

Technical Information

The ALLiON AL12105F Lithium-iron battery is a high performing 12V Deep Cycle battery with a capacity of 105 Amp Hours (Ah). Suitable for RV & leisure applications the ALLiON range of Lithium batteries are much lighter than comparable lead acid batteries and can last up to 4 times as long. They are also safe to use thanks to the integrated battery management system.

Features and Benefits

- Up to 4x longer life than comparable lead acid batteries
- More usable capacity & greater efficiency
- Lightweight
- Faster recharging
- IP65 rated case



Applications

- RV, Caravan & Leisure
- Industrial Equipment
- Solar

Characteristic		Specification	
2.1	Nominal capacity	105Ah	
2.2	Nominal energy	1.382kWh	
2.3	Nominal voltage	12.8V (4S4P)	
2.4	Internal impedance	≤20mΩ @1kHz AC	
2.5	Nominal charge voltage	14.6V ±0.2V	
2.6	Float charge voltage (for Standby use)	13.8 ±0.2V	
2.7	Maximum allowed charge current	100A @ initial temperature 25°C ±5°C	
2.8	Recommended charge current	≤50A	
2.9	Maximum allowed discharge current	100A @ initial temperature 25°C ±5°C	
2.10	Discharge cut-off voltage	9.6 - 11V	
2.11	Dimensions (L x W x H); ±3mm	307mm x 169mm x 211mm	
2.12	Nominal weight	12.5kg	
2.13	Operation Temperature	Charge	0°C to +45°C
		Discharge	-20°C to +60°C
2.14	Self-discharge rate	Residual capacity	≤3% /month, ≤15% /year
		Recover capacity	≤1.5% /month, ≤8% /year
2.15	Storage environment	≤1month	-20°C to +60°C; 5% to 75%RH
		≥3month	-10°C to +45°C; 5% to 75%RH
		Recommended	+15°C to +35°C; 5 to 75%RH
2.16	Bluetooth Connectivity	No	
2.17	Parallel connection of up to 4 batteries is supported by the BMS. For series connection, up to 4 batteries can also be connected but CAUTION must be taken. Individual battery voltages must all be kept within a 0.2V range, and the minimum voltage must be limited to 11.5V. Combinations of parallel and series connection are not supported. Failure to comply may void warranty.		

	Item	Characteristic	Specification
4.1	High Voltage (Vmax)	High voltage protection	3.75V \pm 0.03V per cell
		Reset voltage	3.60V \pm 0.05V per cell
		Reset trigger	Below reset voltage
4.2	Low Voltage (Vmin)	Low voltage protection	2.50V \pm 0.05V per cell
		Reset voltage	2.80V \pm 0.10V per cell
		Reset trigger	Begin charging
4.3	Overcurrent (Imax)	Maximum charge current protection	100~120A, delay time 30s \pm 5s
		Charge current protection reset	Discharge or auto reset after 1min
		Maximum discharge current protection	100~120A, delay time 30s \pm 5s
		Discharge current protection reset	Charge or auto reset after 1min
		Short circuit protection	Do not short circuit the electrodes
4.4	Temperature	Maximum charge temperature	Protect @ 65°C \pm 5°C Reset @ 50°C \pm 5°C
		Minimum charge temperature	Protect @ -10°C \pm 5°C Reset @ 0°C \pm 5°C
		MOSFET over temperature protection	Protect @ 103°C \pm 10°C Reset @ 65°C \pm 10°C

Product Safety

4.1 Storage & Transport

The battery must be charged using the Standard Charge Process every 6 months if not in use.

Do not drop the battery.

Maximum stacking quantity (height) is 6 batteries.

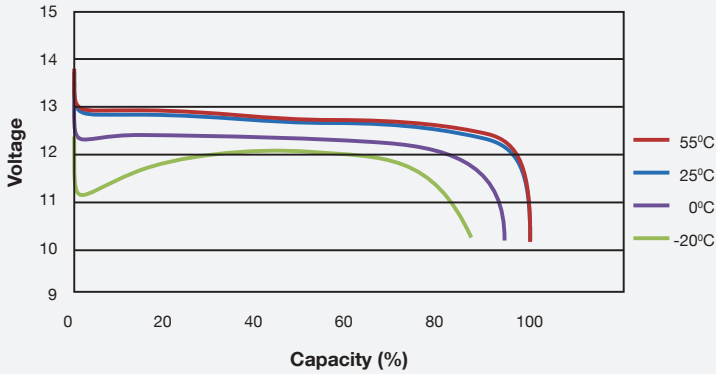
The battery must be kept upright at all times.

4.2 Product Warnings

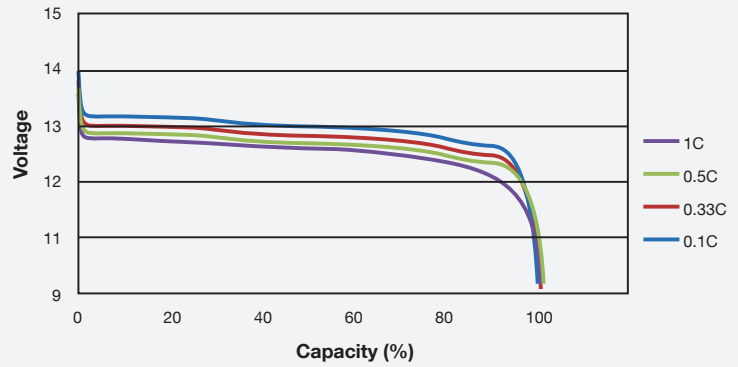
Please read and follow the handling instructions before use. Improper use may cause heat, fire, rupture, damage or capacity deterioration of the battery. The manufacturer is not responsible for any accidents caused by misuse or poor maintenance.

- Do not store or use battery near heat source.
- Do not install in vehicle engine bay.
- Do not expose battery to direct sunlight for extended periods.
- Do not connect battery to high voltage.
- Do not place battery in water or fire.
- Always check polarity before connecting the battery.
- Do not short circuit battery.
- Do not expose the battery to impact or crushing force.
- Do not disassemble the battery.
- Do not install or connect this battery with different battery types.
- Protect battery from high temperatures. High temperatures may result in fire or loss of battery function and service life.
- Do not allow the battery to remain discharged. Re-charge battery when discharged.
- Use the correct battery charger for this battery.
- If battery emits an unusual odor, becomes hot or the case has distorted, stop using the battery immediately
- If eyes or skin are exposed to liquid leaking from the battery, rinse it with clean water and seek medical advice immediately.

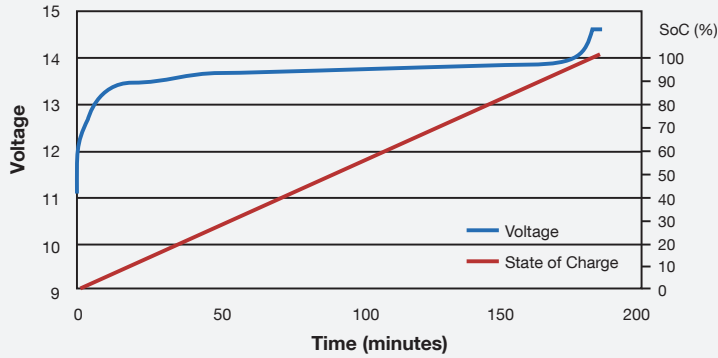
Discharge Voltage at various temperatures @ 0.5C



Discharge Voltage at various rates



Charge Voltage and State of Charge (SoC) @ 0.33C charge rate



Cycle Life vs Depth of Discharge (DoD) @ 0.5C charge/discharge rate

