



CRYSTAL BATTERIES™ CATALOG 2022

SAFE AND POWERFUL PERFORMANCE



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1. CRYSTAL BATTERIES™

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO₂ electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



THE SAFEST (NO GASSING)

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



GREENEST BATTERY

Environmentally friendlier than hazardous classified batteries.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



CLEAN TECHNOLOGY

Crystal Batteries™ can comply with all international standards of environmental protection.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40 °C (40 °F) to +65 °C (149 °F).



BETTER USAGE PERFORMANCE

Charges up to 0.3C three times faster than conventional alternatives. Excellent high-current discharge.



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25 °C (50% DoD).



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



LONG SHELF LIFE

Crystal Batteries™ can be stored for 2 years with no refresh charging required, simplifying logistics.



EASY TRANSPORT

Classified as a non-hazardous battery. Safe to transport via air, sea and land.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets worldwide.



When charged/discharged the electrolyte transforms into a crystallized semi solid-state. The crystals that form on the plates increase lifetime and performance significantly.



2. CRYSTAL BATTERIES™ FAMILIES

Crystal Batteries™ are grouped into 4 families, where each family addresses a different market and applications.

1



ELECTRIC VEHICLE RANGE

6V, 8V or 12V, rated at **3h discharge**
From medium to high capacity
(27Ah to 265Ah)

2



GENERAL STORAGE RANGE

6V or 12V, rated at **10h discharge**
From small to high capacity
(7Ah to 200Ah)

3



FRONT TERMINAL RANGE

12V, rated at **10h discharge**
Front terminal only
(55Ah to 180Ah)

4



LARGE STORAGE RANGE

Single-cell 2V, rated at **10h discharge**
For high capacity banks
(100Ah to 3000Ah)



3. CRYSTAL BATTERIES™ COMPARISON

When compared head-to-head, Crystal Batteries™ excel amongst competitors with notable performance increases over standard AGM batteries and even Lithium. There is no comparison for the quality, price and lifetime of Crystal Batteries™.

	LEAD ACID	LEAD GEL	CRYSTAL BATTERIES™	LITHIUM	AGM
1. USABLE TEMPERATURE	-20°C to +45°C -4°F to 113°F	-18°C to +50°C 0°F to 122°F	-40°C TO +65°C -40°F TO 149°F	-20°C to +65°C -4°F to 149°F	-20°C to 45°C -4°F to 113°F
2. CHARGE TEMPERATURE	-20°C to +45°C -4°F to 113°F	0°C to +40°C 32°F to 104°F	-40°C TO +65°C -40°F TO 149°F	5°C to 45°C 41°F to 113°F	0°C to 40°C 32°F to 104°F
3. USAGE LIFE AT 25°C / 77°F	2-3 years	3-4 years	8-11 YEARS	6-8 years	4-6 years
4. CAPACITY LOSS DEGRADATION	High	Medium - High	LOW	Medium - High	Medium
5. CYCLES AT 25°C / 77°F 50% DEPTH OF DISCHARGE	600	1,000	3,100	5,000	2,000
6. CYCLES AT 40°C / 104°F 80% DEPTH OF DISCHARGE	350	400	1,380	1,500	600
7. COST OF OWNERSHIP 10 YEARS	High	Medium - High	LOWEST	Medium - High	Medium
8. HIGH CURRENT ABILITY	Poor	Poor	AVERAGE	Good	Average
9. ENVIRONMENTAL IMPACT	Harmful	Harmful	FRIENDLY	Harmful	Average
10. WEIGHT	Heavy	Average	AVERAGE	Low	Average
11. FAILURE MODE	Acid spill	Hazardous	SWELLING	Thermal runaway explosion	Varies
12. FIRE RISK	Average	Low	ZERO	High	Low
13. INDOOR USE	Gassing	Gassing	SAFE	High Risk	Gassing
14. TRANSPORT SAFETY	Restricted	Varies	SAFE	Restricted	Varies
15. DECOMMISSIONING VALUE	Low	Low	HIGH	Negative	Medium
16. SELF DISCHARGE RATES FOR 20°C PER MONTH	5%	4%	<2%	<2%	3.5%

* See page 17 for details.

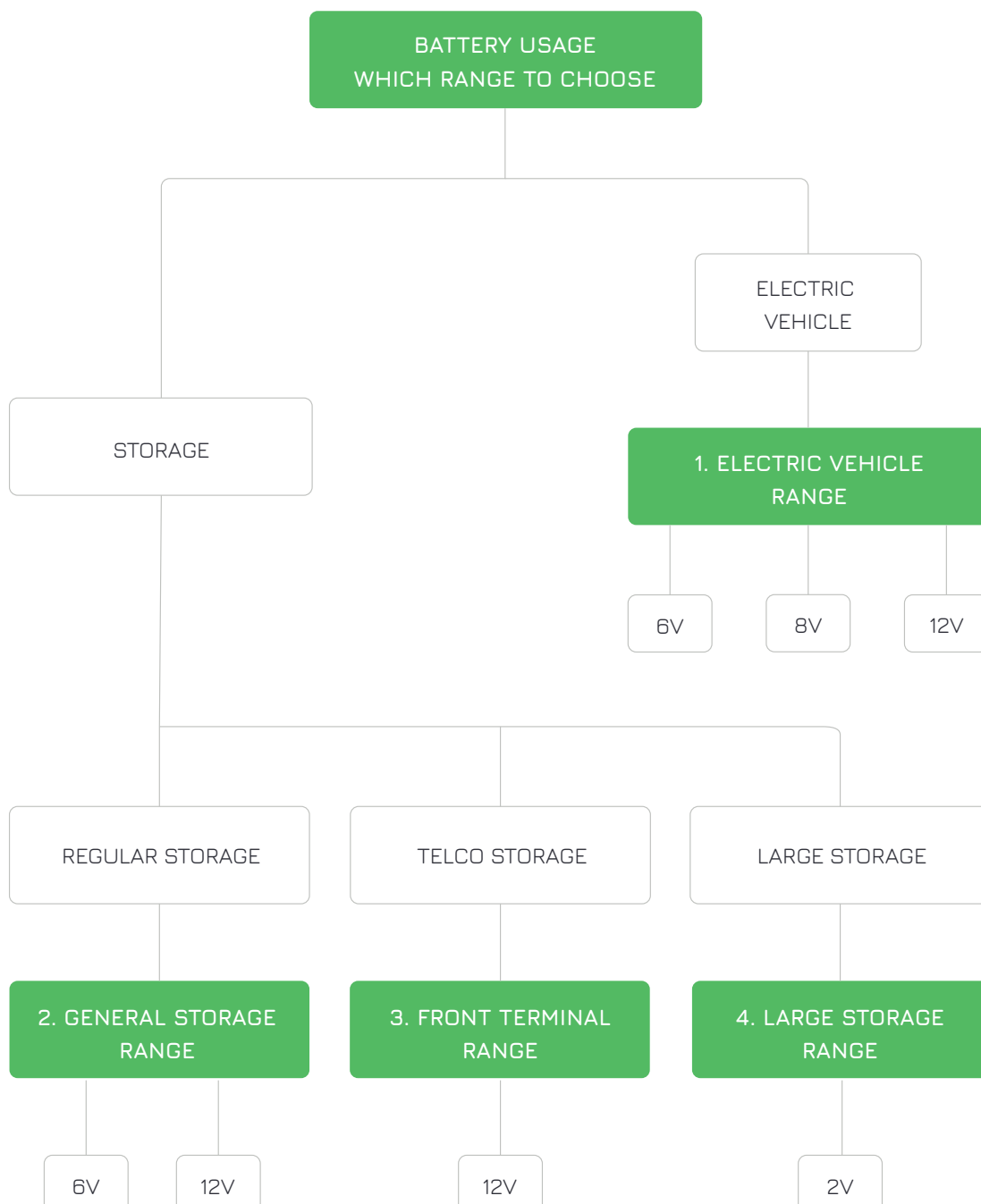
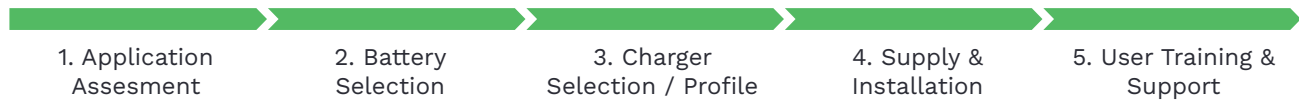




4. CRYSTAL BATTERIES™ APPLICATIONS

The following flowchart shows the process of selecting the right battery for the intended application. The following pages show all the batteries within a family.

CUSTOMER PURCHASING PROCESS





5. ELECTRIC VEHICLE RANGE

LIGHT TRACTION RANGE APPLICATIONS



Golf carts, marine, e-propulsion drives, AGV's (Automatic Guided Vehicles)

6 VOLT

BATTERY NAME	RATED VOLTAGE	RATED AH 3HR RATE	RATED AH 20HR RATE	WEIGHT	DIMENSIONS
2. CB6-180EV	6V	180	248	33 kg / 72.8 lbs	L 260 mm (10.2") W 180 mm (7.1") H 275mm (10.8")
3. CB6-210EV	6V	210	280	36 kg / 79.4 lbs	L 260 mm (10.2") W 180 mm (7.1") H 275 mm (10.8")
4. CB6-265EV	6V	265	350	46.5 kg / 102.5 lbs	L 295 mm (11.3") W 175 mm (6.9") H 350 mm (13.8")

8 VOLT

BATTERY NAME	RATED VOLTAGE	RATED AH 3HR RATE	RATED AH 20HR RATE	WEIGHT	DIMENSIONS
1. CB8-135EV	8V	135	178	34 kg / 75 lbs	L 261 mm (10.3") W 181 mm (7.1") H 285 mm (11.2")
2. CB8-150EV	8V	150	183	35 kg / 77 lbs	L 260 mm (10.2") W 182 mm (7.2") H 300 mm (11.8")

12 VOLT

BATTERY NAME	RATED VOLTAGE	RATED AH 3HR RATE	RATED AH 20HR RATE	WEIGHT	DIMENSIONS
1.CB12-27EV	12V	27	34	9.5 kg / 20.9 lbs	L 175 mm (6.9") W 166 mm (6.5") H 125 mm (4.9")
2. CB12-32EV	12V	32	40	12 kg / 52.9 lbs	L 194 mm (7.6") W 132 mm (5.2") H 176 mm (6.9")
3. CB12-150EV	12V	40	49	12.5 kg / 27.6 lbs	L 222 mm (8.7") W 120 mm (4.7") H 175 mm (6.9")
4. CB12-60EV	12V	60	77	22.3 kg / 49.2 lbs	L 260 mm (10.2") W 169 mm (6.7") H 215 mm (8.5")
5. CB12-70EV	12V	70	86	25.5 kg / 56.2 lbs	L 260 mm (10.2") W 169 mm (6.7") H 215 mm (8.5")
6. CB12-80EV	12V	80	101	31.5 kg / 69.5 lbs	L 327 mm (12.9") W 172 mm (6.8") H 220 mm (8.7")
7. CB12-100EV	12V	100	124	34 kg / 75 lbs	L 331 mm (13") W 176 mm (6.9") H 219 mm (8.6")
8. CB12-120EV	12V	120	151	40 kg / 88.2 lbs	L 330mm (13") W 172 mm (6.8") H 255 mm (10")
9. CB12-150EV	12V	150	183	49 kg / 108 lbs	L 484 mm (19.1") W 170 mm (6.7") H 241 mm (9.5")



6. GENERAL STORAGE RANGE

GENERAL STORAGE RANGE APPLICATIONS (APPLICABLE TO PAGES 8 & 9)



Marine:	E-propulsion systems, electric outboards, bow thrusters, service batteries.
Industrial:	Emergency lighting, alarm back up, electric fencing, CCTV monitoring, mobile lighting systems, tools, cooling, heating, metering.
Renewable Energy:	Energy storage for hybrid solutions, home energy storage, onboard wind turbines, UPS systems, offshore, solar-powered streetlights.
Rail and Transport:	Reserve for trains, trams, busses, rail crossing switching, barrier control, information systems, portable guiding lights, and traffic services like info boards, lane closure, rush-hour lanes.
Camper / Caravaning:	Main service battery, solar storage, winches, fishing equipment.
Medical:	Portable CT scanners, UPS systems, mobile equipment, ambulances.
Defense:	UPS for power boats / ships, submarines, communication devices, gun mount drives, main power for mobile equipment, extra power for vehicles.

6 VOLT

BATTERY NAME	RATED VOLTAGE	RATED AH 3HR RATE	RATED AH 20HR RATE	WEIGHT	DIMENSIONS
1. CB6-10GS	6V	10	12	1.75 kg / 3.9 lbs	L 151 mm (5.9") W 50 mm (2") H 100 mm (3.9")
2. CB6-12GS	6V	12	13.2	2.1 kg / 4.6 lbs	L 151 mm (5.9") W 50 mm (2") H 100 mm (3.9")
3. CB6-160GS	6V	160	175	25.5 kg / 56.2 lbs	L 298 mm (11.7") W 172 mm (6.8") H 230 mm (9.1")
4. CB6-180GS	6V	180	194	28.3 kg / 62.4 lbs	L 306 mm (12.1") W 168 mm (6.6") H 225 mm (8.9")
5. CB6-200GS	6V	200	220	30.5 kg / 67.2 lbs	L 323 mm (12.7") W 178 mm (7") H 230 mm (9.1")

12 VOLT

BATTERY NAME	RATED VOLTAGE	RATED AH 3HR RATE	RATED AH 20HR RATE	WEIGHT	DIMENSIONS
1. CB12-7.2HGS	12V (High Rate)	9	9.6	2.54 kg / 5.6 lbs	L 151 mm (5.9") W 65 mm (2.6") H 102 mm (4")



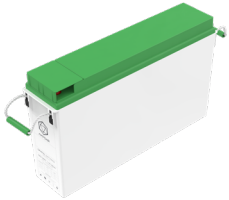
6. GENERAL STORAGE RANGE

12 VOLT					
BATTERY NAME	RATED VOLTAGE	RATED AH 3HR RATE	RATED AH 20HR RATE	WEIGHT	DIMENSIONS
1. CB12-7.2GS	12V	7.2	7.8	2.2 kg / 4.6 lbs	L 151 mm (5.9") W 65 mm (2.6") H 102 mm (4")
2. CB12-10GS	12V	10	12	3.5 kg / 7.7 lbs	L 151 mm (5.9") W 99 mm (3.9") H 102 mm (4")
3. CB12-12GS	12V	12	13.2	4.1 kg / 9 lbs	L 151 mm (5.9") W 99 mm (3.9") H 102 mm (4")
4. CB12-14GS	12V	14	15.5	4.25 kg / 9.4 lbs	L 151 mm (5.9") W 99 mm (3.9") H 105 mm (4.1")
5. CB12-18GS	12V	18	20	5.9 kg / 13 lbs	L 181 mm (7.1") W 76 mm (3") H 170 mm (6.7")
6. CB12-22GS	12V	22	24	6.9 kg / 15.2 lbs	L 181 mm (7.1") W 76 mm (3") H 170 mm (6.7")
7. CB12-24GS	12V	24	27	7.8 kg / 17.2 lbs	L 175 mm (6.9") W 166 mm (6.5") H 125 mm (4.9")
8. CB12-24GS	12V	26	29	7.8 kg / 17.2 lbs	L 175 mm (6.9") W 166 mm (6.5") H 125 mm (4.9")
9. CB12-24GS	12V	28	32	8.5 kg / 18.7 lbs	L 175 mm (6.9") W 166 mm (6.5") H 125 mm (4.9")
10. CB12-24GS	12V	35	40	12 kg / 26.5 lbs	L 194 mm (7.6") W 132 mm (5.2") H 176 mm (6.9")
11. CB12-40GS	12V	40	44	13 kg / 28.7 lbs	L 196 mm (7.7") W 166 mm (6.5") H 176 mm (6.9")
12. CB12-55GS	12V	55	60	16.9 kg / 37.3 lbs	L 229 mm (9") W 138 mm (5.4") H 215 mm (8.5")
13. CB12-65GS	12V	65	72	21 kg / 46.3 lbs	L 350 mm (13.8") W 166 mm (6.5") H 175 mm (6.9")
14. CB12-70GS	12V	70	78	22.3 kg / 49.2 lbs	L 260 mm (10.2") W 169 mm (6.7") H 215 mm (8.5")
15. CB12-90GS	12V	90	100	27 kg / 59.5 lbs	L 307 mm (12.1") W 168 mm (6.6") H 216 mm (8.5")
16. CB12-100GS	12V	100	110	31.5 kg / 69.5 lbs	L 327 mm (12.9") W 172 mm (6.8") H 220 mm (8.7")
17. CB12-120GS	12V	120	132	36.5 kg / 80.5 lbs	L 407 mm (16") W 174 mm (6.9") H 237 mm (8.7")
18. CB12-150GS	12V	150	162	46.5 kg / 102.5 lbs	L 484 mm (19.1") W 170 mm (6.7") H 237 mm (9.3")
19. CB12-180GS	12V	180	190	59 kg / 130.1 lbs	L 522 mm (20.6") W 240 mm (9.5") H 224 mm (8.8")
20. CB12-200GS	12V	200	220	62 kg / 136.7 lbs	L 522 mm (20.6") W 240 mm (9.5") H 224 mm (8.8")



7. FRONT TERMINAL RANGE

FRONT TERMINAL RANGE APPLICATIONS



Datacenters & Telecom: Mission-critical applications with high stability & performance, UPS systems, frequently used in base stations for mobile communications.

Marine: Back-up power for critical systems like control boards, navigation, and communication.

Rail and transport: Back up power, railroad switches, barrier control, lighting systems, information systems.

12 VOLT

BATTERY NAME	RATED VOLTAGE	RATED AH 3HR RATE	RATED AH 20HR RATE	WEIGHT	DIMENSIONS
1. CB12-55GS	12V	55	60	16.3 kg / 35.9 lbs	L 277 mm (10.9") W 106 mm (4.2") H 228 mm (8.9")
2. CB12-90GS	12V	90	100	31.5 kg / 69.5 lbs	L 396 mm (15.6") W 110 mm (4.3") H 286 mm (11.3")
3. CB12-100GS	12V	100	108	34.5 kg / 76.1 lbs	L 560 mm (22.1") W 125 mm (4.9") H 228 mm (9")
4. CB12-155GS	12V	155	170	48 kg / 105.8 lbs	L 558 mm (22") W 125 mm (4.9") H 283 mm (11.14")
5. CB12-170GS	12V	170	190	50 kg / 110.2 lbs	L 546 mm (21.5") W 125 mm (4.9") H 320 mm (12.6")
6. CB12-180GS	12V	180	194	50.5 kg / 111.3 lbs	L 546 mm (21.5") W 125 mm (4.9") H 320 mm (12.6")
7. CB12-190GS	12V	190	203	51 kg / 112.4 lbs	L 546 mm (21.5") W 125 mm (4.9") H 320 mm (12.6")



8. LARGE TERMINAL RANGE

LARGE STORAGE RANGE APPLICATIONS



- Datacenters & Telecom:** Large-scale reserve power, mission-critical applications with high stability & performance, UPS systems.
- Marine:** Battery banks with high capacity for autonomous use in ships and boats. Back-up power for critical systems like control boards, navigation, and communication, electric propulsion systems
- Industrial:** Reserve power for large systems, rental equipment, storage power for grid support and peak-shaving, and large utility storage.
- Renewable Energy:** Energy storage for solar, wind, and other hybrid solutions, home energy storage.
- Rail and Transport:** Back-up power for trains, trams, busses, rail crossing switching, barrier control, lighting systems, information systems, portable guiding lights, baggage handling at airports, electric buses.

2 VOLT

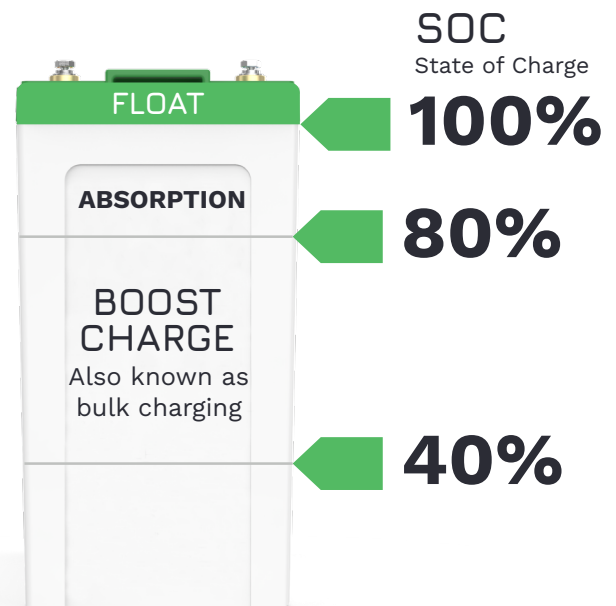
BATTERY NAME	RATED VOLTAGE	RATED AH 10HR RATE	RATED AH 20HR RATE	WEIGHT	DIMENSIONS
1. CB2-100LS	2V	100	108	5.8 kg / 12.8 lbs	L 172 mm (6.8") W 72 mm (2.8") H 210 mm (8.3")
2. CB2-200LS	2V	200	220	13.5 kg / 29.8 lbs	L 174 mm (6.9") W 112 mm (4.4") H 343 mm (13.5")
3. CB2-300LS	2V	300	330	20.5 kg / 45.2 lbs	L 175 mm (6.9") W 155 mm (6.1") H 365 mm (13.4")
4. CB2-400LS	2V	400	440	26 kg / 57.3 lbs	L 210 mm (8.3") W 175 mm (6.9") H 335 mm (13.2")
5. CB2-500LS	2V	500	560	31 kg / 68.3 lbs	L 243 mm (9.6") W 175 mm (6.9") H 338 mm (13.3")
6. CB2-600LS	2V	600	660	37.5 kg / 82.7lbs	L 301 mm (11.9") W 175 mm (6.9") H 335 mm (13.2")
7. CB2-800LS	2V	800	880	51 kg / 112.4 lbs	L 412 mm (16.2") W 175 mm (6.9") H 337 mm (12.6")
8. CB2-1000LS	2V	1000	1100	61 kg / 134.5 lbs	L 480 mm (18.9") W 175 mm (6.9") H 340 mm (13.4")
9. CB2-1500LS	2V	1500	1650	98.5 kg / 217.2 lbs	L 403 mm (15.9") W 354 mm (13.9") H 350 mm (13.8")



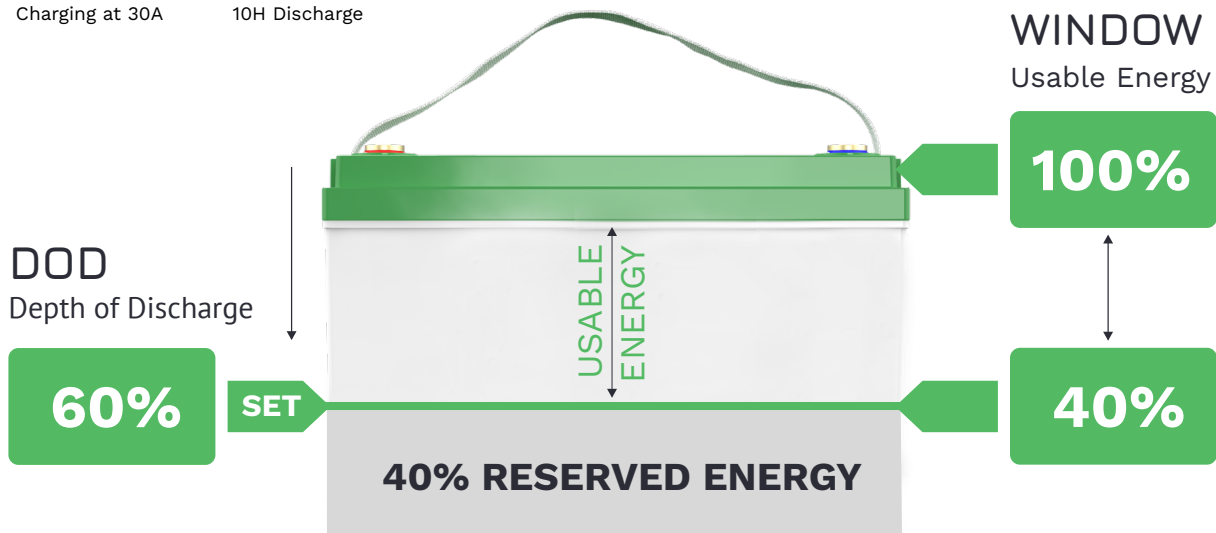
9. CRYSTAL BATTERIES™ BASICS

Batteries need to be properly maintained to reach their maximum lifetime and performance. The battery's State of Charge is a percentage of how full the battery is compared to being completely empty. Recharging is done by using a fast-charge boost phase where most energy is recharged in the shortest time, followed by an absorption phase, and a final float phase.

Crystal Batteries™ are recharged quickly during boost charge, but then slow down in the last absorption and float phases. This slow-down is necessary to ensure the battery is not overcharged, shortening the lifetime of the battery.



C-RATING - 100Ah BATTERY



10. CRYSTAL BATTERIES™ KNOWLEDGE

Depth of Discharge measures in percentage how empty a battery is. A battery that is 100% discharged is completely empty. The usable energy from the battery example below is from 100% SOC to 40% SOC which is the same as a 60% Depth of Discharge cycle.

The C-rating of the battery describes how fast the charging or discharging is. The notation is very important to prevent confusion. For example, Crystal batteries are rated at C10, which means when discharged for 10 hours, the CB12-100GS batteries deliver 100Ah of current, then is recharged at 0.3C, (or 30A), in the boost charge.

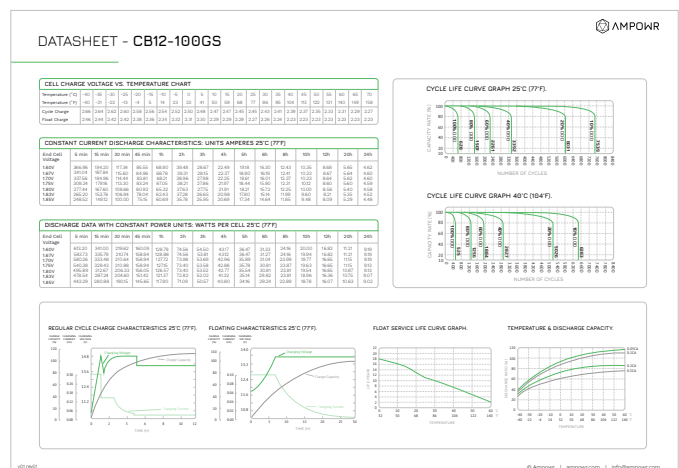
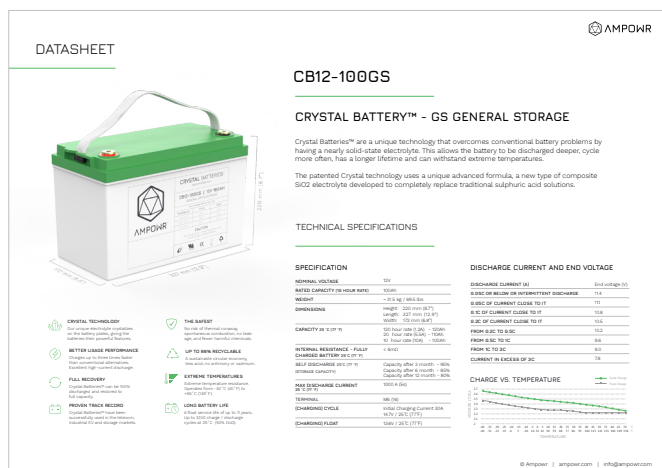


10. DATA SHEET DIRECTORY

Pages 7-11 show our entire battery collection. For each individual battery we have a data sheet with the following information:

1. Discharge current and end voltage
2. Battery specifications
3. Charge vs Temperature
4. Charge vs Temperature Chart
5. Constant Current Discharge characteristics: Units Amperes 25°C (77°F)
6. Discharge data with constant power units: Watts per cell 25°C (77°F)
7. Cycle charge characteristics 25°C (77°F)
8. Floating Charge characteristics 25°C (77°F)
9. Cycle life curve graphs
10. Temperature & float service life
11. Float service life curve graph
12. Temperature & Discharge capacity

To receive any battery specific datasheet, please view our product range at www.Ampowr.com/crystal-batteries and select your battery to download the datasheet.





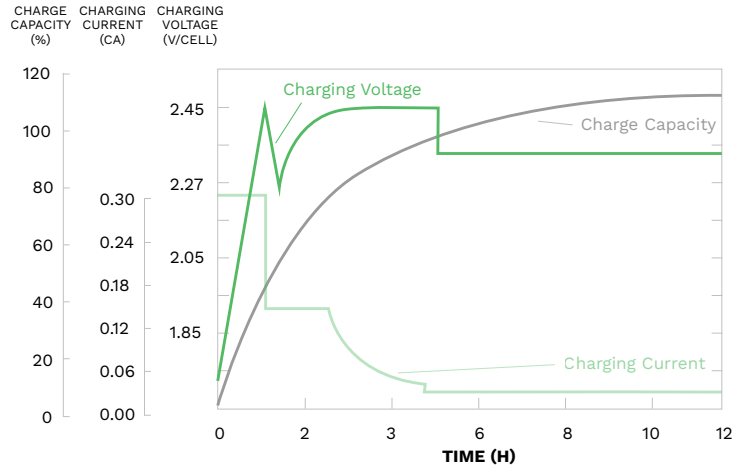
11. CHARGING AND USAGE

REGULAR CHARGING

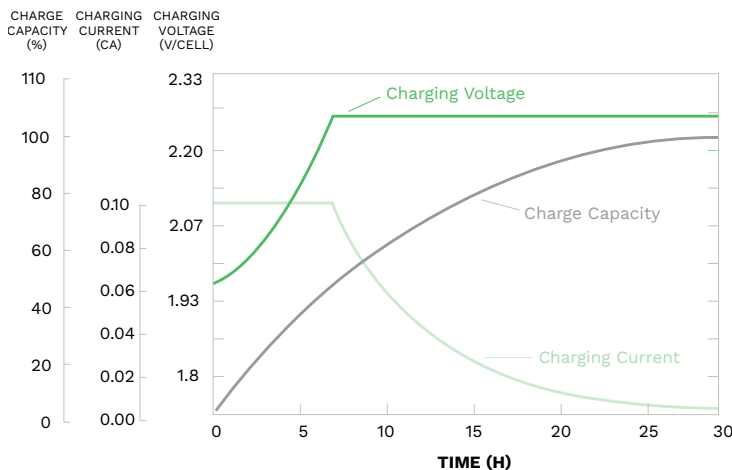
Crystal Batteries™ have a unique charging profile to reduce battery heating. Boost, absorption, and float phase during recharging are crucial for long-term battery operation. The GS, FT and LS battery ranges require a current of 0.25 to 0.3C, a charge profile voltage compensation of $-4 \text{ mV} \cdot ^\circ\text{C}^{-1}$, and a high-quality low-ripple charger.

A charger can reduce or even void the warranty of the battery if unsuitable. Ampowr offers its own custom-designed charger to manage the Crystal Battery™ charge cycle.

Regular cycle charge characteristics 25°C (77°F)



Floating characteristics 25°C (77°F)



FLOAT CHARGING

Floating the battery takes a long time to properly recharge, typically more than 20 hours. Although the battery can be used in these applications, it is recommended that the batteries have a regular cycle from a 50% Depth of Discharge at least twice a month to prevent long-term undercharging.

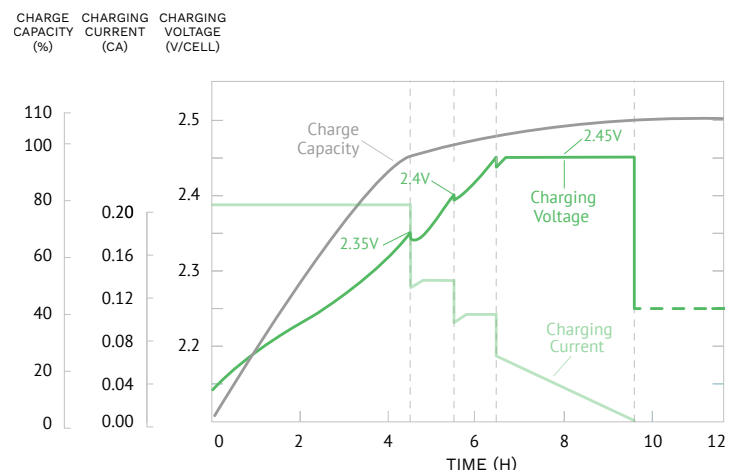
(As is common on many solar street lamps and UPS systems).

REGULAR EV CHARGING

The EV battery range has a unique profile to extend battery life and reduce heating. The current of 0.2C is reduced in stages to keep battery heating to a minimum. The battery is charged up to 14.7V before shutting off and ending the charge profile. Float-charging the EV is not recommended as it will drastically reduce operating life.

A charger can reduce or even void the warranty of the battery if unsuitable. Ampowr offers its own custom-designed charger to manage the Crystal Battery™ charge cycle.

Regular cycle charge characteristics 25°C (77°F)



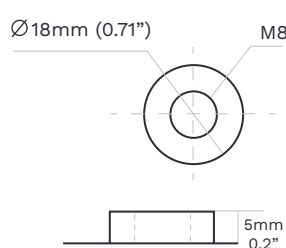
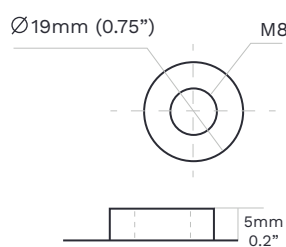


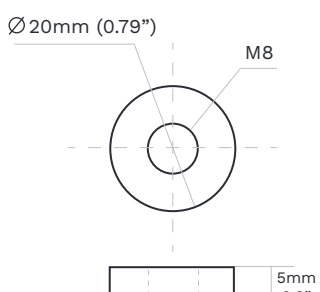
12. TERMINAL DIRCTORY

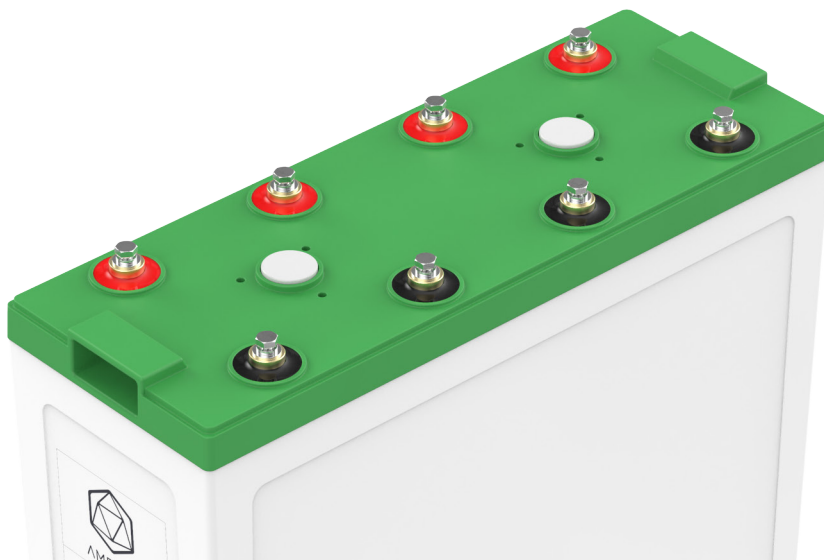
S/N	Terminal number	Application Specifications	S/N	Terminal number	Application Specifications
2	F2 [250]		5	M6 [12]	
		CB6-10GS			CB12-32EV
		CB6-12GS			CB12-40EV
		CB12-7.2GS	6	M6 [13.5]	
		CB12-7.2HGS			CB12-55FT
		CB1-102GS			CB12-90FT
3	M5 [8]				CB12-155FT
		CB12-12GS	7	M6 [16]	
		CB12-14GS			CB12-35GS
					CB12-40GS
4	M5 [10]				CB12-55GS
		CB12-18GS			CB12-70GS
		CB12-22GS			CB12-90GS
		CB12-24GS			CB12-100GS
		CB12-26GS			CB12-60GS
		CB12-28GS			CB12-70GS
		CB12-27EV			CB12-80GS
					CB2-100LS



12. TERMINAL DIRECTORY

S/N	Terminal number	Application Specifications
8	M8 [18]	
	CB6-180GS	
	CB6-200GS	
9	M8 [19]	
	CB6-160GS	
	CB6-180EV	
	CB6-210EV	
	CB6-265EV	
	CB8-135EV	
	CB12-100EV	
	CB12-120EV	
	CB12-100FT	
	CB12-170FT	
	CB12-180FT	
	CB12-190FT	

S/N	Terminal number	Application Specifications
10	M8 [20]	
	CB12-65GS	
	CB12-120GS	
	CB12-150GS	
	CB12-180GS	
	CB12-200GS	
	CB12-150EV	
	CB2-200LS	
	CB2-300LS	
	CB2-400LS	
	CB2-500LS	
	CB2-600LS	
	CB2-800LS	
	CB2-1000LS	
	CB2-1500LS	





1. USABLE TEMPERATURE

	LEAD ACID	LEAD GEL	CRYSTAL	LITHIUM	AGM
1. USABLE TEMPERATURE	-20°C to +45°C -4°F to 113°F	-18°C to +50°C 0°F to 122°F	-40°C to +65°C -40°F to 149°F	-20°C to +65°C -4°F to 149°F	-20°C to +45°C -4°F to 113°F

The usable temperature is the temperature at which the batteries can be discharged safely and operate in.

2. CHARGE TEMPERATURE

	LEAD ACID	LEAD GEL	CRYSTAL	LITHIUM	AGM
2. CHARGE TEMPERATURE	-20°C to +45°C -4°F to 113°F	0°C to +40°C 32°F to 104°F	-40°C to +65°C -40°F to 149°F	5°C to 45°C 41°F to 113°F	0°C to 40°C 32°F to 104°F

The charge temperature is the temperature range in which the battery can be safely charged. The majority of gel and lithium batteries cannot be charged when below the freezing point.

3. USAGE LIFE

	LEAD ACID	LEAD GEL	CRYSTAL	LITHIUM	AGM
3. USAGE LIFE AT 25°C / 77°F	2-3 years	3-4 years	8-10 years	6-8 years	4-6 years

Usage life is the realistically expected use-life of the batteries when used under normal conditions (50% DoD and 25°C / 77°F).

4. CAPACITY LOSS

	LEAD ACID	LEAD GEL	CRYSTAL	LITHIUM	AGM
4. CAPACITY LOSS DEGRADATION	High	Medium - High	LOW	Medium - High	Medium

Capacity loss, known as degradation, is a permanent decrease in battery capacity caused by internal chemical reactions. Lithium batteries have a high degradation as can be noticed in laptops and cell-phones.

5. CYCLES AT 25°C / 77°F

	LEAD ACID	LEAD GEL	CRYSTAL	LITHIUM	AGM
5. CYCLES AT 25°C / 77°F 50% DEPTH OF DISCHARGE	600	1,000	3,100	5,000	2,000

The number of cycles at 25°C (77°F) and at 50% depth of discharge is a way of measuring battery performance. Lithium is more suitable for multi-cycle charges per day but will experience capacity loss which is not reflected in the number of theoretical cycles. Crystal Batteries™ have the best price and performance when measured on a 10-year total cost of ownership model.



6. CYCLES AT 40°C / 104°F

	LEAD ACID	LEAD GEL	CRYSTAL	LITHIUM	AGM
6. CYCLES AT 40°C / 104°F 80% DEPTH OF DISCHARGE	350	400	1,380	1,500	600

The number of cycles at 40 °C (104 °F) and 80% depth of discharge indicates battery performance in non-ideal conditions. The Crystal Batteries™ is extremely resilient in harsh environments.

7. COST OF OWNERSHIP

	LEAD ACID	LEAD GEL	CRYSTAL	LITHIUM	AGM
7. COST OF OWNERSHIP 10 YEARS	High	Medium - High	LOWEST	Medium - High	Medium

The Crystal® Battery™ has the lowest total cost of ownership model because of the long lifetime, high cycle count, and low upfront cost.

8. HIGH CURRENT ABILITY

	LEAD ACID	LEAD GEL	CRYSTAL	LITHIUM	AGM
8. HIGH CURRENT ABILITY	Poor	Poor	AVERAGE	Good	Average

The Crystal Battery™ has an average high current ability and is seen in many UPS, backup, and other emergency power systems.

9. ENVIRONMENTAL IMPACT

	LEAD ACID	LEAD GEL	CRYSTAL	LITHIUM	AGM
9. ENVIRONMENTAL IMPACT	Harmful	Harmful	FRIENDLY	Harmful	Average

There is no antimony or cadmium in the Crystal Batteries™ and it does not damage the environment through mining operations.

10. WEIGHT

	LEAD ACID	LEAD GEL	CRYSTAL	LITHIUM	AGM
10. WEIGHT	Heavy	Average	AVERAGE	Low	Average

The weight of Crystal Batteries™ is ideal for EV golf carts and forklifts which benefit from more stability and low center of gravity.



11. FAILURE MODE

	LEAD ACID	LEAD GEL	CRYSTAL	LITHIUM	AGM
11. FAILURE MODE	Acid spill	Hazardous	SWELLING	Thermal runaway	Varies

The failure mode describes how the battery fails when punctured, overcharged, or short-circuited. The Crystal Batteries™ will start swelling after extreme abuse, but with no acid leakage, smoke, or fire risk.

12. FIRE RISK

	LEAD ACID	LEAD GEL	CRYSTAL	LITHIUM	AGM
12. FIRE RISK	Average	Low	ZERO	High	Low

The Crystal Batteries™ have no thermal run-away or spontaneous combustion risk caused by hydrogen gassing.

13. INDOOR USE

	LEAD ACID	LEAD GEL	CRYSTAL	LITHIUM	AGM
13. INDOOR USE	Gassing	Gassing	SAFE	High Risk	Gassing

The lack of serious gassing and safe chemistry means that the Crystal Battery™ is ideal for indoor use and installations.

14. TRANSPORT SAFETY

	LEAD ACID	LEAD GEL	CRYSTAL	LITHIUM	AGM
14. TRANSPORT SAFETY	Restricted	Varies	SAFE	Restricted	Varies

The Crystal Batteries™ are non-hazardous and approved for air, sea, and train transport.

15. DECOMMISSIONING VALUE

	LEAD ACID	LEAD GEL	CRYSTAL	LITHIUM	AGM
15. DECOMMISSIONING VALUE	Low	Low	SAFE	Negative	Medium

The decommissioning value is the cash received when recycling the batteries minus the transportation cost. There are currently no commercially attractive recycling solutions for Lithium.



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DATASHEET



CB6-180EV

CRYSTAL BATTERY™ - EV LIGHT TRACTION

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

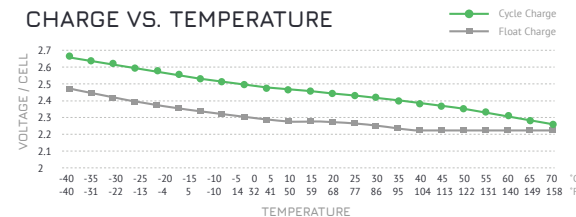
SPECIFICATION

NOMINAL VOLTAGE	6V
RATED CAPACITY (3 HOUR RATE)	180Ah
WEIGHT	~ 33 kg / 72.8 lbs
DIMENSIONS	Height: 275mm (10.8") Length: 270mm (10.6") Width: 180mm (7.1")
CAPACITY 25 °C (77 °F)	10 hour rate (24A) - 240Ah 5 hour rate (40A) - 200Ah 2 hour rate (80A) - 160Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 1.5mΩ
SELF- DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1800A (5s)
TERMINAL	M8 (19)
(CHARGING) CYCLE	Initial Charging Current 36A 7.35V / 25 °C (77 °F)
(CHARGING) FLOAT	6.85V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	5.70
0.05C OF CURRENT CLOSE TO IT	5.55
0.1C OF CURRENT CLOSE TO IT	5.40
0.2C OF CURRENT CLOSE TO IT	5.25
FROM 0.2C TO 0.5C	5.10
FROM 0.5C TO 1C	4.80
FROM 1C TO 3C	4.50
CURRENT IN EXCESS OF 3C	3.90

CHARGE VS. TEMPERATURE



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40 °C (40 °F) to +65 °C (149 °F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25 °C (50% DoD).

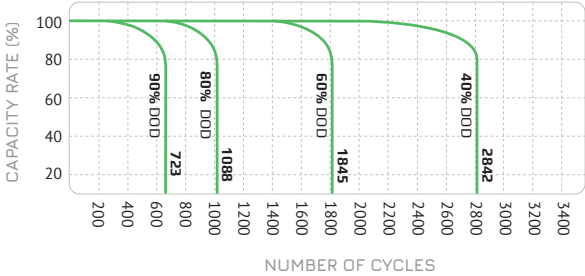
DATASHEET - CB6-180EV

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																								
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158	
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27	
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23	

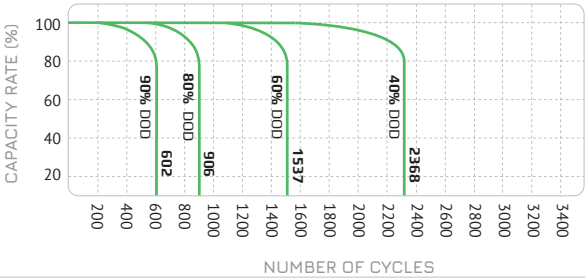
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	581	370	244	183	126	84.9	64.5	51.4	43.0	39.4	31.6	24.1	21.2	13.2	10.6
1.67V	500	336	226	174	125	83.8	63.0	50.3	42.1	37.6	30.4	23.6	20.8	12.9	10.6
1.70V	477	325	219	172	124	82.7	62.3	49.3	41.4	36.1	29.6	23.4	20.7	12.8	10.6
1.75V	434	304	210	165	123	81.7	61.6	48.3	40.8	34.7	28.7	23.2	20.5	12.6	10.6
1.80V	383	279	202	159	122	80.6	60.2	47.5	39.9	34.6	28.1	23.0	20.1	12.4	10.5
1.83V	335	255	187	148	119	79.5	58.7	45.5	39.1	33.3	27.1	22.3	19.2	12.3	10.2
1.85V	286	231	172	136	116	78.4	56.6	43.8	38.2	32.2	26.2	21.6	18.6	12.1	9.95

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	958	645	441	336	234	170	119	96.4	82.1	72.0	58.3	47.5	39.8	24.7	20.7
1.67V	856	601	413	322	234	164	119	96.0	80.4	71.2	57.1	46.4	39.8	24.7	20.7
1.70V	828	586	402	318	233	160	116	95.4	79.3	70.8	57.0	45.9	39.8	24.7	20.7
1.75V	764	551	388	308	232	155	114	93.9	78.6	69.7	55.8	45.5	39.8	24.7	20.6
1.80V	693	507	375	299	231	150	113	92.1	77.5	68.6	54.9	45.0	38.6	24.4	20.6
1.83V	612	470	350	280	230	144	113	89.2	76.9	66.7	53.0	43.9	37.7	24.4	20.1
1.85V	531	432	325	261	225	139	112	85.9	75.9	64.8	51.2	42.7	36.8	24.2	19.6

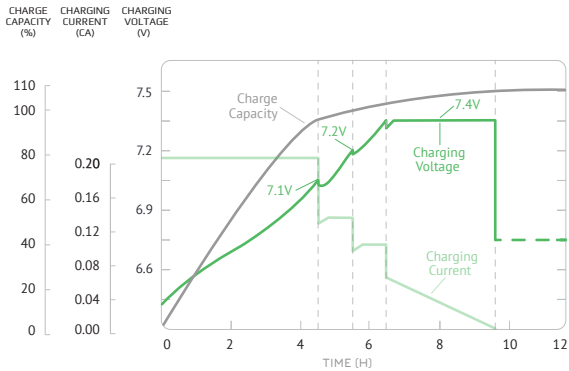
CYCLE LIFE CURVE GRAPH 25°C (77°F).



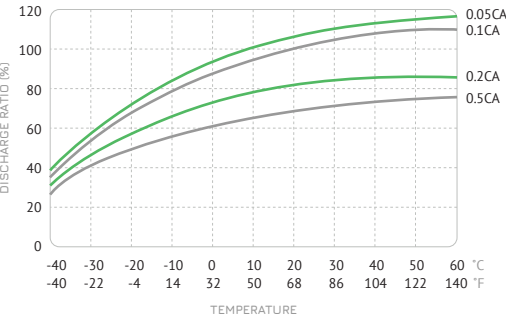
CYCLE LIFE CURVE GRAPH 40°C (104°F).



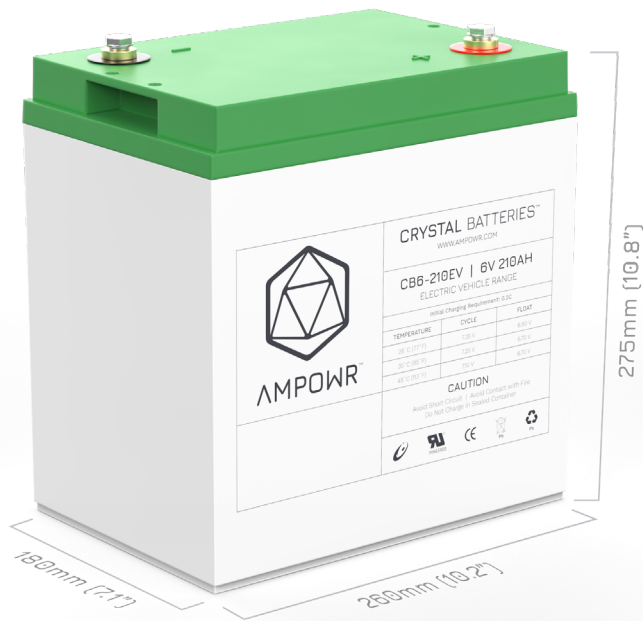
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET



CRYSTAL TECHNOLOGY

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THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



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A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

CB6-210EV

CRYSTAL BATTERY™ - EV LIGHT TRACTION

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

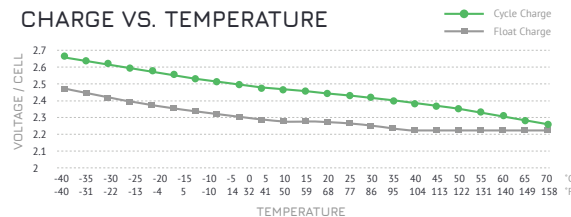
SPECIFICATION

NOMINAL VOLTAGE	6V
RATED CAPACITY (3 HOUR RATE)	210Ah
WEIGHT	~ 36 kg / 79.4 lbs
DIMENSIONS	Height: 275 mm (10.8") Length: 260mm (10.2") Width: 180mm (7.1")
CAPACITY 25 °C (77 °F)	10 hour rate (26A) - 260Ah 5 hour rate (45A) - 225Ah 2 hour rate (90A) - 180Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 1.5mΩ
SELF- DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	2100A (5s)
TERMINAL	M8 (19)
(CHARGING) CYCLE	Initial Charging Current 42A 7.35V / 25 °C (77 °F)
(CHARGING) FLOAT	6.85V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	5.70
0.05C OF CURRENT CLOSE TO IT	5.55
0.1C OF CURRENT CLOSE TO IT	5.40
0.2C OF CURRENT CLOSE TO IT	5.25
FROM 0.2C TO 0.5C	5.10
FROM 0.5C TO 1C	4.80
FROM 1C TO 3C	4.50
CURRENT IN EXCESS OF 3C	3.90

CHARGE VS. TEMPERATURE



DATASHEET - CB6-210EV

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

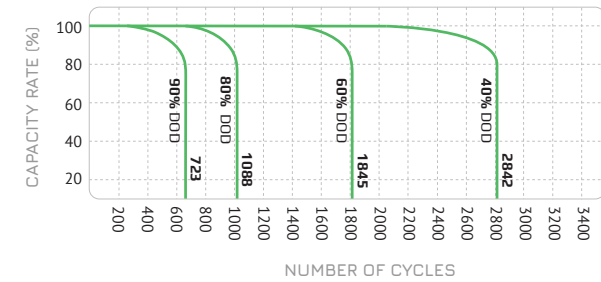
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	662	422	278	209	144	96.7	73.5	58.6	49.0	44.9	35.7	27.3	24.0	14.9	12.0
1.67V	569	382	257	198	142	95.5	71.8	57.3	48.0	42.8	34.4	26.7	23.6	14.6	12.0
1.70V	544	371	249	196	141	94.3	71.0	56.2	47.2	41.2	33.4	26.5	23.4	14.5	12.0
1.75V	494	347	240	188	140	93.1	70.2	55.1	46.5	39.6	32.5	26.2	23.1	14.3	11.9
1.80V	437	318	231	181	139	91.8	68.6	54.1	45.5	39.4	31.8	26.0	22.7	14.0	11.9
1.83V	381	290	213	168	135	90.6	66.9	51.9	44.5	37.9	30.6	25.2	21.7	13.9	11.5
1.85V	326	263	196	156	132	89.4	64.5	49.9	43.6	36.7	29.6	24.5	21.0	13.7	11.2

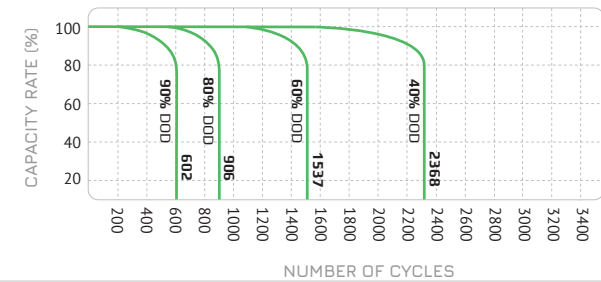
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	1092	735	503	383	267	194	136	109	93.6	82.1	65.9	53.7	45.0	27.9	23.4
1.67V	975	685	471	367	266	187	136	109	91.6	81.1	64.6	52.5	45.0	27.9	23.4
1.70V	944	667	458	363	266	183	132	108	90.3	80.6	64.4	51.9	45.0	27.9	23.4
1.75V	871	627	443	351	265	176	130	107	89.6	79.4	63.1	51.4	45.0	27.9	23.3
1.80V	790	578	428	340	264	171	129	105	88.4	78.2	62.0	50.9	43.7	27.6	23.3
1.83V	697	535	399	319	263	164	128	101	87.6	76.0	60.0	49.6	42.6	27.6	22.7
1.85V	605	492	371	297	262	158	127	97.9	86.5	73.8	57.9	48.3	41.6	27.4	22.1

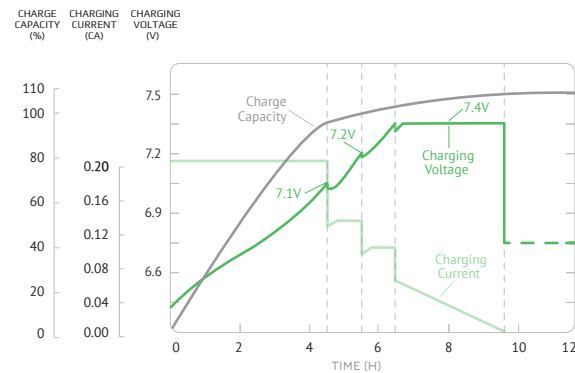
CYCLE LIFE CURVE GRAPH 25°C (77°F).



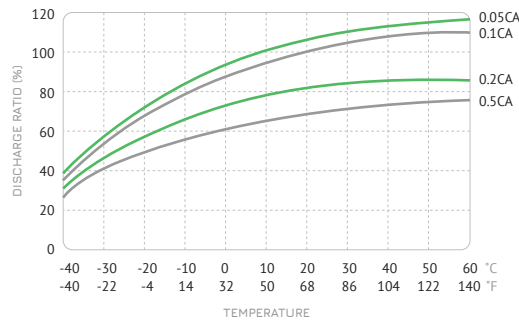
CYCLE LIFE CURVE GRAPH 40°C (104°F).



REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

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THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

CB6-265EV

CRYSTAL BATTERY™ - EV LIGHT TRACTION

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

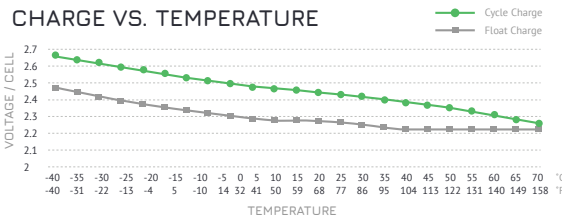
SPECIFICATION

NOMINAL VOLTAGE	6V
RATED CAPACITY (3 HOUR RATE)	265Ah
WEIGHT	~ 46.5 kg / 102.5 lbs
DIMENSIONS	Height: 350 mm (13.8") Length: 295 mm (11.6") Width: 175mm (6.9")
CAPACITY 25 °C (77 °F)	10 hour rate (30A) - 300Ah 5 hour rate (57A) - 285Ah 2 hour rate (116A) - 232Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 1.0mΩ
SELF- DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	2650A (5s)
TERMINAL	M8 (19)
(CHARGING) CYCLE	Initial Charging Current 53A 7.35V / 25 °C (77 °F)
(CHARGING) FLOAT	6.85V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	5.70
0.05C OF CURRENT CLOSE TO IT	5.55
0.1C OF CURRENT CLOSE TO IT	5.40
0.2C OF CURRENT CLOSE TO IT	5.25
FROM 0.2C TO 0.5C	5.10
FROM 0.5C TO 1C	4.80
FROM 1C TO 3C	4.50
CURRENT IN EXCESS OF 3C	3.90

CHARGE VS. TEMPERATURE



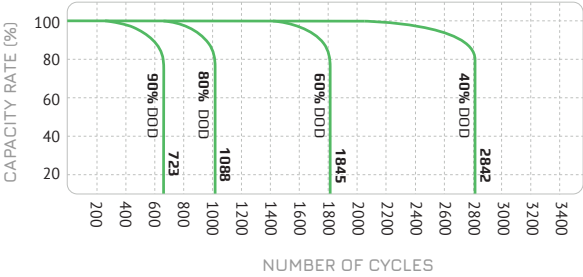
DATASHEET - CB6-265EV

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

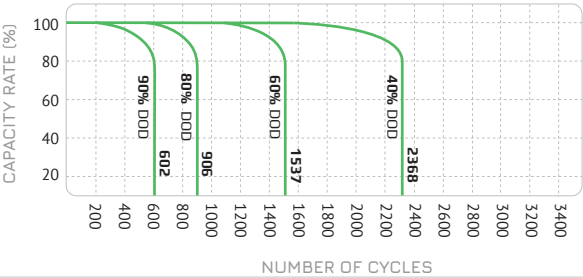
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	811	517	341	257	177	119	90.0	71.6	60.0	54.8	41.3	31.5	26.6	16.6	13.9
1.67V	698	469	316	243	175	117	88.8	70.1	58.5	52.5	39.8	30.9	26.6	16.6	13.9
1.70V	667	455	306	240	173	116	88.4	68.6	57.8	50.3	38.6	30.6	26.6	16.6	13.9
1.75V	606	425	294	231	172	114	87.3	67.5	56.6	48.4	37.5	30.3	26.3	16.6	13.8
1.80V	536	390	283	222	171	113	84.0	66.3	55.5	48.0	36.6	30.0	25.7	16.5	13.8
1.83V	468	356	261	207	167	111	81.8	63.6	54.4	46.5	35.4	29.1	25.1	16.4	13.4
1.85V	400	323	240	191	162	110	78.8	61.2	53.3	45.0	34.2	28.3	24.3	16.4	13.0

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	1336	900	617	470	327	237	167	135	115	101	76.5	62.4	52.2	32.4	27.2
1.67V	1194	838	575	447	327	230	167	135	111	99.9	75.0	60.9	52.2	32.4	27.2
1.70V	1156	819	560	443	326	224	163	134	109	99.3	74.7	60.3	52.2	32.4	27.2
1.75V	1066	770	541	429	324	216	160	132	106	97.8	73.2	59.7	52.2	32.4	27.1
1.80V	968	707	523	418	323	209	159	129	104	96.3	72.0	59.1	50.7	32.1	27.1
1.83V	853	653	489	391	322	202	158	125	100	93.6	69.6	57.6	49.5	32.1	26.4
1.85V	740	601	455	365	321	194	156	121	96.6	90.9	67.2	56.1	48.3	31.8	25.7

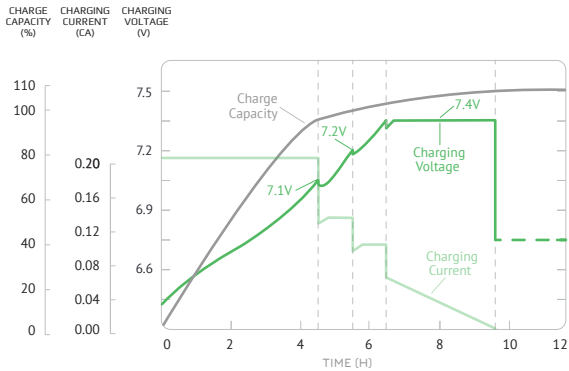
CYCLE LIFE CURVE GRAPH 25°C (77°F).



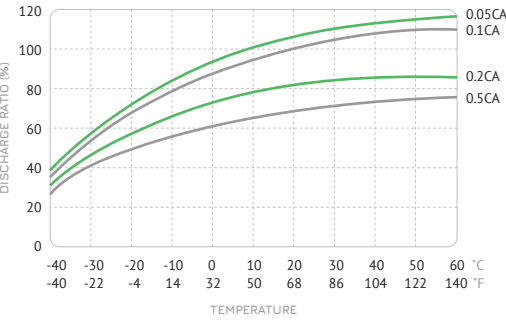
CYCLE LIFE CURVE GRAPH 40°C (104°F).



REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

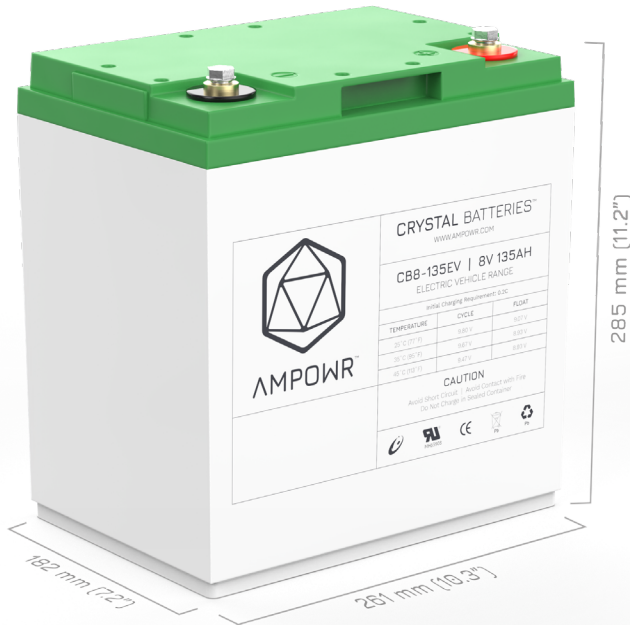
CB8-135EV

CRYSTAL BATTERY™ - EV LIGHT TRACTION

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

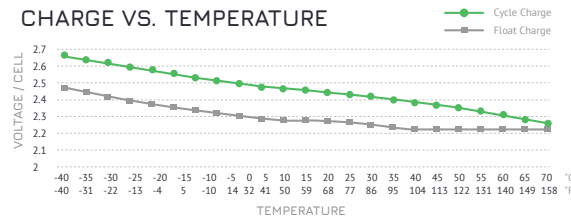
SPECIFICATION

NOMINAL VOLTAGE	8V
RATED CAPACITY (3 HOUR RATE)	135Ah
WEIGHT	~ 34 kg / 75 lbs
DIMENSIONS	Height: 285 mm (11.2") Length: 261 mm (10.3") Width: 182 mm (7.2")
CAPACITY 25 °C (77 °F)	10 hour rate (16.5A) - 165Ah 5 hour rate (30A) - 150Ah 2 hour rate (60A) - 120Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 4.0mΩ
SELF- DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1350A (5s)
TERMINAL	M8 (19)
(CHARGING) CYCLE	Initial Charging Current 27A 9.8V / 25°C (77 °F)
(CHARGING) FLOAT	9.14V / 25°C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	7.6
0.05C OF CURRENT CLOSE TO IT	7.4
0.1C OF CURRENT CLOSE TO IT	7.2
0.2C OF CURRENT CLOSE TO IT	7.0
FROM 0.2C TO 0.5C	6.8
FROM 0.5C TO 1C	6.4
FROM 1C TO 3C	6.0
CURRENT IN EXCESS OF 3C	5.2

CHARGE VS. TEMPERATURE



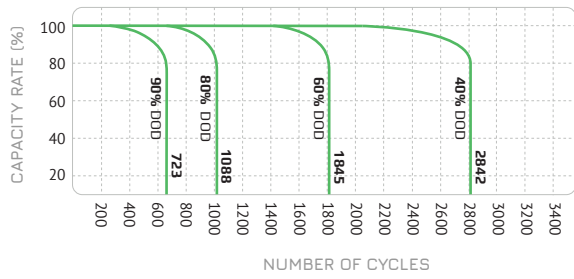
DATASHEET - CB8-135EV

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

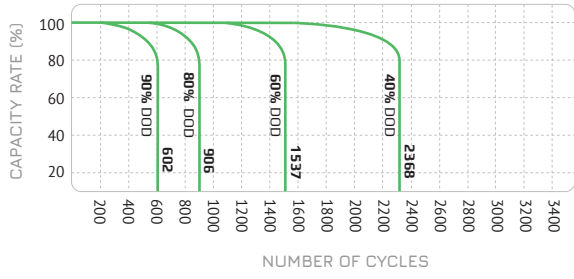
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	445	284	187	141	97.3	65.1	49.5	39.5	33.0	30.2	22.6	17.3	15.2	9.48	7.64
1.67V	383	257	173	133	96.1	64.3	48.4	38.6	32.3	28.8	21.8	16.9	14.9	9.32	7.64
1.70V	366	249	168	132	95.3	63.5	47.8	37.8	31.8	27.7	21.2	16.8	14.8	9.24	7.62
1.75V	333	233	161	126	94.5	62.7	47.3	37.1	31.3	26.6	20.6	16.6	14.7	9.07	7.60
1.80V	294	214	155	122	94.0	61.8	46.2	36.4	30.6	26.5	20.2	16.5	14.4	8.91	7.57
1.83V	257	195	143	113	91.5	61.0	45.1	34.9	30.0	25.5	19.4	16.0	13.7	8.82	7.35
1.85V	219	177	132	105	89.1	60.2	43.4	33.6	29.3	24.7	18.8	15.5	13.3	8.74	7.14

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	735	495	338	258	180	130	91.9	74.0	63.0	55.3	41.8	34.1	28.5	17.7	14.8
1.67V	657	461	317	247	179	126	91.8	73.7	61.7	54.6	41.0	33.3	28.4	17.7	14.8
1.70V	635	449	308	244	179	123	89.4	73.2	60.8	54.3	40.8	32.9	28.2	17.6	14.8
1.75V	587	422	298	237	178	119	88.1	72.0	60.3	53.5	40.0	32.6	28.0	17.6	14.8
1.80V	532	389	288	229	177	115	87.4	70.7	59.5	52.6	39.3	32.3	27.7	17.5	14.8
1.83V	470	360	269	215	177	110	86.7	68.4	59.0	51.2	38.0	31.5	27.0	17.5	14.4
1.85V	407	331	250	200	176	106	86.0	65.9	58.2	49.7	36.7	30.6	26.4	17.4	14.0

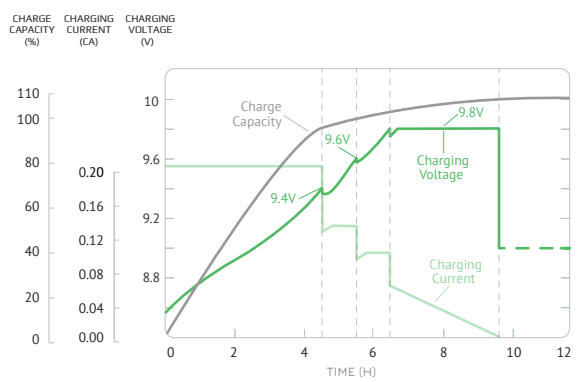
CYCLE LIFE CURVE GRAPH 25°C (77°F).



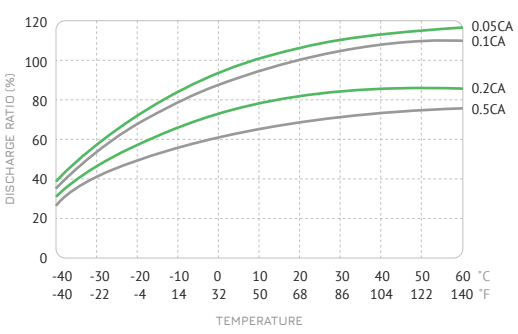
CYCLE LIFE CURVE GRAPH 40°C (104°F).



REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-27EV

CRYSTAL BATTERY™ - EV LIGHT TRACTION

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

TECHNICAL SPECIFICATIONS

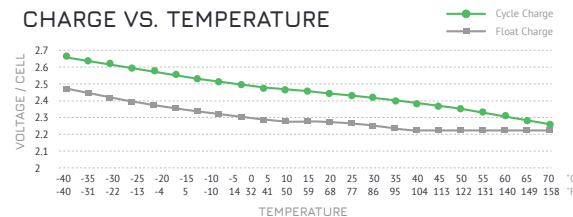
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (3 HOUR RATE)	27Ah
WEIGHT	~ 9.5 kg / 20.9 lbs
DIMENSIONS	Height: 125 mm (4.9") Length: 175 mm (6.9") Width: 66 mm (2.6")
CAPACITY 25 °C (77 °F)	10 hour rate (3.15A) - 31.5Ah 5 hour rate (6.0A) - 30Ah 2 hour rate (12A) - 24Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 12mΩ
SELF- DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	270A (5s)
TERMINAL	M5 (10)
(CHARGING) CYCLE	Initial Charging Current 5.4A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.7V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



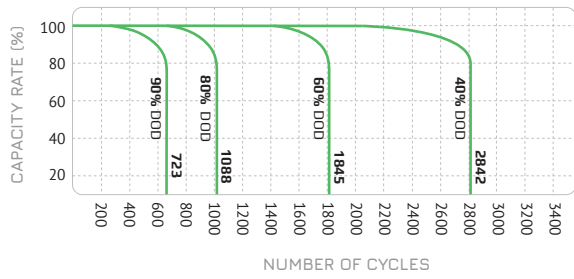
DATASHEET - CB12-27EV

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

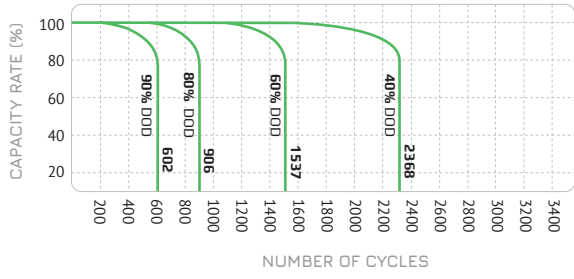
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	85.1	54.3	35.7	26.9	18.5	12.4	9.45	7.54	6.00	5.77	4.33	3.30	2.91	1.81	1.46
1.67V	73.2	49.2	33.1	25.5	18.3	12.2	9.24	7.37	5.88	5.51	4.17	3.24	2.86	1.78	1.46
1.70V	69.9	47.7	32.1	25.2	18.2	12.1	9.15	7.22	5.79	5.30	4.05	3.21	2.83	1.76	1.45
1.75V	63.6	44.6	30.8	24.2	18.0	11.9	9.03	7.08	5.70	5.09	3.93	3.18	2.80	1.73	1.45
1.80V	56.2	40.9	29.7	23.3	17.9	11.8	8.82	6.96	5.58	5.07	3.85	3.15	2.75	1.70	1.44
1.83V	49.1	37.3	27.4	21.6	17.4	11.6	8.61	6.67	5.46	4.88	3.71	3.05	2.63	1.68	1.40
1.85V	41.9	33.8	25.2	20.0	17.0	11.4	8.29	6.42	5.34	4.72	3.59	2.97	2.55	1.67	1.36

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	140	94.5	64.7	49.3	34.3	24.9	17.5	14.1	11.5	10.5	7.99	6.51	5.45	3.38	2.83
1.67V	125	88.1	60.5	47.1	34.3	24.1	17.5	14.0	11.2	10.4	7.83	6.36	5.45	3.38	2.83
1.70V	121	85.8	58.9	46.6	34.2	23.5	17.0	13.9	11.1	10.3	7.80	6.29	5.45	3.38	2.83
1.75V	112	80.7	56.9	45.2	34.0	22.7	16.8	13.7	11.0	10.2	7.64	6.23	5.45	3.38	2.83
1.80V	101	74.4	55.0	43.8	33.9	22.0	16.6	13.5	10.8	10.0	7.52	6.17	5.29	3.35	2.82
1.83V	89.7	68.8	51.3	41.0	33.8	21.1	16.5	13.0	10.7	9.78	7.27	6.01	5.17	3.35	2.75
1.85V	77.8	63.3	47.7	38.2	33.7	20.3	16.4	12.5	10.6	9.49	7.02	5.86	5.04	3.32	2.68

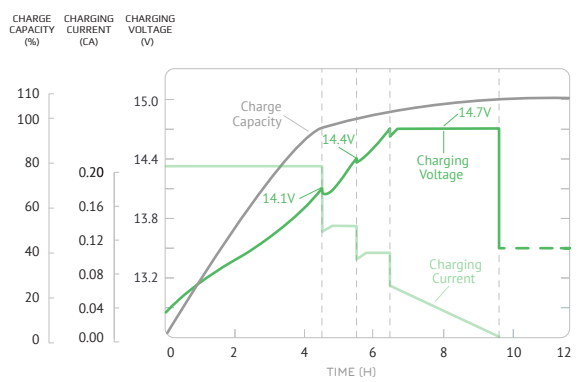
CYCLE LIFE CURVE GRAPH 25°C (77°F).



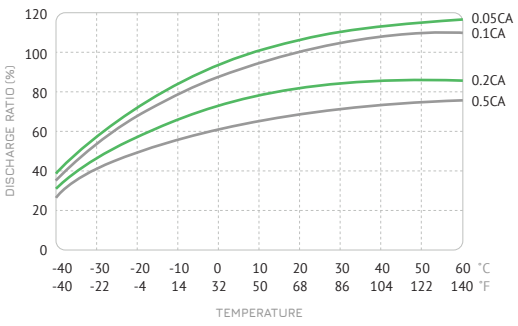
CYCLE LIFE CURVE GRAPH 40°C (104°F).



REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



TEMPERATURE & DISCHARGE CAPACITY.



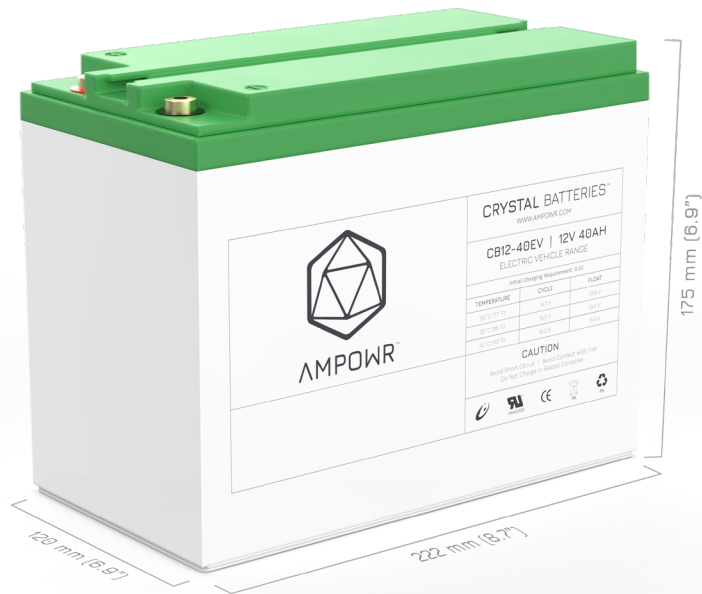
DATASHEET

CB12-40EV

CRYSTAL BATTERY™ - EV LIGHT TRACTION

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

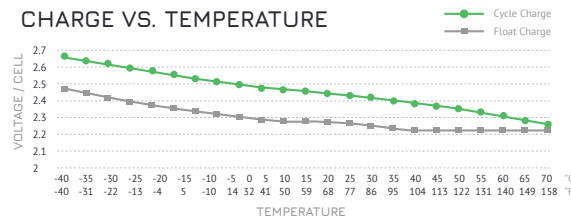
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (3 HOUR RATE)	40Ah
WEIGHT	~ 12.5 kg / 27.6 lbs
DIMENSIONS	Height: 175 mm (6.9") Length: 222 mm (8.7") Width: 120 mm (4.7")
CAPACITY 25 °C (77 °F)	10 hour rate (4.5A) - 45Ah 5 hour rate (8.5A) - 42.5Ah 2 hour rate (16A) - 32Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 9mΩ
SELF- DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	400A (5s)
TERMINAL	M6 (12)
(CHARGING) CYCLE	Initial Charging Current 8A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.7V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



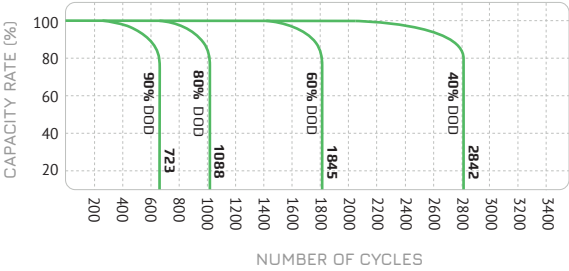
DATASHEET - CB12-40EV

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

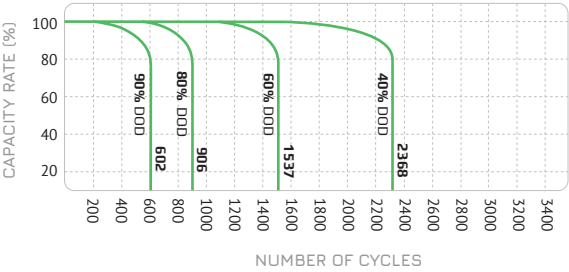
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	121	77.6	51.1	38.5	26.6	16.6	13.5	10.7	9.00	8.21	6.19	4.73	3.98	2.49	2.09
1.67V	104	70.3	47.4	36.5	26.2	16.4	13.2	10.5	8.78	7.88	5.96	4.64	3.98	2.49	2.09
1.70V	100	68.2	45.9	36.0	26.0	16.2	13.1	10.2	8.66	7.54	5.79	4.59	3.98	2.48	2.08
1.75V	90.9	63.8	44.1	34.6	25.8	16.0	12.9	10.1	8.48	7.26	5.63	4.55	3.95	2.48	2.07
1.80V	80.4	58.5	42.4	33.3	25.7	15.8	12.6	9.95	8.33	7.20	5.49	4.50	3.86	2.48	2.07
1.83V	70.2	53.4	39.2	31.0	25.0	15.5	12.3	9.54	8.16	6.98	5.31	4.37	3.76	2.47	2.01
1.85V	60.0	48.4	36.0	28.7	24.3	15.3	11.8	9.18	7.99	6.75	5.13	4.24	3.65	2.46	1.95

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	200	135	92.5	70.6	49.1	33.2	25.1	20.3	17.3	15.2	11.5	9.35	7.83	4.86	4.08
1.67V	179	125	86.3	67.0	49.0	32.2	25.0	20.2	16.7	15.0	11.2	9.13	7.83	4.86	4.08
1.70V	173	122	84.0	66.5	48.8	31.4	24.4	20.1	16.4	14.9	11.2	9.04	7.83	4.86	4.07
1.75V	159	115	81.2	64.4	48.7	30.3	24.0	19.8	16.0	14.7	11.0	8.95	7.83	4.86	4.07
1.80V	145	106	78.5	62.7	48.5	29.3	23.8	19.4	15.6	14.4	10.8	8.87	7.60	4.81	4.06
1.83V	127	98.0	73.4	58.7	48.3	28.3	23.6	18.8	15.1	14.0	10.4	8.64	7.42	4.81	3.96
1.85V	110	90.2	68.2	54.7	48.2	27.1	23.5	18.1	14.5	13.6	10.1	8.42	7.24	4.77	3.86

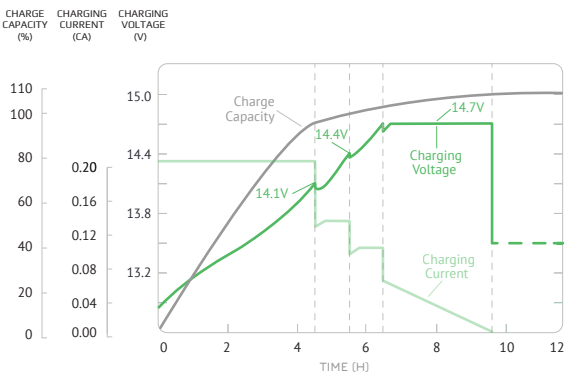
CYCLE LIFE CURVE GRAPH 25°C (77°F).



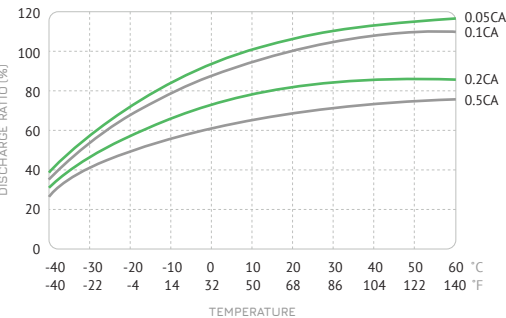
CYCLE LIFE CURVE GRAPH 40°C (104°F).



REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



TEMPERATURE & DISCHARGE CAPACITY.

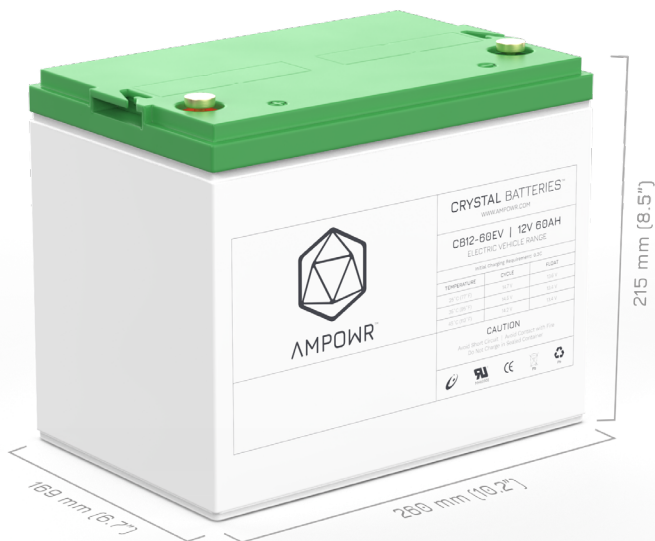


CB12-60EV

CRYSTAL BATTERY™ - EV LIGHT TRACTION

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystalizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

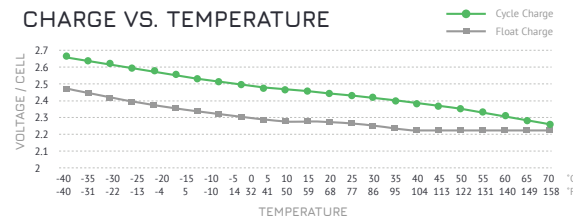
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (3 HOUR RATE)	60Ah
WEIGHT	~ 22.3 kg / 49.2 lbs
DIMENSIONS	Height: 215 mm (8.5") Length: 260 mm (10.2") Width: 169 mm (6.7")
CAPACITY 25 °C (77 °F)	10 hour rate (7.0A) - 70Ah 5 hour rate (13.2A) - 66Ah 2 hour rate (27A) - 54Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 8.5mΩ
SELF- DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	600A (5s)
TERMINAL	M6 (16)
(CHARGING) CYCLE	Initial Charging Current 12A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.7V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



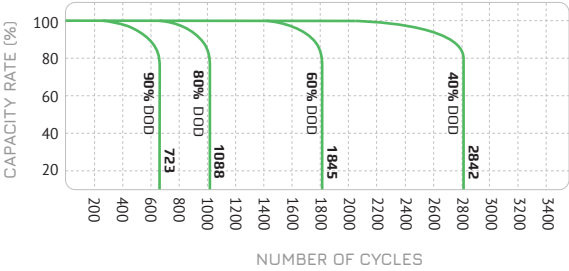
DATASHEET - CB12-60EV

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

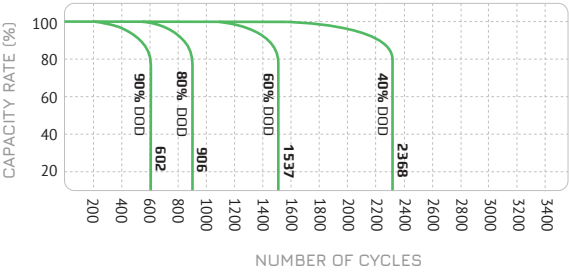
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	189	120	79.5	59.8	41.3	27.6	21.0	16.7	14.0	12.7	9.63	7.35	6.20	3.87	3.24
1.67V	162	109	73.7	56.7	40.7	27.3	20.4	16.3	13.6	12.2	9.28	7.21	6.20	3.87	3.24
1.70V	155	106	71.4	56.0	40.4	26.9	20.3	16.0	13.4	11.7	9.01	7.14	6.20	3.86	3.23
1.75V	141	99.2	68.6	53.8	40.0	26.6	20.1	15.7	13.2	11.2	8.75	7.07	6.14	3.86	3.23
1.80V	125	90.9	66.0	51.8	39.9	26.2	19.6	15.4	12.9	11.2	8.54	7.00	6.01	3.85	3.21
1.83V	109	83.0	60.9	48.2	38.8	25.9	19.0	14.8	12.6	10.8	8.26	6.79	5.85	3.84	3.12
1.85V	93.3	75.2	56.0	44.6	37.8	25.5	18.3	14.2	12.4	10.5	7.98	6.60	5.68	3.83	3.03

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	312	210	144	109	76.4	55.4	39.0	31.6	26.9	23.6	17.8	14.5	12.2	7.56	6.34
1.67V	279	196	134	104	76.2	53.6	38.9	31.4	26.0	23.3	17.5	14.2	12.2	7.56	6.34
1.70V	270	191	131	103	76.0	52.3	37.9	31.2	25.5	23.2	17.4	14.1	12.2	7.56	6.34
1.75V	249	180	126	100	75.7	50.5	37.4	30.7	24.9	22.8	17.1	13.9	12.2	7.56	6.33
1.80V	226	165	122	97.5	75.5	48.8	37.1	30.2	24.3	22.5	16.8	13.8	11.8	7.49	6.31
1.83V	199	152	114	91.3	75.2	47.1	36.8	29.2	23.4	21.8	16.2	13.4	11.5	7.49	6.15
1.85V	173	140	106	85.1	74.9	45.2	36.5	28.1	22.5	21.2	15.7	13.1	11.3	7.42	6.00

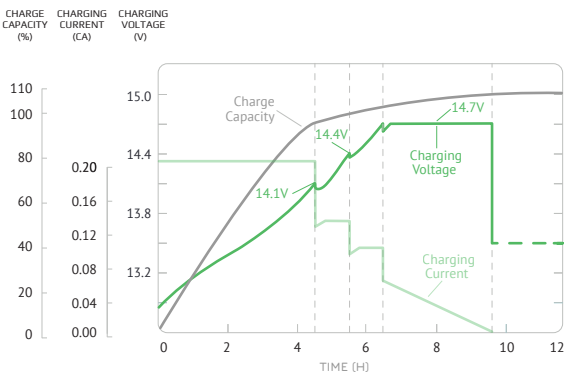
CYCLE LIFE CURVE GRAPH 25°C (77°F).



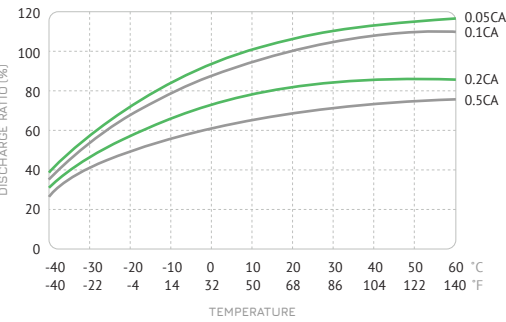
CYCLE LIFE CURVE GRAPH 40°C (104°F).



REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



TEMPERATURE & DISCHARGE CAPACITY.



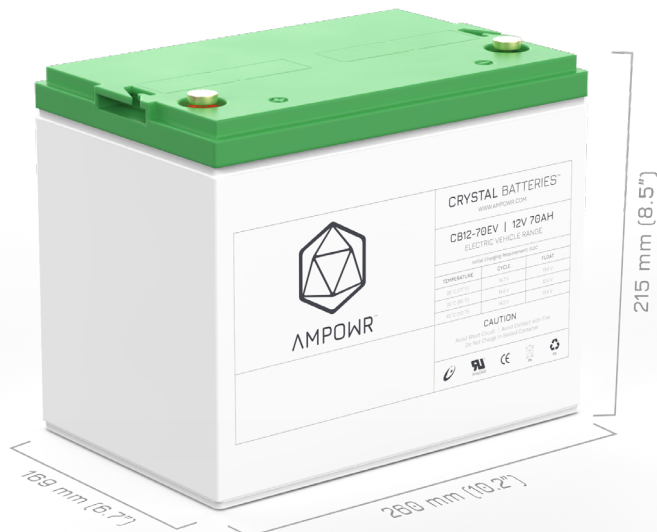
DATASHEET

CB12-70EV

CRYSTAL BATTERY™ - EV LIGHT TRACTION

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

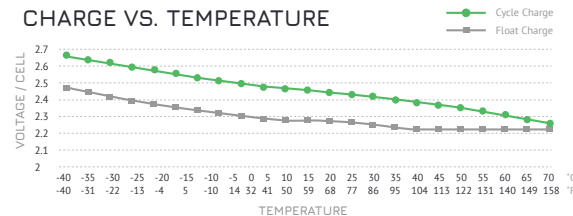
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (3 HOUR RATE)	70Ah
WEIGHT	~ 25.5 kg / 56.2 lbs
DIMENSIONS	Height: 215 mm (8.5") Length: 260 mm (10.2") Width: 169 mm (6.7")
CAPACITY 25 °C (77 °F)	10 hour rate (8A) - 80Ah 5 hour rate (15.4A) - 77Ah 2 hour rate (30A) - 60Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 8mΩ
SELF- DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	700A (5s)
TERMINAL	M6 (16)
(CHARGING) CYCLE	Initial Charging Current 14A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.7V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



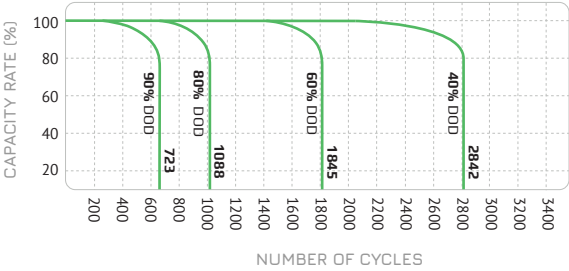
DATASHEET - CB12-70EV

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

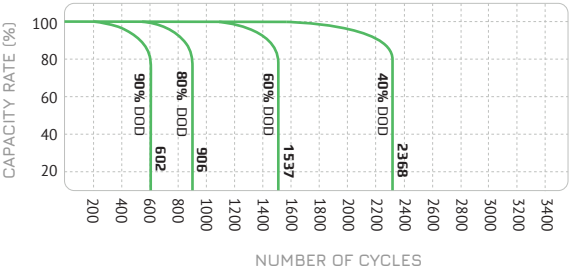
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	216	137	90.8	68.4	47.2	31.6	24.0	19.1	16.0	14.6	11.0	8.40	7.40	4.60	3.70
1.67V	186	125	84.2	64.8	46.6	31.2	23.4	18.7	15.6	14.0	10.6	8.24	7.26	4.52	3.70
1.70V	177	121	81.6	64.0	46.2	30.8	23.3	18.3	15.4	13.4	10.3	8.16	7.20	4.48	3.69
1.75V	161	113	78.4	61.5	45.8	30.4	23.0	18.0	15.2	12.9	10.0	8.08	7.13	4.40	3.68
1.80V	142	103	75.4	59.2	45.6	30.0	22.4	17.6	14.8	12.8	9.80	8.00	7.00	4.32	3.67
1.83V	124	94.9	69.6	55.0	44.4	29.6	21.8	16.9	14.5	12.4	9.44	7.76	6.68	4.28	3.56
1.85V	106	86.0	64.0	50.9	43.2	29.2	21.0	16.3	14.2	12.0	9.12	7.54	6.48	4.24	3.46

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	356	240	164	125	87.3	63.3	44.5	35.8	30.5	26.8	20.2	16.5	13.8	8.59	7.21
1.67V	318	223	153	119	87.1	61.3	44.5	35.7	29.9	26.5	19.8	16.1	13.8	8.59	7.21
1.70V	308	218	149	118	86.8	59.7	43.3	35.4	29.5	26.3	19.8	15.9	13.8	8.59	7.20
1.75V	284	205	144	114	86.5	57.7	42.7	34.9	29.2	25.9	19.4	15.8	13.8	8.59	7.19
1.80V	258	188	139	111	86.2	55.8	42.3	34.3	28.8	25.5	19.1	15.6	13.4	8.51	7.17
1.83V	227	174	130	104	85.9	53.8	42.0	33.1	28.6	24.8	18.4	15.2	13.1	8.51	6.99
1.85V	197	160	121	97.2	85.6	51.7	41.7	31.9	28.2	24.1	17.8	14.8	12.8	8.43	6.82

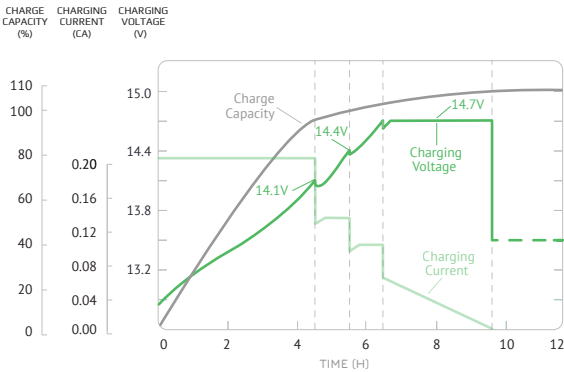
CYCLE LIFE CURVE GRAPH 25°C (77°F).



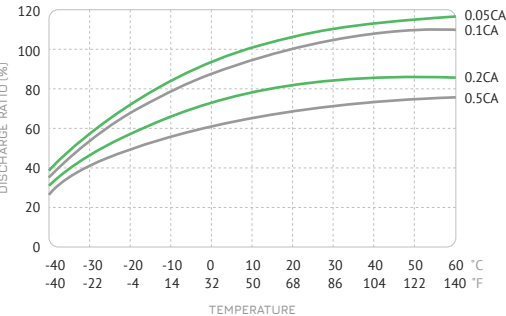
CYCLE LIFE CURVE GRAPH 40°C (104°F).



REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



TEMPERATURE & DISCHARGE CAPACITY.



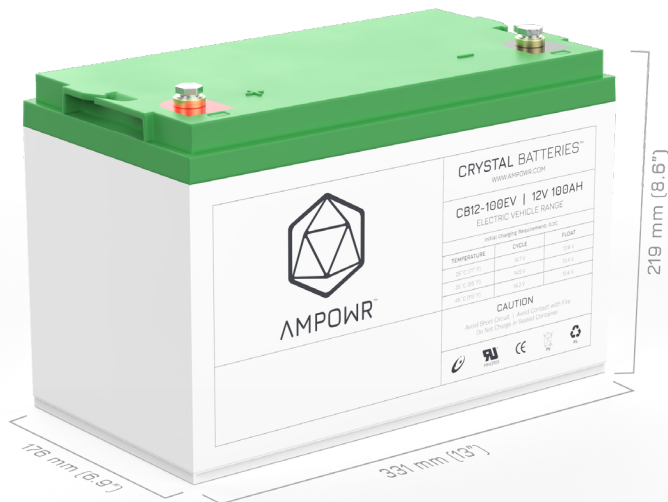
DATASHEET

CB12-100EV

CRYSTAL BATTERY™ - EV LIGHT TRACTION

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The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystalizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

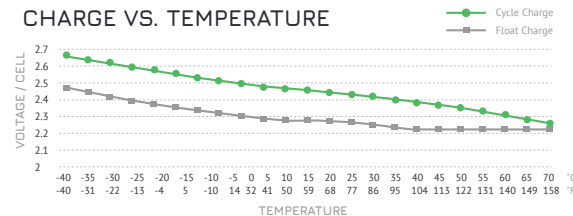
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (3 HOUR RATE)	100Ah
WEIGHT	~ 34 kg / 75 lbs
DIMENSIONS	Height: 219 mm (8.6") Length: 331 mm (13") Width: 176 mm (6.9")
CAPACITY 25 °C (77 °F)	10 hour rate (11.5A) - 115Ah 5 hour rate (22A) - 110Ah 2 hour rate (44A) - 88Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 6.5mΩ
SELF- DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1000A (5s)
TERMINAL	M8 (19)
(CHARGING) CYCLE	Initial Charging Current 20A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.7V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



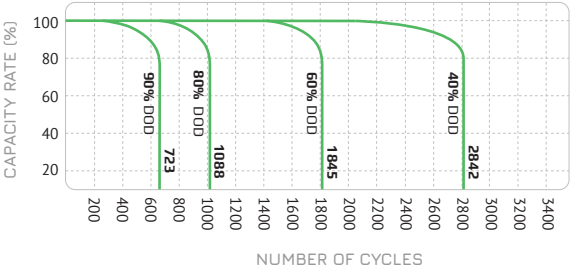
DATASHEET - CB12-100EV

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

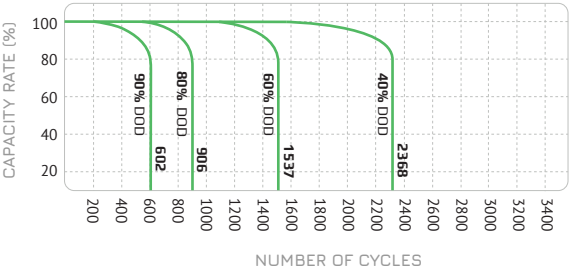
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	310	198	130	98.3	67.8	45.4	34.5	27.5	23.0	21.0	15.8	12.0	10.6	6.61	5.33
1.67V	267	179	121	93.1	67.0	44.8	33.7	26.9	22.5	20.1	15.2	11.8	10.4	6.50	5.33
1.70V	255	174	117	92.0	66.4	44.2	33.3	26.3	22.2	19.3	14.8	11.7	10.3	6.44	5.31
1.75V	232	163	112	88.4	65.9	43.7	32.9	25.8	21.8	18.5	14.3	11.6	10.2	6.33	5.30
1.80V	205	149	108	85.2	65.5	43.1	32.2	25.4	21.3	18.5	14.0	11.5	10.0	6.21	5.28
1.83V	179	136	100	79.2	63.8	42.5	31.4	24.3	20.9	17.8	13.5	11.1	9.60	6.15	5.13
1.85V	153	123	92.0	73.2	62.1	41.9	30.2	23.4	20.4	17.2	13.1	10.8	9.33	6.10	4.98

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	512	345	236	180	125	91.1	64.1	51.6	43.9	38.6	29.2	23.8	19.9	12.4	10.4
1.67V	458	321	221	172	125	88.2	64.0	51.4	43.0	38.1	28.6	23.2	19.9	12.4	10.4
1.70V	443	313	215	170	124	85.9	62.4	51.0	42.4	37.9	28.5	23.0	19.9	12.4	10.4
1.75V	409	294	208	165	124	83.1	61.5	50.2	42.1	37.3	27.9	22.8	19.9	12.4	10.3
1.80V	370	271	200	160	124	80.3	60.9	49.3	41.5	36.7	27.5	22.5	19.3	12.2	10.3
1.83V	327	251	187	149	123	77.3	60.5	47.7	41.2	35.7	26.5	22.0	18.9	12.2	10.1
1.85V	284	231	174	139	123	74.4	60.0	46.0	40.6	34.7	25.6	21.4	18.4	12.1	9.81

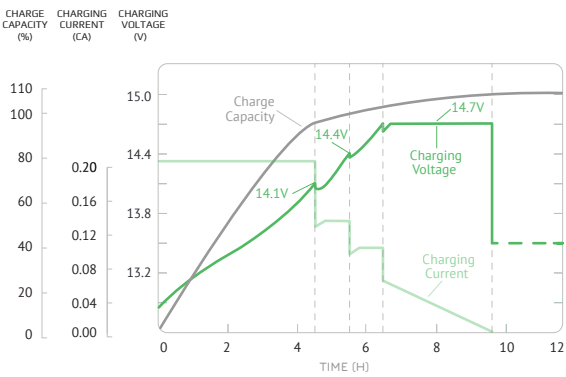
CYCLE LIFE CURVE GRAPH 25°C (77°F).



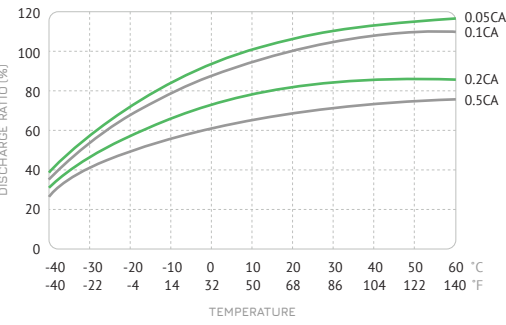
CYCLE LIFE CURVE GRAPH 40°C (104°F).



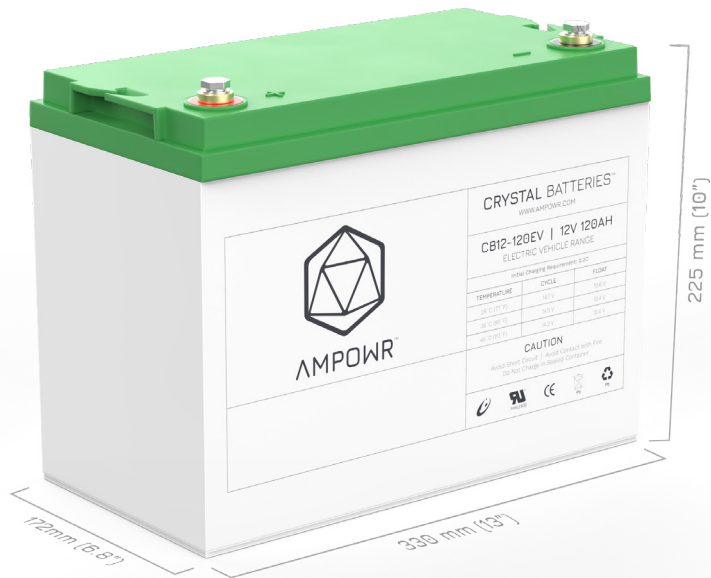
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

CB12-120EV

CRYSTAL BATTERY™ - EV LIGHT TRACTION

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

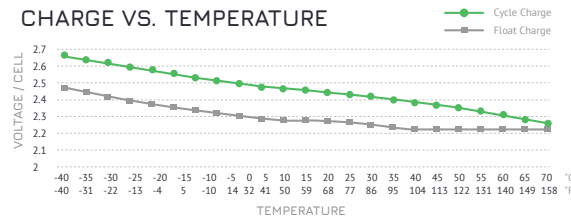
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (3 HOUR RATE)	120Ah
WEIGHT	~ 40 kg / 88.2 lbs
DIMENSIONS	Height: 225 mm (10") Length: 330 mm (13") Width: 172 mm (6.8")
CAPACITY 25 °C (77 °F)	10 hour rate (14A) - 140Ah 5 hour rate (26.6A) - 133Ah 2 hour rate (53A) - 106Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 6mΩ
SELF- DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1200A (5s)
TERMINAL	M6 (16)
(CHARGING) CYCLE	Initial Charging Current 24A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.7V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



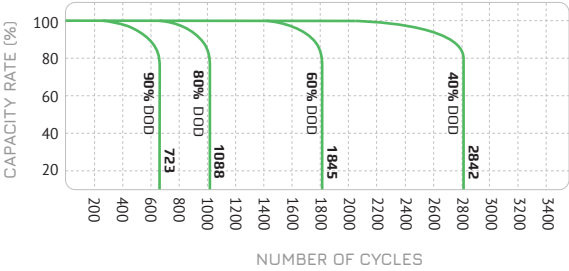
DATASHEET - CB12-120EV

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

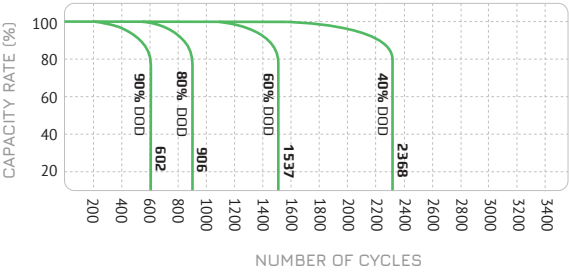
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	378.3	241.3	159.0	119.7	82.6	55.3	42.0	33.5	28.0	25.6	19.2	14.7	12.9	8.05	6.48
1.67V	325.6	218.8	147.4	113.4	81.6	54.6	41.0	32.7	27.4	24.5	18.5	14.4	12.7	7.91	6.48
1.70V	311.0	212.1	142.8	112.0	80.9	53.9	40.6	32.1	27.0	23.5	18.0	14.2	12.6	7.84	6.46
1.75V	282.7	198.5	137.2	107.6	80.2	53.2	40.1	31.5	26.6	22.6	17.5	14.1	12.4	7.70	6.45
1.80V	250.0	181.8	132.0	103.7	79.8	52.5	39.2	30.9	26.0	22.5	17.1	14.0	12.2	7.56	6.42
1.83V	218.2	166.1	121.9	96.4	77.7	51.8	38.2	29.6	25.4	21.7	16.5	13.5	11.6	7.49	6.24
1.85V	186.6	150.5	112.0	89.1	75.6	51.1	36.8	28.5	24.9	21.0	15.9	13.2	11.3	7.42	6.06

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	624.1	420.2	287.6	219.2	152.8	110.8	78.0	62.8	53.4	46.9	35.5	28.9	24.2	15.0	12.6
1.67V	557.5	391.8	269.2	209.7	152.5	107.4	77.9	62.5	52.3	46.3	34.8	28.2	24.2	15.0	12.6
1.70V	539.5	381.6	261.8	207.5	152.0	104.6	75.9	62.1	51.6	46.1	34.7	27.9	24.2	15.0	12.6
1.75V	498.1	358.8	253.2	201.1	151.4	101.1	74.8	61.1	51.2	45.4	33.9	27.7	24.2	15.0	12.5
1.80V	451.5	330.6	244.5	194.7	150.9	97.7	74.1	60.0	50.5	44.7	33.4	27.4	23.5	14.9	12.5
1.83V	398.7	306.1	228.4	182.4	150.3	94.1	73.6	58.0	50.1	43.4	32.3	26.7	22.9	14.9	12.2
1.85V	345.9	281.6	212.2	170.2	149.9	90.5	73.0	55.9	49.4	42.2	31.2	26.0	22.4	14.7	11.9

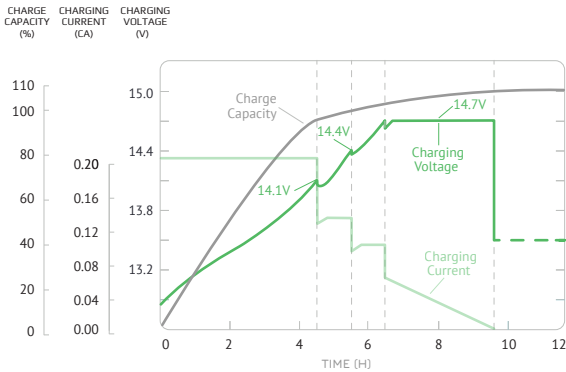
CYCLE LIFE CURVE GRAPH 25°C (77°F).



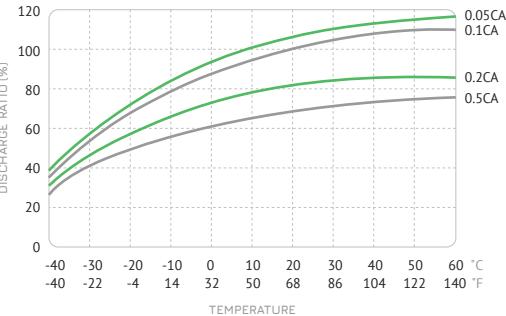
CYCLE LIFE CURVE GRAPH 40°C (104°F).



REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-150EV

CRYSTAL BATTERY™ - EV LIGHT TRACTION

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

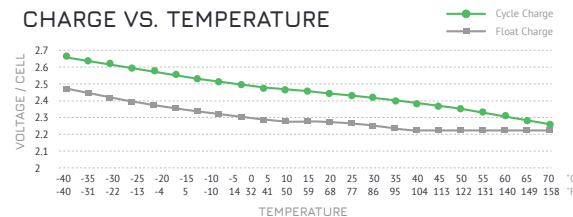
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (3 HOUR RATE)	150Ah
WEIGHT	~ 49 kg / 108 lbs
DIMENSIONS	Height: 241 mm (9.5") Length: 486 mm (19.1") Width: 170 mm (6.7")
CAPACITY 25 °C (77 °F)	10 hour rate (17A) - 170Ah 5 hour rate (31A) - 155Ah 2 hour rate (65A) - 130Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 6mΩ
SELF- DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1500A (5s)
TERMINAL	M8 (20)
(CHARGING) CYCLE	Initial Charging Current 30A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.7V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



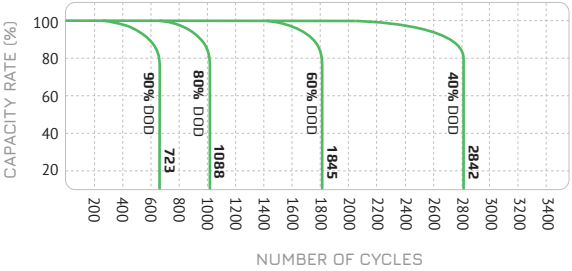
DATASHEET - CB12-150EV

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

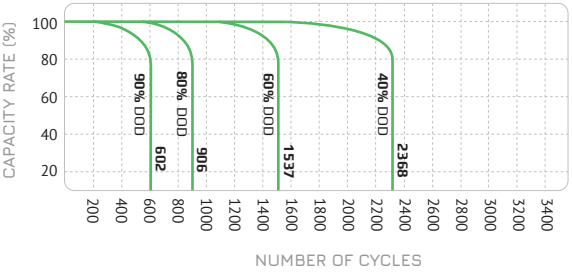
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	459	293	193	145	100	67.2	51.0	40.7	33.3	31.2	23.3	17.8	15.7	9.78	7.88
1.67V	395	265	179	137	99.1	66.3	49.9	39.8	32.8	29.8	22.5	17.5	15.4	9.61	7.88
1.70V	377	257	173	136	98.3	65.5	49.3	39.0	32.0	28.6	21.8	17.3	15.3	9.52	7.85
1.75V	343	241	166	130	97.4	64.6	48.7	38.3	31.3	27.5	21.2	17.1	15.1	9.35	7.84
1.80V	303	220	160	126	96.9	63.8	47.6	37.6	30.6	27.4	20.8	17.0	14.8	9.18	7.80
1.83V	265	201	148	117	94.4	62.9	46.5	36.0	30.2	26.4	20.0	16.4	14.2	9.10	7.58
1.85V	226	182	136	108	91.8	62.1	44.8	34.7	29.4	25.5	19.3	16.0	13.7	9.01	7.36

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	757	510.3	349	266	185	134	94.8	76.3	64.9	57.0	43.1	35.1	29.4	18.2	15.3
1.67V	677	475	326	254	185	130	94.6	75.9	63.6	56.3	42.2	34.3	29.4	18.2	15.3
1.70V	655	463	318	252	184	127	92.2	75.4	62.7	56.0	42.1	34.0	29.4	18.2	15.3
1.75V	604	435	307	244	183	122	90.9	74.3	62.2	55.1	41.2	33.65	29.4	18.2	15.2
1.80V	548	401	297	236	183	118	90.1	72.9	61.4	54.3	40.5	33.3	28.5	18.1	15.2
1.83V	484	371	277	221	182	114	89.4	70.5	60.8	52.8	39.2	32.4	27.9	18.1	14.8
1.85V	420	342	257	206	182	109	88.6	68.0	60.1	51.2	37.8	31.6	27.2	17.9	14.5

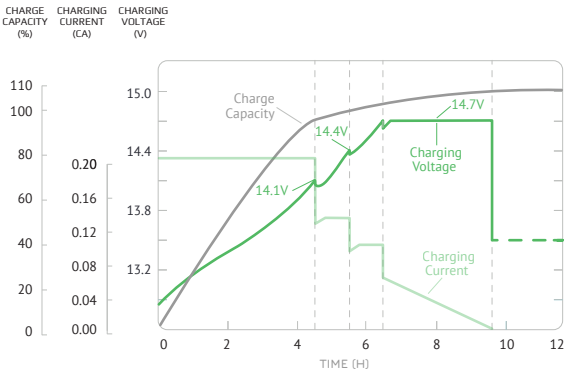
CYCLE LIFE CURVE GRAPH 25°C (77°F).



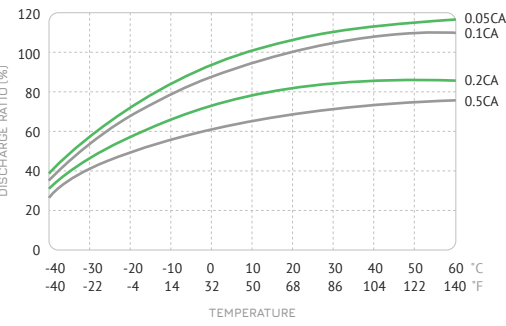
CYCLE LIFE CURVE GRAPH 40°C (104°F).



REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-26GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

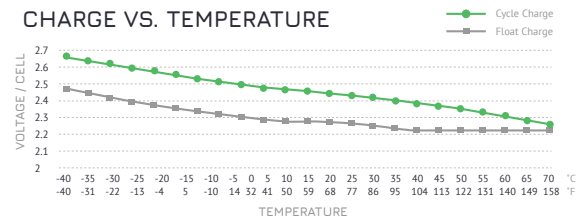
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	26Ah
WEIGHT	~ 7.8 kg / 17.2 lbs
DIMENSIONS	Height: 125 mm (4.9") Length: 175 mm (6.9") Width: 166 mm (6.5")
CAPACITY 25 °C (77 °F)	120 hour rate (250mA) - 30Ah 20 hour rate (1.45A) - 29Ah 10 hour rate (2.6A) - 26Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 8.5mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	260 A (5s)
TERMINAL	M5 (10)
(CHARGING) CYCLE	Initial Charging Current 7.8A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40 °C (40 °F) to +65 °C (149 °F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25 °C (50% DoD).

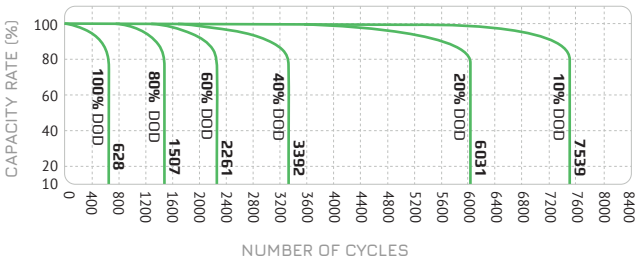
DATASHEET - CB12-26GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

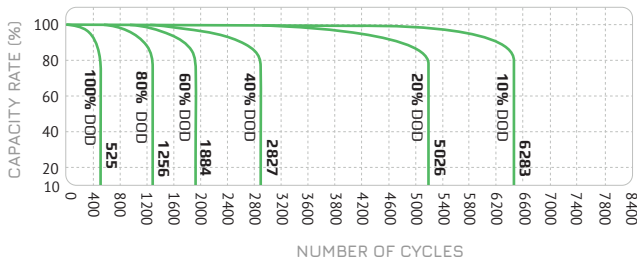
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	95.41	50.49	30.51	22.24	17.91	10.26	7.45	5.85	4.99	4.24	3.23	2.69	2.26	1.47	1.20
1.67V	88.67	48.84	30.06	22.09	17.88	10.22	7.32	5.82	4.91	4.21	3.23	2.66	2.25	1.47	1.20
1.70V	87.77	48.09	29.75	21.79	17.73	10.13	7.27	5.79	4.84	4.16	3.22	2.66	2.25	1.46	1.19
1.75V	80.40	46.58	29.46	21.64	17.43	9.93	7.24	5.71	4.79	4.13	3.20	2.63	2.24	1.45	1.19
1.80V	72.13	43.58	28.25	21.04	16.98	9.78	7.21	5.70	4.73	4.09	3.19	2.60	2.22	1.41	1.19
1.83V	68.95	39.98	27.80	20.29	16.23	9.69	6.93	5.46	4.63	3.94	3.12	2.49	2.13	1.39	1.17
1.85V	64.62	38.77	26.00	19.54	15.78	9.30	6.75	5.38	4.51	3.81	3.08	2.46	2.10	1.38	1.16

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	159.43	88.66	57.10	41.62	33.48	19.38	14.17	11.23	9.48	8.14	6.28	5.20	4.37	2.92	2.39
1.67V	151.77	87.31	54.79	41.32	33.51	19.38	13.99	11.21	9.48	8.13	6.28	5.18	4.37	2.92	2.39
1.70V	150.87	86.70	54.77	41.32	33.21	19.23	13.96	11.17	9.33	8.07	6.24	5.14	4.33	2.90	2.39
1.75V	140.50	85.65	54.83	41.32	33.06	19.08	13.93	11.15	9.30	8.01	6.21	5.10	4.33	2.90	2.37
1.80V	128.93	81.29	53.65	40.57	32.91	19.08	13.91	11.12	9.24	8.01	6.19	5.08	4.33	2.83	2.37
1.83V	124.42	74.68	53.20	39.37	31.56	18.93	13.52	10.74	9.14	7.75	6.19	4.93	4.25	2.80	2.36
1.85V	115.25	73.03	49.44	37.87	30.65	18.48	13.15	10.61	8.88	7.60	5.95	4.88	4.18	2.76	2.34

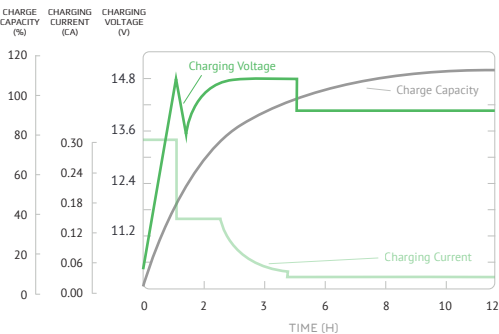
CYCLE LIFE CURVE GRAPH 25°C (77°F).



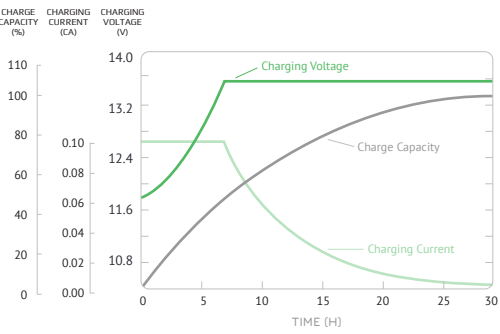
CYCLE LIFE CURVE GRAPH 40°C (104°F).



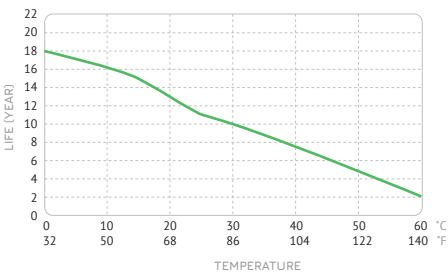
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



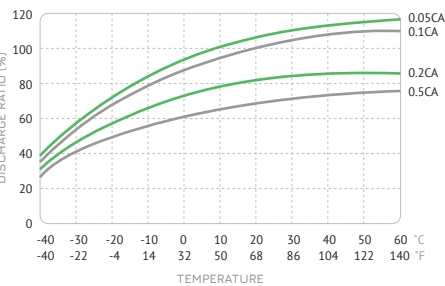
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-24GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

TECHNICAL SPECIFICATIONS

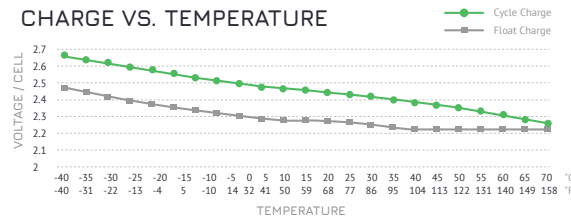
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	24Ah
WEIGHT	~ 7.8 kg / 17.2 lbs
DIMENSIONS	Height: 125 mm (4.9") Length: 175 mm (6.9") Width: 166 mm (6.5")
CAPACITY 25 °C (77 °F)	120 hour rate (240mA) - 28,8Ah 20 hour rate (1.35A) - 27Ah 10 hour rate (2.4A) - 24Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 8.5mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	240 A (5s)
TERMINAL	M5 (10)
(CHARGING) CYCLE	Initial Charging Current 7.2A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



DATASHEET - CB12-24GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

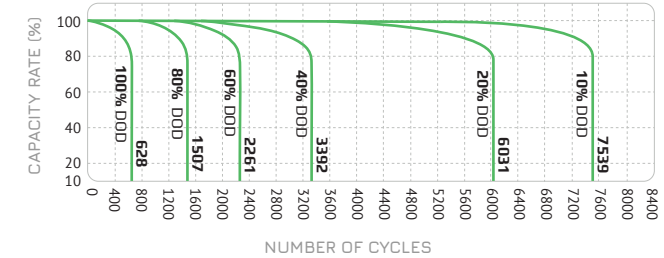
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	88.07	46.61	28.16	20.53	16.54	9.47	6.88	5.40	4.60	3.91	2.98	2.48	2.08	1.36	1.11
1.67V	81.85	45.08	27.74	20.39	16.51	9.43	6.76	5.37	4.54	3.88	2.98	2.46	2.08	1.35	1.10
1.70V	81.01	44.39	27.47	20.12	16.37	9.35	6.71	5.34	4.47	3.84	2.97	2.46	2.07	1.35	1.10
1.75V	74.22	43.00	27.19	19.98	16.09	9.17	6.69	5.27	4.43	3.82	2.95	2.43	2.06	1.34	1.10
1.80V	66.59	40.22	26.08	19.42	15.68	9.03	6.66	5.26	4.37	3.77	2.94	2.40	2.05	1.30	1.10
1.83V	63.65	36.90	25.67	18.73	14.98	8.95	6.40	5.04	4.27	3.63	2.88	2.30	1.97	1.28	1.08
1.85V	59.64	35.79	24.00	18.04	14.57	8.59	6.23	4.97	4.16	3.51	2.84	2.28	1.94	1.27	1.08

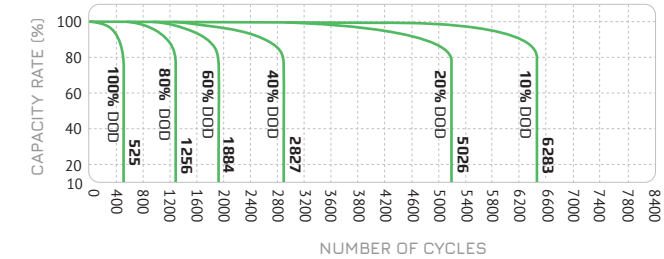
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	147.17	81.84	52.71	38.42	30.91	17.89	13.08	10.36	8.75	7.52	5.80	4.80	4.04	2.69	2.21
1.67V	140.10	80.59	50.58	38.15	30.93	17.89	12.91	10.35	8.75	7.50	5.80	4.79	4.04	2.69	2.21
1.70V	139.26	80.03	50.55	38.15	30.65	17.75	12.89	10.31	8.61	7.45	5.76	4.74	3.99	2.68	2.21
1.75V	129.69	79.06	50.61	38.14	30.52	17.62	12.86	10.29	8.59	7.39	5.73	4.71	3.99	2.68	2.19
1.80V	119.01	75.04	49.52	37.45	30.38	17.62	12.84	10.26	8.53	7.39	5.71	4.69	3.99	2.61	2.19
1.83V	114.85	68.94	49.10	36.34	29.13	17.48	12.48	9.92	8.43	7.16	5.71	4.55	3.93	2.58	2.18
1.85V	106.39	67.41	45.64	34.96	28.30	17.06	12.14	9.79	8.20	7.02	5.49	4.51	3.86	2.55	2.16

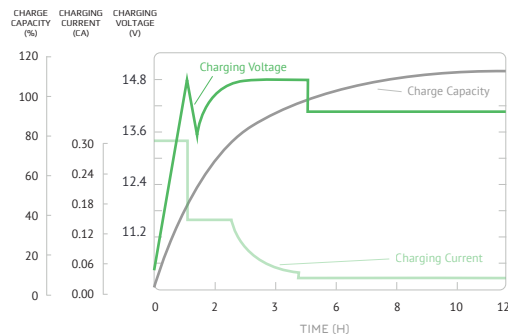
CYCLE LIFE CURVE GRAPH 25°C (77°F).



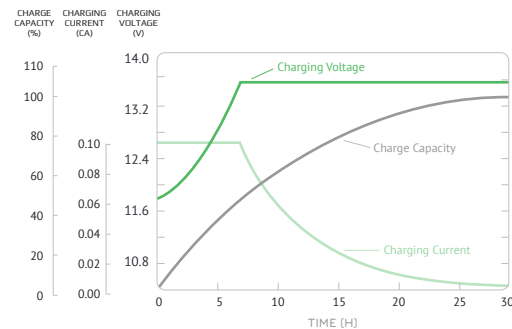
CYCLE LIFE CURVE GRAPH 40°C (104°F).



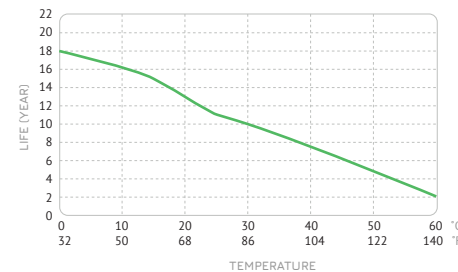
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



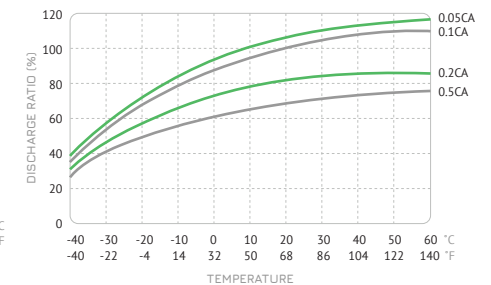
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET



CRYSTAL TECHNOLOGY

Our unique electrolyte crystalizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

CB12-22GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

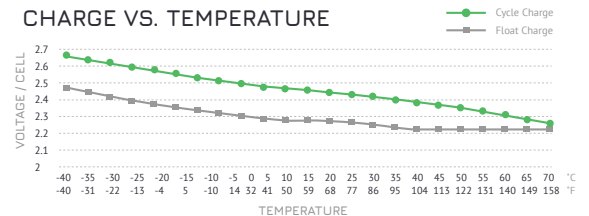
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	22Ah
WEIGHT	~ 6.9 kg / 15.2 lbs
DIMENSIONS	Height: 170 mm (6.7") Length: 181 mm (7.1") Width: 76 mm (3")
CAPACITY 25 °C (77 °F)	120 hour rate (220mA)- 26.4Ah 20 hour rate (1.2A) - 24Ah 10 hour rate (2.2A) - 22Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 10mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	220 A (5s)
TERMINAL	M5 (10)
(CHARGING) CYCLE	Initial Charging Current 6.6A 14.7V / 25°C (77°F)
(CHARGING) FLOAT	13.6V / 25°C (77°F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



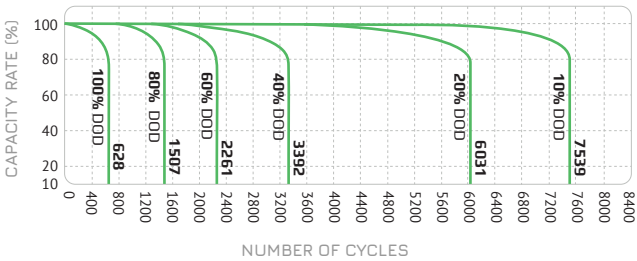
DATASHEET - CB12-22GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																	
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23

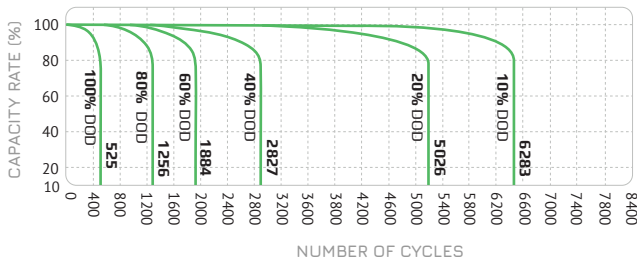
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	80.73	42.72	25.81	18.82	15.16	8.68	6.31	4.95	4.22	3.59	2.73	2.28	1.91	1.24	1.02
1.67V	75.03	41.32	25.43	18.69	15.13	8.65	6.19	4.92	4.16	3.56	2.73	2.25	1.91	1.24	1.01
1.70V	74.26	40.69	25.18	18.44	15.01	8.57	6.15	4.90	4.09	3.52	2.72	2.25	1.90	1.24	1.01
1.75V	68.03	39.42	24.93	18.31	14.75	8.41	6.13	4.83	4.06	3.50	2.71	2.23	1.89	1.23	1.01
1.80V	61.04	36.87	23.91	17.80	14.37	8.28	6.10	4.82	4.01	3.46	2.70	2.20	1.88	1.19	1.01
1.83V	58.34	33.83	23.53	17.17	13.73	8.20	5.86	4.62	3.92	3.33	2.64	2.11	1.81	1.18	0.99
1.85V	54.67	32.81	22.00	16.53	13.35	7.87	5.71	4.55	3.82	3.22	2.61	2.09	1.78	1.16	0.99

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	134.90	75.02	48.32	35.22	28.33	16.40	11.99	9.50	8.02	6.89	5.31	4.40	3.70	2.47	2.02
1.67V	128.42	73.87	46.36	34.97	28.35	16.40	11.84	9.49	8.02	6.88	5.31	4.39	3.70	2.47	2.02
1.70V	127.66	73.37	46.34	34.97	28.10	16.28	11.81	9.45	7.90	6.83	5.28	4.35	3.66	2.45	2.02
1.75V	118.88	72.47	46.39	34.97	27.97	16.15	11.79	9.43	7.87	6.78	5.25	4.32	3.66	2.45	2.01
1.80V	109.10	68.79	45.39	34.33	27.85	16.15	11.77	9.41	7.82	6.78	5.24	4.30	3.66	2.39	2.01
1.83V	105.28	63.19	45.01	33.31	26.70	16.02	11.44	9.09	7.73	6.56	5.24	4.17	3.60	2.37	2.00
1.85V	97.52	61.79	41.83	32.04	25.94	15.64	11.13	8.98	7.51	6.43	5.04	4.13	3.53	2.34	1.98

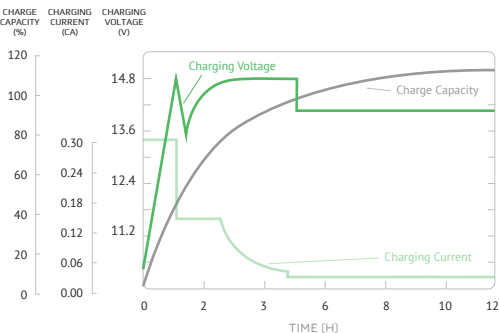
CYCLE LIFE CURVE GRAPH 25°C (77°F).



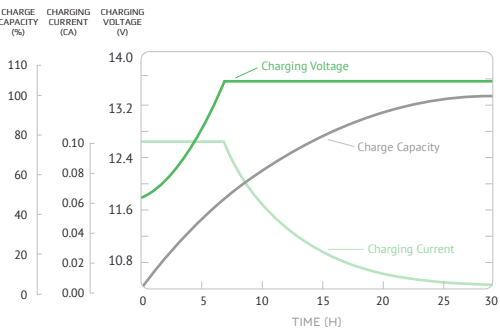
CYCLE LIFE CURVE GRAPH 40°C (104°F).



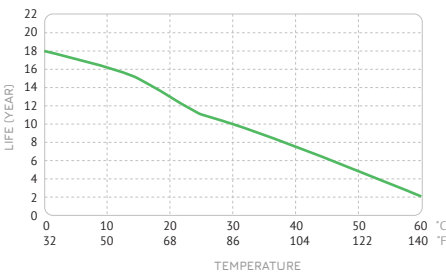
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



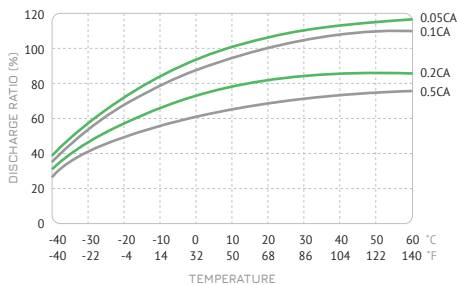
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



CB12-18GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

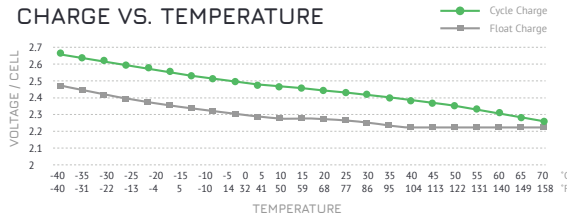
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	18Ah
WEIGHT	~ 5.9 kg / 13 lbs
DIMENSIONS	Height: 170 mm (6.7") Length: 181 mm (7.1") Width: 76 mm (3")
CAPACITY 25 °C (77 °F)	120 hour rate (120mA) - 14.4Ah 20 hour rate (1A) - 20Ah 10 hour rate (1.8A) - 18Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 12mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	180 A (5s)
TERMINAL	M5 (10)
(CHARGING) CYCLE	Initial Charging Current 5.4A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



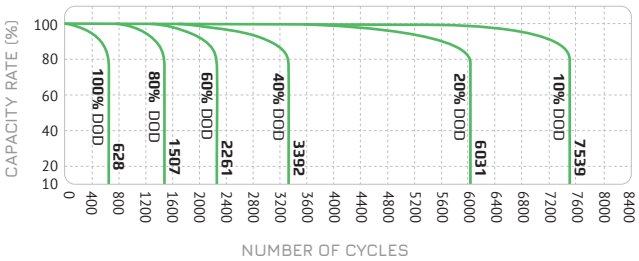
DATASHEET - CB12-18GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																	
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23

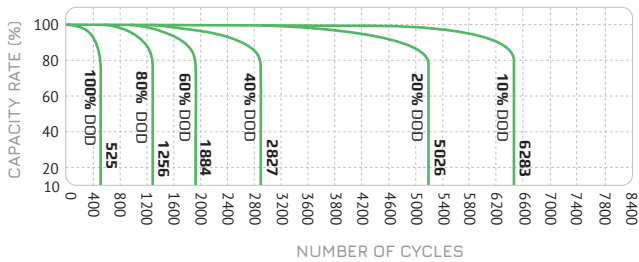
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	66.05	34.96	21.12	15.40	12.40	7.11	5.16	4.05	3.45	2.93	2.24	1.86	1.56	1.02	0.83
1.67V	61.39	33.81	20.81	15.29	12.38	7.08	5.07	4.03	3.40	2.91	2.23	1.84	1.56	1.01	0.83
1.70V	60.76	33.29	20.60	15.09	12.28	7.01	5.04	4.01	3.35	2.88	2.23	1.84	1.56	1.01	0.83
1.75V	55.66	32.25	20.39	14.98	12.07	6.88	5.01	3.96	3.32	2.86	2.22	1.82	1.55	1.01	0.83
1.80V	49.94	30.17	19.56	14.57	11.76	6.77	4.99	3.94	3.28	2.83	2.21	1.80	1.54	0.97	0.82
1.83V	47.74	27.68	19.25	14.05	11.24	6.71	4.80	3.78	3.20	2.73	2.16	1.73	1.48	0.96	0.81
1.85V	44.73	26.84	18.00	13.53	10.92	6.44	4.67	3.72	3.12	2.64	2.13	1.71	1.46	0.95	0.81

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	110.38	61.38	39.53	28.82	23.18	13.42	9.81	7.77	6.56	5.64	4.35	3.60	3.03	2.02	1.65
1.67V	105.07	60.44	37.93	28.61	23.20	13.42	9.69	7.76	6.56	5.63	4.35	3.59	3.03	2.02	1.65
1.70V	104.45	60.03	37.92	28.61	22.99	13.32	9.66	7.73	6.46	5.59	4.32	3.56	3.00	2.01	1.65
1.75V	97.27	59.30	37.96	28.61	22.89	13.21	9.64	7.72	6.44	5.54	4.30	3.53	3.00	2.01	1.64
1.80V	89.26	56.28	37.14	28.09	22.78	13.21	9.63	7.70	6.40	5.54	4.29	3.52	3.00	1.96	1.64
1.83V	86.14	51.70	36.83	27.26	21.85	13.11	9.36	7.44	6.33	5.37	4.29	3.41	2.94	1.94	1.63
1.85V	79.79	50.56	34.23	26.22	21.22	12.80	9.10	7.34	6.15	5.26	4.12	3.38	2.89	1.91	1.62

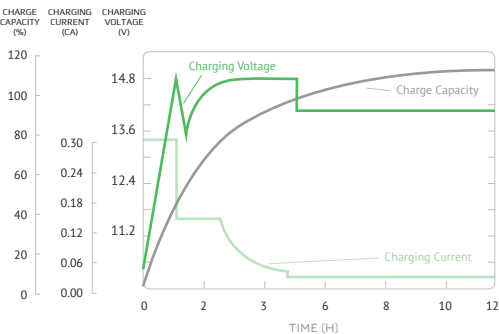
CYCLE LIFE CURVE GRAPH 25°C (77°F).



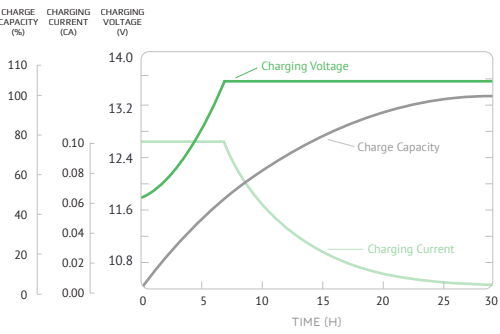
CYCLE LIFE CURVE GRAPH 40°C (104°F).



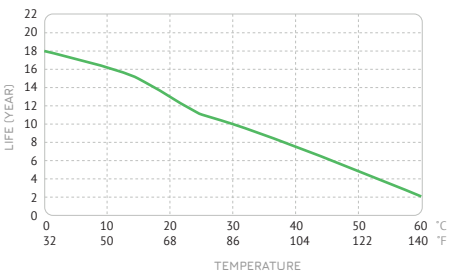
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



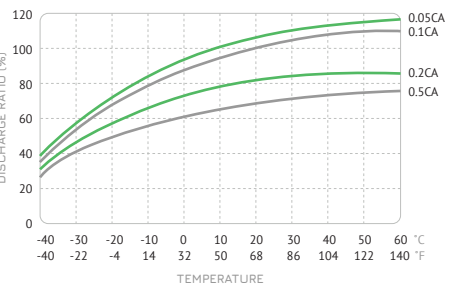
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-200GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

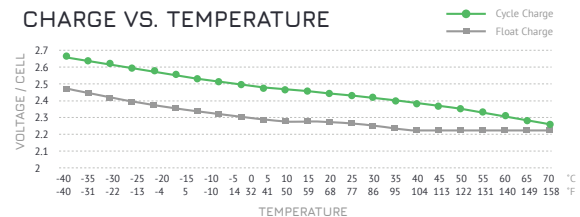
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	200Ah
WEIGHT	~ 62 kg / 136.7 lbs
DIMENSIONS	Height: 224 mm (8.8") Length: 522 mm (20.6") Width: 240 mm (9.5")
CAPACITY 25 °C (77 °F)	120 hour rate (2.0A) - 240Ah 20 hour rate (11A) - 220Ah 10 hour rate (20A) - 200Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 3.5mΩ
SELF DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	2000 A (5s)
TERMINAL	M8 (20)
(CHARGING) CYCLE	Initial Charging Current 60A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40 °C (40 °F) to +65 °C (149 °F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25 °C (50% DoD).

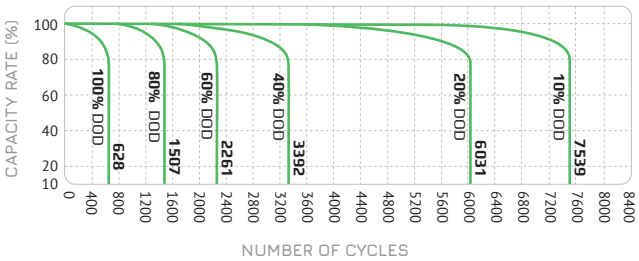
DATASHEET - CB12-200GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

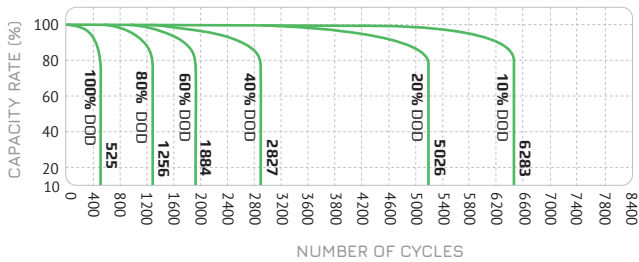
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	733.92	388.40	234.68	171.09	137.80	78.95	57.34	44.97	38.36	32.60	24.86	20.69	17.37	11.31	9.24
1.67V	682.08	375.68	231.20	169.92	137.56	78.61	56.30	44.74	37.80	32.37	24.82	20.46	17.34	11.27	9.20
1.70V	675.12	369.92	228.88	167.63	136.42	77.92	55.95	44.51	37.22	32.02	24.74	20.46	17.28	11.24	9.19
1.75V	618.48	358.32	226.60	166.48	134.10	76.42	55.72	43.95	36.88	31.79	24.62	20.23	17.20	11.19	9.18
1.80V	554.88	335.20	217.32	161.84	130.64	75.26	55.49	43.82	36.42	31.45	24.51	20.00	17.11	10.81	9.16
1.83V	530.40	307.52	213.88	156.08	124.86	74.57	53.29	41.97	35.61	30.29	23.99	19.19	16.42	10.69	9.04
1.85V	497.04	298.24	200.00	150.29	121.38	71.56	51.91	41.39	34.68	29.29	23.70	18.96	16.18	10.58	8.96

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	1226.39	681.99	439.25	320.19	257.57	149.11	109.00	86.35	72.94	62.65	48.32	40.00	33.64	22.43	18.38
1.67V	1167.46	671.58	421.49	317.88	257.77	149.11	107.62	86.23	72.94	62.54	48.32	39.88	33.64	22.42	18.38
1.70V	1160.52	666.96	421.28	317.88	255.44	147.96	107.38	85.91	71.78	62.07	47.97	39.53	33.29	22.31	18.38
1.75V	1080.77	658.86	421.75	317.87	254.30	146.80	107.16	85.77	71.55	61.61	47.74	39.27	33.29	22.31	18.26
1.80V	991.78	625.34	412.66	312.09	253.15	146.80	107.04	85.54	71.09	61.61	47.62	39.07	33.29	21.73	18.26
1.83V	957.09	574.49	409.20	302.85	242.74	145.65	104.03	82.65	70.28	59.65	47.62	37.91	32.71	21.50	18.15
1.85V	886.58	561.76	380.29	291.31	235.81	142.18	101.14	81.61	68.31	58.49	45.78	37.57	32.13	21.27	18.03

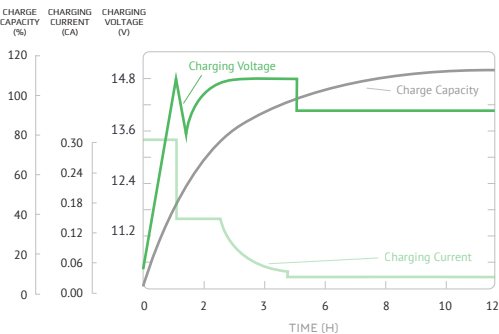
CYCLE LIFE CURVE GRAPH 25°C (77°F).



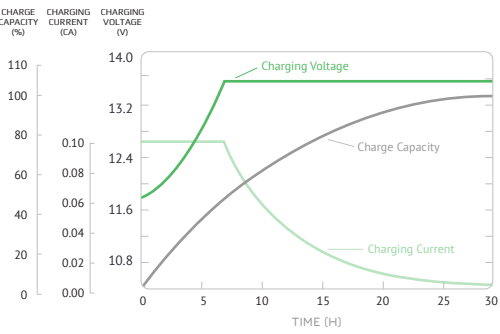
CYCLE LIFE CURVE GRAPH 40°C (104°F).



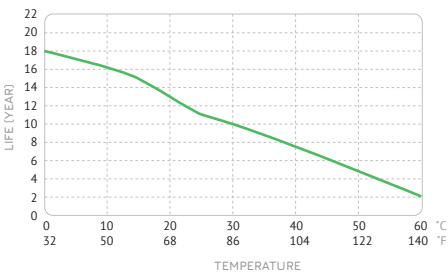
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



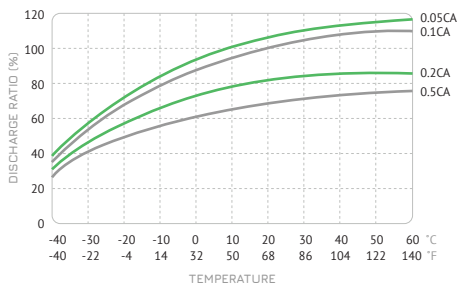
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



CB12-180GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

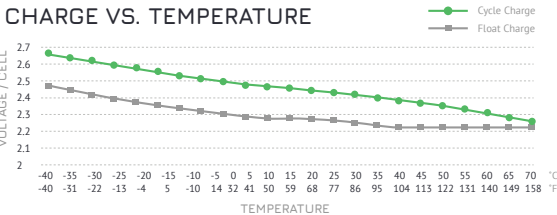
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	180Ah
WEIGHT	~ 59 kg / 130.1 lbs
DIMENSIONS	Height: 224 mm (8.8") Length: 522 mm (20.6") Width: 240 mm (9.5")
CAPACITY 25 °C (77 °F)	120 hour rate (1.8A) - 216Ah 20 hour rate (9.5A) - 190Ah 10 hour rate (18A) - 180Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 3mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1800 A (5s)
TERMINAL	M8 (20)
(CHARGING) CYCLE	Initial Charging Current 54A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



DATASHEET - CB12-180GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

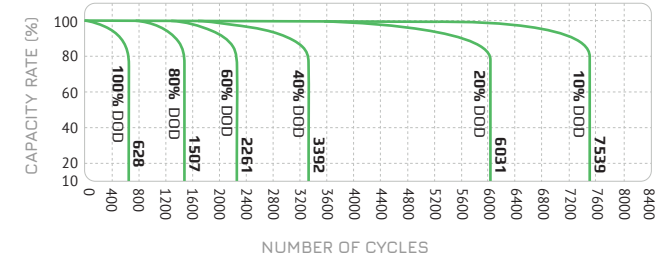
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	660.53	349.56	211.21	153.98	124.02	71.06	51.61	40.47	34.52	29.34	22.37	18.62	15.63	10.18	8.31
1.67V	613.87	338.11	208.08	152.93	123.80	70.75	50.67	40.27	34.02	29.13	22.34	18.42	15.61	10.14	8.28
1.70V	607.61	332.93	205.99	150.86	122.78	70.13	50.36	40.05	33.50	28.82	22.27	18.42	15.56	10.11	8.27
1.75V	556.63	322.49	203.94	149.83	120.69	68.77	50.15	39.55	33.19	28.61	22.16	18.21	15.48	10.07	8.26
1.80V	499.39	301.68	195.59	145.66	117.57	67.73	49.94	39.43	32.77	28.30	22.06	18.00	15.40	9.73	8.24
1.83V	477.36	276.77	192.49	140.47	112.37	67.11	47.96	37.77	32.05	27.26	21.59	17.27	14.77	9.62	8.13
1.85V	447.34	268.42	180.00	135.26	109.24	64.40	46.72	37.25	31.22	26.36	21.33	17.06	14.57	9.52	8.06

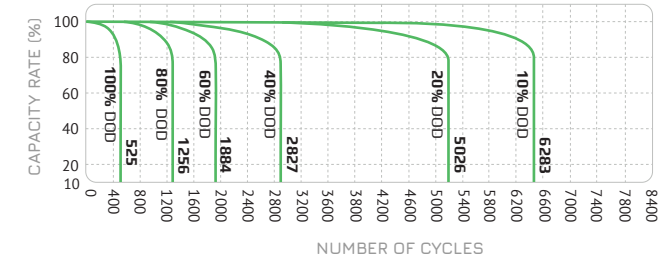
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	1103.75	613.79	395.32	288.17	231.82	134.20	98.10	77.71	65.64	56.39	43.49	36.00	30.27	20.18	16.54
1.67V	1050.71	604.42	379.34	286.09	231.99	134.20	96.85	77.61	65.64	56.28	43.49	35.89	30.27	20.18	16.54
1.70V	1044.47	600.26	379.16	286.09	229.90	133.16	96.65	77.32	64.60	55.87	43.17	35.58	29.96	20.08	16.54
1.75V	972.69	592.97	379.58	286.09	228.87	132.12	96.44	77.19	64.40	55.45	42.96	35.34	29.96	20.08	16.44
1.80V	892.61	562.80	371.39	280.88	227.83	132.12	96.33	76.98	63.98	55.45	42.86	35.16	29.96	19.56	16.44
1.83V	861.38	517.04	368.28	272.56	218.47	131.08	93.63	74.38	63.25	53.68	42.86	34.12	29.44	19.35	16.33
1.85V	797.92	505.59	342.26	262.18	212.23	127.96	91.03	73.45	61.48	52.64	41.20	33.81	28.92	19.14	16.23

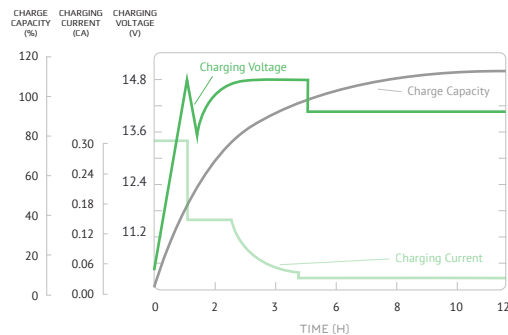
CYCLE LIFE CURVE GRAPH 25°C (77°F).



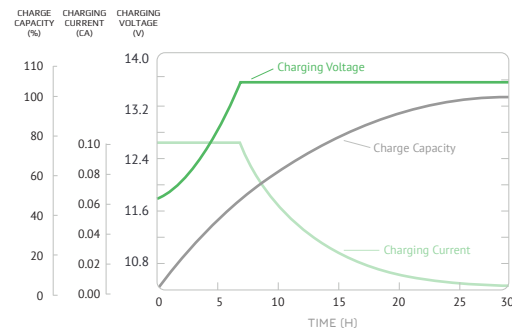
CYCLE LIFE CURVE GRAPH 40°C (104°F).



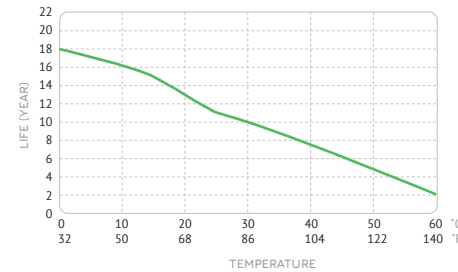
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



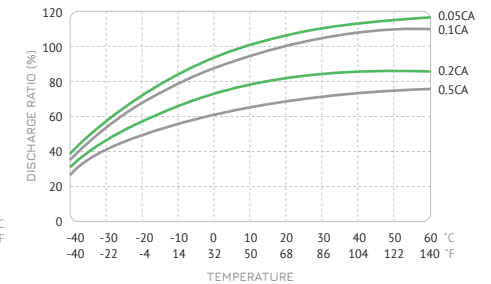
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-150GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

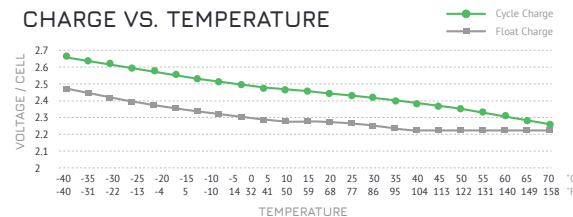
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	150Ah
WEIGHT	~ 46.5 kg / 102.5 lbs
DIMENSIONS	Height: 241 mm (9.5") Length: 484 mm (19.1") Width: 170 mm (6.7")
CAPACITY 25 °C (77 °F)	120 hour rate (1.5A) - 180Ah 20 hour rate (8.1A) - 162Ah 10 hour rate (15A) - 150Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 4mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1500 A (5s)
TERMINAL	M8 (20)
(CHARGING) CYCLE	Initial Charging Current 45A 14.7V / 25°C (77°F)
(CHARGING) FLOAT	13.6V / 25°C (77°F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



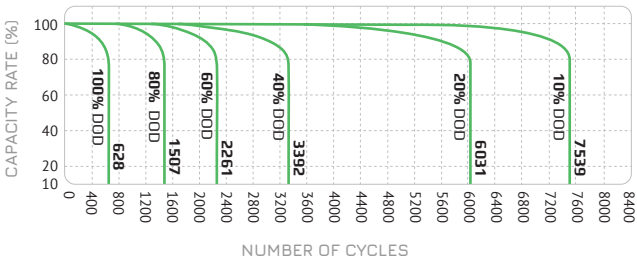
DATASHEET - CB12-150GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24

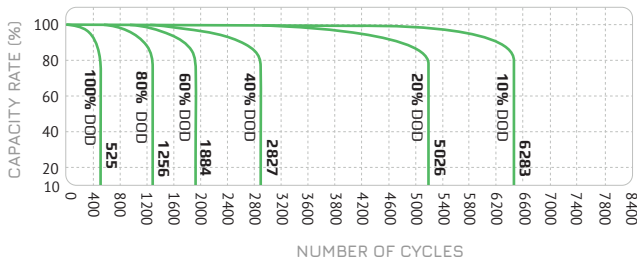
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)																
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h	
	1.60V	550.44	291.30	176.01	128.32	103.35	59.21	43.01	33.73	28.77	24.45	18.64	15.52	13.03	8.48	6.93
	1.67V	511.56	281.76	173.40	127.44	103.17	58.96	42.23	33.56	28.35	24.28	18.62	15.35	13.01	8.45	6.90
	1.70V	506.34	277.44	171.66	125.72	102.32	58.44	41.97	33.38	27.92	24.02	18.55	15.35	12.96	8.43	6.89
	1.75V	463.86	268.74	169.95	124.86	100.58	57.31	41.79	32.96	27.66	23.84	18.47	15.17	12.90	8.39	6.88
	1.80V	416.16	251.40	162.99	121.38	97.98	56.45	41.62	32.86	27.31	23.58	18.38	15.00	12.83	8.11	6.87
	1.83V	397.80	230.64	160.41	117.06	93.65	55.92	39.97	31.47	26.71	22.72	17.99	14.39	12.31	8.02	6.78
	1.85V	372.78	223.68	150.00	112.72	91.04	53.67	38.93	31.04	26.01	21.97	17.78	14.22	12.14	7.93	6.72

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	919.79	511.49	329.44	240.14	193.18	111.83	81.75	64.76	54.70	46.99	36.24	30.00	25.23	16.82	13.78
1.67V	875.59	503.69	316.12	238.41	193.33	111.83	80.71	64.67	54.70	46.90	36.24	29.91	25.23	16.82	13.78
1.70V	870.39	500.22	315.96	238.41	191.58	110.97	80.54	64.43	53.84	46.55	35.98	29.65	24.97	16.73	13.78
1.75V	810.58	494.15	316.31	238.41	190.73	110.10	80.37	64.33	53.66	46.21	35.80	29.45	24.97	16.73	13.70
1.80V	743.84	469.00	309.49	234.07	189.86	110.10	80.28	64.15	53.32	46.21	35.72	29.30	24.97	16.30	13.70
1.83V	717.82	430.86	306.90	227.14	182.06	109.23	78.02	61.99	52.71	44.73	35.72	28.44	24.53	16.13	13.61
1.85V	664.93	421.32	285.22	218.48	176.86	106.63	75.86	61.21	51.24	43.87	34.33	28.18	24.10	15.95	13.52

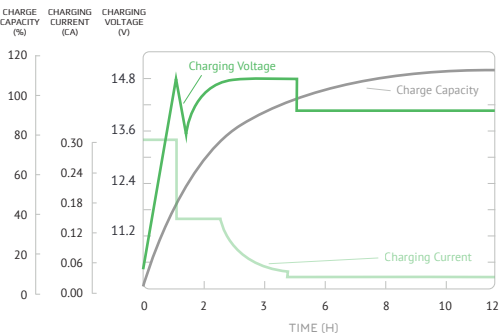
CYCLE LIFE CURVE GRAPH 25°C (77°F).



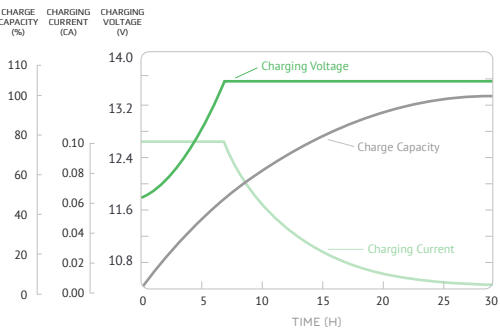
CYCLE LIFE CURVE GRAPH 40°C (104°F).



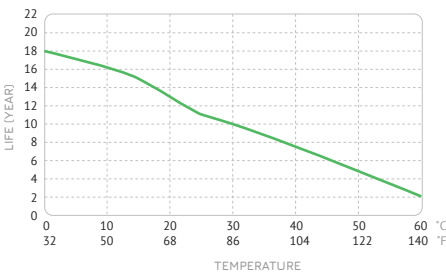
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



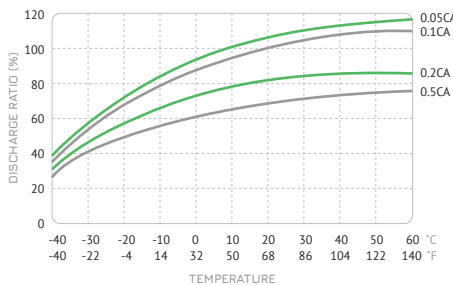
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-120GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

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The patented Crystal technology uses a unique advanced formula, a new type of composite SiO₂ electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

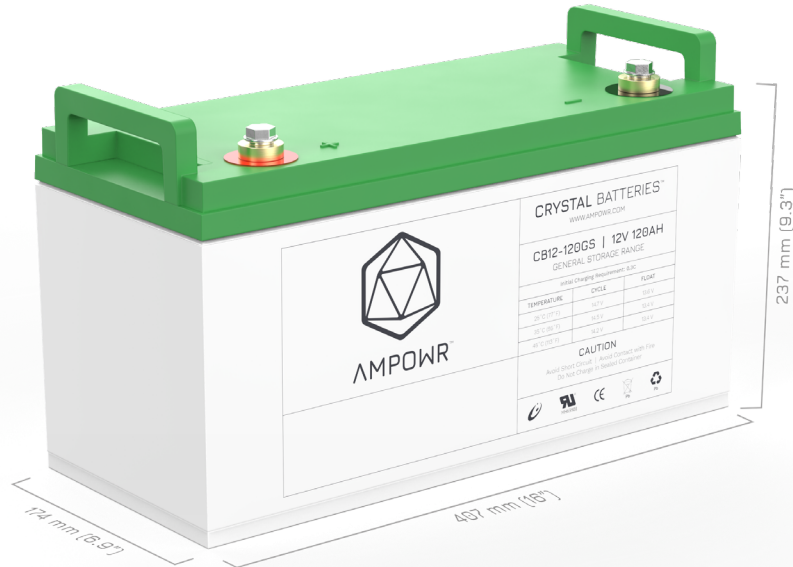
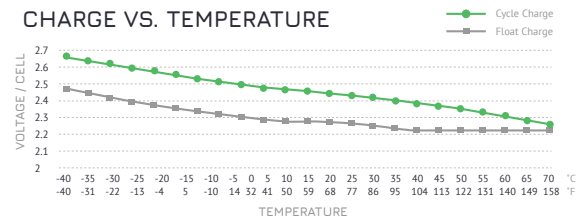
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	120Ah
WEIGHT	~ 36.5 kg / 80.5 lbs
DIMENSIONS	Height: 237 mm (9.3") Length: 407 mm (16") Width: 174 mm (6.9")
CAPACITY 25 °C (77 °F)	120 hour rate (1.2A) - 144Ah 20 hour rate (6.6A) - 132Ah 10 hour rate (12A) - 120Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 6mΩ
SELF DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1200 A (5s)
TERMINAL	M8 (20)
(CHARGING) CYCLE	Initial Charging Current 36A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



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Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40 °C (40 °F) to +65 °C (149 °F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25 °C (50% DoD).

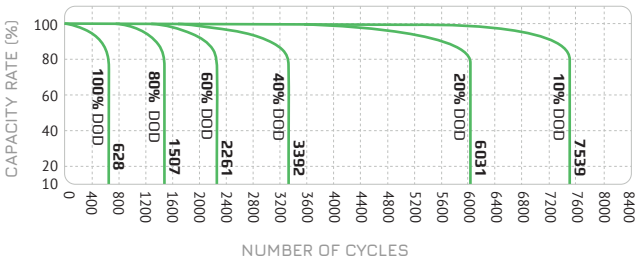
DATASHEET - CB12-120GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

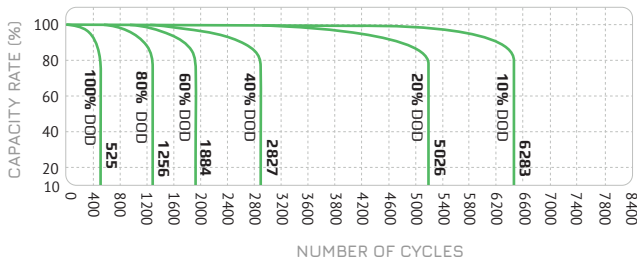
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	440.35	233.04	140.81	102.66	82.68	47.37	34.40	26.98	23.01	19.56	14.91	12.42	10.42	6.78	5.54
1.67V	409.25	225.41	138.72	101.95	82.54	47.17	33.78	26.84	22.68	19.42	14.89	12.28	10.40	6.76	5.52
1.70V	405.07	221.95	137.33	100.58	81.85	46.75	33.57	26.70	22.33	19.21	14.84	12.28	10.37	6.74	5.51
1.75V	371.09	214.99	135.96	99.89	80.46	45.85	33.43	26.37	22.13	19.08	14.77	12.14	10.32	6.71	5.51
1.80V	332.93	201.12	130.39	97.10	78.38	45.16	33.30	26.29	21.85	18.87	14.71	12.00	10.27	6.49	5.49
1.83V	318.24	184.51	128.33	93.65	74.92	44.74	31.98	25.18	21.36	18.17	14.39	11.51	9.85	6.42	5.42
1.85V	298.22	178.94	120.00	90.18	72.83	42.94	31.14	24.83	20.81	17.57	14.22	11.38	9.71	6.35	5.38

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	735.84	409.19	263.55	192.11	154.54	89.47	65.40	51.81	43.76	37.59	28.99	24.00	20.18	13.46	11.03
1.67V	700.48	402.95	252.89	190.73	154.66	89.47	64.57	51.74	43.76	37.52	28.99	23.93	20.18	13.45	11.03
1.70V	696.31	400.17	252.77	190.73	153.27	88.77	64.43	51.55	43.07	37.24	28.78	23.72	19.97	13.39	11.03
1.75V	648.46	395.32	253.05	190.72	152.58	88.08	64.29	51.46	42.93	36.97	28.64	23.56	19.97	13.39	10.96
1.80V	595.07	375.20	247.59	187.25	151.89	88.08	64.22	51.32	42.65	36.97	28.57	23.44	19.97	13.04	10.96
1.83V	574.25	344.69	245.52	181.71	145.65	87.39	62.42	49.59	42.17	35.79	28.57	22.75	19.63	12.90	10.89
1.85V	531.95	337.06	228.18	174.78	141.48	85.31	60.69	48.96	40.99	35.09	27.47	22.54	19.28	12.76	10.82

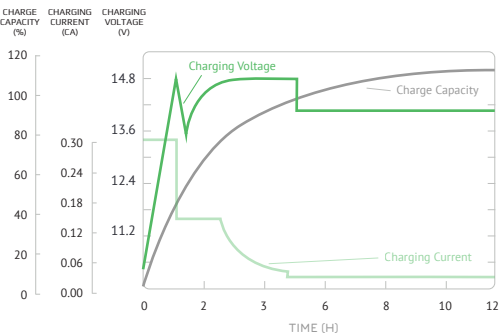
CYCLE LIFE CURVE GRAPH 25°C (77°F).



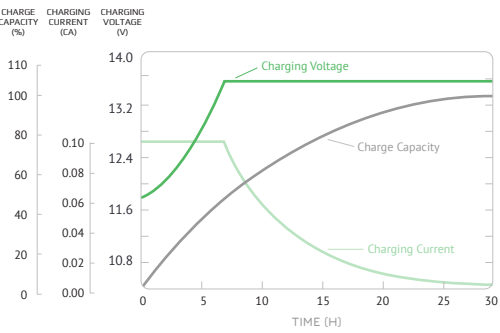
CYCLE LIFE CURVE GRAPH 40°C (104°F).



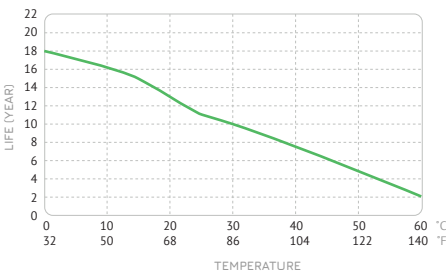
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



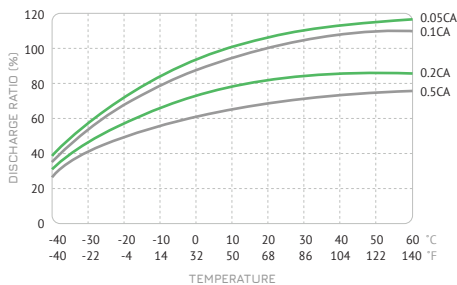
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-100GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

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CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



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Crystal Batteries™ can be 100% discharged and restored to full capacity.



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Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

TECHNICAL SPECIFICATIONS

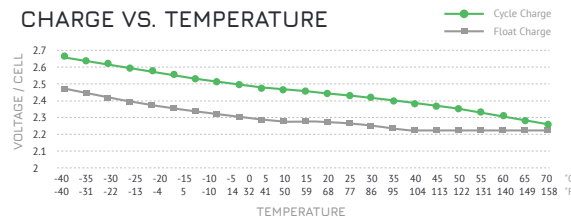
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	100Ah
WEIGHT	~ 31.5 kg / 69.5 lbs
DIMENSIONS	Height: 220 mm (8.7") Length: 327 mm (12.9") Width: 172 mm (6.8")
CAPACITY 25 °C (77 °F)	120 hour rate (1.2A) - 120Ah 20 hour rate (5.5A) - 110Ah 10 hour rate (10A) - 100Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 6mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1000 A (5s)
TERMINAL	M6 (16)
(CHARGING) CYCLE	Initial Charging Current 30A 14.7V / 25°C (77°F)
(CHARGING) FLOAT	13.6V / 25°C (77°F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



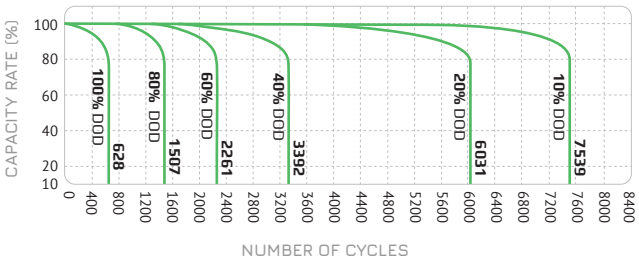
DATASHEET - CB12-100GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

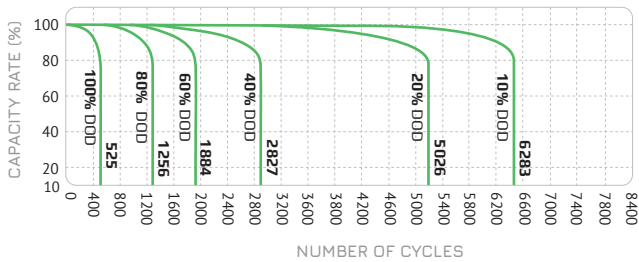
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	366.96	194.20	117.34	85.55	68.90	39.48	28.67	22.49	19.18	16.30	12.43	10.35	8.68	5.65	4.62
1.67V	341.04	187.84	115.60	84.96	68.78	39.31	28.15	22.37	18.90	16.19	12.41	10.23	8.67	5.64	4.60
1.70V	337.56	184.96	114.44	83.81	68.21	38.96	27.98	22.25	18.61	16.01	12.37	10.23	8.64	5.62	4.60
1.75V	309.24	179.16	113.30	83.24	67.05	38.21	27.86	21.97	18.44	15.90	12.31	10.12	8.60	5.60	4.59
1.80V	277.44	167.60	108.66	80.92	65.32	37.63	27.75	21.91	18.21	15.72	12.25	10.00	8.56	5.40	4.58
1.83V	265.20	153.76	106.94	78.04	62.43	37.28	26.65	20.98	17.80	15.14	11.99	9.60	8.21	5.35	4.52
1.85V	248.52	149.12	100.00	75.15	60.69	35.78	25.95	20.69	17.34	14.64	11.85	9.48	8.09	5.29	4.48

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	613.20	341.00	219.62	160.09	128.79	74.56	54.50	43.17	36.47	31.33	24.16	20.00	16.82	11.21	9.19
1.67V	583.73	335.79	210.74	158.94	128.88	74.56	53.81	43.12	36.47	31.27	24.16	19.94	16.82	11.21	9.19
1.70V	580.26	333.48	210.64	158.94	127.72	73.98	53.69	42.96	35.89	31.04	23.99	19.77	16.65	11.15	9.19
1.75V	540.38	329.43	210.88	158.94	127.15	73.40	53.58	42.88	35.78	30.81	23.87	19.63	16.65	11.15	9.13
1.80V	495.89	312.67	206.33	156.05	126.57	73.40	53.52	42.77	35.54	30.81	23.81	19.54	16.65	10.87	9.13
1.83V	478.54	287.24	204.60	151.42	121.37	72.82	52.02	41.32	35.14	29.82	23.81	18.96	16.36	10.75	9.07
1.85V	443.29	280.88	190.15	145.65	117.90	71.09	50.57	40.80	34.16	29.24	22.89	18.78	16.07	10.63	9.02

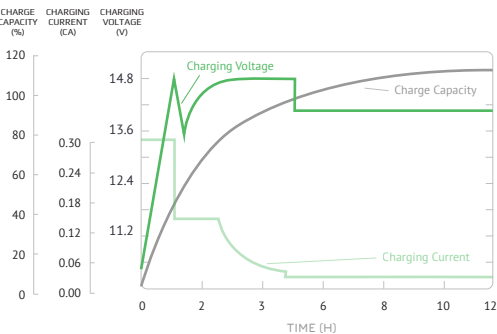
CYCLE LIFE CURVE GRAPH 25°C (77°F).



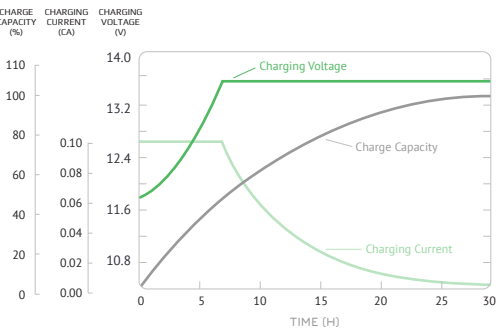
CYCLE LIFE CURVE GRAPH 40°C (104°F).



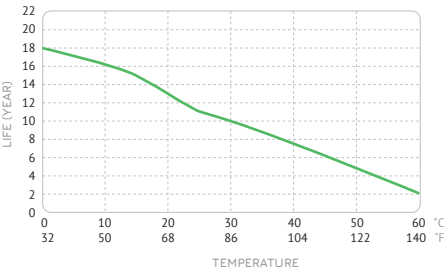
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



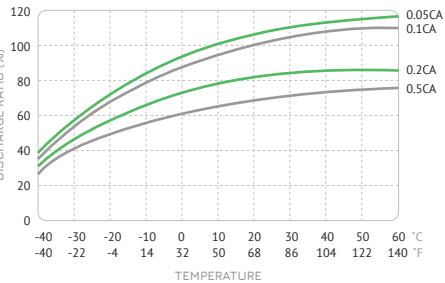
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET



CB12-90GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

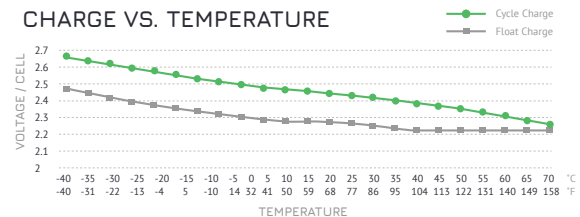
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	90Ah
WEIGHT	~ 27 kg / 59.5 lbs
DIMENSIONS	Height: 216 mm (8.5") Length: 307 mm (12.1") Width: 168 mm (6.6")
CAPACITY 25 °C (77 °F)	120 hour rate (0.9A) - 108Ah 20 hour rate (5.0A) - 100Ah 10 hour rate (9A) - 90Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 6.3mΩ
SELF DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	900 A (5s)
TERMINAL	M6 (16)
(CHARGING) CYCLE	Initial Charging Current 27A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



- 

CRYSTAL TECHNOLOGY
Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.
- 

THE SAFEST
No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.
- 

BETTER USAGE PERFORMANCE
Charges up to three times faster than conventional alternatives. Excellent high-current discharge.
- 

UP TO 99% RECYCLABLE
A sustainable circular economy, less acid, no antimony or cadmium.
- 

FULL RECOVERY
Crystal Batteries™ can be 100% discharged and restored to full capacity.
- 

EXTREME TEMPERATURES
Extreme temperature resistance. Operates from -40 °C (40 °F) to +65 °C (149 °F).
- 

PROVEN TRACK RECORD
Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.
- 

LONG BATTERY LIFE
A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25 °C (50% DoD).

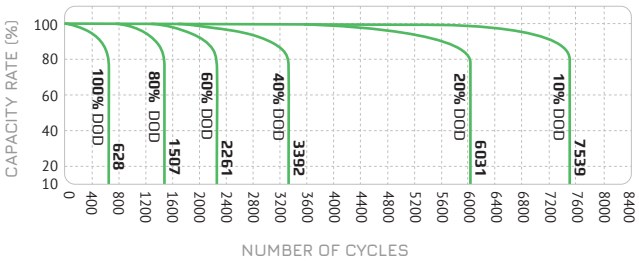
DATASHEET - CB12-90GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

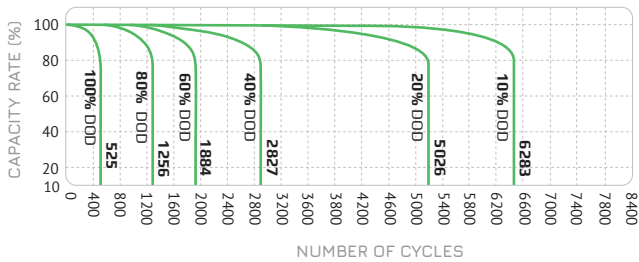
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	330.26	174.78	105.61	76.99	62.01	35.53	25.80	20.24	17.26	14.67	11.18	9.31	7.82	5.09	4.16
1.67V	306.94	169.06	104.04	76.46	61.90	35.38	25.34	20.13	17.01	14.57	11.17	9.21	7.80	5.07	4.14
1.70V	303.80	166.46	103.00	75.43	61.39	35.06	25.18	20.03	16.75	14.41	11.13	9.21	7.78	5.06	4.14
1.75V	278.32	161.24	101.97	74.92	60.35	34.39	25.07	19.78	16.60	14.31	11.08	9.10	7.74	5.04	4.13
1.80V	249.70	150.84	97.79	72.83	58.79	33.87	24.97	19.72	16.39	14.15	11.03	9.00	7.70	4.86	4.12
1.83V	238.68	138.38	96.25	70.24	56.19	33.55	23.98	18.88	16.02	13.63	10.79	8.64	7.39	4.81	4.07
1.85V	223.67	134.21	90.00	67.63	54.62	32.20	23.36	18.62	15.61	13.18	10.67	8.53	7.28	4.76	4.03

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	551.88	306.90	197.66	144.08	115.91	67.10	49.05	38.86	32.82	28.19	21.74	18.00	15.14	10.09	8.27
1.67V	525.36	302.21	189.67	143.05	116.00	67.10	48.43	38.80	32.82	28.14	21.74	17.95	15.14	10.09	8.27
1.70V	522.23	300.13	189.58	143.05	114.95	66.58	48.32	38.66	32.30	27.93	21.59	17.79	14.98	10.04	8.27
1.75V	486.35	296.49	189.79	143.04	114.44	66.06	48.22	38.60	32.20	27.72	21.48	17.67	14.98	10.04	8.22
1.80V	446.30	281.40	185.70	140.44	113.92	66.06	48.17	38.49	31.99	27.72	21.43	17.58	14.98	9.78	8.22
1.83V	430.69	258.52	184.14	136.28	109.23	65.54	46.81	37.19	31.63	26.84	21.43	17.06	14.72	9.68	8.17
1.85V	398.96	252.79	171.13	131.09	106.11	63.98	45.51	36.72	30.74	26.32	20.60	16.91	14.46	9.57	8.11

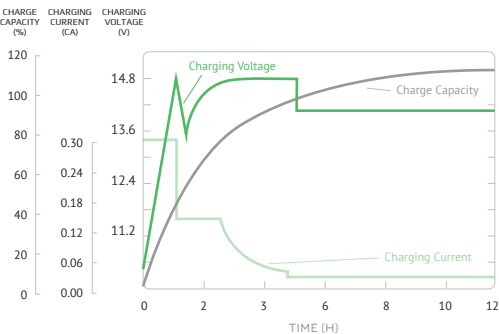
CYCLE LIFE CURVE GRAPH 25°C (77°F).



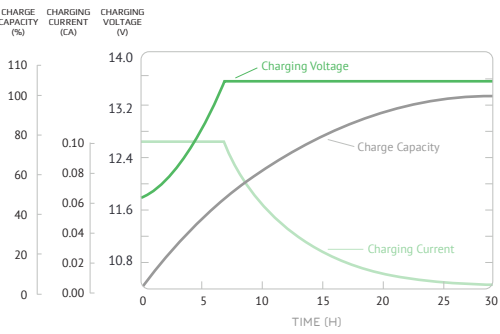
CYCLE LIFE CURVE GRAPH 40°C (104°F).



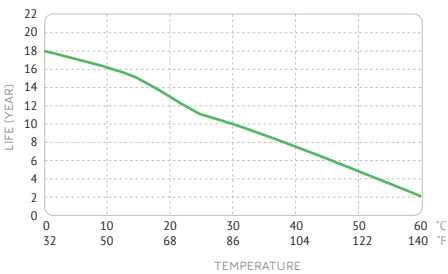
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



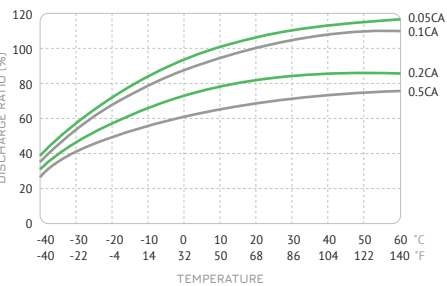
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

CB12-70GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

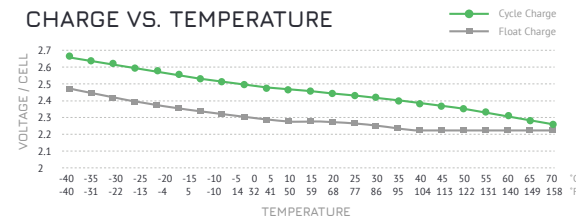
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	70Ah
WEIGHT	~ 22.3 kg / 49.2 lbs
DIMENSIONS	Height: 215 mm (8.5") Length: 260 mm (10.2") Width: 169 mm (6.7")
CAPACITY 25 °C (77 °F)	120 hour rate (0.7A) - 84Ah 20 hour rate (3.9A) - 78Ah 10 hour rate (7A) - 70Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 7mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	700 A (5s)
TERMINAL	M6 (16)
(CHARGING) CYCLE	Initial Charging Current 21A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



DATASHEET - CB12-70GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

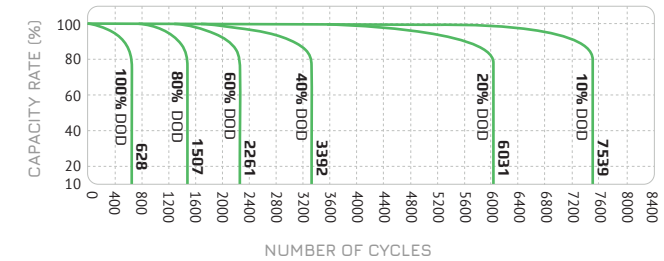
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	256.87	135.94	82.14	59.88	48.23	27.63	20.07	15.74	13.42	11.41	8.70	7.24	6.08	3.96	3.23
1.67V	238.73	131.49	80.92	59.47	48.15	27.51	19.71	15.66	13.23	11.33	8.69	7.16	6.07	3.95	3.22
1.70V	236.29	129.47	80.11	58.67	47.75	27.27	19.58	15.58	13.03	11.21	8.66	7.16	6.05	3.93	3.22
1.75V	216.47	125.41	79.31	58.27	46.94	26.75	19.50	15.38	12.91	11.13	8.62	7.08	6.02	3.92	3.21
1.80V	194.21	117.32	76.06	56.64	45.72	26.34	19.42	15.34	12.75	11.01	8.58	7.00	5.99	3.78	3.20
1.83V	185.64	107.63	74.86	54.63	43.70	26.10	18.65	14.69	12.46	10.60	8.40	6.72	5.75	3.74	3.16
1.85V	173.96	104.38	70.00	52.60	42.48	25.05	18.17	14.48	12.14	10.25	8.30	6.64	5.66	3.70	3.14

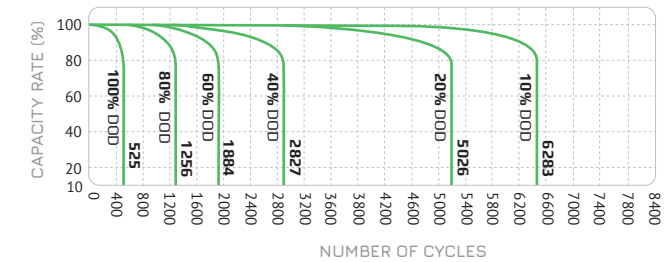
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	429.24	238.70	153.74	112.07	90.15	52.19	38.15	30.22	25.53	21.93	16.91	14.00	11.77	7.85	6.43
1.67V	408.61	235.05	147.52	111.26	90.22	52.19	37.67	30.18	25.53	21.89	16.91	13.96	11.77	7.85	6.43
1.70V	406.18	233.43	147.45	111.26	89.41	51.78	37.58	30.07	25.12	21.73	16.79	13.84	11.65	7.81	6.43
1.75V	378.27	230.60	147.61	111.26	89.01	51.38	37.50	30.02	25.04	21.56	16.71	13.74	11.65	7.81	6.39
1.80V	347.12	218.87	144.43	109.23	88.60	51.38	37.46	29.94	24.88	21.56	16.67	13.67	11.65	7.61	6.39
1.83V	334.98	201.07	143.22	106.00	84.96	50.98	36.41	28.93	24.60	20.88	16.67	13.27	11.45	7.53	6.35
1.85V	310.30	196.62	133.10	101.96	82.53	49.76	35.40	28.56	23.91	20.47	16.02	13.15	11.25	7.44	6.31

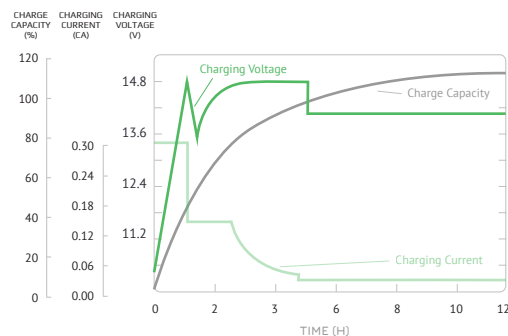
CYCLE LIFE CURVE GRAPH 25°C (77°F).



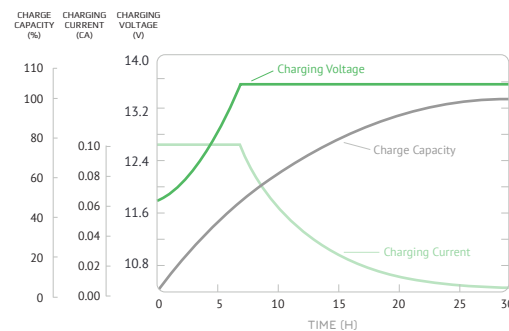
CYCLE LIFE CURVE GRAPH 40°C (104°F).



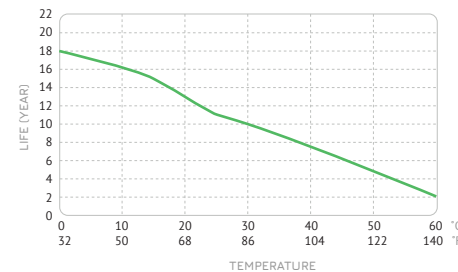
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



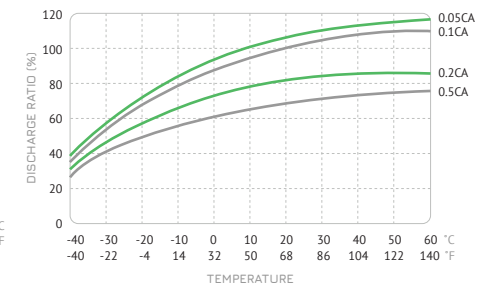
FLOATING CHARGE CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-65GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO₂ electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

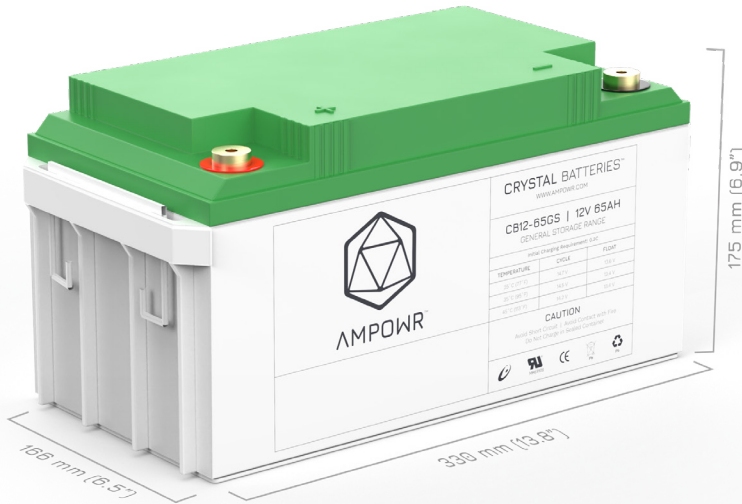
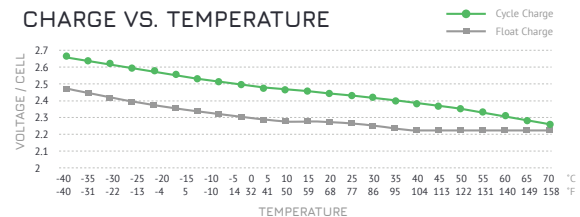
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	65Ah
WEIGHT	~ 21 kg / 46.3 lbs
DIMENSIONS	Height: 175 mm (6.9") Length: 330 mm (13.8") Width: 166 mm (6.5")
CAPACITY 25 °C (77 °F)	120 hour rate (0.65A) - 78Ah 20 hour rate (3.6A) - 72Ah 10 hour rate (6.5A) - 65Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 7.5mΩ
SELF DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	650 A (5s)
TERMINAL	M8 (20)
(CHARGING) CYCLE	Initial Charging Current 19.5A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40 °C (40 °F) to +65 °C (149 °F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25 °C (50% DoD).

DATASHEET - CB12-65GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

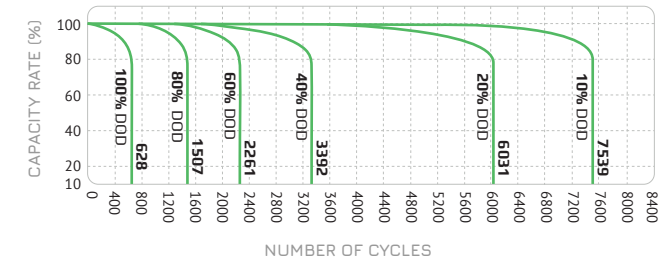
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	238.52	126.23	76.27	55.61	44.79	25.66	18.64	14.62	12.47	10.60	8.08	6.73	5.64	3.67	3.00
1.67V	221.68	122.10	75.14	55.22	44.71	25.55	18.30	14.54	12.29	10.52	8.07	6.65	5.64	3.66	2.99
1.70V	219.41	120.22	74.39	54.48	44.34	25.32	18.18	14.46	12.10	10.41	8.04	6.65	5.62	3.65	2.99
1.75V	201.01	116.45	73.65	54.11	43.58	24.84	18.11	14.28	11.99	10.33	8.00	6.58	5.59	3.64	2.98
1.80V	180.34	108.94	70.63	52.60	42.46	24.46	18.04	14.24	11.84	10.22	7.97	6.50	5.56	3.51	2.98
1.83V	172.38	99.94	69.51	50.73	40.58	24.23	17.32	13.64	11.57	9.84	7.80	6.24	5.33	3.48	2.94
1.85V	161.54	96.93	65.00	48.85	39.45	23.26	16.87	13.45	11.27	9.52	7.70	6.16	5.26	3.44	2.91

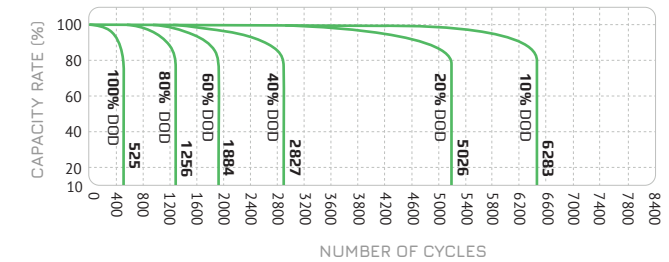
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	398.58	221.65	142.76	104.06	83.71	48.46	35.43	28.06	23.70	20.36	15.70	13.00	10.93	7.29	5.97
1.67V	379.42	218.26	136.98	103.31	83.77	48.46	34.98	28.03	23.70	20.32	15.70	12.96	10.93	7.29	5.97
1.70V	377.17	216.76	136.92	103.31	83.02	48.09	34.90	27.92	23.33	20.17	15.59	12.85	10.82	7.25	5.97
1.75V	351.25	214.13	137.07	103.31	82.65	47.71	34.83	27.87	23.25	20.02	15.52	12.76	10.82	7.25	5.94
1.80V	322.33	203.24	134.11	101.43	82.27	47.71	34.79	27.80	23.10	20.02	15.48	12.70	10.82	7.06	5.94
1.83V	311.05	186.71	132.99	98.43	78.89	47.33	33.81	26.86	22.84	19.38	15.48	12.32	10.63	6.99	5.90
1.85V	288.14	182.57	123.59	94.67	76.64	46.21	32.87	26.52	22.20	19.01	14.88	12.21	10.44	6.91	5.86

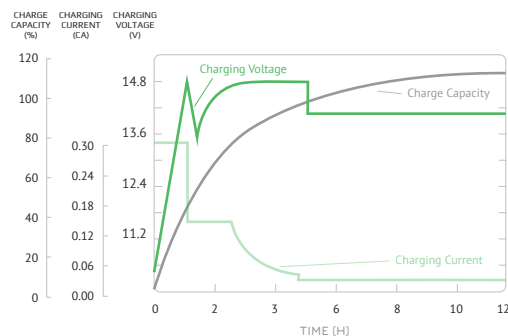
CYCLE LIFE CURVE GRAPH 25°C (77°F).



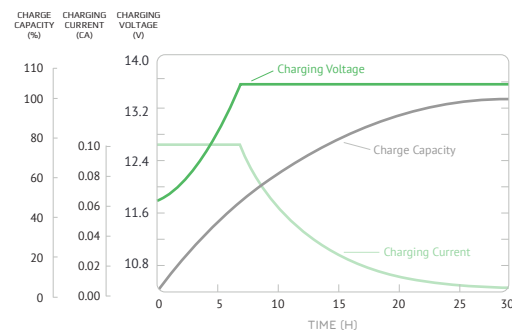
CYCLE LIFE CURVE GRAPH 40°C (104°F).



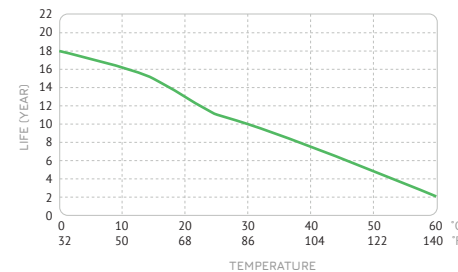
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



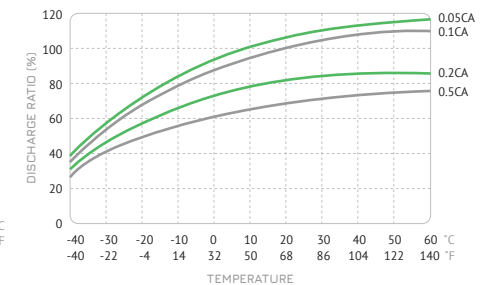
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-40GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

TECHNICAL SPECIFICATIONS

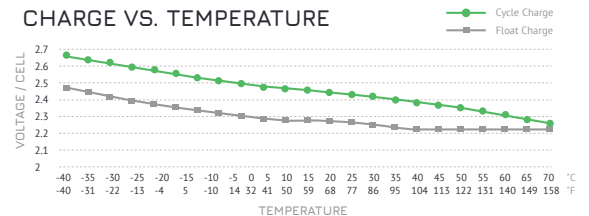
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	40Ah
WEIGHT	~ 13 kg / 28.7 lbs
DIMENSIONS	Height: 176 mm (6.9") Length: 196 mm (7.7") Width: 166 mm (6.5")
CAPACITY 25 °C (77 °F)	120 hour rate (0.4A) - 48Ah 20 hour rate (2.2A) - 44Ah 10 hour rate (4A) - 40Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 8mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	400 A (5s)
TERMINAL	M6 (16)
(CHARGING) CYCLE	Initial Charging Current 12A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



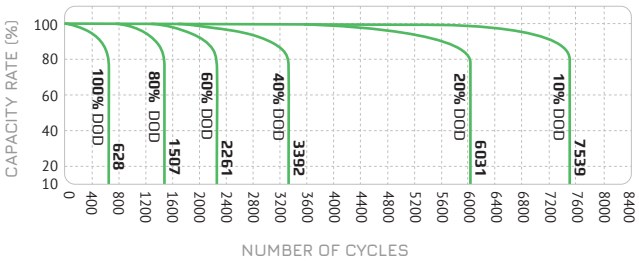
DATASHEET - CB12-40GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																	
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23

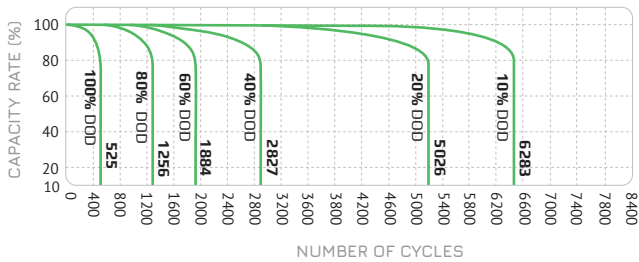
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	146.78	77.68	46.94	34.22	27.56	15.79	11.47	8.99	7.67	6.52	4.97	4.14	3.47	2.26	1.85
1.67V	136.42	75.14	46.24	33.98	27.51	15.72	11.26	8.95	7.56	6.47	4.96	4.09	3.47	2.25	1.84
1.70V	135.02	73.98	45.78	33.53	27.28	15.58	11.19	8.90	7.44	6.40	4.95	4.09	3.46	2.25	1.84
1.75V	123.70	71.66	45.32	33.30	26.82	15.28	11.14	8.79	7.38	6.36	4.92	4.05	3.44	2.24	1.84
1.80V	110.98	67.04	43.46	32.37	26.13	15.05	11.10	8.76	7.28	6.29	4.90	4.00	3.42	2.16	1.83
1.83V	106.08	61.50	42.78	31.22	24.97	14.91	10.66	8.39	7.12	6.06	4.80	3.84	3.28	2.14	1.81
1.85V	99.41	59.65	40.00	30.06	24.28	14.31	10.38	8.28	6.94	5.86	4.74	3.79	3.24	2.12	1.79

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	245.28	136.40	87.85	64.04	51.51	29.82	21.80	17.27	14.59	12.53	9.66	8.00	6.73	4.49	3.68
1.67V	233.49	134.32	84.30	63.58	51.55	29.82	21.52	17.25	14.59	12.51	9.66	7.98	6.73	4.48	3.68
1.70V	232.10	133.39	84.26	63.58	51.09	29.59	21.48	17.18	14.36	12.41	9.59	7.91	6.66	4.46	3.68
1.75V	216.15	131.77	84.35	63.57	50.86	29.36	21.43	17.15	14.31	12.32	9.55	7.85	6.66	4.46	3.65
1.80V	198.36	125.07	82.53	62.42	50.63	29.36	21.41	17.11	14.22	12.32	9.52	7.81	6.66	4.35	3.65
1.83V	191.42	114.90	81.84	60.57	48.55	29.13	20.81	16.53	14.06	11.93	9.52	7.58	6.54	4.30	3.63
1.85V	177.32	112.35	76.06	58.26	47.16	28.44	20.23	16.32	13.66	11.70	9.16	7.51	6.43	4.25	3.61

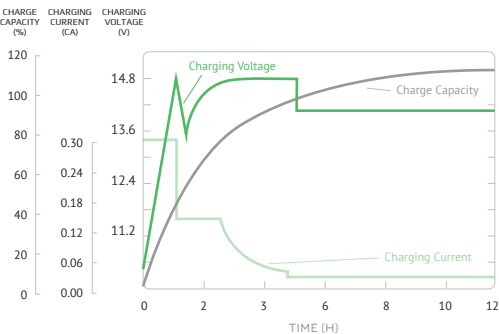
CYCLE LIFE CURVE GRAPH 25°C (77°F).



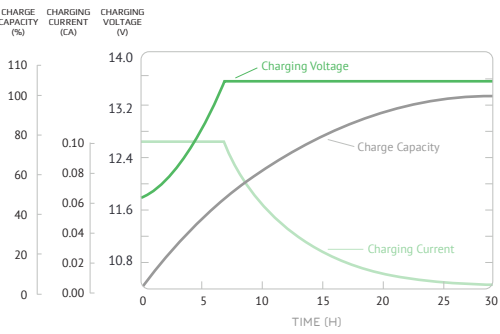
CYCLE LIFE CURVE GRAPH 40°C (104°F).



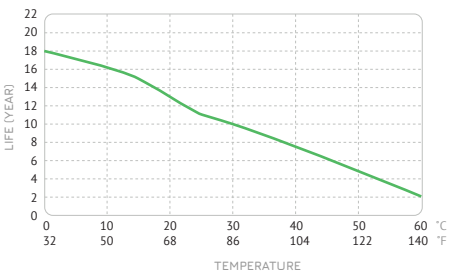
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



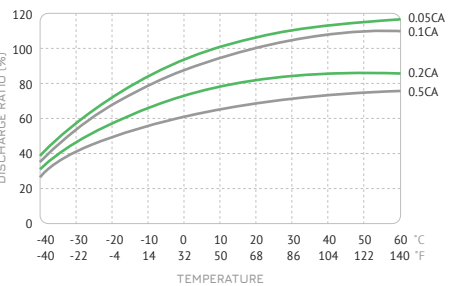
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



CB12-35GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

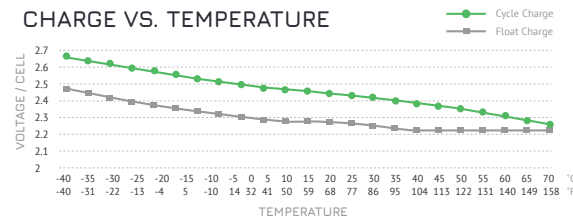
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	35Ah
WEIGHT	~ 12 kg / 26.5 lbs
DIMENSIONS	Height: 176 mm (6.9") Length: 194 mm (7.6") Width: 132 mm (5.2")
CAPACITY 25 °C (77 °F)	120 hour rate (0.35A) - 42Ah 20 hour rate (2A) - 40Ah 10 hour rate (3.5A) - 35Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 8mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	350 A (5s)
TERMINAL	M6 (16)
(CHARGING) CYCLE	Initial Charging Current 10.5A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



DATASHEET - CB12-35GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

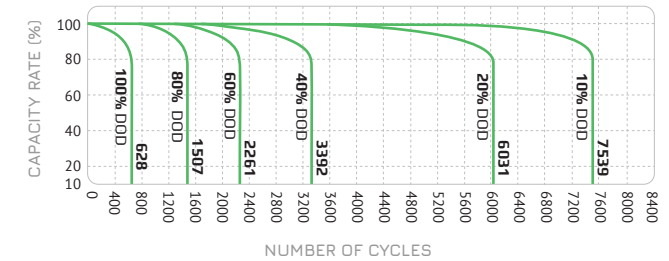
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	128.44	67.97	41.07	29.94	24.12	13.82	10.03	7.87	6.71	5.71	4.35	3.62	3.04	1.98	1.62
1.67V	119.36	65.74	40.46	29.74	24.07	13.76	9.85	7.83	6.62	5.66	4.34	3.58	3.03	1.97	1.61
1.70V	118.15	64.74	40.05	29.33	23.87	13.64	9.79	7.79	6.51	5.60	4.33	3.58	3.02	1.97	1.61
1.75V	108.23	62.71	39.66	29.13	23.47	13.37	9.75	7.69	6.45	5.56	4.31	3.54	3.01	1.96	1.61
1.80V	97.10	58.66	38.03	28.32	22.86	13.17	9.71	7.67	6.37	5.50	4.29	3.50	2.99	1.89	1.60
1.83V	92.82	53.82	37.43	27.31	21.85	13.05	9.33	7.34	6.23	5.30	4.20	3.36	2.87	1.87	1.58
1.85V	86.98	52.19	35.00	26.30	21.24	12.52	9.08	7.24	6.07	5.13	4.15	3.32	2.83	1.85	1.57

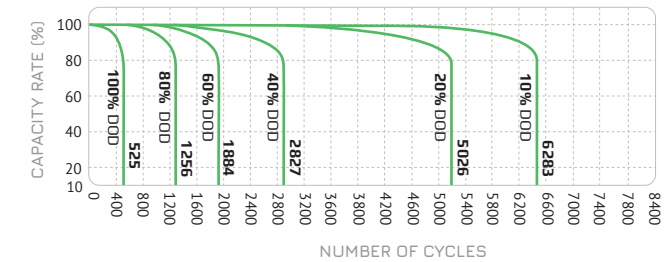
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	214.62	119.35	76.87	56.03	45.08	26.09	19.08	15.11	12.76	10.96	8.46	7.00	5.89	3.92	3.22
1.67V	204.31	117.53	73.76	55.63	45.11	26.09	18.83	15.09	12.76	10.94	8.46	6.98	5.89	3.92	3.22
1.70V	203.09	116.72	73.72	55.63	44.70	25.89	18.79	15.03	12.56	10.86	8.39	6.92	5.83	3.90	3.22
1.75V	189.13	115.30	73.81	55.63	44.50	25.69	18.75	15.01	12.52	10.78	8.35	6.87	5.83	3.90	3.20
1.80V	173.56	109.43	72.22	54.62	44.30	25.69	18.73	14.97	12.44	10.78	8.33	6.84	5.83	3.80	3.20
1.83V	167.49	100.53	71.61	53.00	42.48	25.49	18.21	14.46	12.30	10.44	8.33	6.63	5.72	3.76	3.18
1.85V	155.15	98.31	66.55	50.98	41.27	24.88	17.70	14.28	11.96	10.24	8.01	6.57	5.62	3.72	3.16

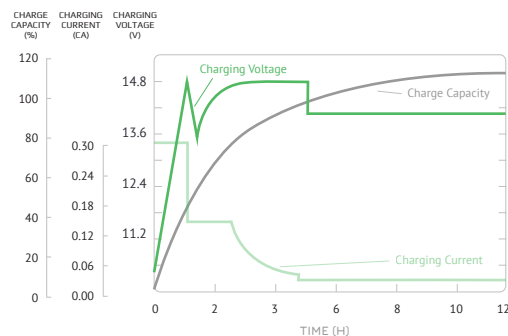
CYCLE LIFE CURVE GRAPH 25°C (77°F).



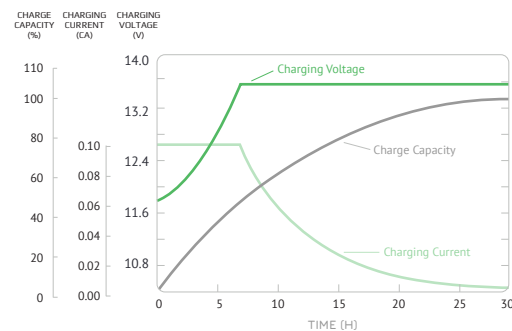
CYCLE LIFE CURVE GRAPH 40°C (104°F).



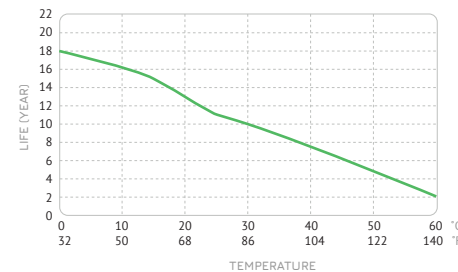
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



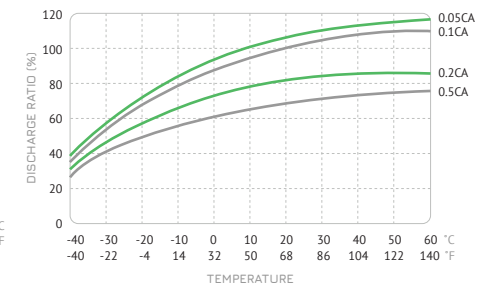
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

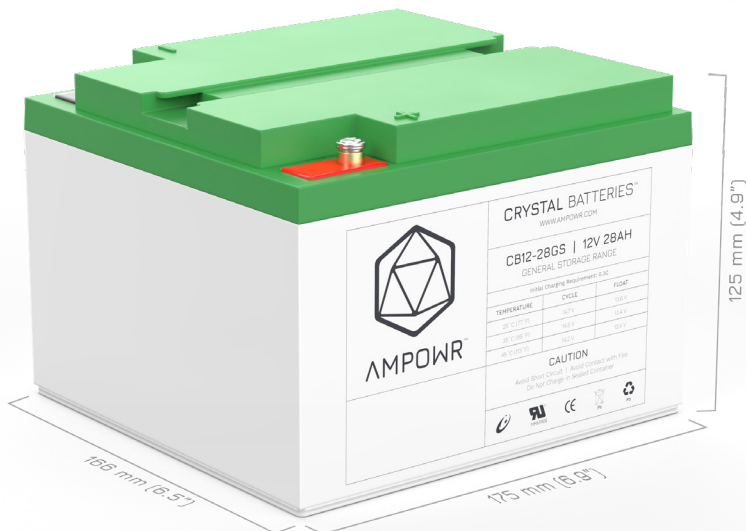
CB12-28GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS



CRYSTAL TECHNOLOGY

Our unique electrolyte crystalizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

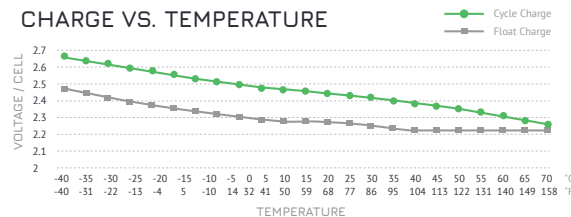
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	28Ah
WEIGHT	~ 8.5 kg / 18.7 lbs
DIMENSIONS	Height: 125 mm (4.9") Length: 175 mm (6.9") Width: 166 mm (6.5")
CAPACITY 25 °C (77 °F)	120 hour rate (0.28A) - 33.6Ah 20 hour rate (1.6A) - 32Ah 10 hour rate (2.8A) - 28Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 8mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	280 A (5s)
TERMINAL	M5 (10)
(CHARGING) CYCLE	Initial Charging Current 8.4A 14.7V / 25°C (77°F)
(CHARGING) FLOAT	13.6V / 25°C (77°F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



DATASHEET - CB12-28GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

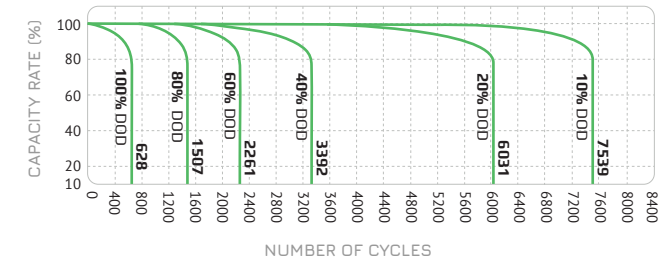
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	102.75	54.38	32.86	23.95	19.29	11.05	8.03	6.30	5.37	4.56	3.48	2.90	2.43	1.58	1.29
1.67V	95.49	52.60	32.37	23.79	19.26	11.01	7.88	6.26	5.29	4.53	3.48	2.86	2.43	1.58	1.29
1.70V	94.52	51.79	32.04	23.47	19.10	10.91	7.83	6.23	5.21	4.48	3.46	2.86	2.42	1.57	1.29
1.75V	86.59	50.16	31.72	23.31	18.77	10.70	7.80	6.15	5.16	4.45	3.45	2.83	2.41	1.57	1.29
1.80V	77.68	46.93	30.42	22.66	18.29	10.54	7.77	6.13	5.10	4.40	3.43	2.80	2.40	1.51	1.28
1.83V	74.26	43.05	29.94	21.85	17.48	10.44	7.46	5.88	4.99	4.24	3.36	2.69	2.30	1.50	1.27
1.85V	69.59	41.75	28.00	21.04	16.99	10.02	7.27	5.79	4.86	4.10	3.32	2.65	2.27	1.48	1.25

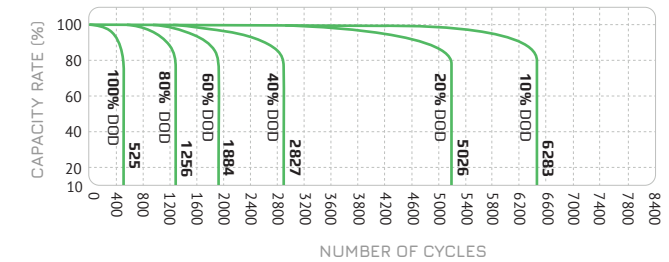
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	171.69	95.48	61.49	44.83	36.06	20.88	15.26	12.09	10.21	8.77	6.76	5.60	4.71	3.14	2.57
1.67V	163.44	94.02	59.01	44.50	36.09	20.88	15.07	12.07	10.21	8.75	6.76	5.58	4.71	3.14	2.57
1.70V	162.47	93.37	58.98	44.50	35.76	20.71	15.03	12.03	10.05	8.69	6.72	5.53	4.66	3.12	2.57
1.75V	151.31	92.24	59.05	44.50	35.60	20.55	15.00	12.01	10.02	8.63	6.68	5.50	4.66	3.12	2.56
1.80V	138.85	87.55	57.77	43.69	35.44	20.55	14.99	11.98	9.95	8.63	6.67	5.47	4.66	3.04	2.56
1.83V	133.99	80.43	57.29	42.40	33.98	20.39	14.56	11.57	9.84	8.35	6.67	5.31	4.58	3.01	2.54
1.85V	124.12	78.65	53.24	40.78	33.01	19.90	14.16	11.43	9.56	8.19	6.41	5.26	4.50	2.98	2.52

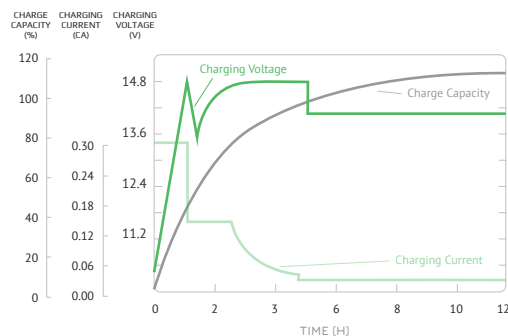
CYCLE LIFE CURVE GRAPH 25°C (77°F).



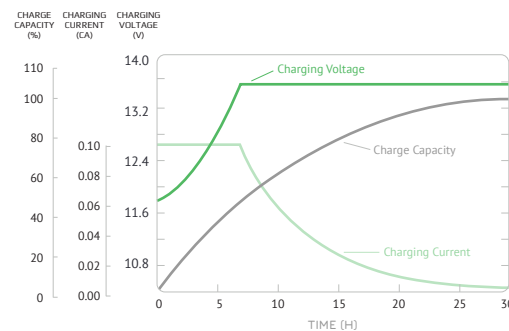
CYCLE LIFE CURVE GRAPH 40°C (104°F).



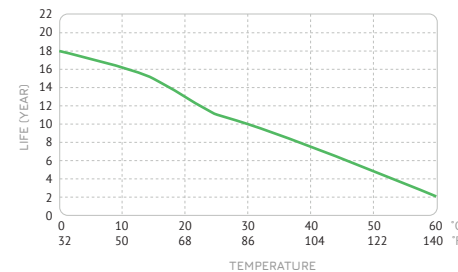
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



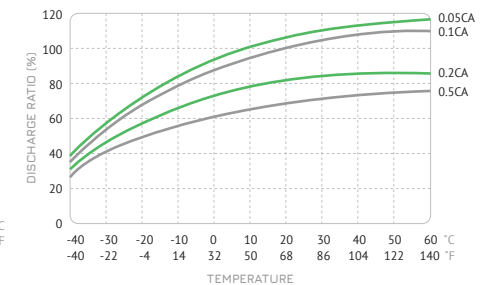
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-14GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

TECHNICAL SPECIFICATIONS

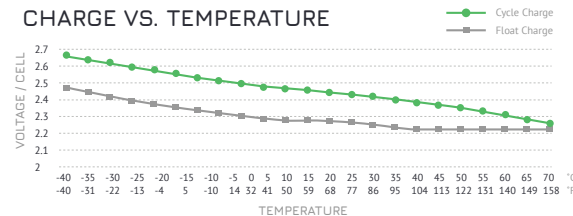
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	14Ah
WEIGHT	~ 4.2 kg / 9.4 lbs
DIMENSIONS	Height: 105 mm (4.1") Length: 151 mm (5.9") Width: 99 mm (3.9")
CAPACITY 25 °C (77 °F)	120 hour rate (141mA) - 16.9Ah 20 hour rate (775mA) - 15.5Ah 10 hour rate (1.4A) - 14Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 12mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	120 A (5s)
TERMINAL	M5 (8)
(CHARGING) CYCLE	Initial Charging Current 4.2A 14.7V / 25°C (77°F)
(CHARGING) FLOAT	13.6V / 25°C (77°F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



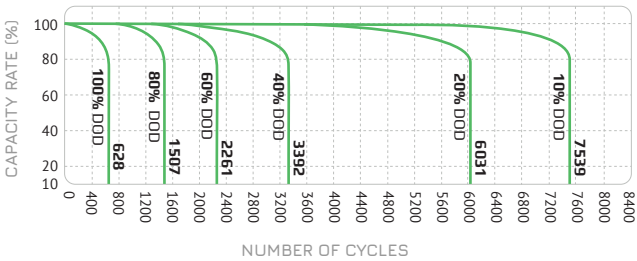
DATASHEET - CB12-14GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24

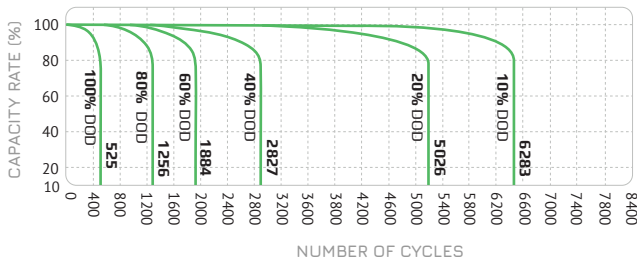
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
	51.37	27.19	16.43	11.98	9.65	5.53	4.01	3.15	2.68	2.28	1.74	1.45	1.22	0.79	0.65
	47.75	26.30	16.18	11.89	9.63	5.50	3.94	3.13	2.65	2.27	1.74	1.43	1.21	0.79	0.64
	47.26	25.89	16.02	11.73	9.55	5.45	3.92	3.12	2.61	2.24	1.73	1.43	1.21	0.79	0.64
	43.29	25.08	15.86	11.65	9.39	5.35	3.90	3.08	2.58	2.23	1.72	1.42	1.20	0.78	0.64
	38.84	23.46	15.21	11.33	9.14	5.27	3.88	3.07	2.55	2.20	1.72	1.40	1.20	0.76	0.64
	37.13	21.53	14.97	10.93	8.74	5.22	3.73	2.94	2.49	2.12	1.68	1.34	1.15	0.75	0.63
	34.79	20.88	14.00	10.52	8.50	5.01	3.63	2.90	2.43	2.05	1.66	1.33	1.13	0.74	0.63

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	85.85	47.74	30.75	22.41	18.03	10.44	7.63	6.04	5.11	4.39	3.38	2.80	2.35	1.57	1.29
1.67V	81.72	47.01	29.50	22.25	18.04	10.44	7.53	6.04	5.11	4.38	3.38	2.79	2.35	1.57	1.29
1.70V	81.24	46.69	29.49	22.25	17.88	10.36	7.52	6.01	5.02	4.35	3.36	2.77	2.33	1.56	1.29
1.75V	75.65	46.12	29.52	22.25	17.80	10.28	7.50	6.00	5.01	4.31	3.34	2.75	2.33	1.56	1.28
1.80V	69.42	43.77	28.89	21.85	17.72	10.28	7.49	5.99	4.98	4.31	3.33	2.73	2.33	1.52	1.28
1.83V	67.00	40.21	28.64	21.20	16.99	10.20	7.28	5.79	4.92	4.18	3.33	2.65	2.29	1.51	1.27
1.85V	62.06	39.32	26.62	20.39	16.51	9.95	7.08	5.71	4.78	4.09	3.20	2.63	2.25	1.49	1.26

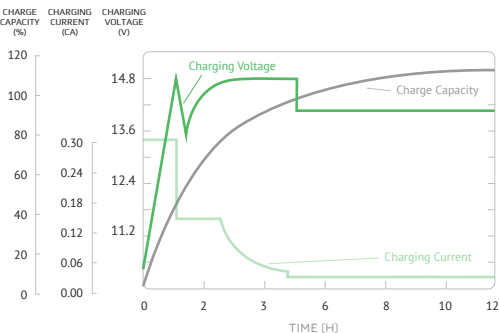
CYCLE LIFE CURVE GRAPH 25°C (77°F).



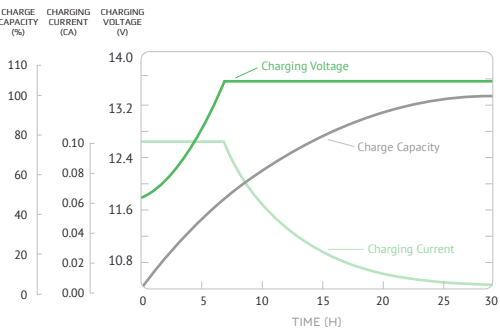
CYCLE LIFE CURVE GRAPH 40°C (104°F).



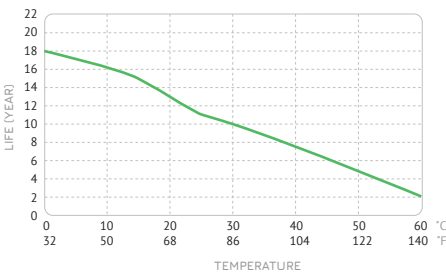
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



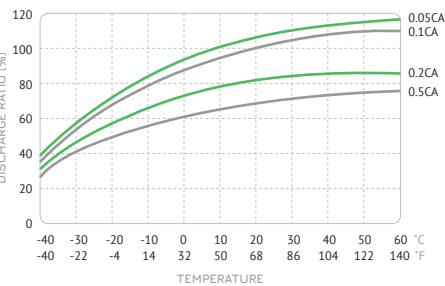
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



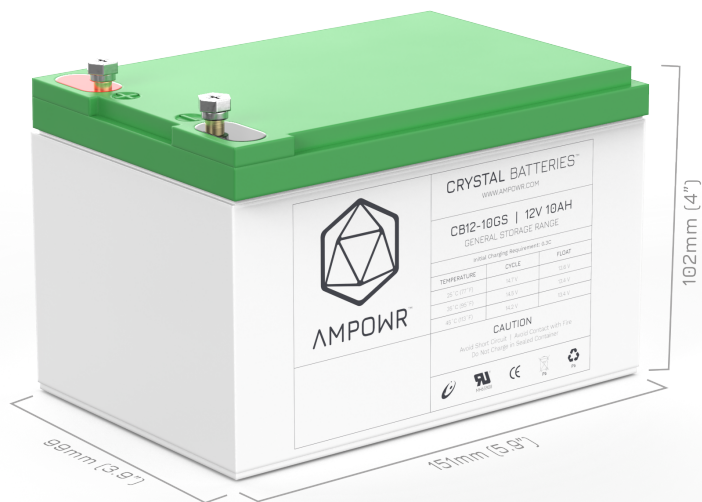
DATASHEET

CB12-10GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystalizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

TECHNICAL SPECIFICATIONS

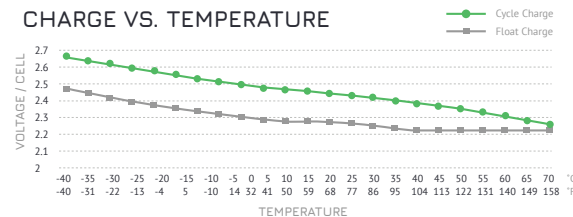
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	10Ah
WEIGHT	~ 3.5 kg / 7.7 lbs
DIMENSIONS	Height: 102 mm (4") Length: 151 mm (5.9") Width: 99 mm (3.9")
CAPACITY 25 °C (77 °F)	120 hour rate (110mA) - 13.2Ah 20 hour rate (600mA) - 12Ah 10 hour rate (1.0A) - 10Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 12.5mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	100 A (5s)
TERMINAL	F2 (250)
(CHARGING) CYCLE	Initial Charging Current 3A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



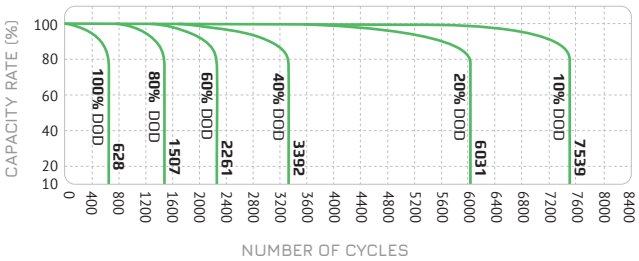
DATASHEET - CB12-10GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																	
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23

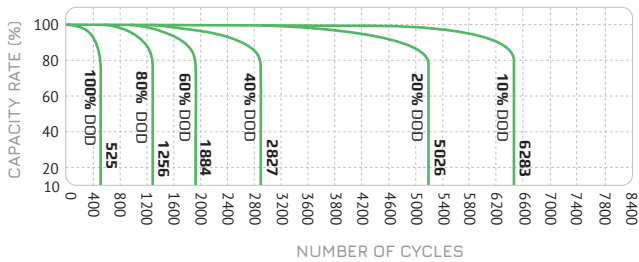
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	36.70	19.42	11.73	8.55	6.89	3.95	2.87	2.25	1.92	1.63	1.24	1.03	0.87	0.57	0.46
1.67V	34.10	18.78	11.56	8.50	6.88	3.93	2.82	2.24	1.89	1.62	1.24	1.02	0.87	0.56	0.46
1.70V	33.76	18.50	11.44	8.38	6.82	3.90	2.80	2.23	1.86	1.60	1.24	1.02	0.86	0.56	0.46
1.75V	30.92	17.92	11.33	8.32	6.71	3.82	2.79	2.20	1.84	1.59	1.23	1.01	0.86	0.56	0.46
1.80V	27.74	16.76	10.87	8.09	6.53	3.76	2.77	2.19	1.82	1.57	1.23	1.00	0.86	0.54	0.46
1.83V	26.52	15.38	10.69	7.80	6.24	3.73	2.66	2.10	1.78	1.51	1.20	0.96	0.82	0.53	0.45
1.85V	24.85	14.91	10.00	7.51	6.07	3.58	2.60	2.07	1.73	1.46	1.19	0.95	0.81	0.53	0.45

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	61.32	34.10	21.96	16.01	12.88	7.46	5.45	4.32	3.65	3.13	2.42	2.00	1.68	1.12	0.92
1.67V	58.37	33.58	21.07	15.89	12.89	7.46	5.38	4.31	3.65	3.13	2.42	1.99	1.68	1.12	0.92
1.70V	58.03	33.35	21.06	15.89	12.77	7.40	5.37	4.30	3.59	3.10	2.40	1.98	1.66	1.12	0.92
1.75V	54.04	32.94	21.09	15.89	12.72	7.34	5.36	4.29	3.58	3.08	2.39	1.96	1.66	1.12	0.91
1.80V	49.59	31.27	20.63	15.60	12.66	7.34	5.35	4.28	3.55	3.08	2.38	1.95	1.66	1.09	0.91
1.83V	47.85	28.72	20.46	15.14	12.14	7.28	5.20	4.13	3.51	2.98	2.38	1.90	1.64	1.08	0.91
1.85V	44.33	28.09	19.01	14.57	11.79	7.11	5.06	4.08	3.42	2.92	2.29	1.88	1.61	1.06	0.90

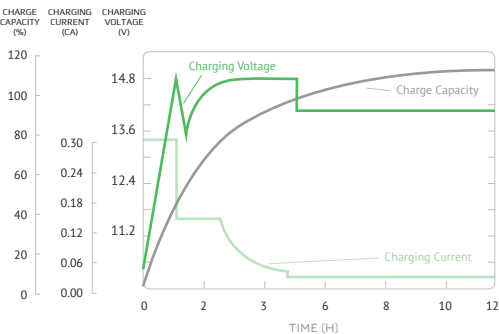
CYCLE LIFE CURVE GRAPH 25°C (77°F).



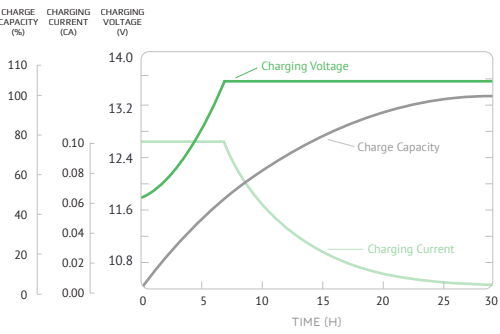
CYCLE LIFE CURVE GRAPH 40°C (104°F).



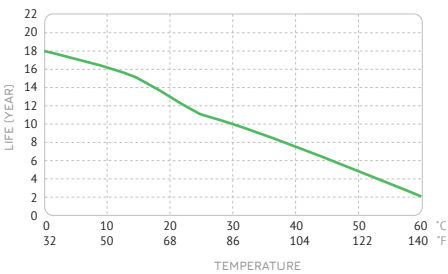
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



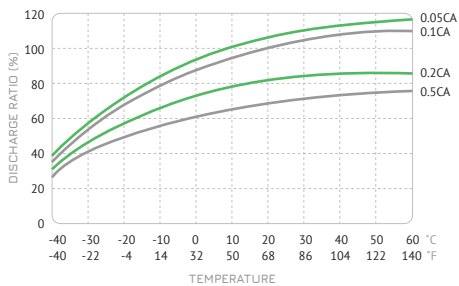
FLOATING CHARACTERISTICS 25°C (77°F).



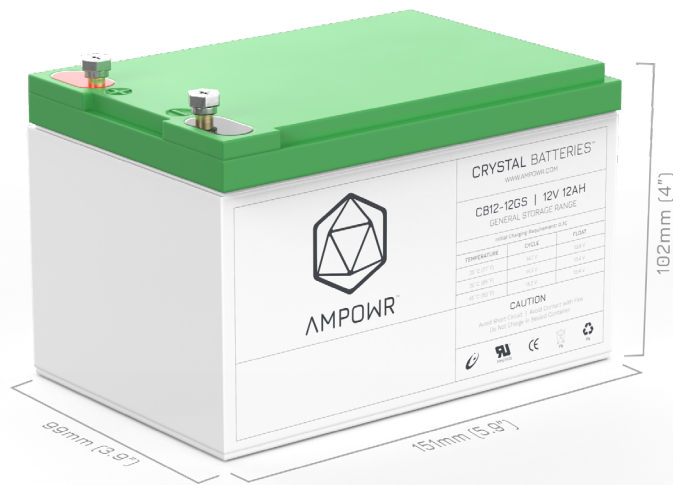
FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET



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THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

CB12-12GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

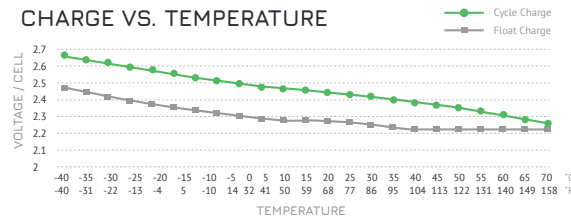
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	12Ah
WEIGHT	~ 41 kg / 9 lbs
DIMENSIONS	Height: 102 mm (4") Length: 151 mm (5.9") Width: 99 mm (3.9")
CAPACITY 25 °C (77 °F)	120 hour rate (120mA) - 14.4Ah 20 hour rate (660mA) - 13.2Ah 10 hour rate (1.2A) - 12Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 12mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	120 A (5s)
TERMINAL	M5 (8)
(CHARGING) CYCLE	Initial Charging Current 3.6A 14.7V / 25°C (77°F)
(CHARGING) FLOAT	13.6V / 25°C (77°F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



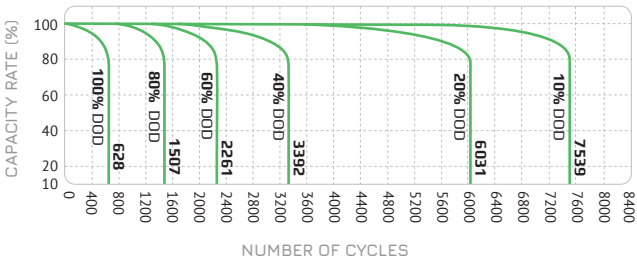
DATASHEET - CB12-12GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

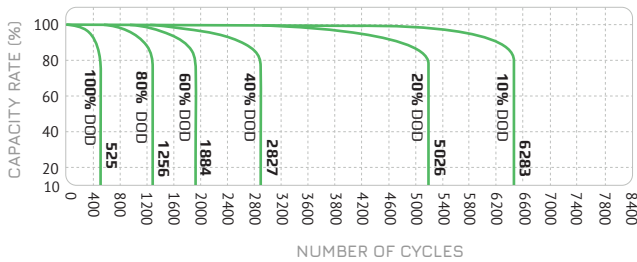
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	44.04	23.30	14.08	10.27	8.27	4.74	3.44	2.70	2.30	1.96	1.49	1.24	1.04	0.68	0.55
1.67V	40.92	22.54	13.87	10.20	8.25	4.72	3.38	2.68	2.27	1.94	1.49	1.23	1.04	0.68	0.55
1.70V	40.51	22.20	13.73	10.06	8.19	4.68	3.36	2.67	2.23	1.92	1.48	1.23	1.04	0.67	0.55
1.75V	37.11	21.50	13.60	9.99	8.05	4.58	3.34	2.64	2.21	1.91	1.48	1.21	1.03	0.67	0.55
1.80V	33.29	20.11	13.04	9.71	7.84	4.52	3.33	2.63	2.18	1.89	1.47	1.20	1.03	0.65	0.55
1.83V	31.82	18.45	12.83	9.36	7.49	4.47	3.20	2.52	2.14	1.82	1.44	1.15	0.98	0.64	0.54
1.85V	29.82	17.89	12.00	9.02	7.28	4.29	3.11	2.48	2.08	1.76	1.42	1.14	0.97	0.63	0.54

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	73.58	40.92	26.35	19.21	15.45	8.95	6.54	5.18	4.38	3.76	2.90	2.40	2.02	1.35	1.10
1.67V	70.05	40.29	25.29	19.07	15.47	8.95	6.46	5.17	4.38	3.75	2.90	2.39	2.02	1.35	1.10
1.70V	69.63	40.02	25.28	19.07	15.33	8.88	6.44	5.15	4.31	3.72	2.88	2.37	2.00	1.34	1.10
1.75V	64.85	39.53	25.31	19.07	15.26	8.81	6.43	5.15	4.29	3.70	2.86	2.36	2.00	1.34	1.10
1.80V	59.51	37.52	24.76	18.73	15.19	8.81	6.42	5.13	4.27	3.70	2.86	2.34	2.00	1.30	1.10
1.83V	57.43	34.47	24.55	18.17	14.56	8.74	6.24	4.96	4.22	3.58	2.86	2.27	1.96	1.29	1.09
1.85V	53.19	33.71	22.82	17.48	14.15	8.53	6.07	4.90	4.10	3.51	2.75	2.25	1.93	1.28	1.08

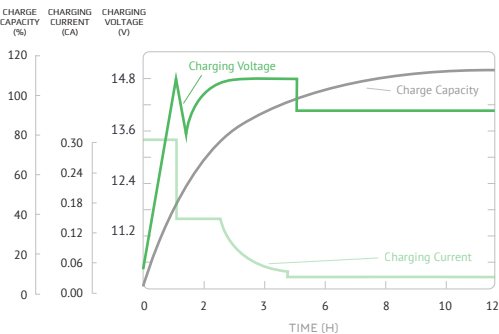
CYCLE LIFE CURVE GRAPH 25°C (77°F).



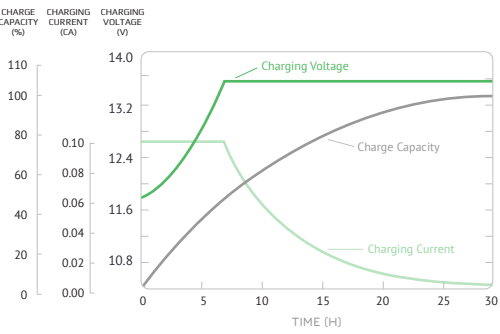
CYCLE LIFE CURVE GRAPH 40°C (104°F).



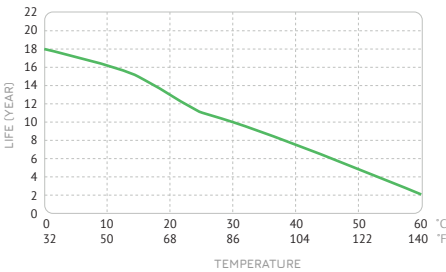
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



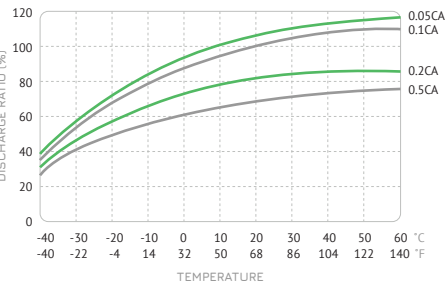
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-7.2GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

TECHNICAL SPECIFICATIONS

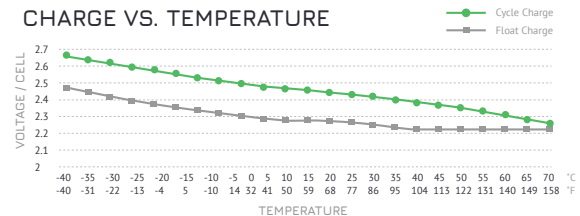
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	7.2Ah
WEIGHT	~ 2.2 kg / 4.6 lbs
DIMENSIONS	Height: 102 mm (4") Length: 151 mm (5.9") Width: 65 mm (2.6")
CAPACITY 25 °C (77 °F)	120 hour rate (70mA) - 8.4Ah 20 hour rate (390mA) - 7.8Ah 10 hour rate (720mA) - 7.2Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 30mΩ
SELF DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	72 A (5s)
TERMINAL	F2 (250)
(CHARGING) CYCLE	Initial Charging Current 2.16A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



DATASHEET - CB12-7.2GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

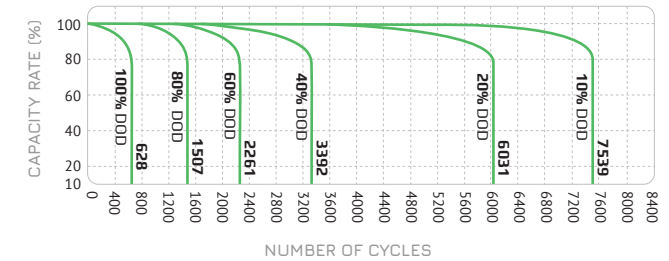
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	26.42	13.98	8.45	6.16	4.96	2.84	2.06	1.62	1.38	1.17	0.89	0.74	0.63	0.41	0.33
1.67V	24.55	13.52	8.32	6.12	4.95	2.83	2.03	1.61	1.36	1.17	0.89	0.74	0.62	0.41	0.33
1.70V	24.30	13.32	8.24	6.03	4.91	2.81	2.01	1.60	1.34	1.15	0.89	0.74	0.62	0.40	0.33
1.75V	22.27	12.90	8.16	5.99	4.83	2.75	2.01	1.58	1.33	1.14	0.89	0.73	0.62	0.40	0.33
1.80V	19.98	12.07	7.82	5.83	4.70	2.71	2.00	1.58	1.31	1.13	0.88	0.72	0.62	0.39	0.33
1.83V	19.09	11.07	7.70	5.62	4.49	2.68	1.92	1.51	1.28	1.09	0.86	0.69	0.59	0.38	0.33
1.85V	17.89	10.74	7.20	5.41	4.37	2.58	1.87	1.49	1.25	1.05	0.85	0.68	0.58	0.38	0.32

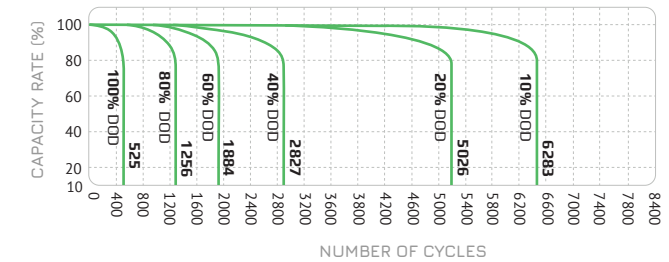
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	44.15	24.55	15.81	11.53	9.27	5.37	3.92	3.11	2.63	2.26	1.74	1.44	1.21	0.81	0.66
1.67V	42.03	24.18	15.17	11.44	9.28	5.37	3.87	3.10	2.63	2.25	1.74	1.44	1.21	0.81	0.66
1.70V	41.78	24.01	15.17	11.44	9.20	5.33	3.87	3.09	2.58	2.23	1.73	1.42	1.20	0.80	0.66
1.75V	38.91	23.72	15.18	11.44	9.15	5.28	3.86	3.09	2.58	2.22	1.72	1.41	1.20	0.80	0.66
1.80V	35.70	22.51	14.86	11.24	9.11	5.28	3.85	3.08	2.56	2.22	1.71	1.41	1.20	0.78	0.66
1.83V	34.46	20.68	14.73	10.90	8.74	5.24	3.75	2.98	2.53	2.15	1.71	1.36	1.18	0.77	0.65
1.85V	31.92	20.22	13.69	10.49	8.49	5.12	3.64	2.94	2.46	2.11	1.65	1.35	1.16	0.77	0.65

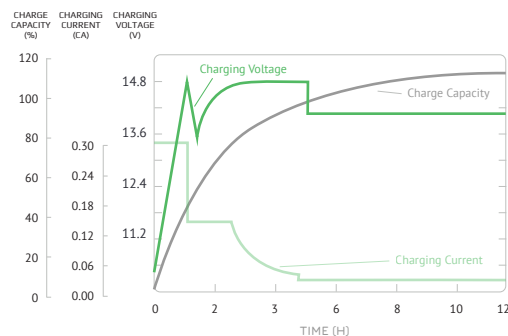
CYCLE LIFE CURVE GRAPH 25°C (77°F).



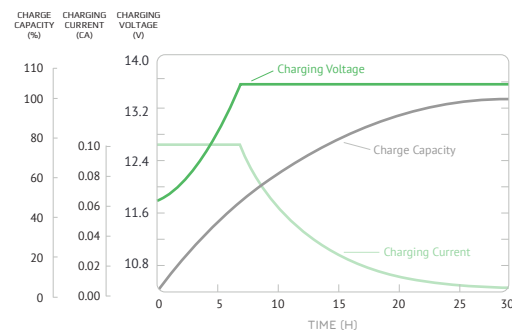
CYCLE LIFE CURVE GRAPH 40°C (104°F).



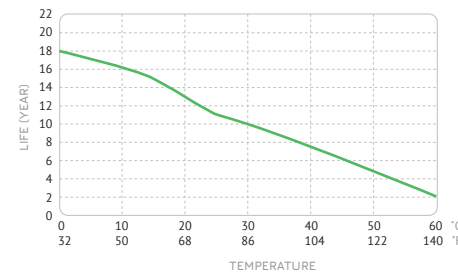
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



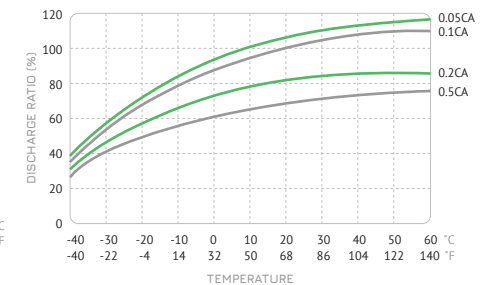
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

CB6-200GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO₂ electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

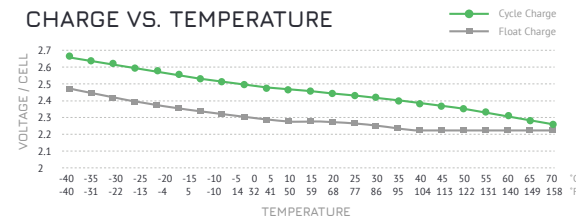
SPECIFICATION

NOMINAL VOLTAGE	6V
RATED CAPACITY (10 HOUR RATE)	200Ah
WEIGHT	~ 30.5 kg / 67.2 lbs
DIMENSIONS	Height: 230 mm (9.1") Length: 323 mm (12.7") Width: 178 mm (7")
CAPACITY 25 °C (77 °F)	120 hour rate (2.0A) - 240Ah 20 hour rate (10.8A) - 216Ah 10 hour rate (20A) - 200Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 1.5mΩ
SELF DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	2000 A (5s)
TERMINAL	M8 (18)
(CHARGING) CYCLE	Initial Charging Current 60A 7.4V / 25 °C (77 °F)
(CHARGING) FLOAT	6.8V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	5.70
0.05C OF CURRENT CLOSE TO IT	5.55
0.1C OF CURRENT CLOSE TO IT	5.40
0.2C OF CURRENT CLOSE TO IT	5.25
FROM 0.2C TO 0.5C	5.10
FROM 0.5C TO 1C	4.80
FROM 1C TO 3C	4.50
CURRENT IN EXCESS OF 3C	3.90

CHARGE VS. TEMPERATURE



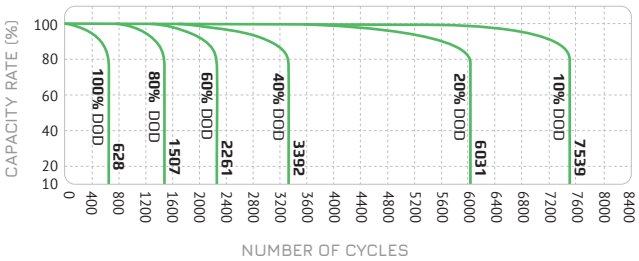
DATASHEET - CB6-200GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																	
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23

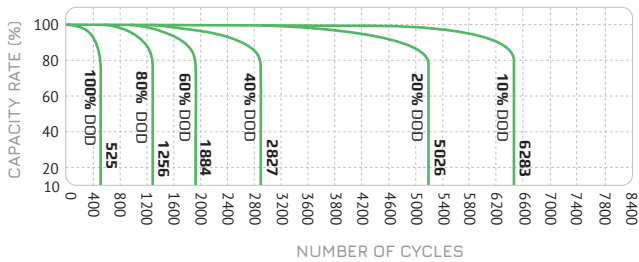
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	733.92	388.40	234.68	171.09	137.80	78.95	57.34	44.97	38.36	32.60	24.86	20.69	17.37	11.31	9.24
1.67V	682.08	375.68	231.20	169.92	137.56	78.61	56.30	44.74	37.80	32.37	24.82	20.46	17.34	11.27	9.20
1.70V	675.12	369.92	228.88	167.63	136.42	77.92	55.95	44.51	37.22	32.02	24.74	20.46	17.28	11.24	9.19
1.75V	618.48	358.32	226.60	166.48	134.10	76.42	55.72	43.95	36.88	31.79	24.62	20.23	17.20	11.19	9.18
1.80V	554.88	335.20	217.32	161.84	130.64	75.26	55.49	43.82	36.42	31.45	24.51	20.00	17.11	10.81	9.16
1.83V	530.40	307.52	213.88	156.08	124.86	74.57	53.29	41.97	35.61	30.29	23.99	19.19	16.42	10.69	9.04
1.85V	497.04	298.24	200.00	150.29	121.38	71.56	51.91	41.39	34.68	29.29	23.70	18.96	16.18	10.58	8.96

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	1226.4	682.0	439.2	320.2	257.6	149.1	109.0	86.3	72.9	62.7	48.3	40.0	33.6	22.4	18.4
1.67V	1167.5	671.6	421.5	317.9	257.8	149.1	107.6	86.2	72.9	62.5	48.3	39.9	33.6	22.4	18.4
1.70V	1160.5	667.0	421.3	317.9	255.4	148.0	107.4	85.9	71.8	62.1	48.0	39.5	33.3	22.3	18.4
1.75V	1080.8	658.9	421.8	317.9	254.3	146.8	107.2	85.8	71.6	61.6	47.7	39.3	33.3	22.3	18.3
1.80V	991.8	625.3	412.7	312.1	253.1	146.8	107.0	85.5	71.1	61.6	47.6	39.1	33.3	21.7	18.3
1.83V	957.1	574.5	409.2	302.8	242.7	145.6	104.0	82.6	70.3	59.6	47.6	37.9	32.7	21.5	18.1
1.85V	886.6	561.8	380.3	291.3	235.8	142.2	101.1	81.6	68.3	58.5	45.8	37.6	32.1	21.3	18.0

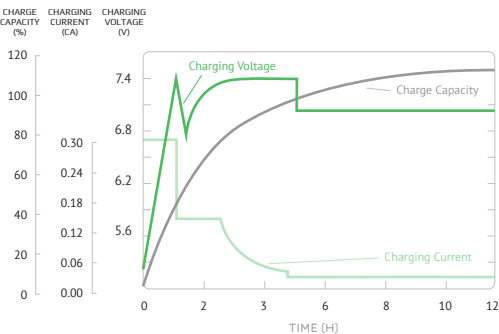
CYCLE LIFE CURVE GRAPH 25°C (77°F).



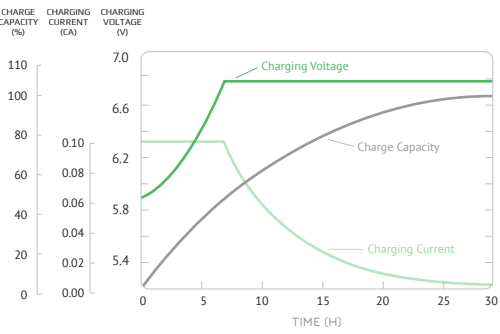
CYCLE LIFE CURVE GRAPH 40°C (104°F).



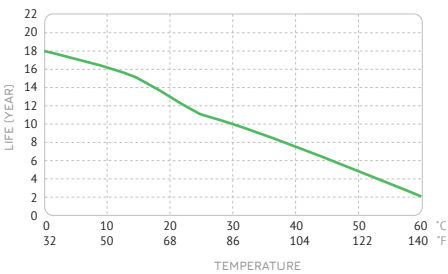
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



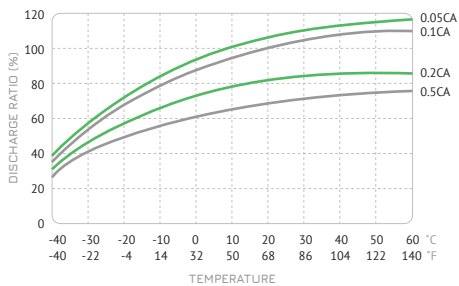
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB6-160GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

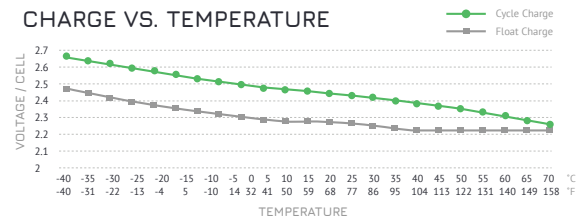
SPECIFICATION

NOMINAL VOLTAGE	6V
RATED CAPACITY (10 HOUR RATE)	160Ah
WEIGHT	~ 25.5 kg / 56.2 lbs
DIMENSIONS	Height: 230 mm (9.1") Length: 298 mm (11.7") Width: 172 mm (6.8")
CAPACITY 25 °C (77 °F)	120 hour rate (1.6A) - 192Ah 20 hour rate (8.75A) - 175Ah 10 hour rate (16A) - 160Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 2mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1600 A (5s)
TERMINAL	M8 (19)
(CHARGING) CYCLE	Initial Charging Current 48A 7.4V / 25 °C (77 °F)
(CHARGING) FLOAT	6.8V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	5.70
0.05C OF CURRENT CLOSE TO IT	5.55
0.1C OF CURRENT CLOSE TO IT	5.40
0.2C OF CURRENT CLOSE TO IT	5.25
FROM 0.2C TO 0.5C	5.10
FROM 0.5C TO 1C	4.80
FROM 1C TO 3C	4.50
CURRENT IN EXCESS OF 3C	3.90

CHARGE VS. TEMPERATURE



DATASHEET - CB6-160GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

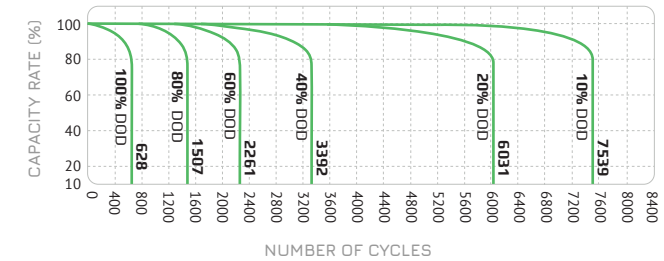
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	587.14	310.72	187.74	136.87	110.24	63.16	45.87	35.98	30.68	26.08	19.88	16.56	13.89	9.04	7.39
1.67V	545.66	300.54	184.96	135.94	110.05	62.89	45.04	35.79	30.24	25.90	19.86	16.37	13.87	9.02	7.36
1.70V	540.10	295.94	183.10	134.10	109.14	62.34	44.76	35.60	29.78	25.62	19.79	16.37	13.83	8.99	7.35
1.75V	494.78	286.66	181.28	133.18	107.28	61.13	44.58	35.16	29.50	25.43	19.70	16.19	13.76	8.95	7.34
1.80V	443.90	268.16	173.86	129.47	104.51	60.21	44.39	35.05	29.13	25.16	19.61	16.00	13.69	8.65	7.32
1.83V	424.32	246.02	171.10	124.86	99.89	59.65	42.63	33.57	28.49	24.23	19.19	15.35	13.13	8.56	7.23
1.85V	397.63	238.59	160.00	120.23	97.10	57.25	41.53	33.11	27.75	23.43	18.96	15.17	12.95	8.46	7.17

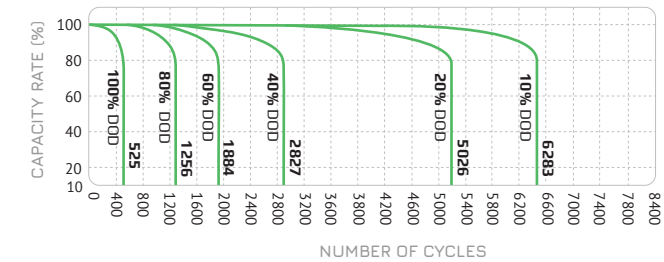
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	981.11	545.59	351.40	256.15	206.06	119.29	87.20	69.08	58.35	50.12	38.65	32.00	26.91	17.94	14.70
1.67V	933.97	537.27	337.19	254.30	206.21	119.29	86.09	68.99	58.35	50.03	38.65	31.90	26.91	17.94	14.70
1.70V	928.42	533.56	337.03	254.30	204.35	118.36	85.91	68.73	57.43	49.66	38.38	31.62	26.63	17.85	14.70
1.75V	864.62	527.09	337.40	254.30	203.44	117.44	85.72	68.61	57.24	49.29	38.19	31.41	26.63	17.85	14.61
1.80V	793.43	500.27	330.13	249.67	202.52	117.44	85.63	68.43	56.87	49.29	38.10	31.26	26.63	17.38	14.61
1.83V	765.67	459.59	327.36	242.28	194.19	116.52	83.22	66.12	56.22	47.72	38.10	30.33	26.17	17.20	14.52
1.85V	709.26	449.41	304.23	233.04	188.65	113.74	80.91	65.29	54.65	46.79	36.62	30.05	25.71	17.01	14.43

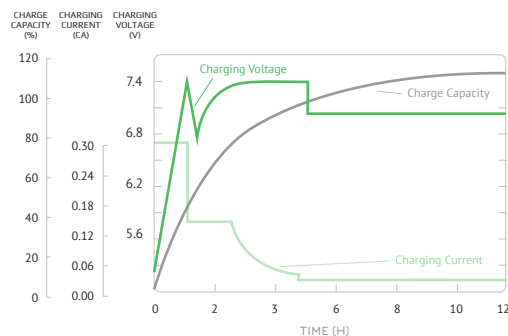
CYCLE LIFE CURVE GRAPH 25°C (77°F).



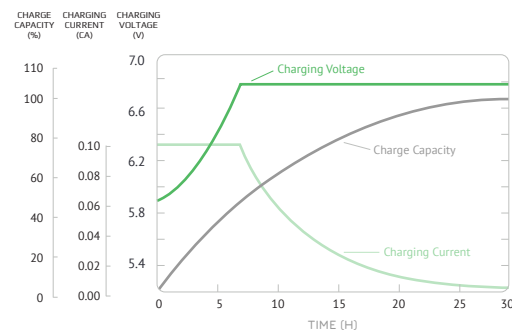
CYCLE LIFE CURVE GRAPH 40°C (104°F).



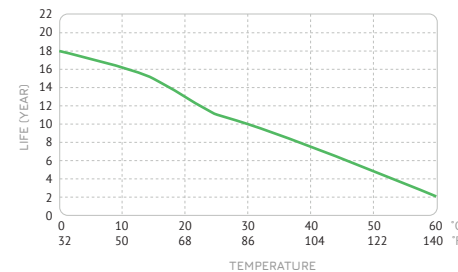
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



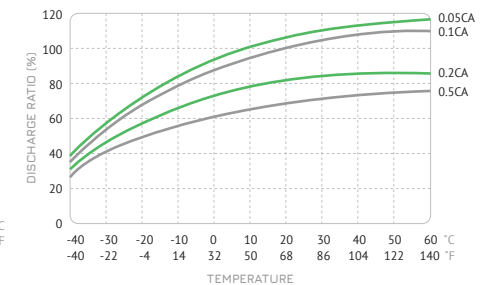
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB6-12GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

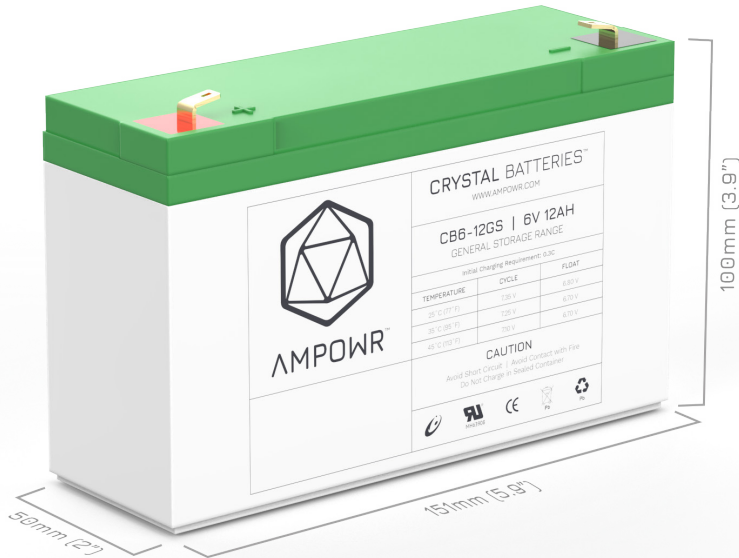
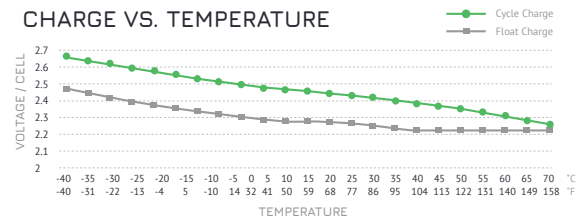
SPECIFICATION

NOMINAL VOLTAGE	6V
RATED CAPACITY (10 HOUR RATE)	12Ah
WEIGHT	~ 21 kg / 4.6 lbs
DIMENSIONS	Height: 100mm (3.9") Length: 151mm (5.9") Width: 50mm (2")
CAPACITY 25 °C (77 °F)	120 hour rate (120mA) - 14.4Ah 20 hour rate (660mA) - 13.2Ah 10 hour rate (1.2A) - 12Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 8mΩ
SELF DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	120 A (5s)
TERMINAL	F2 (250)
(CHARGING) CYCLE	Initial Charging Current 3.6A 7.4V / 25 °C (77 °F)
(CHARGING) FLOAT	6.8V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	5.70
0.05C OF CURRENT CLOSE TO IT	5.55
0.1C OF CURRENT CLOSE TO IT	5.40
0.2C OF CURRENT CLOSE TO IT	5.25
FROM 0.2C TO 0.5C	5.10
FROM 0.5C TO 1C	4.80
FROM 1C TO 3C	4.50
CURRENT IN EXCESS OF 3C	3.90

CHARGE VS. TEMPERATURE



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40 °C (40 °F) to +65 °C (149 °F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25 °C (50% DoD).

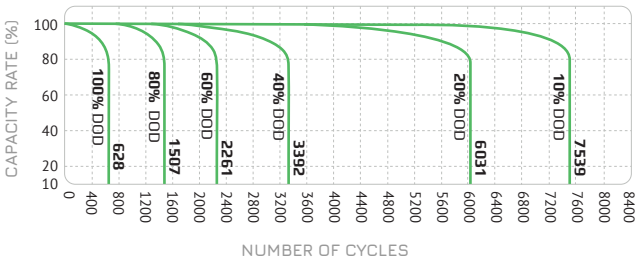
DATASHEET - CB6-12GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24

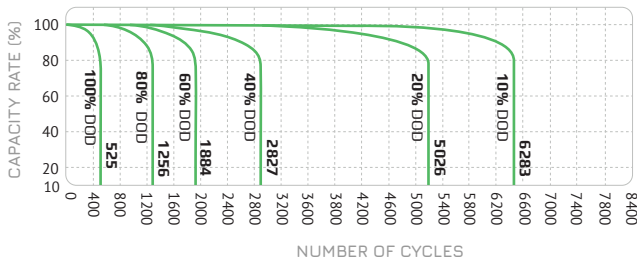
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)																
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h	
	44.035	23.304	14.081	10.266	8.268	4.737	3.440	2.698	2.301	1.956	1.491	1.242	1.042	0.678	0.554	
	1.67V	40.925	22.541	13.872	10.195	8.254	4.717	3.378	2.684	2.268	1.942	1.489	1.228	1.040	0.676	0.552
	1.70V	40.507	22.195	13.733	10.058	8.185	4.675	3.357	2.670	2.233	1.921	1.484	1.228	1.037	0.674	0.551
	1.75V	37.109	21.499	13.596	9.989	8.046	4.585	3.343	2.637	2.213	1.908	1.477	1.214	1.032	0.671	0.551
	1.80V	33.293	20.112	13.039	9.710	7.838	4.516	3.330	2.629	2.185	1.887	1.471	1.200	1.027	0.649	0.549
	1.83V	31.824	18.451	12.833	9.365	7.492	4.474	3.198	2.518	2.136	1.817	1.439	1.151	0.985	0.642	0.542
	1.85V	29.822	17.894	12.000	9.018	7.283	4.294	3.114	2.483	2.081	1.757	1.422	1.138	0.971	0.635	0.538

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	73.583	40.919	26.355	19.211	15.454	8.947	6.540	5.181	4.376	3.759	2.899	2.400	2.018	1.346	1.103
1.67V	70.048	40.295	25.289	19.073	15.466	8.947	6.547	5.174	4.376	3.752	2.899	2.393	2.018	1.345	1.103
1.70V	69.631	40.017	25.277	19.073	15.327	8.877	6.443	5.155	4.307	3.724	2.878	2.372	1.997	1.339	1.103
1.75V	64.846	39.532	25.305	19.072	15.258	8.808	6.429	5.146	4.293	3.697	2.864	2.356	1.997	1.339	1.096
1.80V	59.507	37.520	24.759	18.725	15.189	8.808	6.422	5.132	4.265	3.697	2.857	2.344	1.997	1.304	1.096
1.83V	57.425	34.469	24.552	18.171	14.565	8.739	6.242	4.959	4.217	3.579	2.857	2.275	1.963	1.290	1.089
1.85V	53.195	33.706	22.818	17.478	14.148	8.531	6.069	4.896	4.099	3.509	2.747	2.254	1.928	1.276	1.082

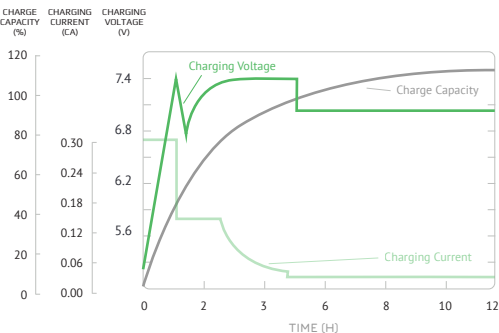
CYCLE LIFE CURVE GRAPH 25°C (77°F).



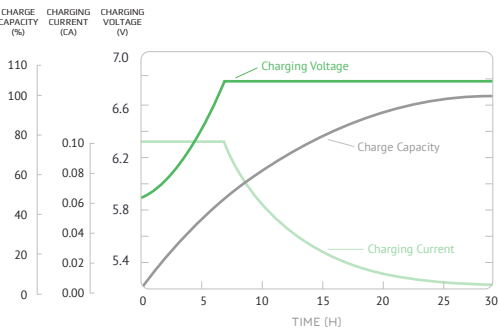
CYCLE LIFE CURVE GRAPH 40°C (104°F).



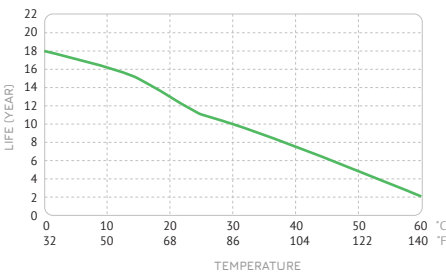
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



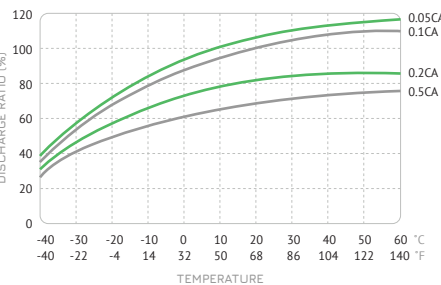
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET



CRYSTAL TECHNOLOGY

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No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



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A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

CB12-55GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

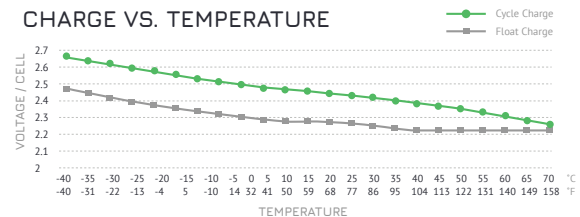
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	55Ah
WEIGHT	~ 16.9 kg / 37.3 lbs
DIMENSIONS	Height: 215 mm (8.5") Length: 229 mm (9") Width: 138 mm (5.4")
CAPACITY 25 °C (77 °F)	120 hour rate (0.55A) - 66Ah 20 hour rate (3.0A) - 60Ah 10 hour rate (5.5A) - 55Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 8mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	550 A (5s)
TERMINAL	M6 (16)
(CHARGING) CYCLE	Initial Charging Current 16.5A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



DATASHEET - CB12-55GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

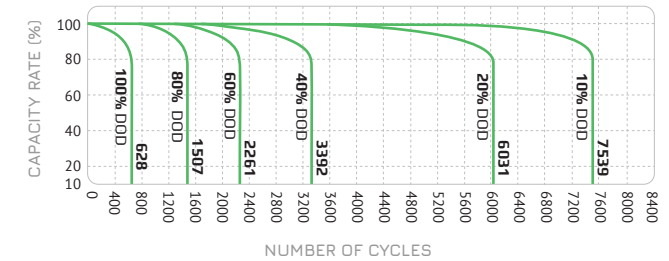
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	201.83	106.81	64.54	47.05	37.90	21.71	15.77	12.37	10.55	8.97	6.84	5.69	4.78	3.11	2.54
1.67V	187.57	103.31	63.58	46.73	37.83	21.62	15.48	12.30	10.40	8.90	6.83	5.63	4.77	3.10	2.53
1.70V	185.66	101.73	62.94	46.10	37.52	21.43	15.39	12.24	10.24	8.81	6.80	5.63	4.75	3.09	2.53
1.75V	170.08	98.54	62.32	45.78	36.88	21.01	15.32	12.08	10.14	8.74	6.77	5.56	4.73	3.08	2.52
1.80V	152.59	92.18	59.76	44.51	35.92	20.70	15.26	12.05	10.01	8.65	6.74	5.50	4.71	2.97	2.52
1.83V	145.86	84.57	58.82	42.92	34.34	20.51	14.66	11.54	9.79	8.33	6.60	5.28	4.51	2.94	2.49
1.85V	136.69	82.02	55.00	41.33	33.38	19.68	14.27	11.38	9.54	8.05	6.52	5.21	4.45	2.91	2.46

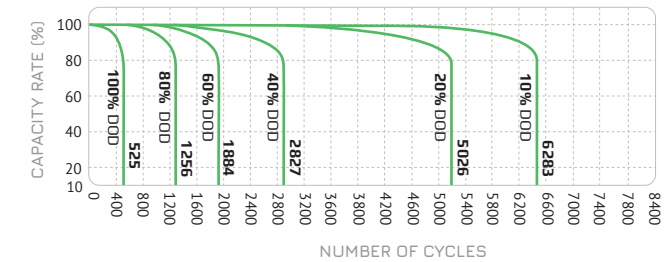
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	337.26	187.55	120.79	88.05	70.83	41.01	29.98	23.75	20.06	17.23	13.29	11.00	9.25	6.17	5.05
1.67V	321.05	184.69	115.91	87.42	70.89	41.01	29.59	23.71	20.06	17.20	13.29	10.97	9.25	6.17	5.05
1.70V	319.14	183.41	115.85	87.42	70.25	40.69	29.53	23.63	19.74	17.07	13.19	10.87	9.15	6.13	5.05
1.75V	297.21	181.19	115.98	87.42	69.93	40.37	29.47	23.59	19.68	16.94	13.13	10.80	9.15	6.13	5.02
1.80V	272.74	171.97	113.48	85.83	69.62	40.37	29.44	23.52	19.55	16.94	13.10	10.74	9.15	5.98	5.02
1.83V	263.20	157.98	112.53	83.28	66.75	40.05	28.61	22.73	19.33	16.40	13.10	10.43	9.00	5.91	4.99
1.85V	243.81	154.49	104.58	80.11	64.85	39.10	27.81	22.44	18.79	16.08	12.59	10.33	8.84	5.85	4.96

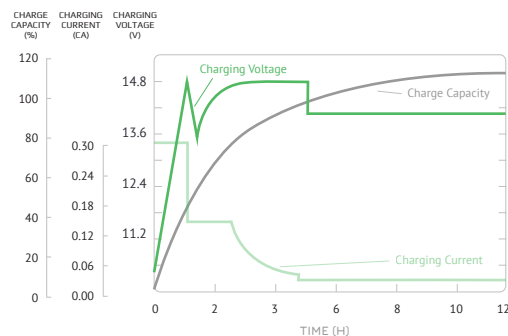
CYCLE LIFE CURVE GRAPH 25°C (77°F).



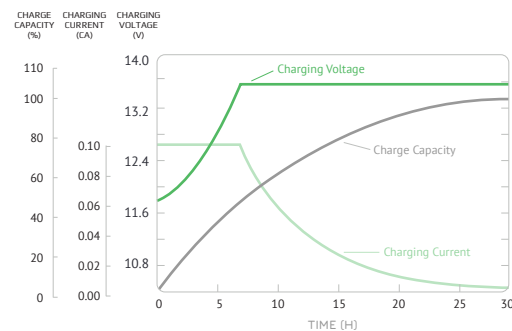
CYCLE LIFE CURVE GRAPH 40°C (104°F).



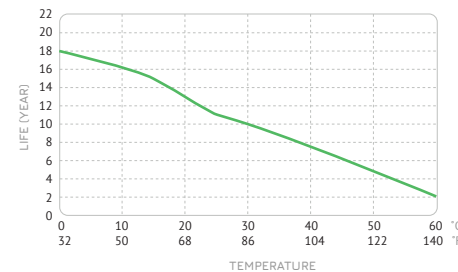
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



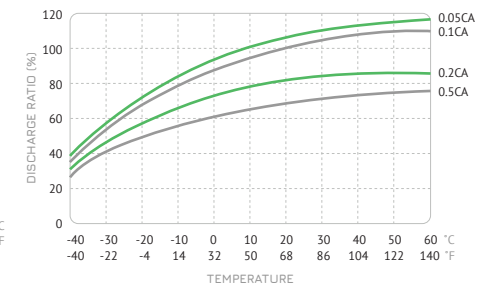
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



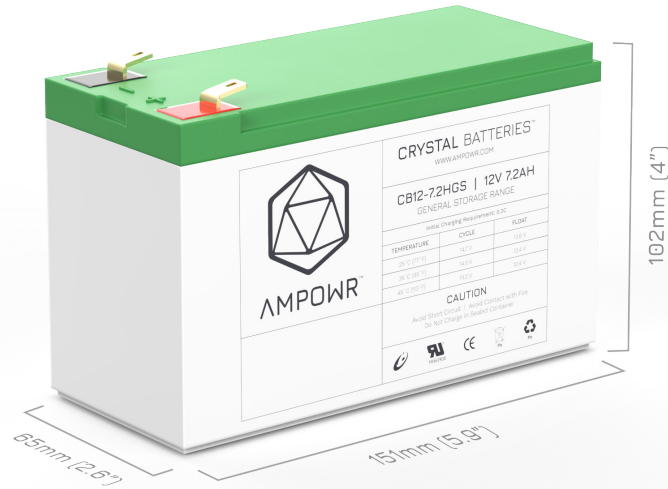
DATASHEET

CB12-7.2HGS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

TECHNICAL SPECIFICATIONS

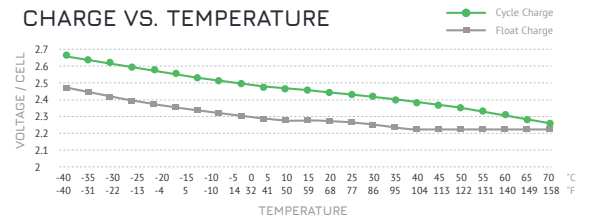
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	9Ah
WEIGHT	~ 2.54 kg / 5.6 lbs
DIMENSIONS	Height: 102 mm (4") Length: 151 mm (5.9") Width: 65 mm (2.6")
CAPACITY 25 °C (77 °F)	10 hour rate (0.9A) - 9Ah 5 hour rate (1.44A) - 7.2Ah 2 hour rate (3A) - 6Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 24mΩ
SELF DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	90A (5s)
TERMINAL	F2 (250)
(CHARGING) CYCLE	Initial Charging Current 2.7A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



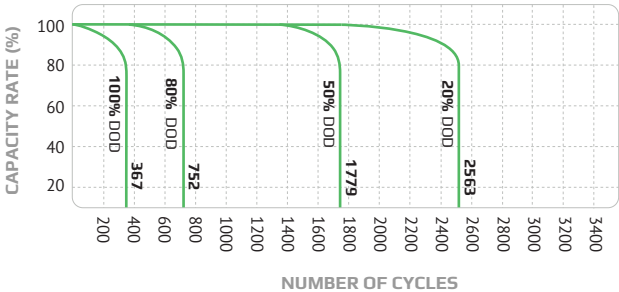
DATASHEET - CB12-7.2HGS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

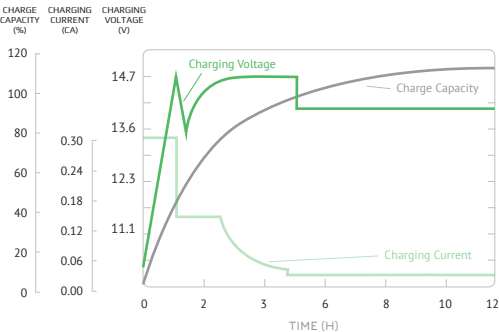
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	33.0	17.4	10.5	6.69	5.50	3.31	2.37	1.92	1.61	1.40	1.11	0.931	0.781	0.508	0.415
1.67V	30.6	16.9	10.4	6.64	5.45	3.23	2.33	1.91	1.58	1.38	1.10	0.920	0.780	0.507	0.414
1.70V	30.3	16.6	10.2	6.54	5.40	3.15	2.31	1.90	1.55	1.37	1.10	0.920	0.777	0.505	0.413
1.75V	27.8	16.1	10.1	6.49	5.33	3.08	2.30	1.87	1.53	1.36	1.10	0.910	0.774	0.503	0.413
1.80V	24.9	15.0	9.70	6.28	5.12	3.00	2.29	1.87	1.50	1.35	1.09	0.900	0.769	0.486	0.412
1.83V	23.8	13.8	9.60	6.02	4.88	2.96	2.19	1.78	1.46	1.30	1.07	0.877	0.738	0.481	0.406
1.85V	22.3	13.4	9.00	5.76	4.75	2.92	2.03	1.76	1.43	1.28	1.06	0.864	0.728	0.476	0.403

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	71.7	37.5	24.6	13.4	10.7	6.24	4.56	3.61	3.05	2.62	2.02	1.67	1.40	0.939	0.770
1.67V	70.0	36.6	24.1	13.3	10.7	6.24	4.50	3.61	3.05	2.61	2.02	1.67	1.40	0.939	0.770
1.70V	68.5	35.8	23.6	13.3	10.6	6.19	4.48	3.59	3.00	2.59	2.00	1.65	1.39	0.934	0.769
1.75V	65.3	34.1	22.5	13.3	10.6	6.14	4.43	3.59	2.99	2.58	1.99	1.64	1.39	0.934	0.765
1.80V	59.8	31.2	20.8	13.0	10.5	6.14	4.37	3.58	2.97	2.58	1.99	1.63	1.39	0.910	0.765
1.83V	57.5	30.1	19.8	12.6	10.1	6.09	4.30	3.46	2.94	2.49	1.99	1.60	1.37	0.900	0.760
1.85V	52.5	27.4	18.1	12.1	9.87	5.95	4.23	3.41	2.86	2.44	1.91	1.59	1.34	0.891	0.755

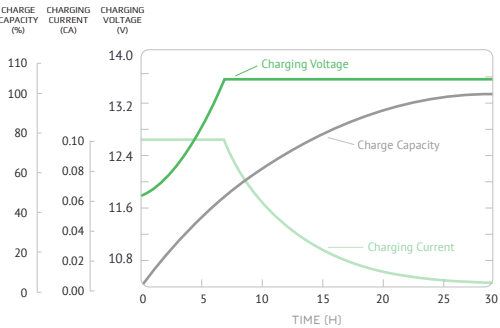
CYCLE LIFE CURVE GRAPH 25°C (77°F).



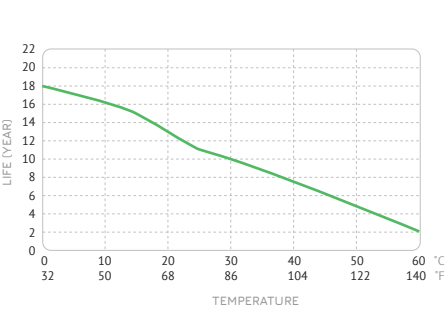
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



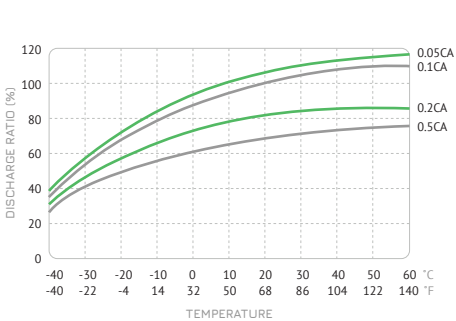
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



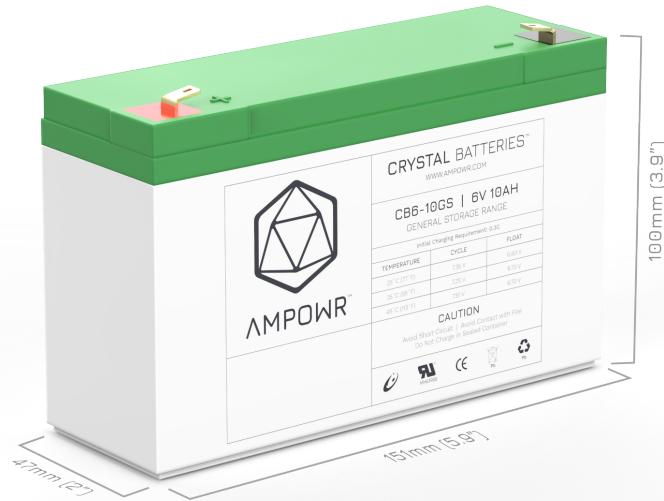
DATASHEET

CB6-10GS

CRYSTAL BATTERY™ - GS GENERAL STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

TECHNICAL SPECIFICATIONS

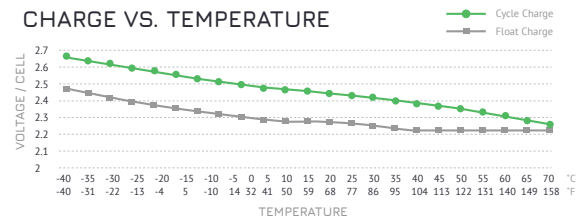
SPECIFICATION

NOMINAL VOLTAGE	6V
RATED CAPACITY (10 HOUR RATE)	10Ah
WEIGHT	~ 1.75 kg / 3.9 lbs
DIMENSIONS	Height: 100 mm (3.9") Length: 151 mm (5.9") Width: 47 mm (2")
CAPACITY 25 °C (77 °F)	120 hour rate (90mA) - 10.8Ah 20 hour rate (600mA) - 12Ah 10 hour rate (1A) - 10Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 8mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	100 A (5s)
TERMINAL	F2 (250)
(CHARGING) CYCLE	Initial Charging Current 3A 7.4V / 25°C (77 °F)
(CHARGING) FLOAT	6.8V / 25°C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	5.70
0.05C OF CURRENT CLOSE TO IT	5.55
0.1C OF CURRENT CLOSE TO IT	5.40
0.2C OF CURRENT CLOSE TO IT	5.25
FROM 0.2C TO 0.5C	5.10
FROM 0.5C TO 1C	4.80
FROM 1C TO 3C	4.50
CURRENT IN EXCESS OF 3C	3.90

CHARGE VS. TEMPERATURE



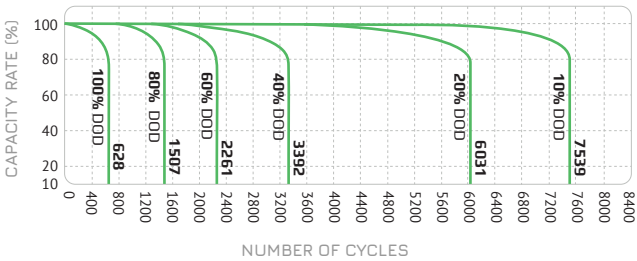
DATASHEET - CB6-10GS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

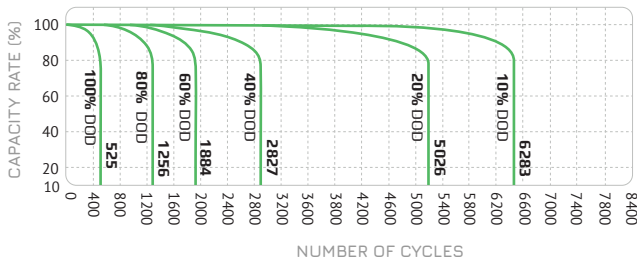
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	36.696	19.420	11.734	8.555	6.890	3.948	2.867	2.249	1.918	1.630	1.243	1.035	0.868	0.565	0.462
1.67V	34.104	18.784	11.560	8.496	6.878	3.931	2.815	2.237	1.890	1.619	1.241	1.023	0.867	0.564	0.460
1.70V	33.756	18.496	11.444	8.381	6.821	3.896	2.798	2.225	1.861	1.601	1.237	1.023	0.864	0.562	0.460
1.75V	30.924	17.916	11.330	8.324	6.705	3.821	2.786	2.197	1.844	1.590	1.231	1.012	0.860	0.560	0.459
1.80V	27.744	16.670	10.866	8.092	6.532	3.763	2.775	2.191	1.821	1.572	1.225	1.000	0.856	0.540	0.458
1.83V	26.520	15.376	10.694	7.804	6.243	3.728	2.665	2.098	1.780	1.514	1.199	0.960	0.821	0.535	0.452
1.85V	24.852	14.912	10.000	7.515	6.069	3.578	2.595	2.069	1.734	1.464	1.185	0.948	0.809	0.529	0.448

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	61.320	34.100	21.962	16.009	12.879	7.456	5.450	4.317	3.647	3.133	2.416	2.000	1.682	1.121	0.919
1.67V	58.373	33.579	21.074	15.894	12.888	7.456	5.381	4.312	3.647	3.127	2.416	1.994	1.682	1.121	0.919
1.70V	58.026	33.348	21.064	15.894	12.772	7.398	5.369	4.296	3.589	3.104	2.399	1.977	1.665	1.115	0.919
1.75V	54.038	32.943	21.088	15.894	12.715	7.340	5.358	4.288	3.578	3.081	2.387	1.963	1.665	1.115	0.913
1.80V	49.589	31.267	20.633	15.605	12.657	7.340	5.352	4.277	3.554	3.081	2.381	1.954	1.665	1.087	0.913
1.83V	47.854	28.724	20.460	15.142	12.137	7.282	5.202	4.132	3.514	2.928	2.381	1.896	1.636	1.075	0.907
1.85V	44.329	28.088	19.015	14.565	11.790	7.109	5.057	4.080	3.416	2.924	2.289	1.878	1.607	1.063	0.902

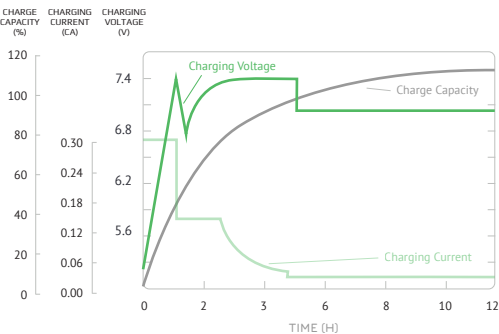
CYCLE LIFE CURVE GRAPH 25°C (77°F).



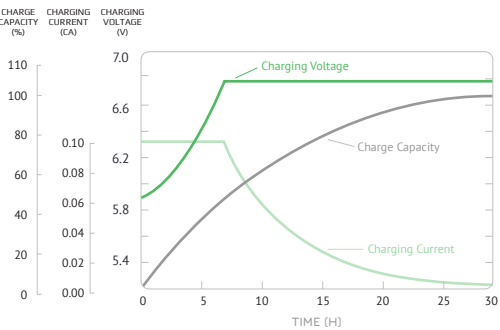
CYCLE LIFE CURVE GRAPH 40°C (104°F).



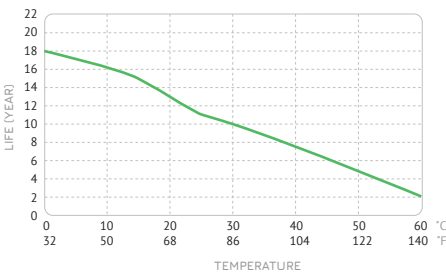
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



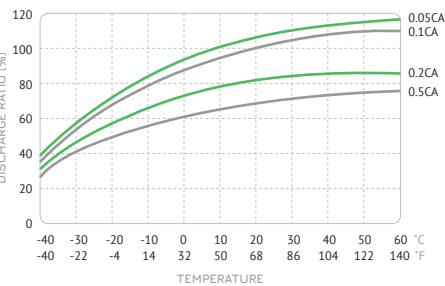
FLOATING CHARACTERISTICS 25°C (77°F).



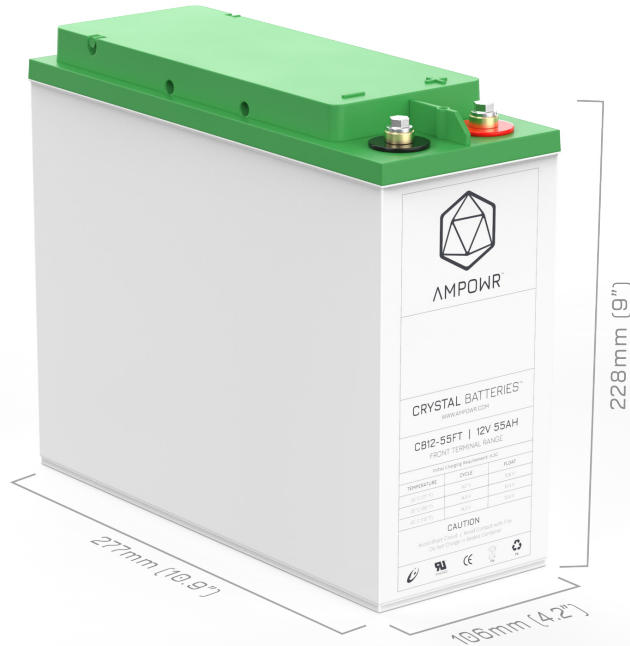
FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

CB12-55FT

CRYSTAL BATTERY™ - FT FRONT TERMINAL

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

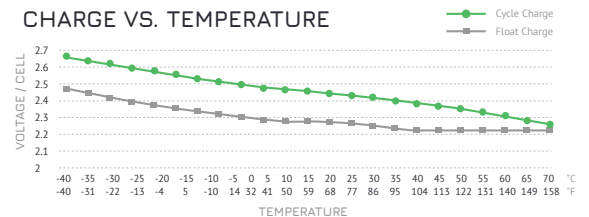
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	55Ah
WEIGHT	~ 16.3 kg / 35.9 lbs
DIMENSIONS	Height: 228mm (9") Length: 277mm (10.9") Width: 106mm (4.2")
CAPACITY 25 °C (77 °F)	120 hour rate (0.55A) - 66Ah 20 hour rate (3.0A) - 60Ah 10 hour rate (5.5A) - 55Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 8mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	550 A (5s)
TERMINAL	M6 (13.5)
(CHARGING) CYCLE	Initial Charging Current 16.5A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



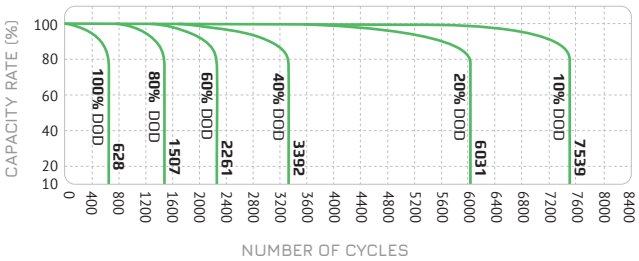
DATASHEET - CB12-55FT

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

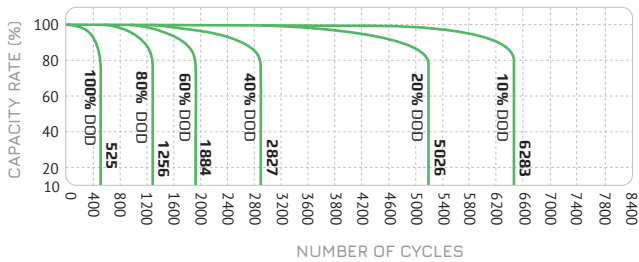
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	201.83	106.81	64.54	47.05	37.90	21.71	15.77	12.37	10.55	8.97	6.84	5.69	4.78	3.11	2.54
1.67V	187.57	103.31	63.58	46.73	37.83	21.62	15.48	12.30	10.40	8.90	6.83	5.63	4.77	3.10	2.53
1.70V	185.66	101.73	62.94	46.10	37.52	21.43	15.39	12.24	10.24	8.81	6.80	5.63	4.75	3.09	2.53
1.75V	170.08	98.54	62.32	45.78	36.88	21.01	15.32	12.08	10.14	8.74	6.77	5.56	4.73	3.08	2.52
1.80V	152.59	92.18	59.76	44.51	35.92	20.70	15.26	12.05	10.01	8.65	6.74	5.50	4.71	2.97	2.52
1.83V	145.86	84.57	58.82	42.92	34.34	20.51	14.66	11.54	9.79	8.33	6.60	5.28	4.51	2.94	2.49
1.85V	136.69	82.02	55.00	41.33	33.38	19.68	14.27	11.38	9.54	8.05	6.52	5.21	4.45	2.91	2.46

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	337.26	187.55	120.79	88.05	70.83	41.01	29.98	23.75	20.06	17.23	13.29	11.00	9.25	6.17	5.05
1.67V	321.05	184.69	115.91	87.42	70.89	41.01	29.59	23.71	20.06	17.20	13.29	10.97	9.25	6.17	5.05
1.70V	319.14	183.41	115.85	87.42	70.25	40.69	29.53	23.63	19.74	17.07	13.19	10.87	9.15	6.13	5.05
1.75V	297.21	181.19	115.98	87.42	69.93	40.37	29.47	23.59	19.68	16.94	13.13	10.80	9.15	6.13	5.02
1.80V	272.74	171.97	113.48	85.83	69.62	40.37	29.44	23.52	19.55	16.94	13.10	10.74	9.15	5.98	5.02
1.83V	263.20	157.98	112.53	83.28	66.75	40.05	28.61	22.73	19.33	16.40	13.10	10.43	9.00	5.91	4.99
1.85V	243.81	154.49	104.58	80.11	64.85	39.10	27.81	22.44	18.79	16.08	12.59	10.33	8.84	5.85	4.96

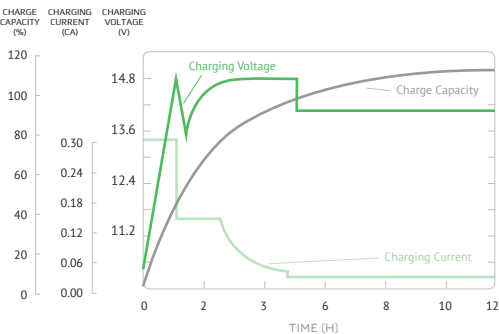
CYCLE LIFE CURVE GRAPH 25°C (77°F).



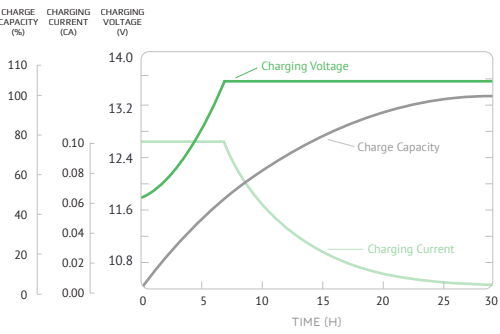
CYCLE LIFE CURVE GRAPH 40°C (104°F).



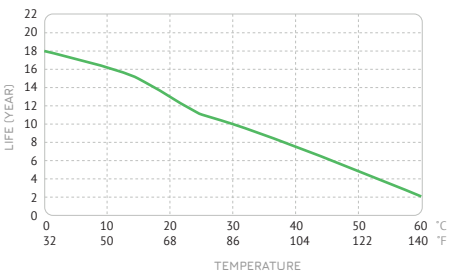
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



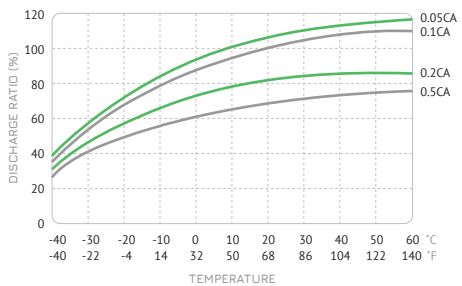
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-90FT

CRYSTAL BATTERY™ - FT FRONT TERMINAL

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

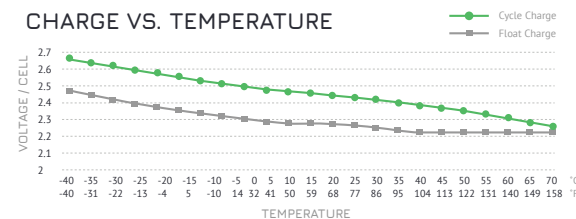
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	90Ah
WEIGHT	~ 31.5 kg / 69.5 lbs
DIMENSIONS	Height: 286mm (11.3") Length: 396mm (15.6") Width: 110mm (4.3")
CAPACITY 25 °C (77 °F)	120 hour rate (0.9A) - 108Ah 20 hour rate (5.0A) - 100Ah 10 hour rate (9A) - 90Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 6.3mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	900A (5s)
TERMINAL	M6 (13.5)
(CHARGING) CYCLE	Initial Charging Current 27A 14.7V / 25°C (77°F)
(CHARGING) FLOAT	13.6V / 25°C (77°F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



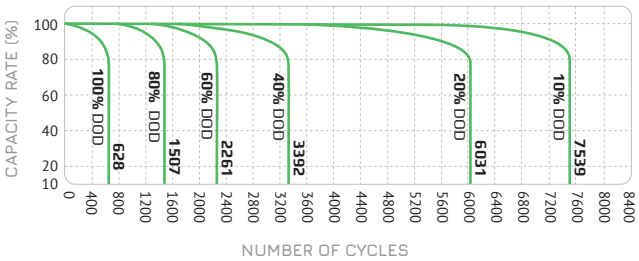
DATASHEET - CB12-90FT

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																	
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23

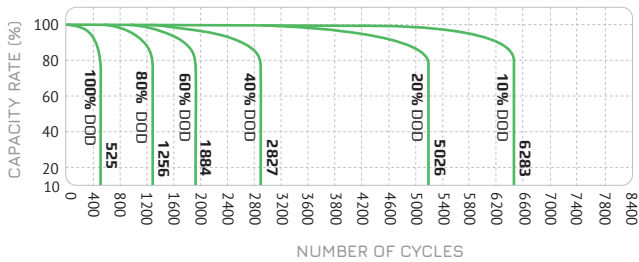
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	330.26	174.78	105.61	76.99	62.01	35.53	25.80	20.24	17.26	14.67	11.18	9.31	7.82	5.09	4.16
1.67V	306.94	169.06	104.04	76.46	61.90	35.38	25.34	20.13	17.01	14.57	11.17	9.21	7.80	5.07	4.14
1.70V	303.80	166.46	103.00	75.43	61.39	35.06	25.18	20.03	16.75	14.41	11.13	9.21	7.78	5.06	4.14
1.75V	278.32	161.24	101.97	74.92	60.35	34.39	25.07	19.78	16.60	14.31	11.08	9.10	7.74	5.04	4.13
1.80V	249.70	150.84	97.79	72.83	58.79	33.87	24.97	19.72	16.39	14.15	11.03	9.00	7.70	4.86	4.12
1.83V	238.68	138.38	96.25	70.24	56.19	33.55	23.98	18.88	16.02	13.63	10.79	8.64	7.39	4.81	4.07
1.85V	223.67	134.21	90.00	67.63	54.62	32.20	23.36	18.62	15.61	13.18	10.67	8.53	7.28	4.76	4.03

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	551.88	306.90	197.66	144.08	115.91	67.10	49.05	38.86	32.82	28.19	21.74	18.00	15.14	10.09	8.27
1.67V	525.36	302.21	189.67	143.05	116.00	67.10	48.43	38.80	32.82	28.14	21.74	17.95	15.14	10.09	8.27
1.70V	522.23	300.13	189.58	143.05	114.95	66.58	48.32	38.66	32.30	27.93	21.59	17.79	14.98	10.04	8.27
1.75V	486.35	296.49	189.79	143.04	114.44	66.06	48.22	38.60	32.20	27.72	21.48	17.67	14.98	10.04	8.22
1.80V	446.30	281.40	185.70	140.44	113.92	66.06	48.17	38.49	31.99	27.72	21.43	17.58	14.98	9.78	8.22
1.83V	430.69	258.52	184.14	136.28	109.23	65.54	46.81	37.19	31.63	26.84	21.43	17.06	14.72	9.68	8.17
1.85V	398.96	252.79	171.13	131.09	106.11	63.98	45.51	36.72	30.74	26.32	20.60	16.91	14.46	9.57	8.11

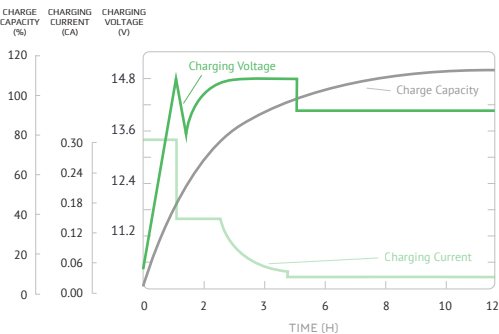
CYCLE LIFE CURVE GRAPH 25°C (77°F).



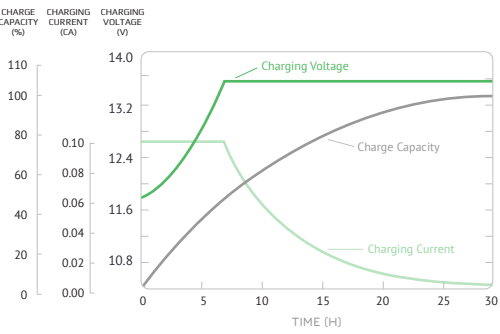
CYCLE LIFE CURVE GRAPH 40°C (104°F).



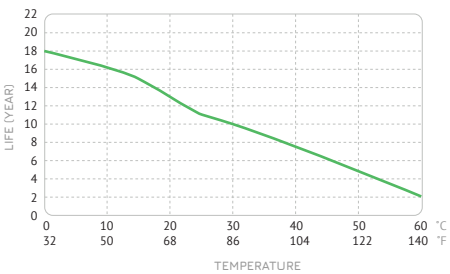
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



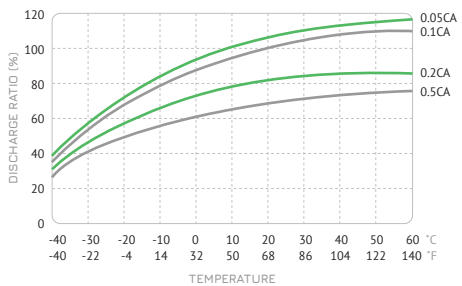
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-100FT

CRYSTAL BATTERY™ - FT FRONT TERMINAL

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

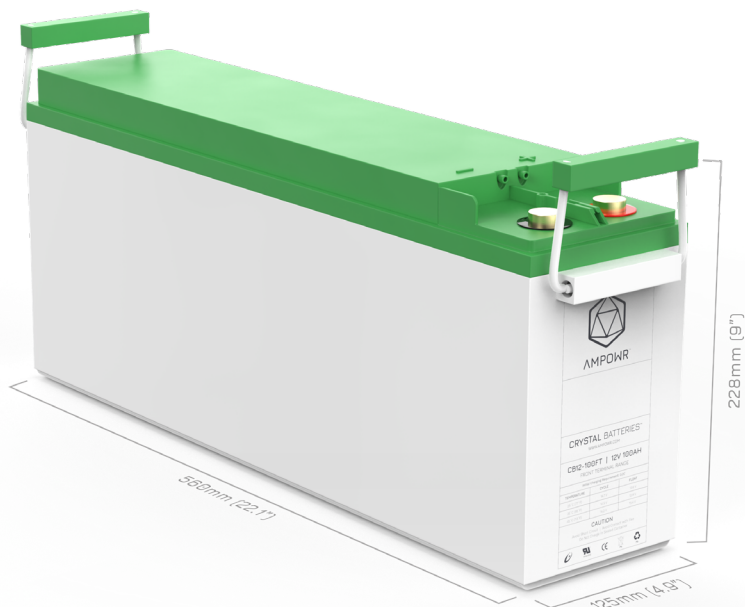
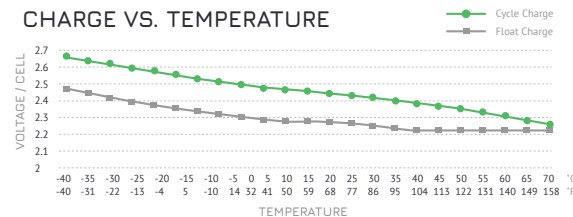
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	100Ah
WEIGHT	~ 30.5 kg / 76.1 lbs
DIMENSIONS	Height: 228mm (9") Length: 560mm (22.1") Width: 125mm (4.9")
CAPACITY 25 °C (77 °F)	120 hour rate (1.2A) - 120Ah 20 hour rate (5.4A) - 108Ah 10 hour rate (10A) - 100Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 6mΩ
SELF DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1000A (5s)
TERMINAL	M8 (19)
(CHARGING) CYCLE	Initial Charging Current 30A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



CRYSTAL TECHNOLOGY

Our unique electrolyte crystalizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40 °C (40 °F) to +65 °C (149 °F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25 °C (50% DoD).

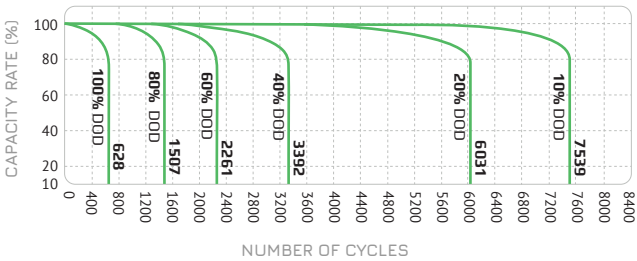
DATASHEET - CB12-100FT

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																								
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158	
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27	
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23	

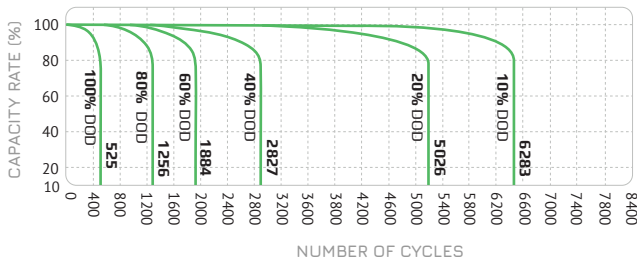
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	366.96	194.20	117.34	85.55	68.90	39.48	28.67	22.49	19.18	16.30	12.43	10.35	8.68	5.65	4.62
1.67V	341.04	187.84	115.60	84.96	68.78	39.31	28.15	22.37	18.90	16.19	12.41	10.23	8.67	5.64	4.60
1.70V	337.56	184.96	114.44	83.81	68.21	38.96	27.98	22.25	18.61	16.01	12.37	10.23	8.64	5.62	4.60
1.75V	309.24	179.16	113.30	83.24	67.05	38.21	27.86	21.97	18.44	15.90	12.31	10.12	8.60	5.60	4.59
1.80V	277.44	167.60	108.66	80.92	65.32	37.63	27.75	21.91	18.21	15.72	12.25	10.00	8.56	5.40	4.58
1.83V	265.20	153.76	106.94	78.04	62.43	37.28	26.65	20.98	17.80	15.14	11.99	9.60	8.21	5.35	4.52
1.85V	248.52	149.12	100.00	75.15	60.69	35.78	25.95	20.69	17.34	14.64	11.85	9.48	8.09	5.29	4.48

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	613.20	341.00	219.62	160.09	128.79	74.56	54.50	43.17	36.47	31.33	24.16	20.00	16.82	11.21	9.19
1.67V	583.73	335.79	210.74	158.94	128.88	74.56	53.81	43.12	36.47	31.27	24.16	19.94	16.82	11.21	9.19
1.70V	580.26	333.48	210.64	158.94	127.72	73.98	53.69	42.96	35.89	31.04	23.99	19.77	16.65	11.15	9.19
1.75V	540.38	329.43	210.88	158.94	127.15	73.40	53.58	42.88	35.78	30.81	23.87	19.63	16.65	11.15	9.13
1.80V	495.89	312.67	206.33	156.05	126.57	73.40	53.52	42.77	35.54	30.81	23.81	19.54	16.65	10.87	9.13
1.83V	478.54	287.24	204.60	151.42	121.37	72.82	52.02	41.32	35.14	29.82	23.81	18.96	16.36	10.75	9.07
1.85V	443.29	280.88	190.15	145.65	117.90	71.09	50.57	40.80	34.16	29.24	22.89	18.78	16.07	10.63	9.02

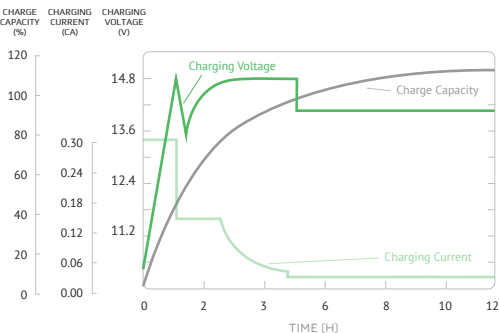
CYCLE LIFE CURVE GRAPH 25°C (77°F).



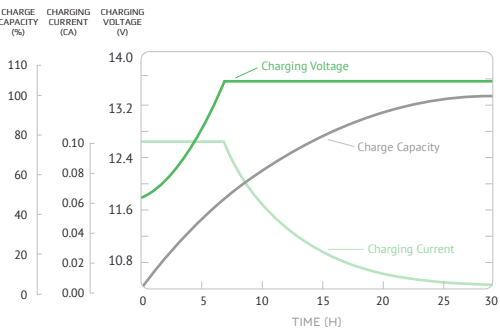
CYCLE LIFE CURVE GRAPH 40°C (104°F).



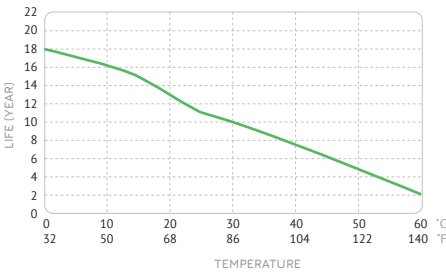
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



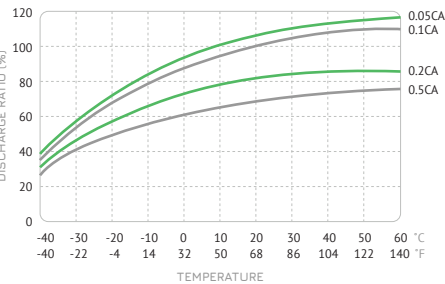
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-155FT

CRYSTAL BATTERY™ - FT FRONT TERMINAL

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

TECHNICAL SPECIFICATIONS

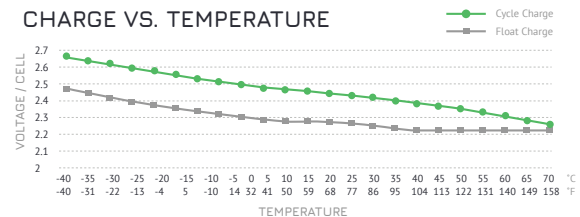
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	155Ah
WEIGHT	~ 48 kg / 105.8 lbs
DIMENSIONS	Height: 283mm (11.1") Length: 558mm (22") Width: 125mm (4.9")
CAPACITY 25 °C (77 °F)	120 hour rate (1.55A) - 186Ah 20 hour rate (8.5A) - 170Ah 10 hour rate (15.5A) - 155Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 3.5mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1550A (5s)
TERMINAL	M6 (13.5)
(CHARGING) CYCLE	Initial Charging Current 46.5A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



DATASHEET - CB12-155FT

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

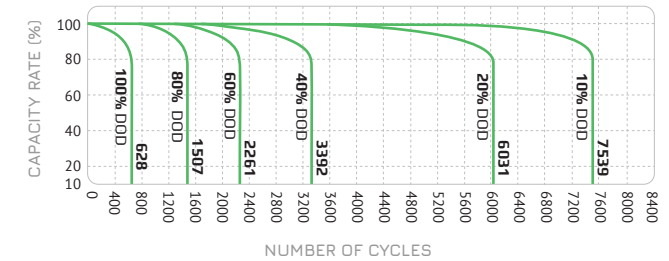
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	568.79	301.01	181.88	132.60	106.80	61.19	44.44	34.85	29.73	25.27	19.26	16.04	13.46	8.76	7.16
1.67V	528.61	291.15	179.18	131.69	106.61	60.93	43.63	34.67	29.30	25.09	19.24	15.86	13.44	8.74	7.13
1.70V	523.22	286.69	177.38	129.91	105.73	60.39	43.36	34.49	28.85	24.82	19.17	15.86	13.40	8.71	7.12
1.75V	479.32	277.70	175.62	129.02	103.93	59.22	43.18	34.06	28.58	24.64	19.08	15.68	13.33	8.67	7.11
1.80V	430.03	259.78	168.42	125.43	101.24	58.33	43.01	33.96	28.22	24.37	18.99	15.50	13.26	8.38	7.10
1.83V	411.06	238.33	165.76	120.96	96.77	57.79	41.30	32.52	27.60	23.47	18.59	14.87	12.72	8.29	7.00
1.85V	385.21	231.14	155.00	116.48	94.07	55.46	40.23	32.07	26.88	22.70	18.37	14.69	12.54	8.20	6.94

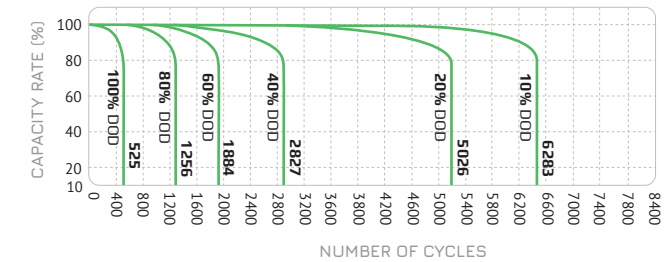
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	950.45	528.54	340.42	248.14	199.62	115.56	84.48	66.92	56.53	48.55	37.45	31.00	26.07	17.38	14.24
1.67V	904.78	520.48	326.65	246.36	199.77	115.56	83.40	66.83	56.53	48.46	37.45	30.91	26.07	17.38	14.24
1.70V	899.40	516.89	326.50	246.36	197.97	114.67	83.22	66.58	55.63	48.11	37.18	30.64	25.80	17.29	14.24
1.75V	837.60	510.62	326.86	246.35	197.08	113.77	83.05	66.47	55.45	47.75	37.00	30.43	25.80	17.29	14.15
1.80V	768.63	484.64	319.81	241.87	196.19	113.77	82.95	66.29	55.09	47.75	36.91	30.28	25.80	16.84	14.15
1.83V	741.74	445.23	317.13	234.71	188.12	112.87	80.62	64.05	54.47	46.23	36.91	29.38	25.35	16.66	14.06
1.85V	687.10	435.37	294.73	225.76	182.75	110.19	78.39	63.25	52.94	45.33	35.48	29.11	24.90	16.48	13.98

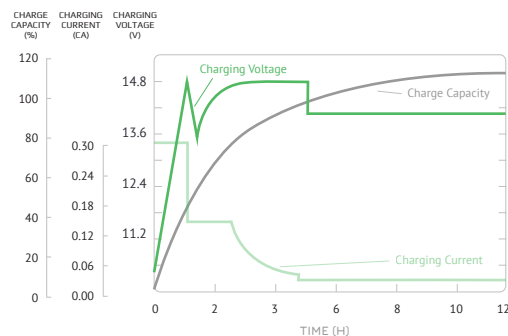
CYCLE LIFE CURVE GRAPH 25°C (77°F).



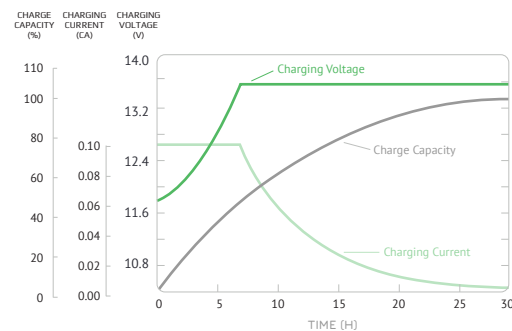
CYCLE LIFE CURVE GRAPH 40°C (104°F).



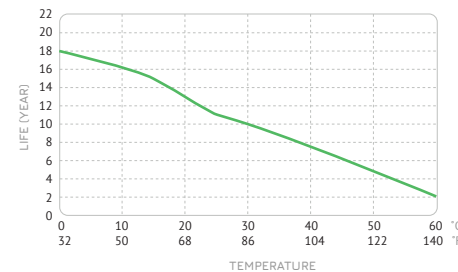
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



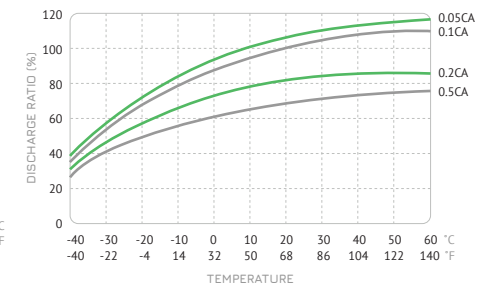
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-170FT

CRYSTAL BATTERY™ - FT FRONT TERMINAL

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

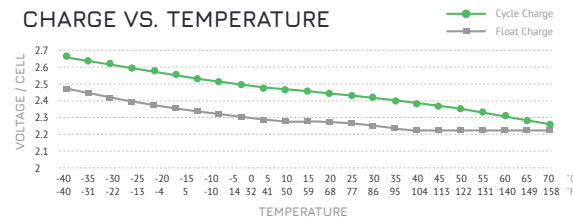
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	170Ah
WEIGHT	~ 50 kg / 111.2 lbs
DIMENSIONS	Height: 320mm (12.6") Length: 546mm (21.5") Width: 125mm (4.9")
CAPACITY 25 °C (77 °F)	120 hour rate (1.8A) - 216Ah 20 hour rate (9.5A) - 190Ah 10 hour rate (17A) - 170Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 3mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1700A (5s)
TERMINAL	M8 (19)
(CHARGING) CYCLE	Initial Charging Current 51A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



DATASHEET - CB12-170FT

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

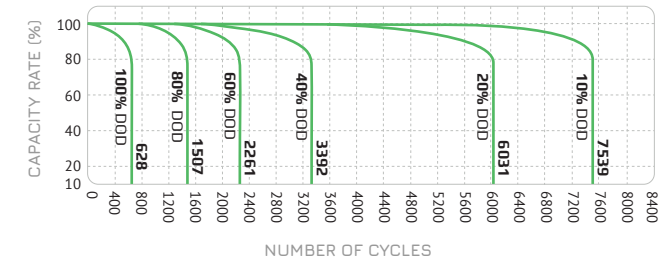
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	623.83	330.14	199.48	145.43	117.13	67.11	48.74	38.22	32.60	27.71	21.13	17.59	14.76	9.61	7.85
1.67V	579.77	319.33	196.52	144.43	116.93	66.82	47.86	38.03	32.13	27.51	21.10	17.39	14.74	9.58	7.82
1.70V	573.85	314.43	194.55	142.48	115.96	66.23	47.56	37.83	31.64	27.22	21.03	17.39	14.69	9.55	7.81
1.75V	525.71	304.57	192.61	141.51	113.99	64.95	47.36	37.35	31.35	27.02	20.93	17.20	14.62	9.51	7.80
1.80V	471.65	284.92	184.72	137.56	111.04	63.97	47.17	37.24	30.95	26.73	20.83	17.00	14.54	9.19	7.78
1.83V	450.84	261.39	181.80	132.67	106.13	63.38	45.30	35.67	30.27	25.75	20.39	16.31	13.95	9.09	7.68
1.85V	422.48	253.50	170.00	127.75	103.17	60.83	44.12	35.18	29.48	24.89	20.15	16.12	13.76	8.99	7.62

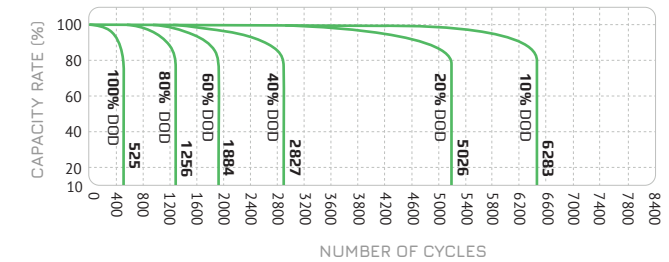
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	1042.43	579.69	373.36	272.16	218.94	126.75	92.65	73.39	62.00	53.25	41.07	34.00	28.59	19.06	15.62
1.67V	992.34	570.84	358.26	270.20	219.10	126.75	91.47	73.30	62.00	53.16	41.07	33.90	28.59	19.06	15.62
1.70V	986.44	566.91	358.09	270.20	217.13	125.76	91.28	73.03	61.02	52.76	40.78	33.60	28.30	18.96	15.62
1.75V	918.65	560.03	358.49	270.19	216.16	124.78	91.08	72.90	60.82	52.37	40.58	33.38	28.30	18.96	15.52
1.80V	843.02	531.54	350.76	265.28	215.17	124.78	90.98	72.71	60.43	52.37	40.48	33.21	28.30	18.47	15.52
1.83V	813.53	488.31	347.82	257.42	206.33	123.80	88.43	70.25	59.74	50.70	40.48	32.23	27.81	18.28	15.43
1.85V	753.59	477.50	323.25	247.61	200.44	120.85	85.97	69.37	58.07	49.72	38.91	31.93	27.31	18.08	15.33

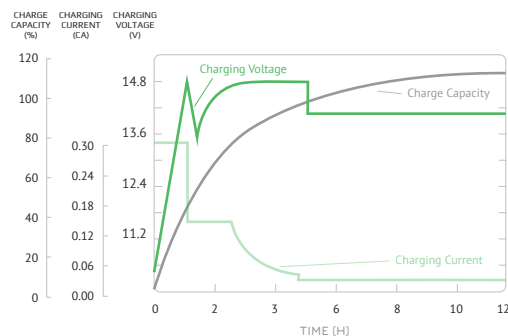
CYCLE LIFE CURVE GRAPH 25°C (77°F).



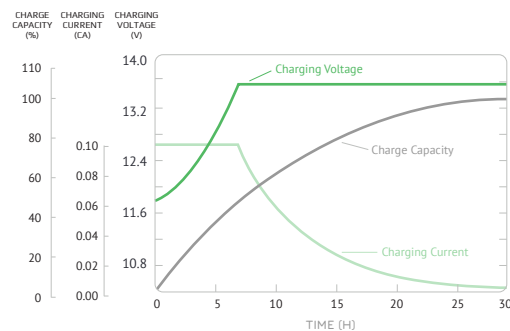
CYCLE LIFE CURVE GRAPH 40°C (104°F).



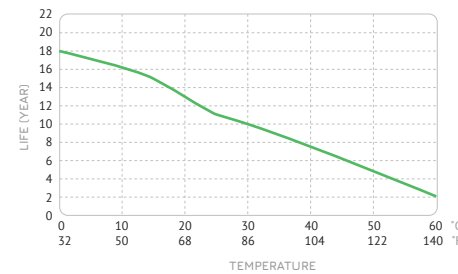
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



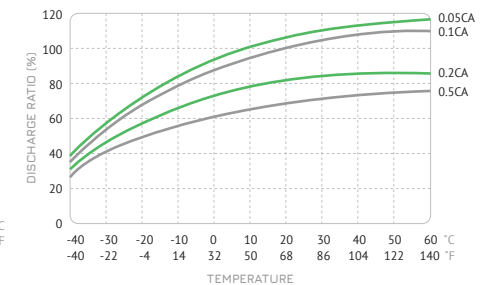
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB12-180FT

CRYSTAL BATTERY™ - FT FRONT TERMINAL

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO₂ electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS



CRYSTAL TECHNOLOGY

Our unique electrolyte crystalizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

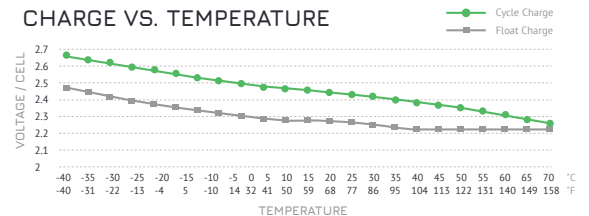
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	180Ah
WEIGHT	~ 50.5 kg / 111.3 lbs
DIMENSIONS	Height: 320mm (12.6") Length: 546mm (21.5") Width: 125mm (4.9")
CAPACITY 25 °C (77 °F)	120 hour rate (1.7A) - 204Ah 20 hour rate (9.7A) - 194Ah 10 hour rate (18A) - 180Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 6mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	10000A (5s)
TERMINAL	M8 (19)
(CHARGING) CYCLE	Initial Charging Current 54A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



DATASHEET - CB12-180FT

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

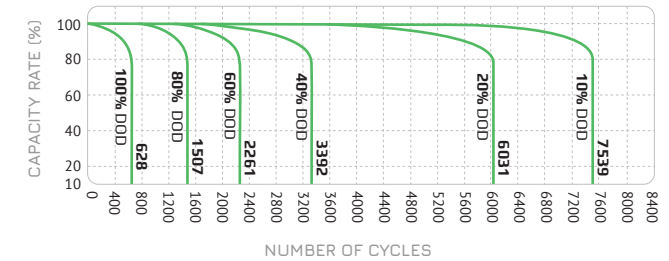
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	661	350	211	154	124	71.1	51.6	40.5	34.5	29.3	22.4	18.6	15.6	10.1	8.31
1.67V	614	338	208	153	124	70.8	50.7	40.3	34.0	29.1	22.3	18.4	15.6	10.1	8.28
1.70V	608	333	206	151	123	70.1	50.4	40.1	33.5	28.8	22.3	18.4	15.6	10.1	8.27
1.75V	557	322	204	150	121	68.8	50.1	39.6	33.2	28.6	22.2	18.2	15.5	10.0	8.26
1.80V	499	302	196	146	118	67.7	49.9	39.4	32.8	28.3	22.1	18.0	15.4	9.73	8.24
1.83V	477	277	192	140	112	67.1	48.0	37.8	32.0	27.3	21.6	17.3	14.8	9.62	8.13
1.85V	447	268	180	135	109	64.4	46.7	37.2	31.2	26.4	21.3	17.1	14.6	9.52	8.06

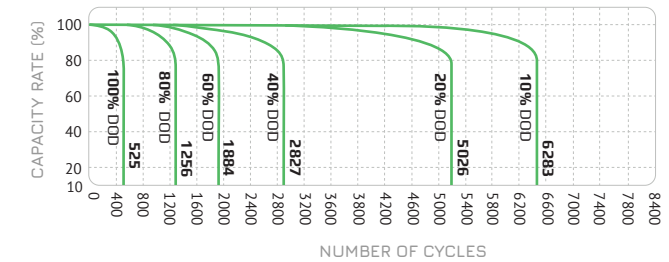
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	1104	614	395	288	232	134	98.1	77.7	65.6	56.4	43.5	36.0	30.3	20.2	16.5
1.67V	1051	604	379	286	231	134	96.9	77.6	65.6	56.3	43.5	35.9	30.3	20.2	16.5
1.70V	1044	600	378	286	230	133	96.3	77.3	64.6	55.9	43.2	35.6	30.0	20.1	16.5
1.75V	973	593	377	286	229	132	95.3	77.2	64.4	55.4	43.0	35.3	30.0	20.1	16.4
1.80V	893	563	371	281	228	132	94.0	77.0	64.0	55.4	42.9	35.2	30.0	19.6	16.4
1.83V	861	517	368	273	218	131	92.5	74.4	63.3	53.7	42.9	34.1	29.4	19.4	16.3
1.85V	798	506	342	262	212	128	91.0	73.4	61.5	52.6	41.2	33.8	28.9	19.1	16.2

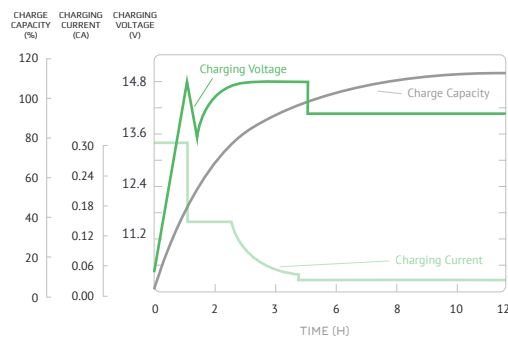
CYCLE LIFE CURVE GRAPH 25°C (77°F).



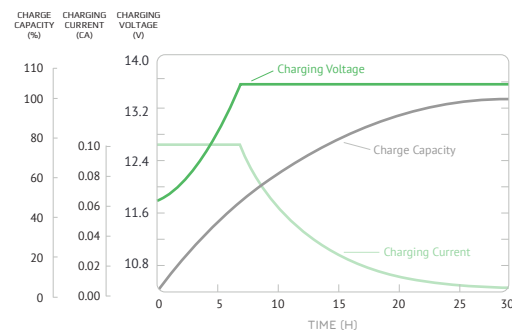
CYCLE LIFE CURVE GRAPH 40°C (104°F).



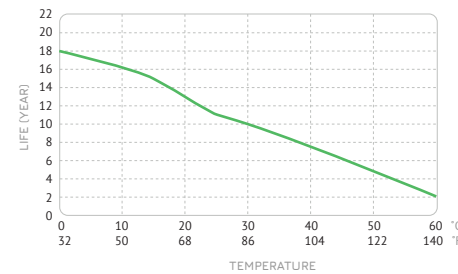
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



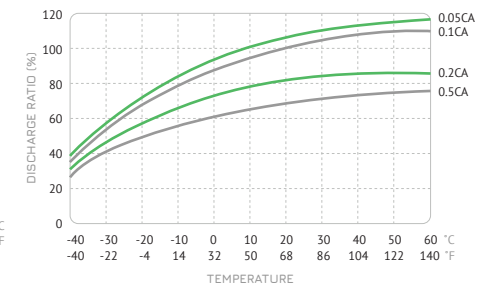
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB2-100LS

CRYSTAL BATTERY™ - LS LARGE STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

TECHNICAL SPECIFICATIONS

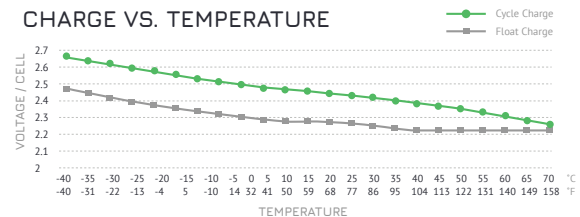
SPECIFICATION

NOMINAL VOLTAGE	2V
RATED CAPACITY (10 HOUR RATE)	100Ah
WEIGHT	~ 5.8 kg / 12.8 lbs
DIMENSIONS	Height: 210 mm (8.3") Length: 172 mm (6.8") Width: 72 mm (2.8")
CAPACITY 25 °C (77 °F)	120 hour rate (1.0A) - 120Ah 20 hour rate (5.4A) - 108Ah 10 hour rate (10A) - 100Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 0.6mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1000A (5s)
TERMINAL	M6 (16)
(CHARGING) CYCLE	Initial Charging Current 30A 2.45V / 25 °C (77 °F)
(CHARGING) FLOAT	2.27V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	1.9
0.05C OF CURRENT CLOSE TO IT	1.85
0.1C OF CURRENT CLOSE TO IT	1.8
0.2C OF CURRENT CLOSE TO IT	1.75
FROM 0.2C TO 0.5C	1.7
FROM 0.5C TO 1C	1.6
FROM 1C TO 3C	1.5
CURRENT IN EXCESS OF 3C	1.3

CHARGE VS. TEMPERATURE



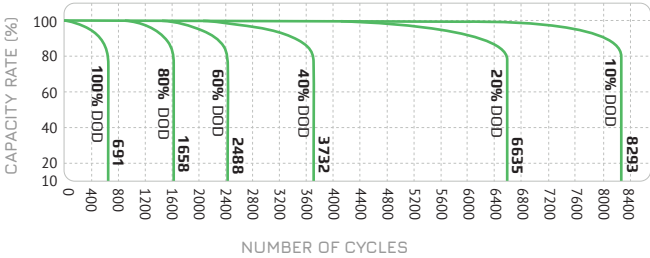
DATASHEET - CB2-100LS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

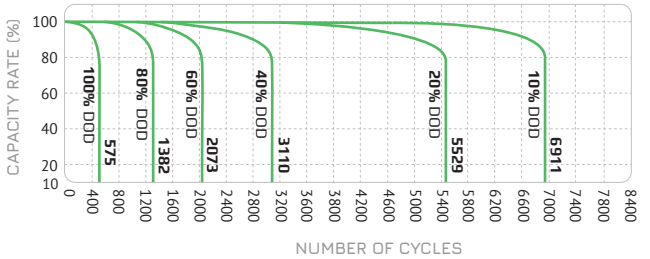
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	270.24	172.40	113.60	85.50	69.90	41.70	30.30	23.55	20.00	17.20	13.00	10.50	8.85	5.53	4.63
1.67V	232.60	156.30	105.30	81.00	67.70	39.80	28.80	23.30	19.00	17.00	12.80	10.30	8.85	5.53	4.63
1.70V	222.20	151.50	102.00	80.00	65.40	39.20	28.20	23.10	18.90	16.90	12.70	10.20	8.85	5.52	4.62
1.75V	202.00	141.80	98.00	76.90	63.30	37.70	27.40	22.50	18.30	16.50	12.50	10.10	8.77	5.52	4.61
1.80V	178.60	129.90	94.30	74.10	60.60	36.40	27.00	22.10	17.90	16.10	12.20	10.00	8.58	5.50	4.59
1.83V	155.90	118.70	87.10	68.87	57.30	34.80	26.00	21.20	17.10	15.50	11.80	9.70	8.35	5.48	4.46
1.85V	133.30	107.50	80.00	63.70	54.10	33.30	25.00	20.40	16.40	15.00	11.40	9.43	8.11	5.47	4.33

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	448.10	301.70	206.50	206.50	130.40	79.60	58.00	45.10	38.40	33.70	25.50	20.78	17.40	10.80	9.06
1.67V	400.30	281.30	193.30	193.30	127.00	77.12	56.60	44.90	37.20	33.30	25.00	20.30	17.40	10.80	9.06
1.70V	387.39	274.00	188.00	188.00	123.40	75.10	54.30	44.60	36.50	33.10	24.91	20.10	17.40	10.80	9.05
1.75V	357.60	257.60	181.80	181.80	120.00	72.60	53.00	43.90	35.60	32.60	24.40	19.90	17.40	10.80	9.04
1.80V	324.20	237.40	175.60	175.60	115.50	70.20	52.40	43.10	34.70	32.10	24.00	19.70	16.90	10.70	9.02
1.83V	286.30	219.80	164.00	164.00	109.70	67.60	50.60	41.70	33.50	31.20	23.20	19.20	16.50	10.70	8.79
1.85V	248.40	202.19	152.40	152.40	104.00	65.00	48.80	40.20	32.20	30.30	22.40	18.70	16.10	10.60	8.57

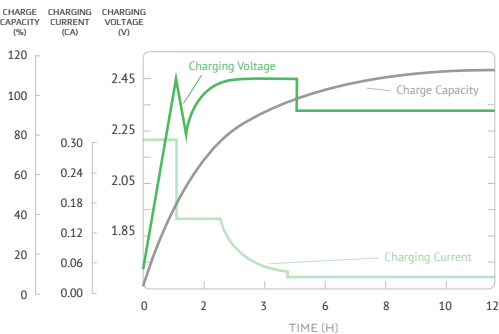
CYCLE LIFE CURVE GRAPH 25°C (77°F).



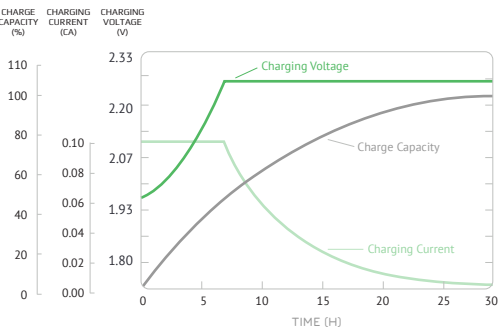
CYCLE LIFE CURVE GRAPH 40°C (104°F).



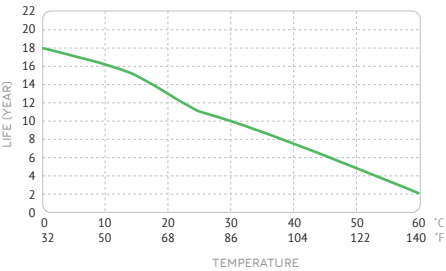
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



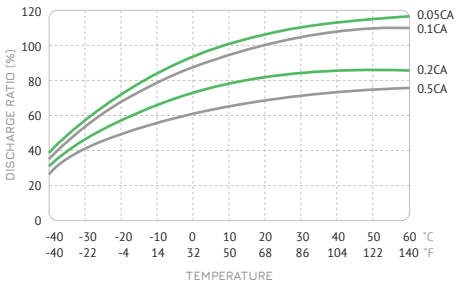
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



CB2-200LS

CRYSTAL BATTERY™ - LS LARGE STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

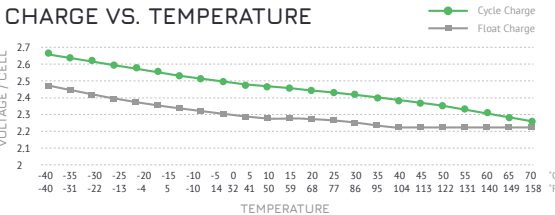
SPECIFICATION

NOMINAL VOLTAGE	2V
RATED CAPACITY (10 HOUR RATE)	200Ah
WEIGHT	~ 13.5 kg / 29.8 lbs
DIMENSIONS	Height: 343 mm (13.5") Length: 174 mm (6.9") Width: 112 mm (4.4")
CAPACITY 25 °C (77 °F)	120 hour rate (2A) - 240Ah 20 hour rate (21A) - 420Ah 10 hour rate (20A) - 200Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 0.5mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	2000A (5s)
TERMINAL	M8 (20)
(CHARGING) CYCLE	Initial Charging Current 60A 2.45V / 25 °C (77 °F)
(CHARGING) FLOAT	2.27V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	1.9
0.05C OF CURRENT CLOSE TO IT	1.85
0.1C OF CURRENT CLOSE TO IT	1.8
0.2C OF CURRENT CLOSE TO IT	1.75
FROM 0.2C TO 0.5C	1.7
FROM 0.5C TO 1C	1.6
FROM 1C TO 3C	1.5
CURRENT IN EXCESS OF 3C	1.3

CHARGE VS. TEMPERATURE



DATASHEET - CB2-200LS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

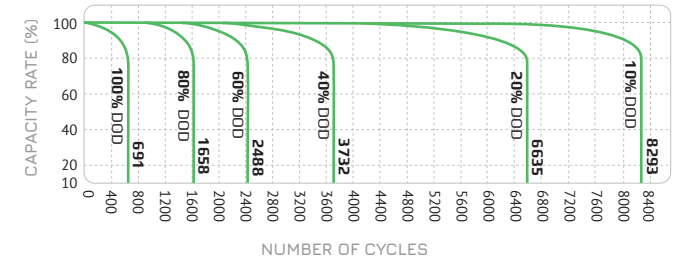
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	540.48	344.80	227.20	171.00	139.80	83.40	60.60	47.10	40.00	34.40	26.00	21.00	17.70	11.06	9.27
1.67V	465.19	312.60	210.60	162.00	135.40	79.60	57.60	46.60	38.00	34.00	25.60	20.60	17.70	11.06	9.27
1.70V	444.41	303.00	204.00	160.00	130.80	78.40	56.40	46.20	37.80	33.80	25.40	20.40	17.70	11.04	9.24
1.75V	403.99	283.60	196.00	153.80	126.60	75.40	54.80	45.00	36.60	33.00	25.00	20.20	17.54	11.04	9.22
1.80V	357.19	259.80	188.60	148.20	121.20	72.80	54.00	44.20	35.80	32.20	24.40	20.00	17.16	11.00	9.18
1.83V	311.81	237.40	174.20	137.73	114.60	69.60	52.00	42.40	34.20	31.00	23.60	19.40	16.70	10.96	8.92
1.85V	266.59	215.00	160.00	127.40	108.20	66.60	50.00	40.80	32.80	30.00	22.80	18.86	16.22	10.94	8.66

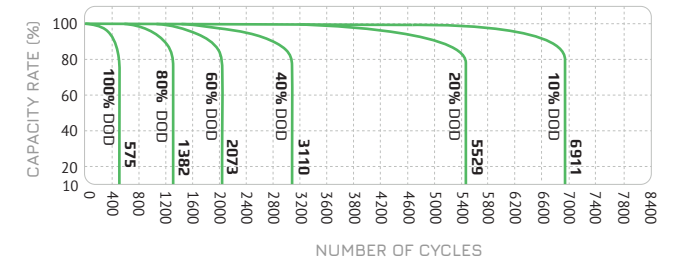
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	896.19	603.40	413.00	314.80	260.80	159.20	116.00	90.20	76.80	67.40	51.00	41.57	34.80	21.60	18.12
1.67V	800.59	562.60	386.60	301.20	254.00	154.24	113.20	89.80	74.40	66.60	49.99	40.60	34.80	21.60	18.12
1.70V	774.78	547.99	376.00	298.00	246.80	150.20	108.60	89.20	73.00	66.20	49.83	40.20	34.80	21.60	18.10
1.75V	715.20	515.19	363.60	288.80	240.00	145.21	106.00	87.80	71.20	65.20	48.80	39.79	34.80	21.60	18.08
1.80V	648.40	474.80	351.20	279.60	231.00	140.40	104.80	86.20	69.40	64.20	48.00	39.40	33.80	21.40	18.04
1.83V	572.61	439.59	328.00	262.00	219.40	135.20	101.20	83.40	67.00	62.40	46.40	38.40	33.00	21.40	17.58
1.85V	496.80	404.39	304.80	244.40	208.00	130.00	97.60	80.40	64.40	60.60	44.80	37.40	32.20	21.20	17.14

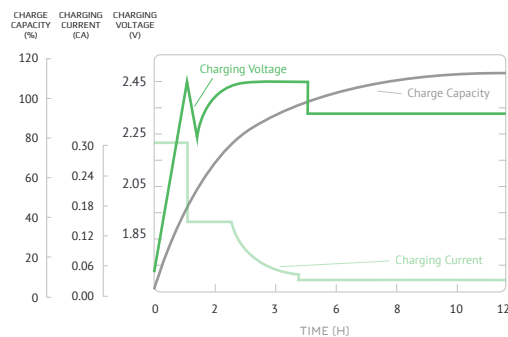
CYCLE LIFE CURVE GRAPH 25°C (77°F).



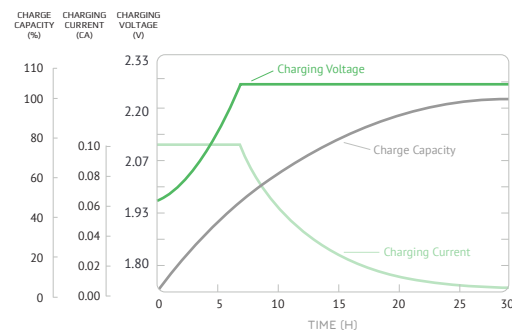
CYCLE LIFE CURVE GRAPH 40°C (104°F).



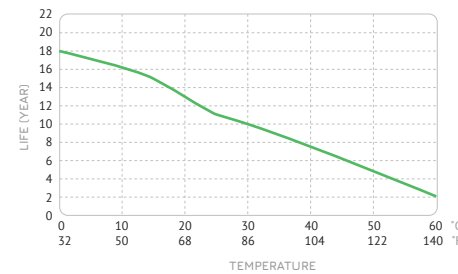
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



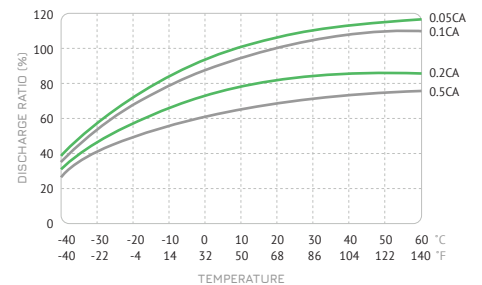
FLOATING CHARACTERISTICS 25°C (77°F).



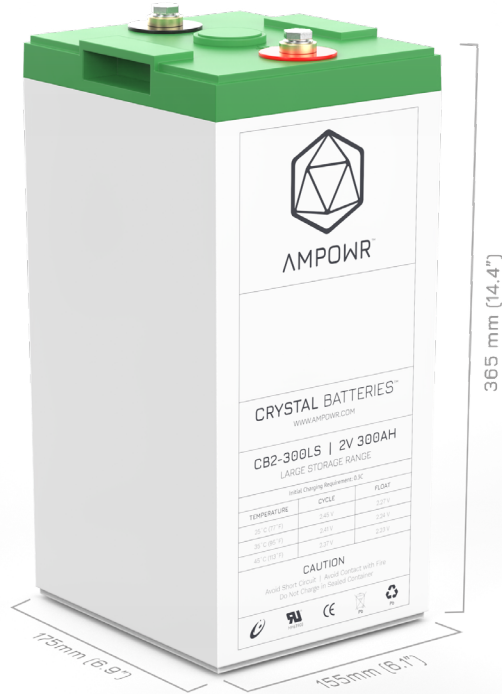
FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

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FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

CB2-300LS

CRYSTAL BATTERY™ - LS LARGE STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

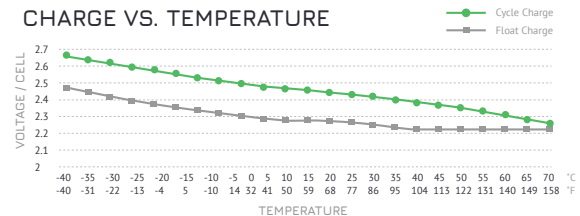
SPECIFICATION

NOMINAL VOLTAGE	2V
RATED CAPACITY (10 HOUR RATE)	300Ah
WEIGHT	~ 26 kg / 57.3 lbs
DIMENSIONS	Height: 365 mm (14.4") Length: 175 mm (6.9") Width: 155 mm (6.1")
CAPACITY 25 °C (77 °F)	120 hour rate (3.0A) - 360Ah 20 hour rate (16.5A) - 330Ah 10 hour rate (30A) - 300Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 0.45mΩ
SELF DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	3000A (5s)
TERMINAL	M8 (20)
(CHARGING) CYCLE	Initial Charging Current 90A 2.45V / 25 °C (77 °F)
(CHARGING) FLOAT	2.27V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	1.9
0.05C OF CURRENT CLOSE TO IT	1.85
0.1C OF CURRENT CLOSE TO IT	1.8
0.2C OF CURRENT CLOSE TO IT	1.75
FROM 0.2C TO 0.5C	1.7
FROM 0.5C TO 1C	1.6
FROM 1C TO 3C	1.5
CURRENT IN EXCESS OF 3C	1.3

CHARGE VS. TEMPERATURE



DATASHEET - CB2-300LS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

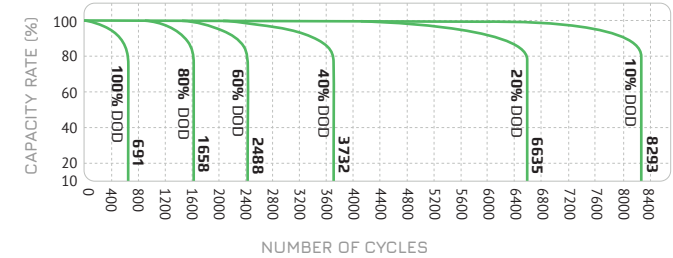
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	810.72	517.20	340.80	256.50	209.70	125.10	90.90	70.65	60.00	51.60	39.00	31.50	26.55	16.59	13.90
1.67V	697.79	468.90	315.90	243.00	203.10	119.40	86.40	69.90	57.00	51.00	38.40	30.90	26.55	16.59	13.90
1.70V	666.61	454.50	306.00	240.00	196.20	117.60	84.60	69.30	56.70	50.70	38.10	30.60	26.55	16.56	13.86
1.75V	605.99	425.40	294.00	230.70	189.90	113.10	82.20	67.50	54.90	49.50	37.50	30.30	26.31	16.56	13.83
1.80V	535.79	389.70	282.90	222.30	181.80	109.20	81.00	66.30	53.70	48.30	36.60	30.00	25.74	16.50	13.77
1.83V	467.71	356.10	261.30	206.60	171.90	104.40	78.00	63.60	51.30	46.50	35.40	29.10	25.05	16.44	13.38
1.85V	399.89	322.50	240.00	191.10	162.30	99.90	75.00	61.20	49.20	45.00	34.20	28.29	24.33	16.41	12.99

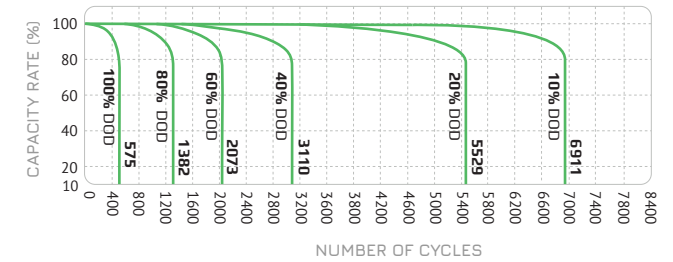
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	1344.29	905.10	619.50	472.20	391.20	238.80	174.00	135.29	115.20	101.10	76.50	62.35	52.20	32.40	27.18
1.67V	1200.89	843.90	579.90	451.80	381.00	231.36	169.80	134.70	111.60	99.90	74.99	60.90	52.20	32.40	27.18
1.70V	1162.17	821.99	564.00	447.00	370.20	225.30	162.90	133.80	109.50	99.30	74.74	60.30	52.20	32.40	27.15
1.75V	1072.81	772.79	545.40	433.20	360.00	217.81	159.00	131.70	106.80	97.80	73.20	59.69	52.20	32.40	27.12
1.80V	972.60	712.20	526.79	419.40	346.50	210.60	157.20	129.31	104.10	96.30	72.00	59.10	50.70	32.10	27.06
1.83V	858.91	659.39	492.00	393.00	329.10	202.80	151.80	125.10	100.50	93.60	69.60	57.60	49.50	32.10	26.37
1.85V	745.20	606.58	457.20	366.60	312.00	195.00	146.40	120.60	96.60	90.90	67.20	56.10	48.30	31.80	25.71

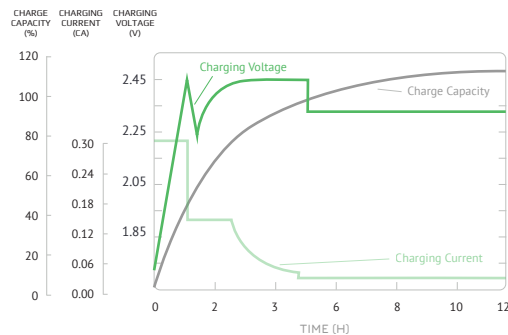
CYCLE LIFE CURVE GRAPH 25°C (77°F).



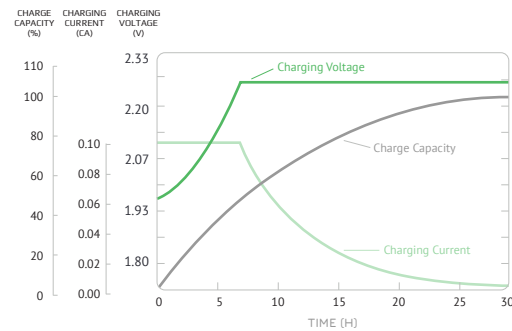
CYCLE LIFE CURVE GRAPH 40°C (104°F).



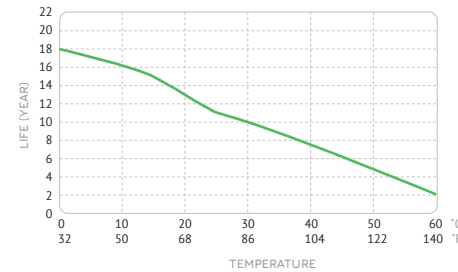
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



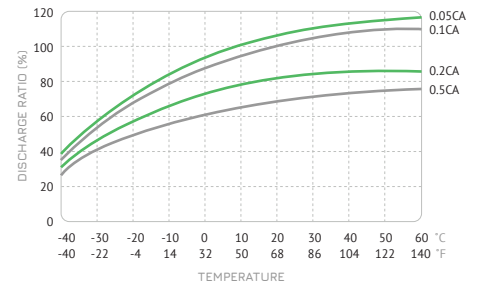
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB2-400LS

CRYSTAL BATTERY™ - LS LARGE STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

TECHNICAL SPECIFICATIONS

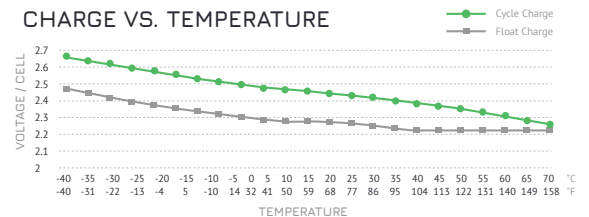
SPECIFICATION

NOMINAL VOLTAGE	2V
RATED CAPACITY (10 HOUR RATE)	400Ah
WEIGHT	~ 26 kg / 57.3 lbs
DIMENSIONS	Height: 335 mm (13.2") Length: 210 mm (8.3") Width: 175 mm (6.9")
CAPACITY 25 °C (77 °F)	120 hour rate (4.0A) - 480Ah 20 hour rate (22A) - 440Ah 10 hour rate (40A) - 400Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 0.4mΩ
SELF DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	4000A (5s)
TERMINAL	M8 (20)
(CHARGING) CYCLE	Initial Charging Current 120A 2.45V / 25 °C (77 °F)
(CHARGING) FLOAT	2.27V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	1.9
0.05C OF CURRENT CLOSE TO IT	1.85
0.1C OF CURRENT CLOSE TO IT	1.8
0.2C OF CURRENT CLOSE TO IT	1.75
FROM 0.2C TO 0.5C	1.7
FROM 0.5C TO 1C	1.6
FROM 1C TO 3C	1.5
CURRENT IN EXCESS OF 3C	1.3

CHARGE VS. TEMPERATURE



DATASHEET - CB2-400LS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

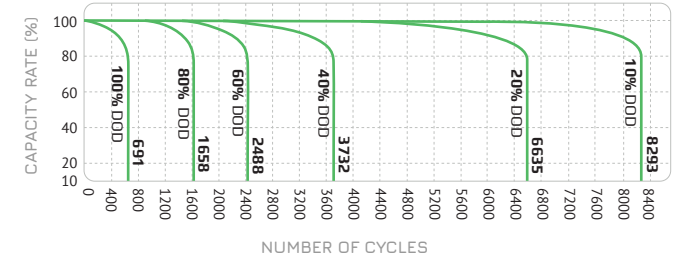
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	1080.96	689.60	454.40	342.00	279.60	166.80	121.20	94.20	80.00	68.80	52.00	42.00	35.40	22.12	18.53
1.67V	930.38	625.20	421.20	324.00	270.80	159.20	115.20	93.20	76.00	68.00	51.20	41.20	35.40	22.12	18.53
1.70V	888.82	606.00	408.00	320.00	261.60	156.80	112.80	92.40	75.60	67.60	50.80	40.80	35.40	22.08	18.48
1.75V	807.98	567.20	392.00	307.60	253.20	150.80	109.60	90.00	73.20	66.00	50.00	40.40	35.08	22.08	18.44
1.80V	714.38	519.60	377.20	296.40	242.40	145.60	108.00	88.40	71.60	64.40	48.80	40.00	34.32	22.00	18.36
1.83V	623.62	474.80	348.40	275.47	229.20	139.20	104.00	84.80	68.40	62.00	47.20	38.80	33.40	21.92	17.84
1.85V	533.18	430.00	320.00	254.80	216.40	133.20	100.00	81.60	65.60	60.00	45.60	37.72	32.44	21.88	17.32

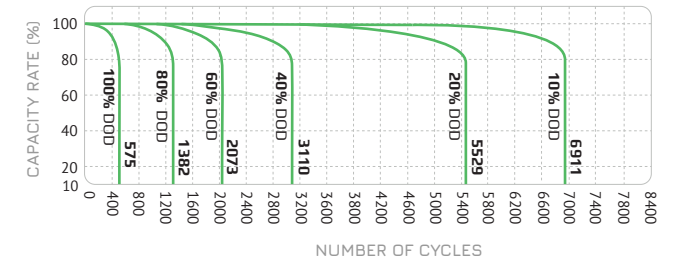
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	1792.38	1206.81	826.00	629.60	521.60	318.40	232.00	180.39	153.60	134.80	102.00	83.13	69.60	43.20	36.24
1.67V	1601.18	1125.20	773.20	602.40	508.00	308.48	226.40	179.60	148.80	133.20	99.98	81.20	69.60	43.20	36.24
1.70V	1549.55	1095.98	752.00	596.00	493.60	300.40	217.20	178.40	146.00	132.40	99.65	80.40	69.60	43.20	36.20
1.75V	1430.41	1030.39	727.20	577.60	480.00	290.42	212.00	175.60	142.40	130.40	97.60	79.59	69.60	43.20	36.16
1.80V	1296.80	949.60	702.39	559.20	462.00	280.80	209.60	172.41	138.80	128.40	96.00	78.80	67.60	42.80	36.08
1.83V	1145.22	879.19	655.99	524.00	438.80	270.40	202.40	166.80	134.00	124.80	92.80	76.80	66.00	42.80	35.16
1.85V	993.60	808.77	609.60	488.80	416.00	260.00	195.20	160.80	128.80	121.20	89.60	74.80	64.40	42.40	34.28

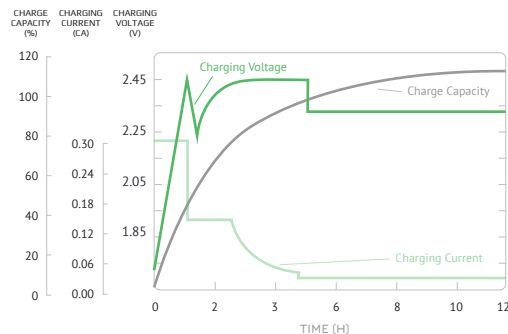
CYCLE LIFE CURVE GRAPH 25°C (77°F).



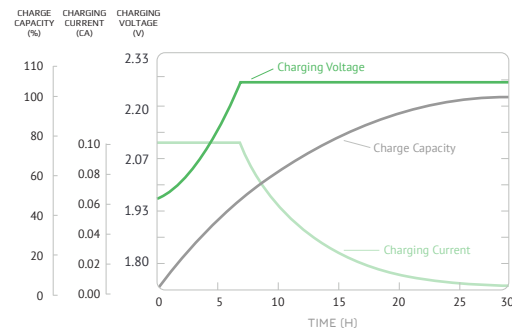
CYCLE LIFE CURVE GRAPH 40°C (104°F).



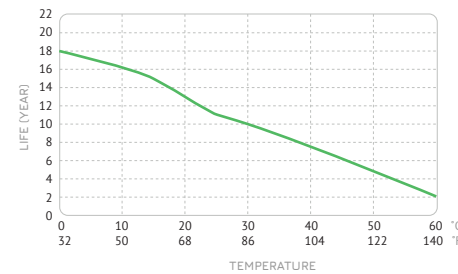
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



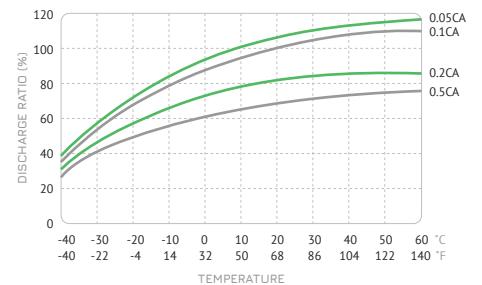
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

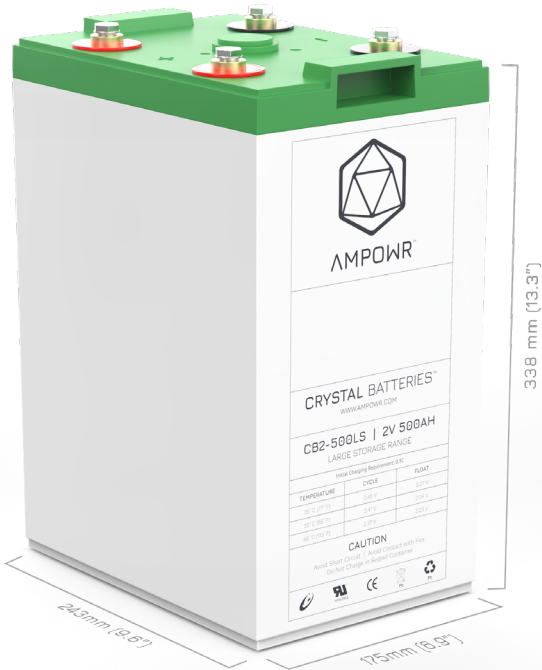
CB2-500LS

CRYSTAL BATTERY™ - LS LARGE STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

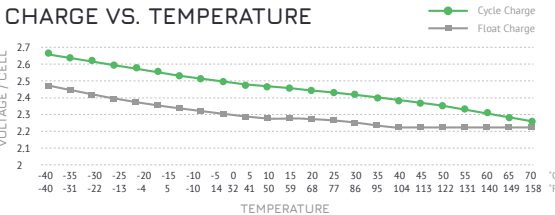
SPECIFICATION

NOMINAL VOLTAGE	2V
RATED CAPACITY (10 HOUR RATE)	500Ah
WEIGHT	~ 31 kg / 68.3 lbs
DIMENSIONS	Height: 338 mm (13.3") Length: 243 mm (9.6") Width: 175 mm (6.9")
CAPACITY 25 °C (77 °F)	120 hour rate (5A) - 600Ah 20 hour rate (26A) - 520Ah 10 hour rate (50A) - 500Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 0.35mΩ
SELF DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	5000A (5s)
TERMINAL	M8 (20)
(CHARGING) CYCLE	Initial Charging Current 150A 2.45V / 25 °C (77 °F)
(CHARGING) FLOAT	2.27V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	1.9
0.05C OF CURRENT CLOSE TO IT	1.85
0.1C OF CURRENT CLOSE TO IT	1.8
0.2C OF CURRENT CLOSE TO IT	1.75
FROM 0.2C TO 0.5C	1.7
FROM 0.5C TO 1C	1.6
FROM 1C TO 3C	1.5
CURRENT IN EXCESS OF 3C	1.3

CHARGE VS. TEMPERATURE



DATASHEET - CB2-500LS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

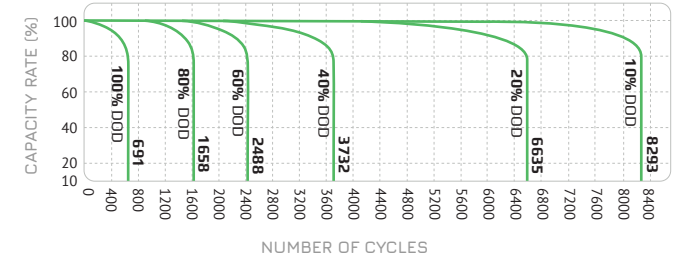
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	1351.20	862.00	568.00	427.50	349.50	208.50	151.50	117.75	100.00	86.00	65.00	52.50	44.25	27.65	23.17
1.67V	1162.98	781.50	526.50	405.00	338.50	199.00	144.00	116.50	95.00	85.00	64.00	51.50	44.25	27.65	23.17
1.70V	1111.02	757.50	510.00	400.00	327.00	196.00	141.00	115.50	94.50	84.50	63.50	51.00	44.25	27.60	23.10
1.75V	1009.98	709.00	490.00	384.50	316.50	188.50	137.00	112.50	91.50	82.50	62.50	50.50	43.85	27.60	23.05
1.80V	892.98	649.50	471.50	370.50	303.00	182.00	135.00	110.50	89.50	80.50	61.00	50.00	42.90	27.50	22.95
1.83V	779.52	593.50	435.50	344.33	286.50	174.00	130.00	106.00	85.50	77.50	59.00	48.50	41.75	27.40	22.30
1.85V	666.48	537.50	400.00	318.50	270.50	166.50	125.00	102.00	82.00	75.00	57.00	47.15	40.55	27.35	21.65

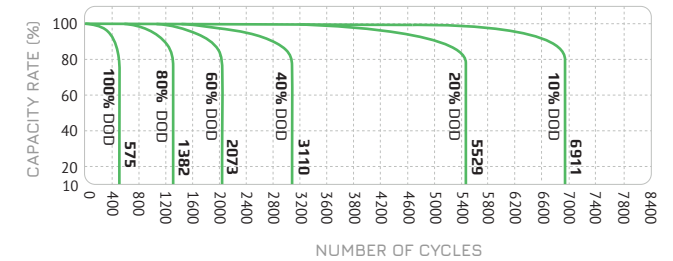
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	2240.48	1508.51	1032.50	787.00	652.00	398.00	290.00	225.49	192.00	168.50	127.50	103.92	87.00	54.00	45.30
1.67V	2001.48	1406.50	966.50	753.00	635.00	385.60	283.00	224.50	186.00	166.50	124.98	101.50	87.00	54.00	45.30
1.70V	1936.94	1369.98	940.01	745.00	616.99	375.50	271.50	223.00	182.50	165.50	124.57	100.50	87.00	54.00	45.25
1.75V	1788.01	1287.99	909.00	722.01	600.00	363.02	265.00	219.50	178.00	163.00	122.00	99.49	87.00	54.00	45.20
1.80V	1620.99	1187.00	877.99	699.00	577.50	351.00	262.00	215.51	173.50	160.50	120.00	98.50	84.50	53.50	45.10
1.83V	1431.52	1098.98	819.99	655.00	548.50	338.00	253.00	208.50	167.50	156.00	116.00	96.00	82.50	53.50	43.95
1.85V	1242.00	1010.96	762.00	611.00	520.00	325.00	244.00	201.00	161.00	151.50	112.00	93.50	80.50	53.00	42.85

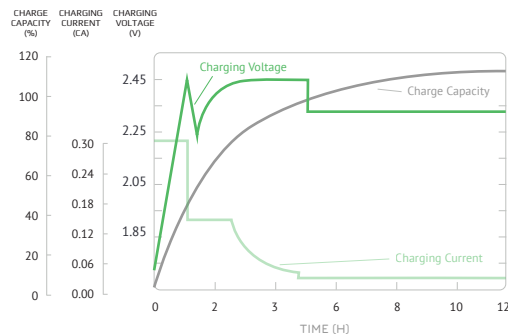
CYCLE LIFE CURVE GRAPH 25°C (77°F).



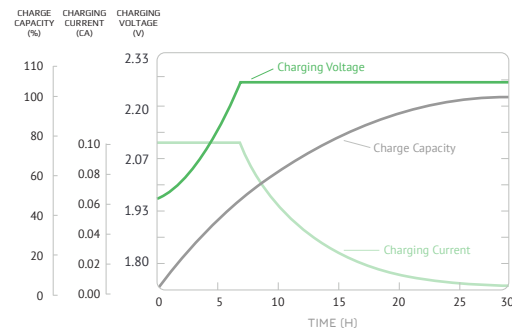
CYCLE LIFE CURVE GRAPH 40°C (104°F).



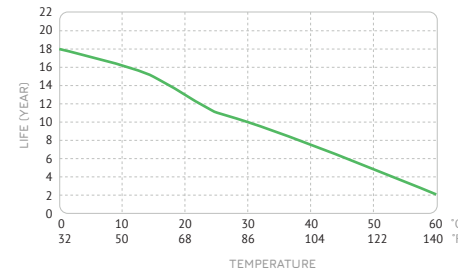
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



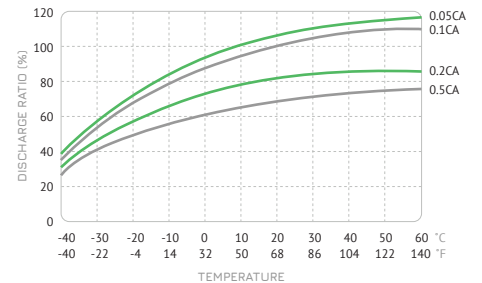
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.





CRYSTAL TECHNOLOGY

Our unique electrolyte crystalizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

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FULL RECOVERY

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Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

CB2-600LS

CRYSTAL BATTERY™ - LS LARGE STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

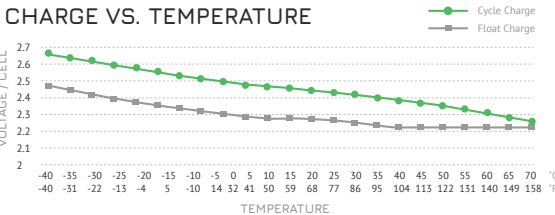
SPECIFICATION

NOMINAL VOLTAGE	2V
RATED CAPACITY (10 HOUR RATE)	600Ah
WEIGHT	~ 37.5 kg / 82.7 lbs
DIMENSIONS	Height: 335 mm (13.2") Length: 301 mm (11.6") Width: 175 mm (6.9")
CAPACITY 25 °C (77 °F)	120 hour rate (6.0A) - 720Ah 20 hour rate (33A) - 660Ah 10 hour rate (60A) - 600Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 0.3mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	6000A (5s)
TERMINAL	M8 (20)
(CHARGING) CYCLE	Initial Charging Current 180A 2.45V / 25 °C (77 °F)
(CHARGING) FLOAT	2.27V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	1.9
0.05C OF CURRENT CLOSE TO IT	1.85
0.1C OF CURRENT CLOSE TO IT	1.8
0.2C OF CURRENT CLOSE TO IT	1.75
FROM 0.2C TO 0.5C	1.7
FROM 0.5C TO 1C	1.6
FROM 1C TO 3C	1.5
CURRENT IN EXCESS OF 3C	1.3

CHARGE VS. TEMPERATURE



DATASHEET - CB2-600LS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

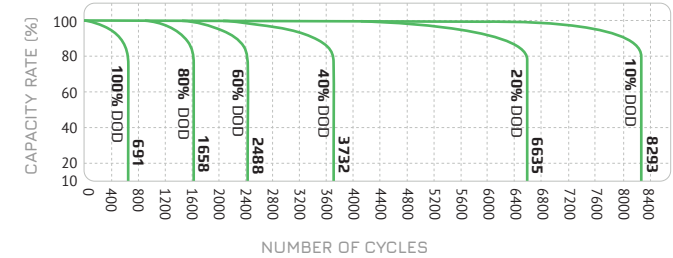
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	1621.44	1034.4	681.60	513.00	419.40	250.20	181.80	141.30	120.00	103.20	78.00	63.00	53.10	33.18	27.80
1.67V	1395.58	937.80	631.80	486.00	406.20	238.80	172.80	139.80	114.00	102.00	76.80	61.80	53.10	33.18	27.80
1.70V	1333.22	909.00	612.00	480.00	392.40	235.20	169.20	138.60	113.40	101.40	76.20	61.20	53.10	33.12	27.72
1.75V	1211.98	850.80	588.00	461.40	379.80	226.20	164.40	135.00	109.80	99.00	75.00	60.60	52.62	33.12	27.66
1.80V	1071.58	779.40	565.80	444.60	363.60	218.40	162.00	132.60	107.40	96.60	73.20	60.00	51.48	33.00	27.54
1.83V	935.42	712.20	522.60	413.20	343.80	208.80	156.00	127.20	102.60	93.00	70.80	58.20	50.10	32.88	26.76
1.85V	799.78	645.00	480.00	382.20	324.60	199.80	150.00	122.40	98.40	90.00	68.40	56.58	48.66	32.82	25.98

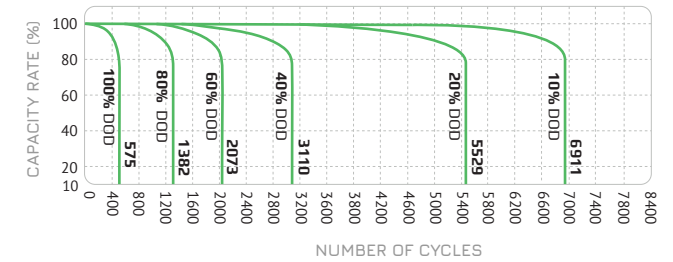
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	2688.58	1810.21	1239.00	944.40	782.40	477.60	348.00	270.59	230.40	202.20	153.00	124.70	104.40	64.80	54.36
1.67V	2401.78	1687.80	1159.80	903.60	762.00	462.72	339.60	269.40	223.20	199.80	149.97	121.80	104.40	64.80	54.36
1.70V	2324.33	1643.97	1128.01	894.00	740.39	450.60	325.80	267.60	219.00	198.60	149.48	120.60	104.40	64.80	54.30
1.75V	2145.61	1545.58	1090.80	866.41	720.00	435.63	318.00	263.40	213.60	195.60	146.40	119.38	104.40	64.80	54.24
1.80V	1945.19	1424.40	1053.59	838.79	692.99	421.20	314.40	258.61	208.20	192.60	144.00	118.20	101.40	64.20	54.12
1.83V	1717.82	1318.78	983.99	786.00	658.20	405.60	303.60	250.20	201.00	187.20	139.20	115.20	99.00	64.20	52.74
1.85V	1490.40	1213.16	914.40	733.20	624.00	389.99	292.80	241.20	193.20	181.80	134.40	112.20	96.60	63.60	51.42

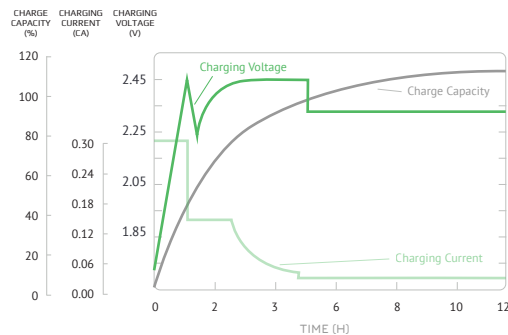
CYCLE LIFE CURVE GRAPH 25°C (77°F).



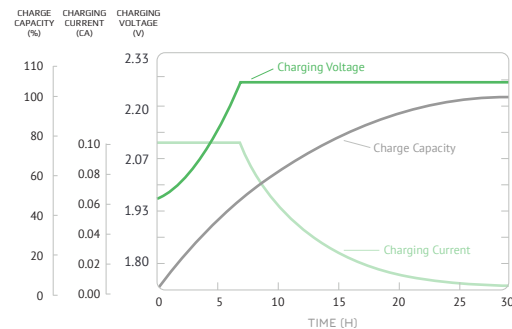
CYCLE LIFE CURVE GRAPH 40°C (104°F).



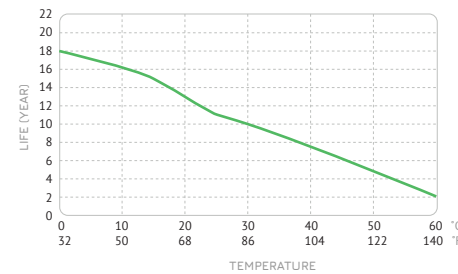
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



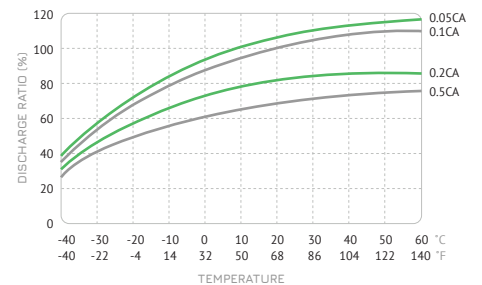
FLOATING CHARACTERISTICS 25°C (77°F).



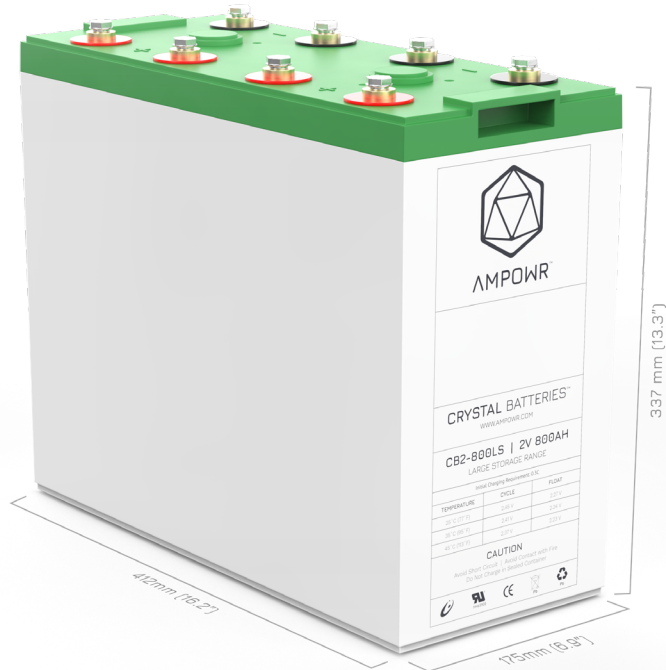
FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

CB2-800LS

CRYSTAL BATTERY™ - LS LARGE STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

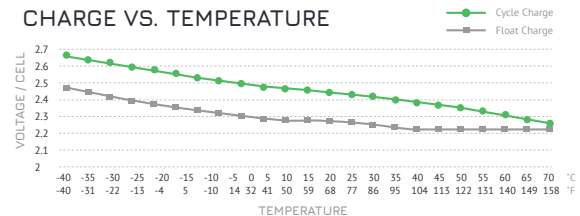
SPECIFICATION

NOMINAL VOLTAGE	2V
RATED CAPACITY (10 HOUR RATE)	800Ah
WEIGHT	~ 51 kg / 112.4 lbs
DIMENSIONS	Height: 337 mm (13.3") Length: 412 mm (16.2") Width: 175 mm (6.9")
CAPACITY 25 °C (77 °F)	120 hour rate (8.0A) - 960Ah 20 hour rate (44A) - 880Ah 10 hour rate (80A) - 800Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 0.2mΩ
SELF DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	8000A (5s)
TERMINAL	M8 (20)
(CHARGING) CYCLE	Initial Charging Current 240A 2.45V / 25 °C (77 °F)
(CHARGING) FLOAT	2.27V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	1.9
0.05C OF CURRENT CLOSE TO IT	1.85
0.1C OF CURRENT CLOSE TO IT	1.8
0.2C OF CURRENT CLOSE TO IT	1.75
FROM 0.2C TO 0.5C	1.7
FROM 0.5C TO 1C	1.6
FROM 1C TO 3C	1.5
CURRENT IN EXCESS OF 3C	1.3

CHARGE VS. TEMPERATURE



DATASHEET - CB2-800LS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

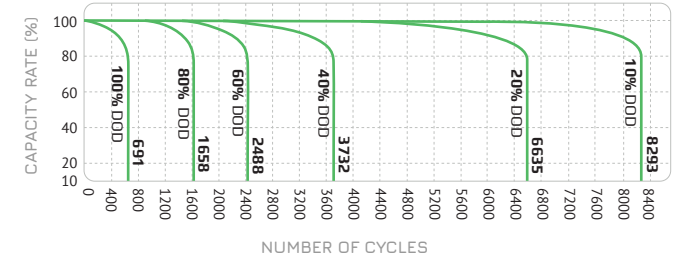
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	2161.92	1379.2	908.8	684	559.2	333.6	242.4	188.4	160	137.6	104	84	70.8	44.24	37.07
1.67V	1860.77	1250.4	842.4	648	541.6	318.4	230.4	186.4	152	136	102.4	82.4	70.8	44.24	37.07
1.70V	1777.63	1212	816	640	523.2	313.6	225.6	184.8	151.2	135.2	101.6	81.6	70.8	44.16	36.96
1.75V	1615.97	1134.4	784	615.2	506.4	301.6	219.2	180	146.4	132	100	80.8	70.16	44.16	36.88
1.80V	1428.77	1039.2	754.4	592.8	484.8	291.2	216	176.8	143.2	128.8	97.6	80	68.64	44	36.72
1.83V	1247.23	949.6	696.8	550.93	458.4	278.4	208	169.6	136.8	124	94.4	77.6	66.8	43.84	35.68
1.85V	1066.37	860	640	509.6	432.8	266.4	200	163.2	131.2	120	91.2	75.44	64.88	43.76	34.64

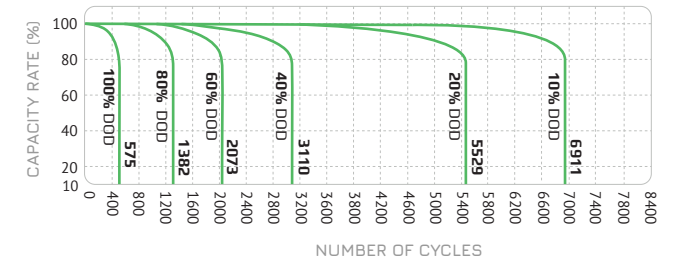
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	3584.77	2413.61	1651.99	1259.2	1043.2	636.8	464	360.79	307.2	269.6	204	166.27	139.2	86.4	72.48
1.67V	3202.37	2250.4	1546.4	1204.8	1016	616.96	452.8	359.2	297.6	266.4	199.96	162.4	139.2	86.4	72.48
1.70V	3099.11	2191.96	1504.01	1192	987.19	600.8	434.4	356.8	292	264.79	199.3	160.8	139.2	86.4	72.4
1.75V	2860.82	2060.78	1454.4	1155.21	960	580.83	424	351.2	284.8	260.8	195.2	159.18	139.2	86.4	72.32
1.80V	2593.59	1899.21	1404.78	1118.39	923.99	561.6	419.2	344.82	277.6	256.8	192	157.6	135.2	85.6	72.16
1.83V	2290.43	1758.37	1311.99	1048	877.6	540.8	404.8	333.6	268	249.6	185.61	153.6	132	85.6	70.32
1.85V	1987.2	1617.54	1219.19	977.6	832	519.99	390.4	321.6	257.6	242.4	179.2	149.6	128.8	84.8	68.56

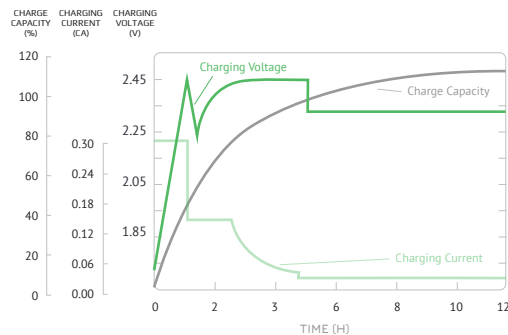
CYCLE LIFE CURVE GRAPH 25°C (77°F).



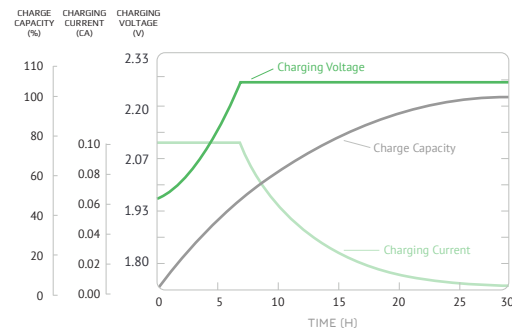
CYCLE LIFE CURVE GRAPH 40°C (104°F).



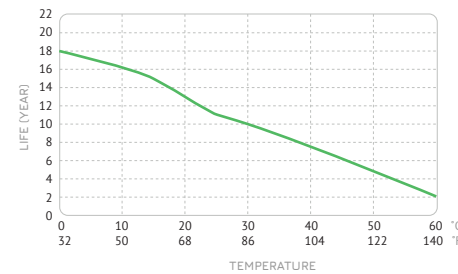
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



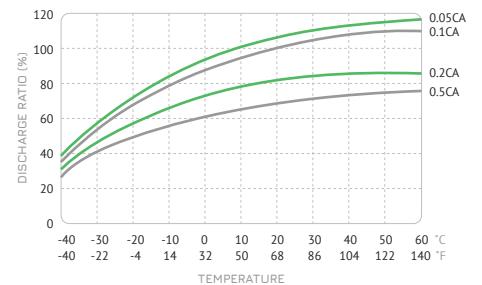
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB2-1000LS

CRYSTAL BATTERY™ - LS LARGE STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystalizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

TECHNICAL SPECIFICATIONS

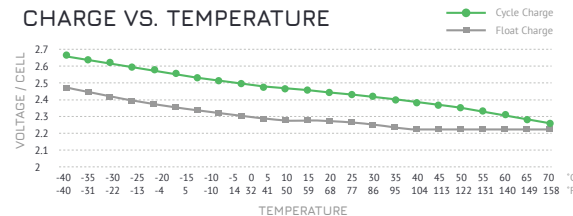
SPECIFICATION

NOMINAL VOLTAGE	2V
RATED CAPACITY (10 HOUR RATE)	1000Ah
WEIGHT	~ 61 kg / 134.5 lbs
DIMENSIONS	Height: 340 mm (13.4") Length: 480 mm (18.9") Width: 175 mm (6.9")
CAPACITY 25 °C (77 °F)	120 hour rate (10A) - 1200Ah 20 hour rate (55A) - 1100Ah 10 hour rate (100A) - 1000Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 0.15mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	10000A (5s)
TERMINAL	M8 (20)
(CHARGING) CYCLE	Initial Charging Current 300A 2.45V / 25 °C (77 °F)
(CHARGING) FLOAT	2.27V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	1.9
0.05C OF CURRENT CLOSE TO IT	1.85
0.1C OF CURRENT CLOSE TO IT	1.8
0.2C OF CURRENT CLOSE TO IT	1.75
FROM 0.2C TO 0.5C	1.7
FROM 0.5C TO 1C	1.6
FROM 1C TO 3C	1.5
CURRENT IN EXCESS OF 3C	1.3

CHARGE VS. TEMPERATURE



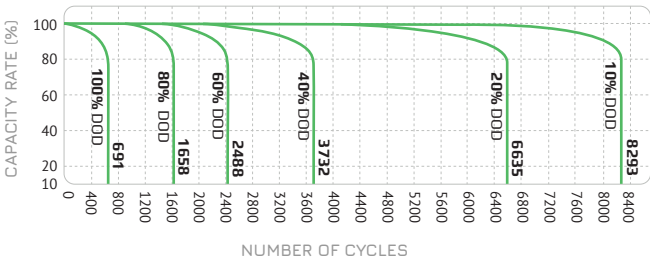
DATASHEET - CB2-1000LS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

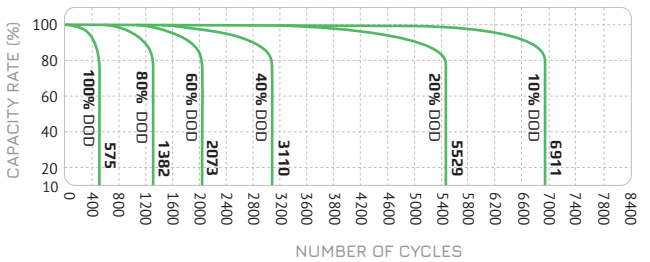
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	3669	1942	1173	855	689	394	286	224	191	163	124	103	86.8	56.5	46.1
1.67V	3410	1878	1156	849	687	393	281	223	189	161	124	102	86.7	56.3	46.0
1.70V	3375	1849	1144	838	682	389	279	222	186	160	123	102	86.4	56.1	45.9
1.75V	3092	1791	1133	832	670	382	278	219	184	158	123	101	86.0	55.9	45.8
1.80V	2774	1676	1086	809	653	376	272	214	182	157	122	100	85.5	54.0	45.7
1.83V	2652	1537	1069	780	624	372	266	209	178	151	119	95.9	82.0	53.4	45.1
1.85V	2485	1491	1000	751	606	357	259	206	173	146	118	94.8	80.9	52.8	44.7

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	6131	3409	2196	1600	1287	745	545	431	364	313	241	199	168	112	91.8
1.67V	5837	3357	2107	1589	1288	745	538	430	364	312	241	199	168	112	91.8
1.70V	5802	3334	2106	1580	1277	739	536	429	358	310	239	197	166	111	91.8
1.75V	5403	3294	2108	1572	1271	734	535	428	357	308	238	196	166	111	91.3
1.80V	4958	3126	2063	1560	1265	733	530	421	355	308	237	195	164	108	91.3
1.83V	4785	2872	2045	1514	1213	728	520	413	351	298	236	189	163	107	90.7
1.85V	4432	2808	1901	1456	1179	710	505	408	341	292	226	187	160	106	90.1

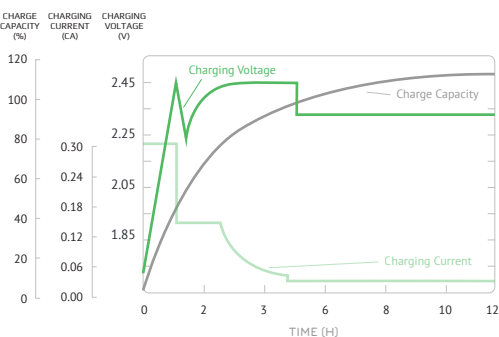
CYCLE LIFE CURVE GRAPH 25°C (77°F).



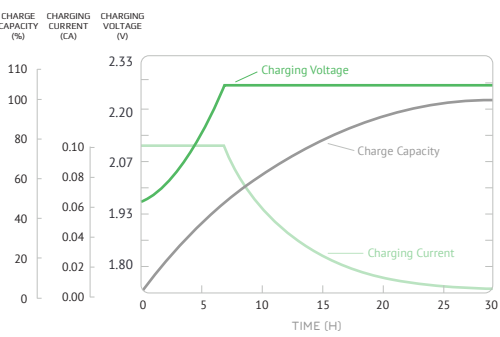
CYCLE LIFE CURVE GRAPH 40°C (104°F).



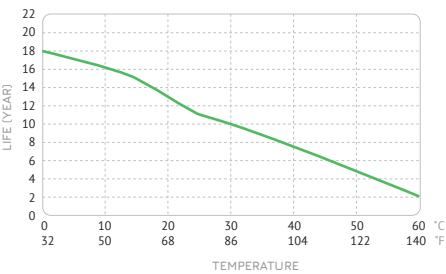
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



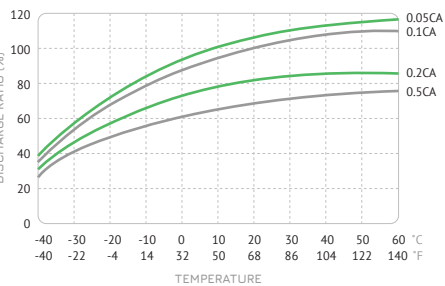
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB2-1200LS

CRYSTAL BATTERY™ - LS LARGE STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystalizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

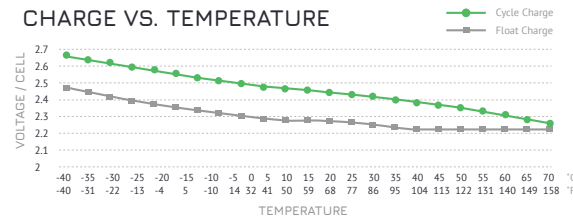
SPECIFICATION

NOMINAL VOLTAGE	2V
RATED CAPACITY (10 HOUR RATE)	1200Ah
WEIGHT	~ 73.2 kg / 161.4 lbs
DIMENSIONS	Height: 342 mm (13.5") Length: 401 mm (15.8") Width: 351 mm (13.8")
CAPACITY 25 °C (77 °F)	120 hour rate (12A) - 1440Ah 20 hour rate (66A) - 1320Ah 10 hour rate (120A) - 1200Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 0.13mΩ
SELF DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	12000A (5s)
TERMINAL	F4
(CHARGING) CYCLE	Initial Charging Current 360A 2.45V / 25 °C (77 °F)
(CHARGING) FLOAT	2.27V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	1.9
0.05C OF CURRENT CLOSE TO IT	1.85
0.1C OF CURRENT CLOSE TO IT	1.8
0.2C OF CURRENT CLOSE TO IT	1.75
FROM 0.2C TO 0.5C	1.7
FROM 0.5C TO 1C	1.6
FROM 1C TO 3C	1.5
CURRENT IN EXCESS OF 3C	1.3

CHARGE VS. TEMPERATURE



DATASHEET - CB2-1200LS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

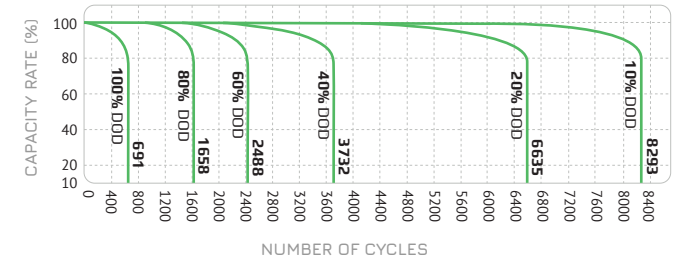
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	3242.88	2068.8	1363.2	1026.0	838.80	500.40	363.60	282.60	240.00	206.40	156.00	126.00	106.20	66.36	55.60
1.67V	2791.15	1875.6	1263.6	972.00	812.40	477.60	345.60	279.60	228.00	204.00	153.60	123.60	106.20	66.36	55.60
1.70V	2666.45	1818.0	1224.0	960.00	784.80	470.40	338.40	277.20	226.80	202.80	152.40	122.40	106.20	66.24	55.44
1.75V	2423.95	1701.6	1176.0	922.80	759.60	452.40	328.80	270.00	219.60	198.00	150.00	121.20	105.24	66.24	55.32
1.80V	2143.15	1558.8	1131.6	889.20	727.20	436.80	324.00	265.20	214.80	193.20	146.40	120.00	102.96	66.00	55.08
1.83V	1870.85	1424.4	1045.2	826.40	687.60	417.60	312.00	254.40	205.20	186.00	141.60	116.40	100.20	65.76	53.52
1.85V	1599.55	1290.0	960.00	764.40	649.20	399.60	300.00	244.80	196.80	180.00	136.80	113.16	97.32	65.64	51.96

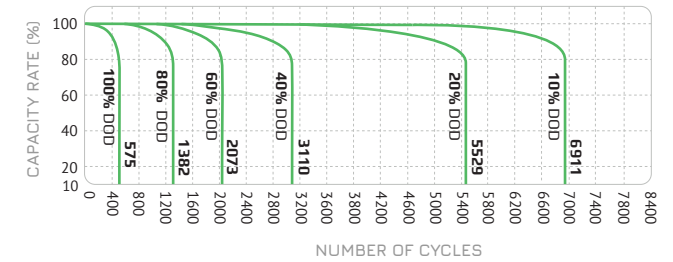
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	5377.15	3620.42	2477.99	1888.80	1564.80	955.20	696.0	541.8	460.80	404.40	306.00	249.40	208.80	129.60	108.72
1.67V	4803.55	3375.60	2319.60	1807.20	1524.00	925.44	679.2	538.80	446.40	399.60	299.94	243.60	208.80	129.60	108.72
1.70V	4648.66	3287.95	2256.01	1788.00	1480.79	901.20	651.6	535.20	438.00	397.19	298.96	241.20	208.80	129.60	108.60
1.75V	4291.23	3091.17	2181.59	1732.81	1440.01	871.25	636.0	526.80	427.20	391.20	292.80	238.76	208.80	129.60	108.48
1.80V	3890.39	2848.81	2107.18	1677.59	1385.99	842.40	628.8	517.23	416.40	385.20	288.00	236.40	202.80	128.40	108.24
1.83V	3435.65	2637.56	1967.98	1572.00	1316.39	811.19	607.2	500.40	402.00	374.40	278.41	230.40	198.00	128.40	105.48
1.85V	2980.80	2426.32	1828.79	1466.40	1248.00	779.99	585.6	482.40	386.40	363.60	268.80	224.40	193.20	127.20	102.84

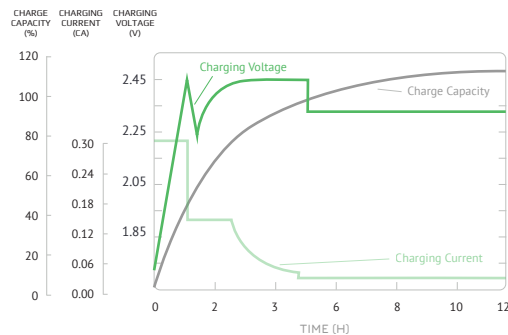
CYCLE LIFE CURVE GRAPH 25°C (77°F).



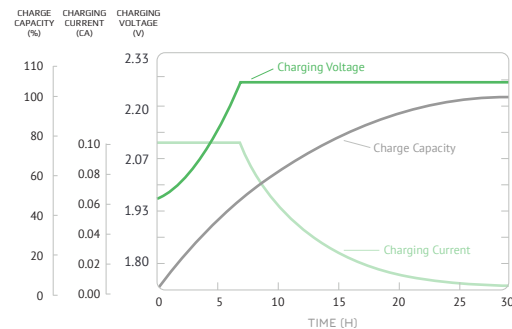
CYCLE LIFE CURVE GRAPH 40°C (104°F).



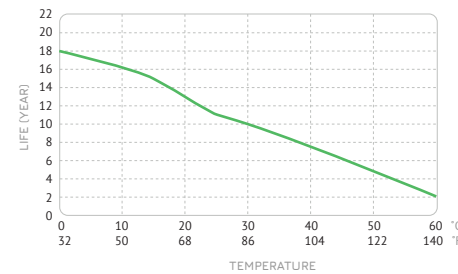
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



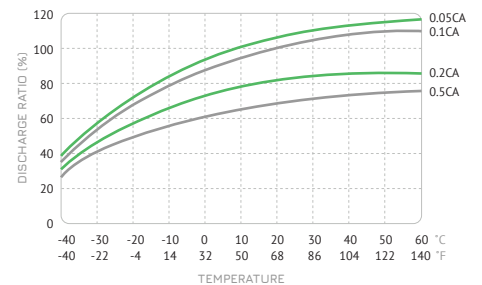
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB2-1500LS

CRYSTAL BATTERY™ - LS LARGE STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

TECHNICAL SPECIFICATIONS

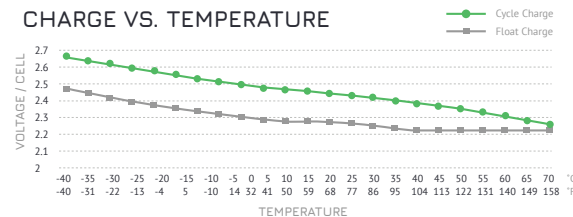
SPECIFICATION

NOMINAL VOLTAGE	2V
RATED CAPACITY (10 HOUR RATE)	1500Ah
WEIGHT	~ 98.5 kg / 217.2 lbs
DIMENSIONS	Height: 350 mm (13.8") Length: 403 mm (15.9") Width: 354 mm (13.9")
CAPACITY 25 °C (77 °F)	120 hour rate (15A) - 1800Ah 20 hour rate (82.5A) - 1650Ah 10 hour rate (150A) - 1500Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 0.10mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	15000A (5s)
TERMINAL	M8 (20)
(CHARGING) CYCLE	Initial Charging Current 450A 2.45V / 25 °C (77 °F)
(CHARGING) FLOAT	2.27V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	1.9
0.05C OF CURRENT CLOSE TO IT	1.85
0.1C OF CURRENT CLOSE TO IT	1.8
0.2C OF CURRENT CLOSE TO IT	1.75
FROM 0.2C TO 0.5C	1.7
FROM 0.5C TO 1C	1.6
FROM 1C TO 3C	1.5
CURRENT IN EXCESS OF 3C	1.3

CHARGE VS. TEMPERATURE



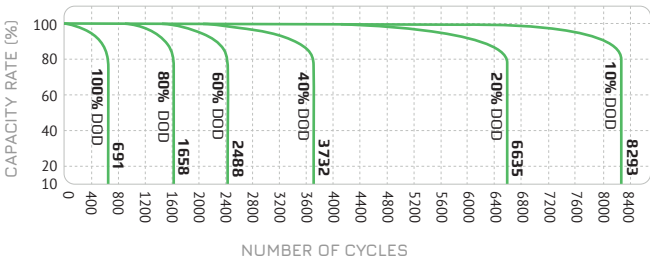
DATASHEET - CB2-1500LS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART																			
Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23

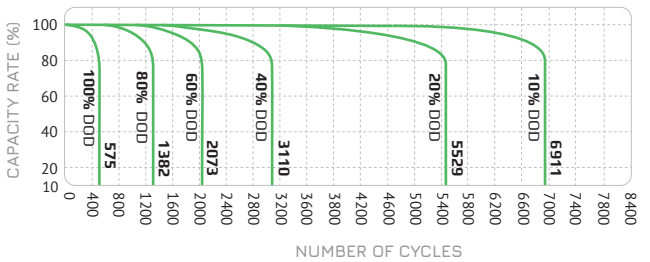
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	4053.60	2586.0	1704.0	1282.5	1048.5	625.50	454.50	454.50	300.00	258.00	195.00	157.50	132.75	82.95	69.50
1.67V	3488.94	2344.5	1579.5	1215.0	1015.5	597.00	432.00	432.00	285.00	255.00	192.00	154.50	132.75	82.95	69.50
1.70V	3333.06	2272.5	1530.0	1200.0	981.00	588.00	423.00	423.00	283.50	253.50	190.50	153.00	132.75	82.80	69.30
1.75V	3029.94	2127.0	1470.0	1153.5	949.50	565.50	411.00	411.00	274.50	247.50	187.50	151.50	131.55	82.80	69.15
1.80V	2678.94	1948.5	1414.5	1111.5	909.00	546.00	405.00	405.00	268.50	241.50	183.00	150.00	128.70	82.50	68.85
1.83V	2338.56	1780.5	1306.5	1033.0	859.50	522.00	390.00	390.00	256.50	232.50	177.00	145.50	125.25	82.20	66.90
1.85V	1999.44	1612.5	1200.0	955.50	811.50	499.50	375.00	375.00	246.00	225.00	171.00	141.45	121.65	82.05	64.95

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)															
End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	6721.44	4525.52	3097.49	2361.01	1956.00	1194.00	870	676.47	576.00	505.50	382.50	311.75	261.00	162.00	135.90
1.67V	6004.44	4219.50	2899.51	2259.00	1905.00	1156.79	849	673.50	558.00	499.50	374.93	304.50	261.00	162.00	135.90
1.70V	5810.83	4109.93	2820.02	2235.00	1850.98	1126.51	814.5	669.00	547.50	496.49	373.70	301.50	261.00	162.00	135.75
1.75V	5364.03	3863.96	2726.99	2166.02	1800.01	1089.07	795	658.50	534.00	489.00	366.00	298.46	261.00	162.00	135.60
1.80V	4862.98	3561.01	2633.97	2096.99	1732.49	1053.00	786	646.53	520.50	481.50	360.00	295.50	253.50	160.50	135.30
1.83V	4294.56	3296.95	2459.98	1965.00	1645.49	1013.99	759	625.50	502.50	468.00	348.01	287.99	247.50	160.50	131.85
1.85V	3725.99	3032.89	2285.99	1833.01	1560.00	974.99	732	603.00	483.00	454.50	336.00	280.50	241.50	159.00	128.55

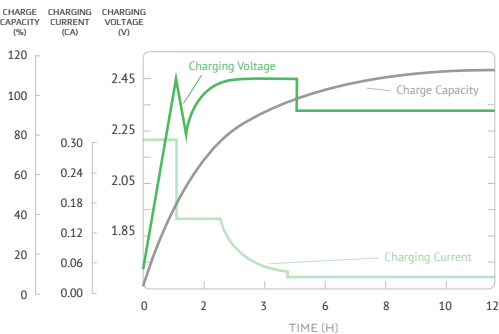
CYCLE LIFE CURVE GRAPH 25°C (77°F).



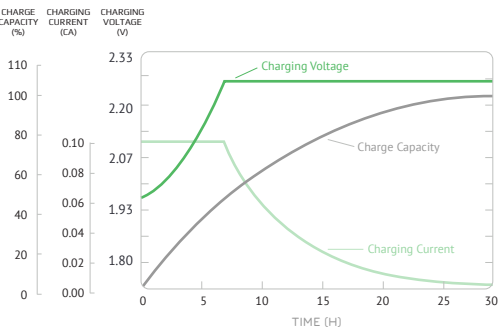
CYCLE LIFE CURVE GRAPH 40°C (104°F).



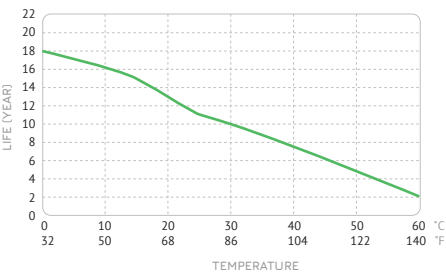
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



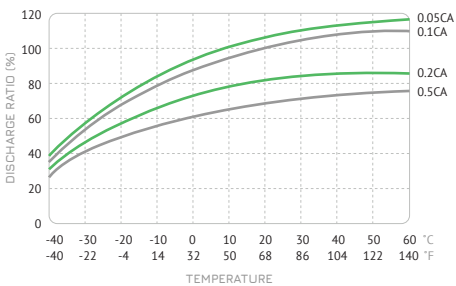
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



DATASHEET

CB2-2000LS

CRYSTAL BATTERY™ - LS LARGE STORAGE

Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.



TECHNICAL SPECIFICATIONS

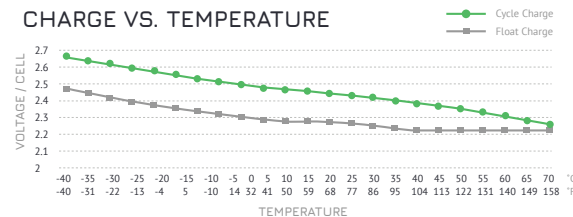
SPECIFICATION

NOMINAL VOLTAGE	2V
RATED CAPACITY (10 HOUR RATE)	2000Ah
WEIGHT	~ 124 kg / 273.4 lbs
DIMENSIONS	Height: 364 mm (14.3") Length: 491 mm (19.3") Width: 351 mm (13.8")
CAPACITY 25 °C (77 °F)	120 hour rate (20A) - 2400Ah 20 hour rate (110A) - 2200Ah 10 hour rate (100A) - 1000Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25 °C (77 °F)	< 0.09mΩ
SELF DISCHARGE 25 °C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	20000A (5s)
TERMINAL	M8 (20)
(CHARGING) CYCLE	Initial Charging Current 600A 2.45V / 25 °C (77 °F)
(CHARGING) FLOAT	2.27V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	1.9
0.05C OF CURRENT CLOSE TO IT	1.85
0.1C OF CURRENT CLOSE TO IT	1.8
0.2C OF CURRENT CLOSE TO IT	1.75
FROM 0.2C TO 0.5C	1.7
FROM 0.5C TO 1C	1.6
FROM 1C TO 3C	1.5
CURRENT IN EXCESS OF 3C	1.3

CHARGE VS. TEMPERATURE



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40 °C (40 °F) to +65 °C (149 °F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25 °C (50% DoD).

DATASHEET - CB2-2000LS

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.42	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

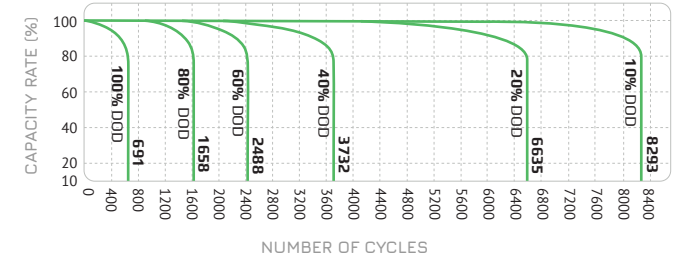
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	5404.8	3448	2272	1710	1398	834	606	471	400	344	260	210	177	110.6	92.67
1.67V	4651.92	3126	2106	1620	1354	796	576	466	380	340	256	206	177	110.6	92.67
1.70V	4444.08	3030	2040	1600	1308	784	564	462	378	338	254	204	177	110.4	92.4
1.75V	4039.92	2836	1960	1538	1266	754	548	450	366	330	250	202	175.4	110.4	92.2
1.80V	3571.92	2598	1886	1482	1212	728	540	442	358	322	244	200	171.6	110	91.8
1.83V	3118.08	2374	1742	1377.33	1146	696	520	424	342	310	236	194	167	109.6	89.2
1.85V	2665.92	2150	1600	1274	1082	666	500	408	328	300	228	188.6	162.2	109.4	86.6

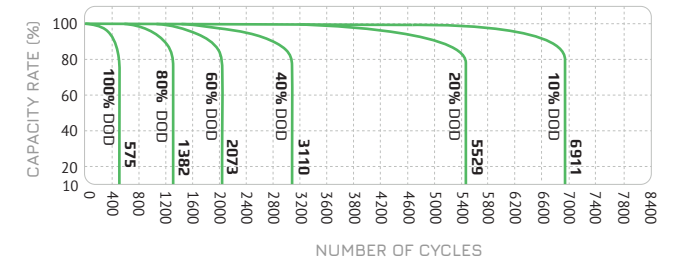
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	8961.92	6034.03	4129.99	3148.01	2608	1592	1160	901.96	768	674	510	415.67	348	216	181.2
1.67V	8005.92	5626	3866.01	3012	2540	1542.39	1132	897.99	744	666	499.9	406	348	216	181.2
1.70V	7747.77	5479.91	3760.02	2980.01	2467.98	1502.01	1086	892	730	661.99	498.26	402	348	216	181
1.75V	7152.05	5151.94	3635.99	2888.02	2400.01	1452.09	1060	878	712	652	488	397.94	348	216	180.8
1.80V	6483.98	4748.02	3511.96	2795.98	2309.98	1404	1048	862.04	694	642	480	394	338	214	180.4
1.83V	5726.08	4395.94	3279.97	2619.99	2193.99	1351.99	1012	834	670	624	464.01	383.99	330	214	175.8
1.85V	4967.99	4043.86	3047.98	2444.01	2080	1299.98	976	804	644	606	448	374	322	212	171.4

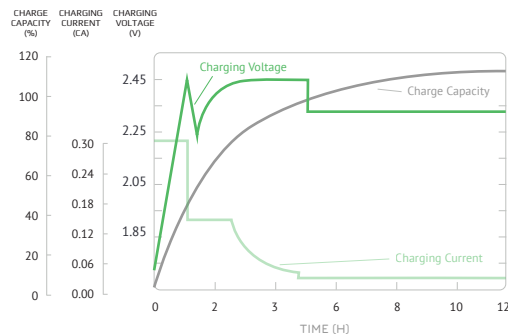
CYCLE LIFE CURVE GRAPH 25°C (77°F).



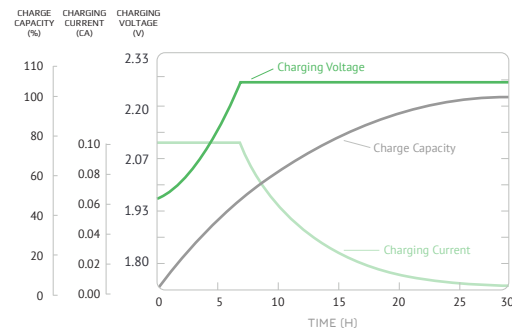
CYCLE LIFE CURVE GRAPH 40°C (104°F).



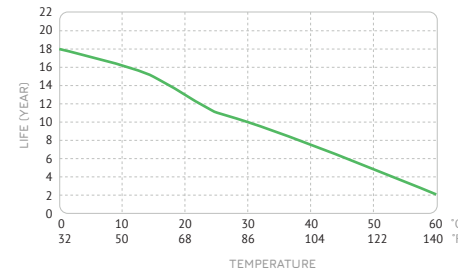
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.

