

## About Vision technology

Vision Group is one of the largest manufacturers of rechargeable batteries in the world. We supply both VRLA and lithium batteries. Worldwide sales and engineering centers support customers in portable digital products, UPS, motive, military and marine markets.

### Advantages of Vision LFP batteries

As a substitute for Lead Acid batteries,  $\text{LiFePO}_4$  rechargeable battery is our new product. Some of the main advantages are as follows:

- ★ Safe technology, will not catch fire or explode when being overcharged, because:
  - (1).Fast charge capability that avoids lithium plating at the negative electrode;
  - (2).Dual plate laser-welded aluminum cell construction;
  - (3).Advanced vent technology to safely release gas pressure buildup;
  - (4).Center pin construction designed to allow efficient gas release and avoid internal mechanical deformation under extreme abuse;
  - (5) .Phosphate does not release oxygen.
- ★ One third the weight of an equivalent lead acid battery;
- ★ Over 2000 deep discharge cycles compared to typically around 300 for lead acid;
- ★ More usable capacity than that of similar amp hour lead acid batteries;
- ★ High discharge rate capability, 10C continuous, 20C pulse discharge;
- ★ Unlike lead acid batteries, can be left in a partially discharged state for extended periods without causing permanent damage;
- ★ Extremely low self discharge rate, about 1~2% per month;
- ★ Does not suffer from "thermal runaway" .It is because there is a special component called PTC insertion (Positive temperature Coefficient).When temperature gets too high, PTC refrigerates by augmenting its resistance, then current steps down until interior temperature gets normal.
- ★ Can be used safely in wide ambient temperatures of -20 to 60 deg.C without any degradation in performance.
- ★ Can be connected in series for higher voltages or parallel for higher capacity.
- ★ Maintenance free;
- ★ Does not contain any toxic heavy metals such as lead, cadmium, nor any corrosive acids or alkalis thus making  $\text{LiFePO}_4$  batteries the most environmentally friendly battery chemistry available;

## V-LFP 12V20Ah

Vision Technology delivers safe lithium phosphate energy storage solutions in standard lead-acid battery sizes for a wide variety of applications.



### Overview

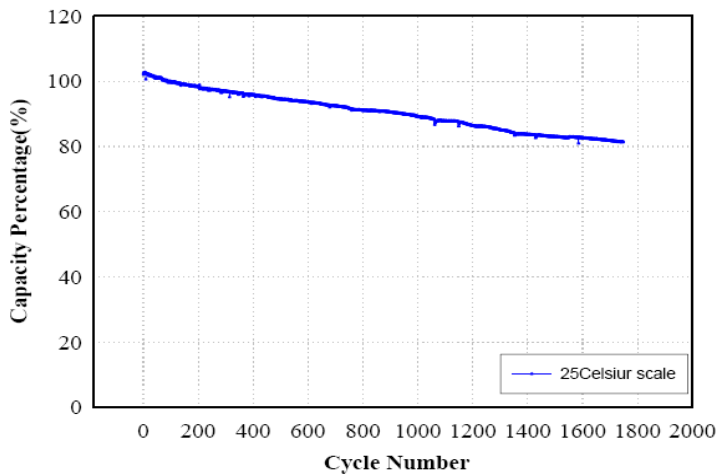
The V-LFP 12V 20Ah Energy Storage Systems are a family of 12V battery modules and accessories. The 12V family is designed as a drop-in replacement for similar sized lead-acid batteries offering twice the run-time and nearly half the weight. The 12V series is designed for lower voltage, lower power and longer run-time applications. They are built with Vision LFP Technology that offers outstanding intrinsic safety and excellent float and cycle life resulting in low cost of ownership.

### Features

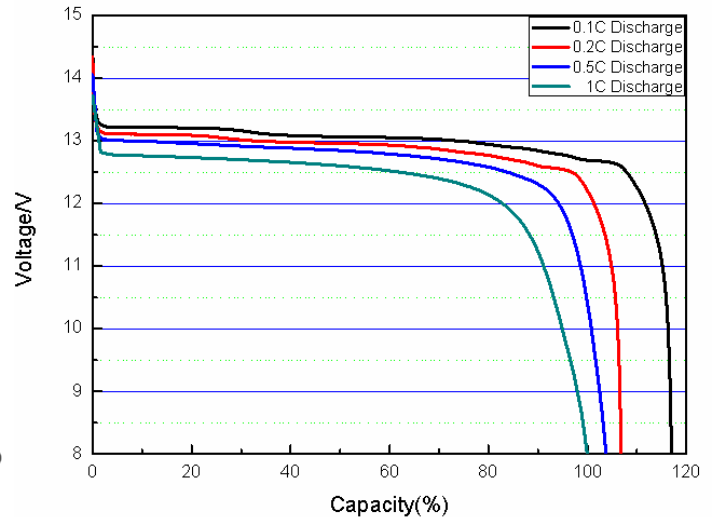
- Built-in automatic protection for over-charge, over-discharge and over-temperature conditions
- Maintenance free
- Internal cell balancing
- Communication of monitored data via Battery Management System (BMS)
- Thousands of cycles, 100% DOD, under normal conditions
- Can be charged using most standard lead-acid chargers (set for AGM/GEL cells)
- Flame retardant plastics

Specifications		V-LFP 12V20Ah
Voltage		12.8V
Nominal Capacity (25°C, 1C)		20Ah
Weight (Approximate)		3.12 Kg
Cell		Prismatic (2P4S)
Container		ABS
Dimension Terminals L*W*H		181*77*167mm
Specific Energy		82 Wh/kg
Standard Discharge 25°C	Max. cont. current	20A
	Max. 15sec. pulse	30A
	Cut-off voltage	8.0V
Standard charge	Charge Voltage	14.8V
	Float	13.8V
	Style	CC/CV
	Recommended Charge Time	10A 2.5h
Using temperature		-30~60°C
Storage temperature		-30~60°C
DC internal resistance (max)		<23 mΩ

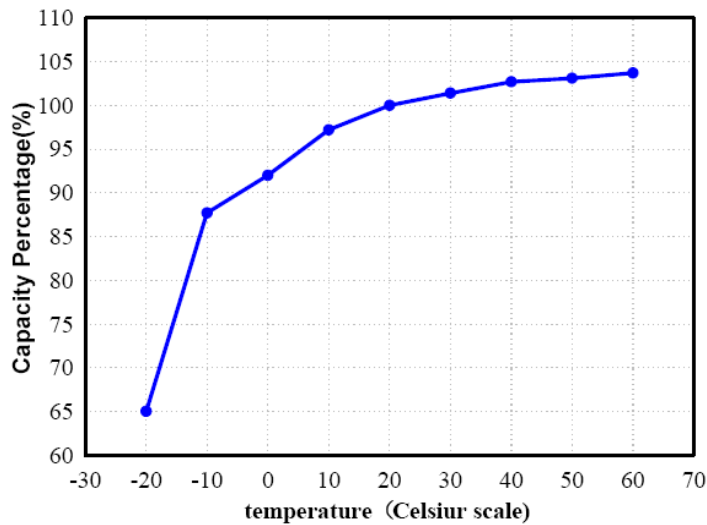
**Charging capacity/Discharging capacity(%)**  
**Cycle service life(100%Depth of discharge)**



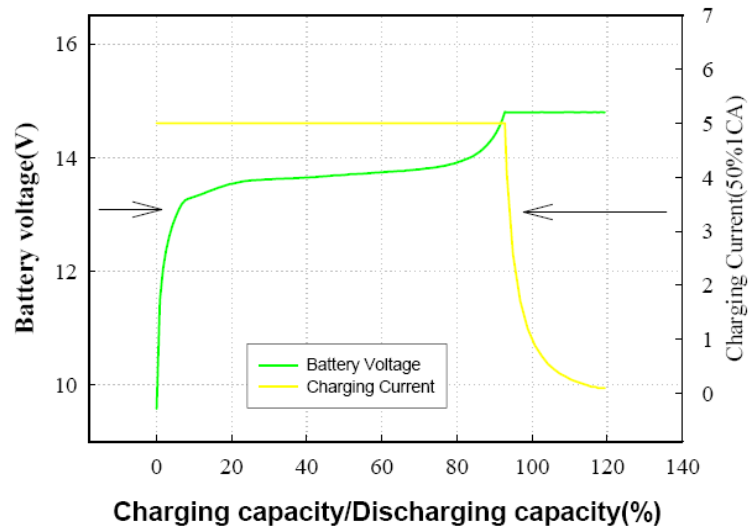
**Discharge performance**



**Temperature effects on capacity**



**constant voltage charging characteristic**  
**(0.5CA, 25Celsius scale)**



Performance may vary depending on, but not limited to cell usage and application. If cell is used outside specifications, performance will diminish. All specifications are subject to change without notice. All information provided herein is believed, but not guaranteed, to be current and accurate.

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