



ES-230 CARBON



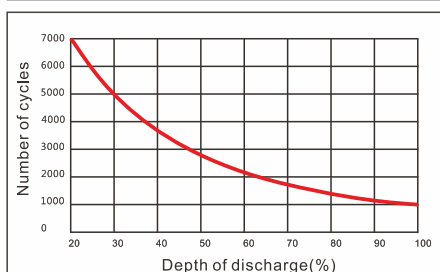
Applications

- Solar / Wind Energy and other New Energy Storage
- Other Backup or Cycle Purposes
- Hybrid Vehicles, Electric Bicycles and other New Energy Vehicles

General Features

- Lead-carbon composite negative plate, both capacitance and battery characteristics
- Long cycle life, excellent deep cycle discharge ability
- Excellent charge acceptance ability
- Optimized capability of instant high-current discharging
- Strong high and low temperature performance
- Precision sealing technology

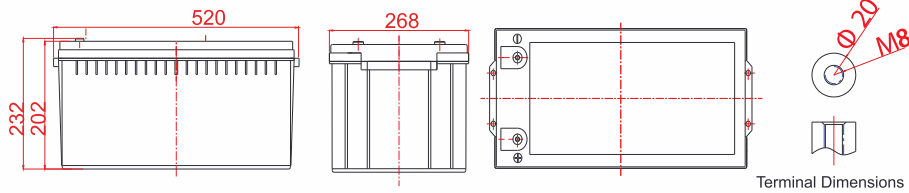
The effect of discharge depth on cycle life



Specification

Nominal Voltage	12V
Nominal Capacity	230Ah
Terminal	M8
Approx. Weight	Approx 71.0 kg (15 7lbs)
Container Material	ABS
Rated Capacity	230Ah → 10Hour Rate (25.0A to 10.8V)
	203Ah → 3Hour Rate (67.8A to 10.8V)
	165Ah → 1Hour Rate (165A to 10.5V)
Internal resistance	Full charged at 25°C: 2.70 mΩ
Max. Discharge Current	3000A(5S)
Operating Temperature	Discharge: -20 ~60°C (-4~ 140°F)
	Charge: -20~50°C (-4~ 122°F)
	Storage: -20 ~50°C (-4~ 122°F)
Cycle Life	1000 cycles @ 100% DOD. 1200 cycles @ 80% DOD. 2800 cycles @ 50% DOD.
Charge Method (25 °C)	Charge current: Max. 75.0A; Recom.25.0~50.0A Float Charge: 13.5-13.8V, recom.13.8V(-18mV/ °C) Equalize charge: 13.8-14.1V, recom.14.1V(-24mV/ °C) Cycle charge: 14.4-15.0V, recom.14.7 V(-30mV/ °C)
Self discharge	3% of capacity declined per month at 25°C

Dimension:520(L)×268(W)×220(H)×223(TH) Unit: mm



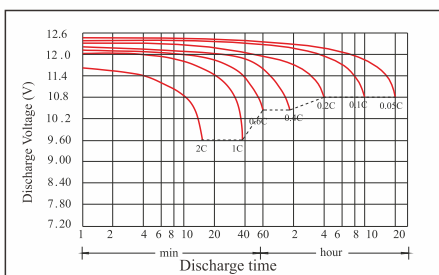
Constant Current Discharge Characteristics Unit: A (25°C,77°F)

FV/Time	5min	15min	30min	1h	2h	3h	5h	8h	10h	20h
1.60V	898	483	293	170	97.5	70.8	47.5	31.3	26.3	13.8
1.65V	870	468	288	169	97.0	70.0	47.0	31.0	26.0	13.7
1.70V	838	458	283	168	96.3	69.0	46.5	30.8	25.8	13.6
1.75V	770	443	280	165	94.8	68.3	46.0	30.5	25.5	13.6
1.80V	690	413	270	161	93.0	67.8	44.8	30.3	25.0	13.5
1.85V	615	368	246	149	88.3	63.8	42.5	29.0	24.5	13.3

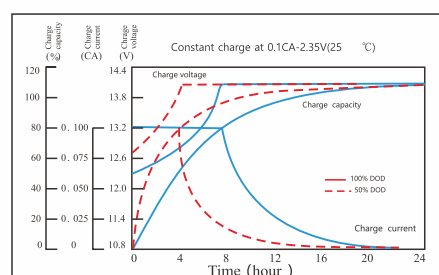
Constant Power Discharge Characteristics Unit: W/cell (25°C,77°F)

FV/Time	5min	15min	30min	1h	2h	3h	5h	8h	10h	20h
1.60V	1508	850	533	323	184	135	90.0	60.5	50.5	27.3
1.65V	1450	835	528	320	184	133	89.5	60.0	50.0	27.3
1.70V	1443	825	528	318	183	132	88.8	59.8	49.5	27.0
1.75V	1345	820	525	315	182	132	88.3	59.3	49.0	27.0
1.80V	1235	775	513	313	182	131	87.3	58.8	48.5	26.8
1.85V	1103	693	470	290	174	125	83.5	57.0	47.8	26.5

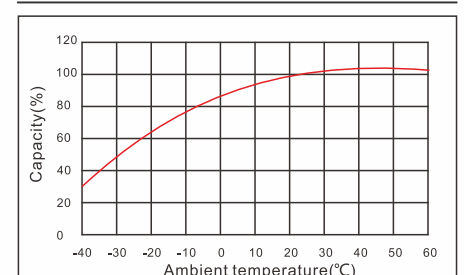
Discharge characteristic



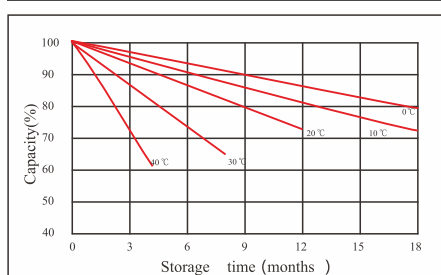
Charging characteristic



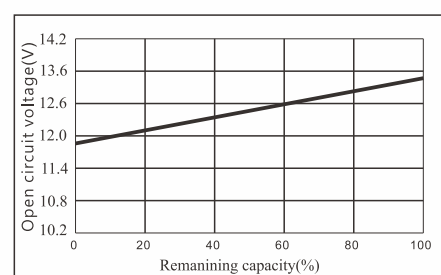
The effect of temperature on capacity



Curves of self - discharge



The effect of discharge depth on cycle life



Product specification are subject to change without prior notice.