




ENDURO SERIES
DEEP CYCLE CARBON BATTERY

ES-210 CARBON



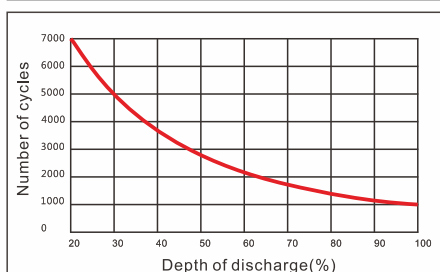
Applications

- › 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

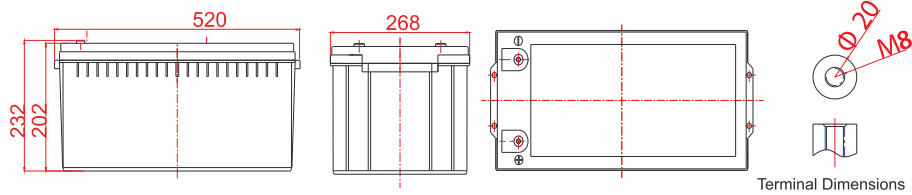
The effect of discharge depth on cycle life



Specification

Nominal Voltage	12V
Nominal Capacity	210Ah
Design life	15 years
Terminal	M8
Approx. Weight	Approx 68.0kg (150lbs)
Container Material	ABS
Rated Capacity	210Ah 10Hour Rate (25.0A to 10.8V)
	187Ah 3Hour Rate (67.8A to 10.8V)
	152Ah 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. 13.5V(-18mV/ °C)
	Equalize charge: 13.8-14.1V, recom. 14.1V(-24mV/ °C)
	Cycle charge: 14.4-15.0V, recom. 14.4V(-30mV/ °C)
Self discharge	3% of capacity declined per month at 25°C

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



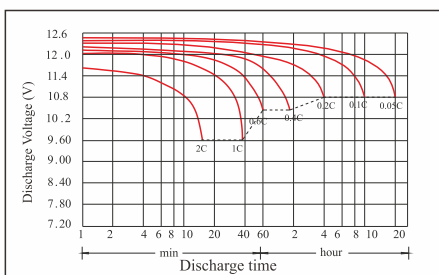
Constant Current Discharge Characteristics Unit: A (25°C, 77°F)

FV/Time	5min	15min	30min	1h	2h	3h	5h	8h	10h	20h
1.60V	828	444.3	269.5	156.4	89.7	65.1	43.7	28.8	24.2	12.7
1.65V	800.4	430.56	264.9	155.4	89.2	64.4	43.2	28.5	23.9	12.6
1.70V	770.9	421.3	260.3	154.5	88.6	63.5	42.7	28.3	23.7	12.5
1.75V	708.4	407.5	257.6	151.8	87.2	62.8	42.3	28	23.4	12.5
1.80V	634.8	379.9	248.4	148.1	85.5	62.3	41.2	27.8	23	12.4
1.85V	565.8	338.5	226.3	137.1	81.2	58.7	39.1	26.6	22.5	12.2

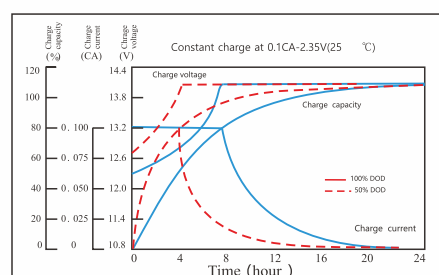
Constant Power Discharge Characteristics Unit: W/cel I (25°C, 77°F)

FV/Time	5min	15min	30min	1h	2h	3h	5h	8h	10h	20h
1.60V	1387	782	490	297	169	124	82.8	55.6	46.5	25.1
1.65V	1334	768	485	294	169	124	82.3	55.2	46	25.1
1.70V	1327	759	484	292	168	121	81.6	55.0	45.5	24.8
1.75V	1237	754	483	289	167	121	81.2	54.5	45	24.8
1.80V	1136	713	471	287	167	120	80.3	54.1	44.6	24.6
1.85V	1014	637	432	266	160	115	76.8	52.4	43.9	24.4

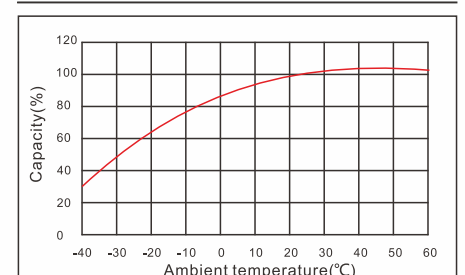
Discharge characteristic



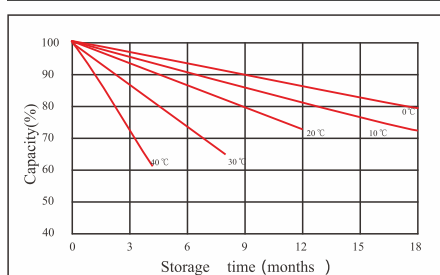
Charging characteristic



The effect of temperature on capacity



Curves of self - discharge



The effect of discharge depth on cycle life

