

Exide Equipment Li-ion EV1600

Carefully read these instructions before installing or using the battery

Technical specification

Nominal voltage: 12.8 V
Nominal capacity: 125 Ah
Nominal Energy: 1600 Wh
Dimensions: 318 x 165 x 215 mm (± 2 mm)
Weight: 15 kg
Polarity: 1
Pole type: F-M8



Installation

- **Check that the electrical system is compatible with charging requirements**
- Check battery voltage before fitting – recharge battery if voltage is less than 12.8 V
- Use in 12 V systems only, should not be connected in series
- Can be connected in parallel, up to 4 units – always fully charge each battery using the same charging method before connecting in parallel
- **Do not connect with any other battery type or technology**
- **Do not reverse or short circuit the positive and negative terminal**
- **Do not install near a heat source or in exposure to direct sunlight**

General operating conditions

- Output voltage is 10 – 14.6 V (0 V if BMS protection is triggered)
- Allowed operating temperature range is: 0 °C – 45 °C
- **Do not exceed 14.6 V – maximum allowed voltage is 14.6 V**
- **Do not discharge with more than 100 A – maximum allowed discharging current is 100 A**
- **Do not charge with more than 80 A – maximum allowed charging current is 80 A**
- **Do not charge if the battery temperature is below 0 °C**
- Avoid discharging the battery to less than 10 V

Charging requirements

- **Do use only specific Li-ion battery charger for lithium iron phosphate, LiFePO₄ (LFP)**
- Charging voltage should be 14.6 V
- Standard charging current is 20-60 A, maximum allowed charging current is 80 A
- Recommended charging method is CC-CV: constant current followed by constant voltage
- Charging should be ended when current during CV phase drops below 1-5 A
- Recommended float charge voltage is 13.7 – 13.9 V
- Always recharge a fully discharged battery within 2 weeks
- **Do not use any charger with automatic desulphation function**
- **Do not use any charger with automatic temperature compensation function**

Storage

- Storage temperature range is: -20 °C – 35 °C
- For extended storage (>1 month) keep temperature within -10 °C to 30 °C and maintain the battery voltage above 12.8 V
- Perform a discharge/recharge cycle every 6 months

BMS electronic protection

The EV1600 battery contains an integrated electronic *battery management system* (BMS). The BMS balances the internal battery cells during charge and is also able to disconnect the battery to protect itself from several types of misuse. The protection mechanism internally disconnects the negative terminal of the battery if the battery is subjected to conditions outside allowed operating range.

BMS protection triggers

Overcharge – over voltage protection:	≥3.9 V (any cell)
Over discharge – under voltage protection:	≤2.0 V (any cell)
Over temperature protection:	≥65 °C (±5 °C)
Over current protection:	100 A (3 seconds delay)

Note that these are the cut off limits for any cell in the battery (4 cells in series). Violation of the criteria above causes the battery to enter protect mode and disconnects the external terminal. The voltage across the battery terminals will drop to 0 V. The protection will release and return to operating mode depending on the cause. Over current protection will release after a fixed rest time (30 seconds). Over voltage and temperature protection will release when the voltage or temperature stabilizes within allowed operating window. Under voltage protection will also disconnect the BMS power and charging is required to reactivate again. Do not leave the battery fully discharged for more than 2 weeks.

Important about BMS protection

IMPORTANT NOTE! Even if the battery contains built-in protection it is essential to operate the battery within allowed voltage, current and temperature ranges. It is not allowed to use the battery outside its specifications and repeated triggering of the BMS protection may cause battery failure.

Safety notice

- Always respect the operating conditions as described above – violation may reduce battery life span or cause immediate failure
- The battery is not dangerous under normal use. Do not dismantle, open or shred the LiFePO₄ battery. Exposure to ingredients contained within the product could be harmful
- Do not reverse or short circuit the positive and negative terminal
- Keep the battery away from children
- Keep the battery away from heat sources and avoid exposure to direct sunlight
- The battery may explode, cause burns and release hazardous decomposition products if disassembled, crushed or exposed to fire or high temperatures
- If the battery emits fumes or smell, stop using the battery and ventilate area
- Do not inhale any fumes emitted from the battery

Recycling information

- Leave the battery to authorized Li-ion battery recycling, do not mix with lead acid batteries