

R&D Center Add: A3-901, CAS Incubation Centre, Science
and Education Town, No.18 Changwu Middle Road, Changzhou, China

Manufacturing Base: #E5, Wujin Integrated Free TradeZone, Changzhou, China.

Email: info@superen.net
Tel: +86-519-8556 9999/610
Fax: +86-519-8333 2577
Website: www.superentech.com



CHANGZHOU SUPEREN NEW ENERGY
TECHNOLOGY CO., LTD.



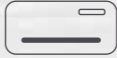



Committed to reducing
greenhouse effect

15 years

企业愿景 ENTERPRISE VISION

*Energy application innovation, enjoy unlimited warm & cool life.
To be the 1ST class energy-saving electrical solution provider.*

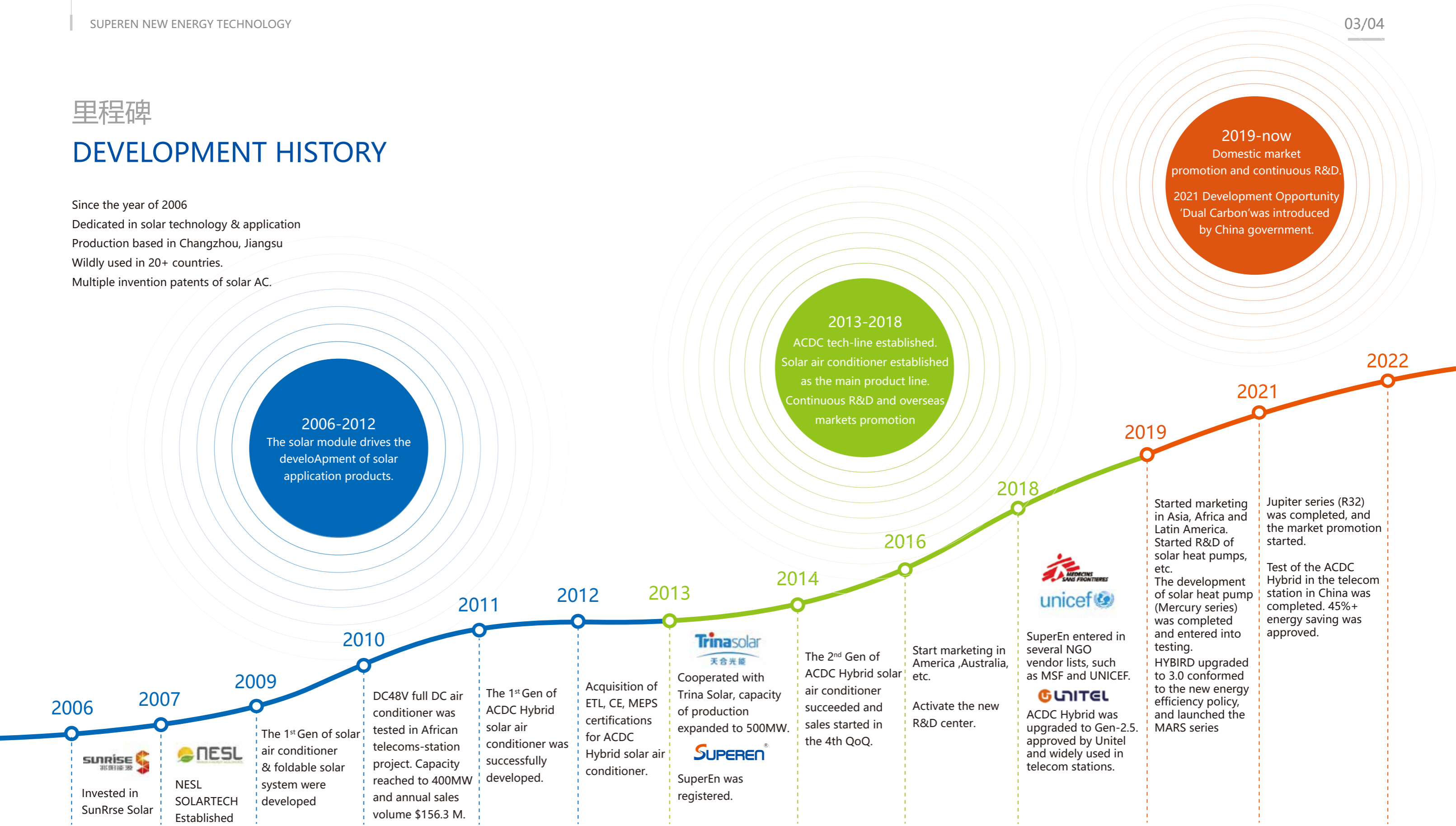


 AIR CONDITIONER	 VENTILATION	 HEATING	 REFRIGERATION
--	--	--	--

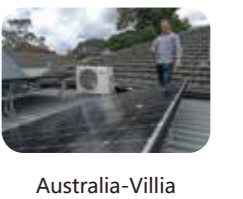
里程碑

DEVELOPMENT HISTORY

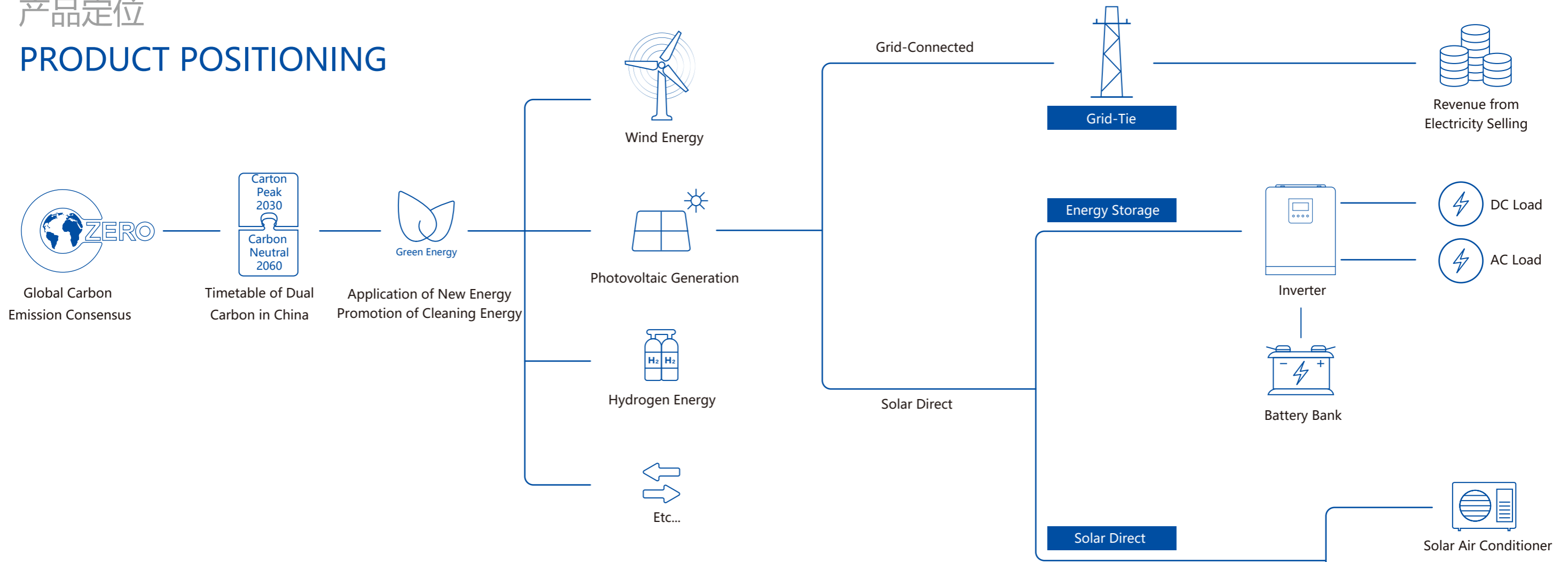
Since the year of 2006
 Dedicated in solar technology & application
 Production based in Changzhou, Jiangsu
 Wildly used in 20+ countries.
 Multiple invention patents of solar AC.



客户分布及典型案例分享 CUSTOMER DISTRIBUTION & TYPICAL CASE SHARING



产品定位 PRODUCT POSITIONING



Grid Connected

Advantage
Simple system with abundant revenue. Moderate maintenance cost.

Disadvantages:
Investment revenue affected by the policy. Long return period.

Application
Abundant sunlight and large-scale solar energy generation.

Energy Storage

Advantage
Solution of solar energy lacking at night. AC equipment can be used through energy storage.

Disadvantages:
High investment and maintenance cost. Limited application area and DC equipment.

Application
Stable power demand.

Solar Direct Drive

Advantage
No need of inverter and energy storage systems. Highest utilization rate of solar energy. Low maintenance cost. Higher electricity price, higher ROI.

Disadvantages:
No backup, use city power only at night.

Application
Stable need for air conditioner and hot water during the day. Areas of high electricity price in the daytime

核心技术

CORE TECHNOLOGY

Self-Dependent Innovation

ADH Seamless Multi-Energy Switching Control Technology

Seamless switch between dual power inputs.
The use of green energy as priority.
Significantly energy consumption reduction

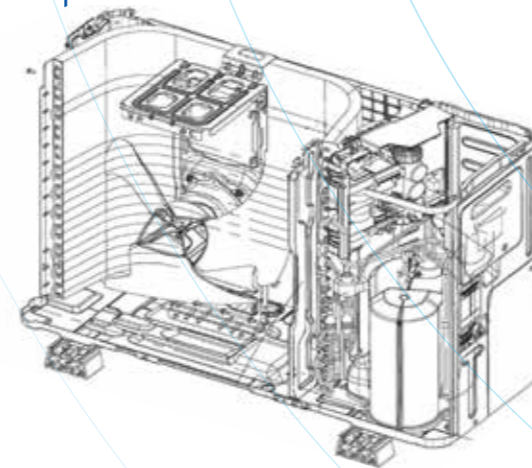
ADMS Intelligent Energy Management System

Cross-industry integration of new energy introduction solutions using highspeed DSP chips which integrates the control and calculation of BLDC motor drive (FOC), air conditioner frequency control (compressor, fan, etc. operation), AC/DC conversion, DC/DC power following (MPPT) and conversion, solenoid valve, stepper motor, etc., by using innovative green energy methods such as solar power generation, wind power, and photovoltaic storage with air conditioner energy consumption.

The sampling of current, voltage, speed, temperature, etc. of each input circuit is integrated into one chip for driving and regulation, which is an innovative example of cross-industry application of new technology.



Core Moudle: PCBA unit



SUPEREN

DC
Inverter
Compressed Drive

Space Vector
Control(FOC)



Power
Conversion
&Power Tracking

MPPT
& DC BOOST



Human-Machine
Interaction
&Temperature Control

Control Technology
Platform



AIR CONDITIONER



VENTILATION



HEATING



REFRIGERATION

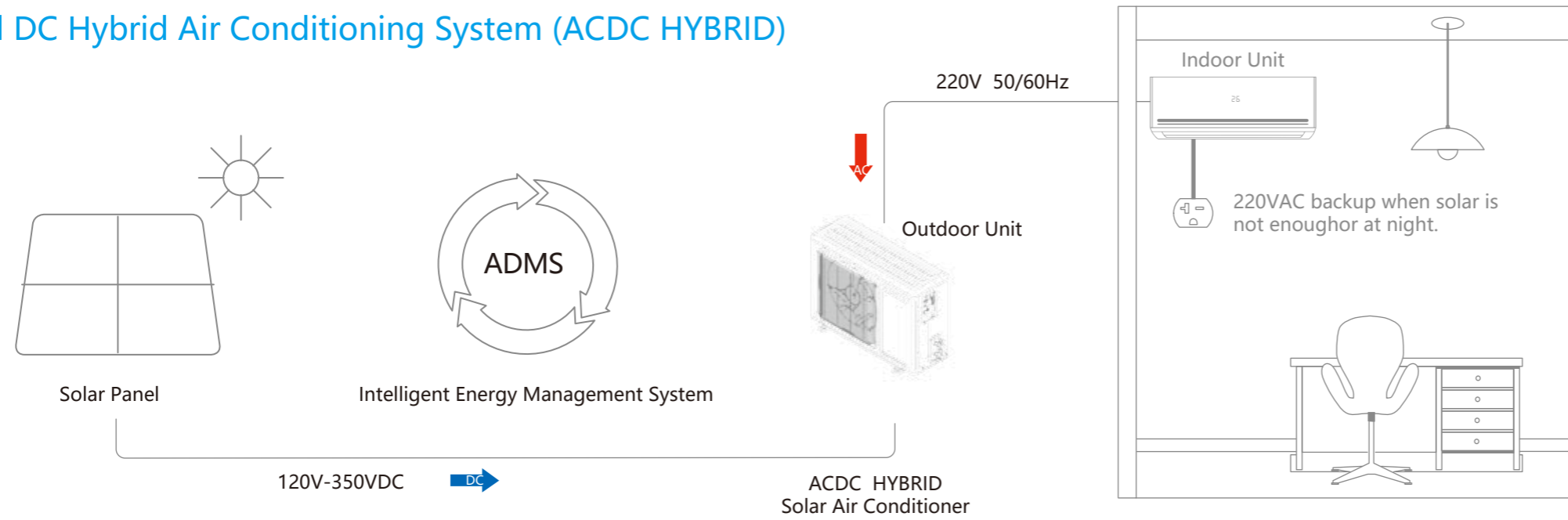
—
Low carbon life back to nature,
enjoy a comfortable and pure life
This is not only a way of green life,
but also a healthy attitude towards life



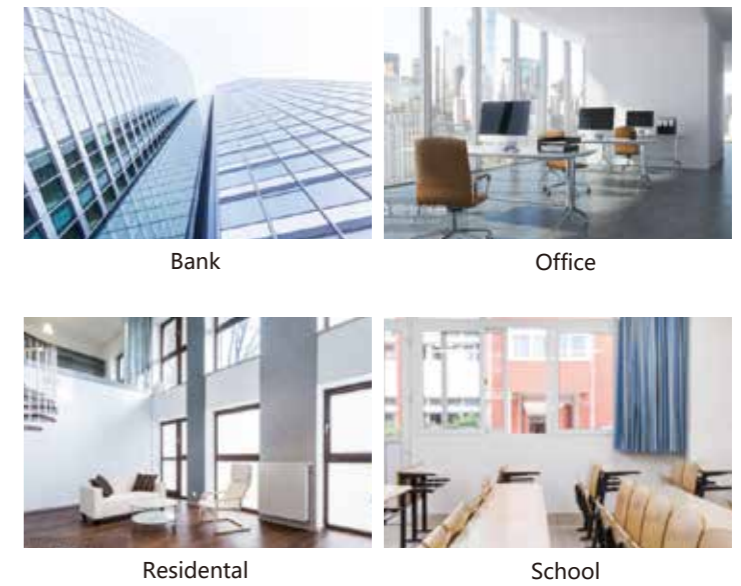
光伏空调系统工作原理

SOLAR AIR CONDITIONING SYSTEM WORKING PRINCIPLE

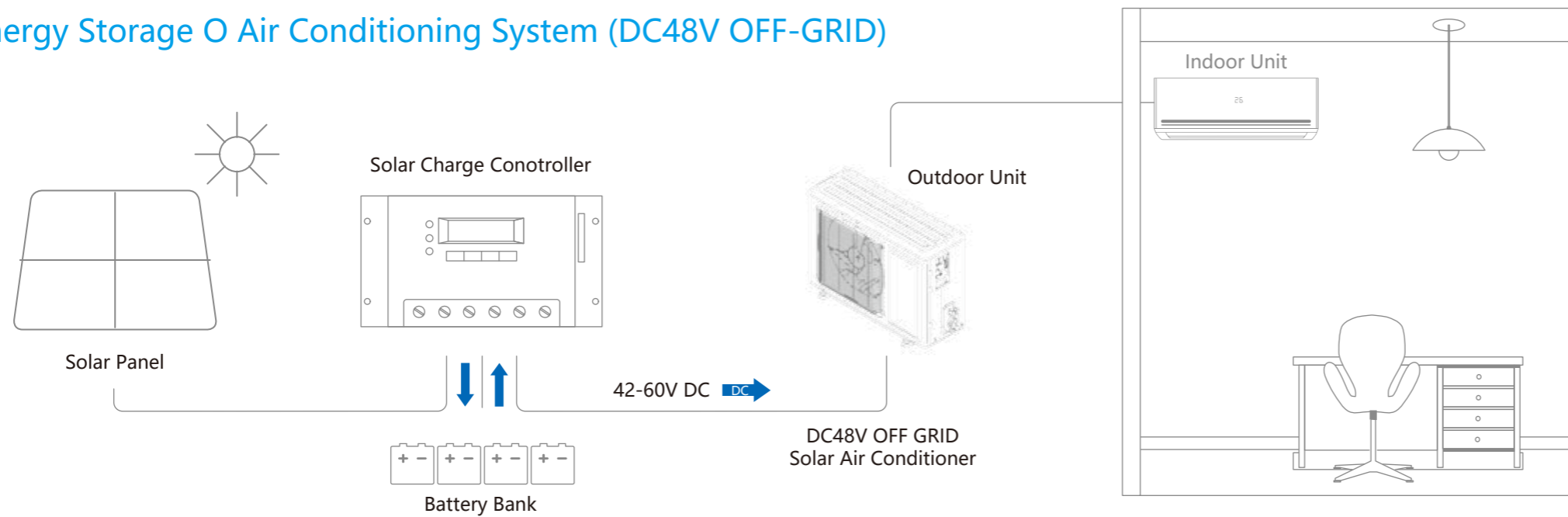
Full DC Hybrid Air Conditioning System (ACDC HYBRID)



Range of Application



Energy Storage O Air Conditioning System (DC48V OFF-GRID)



Range of Application



PRODUCT SERIES
Venus



Model			ACDC HYBRID12 DC48 12V DFAX	ACDC HYBRID 18	ACDC HYBRID 24
Capacity	Cooling		12,000Btu/ 1.5P/ 1.0Ton	18,000Btu/ 2.0P/ 1.5Ton	22,000Btu/ 3.0P/ 2.0Ton
	Heating		12,000Btu/ 1.5P/ 1.0Ton	18,000Btu/ 2.0P/ 1.5Ton	22,000Btu/ 3.0P/ 2.0Ton
Electric Data					
Power Input	Cooling	W	1000	1400	1950
	Heating	W	970	1350	2050
Rated Current	Cooling	A	4.44 / 20.8	6.2	9.1
	Heating	A	4.30 / 20.2	6.0	9.5
Power Supply		Ph,V,Hz	1Ph, 208-230V, 50/60Hz	1Ph, 208-230V, 50/60Hz	1Ph, 208-230V, 50/60Hz
		V	DC120-350V / DC42-60V	DC120-350V	DC120-350V
Performance					
EER	Cooling	W/W	3.52	3.64	3.3
	Heating	W/W	3.60	3.78	3.14
COP	Cooling	W/W	6.4	6.1	5.8
	Heating	W/W	3.2	3.2	2.92
Airflow	Indoor unit	M ³ /H	650	1050	1300
Noise	Indoor unit	dB(A)	43	49	50
	Outdoor unit	dB(A)	51	57	59
Dimention & Weight (Wx H x D)					
Body Dimension (Wx H x D)	Indoor unit	MM	876*298*19	986*315*225	1121*329*231
	Outdoor unit	MM	730*545*285	900*700*350	2.3P-890*320*670
Net Weight	Indoor unit	KG	10/12	14/16.5	14/16.5
	Outdoor unit	KG	32/36	48/53	48/53
Loading Quantity (units only)					
	40'HQ	PCS	235	187	135
Swing(U&D, L&R)					
	/		U&D, L&R	U&D, L&R	U&D
Liquid Quantity (R410A)					
		KG	1.10	1.6	1.62
Application Area					
		M ²	16-26	24-35	32-47



PRODUCT SERIES Mars



Model			ACDC HYBRID 12 DC48 12V RFYZ	ACDC HYBRID 18 DC48 18V RFYZ	ACDC HYBRID 24
Capacity	Cooling		12,000Btu/ 1.5P/ 1Ton	18,000Btu/ 2.0P/ 1.5Ton	24,000Btu/ 3.0P/ 2.0Ton
	Heating		12,000Btu/ 1.5P/ 1Ton	18,000Btu/ 2.0P/ 1.5Ton	24,000Btu/ 3.0P/ 2.0Ton
Electric Data					
Power Input	Cooling	W	825	1320/1250	1980
	Heating	W	840 / 800	1290/1200	1880
Rated Current	Cooling	A	3.8 / 17.5	6/26.5	9
	Heating	A	3.8 / 17.0	5.86/25	8.54
Power Supply	Ph,V,Hz		1Ph, 208-230V, 50/60Hz	1Ph, 208-230V, 50/60Hz	1Ph, 208-230V, 50/60Hz
	V		DC120-350V / DC42-60V	DC120-350V/DC42-60V	DC120-350V
Performance					
EER	Cooling	W/W	4.24	3.86 / 3.84	3.54
	Heating	W/W	4.16 / 4.37	3.95 / 4	3.78
COP	Cooling	W/W	6.8	6.4	6.1
	Heating	W/W	3.2	3.2	3.2
Airflow	Indoor unit	M ³ /H	700	1000	1200
Noise	Indoor unit	dB(A)	24-37-42	33-41-44	38-45-48
	Outdoor unit	dB(A)	< 51	< 54	< 56
Dimention & Weight					
Dimention & Weight (Wx H x D)	Indoor unit	MM	860*308*215	1078*325*257	1078*325*257
	Outdoor unit	MM	874*559*353	874*559*353	989*715*400
Body Dimension (Wx H x D)		MM	923*365*280	1169*405*366	1169*405*366
	Outdoor unit	MM	913*604*383	913*604*383	1039*780*468
Net Weight	Indoor unit	KG	11/13	17/20	17/20
	Outdoor unit	KG	30/33	35/39	44/49
Loading Quantity					
Loading Quantity (units only)	40'HQ	PCS	230	180	125
Swing(U&D, L&R)					
Swing(U&D, L&R)			/	U&D	U&D, L&R
Liquid Quantity (R410A)		KG	1.10	1.26	1.40
Application Area		M ²	16-26	24-35	32-47



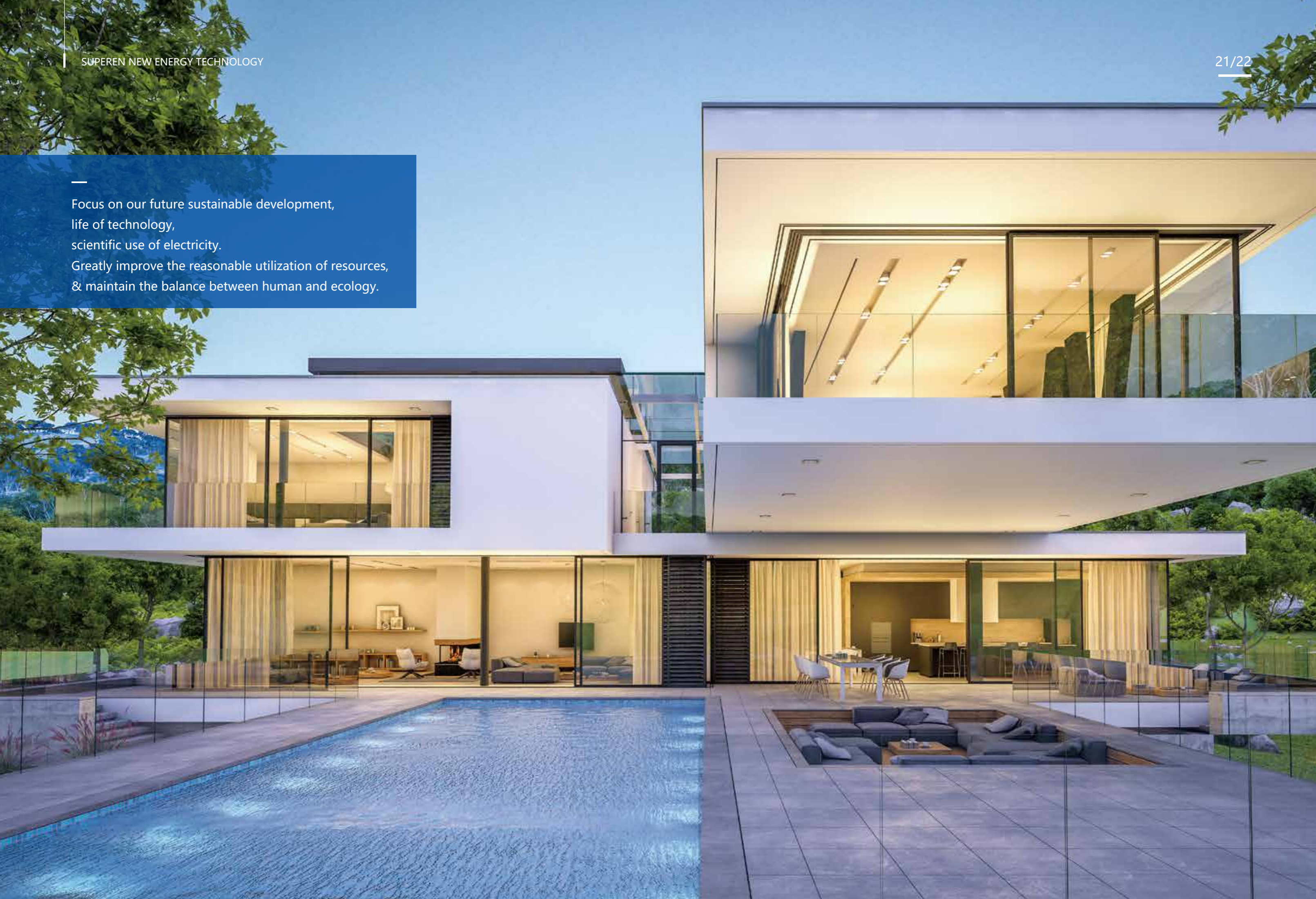
PRODUCT SERIES
Jupiter



Model			HYBRID-ACDC12	HYBRID-ACDC18	HYBRID-ACDC24
Capacity	Cooling		12,000Btu/ 1.5P/ 1.0Ton	18,000Btu/ 2.0P/ 1.5Ton	24,000Btu/ 3.0P/ 2.0Ton
	Heating		12,000Btu/ 1.5P/ 1.0Ton	18,000Btu/ 2.0P/ 1.5Ton	24,000Btu/ 3.0P/ 2.0Ton
Electric Data					
Power Input	Cooling	W	1000	1520	2450
	Heating	W	920	1480	2360
Rated Current	Cooling	A	4.6	7.1	11.4
	Heating	A	4.2	6.72	10.8
Power Supply		Ph,V,Hz	1Ph, 220V/50Hz	1Ph, 220V/50Hz	1Ph, 220V/50Hz
		V	DC100-380V	DC100-380V	DC100-380V
Performance					
EER	Cooling	W/W	3.5	3.36	2.93
	Heating	W/W	3.8	3.45	3.05
COP	Cooling	W/W	6.43	5.4	5.8
	Heating	W/W	3.2	3.2	2.92
Airflow	Indoor unit	M ³ /H	700	800	1100
Noise	Indoor unit	dB(A)	24-37-41	30-42-45	38-44-46
	Outdoor unit	dB(A)	52	54	56
Dimonion & Weight					
Dimonion & Weight (Wx H x D)	Indoor unit	MM	890*322*215	890*322*215	1078*325*257
	Outdoor unit	MM	797*556*336	874*559*353	989*715*400
Body Dimension (Wx H x D)		MM	965*395*286	960*333*275	1169*405*366
	Outdoor unit	MM	855*600*367	913*604*383	1039*780*468
Net Weight	Indoor unit	KG	11/13	11/13	16/20
	Outdoor unit	KG	25/28	31/34	44/49
Loading Quantity (units only)					
	40'HQ	PCS	230	230	123
Swing(U&D, L&R)					
		/	U&D	U&D	U&D, L&R
Liquid Quantity (R32)					
		KG	0.62	0.85	1.03
Application Area	Cooling	M ²	16-22	15-30	35-45
	Heating		16-22	15-30	33-40

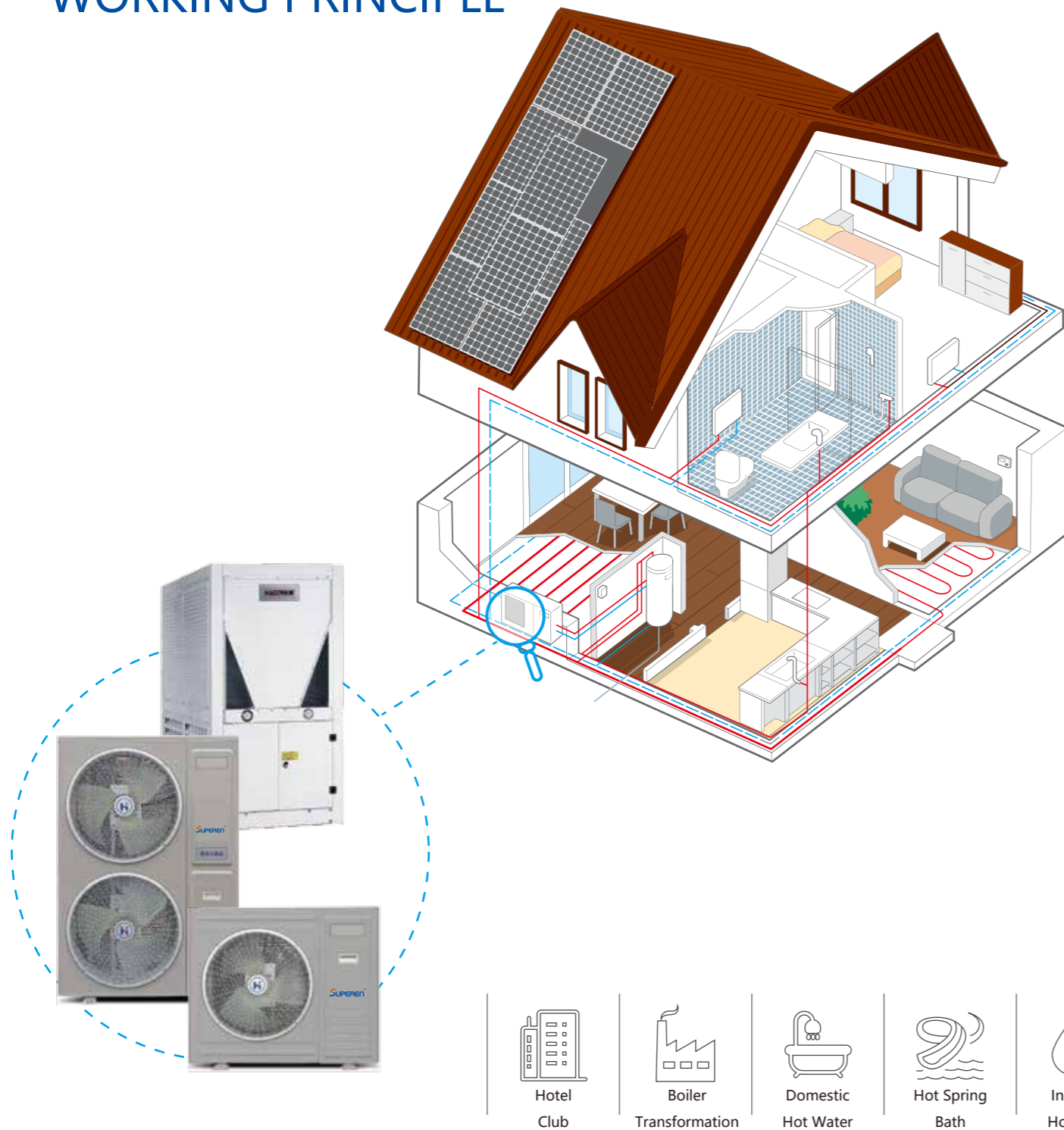


—
Focus on our future sustainable development,
life of technology,
scientific use of electricity.
Greatly improve the reasonable utilization of resources,
& maintain the balance between human and ecology.



光伏热泵系统原理

PHOTOVOLTAIC WATER HEAT PUMP WORKING PRINCIPLE



- Low temperature enthalpy increasing technique ensures the unit working properly under outdoor -25°C, no need of electric auxiliary heat.



- Low temperature enthalpy increasing technique ensures 60°C hot water under outdoor temp. -25°C.



- High efficiency compressor and pro-environment refrigerant COP 5.33



- Efficient heating, 75%+ power saving than traditional electric water heater



School BOT Hot Water



Dormitory



Hospital



Hotel & Spa

PRODUCT SERIES
Mercury



Model		SMC-10/HT-HS	SMC-16/HT-HS
AC Input	Rated Voltage Range	208 ~ 240Vac	208 ~ 240Vac
	Frequency	50/60HZ 1PH	50/60HZ 1PH
DC Input	Voltage Input Range	90 ~ 340Vdc	90 ~ 340Vdc
	Maximum Input Current (A)	20	20
	Maximum Power (W)	5200	5200
Rated Cooling	Rated Cooling Capacity (W)	7500	12500
	Rated Cooling Capacity (Btu)	25600	42800
	Rated Cooling Power (W)	2650	4385
	Rated Cooling EER (W/W)	2.83	2.85
	Rated Cooling EER (Btu/W)	9.66	9.76
Rated Heating	Rated Heating Capacity (W) Working Condition: 7°C	10500	16900
	Rated Heating Capacity (Btu) Working Condition: 7°C	36000	58800
	Rated Heating Power (W) Working Condition: 7°C	3020	4850
	Rated Heating Cop (W/W) Working Condition: 7°C	3.48	3.5
	Rated Heating Cop (Btu/W) Working Condition: 7°C	11.9	12.1
	Heating Capacity (W) Working Condition: -12°C	7000	11000
	Heating Power (W) Working Condition: -12°C	2980	4680
	Heating COP (W) Working Condition: -12°C	2.35	2.35
	Heating Capacity (W) Working Condition: 0°C	9300	14600
	Heating Power (W) Working Condition: 0°C	3050	4795
Low Temperature Heating Capacity	Heating COP (W) Working Condition: 0°C	3.05	3.05
	Heating Capacity (W) Working Condition: -20°C	5530	9000
	Heating Power (W) Working Condition: -20°C	2750	4455
	Heating COP (W) Working Condition: -20°C	2.01	2.02
	Heating Capacity (W) Working Condition: -30°C	4300	6900
	Heating Power (W) Working Condition: -30°C	2670	4200
	Heating COP (W) Working Condition: -30°C	1.61	1.64
Compressor	Type	EVI DC Inverter Compressor	
	Quantity	1	1
Fan Motor	Type	DC Fan Motor	
	Quantity	1	2
	Fan Motor Power (W)	85	85
Outdoor Unit	Air Outler	Aluminum Foil Fin Heat Exchanger	
	Type of Condenser	Side	
	Throttling Gear	EXV	
	Water Side Heat Exchanger	Efficient Water Tank	
Waterway output side	Pressure Loss (Kpa)	<50	<50
	Water Flow Rate(m³/H)	1.63	2.32
	Water Connection	DN25	DN32
	Dimension (W*D*H) mm	960*370*810	940*370*1360
	Noise dB(A)	61	62
Net Weight (kg)	80	140	



Model		SMC-20/HT-HS	SMC-22/HT-HS	SMC-23/3HT-HS	SMC-25/3HT-HS
AC Input	Rated Voltage Range	208~240Vac	208~240Vac	342~418Vac	342~418Vac
	Frequency	50/60HZ 1PH	50/60HZ 1PH	50/60HZ 3PH	50/60HZ 3PH
DC Input	Voltage Input Range	90~340Vdc	90~340Vdc	250~540Vdc	250~540Vdc
	Maximum Input Current (A)	20	20	20	20
	Maximum Power (W)	5200	5200	6500	6500
Rated Cooling	Rated Cooling Capacity (W)	14000	15000	16000	17000
	Rated Cooling Capacity (Btu)	47900	51000	54800	58000
	Rated Cooling Power (W)	4736	5260	5600	5950
	Rated Cooling EER (W/W)	2.85	2.85	2.86	2.86
	Rated Cooling EER (Btu/W)	10.11	9.7	9.78	9.75
Rated Heating	Rated Heating Capacity (W) WC: 7°C	19000	22000	23000	24500
	Rated Heating Capacity (Btu) WC: 7°C	65000	75000	79000	84000
	Rated Heating Power (W) WC: 7°C	5420	6120	6420	6830
	Rated Heating Cop (W/W) WC: 7°C	3.51	3.59	3.58	3.59
	Rated Heating Cop (Btu/W) WC: 7°C	12	12.2	12.3	12.3
Low Temperature Heating Capacity	Heating Capacity (W) WC: -12°C	12500	14000	15000	16000
	Heating Power (W) WC: -12°C	5250	6090	6350	6750
	Heating COP (W) WC: -12°C	2.36	2.38	2.36	2.37
	Heating Capacity (W) WC: 0°C	16400	18500	19500	20900
	Heating Power (W) WC: 0°C	5360	6120	6380	6790
	Heating COP (W) WC: 0°C	3.06	3.02	3.06	3.08
	Heating Capacity (W) WC: -20°C	10150	11200	12500	13500
	Heating Power (W) WC: -20°C	4950	5465	6188	6650
	Heating COP (W) WC: -20°C	2.05	2.05	2.02	2.03
	Heating Capacity (W) WC: -30°C	7950	9200	9800	10600
Heating Power (W) WC: -30°C	4820	5640	5940	6420	
Heating COP (W) WC: -30°C	1.65	1.63	1.65	1.65	
Compressor	Type	EVI DC Inverter Compressor			
	Quantity	1	1	1	1
Fan Motor	Type	DC Fan Motor			
	Quantity	2	2	2	2
	Fan Motor Power (W)	85	85	85	85
Outdoor Unit	Air Outler	Aluminum Foil Fin Heat Exchanger			
	Type of Condenser	Side			
	Throttling Gear	EXV			
Waterway output side	Water Side Heat Exchanger	Efficient Water Tank			
	Pressure Loss (Kpa)	<50	<50	<50	<50
	Water Flow Rate (m ³ /H)	2.49	3.01	3.01	3.01
	Water Connection	DN32	DN32	DN32	DN32
	Dimension (W*D*H) mm	940*370*1360	940*370*1360	1060*380*1560	1060*380*1560
	Noise dB(A)	63	64	65	66
	Net Weight (kg)	145	145	165	175



Model	SMC-66/3HT-HS	
AC Input	Rated Voltage Range	342~418Vac
	Frequency	50/60HZ 3PH
DC Input	Voltage Input Range	250~540Vdc
	Maximum Input Current (A)	20
	Maximum Power (W)	10000
Rated Cooling	Rated Cooling Capacity (W)	52000
	Rated Cooling Capacity (Btu)	177370
	Rated Cooling Power (W)	18600
	Rated Cooling EER (W/W)	2.8
Rated Heating	Rated Cooling EER (Btu/W)	9.55
	Rated Heating Capacity (W) Working Condition: 7°C	75000
	Rated Heating Capacity (Btu) Working Condition: 7°C	255825
	Rated Heating Power (W) Working Condition: 7°C	22850
	Rated Heating Cop (W/W) Working Condition: 7°C	3.28
	Rated Heating Cop (Btu/W) Working Condition: 7°C	11.18
	Heating Capacity (W) Working Condition: -12°C	53500
Low Temperature Heating Capacity	Heating Power (W) Working Condition: -12°C	22670
	Heating COP (W) Working Condition: -12°C	2.36
	Heating Capacity (W) Working Condition: 0°C	68000
	Heating Power (W) Working Condition: 0°C	2200
	Heating COP (W) Working Condition: 0°C	3.09
	Heating Capacity (W) Working Condition: -20°C	45140
	Heating Power (W) Working Condition: -20°C	22230
	Heating COP (W) Working Condition: -20°C	2.03
	Heating Capacity (W) Working Condition: -30°C	35440
	Heating Power (W) Working Condition: -30°C	21612
Compressor	Type	EVI DC Inverter Compressor
	Quantity	2
Fan Motor	Type	DC Fan Motor
	Quantity	2
Outdoor Unit	Fan Motor Power (W)	750
	Air Outler	Aluminum Foil Fin Heat Exchanger
	Type of Condenser	Side
	Throttling Gear	EXV
Waterway output side	Water Side Heat Exchanger	Efficient Water Tank
	Pressure Loss (Kpa)	<55
	Water Flow Rate(m³/H)	≥13
	Water Connection	2* 65
	Dimension (W*D*H) mm	1990**990*1900
	Noise dB (A)	<70
	Net Weight (kg)	650

—
The sun brings warmth to the earth,
giving life and energy to everything in this world.
Superen,
Committed to reducing the greenhouse effect
Promote innovative green energy
Satisfy human's pursuit and desire of low-carbon life

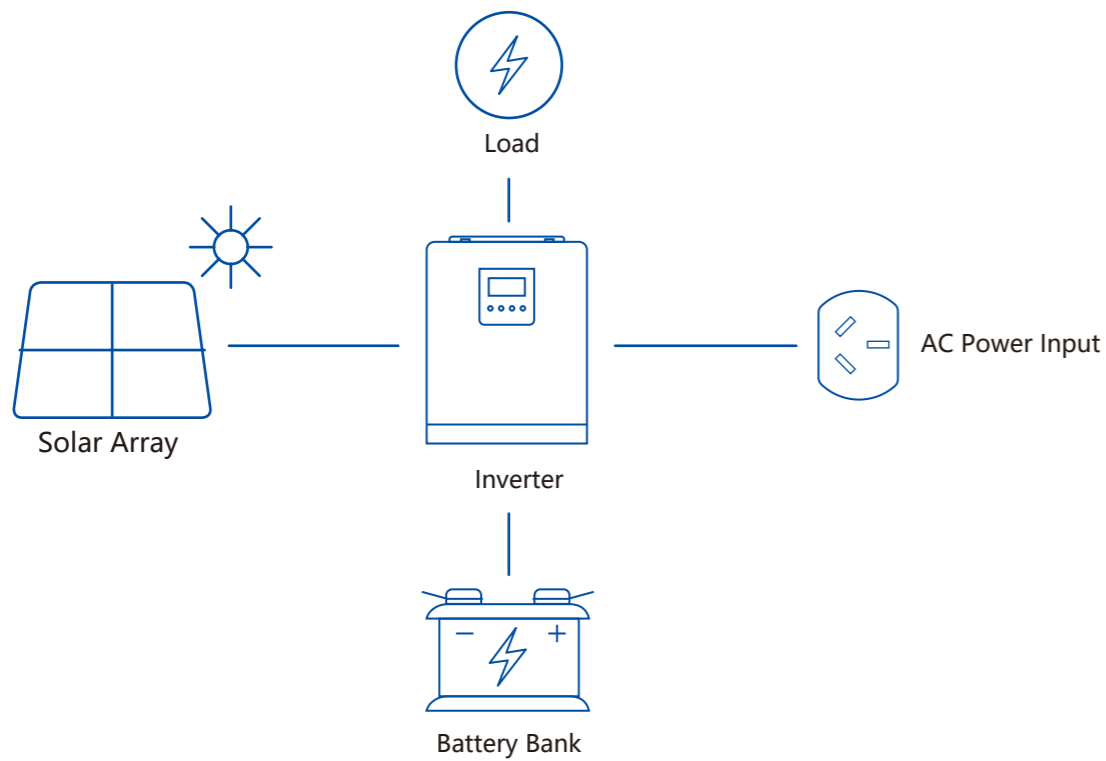


系统方案比较

SYSTEM SCHEME COMPARISON

Traditional Sola Energy Storage System Solution

The solar power is stored in the battery and then used by the electric appliance.



Traditional Solar Energy Storage System

Advantage

Simple system, wide range of application.

Disadvantage

High one-time investment.
High maintenance cost.
30~40% power loss.
Short Lifespan due to the high power load

Application

Enough budget & remoted area.

Superen Solar Application System

Advantage

Modularized system, flexible combination,
sufficient use of solar power.
Maximized ROI.

Disadvantage

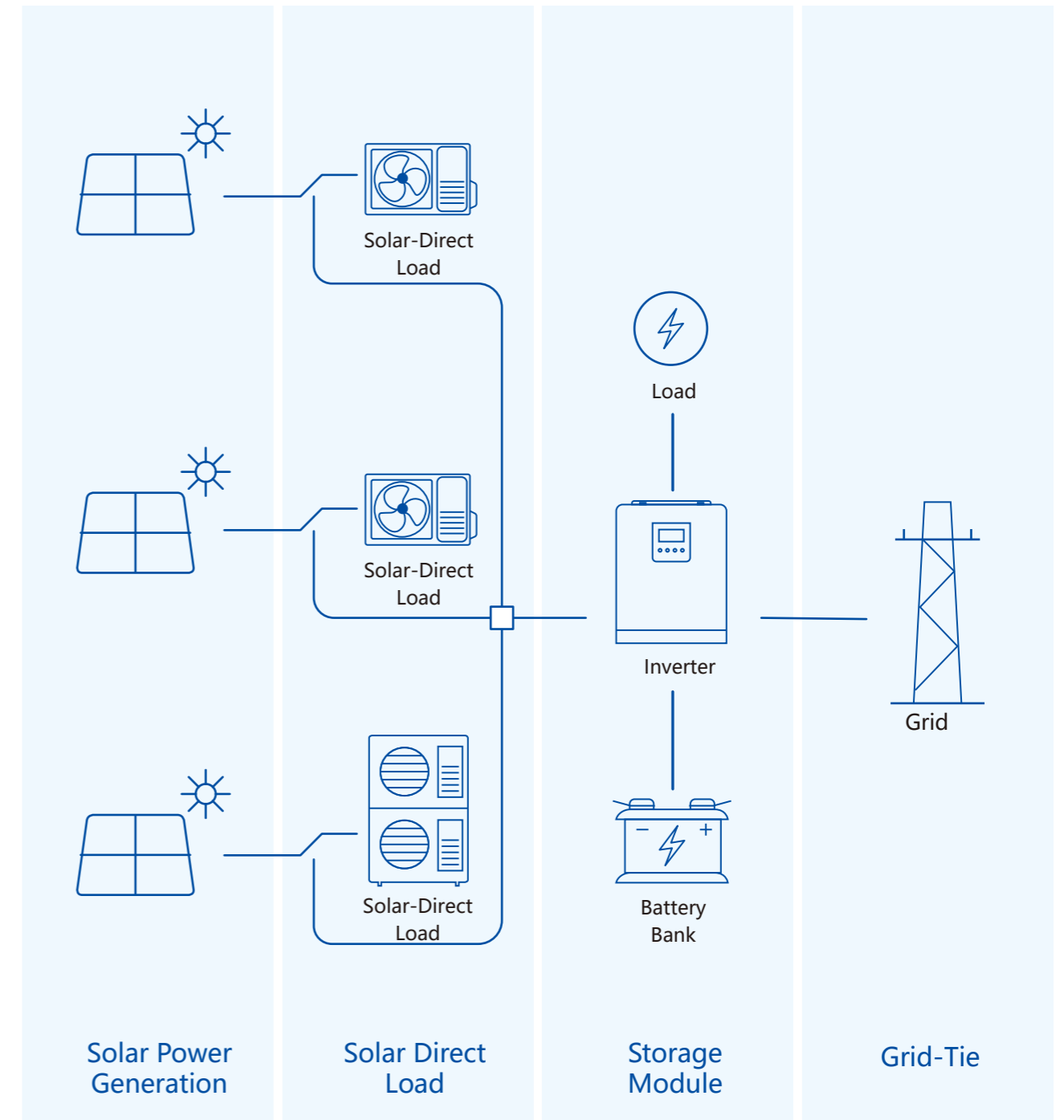
The scale of the project is required for
full modularized system.

Application

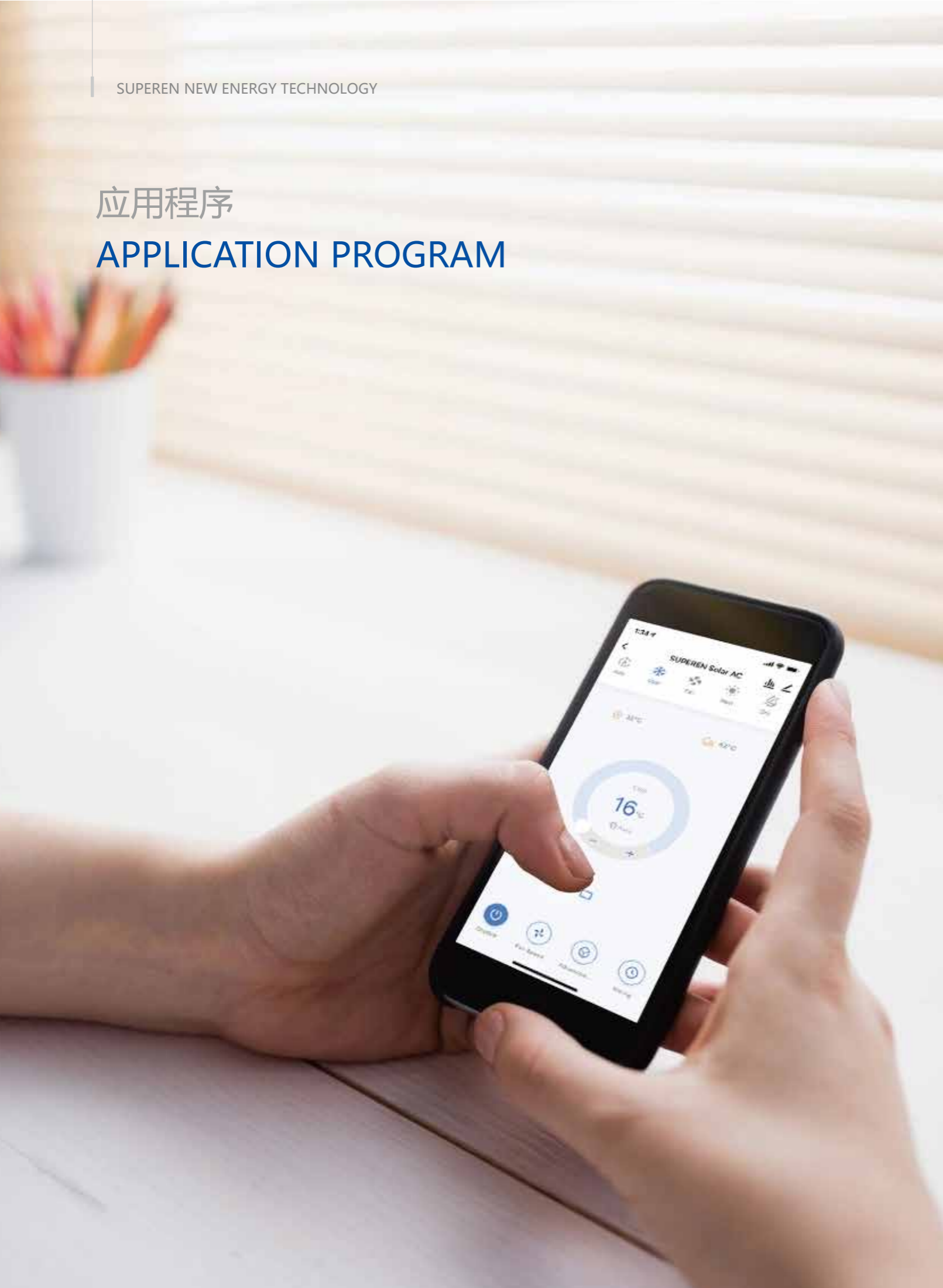
All solar generation applications

Superen solar application system solution

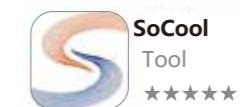
Solar power is used by the DC load directly as priority, the extra power could be stored in the battery or sent to the grid.



应用程序 APPLICATION PROGRAM



APP Remote Control
Real Time Power Generation Monitoring.



Power Generation



Remote Control

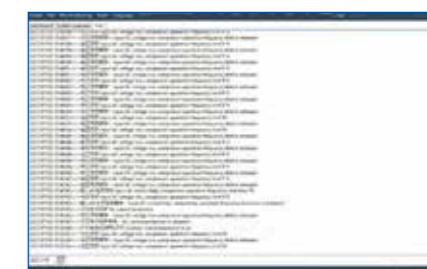


SoCool-Pro, Real Time Monitoring.

- Components Running Status.
- Solar Generation
- AC Power Consumption
- Running Log
- Fault Analysis



Components Running Status



Running Log

持续发展

SUSTAINED DEVELOPMENT



Protect
the Planet Blue



Solar Window Air Conditioner
Easy Installation & After-Sales



Solar Cold Storage
Free Day Time Cooling



Solar RV Air Conditioner
Green Mobile Life