

# Charging Coupler Solution



The AC charging Coupler of electric vehicle is used to connect the power grid and the on-board charger when the electric vehicle is charged. The AC charging interface developed by Ruikoda connection system Co., Ltd. meets the requirements of national standards and can support 63 A, 400V of AC charging mode. Single contact can match up to 16 mm or above; and good appearance and grip.

The DC charging coupler of electric vehicle is connected with non-vehicle charger (DC charging pile) and battery. The DC charging interface developed by Suzhou Ruikoda connection system Co., Ltd meets the requirements of national standards. Rated current for 125 A and 250 A, rated working voltage up to 750 V, and has a good appearance and grip sense. The Jack meets the 10000 plug-in life requirements of the national standard.

Advantage of Recodeal:

- Extensive customer batch application performance;
- vertically integrated manufacturing chains such as cables, enclosures, terminals, PCB, etc. are Independent R & D
- Manufacturing
- Various specifications and product options;
- Low cost, high reliability solutions

Advantages of technological innovation.

## AC Charging –Gun



### Describe

- Reference Standard:
  - GB/T18487.1–2015 《 Electric Vehicle Conductive ChargingSystem Part 1: General Requirements》
  - GB/T20234.1–2015 《 Electric VehicleConductive Charging Connectors Part 1: General Requirements》
  - GB/T20234.2–2015 《 Electric Vehicle Conductive Charging Connectors Part 2: AC Charging Interface》
- Higher than the national standard protection level requirements, some charging
- Interfaces can reach IP66 above the protection level
- Voltage:500VAC
- Cable Section: 2.5mm<sup>2</sup>–16mm<sup>2</sup>
- Charge current up to 63 A supported
- Mainly used for: charging pile or civil power grid and vehicle charger connection
- variety of charging coupler forms, a variety of colors optional
- Flexible customized

### Charging Mode Parameters

#### Plug

AC charging coupler plug wiring specification and electrical parameters

Charging Mode	Cable specification	Current Rating	Specification for each interface cable(mm <sup>2</sup> )						
			L1	N	PE	L2	L3	CC	CP
Charging Mode2	3*2.5mm <sup>2</sup> +1*0.75mm <sup>2</sup> 3*2.5mm <sup>2</sup>	10A/16A	2.5	2.5	2.5	/	/	0.75	0.75
Charging Mode3	3*2.5mm <sup>2</sup> +1*0.75mm <sup>2</sup>	16A	2.5	2.5	2.5	/	/	0.75	0.75
Charging Mode3	3*6mm <sup>2</sup> +1*0.75mm <sup>2</sup>	32A	6	6	6	/	/	0.75	0.75
Charging Mode3	5*16mm <sup>2</sup> +1*0.75mm <sup>2</sup>	63A	16	16	16	16	16	0.75	0.75

If there are other requirements, please propose, the specific type of charging interface according to customer requirements

#### Coupler

AC charging coupler plug wiring specification and electrical parameters

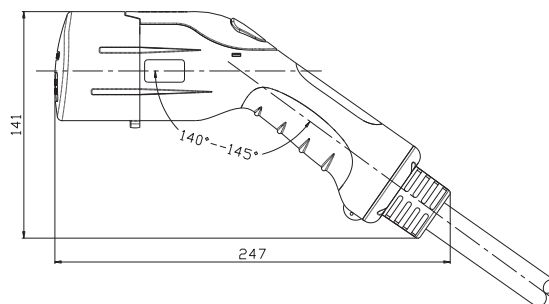
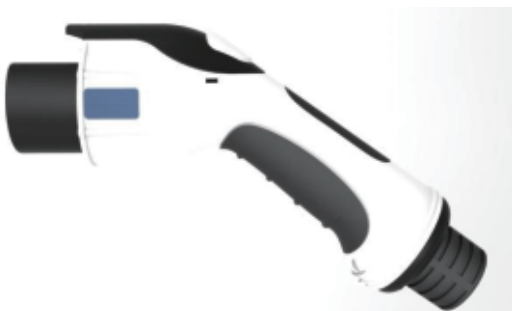
Charging Mode	Cable specification	Current Rating	Specification for each interface cable(mm <sup>2</sup> )						
			L1	N	PE	L2	L3	CC	CP
Charging Mode2	3*2.5mm <sup>2</sup> +1*0.75mm <sup>2</sup>	16A	2.5	2.5	2.5	/	/	0.75	0.75
Charging Mode3	3*6mm <sup>2</sup> +1*0.75mm <sup>2</sup>	32A	6	6	6	/	/	0.75	0.75
Charging Mode3	5*16mm <sup>2</sup> +1*0.75mm <sup>2</sup>	63A	16	16	16	16	16	0.75	0.75

If there are other requirements, please propose, the specific type of charging interface according to customer requirements

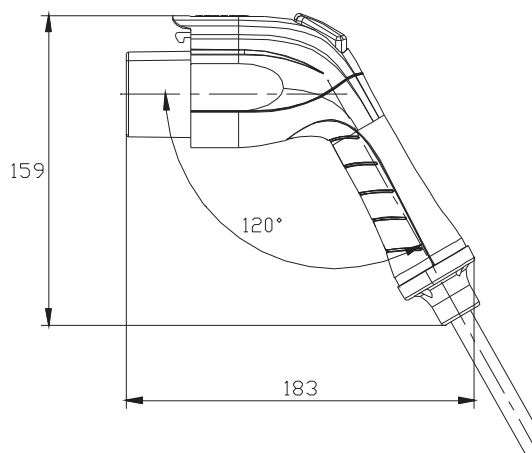
## SIZE

**RAC AC Charging Gun**

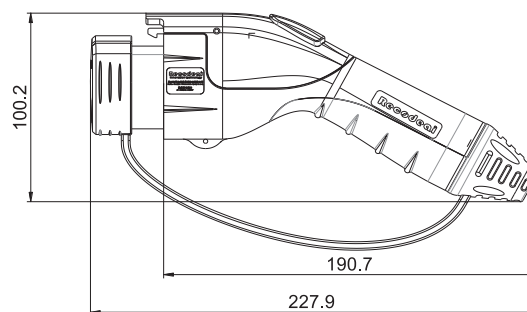
Function: One generation charging gun, protective Degree IP55, suitable for maximum current 63 A, suitable for domestic charging plug and charging pile charging; Schematic images and dimensions as below.

**RAC2 AC Charging Gun**

Function: Second generation charging gun, with charging indication function, protective degree IP66, suitable for maximum current 63 A, suitable for domestic charging plug and charging pile charging; Schematic images and dimensions as below.:

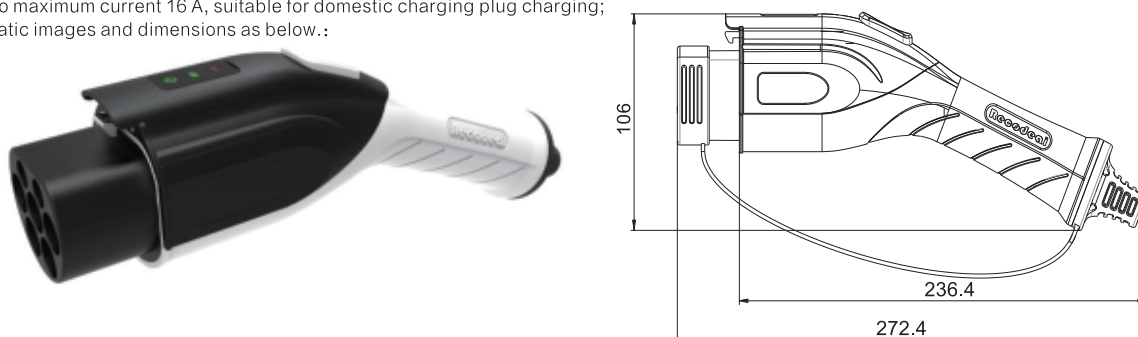
**RAC3AC Charging Gun**

Function: Third generation charging gun, with charging indication function, protection degree IP66 or above, suitable for maximum current 32 A, suitable for domestic charging plug charging; Schematic images and dimensions as below.:



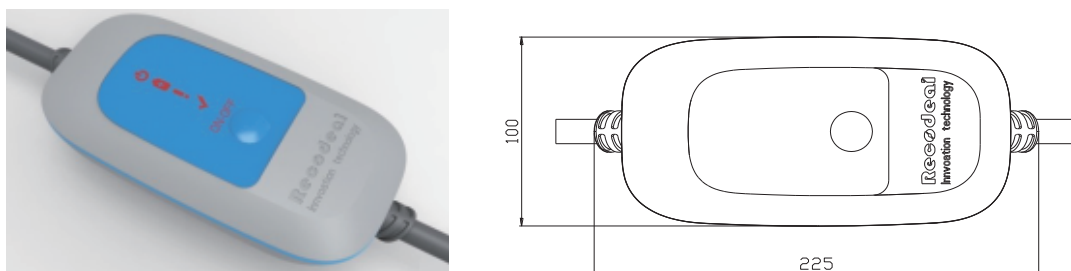
### RAC4 AC Charging Gun

Function: The 4th generation charging gun, the product integrates the circuit board of the control protection device on the cable into the vehicle plug shell to form the integrated charging gun, cancels the original control box shell, the cost is lower than the same type of charging mode 2 charging gun in the market, lightweight, easy to carry, higher protection level, can display charging process status, protection level meets IP67, can adapt to maximum current 16 A, suitable for domestic charging plug charging; Schematic images and dimensions as below.:



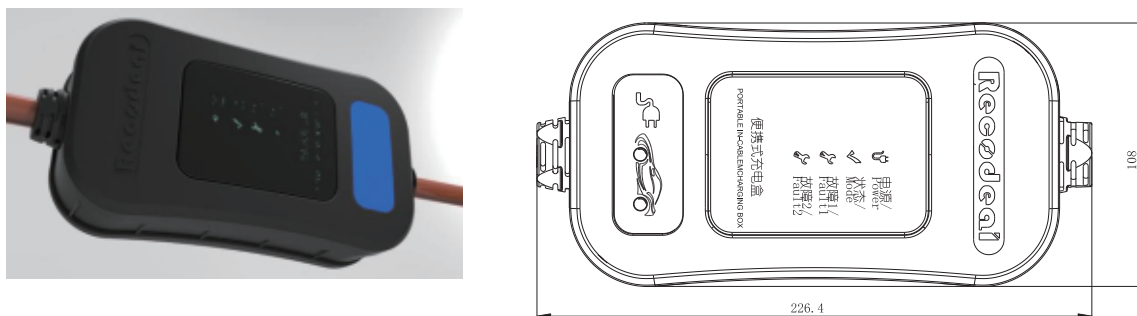
### K2 Charge Control Box

Function: The 2nd generation control box is smaller than the first generation, the protection grade IP66, can adapt to the maximum current 16 A, can display the charging process state, and also has the emergency stop charging button. Schematic images and dimensions as below.:



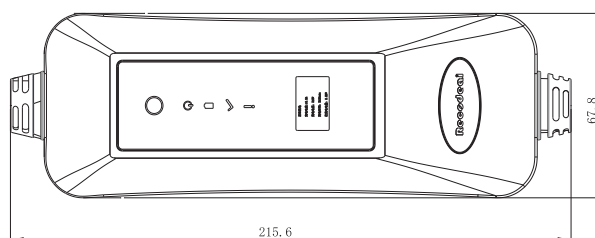
### K3 Charge Control Box

Function: The size of the third generation control box is similar to that of the second generation. The protection grade IP66, can adapt to the maximum current of 32 A, available LED display the charging process status or display it on the LCD screen; Schematic images and dimensions:



### K4 Charge Control Box

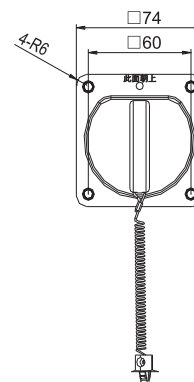
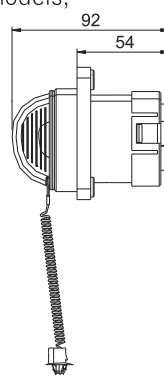
Function: Fourth generation control box shape size is smaller than before, the protection grade IP67, also may choose the digital display indication charge. Schematic images and dimensions:



### Back installation Socket

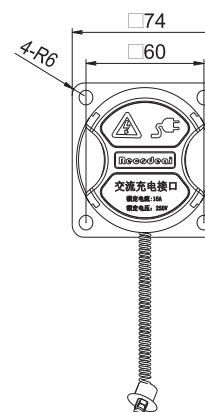
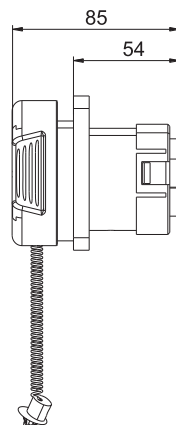
#### Quick-plug Dustproof Cover—1

Function: Then install AC charging socket, embedded M6 nut, installation size in accordance with national standard requirements, Ninon elastic rope buckle fixed in the body hole, dust cover can be quickly plugged, socket back cavity protection grade IP67, Please consult our company for specific models;



#### Quick-plug Dustproof Cover—2

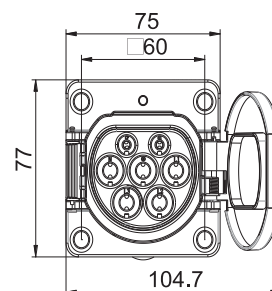
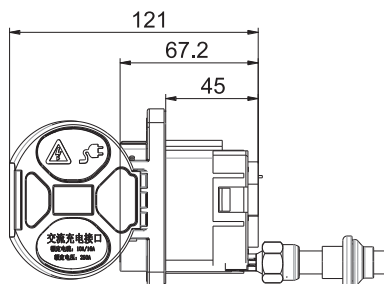
Function: Then install AC charging socket, embedded M6 nut, installation size in accordance with national standard requirements, Ninon elastic rope buckle fixed in the body hole, dust cover can be quickly plugged, socket back cavity protection grade IP67, Please consult our company for specific models;



## Front Installation Socket

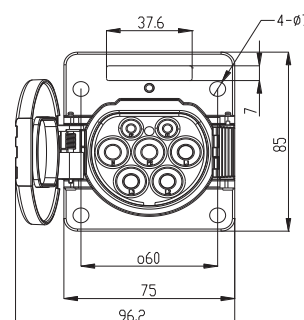
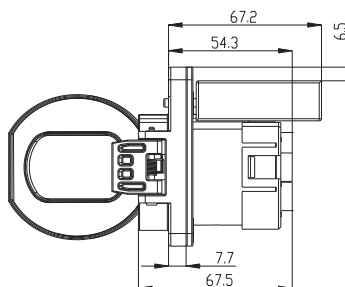
### Socket with drain outlet

Function Description: the front installation of AC charging socket, with damping flip, installation size in accordance with the requirements of national standards, socket rear cavity protection grade IP67, In addition, the front cavity, including the Jack internal unexpected water can be discharged through the drain and drainage pipe, after the water can continue to charge, Please consult our company for specific models;



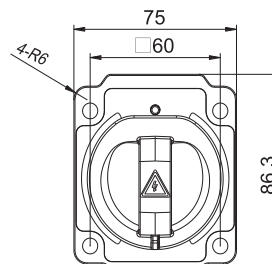
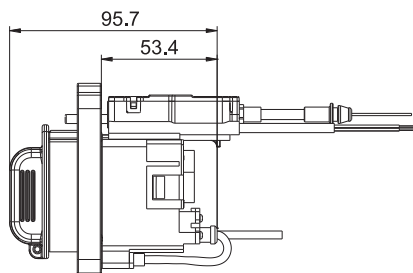
### Socket with indicator light 1

Function: Damping flip socket, socket suitable for front installation, installation size in accordance with national standards, socket rear cavity protection grade IP67, with a separate charging state lamp, through color changes to display different charging state, can be customized according to customer requirements, Please consult our company for specific models;



### Socket with indicator light 2

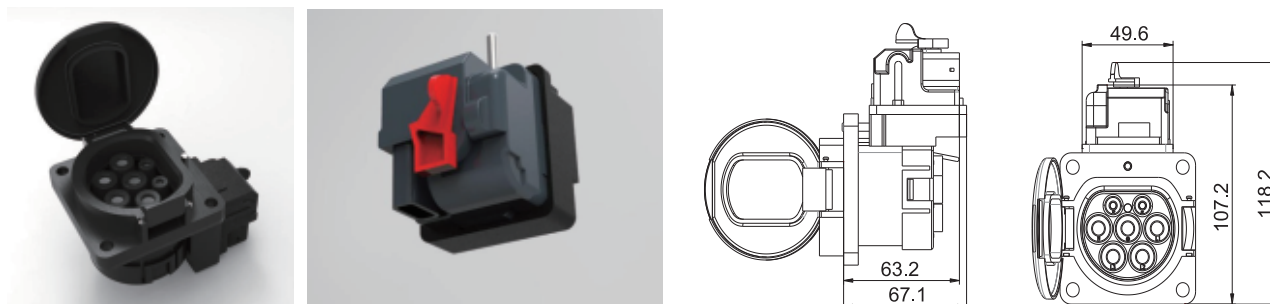
Function: Cover socket, socket is suitable for pre-installation or post-installation, installation size meets the requirements of national standard, socket rear cavity protection grade IP67, flange with half ring charging state lamp, display different charging state through color change, can be customized according to customer requirements, Please consult our company for specific models;



New national standard GB/T20234–2015 mandatory 32 A and 63 AC sockets with electronic locks and temperature sensors, our company developed suitable for Haila motor lock socket, in addition to independent design of motor lock socket

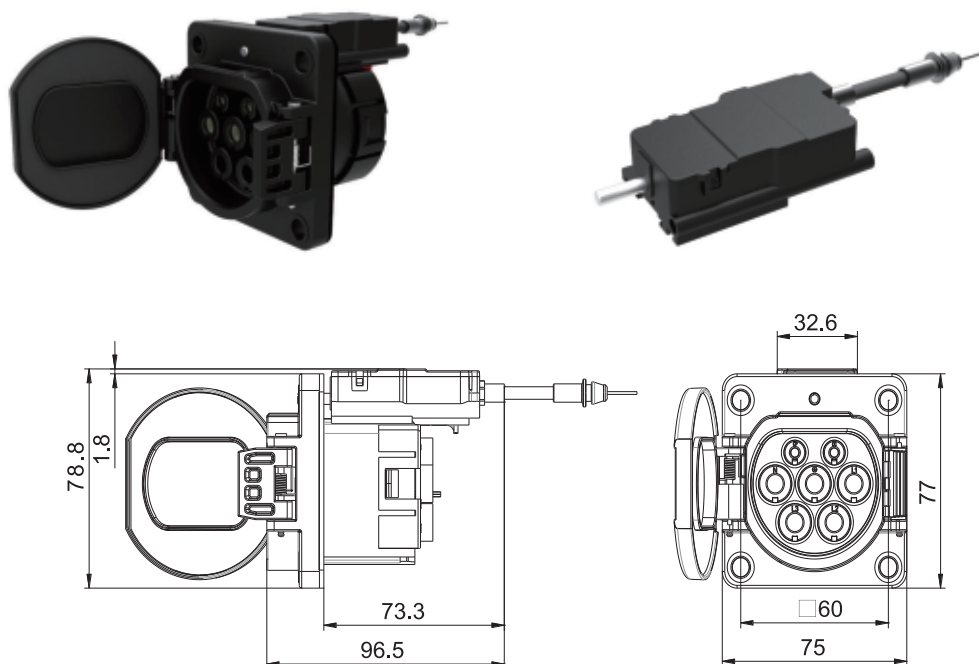
### Motor lock1

Function: Motor lock drive voltage 12 V, In addition, motor lock provides lock in place signal and unlock in place signal, Please consult our company for specific models;



### Motor lock2

Function: Recodeal independently design motor lock, drive voltage 12 V, separate protection grade IP55, lock shaft rod and manual unlock pull rod is not linked, mechanical life :100000 times / back and forth (can be equipped with three-wire or four-wire system), similar motor lock, Suitable for small body installation space,, Please consult our company for specific models;



## DC Charging-Gun



### Describe

- Reference Standard:
  - GB/T 18487.1-2015 《 Electric Vehicle Conductive Charging System Part1: General Requirements 》
  - GB/T 20234.1-2015 《 Electric Vehicle Conductive Charging Connectors Part 1: General Requirements 》
  - GB/T 20234.3-2015 《 Electric Vehicle Conductive Charging Connectors Part 3: DC Charging Interface 》
- Cable Section: 25mm<sup>2</sup>--80mm<sup>2</sup>
- Charge current up to 250 A supported
- Mainly applied to: Connection between DC charging pile and battery pack
- The charging gun head has the function of replacing the pin and reducing the after-sale cost
- Flexible customized products

### Performance parameter

- Current Rating: 80A, 125A, 200A, 250A
- Voltage Rating: 750V DC
- Temperature: -40°C--+85°C

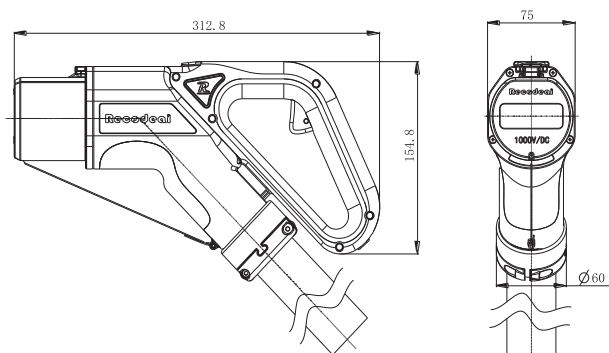
### Charging Mode Parameters

DC charging coupler wiring specification and electrical parameters

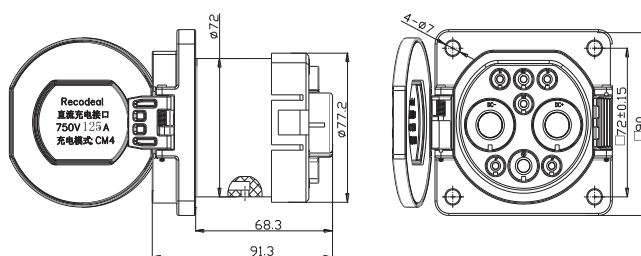
Recommended Cable Specifications	Current Rating	Specification for each interface cable(mm <sup>2</sup> )									
		DC+	DC-	PE	S+	S-	Cc1	Cc2	A+	A-	其他
3Cx25mm <sup>2</sup> +2Cx4mm <sup>2</sup> +1Px0.75mm <sup>2</sup> +1Px0.75mm <sup>2</sup> +4Cx0.75mm <sup>2</sup> +4Cx0.75mm <sup>2</sup>	80A	25	25	25	0.75	0.75	0.75	0.75	4	4	0.75
2Cx35mm <sup>2</sup> +1Cx25mm <sup>2</sup> +2Cx4mm <sup>2</sup> +1Px0.75mm <sup>2</sup> +1Px0.75mm <sup>2</sup> +4Cx0.75mm <sup>2</sup> +4Cx0.75mm <sup>2</sup>	125A	35	35	25	0.75	0.75	0.75	0.75	4	4	0.75
2Cx50mm <sup>2</sup> +1Cx25mm <sup>2</sup> +2Cx4mm <sup>2</sup> +1Px0.75mm <sup>2</sup> +1Px0.75mm <sup>2</sup> +4Cx0.75mm <sup>2</sup> +4Cx0.75mm <sup>2</sup>	200A	50	50	25	0.75	0.75	0.75	0.75	4	4	0.75
2Cx70mm <sup>2</sup> +1Cx25mm <sup>2</sup> +2Cx4mm <sup>2</sup> +1Px0.75mm <sup>2</sup> +1Px0.75mm <sup>2</sup> +4Cx0.75mm <sup>2</sup> +4Cx0.75mm <sup>2</sup>	250A	70	70	25	0.75	0.75	0.75	0.75	4	4	0.75

## SIZE

### PLUG

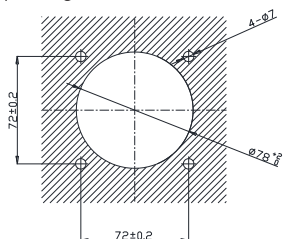


### Socket

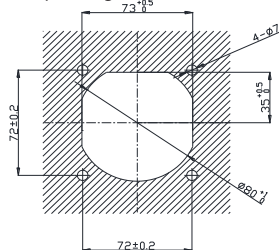


### Recommended hole size

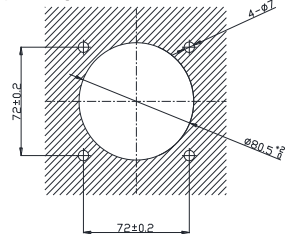
Flange gasket sealing mode socket opening size and schematic diagram



Back installation mode socket opening size and schematic diagram



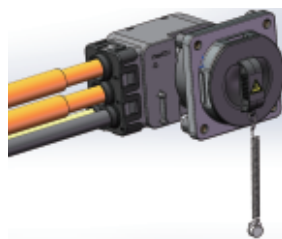
Integral sheath sealing mode socket opening size and schematic diagram



Nut insert

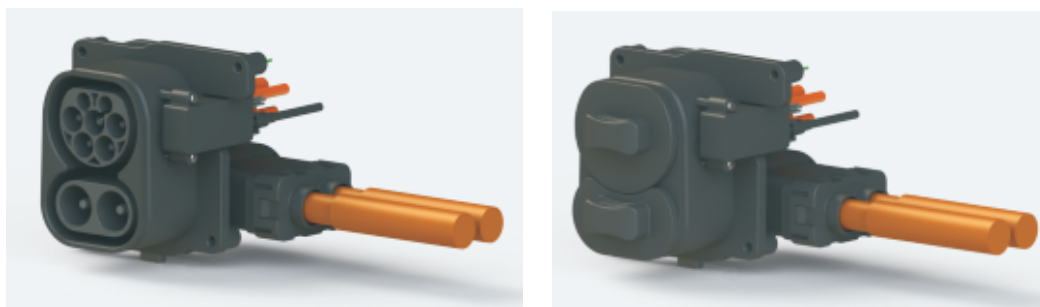


stud insert



Angle socket with pull-out cover

## European standard AC/DC integrated charging Coupler



### Describe

- Meeting IEC 62196-1, IEC 62196-2, IEC 62196-3 standard requirements
- Current: DC: 125A、200A、250A; AC: 16A、32A
- Cable outlet direction: DC: 90° right angle; AC: 180° straight
- Terminal wiring information: DC: 25mm<sup>2</sup>、35mm<sup>2</sup>、50mm<sup>2</sup>、70mm<sup>2</sup>、95mm<sup>2</sup> Unshielded line (LV216) AC: 2.5mm<sup>2</sup>、6mm<sup>2</sup> Unshielded line (LV216)
- Temperature transmitter : DC: DC+, DC-; AC: L1, N
- Drainage structure: With drains, Option tube
- Unit and dual position feedback signals optional
- Installation: Back Installation

### Parameter

#### Electrical specification

- Rated Current and Voltage: CP、PP: 2A 30V  
DC+, DC-: 125A/200A/250A/350A, 1000VDC  
L1、L2、L3、N: 32A, 480VAC
- withstand voltage : ≥2700V (AC) 1min, Leakage current less than 5 mA, No breakdown
- insulation resistance : 1000V DC, ≥200MΩ
- Cable can be welded or pressed by ultrasonic wave

#### mechanical properties

- mechanical life : More than 10000 times

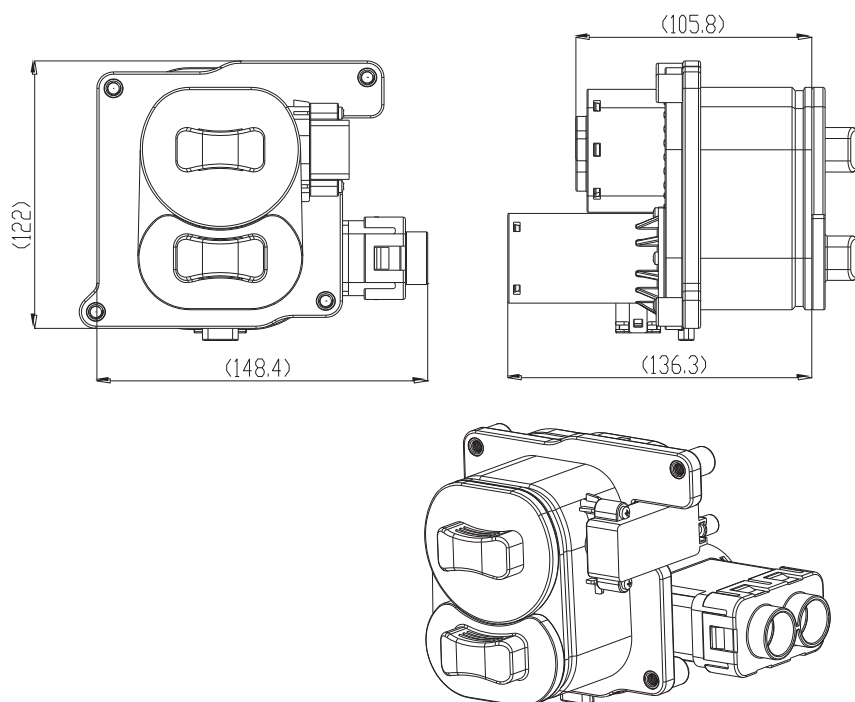
#### work environment

- working temperature : -40°C ~ +85°C
- Dampness : Low than 95% (40°C时)
- IP Level: IP54  
IP55 (Matched)  
IP67 (Tail Cable sealed)
- Flame retardant grade: UL94-V0

#### Raw material

- Shell: Thermoplastic flame
- retardant materials
- Contact part: pinkus metal  
Seal Part: Rubber or elastomers

## SIZE



Note: Customizable development and installation panel size and outlet mode according to customer requirements

## GB/T AC DC integrated charging Coupler



### Describe

- Meeting GB/T20234.1,GB/T20234.2,GB/T20234.3 standard requirements
- Current: DC: 80A、125A、200A、250A; AC: 16A、32A
- Cable outlet direction: DC: 90; AC: 180
- Terminal wiring information: DC: 25mm<sup>2</sup>、35mm<sup>2</sup>、50mm<sup>2</sup>、70mm<sup>2</sup>Unshielded Line ( LV216 )  
AC: 2.5mm<sup>2</sup>、4mm<sup>2</sup>、6mm<sup>2</sup>Unshielded Line ( LV216)
- Temperature transmitter: DC: DC+,DC-; AC: L1,N
- Drainage structure: With drains,, Option tube
- Electronic lock: Motor lock, optional single or double position feedback signal
- Light indicator: LED mode with LED lamp without light control panel: rear installation
- Installation: Back Installation
- Mode of connection : DC+/DC-Support ultrasonic welding and compression connection, the rest of the terminals are crimped

### Parameter

#### Electrical specification

- Rated Current and Voltage: DC+、DC-: 125A/200A/250A/300A,1000VDC  
L1、L2、L3、N: 32A,480VAC
- Withstand voltage: ≥2700V ( AC ) 1min, Leakage less than 5 mA, No breakdown
- insulation resistance : 1000V DC,≥200MΩ
- Cable can be welded or pressed by ultrasonic wave

#### Mechanical properties

- Using Life: More than10000 times

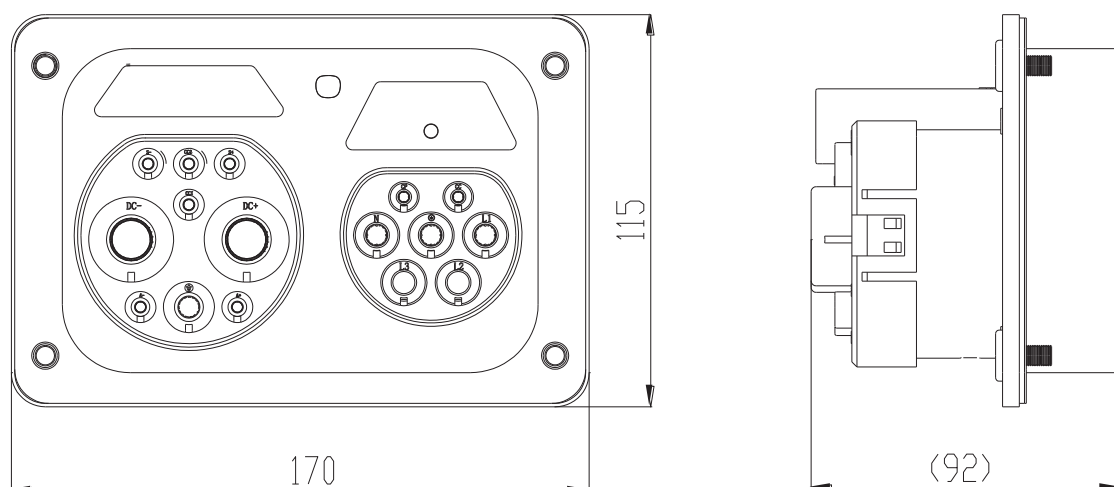
#### Work environment

- working temperature : -40℃ ~ +85℃
- Dampness : Low than 95% ( 40℃时 )
- IP Level: IP54  
IP55 ( Matched )  
IP67 ( Tail Cable sealed )
- Flame retardant grade: UL94-V0

#### Raw Material

- Shell: Thermoplastic flame
- retardant materials
- Contact part: pinkus metal  
Seal Part: Rubber or elastomers

## SIZE



Note: Can be customized according to customer needs panel and hole size and so on.