V-LFP48100

Vision Technology delivers safe lithium iron phosphate Battery solutions for Telecom application.

Overview

The V-LFP48100 back-up lithium iron phosphate battery system is developed for backup of Telecom equipment. Under normal condition, grid AC power supply to rectifier module and the Telecom loads and charge battery pack; When the AC power fail, rectifier module stop power supply, the battery serves for Telecom equipment, to ensure the Telecom equipment runs normally; when the AC power is switched on again, power rectifier module for Telecom equipment recover to while charge the battery pack

Features

- RS485 communication output for monitoring
- Built-in BMS with Charging current limitation
- Built-in automatic protection for over-charge, Over-discharge and over-temperature conditions
- State of charge and state of health indication
- Built-in battery control for efficient operation
- Internal cell balancing
- Compatible with standard Telecom rectifiers
- Maintenance free

Specifications		V-LFP48100
Nominal Voltage		48 V
Nominal Capacity (@25°C, 0.2C, 5hrs)		100 Ah
Number of cell		15 cell
Battery Weight (Approximate)		39 ±0.5Kg
Dimensions (W*D*H)	Width*Depth* Height	442mm*480mm*133mm (±2mm)
Energy	Normal energy (@25°C, 0.2C)	4800Wh
	Volumetric energy density	128Wh/L
	Gravimetric energy density	112Wh/kg
Cell	Cell model	LFP36130200-100Ah
	Cell Voltage (Nominal)	3.2 V
	Cell Capacity (Nominal)	100 Ah
	Gravimetric energy density of cell	160Wh/kg
Internal Impedance @25°C		≤ 30mΩ
Standard Discharge @25°C	Max. continuous current	100A
	Cut-off voltage	43.2V
Standard charge @25℃	Charging Voltage Limited	52.5V ~ 54V
	Max. continuous current	100A
	Recommended charging current and time	20A(0.2C) for 5.2 hours
Discharge/Charge efficiency in Wh (Round trip efficiency) at 0.2C		≥ 95%
Design life @25°C		≥ 12 years
Cycle life (@25°C, 0.2C)		80% DOD 4000 cycles
Operating temperature		Charging: 0°C ~ 60°C
		Discharging: -20°C ~ 60°C
Storage temperature		Recommended range: 0℃ ~ 45℃
Operating humidity (@40±2℃, %RH)		5% ~ 95%
Counting function of working time when over temperature		YES
Maintain port		YES (Option)
Anti-theft		Customization screw (Option)

BMS Parameters.

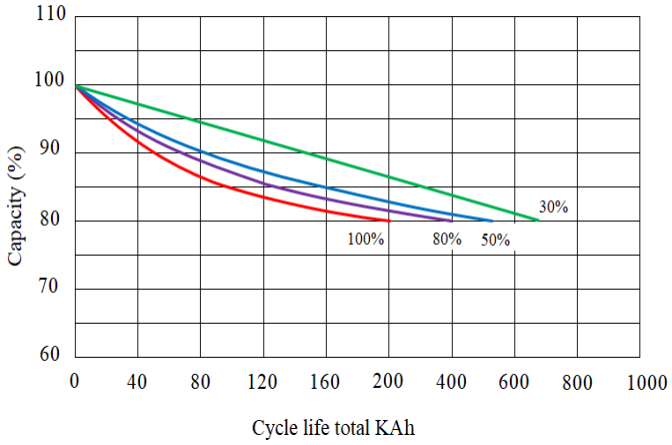
NO.	Type		Function	Setting Value V-LFP48100	Remarks
1	Voltage	Charge	Cell Voltage Protection	3.7V Alarm/3.8V Protection	Recover at 3.6V
2			Total Voltage Protection	56V Alarm/57V Protection	Recover at 54V
3		Discharge	Cell Voltage Protection	2.9V Alarm/2.8V Protection	Recover at 3.1V
4			Total Voltage Protection	44V Alarm/43.2V Protection	Recover at 45V
5	Current	Charge	Normal	≤100A	
6		Discharge	Normal	≤100A	
7			Over Current Protection 1	Alarm＞101A / Protection＞120A	Delay 20s ,recovery in every 1min
			Over Current Protection 2	＞150A and ＜300A	Delay 3s ,recovery in every 1min
8			Short Circuit Protection	≥300A	Delay 300uS
9	Temp	Cell Temp	Low temp protection	Charging ＜ -10℃ Discharging ＜ - 20℃	Delay 1~2S
10			High temp protection	Charging: Alarm＞65℃ /70℃ Protection Discharging: Alarm＞70℃ /75℃Protection	Delay 1~2S
11		PCB	High temp protection	Alarm＞90℃/＞ 115℃Protection	Recovery at 85℃
12	Cell Balance	Balance	Make all cells be balance during charging process. Current: 150mA	$V_{Max.}$≥3.40V and $V_{Max.}$ - V_{Min}≥40mV, Start balance	All cell voltages＜3.4V or $V_{Max.}$ - V_{Min}≤40mV, or discharge Stop balance

Battery Status.

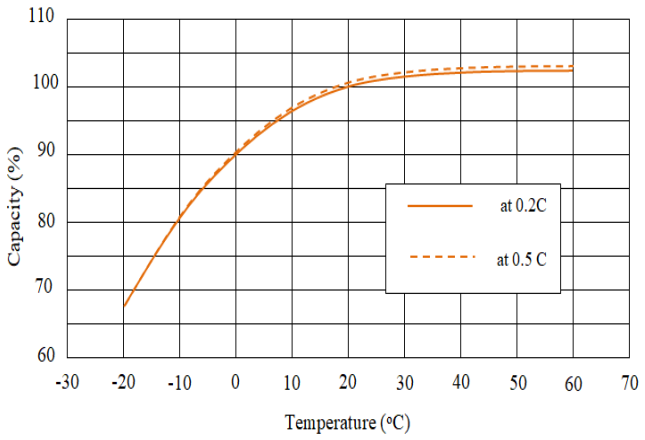
1. **Stop/Transport Mode**. In working mode, press Start/Stop button, Battery will go to STOP mode with low self-discharge. In STOP mode, charging MOS and discharging MOS are open, battery cannot charge, discharge or communicate.
2. **Working Mode**. In STOP mode, connect the battery to SMPS, press Start/Stop button, battery will go to working mode. In working mode, BMS will monitor battery voltage, current, and temp, and communication is available, charging MOS and discharging MOS are closed, Battery will operate as the settings.
3. **Sleep Mode**. After turn on the battery, if the battery voltage below low voltage protection, BMS will go to sleep mode in 1 minute. In sleep mode, charging MOS and discharging MOS are closed, BMS will check the current in every 1 min, if there is charging current connecting, battery will turn to working mode.
4. **Error Mode**. In working mode, if there is: ①.Battery cells, ΔU>1V, or ②.Any cell voltage＞3.9V or ＜2.3V, or ③. Battery temp is ＜-20℃ or +75℃. BMS will go to error mode, ALM will bright and other LED will shut down, and go to STOP mode, charging MOS and discharging MOS are open. Need to make troubleshoot.

Performance Curve.

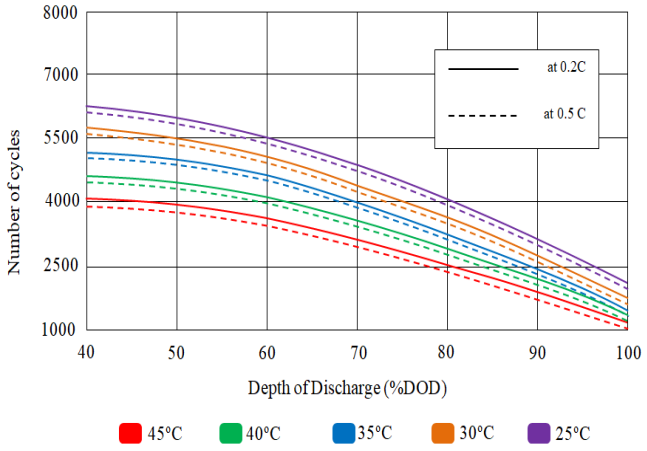
Cycle life total capacity with DOD at 25°C



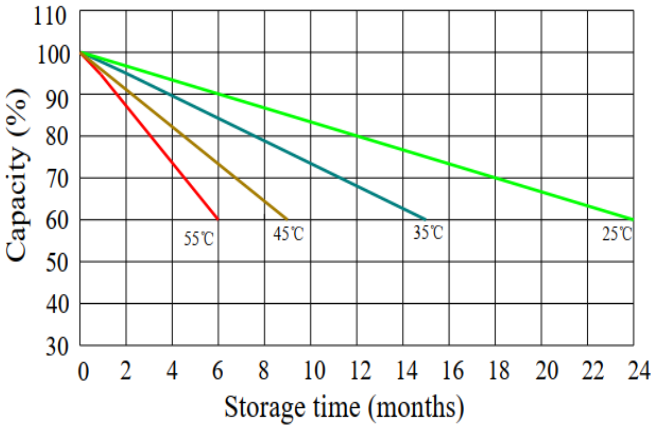
Temperature effects on capacity



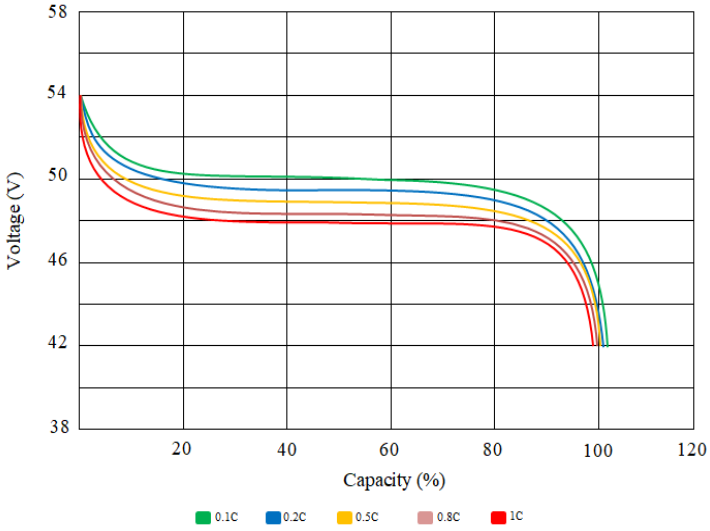
Cycle life versus depth of discharge and temperature



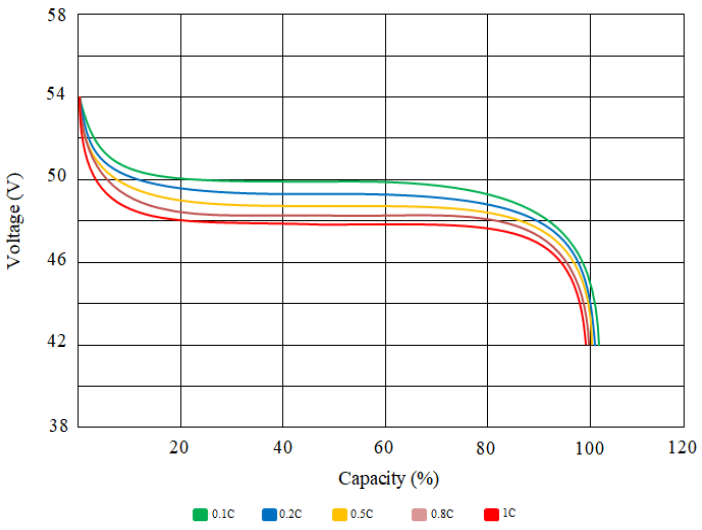
Self-discharge at different temperature



Discharge Performance at 25°C



Discharge Performance at 45°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.