Elubat $LiFePO_4$ BATTERIES

Luxbox high-temperature Lithium Iron Phosphate batteries have been specifically selected and tested for use with self-contained emergency Lighting.

Due to the extremely low self-discharge rate, power consumption under standby conditions is considerably reduced.

KEY FEATURES AND BENEFITS

- 3 year warranty for Basic, 6 year warranty for Self-Test, DALI & Wireless
- High-temperature cells
- Continuous operating temperature range 0°C—60°C
- Charging time 24 h
- Low profile with end caps available for both stick and side by side formations
- High energy efficiency
- Low self-discharge
- High temperature tolerance
- Long life cycle
- Certified to IEC62133 / IEC62620 / UN38.3 / UN3481
- ICEL endorsed (14-12-0005 / 14-12-0004)
- BSI verified

PART CODES

CODE	DESCRIPTION
14-12-0001	BATTERY LIFEPO4 1865 3.2V 1.5AH 1-CELL - 250MM JST-EHR-2
14-12-0003	BATTERY LIFEPO4 1865 3.2V 3.0AH 2-CELL - 250MM - JST EHR-2
14-12-0004	BATTERY LIFEPO4 1865 3.2V 4.5AH 3-CELL SBS - 210MM JST-EHR-2
14-12-0005	BATTERY LIFEPO4 1865 3.2V 4.5AH 3-CELL - 250MM JST-EHR-2
14-12-0008	BATTERY LIFEPO4 1865 3.2V 3.0AH 2-CELL SBS (310MM/HS) JST-EH
14-12-0010	BATTERY LIFEPO4 2665 3.2V 6.8AH 2CELL - 250MM - JST-EH

ACCESSORIES CODES

CODE	DESCRIPTION
14-95-0001	BATTERY END CAP - 1865 CELL
14-95-0007	BATTERY END CAP - 1865 CELL FOR 3-CELL PACKS
14-95-0008	BATTERY END CAP - 2665 CELL
14-98-0007	BATTERY ADAPTER - 160MM - X1JST-EHR FEMALE TO X2JST-EHR MALE
14-98-0009	BATTERY EXTENSION CABLE - 250MM JST-JST TYPE
14-98-0010	BATTERY EXTENTION CABLE - 500MM JST-JST TYPE
14-98-0012	BATTERY TEMPEARTURE SENSOR JST-EHR-3 FEMALE TO JST-EH-3 MALE

End of Life— At the end of service life there is an obligation upon the user to ensure our batteries are professionally collected, stored, transported, and recycled in accordance with the UK Waste Electrical and Electronic Equipment (WEEE) regulations 2018 amendments (open scope) and EU Directive 2021/19/EU on waste of electric and electronic equipment (WEEE). We fulfil our obligations and responsibilities to facilitate recycling of its products in accordance with current legislation through membership of LUMICOM, a producer compliance scheme.

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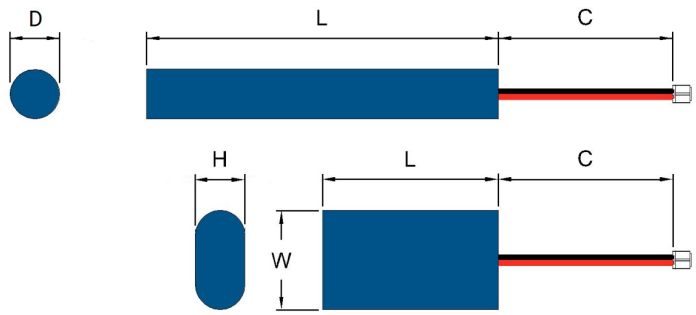
$LiFePO_4$ 18650 BATTERY DIMENSIONS



18650 Stick Format (mm)

Part Code	D	L	C
14-12-0001	Ø20	69	250
14-12-0003	Ø20	135	250
14-12-0005	Ø20	198	250

18650 Pack Format (mm)

Part Code	H	W	L	C
14-12-0004	20	57	69	210
14-12-0008	20	37	69	310

$LiFePO_4$ 18650 BATTERY PARAMETERS

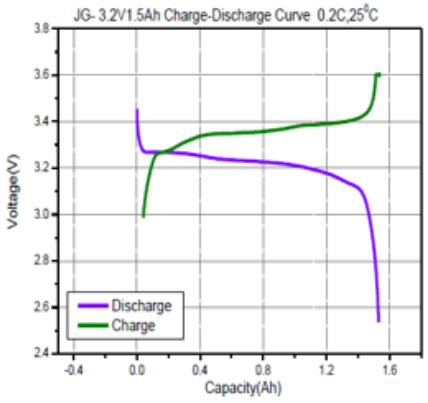
Product Model	14-12-0004	14-12-0008	14-12-0005	14-12-0003	14-12-0001
Format	Side by side (SBS)		Stick		Single cell
Normal Voltage	3.2V				
Rated Capacity	4.5 ± 0.3 Ah (C_5)	3 ± 0.2 Ah (C_5)	4.5 ± 0.3 Ah (C_5)	3 ± 0.2 Ah (C_5)	1.5 ± 0.1 Ah (C_5)
Energy	14.4 Wh	9.6 Wh	14.4 Wh	9.6 Wh	4.8 Wh
Alternating Internal Resistance	≤90 mΩ	≤80 mΩ	≤90 mΩ	≤80 mΩ	≤120 mΩ
Weight	130 ± 10g	90 ± 10g	130 ± 10g	90 ± 10g	45 ± 10g
Max Dimensions	20mm x 57mm x 69mm	20mm x 37mm x 69mm	Ø20mm x 198mm	Ø20mm x 135mm	Ø20mm x 69mm
Max Charge Voltage	3.65 ± 0.5 V				
Std. Cut-off Voltage	2.0V (Recommended 2.5 V)				
Max Charge Current	2A	1.5A	2A	1.5A	0.75A
Std. Charge Current	0.9A	0.6A	0.9A	0.6A	0.3A
Max Discharge Current	3A	2A	3A	2A	1.5A
Std. Discharge Current	0.9A	0.6A	0.9A	0.6A	0.3A
Charge Operating Temperature Range	0—60°C (Recommended 0—45°C)				
Discharge Operating Temperature Range	0—60°C				
Connection Cable	20AWG (Red +, Black -) Length: As specified, JST-EH-2P Plug				
Lifetime to 75% Capacity (0°—50° amb)	Cycle life ≥ 2000. (Charging with Standard charge[1], leaving 0.5~1h; then discharging with standard discharge[2], leaving 0.5~1h, counting as 1 cycle) or 4 years (Reference only)				
Lifetime to 50% Capacity (0°—60° amb)	Cycle life ≥ 2000. (Charging with Standard charge[1], leaving 0.5~1h; then discharging with standard discharge[2], leaving 0.5~1h, counting 1 cycle) or 4 years (Reference only)				

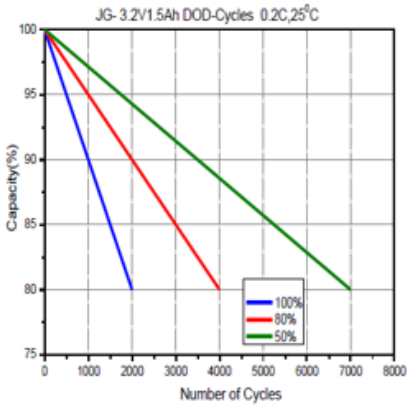
[1] Standard charge—Charge the battery with Lithium-ion battery special test cabinet, with standard charging voltage, standard current, constant current and constant voltage charging to the current dropping to 0.05 I_5

[2] Standard Discharge—Discharge the battery with Lithium-ion battery special test cabinet, discharge to standard discharge cut-off voltage with standard current, constant discharging or until the battery stops.

18650 BATTERY CHARGE—DISCHARGE CURVE AND DOD CYCLES

1-Cell 3.2V 1.5Ah





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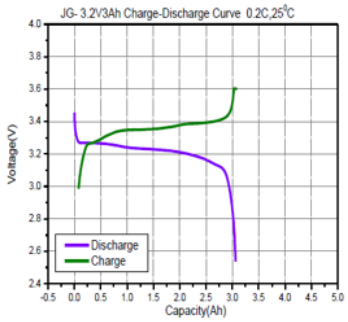
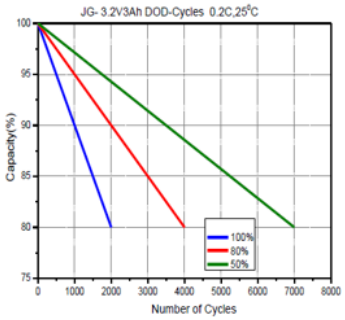
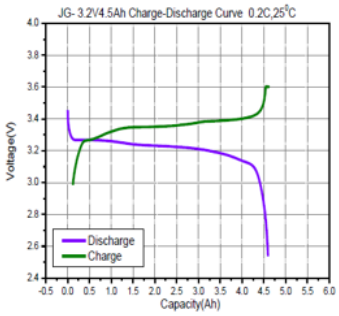
18650 BATTERY CHARGE - DISCHARGE CURVE AND DOD CYCLES - CONTINUED

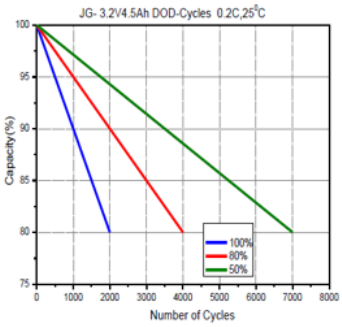
2-Cell 3.2V 3.0Ah





3-Cell 3.2V 4.5Ah





$LiFePO_4$ 26650 BATTERY DIMENSIONS

26650 Stick Format (mm)

Part Code	D	L	C
14-12-0010	Ø27	135	250

$LiFePO_4$ 26650 BATTERY PARAMETERS

Product Model	14-12-0010
Format	Stick
Normal Voltage	3.2V
Rated Capacity	12.8 ± 0.3 Ah (C_5)
Energy	41 Wh
Alternating Internal Resistance	≤90 mΩ
Weight	340 ± 30g
Max Dimensions	Ø27mm x 135mm
Max Charge Voltage	3.65 ± 0.05 V
Std. Cut-off Voltage	2.0V (Recommended 2.5 V)
Max Charge Current	0.9~2A
Std. Charge Current	≤0.9A
Max Discharge Current	2~3.2A
Std. Discharge Current	≤2A
Charge Operating Temperature Range	0—60°C (Recommended 0—45°C)
Discharge Operating Temperature Range	0—60°C
Connection Cable	20AWG (Red +, Black -) Length: As specified, JST-EH-2P Connector
Lifetime to 75% Capacity (0°—50° amb)	The Cycle life ≥ 1500. (Charging with Standard charge, leaving 0.5~1h; then discharging with standard discharge, leaving 0.5~1h, counting as 1 cycle) or 4 years (Reference only)
Lifetime to 50% Capacity (0°—60° amb)	The Cycle life ≥ 1500. (Charging with Standard charge, leaving 0.5~1h; then discharging with standard discharge, leaving 0.5~1h, counting as 1 cycle) or 4 years (Reference only)

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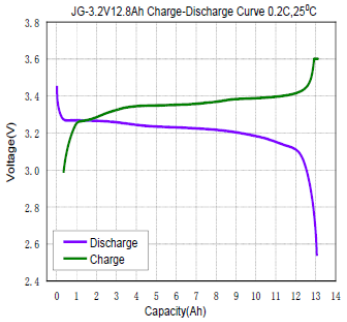
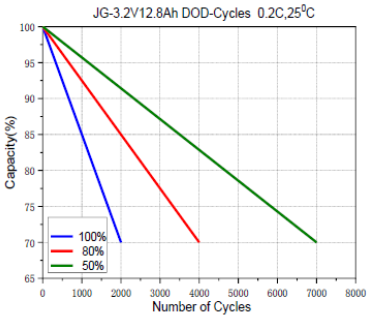
26650 BATTERY CHARGE—DISCHARGE CURVE AND DOD CYCLES

2-Cell 3.2V 4.5Ah





LIFEPO$_4$ BATTERY COMMISSIONING

- To achieve the specified design life, the battery once installed needs to undergo a full regeneration process.
- This regeneration process is defined by charging for 24 hrs and fully discharging.
- It is recommended to repeat this cycle 2-3 times to achieve maximum battery lifespan, especially after long term storage.
- If the first duration test fails, please repeat the test once again after a 24 hour charging period .
- Regeneration: A total of 1 cycle is performed. This cycle consists of a 24h battery charge followed by full discharge.
- No capacity measurement is made during the discharge cycles

LIFEPO$_4$ BATTERY MANAGEMENT

Overcharge	Designed to be overcharged, the battery accepts overcharging up to 0.1C at 30^{O}C without damage.
Testing	All testing should be done in standard atmospheric conditions. (Temperature: +25° C ± 2°C; relative humidity: 65 ± 20%). Standard charge voltage is 3.65 ± 0.05V, standard discharge cutoff voltage is about 2.0V (Recommended 2.5V); standard current is I_5 (when I_5 > the normal work current, test according to the normal current).
Deep Discharge	A deep discharge or 'over discharge' may damage the cell performance so it is recommended to disconnect the lighting load at the end of discharge and reconnected to the equipment charger to fully recharge the battery. In addition, at the start of the first charge following full discharge, the voltage may exceed the maximum allowed value.
Normal Storage	Storage temperature 0-(+)40°C, dry preservation (Optimum storage temperature +5 to +25 ℃, 65±5% relative humidity atmosphere).
Long Term Storage (Up To 6 Months)	After long term storage in open circuit, up to 5 IEC cycle may be required to recover the initial performance of the battery.
Service Environment	Battery discharge ambient temperature is 0°C to +60°C (when the ambient temperature is >45°C, consideration needs to be paid to ventilation and heat dissipation) Charging temperature range 0°C to +60°C (Recommended 0°C to +45°C) Ambient humidity RH is ≤85% (Attention required to avoid condensation forming on the battery when ambient humidity is >85%)
Service Life	Exceeding stated limits for charging, discharge, storage or temperature range can reduce the service life and damage the cell performance.

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$LIFEPO_4$ BATTERY INSTALLATION

- Clean the installation position to ensure no dust, metal or other foreign materials that may damage or make connection with the battery are present.
- The battery should be installed in ventilated conditions with no direct sunlight.
- When fastening battery terminals, do not use excessive force as this could damage the terminal connections.
- After installation, check whether the terminal fastening is correct and if there is debris on the surface of the battery. Clean the surface of battery with a dry cloth, do not use oil or other volatile organic solvents to clean.
- Ensure that the positive (+) & negative (-) polarity is correctly connected to the load.
- In order to prevent over-discharging, the battery should be charged periodically to maintain a voltage range of 3.3V-3.4V.
- Batteries are a consumable product and thus needs to be replaced when the capacity can no longer provide the required duration.

$LIFEPO_4$ BATTERY CAUTIONARY NOTES

- Store batteries in cool dry place.
- Before using a new battery for the first time or after long term storage, fully charge the battery, the correct charger must be used.
- Do not short circuit batteries, permanent damage to batteries may result.
- Do not damage or incinerate batteries, they may burst or release toxic material.
- Do not solder directly to cells or pierce the battery.
- Do not subject batteries to extremes of temperature, excessive over charging or over discharging.
- Avoid batteries being used in an airtight compartment. Ventilation should be provided to the battery compartment (batteries may generate hydrogen gas, which could cause an explosion if exposed to an ignition source)
- When connecting a battery pack to a charger or device, ensure correct polarity.
- If any noise, excessive temperature or leakage from a battery is observed, DO NOT USE.
- When the battery is hot, please do not touch it and handle it, until it has cooled.
- Do not remove the outer sleeve from a battery pack or cut into its housing.
- Unplug a battery by holding the connector itself and not by pulling at its cord.
- Do not immerse the battery in water.
- Do not charge the battery at temperature below 0°C.
- Do not attempt to take batteries apart or subject them to pressure or impact. Heat may be generated and may result in fire.
- Do not transport or store the battery together with metal objects.
- Do not overload the battery.
- In case of accidental fire, dry powder fire extinguishers or sand should be used.
- Keep batteries away from children. If cells or batteries are swallowed, contact a physician at once.

CONTACT US

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