

# ALPHA 3 LITE

## 12.8V 300Ah

### LiFePO<sub>4</sub> Battery



## FEATURES

- Longevity of service
  - IP65 waterproof and dustproof
  - Flame retardant rating: UL94 V-0 (Plastic shell)
  - Green energy without metal contaminants
  - Extremely high number of charge / discharge cycles
  - Light weight, small size
  - Extreme Performance Safety Tested
- Guarantees safety under extreme conditions—no fire, explosion, or leakage.
- Sophisticated Battery Management System (BMS)

### BMS OPERATION

|                               |       |
|-------------------------------|-------|
| Typical Charging Current      | 150A  |
| Maximum Charging Current      | 300A  |
| Typical Discharge Current     | 150A  |
| Maximum Discharge Current     | 300A  |
| Maximum Charge Voltage(CC/CV) | 14.4V |

#### Over Charge Protection

|                        |               |
|------------------------|---------------|
| Voltage(Cell)          | 3.65V±0.05V   |
| Delay Time             | 2000ms±1000ms |
| Recovery Voltage(Cell) | 3.50V±0.05V   |

#### Over Discharge Protection

|                        |               |
|------------------------|---------------|
| Voltage(Cell)          | 2.30V±0.10V   |
| Delay Time             | 2000ms±1000ms |
| Recovery Voltage(Cell) | 3.00V±0.10V   |

|                                              |                                                 |
|----------------------------------------------|-------------------------------------------------|
| Over Discharge Protection Release Conditions | Self-recovery by increasing voltage or charging |
|----------------------------------------------|-------------------------------------------------|

#### Over-Current Charge

|                                              |                                           |
|----------------------------------------------|-------------------------------------------|
| Primary Charge Over Current Protection Value | 315A±10A                                  |
| First Stage Charge Over Current Delay Time   | 5s (min 2s, max 7s)                       |
| Over-current Charge Release Conditions       | Automatic recovery after a delay of 32±7s |

#### Over-Current Discharge

|                                                           |                                            |
|-----------------------------------------------------------|--------------------------------------------|
| Primary Discharge Over Current Protection Value           | 320A±10A                                   |
| Primary Discharge Over Current Protection Delay Time      | 10s±3s                                     |
| Secondary Discharge Over Current Protection Current Value | 1240A±100A                                 |
| Secondary Discharge Over Current Protection Delay Time    | 640ms (min 480ms, max 1000ms)              |
| Over-current Discharge Release                            | Automatic recovery after a delay of 32s±7s |

#### Short Circuit

|                                     |                                                                    |
|-------------------------------------|--------------------------------------------------------------------|
| Short Circuit Protection Value      | 2240±300A                                                          |
| Short Circuit Protection Delay Time | 400µs-600µs                                                        |
| Short Circuit Protection Recovery   | Automatic recovery by releasing the load after approximately 5s±2s |

#### Discharge High Temperature Protection

|                                      |                        |
|--------------------------------------|------------------------|
| Temperature Protection Value         | 140°F±5.4°F / 60°C±3°C |
| Temperature Protection Release Value | 131°F±5.4°F / 55°C±3°C |

#### Low Temperature Protection Of Discharge

|                                      |                        |
|--------------------------------------|------------------------|
| Temperature Protection Value         | -4°F±5.4°F / -20°C±3°C |
| Temperature Protection Release Value | 14°F±5.4°F / -10°C±3°C |

## Charging High Temperature Protection

|                                      |                        |
|--------------------------------------|------------------------|
| Temperature Protection Value         | 131°F±5.4°F / 55°C±3°C |
| Temperature Protection Release Value | 113°F±5.4°F / 45°C±3°C |

## Charging Low Temperature Protection

|                                      |                        |
|--------------------------------------|------------------------|
| Temperature Protection Value         | 37.4°F±5.4°F / 3°C±3°C |
| Temperature Protection Release Value | 46.4°F±5.4°F / 8°C±3°C |

## High Temperature Protection Of FET(Built-in)

|                                      |                             |
|--------------------------------------|-----------------------------|
| Temperature Protection Value         | 188.6°F~199.4°F / 87°C~93°C |
| Temperature Protection Release Value | 152.6°F~163.4°F / 67°C~73°C |

## Balance Function

|                                      |                                                               |
|--------------------------------------|---------------------------------------------------------------|
| Balanced opening voltage             | 3.40V±0.03V                                                   |
| Balanced opening pressure difference | 15mV                                                          |
| Balanced current                     | 140mA                                                         |
| Operation Temperature                | -4°F~167°F / -20°C~75°C                                       |
| Storage Temperature                  | 23°F~104°F / -5°C~40°C<br>(Humidity below 70%, time ≤ 1 year) |

## SPECIFICATIONS

|                                      |               |
|--------------------------------------|---------------|
| Battery Type                         | LFP Battery   |
| Nominal Voltage                      | 12.8V         |
| Nominal Capacity                     | 300Ah         |
| Minimum Capacity                     | 300Ah         |
| Nominal Energy                       | 3840Wh        |
| Charging Voltage                     | 14.4V         |
| Discharging Cutoff Voltage           | 10.0V         |
| Standard Charging Current            | 150A          |
| Maximum Charging Current             | 300A          |
| Standard Discharge Current           | 150A          |
| Maximum Continuous Discharge Current | 300A          |
| Shell Material                       | Plastic Shell |
| Waterproof Class                     | IP65          |

|        |                             |
|--------|-----------------------------|
| Weight | Approximately 71.7lb/32.5kg |
|--------|-----------------------------|

|                                         |                                                      |
|-----------------------------------------|------------------------------------------------------|
| Initial AC (1000Hz) Internal Resistance | ≤50mΩ, (New battery within 3 months, ACIR at 1000Hz) |
|-----------------------------------------|------------------------------------------------------|

|                             |     |
|-----------------------------|-----|
| Monthly Self-Discharge Rate | ≤5% |
|-----------------------------|-----|

|                    |                 |
|--------------------|-----------------|
| Overall Dimensions | 20.5x10.6x8.7in |
|--------------------|-----------------|

|                               |       |
|-------------------------------|-------|
| Cycle Life(Times)(77°F±3.6°F) | ≥4000 |
|-------------------------------|-------|

|                    |   |
|--------------------|---|
| Communication Mode | / |
|--------------------|---|

|                      |                       |
|----------------------|-----------------------|
| Charging Temperature | 32°F~131°F / 0°C~55°C |
|----------------------|-----------------------|

## Charging Meter: Continuous Charge Mode / C-Battery Level (Unit: C-Rate)

| SOC/T | 32°F | 41°F | 50°F | 77°F | 113°F | 131°F |
|-------|------|------|------|------|-------|-------|
| 0%    | 0.3  | 0.45 | 0.7  | 1    | 1     | 0.5   |
| 10%   | 0.3  | 0.45 | 0.68 | 1    | 1     | 0.5   |
| 20%   | 0.3  | 0.35 | 0.65 | 1    | 1     | 0.5   |
| 30%   | 0.25 | 0.35 | 0.56 | 1    | 1     | 0.5   |
| 40%   | 0.12 | 0.25 | 0.5  | 1    | 1     | 0.5   |
| 50%   | 0.12 | 0.25 | 0.5  | 1    | 1     | 0.5   |
| 60%   | 0.1  | 0.19 | 0.37 | 1    | 1     | 0.5   |
| 70%   | 0.1  | 0.16 | 0.37 | 1    | 1     | 0.5   |
| 80%   | 0.08 | 0.13 | 0.37 | 1    | 1     | 0.5   |
| 90%   | 0.08 | 0.12 | 0.37 | 0.8  | 0.8   | 0.5   |
| 95%   | 0.05 | 0.12 | 0.12 | 0.5  | 0.5   | 0.4   |
| 98%   | 0.05 | 0.12 | 0.12 | 0.5  | 0.5   | 0.4   |
| 100%  | 0    | 0    | 0    | 0    | 0     | 0     |

|                       |                         |
|-----------------------|-------------------------|
| Discharge Temperature | -4°F~140°F / -20°C~60°C |
|-----------------------|-------------------------|

|                     |                                                                                                                      |
|---------------------|----------------------------------------------------------------------------------------------------------------------|
| Storage Temperature | -4°F~113°F / -20°C~45°C, 90%RH Max<br>(Less than 1 month)<br>32°F~95°F / 0°C~35°C, 90%RH Max<br>(More than 3 months) |
|---------------------|----------------------------------------------------------------------------------------------------------------------|

|                                 |                                                                                              |
|---------------------------------|----------------------------------------------------------------------------------------------|
| Recommended Storage Temperature | 50°F~95°F / 10°C~35°C, 85%RH Max<br>(Battery life decreases when stored at high temperature) |
|---------------------------------|----------------------------------------------------------------------------------------------|

If the battery needs to be stored for a long time (more than 3 months), it should be stored in an environment with a temperature range of 50°F to 95°F @ 85% RH Max and no corrosive gases. It is recommended to charge and discharge the battery every 3 months and keep the SOC between 40-50%.