



World Standard, International Quality.

2016 EV Chargers



Green power, Green Lifestyle

OEM / ODM EV Charging Software Solutions

Front End System

- Display of Charging Status
- Display of Multimedia Commercials
- Display of Battery Info
- Remote Program Update

HMI User interface



Multimedia Commercials



Mobile APP

- Charging Appointment
- Search and Navigation to Chargers
- Monitoring of Charging Status



Back End System



Cloud

GPRS 3G/4G

Multimedia Commercials

- Management of Multimedia Commercials
- Advertising Business Operation



Charging Station Operation

- Maintenance / Post-sale Service
- Security Surveillance
- Parking Management



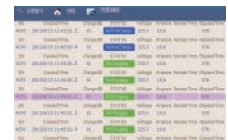
Payment system Interface

- Charging Payment Calculation
- Bank Authorization



Charging big data

- Charging Data Acquisition and Analysis
- Charger Data Acquisition and Analysis
- Software Update
- Big Data Utilization

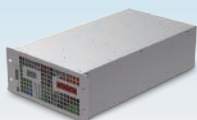


EV Charging hardware & software solutions OEM/ODM/Re-label



Charging module

Green Power, Green Lifestyle



Multimedia Commercials Software Update

HMI User interface



Back end management system



Green Power, Green Lifestyle

As a top notch manufacturer in the power supply field for over 40 years, Phihong is a leading global power supply manufacturer and recognized as a trustworthy brand by our customers around the world. We constantly create innovative products and at the same time insist on quality and safety.

With an eye to the international trend of environmental protection and carbon reduction, Phihong has successfully developed a family of highly efficient EV Charging products, such as 20kW DC charging module, 400W Auxiliary Power, Control & Supervisor Unit (CSU), 80kW/160kW discrete type DC Charger, 20kW-120kW integrated type DC Charger, 20kW/40kW movable DC chargers, 20kW portable DC charger, 10/20kW roadside assistance DC charger (with 7.2kWh battery bank), 16A/32A wall mount and post type AC charger, and 120W~3kW battery chargers for EV bus, EV passenger car, E-scooter, E-Tricycle, E-bike, E-wheelchair, and E-trailers.

Phihong EV charging software solution includes both the front end mobile app and user interface (HMI) as well as the back end central office and cloud-based management, payment and monitoring platforms. Through the front end mobile app, people can search for nearby chargers, make charging appointments, and monitor charging status. System operators can monitor individual EV charger overall status and update EV charger software remotely which facilitate the long term maintenance and management. Additionally, system operators can add revenues by broadcasting multimedia commercials on EV chargers as well as adding video camcorder to remotely monitor/record for community crime prevention

With strong R&D design capability and solid manufacturing experiences, Phihong Technology provides high quality and cost effective hardware / software products based on specific customer needs. Welcome to contact us for more information :

- OEM/ODM/Re-label business
- EV charger manufacturers
- System integrator
- System operators
- Electric vehicle manufacturers

Hardware products



20kW charging module

Charging module + CSU + Auxiliary Power

EV charger ODM/OEM/Re-label

Software products
























HMI (User interface)

Back end system

Remote program update / Multimedia commercials

EV Chargers Product list :

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20kW / 40kW Integrated type

60kW ~ 120kW Integrated type

80kW ~ 120kW Integrated type



80kW Integrated type

80kW Discrete type

160kW Discrete type

Free-Standing DC EV Chargers

	Model Name	160kW Discrete type	80kW Discrete type	80kW Integrated type	80kW ~ 120kW Integrated type dual guns	20kW/40kW Integrated type single gun	60kW ~ 120kW Integrated type single gun	
AC Input	Input rating	380Vac +/- 15% ; 480Vac +/- 10%						
	AC input connection	3P + N + PE						
	Max. input current	140A x 2	140A	140A	140 / 175 / 210A	35 / 70A	105 / 140 / 175 / 210A	
	Frequency	47 - 63 Hz						
	Power factor	>0.99 @ full load						
DC Output	Efficiency	93.5%						
	Output voltage range	200-700Vdc						
	Max. output power	80kW x 2	80kW	80kW	80 / 100 / 120kW	20 / 40kW	60 / 80 / 100 / 120kW	
	Max. output current	160A x 2	160A	160A	160 / 200 / 240A	40 / 80A	120 / 160 / 200 / 240A	
User Interface	Display	10.4" TFT-LCD touch panel						
	Push buttons	Start, Stop, Emergency Stop						
	User authentication	RFID system ISO / IEC14443A/B						
Communication	External / Internal	Ethernet / CAN, RS485						
Environmental	Operating temperature							
	Humidity / Altitude	5% ~ 90% RH, non-condensing / 2000m						
	IP level							
Mechanical	Dimension mm (H x W x L)	1869 x 960 x 600 (Power) 1748 x 580 x 323 (Charger)			1869 x 960 x 600	1600 x 560 x 660	1400 x 400 x 400	1600 x 560 x 660
	Weight	260kg x 2 (Power) 120kg (Charger)	260kg (Power) 100kg (Charger)	260kg	210kg - 80kW 225kg - 100kW 240kg - 120kW	140kg - 20kW 155kg - 40kW	195kg - 60kW 210kg - 80kW 225kg - 100kW 240kg - 120kW	
Regulation	Cable length	6m						
	Regulation	GB/T 18487.1-2001, GB/T 18487.2-2001, GB/T 18487.3-2001						
	Safety	GB/T						
	Charging interface	GB/T 20234.3						

20kW ~ 40kW

Integrated type - Single gun

Features

- An ideal EV DC charging solution for EV bus or similar EV vehicles with 200V~700V battery modules
- 10.4" touch screen and user-friendly interface
- Ethernet based connection for central office integration
- High efficiency and power factor
- Intelligent RFID card reader
- The charging gun has electronic lock function which ensures safety during charging process
- High efficiency and power factor
- Customization available
- Easy installation and maintenance

Application

- Highway gas / service station
- EV dealer workshops
- Commercial fleet operators
- Parking garage
- EV infrastructure operators and service providers



	Model Name	20kW / 40kW Integrated type - Single gun
AC Input	Input rating	380Vac +/- 15% ; 480Vac +/- 10%
	AC input connection	3P + N + PE
	Max. input current	35 / 70A
	Frequency	47 ~ 63 Hz
	Power factor	>0.99 @ full load
	Efficiency	93.5%
DC Output	Output voltage range	200 ~ 700Vdc
	Max. output power	20kW / 40kW
	Max. output current	40 / 80A
User Interface	Display	10.4" TFT-LCD touch panel
	Push buttons	Start, Stop, Emergency Stop
	User authentication	RFID system ISO / IEC14443A/B
Communication	External	Ethernet
	Internal	CAN, RS485
Environmental	Operating temperature	
	Humidity	5% ~ 90% RH, non-condensing
	Altitude	2000m
	IP level	
Mechanical	Dimension	1400 x 400 x 400 mm (H x W x L)
	Weight	140kg - 20kW, 155kg - 40kW
	Cable length	6m
Regulation	Regulation	GB/T 18487.1-2001, GB/T 18487.2-2001, GB/T 18487.3-2001
	Safety	GB/T
	Charging interface	GB/T 20234.3

60kW / 80kW / 100kW / 120kW

Integrated type - Single gun



Features

- An ideal EV DC charging solution for EV bus or similar EV vehicles with 200V~700V battery modules
- 10.4" touch screen and user-friendly interface
- Ethernet based connection for central office integration
- High efficiency and power factor
- Intelligent RFID card reader
- The charging gun has electronic lock function which ensures safety during charging process
- High efficiency and power factor
- Customization available
- Easy installation and maintenance

Application

- Highway gas / service station
- EV dealer workshops
- Commercial fleet operators
- Parking garage
- EV infrastructure operators and service providers



DC Charger - Free Standing

	Model Name	60kW / 80kW / 100kW / 120kW Integrated type - Single gun
AC Input	Input rating	380Vac +/- 15% ; 480Vac +/- 10%
	AC input connection	3P + N + PE
	Max. input current	105 / 140 / 175 / 210A
	Frequency	47 ~ 63 Hz
	Power factor	>0.99 @ full load
	Efficiency	93.5%
DC Output	Output voltage range	200 ~ 700Vdc
	Max. output power	60 / 80 / 100 / 120kW
	Max. output current	120 / 160 / 200 / 240A
User Interface	Display	10.4" TFT-LCD touch panel
	Push buttons	Start, Stop, Emergency Stop
	User authentication	RFID system ISO / IEC14443A/B
Communication	External	Ethernet
	Internal	CAN, RS485
Environmental	Operating temperature	
	Humidity	5% ~ 90% RH, non-condensing
	Altitude	2000m
	IP level	
Mechanical	Dimension	1600 x 560 x 660 mm (H x W x L)
	Weight	195kg - 60kW, 210kg - 80kW, 225kg - 100kW, 240kg - 120kW
	Cable length	6m
Regulation	Regulation	GB/T 18487.1-2001, GB/T 18487.2-2001, GB/T 18487.3-2001
	Safety	GB/T
	Charging interface	GB/T 20234.3

80kW / 100kW / 120kW

Integrated type - Dual gun

Features

- An ideal EV DC charging solution for EV bus or similar EV vehicles with 200V~700V battery modules
- 10.4" touch screen and user-friendly interface
- Ethernet based connection for central office integration
- High efficiency and power factor
- Intelligent RFID card reader
- The charging gun has electronic lock function which ensures safety during charging process
- High efficiency and power factor
- Customization available
- Easy installation and maintenance

Application

- Highway gas / service station
- EV dealer workshops
- Commercial fleet operators
- Parking garage
- EV infrastructure operators and service providers



	Model Name	80kW / 100kW / 120kW Integrated type - Dual gun
AC Input	Input rating	380Vac +/- 15% ; 480Vac +/- 10%
	AC input connection	3P + N + PE
	Max. input current	140 / 175 / 210A
	Frequency	47 ~ 63 Hz
	Power factor	>0.99 @ full load
	Efficiency	93.5%
DC Output	Output voltage range	200 ~ 700Vdc
	Max. output power	80 / 100 / 120kW
	Max. output current	160 / 200 / 240A
User Interface	Display	10.4" TFT-LCD touch panel
	Push buttons	Start, Stop, Emergency Stop
	User authentication	RFID system ISO / IEC14443A/B
Communication	External	Ethernet
	Internal	CAN, RS485
Environmental	Operating temperature	
	Humidity	5% ~ 90% RH, non-condensing
	Altitude	2000m
	IP level	
Mechanical	Dimension	1600 x 560 x 660 mm (H x W x L)
	Weight	210kg - 80kW, 225kg - 100kW, 240kg - 120kW
	Cable length	6m
Regulation	Regulation	GB/T 18487.1-2001, GB/T 18487.2-2001, GB/T 18487.3-2001
	Safety	GB/T
	Charging interface	GB/T 20234.3

80kW Integrated type - Single gun



Features

- An ideal EV DC charging solution for EV bus or similar EV vehicles with 200V~700V battery modules
- 10.4" touch screen and user-friendly interface
- Ethernet based connection for central office integration
- High efficiency and power factor
- Intelligent RFID card reader
- The charging gun has electronic lock function which ensures safety during charging process
- High efficiency and power factor
- Customization available
- Easy installation and maintenance

Application

- Highway gas / service station
- EV dealer workshops
- Commercial fleet operators
- Parking garage
- EV infrastructure operators and service providers



DC Charger - Free Standing

	Model Name	80kW Integrated type - Single gun
AC Input	Input rating	380Vac +/- 15% ; 480Vac +/- 10%
	AC input connection	3P + N + PE
	Max. input current	140A
	Frequency	47 ~ 63 Hz
	Power factor	>0.99 @ full load
	Efficiency	93.5%
DC Output	Output voltage range	200 ~ 700Vdc
	Max. output power	80kW
	Max. output current	160A
User Interface	Display	10.4" TFT-LCD touch panel
	Push buttons	Start, Stop, Emergency Stop
	User authentication	RFID system ISO / IEC14443A/B
Communication	External	Ethernet
	Internal	CAN, RS485
Environmental	Operating temperature	
	Humidity	5% ~ 90% RH, non-condensing
	Altitude	2000m
	IP level	
Mechanical	Dimension	1869 x 960 x 600 mm (H x W x L)
	Weight	260kg
	Cable length	6m
Regulation	Regulation	GB/T 18487.1-2001, GB/T 18487.2-2001, GB/T 18487.3-2001
	Safety	GB/T
	Charging interface	GB/T 20234.3

80kW Discrete type - Single gun

Features

- An ideal EV DC charging solution for EV bus or similar EV vehicles with 200V~700V battery modules
- 10.4" touch screen and user-friendly interface
- Ethernet based connection for central office integration
- High efficiency and power factor
- Intelligent RFID card reader
- The charging gun has electronic lock function which ensures safety during charging process
- High efficiency and power factor
- Customization available
- Easy installation and maintenance

Application

- Highway gas / service station
- EV dealer workshops
- Commercial fleet operators
- Parking garage
- EV infrastructure operators and service providers



	Model Name	80kW Discrete type - Single gun
AC Input	Input rating	380Vac +/- 15% ; 480Vac +/- 10%
	AC input connection	3P + N + PE
	Max. input current	140A
	Frequency	47 ~ 63 Hz
	Power factor	>0.99 @ full load
	Efficiency	93.5%
DC Output	Output voltage range	200 ~ 700Vdc
	Max. output power	80kW
	Max. output current	160A
User Interface	Display	10.4" TFT-LCD touch panel
	Push buttons	Start, Stop, Emergency Stop
	User authentication	RFID system ISO / IEC14443A/B
Communication	External	Ethernet
	Internal	CAN, RS485
Environmental	Operating temperature	
	Humidity	5% ~ 90% RH, non-condensing
	Altitude	2000m
	IP level	
Mechanical	Dimension	1869 x 960 x 600 mm (Power) , 1748 x 580 x 323 mm (charger)
	Weight	260kg (Power), 100kg (Charger)
	Cable length	6m
Regulation	Regulation	GB/T 18487.1-2001, GB/T 18487.2-2001, GB/T 18487.3-2001
	Safety	GB/T
	Charging interface	GB/T 20234.3

160kW Discrete type - Dual gun

Features

- An ideal EV DC charging solution for EV bus or similar EV vehicles with 200V~700V battery modules
- 10.4" touch screen and user-friendly interface
- Ethernet based connection for central office integration
- High efficiency and power factor
- Intelligent RFID card reader
- The charging gun has electronic lock function which ensures safety during charging process
- High efficiency and power factor
- Customization available
- Easy installation and maintenance

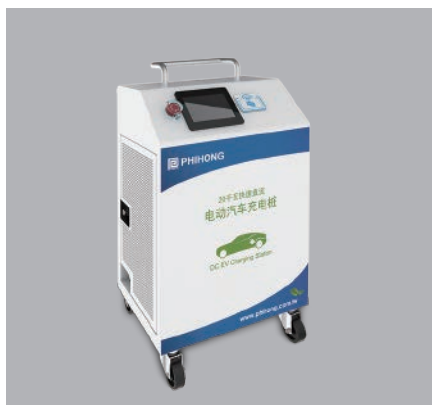


DC Charger - Free Standing

Application

- Highway gas / service station
- EV dealer workshops
- Commercial fleet operators
- Parking garage
- EV infrastructure operators and service providers

	Model Name	160kW Discrete type - Dual gun
AC Input	Input rating	380Vac +/- 15% ; 480Vac +/- 10%
	AC input connection	3P + N + PE
	Max. input current	140 / 175 / 210A
	Frequency	47 ~ 63 Hz
	Power factor	>0.99 @ full load
	Efficiency	93.5%
DC Output	Output voltage range	200 ~ 700Vdc
	Max. output power	80 / 100 / 120kW
	Max. output current	160 / 200 / 240A
User Interface	Display	10.4" TFT-LCD touch panel
	Push buttons	Start, Stop, Emergency Stop
	User authentication	RFID system ISO / IEC14443A/B
Communication	External	Ethernet
	Internal	CAN, RS485
Environmental	Operating temperature	
	Humidity	5% ~ 90% RH, non-condensing
	Altitude	2000m
	IP level	
Mechanical	Dimension	1869 x 960 x 600 mm (Power) , 1748 x 580 x 323 mm (charger)
	Weight	260kg x 2 (Power), 120kg (Charger)
	Cable length	6m
Regulation	Regulation	GB/T 18487.1-2001, GB/T 18487.2-2001, GB/T 18487.3-2001
	Safety	GB/T
	Charging interface	GB/T 20234.3



20kW Luggage type



40kW Luggage type



Portable Type



Roadside Assistance

EV DC Chargers-Movable Type

Phihong 20kW/40kW movable DC Chargers featuring GB/T compatible interface and high output power, allowing full charge in shorter time period for electric vehicles. Equipped with intelligent RFID card reader and user-friendly 7" touch screen, Phihong 20kW/40kW EV DC Charger provides a simple, efficient, and safe charging experience. The charger comes with Ethernet based connection, enabling users to easily connect chargers with back office for remote assistance, trouble shooting, repair, and upgrades. Moreover, the charging gun has electronic lock function which ensures safety during charging process. With flexible application and easy installation, Phihong 20kW/40kW EV DC Charger is ideal for electric vehicles with 200~700V battery such as electric bus, passenger vehicles, and electric city utility car. We also offer narrow range charging voltage (200~500V) and low charging voltage (30-100V) models to choose from.

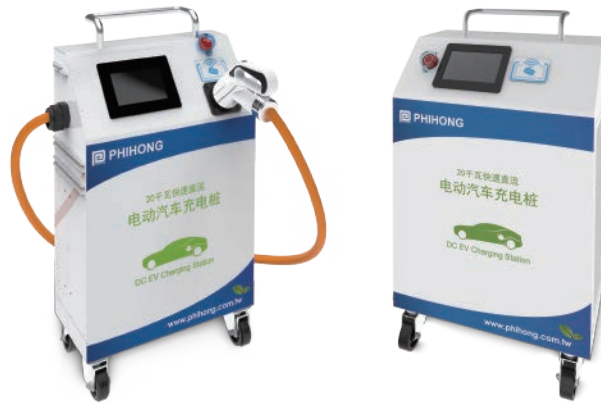
Equipped with user-friendly 7" touch screen, Phihong 20 kW portable type DC charger providing a simple, efficient, and safe DC charging experience. The 20 kW portable DC charger has three models with different charging voltage ranges to choose from, 200~500V, 30~200V, and 30~100V. The 30~100V (200A max) model is designed for cargo van or delivery vehicles or forklifts that feature high torque requirement for starting. The charger helps monitor battery status, automatically adjust charging current and voltage based on the temperatures and voltages of the batteries, and prevent reverse current from the batteries.

By integrating the design and manufacturing experiences of energy storage system and EV charger, Phihong also develops the highly efficient 10kW/20kW roadside assistance DC charger. The product contains 10kW EV DC charger, 7.2kWh LiFePO4 battery pack (expandable to 20kW output with 14.4kWh battery pack), intelligent RFID card reader, and user-friendly 10.4" touch screen. With its compact and movable design, Phihong 10kW/20kW roadside assistance DC charger is designed for EV roadside assistance or EV DC charging in remote areas. The product also functions as energy storage system, providing 3.5kW back-up AC power.

Applications:

- Highway gas / service station
- Public/community parking garage
- Commercial fleet operators
- EV dealer workshops
- EV infrastructure operators and service providers
- Residential

20kW DC Charger - Luggage type



DC Charger - Movable Type

Features

- 20kW EV DC quick charging solution for electric bus and electric city utility car with 200~700V battery system
- Narrow range charging voltage (200~500V) & low charging voltage (30~100V) models are available
- High charging voltage (max. 700Vdc) and high charging current (max. 200A)
- Ethernet based connection for back office integration, multi-media ad display, and smart city deployment
- The charging gun has electronic lock function which ensures safety during charging process
- Digital and high frequency controlled power module with modular design and compact size
- Active PFC to achieve 0.99 Power factor
- Intelligent RFID card reader
- Easy installation and maintenance
- 7" touch screen & user-friendly interface

	Model Name	20kW wide range voltage	20kW narrow range voltage	20kW low voltage
AC Input	Input rating	380Vac +/- 15% ; 480Vac +/- 10%		
	AC input connection	3P + N + PE		
	Max. input current	35A		
	Frequency	47 ~ 63 Hz		
	Power factor	>0.99 @ full load	>0.99 @ full load	>0.99 @ full load
	Efficiency	93.5%	93%	93%
DC Output	Output voltage range	200 ~ 700Vdc	200 ~ 500Vdc	30 ~ 100Vdc
	Max. output power	20kW	20kW	20kW
	Max. output current	40A	40A	200A
User Interface	Display	7" TFT-LCD		
	Push buttons	Start, Stop, Emergency Stop		
	User authentication	RFID system ISO / IEC14443A/B		
Communication	External	Ethernet		
	Internal	CAN, RS485		
Environmental	Operating temperature			
	Humidity	5% ~ 90% RH , non-condensing		
	Altitude	2000m		
	IP level			
Mechanical	Dimension mm	284 x 506 x 928 / 350 x 550 x 940 (charging cable can be stored in cabinet)		
	Weight	40kg		
	Cable length	6m		
Regulation	Regulation	GB/T 18487.1-2001, GB/T 18487.2-2001, GB/T 18487.3-2001		
	Safety	GB/T		
	Charging interface	GB/T 20234.3		

40kW DC Charger - Luggage type

Features

- 20kW EV DC quick charging solution for electric bus and electric city utility car with 200~700V battery system
- Narrow range charging voltage (200~500V) & low charging voltage (30~100V) models are available
- High charging voltage (max. 700Vdc) and high charging current (max. 200A)
- Ethernet based connection for back office integration, multi-media ad display, and smart city deployment
- The charging gun has electronic lock function which ensures safety during charging process
- Digital and high frequency controlled power module with modular design and compact size
- Active PFC to achieve 0.99 Power factor
- Easy installation and maintenance
- Intelligent RFID card reader
- 7" touch screen & user-friendly interface



	Model Name	40kW Movable EV DC Charger - Luggage type
AC Input	Input rating	380Vac +/- 15% ; 480Vac +/- 10%
	AC input connection	3P + N + PE
	Max. input current	70A
	Frequency	47 ~ 63 Hz
	Power factor	>0.99 @ full load
	Efficiency	93%
DC Output	Output voltage range	200 ~ 700Vdc
	Max. output power	40kW
	Max. output current	80A
User Interface	Display	7" TFT-LCD
	Push buttons	Start, Stop, Emergency Stop
	User authentication	RFID system ISO / IEC14443A/B
Communication	External	Ethernet
	Internal	CAN, RS485
Environmental	Operating temperature	
	Humidity	5% ~ 90% RH , non-condensing
	Altitude	2000m
	IP level	
Mechanical	Dimension	620 x 453 x 1000 mm
	Weight	97kg
	Cable length	6m
Regulation	Regulation	GB/T 18487.1-2001, GB/T 18487.2-2001, GB/T 18487.3-2001
	Safety	GB/T
	Charging interface	GB/T 20234.3

20kW Portable Type DC Charger



DC Charger - Movable Type

Features

- Three charging voltage versions to choose from : 200~500V, 30~200V, and 30~100V
- The 30~100V (200A max) model is designed for cargo van or delivery vehicles or forklifts that feature high torque required for starting
- Supports PIN code verification (based on customer needs)
- Power limiting by software (for 220 Vac input)
- Life cycles > 10, 000 times
- Battery reverse current prevention
- Emergency stop
- Pre-charging function
- Fan cooled
- Soft start
- During charging, charger perform temperature monitoring and charging cable insulation verification
- Charger can also monitor battery pack capacity, individual cell capacity and impedance, and charging curves (if battery manufacturer share BMS internal info)
- AC input protections : over voltage/ over current/ over temperature/ low voltage/ surge/ leakage current protections
- DC output protections : short circuit/ over current/ over voltage/ over temperature/ low voltage protections
- During charging, charger can charger camonitor battery status, automatically adjusts charging current and voltage based on the temperature and voltage of the battery (if battery manufacturer share BMS internal info)

	Model Name	E-100 30~100 Vdc	E-200 30~200 Vdc	E-500 200~500 Vdc
AC input	Input rating	380Vac, +/- 15%, 3 phase, 5 lines 220Vac, +/- 10%, single phase (max 6.6kW output)		
	Frequency	50/60 Hz		
	Max input power¤t	22 kVA		
	Power factor	>0.99, full load		
	Efficiency	>93%, full load		
DC output	Output range	30~100 Vdc, 200A max	30~200Vdc, 100A max	200~500 Vdc, 40A max
		6.6kW_AC220V input 20kW_AC380V input	6.6kW_AC220V input 20kW_AC380V input	6.6kW_AC220V input 20kW_AC380V input
	Max. output power	20kW		
	Output voltage regulation	+/- 1%		
	Output current regulation	+/- 1%		
User interface	Display	7" HMI touch screen		
	Push button	Emergency stop		
	Display info	Charging process, status, warning, alarm		
Communication	External (Optional)	3G / 4G / Wifi		
	Internal	CANBus / RS485		
BMS auxiliary power	400W, 12V / 24V			
Cooling	Fan Cooled			
Input protection	Over voltage/ over current/ over power/ over temperature/ under voltage/ surge/ leakage current protections			
Output protection	Short circuit/ over current/ over voltage/ over temperature/ low voltage protections			
Dimension	465 x 400 x 660 mm (L x H x W, not including cable)			
Weight	45kg (including cable)			
IP level				
Cable	DC 250A 4 meter cable	DC 250A 4 meter cable	DC 50A 4 meter cable	

Roadside Assistance

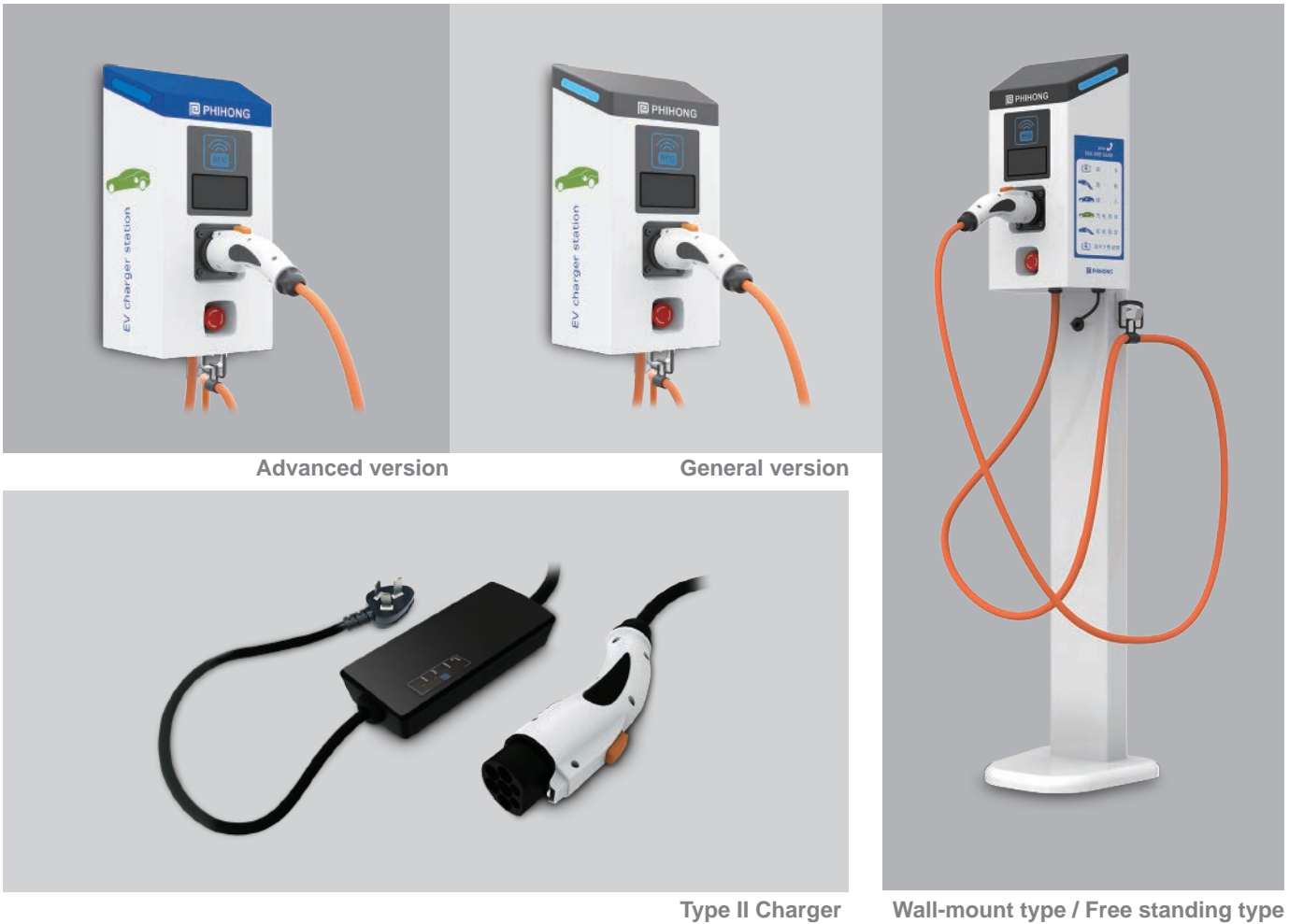
10kW / 20kW DC Charger

Features

- Design for EV roadside assistance
- 10kW DC quick charger
- 7.2kWh LiFePO4 battery pack, expandable to 14.4kWh (with 20kW output)
- Compact and portable design
- User friendly interface
- Functions as Energy Storage System, providing 3.5kW back-up AC output power
- High efficiency and high reliability



	Model Name	10kW / 20kW Roadside Assistance
AC Input	Input rating	220Vac ± 10%
	AC input connection	Single phase, L+N+PE
	Max. input current	16A
	Frequency	50/60Hz
	Power factor	>0.95 @ full load
	Efficiency	92% @ normal output power
DC Output	Output voltage range	200Vdc ~ 500Vdc
	Max. output power	10kW with 7.2kWh battery, 20kW with 14.4kWh battery
	Max. output current	7.2kWh battery : ≤ 500V : 20A ; > 500V : 14A 14.4kWh battery : ≤ 500V : 40A ; > 500V : 28A
Battery	Battery type	LiFePO4
	Battery capacity	7.2kWh (expandable to 14.4kWh)
	Voltage range	135Vac ~ 170Vac
	Usage time	30 minutes @ 10kW
Back up AC output	Output voltage	220Vac±10%
	Frequency	50/60Hz
	Max. output current / power	16A / 3.5kW
	Total harmonic distortion (THD)	5%
User interface	Display	10.4" TFT-LCD touch screen
	Push buttons	Start, Stop, Emergency Stop
	User authentication	RFID system ISO / IEC14443A/B
Communication	Internal / External	CAN, RS485 / Ethernet
Environmental	Operating temperature	
	Humidity	5% ~ 90% RH, non-condensing
	Altitude	2000m
	IP level	
Mechanical	Dimension / Weight	733 x 500 x 840 mm (with 7.2kWh battery) / 150kg
	Cable length	6m
Standard	Safety	GB/T
	Charging interface	GB/T 20234.3



Advanced version

General version

Type II Charger

Wall-mount type / Free standing type

EV AC Chargers

With stylish ergonomic design and IP54 weatherproof casing, Pihong 32A AC Charger can be wall-mounted or on free standing charging post for both indoor and outdoor applications. The charger comes with wired and wireless connection, allowing remote assistance from central office, which includes user assistance, trouble shooting, self-diagnosis, charging status feedback, and firmware download/update (advanced version) for preventative maintenance. Radio frequency identification (RFID) card reader is optional for user authentication and charging facility usage tracking and management. It is your ideal choice for residential, parking garage, highway gas / service station, commercial fleet operators, EV infrastructure operators and service providers, and EV dealer workshops.

With portable and compact design, Pihong 220V, 16A Type II Portable EV Charger is an easy and secure charging solution wherever a domestic/ industrial power outlet is available. The charger has protective earth detection, power surge protection, over current protection, over voltage protection, and under voltage protection, thus providing completely safe charging environment for both drivers and batteries in vehicles. Moreover, the built-in LED indicators show different charging status including start-up, under charging, charging complete, or errors. Its design allows the charger to withstand various outdoor conditions. The Charger offers simple, flexible, and safe charging experiences and an ideal choice for drivers to charge at home, office, or any place with a regular power outlet.

Applications

- Residential
- Highway gas / service station
- Parking lot / parking garage
- Commercial fleet operators
- EV infrastructure operators and service providers
- EV dealer workshops

EV AC Charger



■ Advanced Version



■ General version



Features

- Universal input : 200V~245Vac
- Indoor/outdoor uses
- Wired / wireless connection for central office management
- Ideal choices for residential and commercial AC charging of electric vehicles
- Charging interface : GB/T 20234-2
- Customization available
- Stylish ergonomic design
- Optional RFID card reader

	Model Name	Wall-mount type / Free standing type
Power Input	Input rating	200Vac ~ 245Vac, single phase, 32A maximum, 50/60Hz
	Connections & Wiring	Single phase, 3 lines (L,N,PE/FG)
	Standby power	< 5W
	Meter accuracy	±5%
Power Output	Output rating	200Vac ~ 245Vac, 32A maximum
	Recovery	Manual recovery after power failure
Protection	Leakage	30mA
	Upstream breaker	40A
	Connection protection	Impedence detection upon disconnection
	Electrical protection	Over Current, Short Circuit, Over Voltage, Under Voltage, Ground Fault, Surge Protection, Over Temperature
Interface & Control	Status indicators	Standby (blue); Verification / Hand shaking (flashing blue); Plugged, not charging (green); Charging (green, slowly changing); Fault (red)
	Buttons/Switches	Charger on/off, Stop charging
	User authentication	RFID (optional)
Communication	Network interface	Ethernet, Wi-Fi (optional)
Environmental	Operating temperature	
	Humidity	95% relative humidity, non-condensing
	IP level	
Mechanical	Charging cable length	5.5m, straight cable
	Mounting type	Wall-mount (standard) / Free standing post
	Cooling	Natural cooling
	Dimension (W x H x D)	276.7 x 485 x 170 mm / 330 x 1200 x 320 mm excluding charging cable, support bracket and cable holder
Standard	Net weight	15kg / 32kg
	Certificate	UL
	Charging interface	GB/T 20234-2

Type II 16A Portable EV AC Charger



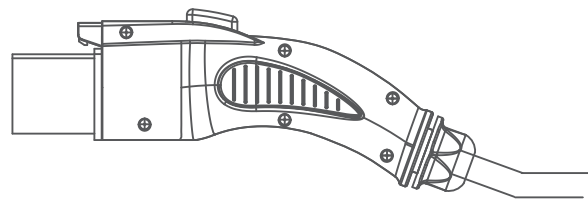
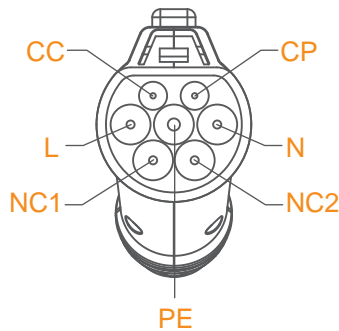
AC Charger

Features

- Easy and secure EV charging solution
- Portable and compact design
- Weather-resistant
- Quick-read LED charging status indicators

Protection

- Protective Earth Detection
- Power Surge Protection
- Over Current Protection
- Over Voltage Protection
- Under Voltage Protection

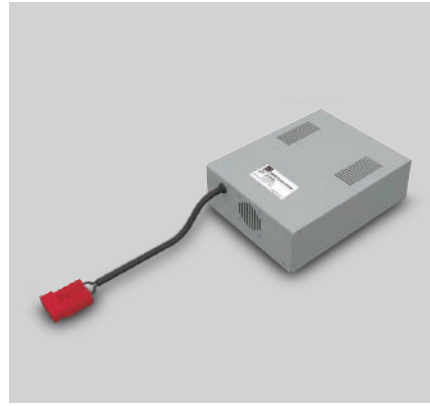


* SAE/IEC/GB types of charge coupler are all available

Model Name	PSA3840A-240-R
Rated input voltage	208 ~ 265Vac / 1-phase
Output power	16A continuous @ 220 Vac
Frequency	50 Hz ($\pm 10\%$)
Power draw at idle	< 2W
Power draw at charging	< 7W
Protective earth detection	From wall socket
Over current protection	19A max (output relay latch off)
Over voltage protection	> AC 280 V (output relay auto restart)
Under voltage protection	< AC 180V (output relay auto restart)
Nominal residual current	I _n 30 mA (output relay latch off)
Cable length	Approx. 3 meter
Communication protocol	GB/T 20234.2 compliant
Charge coupler	GB/T 20234.2 & QC/T 841 compliant
IP level	
Operating temperature	
Operating relative humidity	95% RH max



120W / 200W



350W / 500W



750W / 1kW



2kW / 3kW

Battery Chargers

Phihong 120W-3kW battery chargers are the cost effective and highly reliable charging solution for LiFePO4 or Lead-acid based battery system, suitable for charging light electric scooter, electric tricycle, electric bike, electric wheelchair, electric trailer, or general battery-based consumer electronic products. The wide 90~264Vac input range and 2 modes (CV and CC modes) charging function are designed to work with different charging needs. The chargers have built-in LED status indicator and comply with UL/CSA safety standards. Meanwhile, the chargers have over voltage protection, over load protection, short circuit protection, and over temperature protection.

■ Applications

- Electric scooter
- Electric tricycle
- Electric bike
- Electric wheelchair
- Electric trailer
- General battery-based consumer electronic products

■ Protections

- Short Circuit Protection
- Over Voltage Protection
- Over Current Protection
- Over Temperature Protection

120W / 200W Battery Chargers



Features

- Cost effective and highly reliable charging solution for LiFePO4 or Lead-acid based battery system.
- Output power : 120W, 200W
- Universal input range : 90 ~ 264Vac
- CC / CV function, best for your battery charging needs
- Connector with lock function : withstand shock and vibration
- Extremely low no-load power consumption <0.21W
- High efficiency $\geq 91\%$
- Meet DoE Level VI & CoC tier2 requirements
- Battery charging LED indicator
- Safety compliance : UL 60950-1, TUV EN60950-1, CSA 22.2 NO.60950-1

	Model Name	PSA120U-290-R	PSA200U-290-R
Input	AC Input Voltage Rating	90 ~ 264Vac	
	AC Input Frequency	47Hz ~ 63Hz.	
	Maximum Input Current	1.5A / 115Vac, 0.75A / 230Vac	2.2A / 115Vac, 1.1A / 230Vac
	Power Factor	>0.95 @ 115Vac & >0.9 @ 230Vac	
	No Load Power	$\leq 0.21W$ @ 230Vac input	
Output	Battery System	LiFePO4 or Lead-acid based battery system	
	Output Voltage at CV Mode	29V \pm 1%	
	Output Current at CC Mode	4A	7A
	Maximum Output Power	120W	200W
	Over Current Protection	Hiccup mode	
	Over Voltage Clamp	30V ~ 33V	
Features	Electrical Protection	Over Voltage Protection, Over Load Protection, Short Circuit Protection, Over Temperature Protection	
	Efficiency	PSA120U	90% minimum @ 115Vac / 60Hz & 230Vac / 50Hz
		PSA200U	91% minimum @ 115Vac / 60Hz & 230Vac / 50Hz
	Over Temperature Protection	Shutdown mode	
Environmental	Operating Temperature		
	Storage Temperature		
	Operating Relative Humidity	10%~90% RH, non-condensing	
	Storage Relative Humidity	5%~95% RH, non-condensing	
Mechanical	Dimension (L x W x H)	150 x 62 x 35 mm	200 x 85 x 45 mm
	Weight	580g	870g



350W / 500W Battery Chargers



Features

- Cost effective and highly reliable charging solution for Lead-acid / Li-ion batteries
- Universal AC input : 90 ~ 264Vac
- High efficiency design
- LED indicator for charging status
- Built-in active PFC function, PF>0.95
- 2 stage CC/CV charging characteristic
- No load power consumption <0.3W
- Full input/output protections

	Model Name	BD350W-48V	BD500W-48V
Input	AC input voltage rating	90 ~ 264Vac	
	AC Input Frequency	45Hz to 65Hz	
	Input Current	7A(rms) @ 100Vac	10A(rms) @ 100Vac
	Power Factor	PF>0.95 typical @ 230Vac	
	No Load Power	<0.3W without battery pack at 230Vac	
Output	Output Characteristics	Lead-acid / Li-ion battery	
	Output Voltage	40V ~ 58.4Vdc	
	Maximum Load Current	6A	8.6A
	Maximum Output Power	350W	500W
	Over Current Protection	~ 7.2A	~ 10A
Features	Electrical Protection	Input Over Voltage Protection, Input Under Voltage Lockout, Output Over Voltage Protection, Output Over Current Protection, Short Circuit Protection, Over Temperature protection, Input Fuse Protection (15A)	
	Over Voltage Clamp	60V maximum	
	Maximum Efficiency	85%	
	Over Temperature Protection	Shutdown mode	
	Operating Temperature		
Environmental	Storage Temperature		
	Operating Relative Humidity	10% RH ~ 95% RH, non-condensing	
	Storage Relative Humidity	5% RH ~ 95% RH, non-condensing	
Mechanical	Dimension (L x W x H)	220 x 170 x 70 mm	

750W / 1kW / 2kW / 3kW Battery Chargers



Features

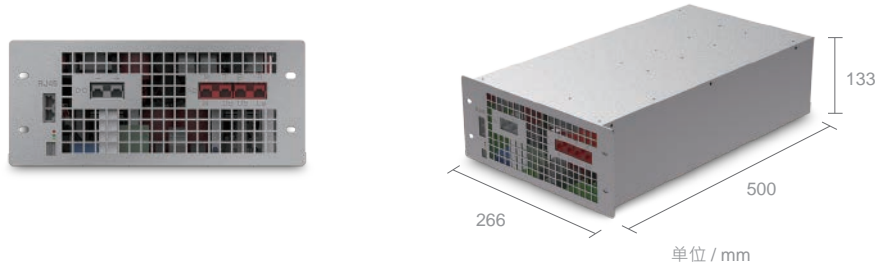
- Cost effective and highly reliable charging solution for 48V based battery system (for example LiFePO4)
- Output power : 750W, 1kW, 2kW, 3kW
- Output (charging) voltage : 58.4V ± 0.58V
- Universal input range : 90 ~ 264Vac
- Double insulated
- CC / CV function, best for your battery charging needs
- High efficiency
- Battery charging LED indicator
- 1U height
- Safety compliance : UL / CSA



Battery Charger

	Model Name	PBA750-584-R / PBA1000-584-R / PBA2000-584-R
Input	AC input voltage rating	90Vac ~ 264Vac
	AC input frequency	47Hz ~ 63Hz
	Input current	12A(rms) max @ low line; 6A(rms) max @ high line
		15A(rms) max @ low line; 7.5A(rms) max @ high line
		2x15A(rms) max @ low line; 2x7.5A(rms) max @ high line
	Power factor	PF>0.95 typical / 230Vac
	No load power	0.3W without fan
		0.3W without fan
0.6W without fan		
Battery system	16 LiFePO4 Battery in series (48 ~ 58.4V)	
Output voltage	58.4Vdc (± 0.58V)	
Maximum load current	13.5A / 17.5A / 35A	
Features	Maximum output power	750W / 1000W / 2 x 1000 W
	Over current protection	Isc,max set to 105~200% of full load current, Latching with timer
	Over voltage clamp	OV set @ 62V±5%, latching
	Maximum efficiency	85% typical
	Over temperature protection	Shutdown mode
Protection	Electrical protection	Short Circuit Protection, Over Voltage Protection, Over Current Protection, Over Temperature Protection
Environmental	Operating temperature	
	Storage temperature	
	Operating relative humidity	8% ~ 90%, non-condensing
	Storage relative humidity	5% ~ 95%, non-condensing
Mechanical	Dimension (L x W x H)	300 x 107 x 41 mm / 300 x 107 x 41 mm / 340 x 136 x 86 mm
	Weight	2kg / 2kg / 4.5kg

20kW EV DC charging module



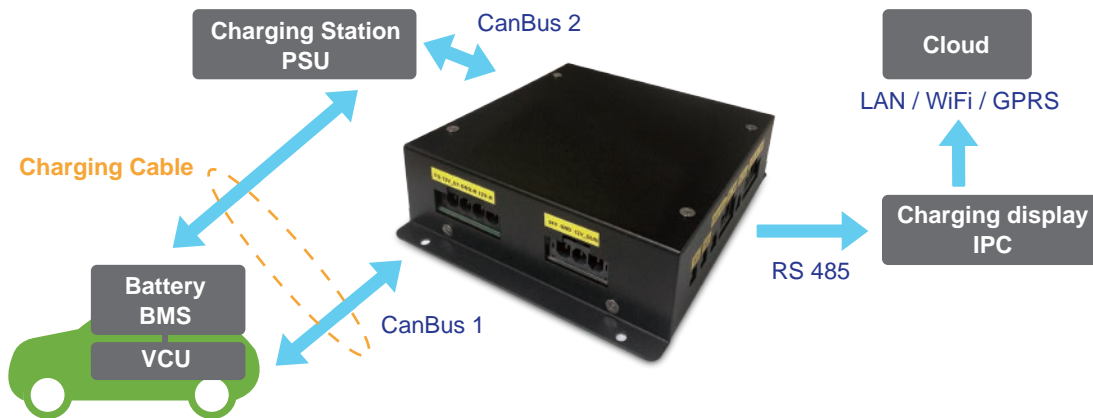
Features

- EV DC charger building block solution for 200-700 volt charging voltage, each module provides 20kW charging power
- Narrow range charging voltage (200-500V) & low charging voltage (30-200V, 30-100V) models are available
- High charging voltage (max. 700Vdc) and high charging current (max. 200A)
- Digital and high frequency controlled power module with modular design and compact size
- Active PFC to achieve 0.99 Power factor
- The optional CSU (Control and Supervisor Unit) to work the 20kW DC charging module to cover all the 20 major GB/T protocol to communicate with EV car/bus.
- The CSU can connect and transmit data between EV car, charging station, touch display and cloud-based back office for power adjusting or data analyzing.
- High efficiency and high reliability
- User friendly and easy maintenance

	Model Name	E-700 200~700Vdc	E-500 200~500Vdc	E-200 30~200Vdc	E-100 30~100Vdc
AC Input	Input rating	380Vac +/- 15%	380Vac +/- 15%	380Vac +/- 15%	380Vac +/- 15%
		480Vac +/- 10%	480Vac +/- 10%	220Vac +/- 10%	480Vac +/- 10%
	AC input connection	3P + N + PE	3P + N + PE	3P + N + PE	3P + N + PE
	Max input current	35A	35A	35A	35A
	Frequency	47 ~ 63 Hz	47 ~ 63 Hz	50/60Hz	47 ~ 63 Hz
	Power factor	>0.99 @ full load	>0.99 @ full load	>0.99 @ full load	>0.99 @ full load
DC Output	Efficiency	93.5%	93%	93%	93%
	Output voltage range	200 ~ 700Vdc	200 ~ 500Vdc	30 ~ 200Vdc	30 ~ 100Vdc
	Max output power	20kW	20kW	20kW@380Vac, 6.6kW@220Vac	20kW
Communication	Max output current	40A	40A	100A @380Vac	200A
	External	RS485	RS485	RS485	RS485
Environmental	Internal	CAN、RS485	CAN、RS485	CAN、RS485	CAN、RS485
	Operating temperature				
	Humidity	5% ~ 90% RH, non-condensing			
	Altitude	2000m	2000m	2000m	2000m
Mechanical	IP level				
	Dimension	L500 x W266 x H133 mm (3U Height)			
	Weight	15kg	15kg	15kg	15kg

CSU - Control & Supervisor Unit

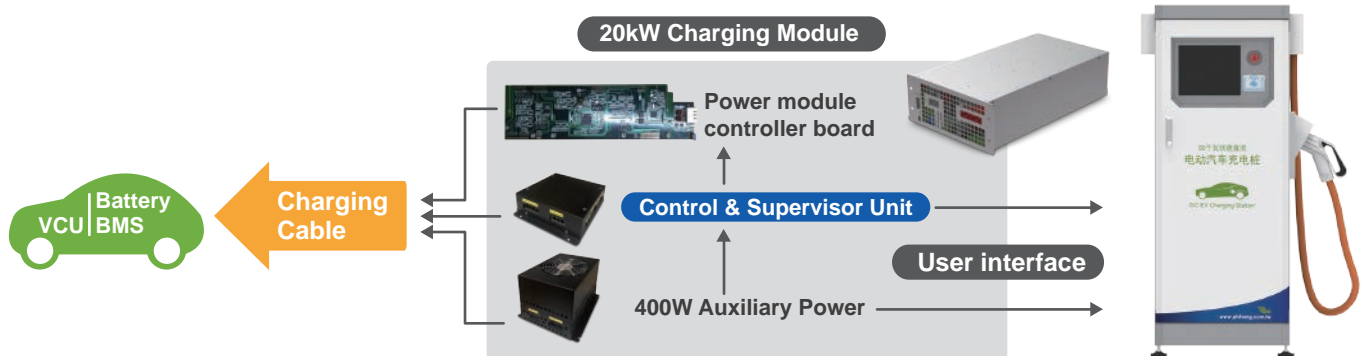
Pihong provides the intelligent CSU (Control & Supervisor Unit) to work with the DC charging module and to link and transmit data between EV, charging station, touch screen HMI/IPC display and cloud-based control centers. The CSU meets all GB DC charging standards including communication, monitor, measurement, protection, user interface, and providing data analysis for automakers and charger manufacturers.



Hardware Solution

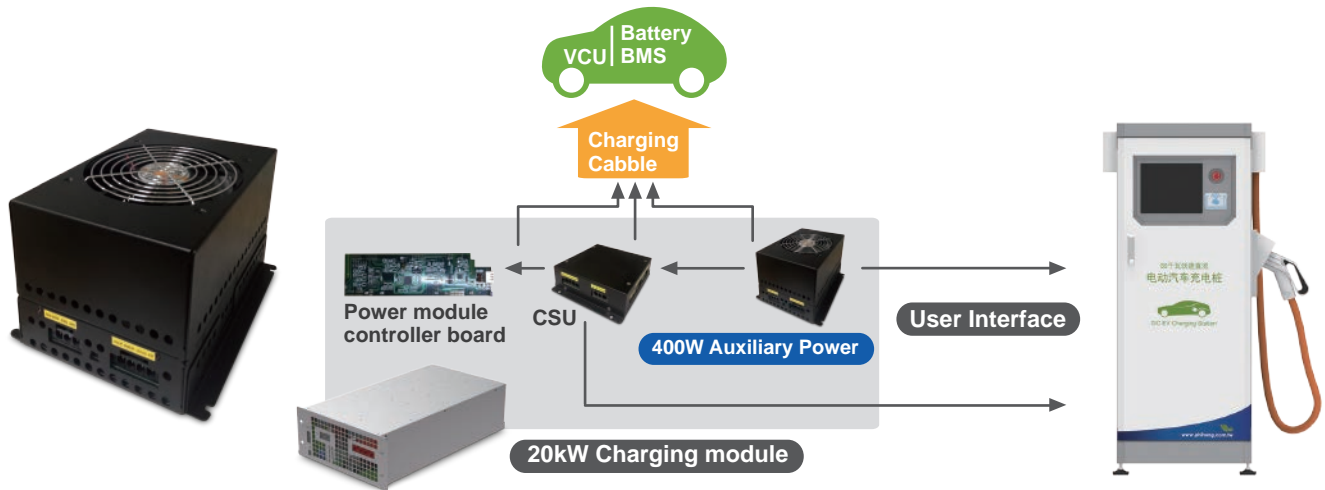
Features

- Supports CANbus communication and fully compliant with GB/T 27930-2011 communication standards (including 20 categories/87 items)
- Second CANbus for internal communication to digitally adjust and monitor power output based on information provided by EV BMS
- Records communication and malfunction information between EV, charging station and cloud-based control center for necessary data analysis.
- Supports RS485 to communicate with IPC touch panel's user interface
- Easy maintenance and high reliability



400W Auxiliary Power

Phihong provides a 400W auxiliary power supply with 4 DC outputs (12V/0.5A *2, 24V/16.67A, 12V/20A) to work with the DC charging module. There are two 12V/0.5A DC output, one 12V/0.5A DC output is used to power the CSU and the other 12V/0.5A DC output is used for connection detection at the charging gun connector. The 24V/16.67A (max) DC output is used to power the user interface touch panel computer (IPC) and by the BMS of EV bus during EV bus charging. The 12V/20A (max) DC output is to provide power for the BMS of EV passenger car during charging.



	Model Name	400WAuxiliary Power			
AC Input	Input rating	190~305Vac			
	Max input current	2.8A(RMS) at 190Vac, Max Load			
	Frequency	50Hz			
	Power Factor	>0.99 @ full load			
	Efficiency	85% @ 230Vac / 50Hz, Max Load			
DC Output	Output Label	+24VDC	+12V-R	+12V-U1	+12Vgun
	Output voltage range	24Vdc±5%	12Vdc±5%	12Vdc±5%	12Vdc±5%
	Output current	16.67A max	0.5A	0.5A	20A
	Output power	400W max			
	Output delay, max	2sec			
	Output rising time, max	30mS	2sec	2sec	2sec
	Hold-up time, min	10mS	30mS	30mS	30mS
	Ripple and noise, max	300mVpp	--	--	10mS
Protections	Over current protection	23A	200mVpp	200mVpp	300mVpp
	Over current protection mode	Auto recovery	0.75A	0.75A	26A
	Over voltage protection	40V	--	--	Latch up
	Over voltage protection mode	Auto recovery	--	--	15V
	Short Circuit Protection	Auto recovery	--	--	Auto recovery
Environmental	Operating temperature				
	Storage temperature				
	Humidity	5% ~ 95% RH, non-condensing			
	Altitude	5000m			

EV Charging Software Solutions

Phihong EV charging software solution includes both the front end mobile app and user interface (HMI) as well as the back end central office and cloud-based management, payment and monitoring platforms. Through the front end mobile app, people can search for nearby chargers, make charging appointments, and monitor charging status. The HMI user interface on the chargers provide interactive charging procedures and support various payment methods.

The back-end central office and cloud-based management, payment and monitoring system can monitor individual EV charger overall status and update EV charger software remotely which facilitate the long term maintenance and management. This back-end system also allows system operators to partner with auto makers to collect charging vehicles' battery pack, BMS and related information to perform big data analysis. Additionally, system operators can add revenues by broadcasting multimedia commercials on EV chargers as well as adding video camcorder to remotely monitor/record for community crime prevention.

Software Solution

Front End System

HMI User interface

- Display of Charging Status
- Display of Multimedia Commercials
- Display of Battery Info
- Remote Program Update



Multimedia Commercials



Mobile APP

- Charging Appointment
- Search and Navigation to Chargers
- Monitoring of Charging Status



Back End System

Cloud

GPRS 3G/4G



Multimedia Commercials

- Management of Multimedia Commercials
- Advertising Business Operation



Charging Station Operation

- Maintenance / Post-sale Service
- Security Surveillance
- Parking Management



Payment system Interface

- Charging Payment Calculation
- Bank Authorization



Charging big data

- Charging Data Acquisition and Analysis
- Charger Data Acquisition and Analysis
- Software Update
- Big Data Utilization



Multi-media EV charger

Besides the existing HMI User interface on EV chargers for multimedia commercials display, system operators can add revenues and increase marketing effects by installing an additional screen / billboard for various advertisement and broadcasting.

Dual screen multimedia EV DC Charger

■ **Additional 32" screen**
Various advertisement
broadcasting



■ **HMI User interface**
Multimedia commercials
display



Multimedia EV DC Charger

■ **HMI User interface**
Multimedia commercials
display



Multimedia EV AC Charger

■ **Billboard**
Various advertisement
broadcasting





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