KAPLAN POWER

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Kaplan Power

# LIFEP O4 BATTERY SPECIFICATION

**Model No.**
**KP48100F-T110**

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# LIFEPO4 BATTERY SPECIFICATION

MODEL: KP48100F-T110

## GENERAL INFORMATION

This specification defines the performance of rechargeable LiFePO4 battery pack KP48100F-T110 describes the type, performance, technical characteristics, warning and caution of the battery pack.

## BATTERY SPECIFICATION(@ 25±5Ć)

| ITEMS | CHARACTERISTICS |
|---|---|
| Normal capacity | 100Ah |
| Nominal energy | 4.8KWh |
| Nominal voltage | 48V (LFP-15S) |
| Internal resistance | <=50m @ 1KhZ AC |
| Normal charge voltage | 54.75 ± 0.2V |
| Float charge voltage(for Standby use) | 51.75 ± 0.2V |
| Allowed MAX charge current | 1C @20ć < T˝45ć |
| Recommended charge current | <=0.5C |
| Allowed MAX discharge current | 1C |
| Peak discharge current/time | 118A/3S |
| Different port for charging & discharging | / |
| End of discharge voltage | 37.5V @>˚10ć<br>33.0V @0ć˝<T<=10ć<br>30.0V @T<=0ć |

| ITEMS | CHARACTERISTICS |
|---|---|
| IP rating | IP40 |
| Communication mode | RS 485 |
| Display screen | Optional |
| Theft prevention function | Optional |
| Dimension | W 482.6(442) ±2mm, H 133±2mm (3U)<br>D 400±2mm |
| Weight (No accessories) | 43kg |
| Operation temperature | Charge 0ć~55ć<br>Discharge -20ć~65ć |
| Storage environment | Less than 1 month: -2~+60ć, 5~ 75%RH<br>Less than 3 months: -10~+45ć, 5~ 75%RH<br>Recommend environment: 15~35ć, 5~ 75%RH |

## ELECTRICAL CHARACTERISTICS & TEST CONDITION

Testing Conditions: Ambient Temperature: 25±5ć; Humidity:45%~75%.

Normal charge Charge battery under CC(0.5C)/CV(54.75V) mode until over charge protection or the charge current reduce to 0.05C, and then rest for 1h

| ITEMS | CRITERION | CONDITION |
|---|---|---|
| Normal Capacity | 100 Ah | After Normal charge, discharge @0.33C current to the end of discharge voltage. |
| Internal Impedance | <50P | @50% SOC @1kHz AC internal resistance test instrument. |
| Short circuit protection | Auto cutoff load when short circuit | Connect the positive and negative of this battery pack through a lead with 0.1 omega resistance |
| Cycle life @DOD100% | >5000 cycles | After Normal charge discharge @1C current to the end of discharge voltage. Repeat above process until discharge capacity reduce to 80% of initial value |
| Dischargetemperature characteristic @0.2C | -20ć(6h) >= 60%<br>0ć(6h) >= 80%<br>25ć(4h) >= 100%<br>55ć(4h) >= 95% | $\frac{\text{Capacity @specified temperature}}{\text{Capacity @ 25ć}}$ the percentage accord with criterion |
| Capacity retention rate | remain capacity >=95% | After normal charge, store the battery @25±5ć for 28days, then discharge capacity @0.2C, the retention capacity accord with criterion. |

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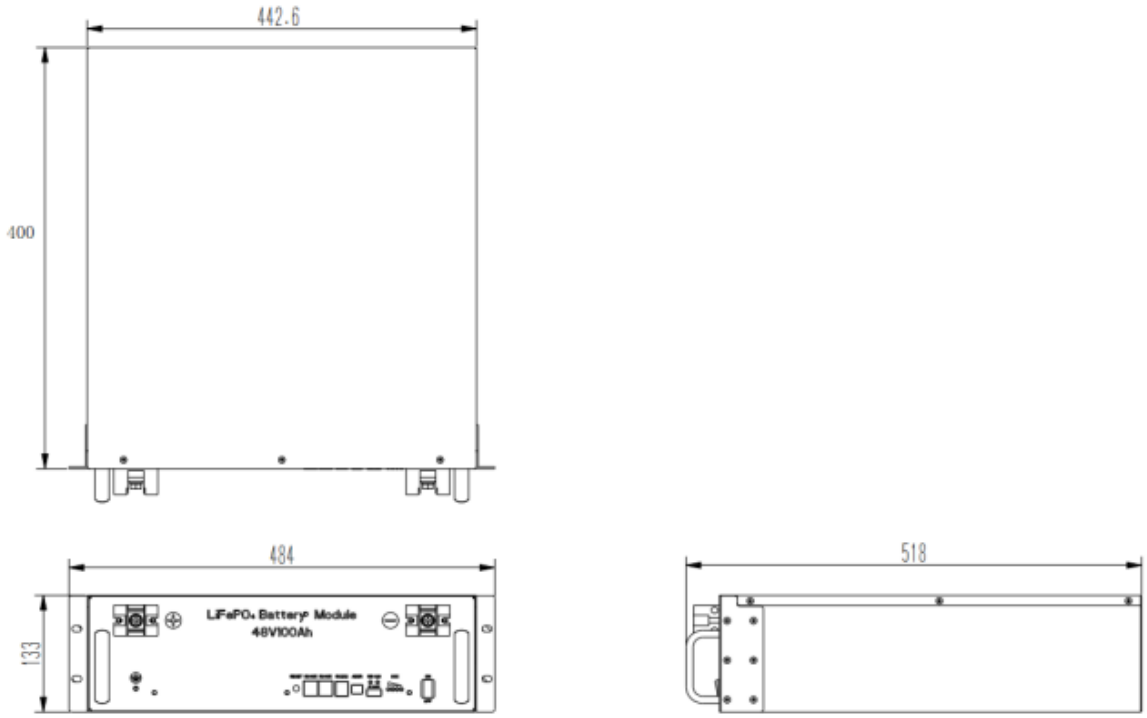
## USET GUIDE: PRODUCT DIMENSION

The batteries are supplied with a LiFePO4 Battery Management System (BMS) that can monitor and optimized each single prismatic cell during charge & discharge, to protect the battery pack overcharge, over discharge, short circuit. Overall, the BMS helps to ensure safe and accurate running.




## TRANSPORT & STORE

The battery need to do a full charge & discharge cycle every 6 months if out of use No fall down, not stack over 6 layers, and keep upwards.

## WARNING & TPS

Please read and follow the operation instructions before use. Improper operation may cause overheat, fire, rupture, damage or capacity deterioration of the battery. KAPLAN POWER is not responsible for any accidents caused by the action without following our instructions

# LIFEPO4 BATTERY SPECIFICATION

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## CIRCUIT PROTECTION

The batteries are supplied with a LiFePO4 Battery Management System (BMS)that can monitor and optimized each single prismatic cell during charge & discharge, to protect the battery pack overcharge, over discharge, short circuit. Overall, the BMS helps to ensure safe and accurate running.

| ITEMS | CONTENT | CRITERION |
|---|---|---|
| **Over charge** | Over-charge protection Alarm for each cell | 3.6V±0.04V |
| | Over-charge protection for each cell | 3.75±0.04V |
| | Over-charge protection delay time | 1±0.5S |
| | Over-charge release for each cell | 3.4±0.04 V |
| | Over-charge release method | Capacity recovery: SOC < 96%<br>Discharge recovery: Discharge current >1A |
| **Over discharge** | Over-discharge protection alarm for each cell | 2.8V±0.04V |
| | Over-discharge protection each cell | 2.50±0.04V |
| | Over-discharge protection delay time | 1±0.5S |
| | Over-discharge release for each cell | 3.0±0.04V |
| | Over-discharge release method | recovery through chargin |
| **Over current** | Charge over current protection alarm | 110A |
| | Charge over current protection | 110±10A |
| | Charge over current protection delay time | 1±0.5S |
| | Charge over current release method | Auto release: Auto release after 1min<br>Discharge termination: Discharge current >1A |
| | Discharge over current protection alarm | 110A |
| | Discharge over current protection1 | 120A±10A |
| | Discharge over current protection delay time1 | 1.0±0.5S |
| | Discharge over current release1 | Auto release: Auto release after 1min<br>Discharge: charging current >1A |
| | Discharge over current protection2 | >=150A |
| | Discharge over current protection delay time2 | 100±50ms |
| | Discharge over current release2 | Auto release: Auto release after 1min<br>Discharge: charging current >1A |
| | Short circuit protection | Available |
| | Short circuit protection release | When charging: short circuit protection is lifted<br>After load removal: Auto release |
| **Temperature** | Charge over temperature protection | Protect@55±5ć; Release@50±5ć; |
| | Charge under temperature protection | Protect@0±5ć; Release@5±5ć |
| | Discharge over temperature protection | Protect@65±5ć; Release@60±5ć; |
| | Discharge under temperature protection | Protect@-20±5ć; Release@-10±5ć; |

# LIFEPO4 BATTERY SPECIFICATION

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## WARNINGS

- Battery must be far away from heat source, high voltage, and no exposed in sunshine for long time.
- Never throw the battery into water or fire;
- Never reverse connect the positive and negative when use the battery;
- Never short connect the positive and negative of battery with metal;
- Never over impact , throw or trample the battery;
- Never disassemble the battery without manufacturer's permission and guidance.
- Never use mixed with other type of battery

## TPS

- Keep the battery against high temperature. Otherwise it will cause battery heat, get into fire or lose some function and reduce the life.
- When battery run out of power, please charge your battery timely (<=15day)
- Please use the matched or suggested charger for this battery.
- If battery emit peculiar smell, heating, distortion or appear any abnormity, please stop using.
  If the battery leaks and get into the eyes or skin,
- do not wipe, instead, rinse it with clean water and look for medical help immediately.
- Please far away from children or pets.