SUNGROW

SUNGROW EV Charging

PRODUCTS AND SYSTEM SOLUTIONS

Sungrow Power Supply Co., Ltd

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RE100 EP100

EV Charger

SUNGROW
Clean power for all

SUNGROW CHARGER
CHARGE OUR FUTURE

ABOUT SUNGROW

As a key high-tech enterprise in China, Sungrow Power Supply Co., Ltd. (Stock code: 300274) specializes in R&D, production, sales and services of new energy equipment, such as solar energy, wind energy, energy storage, hydrogen energy, electric vehicles, mainly provides photovoltaic inverters, wind energy converters, energy storage system, floating PV system, new energy automotive driving system, EV charging station, renewable hydrogen production system, smart operation and maintenance, and commits itself to providing first-class life cycle solutions of clean energy.

Since the establishment in 1997, the Company has been concentrating on the field of new energy power generation, adhering to market demand orientation, and taking technological innovation as the propellant for development. The Company has cultivated a professional R&D team with solid R&D experiences and strong capabilities of independent innovation. Sungrow has successively undertaken more than 20 national key science and technology programs, led the drafting of multiple national standards, and is one of the few companies in the industry that have mastered a number of independent core technologies.

Photovoltaic inverters, Sungrow's core products, have been accredited by TÜV, CSA, SGS, and other international authorities, and sold to more than 150 countries and regions in the world. Sungrow's cumulative installed capacity of inverter equipment across the world has been above 340GW by the end of December 2022.

The Company has successively won the awards of China Grand Awards for Industry, National Manufacturing Single Champion Demonstration Enterprise, Top 50 Innovative Chinese Companies, National Intellectual Property Demonstration Enterprise, Global Top 500 New Energy Enterprises, and Best Companies to Work For in Asia. Sungrow is a company with state-level post-doctoral research workstation, a national high-tech industrialization demonstration base, a national enterprise technology center, a national industrial design center, a national green factory, and ranks among the best in the global new energy power generation industry in terms of comprehensive strength.

In the future, Sungrow will adhere to its mission of "Clean power for all", accelerate the development of clean energy power generation system integration based on the new energy equipment business, innovate and expand new business in the field of clean power conversion technology, keep in close contact with the customers, actively participate in global competition, and strive to build itself into a respectable world-class company.

1997
Founded

2011
Listed on SZSE

10000+
40%+ R&D Personnel

100 TOP
Top 100 Global New Energy

100%
The World's Most Bankable Inverter Brand

RE 100
All Clean Energy Supply in 2028

SUNGROW EV Charging

SUNGROW EV Charging solutions are based on Sungrow 26 years of the experience in power electronics and the design and application of new energy equipment to develop and manufacture leading-edge electric vehicle charging equipment. SUNGROW EV Charging products are designed to meet the demand for efficient, stable, and safe charging in order to create more benefit and more revenue for clients.

SUNGROW EV Charging combines Sungrow Photovoltaic (PV) system and Energy Storage System (ESS) to provide an integrated PV+ESS+Charger intelligent solution for charging stations, forming a closed loop of green energy and allowing electric vehicles to use renewable energy.

Lean Manufacturing

Comprehensive capacity of 140GW+, annual capacity of charger over 1GW

Sungrow headquarters factory provides shipments worldwidely

Overseas factories with annual capacity of 20GW managing shipments to India and the United States market

Lean R&D and design create reliable products

Lean production process controls the details

Product Portfolio

SUNGROW EV Charging offers both DC Chargers and AC Chargers equipped with iEnergyCharge monitoring platform. Chargers operate in stand-alone and PV+ESS+Charger modes. SUNGROW EV Charging provides integrated PV+ESS+Charger solutions covering all scenarios.

SUNGROW EV Charging provides ALM (Adaptive Load Management), DLB (Dynamic Load Balance), and DLM (Dynamic Load Management) functions to match power distribution capacity to avoid overload.

- AC007UK-01 L1
  AC007/11E-01 L1
  AC007/011E-01

- AC22E-01

- IDC30E

- IDC180E

- SH3.0/3.6/4.0/5.0/6.0RS

- SH5.0/6.0/8.0/10RT-20

- SBR096/128/160/192/224/256

- iEnergyCharge

- iSolarCloud

*G1: 1st Generation, G2: 2nd Generation

Private: AC Charger 7/11/22kW Stand-alone Solution

Recommended Products

AC Charger

AC007UK-01 L1
AC007/11E-01 L1

AC Charger

AC22E-01

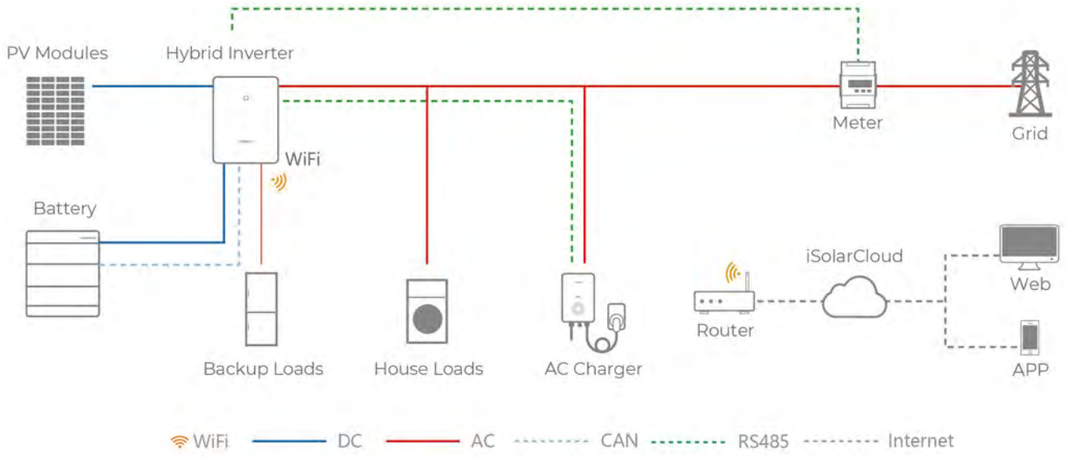
Meter (Optional for ALM)

One/Three-phase meter

Monitoring

iEnergyCharge

Private: AC Charger 7/11/22kW PV+ESS+Charger Solution



Recommended Products

AC Charger

AC007/011E-01

AC Charger

AC22E-01

Hybrid Inverter

SH3.0/3.6/4.0/ 5.0/6.0RS

Hybrid Inverter

SH5.0/6.0/8.0/ 10RT-20

Meter (For ALM)

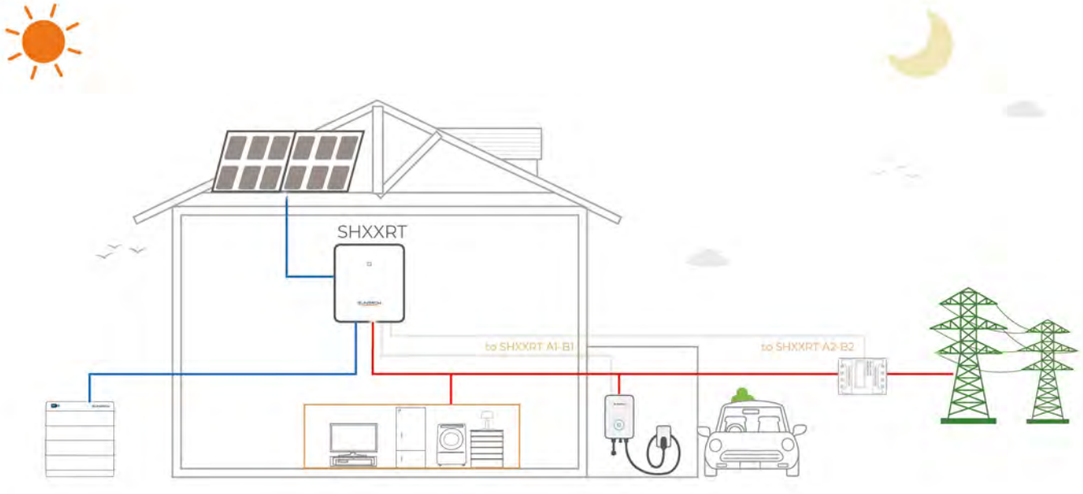
One/Three-phase meter

Monitoring

iSolarCloud

Zero-carbon Life Home Charging

SUNGROW EV Charging combines Sungrow Photovoltaic (PV) system and Energy Storage System (ESS) with an intelligent Operation and Maintenance (O&M) management platform to provide an integrated PV+ESS+Charger intelligent solution for charging stations. While meeting the need for efficient, stable, and safe charging, it also provides the opportunity for revenue generation from photovoltaic power generation and charging. As a result, allowing electric vehicles to use renewable energy reduces the use of conventional energy and helps achieve the carbon neutrality goal.

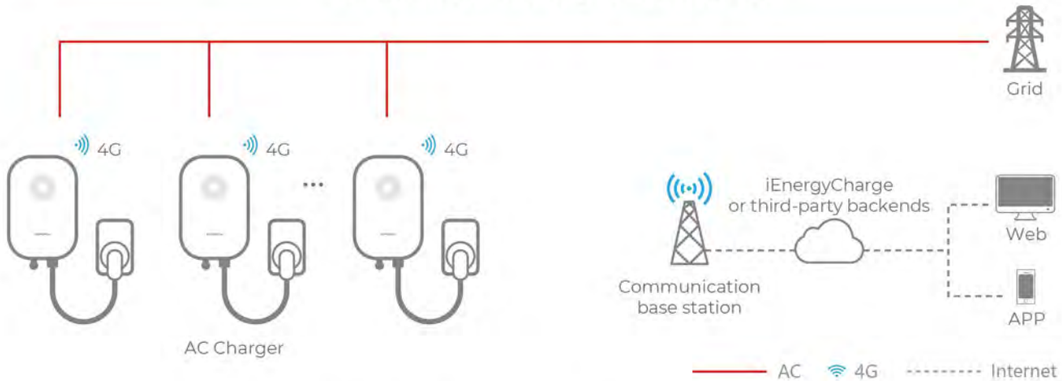


Benefits of Sungrow's PV+ESS+Charger Solution

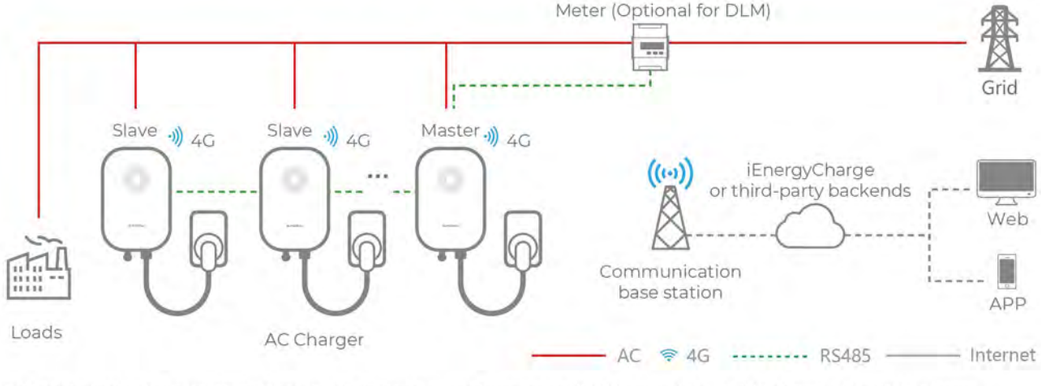
- Deliver one-stop design, commissioning, O&M.
- Address the issue of insufficient power distribution capacity in charging stations.
- Alleviate the load on the power supply during peak periods.
- Implement an Energy Storage System (ESS) to enable off-grid (during utility grid outage), improving the reliability of charging and reduce charging costs via increasing green electricity usage, peak shaving, and valley filling.
- Integrated Energy Management System (EMS) allocates energy to each unit within the system, maximizing energy utilization efficiency.
- Achieve a closed loop of green energy to enhance the utilization of clean energy and decrease carbon emissions and reduce the electricity cost.

Semi-public&Public Destination Charging: AC 22kW/DC 30kW Charger Solutions

AC 22kW Charger Solution

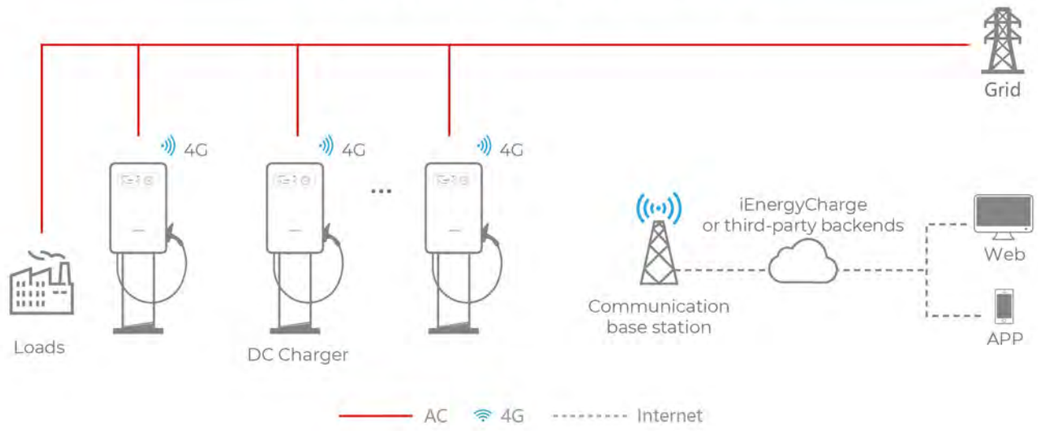


AC 22kW Charger DLB/DLM Solution

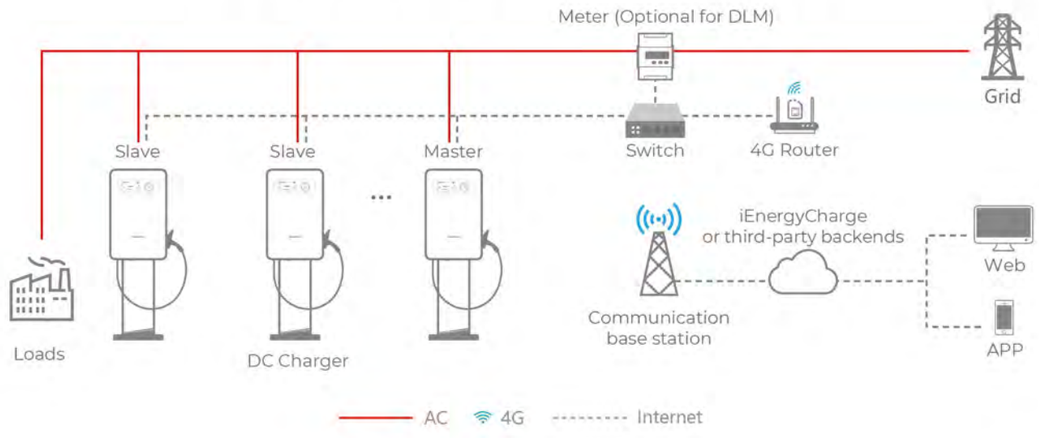


* When the loads and chargers are connected to the same point of connection, DLM function is needed for dynamic load management.
When only chargers are connected to the point of connection, the DLB function is required for dynamic load balance.

DC 30kW Charger Solution



DC 30kW Charger DLB/DLM Solution



* When the loads and chargers are connected to the same point of connection, DLM function is needed for dynamic load management.
When only chargers are connected to the point of connection, the DLB function is required for dynamic load balance.

Recommended Products

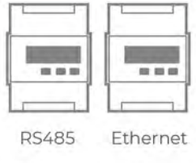
AC Charger

AC22E-01

DC Charger

IDC30E

Meter(Optional for DLM)

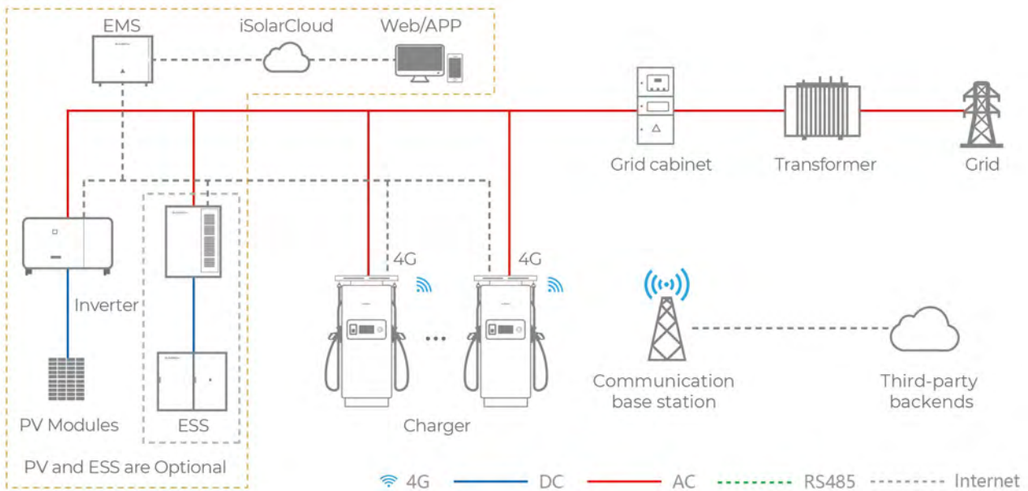


Three-phase meter

Monitoring

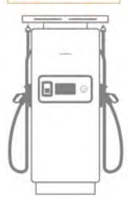
iEnergyCharge

Public Fast Charging: 180kW DC Charger Solution

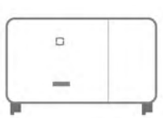


Recommended Products

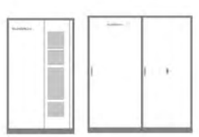
DC Charger



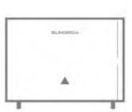
IDC180E



Inverter



ESS



EMS

Benefits of PV+ESS+Charger Solution for Public Scenarios

Challenges for Fast Charging Stations

- Fast charging stations pose significant challenges to the utility grid due to their high charging power. This results in utility grid pollution.
- It is difficult to enlarge distribution capacity to meet the growing electricity demand of charging station.
- Fast charging stations require large amounts of power, leading to high charging costs. The huge energy consumption leads to the financial burden during operating these stations.
- During periods of peak power consumption, high power EV chargers are unable to operate at full capacity. This reduces the availability of charging station and causes charging delay for users.

Benefits of Sungrow PV+ESS+Charger Solution

- Delivering one-stop design, commissioning, O&M.
- EMS+AI algorithm for intelligent control strategy and complete system solutions.
- Competitive advantage in reducing energy cost via increasing green electricity usage, peak shaving, and valley filling.
- Reducing the impact on utility grid, alleviating the restriction of distribution capacity and avoiding expensive extension of grid connection.
- Ability to operate off-grid (during utility grid outage), improving the reliability of the charging.
- Increasing availability of charging stations.
- Enable electric vehicles to reduce carbon emissions via utilization of green electricity.

AC007UK-01 L1

7 kW AC Charger for Electric Vehicles

RELIABLE AND VERSATILE

- Standard Type 2 charging plug
- Integrated 6mA DC fault current detection
- Built in PEN fault protection

SMART AND EASY MANAGEMENT

- Adaptive Load Management
- Control and visualization via iEnergyCharge
- Capable for OCPP1.6J communication

USER FRIENDLY

- Premounted 7m charging cable
- Space-saving dimensions for wall-mounting
- Optional pole-mounting

SUSTAINABLE

- RFID access control with 2 cards included
- Authentification via APP or RFID

Technical Data	AC007UK-01 L1
AC Input and Output	
Max. charge power	7.4 kW
Nominal voltage	230 V
Nominal grid frequency	50 Hz / 60 Hz
Max. current	32 A single-phase
Charge connector	Plug Type 2
Input cable cross-section	3 mm² * 6 mm²
Output cable length	7 m
Protection	
Residual current detection	6 mA DC
PEN fault protection	Yes
Over/Under voltage protection	Yes
Over load protection	Yes
Over temperature protection	Yes
Surge protection	II
Overvoltage category	III (grid) / II (car)
Gerneral Data	
Dimensions (H * W * D)	310 mm * 205 mm * 92 mm
Weight	4.2 kg
Mounting method	Wall-mounting / Pole-mounting (optional)
Impact resistance	IK08
Degree of protection	IP65
Operating ambient temperature range	-30 - to 50 -
Allowable relative humidity range (non-condensing)	5 % - 95 %
Cooling method	Natural convection
Max. operating altitude	2000 m
Grid type	TN / TT
Display	LED indicator
Monitoring	Monta APP
Communication	WIFI
Charging protool	OCPP 1.6 J
Power consumption for standby	< 5 W
Start mode	RFID card / APP
Compliance	UKCA , No.1467
Warranty	3 years (standard)

AC007/11E-01 L1

7 / 11 kW AC Charger for Electric Vehicles

RELIABLE AND VERSATILE

- Type 2 charging plug – compatible with standard electric vehicles
- Integrated 6mA DC fault current detection

SMART AND EASY MANAGEMENT

- Adaptive Load Management
- Control and visualization via iEnergyCharge
- Capable for OCPP1.6J communication

USER FRIENDLY

- Premounted 7m charging cable
- Space-saving dimensions for wall-mounting
- Optional pole-mounting

SUSTAINABLE

- RFID access control with 2 cards included
- Authentification via APP or RFID

Technical Data	AC007E-01 L1	AC011E-01 L1
AC Input and Output		
Max. charge power	7.4 kW	11 kW
Nominal voltage	230 V	400 V
Nominal grid frequency	50 Hz / 60 Hz	50 Hz / 60 Hz
Max. current	32 A single-phase	16 A three-phase
Charge connector	Plug Type 2	Plug Type 2
Input cable cross-section	3 mm^2 * 6 mm^2	5 mm^2 * 2.5 mm^2
Output cable length	7 m	7 m
Protection		
Residual current detection	6 mA DC	
Over/Under voltage protection	Yes	
Over load protection	Yes	
Over temperature protection	Yes	
Surge protection	II	
Overvoltage category	III (grid) / II (car)	
Gerneral Data		
Dimensions (H * W * D)	310 mm * 205 mm * 92 mm	310 mm * 205 mm * 92 mm
Weight	4.2 kg	3.8 kg
Mounting method	Wall-mounting / Pole-mounting (optional)	
Impact resistance	IK08	
Degree of protection	IP65	
Operating ambient temperature range	-30 - to 50 -	
Allowable relative humidity range (non-condensing)	5 % - 95 %	
Cooling method	Natural convection	
Max. operating altitude	2000 m	
Grid type	TN / TT	
Display	LED indicator	
Monitoring	iEnergyCharge APP	
Communication	WIFI	
Charging protool	OCPP 1.6 J	
Power consumption for standby	< 5 W	
Start mode	RFID card / APP	
Compliance	EN / IEC 61851-1 , EN / IEC 61851-21-2	
Warranty	3 years (standard)	

AC007/011E-01

7 / 11 kW AC Charger for Electric Vehicles

RELIABLE AND VERSATILE

- Compatible with Sungrow 1/3-phase solution
- Integrated 6mA DC fault current detection

USER FRIENDLY

- Premounted 7m Type 2 charging cable
- Space-saving dimensions for wall-mounting
- Optional pole-mounting

SMART AND EASY MANAGEMENT

- Control and visualization via iSolarCloud
- RFID access control with 2 cards included

SUSTAINABLE

- Beyond charging – for maximum usage of solar energy together with Sungrow 1/3-phase solution
- Different charging modes to fit all needs

	AC007E-01	AC011E-01
AC Input and Output		
Max. charge power	7.4 kW	11 kW
Nominal voltage	230 V	400 V
Nominal grid frequency	50 / 60 Hz	50 / 60 Hz
Max. current	32 A single-phase	16 A three-phase
Charge connector	Plug Type 2	Plug Type 2
Input cable cross-section	3 * 6 mm^2	5 * 2.5 mm^2
Output cable length	7 m	7 m
Protection		
Residual current detection	6 mA DC	
Over / Under voltage protection	Yes	
Over load protection	Yes	
Over temperature protection	Yes	
Surge protection	II	
Overvoltage category	III (grid) / II (car)	
General Data		
Dimensions (H * W * D)	310 * 205 * 92 mm	
Weight	4.2 kg	3.8 kg
Mounting method	Wall-mounting / Pole-mounting (optional)	
Impact resistance	IK 08	
Degree of protection	IP 65	
Operating ambient temperature range	-30 °C to 50 °C	
Allowable relative humidity range (non-condensing)	5 % - 95 %	
Cooling method	Natural convection	
Max. operating altitude	2000 m	
Grid type	TN / TT	
Display	LED indicator	
Monitoring	iSolarCloud APP (with Sungrow inverter)	
Communication	RS 485	
Power consumption for standby	< 5 W	
Start mode	RFID card / APP	
Compliance	EN/IEC 61851-1:2019; EN/IEC 61851-21-2:2018	
Warranty	5 years (standard)	

❶ Compatibility with Sungrow SHRS inverters, expected for H2/2023

❷ Compatibility with Sungrow SHRT inverters

AC22E-01

22kW AC Charger for electric vehicles

RELIABLE AND VERSATILE

- Integrated 6mA DC fault current detection
- IP65 proof for usage in nearly every environment
- Automatic phase-switching function

SMART AND EASY MANAGEMENT

- Capable for load management and balancing
- Control and visualization via iSolarCloud or iEnergyCharge
- Applicable for OCPP communication

USER FRIENDLY

- Fast installation with Poka-Yoke connector
- Adaptable access control with RFID-Cards
- Optional integrated MID meter

SUSTAINABLE

- Beyond Charging maximum usage of solar energy together with Sungrow 1/3-phase solution
- Different charging modes to fit all needs

Technical Data	AC22E-01
AC Input and Output	
Max. charge power	22 kW
Nominal voltage	400 V
Nominal grid frequency	50 Hz / 60 Hz
Max. current	32 A three-phase
Charge connector	Plug Type 2
Input cable cross-section	5 mm² * 6 mm²
Output cable length	7 m
Protection	
Residual current detection	6 mA DC
Over/Under voltage protection	Yes
Over load protection	Yes
Over temperature protection	Yes
Surge protection category	Yes
Overvoltage category	III (grid) / II (car)
Gerneral Data	
Dimensions (H * W * D)	346 mm * 214 mm * 125 mm
Weight	≤7kg
Mounting method	Wall-mounting / Pole-mounting (optional)
Impact resistance	IK 10
Degree of protection	IP 65
Operating ambient temperature range	- 30 ℃ to 50 ℃
Allowable relative humidity range	5 % - 95 %
Cooling method	Natural convection
Max. operating altitude	3000 m
Grid type	TN / TT
Status indication	LED indicator
Communication	RS485 / Ethernet / WIFI / 4G (Optional)
Power consumption for standby	< 5.5 W (6.5 W with MID meter)
Start mode	RFID-Card / App / Plug & Play
Compliance	EN / IEC 61851-1:2019 ; EN / IEC 61851-21-2:2018
MID meter	Optional
Warranty	3 years (standard)

IDC30E

Sungrow Urban Destination Charger

reddot winner 2023

RELIABLE

- IP65 , dust and rain protection
- Service lifetime up to 10 years
- Easy maintenance without any filter

EFFICIENT

- Efficiency up to 96.5%
- Innovative cooling system

FRIENDLY

Extremely low noise < 50dB

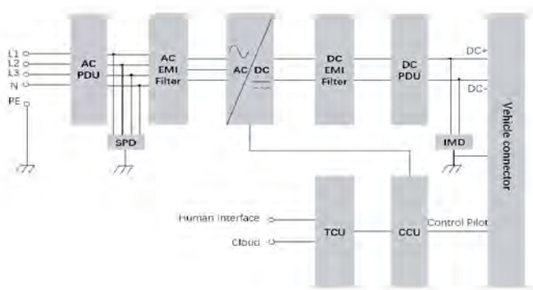
EMC Class B residential emission

FUTURE - PROOFED

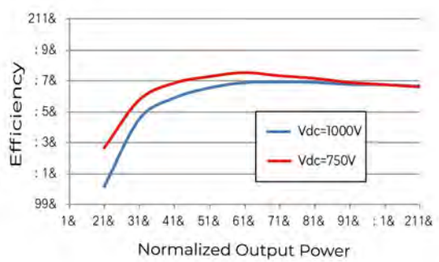
- Compatibility with new cars and backends
- Integration with PV and Energy Storage System

Model	IDC30E
AC Input	
Input voltage	400 Vac ± 10 %
Nominal frequency	50 Hz
Input current rating	46 A
Max. input current	52 A
Input cable specification	5 * 10 mm²
Connector types	3P + N + PE
DC Output	
DC output power	30 kW
DC output voltage	200-1000 Vdc, 375-1000 Vdc (at nominal power)
Max. output current	80 A
Cable Length	5 m
Charge connector	CCS2
Protection	
Insulation monitor	Yes
Over/Under voltage protection	Yes
Over load protection	Yes
Short circuit protection	Yes
Over temperature protection	Yes
Lightning protection	Yes
Overvoltage level	III
Interface	
Touch screen	7-inch color touch screen
RFID card system	ISO / IEC 14443A / B, ISO / EC 15693
Communication interface	2G / 3G / 4G / Wifi / Ethernet
Communication protocol	OCPP 1.6 J
Gerneral Data	
Dimensions (H * W * D)	800 mm * 500 mm * 230 mm, 800 mm * 500 mm * 262 mm (with backplane)
Weight	55 kg
Mounting method	Wall-mounting / Pole-mounting (optional)
Operational noise level	≤ 50 dB
Degree of protection	IP65, IK10 (enclosure), IK08 (screen)
Operating ambient temperature range	-35 - to 55 -
Allowable relative humidity range	5 % - 95 %
Efficiency	96.5 % Peak
Max. operating altitude	2000 m
Warranty	3 years (extended warranty optional)

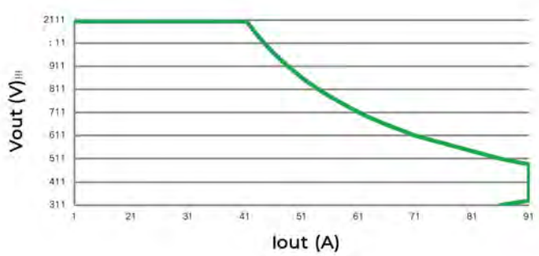
CIRCUIT DIAGRAM



EFFICIENCY CURVE



VOUT-IOUT CURVE



IDC180E

DC Fast Charging Station

RELIABLE

- IP65, dust and rain protection
- Service lifetime up to 10 years
- Easy maintenance without any filter

EFFICIENT

- Efficiency up to 96%
- Dynamic power allocation between the outlets
- Innovative cooling system

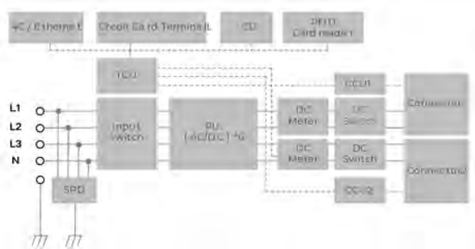
FRIENDLY

- Retractable cable management system
- Barrier-free design for easy access
- Various payment options

FUTURE-PROOFED

- Compatibility with new cars and backends
- Support OCPP 2.0.1 and Plug&Charge ready
- Integration with PV and Energy Storage System

CIRCUIT DIAGRAM



Technical Data	IDC180E
AC Input	
Connector types	3P+N+PE
Input voltage	400 VAC +/- 10 % (50 Hz)
Input current rating	275 A
Max. input current	320 A
Power factor	≥ 0.99
Standby power	≤ 45 W
Gird type	TN-C, TN-S, TN-C-S, TT
THDi (Total harmonic distortion)	< 5 % (at nominal power)
DC Output	
DC output power	180 kW (90 kW / 90 kW; 0 kW / 180 kW)
Number of EV served	2
DC output voltage range	200 Vdc to 920 Vdc
CCS2 cables max. current	Outlet1: CCS2 250 A Outlet2: CCS2 250 A, 400 A (optional)
Energy Metering	MID and Eichrecht compliant meters available as option
Output Cable Length	5 m, 7 m (optional)
Efficiency	96 % Peak
Gerneral Data	
Dimensions (H * W * D)	2000 mm * 900 mm * 750 mm (TBD)
Weight	450 KG (TBD)
Cable Retraction System	Yes
Operating temperature range	-35 °C to + 55 °C
Operating Humidity Range	5 % to 95 % (non-condensing)
Operational altitude	≤ 2000 m
Operational noise level	≤ 65 dB(A) at 1m distance @ 25 °C (at full load)
Degree of protection	IP65, IK10 (enclosure), IK08 (screen)
Configuration	
Software update	Over-the-air updates via Sungrow iEnergyCharge APP
multilanguage system	English, Spanish, German, French, Dutch
Warranty	3 years (extended warranty optional)
User Interface	
User authentication	App、RFID、Credit card、Ready for Plug & Charge
User interface	10-inch color touch screen
RFID card system	ISO / IEC 14443A / B、ISO / IEC 15693
Communication interface	2G / 3G / 4G, Ethernet, Bluetooth
Communication protocol	OCPP 1.6J, Ready for 2.0.1
Emergency button	Yes
Protection	
Over/Under voltage protection	Yes
Over current protection	Yes
Over temperature protection	Yes
leakage protection	Yes
Lightning protection	Yes
Short circuit protection	Yes
Overvoltage category	III
Norm and Certification	
Certification	CE, UKCA,RED,EMC Class A
EU Directives	2014/35/EU (Low Voltage Directive), 2011/65/EU (RoHS), 2017/2102 (RoHS2), 2012/19/EU (WEEE), 1907/2006 (REACH Regulation)
Charging and safety standards	IEC 61851-1, IEC 61851-23, IEC 62477-1, IEC 61439-1, IEC TS 61439-7,EN 62311, EN 50364
Eichrecht Certification	DC meters available in accordance with German Law on Weights and Measurements
Communication to EV	DIN70121, ISO15118, IEC61851

SH3.0/3.6/4.0/5.0/6.0RS

Residential Hybrid Single Phase Inverter

FLEXIBLE APPLICATION

- 80~460 V wide battery voltage range
- Ideal for both retrofitting and new installations
- Built-in smart PID recovery function

ENERGY INDEPENDENCE

- Seamless transition to backup mode, for protection against power outages
- Fast Charging or discharging, enabling higher self-consumption results
- Built-in EMS with advanced customization

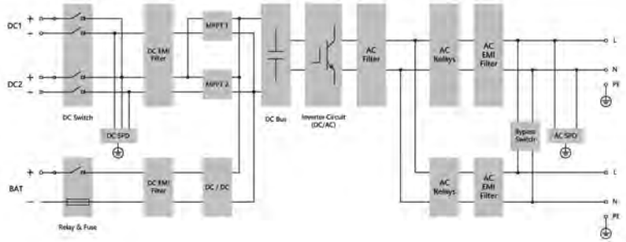
USER FRIENDLY SETUP

- Plug and play installation
- iSolarCloud monitoring available on App and Web
- Lightweight and compact, optimized for heat-dissipation

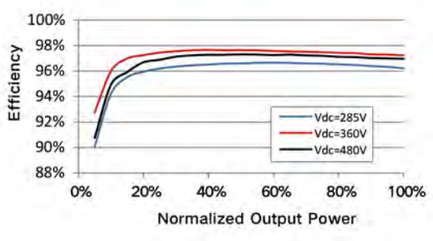
SMART MANAGEMENT

- Real time data (10 seconds refresh sample)
- 24/7 live monitoring both online and with integrated display
- Online IV curve scan and diagnosis

CIRCUIT DIAGRAM



EFFICIENCY CURVE (SH6.0RS)



Type designation	SH3.0RS	SH3.6RS	SH4.0RS	SH5.0RS	SH6.0RS
Input (DC)					
Recommended max. PV input power	10000 Wp	10700 Wp	11000 Wp	12000 Wp	13000 Wp
Max. PV input voltage			600 V		
Min. PV input voltage / Startup input voltage			40 V / 50 V		
Rated PV input voltage			360 V		
MPP voltage range			40V – 560 V		
No. of independent MPP inputs			2		
No. of PV strings per MPPT			1 / 1		
Max. PV input current			32 A (16 A/16 A)		
Max. DC short-circuit current			40 A (20 A/20 A)		
Max. current for input connector			20A		
Battery Data					
Battery type			Li-ion battery		
Battery voltage			80V - 460V		
Max charge / discharge current			30A / 30A		
Max charge / discharge power			6600W		
Input / Output (AC)					
Max. AC power from grid	10000 VA	10700 VA	11000 VA	12000 VA	13000 VA
Rated AC output power	3000 W	3680 W	4000 W	5000 W	6000 W
Max. AC output apparent power	3000 VA	3680 VA	4000 VA	5000 VA	6000 VA
Max. AC output current	13.7 A	16 A	18.2 A	22.8 A	27.3A
Rated AC voltage			220 / 230 / 240 V		
AC voltage range			154 V – 276 V		
Rated grid frequency			50 Hz / 60 Hz		
Grid frequency range			45 – 55 Hz / 55 – 65 Hz		
Harmonic (THD)			<3 % (of rated power)		
Power factor at Rated power / Adjustable power factor			>0.99 at default value at rated power		
Feed-in phases / connection phases			1 / 1		
Efficiency					
Max. efficiency / European efficiency	97.4 % / 97.0 %	97.5 % / 97.1 %	97.6 % / 97.2 %	97.7 % / 97.3 %	97.7 % / 97.3 %
Backup Data (on grid mode)					
Rated output power for backup load			6000 W		
Rated output current for backup load			27.3 A		
Backup Data (off-grid mode)					
Rated voltage			220 V / 230 V / 240 V (±2 %)		
Frequency range			50 Hz / 60 Hz (±0.2 %)		
Output voltage harmonic (THD)			< 2 %		
Switch time to emergency mode			< 10 ms		
Rated output power	3000W / 3000VA	3680W / 3680VA	4000 W / 4000 VA	5000W / 5000VA	6000W / 6000VA
Peak output power			8400 VA, 10s		
Protection & Function					
Grid monitoring			Yes		
DC reverse polarity protection			Yes		
AC short-circuit protection			Yes		
Leakage current protection			Yes		
DC switch(solar)			Yes		
DC Overcurrent Protection (Battery)			Yes		
Surge Protection			DC Type II /AC Type II		
PID recovery function			Yes		
Parallel operation on grid port / Max. No of inverters			Master-slave mode / 3		
Battery input reverse polarity protection			Yes		
General Data					
Topology (Solar / Battery)			Transformerless / Transformerless		
Degree of protection			IP65		
Dimensions (W * H * D)			490 * 340 * 170 mm		
Weight			18.5 kg		
Mounting method			Wall-mounting bracket		
Operating ambient temperature range			-25 ℃ to 60 ℃		
Allowable relative humidity range			0 % – 100 %		
Cooling method			Natural convection		
Max. operating altitude			4000 m		
Noise emission			< 45dB(A)		
Display			LED digital display & LED indicator		
Communication			RS485 / Ethernet / WLAN / CAN		
DI / DO			DI * 4 / DO * 1 / DRM		
DC connection type			MC4 (PV) / Evo2 Compatible (Battery)		
AC connection type			Plug and Play		
Grid compliance			IEC/EN 62109-1, IEC/EN 62109-2, IEC62116, IEC61727, IEC/EN 61000-3-11, IEC/EN 61000-3-12, EN 62477-1, AS/NZS 4777.2:2020, EN 50549-1, CEI 0-21, G98 / G99, UNE 217002:2020, NTS V2 TypeA, C10/26		

SH5.0/6.0/8.0/10RT-20

Residential Hybrid Three Phase Inverter

FLEXIBLE APPLICATION

- DC 13.5A current input, compatiable with high-power PV module
- Supports parallel connection with master-slave controlling
- Provides 100% power to unbalance loads in backup mode
- Supports application in retrofit scenario

ENERGY INDEPENDENCE

- Seamless transition to backup mode for protection against power outages
- Fast charging / discharging to meet the demand of higher consumption

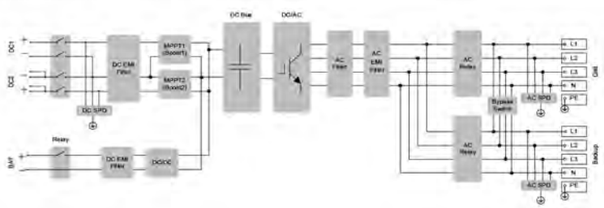
SMART MANAGEMENT

- Compatible with AC EV Charger for green energy to EV
- High self-consumption with optimised built-in EMS
- Free online monitoring to enhance energy management for end user, installer and retailer
- Remote firmware update and customisable settings

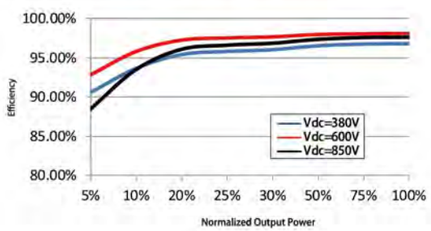
EASY INSTALLATION

- Unique push-in connectors for time-saving installation
- Touch free commissioning with smartphone
- Lightweight and compact

CIRCUIT DIAGRAM



EFFICIENCY CURVE (SH5.0RT)



Type designation	SH5.0RT-20	SH6.0RT-20	SH8.0RT-20	SH10RT-20
PV Input				
Recommended max. PV input power	7500 W	9000 W	12000 W	15000 W
Max. PV input voltage	1000 V			
Min. PV input voltage / Startup input voltage	150 V / 180 V	200 V / 250 V	200 V / 250 V	200 V / 250 V
Rated PV input voltage	600 V			
MPP voltage range	150 V – 950 V	200 V – 950 V	200 V – 950 V	200 V – 950 V
No. of independent MPP inputs	2			
No. of PV strings per MPPT	1 / 1	1 / 1	1 / 1	1 / 2
Max. PV input current	27 A (13.5 A / 13.5 A)	27 A (13.5 A / 13.5 A)	27 A (13.5 A / 13.5 A)	40.5 A (13.5 A / 27 A)
Short-circuit current of PV input	36 A (18 A / 18 A)	36 A (18 A / 18 A)	36 A (18 A / 18 A)	54 A (18 A / 36 A)
Max. current for input connector	30 A			
Battery Data				
Battery type	Lithium battery			
Battery voltage	150V - 600V			
Max charge / discharge current	30A ** / 30A **			
Max charge / discharge power	7500W / 6000W	9000W / 7200W	10600W / 10600W	10600W / 10600W
AC Input and Output				
Max. AC input power to battery	11600W	14000W	18600W	20600W
Max. AC power from grid	12500W	15000W	18600W	20600W
Rated AC output power	5000W	6000W	8000W	10000W
Rated AC output apparent power	5000VA	6000VA	8000VA	10000VA
Max. AC output current	7.6A	9.1A	12.1A	15.2A
Rated AC voltage	3 / N / PE, 220 / 380 V; 230 / 400 V			
AC voltage range	270 - 480V			
Rated grid frequency	50Hz			
Grid frequency range	45 - 55Hz			
Harmonic (THD)	<3% (of rated power)			
DC current injection	<0.5% In			
Power factor at Rated power / Adjustable power factor	>0.99 / 0.8 leading to 0.8 lagging			
Feed-in phases/connection phases	3 / 3			
Backup Data				
Rated voltage	3 / N / PE, 220 Vac / 230 Vac			
Frequency range	50Hz			
Total hamonic factor output voltage (Linear load)	2%			
Switch time to emergency mode	<20ms			
Rated output power	5000W / 5000VA	6000W / 6000VA	8000W / 8000VA	10000W / 10000VA
Peak output power ***	6000W / 6000VA, 5min 10000W / 10000VA, 10s	7200W / 7200VA, 5min 10000W / 10000VA, 10s	12000W / 12000VA, 5min	12000W / 12000VA, 5min
Peak output power on single phase ****	2000 VA (≥9.6kWh)	2200 VA (≥12.8kWh)	2700 VA (≥12.8kWh)	3400 VA (≥12.8kWh)
Rated output current for backup load during on grid mode	3 x 18.5A			
Efficiency				
Max. efficiency / European efficiency	98% / 97.2%	98.2% / 97.5%	98.4% / 97.9%	98.4% / 97.9%
Protection & Function				
Grid monitoring	Yes			
DC reverse polarity protection	Yes			
AC short-circuit protection	Yes			
DC switch (solar)	Yes			
DC Overcurrent Protection (Battery)	Yes			
Surge Protection	DC Type II / AC Type II			
Parallel operation on grid port / Max. No. of inverters	Master-slave mode / 5 *			
Battery input reverse polarity protection	Yes			
General Data				
Topology (solar / battery)	Transformerless / Transformerless			
Degree of protection	IP65			
Dimensions (W * H * D)	460mm×540mm×170mm			
Weight	27kg			
Mounting method	Wall-mounting bracket			
Operating ambient temperature range	-25 ℃~ 60 ℃			
Allowable relative humidity range (non-condensing)	0 % - 100 %			
Cooling method	Natural convection			
Max. operating altitude	4000 m			
Noise (Typical)	30 dB(A)			
Display	LED			
Communication	RS485, WLAN, Ethernet, CAN, 4 × DI, 1 × DO			
DI/DO	DI*4/DO*1/DRM			
DC connection type	MC4 (PV) / Evo2 Compatible (Battery)			
AC connection type	Plug and play connector			
Compliance	IEC / EN 62109-1/-2, IEC / EN 61000-6-1/2/3/4, EN 62477-1, IEC 61727, IEC 62116, IEC 61683, VDE-AR-N-4105, AS/NZS 4777.2:2020, EN50549-1, NRS 097-2-1, TOR Generator Type A, OVE-Richtlinie R25, NC RfG PTPiREE,PSE 2018, EIFS 2018:2, PPDS4, NTS 631 V2.0, UNE217002, RD 1699, CEI 0-21			

*: Germany is available for 2 inverters parallel in maximum if no ripple control is used in system **: Depending on the connected battery
: Can be reached only if PV and battery power is sufficient. *: Peak power only for Resistive loads. Detail refer to SHRT backup output power document.

SBR096/128/160/192/224/256

High Voltage LFP Battery

HIGH-PERFORMANCE

- Up to 30A continuous charging and discharging current with high efficiency
- Up to 100% usable energy

SAFETY

- Lithium iron phosphate Battery
- Multi-stages protection design and extensive safety certification

FLEXIBILITY

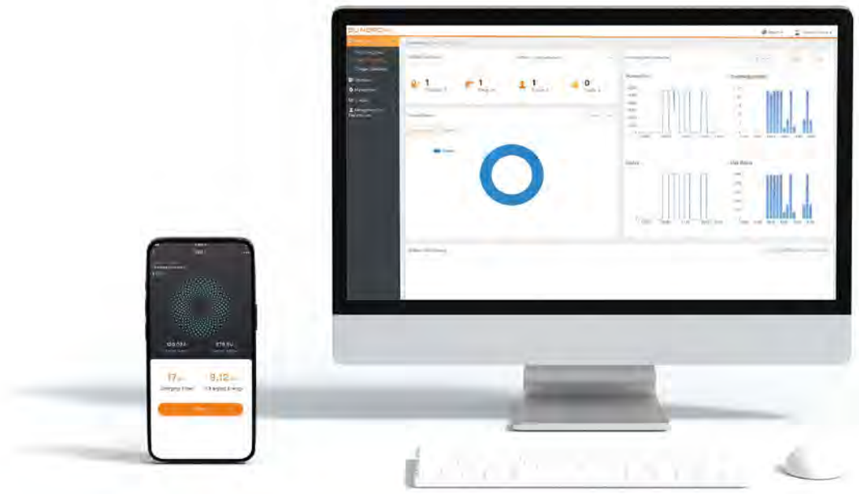
- Extendable during lifetime
- Support 3-8 modules per unit, max. 4 units in parallel, 9–100 kWh capacity range

EASY INSTALLATION

- Compact and light, single person installation
- Plug and play, no cables needed between battery modules

Type designation	SBR096	SBR128	SBR160	SBR192	SBR224	SBR256
Technical properties	3 modules	4 modules	5 modules	6 modules	7 modules	8 modules
System Data						
Battery type	LiFePO4 Prismatic Cell					
Battery module	3.2 kWh, 33 kg					
Energy (useable)[1]	9.6 kWh	12.8 kWh	16 kWh	19.2 kWh	22.4 kWh	25.6 kWh
Nominal voltage	192 V	256 V	320 V	384 V	448 V	512 V
Rated DC power	5.76 kW	7.68 kW	9.60 kW	11.52 kW	13.44 kW	15.36 kW
Max. charge / discharge power	6.57 kW	8.76 kW	10.95 kW	13.14 kW	15.33 kW	17.52 kW
Operating voltage	150 – 219 V	200 – 292 V	250 – 365 V	300 – 438 V	350 – 511 V	400 – 584 V
Max. charging / discharging current: continuous	30 A					
Max. charging / discharging current	42 A					
Depth of discharge	Max. 100 % DOD (settable)					
Short circuit current	3500 A					
Display	SOC indicator, Status indicator					
Communication interface	CAN					
Protection						
Over / under voltage protection	Yes					
Over current protection	Yes					
Over/under temperature protection	Yes					
DC breaker	Yes					
General Data						
Dimensions (W*H*D)	625*545*330 mm	625*675*330 mm	625*805*330 mm	625*935*330 mm	625*1065*330 mm	625*1195*330 mm
Weight	114 kg	147 kg	180 kg	213 kg	246 kg	279 kg
Installation location	Indoor / Outdoor					
Mounting method	Floor stand					
Operating ambient temperature range	Charge: 0 to 50 °C Discharge: -20 to 50 °C					
Degree of protection	IP55					
Allowable relative humidity range	0% to 95% no condensing					
Max. operating altitude	Max. 2000 m					
Cooling method	Natural convection					
Certificates	CE, CEC, IEC 62619, IEC 62040, UN38.3, VDE 2510-50					
Warranty[2]	10 Years					
Country of manufacture	China					

1: Test conditions: 25 ℃, 100 % depth of discharge (DOD), 0.2C charge & discharge
2: Refer to battery warranty letter for conditional application.



Sungrow Charge Management System

Sungrow Charge Management System employs Big Data Analytics and IoT technology to provide precise operation and automatic O&M, as well as intelligent diagnosis service. The system is compatible with mainstream operation platforms to maximize the operation efficiency of charging stations and reduce operation costs.

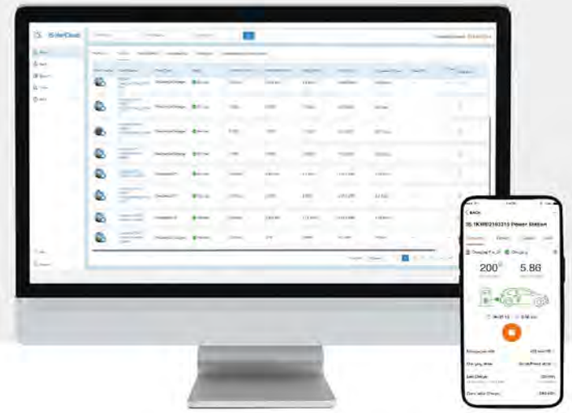
- **Monitoring Overview**
  Display information, such as the quantity of charging stations, map locations, real-time power, and other details of charging stations and EV chargers connected to the platform.
- **Station Management**
  Allow customer to create independent accounts for station information management, such as real-time power, status of EV chargers, and firmware upgrade of the chargers (OTA: Over The Air).
- **Alarm Management**
  Provide pre-warning system for various faults, such as over-temperature, over-voltage or under-voltage, insulation detection and so on.
- **User Management**
  Support user-defined roles, flexible allocation of permissions and creation of users accounts according to specific requirements.
- **O&M**
  Get user feedback timely, understand customer requirements well, guarantee quick response, increase service quality, improve customer experience, and promote product optimization and iteration.

iEnergyCharge App

- **Intelligent Scanning**
  One-key scanning, easy operating.
- **Charger Station Details**
  Comprehensive display, precise control, convenient start/stop.
- **OTA (Over The Air)**
  Remote firmware update, lower O&M cost.
- **Scheduled Charging**
  Off-peak charging, easy and convenient management.
- **Bills Export**
  Various filtering, accurate energy consumption bills.

iSolarCloud

Remote Monitoring and O&M Platform



FLEXIBLE AND FRIENDLY

- Centralized power plant management, optimized OPEX
- Simple network infrastructure, fastplatform deployment
- Flexible data access,Web portaland App

SIMPLE AND EFFICIENT

- Full plant supervision via muti-dimensional analysis, automated reports
- Accurate positioning of faults, quick trouble shooting, realtime push of information, reducing time to resolve faults
- Parameter setting,firmware updates, smart IV curve diagnosis
- Support of plant maintenance by remote Web access of local data logger / SCADA

SAFE AND RELIABLE

- Hierarchicalaccess management
- Cyber security and redundant data storage overthe lifecycle of plants, certified data security
- Full log for trace and audit

Type designation	iSolarCloud
Monitoring Device	
Device type	Inverter, combiner box, meteo station, energy meter, transformer and other plant devices
Monitoring Capacity	More than 100 GW (scalable)
Data Collection	
Time interval	5 minutes
General Data	
Language	Chinese, English, German, French, Spaish, Portuguese, Italian, Dutch, Polish, Japanese, Korean, Vietnamese, Traditional Chinese
Data storage time	> 25 years
Storage capability	> 100PB
System reliability	99.99%
Minimum Web requirements	
Browser	IE 11, Chrome 65, Safari 11, Firefox 60
Resolution	1366 * 768, 1920 * 1080 recommended
Minimum Operating Environment for App	
Dimensions (W * H)	1920 * 1080, 2001 * 1125, 1280 * 720
Mounting type	Android 5.0, iOS 10.0

SUNGROW Service

SUNGROW has always kept the serving concept of custom orientation. By means of rigorous training, company has forged a team of professionals with high efficiency. With certificate of proven skills and knowledges, service teams can guarantee service quality and safety . Relying on the complete global service network, SUNGROW sustains stable operations of the projects and brings more profits for clients constantly.

Pre-sales/under-sales service

Project consulting
PV plant experience
Training and guidance
Technical support
Installation & debugging
Intelligent services

After-sales service and in-depth service

System online monitoring
Tour- inspection & upgrading
Maintenance
Generation performance evaluation and optimization
Cloud platform service

Service response time

24h China | **48h** Overseas

SUNGROW services cover more than 50% of the world's countries and regions

85+
Service Centers

280+
Authorized Service Partners

340GW+
Accumulatively Warranted Power Plants Capacity

SUNGROW

Project References

EV charging station for taxi in Coburg, Germany

BYD European HQ EV charging station
in Schiedam, Netherlands

Office area EV charging station
in Munich, Germany

Residential PV+ESS+Charger station, Germany

Residential PV+ESS+Charger station, Germany

Laboratory charging station in Delft, Netherlands

Highway service area PV+ESS+Charger station in Anhui province, China

PV+ESS+Charger stationin Sungrow HQ in Hefei, China

Chaohu public bus EV charging station in Hefei, China

Zipeng mountain public bus EV charging station in Hefei, China

Highway service area EV charging station in Shenzhen, China

The first on-street parking EV charging station in Shanghai, China

Huigangcheng EV charging station
in Shenzhen, China

Public bus stop EV charging station
in Chongqing, China

The first carbon neutral EV charging
station in Chongqing, China

Qijian Technology EV charging station
in Hefei, China

Guozhen Plaza EV charging station
in Hefei, China

Changbai mountain public EV charging
station in Jilin province, China

SUNGROW
Clean power for all