Vision Technology delivers safe lithium phosphate energy storage solutions in standard lead-acid battery sizes for a wide variety of applications.

V-LFP 12V
Series Model

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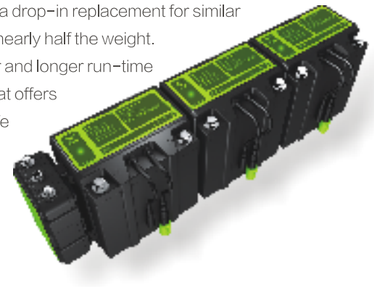
Overview

The V-LFP 12V 40Ah Energy Storage Systems are a family of 12V can series-parallel battery modules and accessories. The 12V family is designed as a drop-in replacement for similar sized lead-acid batteries offering twice the run-time and nearly half the weight. The 12V series is designed for lower voltage, lower power and longer run-time applications. They are built with Vision LFP Technology that offers outstanding intrinsic safety and excellent float and cycle life resulting in low cost of ownership.



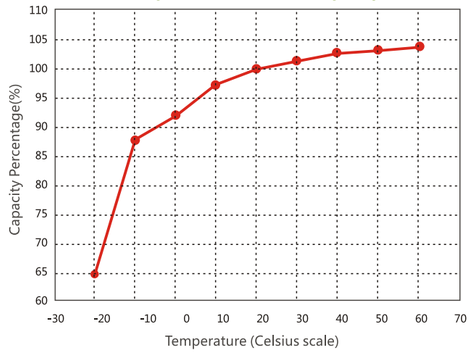
Features

- Built-in automatic protection for over-charge, over-discharge and over-temperature conditions
- One single BMS can manage multiple battery models (<200)
- Application voltages from 12V~ 480V
- Internal cell balancing
- Communication of monitored data via BMS
- Thousands of cycles,100% DOD,under normal conditions
- Can be charged using most standard lead-acid chargers (set for AGM/GEL cells)

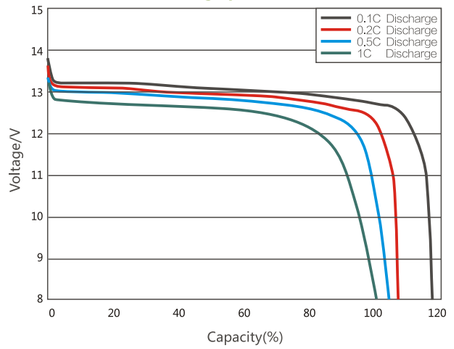
V-LFP 12V Series Specifications

Specifications		V-LFP 12V40Ah
Voltage		12.8V
Nominal Capacity (25℃, 1C)		40Ah
Weight (Approximate)		6.4 Kg
Cell		Prismatic
Dimension L*W*H		202*144*175mm
Dimension(BMS) L*W*H		170*140*90mm
Specific Energy		80 Wh/kg
Standard Discharge 25℃	Max.cont.current	50A
	Max.10sec.pulse	60A
	Cut-off voltage	8.0V
Standard charge	Charge Voltage	14.6V
	Float	13.8V
	Style	CC/CV
	Recommended Charge Time	20A 2.5h
Using temperature		-30~60℃
Storage temperature		-30~50℃
DC internal resistance (max)		<60mΩ

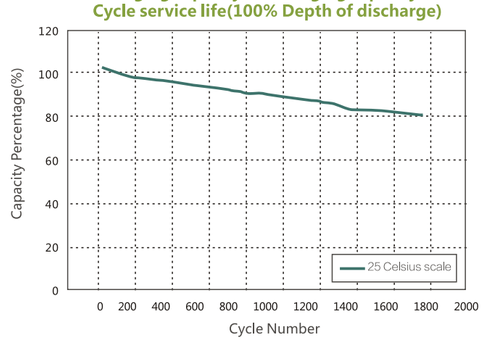
Temperature effects on capacity



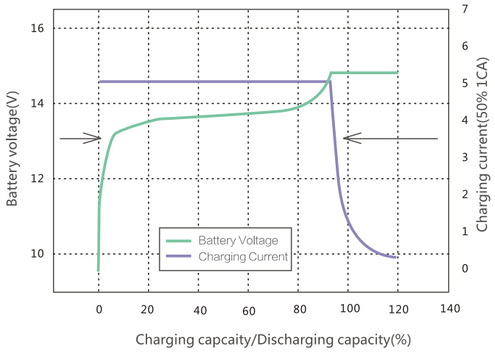
Discharge performance



Charging capacity/Discharging capacity (%)
Cycle service life(100% Depth of discharge)



Constant voltage charging characteristic (0.5CA, 25 Celsius scale)



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.

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Part One Battery module

1、Model：_____12V（4S）

2、Interface：
two RS485， connect with the last or next module, maximum node number 48（current theory to design, test and debug）；

3、Battery module series:
the maximum number of nodes and the protection circuit（MOSFET, circuit breakers, contactors, fuses) to the highest tolerated voltage limitation;

4、Battery module in parallel：
the maximum number of nodes and the protection circuit（MOSFET, circuit breakers, contactors, fuses) to the highest tolerated voltage limitation;

5、Function：
Monitor board function in the battery module：
- Battery module cell voltage measurement；
- Intelligent cell balance；
- Current measurement；
- Temperature sensor for monitoring; each module has 2 temperature sensors to monitor the surface temperature of battery pack；
- RS 485 and BMS communication; the following data sent to BMS；

Single battery voltage, module voltage；
Current module；
Cell surface temperature；
Module type and serial number；
Firmware version；
Error codes；

6、The battery module has two indicating lamp to display module basic condition；

7、Related technical parameters：

Project	Parameter	Red LED	Yellow LED
The balance among the cells	120MA		
The balance among the modules	200MA	on___off___	
Cell voltage alarm	≧3.9V and ≦2.0V	on_____	
Module voltage alarm	≧15.2V and ≦9.6V	on_____	
Current alarm		on_____	
Cell surface temperature alarm	≧70℃	on_____	
Power monitoring board	SLEEP 120UA		on_____
	WORK 2~8MA		on_____off_____
BMS communication okey			on_____off_____
BMS communication error		on_____	on_____

Part Two BMS

1、According to the battery modules connected in series after the total voltage is divided into three grades：
U-BMS-LV， 10~64V（series4~16cells)
U-BMS-MV，10~96V（series4~24cells)
U-BMS-HV， 96~300V (series4~80cells)

2、Interface:
The one RS485 for battery module;
The other RS232 with PC or other controller connection；
The 5 signals " 0 " or " 1 " output signal; GPIO1~GPIO5
The 2 signals universal input or output port; GPIO6~GPIO7（standby）

3、BMS power supply:
U-BMS-LV and U-BMS-MV from the string of battery power, or the external
DC12V power supply;U-BMS-HV built-in 10AH3.6V rechargeable battery, battery charger charging;

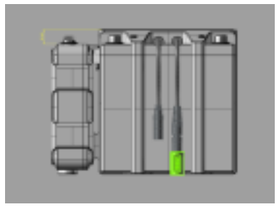
4、The power consumption of BMS:
U-BMS-LV and U-BMS-MV:0.3W~0.8W
U-BMS-HV:0.4W~0.6W

5、BMS working mode:
Master mode : the whole battery modules' system managed by BMS, RS-232 for monitoring；
Slave mode : PC may control BMS to manag battery system used RS-232 to receive data and send command；

6、The BMS function：
- Battery configuration, such as Series or parallel；
- Battery module address management；
- Battery system state judgment: charging, discharging, static；
- RS485，RS232 Bus management；
- According to data, control protection switches；
- The bus includes the following data：

Each battery module voltage, current；
Temperature of each battery module；
Module type and serial number；
Hardware version；
The balance among the modules
Error codes
The total voltage of battery system
The total current of battery system
The balance among the modules when charging
Battery module maximum temperature
Battery module minimum temperature
The minimum and maximum voltage of battery module
Fault management：
Communication data lost
Communication data error
Over temperature warning/alarm
Over current warning/alarm
Overvoltage warning/alarm
Temperature sensor fault
Current sensor fault

7、Technology Parameters：
GPIO1：Charge state GPIO1=1 Discharge and in idle mode GPIO1=0
GPIO2：Charge process fault, closed Charge circuit，GPIO2=1
GPIO3：Discharge process fault, closed discharge circuit，GPIO3=1
GPIO4：temperature fault，GPIO4=1
GPIO5：communication fault（disconnection），GPIO5=1



一、Charge process					
		U-BMS-LV	U-BMS-MV	-LV -MV	U-BMS-HV
Bleed current for cell balance		200mA	200mA	200mA	200mA
Charge current		≤50A	≤35A	No-protection，temperature control	GPIO2=0
		50A~60A	35A~50A	Confirme after 30S，protection，temperature control	GPIO2=1
		≧60A	≧50A	Confirme after 10S，protection，temperature control	GPIO2=1
Over-charge voltage	nS	N*3.8V		Confirme after 1S，protection，temperature control	GPIO2=1
	recover (nS)				
	Cell	3.9V		Confirme after 1S，protection，temperature control	GPIO2=1
	recover (Cell)	3.8V			GPIO2=0
二、Discharge process					
Discharge				No-balance	
Discharge current		<50A	<35A	No-protection，temperature control	GPIO3=0
		50A~80A	35A~60A	Confirme after 30S，protection，temperature control	GPIO3=1
		80A~150A	60A~100A	Confirme after 10S，protection，temperature control	GPIO3=1
		≧150A	≧100A	Short circuit protection 500uS	GPIO3=1
Over-Discharge voltage	nS	N*2.4V		Confirme after 1S，protection	GPIO3=1
	recover(nS)	N*2.8V			GPIO3=0
	Cell	2.0V		Confirme after 1S，protection	GPIO3=1
	recover (Cell)	2.5V			GPIO3=0
三、Parameters					
Mos resistance (mR)		1.2	2~6		
Mos withstand-voltage		100V	150~200V		
Mos number		7*2 Heat sink			
Mos model					
Current consume					

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