



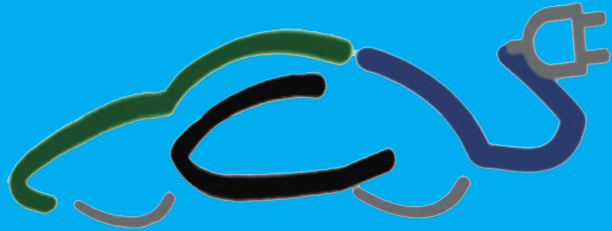
SICON E-MOBILITY

**Electric Vehicle
Charging Infrastructure**

Overall Solution

**OVERALL
SOLUTION**





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Sicon Chat Union Electric Co., Ltd. (referred to as: Sicon Electric), is an industry leading electrical and power electronic product designer and manufacturer. Sicon Electric provide complete solutions for Electric Vehicle Charging Infrastructure, Energy Storage, UPS& Data Center.

EV Charging Infrastructure portfolio: 60kW CCS2 CHAdeMO AC type2 Fast Charging Station, 120/150kW CCS2 DC Charging Station, 360~500kW High Power Ultra Fast Charging Station, DC Charging Stack, Power Module for DC Charger, Power Line Communication Modem, AC Charger and Renewable Energy Charging Station.

The Chargers are designed to be durable, reliable, modular and easy to service. It supports the open communication protocol OCPP, and obtained the CE test certificate issued by the TUV SUD test laboratory establishing compliance with IEC-61851 and IEC-62196.

Since 2012, Sicon is leading the e-mobility revolution with charging infrastructure in China and many countries. We welcome worldwide distributors and partners to join us and write the future together.



EVMS DC Fast Charging Station

Application: public operations such as highway rest stops, petrol stations, airport etc.. private operations such as EV dealers, EV fleets etc.

Compatible vehicles: BMW, Volkswagen, GM, Porsche, Audi, Nissan, Mitsubishi, Peugeot, Citroen, Kia, Renault, Daimler, Tesla, Smart, Mercedes



Overview

The EVMS Series DC Fast Charging Station is able to charge all current and next generation vehicles with CCS, CHAdeMO and AC Type 2.

The 60kW charging station is a configurable single, dual or triple outlet(default) fast charging station, supporting the changing needs of each customer.

The 120kW/150kW are Fast Charger to charge any CCS Compatible Bus or Vehicles.















60kWCCS/CHAdeMO/ACType2

150kWCCS/CHAdeMO




Features

- 60 kW DC fast charger supporting multiple standards as CCS, CHAdeMO, AC Type 2
- Multiple outputs: DC power up to 60 kW, AC power up to 43 kVA
- Supports CCS and CHAdeMO charging outputs simultaneously(optional)
- 120kW/150kW DC fast charger supporting CCS2
- Reliable, robust, modular hardware
- Simple, quick and easy installation
- Daylight readable touch screen display
- Supports the open communication protocol OCPP
- RFID authorization
- Low operational noise
- Customizable






60kW Possible configurations

Product type		500Vdc	500Vdc + 400Vac
CCS2 60 kW DC/CHAdeMO 60 kW DC/AC 43 kW	  AC ~		default
CCS2 60 kW DC/CHAdeMO 60 kW DC/AC 22.1 kW	  AC ~	optional	
CCS2 60 kW DC/CHAdeMO 60 kW DC	 		
CCS2 60 kW DC			
CCS2 60 kW DC/AC 43 kW	 AC ~		
CCS2 60 kW DC/AC 22.1 kW	 AC ~		
CHAdeMO 60 kW DC			
CHAdeMO 60 kW DC/AC 43 kW	 AC ~		
CHAdeMO 60 kW DC/AC 22.1 kW	 AC ~		

120kW Possible configurations

Product type		750Vdc	1000Vdc
120kW, CCS2 single connector		default	optional
120kW, CCS2 dual connectors	 	default	optional
120kW, CHAdeMO and CCS2 connector	 	default	optional

150kW Possible configurations

Product type		750Vdc	1000Vdc
150kW, CCS2 single connector		default	optional
150kW, CCS2 dual connectors	 	default	optional
150kW, CHAdeMO and CCS2 connector	 	default	optional

15 / 30kW Possible configurations

Product type		500Vdc	
CCS2 15 kW DC, Wallbox		default	
CHAdeMO 15 kW DC, Wallbox		optional	
CCS2 30 kW DC, floor stand/ mobile		default	
CHAdeMO 30 kW DC, floor stand/ mobile		optional	

Specification

Model	EVMS-60	EVMS-150
AC Input for the DC Output		
Power connection	3P + N + PE	
Voltage range	400 Vac \pm 20 %	
Frequency	50 Hz or 60 Hz	
Nominal input current & power	87 A, 60KW	217A, 150KW
Power factor	> 0.99	
Overall efficiency	95%	
DC Output		
Voltage	200Vdc-500Vdc	300Vdc-750Vdc
Max Current	120A	200A
Nominal Power	0-60kW	60-150KW
AC Output		
Voltage	400 Vac	-
Current	63 A	-
Nominal Power	43 kVA	-
General Specifications		
Output mode	Multi-standard DC outputs (Mode-4), with AC (Mode-3)	DC outputs (Mode-4)
Output Interface	CCS2, CHAdeMO	CCS2, CHAdeMO
AC-Interface	Type 2 Plug 43kW(default) Type 2 Plug 22kW(optional) Type 2 Socket 22kW(optional)	-
Display	10" TFT Color screen	
RFID system	ISO/IEC14443A/B, Mifare;	
Network connection	3G (GSM or CDMA) LAN Wi-Fi	
Communication Protocols	OCPP 1.6	
Environment	Indoor / outdoor	
Operating temperature	-35°C-60°C (-20°C to -35°C, heating required)	
Storage Temperature	-40 °C to +70 °C	
Operating humidity	\leq 95% non-condensing	
Altitude	Up to 1000 m	
Protection degree	IP54 , IK10	
Acoustic noise	<55 dB	
Compliance and safety	CE, EN 61851, EN 62196, DIN 70121, ISO 15118	

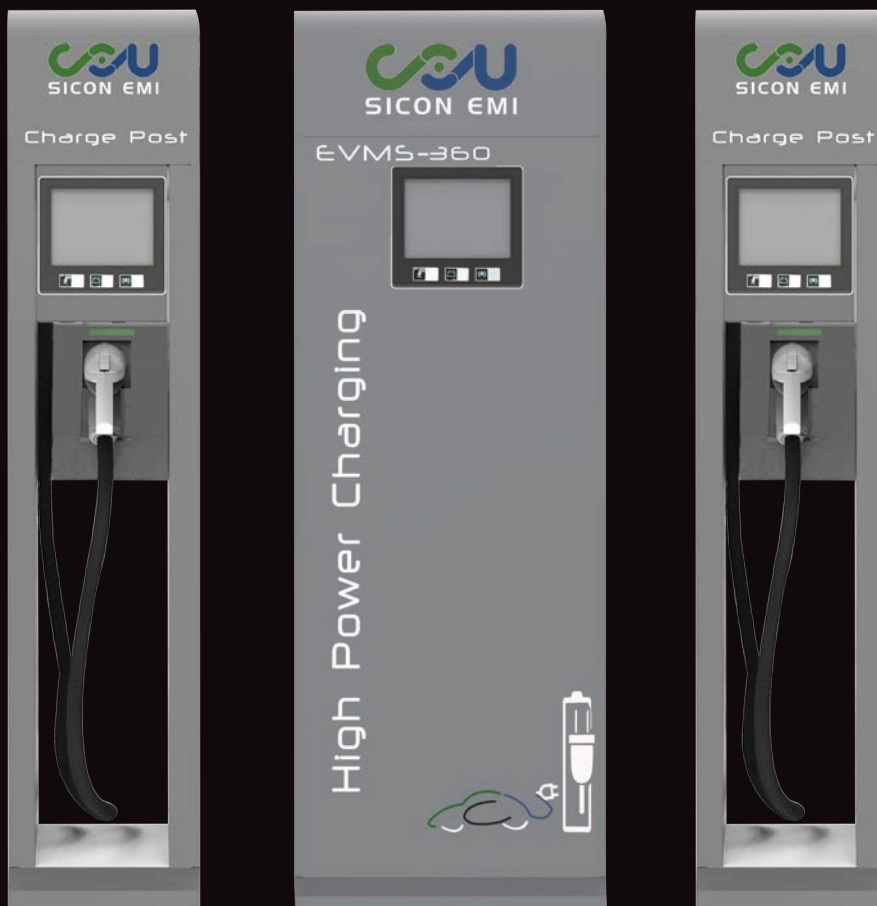
EVHS High Power Ultra Fast Charging Station

Application: highway rest stops, petrol stations etc..

Compatible vehicles: new generation of electric vehicles with large capacity batteries and long endurance abilities.

Overview

EVHS-360 High Power Ultra Fast Charging Station is a new and innovative solution to the growing demand for fast high current charging of next-generation electric vehicles. EVHS-360 system adopts modular structure design and the most advanced ultra-fast charging technology. It consists of one power stack and two charge posts.



Feature

- Suitable for all current and next generation electric vehicles
- Modular design, power stack up to 360kW~500kW
- Distance between power stack and charge post(s) up to 150m.
- Wide voltage range: 150-1000V
- Supports CCS connector up to 500A liquid-cooled cables
- Daylight readable touch screen display
- RFID authorization
- Low operational noise
- Customizable

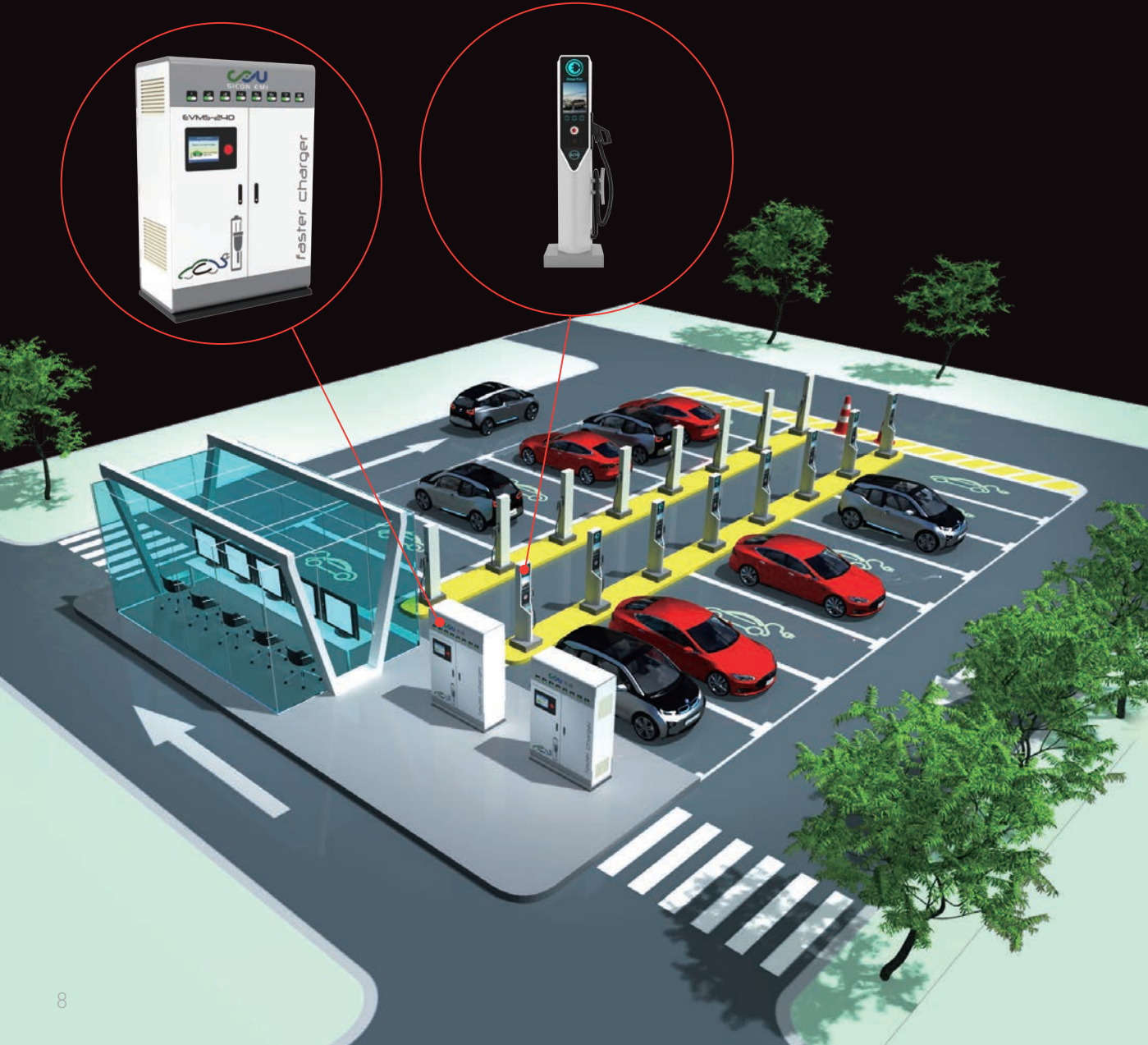
Model	EVHS-360
AC Input for the DC Output	
Power connection	3P + N + PE
Voltage range	400 Vac \pm 20 %
Frequency	50 Hz or 60 Hz
Power factor	> 0.99
Overall efficiency	95%
DC Output	
Voltage	150Vdc to 1000 Vdc
Current	360A
Nominal Power	360 kW
General Specifications	
Combo DC output(Mode-4)	
DC-Interface	CCS2
Display	12.1" TFT Color screen
RFID system	ISO/IEC14443A/B, Mifare;
Network connection	3G (GSM or CDMA) LAN Wi-Fi
Communication Protocols	OCPP 1.6
Environment	Indoor / outdoor
Operating temperature	-35°C-60°C (-20°C to -35°C, heating required)
Storage Temperature	-40 °C to +70 °C
Operating humidity	\leq 95% non-condensing
Altitude	Up to 1000 m
Protection degree	IP54 , IK10
Acoustic noise	<55 dB
Compliance and safety	EN 61851, EN 62196,DIN 70121, ISO 15118

EVMS EV Charging Stack (Power Stack+Charge Post)

Application: Parking lots and charging station where multiple DC charging service required.

Overview

EVMS series EV charging stack is a split-type charging system meeting multiple standards CCS, CHAdeMO, GB/T. Adopting modular design concept and forefront power electronic technology, consists of power stack, control units and charge posts. Both Indoor and outdoor types available



Feature

- Flexible multi-protocol designed: CCS, CHAdeMO, GB/T.
- Flexible power distribution function, dynamically adjust output power according to the demand of electric vehicles.
- Multi outlets to charge multiple vehicles simultaneously, the output and power as follows:
240KW indoor / outdoor type stack: 2, 4, 8 outlets, each output 0~60KW or 0 ~ 120KW;
360KW indoor type stack: 2 ~ 12 outlets, 30 ~ 180KW flexible output.
- 12.1 inch LCD/LED screen to display information in real time, easy operation and humanized user interface;
- Support various online payment methods;
- Insulation monitoring function, automatically turn off output to ensure safe charging;
- High adaptability of temperature range, isolated heat dissipation air ducts, power heat dissipation is separated from control circuit to ensure dust-free of control unit.
- High efficiency, high reliability, ultra low radiation, fast maintenance, flexible capacity expansion, energy efficiency and environmental protection.

Model	EVMS-240		EVMS-360
Use environment	outdoor	Indoor	Indoor
System capacity	240KW		360KW
Maximum outlets	8		12
Output capacity of each route	15~60KW or 0~120kw		30~180kW
Input voltage	400VAC±20%		
Input voltage range	260V~530V (260V~304VAC, output power derating 50%)		
Current share precision	<3%		
Power factor	>0.99		
Working frequency	50/60HZ		
Output voltage	200VDC-500VDC/300VDC-750VDC/150VDC-1000VDC		
Current regulation accuracy	<1%		
Voltage regulation accuracy	<0.5%		
Current share precision	<3%		
Overall efficiency	95%		
BMS auxiliary power supply	12V/10A		
Communication interface	Ethernet, CAN/RS485, 3G/4G		
Acoustic noise(dB)	≤60dB		
Protection degree	DC power stack	IP55(outdoor)	IP30(indoor)
	charge post	IP55(outdoor)	
Dimension	DC power stack	1300*750*1950	900*1000*2000
	Power distribution control cabinet	-	600*1000*2000
	charge post	320*280*1740	

DPM DC Power Module Family

Overview

Based on 16 years power electronic experience, Sicon focus on the core components of new energy electric vehicle, develop a series of standard power modules such as 15kW/20kW/30kW for EV chargers applied for CCS, CHAdeMO, Combo, GB/T standards. The power module is based on the latest DC power supply techniques ,which results in high efficiency, high reliability and long service life.

Feature

- Wide range of input voltage, 260V~530V, input surge protection design.
- DSP control, achieves pure digital control from input to output; adopts interlaced series resonance soft switch technology to reduce the tolerance of power devices.
- Input THDI <3%, input PF is 0.99.
- Low output DC ripple wave, has no influence on battery's working lives.
- Input over voltage protection, under voltage alarming, output over current and short circuit protection functions.
- Support multi modules parallel, hot-swappable, brings the charger great availability, reliability and maintainability.
- Battery current reverse protection circuit inside.
- Forced air cooling design to property handle temperature rise of components in module.
- Ultra wide temperature range, suitable for all kinds of harsh environment.

Comparison Table

Model	15kW power module	20kW/30kW constant power module	30kW independent ventilation power module
Output capacity	15kW	20kW/30kW	30kW
Output voltage range	200V-500VDC, 200V-750VDC, 150V-1000VDC	200V-750VDC, 150V-1000VDC	200V-750VDC, 150V-1000VDC
Constant power range	/	330V--750VDC 600-1000VDC	330V--750VDC 600-1000VDC
Efficiency	95%	96%	96.5%
Applied for EV charger	CCS, CHAdeMO, Combo, GB/T		
Communication	CAN		
Cooling	Forced air cooling	Forced air cooling	Independent ventilation air cooling

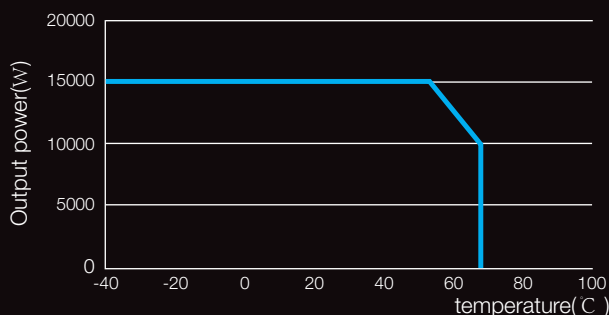
15kW Power Module

Overview

Vienna rectifier technology for PFC, LLC technology for DCDC, with three phase active PFC, integrated with functions of rectifier, contro, output, protect and remote-signal function. Modular design, high power density, high reliability, ultra wide temperature range, suitable for all kinds of harsh environment.

Feature

- Output capacity: 15kW; Efficiency: 95%
- Applied for EV charger: CCS, CHAdeMO, Combo, GB/T
- Output voltage range:200V-500VDC,200V-750VDC, 150V-1000VDC
- Cooling: forced air cooling



Output power vs. temperature

Model	DPM500/30	DPM750/20	DPM1000/15
Output capacity	15kW		
Input voltage	380Vac three-phase three-wire		
Input voltage range	260V-530V(260-304VA,output power derating 50%)		
Input frequency	50/60HZ		
Input power factor	>0.99		
Input current harmonic	≤3%		
Efficiency	95%		
Output voltage range	200V-500VDC	200V-750VDC	150V-1000VDC
Voltage regulation accuracy	<0.5%		
Current regulation accuracy	<0.5%		
Peak-to-Peak noise voltage of DC output	<1%		
Startup&Shutdown overshoot	<1%		
Soft start time	≤5S		
Operating temperature	-20°C--+60°C,during 50°C-60°C derating to 60%		
Ambient temperature	-40°C--+70°C		
Relative humidity	0-95%,40±2°C,non-condensing		
Altitude	2000 meters		
Dimension(W*D*H)	220*405*88mm	220*405*88mm	220*405*88mm
Weight	10kg	10kg	10kg

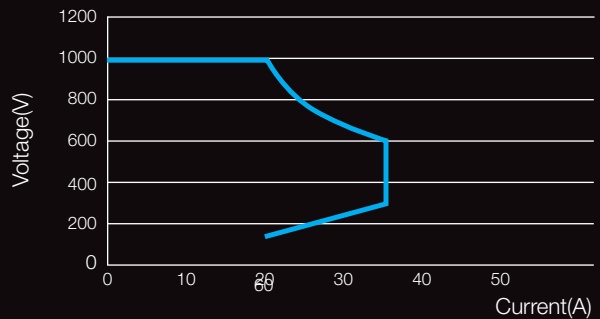
20kW Constant Power Module

Overview

Vienna rectifier technology for PFC, LLC technology for DCDC, with three phase active PFC, integrated with functions of rectifier, contro, output, protec and remote-signal function.Modular design, high power density, high reliability, ultra wide temperature range, suitable for all kinds of harsh environment.

Feature

- Output capacity : 20kW; Efficiency: 96%
- Output voltage range : 200V-750VDC,150V-1000VDC
- Constant power range: 330V-750VDC,600V-1000VDC
- Applied for EV charger : CCS, CHAdeMO, Combo, GB/T
- Cooling : forced air cooling



20kW Power Module

Model	DPM750/26	DPM1000/20
Output capacity	20kW	
Input voltage	380Vac three-phase three-wire	
Input voltage range	260V-530V(260-304VA,output power derating 50%)	
Input frequency	50/60HZ	
Input power factor	>0.99	
Input current harmonic	≤3%	
Efficiency	96%	
Output voltage range	200V-750VDC	150V-1000VDC
Voltage regulation accuracy	<0.5%	
Current regulation accuracy	<0.5%	
Peak-to-Peak noise voltage of DC output	<1%	
Startup&Shutdown overshoot	<1%	
Soft start time	≤5S	
Operating temperature	-20°C-+60°C,during 50°C-60°Cderating to 60%	
Ambient temperature	-40°C-+70°C	
Relative humidity	0-95%,40±2°C,non-condensing	
Altitude	2000 meters	
Dimension(W*D*H)	220*405*88mm	220*405*88mm
Weight	12kg	12kg

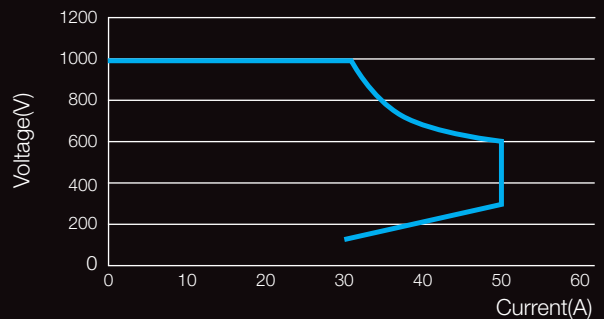
30kW Constant Power Module

Overview

Vienna rectifier technology for PFC, LLC technology for DCDC, with three phase active PFC, integrated with functions of rectifier, contro, output, protect and remote-signal function. Modular design, high power density, high reliability, ultra wide temperature range, suitable for all kinds of harsh environment.

Feature

- Output capacity : 30kW; Efficiency : 96%
- Output voltage range : 200V-750VDC,150V-1000VDC
- Constant power range: 330V-750VDC,600V-1000VDC
- Applied for EV charger : CCS, CHAdeMO, Combo, GB/T
- Cooling : forced air cooling



30kW Power Module

Model	DPM750/40	DPM1000/30
Output capacity	30kW	
Input voltage	380Vac three-phase three-wire	
Input voltage range	260V-530V(260-304VA,output power derating 50%)	
Input frequency	50/60HZ	
Input power factor	>0.99	
Input current harmonic	≤3%	
Efficiency	96%	
Output voltage range	200V-750VDC	150V-1000VDC
Voltage regulation accuracy	<0.5%	
Current regulation accuracy	<0.5%	
Peak-to-Peak noise voltage of DC output	<1%	
Startup&Shutdown overshoot	<1%	
Soft start time	≤5S	
Operating temperature	-20°C~+60°C,during 50°C~60°Cderating to 60%	
Ambient temperature	-40°C~+70°C	
Relative humidity	0-95%,40±2°C,non-condensing	
Altitude	2000 meters	
Dimension(W*D*H)	300*445*88mm	300*445*88mm
Weight	15kg	15kg

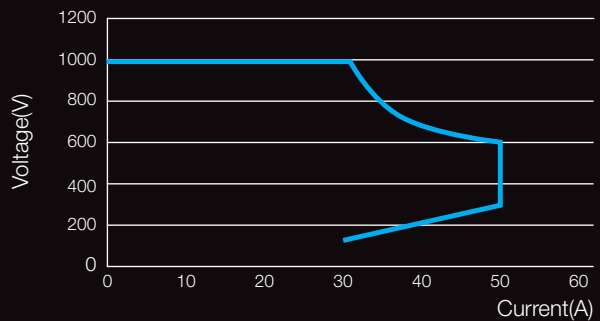
30kW Independent Ventilation Power Module

Overview

Distinctive independent ventilation design, which boasts the advantages of dust-proof, waterproof, salt spray, condensation-proof and long service life. Modular design, high power density, high reliability, ultra wide temperature range, suitable for all kinds of harsh environment.

Feature

- Output capacity : 30kW; Efficiency : 96.5%
- Output voltage range : 200V-750VDC,150V-1000VDC
- Constant power range: 330V-750VDC,600V-1000VDC
- Applied for EV charger : CCS, CHAdeMO, Combo, GB/T
- Cooling : independent ventilation air cooling



30kW Power Module

Model	DPM750/40	DPM1000/30
Output capacity	30kW	
Input voltage	380Vac three-phase three-wire	
Input voltage range	260V-530V(260-304VA,output power derating 50%)	
Input frequency	50/60HZ	
Input power factor	>0.99	
Input current harmonic	≤3%	
Efficiency	96.5%	
Output voltage range	200V-750VDC	150V-1000VDC
Voltage regulation accuracy	<0.5%	
Current regulation accuracy	<0.5%	
Peak-to-Peak noise voltage of DC output	<1%	
Startup&Shutdown overshoot	<1%	
Soft start time	≤5S	
Operating temperature	-20°C-+60°C,during 50°C-60°Cderating to 60%	
Ambient temperature	-40°C-+70°C	
Relative humidity	0-95%,40±2°C,non-condensing	
Altitude	2000 meters	
Dimension(W*D*H)	300*445*132mm	300*445*132mm
Weight	23kg	23kg

Power Line Communication Modem-PLC Modem

Overview

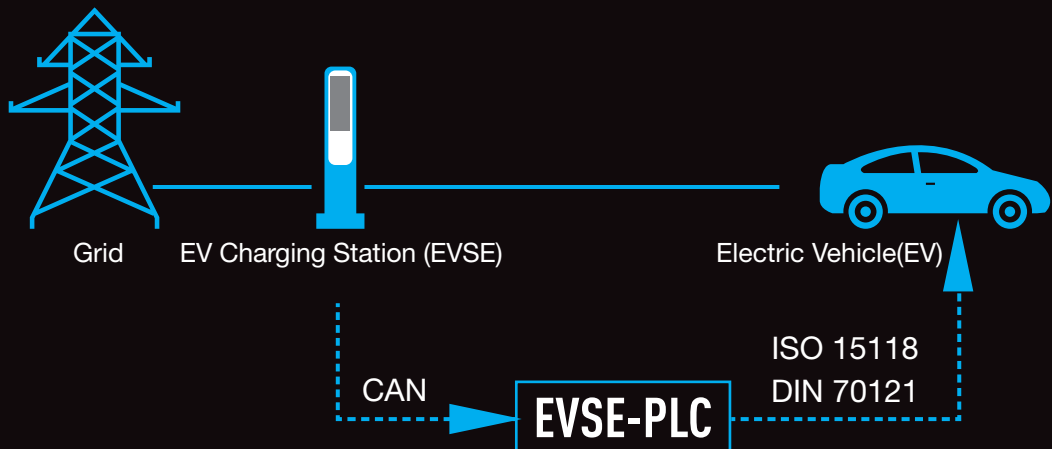
EVSE-PLC is a PLC(Power Line Communication) based modem for communication bwtween EV and EVSE. It is suitable for DC charge, and supports conversion of CAN, RS232/485 communication protocol to ISO/IEC 15118 and DIN 70121 standards. It can be installed inside CCS2 DC chargers or new energy electric vehicles to realize intelligent interconnection between EV and EVSE.

- Processor: TI AM3352
- Operating system: Linux 4.1.16
- SECC interface: CAN, RS 232/485
- PLC interface: HomePlugGreenPHY
- Debug interface: Ethernet port
- Chip: QCA7000
- Operating voltage: 7VDC-30VDC
- Power consumption: maximum 4W, idle mode 2W



Application

- Charge controller in electric vehicle supply equipment (EVSE)
- Charge controller in plug-in electric vehicles (PEV)
- Simulators for tests of PEV or EVSE



Feature

- Exquisite in appearance and easy to be embedded inside EVSE and EV;
- ISO/IEC 15118, DIN 70121 compliant communication;
- RS232, RS485, CAN and Ethernet interface to power elcetronics;
- It can be used with EVSE, or to be installed in EV to realize the interconnection and communication between EVSE and EVs of different communication protocols;
- Short development cycle, quick docking bwtween different EVSE and EV;
- Paralle support multiplevehicles;
- Timely handling of abnormal charging process;
- Support for remote software upgrade.
- TUV SUD certified.

Renewable Energy Charging Station

New Energy Integrated Charging Station is composed of PV, energy storage battery, bidirectional converter and charging facilities, uses modular and standardized design concept, standard integrated charging overall solution, achieves rapid and flexible deployment.

The interior of container is divided into equipment area and commercial leisure area, the exterior of container is charging parking space, user can charge with charging terminal inserted.

Benefit:

- Convenient operation, high reliability, high security, high integration, low cost, low energy consumption.
- The system supports grid-connected and off-grid operation, can be used as backup power supply.
- The system can access the cloud platform to achieve unified monitoring management.

Configuration:



PV
43kW



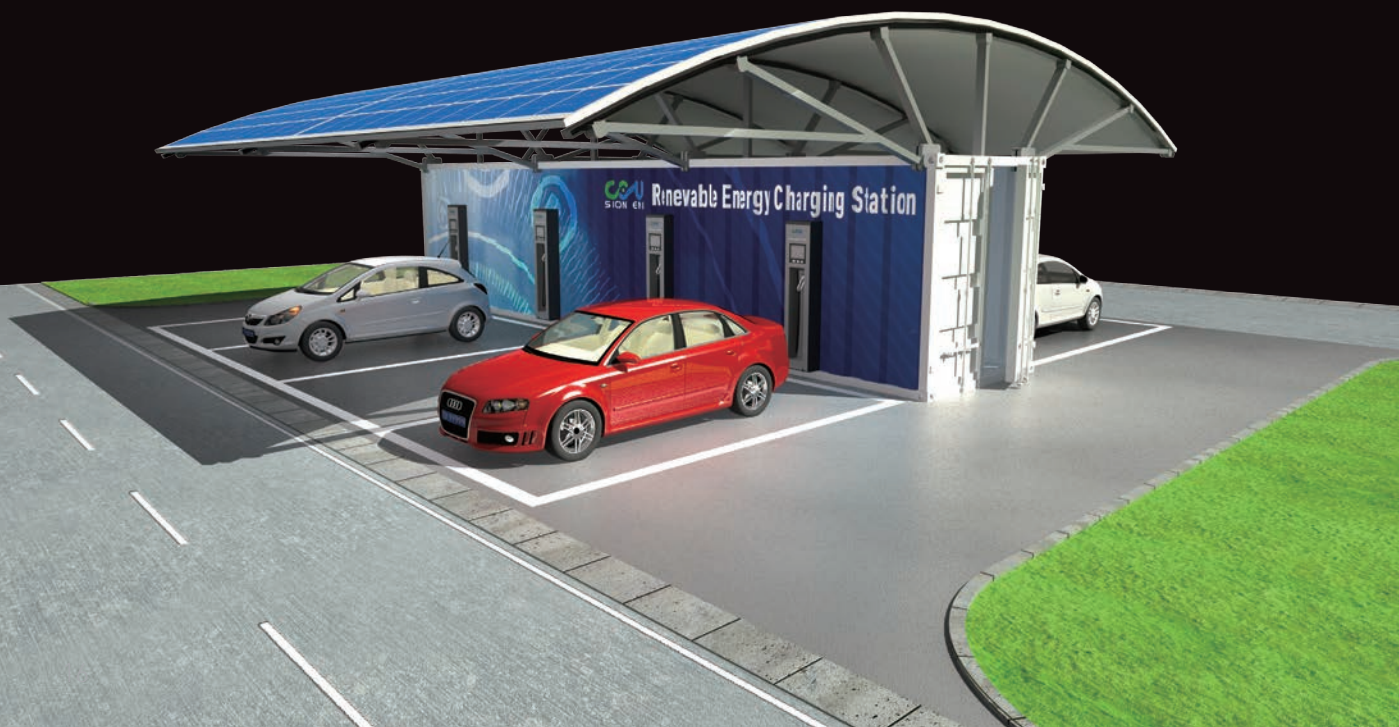
PCS
200kW



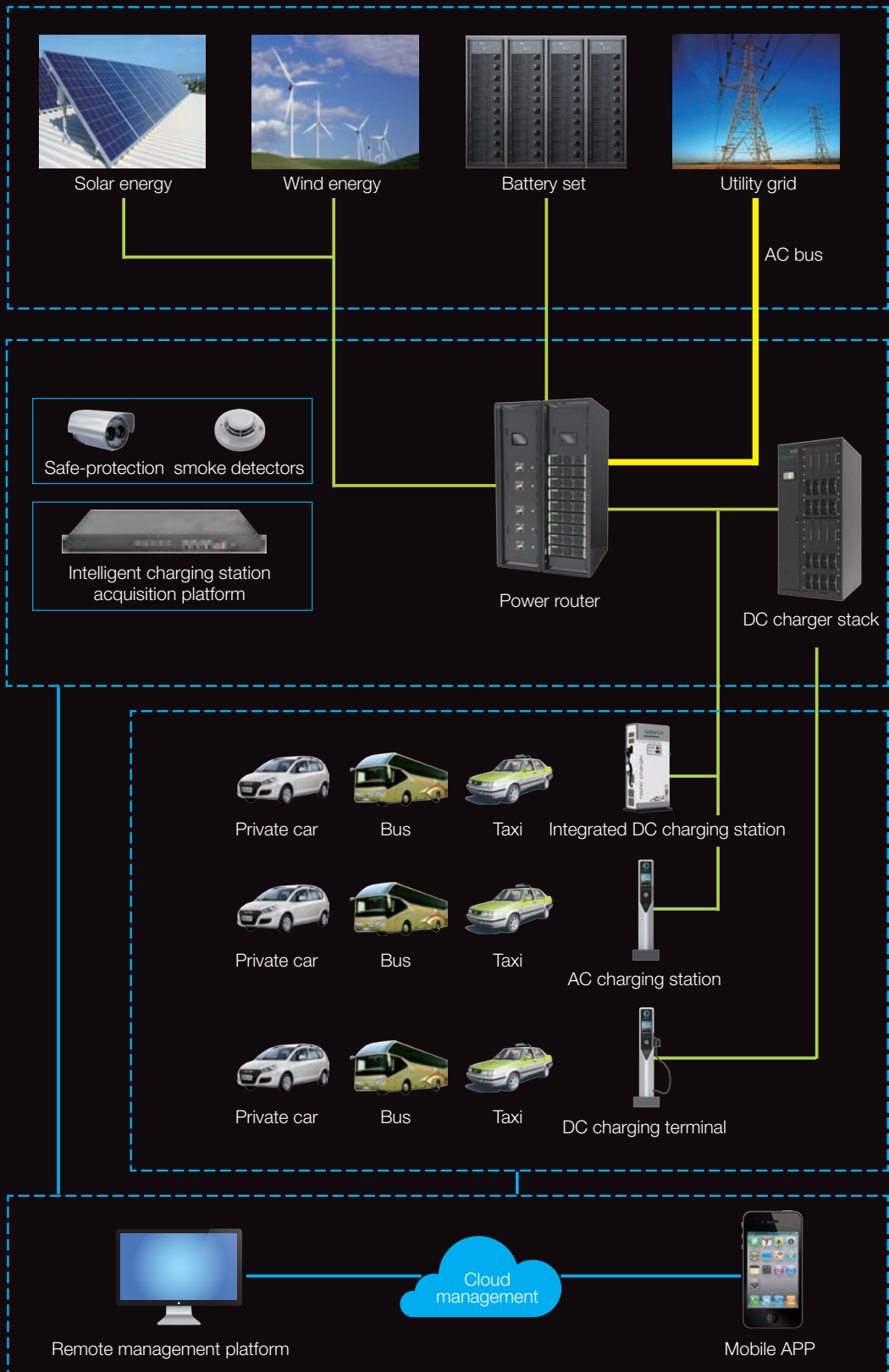
Li-ion Battery
200kWH



EV Charging Solution
240kW Power Unit
+8 Charge Post



Layout Diagrammatic





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