KS ENERGY

Model KS-18 Lithium-Iron Phosphate Battery

Guidance

Only use within the parameters of the specifications detailed. Power output terminals are 6mm threaded bolts or flexible T fittings with Anderson connectors (Supplied). Torque to 2.5Nm. Use appropriately rated, crimped, and secured ring terminations or the supplied Anderson connectors only. Observe polarity. Positive should always be correctly fused. Batteries may be oriented and secured in any position of orientation and there is no requirement for gas ventilation. The charge input is separate located on the side case and is a Lotus (RCA) style power connector. Use only a suitable rated LiFePo charger (not supplied) If in doubt seek qualified assistance.

Continuous current rating

Customers are reminded to pay attention to the maximum current rating of the battery (18A) 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

External overload/short circuits must be protected by a suitable fuse. The internal BMS is short circuit protected by way of a permeant hard-wired fusible resistor and there are no internal serviceable components.

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 10A. 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 0ºC and that your electrical configuration can prevent accidental low temperature charging.

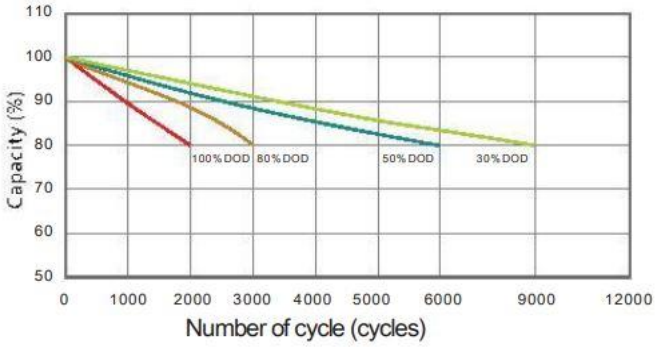
Constant Current Discharge Table (Amperes @ 25ºC)

	1hr	2hr	3hr	5hr	10hr
Cut of voltage 10.8V	18A	9A	6A	3.6A	1.8A

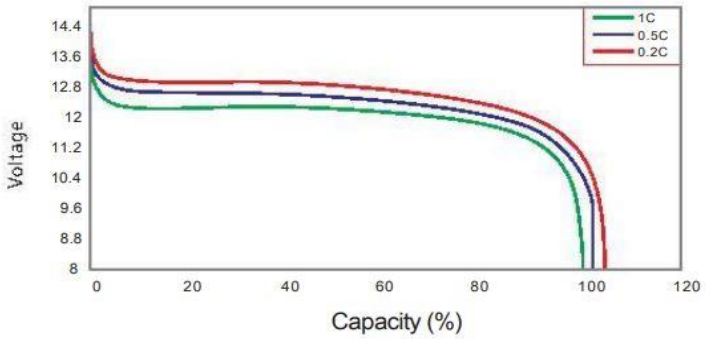
Specifications- KS-18

Product code: 5060716640155, Type: Lithium-Iron Phosphate ($LiFePo^4$), Cells: 3270 cylindrical 3.2V 6000mAh, Arrangement: 4S *3P, Management: Internal BMS active balanced
Capacity: 18AH nominal, 238Wh @ 25ºC
BMS protection: Short Circuit electronic trip: (>50A <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
Size: (mm ±2) L*W*H 165*125*75 (Excluding T-Anderson connector adds 25mm to height), Weight: 2.2KG
Depth Discharge: 100% Efficiency: 99%
Internal resistance (±3%) : 45mΩ @ 50% SOC 25ºC, 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 10 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 -20ºC to +50ºC, storage temperature range: -20ºC to +30ºC
Charging temperature range: 0ºC - +50ºC
Terminals M6 thread bolts or supplied T-Anderson (Discharge), Lotus - RCA (Charge)
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.

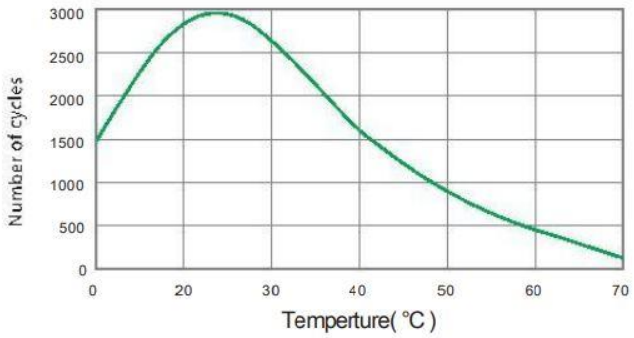
Number Cycles Vs. DOD



Discharge Performance at 25ºC



Cycle life (1C 100% DOD) Vs. Temperature



Temperature effects on capacity