CCS2 80A~400A Vehicle Inlet Technical Specification
（Conform to IEC62196）

Zhengzhou Guchen Electronic Co., Ltd

2023-04

Change Record

date	Clause No.	Content Before Change	Content After Change
2023.4			Add specifications 80A/125A/150A/300A/400A

1 Product type

Type Designation：

Series	CCS2	CCS2	-	200A	-	1000V	-	EU	Space	G001
Rated current: 80A，125A，150A，200A，250A，300A，400A										
Rated vlotage:1000V										
EU										
G001: AC part, 480V, 3phase, 32A										

2 Product composition

No.	Name	Model number	Notes
1	Vehicle inlet	CCS2-200A-1000V-EU CCS2-250A-1000V-EU CCS2-300A-1000V-EU CCS2-400A-1000V-EU CCS2-80A-1000V-EU G001 CCS2-125A-1000V-EU G001 CCS2-150A-1000V-EU G001 CCS2-200A-1000V-EU G001 CCS2-250A-1000V-EU G001 CCS2-300A-1000V-EU G001 CCS2-400A-1000V-EU G001	/
2	DC+、DC- Cable	80A/16mm2 125A/35mm2 150A/50mm2 200A/70mm2 250A/95mm2 300A/95mm2 400A/120mm2	Color:Orange 16mm2 I.D.: Φ8±0.2 35mm2 I.D.: Φ11±0.2 50mm2 I.D.: Φ13±0.2 70mm2 I.D.: Φ15±0.2 95mm2 I.D.: Φ17±0.3 120mm2 I.D.: Φ19±0.3
3	PE Cable	25mm2	Color:Yellow&Green, I.D.: Φ9.6±0.2
4	L1、L2、L3、N Cable	6mm2	Color: Orange, I.D.: Φ4.7±0.2
5	PP/CP Cable	0.75mm2	Color: PP/Red,CP/Black I.D.: Φ1.75±0.15
6	Thermal sensor	PT1000	3 pcs
7	DC+ Temp1 cable	0.5mm2	Color:Red, I.D.: Φ1.6±0.1
8	DC- Temp2 cable	0.5mm2	Color: White, I.D.: Φ1.6±0.1
9	AC Temp3 cable	0.5mm2	Color: White, I.D.: Φ1.6±0.1

10	Electronic lock	Learnsince Electronic lock	1 pcs
11	Electronic lock cable	0.5mm2	Color:Red,Black,Blue,Yellow, I.D.: Φ1.6±0.1

3 Product performances

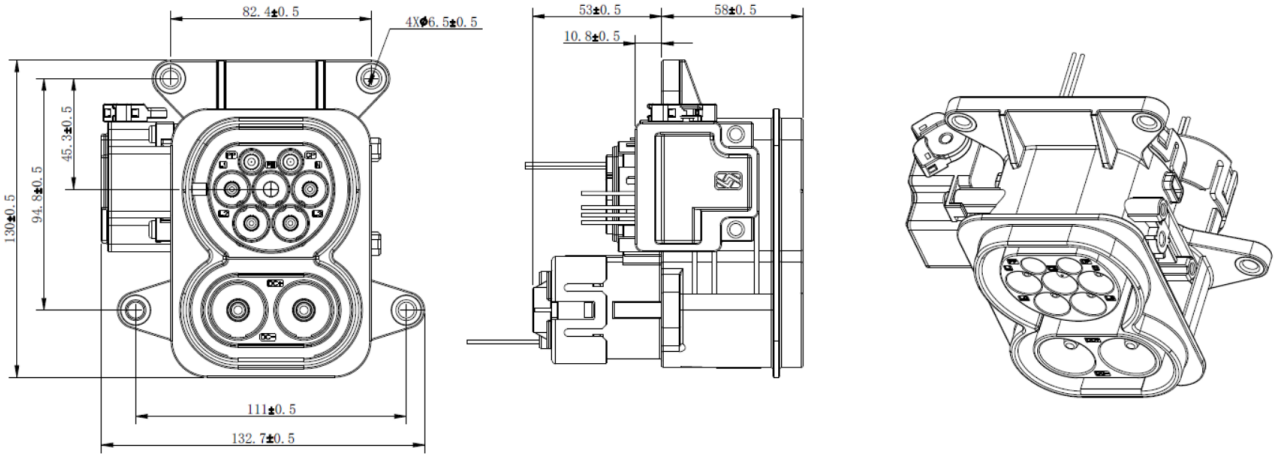
No.	Items	Parameter
1	Operating temperature	-30℃～+50℃(according to IEC62196-2014)
2	Degree of protection	IP44(mated)
3	Rated voltage	DC+/DC-:1000V DC; L1/L2/L3/N:480V AC; PP/CP 30VDC
4	Rated current	DC+/DC-:80A、125A、150A、200A、250A、300A、400A; L1/L2/L3/N：32A; PP/CP：2A
5	Voltage proof	DC+、DC-、PE:3000V AC(normal temperature); DC+、DC-、PE and other contacts: 3000V AC(normal temperature); L1、L2、L3、N、PE and other contacts: 2500V AC(normal temperature); other contacts:500V AC(normal temperature)
6	Insulation resistance	≥100MΩ(normal temperature) under 1000V DC
7	Insertion/withdrawal cycles	10000
8	Insertion force	＜100N
9	Withdrawal force	＜100N

Notice: ①Vehicle inlet is according with IEC62196-2014,the plug which can mate the vehicle inlet shall conform to IEC62196-2014

4 Wiring configuration table

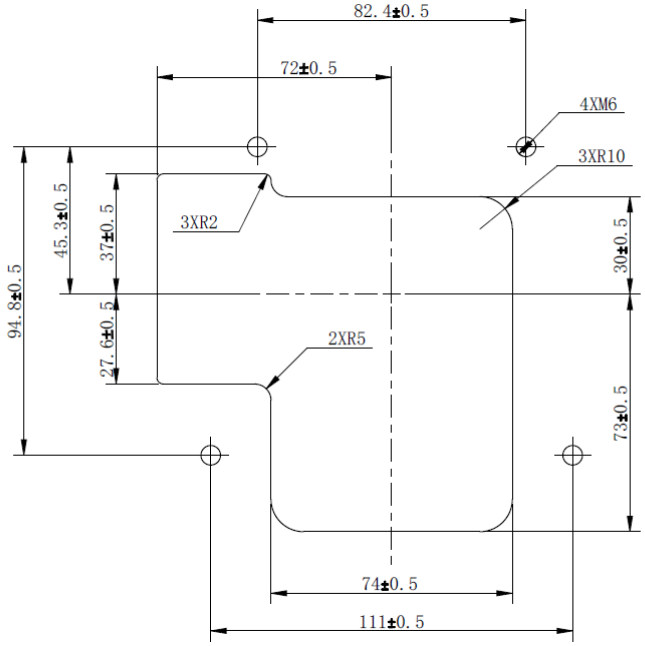
Items	AC 32A	DC 400A	DC 300A	DC 250A	DC 200A	DC 150A	DC 125A	DC 80A	Colour
L1	6								Orange
L2	6								Orange
L3	6								Orange
N	6								Orange
T3+	0.5								White
T3-	0.5								White
PE		25	25	25	25	25	25	25	Yellow/Green
CP		0.75	0.75	0.75	0.75	0.75	0.75	0.75	Black
PP		0.75	0.75	0.75	0.75	0.75	0.75	0.75	Red
DC+		120	95	95	70	50	35	25/16	Orange
DC-		120	95	95	70	50	35	25/16	Orange
T1+		0.5	0.5	0.5	0.5	0.5	0.5	0.5	Red
T1-		0.5	0.5	0.5	0.5	0.5	0.5	0.5	Red
T2+		0.5	0.5	0.5	0.5	0.5	0.5	0.5	White
T2-		0.5	0.5	0.5	0.5	0.5	0.5	0.5	White

5 Dimension of Vehicle inlet



6 Dimension of mounting holes on assembling panel:

Front mounting is shown below:



7 Temperature sensors in inlet

1) PT1000 temperature monitoring theory:

AC: one temperature sensor PT1000 for L1 pin

DC: two independent temperature sensors PT1000 for DC+/DC-

Temperature sensor model: PT1000, the temperature sensor model can be adjusted according to customer needs.

Suggested temperature control: limit current when the temperature reaches 100℃, and stop charging when the temperature reaches 120℃.

Reason for the requirement: IEC62196 stipulates that the operating temperature of charging products is -30℃~+50℃, and the terminal temperature rise is up to 50K. The current should be limited when the temperature reaches 100℃ to avoid continuous temperature rise. In order to prevent the internal parts and cables of charging products from aging at high temperatures, the charger should stop charging when the temperature reaches 120°C.

2) PT1000 temperature parameter

Items	Parameter
Rated current	Operating current：≤0.3mA
Insulation resistance	≥100MΩ（100V DC）
Voltage resistance	3000V AC (60s)
Flame retardant rating	UL94V-0

3)Correspondence table between temperature value and resistance value for PT1000 temperature sensor (resistance unit: Ω)

T [℃]	R [Ω]	T [℃]	R [Ω]	T [℃]	R [Ω]	T [℃]	R [Ω]
-70	723.35	73	1282.23	216	1817.25	359	2328.65
-69	727.35	74	1286.05	217	1820.91	360	2332.14
-68	731.34	75	1289.87	218	1824.56	361	2335.64
-67	735.34	76	1293.70	219	1828.22	362	2339.13
-66	739.34	77	1297.52	220	1831.88	363	2342.62
-65	743.33	78	1301.33	221	1835.53	364	2346.10
-64	747.32	79	1305.15	222	1839.18	365	2349.59
-63	751.31	80	1308.97	223	1842.83	366	2353.08
-62	755.30	81	1312.78	224	1846.48	367	2356.56
-61	759.29	82	1316.60	225	1850.13	368	2360.05
-60	763.28	83	1320.41	226	1853.78	369	2363.53
-59	767.26	84	1324.22	227	1857.43	370	2367.01
-58	771.25	85	1328.03	228	1861.07	371	2370.49
-57	775.23	86	1331.84	229	1864.72	372	2373.97
-56	779.21	87	1335.65	230	1868.36	373	2377.45
-55	783.19	88	1339.46	231	1872.00	374	2380.93
-54	787.17	89	1343.26	232	1875.64	375	2384.40
-53	791.14	90	1347.07	233	1879.28	376	2387.88
-52	795.12	91	1350.87	234	1882.92	377	2391.35
-51	799.09	92	1354.68	235	1886.56	378	2394.82
-50	803.06	93	1358.48	236	1890.19	379	2398.29
-49	807.03	94	1362.28	237	1893.83	380	2401.76
-48	811.00	95	1366.08	238	1897.46	381	2405.23
-47	814.97	96	1369.87	239	1901.10	382	2408.70
-46	818.94	97	1373.67	240	1904.73	383	2412.17
-45	822.90	98	1377.47	241	1908.36	384	2415.63
-44	826.87	99	1381.26	242	1911.99	385	2419.10
-43	830.83	100	1385.06	243	1915.62	386	2422.56
-42	834.79	101	1388.85	244	1919.24	387	2426.02

-41	838.75	102	1392.64	245	1922.87	388	2429.48
-40	842.71	103	1396.43	246	1926.49	389	2432.94
-39	846.66	104	1400.22	247	1930.12	390	2436.40
-38	850.62	105	1404.00	248	1933.74	391	2439.86
-37	854.57	106	1407.79	249	1937.36	392	2443.31
-36	858.53	107	1411.58	250	1940.98	393	2446.77
-35	862.48	108	1415.36	251	1944.60	394	2450.22
-34	866.43	109	1419.14	252	1948.22	395	2453.67
-33	870.38	110	1422.93	253	1951.83	396	2457.13
-32	874.32	111	1426.71	254	1955.45	397	2460.58
-31	878.27	112	1430.49	255	1959.06	398	2464.03
-30	882.22	113	1434.26	256	1962.68	399	2467.47
-29	886.16	114	1438.04	257	1966.29	400	2470.92
-28	890.10	115	1441.82	258	1969.90	401	2474.37
-27	894.04	116	1445.59	259	1973.51	402	2477.81
-26	897.98	117	1449.37	260	1977.12	403	2481.25
-25	901.92	118	1453.14	261	1980.73	404	2484.70
-24	905.86	119	1456.91	262	1984.33	405	2488.14
-23	909.80	120	1460.68	263	1987.94	406	2491.58
-22	913.73	121	1464.45	264	1991.54	407	2495.02
-21	917.67	122	1468.22	265	1995.14	408	2498.45
-20	921.60	123	1471.98	266	1998.75	409	2501.89
-19	925.53	124	1475.75	267	2002.35	410	2505.33
-18	929.46	125	1479.51	268	2005.95	411	2508.76
-17	933.39	126	1483.28	269	2009.54	412	2512.19
-16	937.32	127	1487.04	270	2013.14	413	2515.62
-15	941.24	128	1490.80	271	2016.74	414	2519.06
-14	945.17	129	1494.56	272	2020.33	415	2522.48
-13	949.09	130	1498.32	273	2023.93	416	2525.91
-12	953.02	131	1502.08	274	2027.52	417	2529.34
-11	956.94	132	1505.83	275	2031.11	418	2532.77
-10	960.86	133	1509.59	276	2034.70	419	2536.19
-9	964.78	134	1513.34	277	2038.29	420	2539.62
-8	968.70	135	1517.10	278	2041.88	421	2543.04
-7	972.61	136	1520.85	279	2045.46	422	2546.46
-6	976.53	137	1524.60	280	2049.05	423	2549.88
-5	980.44	138	1528.35	281	2052.63	424	2553.30
-4	984.36	139	1532.10	282	2056.22	425	2556.72
-3	988.27	140	1535.84	283	2059.80	426	2560.13
-2	992.18	141	1539.59	284	2063.38	427	2563.55
-1	996.09	142	1543.33	285	2066.96	428	2566.96
0	1000.00	143	1547.08	286	2070.54	429	2570.38
1	1003.91	144	1550.82	287	2074.11	430	2573.79

2	1007.81	145	1554.56	288	2077.69	431	2577.20
3	1011.72	146	1558.30	289	2081.27	432	2580.61
4	1015.62	147	1562.04	290	2084.84	433	2584.02
5	1019.53	148	1565.78	291	2088.41	434	2587.43
6	1023.43	149	1569.52	292	2091.98	435	2590.83
7	1027.33	150	1573.25	293	2095.55	436	2594.24
8	1031.23	151	1576.99	294	2099.12	437	2597.64
9	1035.13	152	1580.72	295	2102.69	438	2601.05
10	1039.03	153	1584.45	296	2106.26	439	2604.45
11	1042.92	154	1588.18	297	2109.82	440	2607.85
12	1046.82	155	1591.91	298	2113.39	441	2611.25
13	1050.71	156	1595.64	299	2116.95	442	2614.65
14	1054.60	157	1599.37	300	2120.52	443	2618.04
15	1058.49	158	1603.09	301	2124.08	444	2621.44
16	1062.38	159	1606.82	302	2127.64	445	2624.83
17	1066.27	160	1610.54	303	2131.20	446	2628.23
18	1070.16	161	1614.27	304	2134.75	447	2631.62
19	1074.05	162	1617.99	305	2138.31	448	2635.01
20	1077.94	163	1621.71	306	2141.87	449	2638.40
21	1081.82	164	1625.43	307	2145.42	450	2641.79
22	1085.70	165	1629.15	308	2148.97	451	2645.18
23	1089.59	166	1632.86	309	2152.52	452	2648.57
24	1093.47	167	1636.58	310	2156.08	453	2651.95
25	1097.35	168	1640.30	311	2159.62	454	2655.34
26	1101.23	169	1644.01	312	2163.17	455	2658.72
27	1105.10	170	1647.72	313	2166.72	456	2662.10
28	1108.98	171	1651.43	314	2170.27	457	2665.48
29	1112.86	172	1655.14	315	2173.81	458	2668.86
30	1116.73	173	1658.85	316	2177.36	459	2672.24
31	1120.60	174	1662.56	317	2180.90	460	2675.62
32	1124.47	175	1666.27	318	2184.44	461	2679.00
33	1128.35	176	1669.97	319	2187.98	462	2682.37
34	1132.21	177	1673.68	320	2191.52	463	2685.74
35	1136.08	178	1677.38	321	2195.06	464	2689.12
36	1139.95	179	1681.08	322	2198.60	465	2692.49
37	1143.82	180	1684.78	323	2202.13	466	2695.86
38	1147.68	181	1688.48	324	2205.67	467	2699.23
39	1151.55	182	1692.18	325	2209.20	468	2702.60
40	1155.41	183	1695.88	326	2212.73	469	2705.97
41	1159.27	184	1699.58	327	2216.26	470	2709.33
42	1163.13	185	1703.27	328	2219.79	471	2712.70
43	1166.99	186	1706.96	329	2223.32	472	2716.06
44	1170.85	187	1710.66	330	2226.85	473	2719.42

45	1174.70	188	1714.35	331	2230.38	474	2722.78
46	1178.56	189	1718.04	332	2233.90	475	2726.14
47	1182.41	190	1721.73	333	2237.43	476	2729.50
48	1186.27	191	1725.42	334	2240.95	477	2732.86
49	1190.12	192	1729.10	335	2244.47	478	2736.22
50	1193.97	193	1732.79	336	2247.99	479	2739.57
51	1197.82	194	1736.48	337	2251.51	480	2742.93
52	1201.67	195	1740.16	338	2255.03	481	2746.28
53	1205.52	196	1743.84	339	2258.55	482	2749.63
54	1209.36	197	1747.52	340	2262.06	483	2752.98
55	1213.21	198	1751.20	341	2265.58	484	2756.33
56	1217.05	199	1754.88	342	2269.09	485	2759.68
57	1220.90	200	1758.56	343	2272.60	486	2763.03
58	1224.74	201	1762.24	344	2276.12	487	2766.38
59	1228.58	202	1765.91	345	2279.63	488	2769.72
60	1232.42	203	1769.59	346	2283.14	489	2773.07
61	1236.26	204	1773.26	347	2286.64	490	2776.41
62	1240.09	205	1776.93	348	2290.15	491	2779.75
63	1243.93	206	1780.60	349	2293.66	492	2783.09
64	1247.77	207	1784.27	350	2297.16	493	2786.43
65	1251.60	208	1787.94	351	2300.66	494	2789.77
66	1255.43	209	1791.61	352	2304.17	495	2793.11
67	1259.26	210	1795.28	353	2307.67	496	2796.44
68	1263.09	211	1798.94	354	2311.17	497	2799.78
69	1266.92	212	1802.60	355	2314.67	498	2803.11
70	1270.75	213	1806.27	356	2318.16	499	2806.44
71	1274.58	214	1809.93	357	2321.66	500	2809.78
72	1278.40	215	1813.59	358	2325.16		

8 Control of Electronic lock

8.1 24V Electronic lock

8.1.1 Electrical connection instructions

The actuator adopts a motor-driven method, and uses a micro switch as a position signal feedback device. It is connected with an external control circuit through PIN1, PIN2, PIN3, PIN4,to realize the electronic lock's locking, unlocking and signal feedback.

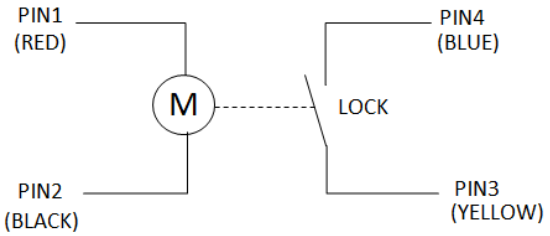


Table 1 Actuator working status table (four lines)

Motor power terminal status		Signal feedback switch status	Actuator status
PIN1	PIN2	PIN3-PIN4	
+24VDC	0VDC	Conduction	Locked
0VDC	+24VDC	disconnect	Unlock

8.1.2 Technical Parameters

No.	Items	Parameter
1	Operating temperature	-40℃～85℃
2	Rated voltage	24VDC
3	Operating Voltage	18VDC～32VDC
4	Rated current	Rated current：≤0.5A；Signal switch current：≤50mA
5	Locked-rotor current	≤1A
6	Insulation resistance	500V.dc，1min，Insulation resistance≥100MΩ
7	Pressure resistance	500V.ac，1min，Leakage current≤10mA
8	Driving time (normal temperature)	500-600ms
9	OBC lock strategy (recommend)	OBC drive actuator lock/unlock: If the lock/unlock feedback signal is detected within 300ms, the drive will be delayed for 150ms and the current drive will end. It shows actuator is ok and finish this drive. If the lock/unlock feedback signal is not detected within 300ms,go on driving 150ms,if the feedback signal is detected within 150ms, the drive will be delayed for 150ms and the current drive will end. It shows actuator is ok and finish this drive; if still not detected within 150ms, go on driving 150ms, if the feedback signal is detected within 150ms, the drive will be delayed for 150ms and the current drive will end. It shows actuator is ok and finish this drive, if still not detected within 150ms,stop this drive and send error message to control unit
10	Push-pull force of	≥35N（24VDC，Room temperature）

	lock pin	
11	Protection level	IP65
12	life	≥10000 cycles（24VDC Normal temperature, power-on time 600ms, interval time ≥10s）
13	Wires spec	FLRY-B 0.5 square

8.2 12V Electronic lock（switch type）

8.2.1 Electrical connection instructions

The actuator adopts a motor-driven method, and uses a micro switch as a position signal feedback device. It is connected with an external control circuit through PIN1, PIN2, PIN3, PIN4, to realize the electronic lock's locking, unlocking and signal feedback.

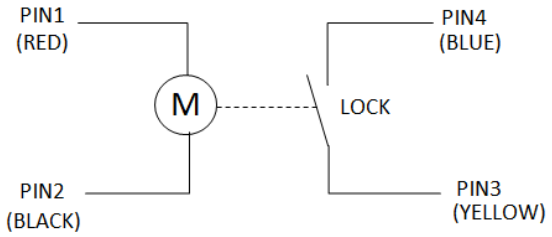


Table 1 Actuator working status table (four lines)

Motor power terminal status		Signal feedback switch status	Actuator status
PIN1	PIN2	PIN3-PIN4	
+12VDC	0VDC	Conduction	Locked
0VDC	+12VDC	disconnect	Unlock

8.2.2 Technical Parameters

No.	Items	Parameter
1	Operating temperature	-40℃～85℃
2	Rated voltage	12VDC
3	Operating Voltage	9VDC～16VDC
4	Rated current	Rated current：≤0.5A；Signal switch current：≤50mA
5	Locked-rotor current	≤1A
6	Insulation resistance	500V.dc，1min，Insulation resistance≥100MΩ
7	Pressure resistance	500V.ac，1min，Leakage current≤10mA
8	Driving time (normal temperature)	500-600ms
9	OBC lock strategy (recommend)	OBC drive actuator lock/unlock: If the lock/unlock feedback signal is detected within 300ms, the drive will be delayed for 150ms and the current drive will end. It shows actuator is ok and finish this drive. If the lock/unlock feedback signal is not detected within 300ms,go on driving 150ms,if the feedback signal is

		detected within 150ms, the drive will be delayed for 150ms and the current drive will end. It shows actuator is ok and finish this drive; if still not detected within 150ms, go on driving 150ms, if the feedback signal is detected within 150ms, the drive will be delayed for 150ms and the current drive will end. It shows actuator is ok and finish this drive, if still not detected within 150ms,stop this drive and send error message to control unit
10	Push-pull force of lock pin	≥35N（12VDC，Room temperature）
11	Protection level	IP65
12	life	≥10000 cycles（12VDC Normal temperature, power-on time 600ms, interval time ≥10s）
13	Wires spec	FLRY-B 0.5 square

8.3 12V Electronic lock（resistance type）

8.3.1 Electrical connection instructions

The actuator adopts a motor-driven method, and uses a micro switch as a position signal feedback device. It is connected with an external control circuit through PIN1, PIN2, PIN3, PIN4, to realize the electronic lock's locking, unlocking and signal feedback.

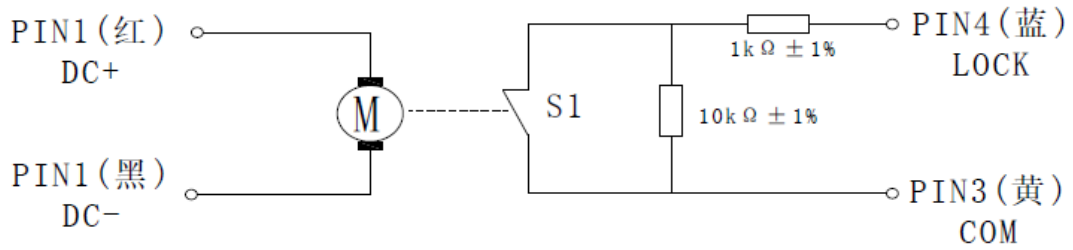


Table 1 Actuator working status table (four lines)

Motor power terminal status		Signal feedback switch status	Actuator status
PIN1	PIN2	PIN3-PIN4	
+12VDC	0VDC	S1 Disconnect, R=11K	Locked
0VDC	+12VDC	S1 Connect, R=1K	Unlock

8.3.2 Technical Parameters

No.	Items	Parameter
1	Operating temperature	-40℃～85℃
2	Rated voltage	12VDC
3	Operating Voltage	9VDC～16VDC
4	Rated current	Rated current：≤0.5A；Signal switch current：≤50mA
5	Locked-rotor current	≤1A
6	Insulation resistance	500V.dc，1min，Insulation resistance≥100MΩ
7	Pressure resistance	500V.ac，1min，Leakage current≤10mA

8	Driving time (normal temperature)	500-600ms
9	OBC lock strategy (recommend)	OBC drive actuator lock/unlock: If the lock/unlock feedback signal is detected within 300ms, the drive will be delayed for 150ms and the current drive will end. It shows actuator is ok and finish this drive. If the lock/unlock feedback signal is not detected within 300ms,go on driving 150ms,if the feedback signal is detected within 150ms, the drive will be delayed for 150ms and the current drive will end. It shows actuator is ok and finish this drive; if still not detected within 150ms, go on driving 150ms, if the feedback signal is detected within 150ms, the drive will be delayed for 150ms and the current drive will end. It shows actuator is ok and finish this drive, if still not detected within 150ms,stop this drive and send error message to control unit
10	Push-pull force of lock pin	≥35N（12VDC，Room temperature）
11	Protection level	IP65
12	life	≥10000 cycles（12VDC Normal temperature, power-on time 600ms, interval time ≥10s）
13	Wires spec	FLRY-B 0.5 square