

SOLAR LIGHTING INTERNATIONAL, INC.  
**PRODUCT CATALOG**



## TECHNICAL SPECS FOR X-35 SOLAR PATHWAY LIGHTING

### LUMINAIRE

MODEL	<b>SLI-PL5550</b>	<b>SLI-PL8400</b>		
IES LIGHT DISTRIBUTIONS	TYPE 2M	3M	5S	
COLOR TEMPERATURE OPTIONS	3,000K	4,000K	5,000 K	5,700K
COLOR RENDITIONING INDEX (CRI)	>70 CRI			
MOUNTING	POST TOP MOUNT	PENDANT MOUNT	SIDE ENTRY MOUNT	SUSPENDED MOUNT
LED CHIP TYPE	PHILLIPS ILLUMLED 5050 CHIPS			
CLASS RATINGS	CLASS 1 IP66, IK08			
SYSTEM VOLTAGE	INPUT 12/24 VDC - OUTPUT 12/24 VDC			
LUMINAIRE HOUSING	TOOL LESS ENTRY STANDARD DARK SKY COMPLIANT			

### MODULE

CELL TYPE				
POWER OUTPUT	200W	330W	360W	400W
DIMENSIONS	1580 MM X 808 MM	1960 MM X 990 MM	1987 MM X 999 MM	1500MM X 1616MM

### BATTERY ENCLOSURE

ALUMINUM NEMA 3R  
ANTI-THEFT SECURITY SCREWS  
PREWIRED AND TESTED  
POWDER COATED FOR HARSH MARINE ENVIRONMENT  
RAISED RIDGED RUBBER BATTERY MAT FOR THERMAL PROTECTION

### ELECTRONICS \ CONTROLLER

CONTROLLER	PRE-WIRED AND MOUNTED IN BATTERY ENCLOSURE DUAL CIRCUIT BREAKER PROTECTED, NO FUSE REPLACEMENT MAXIMUM POWER POINT TRACKING (MPPT) CHARGE CONTROLLER REVERSE POLARITY PROTECTED BLUETOOTH PROGRAMMING AND MONITORING SYSTEM AND PHONE APP CONTROL FOR ANDROID AND IPHONE EN/IEC 62109-1, UL 1741 CSA C22.2
CIRCUIT BREAKERS	DC RATED, UL LISTED, DIN RAIL MOUNTABLE

### SOLAR PANEL MOUNTING

TOP OF POLE ALUMINUM MOUNT	SIDE OF POLE ALUMINUM MOUNT
COMPLETELY ADJUSTIBLE, NON FIXED	ADJUSTABLE

### BATTERY | MADE IN USA

	MAINTENANCE FREE GEL BATTERY
OPERATING TEMP	-76F - 140F
RATING	3,000 CYCLES @ 25% DOD
BACKUP	3 DAY                      5 DAY

### POLE DATA

EPA	16	26	32
TENON	2" SCHED 40	3" SCHED 40	
SYSTEM COLORS	SILVER GREY	BLACK	
TYPE	DIRECT BURIAL PIER MOUNT		
COMPOSITION	COMPOSITE FIBERGLASS		
WIND LOAD RATING	100 MPH	120 MPH	130 MPH
	150 MPH	170 MPH	
POLE HEIGHT - ABOVE GRADE	CUSTOMER SPECIFIED		

# LUMINAIRE OPEN VIEW DESIGN

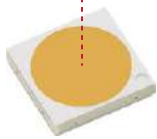
## LED POWER SUPPLY

High-end programmable Inventronics LED driver, integrated dimming options. Provides excellent performance and extended lifespan.



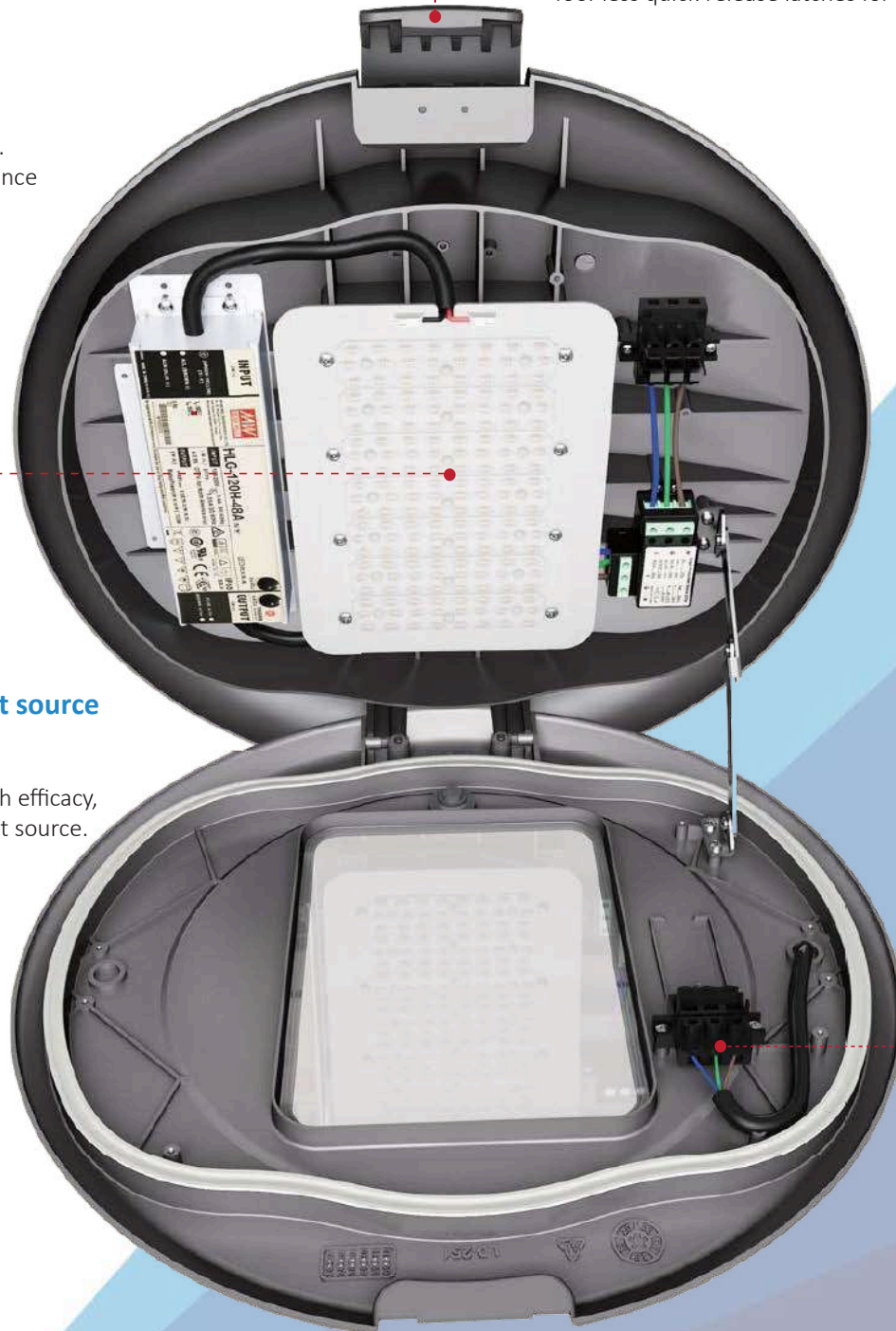
### Easy Maintenance

Tool-less quick-release latches for speedy access.



### High-efficacy LED light source

Philips Lumileds 5050  
Greater than 185lm/W high efficacy, illumina. on grade LED light source.



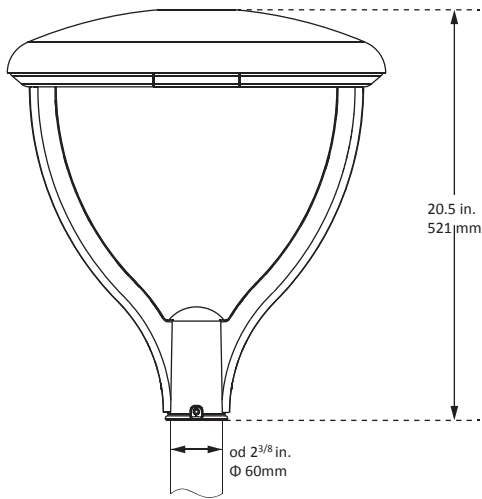
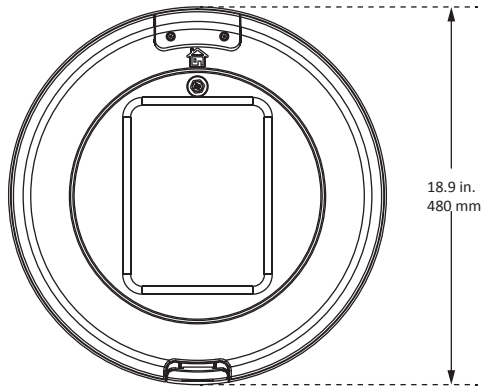
### Power turn off protector

Under maintenance, when the fixtures are opened, the power will be cut off to protect personal safety.

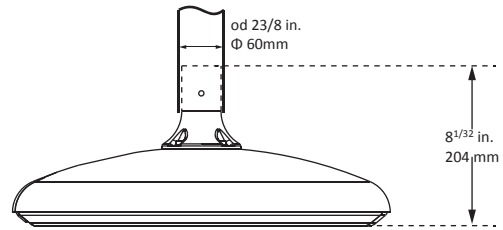


# SLI SERIES

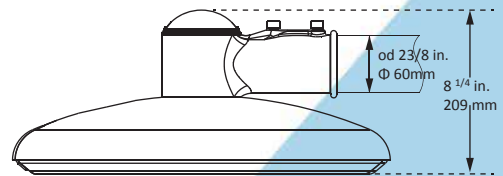
LED PATHWAY LIGHT



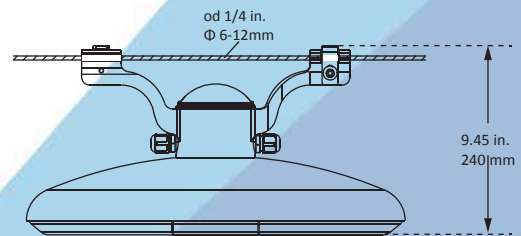
Post Top Mounted



Pendant Mounted



Side Entry Mounted

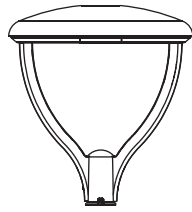


Suspended Mounted

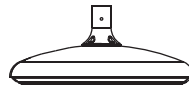
# SLI SERIES LED PATHWAY LIGHT

## Electrical & Photometric

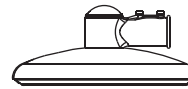
PT: Post Top Mounted



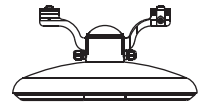
PM: Pendant Mounted



SE: Side Entry Mounted



SM: Suspended Mounted



Series	Model	LED Qty/ Current	Power	Luminaire efficacy (+/- 5%)	Lumen Output (+/- 5%)	Input Voltage	LED Brand	Driver Brand	Light Distributions	CCT (K)	Lifetime (h)
SLI	SLI-PL5550	<input type="checkbox"/> 48units/ 29mA	37W	150 lm /w*1	5550 lm	12/24 VDC	Philips Lumileds 5050	Meanwell/Custom Inventronics	2M, 3M, 5S*2	3000*3	>100,000 (L70)
	SLI-PL8400	<input type="checkbox"/> 60units/ 35mA	56W	150 lm /w*1	8400 lm					4000	

\*1 Luminous Efficacy of post top mounted is 10% lower than other installation methods.

\*2 Luminous Efficacy of 5S is 15% higher than other Light Distributions.

\*3 Luminous Efficacy of 3000K is 5% lower than other CCTs.

## Mechanical

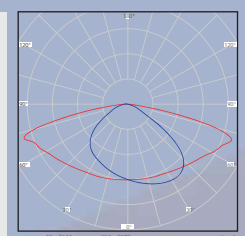
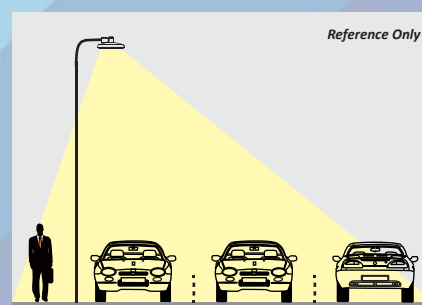
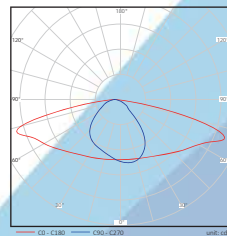
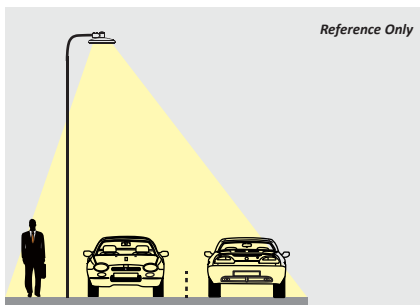
Model	Working Environment	Storage Temperature	Ra. ng	CRI	Power Factor	Power Efficiency	Material	Pole/ Rope Diameter (mm)
SLI-PL5550 <input type="checkbox"/>	40 °C ~ +50 °C 10% ~ 90% RH	-40 °C ~ +50 °C	Class I IP66 IK08	>70	>0.95	>90%	Housing: Die-cast aluminum Lens: Tempered glass and PC	Side Entry Mounted: Φ 60mm(External diameter of the pole)
SLI-PL8400 <input type="checkbox"/>								Post Top Mounted: Φ 60mm(External diameter of the pole)
								Pendant Mounted: Φ 60mm(Internal diameter of the pole)

## Certification

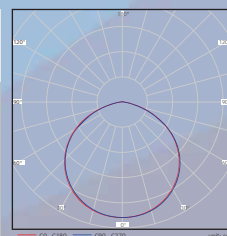
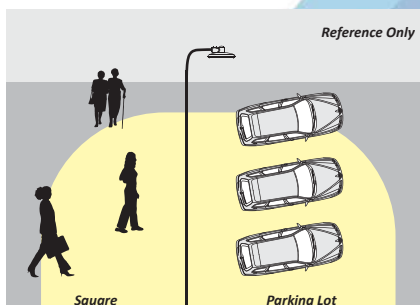
Manufacturer
ISO9001, CE, CB, ROHS, ENEC, LM80

## Light Distributions

★ Side Entry Mounted



3M



5S

# HYUNDAI SOLAR MODULE

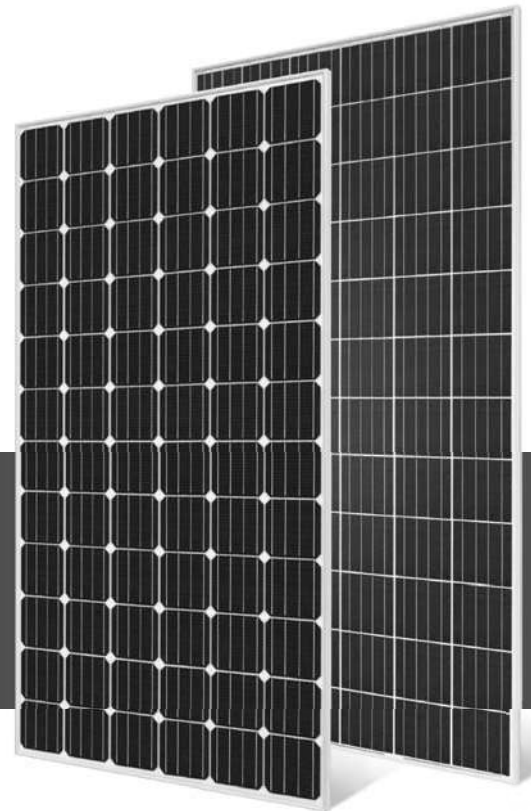
# RI SERIES

## Multi-Crystalline Type

HiS-M310RI    HiS-M315RI    HiS-M320RI

## Mono-Crystalline Type

HiS-S330RI    HiS-S335RI    HiS-S340RI    HiS-S345RI  
HiS-S350RI    HiS-S355RI    HiS-S360RI



# 72

Cells



For Commercial & Utility Applications



More Power Generation In Low Light

MADE IN KOREA

Hyundai Cell, Made in Korea



### PERL Technology

PERL technology provides ultra-high efficiency with better performance in low irradiation. Maximizes installation capacity in limited space.



### Low LID / PID

Both LID(Light Induced Degradation) and PID(Potential Induced Degradation) are strictly eliminated to ensure higher actual yield during lifetime.



### Mechanical Strength

Tempered glass and reinforced frame design withstand rigorous weather conditions such as heavy snow and strong wind.



### Reliable Warranty

Global brand with powerful financial strength provide reliable 25-year warranty.



### Corrosion Resistant

Various tests under harsh environmental conditions such as ammonia and salt-mist passed.



### UL / VDE Test Labs

Hyundai's R&D center is an accredited test laboratory of both UL and VDE.

### Hyundai's Warranty Provisions

10  
YEARS

- 10-Year Product Warranty
- On materials and workmanship

25  
YEARS

- 25-Year Performance Warranty
- 90% of guaranteed min. power for 10 years
- 80% of guaranteed min. power for 25 years

### Certification



\*\* PANEL MANUFACTURER MAY CHANGE UPON AVAILABILITY



## Electrical Characteristics

		Multi-Crystalline Module (HiS-M RI)			Mono-Crystalline Module (HiS-S RI)						
		310	315	320	330	335	340	345	350	355	360
Nominal Output (P <sub>mpp</sub> )	W	310	315	320	330	335	340	345	350	355	360
Open Circuit Voltage (V <sub>oc</sub> )	V	45.3	45.3	45.5	46.3	46.5	46.7	46.9	47.1	47.3	47.4
Short Circuit Current (I <sub>sc</sub> )	A	8.9	9.0	9.0	9.3	9.4	9.5	9.6	9.6	9.7	9.8
Voltage at P <sub>max</sub> (V <sub>mpp</sub> )	V	36.0	36.2	36.4	38.0	38.2	38.4	38.6	38.7	38.9	39.1
Current at P <sub>max</sub> (I <sub>mpp</sub> )	A	8.6	8.7	8.8	8.7	8.8	8.9	9.0	9.0	9.1	9.2
Module Efficiency	%	15.8	16.1	16.4	16.9	17.1	17.4	17.6	17.9	18.1	18.4
Cell Type	-	6", multi-crystalline silicon			6", mono-crystalline silicon						
Maximum System Voltage	V	1,000			1,000						
Temperature coefficient of P <sub>max</sub>	%/K	-0.41			-0.40						
Temperature coefficient of V <sub>oc</sub>	%/K	-0.31			-0.29						
Temperature coefficient of I <sub>sc</sub>	%/K	0.039			0.039						

\*All data at STC (Standard Test Conditions). Above data may be changed without prior notice.

## Mechanical Characteristics

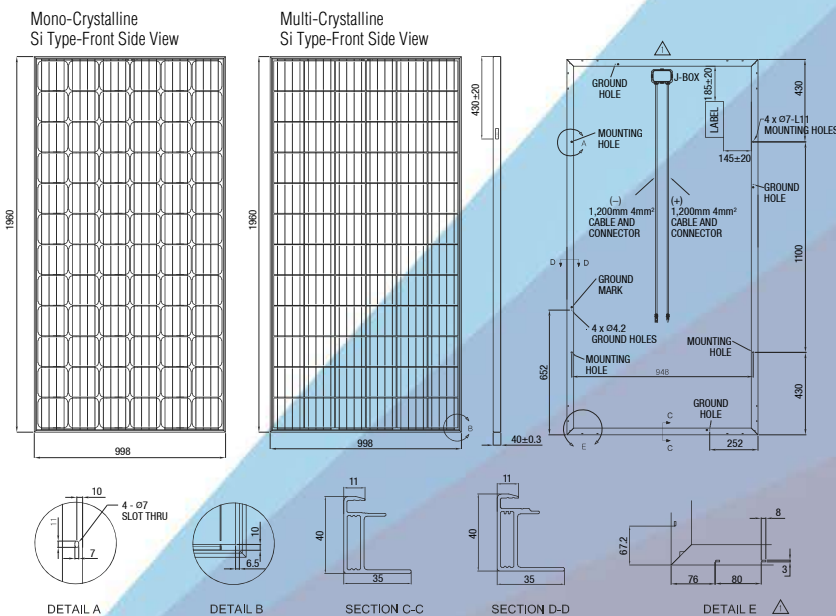
Dimensions	998 mm (39.29")(W) x 1,960 mm (77.17")(L) x 40 mm (1.57")(H)
Weight	Approx. 22.9 kg (50.5 lbs)
Solar Cells	72 cells in series (6 × 12 matrix) (Hyundai cell, Made in Korea)
Output Cables	4 mm <sup>2</sup> (12AWG) cables with polarized weatherproof connectors, IEC certified (UL listed and UL 4703 certified), Length 1.2 m (47.2")
Junction Box	IP67, weatherproof, IEC certified (UL listed)
Bypass Diodes	3 bypass diodes to prevent power decrease by partial shade
Construction	Front : Anti-reflection coated glass, 3.2 mm (0.126") Encapsulant : EVA   Back Sheet : Weatherproof film
Frame	Clear anodized aluminum alloy type 6063

## Installation Safety Guide

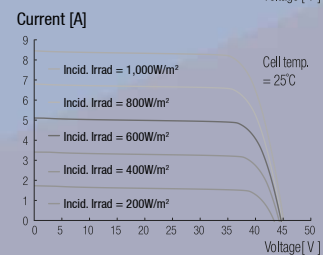
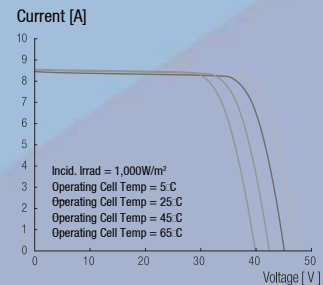
- Only qualified personnel should install or perform maintenance.
- Be aware of dangerous high DC voltage.
- Do not damage or scratch the rear surface of the module.
- Do not handle or install modules when the yare wet.

Nominal Operating Cell Temperature	46°C ± 2
Operating Temperature	-40 – 85°C
Maximum System Voltage	DC 1,000 V (IEC) DC 1,000 V (UL)
Maximum Reverse Current	15A (Up to 350W) 20A (Above 355W)

## Module Diagram (unit: mm)



## I-V Curves



**HYUNDAI**  
GREEN ENERGY

# MSE Mono 72

High Power Mono Module



Class Leading Output:  
Up to 340W power



Advanced P-Type  
monocrystalline cell  
technology



Certified Reliability:  
3X IEC, salt mist, ammonia



5600 Pa snow load  
175 mph wind rating **New!**



Buy American Act



## Proudly assembled in the USA

Mission Solar Energy is headquartered in San Antonio, TX with module facilities onsite. Our hardworking team calls Texas home and is devoted to producing high quality solar products and services. Our supply chain includes local and domestic vendors increasing our impact to the U.S. economy.



Assembled  
in the USA

## CERTIFICATIONS

IEC 61215/ IEC 61730/ IEC 61701 UL 1703



\*As there are different certification requirements in different markets, please contact your local Mission Solar Energy sales representative for the specific certificates applicable to the products in the region in which the products are to be used.

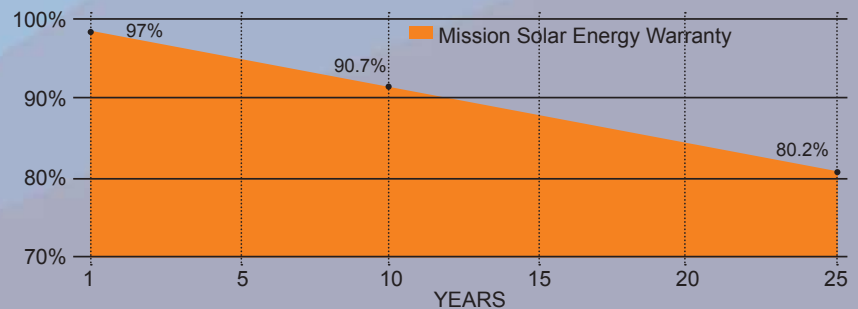
## Best in class quality

Mission Solar Energy production lines are fully automated and include multiple quality checks throughout the production process including 2X EL Testing, 100% Visual inspection, and positive binning.

## Proven reliability and bankability

Mission Solar Energy panels have been tested by independent testing centers to meet and exceed IEC standards. Our panels are deployed in projects across North America.

## 25-YEAR LINEAR WARRANTY





## ELECTRICAL SPECIFICATIONS

Electrical parameters at Standard Test Condition (STC)

Module Type			MSE330S06J	MSE335S06J	MSE340S06J
Power Output	Pmax	Wp	330	335	340
Module Efficiency		%	16.63	16.93	17.14
Tolerance			-0/+3%		
Short-Circuit Current	Isc	A	9.23	9.38	9.49
Open Circuit Voltage	Voc	V	46.12	46.14	46.35
Rated Current	Imp	A	8.72	8.87	8.95
Rated Voltage	Vmp	V	37.85	37.89	38.02

STC: Irradiance 1000 W/m<sup>2</sup>, Cell temperature of 25°C, AM 1.5

## TEMPERATURE COEFFICIENTS

Normal Operating Cell Temperature (NOCT)	44°C (±2°C)
Temperature Coefficient of Pmax	-0.419%/°C
Temperature Coefficient of Voc	-0.315%/°C
Temperature Coefficient of Isc	0.049%/°C

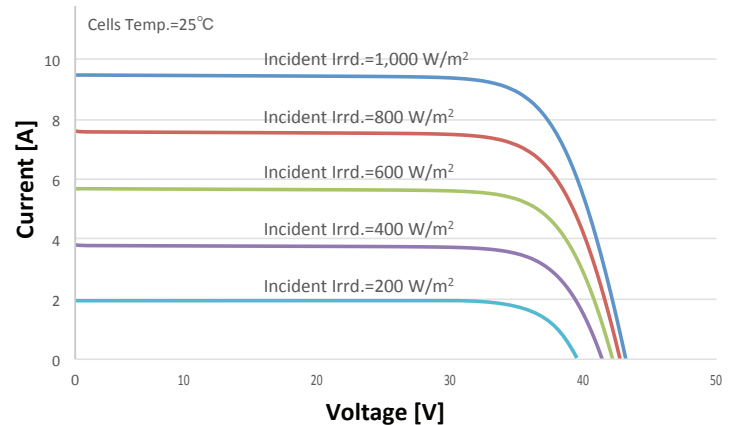
## OPERATING CONDITIONS

Maximum System Voltage	1,000VDC
Operating Temperature Range	-40°C (-40°F) to +90°C (194°F)
Maximum Series Fuse Rating	15A
Fire Safety Classification	Type 1, Class C
Front & Back Load (UL standard)	5600 Pa (117 psf) <b>New!</b>
Hail Safety Impact Velocity	25mm at 23 m/s

## MECHANICAL DATA

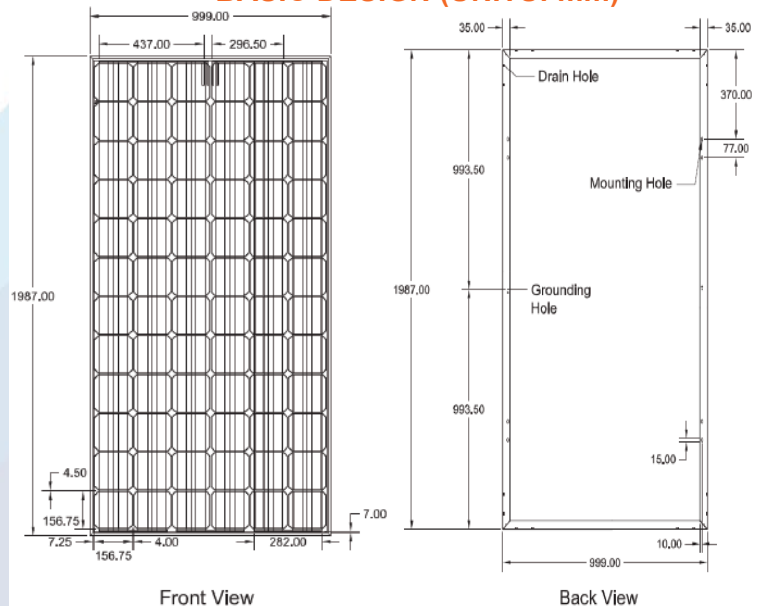
Solar Cells	P-type Mono-crystalline Silicon (156.75mm)
Cell orientation	72 cells (6x12), 4 busbar
Module dimension	1987mm x 999mm x 40mm (78.23 in. x 39.33 in. x 1.57 in.)
Weight	21.6 kg (47.6 lb)
Front Glass	3.2mm (0.126 in.) tempered, Low-iron, Anti-reflective coating
Frame	Anodized aluminum alloy
Encapsulant	Ethylene vinyl acetate (EVA)
J-Box	Protection class IP67 with 3 bypass-diodes
Cables	PV wire, 1.2m (47.24 in.), 4mm <sup>2</sup> /12 AWG
Connector	MC4 or compatible

## MSE335S06J: 335WP, 72CELL SOLAR MODULE CURRENT-VOLTAGE CURVE



Current-voltage characteristics with dependence on irradiance and module temperature

## BASIC DESIGN (UNITS: mm)





**30** YEAR LINEAR POWER WARRANTY  
*ANNI GARANZIA LINEARE PRODUZIONE*

**20** YEAR PRODUCT WARRANTY  
*ANNI GARANZIA PRODOTTO*

## HIGH EFFICIENCY LINE

**SG200M5**

 "MADE IN ITALY" MODULE

PEIMAR monocrystalline solar panels, produced using a combination of innovative production processes and advanced engineering techniques, provide customers with maximum output and super high performance (over 20% efficiency). This allows fewer panels to be used to generate more energy, ideal if space is restricted or environmental conditions are challenging. Modern design, using matching black cells and frames and a very long lifespan ensure this monocrystalline are a great option.



**POSITIVE POWER OUTPUT TOLERANCE**



**MODULE FIRE PERFORMANCE: CLASS I**



**ANTI-REFLECTIVE GLASS**



**HAILSTORM RESISTANCE**

### CELLS

**72**  
MONO



QTY:  
72 CELLS  
TYPE:  
MONO 2BB  
DIMENSION:  
125x125 mm / 4.9x4.9"

### FRAME



### BACKSHEET



### JUNCTION BOX



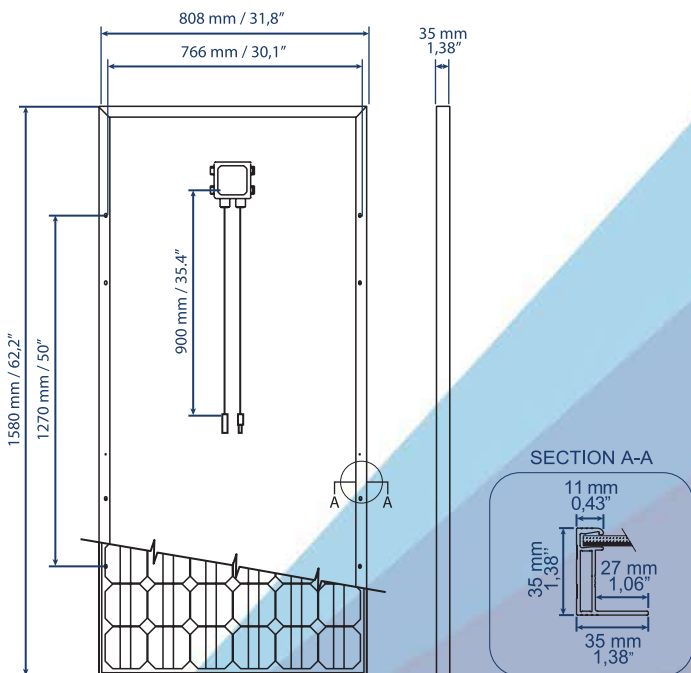
## ELECTRICAL CHARACTERISTICS (STC)\*

	SG200M5
Nominal Output (Pmax)	200 W
Flash Test Power Tolerance	0/ +5 W
Voltage at Pmax (Vmp)	37.0 V
Current at Pmax (Imp)	5.41 A
Open Circuit Voltage (Voc)	45.2 V
Short Circuit Current (Isc)	5.75 A
Maximum System Voltage	1000 V
Maximum Series Fuse Rating	15 A
Cell Efficiency	18.74%
Module Efficiency	15.67%

## MECHANICAL CHARACTERISTICS

Solar Cells	72 (6x12) monocrystalline
Solar Cells Size	125x125 mm / 4.9x4.9"
Front Cover	3.2 mm / 0.12" thick, low iron tempered glass
Back Cover	TPT (Tedlar-PET-Tedlar)
Encapsulant	EVA (Ethylene vinyl acetate)
Frame	Anodized aluminium alloy, double wall
Frame finishing	Black
Backsheet finishing	White
Diodes	3 Bypass diodes serviceable
Junction Box	IP67 rated
Connector	MC4 or compatible connector
Cables Length	900 mm / 35.4"
Cables Section	4.0 mm <sup>2</sup> / 0.006 in <sup>2</sup>
Dimensions	1580x808x35 mm / 62.2x31.8x1.38"
Weight	14.5 Kg / 31.9 lbs
Max. Load	Certified to 5400 Pa

## DIMENSIONS



\*STC: (Standard Test Condition) Irradiance 1000W/m<sup>2</sup>; Module Temperature 25°C; Air Mass 1.5

\*\*NOCT: (Nominal Operation Cell Temperature) Sun 800W/m<sup>2</sup>; Air 20°C; Wind speed 1m/s

\*\*\*Pallets can be stacked up to two

It is important to point out, that all technical specifications, information and figures contained in this datasheet are estimated values. Peimar reserves the right to change the technical specifications, information and figures contained in this document at any time without notice.

US\_VERS 1\_07/2018

## SG200M5

## TEMPERATURE CHARACTERISTICS

NOCT**	45±2 °C
Temperature Coefficient of Pmax	-0.40 %/°C
Temperature Coefficient of Voc	-0.32 %/°C
Temperature Coefficient of Isc	0.047 %/°C
Operating Temperature	-40 °C ~ +85°C

## PACKAGING\*\*\*

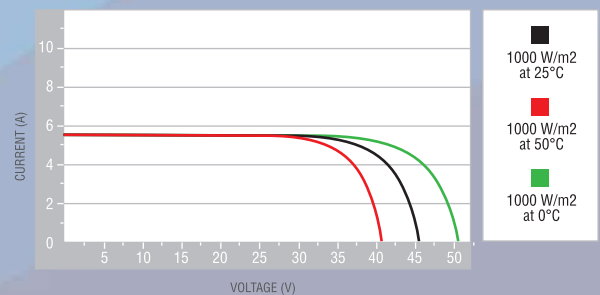
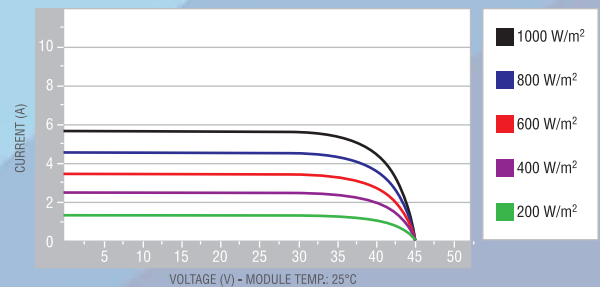
Pallet dimensions	1650x1100x1200 mm / 64.9x43x47"
Pieces per pallet	30
Weight	450 Kg / 992 lbs

## CERTIFICATIONS

Fire Resistance Rating	1 (UNI 9177)
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## CURRENT/VOLTAGE CHARACTERISTICS

Values apply to modules: SG200M5



**PEIMAR**  
ITALIAN PHOTOVOLTAIC MODULES

Via Creta 72, 25124 Brescia, ITALY • www.peimar.com • info@peimar.com

# MOUNTS: 1X-TPM-series



## Top-of-Pole Mounting (TPM) :

SLI, Inc. manufactures and distributes a complete line of mounting kits to accommodate a wide range of off-grid applications. From single module top-of-pole mounts to complex multi-panel arrays, our mounting line has the flexibility to meet your mounting needs.

**Our Top-of-Pole Mounts Feature:**  
Rugged Materials and Construction,  
Precision Engineering and Expert Support

### Pole Selection:

- Determine solar panel or solar array area (SQ. FT)
- Select pole size based on selection guidelines in Table 1.
- Solar Lighting International, Inc. does not supply poles with our mounting kits).



**1X-TPM Series:**  
- Available for 2",3",4" and 6" SCH 40 pipe

## Top-of-Pole : Guidelines For Pole Selection

Module Area	Pole Size	Depth In Ground	Height Above Ground	Hole Diameter
15 SQ. FT.	2" SCH40 (2-3/8" OD)	30"-36"	48"-72"	8"-12"
28 SQ. FT.	3" SCH40 (3-1/2" OD)	36"-42"	48"-72"	12"-16"
35 SQ. FT.	3" SCH40 (3-1/2" OD)	38"-44"	60"-72"	12"-16"
60 SQ. FT.	4" SCH40 (4-1/2" OD)	42"-48"	60"-72"	16"-24"
90 SQ. FT.	6" SCH40 (6-5/8" OD)	48"-60"	60"-84"	24"-30"
120 SQ. FT.	6" SCH40 (6-5/8" OD)	48"-72"	72"-84"	24"-30"

Table 1

\* Module Area (SQ. FT) = W (Panel Width in FT) x L (Panel Length in FT)

\* Solar Array Area (SQ. FT) = W (Panel Width in FT) x L (Panel Length in FT) x Number of Panels per Array

Photographs are intended to portray typical mount appearance, actual appearance may vary.

- ① Panel Kit Rail
- ② Solar Panel
- ③ L-Bracket (Foot)
- ④ Cross Pipe
- ⑤ Pipe End Cap
- ⑥ U-Bolt with Saddle Bracket

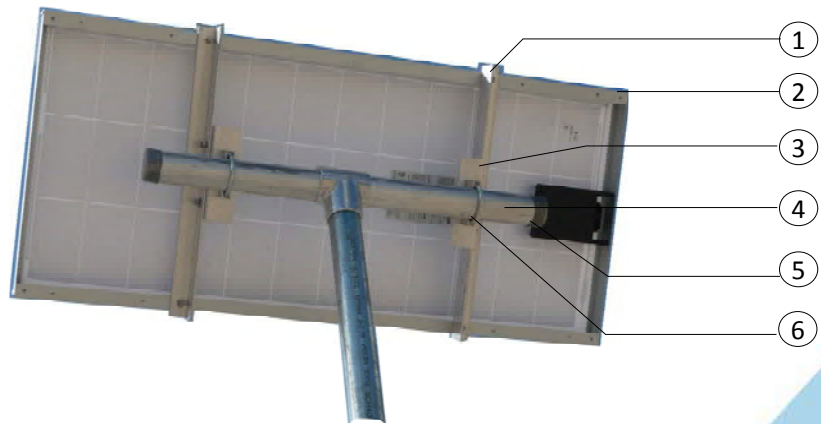


Figure 1. Mounting kit components

**Attachment to Panel Kit Rail**

**Attachment to Cross Pipe**

**Array Tilt Angle Selection:**

SITE LATITUDE: ( In Degrees)	FIXED TILT ANGLE
0° TO 15°	15°
15° TO 25°	SAME AS LATITUDE
25° TO 30°	SAME AS LATITUDE +5°
30° TO 35°	SAME AS LATITUDE +10°
35° TO 40°	SAME AS LATITUDE +15°
40° +	SAME AS LATITUDE +20°

Table 2.

Figure 2. Use L-brackets to attach to the panel kit rails and to cross pipe.

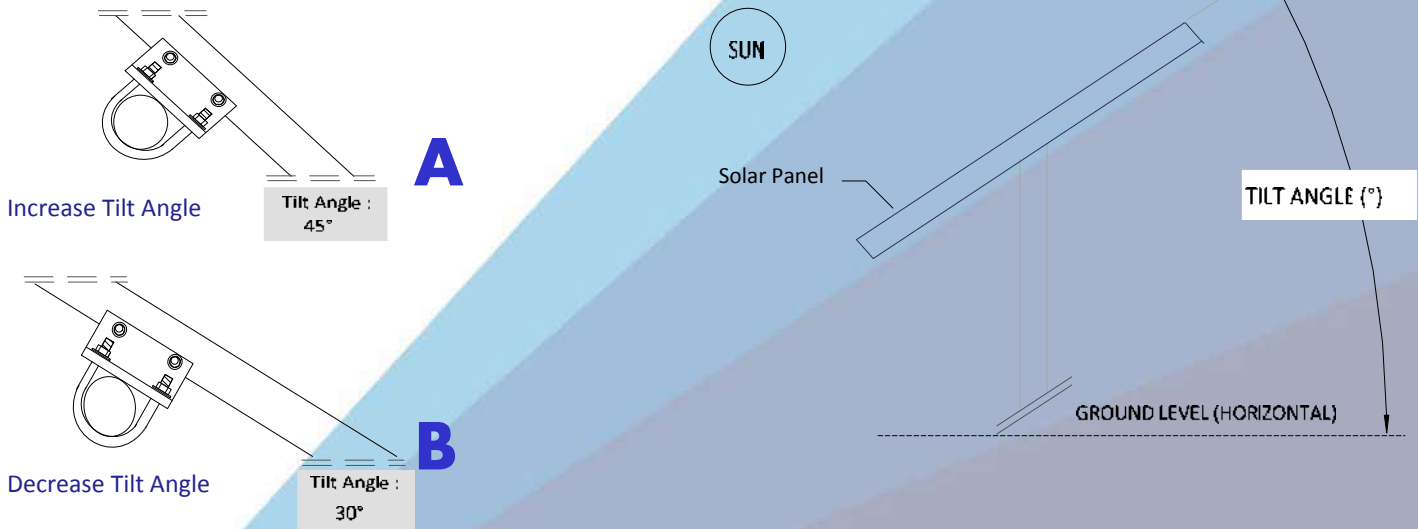


Figure 3. Tilt Angle Adjustments: Adjust PV Array Tilt Angle by rotating U-bolts to desired angle.

Locate array in an unshaded area facing equator and tilted from the horizontal at desired tilt angle (See Table 1).  
 Solar arrays in the Northern Hemisphere face South for optimum energy production. Solar Arrays in the Southern hemisphere face North.  
 When choosing a site, avoid trees, overhead power lines, buildings or obstructions which could cast shadows on the solar modules.  
 This is especially true during the winter months when the arc of the sun is lowest to the horizon.

# Bluetooth SmartSolar Charge Controllers with load output

## MPPT 75/10, 75/15, 100/15, 100/20, 100/20-48V



### Bluetooth Smart built-in:

The wireless solution to set-up, monitor and update the controller using Apple and Android smartphones, tablets or other devices.

### SLI.Direct

For a wired data connection to a Color Control panel, PC or other devices

### Ultra-fast Maximum Power Point Tracking (MPPT)

Especially in case of a clouded sky, when light intensity is changing continuously, an ultra-fast MPPT controller will improve energy harvest by up to 30% compared to PWM charge controllers and by up to 10% compared to slower MPPT controllers.

### Load output

Over-discharge of the battery can be prevented by connecting all loads to the load output. The load output will disconnect the load when the battery has been discharged to a pre-set voltage (48V model: interface with a relay).

Alternatively, an intelligent battery management algorithm can be chosen: see Battery Life.

The load output is short circuit proof.

### Battery Life: intelligent battery management

When a solar charge controller is not able to recharge the battery to its full capacity within one day, the result is often that the battery will continually be cycled between a 'partially charged' state and the 'end of discharge' state. This mode of operation (no regular full recharge) will destroy a lead-acid battery within weeks or months.

The Battery Life algorithm will monitor the state of charge of the battery and, if needed, day by day slightly increase the load disconnect level (i.e. disconnect the load earlier) until the harvested solar energy is sufficient to recharge the battery to nearly the full 100%. From that point onwards the load disconnect level will be modulated so that a nearly 100% recharge is achieved about once every week.

### Programmable battery charge algorithm

See the software section on our website for details

### Day/night timing and light dimming option

See the software section on our website for details

### Programming, real-time data and history display options

- Modern Apple and Android smartphones, tablets, macbooks and other devices: see the SLI.Direct Bluetooth Smart dongle and the MPPT app discovery sheet for screenshots.
- ColorControl panel

SmartSolar Charge Controller	MPPT 75/10	MPPT 75/15	MPPT 100/15	MPPT 100/20	MPPT 100/20-48V
Battery voltage	12/24V Auto Select				48V
Rated charge current	10A	15A	15A	20A	20A
Nominal PV power, 12V 1a,b)	145W	220W	220W	290W	n. a.
Nominal PV power, 24V 1a,b)	290W	440W	440W	580W	n. a.
Nominal PV power, 48V 1a,b)	n. a.	n. a.	n. a.	n. a.	1160W
Max. PV short circuit current 2)	13A	15A	15A	20A	20A
Automatic load disconnect	Yes				
Maximum PV open circuit voltage	75V		100V		
Peak efficiency	98%				
Self-consumption	12V: 25 mA 24V: 15 mA			15mA	
Charge voltage 'absorption'	14,4V / 28,8V (adjustable)				57,6V (adj.)
Charge voltage 'float'	13,8V / 27,6V (adjustable)				55,2V (adj.)
Charge algorithm	multi-stage adaptive				
Temperature compensation	-16 mV / °C resp. -32 mV / °C				
Max. continuous load current	15A		20A		1A
Low voltage load disconnect	11,1V / 22,2V/44,4V or 11,8V / 23,6V/47,2V or Battery Life algorithm				
Low voltage load reconnect	13,1V / 26,2V/52,4V or 14V / 28V/56V or Battery Life algorithm				
Protection	Battery reverse polarity (fuse) / Output short circuit / Over temperature				
Operating temperature	-30 to +60°C (full rated output up to 40°C)				
Humidity	95%, non-condensing				
Data communication port	SLI.Direct (see the data communication white paper on our website)				
<b>ENCLOSURE</b>					
Colour	Blue (RAL 5012)				
Power terminals	6 mm <sup>2</sup> / AWG10				
Protection category	IP43 (electronic components), IP22 (connection area)				
Weight	0,5 kg		0,6 kg		0,65 kg
Dimensions (h x w x d)	100 x 113 x 40 mm		100 x 113 x 50 mm		100 x 113 x 60 mm
<b>STANDARDS</b>					
Safety	EN/IEC 62109-1, UL 1741, CSA C22.2				
1a) If more PV power is connected, the controller will limit input power.					
1b) The PV voltage must exceed Vbat + 5V for the controller to start. Thereafter the minimum PV voltage is Vbat + 1V					
2) A PV array with a higher short circuit current may damage the controller.					

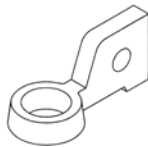
# 8G5SHP-DEKA

## SPECIFICATIONS

<b>Nominal Voltage (V)</b>	12V
<b>*Capacity at C/100</b>	137 Ah
<b>*Capacity at C/20</b>	125 Ah
<b>*Capacity at C/5</b>	110 Ah
<b>Weight</b>	85 lbs. (38.6 kg)
<b>Plate Alloy</b>	Lead Calcium
<b>Posts</b>	Forged Terminals & Bushings
<b>Container/Cover</b>	Polypropylene
<b>Operating Temperature Range</b>	-76°F (-60°C) - 140°F (60°C)

**For Charging Parameters please refer to [www.mkbattery.com](http://www.mkbattery.com)**  
Click on Technical Data, then on Photovoltaic Charging Parameters in the PV/Solar section

<b>Vent</b>	Self-sealing
<b>Electrolyte</b>	Sulfuric acid thixotropic gel
<b>Terminal</b>	(B) T876



Rated UN2794, wet filled with acid

Made in the U.S.A. by East Penn Manufacturing Co, Inc.

\* Capacities are based on peak performance.

## Valve-Regulated, Gelled-Electrolyte Battery

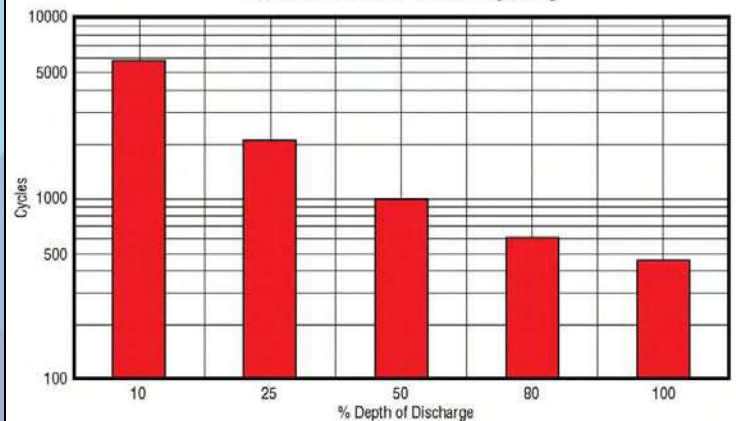


## DIMENSIONS

*Inches (mm)*

<b>Length</b>	<b>13.58 (345 mm)</b>
<b>Width</b>	<b>6.77 (172 mm)</b>
<b>Height</b>	<b>11.42 (290 mm)</b>

**Gel Cycle Life vs Depth of Discharge at +25°C (77°F)  
Based on BCI 2-hour Capacity**



MK Battery

1631 South Sinclair Street • Anaheim, California 92806

Toll Free: 800-372-9253 • Fax: 714-937-0818 • E-mail: [sales@mkbattery.com](mailto:sales@mkbattery.com)



# MINIATURE CIRCUIT BREAKER

## Technical Data (MCB-AC/MCB-DC)

### MCB

### ISOLATOR

#### MCB-AC

Type	'B'	'C'	'D'	
Standard Conformity	IS/IEC60898-1-2002	CML-88858716		IS/IEC60947-3
Rated Current (In)	6-63A	0.5-125A	0.5-63A	25-125A
Rated Voltage AC (Ue)		240/415V		240/415V
Utilization Category				AC22A
Rated Frequency Hz		50Hz		50Hz
No. of Poles (Execution)	1P, 1P+N, 2P, 3P 3P+N & 4P	1P, 2P, 3p & 4P		
Rated Short Circuit Breaking Capacity	10kA	10kA	10kA	
Rated Insulation Voltage (Ui)		660V		660V
Magnetic Release Setting	(3-5)In	(5-10)In	(10-20)In	
Rated Impulse Voltage (Uimp)		6kV		6kV
Electrical/Mechanical Life <32A		30,000		30,000
>32A		10,000		10,000
Ambient Temperature		-5°C to +55°C		-5°C to +55°C
Energy Limiting Class		ELC 3		
Mounting		Clip on Din rail (35x7.5 mm)		Clip on Din rail (35x7.5 mm)
Line Terminal Capacity		35 mm <sup>2</sup>		35 mm <sup>2</sup>
Degree of Protection		IP 20		IP 20
Resistance to Shock		40mm free fall		40mm free fall

#### MCB-DC

Circuit Breakers for DC application are engineered to fulfill tough arc quenching conditions. DC MCB incorporates built in magnet to direct the arc into the arc quenching chamber.

Standard Conformity

IS/IEC60898-2-2002

Current Rating

0.5-63A

No. of Poles

1P & 2P

Voltage Rating

220V (max.)

Short Circuit Breaking Capacity

4kA





# MINIATURE CIRCUIT BREAKER

## TEMPERATURES

### Temperature deration

MCBs are calibrated at an ambient temperature of 30°C. In an industrial environment where ambient temperature is higher than the regulatory reference temperature of 30°C, the circuit breakers may be subjected to untimely tripping (nuisance tripping). At a temperature above 30°C the thermal release trips faster, behaving like a relay with a lower nominal current. It is therefore imperative to take into account nominal current derating if the circuit breaker is installed at a higher ambient.

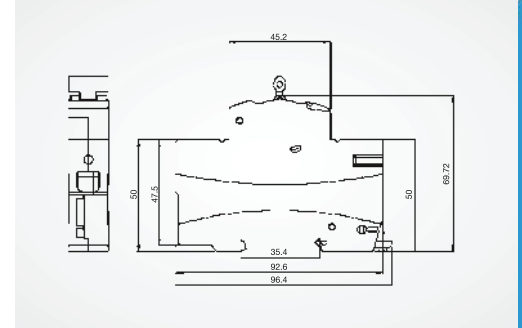
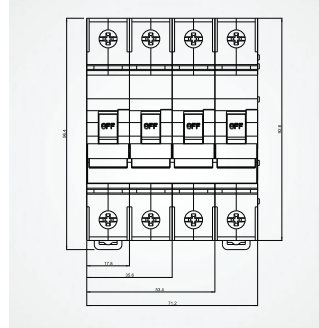
The table gives the max. operating current referring to the different temperatures.

### Temperature

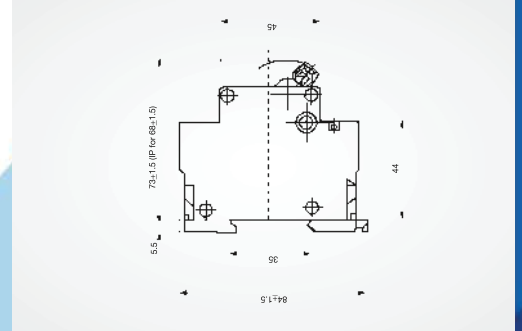
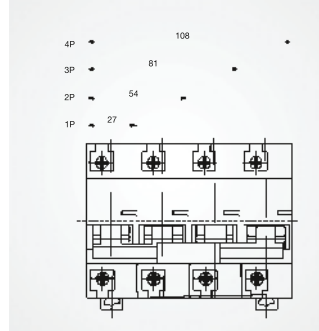
In(A)	25°C	30°C	35°C	40°C	45°C	50°C
2	2.04	2	1.96	1.9	1.86	1.82
6	6.24	6	5.82	5.52	5.28	4.98
10	10.40	10	9.7	9.2	8.8	8.3
16	16.5	16	15.5	15	14.4	14.1
20	20.6	20	19.4	18.8	18	17.6
25	25.8	25	24.3	23.5	22.5	22
32	33	32	31.04	30.1	28.8	28.2
40	41.2	40	38.8	37.6	36	35.2
63	64.89	63	61.79	60	58	56.07

## INSTALLATION

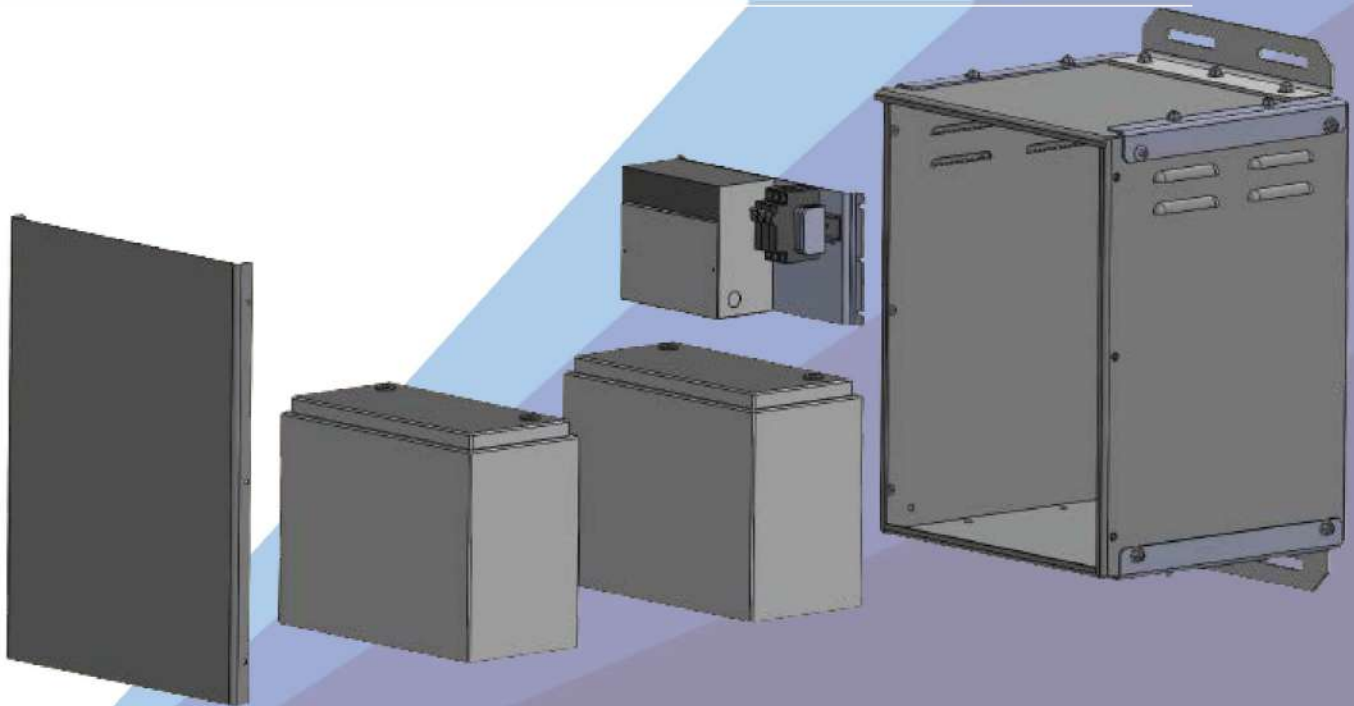
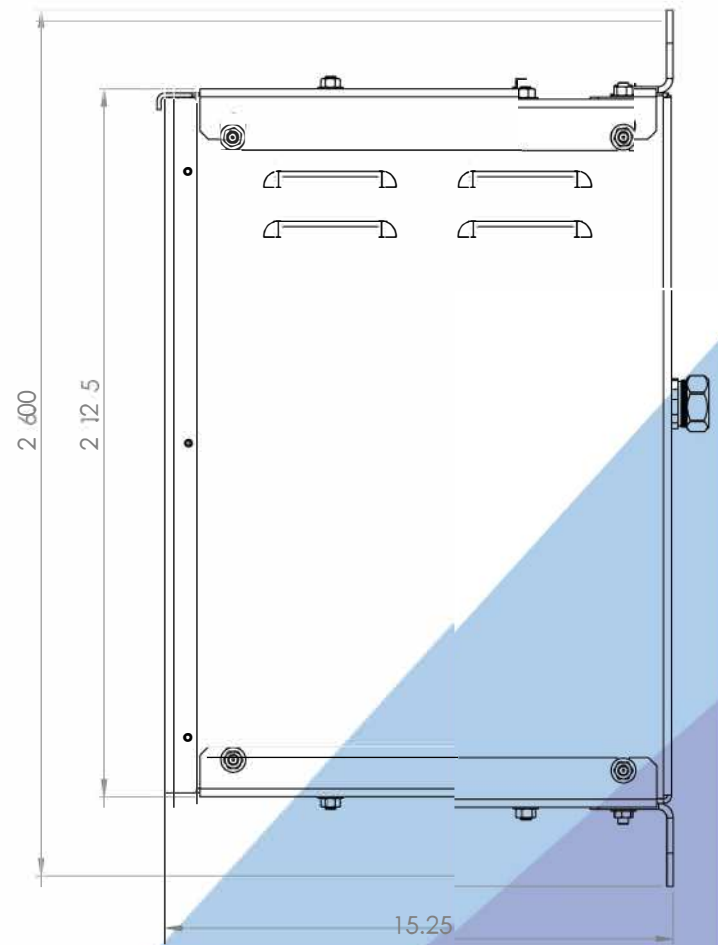
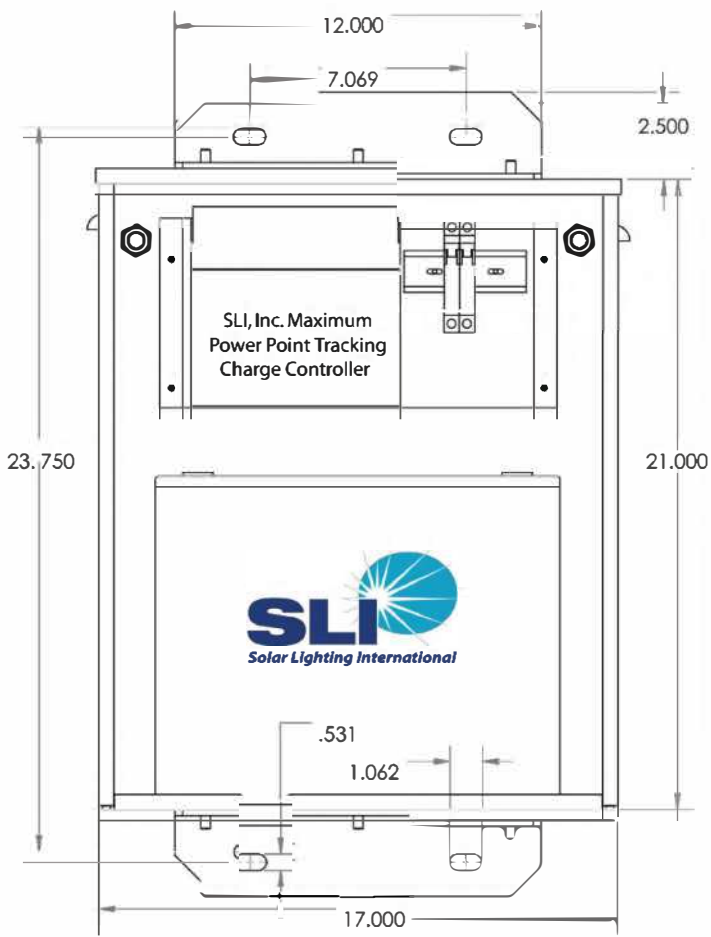
### Installation Dimensions MCB (0.5 to 63A) / Isolator (25 to 125A)



### Installation Dimensions MCB (80 to 125A)



PART#	IMS STOCK CODE	BRAND	DESCRIPTION	AMPS / # POLES / MOUNTING OPTIONS	DIM (L)	DIM (W)	DIM (H)	WEIGHT
MCSMB1C0.5	0300-9324	MCG	MINI CIRCUIT BREAKER	0.5 AMP 1 POLE MCB DIN MOUNT	1p	0.5	DIN	0.26
MCSMB1C1	0298-9221	MCG	MINI CIRCUIT BREAKER	1 AMP 1 POLE MCB DIN MOUNTABLE	1p	1	DIN	0.269
MCSMB1C10	0300-9345	MCG	MINI CIRCUIT BREAKER	10 AMP 1 POLE MCB DIN MOUNTABLE	1p	10	DIN	0.26
MCSMB1C16	0305-3142	MCG	MINI CIRCUIT BREAKER	16AMP 1POLE MCB DIN MOUNTABLE	1p	16	DIN	0.267
MCSMB1C2	0300-9333	MCG	MINI CIRCUIT BREAKER	2 AMP 1 POLE MCB DIN MOUNTABLE	1p	2	DIN	0.267
MCSMB1C20	0300-9357	MCG	MINI CIRCUIT BREAKER	20 AMP 1 POLE MCB DIN MOUNTABLE	1p	20	DIN	0.269
MCSMB1C25	0300-9360	MCG	MINI CIRCUIT BREAKER	25 AMP 1 POLE MCB DIN MOUNTABLE	1p	25	DIN	0.271
MCSMB1C3	0300-9336	MCG	MINI CIRCUIT BREAKER	3 AMP 1 POLE MCB DIN MOUNTABLE	1p	3	DIN	0.262
MCSMB1C32	0300-9363	MCG	MINI CIRCUIT BREAKER	32 AMP 1 POLE MCB DIN MOUNTABLE	1p	32	DIN	0.269
MCSMB1C40	0300-9366	MCG	MINI CIRCUIT BREAKER	40 AMP 1 POLE MCB DIN MOUNTABLE	1p	40	DIN	0.282
MCSMB1C5	0300-9339	MCG	MINI CIRCUIT BREAKER	5 AMP 1 POLE MCB DIN MOUNTABLE	1p	5	DIN	0.262
MCSMB1C6	0300-9342	MCG	MINI CIRCUIT BREAKER	6 AMP 1 POLE MCB DIN MOUNTABLE	1p	6	DIN	0.258
MCSMB2C1	0300-9408	MCG	MINI CIRCUIT BREAKER	1 AMP 2 POLE MCB DIN MOUNTABLE	2p	1	DIN	0.518
MCSMB2C10	0300-9420	MCG	MINI CIRCUIT BREAKER	10 AMP 2 POLE MCB DIN MOUNTABLE	2p	10	DIN	0.509
MCSMB2C16	0305-3145	MCG	MINI CIRCUIT BREAKER	16AMP 2POLE MCB DIN MOUNTABLE	2p	16	DIN	0.522
MCSMB2C20	0300-9423	MCG	MINI CIRCUIT BREAKER	20 AMP 2 POLE MCB DIN MOUNTABLE	2p	20	DIN	0.525
MCSMB2C25	0300-9426	MCG	MINI CIRCUIT BREAKER	25 AMP 2 POLE MCB DIN MOUNTABLE	2p	25	DIN	0.538
MCSMB2C3	0300-9411	MCG	MINI CIRCUIT BREAKER	3 AMP 2 POLE MCB DIN MOUNTABLE	2p	3	DIN	0.509
MCSMB2C32	0300-9429	MCG	MINI CIRCUIT BREAKER	32 AMP 2 POLE MCB DIN MOUNTABLE	2p	32	DIN	0.531
MCSMB2C40	0300-9432	MCG	MINI CIRCUIT BREAKER	40 AMP 2 POLE MCB DIN MOUNTABLE	2p	40	DIN	0.566
MCSMB2C5	0300-9414	MCG	MINI CIRCUIT BREAKER	5 AMP 2 POLE MCB DIN MOUNTABLE	2p	5	DIN	0.518
MCSMB2C6	0300-9417	MCG	MINI CIRCUIT BREAKER	6 AMP 2 POLE MCB DIN MOUNTABLE	2p	6	DIN	0.507
MCSMB3C1	0300-9435	MCG	MINI CIRCUIT BREAKER	1 AMP 3 POLE MCB DIN MOUNTABLE	3p	1	DIN	0.765
MCSMB3C10	0300-9450	MCG	MINI CIRCUIT BREAKER	10 AMP 3 POLE MCB DIN MOUNTABLE	3p	10	DIN	0.76
MCSMB3C16	0305-3148	MCG	MINI CIRCUIT BREAKER	16AMP 3POLE DIN MOUNTABLE	3p	16	DIN	0.776
MCSMB3C20	0300-9453	MCG	MINI CIRCUIT BREAKER	20 AMP 3 POLE MCB DIN MOUNTABLE	3p	20	DIN	0.778
MCSMB3C25	0300-9456	MCG	MINI CIRCUIT BREAKER	25 AMP 3 POLE MCB DIN MOUNTABLE	3p	25	DIN	0.796
MCSMB3C3	0300-9438	MCG	MINI CIRCUIT BREAKER	3 AMP 3 POLE MCB DIN MOUNTABLE	3p	3	DIN	0.763
MCSMB3C32	0300-9459	MCG	MINI CIRCUIT BREAKER	32 AMP 3 POLE MCB DIN MOUNTABLE	3p	32	DIN	0.793
MCSMB3C40	0300-9462	MCG	MINI CIRCUIT BREAKER	40 AMP 3 POLE MCB DIN MOUNTABLE	3p	40	DIN	0.809
MCSMB3C5	0300-9441	MCG	MINI CIRCUIT BREAKER	5 AMP 3 POLE MCB DIN MOUNTABLE	3p	5	DIN	0.76
MCSMB3C6	0300-9447	MCG	MINI CIRCUIT BREAKER	6 AMP 3 POLE MCB DIN MOUNTABLE	3p	6	DIN	0.754





# CERTIFICATE



This is to certify that

## Custom Manufacturing Services, Inc.

142 Brick Street  
Princeton, WV 24740  
United States of America

with the organizational units/sites as listed in the annex

has implemented and maintains a **Quality Management System**.

Scope:

The provision of custom metal fabrication and systems level integration of electro-mechanical assembly.

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

## ISO 9001 : 2015

Certificate registration no.	10000410 QM15
Date of certification	2018-08-14
Valid until	2021-08-13



**DQS Inc.**

Brad McGuire  
Managing Director

Accredited Body: DQS Inc., 1130 West Lake Cook Road, Suite 340, Buffalo Grove, IL 60089 USA





**Annex to certificate  
Registration No. 10000410 QM15**

**Custom Manufacturing Services, Inc.**

142 Brick Street  
Princeton, WV 24740  
United States of America



**Extended Location**

**Scope**

**10002998  
Custom Manufacturing Services, Inc.  
400 Rogers Street  
Princeton, WV 24740  
United States of America**

The off-site at 400 Rogers Street, Princeton, WV performs the following primary functions: metal fabrication and assembly.

