

Datasheet



12CP60

Compact-Power Rackline™



Technical specifications

Type

12CP60

Part number

6630 0060


Electrical Data

Nominal voltage	12 V	
Number of cells	6	
Rated capacity C ₁₀ to 1.80 Vpc at 20 °C	60 Ah	
Rated capacity C ₈ to 1.75 Vpc at 25 °C	59.2 Ah	
Current/Power for 0.5 h back-up time 1.65 Vpc 20 °C	72.3 A	792 W
Current/Power for 1.0 h back-up time 1.67 Vpc 20 °C	37.7 A	423 W
Current/Power for 2.0 h back-up time 1.80 Vpc 20 °C	22.5 A	258.6 W
Current/Power for 4.0 h back-up time 1.80 Vpc 20 °C	13.3 A	154.8 W
Current/Power for 8.0 h back-up time 1.80 Vpc 20 °C	7.1 A	82.8 W
Current/Power for 10.0 h back-up time 1.80 Vpc 20 °C	6.0 A	69.6 W
Current/Power for 20.0 h back-up time 1.80 Vpc 20 °C	3.2 A	36 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	7.7 mΩ	
Short circuit current (± 10%) to IEC/EN 60896-21	1.7 kA	
Self discharge at 20 °C to IEC/EN 60896-21	max. 3%/month	
Heat loss during float service	≈ 0.35 W	

Mechanical Data

Weight ready for use	21.9 kg	
Height of monobloc	298 mm	
Height over gas collection system GCS™	310 mm	
Height over terminal connector (standard)	325 mm	
Width	100 mm	
Depth	275 mm	
Number of terminals	1⊕/1⊖	
Dimension of connector screw hole	M6	
Suggested cable cross-section	70 mm ²	
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 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-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

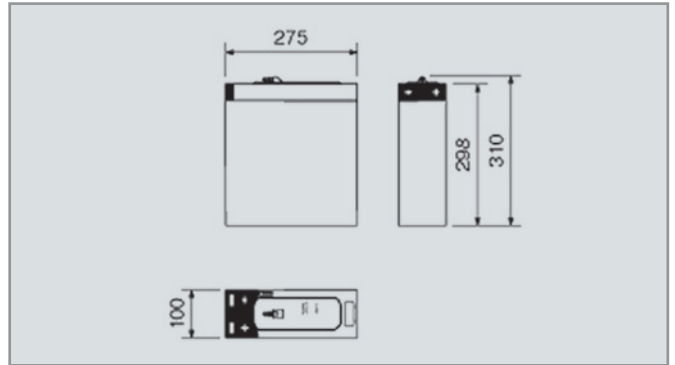
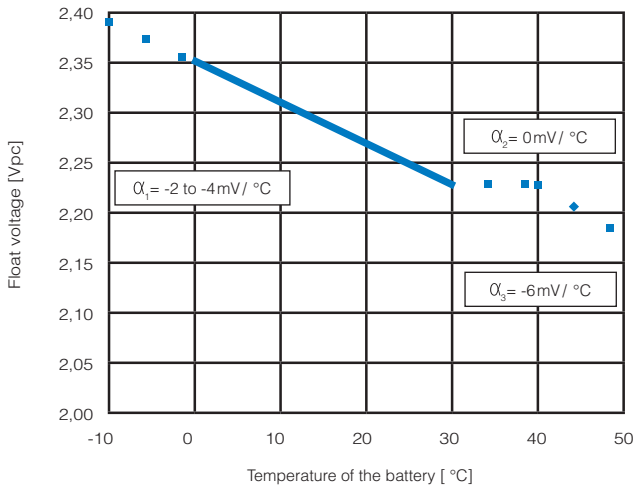


Figure 3



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

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

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

e.g. 48 V: 0.072 m³/h = 2.55 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	123.0	115.0	105.0	96.1	88.3	79.4	70.7	61.6	53.5	45.6	38.3	31.5	25.9	20.9	16.5	12.8	10.3	8.9	7.0	5.9	5.0	3.2	2.8
	25 °C	129.2	120.8	110.3	100.9	92.7	83.4	74.2	64.7	56.2	47.9	40.2	33.1	26.7	21.5	17.0	13.2	10.6	9.2	7.2	6.1	5.2	3.3	2.9
1.87	20 °C	148.0	136.0	123.0	111.0	100.0	88.5	77.8	67.1	57.8	48.6	40.4	33.1	26.9	21.6	16.8	13.0	10.4	9.0	7.0	5.9	5.0	3.2	2.8
	25 °C	155.4	142.8	129.2	116.6	105.0	92.9	81.7	70.5	60.7	51.0	42.4	34.8	27.7	22.2	17.3	13.4	10.7	9.3	7.2	6.1	5.2	3.3	2.9
1.85	20 °C	165.0	151.0	135.0	121.0	108.0	94.1	82.0	70.3	60.2	50.3	41.7	34.0	27.4	21.9	17.0	13.1	10.5	9.0	7.1	6.0	5.0	3.2	2.8
	25 °C	173.3	158.6	141.8	127.1	113.4	98.8	86.1	73.8	63.2	52.8	43.8	35.7	28.2	22.6	17.5	13.5	10.8	9.3	7.3	6.2	5.2	3.3	2.9
1.84	20 °C	174.0	159.0	141.0	125.0	112.0	96.6	83.8	72.0	61.4	51.1	42.2	34.3	27.7	22.0	17.1	13.2	10.6	9.0	7.1	5.9	5.0	3.2	2.8
	25 °C	182.7	167.0	148.1	131.3	117.6	101.4	88.0	75.6	64.5	53.7	44.3	36.0	28.5	22.7	17.6	13.6	10.9	9.3	7.3	6.1	5.2	3.3	2.9
1.83	20 °C	182.0	166.0	147.0	130.0	115.0	99.0	85.6	73.2	62.6	51.8	42.7	34.7	27.9	22.2	17.2	13.2	10.6	9.1	7.1	6.0	5.0	3.2	2.8
	25 °C	191.1	174.3	154.4	136.5	120.8	104.0	89.9	76.9	65.7	54.4	44.8	36.4	28.7	22.9	17.7	13.6	10.9	9.4	7.3	6.2	5.2	3.3	2.9
1.82	20 °C	191.0	173.0	152.0	134.0	118.0	101.0	87.4	74.3	63.3	52.4	43.2	35.0	28.1	22.3	17.2	13.2	10.6	9.1	7.1	6.0	5.0	3.2	2.8
	25 °C	200.6	181.7	159.6	140.7	123.9	106.1	91.8	78.0	66.5	55.0	45.4	36.8	28.9	23.0	17.7	13.6	10.9	9.4	7.3	6.2	5.2	3.3	2.9
1.80	20 °C	207.0	186.0	163.0	143.0	125.0	106.0	90.5	76.6	65.0	53.6	44.0	35.6	28.4	22.5	17.4	13.3	10.7	9.1	7.1	6.0	5.0	3.2	2.8
	25 °C	217.4	195.3	171.2	150.2	131.3	111.3	95.0	80.4	68.3	56.3	46.2	37.4	29.3	23.2	17.9	13.7	11.0	9.4	7.3	6.2	5.2	3.3	2.9
1.77	20 °C	230.0	205.0	177.0	153.0	133.0	111.0	94.4	79.5	67.2	55.0	45.0	36.3	28.8	22.8	17.5	13.4	10.7	9.2	7.2	6.0	5.1	3.2	2.8
	25 °C	241.5	215.3	185.9	160.7	139.7	116.6	99.1	83.5	70.6	57.8	47.3	38.1	29.7	23.5	18.0	13.8	11.0	9.5	7.4	6.2	5.3	3.3	2.9
1.75	20 °C	244.0	217.0	186.0	160.0	137.0	114.0	96.6	81.0	68.3	55.8	45.5	36.7	29.0	22.9	17.6	13.4	10.7	9.2	7.2	6.0	5.1	3.2	2.8
	25 °C	256.2	227.9	195.3	168.0	143.9	119.7	101.4	85.1	71.7	58.6	47.8	38.5	29.9	23.6	18.1	13.8	11.0	9.5	7.4	6.2	5.3	3.3	2.9
1.72	20 °C	264.0	233.0	197.0	168.0	143.0	118.0	99.4	83.0	69.8	56.8	46.2	37.2	29.3	23.1	17.7	13.5	10.8	9.2	7.2	6.0	5.1	3.2	2.8
	25 °C	277.2	244.7	206.9	176.4	150.2	123.9	104.4	87.2	73.3	59.6	48.5	39.1	30.2	23.8	18.2	13.9	11.1	9.5	7.4	6.2	5.3	3.3	2.9
1.70	20 °C	276.0	242.0	204.0	173.0	147.0	120.0	101.0	84.1	70.6	57.3	46.5	37.4	29.4	23.2	17.7	13.5	10.8	9.2	7.2	6.0	5.1	3.2	2.8
	25 °C	289.8	254.1	214.2	181.7	154.4	126.0	106.1	88.3	74.1	60.2	48.8	39.3	30.3	23.9	18.2	13.9	11.1	9.5	7.4	6.2	5.3	3.3	2.9
1.67	20 °C	292.0	255.0	213.0	180.0	152.0	123.0	103.0	85.6	71.7	58.0	47.0	37.7	29.6	23.3	17.8	13.6	10.8	9.2	7.2	6.0	5.1	3.2	2.8
	25 °C	306.6	267.8	223.7	189.0	159.6	129.2	108.2	89.9	75.3	60.9	49.4	39.6	30.5	24.0	18.3	14.0	11.1	9.5	7.4	6.2	5.3	3.3	2.9
1.65	20 °C	302.0	263.0	218.0	184.0	154.0	125.0	104.0	86.4	72.3	58.4	47.2	37.9	29.7	23.3	17.8	13.6	10.8	9.3	7.2	6.0	5.1	3.2	2.8
	25 °C	317.1	276.2	228.9	193.2	161.7	131.3	109.2	90.7	75.9	61.3	49.6	39.8	30.6	24.0	18.3	14.0	11.1	9.6	7.4	6.2	5.3	3.3	2.9
1.63	20 °C	311.0	270.0	223.0	187.0	157.0	126.0	105.0	87.1	72.8	58.7	47.5	38.1	29.8	23.4	17.8	13.6	10.8	9.3	7.2	6.1	5.1	3.2	2.8
	25 °C	326.6	283.5	234.2	196.4	164.9	132.3	110.3	91.5	76.4	61.6	49.9	40.0	30.7	24.1	18.3	14.0	11.1	9.6	7.4	6.3	5.3	3.3	2.9
1.60	20 °C	323.0	279.0	230.0	192.0	160.0	128.0	106.0	88.0	73.4	59.1	47.7	38.3	29.9	23.5	17.9	13.6	10.9	9.3	7.2	6.1	5.1	3.2	2.8
	25 °C	339.2	293.0	241.5	201.6	168.0	134.4	111.3	92.4	77.1	62.1	50.1	40.2	30.8	24.2	18.4	14.0	11.2	9.6	7.4	6.3	5.3	3.3	2.9

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	238.0	221.0	202.0	184.0	169.0	151.0	134.0	117.0	102.0	86.7	72.8	60.1	49.7	40.4	31.9	24.8	20.1	17.3	13.6	11.4	9.4	6.0	5.2
	25 °C	249.9	232.1	212.1	193.2	177.5	158.6	140.7	122.9	107.1	91.0	76.4	63.1	51.2	41.6	32.9	25.5	20.7	17.8	14.0	11.7	9.7	6.2	5.4
1.87	20 °C	282.0	259.0	234.0	211.0	190.0	167.0	147.0	126.0	109.0	91.8	76.6	62.9	51.4	41.6	32.5	25.2	20.3	17.5	13.6	11.4	9.6	6.0	5.2
	25 °C	296.1	272.0	245.7	221.6	199.5	175.4	154.4	132.3	114.5	96.4	80.4	66.0	52.9	42.8	33.5	26.0	20.9	18.0	14.0	11.7	9.9	6.2	5.4
1.85	20 °C	311.0	284.0	255.0	227.0	203.0	177.0	154.0	132.0	113.0	94.8	78.7	64.5	52.4	42.1	32.9	25.4	20.5	17.5	13.8	11.4	9.6	6.0	5.2
	25 °C	326.6	298.2	267.8	238.4	213.2	185.9	161.7	138.6	118.7	99.5	82.6	67.7	54.0	43.4	33.9	26.2	21.1	18.0	14.2	11.7	9.9	6.2	5.4
1.84	20 °C	326.0	297.0	265.0	235.0	209.0	181.0	157.0	134.0	115.0	96.1	79.6	65.1	52.8	42.3	33.1	25.5	20.5	17.6	13.7	11.5	9.6	6.0	5.2
	25 °C	342.3	311.9	278.3	246.8	219.5	190.1	164.9	140.7	120.8	100.9	83.6	68.4	54.4	43.6	34.1	26.3	21.1	18.1	14.1	11.8	9.9	6.2	5.4
1.83	20 °C	339.0	308.0	274.0	242.0	215.0	185.0	160.0	137.0	117.0	97.2	80.5	65.7	53.2	42.6	33.2	25.6	20.6	17.6	13.8	11.5	9.6	6.0	5.2
	25 °C	356.0	323.4	287.7	254.1	225.8	194.3	168.0	143.9	122.9	102.1	81.5	69.0	54.8	43.9	34.2	26.4	21.2	18.1	14.2	11.8	9.9	6.2	5.4
1.82	20 °C	353.0	320.0	283.0	249.0	220.0	189.0	163.0	139.0	118.0	96.3	81.3	66.3	53.6	42.7	33.3	25.6	20.7	17.7	13.8	11.6	9.6	6.0	5.2
	25 °C	370.7	336.0	297.2	261.5	231.0	198.5	171.2	146.0	123.9	101.1	85.4	69.6	55.2	44.0	34.3	26.4	21.3	18.2	14.2	11.9	9.9	6.2	5.4
1.80	20 °C	379.0	341.0	299.0	263.0	230.0	196.0	168.0	142.0	121.0	100.0	82.7	67.1	54.1	43.1	33.5	25.8	20.7	17.7	13.8	11.6	9.6	6.0	5.2
	25 °C	398.0	358.1	314.0	276.2	241.5	205.8	176.4	149.1	127.1	105.0	86.8	70.5	55.7	44.4	34.5	26.6	21.3	18.2	14.2	11.9	9.9	6.2	5.4
1.77	20 °C	414.0	370.0	321.0	279.0	243.0	204.0	174.0	147.0	124.0	102.0	84.2	68.4	54.7	43.5	33.8	26.0	20.8	17.7	13.8	11.6	9.6	6.0	5.2
	25 °C	434.7	388.5	337.1	293.0	255.2	214.2	182.7	154.4	130.2	107.1	88.4	71.8	56.3	44.8	34.8	26.8	21.4	18.2	14.2	11.9	9.9	6.2	5.4
1.75	20 °C	434.0	387.0	334.0	289.0	250.0	209.0	177.0	149.0	126.0	104.0	84.9	68.9	55.1	43.9	34.0	26.0	20.8	17.9	14.0	11.6	9.6	6.0	5.2
	25 °C	455.7	406.4	350.7	303.5	262.5	219.5	185.9	156.5	132.3	109.2	89.1	72.3	56.8	45.2	35.0	26.8	21.4	18.4	14.4	11.9	9.9	6.2	5.4
1.72	20 °C	462.0	409.0	350.0	302.0	259.0	215.0	181.0	152.0	129.0	105.0	86.1	69.6	55.5	44.1	34.0	26.0	20.8	17.9	14.0	11.6	9.6	6.0	5.2
	25 °C	485.1	429.5	367.5	317.1	272.0	225.8	190.1	159.6	135.5	110.3	90.4	73.1	57.2	45.4	35.0	26.8	21.4	18.4	14.4	11.9	9.9	6.2	5.4
1.70	20 °C	478.0	422.0	360.0	308.0	263.0	218.0	184.0	154.0	130.0	106.0	86.6	70.0	55.7										