

Datasheet



12CP160

Compact-Power Rackline™



preliminary

Technical specifications

Type

Part number
Part number
Part number

12CP160

76100160 (ABS – UL 94 HB)
76200160 (ABS – UL 94 V-0)
76300160 (ABS-PC – UL 94 V-0)


Electrical Data

Nominal voltage	12 V	
Number of cells	6	
Rated capacity C ₁₀ to 1.80 Vpc at 20 °C	160 Ah	
Rated capacity C ₈ to 1.75 Vpc at 25 °C	160 Ah	
Current/Power for 0.5 h back-up time 1.65 Vpc 20 °C	198 A	2166 W
Current/Power for 1.0 h back-up time 1.67 Vpc 20 °C	114 A	1278 W
Current/Power for 2.0 h back-up time 1.80 Vpc 20 °C	62.1 A	714 W
Current/Power for 4.0 h back-up time 1.80 Vpc 20 °C	34.9 A	406.2 W
Current/Power for 8.0 h back-up time 1.80 Vpc 20 °C	19.3 A	223.8 W
Current/Power for 10.0 h back-up time 1.80 Vpc 20 °C	16.0 A	185.4 W
Current/Power for 20.0 h back-up time 1.80 Vpc 20 °C	8.8 A	99 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	3.6 mΩ	
Short circuit current (± 10%) to IEC/EN 60896-21	3.3 kA	
Self discharge at 20 °C to IEC/EN60896-21	max. 3%/month	
Heat loss during float service at 20 °C	≈ 0.90 W	

Mechanical Data

Weight ready for use	58 kg
Height of monobloc	316 mm
Height over gas collection system GCST™	316 mm
Height over terminal connector	316 mm
Width	125 mm
Depth	558 mm
Number of terminals	1⊕/1⊖
Dimension of connector screw hole	M8
Suggested/maximum cable cross-section	50 mm ² / 70 mm ²
Connection torque	8 Nm
Terminal insulation class according to IEC/EN 60529	IP20
Diameter of diagnostic hole for voltage at monobloc	2.5/5 mm Ø
Connector (copper, tin-coated) rigid and insulated	40/80 mm ²
Complete connector and terminal connection accessories	available (as 48 V/60 V-Set)

Environmental Data

Shelves, cabinets and racks	available upon request
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 – UL 94 HB (std.) ABS – UL 94 V-0 (opt.) ABS-PC – UL 94 V-0 (opt.)
Flame barriers at vents	installed
Gas collection system GCST™ UL V-o quality	available upon request
UL file number 	MH 26065
Service life expected at 20 °C	15 years

Operating specifications

Figure 1



Figure 2

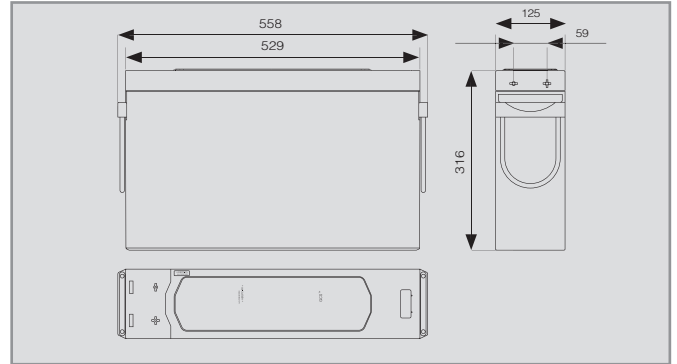
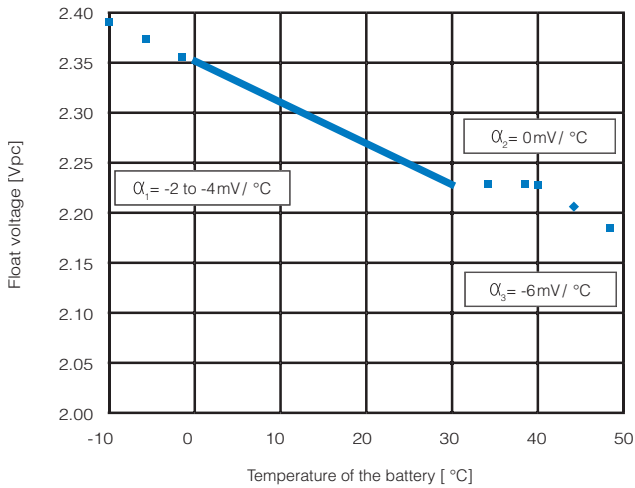


Figure 3



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

Battery installation and operation

Float voltage setting according to DIN 41773

Float voltage with daily discharge cycles

CC-CV charge current according to DIN 41773

Float voltage compensation in function of temperature

Boost charge

Stand-by mode with constant voltage float operation according to EN 50272-2:2001

2.27 Vpc at 20 to 25 °C (68 to 77 °F)

2.29 Vpc - 2.30 Vpc (no correction factor needed)

unlimited, otherwise $3 \cdot I_{10}$ max. if $T > 25$ °C

-2 to -4 mV/°C or with profile as displayed figure 3

Not needed, if desirable then 2.35 Vpc and I_{10} max. for 24 h max. at $t < 30$ °C

Air exchange

As a VRLA battery according to EN 50272-2:2001

$Q = 0.05 \cdot N_{\text{cells}} \cdot I_{\text{gas}} \cdot C_{\text{Ah C}_{10}} \cdot 10^{-3}$ [m³/h]

$I_{\text{gas}} = 1$ (at 2.27 Vpc) $I_{\text{gas}} = 8$ (at 2.40 Vpc)

e.g. 48 V: $0.192 \text{ m}^3/\text{h} = 6.7 \text{ cu.ft/h}$ (at 2.25 Vpc)

Preferred operating temperature range

Between 15 °C (68 °F) and 25 °C (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)



Discharge data

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

Voltage [Vpc]	Temp	Discharge time [Minutes]																						
		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	334	319	293	270	241	206	181	162	146	124	107	95.2	71.6	57.8	42.2	33.5	27.9	24.0	18.9	15.7	13.5	8.7	7.5
	25 °C	344	328	302	278	249	213	186	167	151	127	111	98.0	73.7	59.5	43.4	34.5	28.8	24.7	19.5	16.2	13.9	9.0	7.7
1.87	20 °C	402	380	343	312	275	230	199	176	158	132	114	100.0	74.2	59.5	43.1	34.1	28.3	24.3	19.1	15.8	13.5	8.8	7.5
	25 °C	414	391	354	321	283	237	205	181	163	136	117	103	76.5	61.3	44.4	35.1	29.2	25.0	19.7	16.3	13.9	9.0	7.8
1.85	20 °C	448	421	376	339	296	245	210	184	165	136	117	103	75.7	60.4	43.6	34.4	28.5	24.5	19.2	15.9	13.9	8.8	7.5
	25 °C	462	433	388	349	305	252	216	190	170	141	120	106	78.0	62.2	44.9	35.4	29.4	25.2	19.8	16.3	14.3	9.1	7.8
1.84	20 °C	472	442	392	352	306	251	214	189	168	139	118	104	76.3	60.8	43.8	34.6	28.6	24.5	19.2	15.8	13.6	8.8	7.5
	25 °C	486	455	404	363	315	259	221	194	173	143	122	107	78.6	62.6	45.2	35.6	29.5	25.2	19.8	16.3	14.0	9.1	7.7
1.83	20 °C	494	461	408	365	315	258	219	192	171	140	120	105	77.0	61.3	44.0	34.6	28.6	24.6	19.2	16.0	13.6	8.8	7.5
	25 °C	509	475	420	376	325	265	226	198	176	145	123	108	79.3	63.1	45.3	35.6	29.5	25.4	19.8	16.5	14.0	9.1	7.7
1.82	20 °C	517	481	424	377	324	264	224	195	173	142	121	106	77.4	61.5	44.1	34.7	28.8	24.6	19.3	15.9	13.6	8.8	7.6
	25 °C	532	495	436	388	334	272	231	201	178	146	125	109	79.7	63.4	45.5	35.8	29.6	25.4	19.9	16.4	14.1	9.1	7.8
1.80	20 °C	561	519	453	400	341	275	232	201	178	145	123	108	78.3	62.1	44.4	34.9	28.9	24.7	19.3	16.0	13.7	8.8	7.6
	25 °C	578	534	467	412	351	283	239	207	183	150	127	111	80.7	64.0	45.8	36.0	29.8	25.5	19.9	16.5	14.1	9.1	7.8
1.77	20 °C	623	572	493	431	363	289	242	208	184	149	126	110	79.5	62.8	44.8	35.1	29.0	24.8	19.4	16.0	13.7	8.9	7.6
	25 °C	642	589	508	444	374	298	249	215	189	154	130	113	81.8	64.7	46.1	36.2	29.9	25.6	20.0	16.5	14.1	9.1	7.8
1.75	20 °C	662	604	517	449	376	297	247	213	187	151	128	111	80.1	63.2	45.0	35.2	29.1	24.9	19.4	16.1	13.7	8.9	7.6
	25 °C	682	622	532	462	387	306	255	219	192	156	132	114	82.5	65.1	46.3	36.3	30.0	25.7	20.0	16.5	14.1	9.1	7.8
1.72	20 °C	715	648	549	473	392	308	254	218	191	154	130	112	80.8	63.6	45.2	35.4	29.2	25.0	19.5	16.1	13.7	8.9	7.6
	25 °C	737	667	565	487	404	317	262	224	197	159	133	116	83.2	65.6	46.6	36.4	30.1	25.7	20.1	16.6	14.2	9.1	7.8
1.70	20 °C	748	675	568	487	402	313	258	221	193	155	131	113	81.2	63.9	45.3	35.5	29.3	25.0	19.5	16.1	13.8	8.9	7.6
	25 °C	771	695	585	502	414	323	266	227	199	160	135	116	83.6	65.8	46.7	36.5	30.1	25.8	20.1	16.6	14.2	9.1	7.8
1.67	20 °C	793	711	593	506	415	321	264	224	196	157	132	114	81.7	64.2	45.5	35.6	29.3	25.1	19.5	16.1	13.8	8.9	7.6
	25 °C	817	732	611	521	427	331	271	231	202	162	136	117	84.1	66.1	46.9	36.6	30.2	25.8	20.1	16.6	14.2	9.1	7.8
1.65	20 °C	819	732	608	516	422	325	266	227	198	158	133	114	82.0	64.4	45.6	35.6	29.4	25.1	19.6	16.1	13.8	8.9	7.6
	25 °C	844	754	626	532	434	335	274	233	204	163	137	118	84.4	66.3	47.0	36.7	30.3	25.8	20.1	16.6	14.2	9.1	7.8
1.63	20 °C	844	752	621	526	428	329	269	228	199	159	133	115	82.2	64.5	45.7	35.6	29.4	25.1	19.6	16.1	13.8	8.9	7.6
	25 °C	869	774	640	542	441	339	277	235	205	164	137	118	84.7	66.5	47.0	36.7	30.3	25.9	20.2	16.6	14.2	9.2	7.8
1.60	20 °C	877	778	639	538	436	334	272	231	201	160	134	116	82.5	64.7	45.7	35.7	29.4	25.1	19.6	16.1	13.8	8.9	7.6
	25 °C	903	801	658	555	449	344	280	238	207	165	138	119	85.0	66.6	47.1	36.8	30.3	25.9	20.2	16.6	14.2	9.2	7.8

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

Voltage [Vpc]	Temp	Discharge time [Minutes]																						
		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	645	614	563	517	462	394	344	307	278	235	204	181	137	111	81.6	65.1	54.4	47.0	36.8	30.4	25.6	16.5	13.9
	25 °C	665	632	580	533	476	405	354	316	286	242	210	187	141	115	84.0	67.0	56.0	48.4	37.9	31.3	26.4	17.0	14.3
1.87	20 °C	765	721	652	591	520	435	375	332	298	249	215	190	142	115	83.2	66.1	54.9	47.5	36.8	30.4	26.1	16.5	13.9
	25 °C	788	743	671	609	536	448	387	342	307	257	221	196	146	118	85.7	68.1	56.6	48.9	37.9	31.3	26.9	17.0	14.3
1.85	20 °C	844	791	708	638	555	459	394	346	309	257	221	195	145	116	84.3	66.7	55.5	47.5	37.3	30.4	26.1	16.5	13.9
	25 °C	869	815	730	657	572	473	405	357	319	265	227	201	15.0	120	86.8	68.7	57.1	48.9	38.5	31.3	26.9	17.0	14.3
1.84	20 °C	883	825	735	660	572	470	402	352	314	260	224	196	146	117	84.7	66.9	55.6	47.7	37.2	30.6	26.1	16.5	13.9
	25 °C	909	850	757	679	589	485	414	363	324	268	230	202	150	120	87.2	69.0	57.3	49.1	38.3	31.6	26.9	17.0	14.3
1.83	20 °C	920	858	761	681	587	481	410	358	319	264	226	198	147	117	85.0	67.2	55.7	47.8	37.3	30.7	26.1	16.5	13.9
	25 °C	948	884	784	701	605	495	422	369	329	272	233	204	151	121	87.6	69.2	57.4	49.2	38.4	31.6	26.9	17.0	14.4
1.82	20 °C	957	890	786	700	602	491	417	364	323	267	228	200	148	118	85.3	67.2	56.0	48.0	37.3	30.9	26.1	16.5	13.9
	25 °C	986	916	810	721	620	505	429	375	333	275	235	206	152	121	87.9	69.2	57.7	49.4	38.5	31.9	26.9	17.0	14.3
1.80	20 °C	1027	950	833	737	629	509	429	373	331	272	232	203	149	119	85.9	67.7	56.0	48.0	37.3	30.9	26.1	16.5	13.9
	25 °C	1058	978	858	759	648	524	442	385	341	280	239	209	154	123	88.4	69.8	57.7	49.4	38.5	31.9	26.9	17.0	14.3
1.77	20 °C	1122	1030	894	785	663	531	445	385	340	278	236	206	151	120	86.4	68.3	56.5	48.0	37.3	30.9	26.1	16.5	13.9
	25 °C	1155	1061	921	808	683	547	459	397	350	286	243	213	155	124	89.0	70.3	58.2	49.4	38.5	31.9	26.9	17.0	14.3
1.75	20 °C	1179	1077	929	812	683	543	454	391	346	282	239	208	153	122	86.9	68.3	56.5	48.5	37.9	30.9	26.1	16.5	13.9
	25 °C	1214	1110	957	836	703	559	468	403	356	290	246	214	157	125	89.5	70.3	58.2	50.0	39.0	31.9	26.9	17.0	14.3
1.72	20 °C	1252	1139	975	846	707	558	464	399	351	285	242	210	153	122	86.9	68.3	56.5	48.5	37.9	30.9	26.1	16.5	13.9
	25 °C	1290	1173	1004	872	728	575	478	411	362	294	249	216	158	125	89.5	70.3	58.2	50.0	39.0	31.9	26.9	17.0	14.3
1.70	20 °C	1295	1174	1001	866	721	566	470	404	355	287	243	211	154	122	87.5	68.8	56.5	48.5	37.9	30.9	26.1	16.5	13.9
	25 °C	1334	1210	1031	892	742	583	484	416	365	296	250	218	158	126	90.1	70.9	58.2	50.0	39.0	31.9	26.9	17.0	14.3
1.67	20 °C	1351	1220	1034	890	738	577	477	409	358	290	245	213	155	123	87.5	68.8	57.1	48.5	37.9	30.9	26.1	16.5	13.9
	25 °C	1391	1257	1065	917	760	594	492	421	369	299	252	219	159	126	90.1	70.9	58.8	50.0	39.0	31.9	26.9	17.0	14.3
1.65	20 °C	1382	1245	1052	904	747	582	481	412	361	292	246												