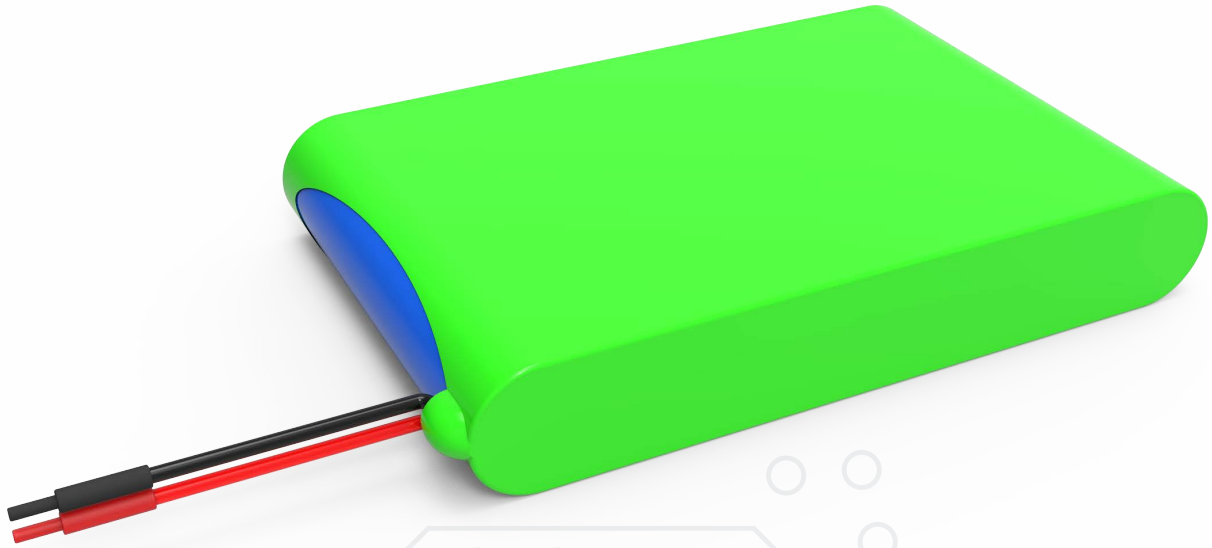
Specification of

LiTech Power Li-ion 6S1P 22.2V 3.5Ah Battery Pack

Model No.: LP-30204



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1. General

LP-30204 is a 6S1P Lithium-Ion rechargeable Battery Pack with Battery Management System integrated, nominal voltage at 22.2V, rated capacity at 3.5Ah, with 15cm long 23AWG open wires for charge and discharge (it comes with bare leads in default but connector can be customized accordingly), charge & discharge from the different terminals.

- Battery Cell: SAMSUNG 18650 3500mah
- BMS: BesTech Power HCX

2. Battery Pack basic characteristics

2.1 Capacity		Nominal Capacity: 3.5Ah	
		Minimum Capacity: 3.45Ah	
2.2 Nominal Voltage		22.2V	
2.3 Internal impedance		≤ 90mΩ	
2.4 Discharge Cut-off Voltage		16.8V	
2.5 Max Charge Cut-off Voltage		25.2V	
2.6 Max. Continuous Charge Current		≤ 1.5A (suggested value for better lifespan, cell is at rated 0.5C charge)	
2.7 Max. Continuous Discharge Current		6A	
2.8 Max. Discharge Peak Current		8A for 15-20 seconds	
2.9 Cycle Life	500 @ 100% DOD 1000 @ 80% DOD 1500 @ 70% DOD	≥ 500 cycles After 500 cycles in 100% DOD charge and discharge at rated current with 25±3°C and within 45%-50% huminity enveriment, the residual discharge capacity is above 80% of nominal capacity	
2.10 Protections		All protections adopted, please check Specs. of the BMS as below	
2.11 Weight		390g ± 5g	
2.12 Max. Dimension		115*75*20 mm (L*W*T） （Dimension Tolerance ± 3mm)	
2.13 Operating Temperature (cut off points)		Charge	0℃ ~ 60℃
		Discharge	-25℃ ~ 75℃
2.14 Storage Temperature (recommend)		Within 1 month	-5℃ ~ 35℃
		Within 6 months	0℃ ~ 35℃

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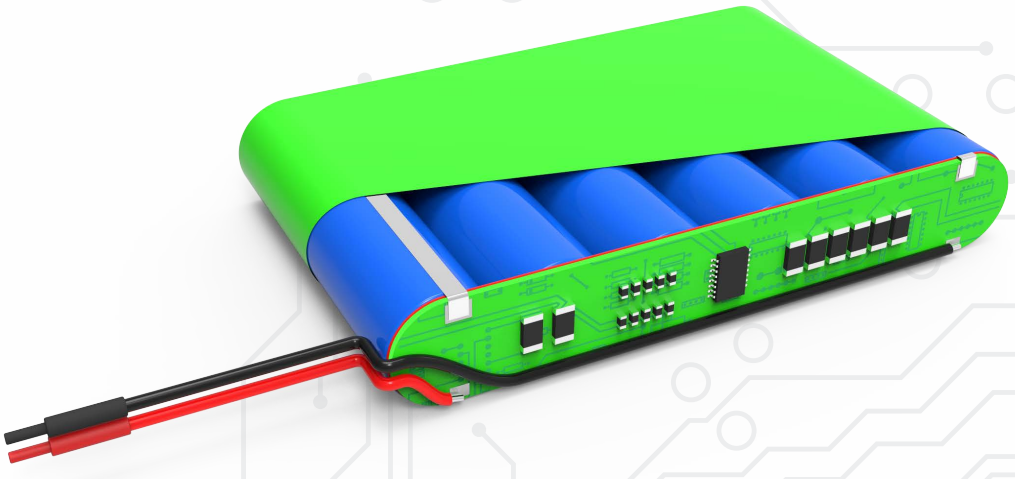
3. BMS Parameters

Item	Content	Criterion
1	over charge protection voltage	4.20V ± 25mV
2	over charge recovery voltage	4.10V ± 50mV
3	over charge protection delay time	80ms - 120ms
4	over discharge protection voltage	2.7V ± 50mV
5	over discharge recovery voltage	2.8V ± 100mV
6	max. continuous discharge &Charge current	6A discharge & 1.5A charge
7	over current protection current	OCD: 12-18A
8	over discharge protection delay time	40ms -100ms
9	short-circuit protection delay time	10ms - 20ms
10	static self-consumption current	I < 6.0uA
11	PCB internal resistance	R < 65mΩ
12	passive balancing	42mA ± 5mA @ 4.18V ± 0.025V
13	temperature switch (±3°C) / NTC (B=3435)	Optional
14	E-switch	/

4. Battery Pack Construction



* Cable: Discharge/Charge @ 23AWG 150mm long
* Connector: It comes with open bare lead in default but connector can be customized accordingly.

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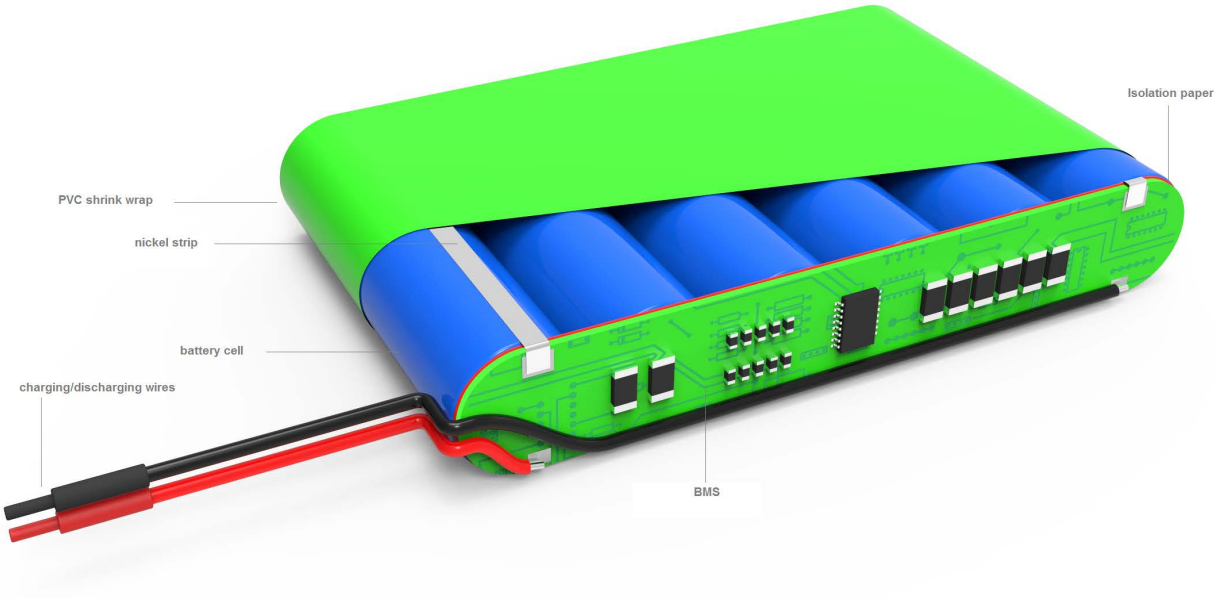
4.1 Battery Pack Construction Illustration & Labels



LiTech Power Co., Ltd.

Li-ion Battery Pack

MFN P/N.: LP30204
Rated Voltage: 22.2V
Rated Capacity: 3.5Ah/77.7Wh
Charging Cut-off Voltage: 25.2V
Production Date: 03-16-2021

20190101BatteryPackXXXXX-08

CE FC UN38.3 MSDS

⚠ WARNING

- Do not disassemble or puncture the battery, avoid hands or metal objects touching the battery.
- Do not make the battery short circuit, reverse cable, over charged or over discharged.
- Do not put the battery in high temperature or humidity place, Keep away from fire and water.
- Do not dash or squeeze the battery.
- We recommend charge the battery every 2 months during storage.
- Please charge battery with dedicated charger, otherwise the battery may on fire or damaged.
- Please comply with local regulations when discarding the battery, otherwise it may severely polluting the environment.

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5. Standard test conditions

Any tests are to be conducted with new batteries that have not been cycled more than five times in one month before the test. Unless otherwise defined, test and measurements done under a temperature of 20 ± 5°C and relative humidity of 45~85%. If it is judged that the test results are not affected by such conditions, the tests may be conducted at Ambient Temperature: 25 ± 5°C; Relative Humidity: 65 ± 20%.

5.1 Standard Charge:	Constant Current and Constant Voltage (CC/CV) Current = 1.5A End-up Voltage = 25.2V total / 4.20V (per cell) End Current = 15mA
5.2 Standard Discharge:	Constant Current (CC) Current = 6A End Voltage = 16.8V total / 2.8V (per cell)

6. Transportation

The rated energy of the accumulator is Hazardous / Dangerous Goods for shipping, therefore you need strictly transport them (by road, by railway, by sea and by air) with special handling procedures, restrictions on shipping procedures are always needed. BUT Violent shaking, bumping, rain and flaring sun shall be forbidden during the transportation. Keep the battery less than 30% charged,according to IATA shipping regulations.

Transport classification:

UN Class: 9 Class | UN number: UN3480

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7. Storage

Please keep the pack in the cool and dry environment: Within 1 month -5°C~35°C or Within 6 months 0°C~35°C, relative humidity ≤75%, please charge the battery pack regularly (every 30-45 days) to keep its chemistry active and longer lifespan.

8. Warranty

All LiTech Power products are covered by a one year limited warranty. The warranty covers premature failure due to defects in materials and / or workmanship. Any breakage caused by accidental damage or as a result of abuse or misuse is not covered. The warranty is limited to the original purchaser and is not transferable.

The warranty is void if the warranty sticker or soak-water-sticker is removed from the product or if the battery has been modified in any way. Please charge your battery directly after each use. Leaving your battery in discharged state will seriously and permanently damage its performance. Please note we cannot upheld warranty claims in these circumstances. Your battery will degrade over time and with use, such degradation is not covered by warranty.

9. Notice

The information in this specification subject to change without prior notice. The information contained in this document is for reference only and should not be used as a basis for product guarantee or warranty. For applications other than those described here, please consult LiTech Power directly.

10. Caution

* Please read the specification carefully before testing or using the battery, as improper handling of Lithium-ion battery may result in loss of efficiency, heating ignition, electrolyte leakage or even explosion.

* While testing the battery of charging and discharging, please use the testing equipment special for Li-ion battery. Do NOT use the ordinary source of constant current and constant voltage, which fails to restrict charge and discharge to battery in order to prevent the battery from being overcharged and over-discharged, triggering battery malfunction or explosion.

* When charging and discharging to the battery or packing it into the equipment, do NOT reverse the terminals of cathode and anode or it will make the battery overcharging and over-discharging, causing the battery to lose efficiency seriously and even explode.

* Do NOT weld the battery directly, do not disassembly the battery.

* Do NOT put the battery together with such metal products as necklace, hairpin, coin or screw in the pocket or in the bag; neither store them together. Do NOT connect the positive and negative electrode directly with such conductive materials as metal, or it may make the battery short-circuit.

* Do NOT beat, throw or trample the battery. Do NOT put the battery into the washing machine or the high-pressure container.

* Do NOT put the battery close to heat source, for instance, fire, heater etc. Do NOT use the battery under the circumstance of burning sun or the temperature exceeding 60°C, or it may cause the battery to generate heat, heating ignition and loss of efficiency.

* Do NOT get the battery wet or throw the battery into water. When not use, it should be placed in the dry and low temperature environment.

* While using, testing or preserving the battery, if you find the battery become hot, distribute smell , change color, deform or any other abnormality, please stop using or testing immediately, and attempt to isolate and keep away from the battery.

* If the battery leaks, the electrolyte gets into the eyes, do not rub eyes, instead, rinse the eyes with plenty of water, and seek medical service. If the electrolyte gets onto the skin or clothe, wash it with plenty of water immediately.

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