



**2CP200 BATTERY
PRODUCT
SPECIFICATION**

Part Number 70770200

TECHNOLOGY

VRLA-AGM-GEL Valve Regulated Lead-Acid and Absorbed Glass Mat, Gel electrolyte


ELECTRICAL DATA

Type	2CP200	
Nominal Voltage	2 volts (1 cell)	
Rated Capacity	206 Ah - C ₁₀ to 1.80 Vpc at 20 °C 255 Ah - C ₁₀₀ to 1.80 Vpc at 20 °C	
Current / Power		
0.5 hr back-up time	1.65 Vpc 20 °C	246 A 450 W
1.0 hr back-up time	1.67 Vpc 20 °C	142 A 266 W
2.0 hr back-up time	1.80 Vpc 20 °C	77.6 A 150 W
4.0 hr back-up time	1.80 Vpc 20 °C	44.2 A 85.5 W
8.0 hr back-up time	1.80 Vpc 20 °C	24.8 A 47.1 W
10.0 hr back-up time	1.80 Vpc 20 °C	20.6 A 38.6 W
20.0 hr back-up time	1.80 Vpc 20 °C	11.4 A 20 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	0.49 mΩ	
Short circuit current (± 10%) to IEC/EN 60896-21	4.1 kA	
Self discharge at 20° C IEC/EN 60896-21	max. 3%/month	
Heat loss during float service at 20 °C	≈ 0.24 W	

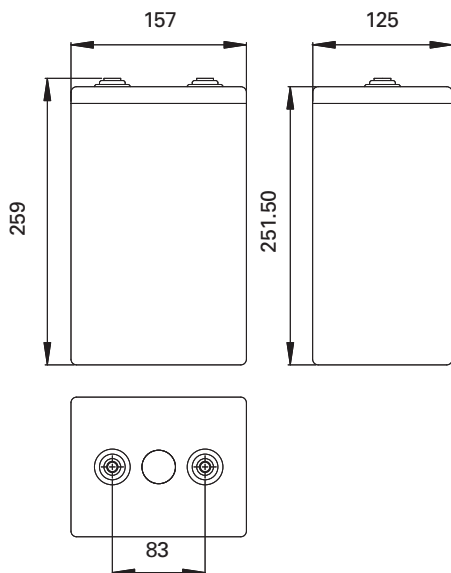
MECHANICAL DATA

Weight ready for use	15 kg
Height of cell	251.50 mm
Height over terminal connector	259 mm
Width	157 mm
Depth	125 mm
Number of terminals	1⊕ / 1⊖
Terminals	M10 female
Suggested/maximum cable cross-section	185 mm ²
Connection torque	20 Nm
Terminal insulation class according to IEC/EN 60529	IP20
Diameter of diagnostic hole for voltage probe	2 mm ø
Connector (copper, tin-coated) rigid and insulated	90 mm ²
Complete connector and terminal connection accessories	available

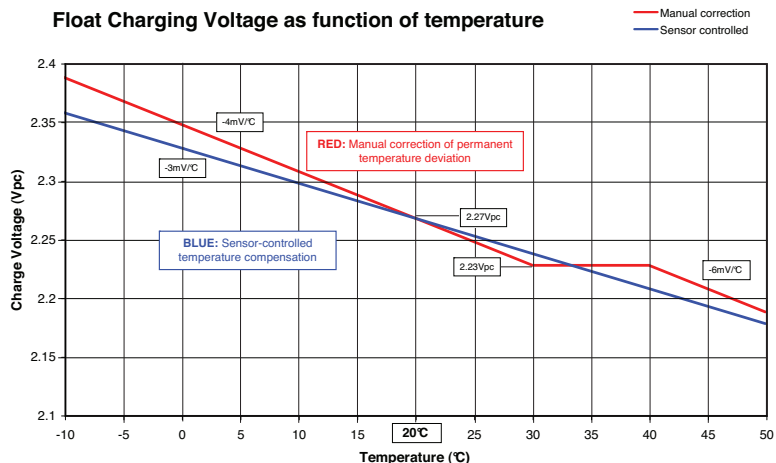
ENVIRONMENTAL DATA

Installation	Vertically / horizontally
Distance for cooling and ventilation (preset with the rigid connectors)	10 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 	-
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	2.27 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 $3 \cdot I_{10}$ 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] $I_{\text{gas}} = 1$ (at 2.27 Vpc) $I_{\text{gas}} = 8$ (at 2.40 Vpc) e.g. 48 V : 0.2472 m ³ /hr = 81 cu.ft/hr (at 2.27 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)

2CP200 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	418	394	363	336	302	258	226	202	182	154	133	118	89.1	72.1	53.0	42.3	35.5	30.6	24.2	20.2	17.4	11.3	9.7
	25 °C	431	406	374	346	311	266	233	208	187	159	137	122	91.8	74.3	54.6	43.6	36.6	31.5	24.9	20.8	17.9	11.6	10.0
1.87	20 °C	506	470	428	391	345	289	250	220	197	164	141	124	92.5	74.4	54.2	43.1	36.0	31.0	24.5	20.4	17.5	11.4	9.7
	25 °C	521	484	441	403	355	298	258	227	203	169	145	128	95.3	76.6	55.8	44.4	37.1	31.9	25.2	21.0	18.0	11.7	10.0
1.85	20 °C	564	521	469	425	371	307	263	230	206	170	145	128	94.3	75.5	54.8	43.5	36.3	31.2	24.6	20.5	17.5	11.4	9.7
	25 °C	581	537	483	438	382	316	271	237	212	175	149	132	97.1	77.8	56.4	44.8	37.4	32.1	25.3	21.1	18.1	11.7	10.0
1.84	20 °C	593	545	489	441	384	316	269	235	209	172	147	129	95.1	76.0	55.1	43.7	36.4	31.3	24.7	20.5	17.6	11.4	9.7
	25 °C	611	561	504	454	396	325	277	242	215	177	151	133	98.0	78.3	56.8	45.0	37.5	32.2	25.4	21.1	18.1	11.8	10.0
1.83	20 °C	622	569	508	457	395	324	275	240	213	175	149	130	95.8	76.5	55.3	43.8	36.5	31.4	24.7	20.5	17.6	11.4	9.8
	25 °C	641	586	523	471	407	334	283	247	219	180	153	134	98.7	78.8	57.0	45.1	37.6	32.3	25.5	21.1	18.1	11.8	10.0
1.82	20 °C	649	592	527	471	406	331	280	244	216	177	151	131	96.4	76.9	55.5	43.9	36.6	31.5	24.8	20.5	17.6	11.4	9.8
	25 °C	669	610	542	485	419	341	289	251	222	182	155	135	99.3	79.2	57.2	45.2	37.7	32.4	25.5	21.2	18.1	11.8	10.1
1.80	20 °C	704	637	562	499	427	345	290	251	222	181	153	134	97.5	77.6	55.9	44.2	36.7	31.6	24.8	20.6	17.7	11.4	9.8
	25 °C	725	656	579	514	440	355	298	258	228	186	158	138	100	79.9	57.6	45.5	37.8	32.5	25.6	21.2	18.2	11.8	10.1
1.77	20 °C	782	701	611	538	455	362	302	260	229	185	157	136	98.9	78.5	56.3	44.4	36.9	31.7	24.9	20.6	17.7	11.5	9.8
	25 °C	806	722	629	554	468	373	311	268	236	191	161	140	102	80.8	58.0	45.8	38.0	32.7	25.7	21.3	18.2	11.8	10.1
1.75	20 °C	833	741	641	561	471	373	310	265	233	188	159	138	100	78.9	56.6	44.6	37.0	31.8	25.0	20.7	17.7	11.5	9.8
	25 °C	858	763	660	578	485	384	319	273	240	194	163	142	103	81.3	58.3	45.9	38.1	32.7	25.7	21.3	18.3	11.8	10.1
1.72	20 °C	903	797	682	592	493	386	319	272	238	192	161	139	101	79.5	56.9	44.8	37.2	31.9	25.0	20.7	17.7	11.5	9.8
	25 °C	930	821	702	610	508	398	329	280	245	198	166	143	104	81.9	58.6	46.1	38.3	32.9	25.8	21.3	18.3	11.8	10.1
1.70	20 °C	946	829	706	610	506	394	324	276	241	193	162	140	101	79.8	57.1	44.9	37.2	31.9	25.1	20.7	17.8	11.5	9.8
	25 °C	974	854	727	628	521	406	334	284	248	199	167	145	104	82.2	58.8	46.2	38.3	32.9	25.8	21.4	18.3	11.8	10.1
1.67	20 °C	999	870	735	632	520	403	330	280	244	196	164	142	102	80.2	57.2	45.0	37.3	32.0	25.1	20.8	17.8	11.5	9.8
	25 °C	1029	896	757	651	536	415	340	289	252	201	169	146	105	82.6	59.0	46.3	38.4	33.0	25.8	21.4	18.3	11.8	10.1
1.65	20 °C	1026	886	750	643	528	407	333	282	246	197	165	142	102	80.4	57.3	45.1	37.3	32.0	25.1	20.8	17.8	11.5	9.8
	25 °C	1057	912	773	662	543	419	343	291	253	202	169	146	105	82.8	59.0	46.4	38.5	33.0	25.9	21.4	18.3	11.8	10.1
1.63	20 °C	1048	908	761	651	533	411	335	284	247	197	165	142	102	80.5	57.4	45.1	37.4	32.0	25.1	20.8	17.8	11.5	9.8
	25 °C	1079	935	784	670	549	423	345	293	255	203	170	147	105	82.9	59.1	46.4	38.5	33.0	25.9	21.4	18.3	11.8	10.1
1.60	20 °C	1077	916	776	662	541	415	338	286	249	198	166	143	102	80.7	57.5	45.1	37.4	32.1	25.1	20.8	17.8	11.5	9.8
	25 °C	1109	943	799	681	557	427	348	295	256	204	171	147	106	83.1	59.2	46.5	38.5	33.0	25.9	21.4	18.3	11.8	10.1

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	812	771	709	652	582	495	432	385	348	294	256	227	172	140	103	82.0	68.5	59.0	46.0	38.0	32.0	20.0	16.5
	25 °C	836	794	730	672	599	509	445	397	358	303	263	234	177	144	106	84.5	70.6	60.8	47.4	39.1	33.0	20.6	17.0
1.87	20 °C	964	907	822	747	656	547	472	416	373	312	269	238	178	144	105	83.5	69.5	59.5	46.5	38.1	32.2	20.0	16.6
	25 °C	993	934	847	769	676	563	486	428	384	321	277	245	183	148	108	86.0	71.6	61.3	47.9	39.2	33.2	20.6	17.1
1.85	20 °C	1065	996	894	806	701	578	494	434	388	322	277	244	182	146	107	84.0	70.0	60.0	46.6	38.2	32.3	20.0	16.7
	25 °C	1096	1025	921	830	722	595	509	447	399	331	285	251	187	150	110	86.5	72.1	61.8	48.0	39.4	33.3	20.6	17.2
1.84	20 °C	1113	1038	928	833	722	592	504	441	394	326	280	246	183	147	107	84.5	70.2	60.1	46.8	38.3	32.4	20.0	16.7
	25 °C	1147	1069	956	858	743	610	520	455	405	336	288	253	188	151	110	87.1	72.3	61.9	48.2	39.5	33.4	20.6	17.2
1.83	20 °C	1160	1079	961	859	741	605	514	449	399	330	282	248	184	148	107	84.8	70.4	60.2	46.8	38.4	32.5	20.0	16.8
	25 °C	1195	1111	990	885	763	623	529	462	411	340	291	255	189	152	110	87.3	72.5	62.0	48.3	39.5	33.4	20.6	17.3
1.82	20 °C	1206	1118	992	884	759	617	523	455	405	334	285	250	185	149	108	85.0	70.5	60.5	47.0	38.5	32.5	20.0	16.9
	25 °C	1242	1152	1021	911	782	636	538	469	417	344	294	258	191	153	111	87.6	72.6	62.3	48.4	39.7	33.5	20.6	17.4
1.80	20 °C	1291	1191	1049	929	792	639	538	467	414	340	290	254	187	150	108	85.5	71.0	60.8	47.1	38.6	32.6	20.0	16.9
	25 °C	1329	1226	1080	957	816	658	554	481	426	350	298	261	193	154	111	88.1	73.1	62.6	48.5	39.7	33.6	20.6	17.4
1.77	20 °C	1404	1286	1122	986	833	665	557	481	425	347	295	258	189	151	109	86.0	71.3	61.0	47.3	38.7	32.7	20.0	16.9
	25 °C	1446	1325	1155	1016	858	685	573	495	437	357	304	265	195	156	112	88.6	73.4	62.8	48.7	39.8	33.6	20.6	17.4
1.75	20 °C	1470	1341	1163	1018	856	680	567	489	431	351	298	260	191	152	110	86.3	71.5	61.1	47.4	38.8	32.8	20.0	16.9
	25 °C	1514	1381	1198	1049	882	700	583	503	443	361	306	267	196	156	113	88.8	73.6	62.9	48.8	39.9	33.7	20.6	17.4
1.72	20 °C	1558	1415	1218	1060	885	698	580	498	438	356	301	263	192	153	110	86.5	71.6	61.2	47.5	38.8	32.8	20.0	16.9
	25 °C	1604	1457	1255	1091	912	719	597	512	451	366	310	270	197	157	113	89.1	73.8	63.0	48.9	40.0	33.8	20.6	17.5
1.70	20 °C	1611	1458	1250	1084	902	709	587	503	442	358	303	264	193	153	110	86.7	71.8	61.3	47.5	38.9	32.9	20.0	17.0
	25 °C	1659	1502	1288	1117	929	730	604	518	455	369	312	272	198	158	114	89.3	73.9	63.1	48.9	40.1	33.9	20.6	17.5
1.67	20 °C	1684	1517	1294	1117	925	722	596	510	447	362	306	266	194	154	110	86.8	71.9	61.4	47.5	39.0	33.0	20.0	17.0