

Energy Storage Specialist



ESSOLX

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2

R & D Center

3W+m²

Plant

600W+

annual
production capacity

80%+

Mainstream inverter
Manufacturer option

ABOUT ESSOLX

NINGBO ESSOLX is a premier manufacturer of the world's finest maintenance free solar energy system to the public at very competitive prices, with an emphasis on professional innovation and quality, we have always put an emphasis on conducting business in an ethical, respon...

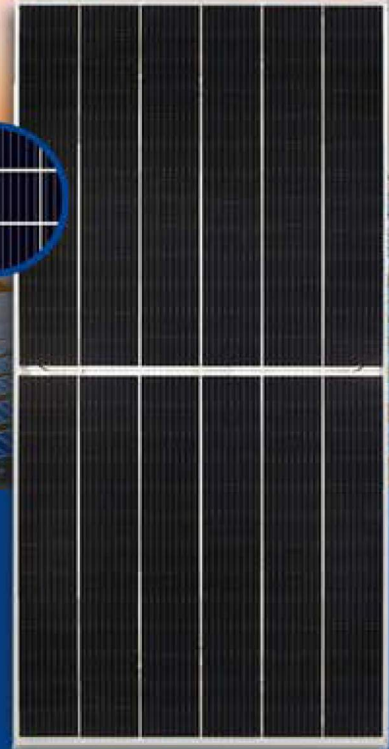
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MBB HC TECHNOLOGY

JinKO Solar
Building Your Trust in Solar

545W

JINKO SOLAR PV



Mechanical Data

Model:	JKM 545M-72HL4
Cell type:	monocrystalline
Cell number:	144(6*24)
Dimensions:	2274*1134*30mm
Weight:	33.3kg
Front glass:	3.2mm thickness, low iron tempered glass.
Backsheet:	White TPT
Junction box:	IP67 Rated, PPO, Black.
Frame:	Anodized Aluminium Alloy Type 6063 T5, silver color
Connector:	mc4
Cable:	4.0mm ² , (+) 290mm, (-) 145mm
Standard Test Conditions:	AM1.5 100MW/cm 25°C

Electrical Data

Model	JKM 540M-72HL4	JKM 535M-72HL4	JKM 530M-72HL4	JKM 525M-72HL4	JKM 520M-72HL4
Peak Power Watt- Pmax (W)	540	535	530	525	520
Maximum Power Voltage- Vmpp (V)	40.76	40.63	40.49	40.36	40.22
Maximum Power Current- Imp (A)	13.25	13.17	13.09	13.01	12.93
Open Circuit Voltage- Voc (V)	51.5	51.6	51.7	51.9	52.1
Short Circuit Current- Isc (A)	11.32	11.41	11.5	11.59	11.68
Module Efficiency (%)	20.04	20.26	20.49	20.71	20.93
Power Output Tolerance (W)	0 ~ +5				

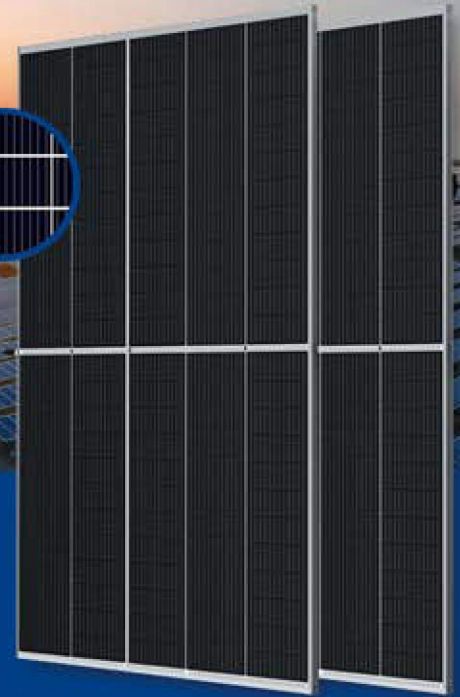
STC

Irradiance 1000W/m², Cell temperature 25°C, Air Mass AM1.5

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC(IEC), 1500V DC(UL)
Max Series Fuse Rating	20A
Temperature Coefficient of Pmax	-0.34%/°C
Temperature Coefficient of Voc	-0.28%/°C
Temperature Coefficient of Isc	0.048%/°C



MBB HC TECHNOLOGY



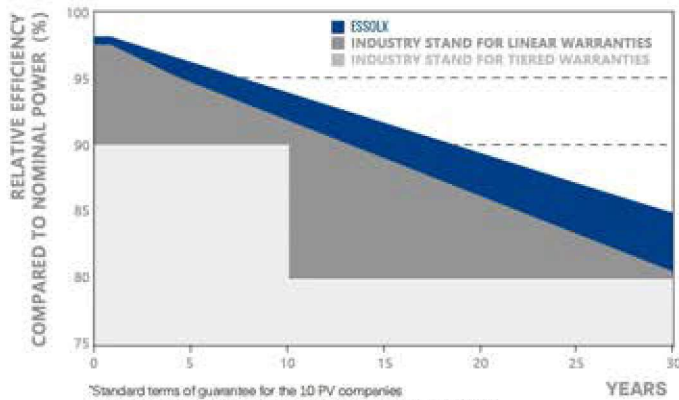
670W-700W

2395*1305*35mm
DIMENSIONS

132 CELLS
SOLAR HALF CELLS

EFF: 22.40%
MAX MODULE EFFICIENCY

0 to +5W
POSITIVE POWER TOLERANCE



*Standard terms of guarantee for the 10 PV companies with the highest production capacity in 2014 (as at: September 2014)

30
YEAR
Performance Guarantee

12
YEAR
Product Warranty



LINEAR PERFORMANCE WARRANTY



Multi Busbar Technology

Better light trapping and current collection to improve module power output and reliability.



Durability Against Extreme Environmental Conditions

High salt mist and ammonia resistance.



Reduced Hot Spot Loss

Optimized electrical design and lower operating current for reduced hot spot loss and better temperature coefficient.



Enhanced Mechanical Load

Certified to withstand : wind load (2400 Pascal) and snow load (5400 Pascal).



PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.



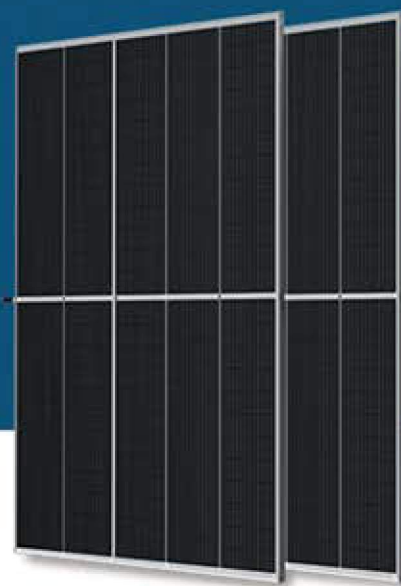
More Safty

Choose excellent Tier One brands as supply chain partners to ensure long-term reliability and higher safety level.

650-670W

MONO PERC

132/210MM



2384*1303*35MM

Dimension

132 CELS

Solar Half Cells

EFFICIENCY:21.06%

Max. Module Efficiency

0 to +5W

Positive Power Tolerance



650~670W BIFACIAL 132 HALF CUT SOLAR PANELS

ELECTRIC DATA ①

Model	ESS-650M-132 ~ ESS-670M-132				
Encapsulation	Class/Eva/Cell/Eva/Back sheet				
Maximum Power Pmax(W)	650W	655W	660W	665W	670W
Maximum Power Voltage(Vmp/V)	37.8	38	38.2	38.4	38.6
Maximum Power Current(Imp/A)	17.2	17.24	17.28	17.32	17.36
Open Circuit Voltage(Voc/V)	45.2	45.4	45.6	45.8	46
Short Circuit Currnt(Isc/A)	18.26	18.3	18.34	18.38	18.42
Module Efficiency(%)	20.9	21.1	21.3	21.4	21.6
Power Tolerance(W)	0~+5W				
Temperature Coefficient of Isc(α_{Isc})	+0.043%/°C				
Temperature Coefficient of Voc(β_{Voc})	-0.26%/°C				
Temperature Coefficient of Pmax(γ)	-0.36%/°C				
STC	Irradiance 1000w/m ² , Cell Temp.: 25°C, Air Mass 1.5				

SPECIFICATIONS ②

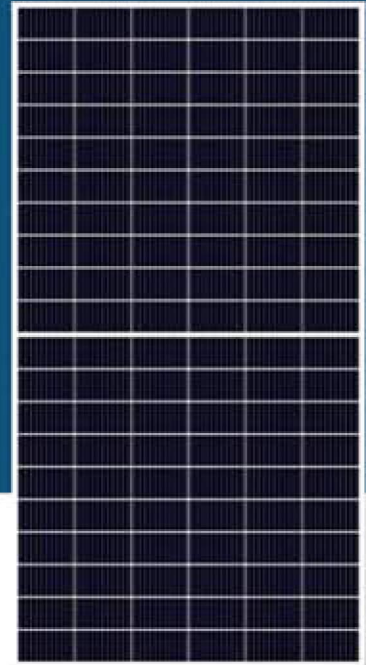
Cell	Mono
Weight	34.5kg
Dimensions	2384*1303*35mm
Cable Cross Section Size	TUV: 4mm ² (0.006inches ²)/UL: 12AWG
No. of Cells	132 (6x22)
Junction Box	IP68, 3 diodes
Cable Length	Portrait 300mm/Landscape 1200mm/Customized
Packaging Configuration	31pcs/Pallet, 558pcs/40ft Container

530-550W

MONO PERC

M10/182MM

144 HALF CELLS



2200*1305*35MM
Dimension

120 CELS
Solar Half Cells



EFFICIENCY:21.06%
Max. Module Efficiency

0 to +5W
Positive Power Tolerance

KEY FEATURES



M Busbar Solar Cell

M Busbar Solar Cell design improves module efficiency and offers better aesthetic appearance for rooftop in stallation.



High Efficiency:

Higher module conversion efficiency(up to 22.67%) benefit from Passivated Emmiter Rear Contact (PERC) technology.



PID Resistance:

Excellent Anti-PID perform ance guarantee limited power degradation for mass production.



Low-light Performance:

Advanced glass and cell surface textured design ensure excellent performance in low-light temvironment.



Severe Weather Resilience:

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).



DURABILITY AGAINST EXTREME ENVIRONMENTAL CONDITIONS:

High salt mist and ammonia resistance certified by TUV NORD.



SOLAR MODULE BOM

CELLS:TIER 1 BRANDS SOLAR CELLS

TEMPERED GLASS:ULTRA-CLEAR

EVA:TRANSPARENCY>93%

BACKSHEETS:REFLECTIVITY>80%, TPT

JUNCTION BOX: IP65/IP67 MAX 30A

SILICON GEL: UV, AGING-RESISTANT

FRAME: ANODIZED ALUMINUM 6005-T5

QUALITY CONTROL

- ◆ 2 EL testing avoid cells cracking of each solar module.
- ◆ 2 Power flash testing avoid false welding and insufficient power of each module.
- ◆ Packing tightly with angle protection avoid transportation broken.
- ◆ Official Warranty cover all solar module 30 years.

LINEAR PERFORMANCE WARRANTY

12 Year Product Warranty • 30 Year Linear Power Warranty

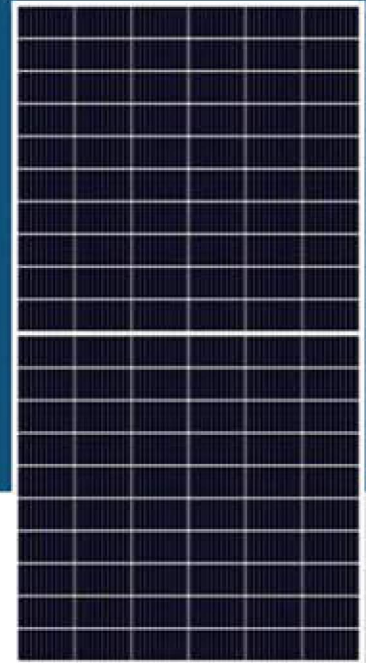


530-550W

MONO PERC

M10/182MM

144 HALF CELLS



2200*1305*35MM
Dimension

120 CELS
Solar Half Cells



EFFICIENCY:21.06%
Max. Module Efficiency

0 to +5W
Positive Power Tolerance

ELECTRICAL CHARACTERISTICS AT STC

	530W	535W	540W	545W	550W
Maximum power(Pmax)	530W	535W	540W	545W	550W
Open Circuit Voltage(Voc)	49.74V	49.89V	50.04V	50.18V	50.32V
Short Circuit Current(Isc)	13.62A	13.69A	13.76A	13.83A	13.90A
Voltage at Maximum power(Vmpp)	41.63V	41.80V	41.96V	42.12V	42.28V
Current Maximum power (Impp)	12.73A	12.80A	12.87A	12.94A	13.01A
MODULE EFFICIENCY(%)	20.51%	20.70%	20.89%	21.09%	21.28%

STC: Irradiance 1000W/m², cell temperature 25°C, AM1.5G

NOCT: Irradiance 800W/m², ambient temperature 20°C, wind speed 1m/s, AM1.5G

ELECTRICAL CHARACTERISTICS AT NOCT

	401W	405W	409W	413W	417W
Maximum power(Pmax)	401W	405W	409W	413W	417W
Open Circuit Voltage(Voc)	47.16V	47.40V	47.63V	47.87V	48.10V
Short Circuit Current(Isc)	10.91A	10.95A	10.99A	11.03A	11.07A
Voltage at Maximum power(Vmpp)	38.97V	39.21V	39.44V	39.67V	39.90V
Current Maximum power (Impp)	10.29A	10.33A	10.37A	10.41A	10.45A
MODULE EFFICIENCY(%)	20.51%	20.70%	20.89%	21.09%	21.28%

STC: Irradiance 1000W/m², cell temperature 25°C, AM1.5G

NOCT: Irradiance 800W/m², ambient temperature 20°C, wind speed 1m/s, AM1.5G

MECHANICAL CHARACTERISTICS

Cell type	Mono 182x182mm
Number of cells	144(6x24)
Module dimensions	2229x1133x35mm
Weight	28.5kg
Front cover	3.2mm, Anti-Reflection Coating, Tempered Glass
Frame	Anodized Aluminium Alloy
Junction box	IP67 Rated
Cable	TÜV 1x4.0mm ² , Length:300mm or Customized Length
Connector	PV Connector (compatible)

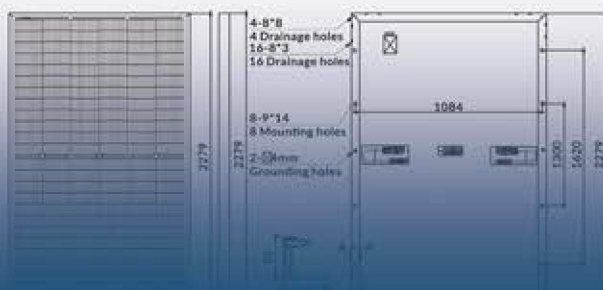
TEMPERATURE CHARACTERISTICS

Nominal Operating Cell Temperature (NOCT)	45°C ± 2°C
Temperature Coefficients of P _{max}	-0.39%/°C
Temperature Coefficients of V _{oc}	-0.28%/°C
Temperature Coefficients of I _{sc}	0.05%/°C

PACKAGING

Standard packaging	31pcs/pallet
Module quantity per 20' container	155pcs
Module quantity per 40' container	20 pallet/620pcs(HQ)

ENGINEERING DRAWINGS



Electrical Performance & Temperature Dependence

Current-Voltage and Power-Voltage Curves (540W)





FLEXIBLE SOLAR PANELS



ESSOLX FLEXIBLE SOLAR PANELS								
MODEL	Pmax (W)	Voc (V)	Isc (A)	Vmp (V)	Imp (A)	Cell efficiency	N/W(kg)	DIMENSION
ESS-F-18W	18	23.7	1	19.4	0.9	20.50%	0.3	434*277*3
ESS-F-25W	25	21.6	1.5	18	1.4	20.00%	0.6	560*277*3
ESS-F-30W	30	21.2	1.8	17.6	1.7	19.60%	0.5	535*378*3
ESS-F-50W	50	21.2	3.1	17.6	2.8	21.50%	0.7	545*535*3
ESS-F-60W-36C	60	21	3.8	17.5	3.4	19.60%	0.9	725*535*3
ESS-F-60W-72C	60	42.3	1.9	35.2	1.7	19.60%	0.9	725*535*3
ESS-F-90W-36C	90	19.8	5.9	16.4	5.5	19.40%	1.3	820*660*3
ESS-F-90W-36C1	90	18.5	6.3	15.2	5.9	20.60%	1.2	920*540*3
ESS-F-100W	100	21.6	6	17.8	5.6	19.90%	1.4	1050*540*3
ESS-F-110W	110	23.7	5.9	19.8	5.6	20.00%	1.5	1175*540*3
ESS-F-120W	120	26.4	5.9	22	5.5	20.00%	1.8	1305*540*3
ESS-F-130W	130	29.4	5.8	24.4	5.3	19.50%	2	1435*540*3
ESS-F-135W	135	29.5	5.8	24.9	5.5	20.00%	2	1435*540*3

GRID TIE INVERTER

5/6/8/10/12KW

HUAWEI



HUAWEI 5/6/8/10/12KW ON GRID INVERTER

Technical parameters	SUN2000-5KTL-M1	SUN2000-6KTL-M1	SUN2000-8KTL-M1	SUN2000-10KTL-	SUN2000-12KTL-
Efficiency					
Maximum efficiency	98.40%	98.60%	98.60%	98.60%	98.60%
The input					
Recommended max. PV power 1	7500wp	9000wp	12000wp	15000wp	18000wp
Max. input voltage 2			1100V		
Start voltage			200v		
Max. input current per MPPT			11A		
Maximum short circuit current			15A		
Operating voltage range 3			140V~980V		
Rated input voltage			600V		
Maximum input number			2		
Max. input number per MPP tracker			2		
Input (DC Battery)					
Compatible Battery	HUAWEI Smart String ESS 5kWh – 30kWh				
Operating voltage range	600 V ~ 980 V				
Max operating current	16A				
Max charge Power	10,000 W				
Max discharge Power	5,500 W	6,600 W	8,800 W	10,000 W	10,000 W
The output					
Grid connection	Three-phase				
Rated output	5,000W	6,000W	8,000W	10,000W	12,000W
Maximum apparent power	5,500VA	6,600VA	8,800VA	11,000VA	12,000VA
Maximum active power	5,000W	6,000W	8,000W	10,000W	12,000W
Rated output voltage	220Vac/380Vac,230vAC/400Vac,3W/N+PE				
Output voltage frequency	50HZ/60HZ				
Maximum output current	8.5A	10.1A	13.5A	16.9A	18.4A
Max. total harmonic distortion	<3%				
Output (Backup Power via Backup Box-B1)					
Maximum apparent power	3,300 VA				
Rated output voltage	220 V / 230 V				
Maximum output current	15 A				
Power factor range	0.8 leading ... 0.8 lagging				
Features & Protections					
Input-side disconnection device	Yes				
Anti-Islanding protection	Yes				
DC reverse polarity protection	Yes				
Insulation monitoring	Yes				
DC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11				
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11				
Residual current monitoring	Yes				
AC overcurrent protection	Yes				
AC short-circuit protection	Yes				
AC overvoltage protection	Yes				
Arc fault protection	Yes				
Ripple receiver control	Yes				
Integrated PID recovery	Yes				
Battery reverse charging from grid	Yes				
Nighttime Power Consumption	Yes				

ON GRID INVERTER

GROWATT

3/4.2/5/6KW



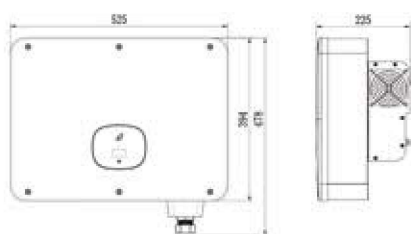
GROWATT MIN SERIAL SOLAR INVERTER (GRID TIE)

Model Name	MIN 3000TL-X	MIN 4200TL-X	MIN 5000TL-X	MIN 6000TL-X
Input DC				
Recommended max. PV power	4200W	5880kW	7000W	8100W
Max. input voltage	550V			
Rated voltage	360V			
Start-up voltage	100V			
MPPT voltage range	80V-550V			
ax. input current	16A			
MPPT number/Max. input strings number	2			
Output AC				
Rated output power	3000W	4200W	5000W	6000W
Max. apparent output power	3kVA	4kVA	5kVA	6kVA
Rated grid voltage	230V (180-280V)			
Rated grid frequency	50Hz/60Hz,±5Hz			
Max. output current	13.6A	19A	22.7A	27.2A
Power Factor	0.8leading - 0.8lagging			
THDi	<3%			
Efficiency				
Max. efficiency	98.40%	98.40%	98.40%	98.40%
EU efficiency	97.10%	97.50%	97.50%	97.50%
Protection				
DC reverse-polarity protection	Yes			
Short circuit protection	Yes			
Output over current protection	Yes			
Surge protection	Yes			
Grid monitoring	Yes			
Anti-islanding protection	Yes			
Temperature protection	Yes			
Integrated AFCI (DC arc-fault circuit protection)	Yes			
Integrated DC switch	Optional			
General Data				
Dimensions (W*H*D)	375/350/160mm			
Weight	10.8kg			
Topology	Transformerless			
Self consumption	<1W (night)			
Operating ambient temperature range	-25 ~ +13660 °C			
Relative humidity	0-100%			
Ingress protection	IP65			
Cooling concept	Intelligent redundant fan-cooling			
Max. operation altitude	4000m			
Safety/EMC standard	IEC 62109-1/-2, IEC 62116, EN 61000-6-1/-2/-3/-4			
Features				
DC connection	H4/MC4(opt)			
AC connection	Connector			
Display	LCD			
Communication	RS485, Optional WiFi, GPRS			

ON GRID INVERTER

MID-15-25KTL3-X

15/17/20/22/25KW



GROWATT MID ON GRID INVERTER

Datasheet	MID 15KTL3-X	MID 17KTL3-X	MID 20KTL3-X	MID 22KTL3-X	MID 25KTL3-X
Input data (DC)					
Max. recommended PV power (for	22500W	25500W	30000W	33000W	37500W
Max. DC voltage	1100V				
Start Voltage	250V				
Nominal voltage	580V				
MPPT voltage range	160V-1000V				
No. of MPP trackers	2				
No. of PV strings per MPP tracker	2	2	2	2	2/3
Max. input current per MPPT tracker	25A	25A	25A	25A	25A/37.5A
Max. short circuit current per MPPT	32A	32A	32A	32A	32A/48A
Output data (AC)					
Rated AC output power	15000W	17000W	20000W	22000W	25000W
Max. AC apparent power	16600VA	18800VA	22000VA	24400VA	27700VA
Nominal AC voltage(range*)	220V/380V, 230V/400V (340-440V)				
AC grid frequency;(range*)	50/60 Hz (45-55Hz/55-65 Hz)				
Max. output current	24.2A	27.4A	31.9A	35.5A	40.2A
Adjustable power factor	0.8leading...0.8lagging				
THDi	<3%				
AC grid connection type	3W+N+PE				
Efficiency					
Max. efficiency	98.75%				
European efficiency	98.60%				
MPPT efficiency	99.90%				
Protection devices					
DC reverse polarity protection	Yes				
DC Switch	Yes				
AC/DC surge protection	TypeII/Type II				
String monitoring	Optional				
AFCI protection	Optional				
General data					
Dimensions (W / H / D)	525/395/222mm				
Weight	23kg				
Operating temperature range	-25 °C ... +60 °C				
Noise emission (typical)	≤40 dB(A)				

MPPT/IP65

MICRO INVERTER

700W



DOWNLOAD Cloud Intelligence APP

Please use the QR code to scan and install the "Cloud Intelligence" client application, system version: Android 4.0, IOS 9 and above



MICRO INVERTER 700W

Model	wvc-700	
Maximum input power	2×400Watt	
Output voltage mode	120/230V Auto Switch	
PV Open circuit voltage	30-60Voc	
Operating voltage range	22-60V	
Starting voltage range	22-60V	
Short-circuit current	32A	
Maximum working current	28A	
Output parameters	@120V	@230V
Maximum Output Power	700watt	700watt
Rated Output Power	650watt	650watt
Output current	5.9A	3.05A
AC voltage range	80-160VAC	180-280VAC
Number of branch connections.	6 units	12 units
AC frequency range	47.5-52/57.5-62Hz	
Power factor	>95%	
Output efficiency		
Static MPPT efficiency	99.50%	
Max output efficiency	95%	
Loss of power at night	<0.5w	
Total current harmonics	<5%	

Appearance and technical features

Size (L×W×H) mm	283×200×41.6	
Net amount	1.56kg	
Waterproof grade	IP65	
Temperature range	-40°C to +65°C	
Heat dissipation mode	Self-cooling	
Communication mode	433MHz	
Power transmission mode	Reverse transmission, Load priority	
Monitoring system	Mobile phone APP、Browser	
Electromagnetic compatibility	EN50081.part1 EN50082.Part1.CSA STD.C22.2 No.107.1	
Power grid	EN61000-3-2 EN62109.Ul STD.1741	
Power grid detection	DIN VDE 0126 IEEE STD.1547.1 and 1547.A	



Flexible

- Wide input voltage range.
- Compatible with lead-acid or lithium-ion batteries or other battery.

Grace

- Fashion appearance, light weight, smart operation.
- Natural cooling, low noise.
- IP65 , wall mounted design, saving space.
- Touch screen LCD.

Reliable

- Compatible anti counter flow function.
- Battery reverse connect protection.

Advanced

- Intelligent energy management system for home.
- Power dispatching and demand side response management.
- Distributed virtual power station management.

Application Scenario



Villa

Communication
base station

Nomadic area



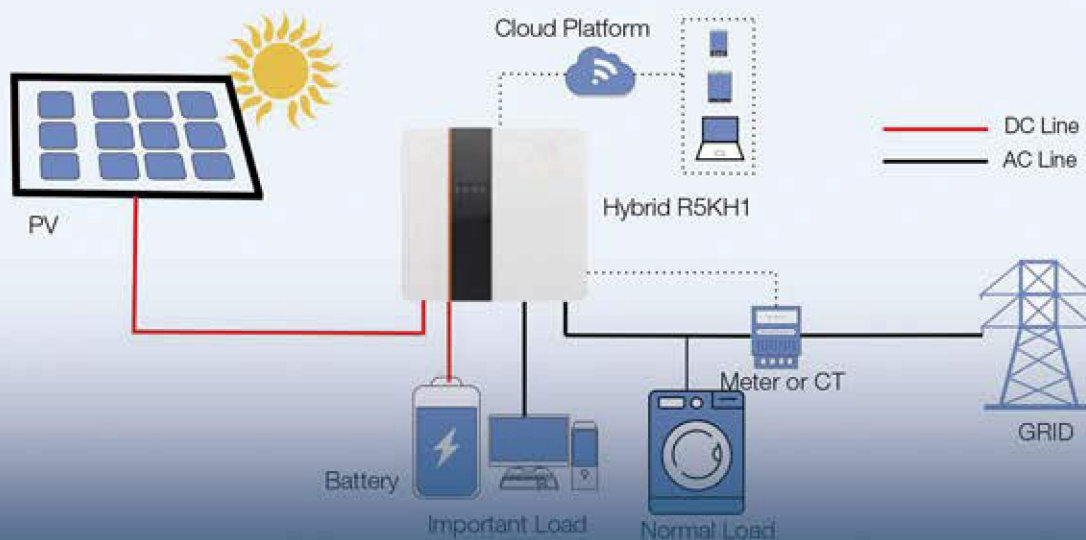
Farm



Household

Field
power supply

Product Topology



HYBRID INVERTER (SINGLE PHASE, EUROPE VERSION)

Datasheet	ESS-EP-3KW	ESS-EP-3.6KW	ESS-EP-4KW	ESS-EP-4.6KW	ESS-EP-5KW	ESS-EP-6KW
DC Input						
Max. Input Power	4600W		6000W		6000W	
Start-up Voltage	125V					
Max. PV Voltage	500V					
PV Voltage Range	125V-500V					
MPPT Range/Nominal	125V-500V /360V					
Max. Input Current	14A/14A					
MPPT Tracker/Strings	2/1					
AC Output						
Rated Power	3000VA/3000	3600VA/3600	4000VA/4000	5000VA/5000	5500VA/5500	6000VA/6000
Max. Output Current	13A	16A	17.4A	20A	21.7A	26A
Nominal Voltage/Range	230Vac /176Vac~270Vac					
Frequency	50 /60Hz					
PF	1(0.8lagging-0.8leading)					
THDI	<3%					
AC Output Topology	L+N+PE					
Battery						
Battery Voltage Range	85V~400V					
Max. Charging Voltage	400V					
Charge/Discharge Current	20A					
Battery Type	lithium /Lead-acid					
Deep Of Discharging	80%DOD/50%DOD					
Capacity Of Battery	3~12kWh					
Communication Interface	CAN/RS485					
EPS Output						
Rated Power W/VA	3000VA/3000	3600VA/3600	4000VA/4000	5000VA/5000	5500VA/5500	6000VA/6000
Rated Voltage	230Vac					
Rated Current	13A	16A	17.4A	20A	21.7A	26A
Rated Frequency	50Hz					
Automatic Switchover Time	<20ms					
THDU	<2%					
Parallel Operation	yes					
General Data						
Battery Chage/Discharge	96%					
DC Max. Efficiency	97.60%					
Euro Efficiency	97%					
MPPT Efficiency	99%					
Protection class	IP65					
Noise Emission (Typical)	<35dB					
Operation Temperature	-25~+60℃					
Cooling	Natural					
Relative Humidity	0~95% (non-condensing)					
Altitude	2000m					
Dimensions (W/D/H) mm	550/200/515mm					
Weight	28kg					
Inverter Topology	transformerless					
Self-Consumption	<3W					
Features						
Display	LCD					
Interface: RS485/Wifi/LAN	yes /opt/opt					
/CAN/DRM	/yes/yes					
Certificates	CE、TUV					

Split Phase, 2/3 Phase, Single Phase

HYBRID

5/6/7.6/8KW

MAX. EFFICIENCY: ≥98.2%



8KW Charger /
Discharger Rate



Remote
Monitoring



IP65
Rated



Hybrid
Solution



Characteristics

Flexible

- Wide input voltage range.
- Compatible with lead-acid or lithium-ion batteries or other battery.

Grace

- Fashion appearance, light weight, smart operation.
- Natural cooling, low noise.
- IP65, wall mounted design, saving space.
- Touch screen LCD.

Reliable

- Compatible anti counter flow function.
- Battery reverse connect protection.

Advanced

- Intelligent energy management system for home.
- Power dispatching and demand side response management.
- Distributed virtual power station management.

Application Scenario



Villa



Communication
base station



Nomadic area



Farm



Household



Field
power supply



SPLIT PHASE HYBRID INVERTER (AMERICA VERSION)

Model	ESS-AP-5KW	ESS-AP-6KW	ESS-AP-7.6KW	ESS-AP-8KW
Efficiency				
Max Efficiency	≥98.2%			
CEC Efficiency	≥97.2%			
On Grid AC Output				
Rate AC Output Power	5KVA	6KVA	7.6KVA	8KVA
AC Output Voltage	120/240Vac(split phase), 208Vac(2/3 phase), 230Vac(single phase)			
AC Output Frenquecny	50/60Hz			
Grid Type	Split phase, 2/3 phase, single phase			
Max Output Current	24A	28.8A	36.5A	38.3A
	Yes			
AC reverse charging				
PF	0.8 leading. 0.8lagging			
Output THDI	< 2%			
Back-up AC Output				
Rated Backup output power	5KVA	6KVA	7.6KVA	8KVA
Max Backup output power	6.25KVA 60S,	7.5KVA 60S, 9KVA	9.5KVA 60S,	10KVA 60S, 12KVA
Backup AC output Voltage	120/240Vac(split phase), 208Vac(2/3 phase), 230Vac(single phase)			
AC Frenquency	50/60Hz			
Output THDI	< 2%			
PV Input				
PV input power	7.5KW	9KW	12KW	12KW
MPPT number	4			
PV voltage range	350V/85V-500V 120V-500V			
MPPT voltage range				
Single MPPT input current	12A	12A	12A	12A
Battery				
Max charging/discharging current	120A/120A	135A/135A	190A/190A	190A/190A
Battery Voltage range	48V	48V	48V	48V
Battery Type	Lithium-ion, Lead-acid			
Protection				
Ground protection	Yes			
AFCI protection	Yes			
Islanding protection	Yes			
DC disconnect detection	Yes			
Battery Reverse protection	Yes			
Battery charge and discharge protection	Yes			
Insulation testing	Yes			
GFCI	Yes			
DC anti-thunder	Yes			
AC anti-thunder	Yes			
Input overvoltage&under-voltageprotections	Yes			
Output overvoltage&under-voltageprotections	Yes			
AC&DC over-current protection	Yes			
AC short-circuit current protection	Yes			
Overheating protection	Yes			
General Data				
Operation Temperature range	-25~+60℃			
Environment humidity	0-95%			
Altitude	0~4000M (over 2000M derating)			
IPrank	IP65/NEMA 3R			
Weight	32kg			
Dimension(W xHx D)	430×710×210mm			
Cooling	Fan Cooling			
Noise(dB)	< 25dB	< 29dB	< 29dB	< 29dB
Display	LCD			
Communication	Modbus, RS485, WiFi, 4G			
Safty	EN61000-6-1, EN61000-6-3, FCC 15 Class B			
EMC	IEC62109-1, IEC62109-2			



HYBRID

SOLAR SYSTEM
5/6/7.6/8KW



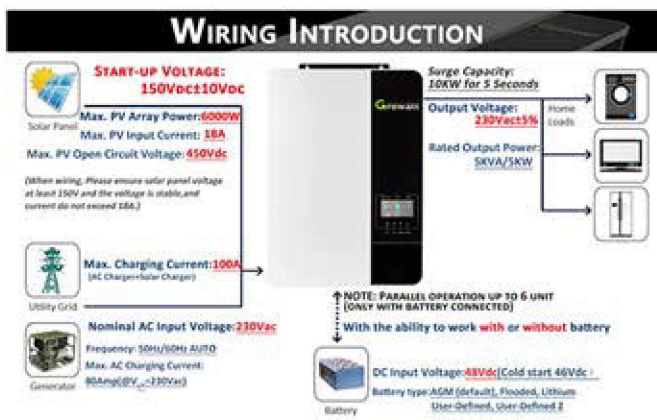
5/6/7.6/8KW HYBRID SOLAR SYSTEM (SPLIT PHASE)

Model	5KW	6KW	7.6KW	8KW
550W MONO Half Cut Solar Panels	10	20	30	40
Hybrid Split Phase Inverter of 5/6/7.6/8KW	1	1	1	1
Solar Panel Mounting Kit (Slope Roof/Flat)	1	1	1	1
48V/200AH LITHIUM ION BATTERY	1	1	2	2
100 M OF SOLAR CABLE 4mm2	1	1	2	2
Battery Cables + Tool Bag + MC4	1	1	1	1
PV Combiner Box, D.C Switch/Isolator/A.C Switch/Isolator,SPD,Circuit Breaker	1	1	1	1

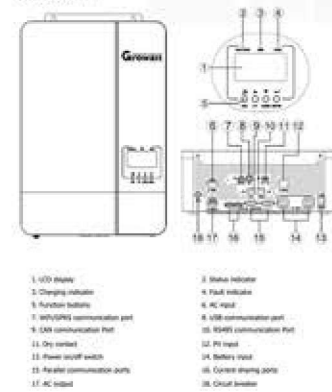
OFF GRID INVERTER

SFP-3500/5000ES

3.5/5KW



Product Overview



5000W Solar Hybrid Inverter

Max. PV Input 6000W, 18A, 450V DC, Max PV Output 100A

- All in One Inverter with 100A MPPT Charge Controller
- Battery Charging Priority can be Set (PV First, Solar and Utility, and Only Solar)
- Load Supply Priority can be set (Solar First/Utility Priority/SBU Priority/SUB Priority)
- Work with 48V lead-acid/Lithium/User and No Battery
- Max support 6 unit parallel (need connected battery)



48V DC to 230V AC
OFF-GRID SOLAR INVERTER



Pure Sine Wave Energy



Solar Charge Controller



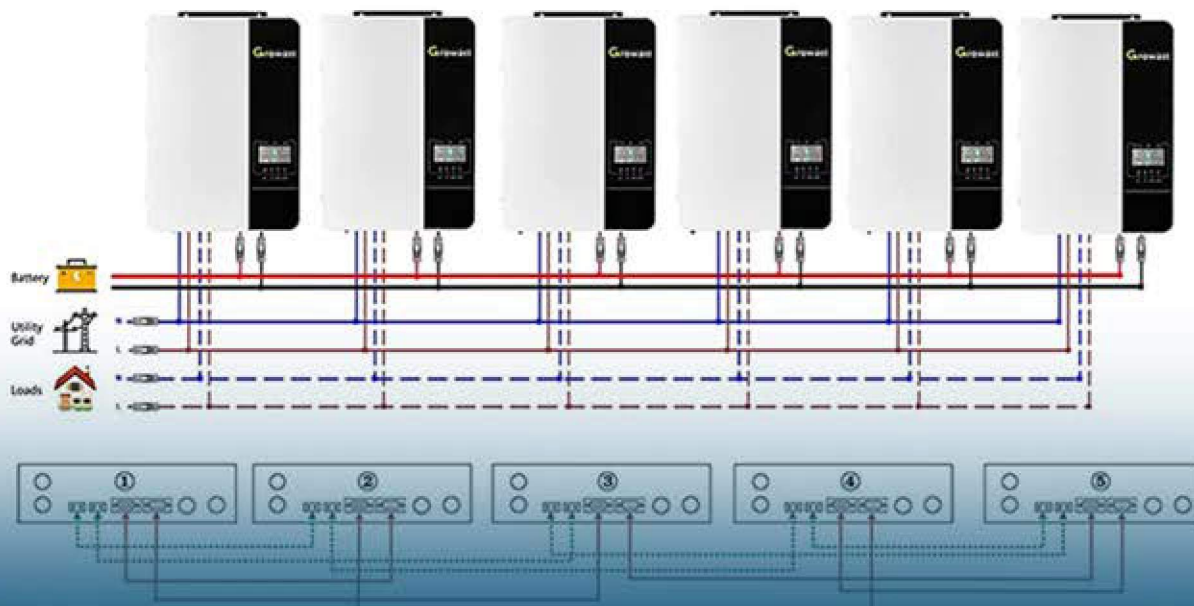
Combined Battery Charger

GROWATT SFP OFF GRID INVERTER

MODEL	GROWAT -SPF 3500 ES	GROWAT -SPF 5000ES
Battery Voltage	48VDC	
Battery Type	Lithium/Lead-acid	
INVERTER OUTPUT		
Rated Power	3500VA/3500W5000VA/5000K	
Parallel Capability	Yes,6 units maximum	
AC Voltage Regulation (Battery Mode)	230VAC \pm 5%@50/60Hz	
Surge Power	7000VA10000VA	
Efficiency (Peak)	93%	
Waveform	Pure sine wave	
Transfer Time	10ms typical.20ms Max	
SOLAR CHARGER		
Maximum PV Array Power	4500W	6000W
MPPT Range @ Operating Voltage	120VDC~430VDC	
Number of Independent MPP	1/1	
Maximum PV Array Open Circuit	450VDC	
Maximum Solar Charge Current	80A	100A
AC CHARGER		
Charge Current	60A80A	
AC Input Voltage	230 VAC	
Selectable Voltage Range	170-280 VAC(For Personal Computers):90-280 VAC(For Home	
Frequency Range	50Hz/60Hz(Auto sensing)	
PHYSICAL		
Protection Degree	IP20	
Dimension (W/H/D)	330/485/135mm	330/485/135mm
Net Weight	11.5kgs	12kgs
OPERATING ENVIRONMENT		
Humidity	5% to 95% Relative Humidity(Non-condensing)	
Altitude	<2000m	
Operating Temperature	0°C -55°C	
Storage Temperature	0°C -60°C	



PARALLEL (Parallel Operation up to 6unit(ONLY with Battery Connected))





OFF GRID

5/10/15/20/25/30KW
SOLAR SYSTEM

GROWATT



5/10/15/20/30KW SOLAR POWER SYSTEM

DESCRIPTION	5KW	10KW	15KW	20KW	30KW
550W MONO Half Cut Solar Panels	10	20	30	40	60
SFP 5KVA/5000W off grid Solar Inverter/WIFI	1	2	3	4	6
Solar Panel Mounting Kit (Slope Roof/Flat)	1	1	1	1	1
48V/200AH LITHIUM ION BATTERY	1	2	3	4	6
100 M OF SOLAR CABLE 4mm2	1	1	2	2	3
Battery Cables + Tool Bag + MC4	1	1	1	1	1
PV Combiner Box, D.C Switch/Isolator/A.C Switch/Isolator,SPD,Circuit Breaker	1	1	1	1	1



LITHIUM ION POWERWALL

48V/100/200AH



Safe and Long life cycle

The cell belongs to lithium iron phosphate power cell which can be recycled more than 3600 times



Modular Design

The quality of industrial design is more reliable and more standardized, and it's suitable for industrial and civil use



Intelligent BMS

Intelligent Battery protection system make the battery more stable and safer



Comprehensive compatibility

It is better suited for off-grid inverters and on/off hybrid inverters

PREMIUM QUALITY LITHIUM ION BATTERY (POWER WALL/POWER RACK)

Model	ESS-48V-2.4KWH	ESS-48V-5KWH	ESS-48V-10KWH
Nominal volt (v)		48V	
Nominal capacity (AH)	50	100	200
Working volt range		42~56.25V	
Recommend charging volt (V)		52.5	
Recommend discharging cutoff volt (v)		45	
Standard charging current(A)	25	50	100
Max.Constant charging current(A)	50	100	200
Standard discharging current (A)	25	50	100
Max.Discharging current (A)	50	100	200
Temperature (°C)	-30°C~60°C(Recommend 10C~35°C)		
Allowable humidity range	0~85% RH		
Storage temperature(°C)	-20°C~65C(Recommend 10°C ~ 35°C)		
Protection	IP20		
Cooling method	Natural air cooling		
Packing Size(mm)	482.6*360*175	482.6*535*175	750*780*350
Weight(KGS)	30KG	55KGS	96.5KGS
Warranty	3/5/7YEARS		
Lifespan	15 Years		
Communication	CAN		
Protection Model	Triple Hardware Protection		
Battery Protection	Over-current/Over-voltage/Short circuit/ Under-voltage		


Specifications are subject to change without further notification

OPzV BATTERY

TUBULAR GEL

2V/800/1000/1500/2000AH






Sealed Lead Battery
Must Be Recycled Or
Disposed Of Properly

- **Constant Voltage Charge**
Cycle Charge Voltage: 2.37 to 2.46 Volt at 25°C
Float Charge Voltage: 2.25 to 2.30 Volt at 25°C
- **Caution**
Avoid Short Circuit
Don't charge in a sealed container



2V - OPzV TUBULAR GEL BATTERY

Model NO	Voltage (V)	Capacity Hr(Ah)	Dimension (±1mm)				Weight kg
			Length	Width	Height	Total Height	
			mm	mm	mm	mm	
Tubular GEL OPzV Battery							
OPzV200	2	200	103	206	356	389	19.00
OPzV250	2	250	124	206	356	389	23.00
OPzV300	2	300	145	206	356	389	26.50
OPzV350	2	350	124	206	473	505	28.50
OPzV420	2	420	145	206	473	505	33.50
OPzV490	2	490	166	206	473	505	39.50
OPzV600	2	600	145	206	646	678	47.50
OPzV800	2	800	191	210	646	678	63.50
OPzV1000	2	1000	233	210	646	678	77.50
OPzV1200	2	1200	275	210	646	678	92.50
OPzV1500	2	1500	275	210	795	827	113.50
OPzV2000	2	2000	399	212	770	802	153.00
OPzV2500	2	2500	487	212	770	802	189.00
OPzV3000	2	3000	576	212	770	802	226.00

GEL BATTERY

12V/100/150/200/250AH



APPLICATION

Our batteries are widely used in solar systems, UPS systems, safety systems and control system, telecommunication equipments and electronic appliance inverter, etc.



KEY FEATURES:

- Gelled electrolyte made by mixing sulfuric acid with silica fume.
- The electrolyte is gel like, immobile and does not leak, enabling uniform reaction of each part of the plate.
- High rate discharge performance due to tight assembly technology
- Strong heat dissipation and wide operating temperature range
- Avoid acid mist being separated out, environment friendliness
- Efficient venting system release excessive gas automatically

12V GEL SERIAL LEAD ACID BATTERY

Model	Voltage	Capacity	Weight	Dimension(MM)				Terminal
	V	Ah	KG	Length	Width	Height	Total Height	
ESS-GFM12V2.2	12	2.2	0.82	178	34	60	65	F1
ESS-GFM12V3.3	12	3.3	1.45	134	67	60	65	F1
ESS-GFM12V4	12	4	1.4	90	70	101	105	F1
ESS-GFM12V7	12	7	2.3	151	66	98	103	F2
ESS-GFM12V12	12	12	3.5	151	98	95	100	F2
ESS-GFM12V17	12	17	6	181	76	167	167	L
ESS-GFM12V20	12	20	6.5	181	76	167	167	M5
ESS-GFM12V24	12	24	8	175	165	125	125	L
ESS-GFM12V33	12	33	10	196	130	174	174	M5
ESS-GFM12V40	12	40	12	197	165	175	175	M6
ESS-GFM12V55	12	55	16	228	137	207	213	M6
ESS-GFM12V65	12	65	19.5	350	166	175	175	M8
ESS-GFM12V75	12	75	21.5	260	168	210	215	M6
ESS-GFM12V100	12	100	29	330	171	217	220	M8
ESS-GFM12V120	12	120	35	412	173	237	237	M8
ESS-GFM12V150	12	150	42	484	170	241	241	M8
ESS-GFM12V200	12	200	59	522	240	219	225	M8
ESS-GFM12V250	12	250	67	520	269	220	228	M8
ESS-GFM12V260	12	260	70	520	269	220	228	M8

ENERGY STORAGE

30/50/100/120/150KW HYBRID INVERTER



ENERGY STORAGE HYBRID INVERTER 30/50/100/120/150KW

Model	HPS30	HPS50	HPS100	HPS120	HPS150
AC (Grid-connected)					
Apparent power	33kVA	55kVA	110kVA	132kVA	165kVA
Rated power	30kW	50kW	100kW	120kW	150kW
Rated voltage	400V				
Rated current	43A	72A	144A	173A	217A
Voltage range	360V - 440V				
Rated frequency	50/60Hz				
Frequency range	45~55/55~65Hz				
THDI	<3%				
PF	0.8lagging~0.8leading				
AC connection	3/N/PE				
AC input	60kVA	100kVA	200kVA	240kVA	240kVA
AC(Off-grid)					
Apparent power	33kVA	55kVA	110kVA	132kVA	165kVA
Rated power	30kW	50kW	100kW	120kW	150kW
Rated voltage	400V				
Rated current	43A	72A	144A	173A	217A
THDU	≤7%linear				
Rated frequency	50/60Hz				
Overload capability	110%-10 mins, 120%-1 min				
DC (Battery and PV)					
Max. PV open-circuit voltage	1000V DC				
Max. PV power	45kWp	75kWp	150kWp	180kWp	225kWp
PV MPPT voltage range	480V-800V DC				
Battery voltage range at Max. charge power	450V-600V	500V-600V	500V-600V	517V-600V	500V-600V
Max. charge power	45kW	75kW	150kW	180kW	225kW
Max. discharge power	33kW	55kW	110kW	132kW	165kW
Max. charge current	100A	150A	300A	350A	450A
Max. discharge current	93A	156A	313A	374A	467A
Dimension (W/H/D)	700/1660/600	950/1860/750	1200/1900/800		
Weight	355kg	610kg	948kg	1025kg	1230kg
Build-in transformer	Yes				
Transfer between on/off grid	Automatic ≤10ms				
Standby consumption	≤30W				

300/500/1000W

ALL -IN-ONE/PORTABLE



300/500/1000W PORTABLE SOLAR SYSTEM

Model	ESS-301P	ESS-501P/W	ESS-102P/W
Rated power	300W	500W	1000W
Peak power(20ms)	900VA	1500VA	3000VA
Standard battery voltage	12VDC	12VDC	24VDC
AC input voltage range	73~138VAC(110VAC) / 83~148VAC(120VAC)		
AC input frequency range	45Hz~55Hz(50Hz);55Hz~65Hz(60Hz)		
Conversion efficiency	≥85%(Battery mode); >99%(AC mode)		
AC Output voltage	110VAC±2% / 120VAC±2% / 220VAC±2% / 230VAC±2% / 240VAC±2%(Battery mode);		
AC Output frequency	50/60Hz±1%(Battery mode); Tracking Automatically(AC mode)		
AC Output waveform	Pure Sine Wave		
THD	≤3%(Linear load)		
DC Output voltage	4*DC 12V; 2*USB(5V)		
AC charging current	0~30A(Depends on model)		
AC charging method	Three-stage(constant current, constant voltage, floating charge)		
Charging mode	PWM	PWM/MPPT	
Max PV input voltage(Voc) -(At the lowest temp.)	PWM: 50V; MPPT: 150V		
PV input voltage range	15V~44V	PWM: 15V~44V; MPPT:	PWM: 30V~44V; MPPT:
Charge & discharge current	20A	20A	40A
Max PV input power	280W	280W	1120W
Capacity	1*100AH		2*100AH
Battery size(LxWxH)/pcs	407*174*210(240)		
Transfer time	≤4ms		
Protection	With over-voltage, low-voltage, overload, short circuit, high temperature protections		
Display	LCD & LED		
Cooling way	Cooling fan in intelligent control		
Dimension L x W x H(mm)	465*210*495		465*210*775
Net weight(kg)(without battery)	13	15	21
Dimension L x W x H(mm)	535*270*620		535*270*890
Gross weight(kg)(without battery)	20	22	31
Quantity/CTN	1pcs per wooden case		

SOLAR MOUNTING SOLUTIONS



A



1. Rail



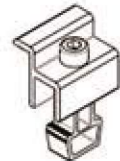
2. Inner clamp



3. L-foot



5. Rail connect



4. End clamp



B



1. Inner clamp



2. Rail



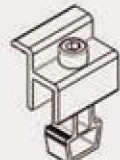
3. Rail clamp



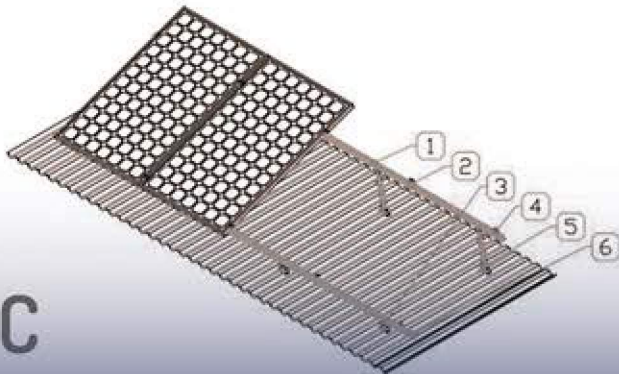
4. Tripod



6. Rail connect



5. End clamp



C



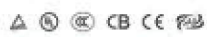
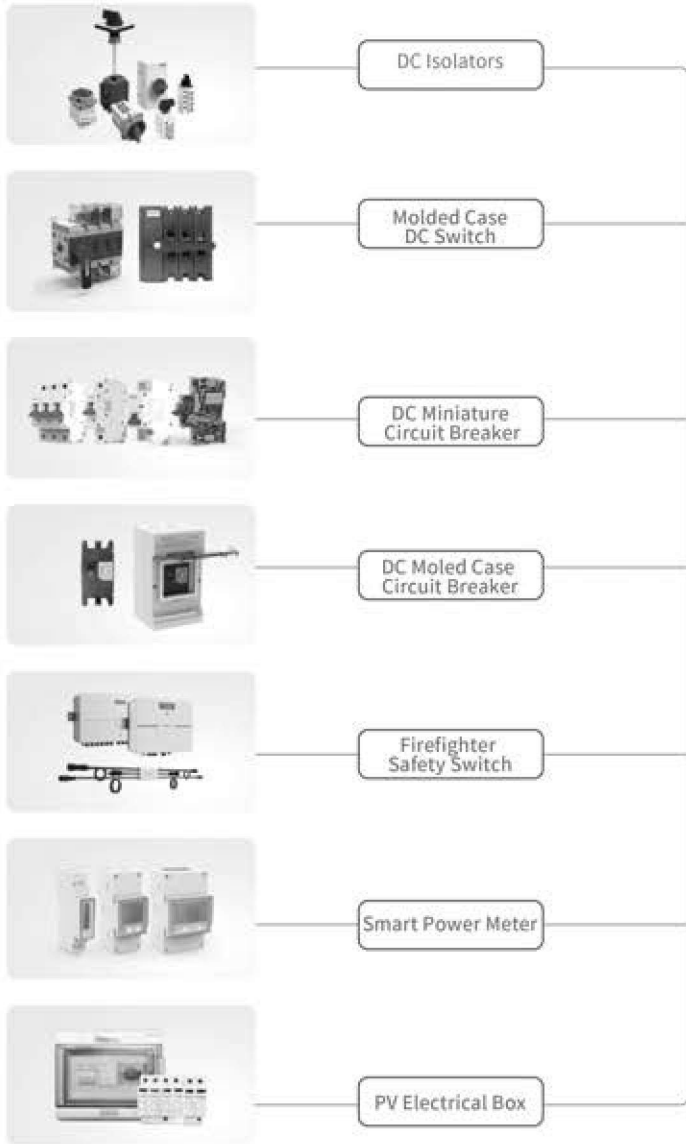
6. Rail connect



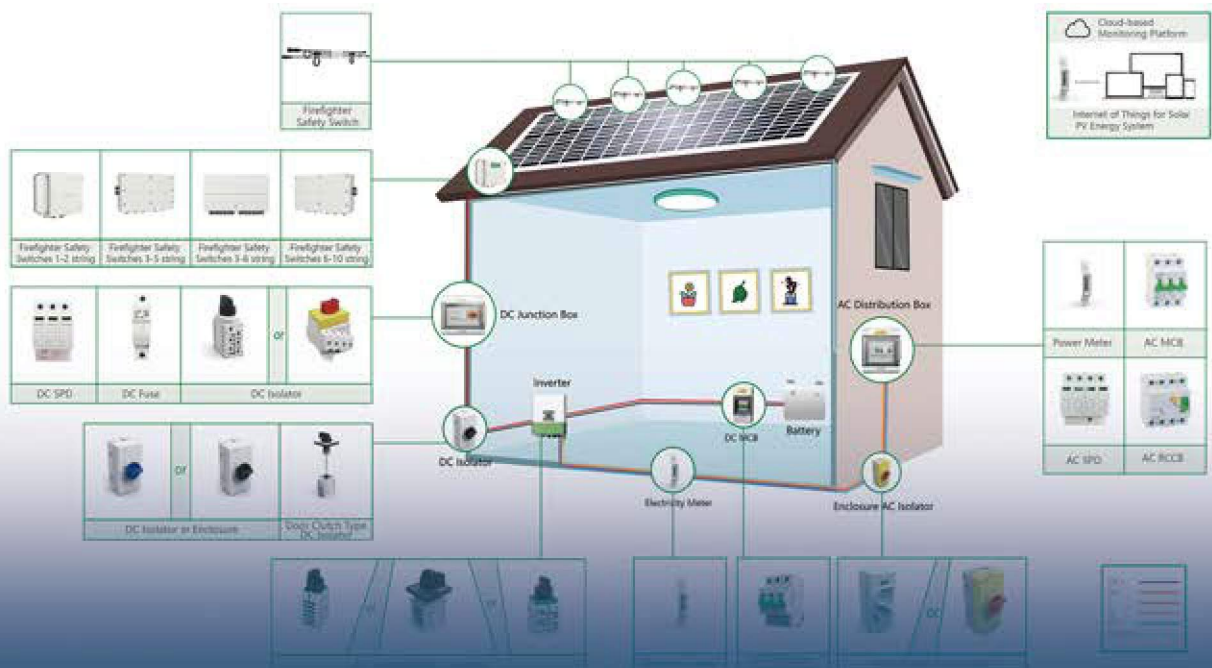
5. Adjustable rear leg



SOLAR ACCESSORIES



Complete Range of DC & AC PV Smart Switches





BUSINESS PARTNERS

BYD

SOFAR SOLAR

Trina

GCL

risen solar technology

Growatt

invt

SUNTECH

通威太阳能 TW SOLAR

CSUN energy for today

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