

Datasheet



12CP165

Compact-Power Rackline™



Technical specifications

Type

12CP165

Part number

6630 0165


Electrical Data

Nominal voltage	12 V	
Number of cells	6	
Rated capacity C ₁₀ to 1.80 Vpc at 20 °C	165 Ah	
Rated capacity C ₈ to 1.75 Vpc at 25 °C	154.4 Ah	
Current/Power for 0.5 h back-up time 1.65 Vpc 20 °C	204 A	2238 W
Current/Power for 1.0 h back-up time 1.67 Vpc 20 °C	117.6 A	1329 W
Current/Power for 2.0 h back-up time 1.80 Vpc 20 °C	63.4 A	732 W
Current/Power for 4.0 h back-up time 1.80 Vpc 20 °C	35.9 A	418.2 W
Current/Power for 8.0 h back-up time 1.80 Vpc 20 °C	19.9 A	230.4 W
Current/Power for 10.0 h back-up time 1.80 Vpc 20 °C	16.5 A	190.8 W
Current/Power for 20.0 h back-up time 1.80 Vpc 20 °C	10.9 A	102 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	3.2 mΩ	
Short circuit current (± 10%) to IEC/EN 60896-21	2.2 kA	
Self discharge at 20 °C to IEC/EN60896-21	max. 3%/month	
Heat loss during float service at 20 °C	≈ 1.03 W	

Mechanical Data

Weight ready for use	63.9 kg	
Height of monobloc	323 mm	
Height over gas collection system GCS™	338 mm	
Height over terminal connector	351 mm	
Width	125 mm	
Depth	558 mm	
Number of terminals	1⊕/1⊖	
Dimension of connector screw hole	M8	
Suggested/maximum cable cross-section	70 mm ²	
Connection torque	8 Nm	
Terminal insulation class according to IEC/EN 60529	IP20	
Diameter of diagnostic hole for voltage probe	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	UL 94 HB (std.) ABS-PC – UL 94 V-0 with LOI > 32%, halogen-free	
Flame barriers at vents	installed	
Gas collection system GCS™ UL V-0 quality	available upon request	
UL file number 	MH 26065	
Service life expected at 20 °C	15 years	

Operating specifications

Figure 1



Figure 2

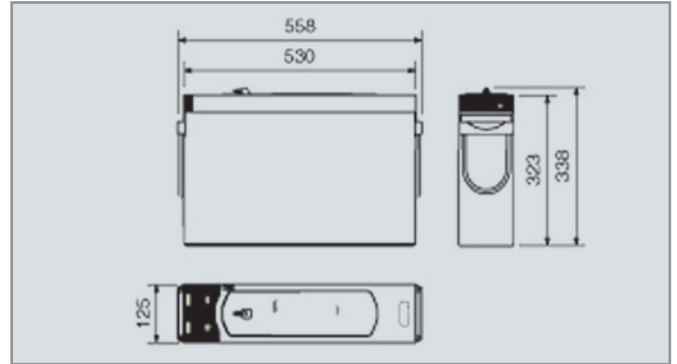
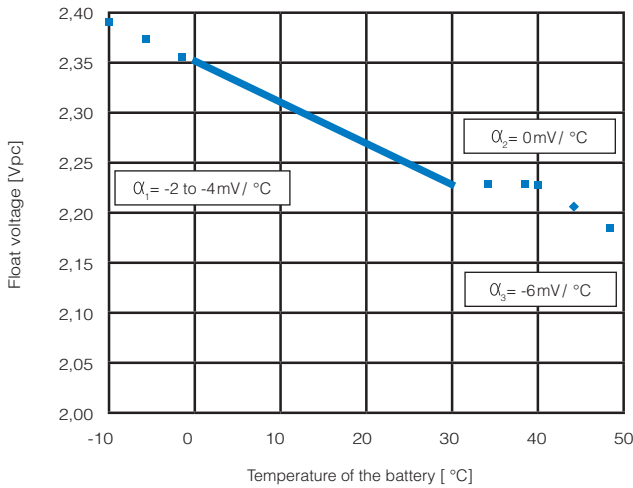


Figure 3



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

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

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

$$\text{e.g. } 48 \text{ V: } 0.206 \text{ m}^3\text{/h} = 7.27 \text{ cu.ft/h (at 2.27 Vpc)}$$

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	344.3	328.3	301.4	277.7	248.6	212.5	186.4	166.5	151.0	126.6	110.0	98.1	73.8	59.1	43.4	34.5	28.7	24.7	19.5	16.1	13.8	9.0	7.7
	25 °C	354.6	338.1	310.4	286.0	256.0	218.9	192.0	171.4	155.5	130.4	113.3	101.1	76.0	60.9	44.7	35.5	29.6	25.5	20.0	16.6	14.3	9.3	8.0
1.87	20 °C	413.7	390.8	353.3	321.1	282.8	237.1	205.0	181.1	163.0	134.7	116.0	103.1	76.6	60.8	44.4	35.1	29.1	25.0	19.6	16.3	13.9	9.0	7.8
	25 °C	426.1	402.6	363.9	330.8	291.3	244.2	211.1	186.6	167.9	138.7	119.5	106.2	78.9	62.6	45.7	36.1	30.0	25.8	20.2	16.8	14.4	9.3	8.0
1.85	20 °C	461.3	433.1	387.5	349.1	304.3	252.0	216.0	189.7	169.0	140.0	120.0	105.9	78.1	61.8	44.9	35.4	29.4	25.2	19.7	16.3	14.0	9.1	7.8
	25 °C	475.1	446.1	399.1	359.6	313.5	259.5	222.5	195.4	174.1	144.2	123.6	109.0	80.4	63.7	46.2	36.4	30.2	25.9	20.3	16.8	14.4	9.3	8.0
1.84	20 °C	485.9	454.6	403.5	362.3	314.6	258.6	220.7	194.3	174.0	141.6	121.0	107.1	78.8	62.1	45.1	35.6	29.5	25.2	19.8	16.3	14.0	9.1	7.7
	25 °C	500.4	468.2	415.6	373.2	324.0	266.3	227.3	200.2	179.2	145.9	124.6	110.3	81.2	64.0	46.5	36.6	30.4	26.0	20.4	16.8	14.4	9.3	8.0
1.83	20 °C	508.9	474.3	420.0	375.5	324.5	265.2	225.6	197.6	177.0	143.0	122.0	108.1	79.4	62.7	45.3	35.6	29.5	25.4	19.8	16.5	14.0	9.1	7.7
	25 °C	524.2	488.6	432.6	386.8	334.2	273.1	232.4	203.6	182.3	147.3	125.7	111.4	81.8	64.6	46.7	36.6	30.4	26.1	20.4	17.0	14.4	9.3	8.0
1.82	20 °C	532.1	494.9	436.2	388.2	333.6	271.7	230.4	200.7	178.0	145.6	124.0	109.2	79.9	62.9	45.4	35.7	29.6	25.4	19.9	16.4	14.0	9.1	7.8
	25 °C	548.0	509.7	449.3	399.9	343.6	279.9	237.3	206.7	183.3	149.9	127.7	112.5	82.3	64.8	46.8	36.8	30.5	26.1	20.5	16.9	14.5	9.4	8.0
1.80	20 °C	577.5	534.0	466.3	411.9	350.9	283.1	238.5	206.8	184.0	148.4	126.0	111.0	80.9	63.4	45.7	35.9	29.7	25.5	19.9	16.5	14.1	9.1	7.8
	25 °C	594.8	550.0	480.3	424.2	361.4	291.6	245.7	213.1	189.5	152.8	129.8	114.4	83.3	65.3	47.1	37.0	30.6	26.2	20.5	16.9	14.5	9.4	8.0
1.77	20 °C	641.7	588.4	507.3	443.5	373.6	297.7	248.8	214.5	189.0	152.5	129.0	113.2	82.0	64.2	46.1	36.2	29.9	25.6	20.0	16.5	14.1	9.1	7.8
	25 °C	660.9	606.0	522.5	456.8	384.8	306.6	256.3	221.0	194.7	157.1	132.9	116.5	84.5	66.1	47.5	37.2	30.8	26.3	20.6	17.0	14.5	9.4	8.0
1.75	20 °C	681.4	621.6	531.8	462.1	386.8	306.0	254.6	218.8	193.0	155.2	131.0	114.2	82.5	64.5	46.3	36.3	30.0	25.6	20.0	16.5	14.1	9.1	7.8
	25 °C	701.9	640.3	547.7	476.0	398.4	315.1	262.2	225.4	198.8	159.9	134.9	117.6	85.0	66.4	47.7	37.4	30.9	26.4	20.6	17.0	14.6	9.4	8.0
1.72	20 °C	736.4	667.1	564.7	486.8	403.9	316.6	261.9	224.2	197.0	156.8	132.0	115.7	83.3	65.1	46.5	36.4	30.1	25.7	20.1	16.6	14.1	9.1	7.8
	25 °C	758.5	687.1	581.7	501.4	416.0	326.1	269.7	230.9	202.9	161.6	136.0	119.2	85.8	67.1	47.9	37.5	31.0	26.5	20.7	17.1	14.6	9.4	8.1
1.70	20 °C	770.1	694.6	584.3	501.3	413.8	322.7	266.0	227.2	199.0	158.3	133.0	116.5	83.7	65.3	46.7	36.5	30.1	25.7	20.1	16.6	14.2	9.1	7.8
	25 °C	793.2	715.4	601.8	516.3	426.2	332.3	274.0	234.0	205.0	163.0	137.0	120.0	86.2	67.3	48.1	37.6	31.0	26.5	20.7	17.1	14.6	9.4	8.1
1.67	20 °C	816.1	731.8	610.4	520.4	426.7	330.4	271.3	231.0	202.0	161.0	135.0	117.6	84.3	65.6	46.8	36.6	30.2	25.8	20.1	16.6	14.2	9.1	7.8
	25 °C	840.6	753.7	628.7	536.0	439.5	340.4	279.4	238.0	208.1	165.8	139.1	121.1	86.8	67.6	48.2	37.7	31.1	26.6	20.7	17.1	14.6	9.4	8.1
1.65	20 °C	843.6	753.8	625.6	531.4	434.1	334.9	274.3	233.2	204.0	161.1	135.0	118.0	84.5	65.7	46.9	36.6	30.2	25.8	20.1	16.6	14.2	9.1	7.8
	25 °C	868.9	776.4	644.4	547.3	447.1	344.9	282.5	240.1	210.1	166.0	139.1	121.6	87.0	67.7	48.3	37.7	31.1	26.6	20.7	17.1	14.6	9.4	8.1
1.63	20 °C	868.6	773.7	639.3	541.2	440.6	338.7	276.8	235.1	206.0	162.5	136.0	118.6	84.8	65.9	47.0	36.7	30.3	25.8	20.1	16.6	14.2	9.1	7.8
	25 °C	894.6	796.9	658.5	557.5	453.9	348.9	285.2	242.1	212.2	167.3	140.1	122.1	87.3	67.9	48.4	37.8	31.2	26.6	20.8	17.1	14.6	9.4	8.1
1.60	20 °C	902.4	800.4	657.4	554.2	449.2	343.8	280.2	237.5	207.0	163.8	137.0	119.0	85.0	66.2	47.1	36.8	30.3	25.9	20.2	16.6	14.2	9.2	7.8
	25 °C	929.5	824.5	677.2	570.8	462.7	354.1	288.6	244.6	213.2	168.8	141.1	122.6	87.6	68.2	48.5	37.9	31.2	26.7	20.8	17.1	14.6	9.4	8.1

Constant power performance (in watt per cell) 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	664.3	631.9	579.2	532.5	475.4	405.2	354.1	316.2	287.0	240.7	209.0	189.2	143.0	114.0	84.0	67.0	56.0	48.3	37.9	31.3	26.4	17.0	14.3
	25 °C	684.2	650.9	596.6	548.5	489.7	417.3	364.7	325.7	295.6	247.9	215.3	194.9	147.3	117.4	86.5	69.0	57.7	49.8	39.0	32.2	27.1	17.5	14.7
1.87	20 °C	787.3	742.2	670.9	608.8	535.3	447.4	386.5	341.5	308.0	254.9	220.0	196.7	147.0	118.0	85.6	68.1	56.5	48.9	37.9	31.3	26.9	17.0	14.3
	25 °C	810.9	764.5	691.0	627.1	551.3	460.9	398.1	351.7	317.2	262.6	226.6	202.6	151.4	121.5	88.2	70.1	58.2	50.3	39.0	32.2	27.7	17.5	14.7
1.85	20 °C	868.5	814.2	729.1	656.6	571.5	472.7	405.2	356.3	319.0	263.1	226.0	203.4	151.0	119.0	86.7	68.6	57.1	48.9	38.4	31.3	26.9	17.0	14.3
	25 °C	894.6	838.6	750.9	676.3	588.7	486.9	417.3	367.0	328.6	271.0	232.8	209.5	155.5	122.6	89.3	70.7	58.8	50.3	39.6	32.2	27.7	17.5	14.7
1.84	20 °C	908.6	849.1	756.8	679.0	588.6	484.2	413.7	362.6	325.0	266.9	229.0	205.0	152.0	120.0	87.2	68.9	57.2	49.1	38.3	31.5	26.8	16.9	14.3
	25 °C	935.8	874.5	779.5	699.4	606.3	498.8	426.1	373.4	334.8	274.9	235.9	211.1	156.6	123.6	89.8	71.0	58.9	50.5	39.5	32.5	27.7	17.5	14.8
1.83	20 °C	947.5	883.0	783.7	700.6	604.7	495.1	421.6	368.6	329.0	269.7	231.0	205.5	152.0	120.0	87.5	69.1	57.4	49.2	38.4	31.6	26.9	17.0	14.3
	25 °C	975.9	909.5	807.2	721.6	622.9	509.9	434.2	379.7	338.9	277.8	237.9	211.6	156.6	123.6	90.1	71.2	59.1	50.6	39.5	32.5	27.7	17.5	14.8
1.82	20 °C	985.5	915.7	809.2	720.8	619.8	505.1	428.8	374.4	333.0	272.2	233.0	208.5	154.0	121.0	87.8	69.2	57.6	49.4	38.4	31.8	26.9	17.0	14.3
	25 °C	1015.0	943.2	833.5	742.5	638.4	520.2	441.6	385.7	343.0	280.4	240.0	214.7	158.6	124.6	90.5	71.3	59.4	50.9	39.6	32.8	27.7	17.5	14.7
1.80	20 °C	1057.4	977.8	857.5	758.7	647.8	523.7	441.9	384.3	342.0	279.0	238.0	210.4	155.0	122.0	88.4	69.7	57.6	49.4	38.4	31.8	26.9	17.0	14.3
	25 °C	1089.1	1007.1	883.3	781.5	667.3	539.5	455.2	395.8	352.3	287.4	245.1	216.7	159.7	125.7	91.0	71.8	59.4	50.9	39.6	32.8	27.7	17.5	14.7
1.77	20 °C	1154.5	1060.1	920.1	807.6	683.0	546.3	458.4	396.4	351.0	284.6	242.0	214.7	157.0	123.0	88.9	70.3	58.2	49.4	38.4	31.8	26.9	17.0	14.3
	25 °C	1189.2	1091.9	947.7	831.8	703.4	562.6	472.2	408.3	361.5	293.1	249.3	221.1	161.7	126.7	91.6	72.4	59.9	50.9	39.6	32.8	27.7	17.5	14.7
1.75	20 °C	1213.3	1109.0	956.4	835.6	702.7	558.9	467.7	403.0	356.0	287.6	244.0	215.5	158.0	124.0	89.5	70.3	58.2	50.0	39.0	31.8	26.9	17.0	14.3
	25 °C	1249.7	1142.3	985.0	860.6	723.8	575.6	481.8	415.1	366.7	296.2	251.3	221.9	162.7	127.7	92.2	72.4	59.9	51.5	40.1	32.8	27.7	17.5	14.7
1.72	20 °C	1289.1	1172.7	1003.6	871.3	728.0	574.8	477.6	411.2	363.0	291.7	247.0	218.3	159.0	124.0	89.								