APL 48-100 LFP Lithium-ion Battery

Datasheet

APL48-100 LFP is a 48V $LifePO_4$ battery module. With the advanced Lithium Ferro Phosphate $LiFePO_4$ cell technology and smart BMS, the product have the benefit of long cycle life, small size, light weight, high safety, efficient, maintenance free, environmental protection and strong environment adaptability. It can operate at high temperatures for optimal performance in the field. The APL-LFP batteries are designed in Australia and are made to complement the charging characteristics of the FXM series UPS. Each battery is fitted with a battery management system (BMS) which provides protection from over voltage, under voltage, over temperature, over current, over charging as well as managing internal cell balancing. The BMS also reacts to any fault condition and automatically resets once the fault is cleared.

Traditional lead acid systems can be replaced with the APL batteries boasting LFP technology which can deliver more cycles and greater DoD. LFP systems are designed to offer more service cycles with smaller capacity and still yield the same useable storage as lead acid systems; lead acid storage cannot exceed 75% DoD.

The APL-LFP batteries work most efficiently when connected in parallel. Each module includes a capacity gauge and circuit breaker for individual isolation of each module before removal. The battery is ideal for backup and energy storage application in harsh outdoor environment.

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Some key features include:

- Proven LiFePO$_4$ technology
- Longer life with increased charge cycles and hybrid applications
- High energy density
- Deliver up to 3X the energy density of conventional lead acid batteries
- Zero emissions
- Fully recyclable
- Light weight and saving space
- Rated up to 60°C
- Possible 100% DoD each cycle
- Australian engineered & designed
- Built-in smart batttery management system (BMS)
- Non-toxic, no lead, no heavy metals or leaks
- Simple Anderson quick release connector system
- Two thirds less weight than equivalent lead acid batteries
- Bluetooth and CAN communication
- Intelligent monitors, remote measure, remote communication

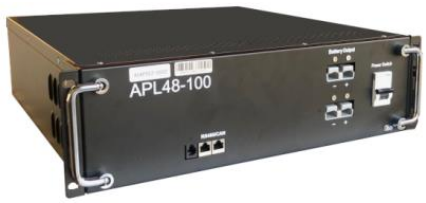
Benefits include:

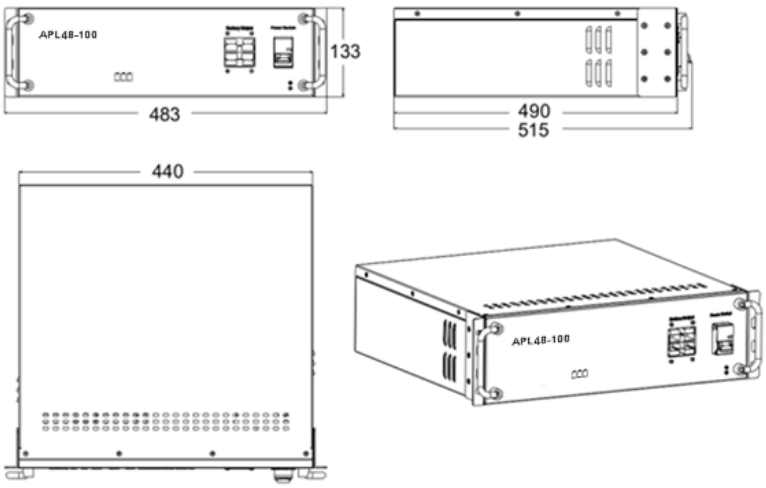
- Light weight & compact for ease of handling
- 4 x longer cycle life therefore cheaper maintenance & less replacements
- Fast charge capability
- All materials are recyclable & accepted by commercial recyclers
- The LFP compound results in no expansion, emissions or heat generation
- BMS protects cells, great for constant demand from critical systems
- Utilities available sunlight from PV panels
- Provides more than 2000 cycles compared with 1000 cycles for lead acid batteries
- Support parallel connection to increase capacity
- Maintenance free

Main Applications:

- Telecommunication
- UPS and IDC Datacentre
- Renewable Energy Storage System

APL48-100LFP Battery Module





Product Specifications

Model No.	APL48-100LFP
Nominal Voltage	48V$_{DC}$
Nominal Capacity	100Ah (0.2C to 41.0V @ 25°C)
Discharge End Voltage	41V
Charge Voltage	54V
Maximum Charge Current	100A (1C)
Standard Charge Current	20A (0.2C)
Maximum Discharger Current	100A (1C)
Dimensions W x D x H	440mm x 490mm x 133mm (3U)
Weight	45kg (±2kg)
Design Life	15+ years @ 25°C
Communication	RS485, CAN, RS232
Temperature Range	Discharge -20 to 60°C Charger 0 to 60°C Storage -5 to 45°C
Temperature Recommendation	Discharge 15 to 35°C Charge 15 to 35°C Storage 0 to 40°C (6 months, > 50% SOC)
Humidity	5% to 95%, no condensation

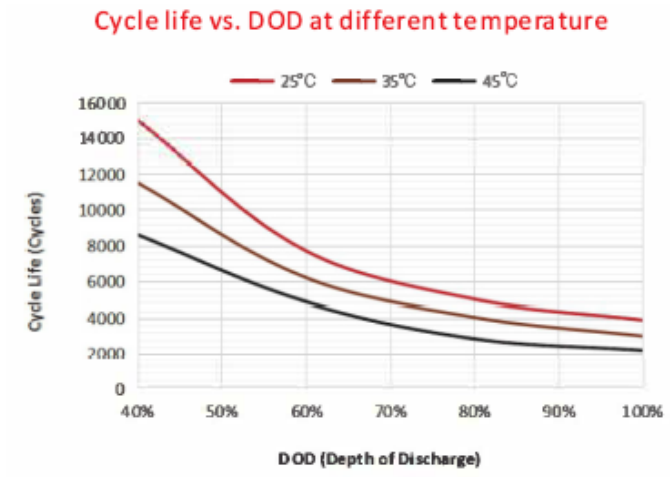
Constant Current Discharge Table

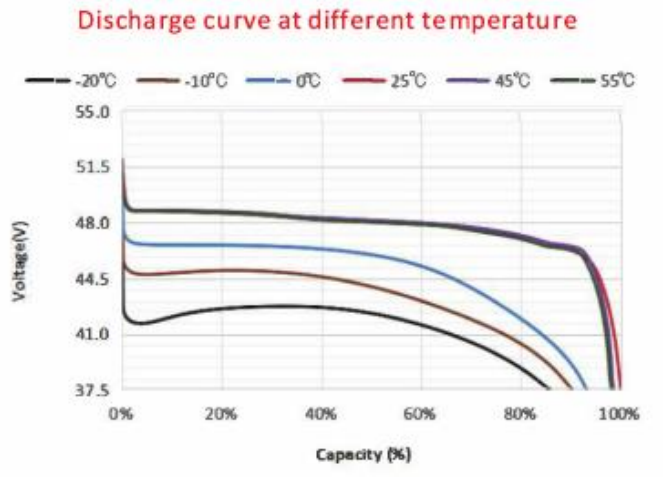
		Discharge Current								
		0.1C	0.2C	0.25C	0.3C	0.4C	0.5C	0.6C	0.8C	1.0C
End Voltage	39V	606min	304min	244min	203min	152min	122min	102min	76.4min	61.2min
	40.5V	604min	303min	243min	202min	152min	121min	101min	77.6min	60.8min
	42V	601min	301min	241min	201min	151min	121min	100min	75.5min	60.3min
	43.5V	596min	299min	239min	199min	149min	119min	99.2min	74.5min	59.5min
	45V	589min	294min	236min	196min	147min	117min	97.5min	73.1min	58min

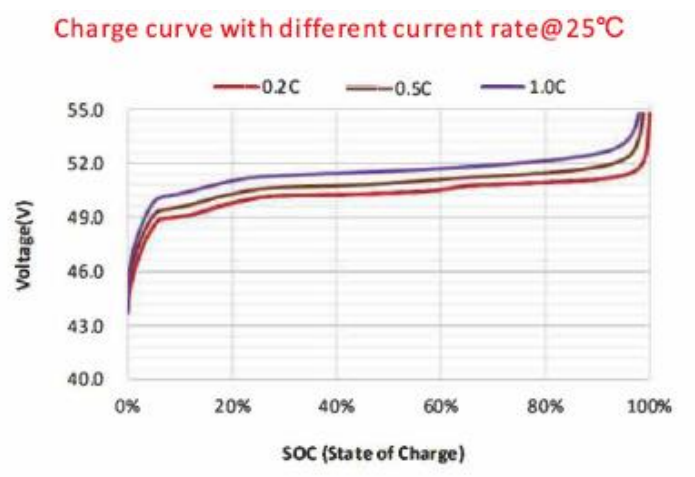
Constant Power Discharge Table

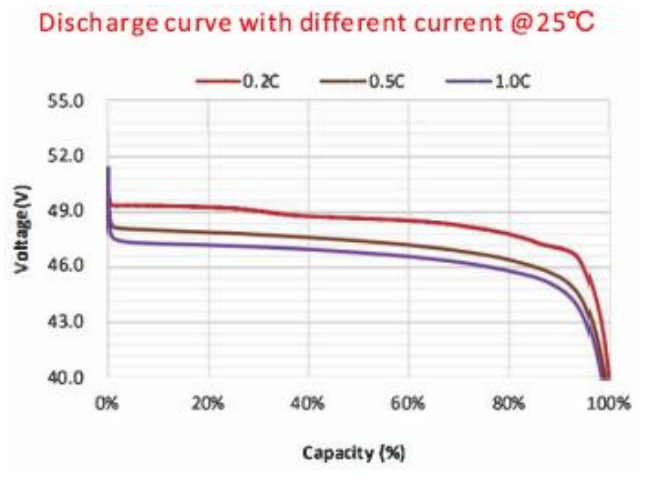
		Discharge Power									
		480W	960W	1440W	1920W	2400W	2880W	3360W	3840W	4320W	4800W
End Voltage	39V	606min	310min	207min	151min	123min	100min	85.7min	74.3min	64.9min	60.2min
	40.5V	604min	310min	206min	150min	122min	99.8min	85.3min	74min	64.7min	60min
	42V	602min	308min	205min	150min	122min	99.2min	84.7min	73.4min	64.3min	59.4min
	43.5V	597min	306min	203min	148min	120min	98.2min	83.8min	72.8min	63.5min	58.8min
	45V	584min	302min	201min	146min	119min	96.6min	82.4min	71.7min	62.5min	58min

Performance Curve









Charge/ Discharge Modes and Conditions

Charge Modes and Conditions

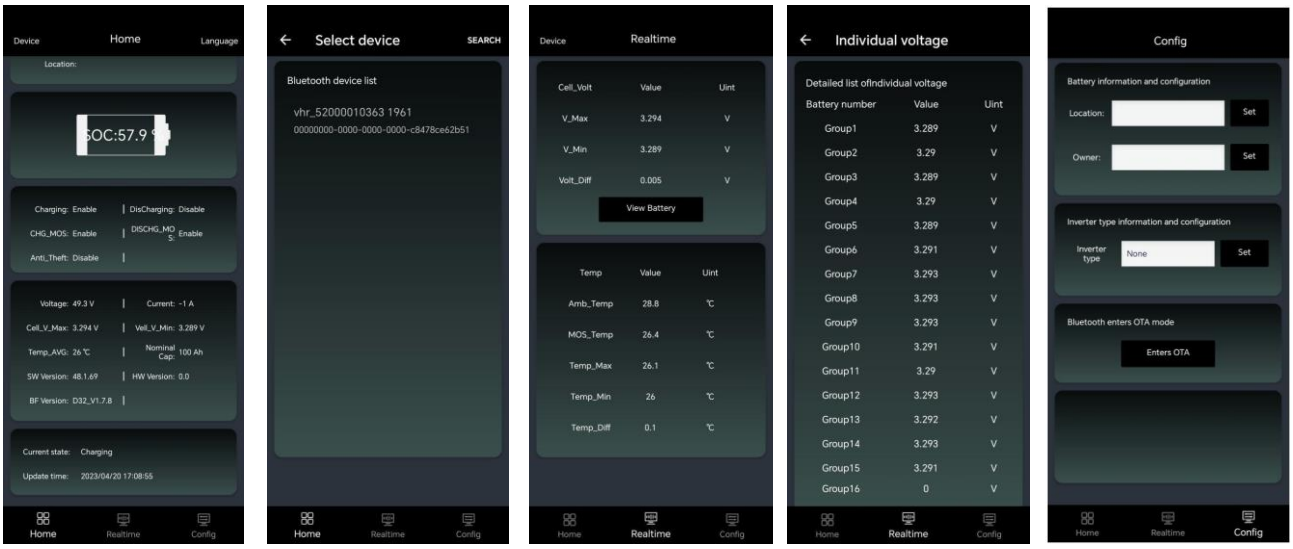
Cell Temperature	Recommended Charge	Fast Continuous Charge
< 0°C	No charge allowed	No charge allowed
0°C ~ 10°C	Charge current 0.1C	Charge current 0.2C
10°C ~ 20°C	Charge current 0.2C	Charge current 0.5C
20°C ~ 30°C	Charge current 0.3C	Charge current 1.0C
30°C ~ 40°C	Charge current 0.3C	Charge current 1.0C
40°C ~ 60°C	Charge current 0.3C	Charge current 0.5C
> 60°C	No charge allowed	No charge allowed

Discharge Modes and Conditions

Cell Temperature	Recommended Discharge	Fast Continuous Discharge
< –20°C	No discharge allowed	No discharge allowed
–20°C ~ 0°C	Discharge current 0.2C	Discharge current 0.5C
0°C ~ 20°C	Discharge current 0.5C	Discharge current 1.0C
20°C ~ 50°C	Discharge current 0.5C	Discharge current 1.0C
50°C ~ 60°C	Discharge current 0.5C	Discharge current 0.5C
> 60°C	No discharge allowed	No discharge allowed

BMS (Bluetooth Communication)

Battery Managing System BMS by Mobile App



Instructions:

1. Download the BmsManagement App from Google Play (Android).
2. Turn on Bluetooth of your mobile device.
3. Open the App. Search and Select the batteries from the list (you can find the battery number on the front of your battery).
4. Your battery is now connected to the App.
5. Click Home or Realtime to check for different battery status and other data.

Scan to download

Note:

1. Your mobile device must support Bluetooth 4.0 BLE.
2. Measuring distance is up to 15m.
3. Real-time remotely monitor battery status.

Features:

- Battery pack voltage
- Cell voltage
- Current
- State of charge (SOC)
- Charge or discharge State
- Average temperature
- Battery number
- Update time
- Battery detail configuration