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SANP

Global sales market

ANRO products export destination Europe, North America, Australia, Africa, and Middle East



Full line PVT Technology leader

Off-grid

Innovative applications of water, electricity, and thermal technologies

Solar power Solar heating Air-to-water production

PVT light, heat, storage, and charging integration Integrated energy products and services



Company profile





CEEPower Co., Ltd. (stock code 300062) was founded in 1999 and listed in Shenzhen Stock Exchange in March 2010. It is the first GEM listed enterprise in Fuzhou City and one of the leading energy Internet system solution providers in China.



By adhering to the corporate vision of continuously improving the human settlement environment **PVT** light, heat, to make it green, ecological, healthy, and safe, focusing on the ultimate product advantages of storage, and solar PVT, and centering on the three key demands for "water, electricity, and heat" required in charging integration human settlement environment, SANPO creates a "PVT+storage and charging" integrated full **Off-grid** Integrated energy scenario closed-loop human settlement environment and new Water, electricity, products and energy system. and thermal services Solar power **Technological SVN50** Solar heating innovation Air-to-water Human settlement Beijing SANPO High-tech Co., Ltd production environment A subsidiary of CEEPower Co., Ltd. (stock code 300062) Never forget the original intention, and forge ahead with the "green" spirit! Abbreviation: SANPO

Team profile



Tsinghua University

Innovation and creativity

Wu Huaxin





He is good at planning, construction, investment, operation and maintenance management of new energy, clean energy, and energy



Harbin Engineering University

· Associate Professor of architecture, Harbin Engineering University

 Chief engineer of Tongfang Energy Saving Engineering Technology Co., Ltd.

 Central heating technology consultant expert of GRUNDFOS (China) Pump Industry Co., Ltd.

· Maxingloop project heating energy-saving expert consultant · Chief scientist of Chongqing Tongfang Guoxin Energy

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发明专利证书

日大華

规模跃升新阶段 REPATH ze u 27000 T0102021828 Cao Chongyang He has served as the management of leading companies such as Suntech Power and GCL Group.





Liu Yuan Master's Degree, University of Central Lancashire

To our partners

The next decade will be a decisive period for China and the world to make all-out efforts to limit global temperature rise, strive towards net-zero emissions, and take necessary actions.

In the future, the technologies and investment related to new energy will face great challenges, high risks, and more complex situations. However, it also gives our generation an opportunity to use this trend as a catalyst to invest in clean energy industrial products and economies in the world of the "net-zero" era.

After the establishment of the "carbon peaking and carbon neutrality" target in China, the initial form of a "net-zero" economy has been firmly established in recent years. Opportunities for new energy will be created in the market, and ground-breaking, innovative, and developmental clean energy technology products will enter the market. The energy system of us and the world will undergo significant changes.

Nowadays, we shall invest and participate in this industry and market, make innovations in industrial manufacturing of energy products, increase people's income and continuously reduce the cost of energy in society, and support the development of zero-carbon economy in China and other countries and regions in the world. This has become the only way for development today.



2

Introduction to the "photovoltaic-thermal (PVT)+storage and charging" integrated comprehensive energy products and services of CEEPower's zero carbon buildings









Working principle

- The temperature effect is an important factor restricting the power generation performance of PV system. Taking monocrystalline silicon solar cells as an example, for every 1°C rise of PV module operating temperature, the power generation efficiency will decrease by 0.30%.
- The PVT module converts the short-wave part of the received solar radiation into current through the PV cells and outputs it, while converts the long-wave part into a low-temperature heat source for the heat pump evaporator, enabling the comprehensive utilization of solar energy from both photovoltaic and thermal aspects.

PVT modules and heat pumps - system - workflow chart



Multi-

energy

coupling

Technical advantages

of roof resource.



Achieve both functions of power generation and heating within a limited space. Avoid mutual encroachment of roof space by PV power generation and solar water heater and causing waste Since the operating temperature of PV modules under good irradiation is much higher and the heat pump circulation system can lower the temperature of the PV module panels, thus improving the power generation efficiency by 10%–18%.

efficiency of photovoltai c power generation PV/thermal/ASHP is integrated with multiple green and new energy technologies to meet the need of electric power, hot water, heating and so on. On the basis of ASHP, the PVT module is used as an external evaporator of the heat pump. Compared with conventional ASHPs, the energy efficiency is improved by 20%–50%.

Energy

efficient



Application of PVT heat pump system



- 1. The ultimate development goal of new energy is the continuous improvement of electrification level; and
- 2. Energy microgrid system suitable for buildings (households) in the future: It is composed of photovoltaic, thermal, heat pump, energy storage (electricity and heat
- storage), DC, and other technologies to achieve "integration of source, grid, load, and storage".



Note: The picture is for reference only, and the details are subject to the physical object exhibited.



SANPO full line PVT module







Product specification of **active** PVT module



Module Model	Total Power	Generated Power	Photo-thermal Power	Application Characteristics							
SPVT-N10/50	1,600 W	400 W	1,200 W	At the same time as realizing PV power generation, it transfers solar heat through the circulation of heat working medium (refrigerant) to heat pump, and serves as an external evaporator for the heat pump				eat pump ump.			
Excellent performance of heat				nce of heat	Curve characteristic diagram		Performance	parameter	s (STC*)		
			dissipation		Current-voltage curves at differen	t temperatures (395 W)	PAMX(W), max	cimum power	390	395	400
			In the service st	tate, 10°C to 20°C	12		VMP(V), opera maximum pow	ting voltage at ver point	30.1	30.3	30.55
			High reliability	ventional modules	8 댓 5 6 Incident Irrad.=1000W/m²		IMP(A), operat maximum pow	ing current at ver point	13	13.04	13.1
			Excellent UV re	esistance and	Cell temp.=10°C Cell temp.=25°C		VOC(V), open-	circuit voltage	34.95	35.05	35.2
			barrier performa	ance	2 Cell temp.=55°C Cell temp.=70°C		ISC (A), open-	circuit current	13.61	13.65	13.71
			 Provide 24n near source 24/7 provision of domestic water or heating Flexible and easy to match Match the number of modules according to thermal demand 		Atter Current-voltage curves/power-voltage curves under different irradiances (395 W) Current-voltage curves/power-voltage curves under Current-voltage curves/power-voltage curves under different irradiances (395 W) Current-voltage curves/power-voltage curves/		Photoelectric efficiency	conversion	21.04%	21.31%	21.58%
							Photo-thermal	conversion	63.12%	63.93%	64.74%
							STC*: irradiance=1,000 W/m ² , battery temperature=25°C, AM=1.5				
			 Multidimensional utilization Full utilization of optical energy, where the front side available for power generation and the back for heat collection 		lization optical energy, ide available for n and the back for		Temperature coefficient				
							Open-circuit voltage (Voc) Short-circuit current (Isc) Peak power (Pmax) Nominal operating temperature		;) -0.24%/°C		%/°C
										+0.04	%/°C
										-0.29 43°C-	%/°C +2°C
					0 10 20	30 40 50 60	Nomi	iai operating temperat		43 0.	-20
		•	Small size, high ene	ergy	App	lication parameters	s	Ме	chanical p	arameters	i
			Small size desig	gn, light-weighted	Max. system voltage	DC 1,500 \	/	Battery cell type	Тур	e N - Topcon 182	2 mm
100 98.0 % 2%	2-vear material and p	rocess warrantv			Operating temperature	-40°C to +85	°C	Module	1.937	7 mm×957 mm×3	35 mm
etterson and process waharity 25-year power linear warranty 84.8%		varranty	ISO 9001: Quality Management \$	System	Max. fuse current	25 A		Weight	.,	33 kg	
			ISO14001: Environmental Manag ISO14064: Greenhouse Gas Emi	gement System	Safety level	Class II		Front panel Glass		Glass	
		ISO 45001: Occupational Health and Safety Ma	and Safety Management	Static load	Wind/snow load 2,40	00/5,400PA	Back panel	Aluminum allov		,	
2		System Different countries and regions		Heat exchange area	3.7m ²		Frame	Polyure	thane composite	material	
		*The certification requirements vary in diffe	vary in different markets. are applicable to the	Heat exchange medium	R410A or R2	290	Junction box		P68, with 3 diod	es	
Y 5 10	15	20 25	regions where the product is used, please contact	ed, please contact	Operating pressure	<6.0 Mpa		Output line	4 mm ²	, wire length of 3	300 mm
ea r	15	20 25	Beijing SANPO High-tech Co., Li	td.	Heat exchange	3/8 in. (M)	A BE	Connector		MC4 compatibili	ty
					Disclaimer: This product page	e is as comprehensive and detailed	as possible on the basis and other	of existing information. The c	ompany reserves the retation right belongs	e right to modify any to Beijing SANPO F	data, parameters, ligh-tech Co., Ltd.



Product specification of passive PVT module



Module Model	Total Power	Generated Power	Photo-thermal Power	Application Characteristics			
SPVT-M10/72	1,735 W	585 W	1,150 W	At the same time as realizin through the circulatio	ng PV power genera n of working mediu	ation, it collects and tran um (refrigerant) for heat	nsfers solar heat exchange.
PVT is applied to provide hot wate generation. It is an efficient CHP s users for both electricity and heat.	er or heating by the th system coupled with F	ermal energy generated b PVT modules and multi-en	y solar PVT modules during povergy systems to meet the needs	ver s of			
PV/thermal/ASHP is integrated with multiple new energy technologies to meet the need of electric power, hot water, heating and so on.	Achieve generat limited value o its entir	e both functions of power tion and heating within a space, and increase the f the building roof throughout e lifecycle.	Since the operating tempe PV modules under good im is much higher and the full passage system on the ba lower the temperature of th module panels, thus impro power generation efficience 15%.	rature of radiation flow ck can he PV ving the y by 8%–	eters of PVT module		meters under standard
1				Total Power Thermal power	1,735 W 1.150 W	test conditions	s - 585 W 585 W+5 W
		Expansion tank		Electric power	585 W	Max. operating voltage	43.43 V
					-40°C to 85°C	Max. operating current	13.47 A
		100 C				Open-circuit voltage	51.71 V +3%
				Core material	Stainless steel	Short-circuit current	14.41 A
			ISO 9001: Quality Man	ridine indiendi	Liltra clear low-iron woven	Max. system voltage	1,500 V
			ISO14001: Environmen	tal Management Glass type	tempered glass	Max. fuse rating	25 A
			System	Glass dimensions	2,272 mm*1,128 mm*3.2 mm	Temperature coefficient of short- circuit current	0.037%/°C
		Circulation pump	ISO 45001: Occupation	al Health and Product dimensions	2,279 mm*1,134 mm*35 mm	Temperature coefficient of open- circuit voltage	-0.255%/°C
		Sec	Safety Management Sy	Stem Module weight	45 kg	Temperature coefficient of max.	-0.337%/°C
	AN AN		*The certification requir	Heat exchange area	2. 56 mm²	output power	111 200
PVT module	1/		different markets. For th	ne specific			IDC9 with 2 diadaa
			certificates that are app	licable to the	PVI specific retrigerant	Connector	
	Note: The picture is for reference	Water tank	k regions where the prod please contact Beijing S a object exhibited. Co., Ltd.	ANPO High-tech Operating pressure	1/2 in. (M) <0.2 Mpa	Wiring length	250 mm at the positive electrode/300 mm at the negative electrode
		a sing, and the details are dauged, to the physica	and the second		EPP insulation	Snow/wind load	5,400/2,400 pa
		1111 (1155) - 1115	Disclaime	er: This product page is as comprehensive and detailed	d as possible on the basis of existin	g information. The company reserves the rig	ht to modify any data, parameters,









Advantages of PVT dual-source heat pump





Photovoltaicthermal (PVT)

Integrated PVT heat pump water heater





Installed in the courtyard, roof, and balcony of residential houses and villas to meet the daily hot water needs of a family.



Courtyard



Roof



Open balcony

Analysis of competitive products

The heat pump water heater uses solar energy as its heat source, and is coupled with thermal and electricity storage functions to achieve an annual power generation of over 440 kWh (subject to the specific solar irradiation intensity of different regions). Based on a daily water consumption of 100 L, the annual power consumption is 377 kWh. Compared with the traditional electric heating equipment, it has an annual power consumption of 1,697 kWh, an annual energy savings of 1,320 kWh, and an annual comprehensive electricity revenue of 1,760 kWh.

You can get free constant-temperature hot water for life with just one investment!



Product	Product model	Unit	SPKRS002/01-150 I
narameters	PVT specifications	W	400–1,200
parameters	Number of PVT blocks	PCs	1/2
	Specifications of power supply	V/Hz	220/50
	Rated heating power	W	960–3,500
	Rated heating power	W	350–500
	Performance coefficient COP	W/W	7.0
	Max. water output	L/h	70
	Max. input power	W	2,500
	Max. input current	А	11.4
	Max. water outlet temperature	А	11.4
	Waterproof rating		IPX4
	Type of electric shock protection		Class I
	Max. operating pressure of heat exchanger	MPa	2.8
	Max. operating pressure for gas exhaust/suction	MPa	2.8/0.7
	Max. allowable high/low pressure	MPa	2.8/0.7
	Inlet/outlet pipe	DN	15
	Specifications of connection pipe	mm	9.52*6.35
	Overall dimensions	mm	φ510*1,820
	Net/gross weight	kg	70/84
	Imaging	Db(A)	<38
(John (Applicable ambient temperature	°C	-7-45

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Photovoltaicthermal (PVT)

Split-type PVT heat pump water heater





Product advantages

- Ultra-high energy efficiency ratio, no power generation, over 7.0 COP, including 'infinite' energy efficiency during power generation.
- Ultra-low operating cost, a power generation capacity greater than power consumption, and free hot water.
- > Flexible configuration and installation

Model	PVTFXRS-1.45IABP
Heating capacity (W)	1,450
Average input power (W)	200
Hot water output (L/h)	31.2
COP (W/W)	7.25
Auxiliary electric heating power (W)	2,000
Max. input power (W)	2,300
Max. input current (A)	11
Max. outlet temperature (°C)	70
Noise dB (A)	40
Power supply	220 V/1N ~ 50 Hz
Name of working medium	R290
Throttling mode	Expansion valve
Circulating water flow (L/h)	249
External water side allowable pressure loss (kPa)	40
pecifications of water inlet and outlet connection pipes (mm)	2×DN20
Connection mode of water inlet and outlet pipe	Female thread
Water side test pressure (MPa)	≤2.0
Specifications of refrigerant liquid pipe (mm)	6.35
Connection mode of refrigerant liquid pipe	Flared connection
Specifications of refrigerant gas pipe (mm)	9.52
Connection mode of refrigerant gas pipe	Flared connection
Length (mm)	585
Width (mm)	428
Height (mm)	389
Unit weight (kg)	33

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Photovoltaicthermal (PVT)

Thermal low-ambient temperature type dual-source heat pump water heater

Unit parameters



Zero-carbon champion product

Zero carbon commercial hot water! Champion in the field of hot water with ultra-low **operating cost**



	Item	PVTDKFXRS-05IIABP	PVTDKFXRS-05IABP	PVTDKFXRS-05IIBBP	PVTDKFXRS-05IBI
	Heating capacity at 20°C/15°C (kW)	20.7	20.7	20.3	20.3
	Average input power at 20°C/15°C (kW)	3.36	3.36	3.35	3.35
	Hot water output at 20°C/15°C (L/h)	445.0	445.0	436.6	436.6
hoto-	COP (W/W)	6.16	6.16	6.06	6.06
Photo- thermal solar energy	Heating capacity at 7°C/6°C (kW)	18.1	18.1	17.6	17.6
	Input power at 7°C/6°C (kW)	3.3	3.3	3.3	3.3
	Hot water output at 7°C/6°C (L/h)	338.2	338.2	328.1	328.1
	COP (W/W)	5.48	5.48	5.32	5.32
	Heating capacity at -7°C/-8°C (kW)	14.1	14.1	13.8	13.8
	Average input power at -7°C/-8°C (kW)	3.38	3.38	Ú 3.38 I	3.38
	Hot water output at -7°C/-8°C (L/h)	263.6	263.6	258.3	258.3
	COP (W/W)	4.17	4.17	4.09	4.09
	Heating capacity at 20°C/15°C (kW)	15.8	15.8	15.5	15.5
2	Average input power at 20°C/15°C (kW)	3.36	3.36	3.35	3.35
	Hot water output at 20°C/15°C (L/b)	339.7	339.7	333.3	333.3
		4 70	4 70	4 63	4 63
onorau	Heating capacity at 7°C/6°C (kW)	13.4	13.4	13.0	13.0
energy	Input power at 7°C/6°C (kW)	3.3	3.3	3.3	3.3
	Hot water output at 7°C/6°C (L/b)	250.5	250.5	243.0	243.0
		230.3	230.3	245.0	245.0
		4.00	4.00	0.0	5.54
	Heating capacity at -7 C/-8 C (kW)	10.0	10.0	9.8	9.8
	Average input power at -7 C/-8 C (kw)	3.30	3.30	3.30	3.30
	Hot water output at -7 C/-8 C (L/h)	187.0	187.0	183.2	183.2
	COP (W/W)	2.96	2.96	2.90	2.90
	Max. input power (kW)	6.60	6.60	6.80	6.80
	Max. input current (A)	12.0	32.0	12.5	33.0
	Max. outlet temperature (°C)	70.0	70.0	60.0	60.0
	Noise dB (A)	58	58	58	58
	Power supply	380 V/3N–50 Hz	220 V/1N ~ 50 Hz	380 V/3N–50 Hz	220 V/1N ~ 50 Hz
	Name of working medium	R290	R290	R410A	R410A
	Throttling mode	Expansion valve	Expansion valve	Expansion valve	Expansion valve
	Fan type	Axial flow	Axial flow	Axial flow	Axial flow
	Air direction	Top air outlet	Top air outlet	Top air outlet	Top air outlet
	Circulating air volume (m³/h)	5,000	5,000	5,000	5,000
	Circulating water flow (m ³ /h)	2.867	2.867	2.809	2.809
	Water side pressure loss (kPa)	60	60	60	60
esign	Specifications of water inlet and outlet connection pipes (mm)	2×DN25	2×DN25	2×DN25	2×DN25
inicici 3	Connection mode of water inlet and outlet pipe	Female thread	Female thread	Female thread	Female thread
	Water side test pressure (MPa)	≤2.0	≤2.0	≤2.0	≤2.0
	Specifications of refrigerant liquid pipe (mm)	12.7	12.7	12.7	12.7
	Connection mode of refrigerant liquid pipe	Flared connection	Flared connection	Flared connection	Flared connection
	Specifications of refrigerant gas pipe (mm)	19.05	19.05	19.05	19.05
	Connection mode of refrigerant gas pipe	Flared connection	Flared connection	Flared connection	Flared connection
	Length (mm)	800	800	(<u> </u>	800
	Width (mm)	800	800	800	800
	Height (mm)	1,000	1,000	1,000	1,000
	Unit weight (kg)	160	155	160	155
	Air energy testing conditions: dry bulb temp Operating conditions at 7°C/6°C: dry bulb t Operating conditions at -7°C/-8°C: dry bulb	perature of 20°C, wet bulb temperature of 7°C, wet bulb temper temperature of 7°C, wet bulb temper	re of 15°C, initial water temperature of ature of 6°C, initial water temperature of erature of -8°C, initial water temperature	15°C, and final water temperature of f 9°C, and final water temperature of e of 9°C, and final water temperature	55°C. 55°C. of 55°C.

Test conditions for photo-thermal solar energy: solar radiation energy of 700 W/m, initial water temperature of 15°C, and final water temperature of 55°C.

Modular zero carbon commercial heat pump hot water system





Thermal low-ambient temperature type dual-source heat pump heating unit





Multi-energy linkage, multi-heat compound, and multi-source integration



	Item	PVTDKFXCN-05IIABP	PVTDKFXCN-05IABP	PVTDKFXCN-05IIBBP	PVTDKFXCN-05IBB	
	Rated heating capacity at 7°C/6°C (kW)	20.3	20.3	19.6	19.6	
	Rated input power at 7°C/6°C (kW)	3.71	3.71	3.71	3.71	
		5.5	5.5	5.3	5.3	
	Rated input power at -12°C/-13.5°C (kW)	37	37	3.6	3.6	
Photo-	COP (W/W)	3.22	3.22	3.19	3.19	
ermal solar	Rated heating capacity at -20°C (kW)	8.8	8.8	8.7	8.7	
energy	Rated input power at -20°C (kW)	3.63	3.63	3.63	3.63	
	COP (W/W)	2.4	2.4	2.4	2.4	
	Max. heating capacity at -20°C (kW) (operating frequency 90 Hz)	14.50	14.50	13.92	13.92	
	Max. heating input power at -20°C (kW) (operating frequency 90 Hz)	5.3	5.3	5.3	5.3	
	Max. heating COP at -20°C (W/W) (operating frequency 90 Hz)	2.73	2.73	2.64	2.64	
	Rated heating capacity at 7°C/6°C (kW)	14.5	14.5	14.0	14.0	
	Rated input power at 7°C/6°C (kW)	3.71	3.71	3.71	3.71	
	Rated beating capacity at -12°C/-13 5°C (kW)	3.9	3.9	3.8	3.8	
	Rated input power at -12°C/-13.5°C (kW)	37	37	3.6	36	
	COP (W/W)	2.27	2.27	2.25	2.25	
	Heating capacity range at -12°C/-13.5°C (kW)	5.6–13.3	5.6–13.3	5.3–12.8	5.3-12.8	
Air energy	Input power range at -12°C/-13.5°C (kW)	2.35-5.57	2.35–5.57	2.37–5.37	2.37-5.37	
	Heating COP range at -12°C/-13.5°C (W/W)	2.38-2.39	2.38-2.39	2.24–2.38	2.24-2.38	
	Rated heating capacity at -20°C (kW)	6.10	6.10	6.00	6.00	
	Rated input power at -20°C (kW)	3.6	3.6	3.6	3.6	
	Max. heating capacity at -20°C (kW) (operating frequency 90 Hz)	10.0	1.68	9.6	9.6	
	Max. heating input power at -20°C (kW) (operating frequency 90 Hz)	5.31	5.31	5.28	5.28	
	Max. heating COP at -20°C (W/W) (operating frequency 90 Hz)	1.9	1.9	1.8	1.8	
	Max. input power (kW)	6.60	6.60	6.80	6.80	
	Max. input current (A)	12.0	32.0	12.5	33.0	
	Max. outlet temperature (°C)/ambient temperature (°C)	60/-30	60/-30	45/-30	45/-30	
	Noise dB (A)	58.0	58.0	58.0	58.0	
	Power supply	380 V/3N-50 Hz	220 V/1N ~ 50 HZ	380 V/3N=50 HZ	220 V/1N ~ 50 HZ	
	Throttling mode	Expansion valve	Expansion valve	Expansion value	Expansion value	
	Fan type	Axial flow	Axial flow	Axial flow	Axial flow	
	Air direction	Top air outlet	Top air outlet	Top air outlet	Top air outlet	
	Circulating air volume (m³/h)	5,000.0	5,000.0	5,000.0	5,000.0	
Desian	Circulating water flow (m ³ /h)	1.43	1.43	1.38	1.38	
arameters	Water side pressure loss (kPa)	50.0	50.0	50.0	50.0	
	Specifications of water inlet and outlet connection pipes (mm)	2×DN25	2×DN25	2×DN25	2×DN25	
	Connection mode of water inlet and outlet pipe	Female thread	Female thread	Female thread	Female thread	
	Water side test pressure (MPa)	≤2.0	≤2.0	≤2.0	≤2.0	
	Specifications of refrigerant liquid pipe (mm)	12.7	12.7	12.7	12.7	
	Connection mode of refrigerant liquid pipe	Flared connection	Flared connection	Flared connection	Flared connection	
	Connection mode of refrigerant gas pipe (mm)	Flared connection	Flared connection	Flared connection	Elared connection	
	Length (mm)	800.0	800.0	800.0	800.0	
	Width (mm)	800.00	800.00	800.00	800.00	
	Height (mm)	1,000.0	1,000.0	1,000.0	1,000.0	
	Unit weight (kg)	160.00	155.00	160.00	155.00	

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Annual power generation of heating system PVT > power consumption of heat pump in heating season.

	Reference design configuration				
No.	Area	Configuration			
1	100 m ² and below	6 PVT panels+1 set of 3P unit 290+hydraulic module (1 circulating pump, 1 constant pressure tank, valve group, and pipe fittings)			
2	100 m²–150 m²	12 PVT panels+1 set of 5P unit 290+hydraulic module (1 circulating pump, 1 constant pressure tank, valve group, and pipe fittings)			
3	150 m²–200 m²	12 PVT panels+2 sets of 3P unit R290+hydraulic module (2 circulating pumps, 1 constant pressure tank, valve group, and pipe fittings)			
4	200 m²–300 m²	24 PVT panels+2 sets of 5P unit R290+hydraulic module (2 circulating pumps, 1 constant pressure tank, valve group, and pipe fittings)			
5	300 m ² –400 m ²	36 PVT panels+3 sets of 5P unit R290+hydraulic module (2 circulating pumps, 1 constant pressure tank, valve group, and pipe fittings)			

This table is designed based on the climate and lighting conditions in Munich, Germany; and
 The company has the ability to design customized heating systems based on the climate conditions and building types in different regions.



CEEPower's energy storage product matrix







PV energy storage system solutions





No.	Product Category	Rated Output Power	Function Description	Model	Product picture
1	Grid- connected micro inverter	800 W/1,000 W	One-drive-two PV power generation micro inverter, supporting grid- connected power generation	PMH-800/1000-2	
2	Micro energy storage off- grid inverter	1,000 W	One-drive-one PV power generation micro inverter, supporting off-grid power generation	PMS-1000-1	
3	Micro energy storage off- grid inverter	1,500 W	One-drive-two PV power generation micro inverter, supporting off-grid power generation	PMS-1500-2	
4	Micro energy storage off- grid inverter	2,000	One-drive-four PV power generation micro inverter, supporting off-grid power generation	PMS-2000-4	



Power optimizer STY 1P/650

The power optimizer can effectively improve the power generation efficiency of PV system by tracking the maximum power point (MPPT) of PV modules in real-time. The product supports power line carrier communication and can collect real-time information of modules such as voltage, current, power, and temperature. At the same time, it has the functions of module level shutdown and monitoring.

Product advantages

- Two-wire design, easy installation and maintenance.
- ◆ High efficiency MPPT tracking technology, with a MPPT efficiency of up to 99%.
- The voltage can be quickly reduced to a safe level in case of any fault.
- The status of each PV panel is monitored in real-time, and fault alarms are sent for easy maintenance and management.
- The communication protocol for PLC communication is provided, which facilitates secondary development of customers.

Application scenarios

> PV systems and portable energy storage power sources for various scenarios.



Balcony PV energy storage integration





Application scenarios

System configuration

No.	Device Name Main Paramete		System Connection Description
1	Balcony PV-specific module	85 W/string	Connect after selecting the number of strings according to the balcony size
2	Energy storage lithium battery pack	1 KWH/set, stackable	UPnP, to be controlled with an APP
3	Micro-inverter	800 W (one-drive-two) Operable either in off-grid or grid-connected mode	UPnP
4	Bracket	Modular customization	No installation required on the module side, and to be fixed with hooks on the balcony side



Tiankang Water's air-to-water machine





Tiankang Water's air-to-water machine







Water quality **Test report**

(Lutras 检验报告附表 1 814 000 000 0000 Deuterium depleted 136.9







Three major models

Desktop air-to-water machine (5 L)		
Product model: KZLN-YY-10-A2	Rated voltage: 220 V	
Production standard: QB/T5629-2021	Rated power: 50 Hz	
Water production capacity: 10 L/D (at a temperature of 30°C and humidity of 80%)	Water generation power: 230 W	
Water storage capacity: 5 L (including 3.8 L in water collection tank and 1.2 L in water purification tank)	Heating power: 1,800 W	
Operating temperature: 5°C–38°C	Total rated power: 2,100 W	
Operating humidity: 35%–90%	Refrigerant: R134a	
Weight: 14 kg	Refrigerant filling amount: 80 g	
Product dimensions: 260 mm*368 mm*445 mm (excluding water outlet)	Climate type: SN	
Package dimensions: 324 mm*483 mm*533 mm	Electric shock protection type: 1	
Production code: ZJ:10L2024300001	IP grade: IPX0	

	Air-to-water tea bar m	nachine (20 L)				
Product model	SSH-KZLN-YY-20/14-CBJ-G1					
Production standard	QB/T5629-2021	Rated voltage	220V~/50HZ			
Control system	Fully automatic control system	Noise	≤54dB			
Water production capacity	20 L/D (at a temperature of 30°C and humidity of 80%)	Water production power	370W			
Operating temperature	5°C-40℃	Total rated power	1670W			
Water quality standard	Standards for Drinking Water Quality (GB5749-2006)	Basic function	Air-to-water production and water purification			
Water treatment	Level 8 (Level 4 sterilization, and Level 4 purification)	Heating function	1300W			
Climate type	SN	Sterilization wavelength	253.7nm(LED)			
Refrigerant/filling amount	R134a/365g	External dimensions	500×430×750			
Package weight	55kg	Production date	See the certificate of conformity			

Air-to-water media machine (35 L)

model	SSH-KZLN-Y	Y-20(50)/15(30)-YSJ-S1	
Production standard	QB/T5629-2021	Rated voltage/frequency	220V~/50Hz
Basic function	Air-to-water production, water purification, hot and cold water	Control system	Fully automatic control system
Water quality standard	Standards for Drinking Water Quality (GB5749-2006)	Noise	≤56dB
Water production capacity	50 L/D (at a temperature of 30°C and humidity of 80%)	Water production power	460W690W
Climate type	SN	Heating/cooling power	800W/70W
Total rated power	1570W	Water treatment	Level 6 (Level 2 sterilization, and Level 4 purification)
Sterilization wavelength	275nm(LED)	Refrigerant/filling amount	R410a/400g
Total weight	70kg		
External	510mm*460mm*1520mm		

It blazes a new way in getting water. It extracts water molecules from the air by making use of the air-to-

water technology, and remove the substances that are harmful to human body by multiple ultraviolet sterilization, filtration system (including multiple mineralization, activated carbon, super filtration/reverse osmosis), and treatment system (including water molecule activation and preservation technology) to produce fresh, natural, activated, weakly alkaline, and purified water with small molecule clusters. The water is fresh, activated, healthy, and safe!



Healthy and safe	Fresh and activated	Keeping the air clean	No secondary contaminati on/scale	Economic, environment ally friendly, green, and pollution- free	Intelligent, fashionable, and fully applicable in all scenarios
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Four level waterway super filtration





Aerobic bacterial count

40

Disclaimer: This product page is as comprehensive and detailed as possible on the basis of existing information. The company reserves the right to modify any data, parameters, and other information. The final interpretation right belongs to Beijing SANPO High-tech Co., Ltd.



Off-grid solutions for human settlement environment with water, electricity, and thermal



Solar power, solar heating, air-to-water production, ecological cycle, green and low-carbon



Application scenarios



• The standardized application models are combined with customized solution designs to fully meet the thermal and electrical demands of users in different application scenarios



Zero carbon commercial hot water project

و بعدار الدار بعد التاريخ الاريا الاريخ الله ال



Exploration of a new realm of green energy — turning balconies into household thermal power plants!



Zero carbon campsite hot water — It is applicable for stadiums, highway service areas, and campsite scenic spots, etc.

Industry exchanges and engineering cases







































PVT热水工程信息登记表

充分的信息是项目成功的保障,请您尽可能详尽地填写,我们将回报您完美的设计!

项目名称			项目地点				
用户姓名			联系电话及邮箱				
I							
项目类型		(洗浴/食堂)用水	项目状态		(在	建/改造)	
用水床位数 (或人数)			预计入住率				
建筑层数			项目所在层数				
建筑单层层高			集中浴室淋浴喷头个数				
盆浴数量			集中使用高峰期人数				
高峰期时间	段		日用水总量		t		
已有主管道管径			用水方式		(24 小时/定时) 定时时段:		
用水时间段			温度要求				
当地冬季最低温度			最低温度持续时间	3			
电源情况		(有/无) 三相电源	原有电容量(KVA))			
原有热水主机		(改造项目必须填写)附铭 牌照片(品牌、型号、形式)	主机参数		供热量_ kW COP	kW 功 ፤	率
原设计热水供水温度		°C	原设计热水供水泵流 扬程	冠二/		流量: 扬程:	
原热水运行费用 (元/天)			原设计热水负荷	:			
峰谷电时间	印段	峰电:	平电:			谷电:	
峰谷电f/ (元/KW·1	ጉ h)	峰电:	平电:	X		谷电:	
燃气费 (元/ト	Nm³)		业主项目预算投资	资	V		
建筑外形、 屋面结构描述		(建筑朝向+屋面情况)					
备注		(改造项目需要备注前主要设备类型、功率、运行数据、运行费用)					

注: 以下信息为系 详细询问并准确均	K暖方案设计所必须的 真写以确保计算结果的]参数,现场勘查人员]准确。红字为示例,	必须准确测量、 填完需删除。				
项目名称		方案回传邮箱					
项目地点	尽量具体	联系人					
项目类型		联系电话					
项目用途	(高级旅馆、一般起居室、办公室、厂房、学校)						
建筑类型	酒店、办公、住宅、 学校等	建筑面积					
建筑层数		建筑层高					
建筑朝向	即外门的朝向	建筑长宽及窗墙比					
采暖类型	地暖、散热片、风机	风机类型	明装风机、暗装 (有制冷时填 无制冷时此项不填写。				
采暖热负荷		制冷冷负荷					
当地最低温度		温度要求	冷热分开写				
墙体类型	(24、37 墙)	外墙保温情况	有保温, 3mm 厚的挤塑板保				
外门材质及个数	木门, 1 个	外门的面积					
外窗材质、厚度		外窗朝向及面积	南面 m ⁴ 北面 m ⁴				
电源类型及容量		水质水源					
安装位置及面积		供回水管径	水冷暖改造项目填写				
屋面结构描述	平屋面还是瓦屋面;有无保温、保温层材质及厚度; 屋面大概材质及厚度描述						
备注		好附上墙体、门、窗	等的传热系数				

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Mr. Cao, 189153<u>28160</u>



THANK YOU

That's all. Thank you for your listening!

Energy Internet System Solution Provider