

Electric Vehicle Charging Technology by Sam Woo Electronics



Sam Woo Electronics Co., Ltd.
www.isamwoo.com

DC (Fast Charging / Regular Charging) and AC (Regular Charging)

Customized solutions available.

IEC Standards (IEC 62196-1, IEC 62196-2, IEC 62196-3).

COMING SOON

CCS1 500A

CHAdeMO

CCS1

CCS2

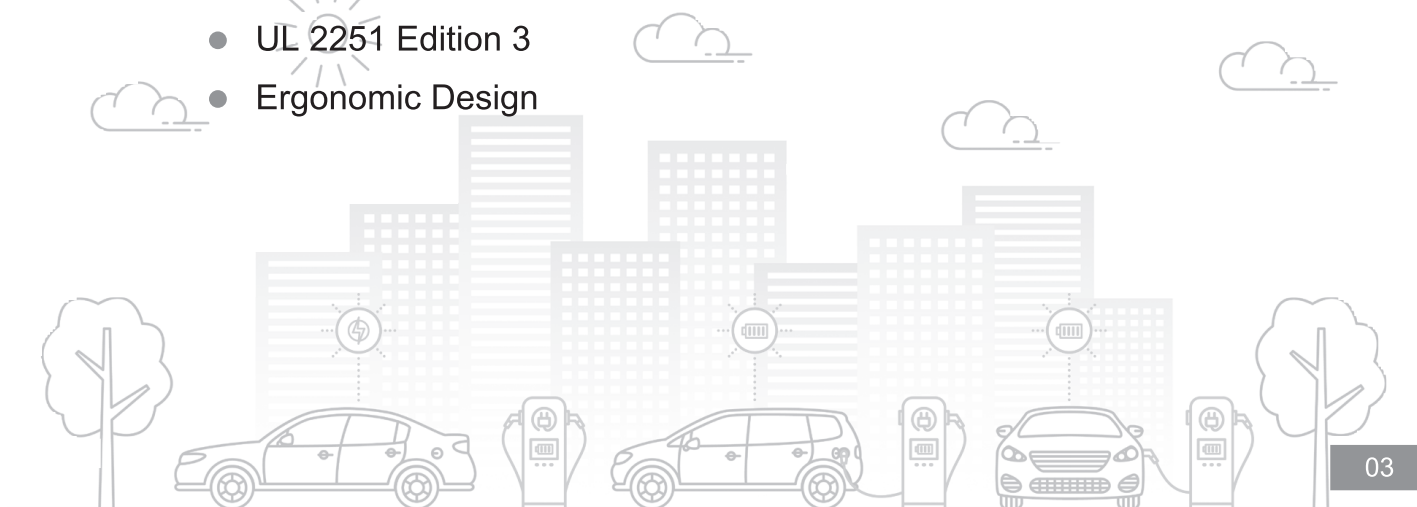
Type 1



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

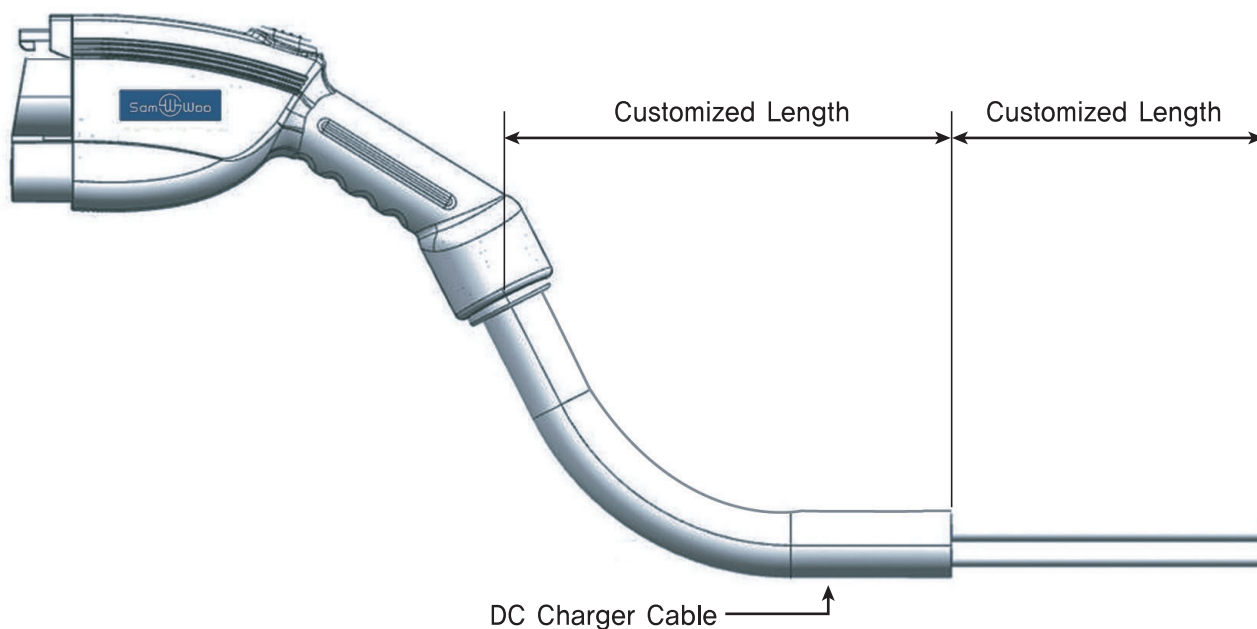
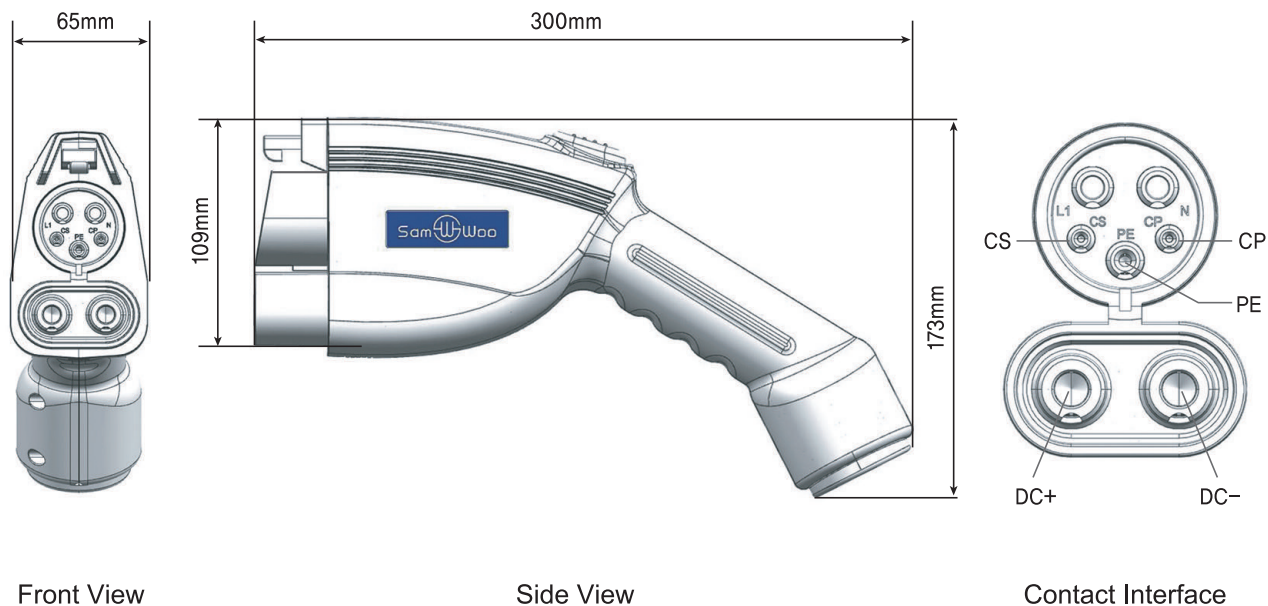


- CCS1 (Combined Charging System Type 1)
- IEC 62196-1, 62196-3
- DC 65A / 1000V DC Fast Charger
- DC 150A / 1000V DC Fast Charger
- DC 200A / 1000V DC Fast Charger
- UL 2251 Edition 3
- Ergonomic Design



CCS1 TECHNICAL DATA					
General Specifications	Part No.	SW-EVTN061	SW-EVTN151	SW-EVTN201	
	Charger Type	TYPE 1 CCS DC			
	Standard	IEC 62196-1, IEC 62196-3			
	Certification	-	UL Certified Edition3		
		-	CE		
Connector Specifications	Connector Dimensions	65mm x 227mm x 326mm	65mm x 168mm x 300mm		
	Operating Temperature	- 30°C to + 50°C			
	Storage Temperature	- 40°C to + 80°C			
	Electric Power	65 KW	90 KW	120 KW (200 KW)	
	DC Contact	Power Contacts			
	DC Current (A)	65 A	150 A	200 A	
	DC Voltage (V)	1,000V 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 Specifications	Material	TPE		
Specifications		DC 2X 8 AWG PE 1X 8 AWG CP & CS 2 X 16 AWG Temperature Sensor 2X 16 AWG	DC 2X 2 AWG PE 1X 6 AWG CP & CS 2 X 18 AWG Temperature Sensor 2X 18 AWG	DC 2X 50 mm² PE 1X 35 mm² CP & CS 2 X 16 AWG Temperature Sensor 2X 16 AWG	
		Diameter	25 mm	31 mm	36 mm
		Color	Black		
		Curvature Radius	150 mm ↑	186 mm ↑	216 mm ↑
Certification		Reference Standard : UL 62			
		CE			
Temperature Sensor Specifications		Sensor Type	PT 1000		
	Standard	DIN EN 60751			
	Current (A)	1 mA (0°, 1 V)			
	Tolerance	± 1K			
	Temperature Range	- 50°C to + 130°C			
Test Results	STANDARD	DESCRIPTION		RESULT	
	IEC 62196-1 IEC 62196-3	IEC Test Standard		PASS	

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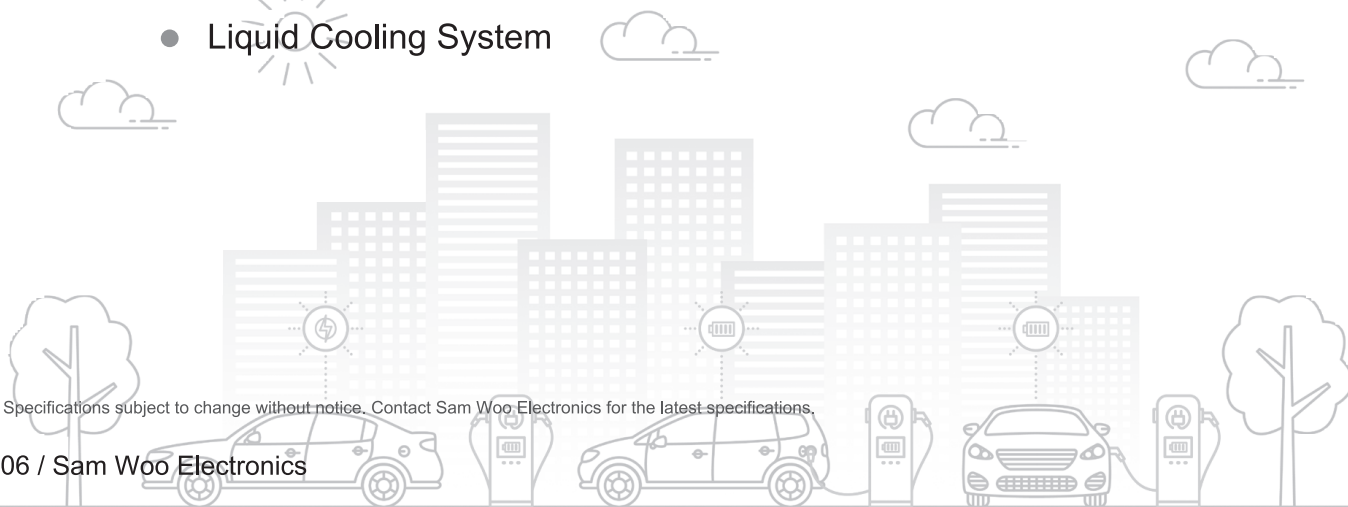
CCS1 500A High Power Charger

Coming Soon



- Combined Charging System Type 1
- DC 500A / 1000V DC High Power Charger
- IEC 62196-1, 62196-3
- ETL Recognition Pending
- Ergonomic Design
- Liquid Cooling System

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



CCS1 500A TECHNICAL DATA				
General Specifications	Part No.		SW-EVT501	
	Charger Type		Type1 CCS DC (High Power Charging System)	
	Standard		IEC 62196-1, IEC 62196-3	
Connector Specifications	Connector Dimensions		75mm x 176mm x 303mm	
	Operating Temperature		- 35°C to + 50°C	
	Storage Temperature		- 40°C to + 50°C	
	Electric Power (kW)		500 kW	
	DC Contact		Power Contacts	
	DC Current (A)		500 A	
	DC Voltage (V)		1,000 V DC	
	Signal Current (A)		2 A	
	Signal Voltage (V)		30 V	
	Degree of Protection		3R / IP67 (Housing)	
	Mating Cycle		10,000 ↑	
	Insertion Force		100 N ↓	
	Extraction Force		100 N ↓	
Cable Specifications	Material		TPU	
	Specifications		DC 2X 26.5 mm² PE 1X 25 mm² 8 X 0.5 mm²	
	Diameter		35 mm	
	Color		Black	
	Curvature Radius		310 mm	
Temperature Sensor Specifications	Sensor Type		PT 1000	
	Standard		DIN EN 60751	
	Current (A)		1 mA (0°C, 1 V)	
	Tolerance		±1K	
	Temperature Range		- 50 °C to + 130 °C	
Test Results	STANDARD		DESCRIPTION	RESULT
	IEC 62196-1		IEC Test Standard	Pass
	IEC 62196-3			
Cooling System	Cooling Capacity		4 KW	
	Flow Rate		2 to 4 ℓ /min (depends on the coolant temperature and cable length)	
	Storage Temperature		- 40°C to + 50°C	
	Tank Capacity		4 ℓ , 2 ℓ , 3.4 ℓ	
	Heat Exchanger Capacity		3.4 ℓ	
	Pump		DC24V / 7.5A	
	Fan		DC24V 3 x 1.1A	
	Noise Emission		MAX 60dB	
	Dimensions	Length	230 mm	
		Width	400 mm	
		Height	540 mm	
Weight		25Kg		

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Coming Soon

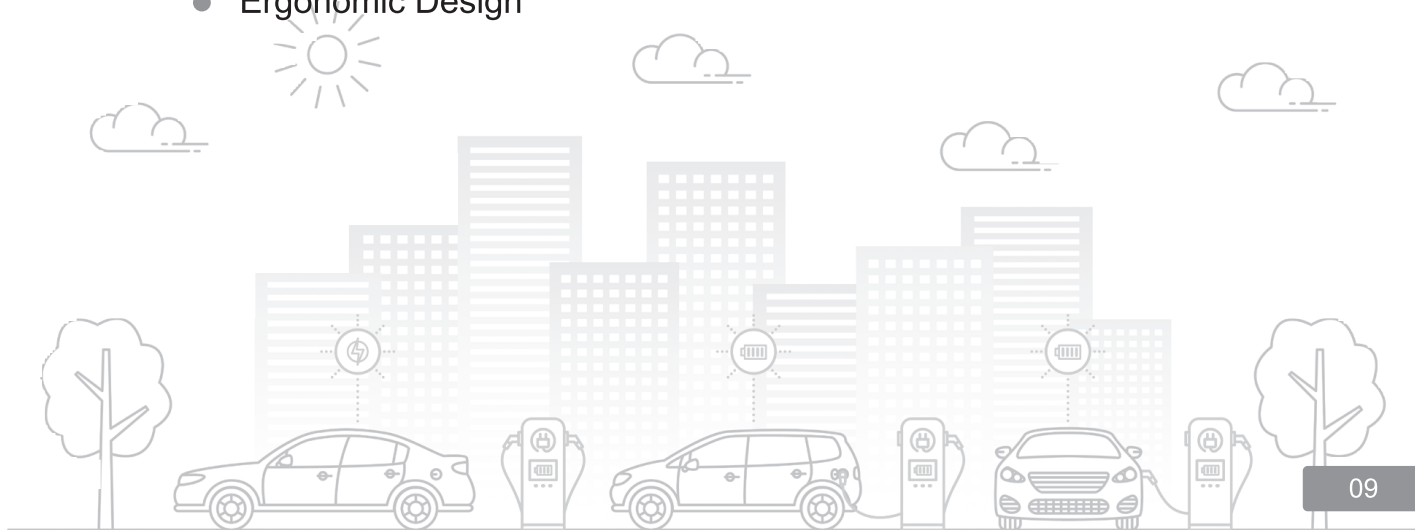


- Combined Charging System Type 2
- Replaceable Parts (Coming Soon)
- DC 125A / 600V Fast Charger
- DC 200A / 1,000V Fast Charger
- Ergonomic Design



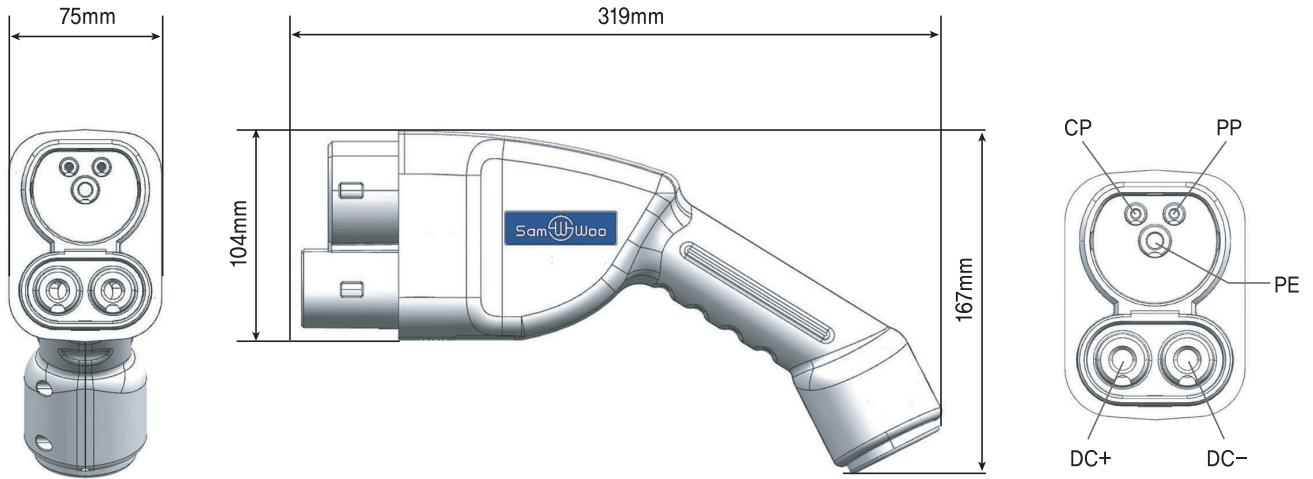


- Combined Charging System Type 2
- DC 125A / 600V Fast Charger
- DC 200A / 1,000V Fast Charger
- CE Certified
- Ergonomic Design



CCS 2 TECHNICAL DATA			
General Specifications	Part No.	SW-EVT122	SW-EVT202
	Charger Type	TYPE 2 CCS DC	
	Standard	IEC 62196 - 1, IEC 62196 - 3	
	Certification	CE	
Connector Specifications	Connector Dimensions	75mm x 167mm x 319mm	
	Operating Temperature	- 30°C to + 50°C	
	Storage Temperature	- 40°C to + 80°C	
	Electric Power (KW)	75 KW	200KW
	DC Contact	Power Contacts	
	DC Current (A)	125 A	200 A
	DC Voltage (V)	600V DC	1,000V DC
	AC Current (A)	2 A	
	AC Voltage (V)	30 V	
	Mating Cycle	10,000 ↑	
	Insertion Force	100 N ↓	
	Separation Force	100 N ↓	
Cable Specifications	Material	TPE	TPE
	Specifications	DC 2X 2 AWG	DC 2X 50 mm ²
		PE 1X 6 AWG	PE 1X 35 mm ²
		CP & CS 2 X 18 AWG	CP & PP 2 X 16 AWG
		Temperature Sensor 2X 18 AWG	Temperature Sensor 2X 16 AWG
	Diameter	31mm	36 mm
	Color	Black	Black
	Curvature Radius	186 mm ↑	216 mm ↑
Temperature Sensor Specifications	Certification	Reference Standard : UL 62	
		CE	
	Sensor Type	PT 1000	
	Standard	DIN EN 60751	
	Current (A)	1 mA (0°C, 1 V)	
Test Results	Tolerance	±1K	
	Temperature Range	- 50 °C to + 130 °C	
	Standard	DESCRIPTION	RESULT
	IEC 62196-1	IEC Test Standard	PASS
	IEC 62196-3		

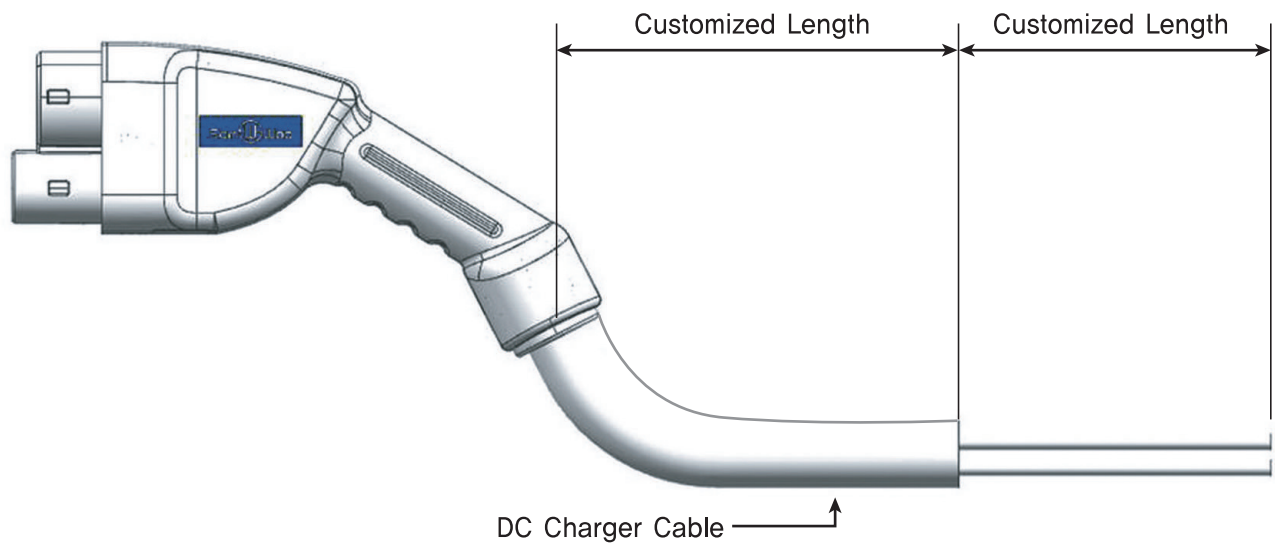
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Front View

Side View

Contact Interface



CCS2 Inlet

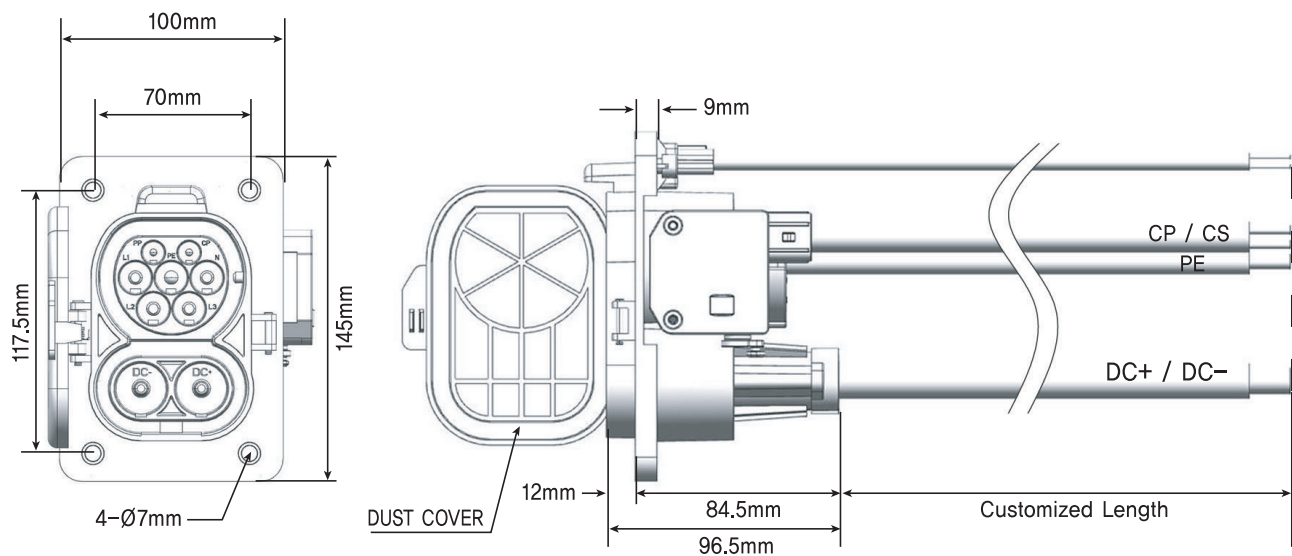
Coming Soon



- TYPE 2 CCS DC
- AC Contacts 2A / 30V

- DC Contacts 200A / 1,000V
- IEC 62196-1, 62196-3

Customization



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CCS 2 INLET TECHNICAL DATA

CCS 2 INLET TECHNICAL DATA			
General Specifications	Part No.	SW-EVT202 INLET	
	Charger Type	TYPE 2 CCS DC	
	Standard	IEC 62196-3	
Connector Specifications	Connector Dimensions	100mm x 145mm x 96.5mm	
	Operating Temperature	- 30°C to + 50°C	
	Storage Temperature	- 40°C to + 80°C	
	Electric Power (KW)	200 KW	
	DC Contact	Power Contacts	
	DC Current (A)	200 A	
	DC Voltage (V)	1,000V 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 ↓	
Actuator Specifications	Actuation Voltage (V)	DC 9V to 16V, Rated Current 2A	
	Actuation Current (A)	Max 0.1 A	
	Locked Current (A)	Max 1.2 A	
	Operating Time	Max 600 ms	
	Operating Load	42N	
	Operating Distance	5.9mm	
	Degree of Protection	IP 67	
	Durability	120,000 cycles	
	Operating Temperature	- 40 °C to + 85 °C	
Cable Specifications	Material	PVC	
	Specifications	DC 2 X 70 mm²	
		PE 1 X 6 AWG	
		CP & CS 2 X 18 AWG	
		Temperature Sensor 2X 18 AWG	
Diameter	DC Line 19.5 mm		
Color	ORANGE		
Temperature Sensor Specifications	Sensor Type	PT 1000	
	Standard	DIN EN 60751	
	Current (A)	1 mA (0°C, 1 V)	
	Tolerance	±1K	
	Temperature Range	- 50 °C to 130 °C	
Test Results	Test Standard	DESCRIPTION	RESULT
	IEC 62196-1	IEC Test Standard	PASS
	IEC 62196-3		

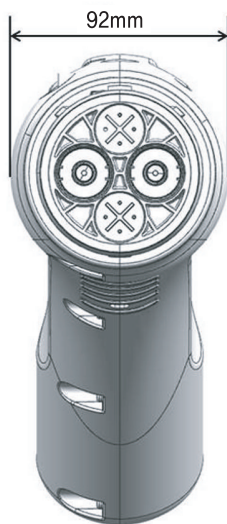
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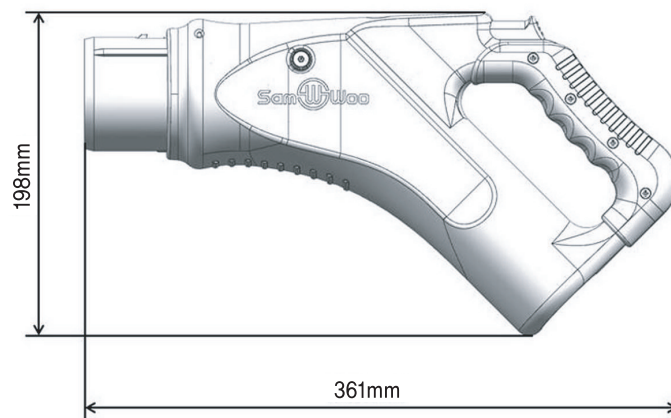
- CHAdemo EV Charging Standard
- DC 125A / 600V Fast Charger
- DC 200A / 600V Fast Charger
- UL 2251 Edition 3
- CE Certified
- IEC 62196-1, 62196-3

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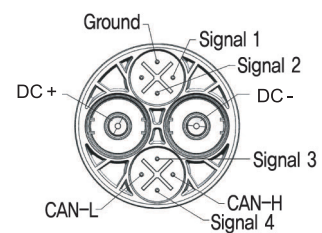




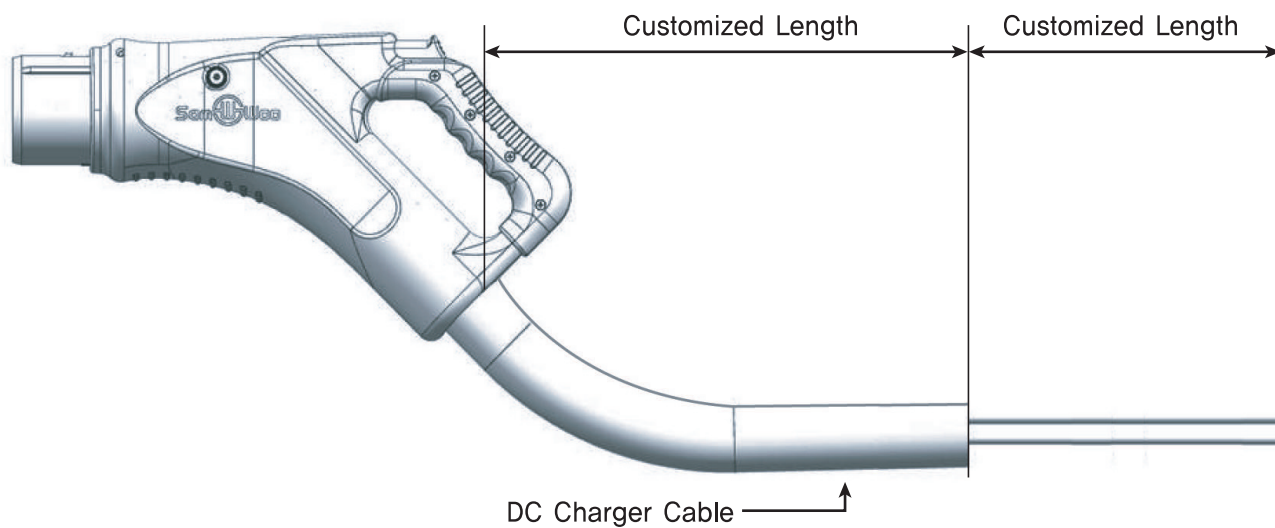
Front View



Side View



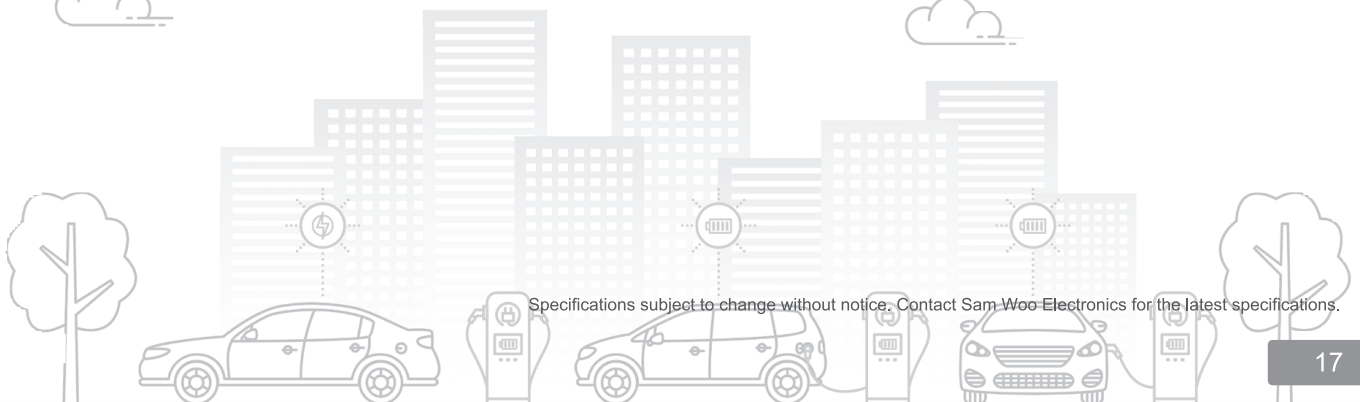
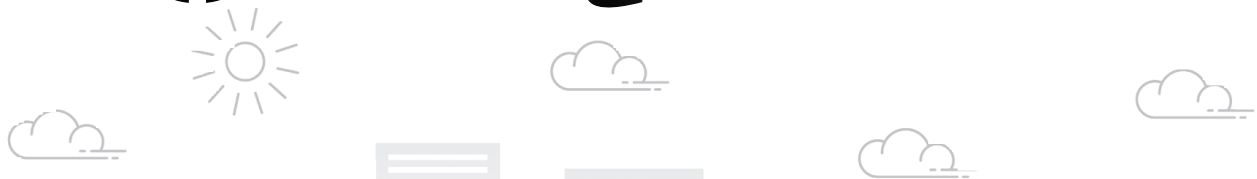
Contact Interface



CHAdemo TECHNICAL DATA

General Specifications	Part No.	SW-EVT123	SW-EVT203
	Charger Type	CHAdemo	
	Standard	IEC 62196-1, IEC 62196-3	
	Certification	UL Certified	
		Edition 3	
		CE	
Connector Specifications	Connector Dimensions	92mm X 198mm X 361mm	
	Operating Temperature	- 30°C to + 50°C	
	Storage Temperature	- 40°C to + 80°C	
	Electric Power (kW)	62.5 KW	120 KW
	DC Contact	Power Contacts	
	Signal Contacts	Signal Line : 7, Solenoid Line : 2	Signal Line : 7, Temperature sensor Line : 4, Solenoid Line : 2
	DC Current (A)	125 A	200 A
	DC Voltage (V)	500V DC	600V DC
	Signal Current (A)	2 A	
	Signal Voltage (V)	30 V	
	Mating Cycle	10,000 ↑	
	Insertion Force	100 N ↓	
	Solenoid	Actuation Voltage (V)	DC 12 V
Release Voltage (V)		0V (No current flow)	
Hold Voltage (V)		DC7V ± 1V	
Coil resistance		38 Ω ± 10% (Reference at 20°C)	
Protection Rating	Degree of Protection	IP - 46	
	Outdoor use	Type 3R (Water Resistant)	
Cable Specification	Material	TPE	TPE
	Specification	DC 2 X 33.6 mm² Signal Line, Solenoid Line 12 X 18 AWG (Spare 3wires)	DC 2X 67.4 mm² Signal Line, Temperature sensor Line, Solenoid Line 16 X 18 AWG (Spare 3wires)
	Diameter	33mm	43 mm
	Color	Black	Black
	Curvature Radius	200 mm ↑	253 mm ↑
Temperature Sensor Specifications	Sensor Type	n/a	NXFS15XH103FA1B [MURATA]
	Standard		UL 1434
	Current (A)		0.12 mA
	Tolerance		± 1%
	Temperature Range		- 40°C to + 125°C
Test Results	Standard	Description	Result
	IEC-62196-1 IEC-62196-3	IEC Test Standard	PASS

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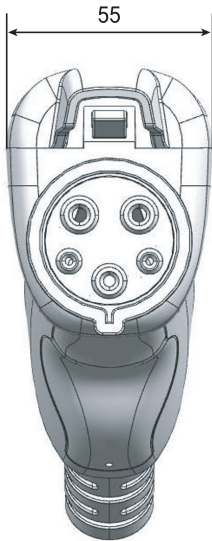
Type 1 AC Charger

AC CHARGER TECHNICAL DATA			
General Specifications	Part No.	SW-EV032	
	Charger Type	TYPE 1 C AC	
	Standard	IEC 62196-1, IEC 62196-2	
Connector Specifications	Connector Dimensions	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 Specifications	Material	PVC	
	Specifications	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		

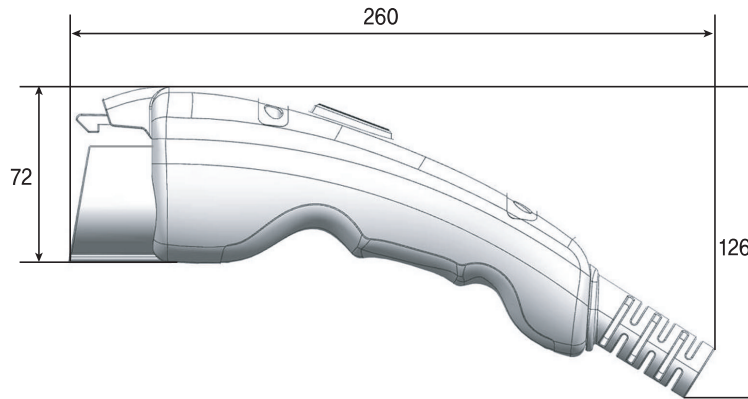
- TYPE 1 C AC
- AC 32A / 250V AC Charger
- Ergonomic Design

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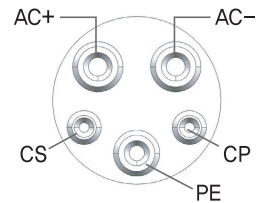
AC Charger Dimensions



Front View

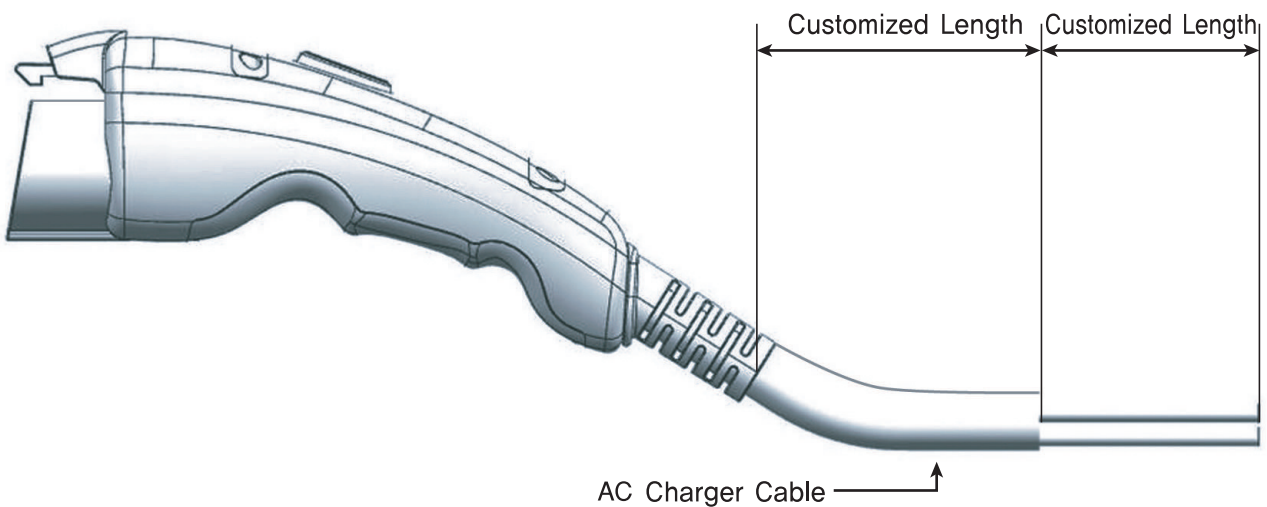


Side View

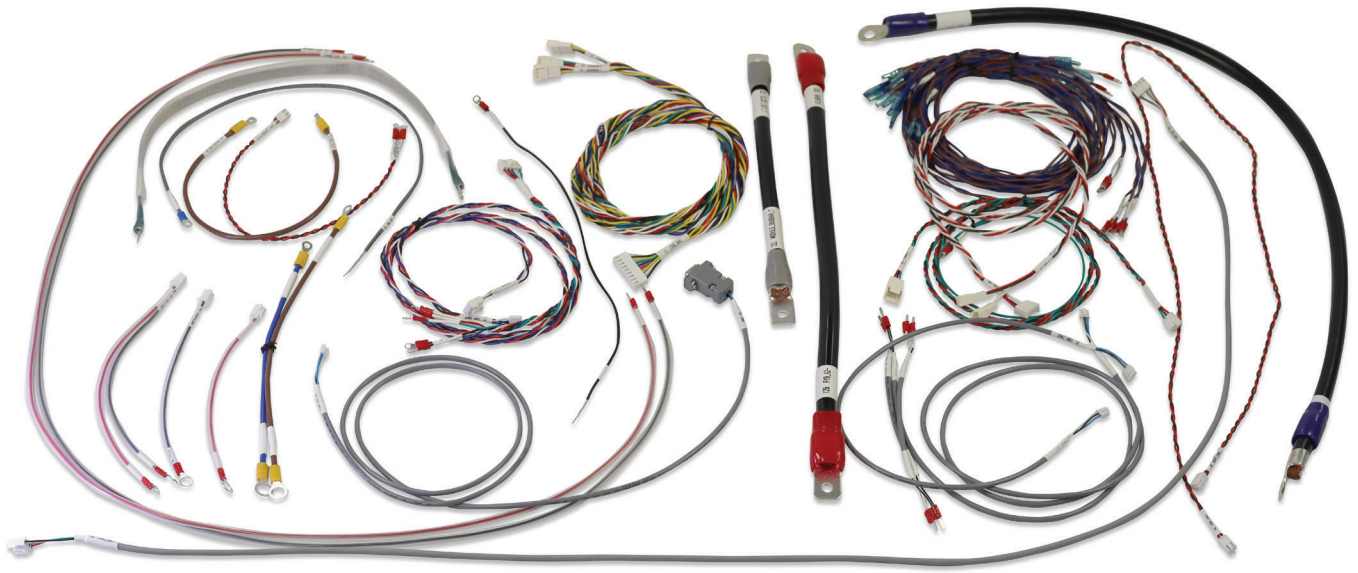


Contact Interface

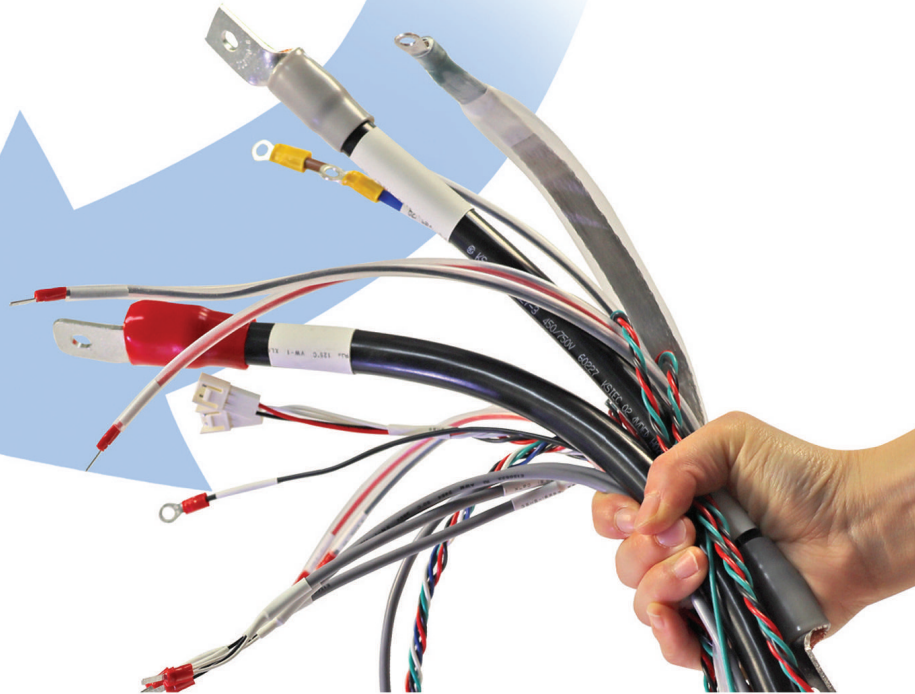
Customization



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EVSE Internal Harness customization



Connector Overview



SW / AM Series

Size / No. of Contacts
Contacts 8, 23

Material / Finish
Body - PBT
Insulator - PBT
Contacts - Brass



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



Push-Pull

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



SPP Series

Size / No. of Contacts
Size - 1
Contacts - multiple

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

Connector Overview



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



Bayonet

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 - 9W
Contacts - 12,16,20

Material / Finish

Body - Brass & Zinc alloy / Ni plating
Insulator - PPS resin / 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 - 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



SW-AM Series Cable Assembly



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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Sam Woo Electronics Co., Ltd.

www.isamwoo.com

Headquarters

Sam Woo Electronics Co., Ltd.

148, Gongdan 1-daero 196beon-gil,
Siheung-si, Gyeonggi-do, 15098
Republic of Korea

Tel +82-31-432-0035

Fax +82-31-433-6167

www.isamwoo.com

info@isamwoo.com

Japan

TRUST COMPONENTS, Co., Ltd.

株式会社トラストコンポーネンツ
〒243-0021 神奈川県厚木市岡田3050
厚木アクストメインタワー11F

Tel +81-46-229-3136

Fax +81-46-220-2917

www.trust-comp.co.jp

sale@trust-comp.co.jp

North America / Europe

E-valucon, Inc.

16 Technology Drive Suite 168

Irvine, CA 92618 USA

Tel +1-949-450-0080

Fax +1-949-450-0033

www.evalucon.com

info@evalucon.com

