	UP-M270P	UP-M280P
Max Power Pm(W)	250	260	270	280
Max-Power Voltage Vm(V)	34.6	34.8	35.1	35.2
Max-Power Current Im(A)	7.23	7.47	7.70	7.95
Open-Circuit Voltage Voc(V)	43.7	44.2	44.6	44.8
Short-Circuit Current Isc(A)	7.98	8.10	8.22	8.35
Cell Efficiency	14.6%	15.1%	15.7%	16.3%
Maximum System Voltage(V)	1000(TUV)/600(UL)			
Power Tolerance	±3%			

Components & Mechanical Data

Front Glass	Saint-Gobain glass, 4.0mm tempered
Junction Box	Tyco, 1740971 with IP-65 rated
Diode	SL1515 (15A)
Output Cables	1m length Tyco cable: zhscg (4mm ² and 12AWG), IEC and UL approved
Connectors	MC4 or Tyco with IP67, IEC and UL approved
Frame	Anodized aluminum alloy type 6063-T5
Encapsulation Material	EVA(0.50±0.05mm thickness)
Back Foil	White TPT(0.32±0.03mm thickness)
Temperature Range	-40°C to +90°C
Max Load	5400 Pa
Impact Resistance	Steel ball - 1040g dropped from 1m high



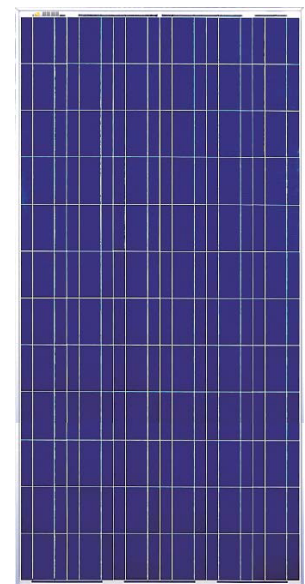
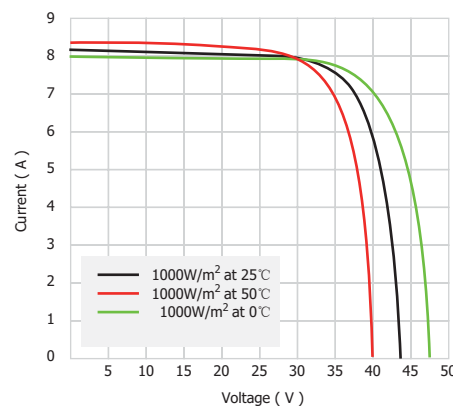
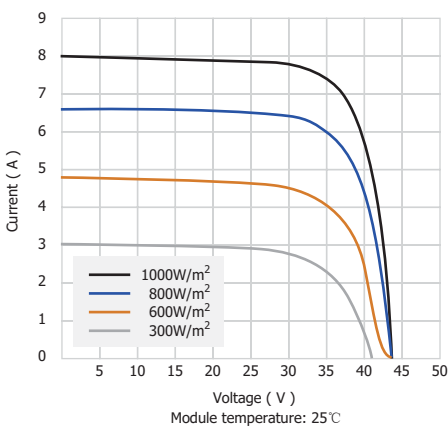
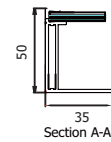
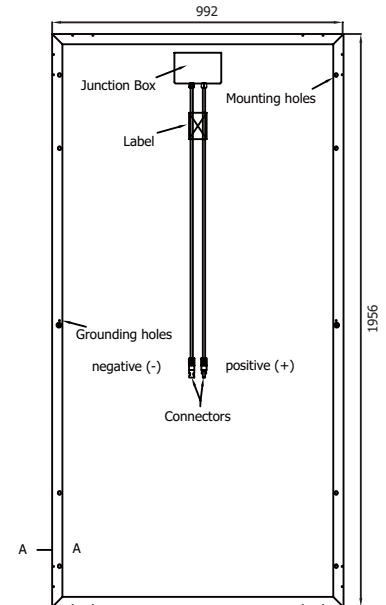


Specifications

Cells	Polycrystalline silicon solar cells 156mm×156mm
Cells Number	72(6×12)
Dimension(mm)	1956×992×50
Weight(kg)	22.0

Temperature Coefficients

NOCT(°C)	45±2
Current Temperature Coefficient of Isc(%/K)	0.06±0.01
Voltage Temperature Coefficient of Voc(%/K)	-0.34±0.01
Temperature Coefficient of Im(%/K)	-0.02±0.01
Temperature Coefficient of Vm(%/K)	-0.50±0.01
Temperature Coefficient of Pm(%/K)	-0.40±0.05



Guarantee: 5-years product guarantee
 10-years performance guarantee at 90% power output
 25-years performance guarantee at 80% power output

NOTE: 1. STC: Irradiance 1000W/m², Module temperature 25°C, AM=1.5
 2. Nominal Operating Cell Temperature above data is only for reference
 3. Deviation of Vm(V), Im(A), Voc(V) and Isc(A) of ±10%





Polycrystalline PV module 54 cells

Electrical Characteristics

Model	UP-M180P	UP-M190P	UP-M200P	UP-M210P
Max Power Pm(W)	180	190	200	210
Max-Power Voltage Vm(V)	24.5	25.3	26.0	26.8
Max-Power Current Im(A)	7.35	7.51	7.70	7.84
Open-Circuit Voltage Voc(V)	32.6	32.8	33.1	33.3
Short-Circuit Current Isc(A)	7.80	8.10	8.25	8.40
Cell Efficiency	14.0%	14.8%	15.5%	16.3%
Maximum System Voltage(V)	1000(TUV)/600(UL)			
Power Tolerance	±3%			

Components & Mechanical Data

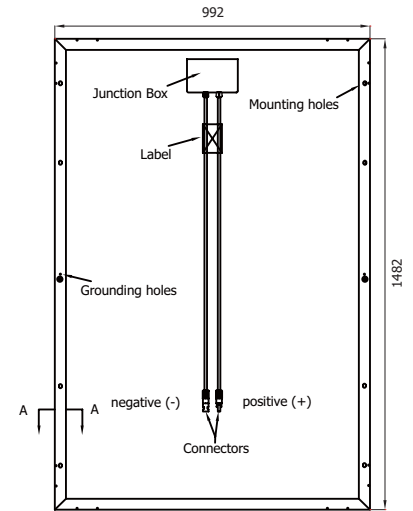
Front Glass	Saint-Gobain glass, 3.2mm tempered
Junction Box	Tyco, 1740971 with IP-65 rated
Diode	SL1515 (15A)
Output Cables	1m length Tyco cable: zhscg (4mm ² and 12AWG), IEC and UL approved
Connectors	MC4 or Tyco with IP67, IEC and UL approved
Frame	Anodized aluminum alloy type 6063-T5
Encapsulation Material	EVA(0.50±0.05mm thickness)
Back Foil	White TPT(0.32±0.03mm thickness)
Temperature Range	-40°C to +90°C
Max Load	5400 Pa
Impact Resistance	Steel ball - 1040g dropped from 1m high





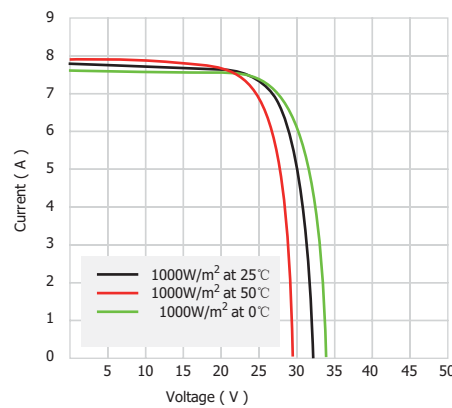
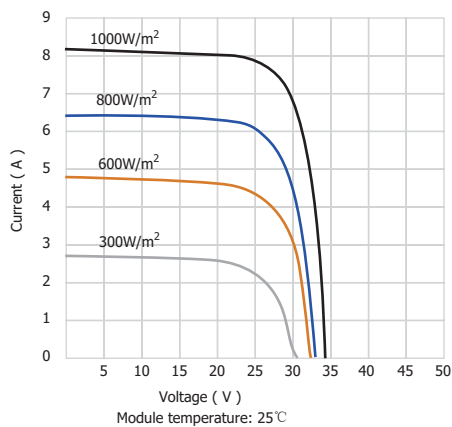
Specifications

Cells	Polycrystalline silicon solar cells 156mm×156mm
Cells Number	54(6×9)
Dimension(mm)	1482×992×40
Weight(kg)	17.5



Temperature Coefficients

NOCT(°C)	45±2
Current Temperature Coefficient of Isc(%/K)	0.06±0.01
Voltage Temperature Coefficient of Voc(%/K)	-0.34±0.01
Temperature Coefficient of Im(%/K)	-0.02±0.01
Temperature Coefficient of Vm(%/K)	-0.50±0.01
Temperature Coefficient of Pm(%/K)	-0.40±0.05



Guarantee: 5-years product guarantee
 10-years performance guarantee at 90% power output
 25-years performance guarantee at 80% power output

NOTE: 1. STC: Irradiance 1000W/m², Module temperature 25°C, AM=1.5
 2. Nominal Operating Cell Temperature above data is only for reference
 3. Deviation of Vm(V), Im(A), Voc(V) and Isc(A) of ±10%





Polycrystalline PV module 60 cells

Electrical Characteristics

Model	UP-M210P	UP-M220P	UP-M230P	UP-M240P
Max Power Pm(W)	210	220	230	240
Max-Power Voltage Vm(V)	28.2	28.7	29.7	30.2
Max-Power Current Im(A)	7.45	7.67	7.75	7.95
Open-Circuit Voltage Voc(V)	36.1	36.7	37.2	37.6
Short-Circuit Current Isc(A)	8.10	8.25	8.30	8.40
Cell Efficiency	14.7%	15.4%	16.1%	16.8%
Maximum System Voltage(V)	1000(TUV)/600(UL)			
Power Tolerance	±3%			

Components & Mechanical Data

Front Glass	Saint-Gobain glass, 3.2mm tempered
Junction Box	Tyco, 1740971 with IP-65 rated
Diode	SL1515 (15A)
Output Cables	1m length Tyco cable: zhscg (4mm ² and 12AWG), IEC and UL approved
Connectors	MC4 or Tyco with IP67, IEC and UL approved
Frame	Anodized aluminum alloy type 6063-T5
Encapsulation Material	EVA(0.50±0.05mm thickness)
Back Foil	White TPT(0.32±0.03mm thickness)
Temperature Range	-40°C to +90°C
Max Load	5400 Pa
Impact Resistance	Steel ball - 1040g dropped from 1m high



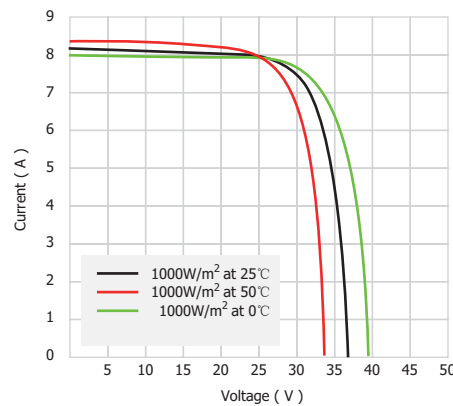
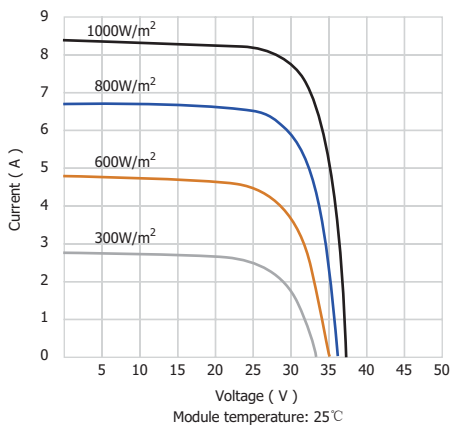
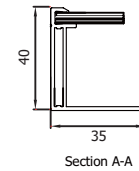
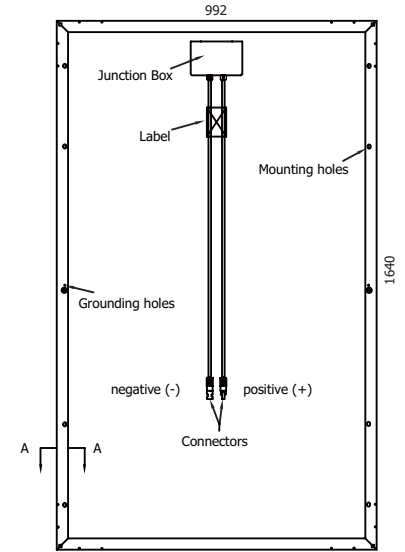


Specifications

Cells	Polycrystalline silicon solar cells 156mm×156mm
Cells Number	60(6×10)
Dimension(mm)	1640×992×40
Weight(kg)	20.0

Temperature Coefficients

NOCT(°C)	45±2
Current Temperature Coefficient of Isc(%/K)	0.06±0.01
Voltage Temperature Coefficient of Voc(%/K)	-0.34±0.01
Temperature Coefficient of Im(%/K)	-0.02±0.01
Temperature Coefficient of Vm(%/K)	-0.50±0.01
Temperature Coefficient of Pm(%/K)	-0.40±0.05



Guarantee: 5-years product guarantee
 10-years performance guarantee at 90% power output
 25-years performance guarantee at 80% power output

NOTE: 1. STC: Irradiance 1000W/m², Module temperature 25°C, AM=1.5
 2. Nominal Operating Cell Temperature above data is only for reference
 3. Deviation of Vm(V), Im(A), Voc(V) and Isc(A) of ±10%





Monocrystalline PV module 72 cells

Electrical Characteristics

Model	UP-M160M	UP-M165M	UP-M170M	UP-M175M	UP-M180M	UP-M185M
Max Power Pm(W)	160	165	170	175	180	185
Max-Power Voltage Vm(V)	35.0	35.2	35.4	35.6	35.8	36.0
Max-Power Current Im(A)	4.58	4.69	4.81	4.92	5.03	5.14
Open-Circuit Voltage Voc(V)	43.8	44.0	44.2	44.4	44.6	44.8
Short-Circuit Current Isc(A)	5.00	5.03	5.19	5.29	5.38	5.43
Cell Efficiency	15.3%	15.7%	16.2%	16.7%	17.2%	17.6%
Maximum System Voltage(V)	1000(TUV)/600(UL)					
Power Tolerance	±3%					

Components & Mechanical Data

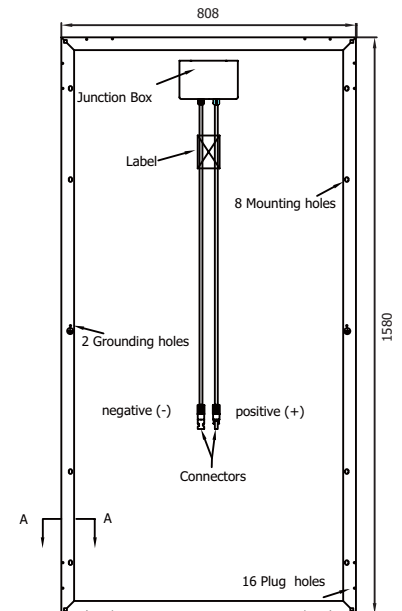
Front Glass	Saint-Gobain glass, 3.2mm tempered
Junction Box	Tyco, 1740971 with IP-65 rated
Diode	SL1515 (15A)
Output Cables	1m length Tyco cable: zhscg (4mm ² and 12AWG), IEC and UL approved
Connectors	MC4 or Tyco with IP67, IEC and UL approved
Frame	Anodized aluminum alloy type 6063-T5
Encapsulation Material	EVA(0.50±0.05mm thickness)
Back Foil	White TPT(0.32±0.03mm thickness)
Temperature Range	-40°C to +90°C
Max Load	5400 Pa
Impact Resistance	Steel ball - 1040g dropped from 1m high





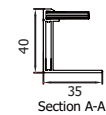
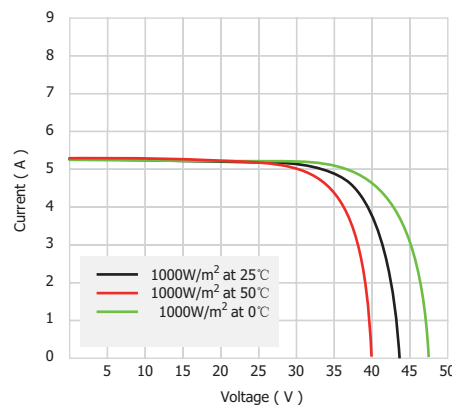
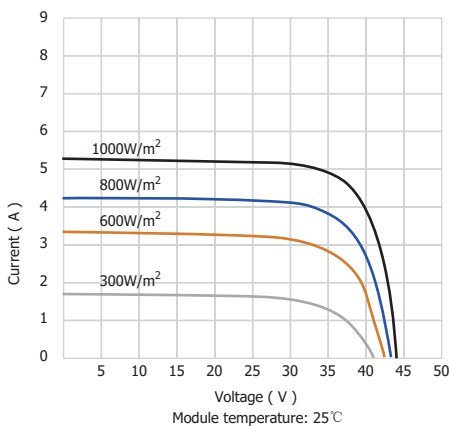
Specifications

Cells	Monocrystalline silicon solar cells 125mm×125mm
Cells Number	72(6×12)
Dimension(mm)	1580×808×40
Weight(kg)	15.4



Temperature Coefficients

NOCT(°C)	45±2
Current Temperature Coefficient of Isc(%/K)	0.03±0.01
Voltage Temperature Coefficient of Voc(%/K)	-0.34±0.01
Temperature Coefficient of Im(%/K)	-0.05±0.01
Temperature Coefficient of Vm(%/K)	-0.50±0.01
Temperature Coefficient of Pm(%/K)	-0.40±0.05



Guarantee: 5-years product guarantee
 10-years performance guarantee at 90% power output
 25-years performance guarantee at 80% power output

NOTE: 1. STC: Irradiance 1000W/m², Module temperature 25°C, AM=1.5
 2. Nominal Operating Cell Temperature above data is only for reference
 3. Deviation of Vm(V), Im(A), Voc(V) and Isc(A) of ±10%





Monocrystalline PV module 72 cells

(Black series)

Electrical Characteristics

Model	UP-M160M	UP-M165M	UP-M170M	UP-M175M	UP-M180M	UP-M185M
Max Power Pm(W)	160	165	170	175	180	185
Max-Power Voltage Vm(V)	35.3	35.6	35.8	36.0	36.2	36.4
Max-Power Current Im(A)	4.53	4.65	4.76	4.86	4.97	5.08
Open-Circuit Voltage Voc(V)	44.0	44.3	44.4	44.6	44.8	45.0
Short-Circuit Current Isc(A)	4.90	4.98	5.05	5.15	5.22	5.30
Cell Efficiency	15.5%	16.0%	16.5%	16.9%	17.4%	17.9%
Maximum System Voltage(V)	1000(TUV)/600(UL)					
Power Tolerance	±3%					

Components & Mechanical Data

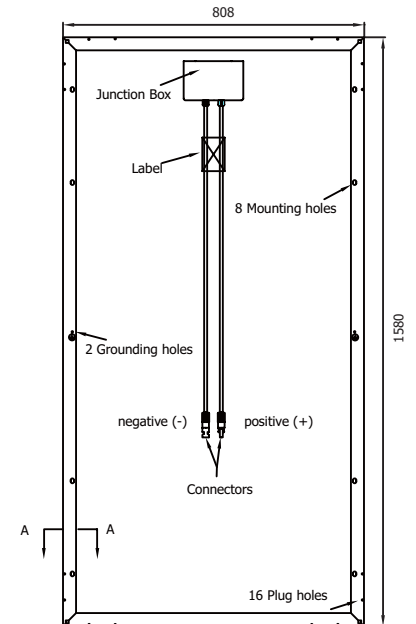
Front Glass	Saint-Gobain glass, 3.2mm tempered
Junction Box	Tyco, 1740971 with IP-65 rated
Diode	SL1515 (15A)
Output Cables	1m length Tyco cable: zhscg (4mm ² and 12AWG), IEC and UL approved
Connectors	MC4 or Tyco with IP67, IEC and UL approved
Frame	Anodized aluminum alloy type 6063-T5
Encapsulation Material	EVA(0.50±0.05mm thickness)
Back Foil	Black TPT(0.32±0.03mm thickness)
Temperature Range	-40°C to +90°C
Max Load	5400 Pa
Impact Resistance	Steel ball - 1040g dropped from 1m high





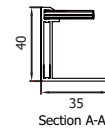
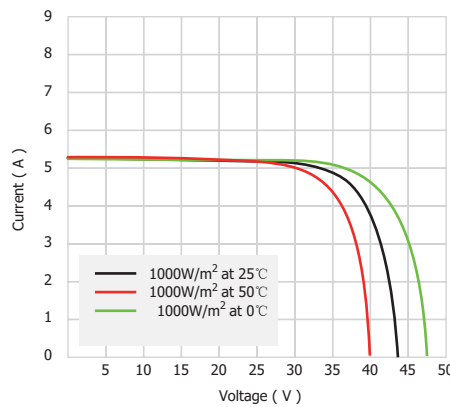
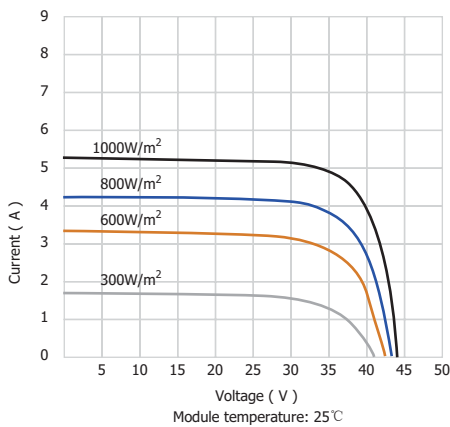
Specifications

Cells	Monocrystalline silicon solar cells 125mm×125mm
Cells Number	72(6×12)
Dimension(mm)	1580×808×40
Weight(kg)	15.4



Temperature Coefficients

NOCT(°C)	45±2
Current Temperature Coefficient of Isc(%/K)	0.03±0.01
Voltage Temperature Coefficient of Voc(%/K)	-0.34±0.01
Temperature Coefficient of Im(%/K)	-0.05±0.01
Temperature Coefficient of Vm(%/K)	-0.50±0.01
Temperature Coefficient of Pm(%/K)	-0.40±0.05



Guarantee: 5-years product guarantee
 10-years performance guarantee at 90% power output
 25-years performance guarantee at 80% power output

NOTE: 1. STC: Irradiance 1000W/m², Module temperature 25°C, AM=1.5
 2. Nominal Operating Cell Temperature above data is only for reference
 3. Deviation of Vm(V), Im(A), Voc(V) and Isc(A) of ±10%





Monocrystalline PV module 72 cells

(Transparent series)

Electrical Characteristics

Model	UP-M160M	UP-M165M	UP-M170M	UP-M175M	UP-M180M	UP-M185M
Max Power Pm(W)	160	165	170	175	180	185
Max-Power Voltage Vm(V)	36.0	36.2	36.4	36.6	36.8	37.0
Max-Power Current Im(A)	4.45	4.56	4.67	4.78	4.89	5.00
Open-Circuit Voltage Voc(V)	44.4	44.7	44.9	45.0	45.2	45.3
Short-Circuit Current Isc(A)	4.89	4.98	5.05	5.15	5.25	5.35
Cell Efficiency	15.3%	15.8%	16.3%	16.8%	17.3%	17.7%
Maximum System Voltage(V)	1000(TUV)/600(UL)					
Power Tolerance	±3%					

Components & Mechanical Data

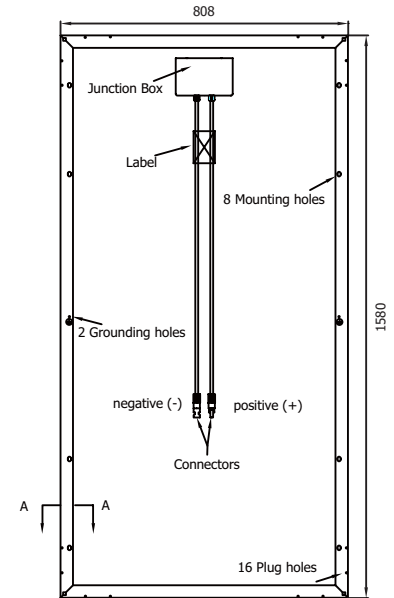
Front Glass	Saint-Gobain glass, 3.2mm tempered
Junction Box	Tyco, 1740971 with IP-65 rated
Diode	SL1515 (15A)
Output Cables	1m length Tyco cable: zhscg (4mm ² and 12AWG), IEC and UL approved
Connectors	MC4 or Tyco with IP67, IEC and UL approved
Frame	Anodized aluminum alloy type 6063-T5
Encapsulation Material	EVA(0.50±0.05mm thickness)
Back Foil	Transparent back foils (0.24±0.02mm thickness)
Temperature Range	-40°C to +90°C
Max Load	5400 Pa
Impact Resistance	Steel ball - 1040g dropped from 1m high





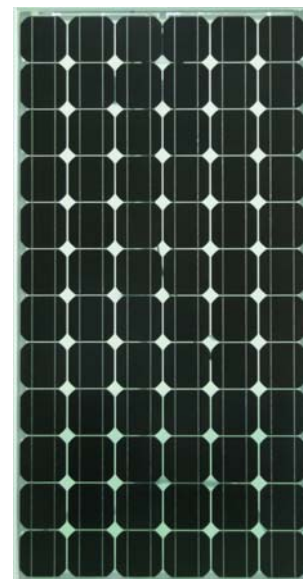
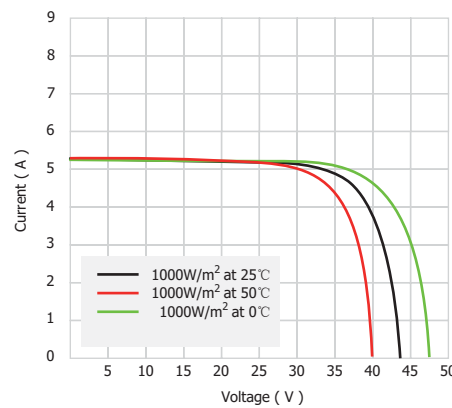
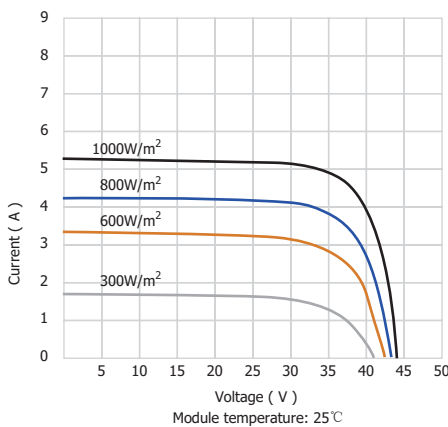
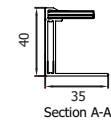
Specifications

Cells	Monocrystalline silicon solar cells 125mm×125mm
Cells Number	72(6×12)
Dimension(mm)	1580×808×40
Weight(kg)	15.4



Temperature Coefficients

NOCT(°C)	45±2
Current Temperature Coefficient of Isc(%/K)	0.03±0.01
Voltage Temperature Coefficient of Voc(%/K)	-0.34±0.01
Temperature Coefficient of Im(%/K)	-0.05±0.01
Temperature Coefficient of Vm(%/K)	-0.50±0.01
Temperature Coefficient of Pm(%/K)	-0.40±0.05



Guarantee: 5-years product guarantee
 10-years performance guarantee at 90% power output
 25-years performance guarantee at 80% power output

NOTE: 1. STC: Irradiance 1000W/m², Module temperature 25°C, AM=1.5
 2. Nominal Operating Cell Temperature above data is only for reference
 3. Deviation of Vm(V), Im(A), Voc(V) and Isc(A) of ±10%





Monocrystalline PV laminates

Electrical Characteristics

Model	UP-L090M	UP-L150M	UP-L180M	UP-L195M
Max Power Pm(W)	90	150	180	195
Max-Power Voltage Vm(V)	18.2	30.2	35.8	39.5
Max-Power Current Im(A)	4.95	4.98	5.03	4.94
Open-Circuit Voltage Voc(V)	22.6	37.3	44.6	48.7
Short-Circuit Current Isc(A)	5.30	5.29	5.38	5.29
Cell Efficiency	17.2%	17.2%	17.2%	17.2%
Maximum System Voltage(V)	1000(TUV)/600(UL)			
Power Tolerance	±3%			

Components & Mechanical Data

Front Glass	Saint-Gobain glass, 4.0/3.2mm tempered
Junction Box	Tyco, 1740971 with IP-65 rated
Diode	SL1515 (15A)
Output Cables	1m length Tyco cable: zhscg (4mm ² and 12AWG), IEC and UL approved
Connectors	MC4 or Tyco with IP67, IEC and UL approved
Encapsulation Material	EVA(0.50±0.05mm thickness)
Back Foil	White TPT(0.32±0.03mm thickness)
Temperature Range	-40°C to +90°C
Max Load	5400 Pa
Impact Resistance	Steel ball - 1040g dropped from 1m high

Guarantee: 5-years product guarantee
 10-years performance guarantee at 90% power output
 25-years performance guarantee at 80% power output



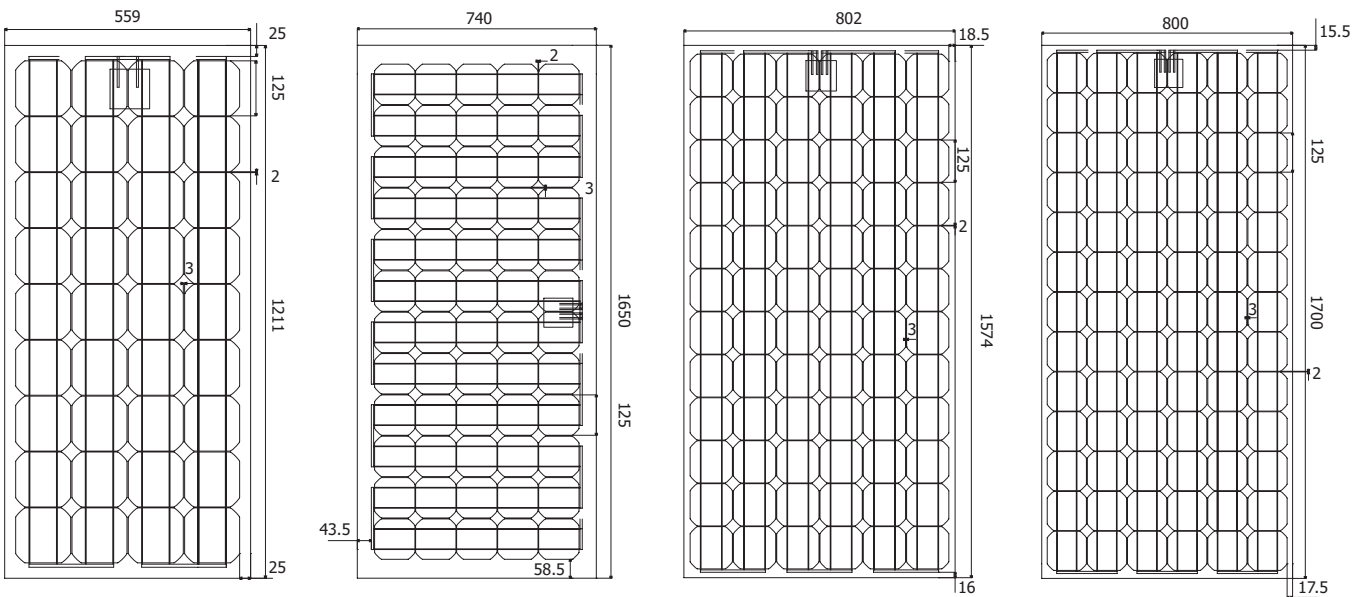


Specifications

Cells	Monocrystalline silicon solar cells 125mm×125mm			
Cells Number	36(4×9)	60(5×12)	72(6×12)	78(6×13)
Dimension(mm)	1121×559×5	1650×740×5	1574×802×5	1700×800×5
Weight(kg)	7.0	12.6	13.0	14.0

Temperature Coefficients

NOCT(°C)	45±2
Current Temperature Coefficient of Isc(%/K)	0.03±0.01
Voltage Temperature Coefficient of Voc(%/K)	-0.34±0.01
Temperature Coefficient of Im(%/K)	-0.02±0.01
Temperature Coefficient of Vm(%/K)	-0.50±0.01
Temperature Coefficient of Pm(%/K)	-0.40±0.05



- NOTE:**
1. STC: Irradiance 1000W/m², Module temperature 25°C, AM=1.5
 2. Nominal Operating Cell Temperature above data is only for reference
 3. Deviation of Vm(V), Im(A), Voc(V) and Isc(A) of ±10%





Project References

Rivesaltes rooftop



Project Location:

Rivesaltes, France

Total Power:

4MW

Technology:

N/A

Name of the Constructor:

MecoTech

Module Type:

Monocrystalline

Type of Area:

Roof top

Mora La Nova



Project Location:

Mora La Nova, Catalunya

Total Power:

1.58MWp

Technology:

1 axe trackers: RW Energy

Name of the Constructor:

Sisolar

Module Type:

Monocrystalline

Type of Area:

Open area





Heusden



Project location:

Belgium

Total Power:

4,7 MW

Technology:

Polycrystalline fixed structure with concrete foundation

Name of the constructor:

IZEN energy systems nv

Module Type:

UP-M200P

Type of area:

Old industrial waste soil.

Ferreira do Alentejo



Project location:

Portugal

Total Power:

7 MW

Technology:

Polycrystalline fixed structures

Name of the constructor:

Grupo Generg

Module type:

Polycrystalline 54 cells - 200Wp

Type of area:

NC





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