



**2CP1000 BATTERY
PRODUCT
SPECIFICATION**

Part Number 61361000

TECHNOLOGY

VRLA-AGM Valve Regulated Lead-Acid and Absorbed Glass Mat

ELECTRICAL DATA


Type	2CP1000				
Nominal Voltage	2 volts (1 cell)				
Rated Capacity	1010 Ah - C ₁₀ to 1.80 Vpc at 20 °C 1018 Ah - C ₁₀₀ to 1.80 Vpc at 20 °C				
Current / Power					
0.5 hr back-up time	1.65 Vpc	20 °C	1186 A	2117 W	
1.0 hr back-up time	1.67 Vpc	20 °C	714 A	1306 W	
2.0 hr back-up time	1.80 Vpc	20 °C	384 A	721 W	
4.0 hr back-up time	1.80 Vpc	20 °C	216 A	418 W	
8.0 hr back-up time	1.80 Vpc	20 °C	122 A	234 W	
10.0 hr back-up time	1.80 Vpc	20 °C	101 A	193 W	
20.0 hr back-up time	1.80 Vpc	20 °C	54.1 A	105 W	
Conversion to capacity at 25 °C (77 °F)	20° C Ah x 1.03 (t > 1 h)				
Internal resistance (± 10%) to IEC/EN 60896-21	0.11 mΩ				
Short circuit current (± 10%) to IEC/EN 60896-21	18.2 kA				
Self discharge at 20° C IEC/EN 60896-21	max. 3%/month				
Heat loss during float service at 20 °C	≈ 1.00 W				

MECHANICAL DATA

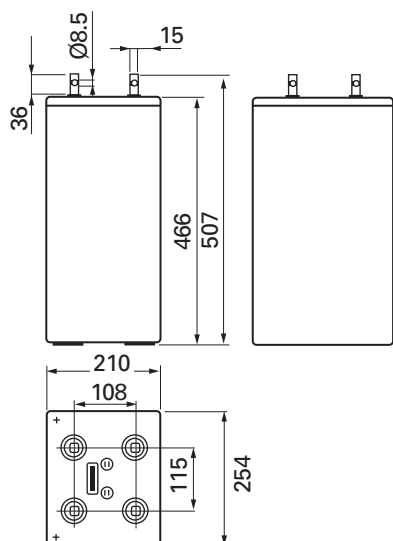
Weight ready for use	73.9 kg
Height of cell	507 mm
Height over terminal connector	512 mm
Width	210 mm
Depth	254 mm
Number of terminals	2⊕ / 2⊖
Terminals	ø 8.5 mm (through hole M8)
Suggested/maximum cable cross-section	4.185 mm ² *) up to 6.185 mm ² / up to 4.240 mm ² *)
Connection torque	25 Nm
Terminal insulation class according to IEC/EN 60529	IP20
Diameter of diagnostic hole for voltage probe	4.0 mm ø
Connector (copper, tin-coated) rigid and insulated	4.90 mm ²
Complete connector and terminal connection accessories	available

*) for UPS duties the connecting cables must be dimensioned specially

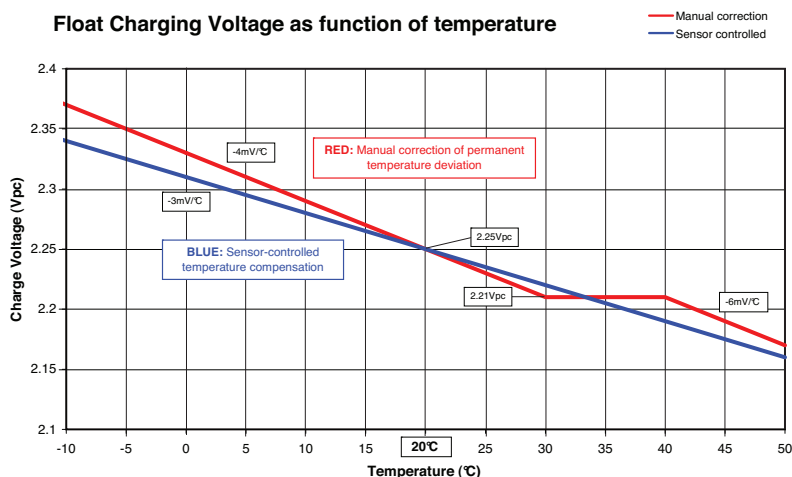
ENVIRONMENTAL DATA

Installation	Vertically / horizontally
Distance for cooling and ventilation (preset with the rigid connectors)	8 mm
Flame retardancy rating case/cover according to Underwriters Laboratories (UL) USA	ABS - PC – UL 94 V-0 with LOI > 32%, halogen-free
Flame barriers at vents	Installed
UL file number 	MH 26065
Service life expected at 20 °C	15 years
Eurobat classification	12+ Long Life
Shelves, cabinets and racks	available upon request

BATTERY DRAWINGS



FLOAT VOLTAGE COMPENSATION AS A FUNCTION OF TEMPERATURE



CAPACITY CORRECTION FACTORS AS A FUNCTION OF TEMPERATURE

Temperature	% of Rated Capacity
40 °C (104 °F)	104.8
35 °C (95 °F)	104.2
30 °C (86 °F)	103.6
25 °C (77 °F)	103.0
20 °C (68 °F)	100.0
15 °C (59 °F)	97.0
10 °C (50 °F)	94.0
5 °C (41 °F)	90.0
0 °C (32 °F)	84.7
-5 °C (23 °F)	77.7
-10 °C (14 °F)	69.4
-15 °C (5 °F)	60.0
-20 °C (-4 °F)	49.6
-25 °C (-13 °F)	38.4
-30 °C (-22 °F)	25.6
-35 °C (-31 °F)	14.1
-40 °C (-40 °F)	2.1

INSTALLATION & OPERATION CHARACTERISTICS

Battery installation and operation	Stand-by mode with constant voltage float operation according to EN 50272-2:2001
Float voltage setting according to DIN 41773	2.25 Vpc ± 1% at 20 °C - 25 °C (68 °F - 77 °F)
Float voltage with daily discharge cycles	2.29 Vpc - 2.30 Vpc (no correction factor needed)
CC-CV charge current according to DIN 41773	unlimited, otherwise 3 · I ₁₀ max. if temp > 25 °C
Float voltage compensation in function of temperature	-2 to -4 mV / °C or with profile as displayed in graph above
Boost charge	Not needed, if desirable then 2.35 Vpc and I ₁₀ max. for 24 hr max. at temp < 30 °C
Air exchange	As a VRLA battery according to EN 50272-2:2001 $Q = 0.05 \cdot N_{\text{cells}} \cdot I_{\text{gas}} \cdot C_{\text{Ah C10}} \cdot 10^3$ [m ³ /h] I _{gas} = 1 (at 2.25 Vpc) I _{gas} = 8 (at 2.40 Vpc) e.g. 48 V : 1.212 m ³ /hr = 42.80 cu.ft /hr (at 2.25 Vpc)
Preferred operating temperature range	Between 15 °C - 25 °C (59 °F - 77 °F)
Maximum long term operating temperature	+40 °C (104 °F) with ventilation assured (reduced service life)
Maximum short term operating temperature (for hours)	+50 °C (122 °F) with ventilation assured (reduced service life)
Minimum fully charged operating temperature	-40 °C (-40 °F)

2CP1000 BATTERY PRODUCT SPECIFICATION

DISCHARGE DATA

Constant current performance (in amps) to the defined end-of-discharge voltage

Voltage (Vpc)	Temp.	Discharge time [min]																						
		1-2	3	5	7	10	15	20	25	30	40	50	60	90	120	180	240	300	360	480	600	720	1200	1440
1.90	20 °C	1096	1083	1050	1014	962	883	815	757	707	625	562	510	403	334	243	197	168	148	117	96.8	82.9	53.0	45.0
	25 °C	1129	1115	1082	1044	991	909	839	780	728	644	579	525	415	344	250	203	173	152	121	100	85.4	54.6	46.4
1.87	20 °C	1321	1302	1255	1204	1131	1023	933	858	794	693	615	554	430	353	254	204	173	151	119	98.3	83.9	53.4	45.3
	25 °C	1361	1341	1293	1240	1165	1054	961	884	818	714	633	571	443	364	261	210	178	156	123	101	86.4	55.0	46.7
1.85	20 °C	1482	1458	1400	1337	1247	1117	1011	923	850	735	648	581	445	363	260	208	175	153	120	99.1	84.5	53.7	45.5
	25 °C	1526	1502	1442	1377	1284	1151	1041	951	876	757	667	598	458	374	268	214	181	158	124	102	87.0	55.3	46.9
1.84	20 °C	1565	1538	1473	1404	1305	1164	1049	955	876	754	663	593	453	368	263	210	177	154	121	99.4	84.8	53.8	45.6
	25 °C	1612	1584	1517	1446	1344	1199	1080	984	902	777	683	611	467	379	271	217	182	159	125	102	87.3	55.4	47.0
1.83	20 °C	1649	1619	1547	1471	1363	1209	1086	985	902	773	678	605	459	372	265	212	178	155	121	100	85.0	53.9	45.6
	25 °C	1698	1668	1593	1515	1404	1245	1119	1015	929	796	698	623	473	383	273	218	183	160	125	103	87.6	55.5	47.0
1.82	20 °C	1733	1701	1622	1538	1420	1254	1122	1015	927	791	692	616	466	377	268	213	179	155	121	100	85.2	54.0	45.7
	25 °C	1785	1752	1670	1584	1463	1292	1155	1045	955	815	713	634	480	388	276	220	184	160	125	103	87.8	55.6	47.1
1.80	20 °C	1902	1863	1769	1669	1532	1340	1190	1070	973	825	717	636	477	384	272	216	181	157	122	101	85.6	54.1	45.8
	25 °C	1959	1919	1822	1720	1578	1380	1226	1102	1002	850	739	655	491	395	281	223	186	161	126	104	88.2	55.7	47.2
1.77	20 °C	2150	2101	1981	1858	1689	1459	1283	1145	1034	868	750	661	491	393	284	223	185	158	123	101	86.0	54.3	45.9
	25 °C	2215	2164	2041	1914	1739	1503	1321	1179	1065	894	773	681	506	405	292	230	190	163	127	104	88.6	55.9	47.3
1.75	20 °C	2308	2251	2115	1974	1784	1530	1337	1188	1069	893	768	675	499	398	286	225	186	159	124	101	86.3	54.4	46.0
	25 °C	2378	2319	2178	2034	1838	1576	1377	1224	1101	920	791	696	514	410	295	232	191	164	127	105	88.9	56.0	47.4
1.72	20 °C	2527	2459	2297	2132	1913	1623	1408	1243	1114	924	791	693	509	404	289	227	187	160	124	102	86.6	54.5	46.1
	25 °C	2603	2533	2366	2196	1970	1672	1450	1280	1147	952	815	714	524	416	298	234	193	165	128	105	89.2	56.1	47.5
1.70	20 °C	2659	2583	2405	2225	1987	1676	1448	1274	1139	941	804	703	514	407	291	228	188	160	124	102	86.7	54.6	46.1
	25 °C	2739	2661	2475	2292	2046	1727	1491	1313	1173	969	828	724	529	420	300	235	194	165	128	105	89.3	56.2	47.5
1.67	20 °C	2831	2745	2545	2345	2082	1743	1497	1313	1169	962	819	714	520	411	293	229	189	161	125	102	86.9	54.6	46.2
	25 °C	2916	2828	2622	2415	2144	1796	1542	1352	1204	991	843	735	535	424	302	236	194	166	129	105	89.5	56.3	47.6
1.65	20 °C	2929	2837	2624	2412	2134	1780	1524	1333	1186	973	827	720	523	413	294	230	189	161	125	102	87.0	54.7	46.2
	25 °C	3017	2923	2703	2484	2198	1833	1570	1373	1221	1002	851	742	539	426	303	236	195	166	129	106	89.6	56.3	47.6
1.63	20 °C	3015	2918	2692	2469	2179	1811	1547	1351	1199	982	833	725	526	415	295	230	189	161	125	103	87.0	54.7	46.2
	25 °C	3105	3005	2773	2543	2244	1865	1594	1391	1235	1011	858	747	541	427	303	237	195	166	129	106	89.7	56.3	47.6
1.60	20 °C	3127	3023	2782	2544	2237	1851	1576	1373	1217	994	842	732	529	417	296	231	190	162	125	103	87.1	54.7	46.3
	25 °C	3221	3113	2865	2620	2304	1907	1624	1414	1253	1023	867	753	545	429	305	238	196	167	129	106	89.8	56.4	47.6

Constant power performance (in watt per cell) to the defined end-of-discharge voltage

Voltage (Vpc)	Temp.	Discharge time [min]																						
		1-2	3	5	7	10	15	20	25	30	40	50	60	90	120	180	240	300	360	480	600	720	1200	1440
1.90	20 °C	2110	2083	2018	1947	1843	1688	1556	1444	1347	1190	1068	970	766	636	480	388	327	283	224	187	160	103	88.0
	25 °C	2173	2145	2079	2005	1898	1739	1603	1487	1387	1226	1100	999	789	655	494	400	337	291	231	193	165	106	90.6
1.87	20 °C	2502	2465	2375	2277	2136	1931	1760	1618	1497	1306	1160	1046	812	668	497	399	335	289	228	189	162	104	88.6
	25 °C	2577	2539	2446	2345	2200	1989	1813	1667	1542	1345	1195	1077	836	688	512	411	345	298	235	195	167	107	91.3
1.85	20 °C	2776	2730	2619	2501	2332	2089	1891	1728	1591	1377	1216	1091	839	686	507	405	339	292	230	191	163	105	88.7
	25 °C	2859	2812	2698	2576	2402	2152	1948	1780	1639	1418	1252	1124	864	707	522	417	349	301	237	197	168	108	91.4
1.84	20 °C	2914	2864	2742	2613	2429	2167	1954	1780	1636	1410	1242	1111	851	694	512	408	341	294	231	191	164	105	88.8
	25 °C	3002	2950	2824	2691	2502	2232	2013	1833	1685	1452	1279	1145	877	715	527	421	351	303	238	197	168	108	91.5
1.83	20 °C	3052	2997	2864	2723	2524	2242	2015	1831	1678	1442	1266	1131	862	701	516	411	343	295	232	192	164	105	88.9
	25 °C	3144	3087	2950	2805	2600	2309	2076	1886	1729	1485	1304	1165	888	722	531	423	353	304	239	198	169	108	91.6
1.82	20 °C	3190	3130	2985	2832	2618	2316	2074	1879	1719	1472	1289	1149	873	708	520	413	345	296	233	192	164	105	89.0
	25 °C	3286	3224	3075	2917	2697	2385	2136	1935	1771	1516	1328	1183	899	729	536	425	355	305	240	198	169	108	91.7
1.80	20 °C	3461	3390	3221	3044	2797	2455	2185	1970	1795	1527	1331	1183	892	721	526	418	348	299	234	193	165	105	89.1
	25 °C	3565	3492	3318	3135	2881	2529	2251	2029	1849	1573	1371	1218	919	743	542	431	358	308	241	199	170	109	91.8
1.77	20 °C	3845	3757	3551	3337	3043	2642	2333	2089	1893	1597	1385	1225	916	736	534	423	351	301	236	194	166	106	89.2
	25 °C	3960	3870	3658	3437	3134	2721	2403	2152	1950	1645	1427	1262	943	758	550	436	362	310	243	200	171	109	91.9
1.75	20 °C	4079	3981	3750	3512	3188	2751	2417	2156	1948	1636	1414	1247	928	744	539	425	353	303	237	195	167	106	89.4
	25 °C	4201	4100	3863	3617	3284	2834	2490	2221	2006	1685	1456	1284	956	766	555	438	364	312	244	201	171	109	92.0
1.72	20 °C	4391	4277	4012	3741	3375	2889	2523	2240	2016	1684	1450	1275	944	754	544	429	355	304	237	196	167	106	89.5
	25 °C	4523	4405	4132	3853	3476	2976	2599	2307	2076	1735	1494	1313	972	777	560	442	366	313	244	202	172	109	92.1
1.70	20 °C	4569	4446	4160	3869	3479	2965	2581	2286	2053	1710	1468	1290	952	759	546	430	356	305	238	196	167	106	89.6
	25 °C	4706	4579	4285	3985	3583	3054	2658	2355	2115	1761	1512	1329	981	782	562	443	367	314	245	202	172	109	92.3
1.67	20 °C	4787	4652	4340	4024	3605	3055	2649	2339	2096	1739	1490	1306	961	765	549	432	358	306	239	196	167	106	89.7
	25 °C	4931	4792	4470	4145	3713	3147	2728	2409	2159	1791	1535	1345	990	788	565	445	369	315	246	202			