

# ACDC™

DYNAMICS

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*The Leading Supplier of Industrial & Commercial*

## ELECTRIC VEHICLE CHARGING

*Enabling future mobility by connectivity!*



THINK ELECTRICAL



# EV CHARGING

## Charging Coupler Types

Car makers have come up with different standards for the type of plugs used to charge their electric cars.

### Electric Cars Plug Types

Type 1 Plug Asia/USA	Type 2 Plug Europe	GB-T Plug China	CCS2 Combination Plugs USA/Europe	Chademo Plugs Japan
Single-phase plug used in car models from the Asian region	Three-phase plug considered to be the STD model in Europe	Similar to the Type 2 plug but with additional male connectors	Enhanced version of Type 2 plug, with add. power contacts for quick charging	Quick charging system developed in Japan

### Electric Vehicles (BEV's)

Battery EVs (BEV's) have no combustion engine, only an on-board battery which provides energy to an electric motor. BEVs are charged from an external electricity supply, typically plugging in to an EV charge point. When required, energy is drawn from the electric-cells and converted to motive power by the use of one or more electric motors.

### EV Charging Levels

Chargers are one of two types – AC or DC [Alternating or Direct Current]. Currently AC chargers are rated at up to 43 kW, while most Rapid DC units are at least 50 kW. DC Chargers will charge the majority of EVs to 80% in around 30-60 minutes (depending a battery capacity). Rapid DC chargers are fitted with a CCS2 or CHAdeMO connector.

AC chargers include those which provide power from 7 kW to 22 kW, which typically fully charge an EV in 3-4 hours (depending a battery capacity).

Common connectors are a tethered Type 1 or a Type 2 socket.

Slow AC units (up to 3 kW) are best used for overnight charging and usually take between 6 and 12 hours for a pure-EV, or 2-4 hours for a PHEV. EVs charge on slow devices using a cable which connects the vehicle to a 3-pin or Type 2 socket.

Charging time for 100km of BEV Range	Power Supply	Power	Voltage	Max. Current
6–8 hours	Single phase	3.3 kW	230VAC	16A
3–4 hours	Single phase	7.4 kW	230VAC	32A
2–3 hours	Three phase	11 kW	400VAC	16A
1–2 hours	Three phase	22 kW	400VAC	32A
20–30 minutes	Three phase	43 kW	400VAC	63A
20–30 minutes	Direct current	50 kW	400–500VDC	100–125A
10 minutes	Direct current	120 kW	300–500VDC	300–350A

### Further Influencers on the charge speed

<b>Battery Pack Capacity</b> Larger battery packs can be charged faster using DC rapid chargers	<b>State of Charge</b> Charge speed is controlled to prevent the battery cells from overheating	<b>Battery Temp.</b> Heating or cooling systems keep the temperature constant	<b>Battery Chemistry</b> New materials allow for faster charging and longer battery life

### VDE Cable to charge Electrically Powered Vehicles

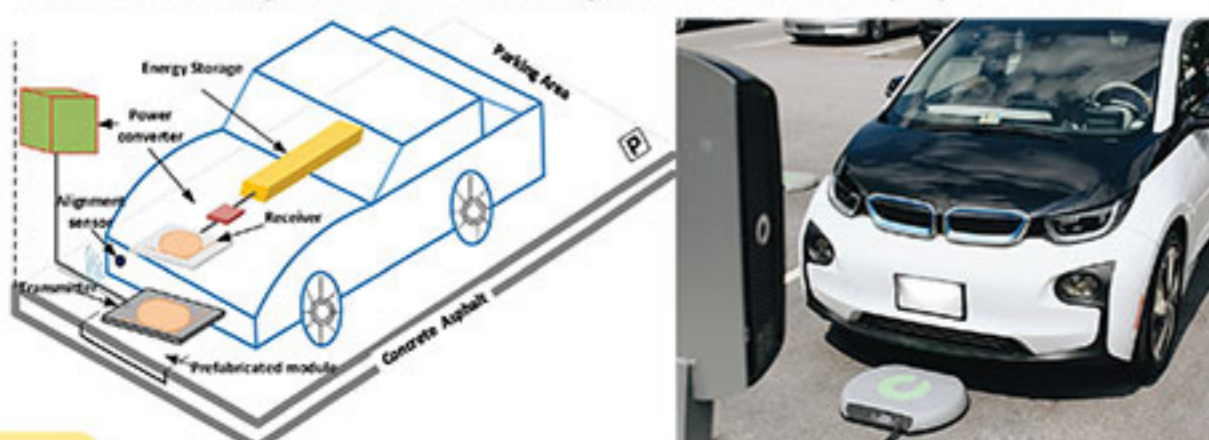
The EV Charge cable is a certified Power and Control cable, is halogen-free and flame retardant. The cable is also UV-resistant as well as Ozone-resistant, is cold flexible and water resistant, resistant to acids and has a high resistance to the usual vehicle chemicals and solutions. The cable should conform to VDE application rule VDE-AR-E 2283-5. The cores CP and PP are consecutively the control and the proximity pilot cores of the cable, the Control core allows for the communication enabling intergration into smart grid and checks compatibility of the connected EV.

Single Phase	Three Phase	DC Charging Cable

Technical Data	16A	32A	63A	DC Charging
Working Temp.	-45°C ~+125°C	-45°C ~+125°C	-45°C ~+125°C	-45°C ~+125°C
Nominal Voltage	450/750VAC	450/750VAC	450/750VAC	250/1000VDC
Current Rating	16A	32A	63A	30 ~ 250A
Insulation	TPE	TPE	TPE	TPE
Outer Jacket mmø	20	20, ±0.5	23.8, ±0.5	23 ~ 45mm

### Plugless Power

Recent developments manufactured for charging of Electric Cars include the wireless parking charger or the Plugless Power inductive charger. This charger wirelessly delivers electrical power to the EV battery charger using Electromagnetic Induction without a physical connection to the vehicle. By fitting a Plugless Vehicle Adapter the vehicle can be charged when parked over inductive Parking Pad, thus eliminating the active need to plug in a cable.



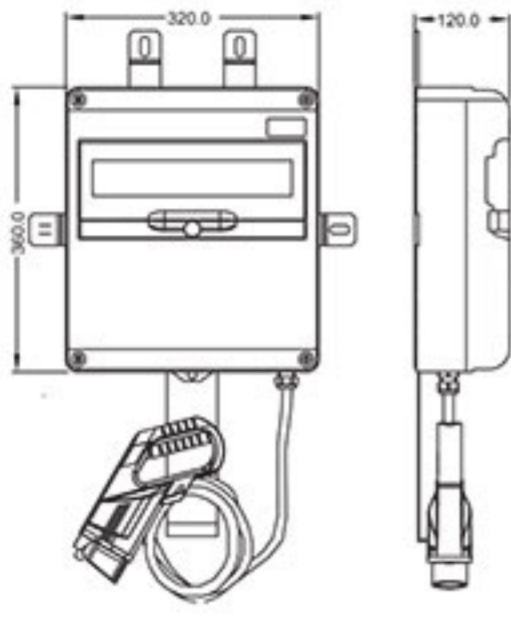
\*\*We recommend that installation cabling be designed to carry 22kW charging power (5-core Cable) irrespective of the Charging Station or the Electric Car. Advantage: Less effort will be required to increase Charging Power at a later Stage. (When Higher charging power and battery capacities become standard in the future)

### IEC 62196-2 Type 2 & Combination CCS Type 2 Connector Layout

Type 2 Female Plug Pinout	Type 2 Male Plug Pinout	CCS DC Combination Type 2 to IEC 62196	CCS AC/DC Plug Combination Type 2 to IEC 62196

**NEW**

**EV CHARGING JOINON RANGE**



7 Hour charging



**IP54**

**Joinon Easy Domestic Charger IP54 – Surface Mounting**

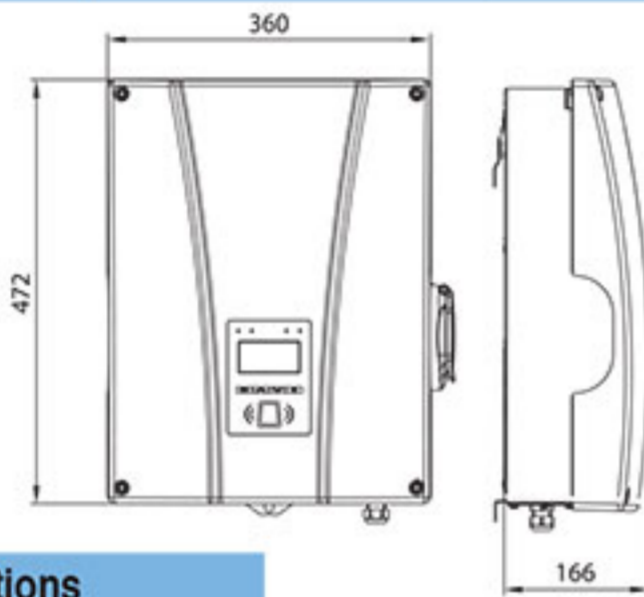
The JOINON range of products can provide a safe and reliable solution for the recharging of any electric vehicle. They comply with the guidelines stipulated in the IEC 61851 standard for installation in residential environments as well as in public spaces.

Code	GW68116	GW68117	GW68118
Outlet	5m Cable + Type 1 Plug	5m Cable + Type 2 Plug	Type 2 socket
Charge mode	3		
Supply Voltage	230VAC		
Rated Current	16-20A		
Power max.	4.6kW		

While charging, it is not possible to remove the plug because it is locked by the charging station. In order to remove the plug, first stop the charging.

**Connection Specifications**

Type of Connection	Single-phase
Number of Wires	2P+E
Nominal Current	Up to 20A
Maximum Wire Diameter	6mm <sup>2</sup>



**IP54**

**Joinon Parking Public EV Chargers IP54 – Surface Mounting**

For surface mount installation in private and public places. This charger is available in a single-phase and three-phase version with an output power range from 7.4kW to 22kW. The charger is fitted with an LCD graphic display for user interface and an RFID card scanning facility for user activation of the charger. The charger is compatible with the OCPP protocol. This charger is equipped with Type 2 socket outlet with a shutter, and a mechanical retention system which holds the charging cable in place during the recharging operation.

Code	GW68103	GW68104C
Outlet	Type 2 Socket Outlet	
Charge mode	3	
Supply Voltage	230VAC	400VAC
Rated Current	32A	
Power max.	7.4kW	22kW

Units are supplied with a MID approved energy meter, RS485 communication, RCBO and 3 RFID cards. See below for more accessories.

**Connection Specifications**

Type of Connection	Single-phase Three-phase
Number of Wires	2P+E/3P+N+E
Nominal Current	Up to 32A
Maximum Wire Diameter	10mm <sup>2</sup>

**Joinon Station EV Fast Charger IP55 - Mode 4 Charging**

Our DC Quick Charger units offer electric vehicle owners an opportunity to charge their car quickly and safely. A typical electric car with 24kWh battery pack may be charged to 80% of its capacity within 10 minutes. These chargers are multi protocol designed and are tailored to support CHAdeMO, Type 2 & CCS2 standards. Payment and Billing solutions enable easy and secure payments. For more information please contact our Gewiss team.



<b>Code</b>	<b>GW68109</b>
Type of Installation	Floor Standing
Recharge Mode	3 & 4
Housing	Galvanised M/ Steel
Protection	RCBO
Size (mm)	1900 x 790 x 720
<b>AC Input</b>	
Input Current	95A
Voltage	380VAC
Power Factor	0.98
Frequency	50Hz
<b>DC Output</b>	
Plug Type	43kW CHAdeMO (DC)
	50kW CCS2 (DC)
	43kW Type 2 (AC)
Voltage Range	50-500VDC

**Applications**

- Public Corridor Charging on Highways
- Busy Urban areas
- Commercial Fleet operators
- Service Station operators
- EV Infrastructure Operators and EVSE providers

**Supply Features**

- Prepay system through web services using OCPP platform
- Intergrated RS485 Communication Interface
- Use's the RFID card system for recharging/enabling
- Multi Language LCD Display and LED signal indicators
- High Visibility Emergency Stop
- Painted Galvanised Steel Housing, Vandal protection to IK10

**Accessories**

Code	Description
GW68110	RFID Card for use with Joinon Parking/Station
GW68111	Ethernet kit for Joinon Parking/Station
GW68112	3G kit for Joinon Parking
GW68113	3G kit for Joinon Station

Units are supplied with a mid approved energy meter, RS485 communication and 3 RFID tags.

**NEW EV CHARGING**

**Viaris Combi**

A wall-mounted charging system for use in private settings, such as: garages in single-family homes or communal garages, offices, hotels, etc. It is easy to install and features an attractive design that makes it perfect for home charging.

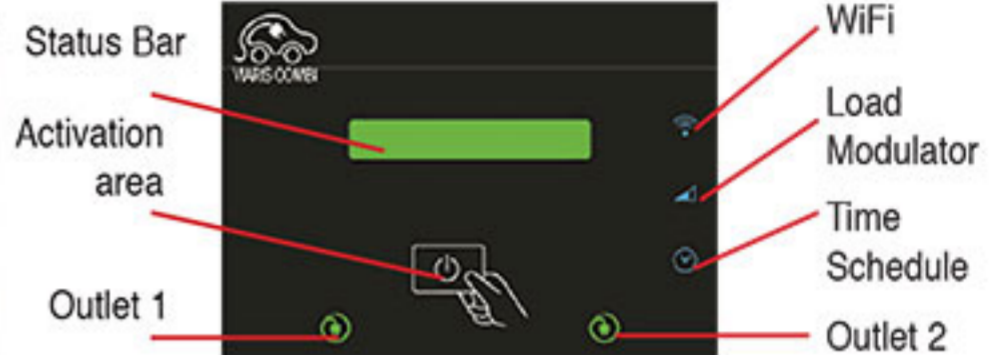


**c/w Built-in Protection Equipment**

- 1) Overload and short-circuit protection (MCB) "C" curve
- 2) Protection against overvoltages (POP)
- 3) Protection against Transient overvoltage (SPD) Type 2 Class II
- 5) Residual Current Circuit Breaker (RCCB) type A

A charge modulator monitors the home's energy consumption and adjusts power demand to optimise the highest charge within the shortest possible period without exceeding the supply capacity. On the two-outlet VIARIS COMBI versions, the charge modulator distributes the available power between both outlets.

**Mobile App**



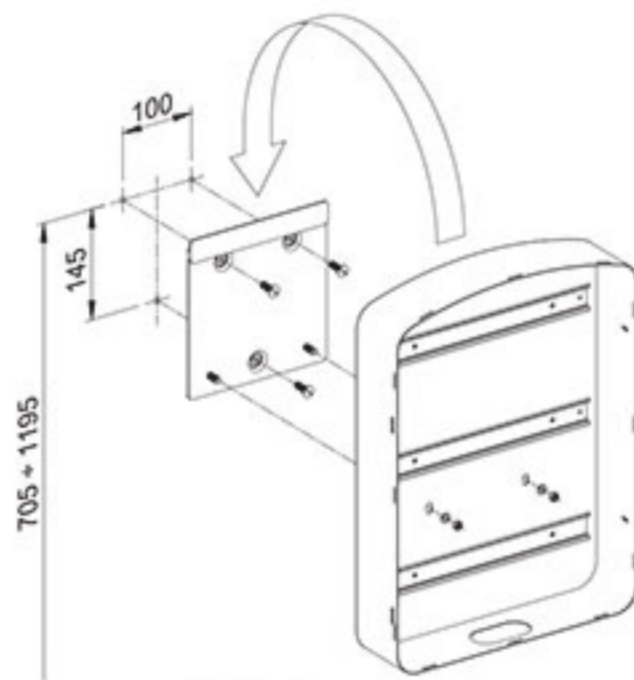
**Features**

- Easy installation, trouble free operation and attractive design for the home
- Tactile sensor for Charge Activation/Deactivation
- WiFi communication
- Load Modulator, manages & monitors the homes energy consumption.
- Built-in Protection equipment against Surge and Insulation failures

Code	Description	Power Supply	Output Power	Connection Type	Charge Mode
OB94DM3716BT2-08	Domestic/Private Car Charger c/w Load Monitor and built in protection items 1+2+3+5 plus Wi-Fi	230VAC 16A, 1Phase	3.7kW	Type 2 no Cable	Mode 3
OB94DM7432BT2-12	Domestic/Private Car Charger c/w Load Monitor and built in protection items 1+2+3+5 plus Wi-Fi	230VAC 32A, 1Phase	7.4kW	Type 2 no Cable	Mode 3

**Viaris City**

Ideal for Electric Vehicle Charging with Type 2 connection up to 40kW as per IEC 62196-2. The Charger is able to supply information about the charging status and allows for all payment systems through the mobile APP Viaris Combi, cards or other communication accessories. Compatible with OCPP protocol.



Wall Mount

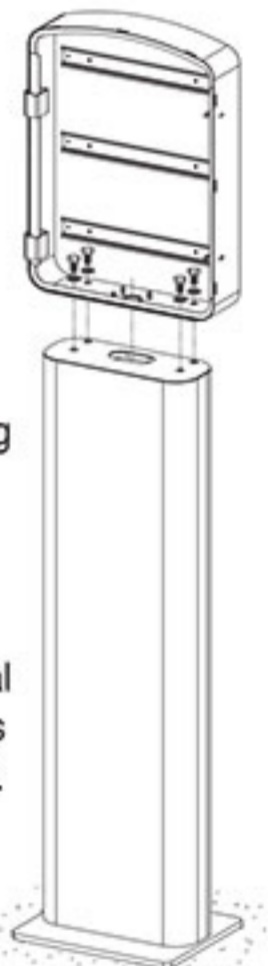
**c/w Built-in Protection Equipment**

- 1) Overload and short-circuit protection (MCB) "C" curve
- 2) Protection against overvoltages (POP)
- 3) Protection against Transient overvoltage (SPD) Type 2 Class II
- 5) Residual Current Circuit Breaker (RCCB) type A

The mild steel casing on a Stainless Steel pole (optional) offers a high degree of protection from vandalism. The Orbis charger range has all the facilities to enable charging in both commercial and private applications.

For Charging Station operators the charger offers: Prepaid Systems through the mobile App Viaris Combi, RFID Cards and others. Information collection for statistical purposes is also possible. Different communication options enable easy integration into commercial charging systems. Units come with WiFi & Ethernet communications as standard.

*\*Note operation of the Web Services does have an annual cost.*



On floor-standing Pedestal (to be ordered separately)

Code	Description	Power Supply	Output Power	Connection Type	Charge Mode
OB94T1116-1825	Public EV Charger. Wall Mounted. c/w 1 x Type 2 Outlet.	400VAC 3x16A, 3Phase	11kW	Type 2 no Cable	Mode 3
OB94T2232-1925	Public EV Charger. Wall Mounted. c/w 1 x Type 2 Outlet.	400VAC 3x32A, 3Phase	22kW	Type 2 no Cable	Mode 3
OB94T4363-202530	Public EV Charge. Wall Mounted. c/w 2 x Type 2 Outlets.	400VAC 3x63A, 3Phase	43kW/ 2 x 21.5kW	Type 2 no Cable	Mode 3

**Accessories**

Code	Description
OB940006	RFID Cards (Pack of 5)
OB940007	304 Stainless Steel floor stand textured finished in RAL 7035. Light Grey. <i>Order stand separately!</i>

**NEW**

## EV CHARGING IP66

### Electric Car EV Charging Station

16/32A Single/Three Phase EV Home Charger, Supporting Wifi APP and with LCD Display for home or private use. Fix onto the wall or on the optional mounting pole.



BS-B10-BA



BS-B10-BC



BS-B10-BC POLE



Application

EV Charging Stations - Electric Car Home EV Charger with Type 2 Socket outlet, RCD and Lightning Protection

Code	Description	Power Supply	Output Power	Connection Type	Charge Mode
BS-B10-BA-3.6KW-2	Home/Private EV Charging Station	230VAC, 16A, 1 Phase	3.6kW	Type 2 Socket Outlet	Mode 3
BS-B10-BA-7.2KW-2	Home/Private EV Charging Station	230VAC, 32A, 1 Phase	7.2kW	Type 2 Socket Outlet	Mode 3
BS-B10-BA-11KW-2	Home/Private EV Charging Station	380VAC, 16A, 3 Phase	11kW	Type 2 Socket Outlet	Mode 3
BS-B10-BA-22KW-2	Home/Private EV Charging Station	380VAC, 32A, 3 Phase	22kW	Type 2 Socket Outlet	Mode 3

EV Charging Stations - With a 6 Meter Type 2 Charging Cable, RCD and Lightning Protection

Code	Description	Power Supply	Output Power	Connection Type	Charge Mode
BS-B10-BC-3.6KW-2	Home/Private EV Charging Station	230VAC, 16A, 1 Phase	3.6kW	Type 2 6M Cable	Mode 3
BS-B10-BC-7.2KW-2	Home/Private EV Charging Station	230VAC, 32A, 1 Phase	7.2kW	Type 2 6M Cable	Mode 3
BS-B10-BC-11KW-2	Home/Private EV Charging Station	380VAC, 16A, 3 Phase	11kW	Type 2 6M Cable	Mode 3
BS-B10-BC-11KW-2	Home/Private EV Charging Station	380VAC, 32A, 3 Phase	22kW	Type 2 6M Cable	Mode 3

### Accessories

Code	Description
BS-B10-BC Pole	Charger Mounting Pole

### Portable EV Chargers Mode 2

Makes it easy to charge anywhere. Just plug it into a wall socket. Conforms to IEC 62196-2 (Type 2) and the highest safety requirements. Complete with overcurrent and overvoltage protection lightning and short circuit protection.



Code	Description	Power Supply	Output Power	Connection Type - EV Type
BS-PCD019-2	Portable EV Charger c/w 16A SA 3pin plug (Wall side) + 5m cable	230VAC, 10A-16A, 1 Phase	2.2kW-3.6kW	Type 2 5m Cable
BS-PCD030-2	Portable EV Charger, c/w LCD display c/w 16A SA 3pin plug (Wall side) + 5m cable	230VAC, 10A-16A, 1 Phase	2.2kW-3.6kW	Type 2 5m Cable
BS-PCD040-2	Portable EV Charger, c/w LCD display c/w CEE form 32A plug (Wall side) + 5m cable	230VAC, 32A, 1 Phase	7.2kW	Type 2 5m Cable

NEW

## EV CHARGING COMPONENTS

Infrastructure EV Connectors IP54			Dummy Socket Holder	
<b>Code</b>	<b>BS-EVSC003</b>	<b>BS-EVSC001</b>	<b>BS-EVSC004</b>	<b>DS-SAE</b>
<b>Type</b>	Type 2	Type 1	Type 2	Type 1
<b>Standard</b>	IEC-62196-2	SAE J1772	IEC-62196-2	SAE J1772
<b>Poles</b>	Single phase/Three phase	Single Phase	Single phase/Three phase	—
<b>Position</b>	(Outlet) Charger Side	(Inlet) EV Side	(Inlet) EV Side	Near Charging station

EV Connectors IP66			Dummy Plug Holder	
<b>Code</b>	<b>BS-EVP001-M</b>	<b>BS-EVP001-L</b>	<b>BS-EVP001-F</b>	<b>DS-IEC</b>
<b>Type</b>	Type 2	Type 1	Type 2	Type 2
<b>Standard</b>	IEC-62196-2	SAE J1772	IEC-62196-2	IEC-62196-2
<b>Position</b>	Charger Side	EV Side	EV Side	Near Charging Station

### Cable for EV Charging Leads - Per Meter

Code	Description	Size (mm)	Amps
BS-EVCC-16A	3 x 2.5mm <sup>2</sup> + 2 x 0.5mm <sup>2</sup> Single Phase Charging Cable for EV	Ø12	16A
BS-EVCC-16A3P	5 x 2.5mm <sup>2</sup> + 2 x 0.5mm <sup>2</sup> Three Phase Charging Cable for EV	Ø15.6	16A
BS-EVCC-32A	3 x 6.0mm <sup>2</sup> + 2 x 0.5mm <sup>2</sup> Single Phase Charging Cable for EV	Ø15	32A
BS-EVCC-32A3P	5 x 6.0mm <sup>2</sup> + 2 x 0.5mm <sup>2</sup> Three Phase Charging Cable for EV	Ø18.5	32A



Single Phase



Three Phase

Note: We recommend that installation cabling be designed to carry 22kW charging power (5-core Cable) irrespective of the Charging Station or the Electric Car. Advantage: Less effort will be required to increase Charging Power at a later Stage. (When Higher charging power and battery capacities become standard in the future)

NEW

## COMPLETE CHARGING CABLES

### Type 2 Charging Cables - 5m Length

Code	Charger Side	Vehicle Side	Rated Current	Rated Voltage	Phase	Max Capacity
BS-CHC001*	Type 2	Type 2	16A	230VAC	1 phase	3.6kW
BS-CHC002*	Type 2	Type 2	16A	380VAC	3 phase	11kW
BS-CHC003*	Type 2	Type 2	32A	230VAC	1 phase	7.2kW
BS-CHC004*	Type 2	Type 2	32A	380VAC	3 phase	22kW

### Type 2 to Type 1 Charging Cable - 5m Length

BS-CHC007*	Type 2	Type 1	16A	230VAC	1 phase	3.6kW
BS-CHC008*	Type 2	Type 1	32A	230VAC	1 phase	7.2kW

\*Add -S for coiled cable



Type 2 with Coiled Cable

Type 1 with Straight Cable

**NEW**

## COMMERCIAL EV CHARGING

### Public DC Charging IP54

c/w GPRS, Ethernet, Wifi, and RS485 Communication



Code	SET450-100Y	SET450-40B
<b>AC Input</b>		
Input Power	50kW (±10%)	20kW (±10%)
Voltage	380VAC	380VAC
<b>AC Output</b>		
Output Power	22kW	-
Cable Type	Type 2	-
<b>DC Output</b>		
Output Power	50kW	20kW
Voltage Range	50-450VDC	50-450VDC
Cable Type	CHAdEMO / CCS2	CHAdEMO / CCS2
<b>General</b>		
Enclosure Protection	IK10	IK10
Charging Cable	5 Meter	5 Meter
Dimensions (WxHxD)	660 x 1750 x 660mm	940 x 640 x 480mm
Display	7" LCD Touch Screen	7" LCD Touch Screen
User Authentication	RFID and OCPP	RFID and OCPP

### Public AC Charger - Type 2

c/w GPRS, Ethernet, Wifi, and RS485 Communication



Code	SET-AC22
Input Power	22kW (±10%)
Input Voltage	380VAC
Outlet Sockets	2 x Type 2 Sockets
AC Charging Output	2 x 11kW
User Authentication	RFID and OCPP
Display	LED Status Indicator
Earth Leakage Protection	Yes
Over Current Protection	Yes
Dimensions (WxHxD)	1040 x 175 x 175mm



**NEW**

## PORTABLE FAST CHARGERS

### 15kW Mobile DC Fast Charger

### 30kW Mobile DC Fast Charger

### 45kW Mobile DC Fast Charger



	CHR-15-CHA	CHR-30-CHA	CHR-45-CHA
<b>Code CHAdEMO</b>	CHR-15-CHA	CHR-30-CHA	CHR-45-CHA
<b>Code CCS2</b>	CHR-15-CCS2	CHR-30-CCS2	CHR-45-CCS2
<b>AC Input</b>			
Input Rating	16kW/40A	39.6kW/60A	46.3kW/80A
Voltage	400VAC +/- 10% 3Phase	400VAC +/- 10% 3Phase	400VAC +/- 10% 3Phase
Frequency	50/60Hz +/- 1%	50/60Hz +/- 1%	50/60Hz +/- 1%
Input Connector	63A CEE	63A CEE	125A CEE
<b>DC Output</b>			
Plug Type	CHAdEMO / CCS type 2	CHAdEMO / CCS type 2	CHAdEMO / CCS type 2
Output Power	15kW@450VDC	26.4kW@400VDC	45kW@450VDC
Voltage Range	200-450VDC	200-500VDC	200-500VDC
Size	550 x 350 x 160mm (without trolley)	500 x 480 x 240mm (without trolley)	500 x 480 x 240mm (without trolley)

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AC/DC SFC EVCH



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NATIONAL CALL CENTRE

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