



AMPHENOL PCD SHENZHEN



# EXCEL | MATE CC

Electric car charging coupler

[www.amphenolpcd.com.cn](http://www.amphenolpcd.com.cn)

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## PRODUCT INTRODUCTION



- Amphenol PCD Shenzhen charging couplers are all compliant with GB/T 20234.1/2/3-2015 standards.
- User-friendly, easy to unmate, IP 55 (mated).
- High current contacts with Amphenol Radsok Technology.





MECHANICAL		
Mating cycles	≥ 10000 cycles	
Connector (in mated condition) retention force:		
AC coupler	Unmating	100N Max
	Mating	200N Min
DC coupler	Unmating	140N Max
	Mating	200N Min
ELECTRICAL		
	AC (R6)	DC (R12)
Rated current	32A Max	250A Max
Rated voltage	250V/440V AC	750V/1000V DC
Contact resistance	0.5mΩ Max	0.2mΩ Max
Insulation resistance	>100MΩ (DC500V)	>100MΩ (DC500V)
ENVIRONMENTAL		
Protection degree	IP55 (mated)	
Ambient temperature	-30°C to 50°C	
MATERIAL		
Shell	Thermoplastic	
Contact	Copper alloy, silver or nickel plating	
Insert	Thermoplastic	
Sealing gasket	Rubber or silicon rubber	
Insulator inflammability	UL94V0	

## CHARGING MODES CLASSIFICATION

### CHARGING MODE 2:

When connecting electric vehicle to AC network, the plug and socket-outlet at power supply side shall comply with requirements of GB 2099.1. Phase line, neutral line and protective earth conductor shall be used at power supply side and the residual current operated circuit breaker shall be used at power supply side.

### CHARGING MODE 3:

When connecting electric vehicle to AC network, the plug and socket-outlet at power supply side shall comply with requirements of GB 2099.1. Phase line, neutral line and protective earth conductor shall be used at power supply side and in-cable control box is installed in the charging connection cable.

### CHARGING MODE 4:

When connecting electric vehicle to AC network, use special power supply equipment. Directly connect the electric vehicle with AC network and install control guide device on the special power supply equipment.

## RATED CURRENT AND VOLTAGE FOR DIFFERENT CHARGING MODES

Charging Mode	Couple Type	Rated Voltage	Rated Current
2	AC coupler	250V AC	16A
3	AC coupler	250V/440V AC	32A
4	DC coupler	750V/1000V DC	80A
	DC coupler	750V/1000V DC	125A
	DC coupler	750V/1000V DC	250A

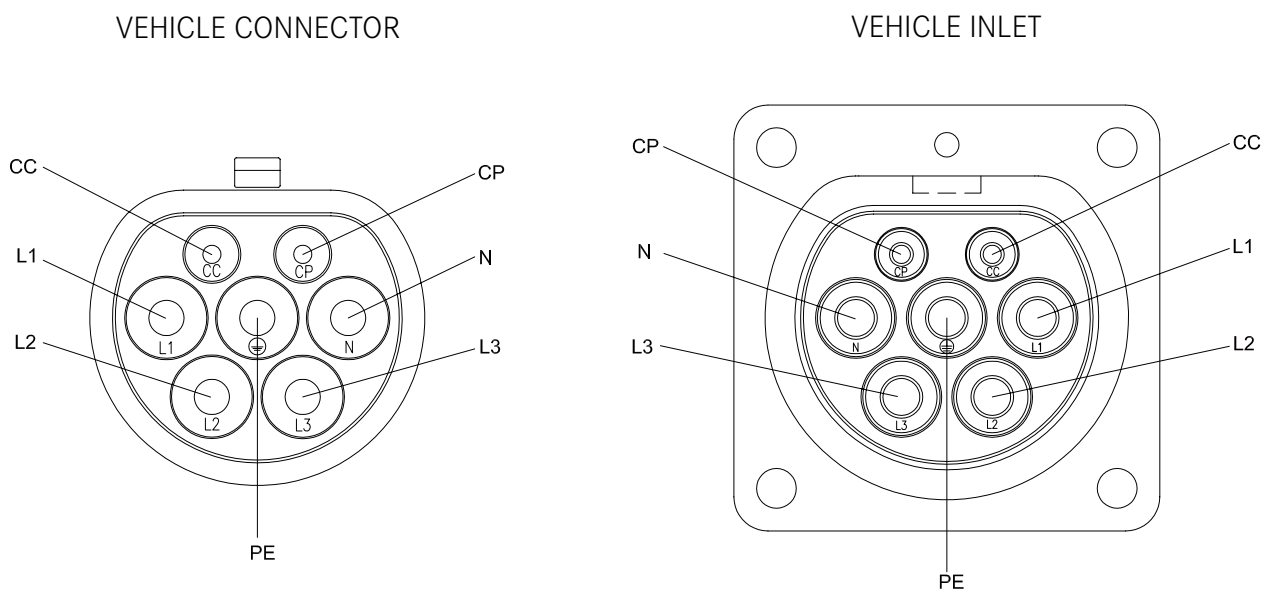
Remarks:

All types of charging modes should be connected with residual current operated circuit-breakers and overflow protective device. Residual current operated circuit-breakers should be compliant with GB/T 16916.1 or GB/T 16917.1 requirements.

## INSERT ARRANGEMENT

AC Coupler insert arrangement

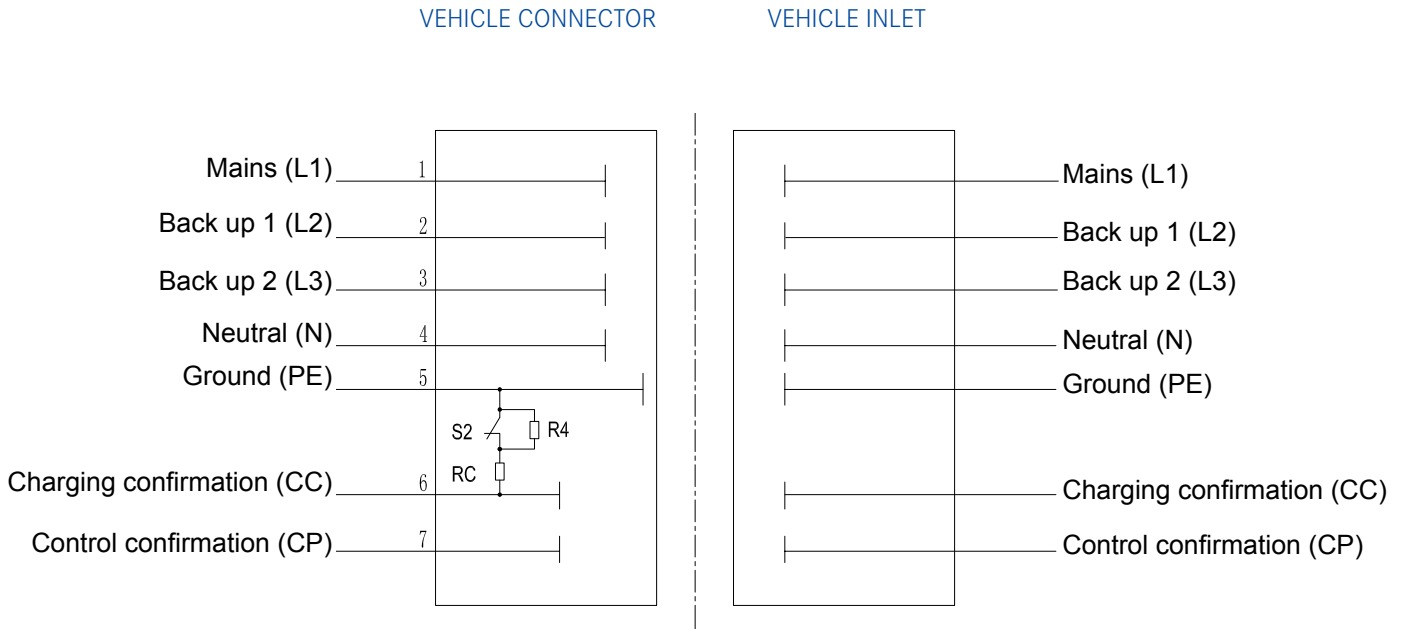
National standard



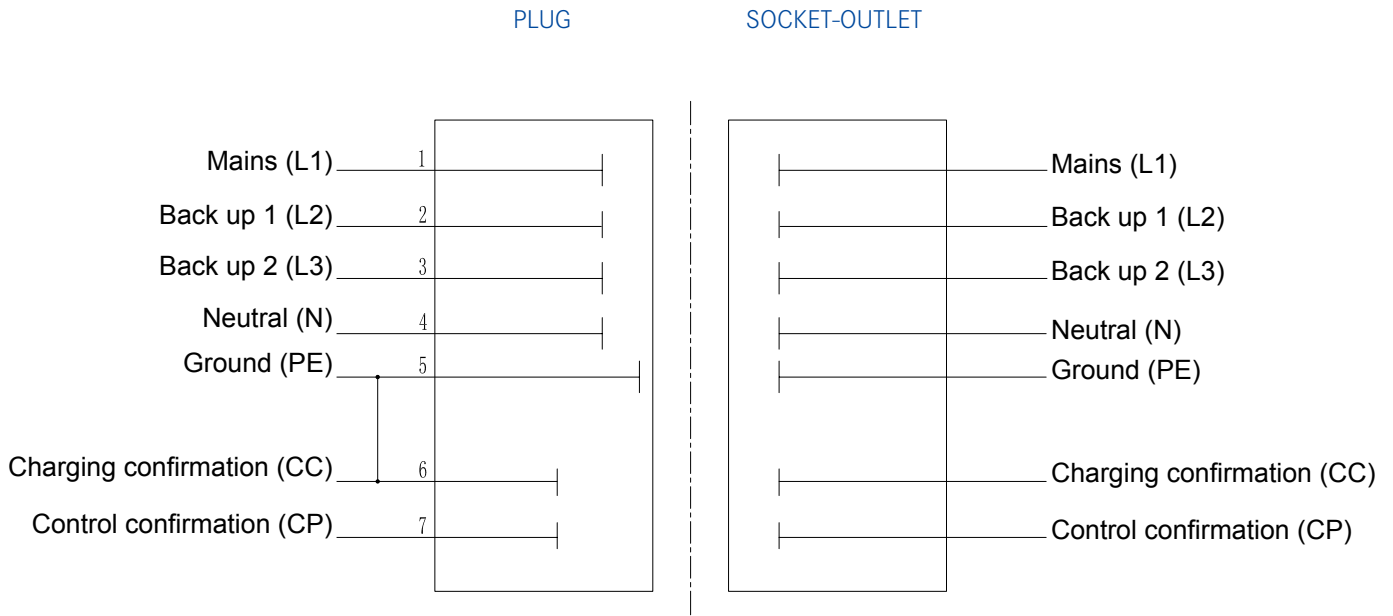
## CONFIGURATION

Contacts Number & Function	Rated Voltage & Current	Function
L1	250V/440V 16/32A	AC power
N	250V/440V 16/32A	Neutral
⊕	-	PE, connect charging stake and vehicle chassis ground
CC	30V 2A	Charging confirmation
CP	30V 2A	Control confirmation
L2	-	Back up contact
L3	-	Back up contact

# CIRCUIT DIAGRAM: VEHICLE SIDE



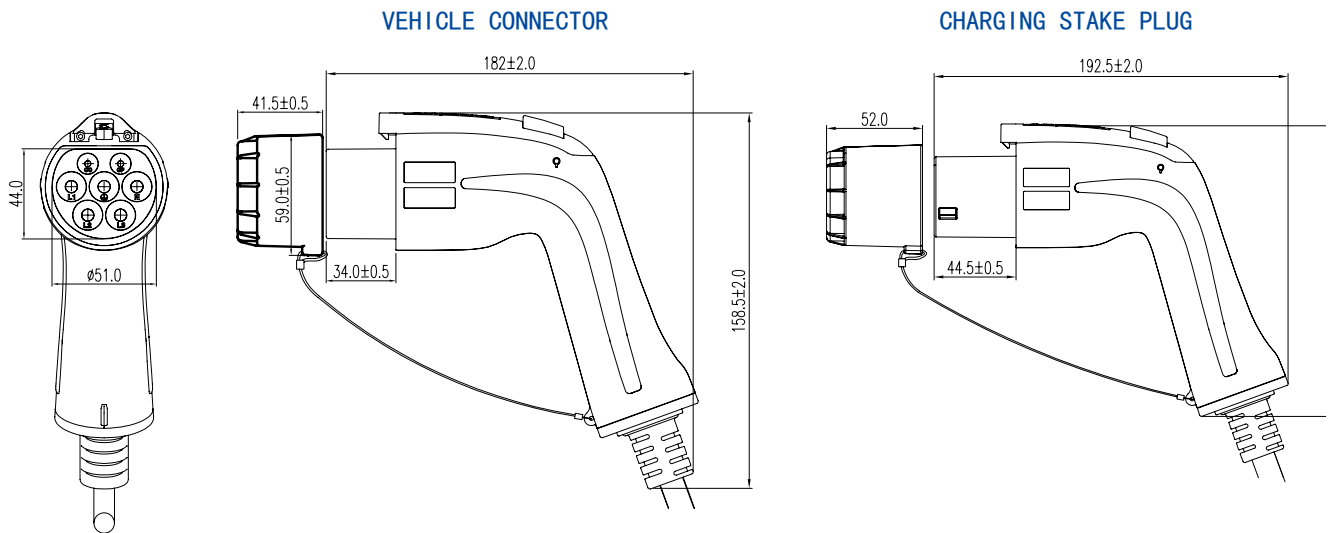
# CIRCUIT DIAGRAM: CHARGING STAKE SIDE



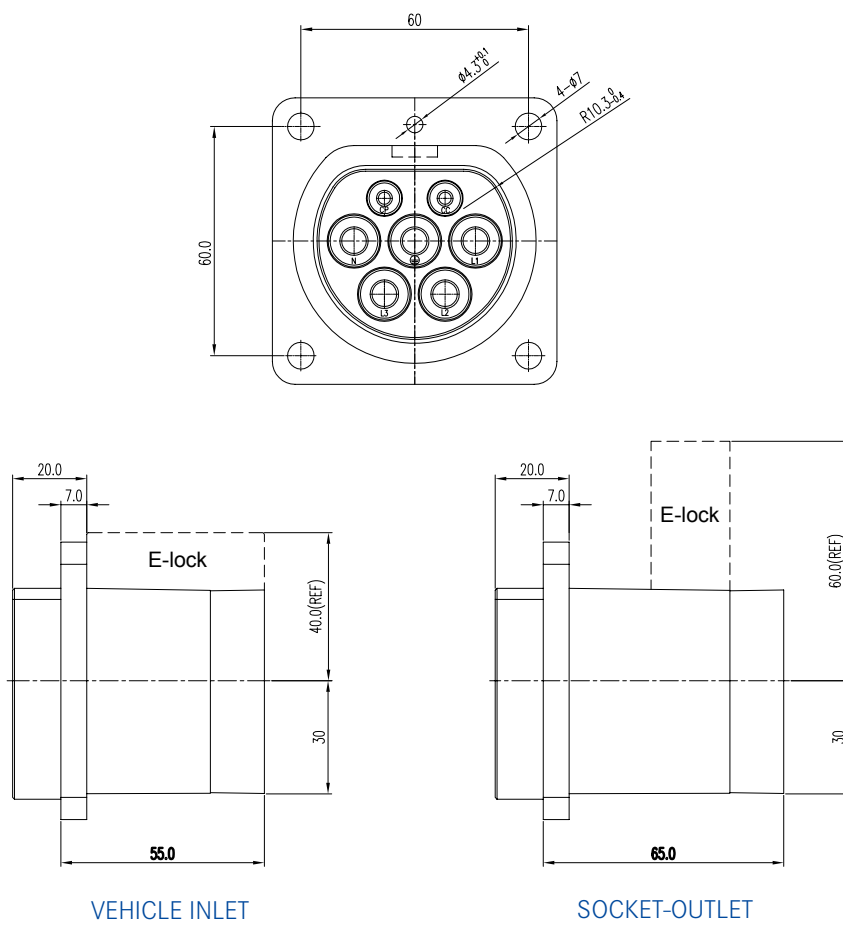


# AC COUPLER DIMENSIONS

## PLUG



## SOCKET

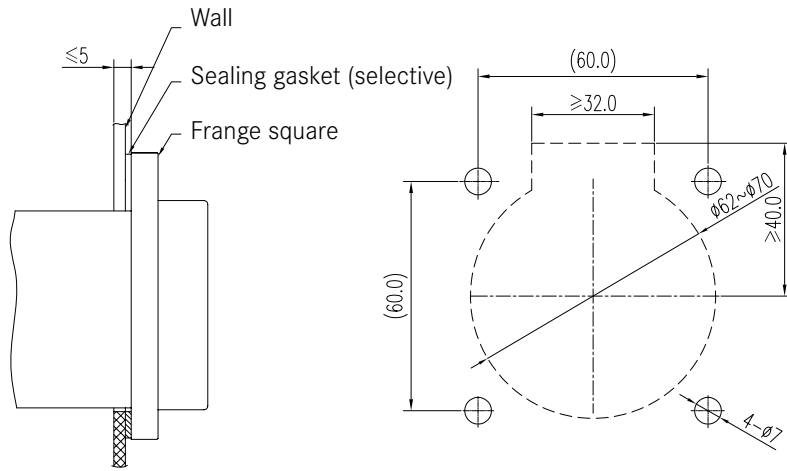


## MOUNTING INSTRUCTIONS

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### VEHICLE INLET

#### MOUNTING INSTRUCTION

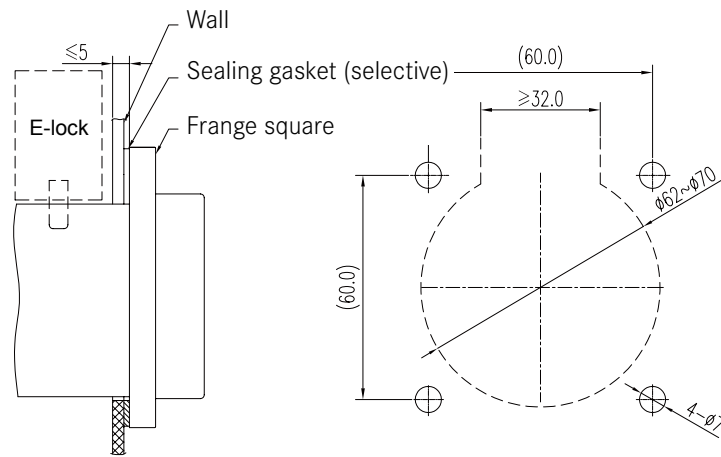


Panel installation guide

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### SOCKET-OUTLET

#### MOUNTING INSTRUCTION

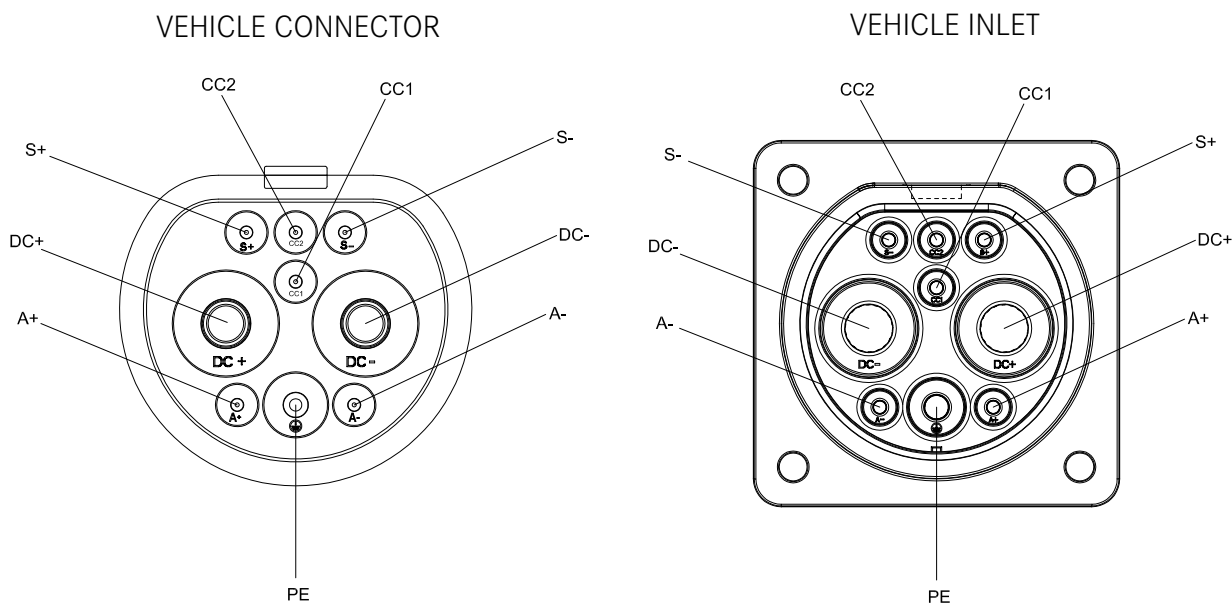


Panel installation guide

## INSERT ARRANGEMENT

DC Coupler inserts arrangement

National standard



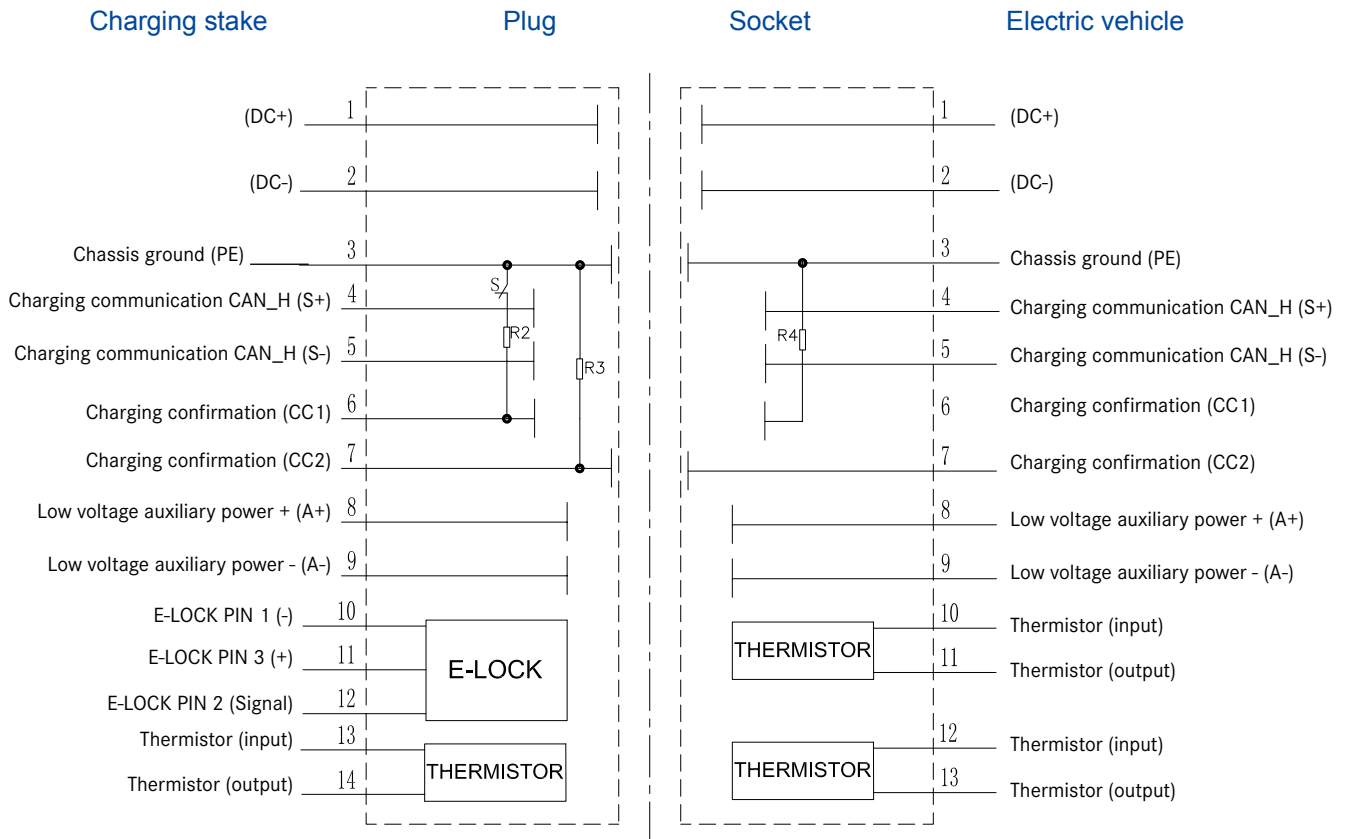
## CONFIGURATION

Contacts Number & Function	Rated Voltage & Current	Function
DC+	750V/1000V 125/250A	DC+, connect DC+ and battery+
DC -	750V/1000V 125/250A	DC -, connect DC- and battery -
⊕	-	PE, connect power supply equipment and vehicle chassis ground
S+	30V 2A	Charging communication CAN_H, connect charging stake and vehicle's communication
S-	30V 2A	Charging communication CAN_L, connect charging stake and vehicle's communication
CC1	-	Charging confirmation 1
CC2	-	Charging confirmation 2
A+	30V 20A	Low voltage auxiliary power+, charging stake supply low voltage auxiliary power+ to electric vehicle
A -	30V 20A	Low voltage auxiliary power-, charging stake supply low voltage auxiliary power- to electric vehicle

### Remarks:

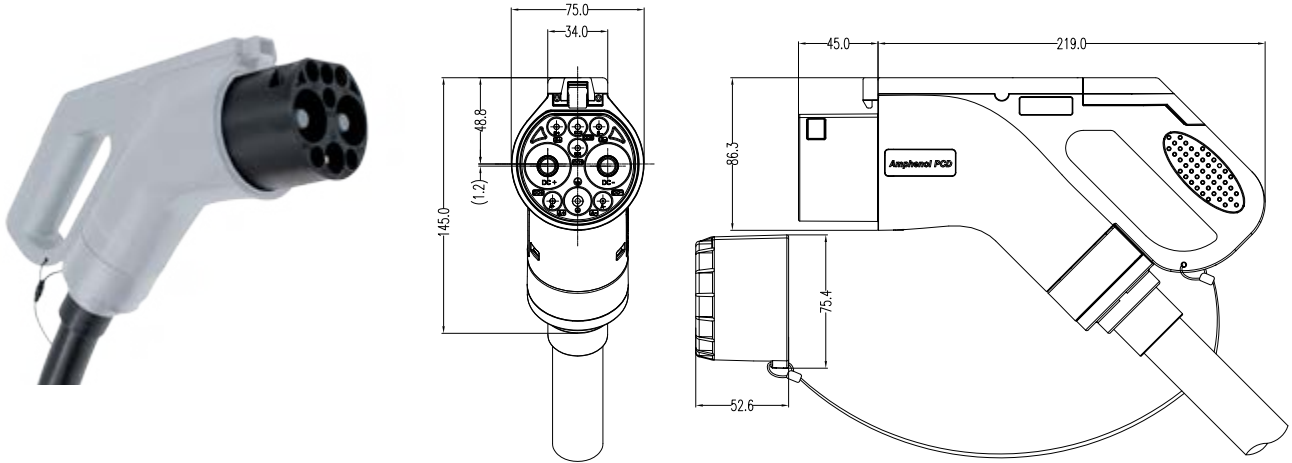
Charging stake and vehicle control device should mount CAN fieldbus termination resistor, 120Ω recommended. Communication wire should use shielded twist wire, charging stake end with shielded ground.

## DC CIRCUIT DIAGRAM

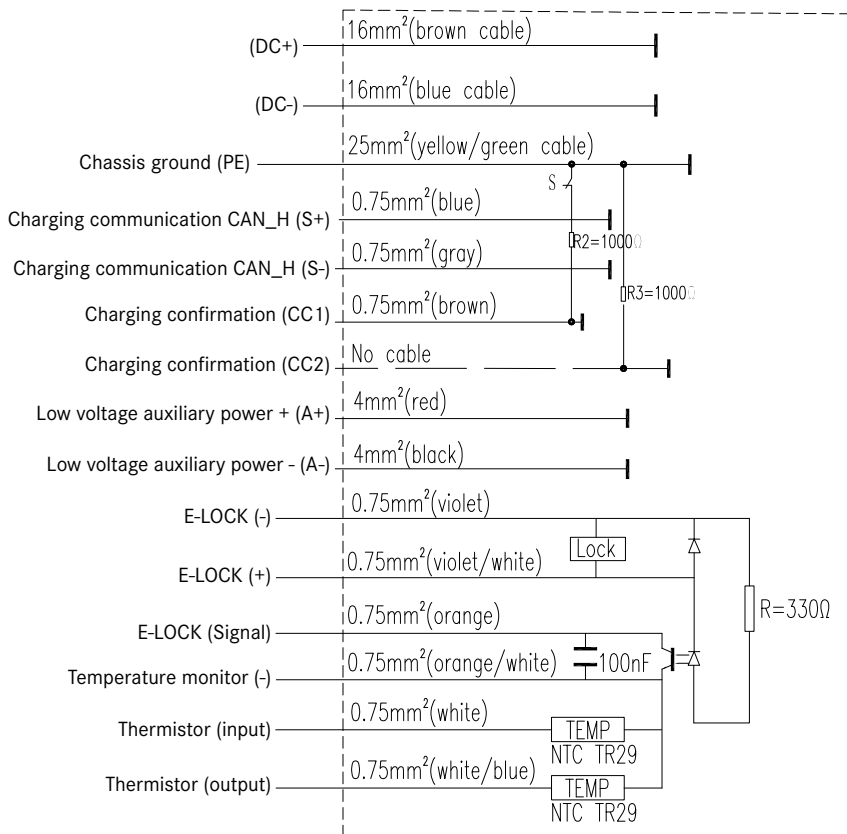


## 80A DC COUPLER DIMENSIONS

### VEHICLE CONNECTOR

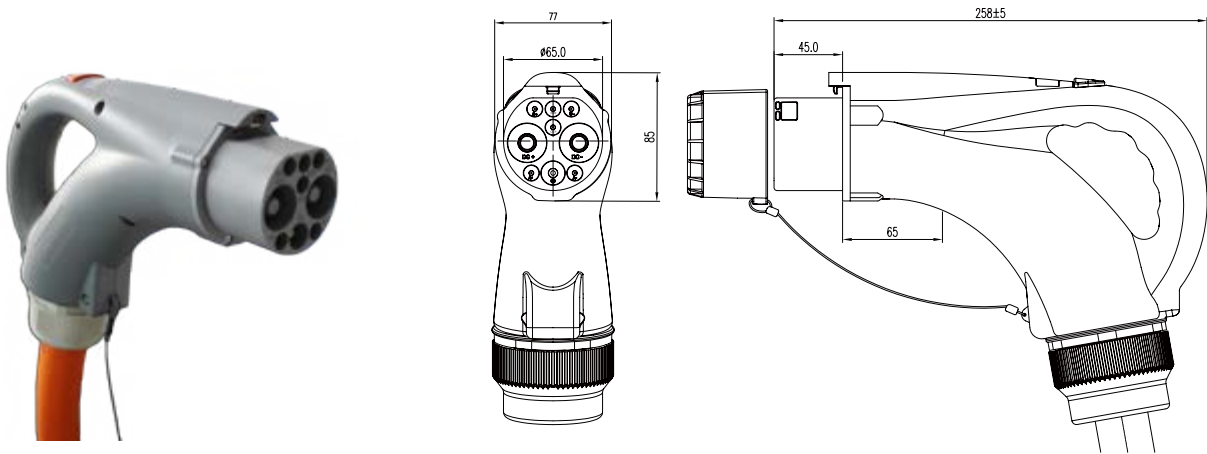


### DC CIRCUIT DIAGRAM

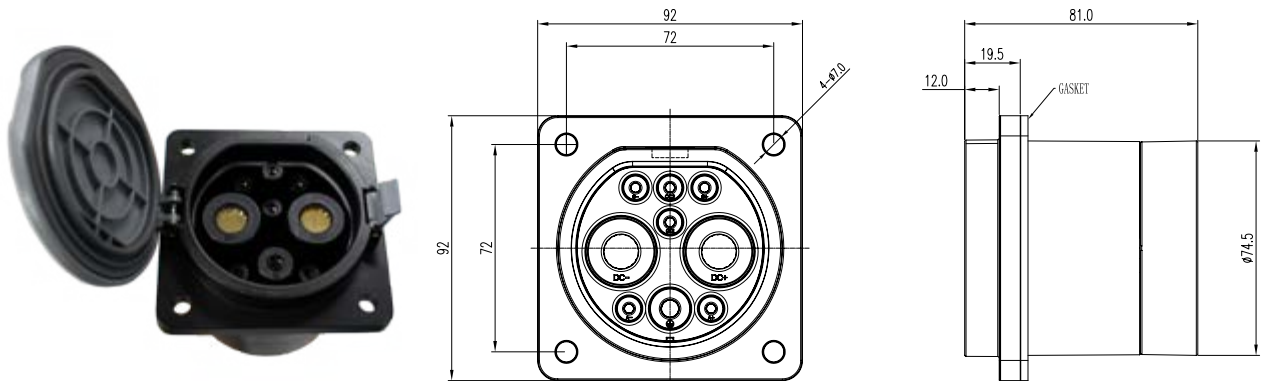


## 125A TO 250A DC COUPLER DIMENSIONS

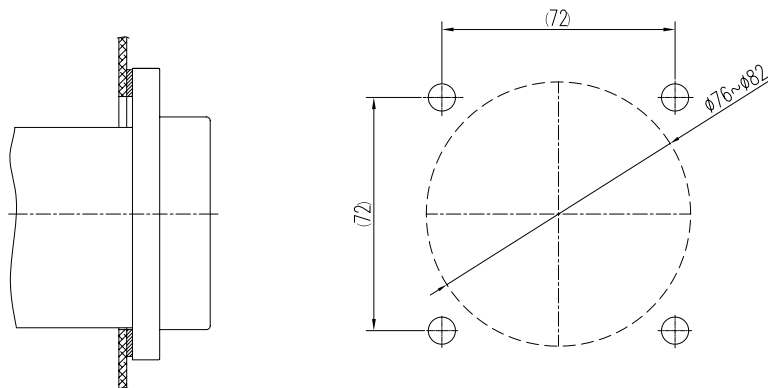
### VEHICLE CONNECTOR



### VEHICLE INLET



### MOUNTING INSTRUCTION



PRODUCT SERIES SUMMARY

CHARGING MODE 2	CHARGING MODE 3
CHARGING CIRCUIT INTERRUPTING DEVICE (CCID)	VEHICLE CONNECTOR + PLUG
	
CHARGING MODE 4 (80A)	CHARGING MODE 2 & 3
VEHICLE CONNECTOR	VEHICLE INLET
	
CHARGING MODE 4 (125A TO 250A)	
VEHICLE CONNECTOR	VEHICLE INLET
	

## HOW TO ORDER

	HVCO	M	E	L	B	T	S	R6	PSXXX	R	W	LXXXX	XXXX
Connector type: <b>M:</b> Plug <b>F:</b> Receptacle													
<b>E:</b> Electric switch Used for: - AC vehicle connector - and DC plug <b>Omit:</b> No electric switch needed													
<b>L:</b> Electronic lock (Only for DC plug)													
<b>B:</b> New national standard (2015)													
<b>T:</b> Thermistor (for rated current over 16A) <b>Omit:</b> No thermistor needed													
<b>S:</b> Charging stake side <b>SC:</b> Vehicle connector + plug (charging mode 3) <b>Omit:</b> Vehicle side													
Contact size: <b>R6:</b> 6mm Radsok contact <b>R12:</b> 12mm Radsok contact													
Insert arrangement: <b>PSXXX:</b> Plug slow charging coupler <b>PFXXX:</b> Plug fast charging coupler <b>SSXXX:</b> Socket slow charging coupler <b>SFXXX:</b> Socket fast charging coupler													
<b>R:</b> Extra resistor <b>Omit:</b> No extra resistor needed													
<b>W:</b> Wave tube <b>Omit:</b> No wave tube needed													
Cable length : <b>LXXXX:</b> (Unit in mm). <b>Omit:</b> No cable needed													
Cable accessories: <b>XXXX:</b> Cable accessories													



## PART NUMBER

### AC COUPLER

AC VEHICLE CONNECTOR TYPES										
P/N	Cable quantity	Charging mode	Cable section (mm <sup>2</sup> )	L	CN1	CN2	PE	N	CC	CP
PS502R	4	charging mode 2, rated current 16A	2.5	2.5	N/A	N/A	2.5	2.5	R	0.75
PF506R	4	charging mode 3, rated current 32A	6	6	N/A	N/A	6	6	R	0.75

AC VEHICLE INLET TYPES										
P/N	Cable quantity	Charging mode	Cable section (mm <sup>2</sup> )	L	CN1	CN2	PE	N	CC	CP
SS502	5	charging mode 2, rated current 16A	2.5	2.5	N/A	N/A	2.5	2.5	0.75	0.75
SF506	5	charging mode 3, rated current 32A	6	6	N/A	N/A	6	6	0.75	0.75

### DC COUPLER

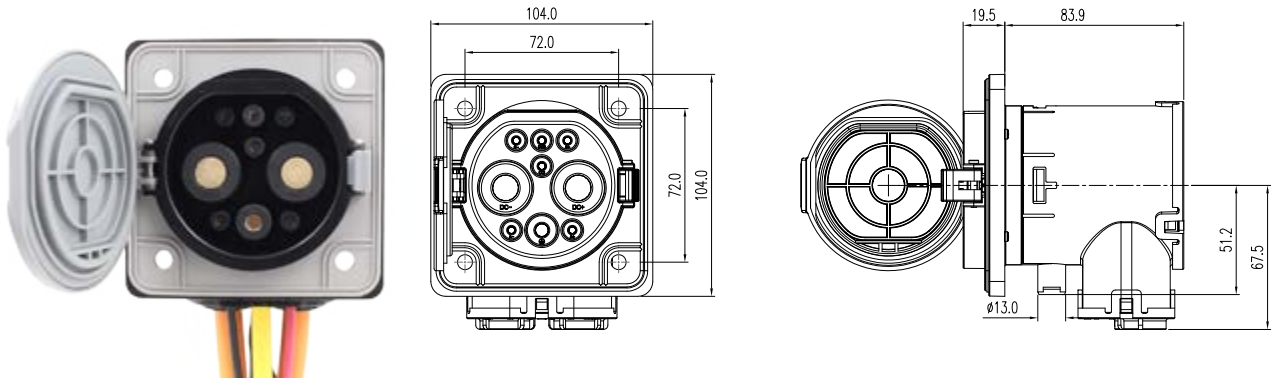
DC VEHICLE CONNECTOR TYPES												
P/N	Cable quantity	Charging mode	Cable section (mm <sup>2</sup> )	DC+	DC-	PE	S+	S-	CC1	CC2	A+	A-
PF916	9	charging mode 4 rated current 80A	16	16	16	25	0.75	0.75	0.75	Shunt	4	4
PF935	9	charging mode 4, rated current 125A	35	35	35	25	0.75	0.75	0.75	Shunt	4	4
PF970	9	charging mode 4, rated current 250A	70	70	70	25	0.75	0.75	0.75	Shunt	4	4

DC VEHICLE INLET TYPES												
P/N	Cable quantity	Charging mode	Cable section (mm <sup>2</sup> )	DC+	DC-	PE	S+	S-	CC1	CC2	A+	A-
SF916	9	charging mode 4, rated current 80A (not recommended)	16	16	16	16	0.75	0.75	0.75	0.75	4	4
SF935	9	charging mode 4, rated current 125A	35	35	35	16	0.75	0.75	0.75	0.75	4	4
PF970	9	charging mode 4, rated current 250A	70	70	70	25	0.75	0.75	0.75	0.75	4	4

#### Remarks:

1. Cable section & pin installations are compliant with the national standards. Please contact us if any alternative installation is desired.
2. Cable assembly is recommended to be done by Amphenol PCD Shenzhen, for professional and safety reasons. For any special request, please contact us.
3. The part numbers shown in this form are only for reference. Please refer to the specific customer drawing for actual part numbers.

## VEHICLE INLET - 90° RIGHT-ANGLE

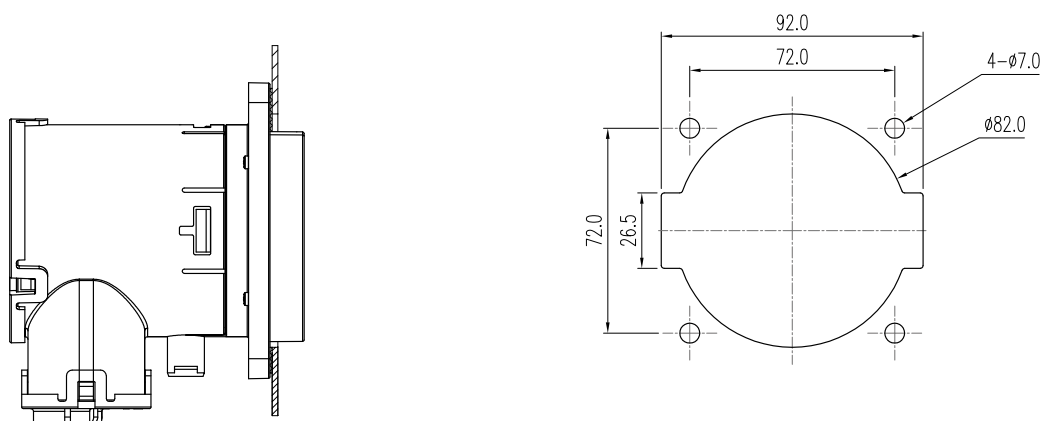


### P/N:

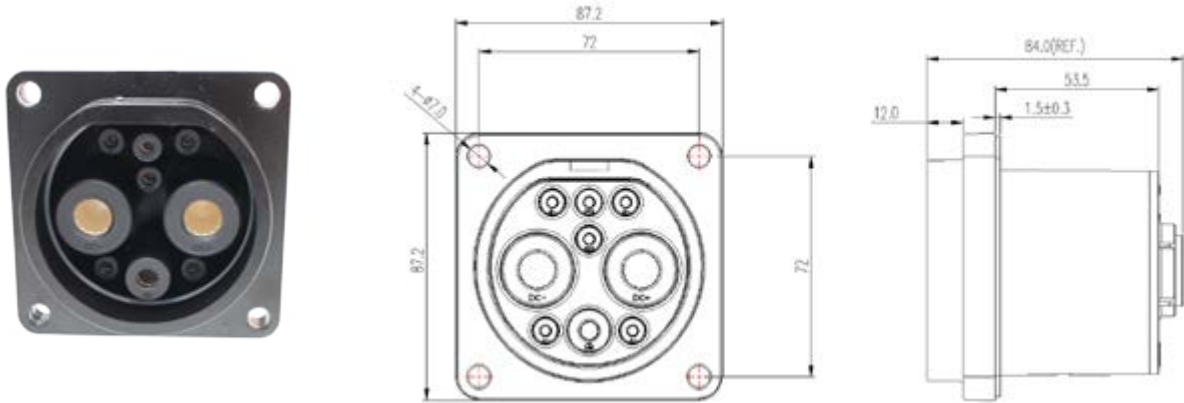
HVCO02R12SF935RDL0000, 125A, 1000V DC Max

HVCO02R12SF970RDL0000, 200A, 1000V DC Max

## FRONT MOUNTED INSTALLATION INSTRUCTIONS: VEHICLE INLET



## DC VEHICLE INLET (SMALL SIZE) - FRONT MOUNTED

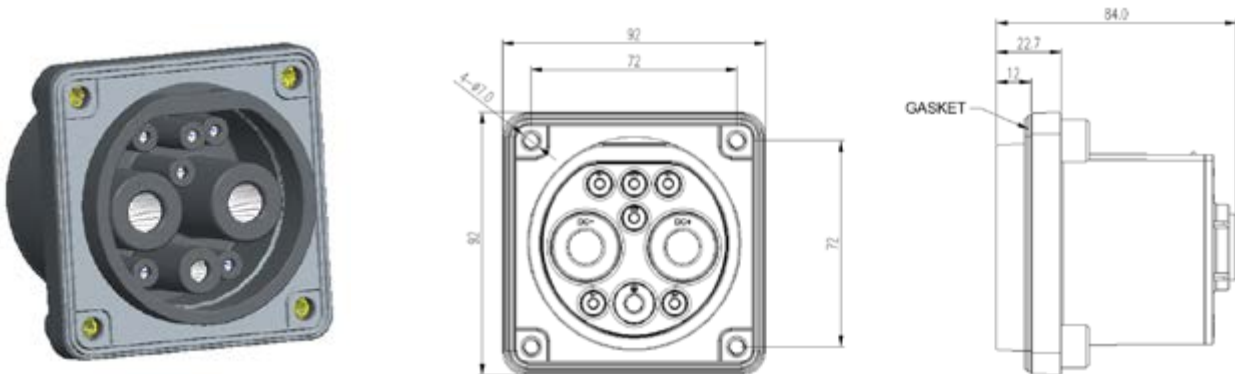


### P/N:

HVCO01R12SF935RL0000, 125A, 1000V DC Max

HVCO01R12SF970RL0000, 250A, 1000V DC Max

## REAR MOUNTED INTALLATION INSTRUCTIONS: DC VEHICLE INLET (SMALL SIZE)



### P/N:

HVCO02R12SF935RL0000, 125A, 1000V DC Max

HVCO02R12SF970RL0000, 250A, 1000V DC Max

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