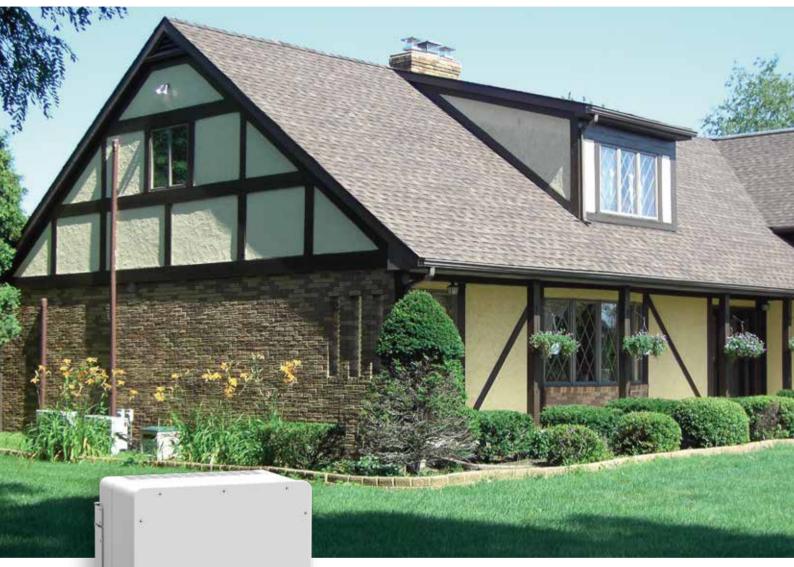
Three Phase Hybrid Inverter

SUN-5/6/8/10/12K-SG04LP3-EU







10

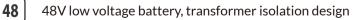
6

100% unbalanced output, each phase; Max. output up to 50% rated power

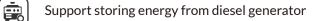
AC couple to retrofit existing solar system

Max. 10 pcs parallel for on-grid and off-grid operation; Support multiple batteries parallel





6 time periods for battery charging/discharging



Stock Code: 605117.SH

Technical Data _____

Max. Input Short-Circuit Current (A) 17+17 3 No. of MPP Trackers/ 2/1+1 2 Rated AC Input/Output Data 7 7 2 Rated AC Input/Output Active Power (W) 5000 6000 8000 10000 Max. AC Input/Output Apparent Power (VA) 5500 66600 8800 11000 Max. AC Input/Output Current (A) 7.6/7.2 9.1/8.7 12.1/11.6 15.2/14.5 Max. AC Input/Output Current (A) 8.4/8 10/9.6 13.4/12.8 16.7/15.9 Max. Three-phase Unbalanced Output Current (A) 8.4/8 10/9.6 13.4/12.8 16.7/15.9 Max. Continuous AC Passthrough (grid to load) (A) 45 45 45 Peak Power (off-grid) (W) 2 tomes of rated power, 10s 0.8 leading to 0.8 leaging 8 Rated Input/Output Voltage/Range (V) 220/380V, 230/400V 0.85Un-1.1Un 8 Rated Input/Output Voltage/Range (V) 23% (of nominal power) 0 0 DC Injection Current <0.5% In 45 45 Max. Efficiency 97.6% 97.6% 97.6% 97.6% 97.6% 97.6% 59% 59%	240 240 15600				
Battery Voltage Range (V) 40-60 Max, Charging Current (A) 120 150 190 210 Max, Discharging Current (A) 120 150 190 210 Charging Strategy for Li-ion Battery Self-adaption to BMS 1 PV String Input Data 1 PV String Input Data 1 1 PV String Input Data 1 1 Max, DC Input Voltage (V) 6500 7800 104400 13000 Max, DC Input Voltage (V) 160 200-650 300 300 Start-tup Voltage (V) 200-650 300 300 300 300 Max, Input Short-Circuit Current (A) 13+13 2 3	240				
Max. Charging Current (A) 120 150 190 210 Max. Discharging Current (A) 120 150 190 210 Charging Strategy For Li-ion Battery Number of Battery Input 1 1 1 PV String Input Data 1 1 1 Max. DC. Input Voltage (M) 6500 7600 10400 13000 Max. DC. Input Voltage (V) 800 100 13000 Max. Dc. Input Voltage (V) 200-650 Reted DC. Input Voltage (V) 550 550 3 <	240				
Max. Discharging Current (A) 120 150 190 210 Charging Strategy for Lion Battery Self-adaption to BMS Self-adaption to BMS Number of Battery Input 1 PP Wax Der Battery Input Data 1 PP Self-adaption to BMS 13000 13000 Max. DC Input Power (W) 6500 7800 10400 13000 Max Dc Input Voltage (V) 160 10400 13000 Max Operating PV Input Current (A) 13+13 2 200-650 Rated Not Current (A) 117+17 3	240				
Charging Strategy for Li-ion Battery Self-adaption to BMS Number of Battery Input 1 PV String Input Data 1 Max. DC Input Power (W) 6500 7800 10400 13000 Max. DC Input Voltage (V) 800 800 500 7800 160 Max. DC Input Voltage (V) 160 200-650 800 200-650 800 1000 800 10000 800 10000 800 10000 800 10000 800 10000 800 10000 800 10000 800 10000 800 10000 800 10000 800 10000 800 10000 800 1000 <					
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V String Input Data Kitting Input Data Max. DC Input Power (W) 6500 7800 10400 13000 Max. DC Input Voltage (V) 160 160 13000 Max. DC Input Voltage (V) 160 200-650 Start-up Voltage Range (V) 200-650 350 Max. Operating PV Input Current (A) 13+13 2 Max. Not Short-Circuit Current (A) 17+17 3 No. of MPP Trackers/ 2/1+1 2 Rated AC Input/Output Data 2 2/1+1 2 Catingt/Output Data 2 2/1+1 2 2 Wax. AC Input/Output Apparent Power (W) 5000 6000 8000 11000 Max. AC Input/Output Apparent Power (W) 5000 6600 8800 11000 Max. AC Input/Output Current (A) 8.4/8 10/9.6 13.4/12.8 16.7/15.9 Max. AC Input/Output Current (A) 8.4/8 10/9.6 13.4/12.8 16.7/15.9 Max. AC Input/Output Gurent (A) 8.4/8 10/9.6 20/380V, 230/400V 0.85Un-1.1Un S	15600				
Max. DC Input Power (W) 6500 7800 10400 13000 Max. DC Input Voltage (V) 800	15600				
Max. DC Input Voltage (V) 800 Start-up Voltage (V) 160 VPT Voltage (M) 160 MPT Voltage (M) 200-650 Stard DC Input Voltage (V) 550 Max. Operating PV Input Current (A) 13+13 Stard DC Input Voltage (N) 200-650 Max. Input Short-Circuit Current (A) 17+17 So. of Strings per MPP Trackers 2/1+1 AC Input/Output Data 2/1+1 Steed AC Input/Output Active Power (W) 5000 So. of Strings per MPP Trackers 2/1+1 Acted AC Input/Output Active Power (W) 5000 So. of Linput/Output Active Power (W) 5000 Acted AC Input/Output Current (A) 7.4/7.2 Max. AC Input/Output Current (A) 7.4/7.2 Max. AC Input/Output Current (A) 8.4/8 10/9.6 Max. Continuous AC Passthrough (grid to loal) (A 45 Pase Power (Off-grid) (W) 2 times of rated power, 10s Power Factor Adjustment Range 0.8 leading to 0.8 lagging Stard Onnextion Form 3 L+N+PE Fotal Current Harmonic Distortion THDi <3% (of nominal power)	15600				
Start-up Voltage (V) 160 dPPT Voltage Range (V) 200-650 Started DC Input Voltage (V) 550 Max. Operating PV Input Current (A) 13+13 2 Max. Input Short-Circuit Current (A) 17+17 3 No. of MPP Trackers/ 2/1+1 2 No. of MPP Trackers/ 2/1+1 2 No. of MPP Tracker 2/1+1 2 Acted AC Input/Output Data 0 8000 10000 Max. AC Input/Output Active Power (VA) 5500 6600 8800 11000 Stated AC Input/Output Current (A) 7.6/7.2 9.1/8.7 12.1/11.6 15.2/14.5 Max. AC Input/Output Current (A) 7.6/7.2 9.1/8.7 12.1/11.6 15.2/14.5 Max. Three-phase Unbalanced Output Current (A) 8.4/8 10/9.6 13.4/12.8 16.7/15.9 Max. Three-phase Unbalanced Output Current (A) 11.4/10.9 13.6/13 18.2/17.4 22.7/21.7 Aax Continuous AC Passthrough (grid to load) (A) 45 45 50/45-56 5 Grid Connection Form S0/45-56, S0/55-65					
IMPT Voltage Range (V) 200-650 Iated DC Input Voltage (V) 550 Jax. Operating PV Input Current (A) 13+13 2 Jax. Input Short-Circuit Current (A) 17+17 3 Jo of MPP Trackers/ 2/1+1 2 Jo. of Strings per MPP Tracker 2/1+1 2 C Input/Output Data 2 2 Lated AC Input/Output Active Power (W) 500 6000 8000 10000 Jax. AC Input/Output Active Power (VA) 5500 6600 8800 11000 Jax. AC Input/Output Current (A) 7.6/7.2 9.1/8.7 12.1/11.6 15.2/14.5 Jack AC Input/Output Current (A) 7.6/7.2 9.1/8.7 12.1/11.6 15.2/14.5 Jack AC Input/Output Current (A) 8.4/8 10/9.6 13.4/12.8 16.7/15.9 Jax. Three phase Unbalanced Output Current (A) 11.4/10.9 13.6/13 18.2/17.4 22.7/21.7 Jack Continuous AC Passthrough (grid tolad) (A) 45 5 5 5 5 5 5 5 5 5 5 5 <td< td=""><td></td></td<>					
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Anti-processing 2/1+1 2 So of Strings per MPP Trackers/ 2/1+1 2 Reconstruction of Strings per MPP Tracker 2/1+1 2 Strings per MPP Trackers/ 2/1+1 2 Strings per MPP Trackers/ 5000 6000 8000 10000 Atax AC Input/Output Active Power (W) 5500 66600 8800 11000 Atax AC Input/Output Current (A) 8.4/8 10/9,6 13.4/12.8 16.7/15.9 Atax AC Input/Output Current (A) 8.4/8 10/9,6 13.4/12.8 16.7/15.9 Aax Three-phase Unbalanced Output Current (A) 8.4/8 10/9,6 13.4/12.8 16.7/15.9 Aax Three-phase Unbalanced Output Current (A) 8.4/8 10/9,6 13.4/12.8 16.7/15.9 Aax Three-phase Unbalanced Output Current (A) 11.4/10.9 13.6/13 18.2/17.4 22.7/21.7 Aax Continuous AC Passthrough (grid to load) (A) 45 45 45 45 Veak Power (off-grid) (W) 21 times of rated power, 10s 50/45-55, 60/55-65 50/45-55, 60/55-65 50/45-55, 60/55-65 50/45-55, 60/55-65	6+13				
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Kated AC Input/Output Active Power (W) 5000 6000 8000 10000 Max. AC Input/Output Apparent Power (VA) 5500 6600 8800 11000 Max. AC Input/Output Current (A) 7.6/7.2 9.1/8.7 12.1/11.6 15.2/14.5 Max. AC Input/Output Current (A) 8.4/8 10/9.6 13.4/12.8 16.7/15.9 Max. Three-phase Unbalanced Output Current (A) 11.4/10.9 13.6/13 18.2/17.4 22.7/21.7 Max. Continuous AC Passthrough (grid to load) (A) 45 45 45 46 Peak Power (off-grid) (W) 0.8 leading to 0.8 lagging 18.42/17.4 22.7/21.7 12.1/11.6 15.2/14.5 Asc. Three-phase Unbalanced Output Current (A) 11.4/10.9 13.6/13 18.2/17.4 22.7/21.7 Asc. Continuous AC Passthrough (grid to load) (A) 45 5 5 5 Veak Power (off-grid) (W) 2 times of rated power, 10s 0.8 lagging 18.42 lnput/Output Voltage/Range (V) 200/38.0V, 230/400V 0.85 Un-1.1Un Mated Input/Output Grid Frequency/Range(Hz) 50/45-55.60/55-65 50/45-55 50/55-65 50/45-55	/2+1				
Max. AC Input/Output Apparent Power (VA) 5500 6600 8800 11000 iated AC Input/Output Current (A) 7.6/7.2 9.1/8.7 12.1/11.6 15.2/14.5 Max. AC Input/Output Current (A) 8.4/8 10/9.6 13.4/12.8 16.7/15.9 Max. AC Input/Output Current (A) 8.4/8 10/9.6 13.4/12.8 16.7/15.9 Max. AC Input/Output Current (A) 8.4/8 10/9.6 13.4/12.8 16.7/15.9 Max. Continuous AC Passthrough (grid to load) (A) 45 45 45 teak Power (off-grid) (W) 0.8 leading to 0.8 lagging 6.8 lagging 6.8 lagging iated Input/Output Voltage/Range (V) 220/380V, 230/400V 0.85Un-1.1Un 6.4 lagging iated Input/Output Grid Frequency/Range(Hz) 50/45-55, 60/55-65 5.6 lagging 6.6 lagging					
tated AC Input/Output Current (A) 7.6/7.2 9.1/8.7 12.1/11.6 15.2/14.5 Max. AC Input/Output Current (A) 8.4/8 10/9.6 13.4/12.8 16.7/15.9 Max. Three-phase Unbalanced Output Current (A) 11.4/10.9 13.6/13 18.2/17.4 22.7/21.7 Max. Continuous AC Passthrough (grid to load) (A) 45 45 45 teak Power (off-grid) (W) 2 times of rated power, 10s 0.8 leading to 0.8 lagging 6.8 leading to 0.8 lagging tated Input/Output Voltage/Range (V) 220/380V, 230/400V 0.8 SUI-1.1Un 50/45-55, 60/55-65 Srid Connection Form 3L+N+PE 50/45-55, 60/55-65 5 Srid Connection Form 3L+N+PE 50/45-55, 60/55-65 5 Srid Connection Form 3L+N+PE 50/45-55, 60/55-65 5 Srid Connection Form <3% (of nominal power)	12000				
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Max. Three-phase Unbalanced Output Current (A) 11.4/10.9 13.6/13 18.2/17.4 22.7/21.7 Max. Continuous AC Passthrough (grid to load) (A) 45 45 teak Power (off-grid) (W) 2 times of rated power, 10s 0.8 leading to 0.8 lagging tower Factor Adjustment Range 0.8 leading to 0.8 lagging 0.8 leading to 0.8 lagging tated Input/Output Voltage/Range (V) 220/380V, 230/400V 0.85Un-1.1Un tated Input/Output Grid Frequency/Range(Hz) 50/45-55, 60/55-65 5 Sirid Connection Form 3L+N+PE 5 total Current Harmonic Distortion THDi <3% (of nominal power)	18.2/17.4				
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tax. Continuous AC Passthrough (grid to load) (A)45teak Power (off-grid) (W)2 times of rated power, 10stower Factor Adjustment Range0.8 leading to 0.8 laggingtated Input/Output Voltage/Range (V)220/380V, 230/400Vtated Input/Output Grid Frequency/Range(Hz)50/45-55, 60/55-65sirid Connection Form3L+N+PEtotal Current Harmonic Distortion THDi<3% (of nominal power)	27.3/26.1				
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ower Factor Adjustment Range0.8 leading to 0.8 laggingated Input/Output Voltage/Range (V)220/380V, 230/400V0.85Un-1.1Unated Input/Output Grid Frequency/Range(Hz)50/45-55, 60/55-65irid Connection Form3L+N+PEotal Current Harmonic Distortion THDi<3% (of nominal power)					
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Grid Connection Form3L+N+PETotal Current Harmonic Distortion THDi<3% (of nominal power)					
Total Current Harmonic Distortion THDi <3% (of nominal power)					
DC Injection Current <0.5% In					
Ifficiency 97.6% Max. Efficiency 97.0% Euro Efficiency 97.0% MPT Efficiency 97.0% MPT Efficiency >99% Equipment Protection >99% Equipment Protection DC Polarity Reverse Connection Protection, AC Output Overcurrent Protection, AC Output Overcurrent Protection, AC Output Overcurrent Protection, AC Output Short Circuit Protection, Therr DC Terminal Insulation Impedance Monitoring, DC Component Monitoring, Ground Fa Power Network Monitoring, Island Protection Monitoring, Earth Fault Detection, Overvoltage Load Drop Protection, Residual Current (RCD) Detection, Surge p Surge Protection Level TYPE II(DC), TYPE II(AC)					
Max. Efficiency 97.6% Suro Efficiency 97.0% MPPT Efficiency 97.0% Apprent Protection >99% Equipment Protection DC Polarity Reverse Connection Protection, AC Output Overcurrent Protection, AC Output Overcurrent Protection, AC Output Short Circuit Protection, Therr Integrated DC Terminal Insulation Impedance Monitoring, DC Component Monitoring, Ground Fa Power Network Monitoring, Island Protection Monitoring, Earth Fault Detection, Overvoltage Load Drop Protection, Residual Current (RCD) Detection, Surge p Interface TYPE II(DC), TYPE II(AC)					
Surve Efficiency 97.0% MPPT Efficiency >99% Equipment Protection >99% Integrated DC Polarity Reverse Connection Protection, AC Output Overcurrent Protection, AC Output Overcurrent Protection, AC Output Short Circuit Protection, Therr DC Terminal Insulation Impedance Monitoring, DC Component Monitoring, Ground Fa Power Network Monitoring, Island Protection Monitoring, Earth Fault Detection, Overvoltage Load Drop Protection, Residual Current (RCD) Detection, Surge p Surge Protection Level TYPE II(DC), TYPE II(AC)					
APPT Efficiency >99% Equipment Protection DC Polarity Reverse Connection Protection, AC Output Overcurrent Protection, AC Output Overcurrent Protection, AC Output Short Circuit Protection, Therr Integrated DC Terminal Insulation Impedance Monitoring, DC Component Monitoring, Ground Fa Power Network Monitoring, Island Protection Monitoring, Earth Fault Detection, Overvoltage Load Drop Protection, Residual Current (RCD) Detection, Surge p Funge Protection Level TYPE II(DC), TYPE II(AC)					
Equipment Protection DC Polarity Reverse Connection Protection, AC Output Overcurrent Protection, AC Output Overcurrent Protection, AC Output Short Circuit Protection, There Integrated DC Terminal Insulation Impedance Monitoring, DC Component Monitoring, Ground Far Power Network Monitoring, Island Protection Monitoring, Earth Fault Detection, Overvoltage Load Drop Protection, Residual Current (RCD) Detection, Surge p Surge Protection Level TYPE II(DC), TYPE II(AC)					
DC Polarity Reverse Connection Protection, AC Output Overcurrent Protection, AC Output Overcurrent Protection, AC Output Short Circuit Protection, Therr DC Terminal Insulation Impedance Monitoring, DC Component Monitoring, Ground Fai Power Network Monitoring, Island Protection Monitoring, Earth Fault Detection, Overvoltage Load Drop Protection, Residual Current (RCD) Detection, Surge p TYPE II(DC), TYPE II(AC)					
nterface	DC Polarity Reverse Connection Protection, AC Output Overcurrent Protection AC Output Overvoltage Protection, AC Output Short Circuit Protection, Thermal Protection DC Terminal Insulation Impedance Monitoring, DC Component Monitoring, Ground Fault Current Monitoring Power Network Monitoring, Island Protection Monitoring, Earth Fault Detection, DC Input Switch Overvoltage Load Drop Protection, Residual Current (RCD) Detection, Surge protection level				
Communication Interface W/IEL RS485_CAN					
Seneral Data					
Operating Temperature Range (°C) -40 to +60°C, >45°C Derating					
Permissible Ambient Humidity 0-100%					
Permissible Altitude 2000m	2000m				
loise (dB) ≤55	≤55				
ngress Protection(IP) Rating IP 65					
nverter Topology Non-Isolated	Non-Isolated				
Over Voltage Category OVC II(DC), OVC III(AC)					
Cabinet Size (WxHxD mm) 422×658×254 (Excluding Connectors and Brackets)					
Veight (kg) 38					
ype of Cooling Intelligent Air Cooling					
5 Years/10 Years the Warranty Period Depends the Final Installation Site of Inverter, More Info Please Re					
Grid Regulation IEC 61727, IEC 62116, CEI 0-21, EN 50549, NRS 097, RD 140, UNE 21 OVE-Richtlinie R25, G99, VDE-AR-N 4105	fer to Warranty Poli				
Safety / EMC Standard IEC/EN 61000-6-1/2/3/4, IEC/EN 62109-1, IEC/EN 62109-2	,				

Deye

Ningbo Deye Inverter Technology Co., Ltd. Add: No. 26 South YongJiang Road, Daqi, Beilun, NingBo, Zhejiang, China. | Tel: 0086-0574-86120560 | E-mail: market@deye.com.cn

HYUNDAI SOLAR MODULE



G12 PERC Shingled HiE-S435HG HiE-S440HG HiE-S445HG





Shingled Technology

For Both Residential & Commercial Applications



More Power Generation In Low Light



G12 PERC Shingled

G12 PERC Shingled Technology provides ultra-high efficiency with better performance in low irradiation. Maximizes installation capacity in limited space.



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

Corrosion Resistant

Various tests under harsh environmental

conditions such as ammonia and salt-mist



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. (Australia and Europe Only)

Hyundai's Warranty Provisions



• 25-Year Product Warranty





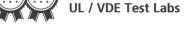
25-Year Performance Warranty

Initial year: 98.0%
Linear warranty after second year: with 0.55%p annual degradation, 84.80% is guaranteed up to 25 years

Certification







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

About Hyundai Energy Solutions

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Established in 1972, Hyundai Heavy Industries Group is one of the most trusted names in the heavy industries sector and is a Fortune 500 company. As a global leader and innovator, Hyundai Heavy Industries is committed to building a future growth engine by developing and investing heavily in the field of renewable energy.

As a core energy business entity of HHI, Hyundai Energy Solutions has strong pride in providing High-quality PV products to more than 3,000 customers worldwide.



Electrical Characteristics

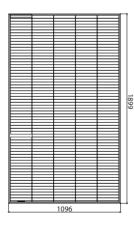
Electrical Characteristics		Mono-Crystalline Module (HiE-SHG)		
		445	440	435
Nominal Output (Pmpp)	W	445	440	435
Open Circuit Voltage(Voc)	V	43.8	43.7	43.6
Short Circuit Current (Isc)	А	13.01	12.90	12.79
Voltage at Pmax (Vmpp)	V	36.4	36.3	36.2
Current at Pmax (Impp)	А	12.23	12.13	12.02
Module Efficiency	%	21.4	21.1	20.9
Cell Type	-	F	ERC Mono-Crystalline Silicon Shingle	ed
Maximum System Voltage	V		1,500	
Temperature Coefficiency of Pmax	%/°C		-0.34	
Temperature Coefficiency of Voc	%/°C		-0.27	
Temperature Coefficiency of Isc	%/°C		0.04	

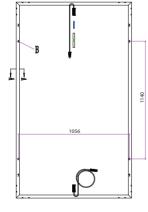
*All data at STC(Standard Test Conditions). Above data may be changed without prior notice. *Tolerance of Pmax:0~+5W. * Performance deviation of Voc [V], lsc [A], Vm[V] and Im[A]:±3%.

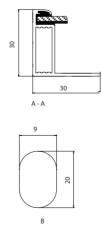
Mechanical Characteristics

Dimensions	1,899 \times 1,096 \times 30 mm (L \times W \times H)				
Weight	21.8kg				
Solar Cells	320 Cells, PERC Mono-crystaline Shingled (210 $ imes$ 210mm)				
Output Cables	4mm ² ,+500mm/-1100mm(Vertical), +220mm/-180mm(Horizontal) Connector Stäubli : MC4-Evo2				
Junction Box	IP68, TUV&UL, two diodes				
Construction	Front Glass: Tempered glass, 3.2mm Encapsulation: EVA (Ethylene-Vingl-Acetate)				
Frame	Anodized Aluminum				

Module Diagram (Unit: mm)





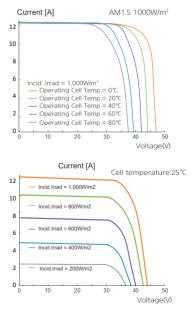


Installation Safety Guide

- 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 they are wet.

Nominal Operating Cell Temperature	42.3℃(±2℃)	
Operating Temperature	-40 ~ 85 ℃	
Maximum System Voltage	DC 1,500 / 1,000 (IEC)	
Series Fuse Rating [A]	25	
Maximum Surface Load Capacity	Front 5,400 Pa Rear 2,400 Pa	

I-V Curves





Manufactured in China



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