

# Electric Vehicle Charging Technology by Sam Woo Electronics



# Sam Woo EV Charger

DC (Fast Charging/Regular Charging) and AC (Regular Charging) EV Chargers available as Connector or Cable Assembly. Customized solutions available. Solutions are manufactured under IEC Standards (IEC 62196-1, IEC 62196-2, IEC 62196-3).

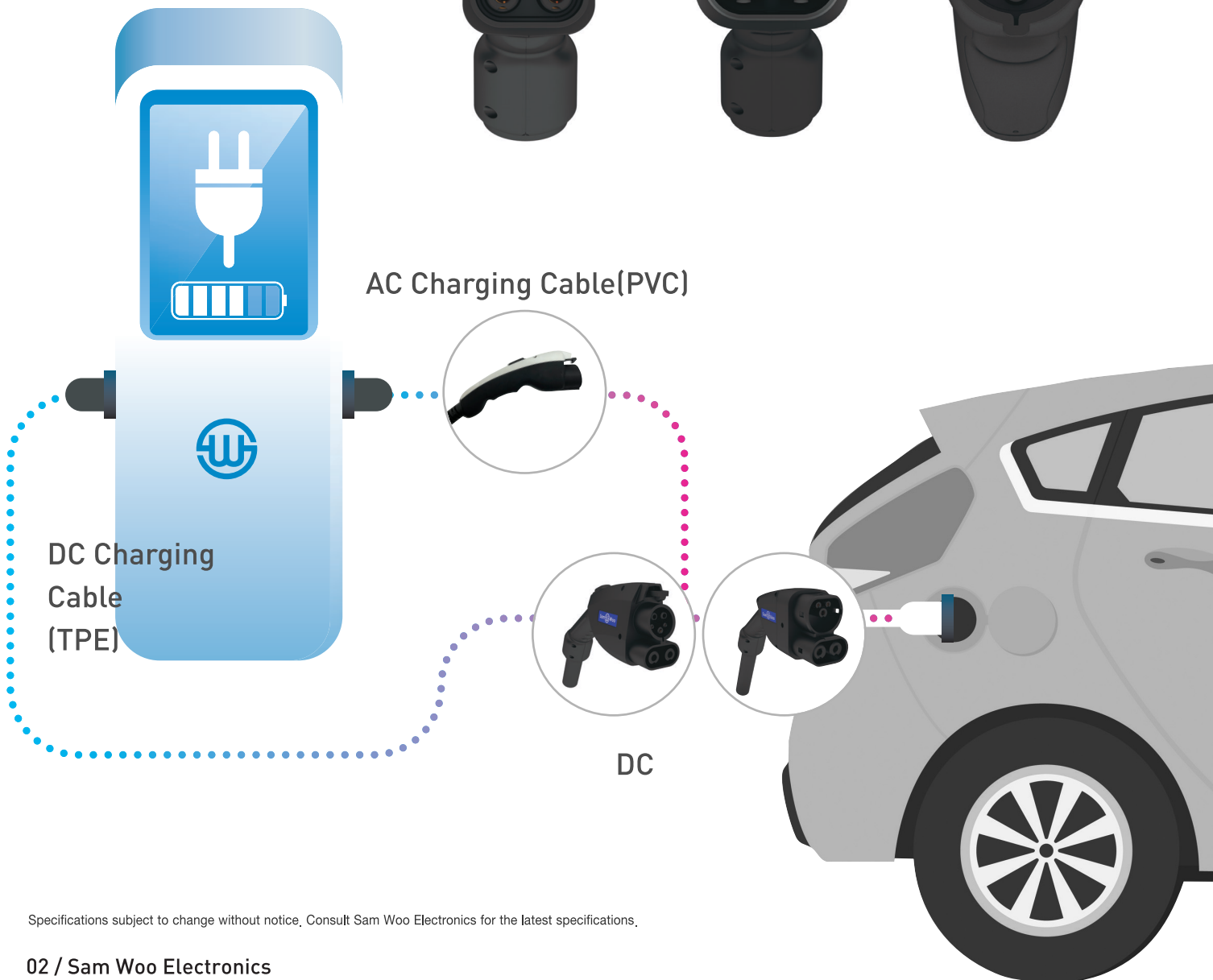
COMBO1



COMBO2



C TYPE



Specifications subject to change without notice. Consult Sam Woo Electronics for the latest specifications.



### Sam Woo Electronics EV Charging Assembly IEC Standard (IEC 62196-1, 62196-2 and IEC 62196-3).

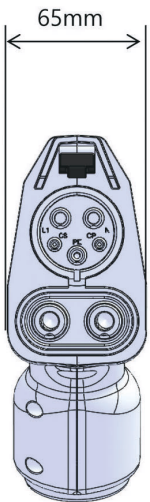
- CCS1 (Combined Charging System Type 1)
- DC 150A / 600V DC Fast Charger  
DC 200A / 1000V DC Fast Charger
- Three Step Safe Charging
  - Step 1 : Secure Lock on INLET and LEVER in vehicles
  - Step 2 : Locking System for INLET and LEVER while charging
  - Step 3 : Safe Removal of INLET and LEVER after charging
- Ergonomic Design
- Available in Connector and Cable Assembly Solutions

# COMBO 1 Technical Data

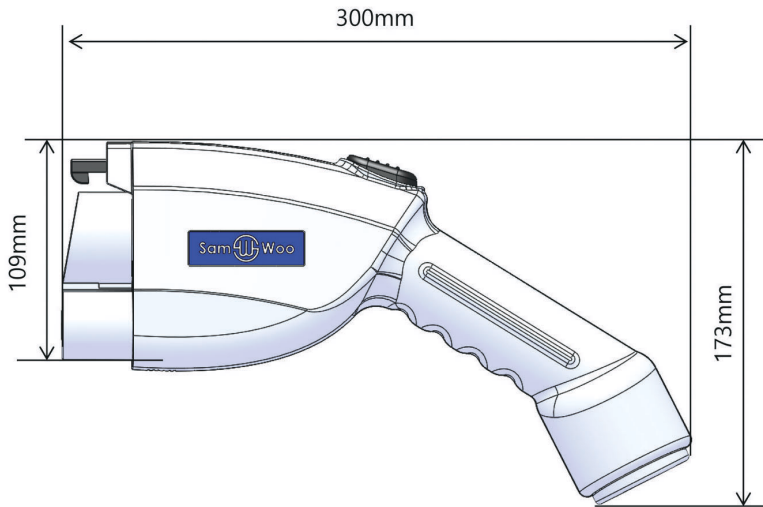
COMBO 1 TECHNICAL DATA			
General Specification	Part No.	SW-EVT151	SW-EVT201
	Charger Type	TYPE 1 CCS DC (Combined Charging System)	
	Standard	IEC 62196-1, IEC 62196-3	
Connector Specification	Connector Dimension	65mm x 168mm x 300mm	
	Operating Temperature	-30 °C to +50 °C	
	Storage Temperature	-40 °C to +80 °C	
	Electric Power	90 KW	120 KW (200 KW)
	DC Contact	Power Contacts	
	DC Current(A)	150 A	200 A
	DC Voltage(V)	600 V	600 V (1,000 V DC, is tested)
	AC Contact	Signal Contacts	
	AC Current(A)	2 A	
	AC Voltage(V)	30 V	
	Mating Cycle	10,000 ↑	
	Insertion Force	100 N ↓	
Extraction Force	100 N ↓		
Cable Specification	Material	TPE (SW-EVT151)	TPE (SW-EVT201)
	Specification	DC 2X 2 AWG	DC 2X 50 mm <sup>2</sup>
		PE 1X 6 AWG	PE 1X 35 mm <sup>2</sup>
		CP & CS 2 X 18 AWG	CP & CS 2 X 16 AWG
		Temperature Sensor 2X 18 AWG	Temperature Sensor 2X 16 AWG
	Diameter	31 mm	36 mm
Color	Black	Black	
Curvature Radius	465 mm ↑	525 mm ↑	
Temperature Sensor Specification	Sensor Type	PT 1000	
	Standard	DIN EN 60751	
	Current(A)	1 mA (0°C에서 1 V)	
	Tolerance	±1K	
	Temperature Range	-50 °C ~ 130 °C	
Test Results	Test Standard	DESCRIPTION	RESULT
	IEC 62196-1	IEC Test Standard	PASS
	IEC 62196-3		

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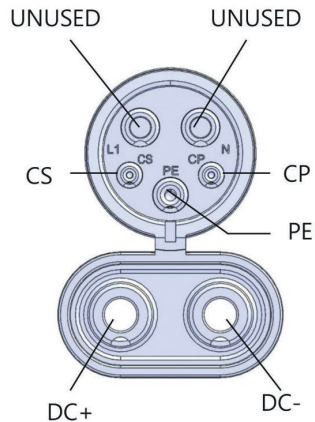
# COMBO 1 Dimensions



Front View



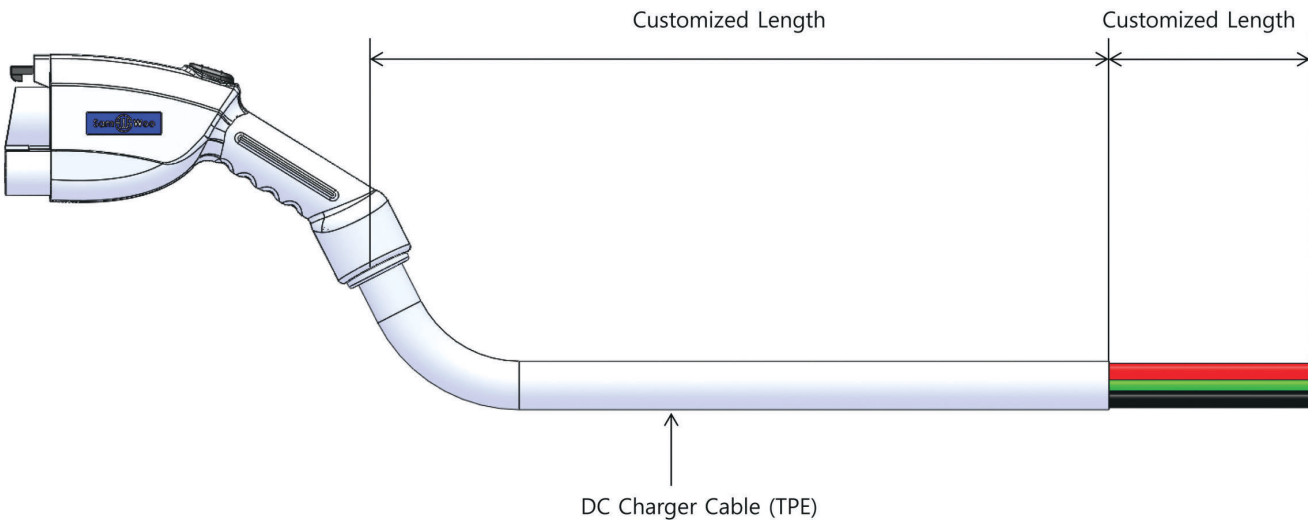
Side View



Contact Interface

# Cable Assembly

EV Charging Assembly can be customized according to customer request.



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## DC Charger – COMBO 2



### Sam Woo Electronics EV Charging Assembly IEC Standard (IEC 62196-1, 62196-2 and IEC 62196-3).

- CCS2(Combined Charging System Type2)
- DC 200A / 1000V Fast Charger
- Ergonomic Design
- Available in Connector and Cable Assembly Solutions.

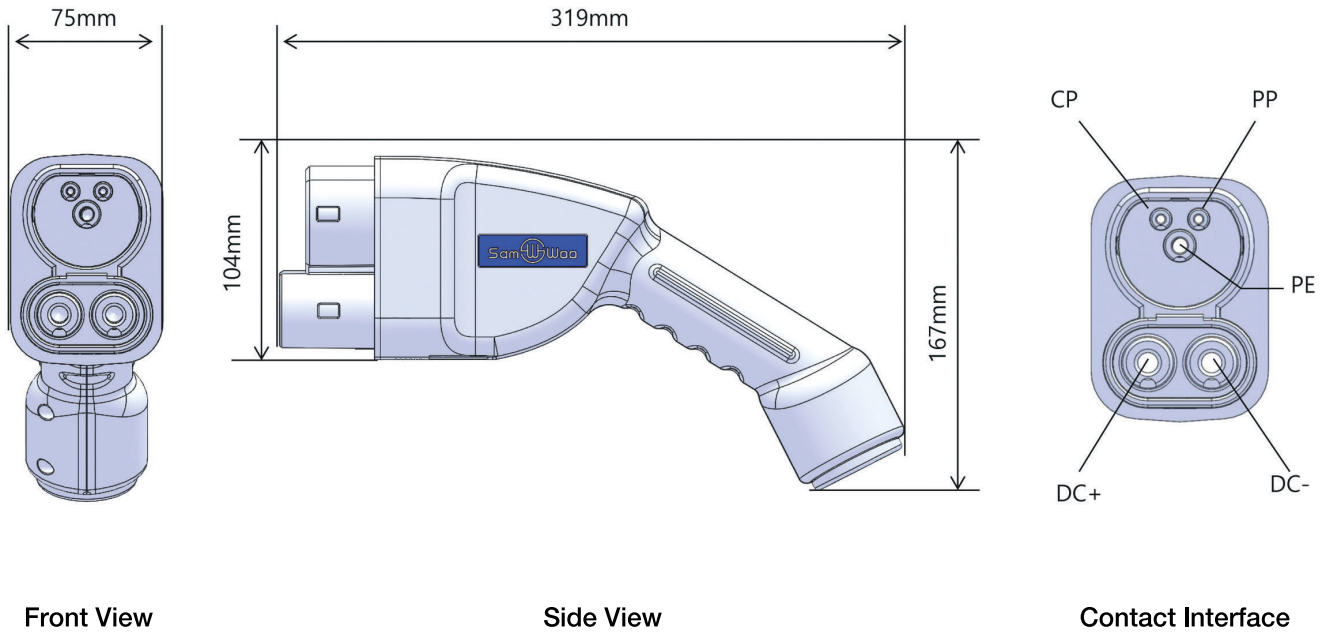


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# COMBO 2 Technical Data

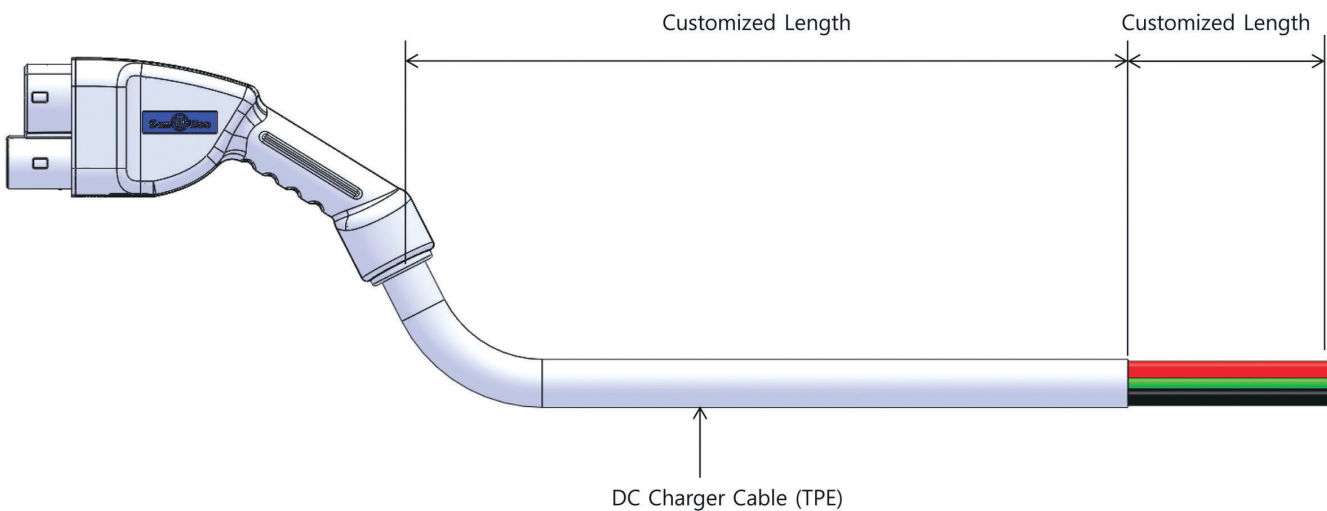
COMBO 2 TECHNICAL DATA			
General Specification	Part No.	SW-EVT202	
	Charger Type	TYPE 2 CCS DC (Combined Charging System)	
	Standard	IEC 62196-1, IEC 62196-3	
Connector Specification	Connector Dimension	75mm x 167mm x 319mm	
	Operating Temperature	-30°C to +50°C	
	Storage Temperature	-40°C to +80°C	
	Electric Power	200 KW	
	DC Contact	Power Contacts	
	DC Current(A)	200 A	
	DC Voltage(V)	1,000 V DC	
	AC Contact	Signal Contacts	
	AC Current(A)	2 A	
	AC Voltage(V)	30 V	
	Mating Cycle	10,000 ↑	
	Insertion Force	100 N ↓	
Extraction Force	100 N ↓		
Cable Specification	Material	TPE (SW-EVT202)	
	Specification	DC 2X 50 mm <sup>2</sup> PE 1X 35 mm <sup>2</sup> CP & CS 2 X 16 AWG Temperature Sensor 2X 16 AWG	
	Diameter	36 mm	
	Color	Black	
	Curvature Radius	216 mm ↑	
	Sensor Type	PT 1000	
Temperature Sensor Specification	Standard	DIN EN 60751	
	Current(A)	1 mA (0°C → 1 V)	
	Tolerance	±1K	
	Temperature Range	-50 °C ~ 130 °C	
Test Results	Test Standard	DESCRIPTION	RESULT
	IEC 62196-1	IEC Test Standard	PASS
	IEC 62196-3		

## COMBO 2 Dimensions



## Cable Assembly

EV Charging Assembly can be customized according to customer request.



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C TYPE



B TYPE



Sam Woo Connectors(SEV-TC1) and Cable Assemblies(SW-EV032)  
developed according to IEC standard(IEC 62196-1 and IEC 62196-2).

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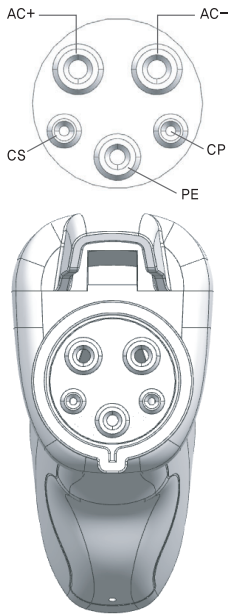
# AC Charger Technical Data

AC CHARGER TECHNICAL DATA			
General Specification	Part No.	SW-EV032	
	Charger Type	TYPE 1 C AC	
	Standard	IEC 62196-1, IEC 62196-2	
Connector Specification	Connector Dimension	65mm x 227mm x 326mm	
	Operating Temperature	-30°C to +50°C	
	Storage Temperature	-40°C to +80°C	
	Electrical Power	7.5 Kw	
	AC Contact	2 Poles (CP, CS)	
	AC Current(A)	CP, CS, PE 2A AC+, AC- 32A	
	AC Voltage(V)	CP, CS, PE 30V AC+, AC- 250V	
	Mating Cycle	10,000 ↑	
	Insertion Force	75 N ↓	
	Extraction Force	75 N ↓	
Cable Specification	Material	PVC	
	Specification	3 X 10 AWG 2 X 18 AWG	
	Diameter	16mm	
	Color	Black	
Test Results	Test Standard	DESCRIPTION	RESULT
	IEC 62196-1	IEC Test Standard	PASS
	IEC 62196-2		

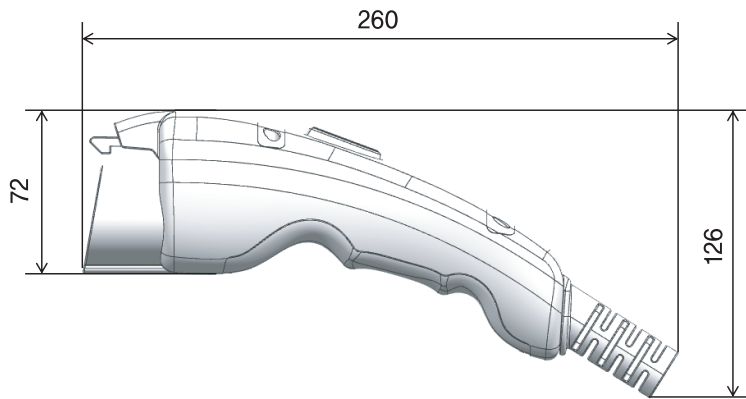
- TYPE 1 C AC
- AC 32A / 250V AC Charger
- Three Step Safe Charging :
  - Step 1 : Secure Lock on INLET and LEVER in vehicles
  - Step 2 : Locking System for INLET and LEVER while charging
  - Step 3 : Safe Removal of INLET and LEVER after charging
- Ergonomic Design
- Available in Connector and Cable Assembly Solutions

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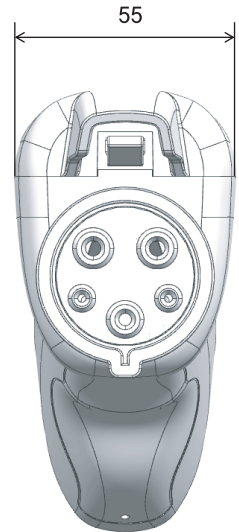
## AC Charger Dimensions



Contact Interface



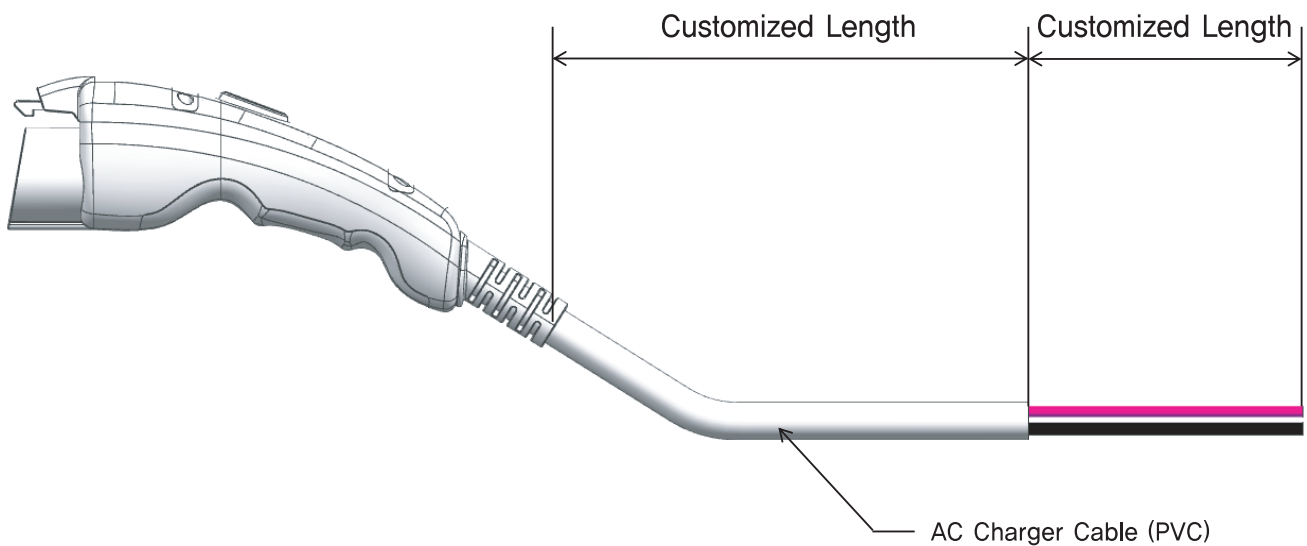
Side View



Front View

## Cable Assembly

EV Charging Assembly can be customized according to customer request.



# Connector Overview



## SCC Series

### Size / No. of Contacts

Size - 13,16,21,25  
Contacts - 3,4,5,7,8,10,16,24

### Material / Finish

Body - Aluminum alloy / Ni plating  
Insulator - Thermosetting resin / Blue, Green  
Contacts - Copper alloy / Silver plating



## SCK / SCN Series

### Size / No. of Contacts

SCN Size - 12,16,20,25  
SCK Size - 12,16,20,25,30,32,40  
Contacts - 2,3,4,5,6,7,8,10,12,14,20

### Material / Finish

Body - Zinc alloy / Ni plating  
Insulator - PA & Bakelite / Green & Black  
Contacts - Brass, Phosphor Bronze / Silver or Gold plating



## SH Series

### Size / No. of Contacts

Size - 9  
Contacts - 6

### Material / Finish

Body - Brass / Chromium plating  
Insulator - Glass filled polyacetal / White  
Contacts - Brass, Phosphor Bronze / Gold plating



## SM Series

### Size / No. of Contacts

Size - 9  
Contacts - 8

### Material / Finish

Body - Brass / Ni plating  
Insulator - PA / Black, Ivory  
Contacts - Brass, Phosphor Bronze / Gold plating



## SN Series

### Size / No. of Contacts

Size - 8,10  
Contacts - 2,3,4,5,6,9,10,12

### Material / Finish

Body - Zinc alloy and Brass / Ni Plating  
Insulator - PA / Black  
Contacts - Brass, Phosphor Bronze / Silver or Gold Plating

Push-Pull



## SP Series

### Size / No. of Contacts

Size - 00,0,1,2,3  
Contacts - multiple

### Material / Finish

Body - Brass / Chromium Plating  
Insulator - PEEK, PA or Teflon  
Contacts - Brass / Gold Plating

Push-Pull



## SPP Series

### Size / No. of Contacts

Size - 1  
Contacts - multiple

### Material / Finish

Body-PSU, PEI, PC  
Insulator - PEEK, PA  
Contacts - Brass / Gold Plating

Push-Pull



## SR IP67 Series

### Size / No. of Contacts

Size - 8  
Contacts - 4

### Material / Finish

Cap - Brass / Ni Plating  
Insulator - PBT / Black  
Outer sheath - PVC / Black  
Contacts - Brass, Phosphor Bronze / Silver or Gold Plating

# Connector Overview



## SRC Series

### Size / No. of Contacts

Size - 21  
Contacts - 10,16,26

### Material / Finish

Body - Aluminum alloy / Ni plating  
Insulator - Thermosetting resin / Black or Blue  
Contacts - Brass, Phosphor Bronze/Gold or Silver plating



## ST Series

### Size / No. of Contacts

Size - 8,8B,9, 9A  
Contacts - 12,14,16,20

### Material / Finish

Body - Brass & Zinc alloy / Ni plating  
Insulator - PPS resin / Black  
Contacts - Brass, Phosphor Bronze / Gold plating



## ST IP67 Series

### Size / No. of Contacts

Size - 9  
Contacts - 12,16,20

### Material / Finish

Body - Brass & Zinc alloy / Ni plating  
Insulator - PPS resin / Black  
Contacts - Brass, Phosphor Bronze / Gold plating



## SU IP67 Series

### Size / No. of Contacts

Size - 20  
Contacts - 3,4,5,6,8,A5,12,14

### Material / Finish

Body - Zinc Alloy / Ni plating  
Insulator - PA / Black  
Contacts - Brass, Phosphor Bronze / Gold plating



## SU2 / SU3 IP67 Series

### Size / No. of Contacts

Size - 20  
Contacts - 3,4,5,6,8,A5,12,14

### Material / Finish

Body - Zinc Alloy, Brass  
Insulator - PA  
Contacts - Brass, Phosphor Bronze



## SW Series

### Size / No. of Contacts

Size - 8,10  
Contacts - 2,3,4,5,6,9,10,12

### Material / Finish

Body - Brass / Ni plating  
Insulator - PA / Black  
Contacts - Brass, Phosphor Bronze / Silver or Gold Plating



## SW IP67 Series

### Size / No. of Contacts

Size - 8,10,16  
Contacts - 2,3,4,5,6,9,10,12,28

### Material / Finish

Body - Brass / Ni plating  
Insulator - PA / Black  
Contacts - Brass, Phosphor Bronze / Silver or Gold Plating



## SXR Series

### Size / No. of Contacts

Size - 10  
Contacts - 8

### Material / Finish

Body - Aluminum alloy / Ni plating  
Insulator - PBT resin / Black  
Contacts - Brass, Phosphor Bronze / Gold plating

## Cable Assembly Overview



SCC Series Cable Assembly



SCN / SCK Series Cable Assembly



SP Series Cable Assembly



SPP Series Cable Assembly



SN Series Cable Assembly



SU2 / SU3 Series Cable Assembly



SH Series Cable Assembly

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