	Product Name	YG1403 European Standard DC Vehicle Connector	Docu NO.	XM202110003
	Part NO.	YGC1403-EV-S5P	Version	A 0


YG1403 European Standard DC Vehicle Connector Technical Specification

Edited by/Date ZeYong Cheng 2022.03.10

Audited by/Date _____

Approved by/Date _____

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1 Connector specification and description

1.1 Connector specification:

Basic Product Specification	Rated Voltage Rated Current	Cable Specification	Cable Length	Temperature measuring device	Actual Current Range
YGC-EV-S5P-200	1000V DC 200A	2*70+1*25+ (2*0.75) (P2) +2* (2*0.75)	5m	PT1000*2 Or NTC*2	0~200A
YGC-EV-S5P-125	1000V DC 125A	2*35+1*16+ (2*0.75) (P2) +2* (2*0.75)	5m	PT1000*2 Or NTC*2	0~125A
YGC-EV-S5P-80	1000V DC 80A	2*25+1*16+ (2*0.75) (P2) +2* (2*0.75)	5m	PT1000*2 Or NTC*2	0~80A
.....				

1.2 Product Description:

1、 This product conforms to the specifications of connection devices for conduction charging of electric vehicles IEC62196.1-2014, IEC62196.3-2014, IEC62196.3-2014.

2、 IP Degree of the overall connector: IP44.

3、 The appearance design of the product is novel, the housing is formed as a whole, the product is ergonomic, comfortable to hold and easy to operate in use.

4、 Contact resistance and temperature rise of contact parts meet IEC62196.1-2014 requirements after 10000 cycle of insertion and removal.

5、 the product adopts integrated design, implant the concept of star array to improve product level and design sense.

6、 the internal structure design of the product simplifies the molding requirements to the greatest extent and in line with the actual production needs


7、 The housing material is made of new advanced engineering plastics from SABIC Company, which can maintain the stability and functionality of the product in harsh service environment.

2. Technical Parameters

2.1 Electrical performance

■ Rated Voltage: 1000V DC;

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■ Rated Current: 200A、125A、80A;

■ Insulation Resistance: $\geq 500M\Omega$ 500V DC 1min;

■ Withstand Voltage: No breakdown or flashover within 3500V AC 1min;

■ Current Leakage: $\leq 10mA$;

2.2 Mechanical Life: ≥ 10000 cycle;

■ Insertion and separation forces: $\leq 100N$;

■ Terminal crimping holding force: $70mm^2 \geq 2700N$ 、 $N35mm^2 \geq 2200N$ 、 $25mm^2 \geq 1900N$ 、

$0.75mm^2 \geq 90N$;

2.3 IP Degree

■ IP degree: IPX4 (mated) ;

■ Dustproof degree: IP4X

2.4 Service Environment

■ Class of pollution: Level 2

2.5 Materials and surface treatment

■ Plug Material: PA66+GF ;


■ Flame retardant rating: UL94-V0;

■ Socket material and surface treatment: copper silver plating + passivation,
brass silver plating + passivation:

2.6 Product Specification

Product Name	EN DC charger CCS2
Specification	YGC1403-EV-S5P-XXX
	XXX : represent rated current
Current	1000V DC
Current	DC: 200A、125A、080A (rated current)
	Signal: 2A (max)
Contacts	power: 2 earthing cable: 1 signal: 2

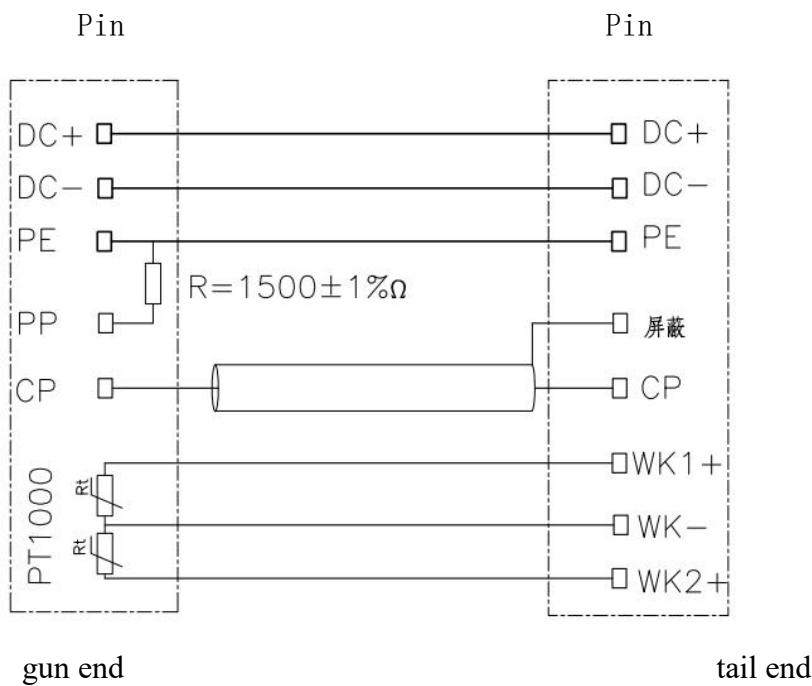
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Working environment	-35~+50°C (Do not use in chilled or frozen state)
	It is used below 2000m above sea level
IP Degree	IP44
Dimension	Charging gun: 267(L)*74(D)*168.5(W)
	cable: The length can be customized (The recommended maximum length is 7.5m)

Note: The product conforms to the requirements of RoHS2.0 and REACH

2.7 Wiring principle:



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2.8 Cable label definition and specifications

NO.	Function Definition	Color of core wire	Wiring end	Conductor cross-sectional area (mm ²)			
				200A	200A	125A	80A
1	DC power +	brown	DC+	70	50	35	25
2	DC power -	blue	DC-	70	50	35	25
3	Equipment Earthing Cable	Yellow/green	PE	25	25	16	16
4	Charge connection confirmation	/	PP (resistance lead)	0.75	0.75	0.75	0.75
5	Charge control guidance	white	CP	0.75	0.75	0.75	0.75
6	Temperature sensor (DC+)	white	WK1+	0.75	0.75	0.75	0.75
7	Temperature sensor col linear	white	WK-	0.75	0.75	0.75	0.75
8	Temperature sensor (DC-)	white	WK2+	0.75	0.75	0.75	0.75

3 Product graphic:

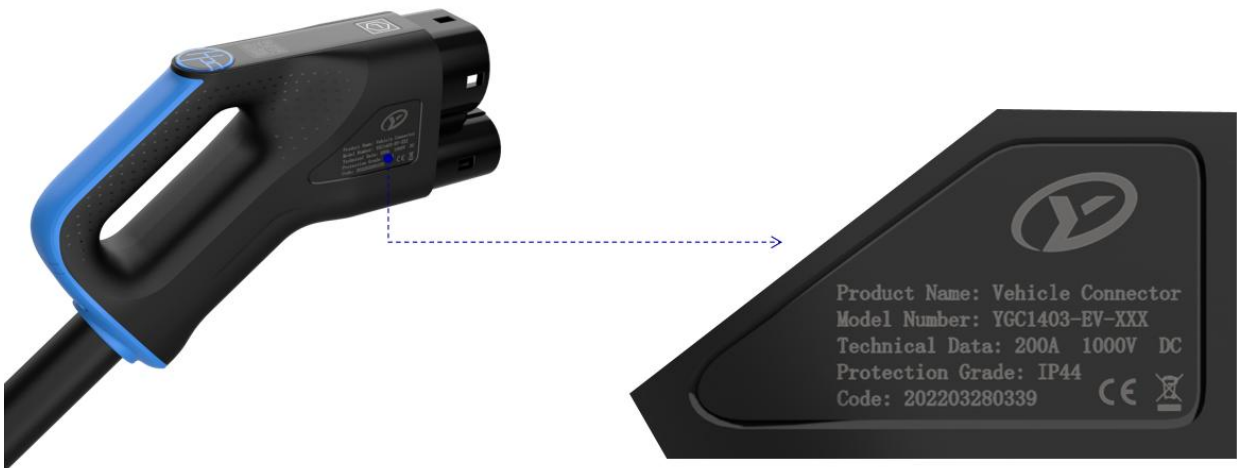
3.1. Contour view

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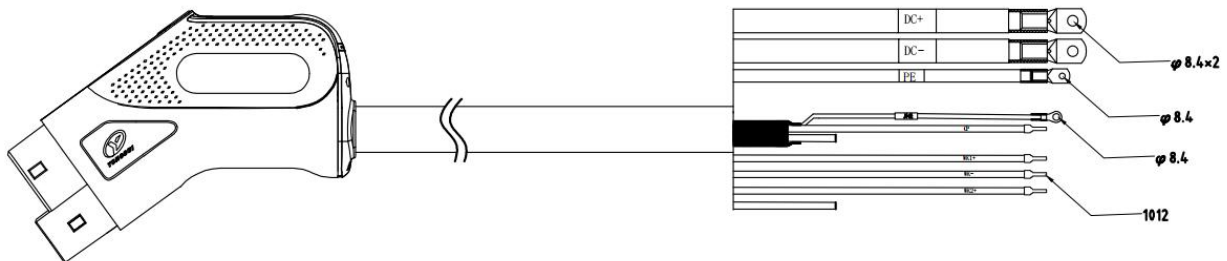
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3.2. Nameplate information:



3.3. Cable parameters:



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NO.	Function Definition	Color of core wire	Fuction description	parameters
1	DC power +	DC+	DC+	Mounting holeΦ 8.4
2	DC power -	DC-	DC-	Mounting holeΦ 8.4
3	Equipment Earthing Cable	Yellow/green	PE	SC25-8、SC16-8
4	Charge connection confirmation	/	PP (resistance lead)	/
5	Charge control guidance	white	CP	1008
6	Temperature sensor (DC+)	white	WK1+	1008
7	Temperature sensor col linear	white	WK-	1008
8	Temperature sensor (DC-)	white	WK2+	1008

4 Executive standard:

- IEC 62196.1-2014、IEC 62196.3-2014 、IEC 62893-4-1:2020

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Appendix

Appendix 1: Reference standards and tests

Table B: Test items and standards

Item		Accept criterion
1	Appearance	The easily accessible surface of the charging gun should be free of burrs, flying edges and similar sharp edges; The housing of the charging gun should be marked with the manufacturer's name or trademark, product specification, rated voltage and rated current
2	Dimension	The dimensions of the charging gun conform to the IEC62196-3 standard
3	Temperature rise	The maximum allowable temperature rise of the terminal shall not exceed 50k
4	Insulation resistance	>10MΩ (applied voltage: 500V DC, 1min)
5	Withstand voltage	3500V AC leakage current ≤10mA, no breakdown or flashover in 1 min
6	Plugging force of charging gun	<100N
7	Cable retention	The cable must not fall out of the charging gun housing.
8	Drop test	The sample shall not be damaged, and no parts in the gun housing shall be separated or fall out
9	Rolling test	The sample shall not be damaged, and no parts in the gun housing shall be separated or fall out
10	Service life test	Plugged 10000 times without power, After the test, there should be: 1. No deterioration of housing or partition; 2. No loose electrical or mechanical connection; 3. Maintain continuity of signal transmission between contacts; 4. Dielectric strength test (voltage reduction of 500V) should be conducted without flashover or breakdown;
11	IP Degree	IP67 (House) , IP44(the whole charger)
12	High temperature resistance test	The sample is not damaged and can be used normally (Check the sample after returning to room temperature.)

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13	Low temperature resistance test	The sample is not damaged and can be used normally (Check the sample after returning to room temperature.)
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Appendix 2: Test method


Test condition

-environment temperature $20\pm 5^{\circ}\text{C}$, relative humidity $65\pm 20\%$

Table C Test method

Items		Test method
1	Appearance	Check surface condition visually and manually.
2	Dimension	Compatibility test
3	Temperature rise	Provide the current according to product specification, measure the temperature at the following points Testing point: -contact point surface of DC terminal -housing surface -cable surface
4	Insulation resistance	Use an insulation resistance tester and 500V DC voltage to measure the insulation resistance between adjacent terminals and between each terminal and the housing
5	Withstand voltage	Apply 3500V AC voltage between adjacent power terminals and between the power terminals and the housing for 1 minute
6	Plugging force of charging gun	When the vehicle charging seat is fixed, the insertion/withdrawal force of the charging gun head (excluding the insertion/withdrawal force of the rubber seal of the vehicle charging seat) is measured at the specified speed.
7	Cable retention	When the charging gun is fixed, apply 750N pulling force from the charging gun to the output direction of the cable and keep it for 1 minute; Then apply a torque force of 11Nm to maintain 1 min, and the cable displacement does not exceed 5mm.
8	Drop test	Lift the test sample to the predetermined height, and then make it fall freely according to the predetermined state and collide
9	Rolling test	Flip the connector, which is placed naturally on the concrete floor, with the 2T vehicle wheel
10	Service life test	Mated 10000 times without power supply
11	IP Degree	The distance from the charger's top to the water surface is 0.15-1 meters, continuous 30 minutes, the performance is not

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12	High temperature resistance test	Place the charging gun in the incubator (105°C×1000h)
13	Low temperature resistance test	Place the charging gun in the incubator (-35°C×120h)

Appendix 3: Temperature monitoring

- DC+ and DC- are monitored by PT1000 temperature resistance sensor, and connect to power supply device through the cable conductor: WK-、WK1+、WK2+
- DC+ and DC- are monitored by PT1000 temperature resistance sensor. It is suggested to set the temperature threshold of pile end WK1+ 、WK2+ $\leq 110^{\circ}\text{C}$, When temperature reaches 110 degree, charging with 60% rated current or stop charging. (suggestion: When temperature reaches 90 degree, charging with 80% rated current)


Tolerance class: 2B

Pt1000 TC 3750ppm

Permissible deviation : $Dt = \pm 2(0.3^{\circ}\text{C} + 0.005 \cdot |t|)$


Temperature	Resistance Rt	Sensibility	Permissible deviation	
$^{\circ}\text{C}$	Q	$Q^{\circ}\text{C}$	$^{\circ}\text{C}$	Q
-40	846.580	3.863	1.000	3.863
-39	850.440	3.861	0.990	3.823
-38	854.300	3.860	0.980	3.783
-37	858.160	3.858	0.970	3.743
-36	862.010	3.857	0.960	3.703
-35	865.870	3.856	0.950	3.663
-34	869.730	3.854	0.940	3.623
-33	873.580	3.853	0.930	3.583
-32	877.430	3.851	0.920	3.543
-31	881.280	3.850	0.910	3.503
-30	885.130	3.849	0.900	3.464
-29	888.980	3.847	0.890	3.424
-28	892.830	3.846	0.880	3.384
-27	896.670	3.844	0.870	3.345
-26	900.510	3.843	0.860	3.305
-25	904.360	3.842	0.850	3.266
-24	908.200	3.840	0.840	3.226

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-23	912.040	3.839	0.830	3.186
-22	915.880	3.838	0.820	3.147
-21	919.710	3.836	0.810	3.108
-20	923.550	3.835	0.800	3.068
-19	927.380	3.834	0.790	3.029
-18	931.220	3.833	0.780	2.989
-17	935.050	3.831	0.770	2.950
-16	938.880	3.830	0.760	2.911
-15	942.710	3.829	0.750	2.872
-14	946.540	3.827	0.740	2.832
-13	950.360	3.826	0.730	2.793
-12	954.190	3.825	0.720	2.754
-11	958.010	3.824	0.710	2.715
-10	961.840	3.822	0.700	2.676
-9	965.660	3.821	0.690	2.637
-8	969.480	3.820	0.680	2.598
-7	973.300	3.819	0.670	2.559
-6	977.120	3.817	0.660	2.520
-5	980.930	3.816	0.650	2.481
-4	984.750	3.815	0.640	2.442
-3	988.560	3.814	0.630	2.403
-2	992.380	3.813	0.620	2.364
-1	996.190	3.811	0.610	2.325
0	1000.000	3.810	0.600	2.286
1	1003.810	3.809	0.610	2.323
2	1007.620	3.808	0.620	2.361
3	1011.430	3.807	0.630	2.398
4	1015.230	3.805	0.640	2.435
5	1019.040	3.804	0.650	2.473
6	1022.840	3.803	0.660	2.510
7	1026.640	3.802	0.670	2.547
8	1030.440	3.801	0.680	2.584
9	1034.240	3.799	0.690	2.622
10	1038.040	3.798	0.700	2.659
11	1041.840	3.797	0.710	2.696
12	1045.640	3.796	0.720	2.733

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13	1049.430	3.795	0.730	2.770
14	1053.220	3.793	0.740	2.807
15	1057.020	3.792	0.750	2.844
16	1060.810	3.791	0.760	2.881
17	1064.600	3.790	0.770	2.918
18	1068.390	3.789	0.780	2.955
19	1072.180	3.787	0.790	2.992
20	1075.960	3.786	0.800	3.029
21	1079.750	3.785	0.810	3.066
22	1083.530	3.784	0.820	3.103
23	1087.320	3.783	0.830	3.139
24	1091.100	3.781	0.840	3.176
25	1094.880	3.780	0.850	3.213
26	1098.660	3.779	0.860	3.250
27	1102.440	3.778	0.870	3.287
28	1106.210	3.776	0.880	3.323
29	1109.990	3.775	0.890	3.360
30	1113.760	3.774	0.900	3.397
31	1117.540	3.773	0.910	3.433
32	1121.310	3.772	0.920	3.470
33	1125.080	3.770	0.930	3.507
34	1128.850	3.769	0.940	3.543
35	1132.620	3.768	0.950	3.580
36	1136.390	3.767	0.960	3.616
37	1140.150	3.766	0.970	3.653
38	1143.920	3.764	0.980	3.689
39	1147.680	3.763	0.990	3.726
40	1151.440	3.762	1.000	3.762
41	1155.210	3.761	1.010	3.798
42	1158.970	3.760	1.020	3.835
43	1162.730	3.758	1.030	3.871
44	1166.480	3.757	1.040	3.908
45	1170.240	3.756	1.050	3.944
46	1174.000	3.755	1.060	3.980
47	1177.750	3.754	1.070	4.016

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48	1181.500	3.752	1.080	4.053
49	1185.250	3.751	1.090	4.089
50	1189.010	3.750	1.100	4.125
51	1192.750	3.749	1.110	4.161
52	1196.500	3.748	1.120	4.197
53	1200.250	3.746	1.130	4.233
54	1204.000	3.745	1.140	4.270
55	1207.740	3.744	1.150	4.306
56	1211.480	3.743	1.160	4.342
57	1215.230	3.742	1.170	4.378
58	1218.970	3.740	1.180	4.414
59	1222.710	3.739	1.190	4.450
60	1226.450	3.738	1.200	4.486
61	1230.180	3.737	1.210	4.521
62	1233.920	3.736	1.220	4.557
63	1237.650	3.734	1.230	4.593
64	1241.390	3.733	1.240	4.629
65	1245.120	3.732	1.250	4.665
66	1248.850	3.731	1.260	4.701
67	1252.580	3.730	1.270	4.737
68	1256.310	3.728	1.280	4.772
69	1260.040	3.727	1.290	4.808
70	1263.760	3.726	1.300	4.844
71	1267.490	3.725	1.310	4.879
72	1271.210	3.724	1.320	4.915
73	1274.940	3.722	1.330	4.951
74	1278.660	3.721	1.340	4.986
75	1282.380	3.720	1.350	5.022
76	1286.100	3.719	1.360	5.057
77	1289.820	3.718	1.370	5.093
78	1293.530	3.716	1.380	5.129
79	1297.250	3.715	1.390	5.164
80	1300.960	3.714	1.400	5.199
81	1304.680	3.713	1.410	5.235

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82	1308.390	3.711	1.420	5.270
83	1312.100	3.710	1.430	5.306
84	1315.810	3.709	1.440	5.341
85	1319.520	3.708	1.450	5.376
86	1323.230	3.707	1.460	5.412
87	1326.930	3.705	1.470	5.447
88	1330.640	3.704	1.480	5.482
89	1334.340	3.703	1.490	5.518
90	1338.040	3.702	1.500	5.553
91	1341.740	3.701	1.510	5.588
92	1345.440	3.699	1.520	5.623
93	1349.140	3.698	1.530	5.658
94	1352.840	3.697	1.540	5.693
95	1356.540	3.696	1.550	5.729
96	1360.230	3.695	1.560	5.764
97	1363.930	3.693	1.570	5.799
98	1367.620	3.692	1.580	5.834
99	1371.310	3.691	1.590	5.869
100	1375.000	3.690	1.600	5.904
101	1378.690	3.689	1.610	5.939
102	1382.380	3.687	1.620	5.974
103	1386.070	3.686	1.630	6.009
104	1389.750	3.685	1.640	6.043
105	1393.440	3.684	1.650	6.078
106	1397.120	3.683	1.660	6.113
107	1400.800	3.681	1.670	6.148
108	1404.480	3.680	1.680	6.183
109	1408.160	3.679	1.690	6.217
110	1411.840	3.678	1.700	6.252
111	1415.520	3.677	1.710	6.287
112	1419.190	3.675	1.720	6.322
113	1422.870	3.674	1.730	6.356
114	1426.540	3.673	1.740	6.391
115	1430.210	3.672	1.750	6.426

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116	1433.880	3.671	1.760	6.460
117	1437.550	3.669	1.770	6.495
118	1441.220	3.668	1.780	6.529
119	1444.890	3.667	1.790	6.564
120	1448.560	3.666	1.800	6.598
121	1452.220	3.665	1.810	6.633
122	1455.890	3.663	1.820	6.667
123	1459.550	3.662	1.830	6.702
124	1463.210	3.661	1.840	6.736
125	1466.870	3.660	1.850	6.770
126	1470.530	3.659	1.860	6.805
127	1474.190	3.657	1.870	6.839
128	1477.840	3.656	1.880	6.873
129	1481.500	3.655	1.890	6.908
130	1485.150	3.654	1.900	6.942
131	1488.810	3.653	1.910	6.976
132	1492.460	3.651	1.920	7.010
133	1496.110	3.650	1.930	7.045
134	1499.760	3.649	1.940	7.079
135	1503.410	3.648	1.950	7.113
136	1507.050	3.646	1.960	7.147
137	1510.700	3.645	1.970	7.181
138	1514.350	3.644	1.980	7.215
139	1517.990	3.643	1.990	7.249
140	1521.630	3.642	2.000	7.283
141	1525.270	3.640	2.010	7.317
142	1528.910	3.639	2.020	7.351
143	1532.550	3.638	2.030	7.385
144	1536.190	3.637	2.040	7.419
145	1539.820	3.636	2.050	7.453
146	1543.460	3.634	2.060	7.487
147	1547.090	3.633	2.070	7.521
148	1550.730	3.632	2.080	7.555
149	1554.360	3.631	2.090	7.588

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	Product Name	YG1403 European Standard DC Vehicle Connector	Docu NO.	XM202110003
	Part NO.	YGC1403-EV-S5P	Version	A 0

150	1557.990	3.630	2.100	7.622
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