



Top Brand Solar Inverter & Lithium Battery & Energy Storage System Manufacturer

SAKO SOLAR · 天德普储能
Lighting Global · Powering the World



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HEADQUARTER

SHENZHEN SAKO SOLAR CO.,LTD

0755-27493766

szsako@sako.com.cn

<https://sakopower.com/>

<https://sakopower.en.alibaba.com/>

608 Building C, He-Xi HuangGangLing Industrial Park,
Hangcheng Area,Taoyuan Community, Xixiang Baoan,
Shenzhen,China

FACTORY

DONG GUAN TEDEPE NEW ENERGY CO.,LTD

+86-769-83986399

szsako@sako.com.cn

<http://www.tedep.com/>

<https://sakosolar.en.alibaba.com/>

Room 101,NO.1 on Street2,Shujiu Park,Changping
Town, Dongguan City, Guangdong Province

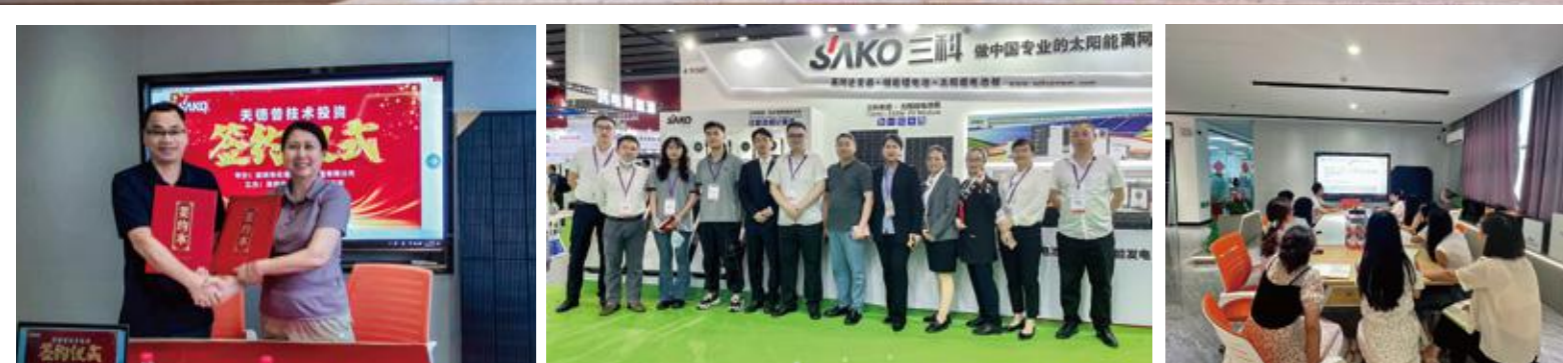


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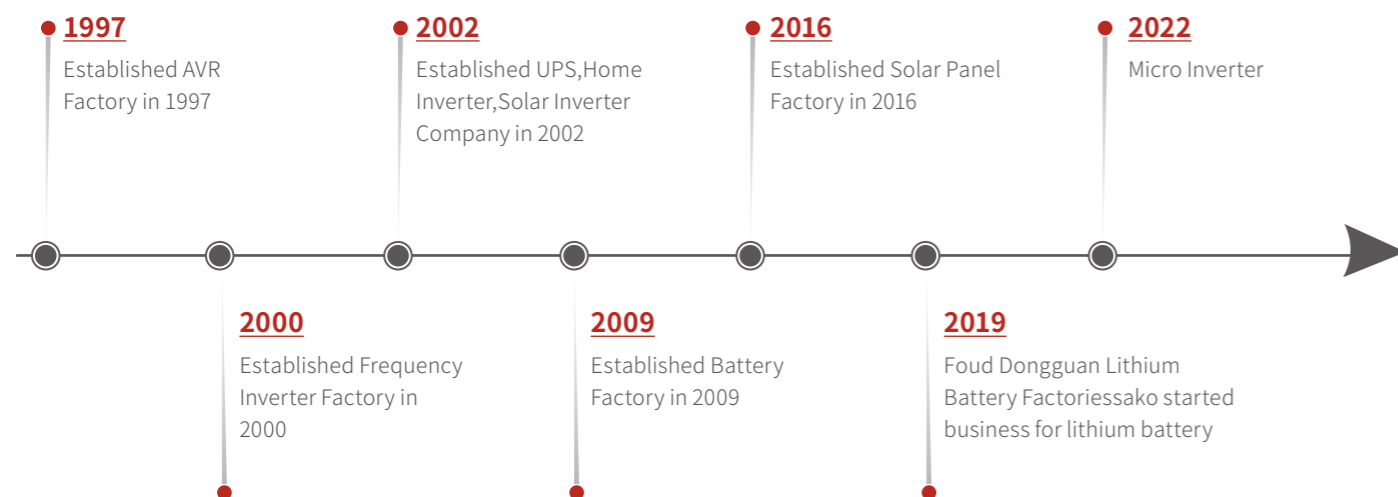
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24H
Power your home



COMPANY DEVELOPMENT ROUTES



About us

Established in 1997. SAKO is the professional manufacturer engaged in research, development, sale and service of high quality power and solar products, with main products cover: home inverter, off grid solar inverter, solar panel, lithium iron battery pack and storage solar system. As we SAKO produce all key components of solar system by ourselves, we have the advantage on cost control and quality control. Customer can do one stop shopping from SAKO and we give the warranty to the whole system based on our rich experience.

Both SAKO company and its products are qualified for exports. SAKO has obtained ISO9001, ISO14001, OHAS18001, TUV, CE, CB, CQC certificates. We can also help customer apply PSI, COC, SONCAP, SASO, SABER, etc.

SAKO products are very popular because of their stable quality, competitive price and good service. You are most welcome to be our agent in your region. We also welcome OEM/ODM orders. Whether selecting a current product from our catalog or seeking engineering assistance for your application, you can talk to our team about your sourcing requirements. Based on its rich experience, strong R&D, strict quality control systems, the spirit of creation, trust SAKO can offer you satisfied solar products and service.

Qualification&Certificates



ISO9001



ISO14001



ISO45001



CE FOR INVERTER



CB for Inverter



CB for Lithium Battery



Report for safe transport of goods



MSDS



CE for Lithium Battery



CB for Lithium Battery



TUV For Panel



VDE4105

01

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SAKO

Balcony Solar Products



Micro Inverter



MESS



MICRO INVERTER



Free smart WIFI monitor, can be installed within 30S



1-4 MPPT trackermax efficiency up to 99%



Parallel-able version optional for easy expansion



IP67 protection, optimizes the performance, 10 years warranty



Low starting voltage (up to 60Vdc PV input), relay integrated for better protection



Easy installation, intelligent operation, user friendly

Balcony Solar Products



300W-500W Micro Inverter 1-1

Model No.	SKY300M1-EU-230		SKY400M1-EU-230		SKY500M1-EU-230	
DC Input Data						
Commonly used module power (W)	210 to 455W (1 Piece)		210 to 550W+ (1 Pieces)		210 to 650W+ (1 Pieces)	
Maximum input voltage (V)	60V					
MPPT voltage range (V)	25-55V					
Start-up voltage (V)	25V					
Maximum input current (A)	13A					
Maximum input short circuit current (A)	19.5A					
Number of MPPT	1					
Number of Inputs per MPPT	1					
AC Output Data						
Rated output power (VA)	300VA		400VA		500VA	
Rated output current (A)	1.4A	1.3A	1.8A	1.7A	2.3A	2.2A
Nominal output voltage/range (V)	220V/ 180-275V	230V/ 180-275V	220V/ 180-275V	230V/ 180-275V	220V/ 180-275V	230V/ 180-275V
Nominal frequency/range (Hz)	50/48~52Hz or 60/58~62Hz					
Power factor	>0.99					
Total harmonic distortion	< 3%					
Maximum units per 13 AWG branch ²	17pcs		12pcs		10pcs	
Efficiency						
Peak inverter efficiency	96.5%					
CEC weighted efficiency	95%					
Nominal MPPT efficiency	99%					
Night power consumption (mW)	<50mW					
Mechanical Data						
Ambient temperature range (°C)	-40~65°C					
Enclosure rating	IP67					
Cooling	Natural Cooling -No fans					
Product dimensions (W×H×D mm)	190*184*34mm					
Qty per carton (pcs)	1pc per inner box, 8pcs per master carton					
Packing size (W×H×D mm)	Inner box (1pc/ctn): 425*260*68mm; Master carton(8pcs/ctn):440*280*560 mm					
Product weight. (kg, per piece)	Independent type(1pc): 3.2kg; (Parallel-able type(1pc): 2.7kgs					
G.W. per inner box (kgs)	Independent type(1pc/ctn): 3.5kg/ctn; (Parallel-able type(1pc/ctn): 3kgs					
G.W. per master carton (kgs)	Independent type(8pcs/ctn): 30kg/ctn; (Parallel-able type(8pcs/ctn): 25kgs					
QTY per container (pcs)	20FT: 2304pcs (12 pallets); 40HQ: 4608pcs(24 pallets)					
Others						
Communication	WiFi					
Compliance	EN 50549-1: 2019, VDE-AR-N 4105: 2018, IEC62109, CEI021, VDE0126, G98, RED, CE					
Warranty	10 years					

600W-1000W Micro Inverter 2-1

Model No.	SKY600M1-EU-230		SKY800M1-EU-230		SKY1000M1-EU-230	
DC Input Data						
Commonly used module power (W)	210 to 455W (2 Piece)		210 to 550W+ (2 Pieces)		210 to 650W+ (2 Pieces)	
Maximum input voltage (V)	60V					
MPPT voltage range (V)	25~55V					
Start-up voltage (V)	25V					
Maximum input current (A)	2×13A					
Maximum input short circuit current (A)	2×19.5A					
Number of MPPT	2					
Number of Inputs per MPPT	1					
AC Output Data						
Rated output power (VA)	600VA		800VA		1000VA	
Rated output current (A)	2.7A	2.6A	3.6A	3.5A	4.5A	4.4A
Nominal output voltage/range (V)	220V/ 180-275V	230V/ 180-275V	220V/ 180-275V	230V/ 180-275V	220V/ 180-275V	230V/ 180-275V
Nominal frequency/range (Hz)	50/48~52Hz or 60/58~62Hz					
Power factor	>0.99					
Total harmonic distortion	< 3%					
Maximum units per 13 AWG branch ²	8pcs		6pcs		5pcs	
Efficiency						
Peak inverter efficiency	96.5%					
CEC weighted efficiency	95%					
Nominal MPPT efficiency	99%					
Night power consumption (mW)	<50mW					
Mechanical Data						
Ambient temperature range (°C)	-40~65°C					
Enclosure rating	IP67					
Cooling	Natural Cooling -No fans					
Product dimensions (W×H×D mm)	212x230x44.75mm					
Qty per carton (pcs)	1pc per inner box, 5pcs per master carton					
Packing size (W×H×D mm)	Inner box (1pc/ctn): 440*286*68mm; Master carton(5pcs/ctn):455*305*355 mm					
Product weight. (kg, per piece)	Independent type(1pc): 4.0kg; (Parallel-able type(1pc): 3.5kgs					
G.W. per inner box (kgs)	Independent type(1pc/ctn): 4.4kg/ctn; (Parallel-able type(1pc/ctn): 4kgs					
G.W. per master carton (kgs)	Independent type(5pcs/ctn): 23kg/ctn; (Parallel-able type(5pcs/ctn):21kgs					
QTY per container (pcs)	20FT: 2160pcs (12 pallets); 40HQ: 5040pcs(24 pallets)					
Others						
Communication	WiFi					
Compliance	EN 50549-1: 2019, VDE-AR-N 4105: 2018, IEC62109, CEI021, VDE0126, G98, RED, CE					
Warranty	10 years					

1200W-2000W Micro Inverter 2-1

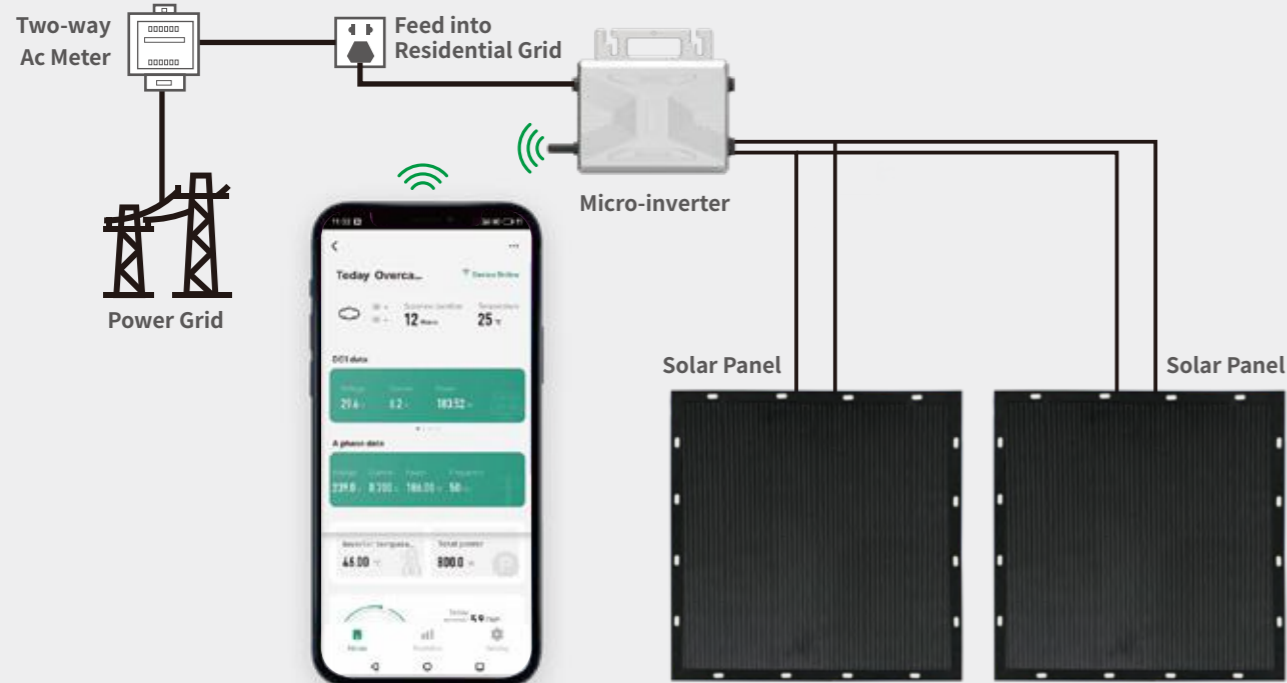
Model No.	SKY1200M1-EU-230		SKY1600M1-EU-230		SKY2000M1-EU-230	
DC Input Data						
Commonly used module power (W)	210 to 455W (4 Piece)		210 to 550W+ (4 Pieces)		210 to 650W+ (4 Pieces)	
Maximum input voltage (V)	60V					
MPPT voltage range (V)	25~55V					
Start-up voltage (V)	25V					
Maximum input current (A)	4×13A					
Maximum input short circuit current (A)	4×19.5A					
Number of MPPT	4					
Number of Inputs per MPPT	1					
AC Output Data						
Rated output power (VA)	1200VA		1600VA		2000VA	
Rated output current (A)	5.4A	5.2A	7.3A	7A	9.1A	8.7A
Nominal output voltage/range (V)	220V/ 180-275V	230V/ 180-275V	220V/ 180-275V	230V/ 180-275V	220V/ 180-275V	230V/ 180-275V
Nominal frequency/range (Hz)	50/48~52Hz or 60/58~62Hz					
Power factor	>0.99					
Total harmonic distortion	< 3%					
Maximum units per 13 AWG branch ²	4pcs		4pcs		3pcs	
Efficiency						
Peak inverter efficiency	96.5%					
CEC weighted efficiency	95%					
Nominal MPPT efficiency	99%					
Night power consumption (mW)	<50mW					
Mechanical Data						
Ambient temperature range (°C)	-40~65°C					
Enclosure rating	IP67					
Cooling	Natural Cooling -No fans					
Product dimensions (W×H×D mm)	267*300*42mm					
Qty per carton (pcs)	1pc					
Packing size (W×H×D mm)	480*400*68 mm					
Product N.W. (kg, per piece)	Independent type(1pc):6.1kg; (Parallel-able type(1pc): 5.6kgs					
G.W. per master carton (kgs)	Independent type(1pcs/ctn): 6.6kg/ctn; (Parallel-able type(1pcs/ctn):6kgs					
QTY per container (pcs)	20FT: 1584pcs (12 pallets); 40HQ: 3168pcs(24 pallets)					
Others						
Communication	WiFi					
Compliance	EN 50549-1: 2019, VDE-AR-N 4105: 2018, IEC62109, CEI021, VDE0126, G98, RED, CE					
Warranty	10 years					



300W/400W BALCONY SOLAR SYSTEM

PACKAGE INCLUDES

Solar panel: 215W X 2 pcs
Micro-inverter: 300W/400W X 1pcs
AC cable with plug: 5mm² X 1pcs
Industrial Zip Ties X 2set



Balcony Solar System with 215W Flexible Panel

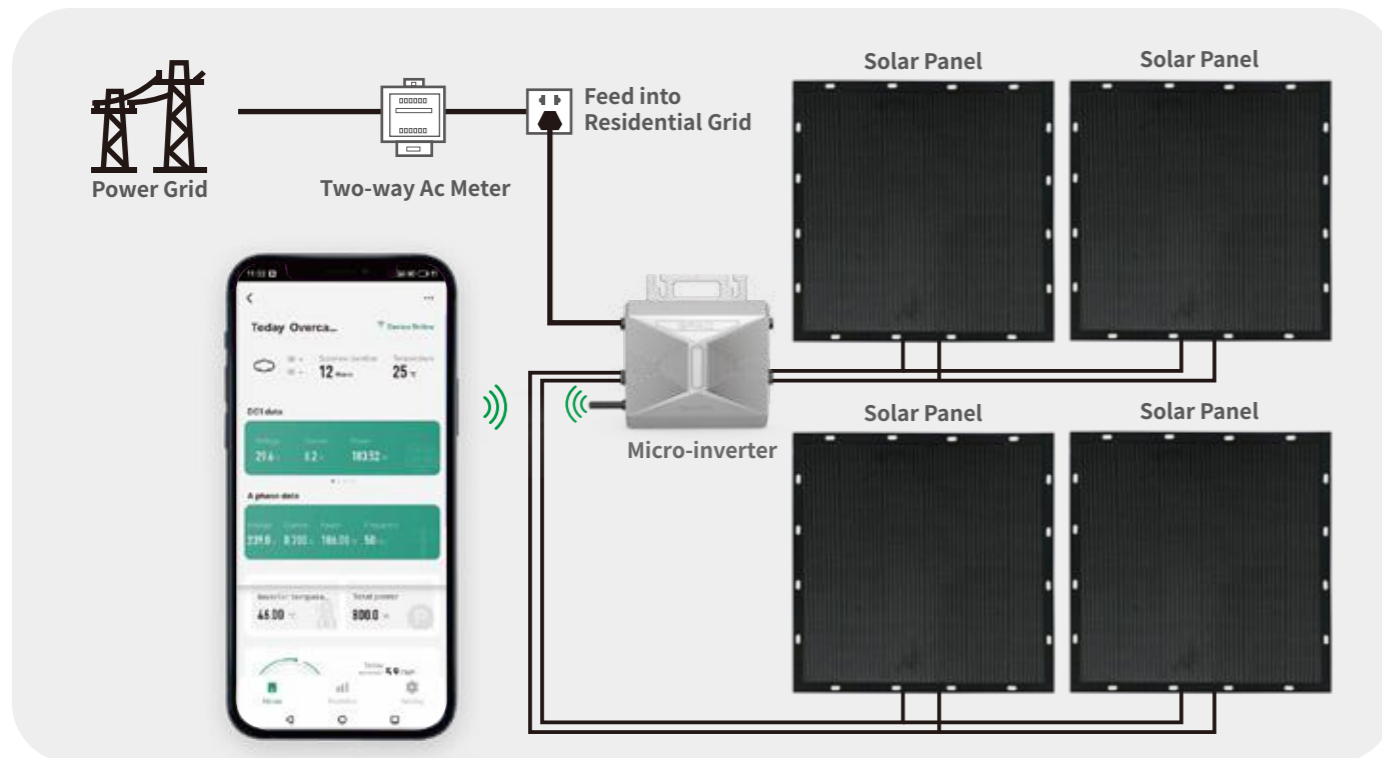
Specification	Model No.	300W Micro System with 215W Flexible PV Module	400W Micro System with 215W Flexible PV Module
Micro Inverter Key Data			
Micro Inverter qty for each system(pc)		1pc	1pc
Rated output power (VA)		300VA	400VA
Rated output current (A)		1.4A(220Vac)/1.3A(230Vac)	1.8A(220Vac)/1.7A(230Vac)
Maximum input voltage (V)		60V	60V
MPPT Voltage Range (V)		25-55V	25-55V
Maximum input current (A)		2×13A	2×13A
Maximum input short circuit current (A)		2×19.5A	2×19.5A
Nominal frequency/range (Hz)		50/60Hz	50/60Hz
Power factor		>0.99	>0.99
Total harmonic distortion		<3%	<3%
Peak inverter efficiency		96.50%	96.50%
IP Level		IP67	IP67
Communication		WIFI	WIFI
Solar Panel Key Data			
Solar Panel Type		215W Flexible PV Module	
Solar panel qty for each system(pc)		2pcs	2pcs
Power output (Pmax / W)		215W	215W
Power output Tolerances		±3%	±3%
Open-circuit voltage (Voc / V)		41.52V	41.52V
Short-circuit current (Isc / A)		6.156A	6.156A
Voltage at Pmax (Vmp / V)		35.46V	35.46V
Current at Pmax (Imp / A)		6.797A	6.797A
Module Efficiency		23%	23%
Attached PV cables		2M*1 Pair	2M*1 Pair
Solar cells		182mm cell	182mm cell
Solar panel Size		1159*1066*3mm	1159*1066*3mm
N.W each piece		3.8kgs	3.8kgs
Accessories (Not included into the standard system, optional by user)			
Panel Zip Ties		Industrial zip ties to fix panel*20pc	Industrial zip ties to fix panel*20pc
2-1 MC4 connector		1 Pairs	1 Pairs
AC output Cables (Optional)		3*1.5mm3* 5M*1pc	3*1.5mm3* 5M*1pc
Extension PV Cable (Optional 1)		1M PV cable*2 sets(4pcs)	1M PV cable*2 sets(4pcs)
Packing information			
Inner box size(f1 complete set system)		1395 *1130*60 mm(1 set per carton)	1395 *1130*60 mm(1 set per carton)
Master carton Size		1400*1270*1150mm (19 sets per pallet)	1400*1270*1150mm (19 sets per pallet)
QTY for 20FT		264 sets in 8P(19sets/Pallet+14sets/Pallet)	264 sets in 8P(19sets/Pallet+14sets/Pallet)
QTY for 40HQ		608 sets in 32 pallets (19sets/Pallet)	608 sets in 32 pallets (19sets/Pallet)



600W/800W BALCONY SOLAR SYSTEM

PACKAGE INCLUDES

Solar panel: 215W X 4 pcs
Micro-inverter: 600W/800W X 1pcs
AC cable with plug: 5mm² X 1pcs
Industrial Zip Ties X 2set



Balcony Solar System with 215W Flexible Panel

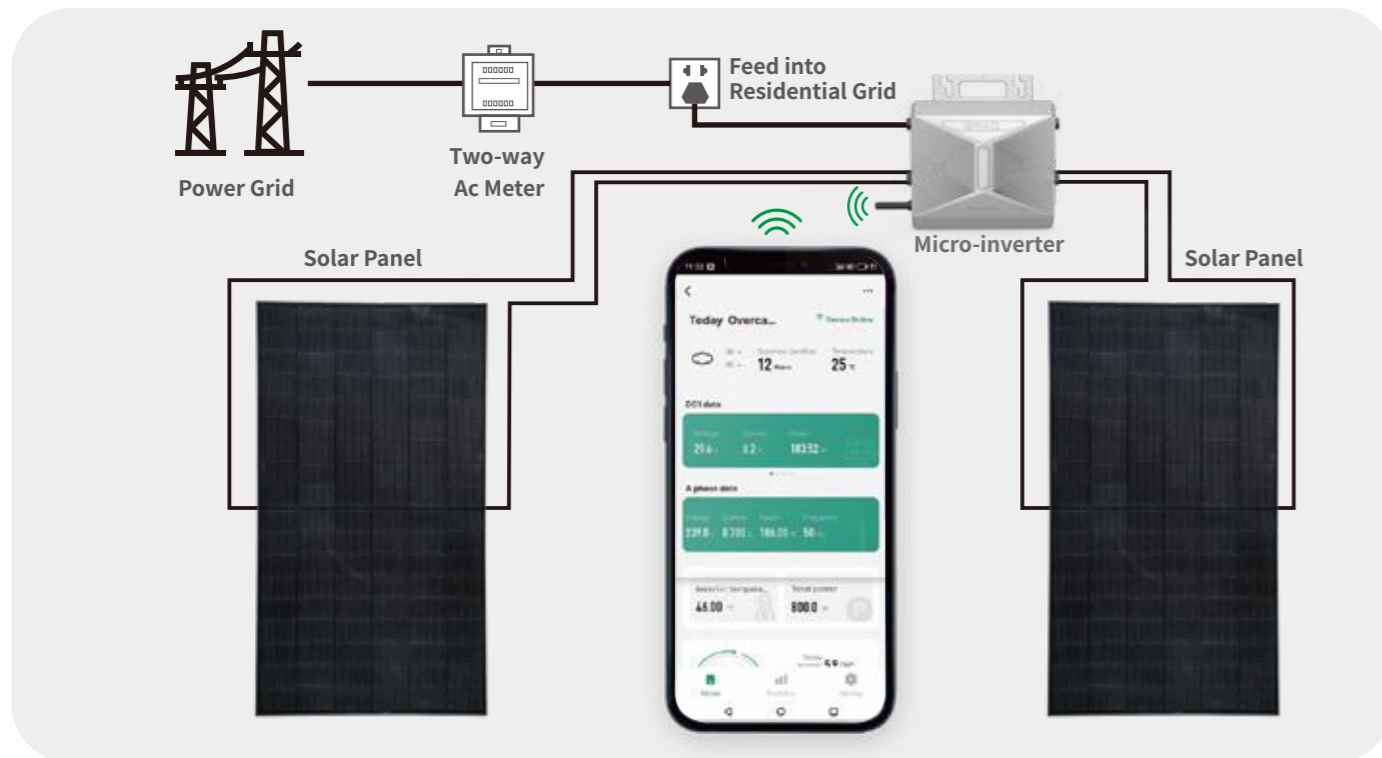
Specification	Model No.	600W Micro System with 215W Flexible PV Module	800W Micro System with 215W Flexible PV Module
Micro Inverter Key Data			
Micro Inverter qty for each system(pc)		1pc	1pc
Rated output power (VA)		600VA	800VA
Rated output current (A)		2.7A(220Vac)/2.6A(230Vac)	3.6A(220Vac)/3.5A(230Vac)
Maximum input voltage (V)		60V	60V
MPPT Voltage Range (V)		25-55V	25-55V
Maximum input current (A)		2×13A	2×13A
Maximum input short circuit current (A)		2×19.5A	2×19.5A
Nominal frequency/range (Hz)		50/60Hz	50/60Hz
Power factor		>0.99	>0.99
Total harmonic distortion		<3%	<3%
Peak inverter efficiency		96.50%	96.50%
IP Level		IP67	IP67
Communication		WIFI	WIFI
Solar Panel Key Data			
Solar Panel Type		215W Flexible PV Module	
Solar panel qty for each system(pc)		4pcs	4pcs
Power output (Pmax / W)		215W	215W
Power output Tolerances		±3%	±3%
Open-circuit voltage (Voc / V)		41.52V	41.52V
Short-circuit current (Isc / A)		6.156A	6.156A
Voltage at Pmax (Vmp / V)		35.46V	35.46V
Current at Pmax (Imp / A)		6.797A	6.797A
Module Efficiency		23%	23%
Attached PV cables		2M*1 Pair	2M*1 Pair
Solar cells		182mm cell	182mm cell
Solar panel Size		1159*1066*3mm	1159*1066*3mm
N.W each piece		3.8kgs	3.8kgs
Accessories (Not included into the standard system, optional by user)			
Panel Zip Ties		Industrial zip ties to fix panel*40pc	Industrial zip ties to fix panel*40pc
2-1 MC4 connector		2 Pairs	2 Pairs
AC output Cables (Optional)		3*1.5mm3* 5M*1pc	3*1.5mm3* 5M*1pc
Extension PV Cable (Optional 1)		1M PV cable*2 sets(4pcs)	1M PV cable*2 sets(4pcs)
Packing information			
Inner box size(f1 complete set system)		1395*1130*70 mm(1 set per carton)	1395*1130*70 mm(1 set per carton)
Master carton Size		1400*1270*1150mm(16 sets per pallet)	1400*1270*1150mm(16 sets per pallet)
QTY for 20FT		323 sets in 8P(16sets/Pallet+13sets/Pallet)	323 sets in 8P(16sets/Pallet+13sets/Pallet)
QTY for 40HQ		512 sets in 32 pallets (32 pallets)	512 sets in 32 pallets (32 pallets)



600W/800W BALCONY SOLAR SYSTEM

PACKAGE INCLUDES

Solar panel: 430W X 2 pcs
Micro-inverter: 600W/800W X 1pcs
AC cable with plug: 5mm² X 1pcs
Mounting Structure (Optional) X 2 Sets



Balcony Solar System with 430W TOPCON Panel



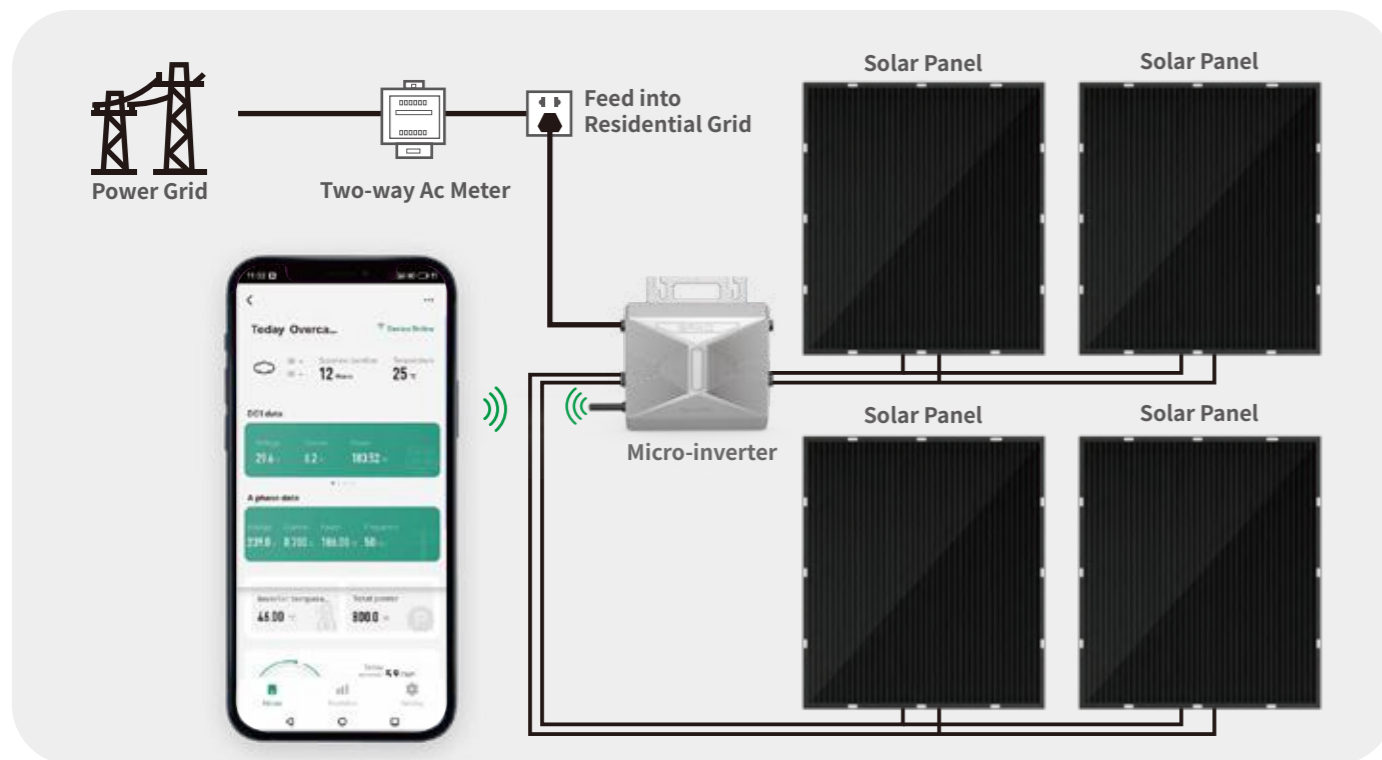
Model No.	600W Micro System with 430W TOPCON PV Module	800W Micro System with 430W TOPCON PV Module
Specification		
Micro Inverter Key Data		
Micro Inverter qty for each system(pc)	1pc	1pc
Rated output power (VA)	600VA	800VA
Rated output current (A)	2.7A(220Vac)/2.6A(230Vac)	3.6A(220Vac)/3.5A(230Vac)
Maximum input voltage (V)	60V	60V
MPPT Voltage Range (V)	25-55V	25-55V
Maximum input current (A)	2×13A	2×13A
Maximum input short circuit current (A)	2×19.5A	2×19.5A
Nominal frequency/range (Hz)	50/60Hz	50/60Hz
Power factor	>0.99	>0.99
Total harmonic distortion	< 3%	< 3%
Peak inverter efficiency	96.50%	96.50%
IP Level	IP67	IP67
Communication	WIFI	WIFI
Solar Panel Key Data		
Solar Panel Type	430W Monocrystalline Module, TOPCON N-Type cell	
Solar panel qty for each system(pc)	2pcs	2pcs
Power output (Pmax / W)	430W	430W
Power output Tolerances	±3%	±3%
Open-circuit voltage (Voc / V)	38.49V	38.49V
Short-circuit current (Isc / A)	14.23A	14.23A
Voltage at Pmax (Vmp / V)	31.88V	31.88V
Current at Pmax (Imp / A)	13.49A	13.49A
Module Efficiency	22%	22%
Solar cells	182mm cell, 108pcs	182mm cell, 108pcs
Solar panel Size	1722*1134*30/35mm	1722*1134*30/35mm
N.W each piece	22kgs	22kgs
Bracket Key Data (Not included into the standard system, optional by user)		
Matchable Solar panel size	1722*1134*35mm*1pc	1722*1134*35mm*1pc
Bracket Type	Adjustable triangle mounting structure	Adjustable triangle mounting structure
Materials	Aluminum Alloy& SUS304	Aluminum Alloy& SUS304
Bracket qty for each system(Set)	2 sets	2 sets
Packing Size	L1215*W130*H100 (2pcs/set)	L1215*W130*H100 (2pcs/set)
Accessories (Not included into the standard system, optional by user)		
AC output Cables (Optional)	3*1.5mm ³ * 5M*1pc	3*1.5mm ³ * 5M*1pc
Extension PV Cable (Optional 1)	1M PV cable*2 sets(4pcs)	1M PV cable*2 sets(4pcs)
Extension PV Cable (Optional 2)	5M PV cable*2 sets(4pcs)	5M PV cable*2 sets(4pcs)
Smart Wi-Fi plug for monitor and control	Optional	Optional
Packing information		
Inner box size(f1 complete set system)	L1770*W1150*H110(1 set per carton)	L1770*W1150*H110(1 set per carton)
Master carton Size	L1820*W1270*H1150(10 sets per pallet)	L1820*W1270*H1150(10 sets per pallet)
QTY for 20FT	108 sets in 6P(10sets/Pallet+8sets/Pallet)	108 sets in 6P(10sets/Pallet+8sets/Pallet)
QTY for 40HQ	240 sets in 24 pallets (24 pallets)	240 sets in 24 pallets (24 pallets)



600W/800W BALCONY SOLAR SYSTEM

PACKAGE INCLUDES

Solar panel: 215W X 4 pcs
Micro-inverter: 600W/800W X 1pcs
AC cable with plug: 5mm² X 1pcs
Industrial Zip Ties X 2set



Balcony Solar System with 215W Ultra Thin Panel

Specification	Model No.	600W Micro System with 215W Flexible PV Module	800W Micro System with 215W Flexible PV Module
Micro Inverter Key Data			
Micro Inverter qty for each system(pc)		1pc	1pc
Rated output power (VA)		600VA	800VA
Rated output current (A)		2.7A(220Vac)/2.6A(230Vac)	3.6A(220Vac)/3.5A(230Vac)
Maximum input voltage (V)		60V	60V
MPPT Voltage Range (V)		25-55V	25-55V
Maximum input current (A)		2×13A	2×13A
Maximum input short circuit current (A)		2×19.5A	2×19.5A
Nominal frequency/range (Hz)		50/60Hz	50/60Hz
Power factor		>0.99	>0.99
Total harmonic distortion		<3%	<3%
Peak inverter efficiency		96.50%	96.50%
IP Level		IP67	IP67
Communication		WIFI	WIFI
Solar Panel Key Data			
Solar Panel Type		215W Ultra Thin PV Module	
Solar panel qty for each system(pc)		4pcs	4pcs
Power output (Pmax / W)		215W	215W
Power output Tolerances		±3%	±3%
Open-circuit voltage (Voc / V)		40.85V	40.85V
Short-circuit current (Isc / A)		6.57A	6.57A
Voltage at Pmax (Vmp / V)		34.7V	34.7V
Current at Pmax (Imp / A)		6.2A	6.2A
Module Efficiency		18%	18%
Attached PV cables		2M*1 Pair	2M*1 Pair
Solar cells		182mm cell	182mm cell
Solar panel Size		1190*1055*3.2mm	1190*1055* 3.2mm
N.W each piece		11kgs	11 kgs
Accessories (Not included into the standard system, optional by user)			
Panel Zip Ties		Industrial zip ties to fix panel*40pc	Industrial zip ties to fix panel*40pc
2-1 MC4 connector		2 Pairs	2 Pairs
AC output Cables (Optional)		3*1.5mm3* 5M*1pc	3*1.5mm3* 5M*1pc
Extension PV Cable (Optional 1)		1M PV cable*4 sets(8pcs)	1M PV cable*4 sets(8pcs)
Packing information			
Inner box size(f1 complete set system)		1550*140*1155mm(1 set per carton)	1550*140*1155mm(1 set per carton)
Master carton Size		1550*1120*1305mm(8 sets per pallet)	1550*1120*1305mm(8sets per pallet)
QTY for 20FT		105sets in 7P(8sets/Pallet+7sets/Pallet)	105sets in 7P(8sets/Pallet+7sets/Pallet)
QTY for 40HQ		224 sets in 28 pallets (8sets / pallet)	224 sets in 28 pallets (8sets / pallet)



M-ESS Balcony Energy Storage System

M-ESS 1.5KWh/3.0KWh Energy Storage System

<p>Smart WIFI monitor, install within 30S user friendly.</p>	<p>10+ years life design, 6000 Cycles.</p>	<p>Compatible with different brand of existing micro inverters.</p>
<p>PV input 25~60Vdc, fits for different types of solar panels.</p>	<p>Workable in harsh environment (-10°C~+50°C). Auto heating system in low temp(0°C).</p>	<p>Easy installation, timing function supports user in setting to the charge/discharge time.</p>

Balcony Solar Products

SPECIFICATION	MODEL	MESS 1.5KWh (ALPHA-MESS 1.5kwh)	MESS 3KWh (ALPHA-MESS 3.0kwh)
P.V. Input Features			
Commonly used module power		210 to 410W+ (2 Pieces)	210 to 410W+ (2 Pieces)
MPPT voltage range		30~60Vdc	30~60Vdc
Start-up voltage		30Vdc	30Vdc
Maximum input current		26A	26A
Maximum input short circuit current		32A	32A
DC Output Features			
DC output current		32A	32A
Output voltage range		26.1~32.4Vdc	26.1~32.4Vdc
Timer setting		the Timer DC Output time can be set through the mobile APP	
Lithium Battery Features			
Total Energy		1497Wh	2995Wh
Usable Energy(90%DOD)		1347Wh	2695Wh
Normal Battery Voltage		28.8Vdc	28.8Vdc
Typical Capacity		52Ah	104Ah
Max.Charge Current		26A	52A
Max.Discharge Current		32A	60A
Operation Voltage Range		26.1~32.4Vdc	26.1~32.4Vdc
Operation Temperature		-10°C~+50°C	-10°C~+50°C
Charging Heating Function		when Temp. lower than 0°C, Low temperature charging heating function will start , battery pack will running between 0~5°C (optional)	
Protection			
Protection		Over charge protection, Over discharge protection, Solar reverse polarity protection, Over temperature protection, Low temperature charging protection	
IP Grade		IP54	
Other Features			
Display method		LED RGB	
Display substance		PV status, Battery status, DC Output status, Alarm status	
WiFi substance		PV status, Battery status, DC Output status, Alarm status, Timing setting Function	
Accessory			
PV cable		With 5M PV MC4 extension cable X 4; With 1M PV MC4 extension cable X 4	
Ambient			
Noise(dB)		< 45dB (1 meter)	
Working Temperature		-10°C~+50°C	
Humidity		0~95% (no condensation)	
Sea Level(m)		≤4000	
Dimension			
L×W×T (products size) mm		L744*W420*H160mm	L744*W420*H160mm
L×W×T (package size) mm		L799*W490*H275mm(UN carton)	L799*W490*H275mm(UN carton)
Weight(NW Kg)		30.3Kg	40.5Kg
Weight(GW Kg)		36.0Kg	46.2Kg



ESS All-in-one Hybrid Balcony Solar System

ESS 1KVA/1.5KWH, ESS 1KVA/2.5KWH



Free smart WIFI monitor, can be installed within 30S, user friendly.



Low starting voltage (up to 60Vdc PV input), all around protection protection.



Supports self consumption and feedback to grid.



Programmable multiple work mode. Supports 2 periods presetting to the time of charging or discharging.



All in one system with On/Off grid inverter and LiFePo4 Battery inside, Support self-consumption and Feed-in to grid.



Plug-and-play, easy installation and smart control and operation.

Balcony Solar Products



Model No.	ESS 1KVA/600W	ESS 1KVA/800W	ESS 1KVA/1KW
Off Grid Operation			
Max. PV input power		1200W	
Rated AC output power		1000W	
Output peak power (W)		2000W(200ms)	
Grid-Tie Operation			
Rated power	600W	800W	1000W
Grid connected power	600W	800W	1000W
Mains charging current	0-40A adjustable		
AC input voltage range	180-265VAC		
Input frequency range	50HZ/60HZ ±3HZ		
AC input connection type	L/N/PE		
MPPT Solar Charger			
Rated battery voltage	25.6V		
Charging current	40A max		
PV input voltage range	36-60VDC		
PV input power	1200W max.		
PV charging power	1000W max.		
Number of PV input tracker	1		
PV input interface	Anderson interface		
Off-Grid Output (AC)			
Nominal output Volt	230Vac, Single Phase		
Output frequency	50/60hz		
Nominal output current	4.35A		
Power factor	1		
Max. conversion efficiency (DC/AC)	91.5%max		
Energy Storage Information			
Nominal battery voltage	25.6VDC		
Core material	Lithium iron phosphate battery		
Energy storage capacity	1536Wh/2688Wh		
Core cycle	≥2000 cycles & 25°C Standard charging and discharging process@80%SOH for 1536Wh ≥6000 cycles & 25°C Standard charging and discharging process@80%SOH for 2688Wh		
General Information			
PV cable	1 piece 5m double core 4m ² PV cable		
AC cable	1 European power cord 1.8m		
Products dimension,D * W * H (mm)	729*470*180mm		
Products package,D * W * H (mm)	835*565*312mm		
Product net weight(kg)	37.6kg/46.9kg		
Product gross weight(kg)	44.1kg/53.5kg		
Environment			
Noise level	50dB Max (1 meter)		
Humidity	5% to 95% Relative Humidity(Non-condensing)		
Operating temperature	1536Wh, 0~50° / 2688Wh, 0~45°		
Storage temperature	1536Wh, -10~50° / 2688Wh, 0~45°		

SAKO

Lithium Battery



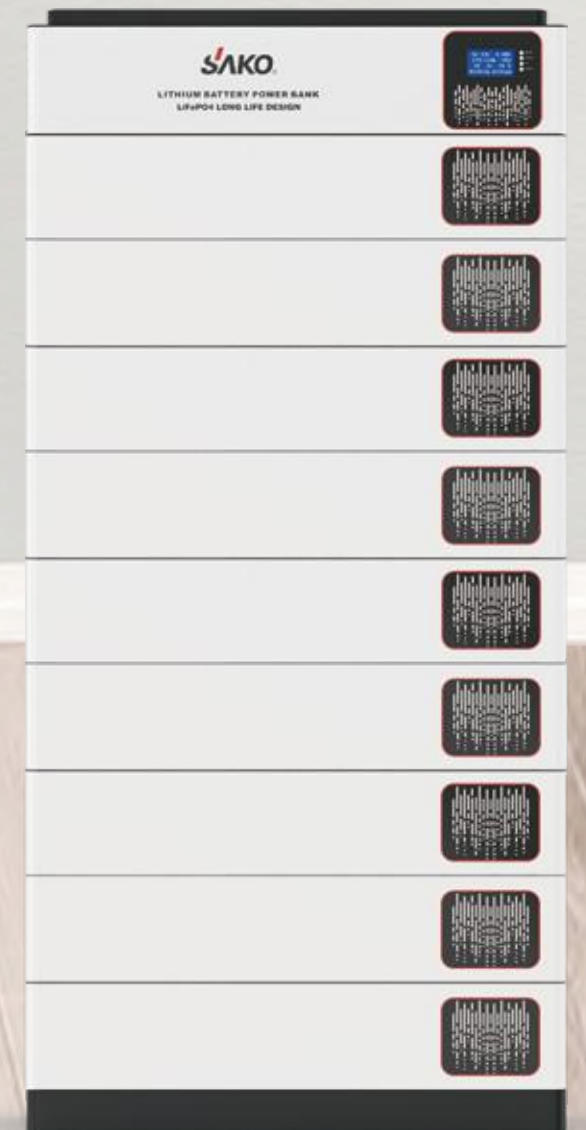
Li-Power



Li-Super



Li-Smart LV



Li-Smart HV

SAKO lithium battery, in anti-explosion design, the safest power.
Choose safe power, choose SAKO.



Li-Power 130Ah

Li-Power 130Ah Top Quality Ultra-thin Power Wall Lithium Battery 10 Years Warranty



Bluetooth built inside for easy monitor.



LED with RGB light display.



100A smart BMS matched well with solar system.



8000 cycles, 10 years warranty, 15+ years life design.



Original 3.2V 100A BYD blade LiFePO4 cells, super safety.



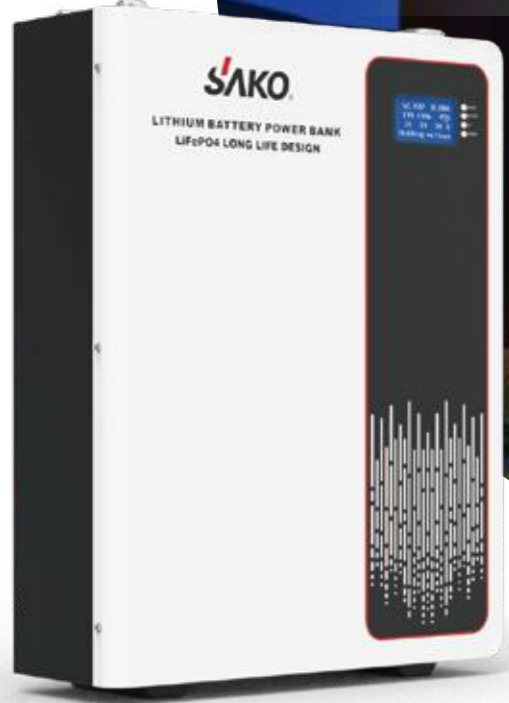
Integrated with multiple communication protocols for 10+ brands of inverters.

SAKO leading technology:

- Internal battery temperature reaches 100°C within 10mins, the cover remains at normal temperature.

SPECIFICATION	MODEL	SK-51.2V130Ah Li-Power 51.2V 130AH
Battery Type		LiFePO4
Total Energy		6656Wh
Usable Energy(80%DOD)		5990Wh
Voltage window		44.8 ~ 58.4V
Fast Charge Voltage		57.6V
Folat Charge Voltage		56.0V
Low DC Cut-off Voltage		46.8V
Max.continue discharge current		100A
Max.pulse discharge current		150A 1Sec.
Max.continue charge current		65A
Scalable		1~15 in parallel
Communication		CAN,RS485
Cycle life		>8000 Cycles@(+25°C,0.5C,90%DOD,60%EOL)
Terminal		M8
Storage temperature		0°C~ 30°C
Storage duration		6 months at 25°C
Safety standard		UN38.3,MSDS
IP degree		IP20
PROTECTION		
Protection	Overcharge protection, Overdischarge protection, Overcurrent protection, Shortcircuit protection, Over temperature protection	
AMBIENT		
working Temperature	-10°C~ +50°C	
Humidity	0~95% (no condensation)	
DIMENSION		
L×W×H (products size) mm	1090*685*120mm	
L×W×H (package size) mm	1150*720*205mm (UN wooden cases)	
Weight(NW Kg)	78.6Kg	
Weight(GW Kg)	97.2Kg	
20FT QTY(UNIT)	140	

SAKO lithium battery, in anti-explosion design, the safest power. Choose safe power, choose SAKO.



Li-Super

Li-Super High Quality EU US Power Wall Lithium Battery 5KWH 10KWH with 6000 Cycles

Main Features

- Top brand new LiFePO4 cells, super safety.
- Supports wall mounted or floor stand installation.
- 100A Smart BMS matches well with solar system.
- 5 Years warranty, 6000+ cycles, 10+ years life design
- All around protection and unattended operation.
- Integrated with multiple communication protocols for 10+ brands of inverters.

SAKO leading technology:

- Internal battery temperature reaches 1000°C within 10mins, the cover remains at normal temperature.

MODEL	SK-51.2V100Ah Li-Super Series	SK-51.2V200Ah Li-Super Series
SPECIFICATION		
Battery Type	LiFePO4	LiFePO4
Total Energy	5120Wh	10240Wh
Usable Energy(90%DOD)	4608Wh	9216Wh
Voltage window	44.8 ~ 58.4V	44.8 ~ 58.4V
Fast Charge Voltage	57.6V	57.6V
Folat Charge Voltage	56.0V	56.0V
Low DC Cut-off Voltage	46.8V	46.8V
Max.continue discharge current	100A	100A
Max.pulse discharge current	150A 1Sec.	150A 1Sec.
Max.continue charge current	50A	100A
Scalable	1~15 in parallel	
Communication	CAN,RS485	
Cycle life	>6000 Cycles@(+25°C,0.5C,90%DOD,60%EOL)	
Terminal	double M6	
Storage temperature	0°C~ 30°C	
Storage duration	6 months at 25°C	
Safety standard	UN38.3,MSDS	
IP degree	IP20/IP65	
PROTECTION		
Protection	Overcharge protection, Overdischarge protection, Overcurrent protection, Shortcircuit protection, Over temperature protection	
AMBIENT		
Working Temperature	-10°C~ +50°C	
Humidity	0~95% (no condensation)	
DIMENSION		
L×W×H (products size) mm	691*485*183mm	904*593*192mm
L×W×H (package size) mm	759*575*278mm(UN wooden cases)	960*691*360mm(UN wooden cases)
Weight(NW Kg)	50.0Kg	92.0Kg
Weight(GW Kg)	55.0Kg	113.5Kg

SAKO lithium battery, in anti-explosion design,
the safest power. Choose safe power, choose SAKO.



Li-Smart LV 5kwh-20kwh

Li-Smart High Quality Modular & Stacked Lithium Battery System 5KWH-20KWH with 6000 Cycles

Main Features

- Top brand new LiFePO4 cells, super safety.
- 5 Years warranty, 6000+ cycles, 10+ years life design.
- Modular&stacked design for easy extension.
- 100A smart BMS for each modular, matches well with solar system.
- All around protection and unattended operation.
- Integrated with multiple communication protocols for 10+ brands of inverters.

SAKO leading technology:

- Internal battery temperature reaches 100°C within 10mins, the cover remains at normal temperature.

MODEL	SK-51.2V100Ah Li-Smart Series	SK-51.2V200Ah Li-Smart Series	SK-51.2V300Ah Li-Smart Series	SK-51.2V400Ah Li-Smart Series
SPECIFICATION				
Battery Type	LiFePO4	LiFePO4	LiFePO4	LiFePO4
Normal Capacity(25°C, 0.2C)	5120Wh*1 set	5120Wh*2set	5120Wh*3 set	5120Wh*4 set
Usable Energy(90%DOD)	4608Wh	9216Wh	13824Wh	18432Wh
Voltage window	44.8 ~ 58.4V	44.8~58.4V	44.8 ~ 58.4V	44.8 ~ 58.4V
Fast Charge Voltage	57.6V	57.6V	57.6V	57.6V
Folat Charge Voltage	56.0V	56.0V	56.0V	56.0V
Low DC Cut-off Voltage	46.8V	46.8V	46.8V	46.8V
Max.continue discharge current	100A	200A	300A	400A
Max.pulse discharge current	150A 1Sec.	300A1Sec.	450A 1Sec.	600A 1Sec.
Max.continue charge current	50A	100A	150A	200A
Scalable	1~15 in parallel			
Communication	CAN,RS485			
Cycle life	>6000 Cycles@(+25°C,0.5C,90%DOD,60%EOL)			
Terminal	double M6			
Storage temperature	0°C~ 30°C			
Storage duration	6 months at 25°C			
Safety standard	UN38.3,MSDS			
IP degree	IP54			
Communication function	RS485/CAN(Communication protocol supported inverter brand: Deye, Growatt, Voltroni, GOODWE, VICTRON, PYLONTEC, SMA, SOFAR)			
PROTECTION				
Protection	Overcharge protection,Overdischarge protection,Overcurrent protection,Shortcircuit protection, Over temperature protection			
AMBIENT				
working Temperature	-10°C~ +50°C			
Humidity	0~95% (no condensation)			
DIMENSION OF EACH MODULAR				
L×W×H (Case base size) mm	703*490*95mm (7.0Kg)	703*490*95mm (7.0Kg)	703*490*95mm (7.0Kg)	703*490*95mm (7.0Kg)
L×W×H (Case base package size) mm	715*497*107mm (7.5Kg)	715*497*107mm (7.5Kg)	715*497*107mm (7.5Kg)	715*497*107mm (7.5Kg)
L×W×H (products size) mm	703*490*192mm * 1	703*490*192mm * 2	703*490*192mm* 3	703*490*192mm* 4
L×W×H (package size) mm	763*545*296mm* 1	763*545*296mm * 2	763*545*296mm* 3	763*545*296mm* 4
System Weight(NW Kg)	49.4Kg * 1	49.4Kg * 2	49.4Kg * 3	49.4Kg * 4
System Weight(GW Kg)	53.5Kg * 1	53.5Kg * 2	53.5Kg * 3	53.5Kg * 4
20FT QTY(UNIT)	196	98	65	49

SAKO lithium battery, in anti-explosion design, the safest power. Choose safe power, choose SAKO.



Li-Smart HV

Modular & Stacked Lithium Battery 10KWH-50KWH with 6000 cycles

Main Features

- Top brand new LiFePO4 cells, super safety.
- 5 Years warranty, 6000+ cycles, 10+ years life design.
- Modular&stacked design for easy extension.
- 100A smart BMS for each modular, matches well with solar system.
- All around protection and unattended operation.
- High voltage stack with central BMS, compatible with SUNIN 8K-12K inverter.

SAKO leading technology:

- Internal battery temperature reaches 100°C within 10mins, the cover remains at normal temperature.

Lithium Battery

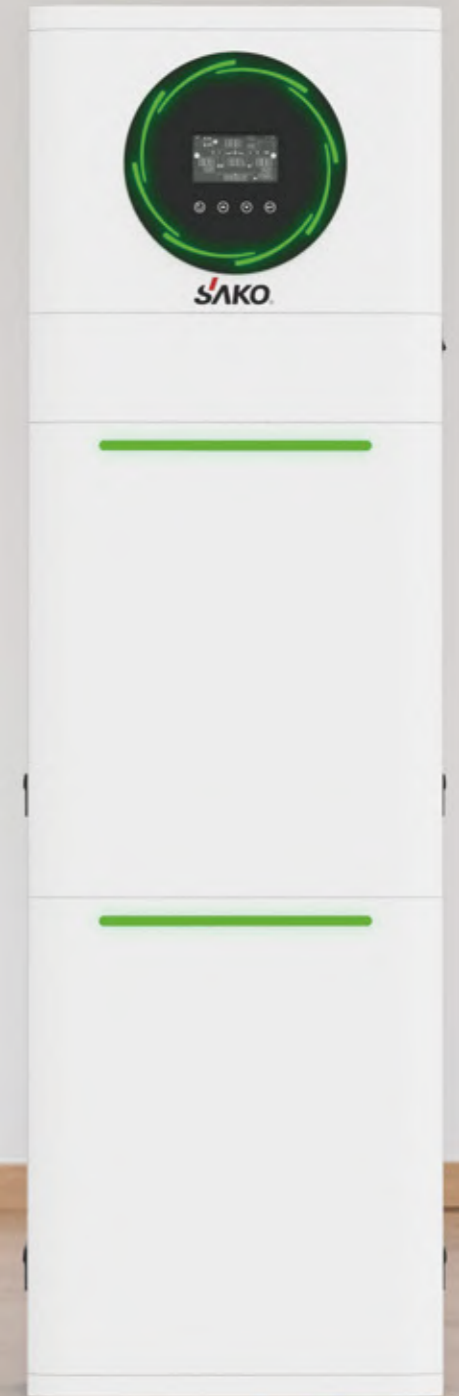
MODEL	SK-10.2KWh	SK-15.3KWh	SK-20.4KWh	SK-25.6KWh	SK-30.7KWh	SK-35.8KWh	SK-40.9KWh	SK-46.0KWh	SK-51.2KWh
SPECIFICATION									
System Demo									
Battery cell type	LiFe PO4								
Battery Module	51.2V/100Ah								
No. of Module	2	3	4	5	6	7	8	9	10
Normal Capacity(25°C,0.2C)	10.24KWh	15.36KWh	20.48KWh	25.6KWh	30.72KWh	35.84KWh	40.96KWh	46.08KWh	51.2KWh
Normal Voltage (dc)	102.4V	153.6V	204.8V	256.0V	307.2V	358.4V	409.6V	460.8V	512.0V
Voltage window (dc)	89.6 ~ 116.8V	134.4-175.2V	179.2-233.6V	224.0-292.0V	268.8-350.4V	313.6-408.8V	358.4-467.2V	403.2-525.6V	448.0-584.0V
Dimension(WxDxH MM)	703*490*611	703*490*803	703*490*995	703*490*1187	703*490*1379	703*490*1571	703*490*1763	703*490*1955	703*490*2147
Weight(NW Kg)	123Kg	172Kg	221Kg	266Kg	315Kg	368Kg	417Kg	466Kg	515Kg
Normal charge/ discharge current	50A								
Max.charge/ discharge current	100A								
Cycle life (+25°C 0.2C 90%DOD)	6000								
Terminal	Double M8								
Storage temperature	0°C~ 30°C								
Storage duration	6 months at 25°C								
Safety standard	UN38.3,MSDS,IEC62619,EN62619,EN61000								
IP degree	IP54								
Communication function	RS485,CAN								
PROTECTION									
Protection	Overcharge protection、Overdischarge protection、Overcurrent protection、Shortcircuit protection、Overtemperature protection								
AMBIENT									
working Temperature	-10°C~ +50°C								
Humidity	0~95% (no condensation)								

SAKO

Energy Storage System



ESS Pro



Apollo

Alpha All-in-one Off Grid Home Solar System

ALPHA Series

- Portable Power Station, high capacity in compact size
- Pure sinewave AC output with Lithium-ion battery bank
- Power 99% of your home appliances
- Scalable output power from 1K to 3K
- 60A-80A built-in AC and Solar charger
- Super-fast recharge, 0-90% in one hour
- 3 AC outlets, 4 DC outputs, terminal block for 1K/3K
- Dual inputs, grid and solar
- Built-in battery management system (BMS)

System Diagram

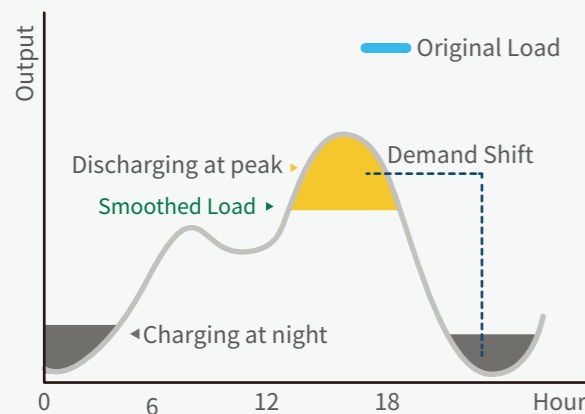
Highly mobility and Plug & Use

If you need to relocate the energy bank, simply unplug it and move it anywhere.

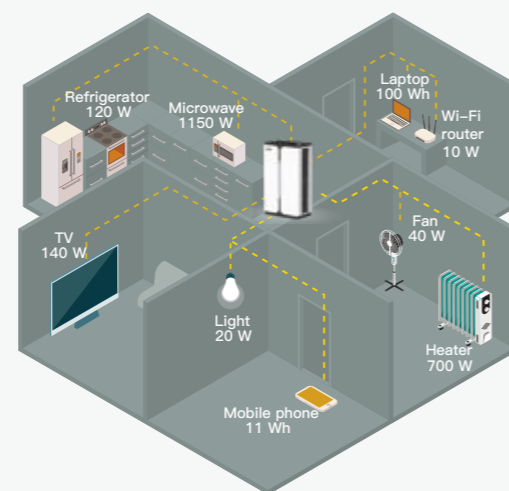


Peak cut

Store the power at night when the utility is generally cheaper and more available and discharge power when needed.



Power 9 devices at the same time for one hour and more



MODEL	ALPHA 1KVA/1.28KWH	ALPHA 3KVA/2.56KWH
INVERTER / CHARGER		
Inverter Type	1KVA/12V	3KVA/24V
Rated Output Power	1KW	2.7KW
Output Voltage Waveform	Pure Sine Wave	Pure Sine Wave
Output Voltage	230VAC 50HZ	230VAC 50HZ
Charging Current (Utility and solar together)	60A Max.	80A Max.
AC Input		
Nominal Input Voltage	230Vac	230Vac
Voltage Range	170-280Vac(UPS), 90-280Vac (Appliances)	170-280Vac(UPS), 90-280Vac (Appliances)
Nominal Input Frequency	50HZ / 60HZ (Auto detection)	50HZ / 60HZ (Auto detection)
AC Charging Current	20A Max.	60A Max.
Solar Input		
Nominal PV Voltage	36Vdc	240Vdc
PV Array MPPT Voltage Range	15Vdc~80Vdc	30Vdc~350Vdc
Solar Charging Current	40A Max.	80A Max.
Lithium Iron Battery		
Capacity	1280Wh	2560Wh
Nominal Battery Voltage	12.8Vdc	25.6Vdc
Typical Capacity	100Ah	100Ah
Max.Charge Current	50A	50A
Max.Discharge Current	100A	100A
Operation Temperature	-10°C~+50°C	
Protection		
Protection	Overcharge/Overdischarge/Overcurrent/ Overtemperature/Shortcircuit protection	
Ambient		
Noise(dB)	< 40dB (1 meter)	
working Temperature	-10°C ~ +50°C	
Humidity	0~95% (no condensation)	
Sea Level(m)	≤1500	
Dimension		
L×W×H (products size)	L450*W213*H636mm	L450*W279*H731mm

System Diagram





Apollo-ESS Energy Storage System

Apollo-ESS 6KW/8KW/11KW Energy Storage System



Smart WIFI monitor, user friendly.



Integrated with inverter, MPPT charger, AC charger, LiFePo4 battery inside.



6000 Cycles LiFePo4 cells, 10+ years life design.



Smart BMS for communication and all around protection.



Modular & stacked design for easy expansion and installation.



Easy installation, configurable of work mode and charge current.


Energy Storage System

SPECIFICATION	MODEL	Apollo-ESS 6KW	Apollo-ESS 8KW	Apollo-ESS 11KW
Inverter / Charger				
Inverter Type		6KW/48V Hybrid	8KW/48V Hybrid	11KW/48V Hybrid
Rated Output Power		6KW	8KW	11KW
Output Voltage Waveform		Pure Sine Wave		
Output Voltage		230VAC 50HZ		
Low DC Warning Voltage		45.8Vdc		
Low DC Cut-off Voltage		44.8Vdc		
Low DC Warning Return Voltage		46.8Vdc		
Charging Current (Utility and solar together)		120A Max.		
Bulk Charging Voltage		57.6Vdc		
Float Charging Voltage		56.0Vdc		
AC Input				
Nominal Input Voltage		230Vac		
Low Loss Voltage		170Vac ± 7(UPS), 90Vac ± 7(Appliances)		
Low Loss Return Voltage		180Vac ± 7(UPS), 100Vac ± 7(Appliances)		
High Loss Voltage		280Vac ± 7		
High Loss Return Voltage		270Vac ± 7		
Max. AC Input Voltage		300Vac		
Nominal Input Frequency		50HZ / 60HZ(Auto detection)		
AC Charging Current		120A Max.	120A Max.	150A Max.
Solar Input				
Nominal PV Voltage		360Vdc		
PV Array MPPT Voltage Range		120Vdc~450Vdc		
Max. PV Array Open Circuit Voltage		500Vdc		
Solar Charging Current		120A Max.		
Lithium Iron Battery				
Capacity		5120Wh * N		
Nominal Battery Voltage		51.2Vdc		
Typical Capacity		100Ah * N set		
Max.Charge Current		50A * N		
Max.Discharge Current		100A * N		
Operation Voltage Range		44.8Vdc~58.4Vdc		
Operation Temperature		-10°C~+50°C		
Protection				
Protection		Overcharge protection, Overdischarge protection, Overcurrent protection, Shortcircuit protection, Over temperature protection		
Ambient				
Noise(dB)		< 40dB (1 meter)		
working Temperature		-10°C~+50°C		
Humidity		0~95% (no condensation)		
Sea Level(m)		≤1500		
Inverter Dimension				
L×W×H (products size)		L682*W460*H160mm	L682*W460*H160mm	L682*W460*H160mm
Single Battery Pack Dimension				
L×W×H (products size)		L525*W460*H160mm	L525*W460*H160mm	L525*W460*H160mm



ESS Pro Energy Storage System

ESS Pro 6KW Energy Storage System

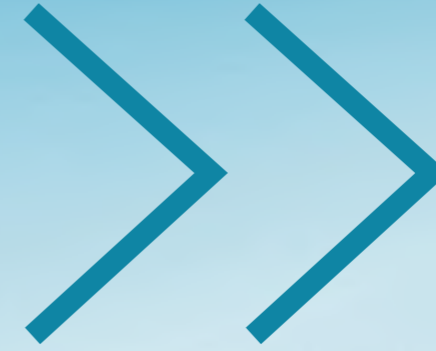
 Smart WIFI monitor, user friendly.	 Integrated with inverter, MPPT charger, AC charger, LiFePo4 battery inside.	 6000 Cycles LiFePo4 cells, 10+ years life design.
 Smart BMS for communication and all around protection.	 Modular & stacked design for easy expansion and installation.	 Easy installation, configurable of work mode and charge current.

Energy Storage System

MODEL	ESS PRO 6KW/5KWh	ESS PRO 6KW/10KWh	ESS PRO 6KW/15KWh	ESS PRO 6KW/20KWh
INVERTER / CHARGER				
Inverter Type	6KW/48V			
Rated Output Power	6KW			
Output Voltage Waveform	Pure Sine Wave			
Output Voltage	230VAC 50HZ			
Low DC Warning Voltage	45.8Vdc			
Low DC Cut-off Voltage	44.8Vdc			
Low DC Warning Return Voltage	46.8Vdc			
Total Charging Current(Grid+solar)	120A Max.			
Bulk Charging Voltage	57.6Vdc			
Float Charging Voltage	56.0Vdc			
LITHIUM IR ON BATTERY				
Normal Battery Modular	51.2V100Ah*1	51.2V100Ah*2	51.2V100Ah*3	51.2V100Ah*4
Normal Capacity(25°C, 0.2°C)	5120Wh	10.24KWh	15.36KWh	20.48KWh
Nominal Battery Voltage	51.2Vdc	51.2Vdc	51.2Vdc	51.2Vdc
Nominal Capacity	100A	200A	300A	400A
Max. Charge Current	150A 1Sec.	300A 1Sec.	450A 1Sec.	600A 1Sec.
Max. Discharge Current	50A	100A	150A	200A
Operation Voltage Range	44.8Vdc ~ 58.4Vdc			
Operation Temperature	-10°C~ +50°C			
AC INPUT				
Nominal Input Voltage	230Vac			
Low Loss Voltage	170Vac ± 7(UPS), 90Vac ± 7(Appliances)			
Low Loss Return Voltage	180Vac ± 7(UPS), 100Vac ± 7(Appliances)			
High Loss Voltage	280Vac ± 7			
High Loss Return Voltage	270Vac ± 7			
Max. AC Input Voltage	300Vac			
Nominal Input Frequency	50HZ / 60HZ(Auto detection)			
AC Charging Current	120A Max.			
SOLAR INPUT				
Nominal PV Voltage	360Vdc			
PV Array MPPT Voltage Range	120Vdc~450Vdc			
Max. PV Array Open Circuit Voltage	500Vdc			
Solar Charging Current	120A Max.			
PROTECTION				
Protection	Overcharge protection, Overdischarge protection, Overcurrent protection, Shortcircuit protection, Overtemperature protection			
AMBIENT				
Noise(dB)	< 30°C < 40dB (1 meter)			
Working Temperature	-10°C~ +50°C			
Humidity	0~95% (no condensation)			
Sea Level(m)	≤ 1500			
OTHERS				
Efficiency	92.0%			
Warranty	5 Years			

SAKO

Solar Panel





Warning: Read the Installation and User Manual in its entirety before handling, installing, and operation smart Solar modules.

Note: This publication summarizes product warranty and Specifications which are subject to change without notice



SK-F215W Flexible PV Module MONO HALF-CUT PV MODULE

Long lasting and stable quality

- Through various long-term reliability tests
- ISO 9001, ISO 14001, ISO 45001 and CE
- The reliability of components is effectively ensured under EL test before and after lamination.
- Fully automatic production line and the leading photovoltaic technology

The component weight is as light as 3.80kg in weight and as thin as 20mm, meeting the requirements of various low load projects.

With ultra-thin silicon chip and advanced organic polymer materials, the component can perfectly fit various curved roofs.

It is improving the battery conversion efficiency. The power generation performance is excellent under low light conditions.

Products can be customized to meet the needs of different application scenarios.

Due to convenience and quickness, the costs of installation and transport are greatly reduced.

Base on the concept of green environmental protection, the production process and materials achieve plumbum free.

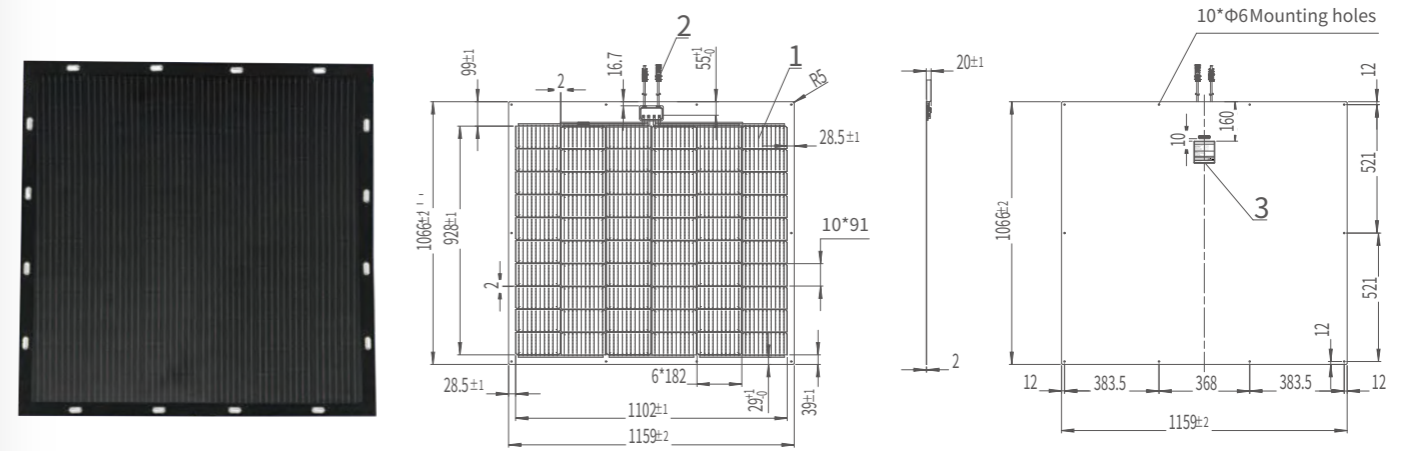
20 Years design life



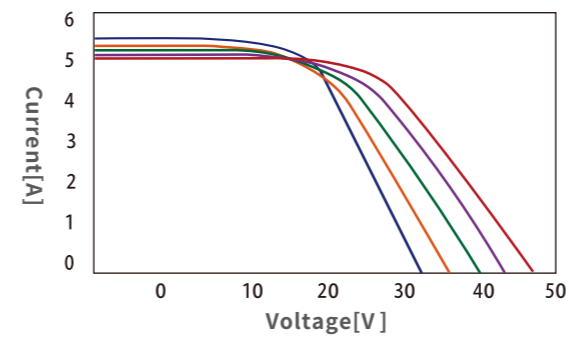
■ SAKO Linear Performance
■ Industry Standard Performance

20 Years design life
1 year limited warranty of materials and workmanships.

Solar Panel

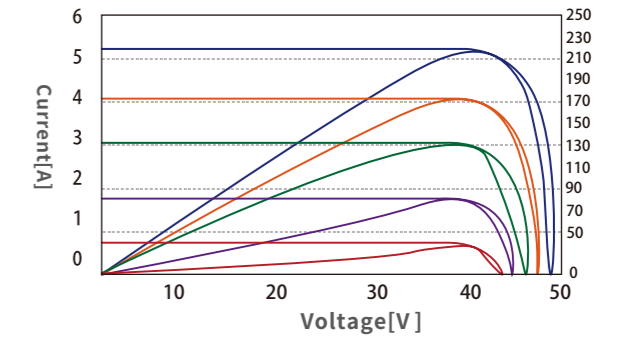


Temperature curves of current and voltage at different temperatures



— Cell temp=10°C — Cell temp=55°C
— Cell temp=25°C — Cell temp=70°C
— Cell temp=40°C Incident Irrad=1000W/m²

Curve of current and voltage/curve of power voltage under different irradiance



— 200W/m² — 800W/m²
— 400W/m² — 1000W/m²
— 600W/m² Incident Irrad=1000W/m²

Electrical Parameters at Standard Test Conditions(STC)

Power Output (Pmax / W)	215W
Power Output Tolerances	±3%
Module Efficiency (ηm)	17.50%
Voltage at Pmax (Vmp / V)	35.46
Current at Pmax (Imp / A)	6.156
Open-circuit Voltage (Voc / V)	41.52
Short-circuit Current (Isc / A)	6.797

Operating Conditions

Max.system voltage	1500Vdc
Max.series fuse rating	20A
Operating temperature range	-40°C to 85°C
Max.static load,front(e.g.,snow)	5400Pa
Max.static load,back(e.g.,wind)	2400Pa

STC:1000W/m² irradiance,25°C module temperature,AM1.5g Spectrum according to EN 60904-3.

Mechanical

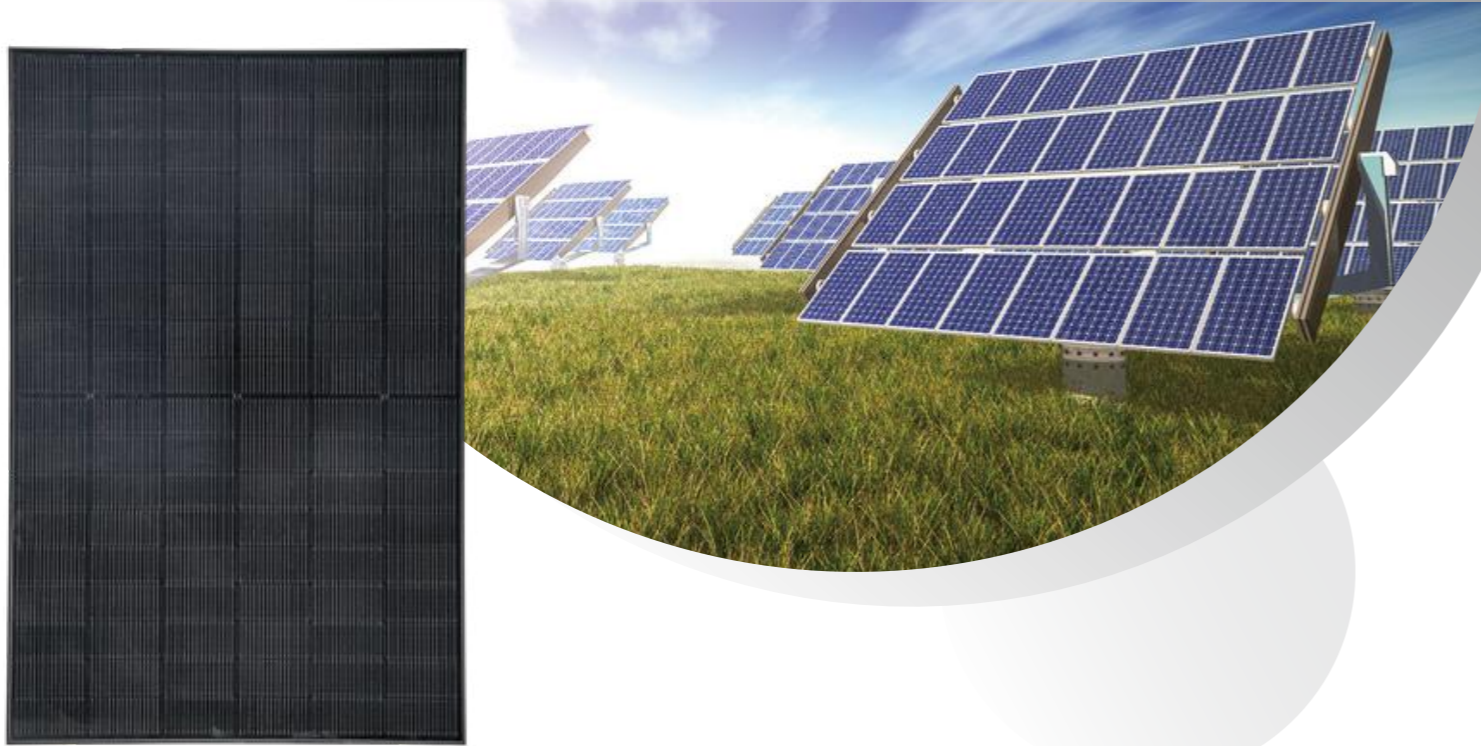
Front film	Lightweight high transparent polymer materials (ETFE)
Cell (quantity/material)	10*6 (60PCS) Mono Perc (182MM)
Junction box (protection degree)	≥IP65
Cable (length, optional)	1M/2M
Products Dimension (L/W/H)	1066*1159*20MM (Exclude the junction box)
Weight	3.8KGS
Packing Way	Carton Box+Pallets
QTY for 1*20HQ (PCS)	1160PCS(4PCS/CTN, 10 Pallets)
QTY for 1*40HQ (PCS)	2560PCS (4PCS/CTN, 40 Pallets)

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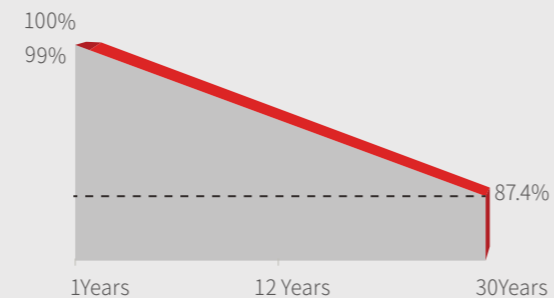
410-430Watt N-Type MONO-Facial Module

Long lasting and stable quality

IEC61215(2016), IEC61730(2016)
ISO9001 :2015: Quality Management System
ISO 14001 :2015: Environment Management System
ISO45001 :2018
Occupational Health and Safety Management Systems

- Better light trapping and current collection to improve module power output and reliability.
- The N-type module with Hot 2.0 technology has better reliability and lower LID/LETID.
- Excellent Anti-PIO performance guarantee via optimized mass-production process and materials control.
- Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).
- High salt mist and ammonia resistance.

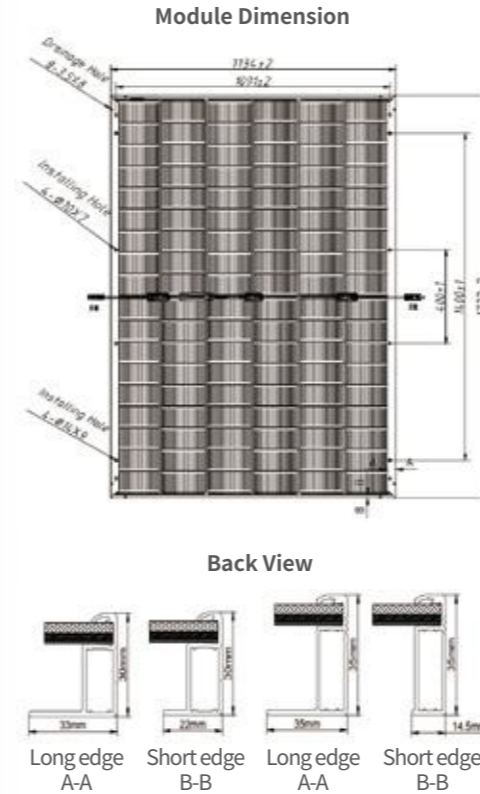
LINEAR PERFORMANCE WARRANTY



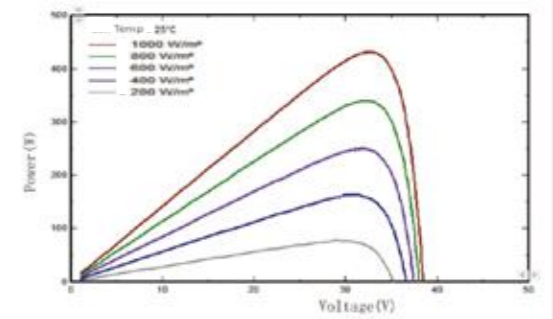
■ SAKO Linear Performance Warranty
■ Industry Standard Warranty

30 Years output guarantee
12 Years quality assurance
5-year limited warranty of materials and workmanship.

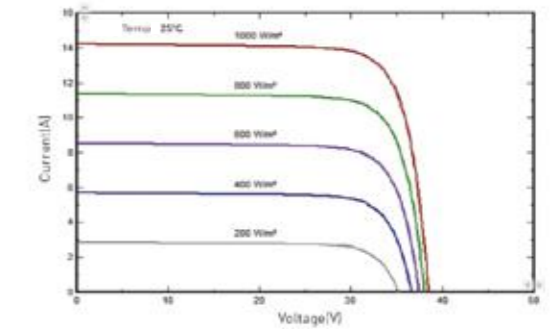
Solar Panel



I-V/P-V Curve at Different Irradiation (430W)



I-V/P-V Curve at Different Temperature (430W)



Packaging Configuration

size:1760x1140x1280mm36pcs/plt,936pcs/40HQ

Optional	
Connector	Original MC
Cable length	1200mm
Frame	silver
Glass	White

ELECTRICAL PERFORMANCE

Electrical Specification(STC)	Electrical Specification(STC)					Electrical Specification(NOCT)				
	410W	415W	420W	425W	430W	308W	312W	316W	320W	324W
Maximum Power(Pmax)	410W	415W	420W	425W	430W	308W	312W	316W	320W	324W
Maximum Power Voltage(Vmp)	31.13V	31.32V	31.51V	31.70V	31.88V	29.06V	29.21V	29.34V	29.50V	29.66V
Maximum Power Current(Imp)	13.19A	13.26A	13.33A	13.41A	13.49A	10.61A	10.68A	10.76A	10.83A	10.93A
Open Circuit Voltage(Voc)	37.73V	37.92V	38.11V	38.30V	38.49V	35.84V	36.02V	36.20V	36.38V	36.56V
Short Circuit Current(Isc)	13.91A	13.99A	14.07A	14.15A	14.23A	11.23A	11.29A	11.36A	11.42A	11.49A
Module Efficiency	21.01%	21.26%	21.51%	21.76%	22.02%					
Power Output Tolerance	±3% W									

STC: Irradiance 1000W/m², Module Temperature 25°C, Air Mass 1.5

NOCT: Irradiance 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s

Mechanical Data	
Number of Cells	108 pieces (6×18)
Dimensions of Module(L*W*H)	1722×1134×30/35mm
Weight	Approx 25.8/26.1 kg
Front Side Glass	2.0, Anti-reflection coating glass
Back Side Glass	2.0, Hightransparency solar glass
Frame	Anodized aluminium
J-Box	Protection level IP68
Cable	4.0mm ² , 300mm
Number of diodes	3
Wind/Snow Load	2400 Pa/5400 pa
Connecto	MC4 compatible or MC compatible

Temperature Ratings	
Nominal Operating Cell Temperature(NOCT)	44±2°C
Temperature Coefficient(Isc)	+0.046%/°C
Temperature Coefficient(Voc)	-0.250%/°C
Temperature Coefficient(PMAX)	-0.300%/°C
Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC-(H)
Max Series Fuse Rating	25A
Packaging Configuration	
Module per box	36/31 pieces
Module per 17.5 flatcar	1080/1085 pieces
Module per 40 container	828/806 pieces

Note: For more details please check the installation manual



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415W-435Watt N-Type Monocrystalline Module

Long lasting and stable quality

IEC61215(2016), IEC61730(2016)
ISO9001:2015: Quality Management System
ISO 14001:2015: Environment Management System
ISO45001:2018
Occupational Health and Safety Management Systems

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

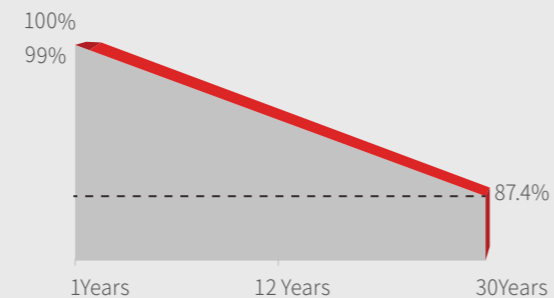
The N-type module with Hot 2.0 technology has better reliability and lower LID/LETID.

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

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

High salt mist and ammonia resistance.

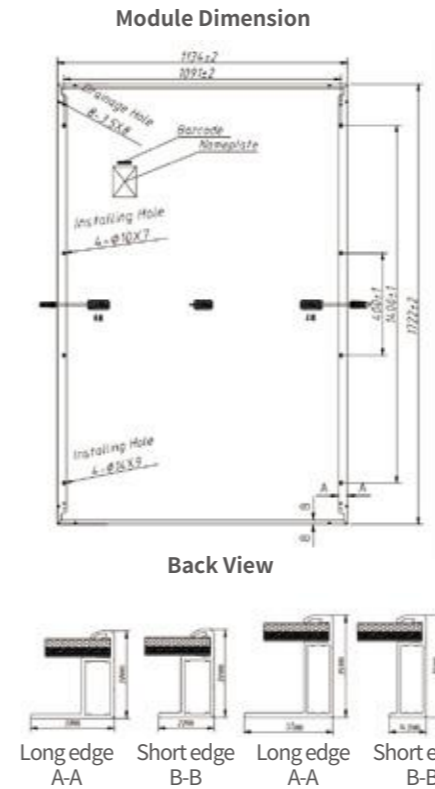
LINEAR PERFORMANCE WARRANTY



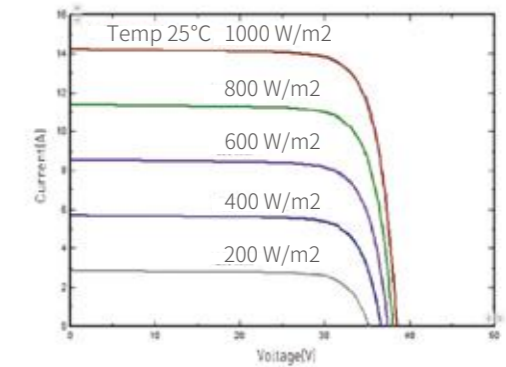
■ SAKO Linear Performance Warranty
■ Industry Standard Warranty

30 Years output guarantee
12 Years quality assurance
5-year limited warranty of materials and workmanship.

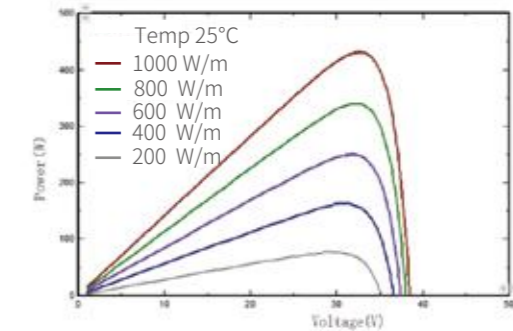
Solar Panel



I-V/P-V Curve at Different Irradiation (430W)



I-V/P-V Curve at Different Temperature (430W)



Packaging Configuration

size:1760x1140x1280mm36pcs/plt,936pcs/40HQ

Optional	
Connector	Original MC
Cable length	1200mm
Frame	silver
Glass	White

ELECTRICAL PERFORMANCE

Electrical Specification(STC)	Electrical Specification(STC)					Electrical Specification(NOCT)				
	415W	420W	425W	430W	435W	312W	316W	320W	324W	328W
Maximum Power(Pmax)	415W	420W	425W	430W	435W	312W	316W	320W	324W	328W
Maximum Power Voltage(Vmp)	31.32V	31.51V	31.70V	31.88V	32.06V	29.21V	29.34V	29.50V	29.66V	29.81V
Maximum Power Current(Imp)	13.26A	13.33A	13.41A	13.49A	13.57A	10.68A	10.76A	10.83A	10.93A	11.01A
Open Circuit Voltage(Voc)	37.92V	38.11V	38.30V	38.49V	38.68V	36.02V	36.20V	36.38V	36.56V	36.74V
Short Circuit Current(Isc)	13.99A	14.07A	14.15A	14.23A	14.31A	11.29A	11.36A	11.42A	11.49A	11.56A
Module Efficiency	21.30%	21.50%	21.80%	22.00%	22.30%					
Power Output Tolerance	±3% W									

STC: Irradiance 1000W/m², Module Temperature 25°C, Air Mass 1.5

NOCT: Irradiance 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s

Mechanical Data	
Number of Cells	108 pieces (6×18)
Dimensions of Module(L*W*H)	1722×1134×30/35mm
Weight	Approx 21.7/22.0 kg
Front Side Glass	3.2, Anti-reflection coating glass
Back Side Glass	Black
Frame	Anodized aluminium
J-Box	Protection level IP68
Cable	4.0mm², 300mm
Number of diodes	3
Wind/Snow Load	2400 Pa/5400 pa
Connecto	MC4 compatible or MC compatible

Temperature Ratings	
Nominal Operating Cell Temperature(NOCT)	44±2°C
Temperature Coefficient(Isc)	+0.046%/°C
Temperature Coefficient(Voc)	-0.250%/°C
Temperature Coefficient(PMAX)	-0.300%/°C
Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC-(H)
Max Series Fuse Rating	25A
Packaging Configuration	
Module per box	36/31 pieces
Module per 17.5 flatcar	1296/1116 pieces
Module per 40 container	936/806 pieces

Note: For more details please check the installation manual



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SK-530P8-144M SK-535P8-144M SK-540P8-144M SK-545P8-144M SK-550P8-144M

MONO HALF -CELL 9BB/10BB

Representation	Product Name	Half-Cell	Solar Cell Type	Wattage	Silicon Type
EXAMPLE	SK-550P8-144M	144M PCS	182×182MM	550W	M: Monocrystalline



Module efficiency up to 21.3%.



Less energy loss caused by shading due to new cell string layout and lower cell connection power loss due to half-cell design.



More power output in weak light condition such as cloudy, morning and sunsets.



Reliable quality leads to a better sustainability even in harsh environment.



Lower operating temperature and temperature coefficient increases the power output.

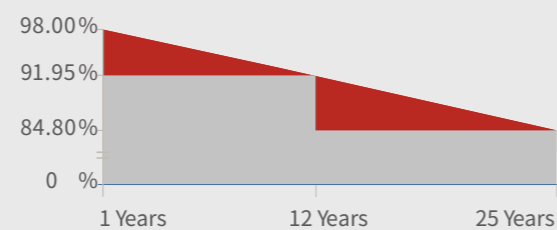


Excellent Anti-PID performance.



2% more power generation, lower LCOE.

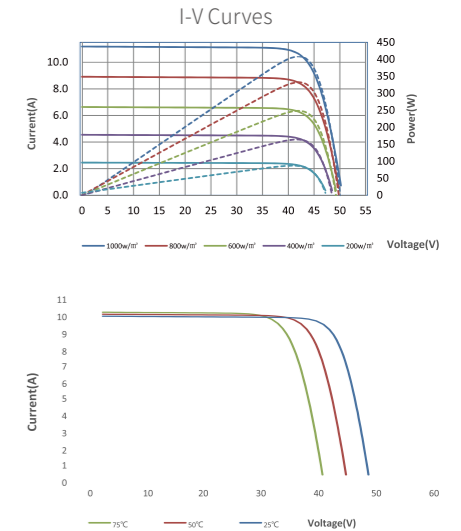
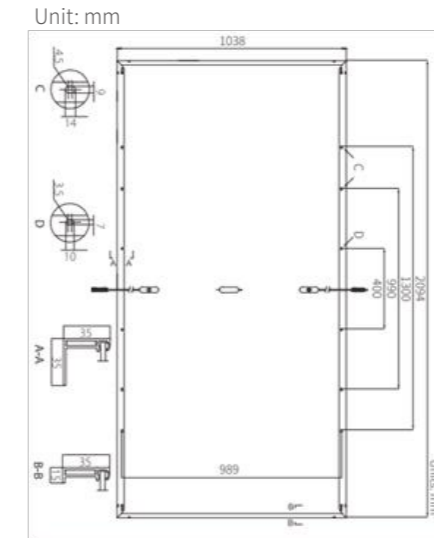
25 Years Linear Warranty



■ SAKO Linear Performance Warranty
■ Industry Standard Warranty

30 Years output guarantee
12 Years quality assurance
5-year limited warranty of materials and workmanship.

Solar Panel



ELECTRICAL PERFORMANCE

Electrical Parameters at Standard Test Conditions(STC)

Module Type	SK-530P8-144M	SK-535P8-144M	SKSK-540P8-144M	SK-545P8-144M	SK-550P8-144M
Power Output (Pmax / W)	530W	535W	540W	545W	550W
Power Output Tolerances	±3%	±3%	±3%	±3%	±3%
Module Efficiency (ηm)	20.50%	20.70%	20.89%	21.09%	21.30%
Voltage at Pmax (Vmp / V)	40.8V	41V	41.19V	41.38V	41.57V
Current at Pmax (Imp / A)	12.99A	13.05A	13.11A	13.17A	13.23A
Open-circuit Voltage (Voc / V)	48.81V	49.02V	49.21V	49.43V	49.62V
Short-circuit Current (Isc / A)	13.83A	13.88A	13.93A	13.98A	14.03A

STC:1000W/m² irradiance,25°C module temperature,AM1.5g Spectrum according to EN 60904-3.

Electrical parameters at NMOT (Irradiance 800 W/m², ambient temperature 20 °C, AM=1.5, wind speed 1 m)

Module Type	SK-530P8-144M	SK-535P8-144M	SK-540P8-144M	SK-545P8-144M	SK-550P8-144M
Power Output (Pmax / W)	394W	398W	402W	405W	409W
Voltage at Pmax (Vmp / V)	38.5V	38.6V	38.8V	38.9V	39.0V
Current at Pmax (Imp / A)	10.23A	10.3A	10.36A	10.42A	10.48A
Open-circuit Voltage (Voc / V)	46.1V	46.2V	46.4V	46.5V	46.7V
Short-circuit Current (Isc / A)	11.06A	11.12A	11.17A	11.23A	11.29A

Thermal Characteristics

Normal operating cell temperature	NOCT	°C	45±2
Temperature coefficient of Pmax	γ	%/°C	-0.35
Temperature coefficient of Voc	βvoc	%/°C	-0.27
Temperature coefficient of Isc	αisc	%/°C	0.05
Temperature coefficient of Vmpp	βvmpp	%/°C	-0.42

Construction Materials

Front cover(material/thickness)	low-iron tempered glass/3.2mm
Cell(quantity/material)	144PCS Mono Perc (182MM)
Frame(Materials)	anodized aluminum alloy/silver/clear
Junction box(protection degree)	≥IP65
Cable (length/cross-sectional area)	300mm/4mm ²

Operating Conditions

Max.system voltage	1500Vdc
Max.series fuse rating	20A
Operating temperature range	-40°C to 85°C
Max.static load,front(e.g.,snow)	5400Pa
Max.static load,back(e.g.,wind)	2400Pa
Max.hailstone impact(diameter)	25mm/23m/s

General Characteristics

Products Dimension(L/W/H)	2279*1134*35mm
Weight	28.5KGS
QTY of per pallet	31pcs per pallet
Packaging box dimensions	2330*1150*1270MM
No. of pallets for 40HQ containers	20 Pallets (620PCS, GW.: 940KGS)

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565-585Watt N-Type MONO-FACIAL MODULE

Positive power tolerance of 0-+3%

IEC61215(2016), IEC61730(2016)
ISO9001 :2015: Quality Management System
ISO 14001 :2015: Environment Management System
ISO45001 :2018
Occupational Health and Safety Management Systems

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

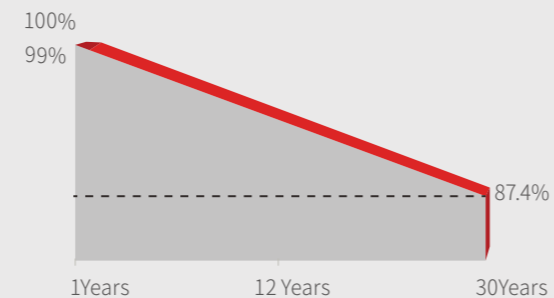
The N-type module with Hot 2.0 technology has better reliability and lower LID/LETID.

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

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

High salt mist and ammonia resistance.

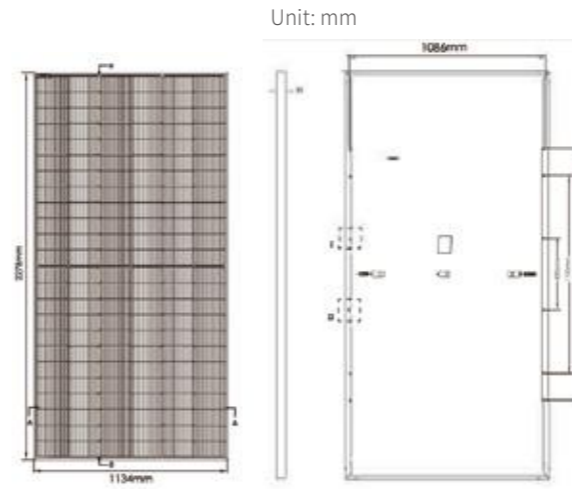
LINEAR PERFORMANCE WARRANTY



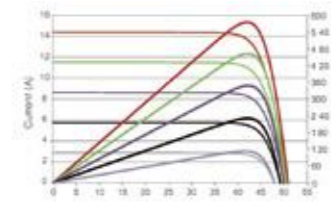
■ SAKO Linear Performance Warranty
■ Industry Standard Warranty

30 Years output guarantee
12 Years quality assurance
5-year limited warranty of materials and workmanship.

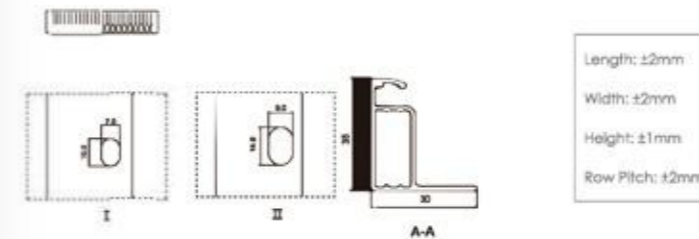
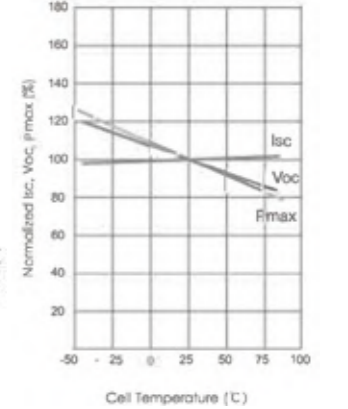
Solar Panel



Current-Voltage & Power-Voltage Curves (575W)



Temperature Dependence of Isc, Voc, Pmax



Mechanical Characteristics

Cell Type	N type Mono-crystalline
No. of cells	144 (6x24)
Dimensions	2278x 1134x35mm
Weight	28 kg
Front Glass	3.2mm, Anti-Reflection Cooling, High Transmission, Low Iron, Tempered Glass
Frame	Anodized Aluminium Alloy
Junction Box	IP68 Rated
Output Cables	TUV 1x4.0mm ² (+): 300mm, (-): 300mm or Customized Length

Packaging Configuration

31 pcs/pallets, 62pcs/stack, 620pcs/ 40'HQ Container

SPECIFICATIONS

Module Type	SK-72M-565HC		SK-72M-570HC		SK-72M-575HC		SK-72M-580HC		SK-72M-585HC	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	565Wp	425Wp	570Wp	429Wp	575Wp	432Wp	580Wp	436Wp	585Wp	440Wp
Maximum Power Voltage (Vmp)	41.92V	39.38V	42.07V	39.51V	42.22V	39.60V	42.37V	39.69V	42.52V	39.81V
Maximum Power Current (Imp)	13.48A	10.79A	13.55A	10.85A	13.62A	10.92A	13.69A	10.99A	13.76A	11.05A
Open-circuit Voltage (Voc)	50.60V	48.06V	50.74V	48.20V	50.88V	48.33V	51.02V	48.46V	51.16V	48.60V
Short-circuit Current (Isc)	14.23A	11.49A	14.31A	11.55A	14.39A	11.62A	14.47A	11.68A	14.55A	11.75A
Module Efficiency STC(%)	21.87		22.07		22.26		22.45		22.65	
Operating Temperature (°C)	-40°C~+85°C									
Maximum System Voltage	1000/1500VDC(IEC)									
Maximum Series Fuse Rating	25A									
Power Tolerance	0~+3%									
Temperature Coefficients of Pmax	-0.29%/C									
Temperature Coefficients of Voc	-0.25%/C									
Temperature Coefficients of Isc	0.045%/C									
Nominal Operating Cell Temperature (NOCT)	45±2C									

STC:1000W/m² irradiance, 25°C module temperature, AM1.5g Spectrum according to EN 60904-3.

