

# Lithium Iron Phosphate Battery

## AGG LiFe Series

### ESB1-48150



**ESB1-48150** belongs to a series of 48V battery packs utilizing advanced LiFePO<sub>4</sub> (Lithium Iron Phosphate) technology and smart integrated BMS with the benefits of long cycle life, light in weight and compact in size, safe and environmental friendly. **AGG LiFe Series Batteries** can be used for a variety of indoor or outdoor applications.

It is especially designed with advanced features: long lifespan, wide range of charging voltage, fast charging, intelligent management, and software anti-theft.

#### Battery Features:

**Longer Cycle Life:** Offers up to 10 times longer cycle life and 5 times longer float/calendar life than lead acid battery. Helping to minimize replacement cost and reduce total cost of ownership.

**Lighter Weight:** About 40% of the weight of a comparable lead acid battery. A "drop in" replacement for lead acid battery.

**Easy Maintenance:** Efficient maintenance with SOC and SOH monitoring.

**Higher Power:** Delivers twice power of lead acid battery, even high discharge rate, while maintain high energy capacity.

**Wider Temperature Range:** -20 °C ~ 60 °C

**Superior Safety:** Lithium iron phosphate chemistry eliminates the risk of explosion or combustion due to high impact, over charging or short circuit situation.

**No Memory Effect:** Support unstable partial state of charge (UPSOC) (charge/discharge).

#### Additional /Optional Features:

- Software Locking
- Bluetooth Hardware locking
- GPS tracking
- GPRS/GSM Modem
- foldable handles
- De-attachable ears
- Colored LCD Display

#### BMS Features:

- Embedded BMS unit has the ability to measure the following:
  - Current
  - Voltage
  - Single Cell Surface Temperature
  - Ambient Temperature of Battery
- Embedded BMS unit has the following built in functions:
  - Over charge detection function
  - Over discharge detection function
  - Over current detection function
  - Temperature protection function
  - Short circuit detection function
  - Balance Function
  - The integration of BMS and IT can facilitate real-time monitoring as well as control of various parameters.
  - BMS is also capable of communicating with other devices by modbus protocol.

#### Applications:

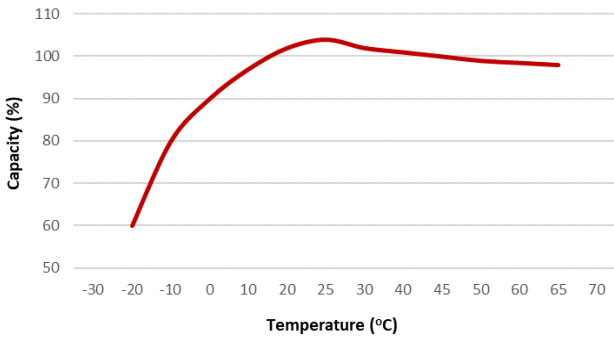
- Telecommunication
- UPS, backup power
- Solar/wind energy storage system
- Electrical vehicles
- Wireless Hut Back up Power
- Wireless Repeater Back-up
- Fiber-Optic access network backup Power
- Outdoor Billboard Lighting
- 48V Switchgear & Control Back up Power
- FTTB & LAN/Wifi Connection Power
- Street & Highway monitoring & Surveillance
- Medical equipment

Item:	Description:
Nominal Voltage	48 Volts
Nominal Capacity	150 Ah (Standard charge and discharge)
Charging cut-off voltage	54.75 ± 0.2 Volts (adjustable)
Standard charging current	0.5 C (Recommended Value)
Maximum charging current	1.0 C
Charging cut-off current	0.5 C to 1.0 C (adjustable)
Discharge cut-off voltage	45.00 ± 0.20 Volts (adjustable)
Standard discharge current	0.8 C
Maximum continuous discharge current	1.0 C
Installation Method	Rack Mount/ Wall Mount
Alarm & Protection	<b>Reverse Protection</b> , Over Voltage, Under Voltage, Short Circuit, Overload, Over Current, Over Temp, Low Temp.
Internal resistance	SOC 30% ≤100 (between positive and negative terminals of discharge port)
Depth	530 (560) mm
Width	442 (482) mm
Height	221 mm (5U)
Cycle life	7000 cycles @ 0.5C, 80% DOD, 35°C
Over all Life	15 years
Communication Interface	Rs232, RS485/CAN
Storage Environment Temp/Humidity	-20°C to 60°C / 0% to 95% (non condensing)
Working Humidity	≤ 85%
Altitude	≤ 4000 m
Cover Material	Spray painted outer surface of cold rolled steel plate.
Weight	60.00 ± 0.5 kg

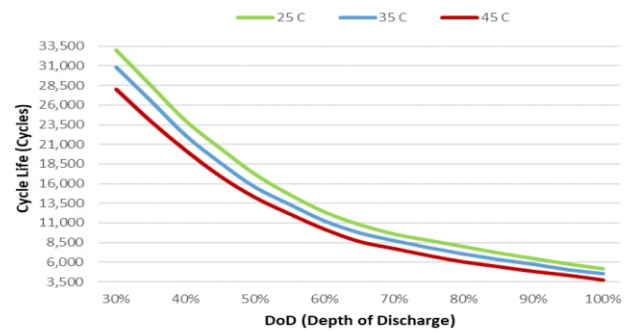


- I Battery Switch(Switch)
- II Indicator for capacity Retention(SOC)
- III Run light(RUN), indicate system operation state
- IV Alarm light(ALM)
- V Address dial number(ADD)
- VI Up-link communication(RS-232)
- VII Cascading telecommunication (RS-485)
- VIII Reset button(RESET)System
- IX DRY contact
- X DC output(Battery Output)

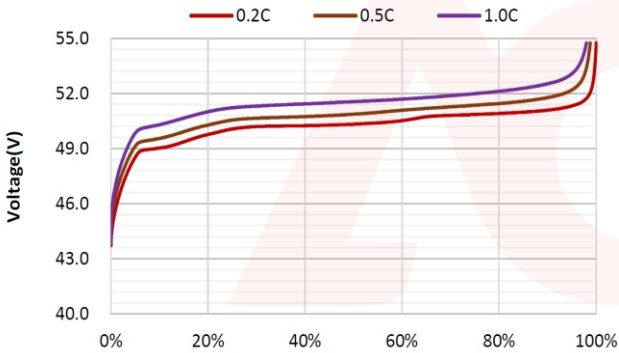
TEMPERATURE EFFECT ON BATTERY CAPACITY



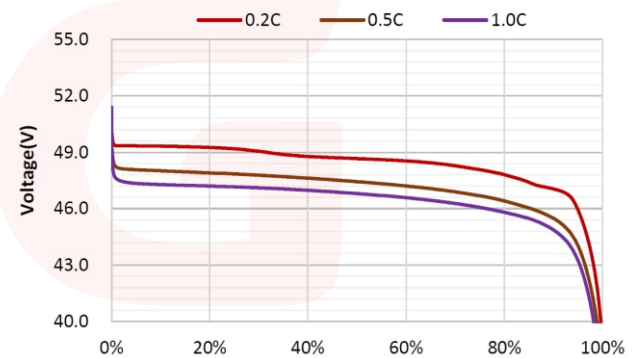
CYCLE LIFE vs DoD at DIFFERENT TEMPERATURES



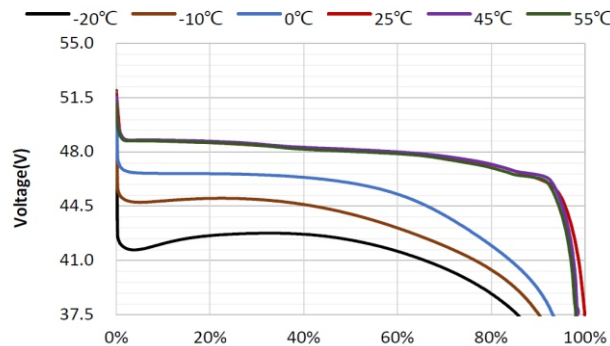
Charge Curves with Different Current Rate



Discharge Curves with Different Current Rate



Discharge Curves at Different Temperature



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