



## SOLAR PANELS

Affordable Solar Power for Generations





**CHOOSING MAGNIZON, YOU GET BETTER ENGINEERED PRODUCTS, YOU ALSO GET OUR PROVEN RELIABILITY, OUTSTANDING CUSTOMER SERVICE AND THE ASSURANCE OF OUR 25-YEARS LIMITED WARRANTY.**

**KEY FEATURES:**

- Maximum system voltage: 1000v(Option of 1500V with prior request)
- Operating temperature range: -40DegC to 85DegC
- Surface maximum load capacity: 200kgs/Sq.m
- Built in IP67 Rated junction box with 3 bypass diodes
- Built in +ve & -ve cables lengths of 900mm
- Positive power tolerance(0-3%) to ensure the high reliability of power output
- Solar cells made in : Germany/Japan/Taiwan (options to choose by customer)
- Easy installation and maintenance with compatibility to industry standard inverters and mounting system
- Anti-reflective, hydrophobic layer of module surface(proprietary 800°C online coating technology) improves light absorption and reduces surface dust
- Excellent performance under low light environments(mornings, evenings and cloudy days) create better kWh/kW ratio and produce average 5-6% more yield
- Special PV Module Insurances by world leading insurance company guarantees the benefit of PV investors and users
- Junction box and bypass diodes guarantee the module free of overheating and “hot spot effect”
- IEC 61215, IEC 61730-1/2, IEC 61701, CE, EMC, ISO 9001:2015, ISO 14001:2015 & ROHS compliance

**PRODUCT CHARACTERISTICS:**

-  High efficiency crystalline PV modules is applicable to residential and public roof tops and ground mounting PV power stations

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-  Main bus bars PV cells (5BB), more uniform current collecting ability, decrease current self-consumption, more beautiful product appearance

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-  Antireflective glass not only increases light absorption, but also reduces the power loss by its self-cleaning function under rainy environment

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-  Outstanding week light power generating performance, well suitable for cloudy and rainy environments

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-  Excellence mechanical performance with 2400Pa wind load and 5400Pa snow load with 2xIEC standard test performance design

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-  Certified anti salt-mist, anti-ammonia corrosion performance by TUV

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-  Optimized current classification to improve the system power output

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-  Excellent PID free performance

**INTRODUCTION**

Magnizon is a ISO9001:2015 & ISO14001:2015 certified global manufacturing firm with strong focus on Product engineering, research and development, production, sales and services in the field of green energy power product lines. Production range includes of PV solar module both poly and mono with industry best standards and quality. Our PV modules are produced by 100% automatic(advanced robotic) production lines and approved by TUV, IEC, CE, CEC, CQC and FIDE. Team with top R&D talent with 20+ years of multinational corporate experience and assembled senior marketing, product and sales teams who live by the MNC spirit of “Professionalism, Integrity, Innovation and Win-Win”. From our base in Dubai-UAE we serve markets across Middle East, Africa and central Asia. Our products are supplied, deployed and working successfully with 100% customer satisfaction across 32 countries.

# Production process using World class auxiliary materials

## EVA

- Excellent anti-PID and UV- gaining properties
- Excellent durability, such as weather resistance, high-temperature, high-humidity and UV light resistance.
- Excellent long term adhesion to glass, metal and polymer back sheet.
- Excellent light transmittance and transparency.
- Good maneuverability during lamination process

## SOLAR CELL

- Magnizon has established a strict solar cell procurement system in order to ensure the quality and efficiencies of solar cells.
- World class solar cell sources from Germany/ Japan/Taiwan/China gives our customers a flexibility to select products based on the budgets
- 5BB, Class A+ cells with highest efficiency in the industry
- Excellent resistance PID attenuation performance
- Anti PID-Solar cells

## GLASS

- Reliable quality and high transparency
- Low Iron Tempered Glass
- Excellent scratch resistance
- Surface of the glass using closed-cell structure of the nano-quoting to improve the reliability and antifouling performance
- Anti-acid: Transmittance Loss less than 1%
- Salt Spray: Transmittance Loss less than 1%
- Damp Heat test (double 85) : Module Max Power Loss less than 5%
- Exposure to UV Light Module Max Power Loss less than 3%

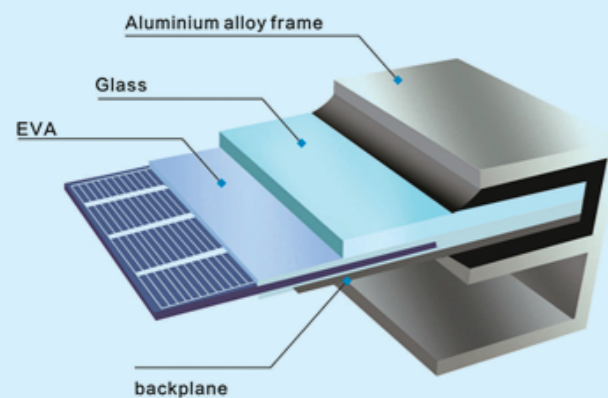


## JUNCTION BOX

- Procurement from First class diode suppliers to reduces the probability of occurrence of hot spots
- Using potting junction box design to ensure a good seal performance
- True IP67 junction box made with fire retardant polymers
- TUV certified, UV rated pure copper cables and connectors

## ALUMINIUM ALLOY FRAME

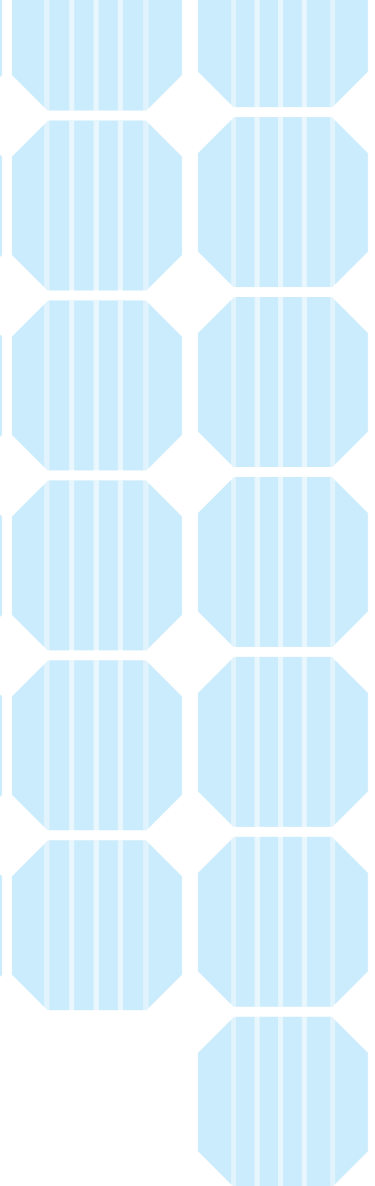
- High resistance to salt and ammonia corrosion performance.
- Excellent surface treatment technology, higher line density components ensures excellent corrosion resistance and mechanical strength



## BACKPLANE

- Tetra-fluorine back at low water vapor transmittance to ensure the reliability of components and the stability in harsh environment
- High resistance to heat and humidity
- Excellent UV Blocking
- Excellent partial discharge
- High Inner Layer Reflectivity
- High Water Barrier
- Structure: Multi-layer, FFC or PVDF/Adhesive/PET/FFC





## Product Quality Process & Warranty



### QUALITY TEST & PROCESS

- Before shipping out our products, we test every single solar modules using state-of-the art testing facilities and internationally proven test methods and procedures.
- QA tests using cutting-edge equipment such as solar irradiance simulator, mechanical load tester, and electroluminescence (EL) tester.
- Infrared cameras are constantly used to supervise the testing labs' temperature and humidity.

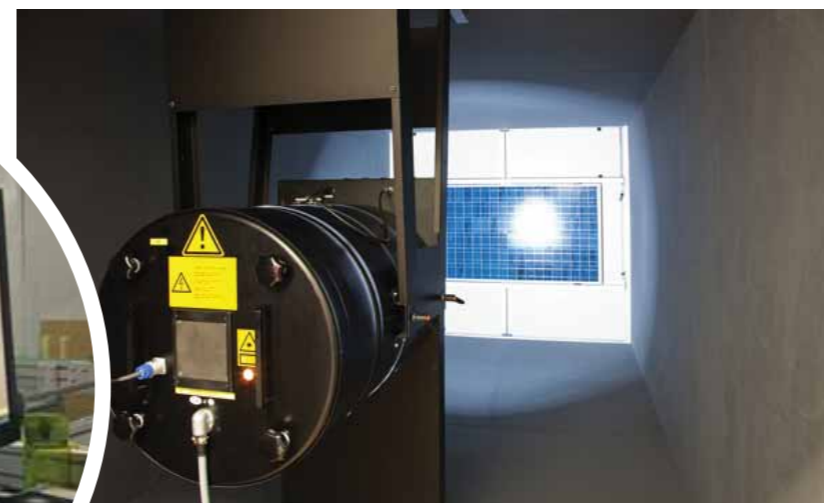
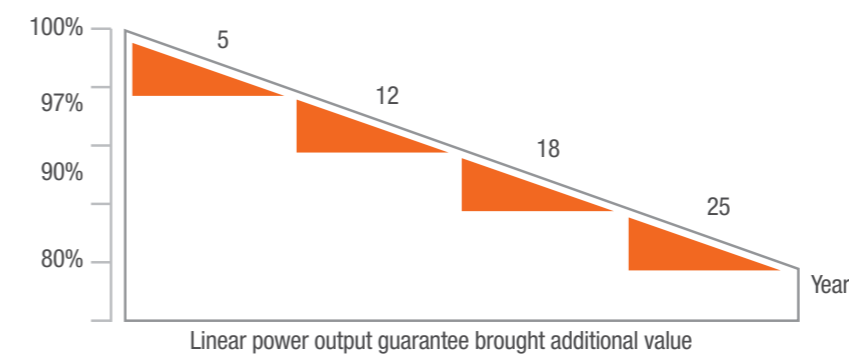


- When packaging, all our solar modules and cells are classified and sorted according to their current characteristics and all the packages are special designed that enable our products to be free of dampness, rust, moisture, erosion and shock.
- Our products are also independently tested by global renowned testing facilities including TUV Rheinland & TUV Nord etc.



### LONG TERM RELIABILITY TEST

- Mechanical load test 5400PA to 10000PA (2x IEC standard requirement), HAST IEC test temperature 85deg C, RH 85% to temperature 121deg C and three times the air pressure RH100%
- Limit testing at 3times IEC standard
- 100% automation lines and independent production to ensure the highest quality and reliability



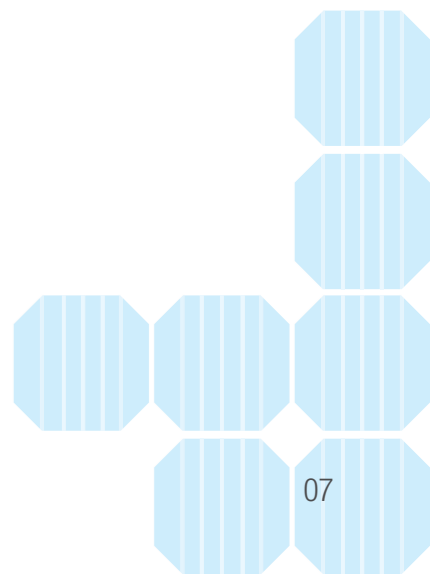
### ENVIRONMENTAL ADAPTABILITY TEST

- Ammonia resistance test, resistance to salt spray test, So2 resistance test, resistance to dust test
- Adaptation to environment test: Dry and hot weather testing, hot and humid climate test, cold weather testing



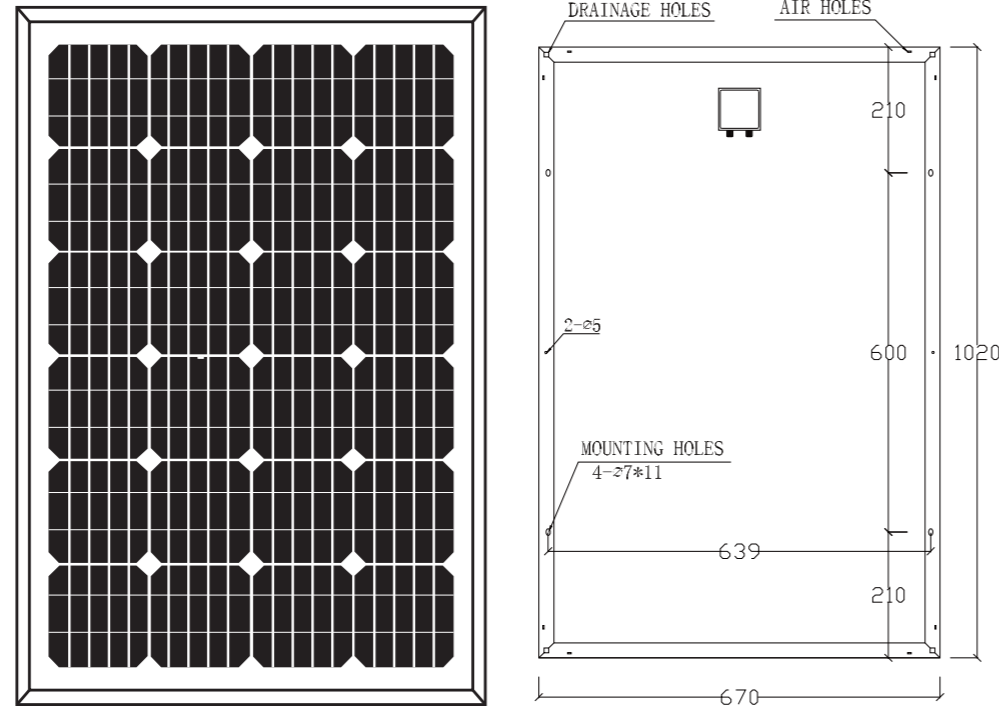
## 15 Years Material & Workmanship Guarantee

- 95% power output guarantee for 5 years.
- 90% power output guarantee for 10 years.
- 80% power output guarantee for 25 years



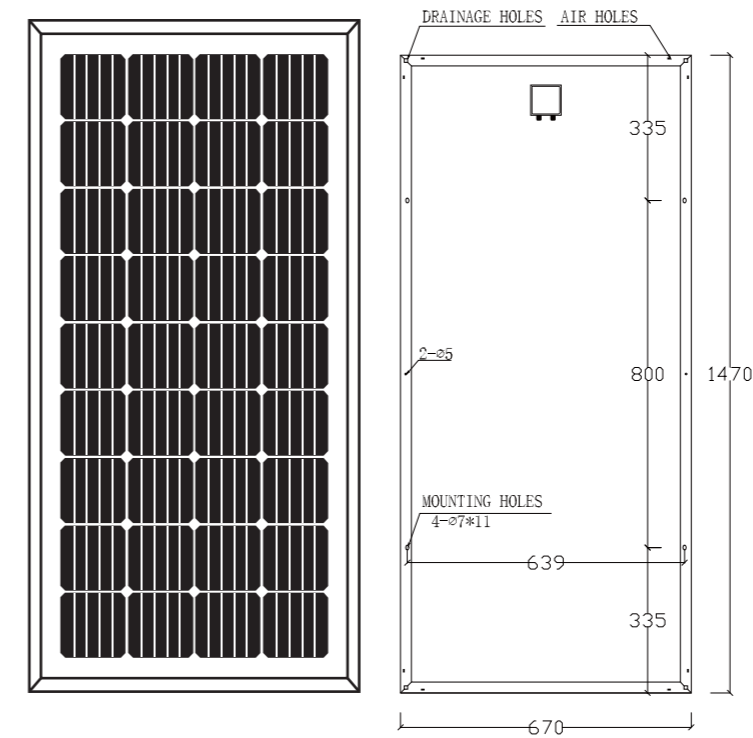
# MSM<sub>xxx</sub>S-156<sup>5BB</sup>

100W-105W  
Monocrystalline PV Module



# MSM<sub>xxx</sub>S-156<sup>5BB</sup>

150W-170W  
Monocrystalline PV Module



## PERFORMANCE PARAMETERS

|   |          |
|---|----------|
| Maximum System Voltage                            | 700V     |
| Operating Temperature                             | -45-+8°C |
| Maximum Series Fuse                               | 10A      |
| Maximum Static Load, Front Side (e.x. Snow, Wind) | 5400PA   |
| Maximum Static Load, Back Side (e.x. Wind)        | 2400PA   |
| Application Grade                                 | Class A  |

## RAW MATERIALS AND MECHANICAL PARAMETERS

|                              |                         |                       |   |
|------------------------------|-------------------------|-----------------------|---|
| Type of Cells(mm)            | Mono (156x 104/156x 52) | Backsheet             | Multilayer Composite                          |
| NO. of Cells and Connections | 9X4=36                  | Aluminium-Frame       | Silvery/Black Anodized aluminium alloy        |
| Dimensions(mm)(L*W*H)        | 1020x 670x30            | Junction-Box          | IP65/IP67                                     |
| Weight(kg)                   | 7.7                     | Cable                 | NA, but customized is acceptable              |
| Glass                        | 3.2mm Tempered Glass    | Connector             | NA, but MC4 and MC4 Compatible are acceptable |
| Encapsulation                | EVA                     | Package Configuration | 4pcs/ctn                                      |

## ELECTRICAL PARAMETERS (STANDARD TEST CONDITION)

|                            | MSM100S-156, MSM105S-156 |       |                                |             |
|----------------------------|--------------------------|-------|--------------------------------|-------------|
| Rated Maximum Power(Mp)    | 100W,                    | 105W  | Short Circuit Current(Isc)     | 6.08A 6.29A |
| Power Tolerance            | 0- +5W                   |       | Maximum Power Current(Imp)     | 5.75A 5.97A |
| Cell Efficiency            | 17.6%                    | 18.5% | Temperature Coefficient of Isc | +0.06%      |
| Open Circuit Voltage(Voc)  | 22.4V                    | 22.6V | Temperature Coefficient of Voc | -0.32%      |
| Maximum Power Voltage(Vmp) | 17.4V                    | 17.6V | Temperature Coefficient of Pmp | -0.45%      |

## PERFORMANCE PARAMETERS

|   |           |
|---|-----------|
| Maximum System Voltage                            | 700V      |
| Operating Temperature                             | -45-+80°C |
| Maximum Series Fuse                               | 10A       |
| Maximum Static Load, Front Side (e.x. Snow, Wind) | 5400PA    |
| Maximum Static Load, Back Side (e.x. Wind)        | 2400PA    |
| Application Grade                                 | Class A   |

## RAW MATERIALS AND MECHANICAL PARAMETERS

|                              |                      |                       |   |
|------------------------------|----------------------|-----------------------|---|
| Type of Cells(mm)            | Mono (156 x 104)     | Backsheet             | Multilayer Composite                          |
| NO. of Cells and Connections | 4 x 9=36             | Aluminium-Frame       | Silvery/Black Anodized aluminium alloy        |
| Dimensions(mm)(L*W*H)        | 1470 x 670 x 30      | Junction-Box          | IP65/IP67                                     |
| Weight(kg)                   | 11.0                 | Cable                 | NA, but customized is acceptable              |
| Glass                        | 3.2mm Tempered Glass | Connector             | NA, but MC4 and MC4 Compatible are acceptable |
| Encapsulation                | EVA                  | Package Configuration | 4pcs/ctn                                      |

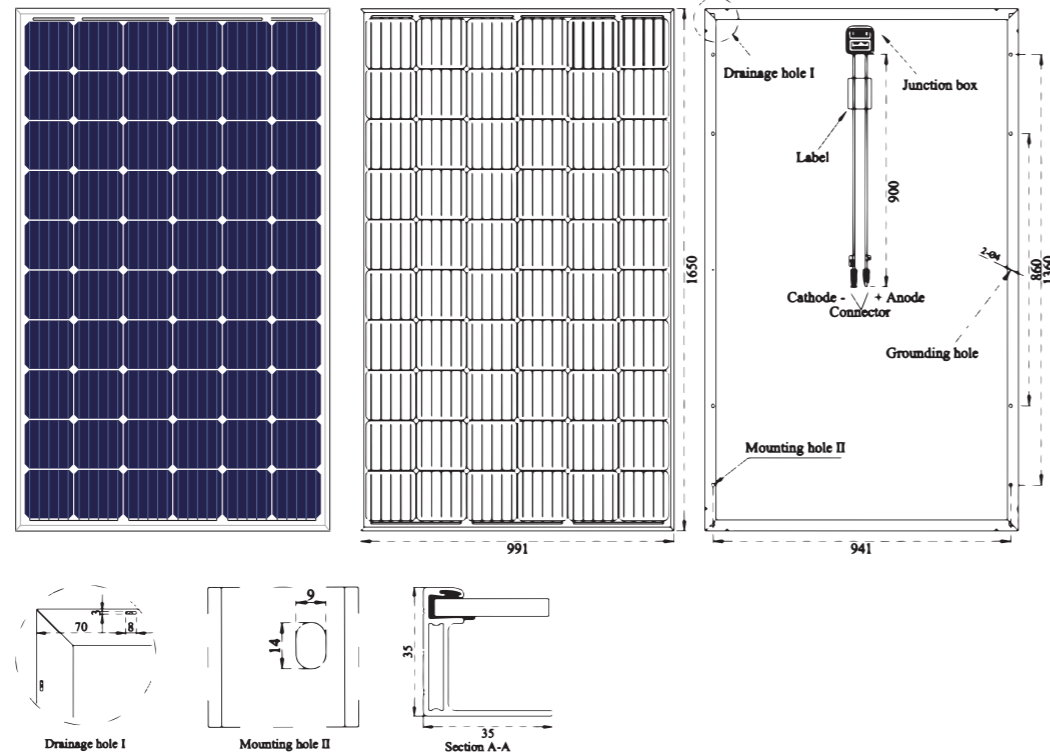
## ELECTRICAL PARAMETERS (STANDARD TEST CONDITION)

|                                | MSM150S | MSM155S | MSM160S | MSM165S | MSM170S |
|--------------------------------|---------|---------|---------|---------|---------|
| Rated Maximum Power(Mp)        | 150W    | 155W    | 160W    | 165W    | 170W    |
| Power Tolerance                | 0- +5W  |         |         |         |         |
| Cell Efficiency                | 17.7%   | 18.2%   | 18.8%   | 18.9%   | 19.5%   |
| Open Circuit Voltage(Voc)      | 22.4V   | 22.5V   | 22.6V   | 22.7V   | 22.8V   |
| Maximum Power Voltage(Vmp)     | 17.5V   | 17.6V   | 17.7V   | 17.8V   | 17.9V   |
| Short Circuit Current(Isc)     | 9.05A   | 9.28A   | 9.52A   | 9.71A   | 9.93A   |
| Maximum Power Current(Imp)     | 8.63A   | 8.81A   | 9.04A   | 9.27A   | 9.50A   |
| Temperature Coefficient of Isc | +0.06%  |         |         |         |         |
| Temperature Coefficient of Voc | -0.32%  |         |         |         |         |
| Temperature Coefficient of Pmp | -0.45%  |         |         |         |         |

# MSM<sub>xxx</sub>S-156 <sup>5BB</sup>

270W-285W

Monocrystalline PV Module



## MECHANICAL SPECIFICATION

|                   |   |
|-------------------|---|
| Cells Type (mm)   | Mono156.75×156.75                               |
| Weight            | 18.6kg  |
| Dimension (L×W×H) | 1650×991×35mm                                   |
| Output Cables     | TUV, Length900mm, 4.0mm <sup>2</sup>            |
| No.of Cells       | 60 (6×10)                                       |
| Front Glass       | 3.2mm High Transmission,Low Iron Tempered Glass |
| Frame             | Anodised Aluminium                              |
| Junction box      | IP67 3 Bypass Diodes                            |
| Connector         | MC4 or MC4 Compactible                          |

## PACKING CONFIGURATION

|                   |      |      |      |
|-------------------|------|------|------|
| Container         | 20GP | 40GP | 40HC |
| PCS per pallet    | 30   | 30   | 30   |
| PLT per container | 14   | 28   | 28   |
| PCS per container | 400  | 840  | 924  |

## OPERATING PARAMETERS

|   |          |
|---|----------|
| Maximum system voltage                    | DC1000V  |
| Operating Temperature(°C)                 | -40 ~+85 |
| Maximum series fuse rating                | 15A      |
| Snow load,frontside                       | 5400Pa   |
| Wind load, backside                       | 2400Pa   |
| Nominal operating cell temperature (NOCT) | 45°C±2°C |
| Application level                         | Class A  |

## ELECTRICAL CHARACTERISTICS (STANDARD TEST CONDITIONS)

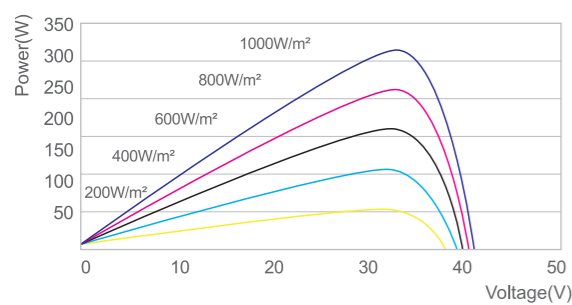
| Module Type                          | MSM270S-156  | MSM275S-156 | MSM280S-156 | MSM285S-156 |
|--------------------------------------|--|-------------|-------------|-------------|
| Maximum Power(Pmax)                  | 270W   | 275W        | 280W        | 285W        |
| Open-circuit Voltage (Voc)           | 38.5V  | 38.8V       | 29.0V       | 39.3V       |
| Maximum Power Voltage (Vmp)          | 31.5V  | 31.6V       | 31.7V       | 31.8V       |
| Short-circuit Current (Isc)          | 9.17A  | 9.25A       | 9.35A       | 9.45A       |
| Maximum Power Current (Imp)          | 8.57A  | 8.70A       | 8.83A       | 8.97A       |
| Module Efficiency (%)                | 18.13%   | 18.51%      | 18.82%      | 19.10%      |
| Power Tolerance                      | 0~+5W  |             |             |             |
| Temperature Coefficient of Isc       | 0.05%/°C   |             |             |             |
| Temperature Coefficient of Voc       | -0.32%/°C  |             |             |             |
| Temperature Coefficient of Pmax      | -0.41%/°C  |             |             |             |
| Standard Test Environment Irradiance | 1000w/m <sup>2</sup> , Cell temperature 25°C, Spectrum AM1.5 |             |             |             |

## ELECTRICAL CHARACTERISTICS (NOCT)

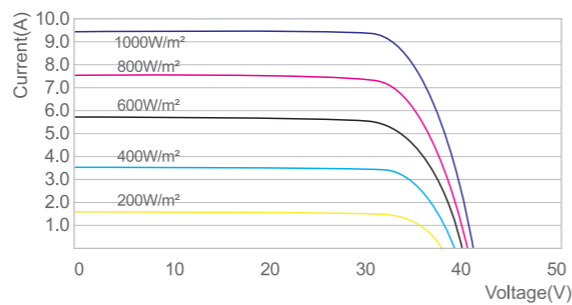
| Module Type                 | MSM270S-156   | MSM275S-156 | MSM280S-156 | MSM285S-156 |
|-----------------------------|---|-------------|-------------|-------------|
| Maximum Power(Pmax)         | 202W  | 205W        | 209W        | 212W        |
| Open-circuit Voltage (Voc)  | 35.8V   | 36.1V       | 36.3V       | 36.6V       |
| Maximum Power Voltage (Vmp) | 28.9V   | 29.2V       | 29.4V       | 29.6V       |
| Short-circuit Current (Isc) | 7.41A   | 7.48A       | 7.55A       | 7.63A       |
| Maximum Power Current (Imp) | 6.98A   | 7.03A       | 7.10A       | 7.17A       |
| Standard Test Environment   | Irradiance 800w/m <sup>2</sup> , Cell temperature 20°C, Spectrum AM1.5, Wind speed 1m/s |             |             |             |

## FUNCTION PARAMETER

PV Curve (285W)

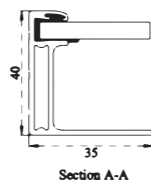
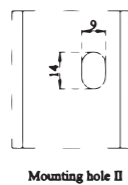
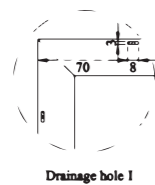
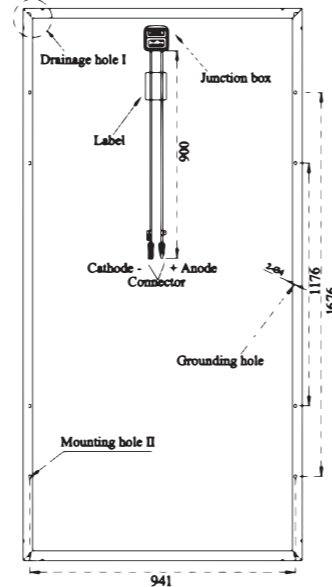
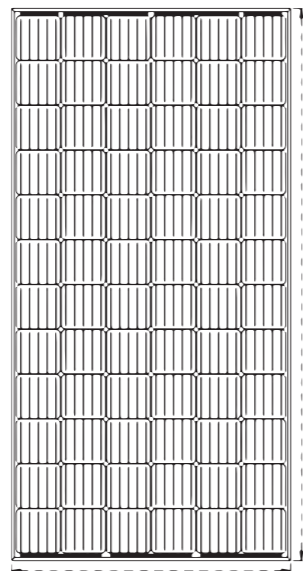
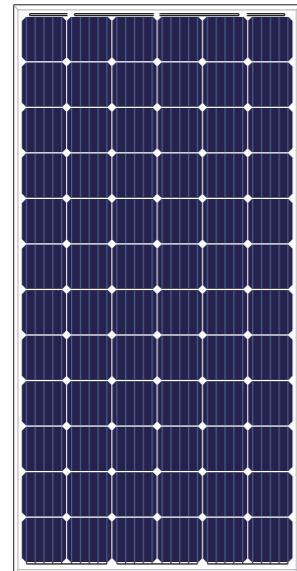


IV Curve (285W)



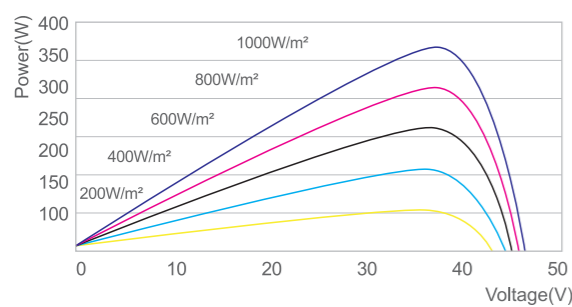
# MSM<sub>xxx</sub>S-156 <sup>5BB</sup>

320W-340W  
Monocrystalline PV Module

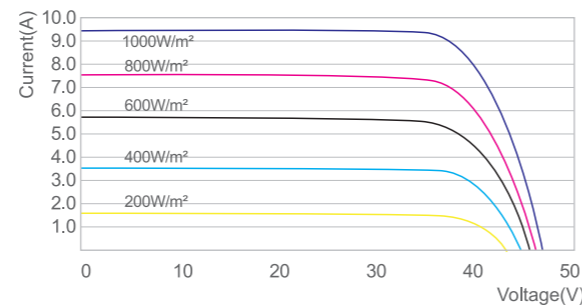


## FUNCTION PARAMETER

PV Curve (340W)



IV Curve (340W)



## MECHANICAL SPECIFICATION

|                   |  |
|-------------------|--|
| Cells Type (mm)   | Mono 156.75×156.75                               |
| Weight            | 22.5kg   |
| Dimension (L×W×H) | 1956×991×40mm                                    |
| Output Cables     | TUV, Length900mm, 4.0mm <sup>2</sup>             |
| No.of Cells       | 72 (6×12)  |
| Front Glass       | 3.2mm High Transmission, Low Iron Tempered Glass |
| Frame             | Anodised Aluminium                               |
| Junction box      | IP67, 3 Bypass Diodes                            |
| Connector         | MC4 or MC4 Compatible                            |

## PACKING CONFIGURATION

|                   |      |      |      |
|-------------------|------|------|------|
| Container         | 20GP | 40GP | 40HC |
| PCS per pallet    | 27   | 27   | 27   |
| PLT per container | 10   | 24   | 24   |
| PCS per container | 270  | 648  | 696  |

## OPERATING PARAMETERS

|   |          |
|---|----------|
| Maximum system voltage                    | DC1000V  |
| Operating Temperature (°C)                | -40 ~+85 |
| Maximum series fuse rating                | 15A      |
| Snow load, frontside                      | 5400Pa   |
| Wind load, backside                       | 2400Pa   |
| Nominal operating cell temperature (NOCT) | 45°C±2°C |
| Application level                         | Class A  |

## ELECTRICAL CHARACTERISTICS (STANDARD TEST CONDITIONS)

| Module Type                     | MSM320S   | MSM325S | MSM330S | MSM335S | MSM340S |
|---------------------------------|---|---------|---------|---------|---------|
| Maximum Power(Pmax)             | 320W  | 325W    | 330W    | 335W    | 340W    |
| Open-circuit Voltage (Voc)      | 45.6V   | 45.9V   | 46.1V   | 46.3V   | 46.5V   |
| Maximum Power Voltage (Vmp)     | 37.0V   | 37.3V   | 37.6V   | 37.9V   | 38.2V   |
| Short-circuit Current (Isc)     | 9.08A   | 9.17A   | 9.26A   | 9.36A   | 9.45A   |
| Maximum Power Current (Imp)     | 8.65A   | 8.72A   | 8.78A   | 8.84A   | 8.90A   |
| Module Efficiency (%)           | 17.51%  | 17.77%  | 18.02%  | 18.28%  | 18.54%  |
| Power Tolerance                 | 0~+5W   |         |         |         |         |
| Temperature Coefficient of Isc  | 0.05%/°C  |         |         |         |         |
| Temperature Coefficient of Voc  | -0.29%/°C   |         |         |         |         |
| Temperature Coefficient of Pmax | -0.39%/°C   |         |         |         |         |
| Standard Test Environment       | Irradiance 1000w/m <sup>2</sup> , Cell temperature 25°C, Spectrum AM1.5 |         |         |         |         |

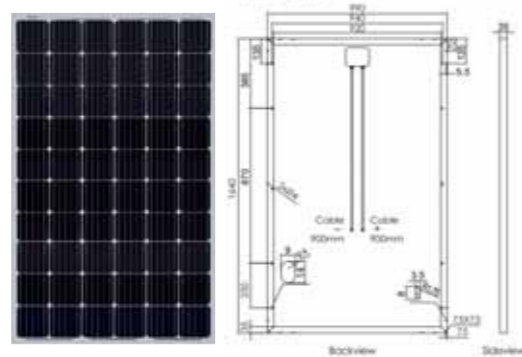
## ELECTRICAL CHARACTERISTICS (NOCT)

| Module Type                 | MSM320S   | MSM325S | MSM330S | MSM335S | MSM340S |
|-----------------------------|---|---------|---------|---------|---------|
| Maximum Power(Pmax)         | 240W  | 243W    | 246W    | 250W    | 253W    |
| Open-circuit Voltage (Voc)  | 42.6V   | 42.8V   | 42.9V   | 43.1V   | 43.2V   |
| Maximum Power Voltage (Vmp) | 34.7V   | 34.8V   | 34.9V   | 35.1V   | 35.2V   |
| Short-circuit Current (Isc) | 7.37A   | 7.43A   | 7.49A   | 7.56A   | 7.63A   |
| Maximum Power Current (Imp) | 6.92A   | 6.98A   | 7.05A   | 7.12A   | 7.19A   |
| Standard Test Environment   | Irradiance 800w/m <sup>2</sup> , Cell temperature 20°C, Spectrum AM1.5, Wind speed 1m/s |         |         |         |         |

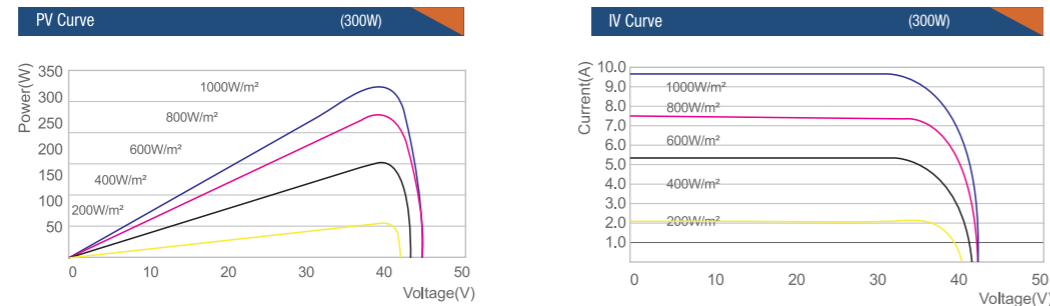


# MSMxxxS-156 <sup>5BB</sup>

290W-300W  
Monocrystalline PV Module



## FUNCTION PARAMETER



## ELECTRICAL CHARACTERISTICS (STANDARD TEST CONDITIONS)

|                       | MSM290S | MSM295S | MSM300S |
|-----------------------|---------|---------|---------|
| Power                 | 290W    | 295W    | 300W    |
| Open Circuit Voltage  | 38.2V   | 38.3V   | 38.4V   |
| Short Circuit Current | 9.76A   | 9.90A   | 10.01A  |
| Maximum Power Voltage | 31.2V   | 31.3V   | 31.4V   |
| Maximum Power Current | 9.30A   | 9.44A   | 9.56A   |
| Module Efficiency     | 17.9%   | 18.2%   | 18.5%   |

## PACKING CONFIGURATION

| Modules/Pallet      | 30 pieces                     | Modules/40' container | 840 pieces |
|---------------------|-------------------------------|-----------------------|------------|
| Packing Description | 28 Pallets, Total=30 X 28=840 |                       |            |

## PRODUCT CHARACTERISTICS

|                        |                                 |
|------------------------|---------------------------------|
| Weight                 | 18kg                            |
| Junction Box           | IP67                            |
| Module Size            | 1640*990*35mm                   |
| Frame                  | Aluminum Alloy                  |
| Cell Amount            | 60 pcs                          |
| Cable                  | 4mm <sup>2</sup> , Length 900mm |
| Cell Size              | 156*156mm                       |
| Connection             | (Compatible with) MC4           |
| Maximum System Voltage | 1000V                           |
| Application Level      | Class A                         |

## TEMPERATURE CHARACTERISTICS

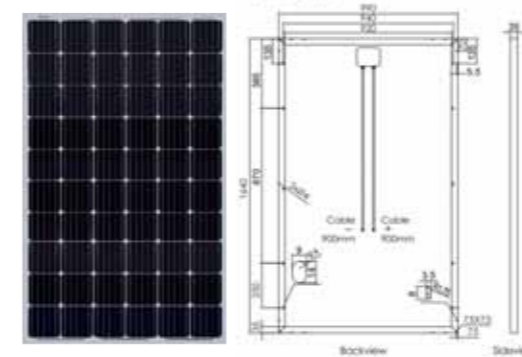
|                          |             |
|--------------------------|-------------|
| NOCT                     | 45±2°C      |
| Temp Coefficient of ISC  | +0.0392%/°C |
| Temp Coefficient of VOC  | -0.3121%/°C |
| Temp Coefficient of Pmax | -0.4218%/°C |

## MAXIMUM RATING

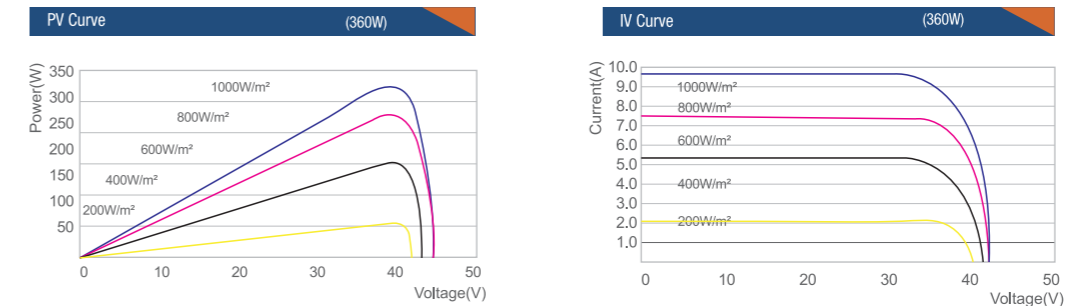
|                      |                   |
|----------------------|-------------------|
| Output Tolerance     | 0~+3%WTemp        |
| Operating Temperatur | -40°C~+85°C       |
| Wind Load/Snow Load  | 2400pa/5400paTemp |
| Fuse Current         | 15A               |

# MSMxxxS-156 <sup>5BB</sup>

350W-360W  
Monocrystalline PV Module



## FUNCTION PARAMETER



## ELECTRICAL CHARACTERISTICS (STANDARD TEST CONDITIONS)

|                       | MSM350S | MSM355S | MSM360S |
|-----------------------|---------|---------|---------|
| Power                 | 350W    | 355W    | 360W    |
| Open Circuit Voltage  | 45.8V   | 45.8V   | 45.9V   |
| Short Circuit Current | 9.84A   | 9.95A   | 10.06A  |
| Maximum Power Voltage | 37.5V   | 37.6V   | 37.7V   |
| Maximum Power Current | 9.34A   | 9.45A   | 9.56A   |
| Module Efficiency     | 18.0%   | 18.3%   | 18.6%   |

## PACKING CONFIGURATION

| Modules/Pallet      | 26 pieces                     | Modules/40' container | 624 pieces |
|---------------------|-------------------------------|-----------------------|------------|
| Packing Description | 24 Pallets, Total=26 X 24=624 |                       |            |

## PRODUCT CHARACTERISTICS

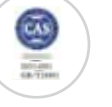
|                        |                                  |
|------------------------|----------------------------------|
| Weight                 | 21.5kg                           |
| Junction Box           | IP67                             |
| Module Size            | 1960*990*40mm                    |
| Frame                  | Aluminum Alloy                   |
| Cell Amount            | 72 pcs                           |
| Cable                  | 4mm <sup>2</sup> , Length 1100mm |
| Cell Size              | 156*156mm                        |
| Connection             | (Compatible with)MC4             |
| Maximum System Voltage | 1000V                            |
| Application Level      | Class A                          |

## TEMPERATURE CHARACTERISTICS

|                          |             |
|--------------------------|-------------|
| NOCT                     | 45±2°C      |
| Temp Coefficient of ISC  | +0.0392%/°C |
| Temp Coefficient of VOC  | -0.3121%/°C |
| Temp Coefficient of Pmax | -0.4218%/°C |

## MAXIMUM RATING

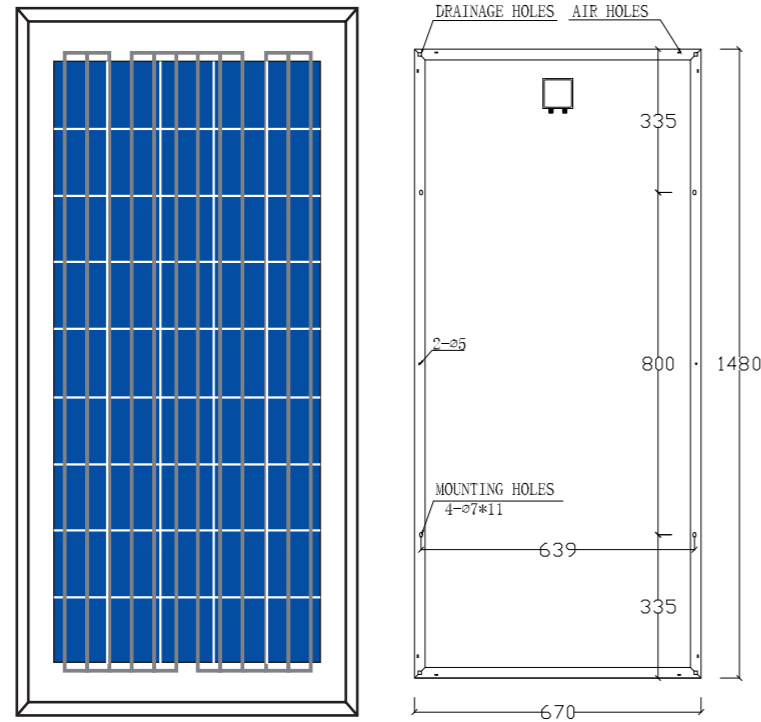
|                      |                   |
|----------------------|-------------------|
| Output Tolerance     | 0~+3%WTemp        |
| Operating Temperatur | -40°C~+85°C       |
| Wind Load/Snow Load  | 2400pa/5400paTemp |
| Fuse Current         | 15A               |





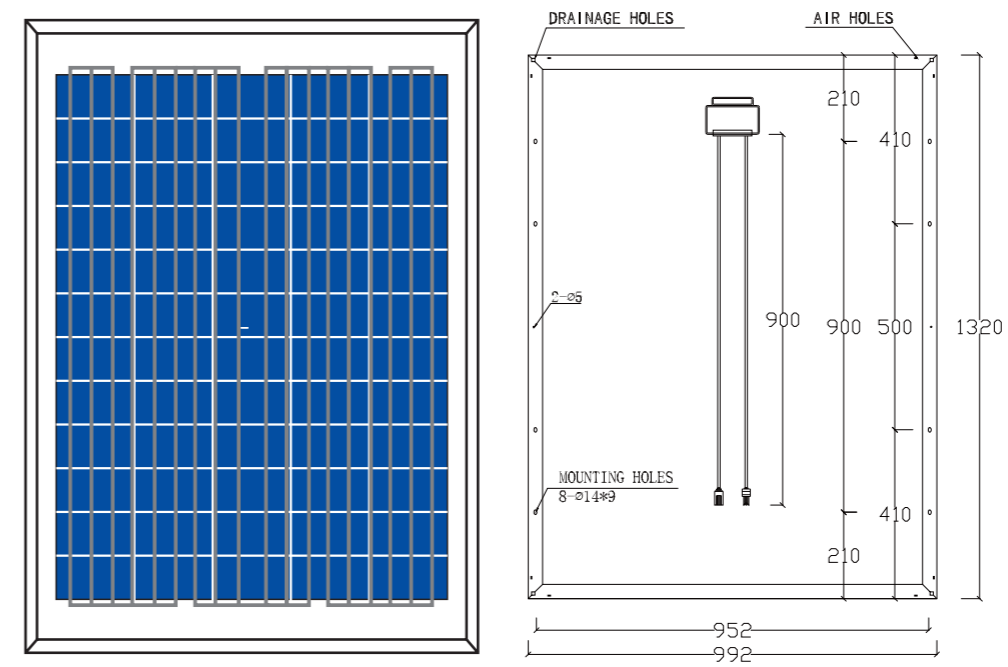
# MSM<sub>xxx</sub>-156<sup>5BB</sup>

140W-160W  
Polycrystalline PV Module



# MSM<sub>xxx</sub>-156<sup>5BB</sup>

190W-200W  
Polycrystalline PV Module



## RAW MATERIALS AND MECHANICAL PARAMETERS

|                              |                      |                       |   |
|------------------------------|----------------------|-----------------------|---|
| Type of Cells(mm)            | Poly156 x 156        | Backsheet             | Muflilayer Composite                          |
| NO. of Cells and Connections | 4 x 9=36             | Aluminium-Frame       | Silvery/Black Anodized aluminium alloy        |
| Dimensions(mm)(L*W*H)        | 1480 x 670 x 35      | Junction-Box          | IP65/IP67                                     |
| Weight(kg)                   | 11.0                 | Cable                 | NA, but customized is acceptable              |
| Glass                        | 3.2mm Tempered Glass | Connector             | NA, but MC4 and MC4 Compatible are acceptable |
| Encapsulation                | EVA                  | Package Configuration | 4pcs/ctn                                      |

## ELECTRICAL PARAMETERS (STANDARD TEST CONDITION)

|                            | MSM140 | MSM150 | MSM160 |
|----------------------------|--------|--------|--------|
| Rated Maximum Power(Mp)    | 140W   | 150W   | 160W   |
| Power Tolerance            | 0- +5W |        |        |
| Cell Efficiency            | 16.00% | 17.7%  | 18.8%  |
| Open Circuit Voltage(Voc)  | 22.4V  | 22.4V  | 22.6V  |
| Maximum Power Voltage(Vmp) | 17.4V  | 17.5V  | 17.7V  |

|                                | MSM140 | MSM150 | MSM160 |
|--------------------------------|--------|--------|--------|
| Short Circuit Current(Isc)     | 8.59A  | 9.05A  | 9.52A  |
| Maximum Power Current(Imp)     | 8.05A  | 8.63A  | 9.04A  |
| Temperature Coefficient of Isc | +0.06% |        |        |
| Temperature Coefficient of Voc | -0.33% |        |        |
| Temperature Coefficient of Pmp | -0.45% |        |        |

## PERFORMANCE PARAMETERS

|   |           |
|---|-----------|
| Maximum System Voltage                            | 700V      |
| Operating Temperature                             | -45-+80°C |
| Maximum Series Fuse                               | 10A       |
| Maximum Static Load, Front Side (e.x. Snow, Wind) | 5400PA    |
| Maximum Static Load, Back Side (e.x. Wind)        | 2400PA    |
| Application Grade                                 | Class A   |

## RAW MATERIALS AND MECHANICAL PARAMETERS

|                              |                      |                       |  |
|------------------------------|----------------------|-----------------------|--|
| Type of Cells(mm)            | Poly156 x 104        | Backsheet             | Muflilayer Composite                   |
| NO. of Cells and Connections | 6 x 12=72            | Aluminium-Frame       | Silvery/Black Anodized aluminium alloy |
| Dimensions(mm)(L*W*H)        | 1320 x 992 x 40      | Junction-Box          | IP65/IP67                              |
| Weight(kg)                   | 15.3                 | Cable                 | 4mm2, 900mm                            |
| Glass                        | 3.2mm Tempered Glass | Connector             | MC4 and MC4 Compatible                 |
| Encapsulation                | EVA                  | Package Configuration | 25pcs/pallet                           |

## ELECTRICAL PARAMETERS (STANDARD TEST CONDITION)

|                            | MSM190 | MSM200 |
|----------------------------|--------|--------|
| Rated Maximum Power(Mp)    | 190W   | 200W   |
| Power Tolerance            | 0- +5W |        |
| Cell Efficiency            | 16.30% | 17.20% |
| Open Circuit Voltage(Voc)  | 44.6V  | 45.6V  |
| Maximum Power Voltage(Vmp) | 34.8V  | 35.2V  |

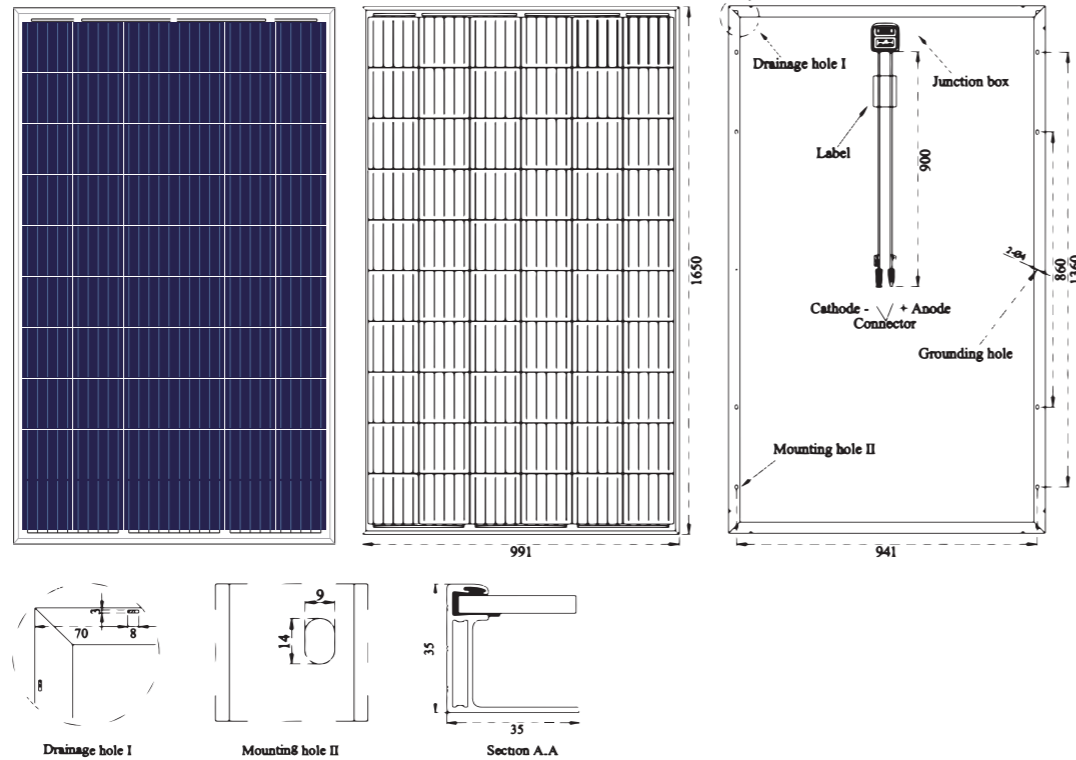
|                                | MSM190 | MSM200 |
|--------------------------------|--------|--------|
| Short Circuit Current(Isc)     | 5.83A  | 6.02A  |
| Maximum Power Current(Imp)     | 5.46A  | 5.69A  |
| Temperature Coefficient of Isc | +0.06% |        |
| Temperature Coefficient of Voc | -0.33% |        |
| Temperature Coefficient of Pmp | -0.45% |        |

## PERFORMANCE PARAMETERS

|   |           |
|---|-----------|
| Maximum System Voltage                            | 1000V     |
| Operating Temperature                             | -45-+80°C |
| Maximum Series Fuse                               | 10A       |
| Maximum Static Load, Front Side (e.x. Snow, Wind) | 5400PA    |
| Maximum Static Load, Back Side (e.x. Wind)        | 2400PA    |
| Application Grade                                 | Class A   |

# MSM<sub>xxx</sub>-156 <sup>5BB</sup>

260W-275W  
Polycrystalline PV Module



## MECHANICAL SPECIFICATION

|                   |   |
|-------------------|---|
| Cells Type (mm)   | Poly156.75×156.75                               |
| Weight            | 18.8kg  |
| Dimension (L×W×H) | 1650×991×35mm                                   |
| Output Cables     | TUV, Length900mm, 4.0mm <sup>2</sup>            |
| No.of Cells       | 60 (6×10)                                       |
| Front Glass       | 3.2mm High Transmission,Low Iron Tempered Glass |
| Frame             | Anodised Aluminium                              |
| Junction box      | IP67, 3 Bypass Diodes                           |
| Connector         | MC4 or MC4 Compactible                          |

## PACKING CONFIGURATION

|                   |      |      |      |
|-------------------|------|------|------|
| Container         | 20GP | 40GP | 40HC |
| PCS per pallet    | 30   | 30   | 30   |
| PLT per container | 14   | 28   | 28   |
| PCS per container | 400  | 840  | 924  |

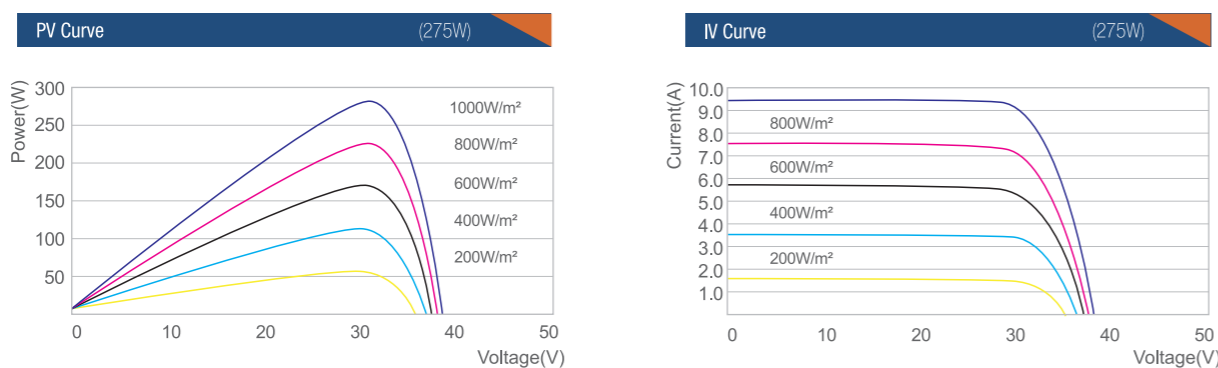
## OPERATING PARAMETERS

|   |               |
|---|---------------|
| Maximum system voltage                    | DC1000V       |
| Operating Temperature(°C)                 | -40 ~+85      |
| Maximum series fuse rating                | 15A           |
| Snow load,frontside                       | 5400Pa        |
| Wind load, backside                       | 2400Pa        |
| Nominal operating cell temperature (NOCT) | 45(°C) ±2(°C) |
| Application level                         | Class A       |

## ELECTRICAL CHARACTERISTICS (STANDARD TEST CONDITIONS)

| Module Type                     | MSM260  | MSM265 | MSM270 | MSM275 |
|---------------------------------|---|--------|--------|--------|
| Maximum Power(Pmax)             | 260W  | 265W   | 270W   | 275W   |
| Open-circuit Voltage (Voc)      | 38.1V   | 38.3V  | 37.9V  | 38.5V  |
| Maximum Power Voltage (Vmp)     | 30.6V   | 30.8V  | 30.9V  | 31.1V  |
| Short-circuit Current (Isc)     | 9.01A   | 9.10A  | 9.22A  | 9.25A  |
| Maximum Power Current (Imp)     | 8.50A   | 8.61A  | 8.73A  | 8.84A  |
| Module Efficiency (%)           | 16.90%  | 17.21% | 17.51% | 17.82% |
| Power Tolerance                 | 0~+5W   |        |        |        |
| Temperature Coefficient of Isc  | 0.05%/°C  |        |        |        |
| Temperature Coefficient of Voc  | -0.32%/°C   |        |        |        |
| Temperature Coefficient of Pmax | -0.41%/°C   |        |        |        |
| Standard Test Environment       | Irradiance 1000w/m <sup>2</sup> , Cell temperature 25°C, Spectrum AM1.5 |        |        |        |

## FUNCTION PARAMETER

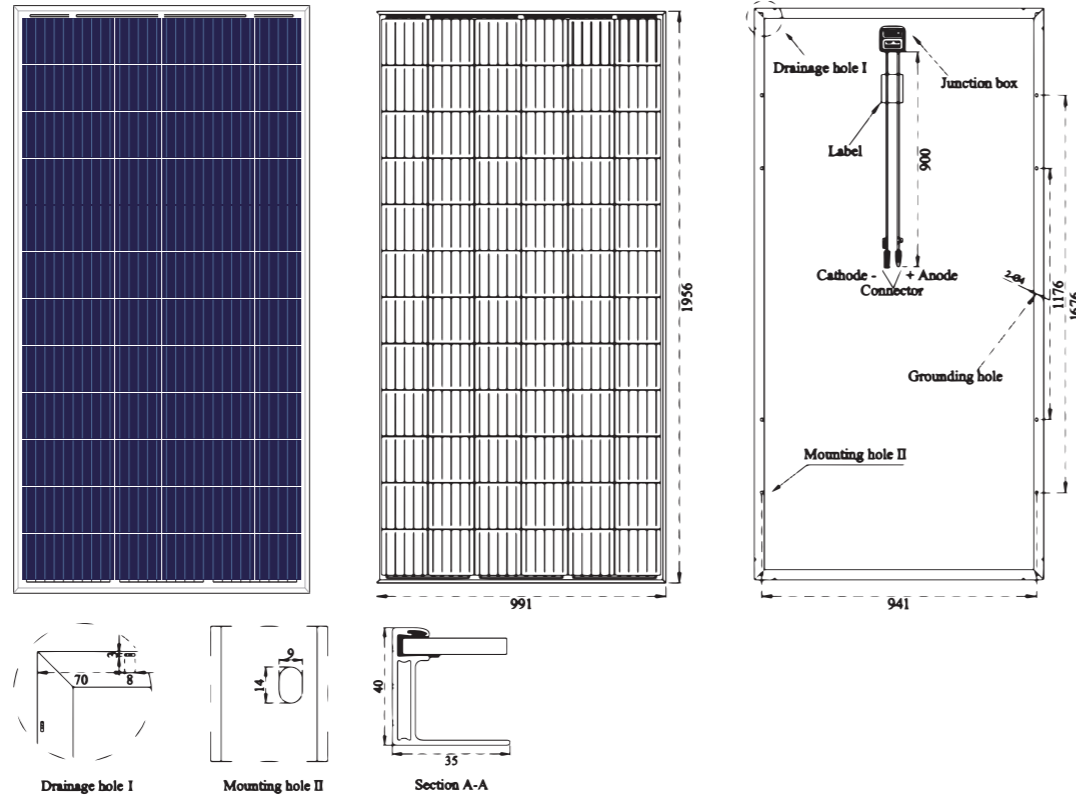


## ELECTRICAL CHARACTERISTICS (NOCT)

| Module Type                 | MSM260  | MSM265 | MSM270 | MSM275 |
|-----------------------------|---|--------|--------|--------|
| Maximum Power(Pmax)         | 194W  | 197W   | 200W   | 204W   |
| Open-circuit Voltage (Voc)  | 35.4V   | 35.5V  | 35.6V  | 35.7V  |
| Maximum Power Voltage (Vmp) | 28.5V   | 28.6V  | 28.7V  | 28.9V  |
| Short-circuit Current (Isc) | 7.29A   | 7.35A  | 7.41A  | 7.47A  |
| Maximum Power Current (Imp) | 6.81A   | 6.89A  | 6.97A  | 7.06A  |
| Standard Test Environment   | Irradiance 800w/m <sup>2</sup> , Cell temperature 20°C, Spectrum AM1.5, Wind speed 1m/s |        |        |        |

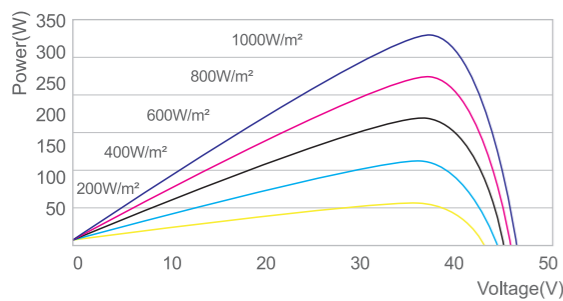
# MSM<sub>xxx</sub>-156 <sup>5BB</sup>

310W-330W  
Polycrystalline PV Module

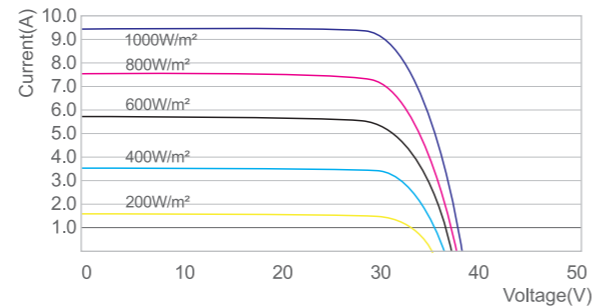


## FUNCTION PARAMETER

PV Curve (330W)



IV Curve (330W)



## MECHANICAL SPECIFICATION

|                   |   |
|-------------------|---|
| Cells Type (mm)   | Poly156.75×156.75                               |
| Weight            | 22.5kg  |
| Dimension (L×W×H) | 1956×991×40mm                                   |
| Output Cables     | TUV, Length900mm, 4.0mm <sup>2</sup>            |
| No.of Cells       | 72 (6×12)                                       |
| Front Glass       | 3.2mm High Transmission,Low Iron Tempered Glass |
| Frame             | Anodised Aluminium                              |
| Junction box      | IP67, 3 Bypass Diodes                           |
| Connector         | MC4 or MC4 Compactible                          |

## PACKING CONFIGURATION

|                   |      |      |      |
|-------------------|------|------|------|
| Container         | 20GP | 40GP | 40HC |
| PCS per pallet    | 27   | 27   | 27   |
| PLT per container | 10   | 24   | 24   |
| PCS per container | 270  | 648  | 696  |

## OPERATING PARAMETERS

|   |          |
|---|----------|
| Maximum system voltage                    | DC1000V  |
| Operating Temperature (°C)                | -40 ~+85 |
| Maximum series fuse rating                | 15A      |
| Snow load,frontside                       | 5400Pa   |
| Wind load, backside                       | 2400Pa   |
| Nominal operating cell temperature (NOCT) | 45°C±2°C |
| Application level                         | Class A  |

## ELECTRICAL CHARACTERISTICS (STANDARD TEST CONDITIONS)

| Module Type                     | MSM310  | MSM315 | MSM320 | MSM325 | MSM330 |
|---------------------------------|---|--------|--------|--------|--------|
| Maximum Power(Pmax)             | 310W  | 315W   | 320W   | 325W   | 330W   |
| Open-circuit Voltage (Voc)      | 44.6V   | 45.6V  | 45.8V  | 45.9V  | 46.1V  |
| Maximum Power Voltage (Vmp)     | 36.2V   | 36.9V  | 37.1V  | 37.2V  | 37.3V  |
| Short-circuit Current (Isc)     | 8.87A   | 9.00A  | 9.10A  | 9.25A  | 9.38A  |
| Maximum Power Current (Imp)     | 8.34A   | 8.54A  | 8.63A  | 8.76A  | 8.85A  |
| Module Efficiency (%)           | 17.15%  | 17.25% | 17.51% | 17.77% | 18.02% |
| Power Tolerance                 | 0~+5W   |        |        |        |        |
| Temperature Coefficient of Isc  | 0.05%/°C  |        |        |        |        |
| Temperature Coefficient of Voc  | -0.32%/°C   |        |        |        |        |
| Temperature Coefficient of Pmax | -0.41%/°C   |        |        |        |        |
| Standard Test Environment       | Irradiance 1000w/m <sup>2</sup> , Cell temperature 25°C, Spectrum AM1.5 |        |        |        |        |

## ELECTRICAL CHARACTERISTICS (NOCT)

| Module Type                 | MSM310  | MSM315 | MSM320 | MSM325 | MSM330 |
|-----------------------------|---|--------|--------|--------|--------|
| Maximum Power(Pmax)         | 232W  | 234W   | 238W   | 242W   | 246W   |
| Open-circuit Voltage (Voc)  | 42.1V   | 42.4V  | 42.5V  | 42.6V  | 42.7V  |
| Maximum Power Voltage (Vmp) | 33.7V   | 34.3V  | 34.4V  | 34.5V  | 34.6V  |
| Short-circuit Current (Isc) | 7.15V   | 7.25A  | 7.35A  | 7.47A  | 7.57A  |
| Maximum Power Current (Imp) | 6.74V   | 6.82A  | 6.92A  | 7.02A  | 7.11A  |
| Standard Test Environment   | Irradiance 800w/m <sup>2</sup> , Cell temperature 20°C, Spectrum AM1.5, Wind speed 1m/s |        |        |        |        |

# APPLICATIONS

If you are considering Magnizon solar PV technologies for your home, business, remote cabin, or farm, it is important to understand the key differences between grid-tied and on-grid systems. Installing solar panels isn't as simple as slapping cells on a rooftop. You'll need to install additional wiring, and panel placement is key to building an efficient system.

## ON-GRID/OFF-GRID UTILITY



## RESIDENTIAL ROOF TOP SYSTEMS



## TELECOM & BTS SOLUTIONS

Photovoltaic systems are more efficient not only from an economic and financial perspective, but also from a convenient one. As the diesel generators need close monitoring and continuous refuelling which has also burdened mobile operators with additional costs of reaching out to these remote sites, it's feasible to replace them with photovoltaic systems with low operating cost and easy monitoring.



## WATER PUMPING STATIONS

Agriculture solar water systems are now more affordable and efficient than ever before! With Magnizon Solar Powered Water Pumping Station you would save or eliminate fuel and maintenance costs with no inverters or batteries required and increased pump reliability with no grid interconnection required. It runs your existing 3 phase 240 volt or 480 pump up to 300 horsepower with submersible or surface pumping. Variable frequency drive soft starts the motor and automatically adjusts to available light conditions.



## SOLAR LIGHTING SYSTEMS

Wide ranges of Magnizon solar panels starting from 5Wp to 330Wp are suitable for various solar lighting systems. These solar lighting systems are used for various applications such as stadium lighting, street lighting, path way lighting, garden lighting and warning lighting for extra tall buildings.



## COMMERCIAL APPLICATIONS

MAGNIZON solar panels are suitable till 500MW with various industrial needs or solar power generation stations. Unique technical feature and high reliable products with highest operating efficiency ensures the ROI less than 4 years and operational life span of 25 years.



## SECURITY, SURVEILLANCE AND MOBILE POWER SYSTEMS

The "WATTS ON WHEELS" concept is used in providing security in remote sites through solar powered mobile security and surveillance trailers. RV vehicles with panels mounted on top provide mobile services including mobile offices, schools, hospitals and health care services in areas without reliable power.



## SOLAR POWERED TRAFFIC SIGNALING SYSTEMS AND ATMS

As these LED based signal lights consume 90% less energy, it makes system practically viable to operate traffic signals maintenance free on Solar Power. Municipalities looking for a reliable & cost effective way to power traffic lights can turn to remote solar energy systems to keep roadway infrastructure up and running during all conditions. The solar powered ATMs have been established in places where power provision may not be available. It uses MPPT technology with a two-day lithium/ deep cycle gel battery backup.



## ADVERTISING BILLBOARD POWER SUPPLIES

Magnizon Solar panels can be mounted directly to any billboard structure or it can be pole-mounted a short distance away from the structure. By investing in a Solar Billboard Lighting System, you can generate your own free solar energy and cash in on a variety of benefits, including:

1. Long-term Protection from Rising Utility Rates
2. Higher Advertising Value
3. The Pride of Being Environmentally Responsible





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