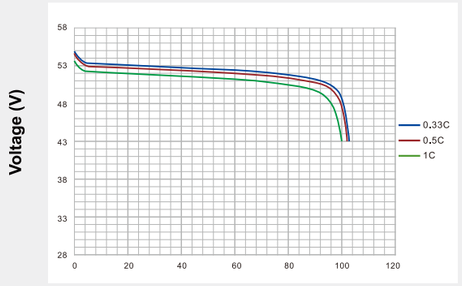
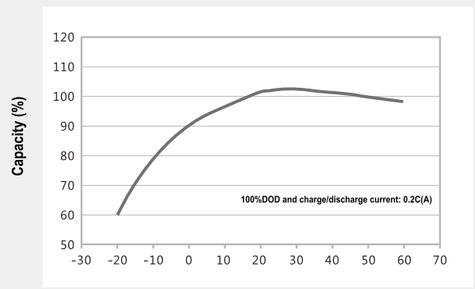
Characteristic Curves

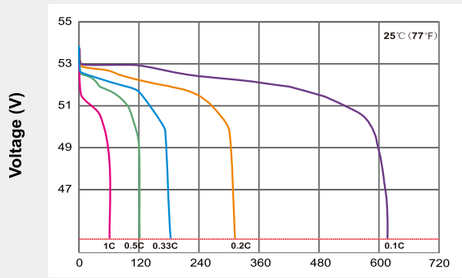
Discharge Capacity in relation to Discharge Rate



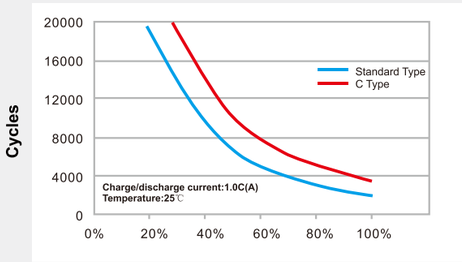
Temperature Effect in relation to Battery Capacity



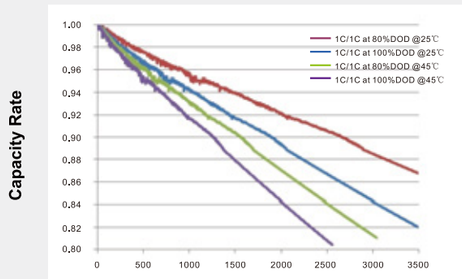
Discharge Time in relation to Discharge Rate



Depth of Discharge in relation to Cycle Life



Cycle Curves at different DOD & Temp of C Type



China sales office
5th Floor, Xinbaohui Bldg.,Nanhai Blvd.,Nanshan,Shenzhen, China.
Tel:+ 86-755-86036060(100 lines)
E -mail: export@leoch.com

Hong Kong sales office
Workshop C, 33/F, TML Tower,No. 3 Hoi Shing Road, Tsuen Wan,New Territories, Hong Kong
Tel:+852 3578 6666
E-mail: sales.hk@leoch.com

Singapore sales office
NO. 1 Techpark Crescent Singapore 638131
Tel:+65 6863 6078
E-mail: sales.sg@leoch.com

Australia sales office
2 /29 Tarlington Place, Smithfield. NSW 2164 Australia
Tel:+ 02 9756 0950
E-mail: sales.au@leoch.com

North America sales office
19751 Descartes, Unit A, Foothill Ranch, CA 92610, USA
Tel: 949-588-5853
E-mail: sales@leoch.us

UK sales office:
9B Wheatstone Court. Waterwells Business Park, Gloucester, GL2-2AQ, UK
Tel: +44(0) 1452 729428
E-mail: sales.Europe@leoch.com

Europe/MEA sales office
1 Deligiorgi St., 121 31 Athens Greece
Tel: +30 210 5760318 (2 lines)
E-mail: support_EMEA@leoch.com

India sales office
Shed no. A-53(b), 2nd Stage of Peenya Industrial Area,
Bangalore North Taluk, Bangalore-560058, Karnataka, India
Tel:+91-80-23440018/23440019
E-mail: indiasales@leoch.com

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INTEGRATED
LiFePO$_4$ BATTERY SYSTEM
FOR TELECOMMUNICATION

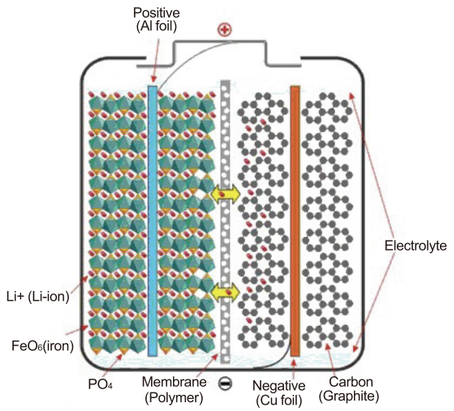
Leoch International Technology Limited

TS16949 ISO14001 ISO9001 OHSAS18001

$LiFePO_4$ Battery Cell

Lithium iron Phosphate battery ($LiFePO_4$) has a nominal voltage of 48VDC. It is comprised by 16 cells of 3.2V each. The internal structure of $LiFePO_4$ battery cell is shown in the figure on the right. Shown is the olivine structure of $LiFePO_4$ as the positive electrode of cell. Aluminum foil 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 negative 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.

Schematic drawing



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.

Applications

- Wireless Hut back-up power
- Wireless Repeater back-up
- Fiber-Optic access network back-up power
- Outdoor Billboard lighting
- 48V Switchgear & Control Back-up Power
- Long duration Industrial UPS Systems
- FTTB & LAN/WIFI Connection Power
- Street & Highway Monitoring & Surveillance

Specifications

Model	System type	Rated Voltage (V)	Rated Capacity (Ah)	Dimension (mm)	Weight (Kg)	Cycle life
LFeLi-4820T	A	48.0	20	442*200*88	12	≥3500
LFeLi-4830T	A	51.2	30	436*400*132	20.5	≥3500
LFeLi-4840T	A	48.0	40	442*450*88	25	≥3500
LFeLi-4850T	A	48.0	50	442*442*132	32	≥3500
LFeLi-48100T	A	48.0	100	442*450*177	41	≥3500
LFeLi-48100E	A	48.0	100	442*450*132	41	≥3500
LFeLi48150T	A	48.0	150	442*550*177	60	≥3500
LFeLi-48200T	A	48.0	200	442*520*244	79	≥3500

NOTE: The usage conditions of the cycle times in the above table: 0.5C charge/0.5C discharge 25℃DOD100%