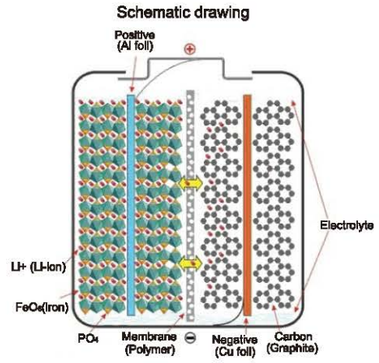
LiFePO4 Battery Cell

Lithium iron Phosphate battery (LiFePO4)has a nominal voltage of 48VDC. It is comprised by 16 cells of 3.2V each. The internal structure of LiFePO4 battery cell is shown in the figure on the right. Shown is the olivine structure of LIFePO4 as the positive electrode of cell. Aluminum foilt functions as current collector of positive pole. A polymer membrane separates positive and negative electrodes of the cell. The electron (e-) can't pass through the polymer separator but LI+ can pass through it freely. The nlegative electrode which consists of graphite is shown in the figure on the right. Copper foil is the current collector of negative electrode. There is organic electrolyte in the cell which is sealed by Al-plastic composite film.



General Features

- Lithium iron phosphate (LiFePO4) is used as positive material, which offers extended cycle life and good safety performance.
- Embedded BMS offers voltage, current, temperature protection and alarm functions. BMS can communnicate with other device by modbus protocol.
- Embedded BMS unit measures current, voltage, single cell surface temperature and the ambient temperature of the battery.
- Embedded BMS offers four remote functions which can communicate with far-end central control center by computer management.
- The combination of BMS and computer management technology can achieve real-time monitoring and control of various parameters and status.
- The power system has secondary cut-off protection and when the voltage is too low the system will cut off the support from the battery to protect the battery service life.
- Under normal operating conditions, the entire system emits very little noise due to their passive cooling design.
- Good electromagnetics shielding.

Advantages

- Environment-friendly , not containing heavy metals.
- High cycle times,Type C is with up to 5000 cycles to 80% DOD(≥ 3500 cycles to 100% DOD) Others is with up to 3000 cycles to 80% DOD(≥ 2000 cycles to 100% DOD).
- Low self-discharge rate (per month): **≤ 2%**, no memory effect.
- Low weight, Specific Energy is **2-3 times** larger than conventional lead acid batteries.
- Being in sleep mode to reduce energy loss when storage and transport.
- Easy installation, the battery can be installed in 19" standard cabinet or wall-mounted
- Convenient interface design, all wiring harness is connected with plug.
- Small size, Volumetric Specific Energy is **about 2 times** larger than lead acid battery.
- **Safety**, LiFePO4 battery completely solves the safety problems of traditional lithium battery.
- Wide operating temperature range **(-20~+60℃)** and good high temperature performance.
- Flexible configuration, a plurality of modules in parallel can support expansion of capacity to extend backup time.
- Excellent fast charging performance, after fast charging with 1C current, the capacity can reach **95%** of rate capacity in half-hour.
- Having FTTH usually supersedes FTTB (FTTx) could be simpler to use.

12.8V LiFePO4 Plastic case Series

Product features:

Larger capacity supply equipment cabinet

No active cooling system is required

High operational reliability

They live for more than 10 years at +25°C

Optimal management

In line with the RoHS

Applicable field:

- Oil and electricity hybrid energy storage system
- Grid frequency adjustment energy storage system
- New energy communication base station, Core computer room, IDC ,UPS
- New energy generation (solar, wind, PV/wind hybrid) access to energy storage system
- Smart grid, micro-grid system
- Mobile container storage system
- Other energy Storage System
- Peak load shifting energy storage system
- Load tracking energy storage system

Application scenarios

Product parameters

	MODEL	GE1207P	GE1209P	**GE1212P**	GE1215P	GE1220P	GE1230P	**GE1240P**	GE1260P
Electrical Characteristics	Rate voltage(Vdc)	12. 8							
	Rate capacity(AH)	7	9	**12**	15	20	30	**40**	60
	Energy storage(WH)	89. 6	115. 2	**153. 6**	192	256	384	**512**	768
	Cycle life	DOD(≥2000 cycles @ 85% DOD).							
	Months self discharge	⩽2%							
	Efficiency of charge	100% at 0.2C							
	Efficiency of discharge	96-99% at 1C							
Standard Charge	Charge voltage	14.6±0.1V							
	Charge mode	**0.2C to 14.6V, then 29.2V,charge current to 0.02C (CC/CV)**							
	Charge current(A)	1.4	1.8	**2.4**	3	4	6	**8**	12
	Max. Charge current(A)	7	9	**12**	15	20	30	**40**	60
	Charge cut-off voltage(VDC)	14.6							
Standard Discharge	Contiunous current(A)	10	10	**10**	15	20	30	**40**	60
	Discharge cut-off voltage(VDC)	11.2							
Environmental	Charge temperature	**DOD(≥2000 cycles @ 85% DOD).**							
	Discharge temperature	**-20 ℃ to 60 ℃ (-4F to 140F) @60±25% Relative Humidity**							
	Storage temperature	**0 ℃ to 40 ℃ (32F to 104F) @60±25% Relative Humidity**							
	IP class	**IP60**							
Mechanical	Material system	**LiFePO4**							
	Case material	**Plastic**							
	Pack Dimensions L*W*H(mm)	151*65*94	151*65*94	**151*99*99**	151*99*99	181*77*170	198*166*170	**198*166*170**	260*168*209
	Package Dimension L*W*H(mm)	156*70*99	156*70*99	**156*104*104**	156*104*104	186*82*175	203*171*175	**203*171*175**	265*173*214
	Net Weight(kg)	1.3	1.4	**1.9**	2.2	3	4.3	**5.9**	11.5
	Gross Weight(kg)	1.5	1.6	**2.2**	2.5	3.5	4.8	**6.4**	12
	Protocol(Optional)	Bluetooth							
	SOC (Optional)	LED/LCD							