# GESP

# 48100 ESS Battery

51.2V100AH, 5.1KWH

| Battery Specifications | | | |
|---|---|---|---|
| Cell | Capacity | 100Ah | |
| | Nominal Voltage | 3.2V | |
| | Dimension | 49X160X118mm | |
| | Weight | 2.0± 0.1kg | |
| Battery parameters | Combination Method | 16A1P | |
| | Capacity | Nominal Capacity:100Ah | Minimal Capacity:(0.2C)100Ah |
| | Voltage | Nominal Voltage:51.2V | Cut-off Voltage:43.2V~57.6V |
| | Charge | Standard Charge:0.2C(20A) | Quick Charge:0.5C(50A) |
| | Discharge | Discharge Current : 0~70A | |
| | Weight | 43±1Kg | |
| | Dimension | 482×480×133±2mm(not including IO ports and switch) | |
| | Operating Temperature | Charge:0℃~45℃ | Discharge:20℃~60℃ |
| Parallel options | Communication type | CAN for PCS,RS485 for parallel | |
| | Parallel Qnt | Up to 6 units | |
| | Circulation current limiting | Yes,10A | |

## Technical Requirements

Testing Conditions(unless otherwise specified)

Temperature:15~35 ℃

Relative Humidity: 45%~75%

Atmospheric pressure:86~106Kpa

## Electrical Characteristics

| ITEM | Testing Instruction | Requirements |
|---|---|---|
| Standard Charge | Charge the cell initially with 0.5C Constant Current and then with Constant Voltage at 3.6V till charge current declines to 0.05C | |
| Nominal Capacity | Measure discharge capacity with 1C discharge current to 2.7V cut-off after standard charge. | ≥100Ah |
| Cycle Life | Measure the capacity after 3000 cycles of standard charge and discharge at 0.5C current to 2.70V cut-off | ≥80% of Nominal Capacity |
| Storage Characteri stics | Capacity after 30 days storage at 25℃ after standard charge<br>Capacity after 7days storage at 60 ℃ after standard charge | Retention capacity ≥90% |

## Environmental Characteristics

| ITEM | Testing Instruction | Requirements |
|---|---|---|
| Temperature test | Measure capacity with 0.5C constant discharge current to 2.7V cut-off at each temperature after | 70% at 0°C<br>100% at 25°C<br>96% at 60°C |
| Constant Temperature /humidity | Keep the battery at 40°C and 90%RH for 96hrs | Recovery capacity ≥ 85% |

## Mechanical characteristics

| ITEM | Testing Instruction | Requirements |
|---|---|---|
| Vibration | After standard charge, fixed the cell to vibration table and subjected to vibration cycling that the frequency is to be varied at the rate of 1Hz per minute between 10Hz~55Hz, the excursion of the vibration is 1.6mm. The cell shall be vibrated for 30 minutes per axis of XYZ axes. | The battery shall not rupture, smoke, catch fire, vent or leak. |
| IFPacting test | After vibration, the battery will be IFPacted 1000±10 times (60±20 times per minute) with the acceleration of 100 m/s2 and pulse lasting time 16ms. | |
| Free fall | IFPacting, the battery will be dropped free five times in three mutually perpendicular directions from the height of 1.0m onto a hard board with the thickness of 20mm | |

## Mechanical characteristics

| ITEM | Testing Instruction | Requirements |
|---|---|---|
| Short Circuit | After standard charge, the battery located in a fume hood is to be short-circuited by connecting the positive and negative terminals with an external load of less than 50 mΩ till the battery case temperature has returned to near ambient temperature. | The battery shall not rupture, smoke, catch fire, vent or leak. |
| Over Charge Test | After discharge to 2.7V cut-off with 0.5C discharge current, the battery is to be subjected to a 3C charging current. The specified charging current is to be obtained by connecting a resistor of the specified size and rating in series with the battery. The test time is to be calculated using the formula: tc=2.5c/3(Ic) | |
| Over Discharge Test | After standard charge, the battery will be connected with external with a maximum resistance load of 0.1Ω for 24hrs until it is completely discharged and the battery case temperature has returned to near ambient temperature. | |