12.8V40AH Module Specification

1. Overview

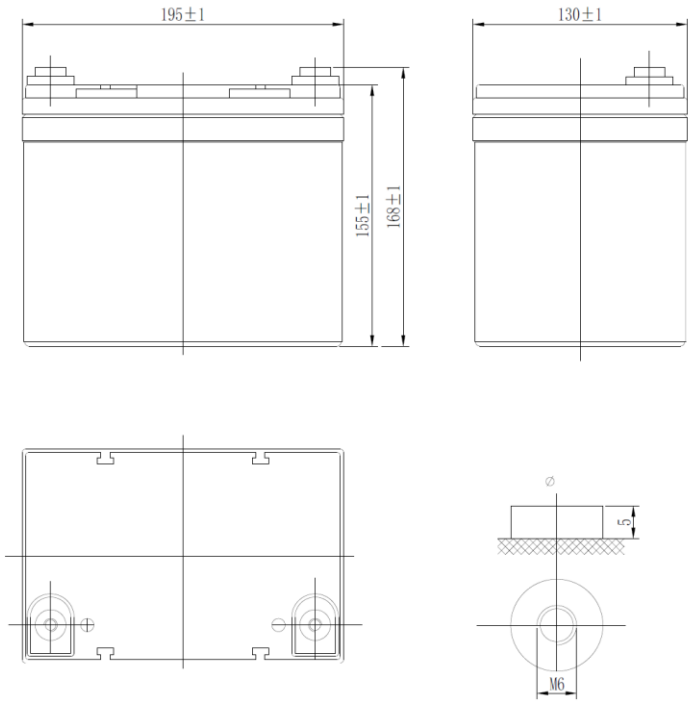
LFP12-40EV is Lithium iron phosphate battery module which designed for Telecom application. This battery module integrated with intelligent BMS inside, has big advantages on safety, cycle life, energy density, temperature range and environmental protection. This product specification describes the type, size, structure, electrochemistry performance, service life, and BMS characteristics.

2. Battery Module

The battery module consists of single LFP cells, wire, BMS and metal container.

- Packed with high performance LFP single cell, long life, safety and wide temperature range
- High energy density, small size, light weight, no pollution;
- Packing with single cell container, fire retardant wire and copper connecting bar, stable and safe.
- Built-in BMS, with battery voltage, current, temperature and health management.
- Flexible customization of dimensions
- 10 years design life, Stable performance, maintenance free.
- Do not use more than four batteries in series. In series or parallel connection, please fully charge the batteries separately. The highest and lowest parallel voltage should not exceed 0.3V.

▶ Pictures



▶ Battery module specification

Item		Specification	Conditions
Nominal	Voltage	12.8V	25℃,0.2C
	Capacity	40Ah	
Module weight		5.2kg	±0.3kg
Dimensions(W*D*H), mm		195x130x168	±1mm
Operating parameters	Charging Voltage	14.4V	
	Discharging Voltage	10V	Recommended
	Charging current	Max constant charge:40A	Recommended 8A
	Discharging current	Max constant discharge:40	
		Pulse discharge: 60A for 10S	
Temperature	Charge range	0℃~45℃	
	Discharge range	-20℃~60℃	
	Storage range	-20℃~45℃	
BMS	Built-in BMS	Voltage, current, temperature management & cell balance	communication
Service life	Design life	>10years	0.2C, 25℃
	Cycle life (90%DOD to 80% end)	>2000 times	
	Cycle life (100%DOD to 50% end)	>6000 cycles	@0.5C, 25℃

3. BMS specification

BMS provides complete management and protection for the battery.

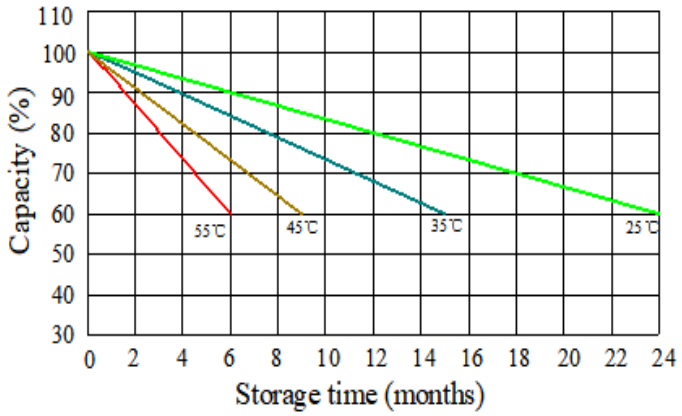
- Voltage warning and protection for module and each single cell.
- Current warning and protection, and the maximum operating current can be customized.
- Temperature warning and protection, 1 sensors for battery pack and 1 sensor for BMS.

▶ BMS parameters.

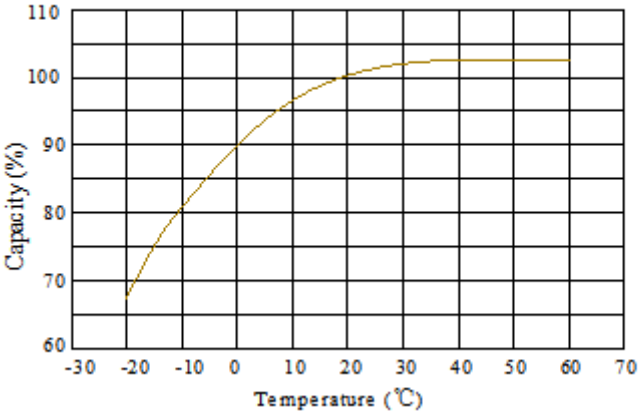
Item		Parameters		Condition
Charge	Cell voltage protection	3.8V	Delay 1~2S	Recover when discharge current >1A or Cell voltage<3.6V or module voltage<14V
	Module voltage protection	14.8V	Delay 1~2S	
	Over charging current 1	45A ~55A	Delay 10~20S	Turn to pre-charge mode and try to recover in every 3min
	Over charging current 2	≥55A	Delay 2~3S	
	Temperature protection	<-10℃ or >70℃	Delay 1~2S	Recover when >0℃ or <60℃
Discharge	Cell voltage protection	2.1V		Recover when charge current >1A or Cell voltage>3.1V or module voltage>24V
	Module voltage protection	9.6V	Delay 1~2S	
	Over discharging current 1	65A~85A	Delay 10S	Recover when charging current>1A, or recover in every 60S
	Over discharging current 2	≥85A	Delay 2~3S	
	Short circuit	>150A	Delay 0.1mS	
	Temperature protection	<-20℃ or >75℃	Delay 1~2S	Recover when >-10℃ or <65℃
BMS	PCB Temp protection	>95℃	Delay 1~2S	Recover when <75℃
	Cell balance	100mA	Passive balance	Cell voltage difference > 40mV
	Temperature accuracy	±2℃	Cycle measurement	Measuring range -40~100℃
	Voltage accuracy	±20mV	Cycle measurement	For cells and module
	Current accuracy	FSC±5%	Cycle measurement	Measuring range -200~+200
	SOC	5%		Integral calculation

4. Battery module performance Curve

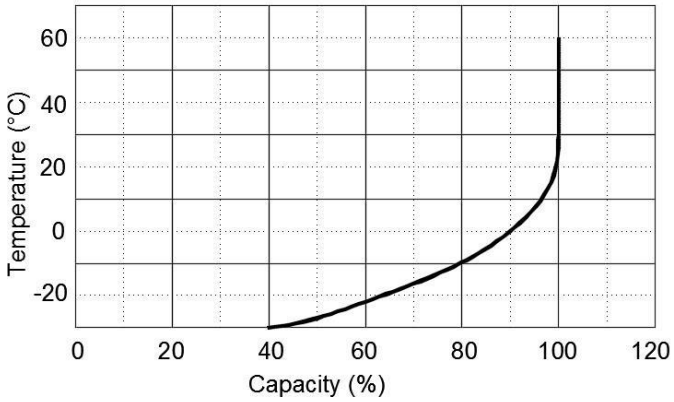
Self-discharge at different temperature



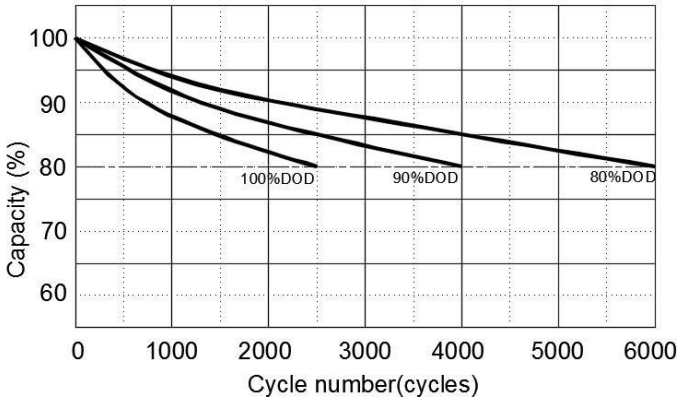
Temperature effects on capacity at 0.5C



Discharge capacity with different temperature @ 0.5C



Cycle life with DOD @ 0.5C，25°C



Performance may vary depending on, but not limited to cell usage and application. If cell is used outside specifications, performance will diminish. All specifications are subject to change without notice. All information provided herein is believed, but not guaranteed, to be current and accurate.