

# FREEDOM WON 12V RANGE

## Range Overview Specification Sheet



FW 12-7.5



FW 12-10



FW 12-20



FW 12-40



FW 12-100



FW 12-200

### Electrical Characteristics

Nominal Voltage [V]	12.8					
Nominal Capacity [Ah]	7.5	10	20	40	100	200
Energy [Wh]	96	128	256	512	1280	2560
Internal Resistance [mΩ]	≤60	≤60	≤50	≤20	≤20	≤30
Cycle Life	>2000 cycles at 0.2C 100% DoD					
Months Self Discharge [%]	<3					
Efficiency of Charge	100% at 0.5C					
Efficiency of Discharge	96-99% at 1C					

### Charge

Charge Voltage [V]	14-14.6					
Charge Mode	CC at 0.2C to 14.6V, then at CV 14.6V to charge current less than 0.02C					
Charge Current [A]	1.5	2	4	9	20	40
Max. Charge Current [A]	7.5	10	20	20	50	80
Charge Cut-off Voltage [V]	15.6V ± 0.2					14.6V

### Discharge

Max. Continuous Current [A]	7.5	10	20	40	100	100
Max. Pulse Current [A]	15 (<3s)	20 (<3s)	40 (<3s)	80 (<3s)	200 (<3s)	160
Discharge Cut-off Voltage [V]	8					10.5

### Environment

Charge Temperature [°C]	0°C to 45°C (32°F to 113°F) at 60 ±25% Relative Humidity					
Discharge Temperature [°C]	-20°C to 60°C (-4°F to 14°F) at 60 ±25% Relative Humidity					
Storage Temperature [°C]	0°C to 40°C (32°F to 104°F) at 60 ±25% Relative Humidity					
Ingress Protection	IP56					

### Mechanical

Cell Material	LiFePO4					Prismatic LiFePO4 cell in 4S8P
Plastic Case	ABS					
Dimensions - H x W x D [mm]	95x150x65	99x150x99	170x180x77	168x197x165	217x327x172	216x495x244
Weight [kg]	1	1.6	3.1	5.75	13.5	24
Terminal	T2	T2	M5	M6	M6	M8

### BMS

Protection Function	Over charge protection, Over discharge protection, Over current protection, Short current protection, Balanced function, Temperature protection					
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