

Electric car charging coupler

9 10 3 5

30

2



www.amphenolpcd.com.cn

CONTENT

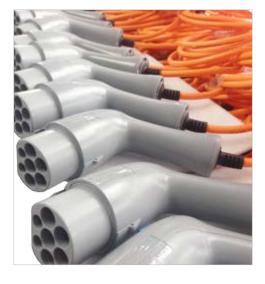
| PRODUCT INTRODUCTION | 2 |
|---|----|
| SPECIFICATIONS | 3 |
| CHARGING MODES CLASSIFICATION | 4 |
| INSERT ARRANGEMENT | 5 |
| CIRCUIT DIAGRAM: VEHICLE SIDE | 6 |
| CIRCUIT DIAGRAM: CHARGING STAKE SIDE | 7 |
| AC COUPLER DIMENSIONS | 8 |
| PANEL MOUNTING DIMENSIONS | 9 |
| INSERT ARRANGEMENT (DC) | 10 |
| DC CIRCUIT DIAGRAM | 11 |
| 80A DC COUPLER DIMENSIONS | 12 |
| 125A TO 250A DC COUPLER DIMENSIONS | 13 |
| PRODUCT SERIES SUMMARY | 14 |
| HOW TO ORDER | 15 |
| PART NUMBERS | 16 |
| VEHICLE INLET - 90° RIGHT-ANGLE | 17 |
| DC VEHICLE INLET (SMALL SIZE) - FRONT MOUNTED | 18 |

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.









| М | ECHANICAL | | | | | | |
|--------------------------|--------------------------|----------------------|--|--|--|--|--|
| Mating cycles | ≥ 10000 cycles | | | | | | |
| Connector (in mated con | lition) retention force: | | | | | | |
| | Unmating | 100N Max | | | | | |
| AC coupler | Mating | 200N Min | | | | | |
| DC coupler | Unmating | 140N Max | | | | | |
| | Mating | 200N Min | | | | | |
| E | LECTRICAL | | | | | | |
| | AC (R6) | DC (R12) | | | | | |
| Rated current | 63A 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) | | | | | |
| | | | | | | | |
| ENV | IRONMENTAL | | | | | | |
| Protection degree | IP55 (mated) | | | | | | |
| Ambient temperature | -30°C to 50°C | | | | | | |
| | MATERIAL | | | | | | |
| Shell | Thermoplastic | | | | | | |
| Contact | Copper alloy, silve | er or nickel plating | | | | | |
| Insert | Thermoplastic | | | | | | |
| Sealing gasket | Rubber or silicon I | 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 |
| | DC coupler | 750V/1000V DC | 80A |
| 4 | 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.

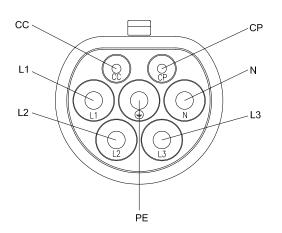
INSERT ARRANGEMENT

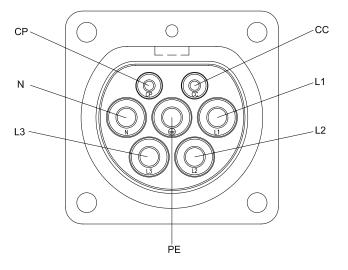
AC Coupler insert arrangement

National standard

VEHICLE CONNECTOR

VEHICLE INLET

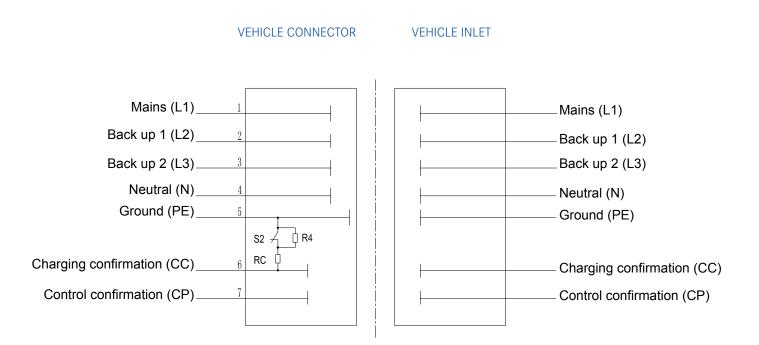




CONFIGURATION

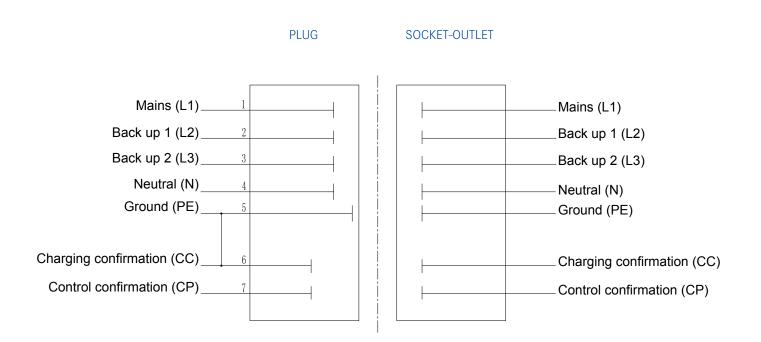
| Contacts Number & Function | Rated Voltage & Current | Function |
|----------------------------|-------------------------|---|
| L1 | 250V/440V 16/32A | AC power |
| Ν | 250V/440V 16/32A | Neutral |
| ۲ | - | PE, connect charging stake and vehicle chassis ground |
| CC | 30V 2A | Charging confirmation |
| СР | 30V 2A | Control confirmation |
| L2 | - | Back up contact |
| L3 | - | Back up contact |

CIRCUIT DIAGRAM: VEHICLE SIDE





CIRCUIT DIAGRAM: CHARGING STAKE SIDE

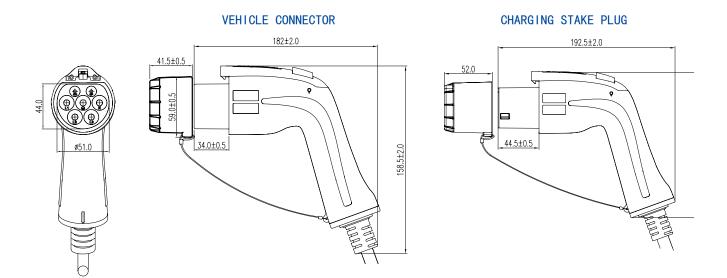


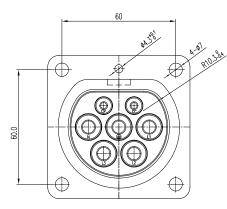


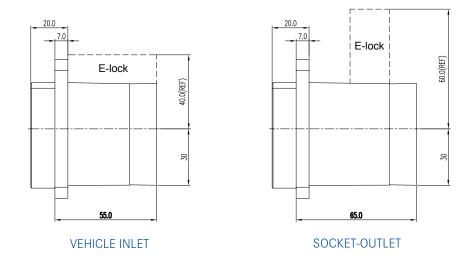
AC COUPLER DIMENSIONS

PLUG

SOCKET



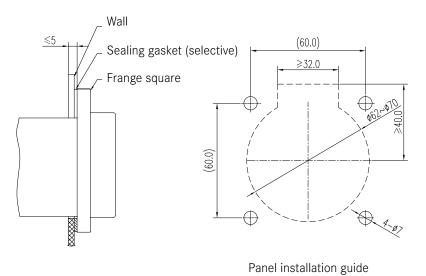




MOUNTING INSTRUCTIONS

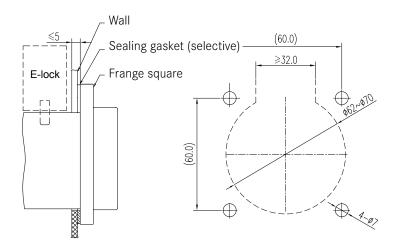
VEHICLE INLET

MOUNTING INSTRUCTION



SOCKET-OUTLET

MOUNTING INSTRUCTION

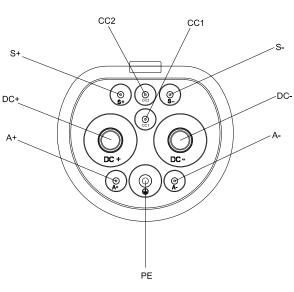


Panel installation guide

INSERT ARRANGEMENT

DC Coupler inserts arrangement

National standard



VEHICLE CONNECTOR

CC2 CC1 S+ S \bigcirc О $\bigcirc \bigcirc \bigcirc \bigcirc$ DC+ DC-Ø A-Q \bigcirc Ο С ΡE

VEHICLE INLET

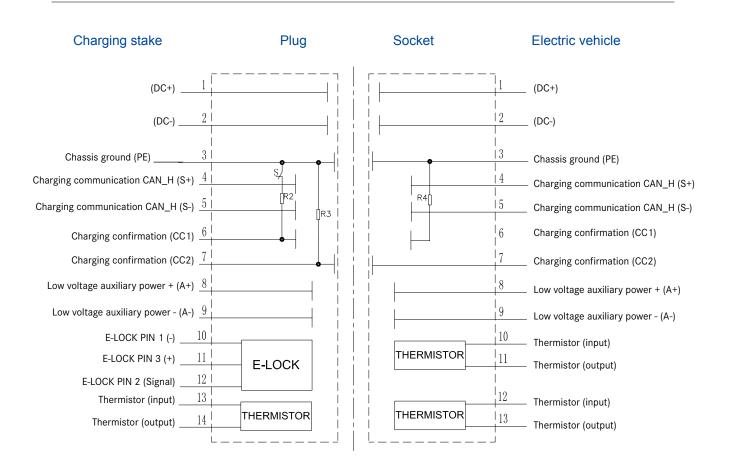
CONFIGURATION

| 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 - |
| ٤ | - | PE, connect power supply equipment and vehicle chassis ground |
| S+ | 30V 2A | Charging communicattion 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:

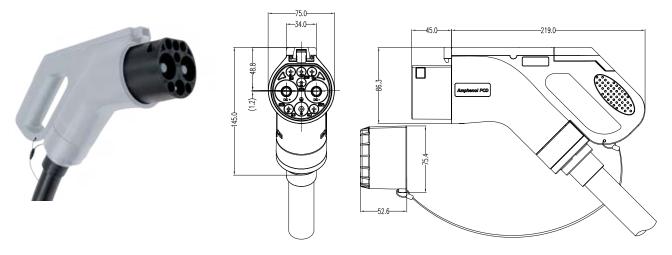
Charging stake and vehicle control device should mount CAN fieldbus termination resistor, 120Ω recommended. Communication wire should use shielded twist wire, charging stake end with shielded ground.

DC CIRCUIT DIAGRAM

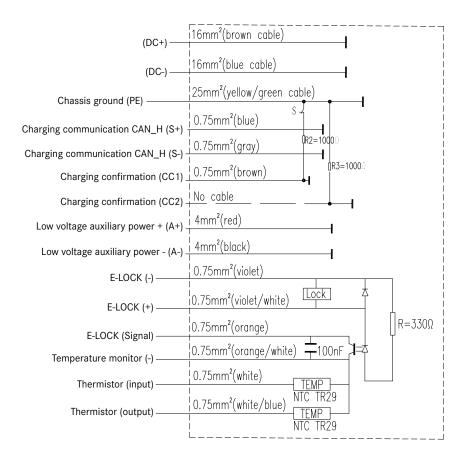


80A DC COUPLER DIMENSIONS

VEHICLE CONNECTOR

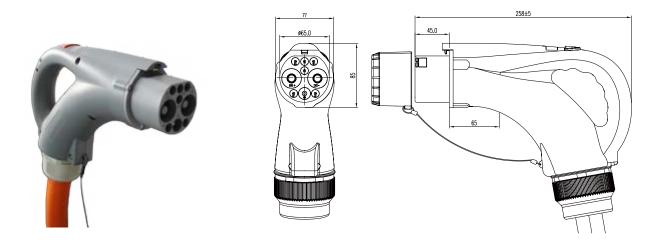


DC CIRCUIT DIAGRAM

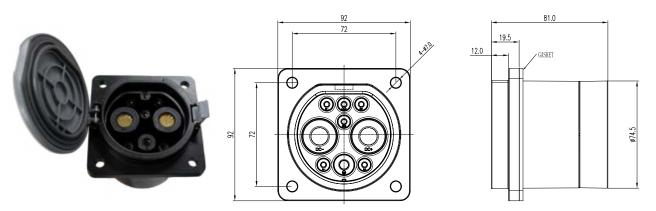


125A TO 250A DC COUPLER DIMENSIONS

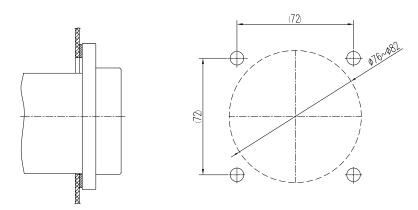
VEHICLE CONNECTOR



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 | М | Е | L | в | Т | S | R6 | PSXXX | R | W | LXXXX | XXXX |
|---|-------------------------|--------------|------|-------|---|---|---|----|-------|---|---|-------|------|
| Connector type: M: Plug F: Receptacle | | | | | | | | | | | | | |
| E: Electric switch Used for: - AC vehicle connector - and DC plug Omit: No electric switch | needed | | | | | | | | | | | | |
| L: Electronic lock (Only | for DC pl | ug) | | | | | | | | | | | |
| B: New national standa | rd (2015) | | | | | | | | | | | | |
| T: Thermistor (for rated Omit: No thermistor nee | | ver 1 | 6A) | | | | | | | | | | |
| S: Charging stake side SC: Vehicle connector - Omit: Vehicle side | + plug (ch | argin | g mo | de 3) | | | | | | | | | |
| Contact size: R6 : 6mm Radsok conta R12 : 12mm Radsok con | | | | | | | | | | | | | |
| Insert arrangement: PSXXX : Plug slow char PFXXX : Plug fast charg SSXXX : Socket slow ch SFXXX : Socket fast cha | ing coupl narging co | er ouplei | | | | | | | | | | | |
| R: Extra resistor Omit: No extra resistor | needed | | | | | | | | | | | | |
| W: Wave tube Omit: No wave tube nee | eded | | | | | | | | | | | | |
| Cable length : LXXXX: (Unit in mm). Omit: No cable needed | d | | | | | | | | | | | | |
| Cable accessories: XXXX : Cable accessor | ies | | | | | | | | | | | | |

PART NUMBER

AC COUPLER

| | AC VEHICLE CONNECTOR TYPES | | | | | | | | | | |
|--------|----------------------------|------------------------------------|-------------------------------------|-----|-----|-----|-----|-----|----|------|--|
| P/N | Cable quantity | Charging mode | Cable section (mm ²) | L | CN1 | CN2 | PE | Ν | СС | СР | |
| 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 ²) | L | CN1 | CN2 | PE | Ν | СС | СР | |
| 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 (mm²) | 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 (mm²) | 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 |

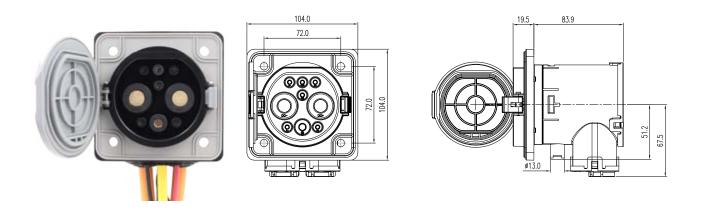
Remarks:

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

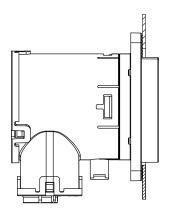


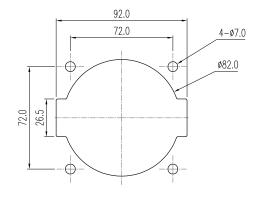
P/N:

HVCO02R12SF935RDL0000, 125A, 1000V DC Max

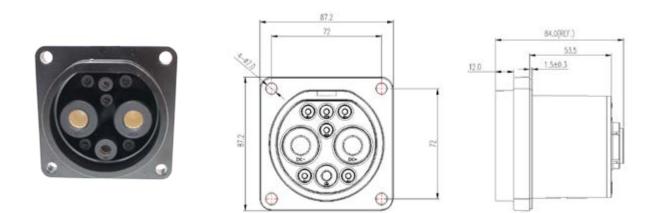
HVCO02R12SF970RDL0000, 200A, 1000V DC Max

FRONT MOUNTED INSTALLATION INSTRUCTIONS: VEHICLE INLET





DC VEHICLE INLET (SMALL SIZE) - FRONT MOUNTED

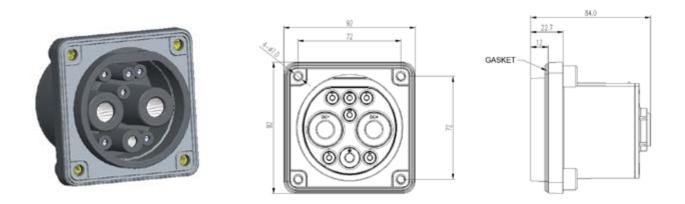


P/N:

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

Amphenol PCD Shenzhen

Building 21 1st Liao Keng Industrial Zone Shi Yan Street, Bao An District Shenzhen 518108 China

Tel.: +86 755-8173-8000 Fax: +86 755-8173-8180 Email: inquiry@amphenolpcd.com.cn

www.amphenolpcd.com.cn

Notes:

Amphenol PCD Shenzhen has made every effort to ensure that the information contained in this catalog is accurate at the time of publication. Specifications or information stated in this publication are subject to change without notice.

Amphenol PCD Shenzhen reserves the right to clarify this catalog.