



## Model KS-20 Lithium-Iron Phosphate Battery

### **Guidance**

Only use within the parameters of the specifications detailed. Terminals are 4mm threads (with PH2 cross head screw heads). Torque to 2.5Nm. It is vital to zero terminal connection resistance since this will cause termination heating which can lead to damage. Use appropriately rated, crimped, and secured ring terminations only. Positive should be correctly fused. Batteries may be oriented and secured in any position of orientation and there is no requirement for gas ventilation. If in doubt seek qualified assistance.

### **Continuous current rating**

Customers are reminded to pay attention to the maximum current rating of the battery (20A) and parallel for higher current loads.

### **Parallel / Serial battery arrangements**

When batteries are installed in parallel or serial multiples, ensure all batteries are fully charged before any parallel or serial electrical connection is made. There is no limitation to the number of individual batteries that can be paralleled. The limit for serial connection is 4 batteries maximum, making a 48V bank (52V nominal).

### **Overload**

In case of overload or accidental short circuit, the battery may enter a self-protect mode. Ensure all loads are removed before resetting the battery. A reset is accomplished by applying a normal charge voltage to the terminals and the battery terminal voltage is restored. Note, some self-sensing dual voltage chargers may be unsuitable since they rely on sensing the terminal voltage before the charging process can begin.

### **Under Voltage Protection**

Should the battery be allowed to become completely discharge to an extent where the terminal voltage falls to around 10V, the battery will enter low voltage protection and shut down. The terminals will automatically disconnect and fall to zero. To reset the battery, a normal charge voltage must be applied to the terminals. A recharge should be performed as soon as practical, certainly within a few weeks to maintain cell integrity avoiding the possibility of longer-term total discharge and irreversible cell damage.

### **Charging**

Maximum charge voltage is 14.6V at 20A. Refer to the recommended charging specification over. Note the battery does not feature integral low temperature charge protection. In the interests of safety and to prevent permeant cell damage, ensure normal charging currents are never applied below 0°C and that your electrical configuration can prevent accidental low temperature charging.

Constant Current Discharge Table (Amperes @ 25°C)

	1hr	2hr	3hr	5hr	10hr
Cut of voltage 10.8V	20A	10A	6.6A	4A	2A

## Specifications- KS-20

Product code: 5060716640148, Type: Lithium-Iron Phosphate (LiFePo<sub>4</sub>), Cells: 3270 cylindrical 3.2V  
 5000mAh, Arrangement: 4S \*4P, Management: Internal BMS active balanced  
 Capacity: 20AH nominal, 256Wh @ 25°C  
 BMS protection: Short Circuit electronic trip: (>60A <250μS); Over voltage: detect 15.2V <2S, release 14.4V;  
 Over discharge voltage: 9.8V <2S, release 11.8V  
 Battery voltage nominal: 12.8V, charged and rested: 13.2V typical  
 Capacity: 20AH nominal, 256Wh @ 25°C  
 Size: (mm ±2) L\*W\*H 180\*75\*165 (inch 7\*3\*6.5) Weight: 2.5KG (6.3lbs)  
 Depth Discharge: 100% Efficiency: 99%  
 Internal resistance (±3%) : 45mΩ @ 50% SOC 25°C, Self-discharge: 2.5% per month  
 Maximum recommended dry storage duration: (@55% capacity): 12 months  
 Max continuous discharge current: 20A Peak surge discharge current: 40A for 15 seconds  
 Max continuous charge current: 20A, Max charge voltage: 14.6V  
 Recommended charge current <10A  
 Recommended Charge voltage 14.4V, charge type: CC/CV  
 Recommended low voltage disconnect 11V  
 Float voltage (when applicable) 13.1V - 13.2V  
 Operating temperature range: Discharge -20°C to +50°C, storage temperature range: -20°C to +30°C  
 Charging temperature range: 0°C - +50°C  
 Terminal torque 2.5Nm. Case material: ABS, Ingress Rating: IP64  
 Parallel configuration: unlimited, Series: 4 batteries maximum  
 Life Span: >5000 cycles @80% - 30% DOD @ 0.5C, >2500 cycles DOD 95% @ 1C  
 Compliance: Certification CE (battery) UL1642/IEC62133 (cells), UN3480 Class 9 (shipping)  
 Designed by KS Energy Holdings (UK) Limited, assembled in China.

