50 Amp Hour 24 Volt LiFePO4 Deep Cycle Battery

Model: BB5024

Features

- UL-Listed Cylindrical Cells
- Safe & Non-Toxic LiFePO4 Chemistry
- Optional Integrated Heating (Model: BB5024H)

Certified and Tested To Industry Safety Standards

CE

Performance & Versatility

- Series and/or Parallel Connection
- Wire in Series up to 48V
- No Limit When Wiring in Parallel
- Mount in Any Orientation
- 100% Depth of Discharge
- 3,000-5,000 Deep Discharge Cycles

Internal BMS

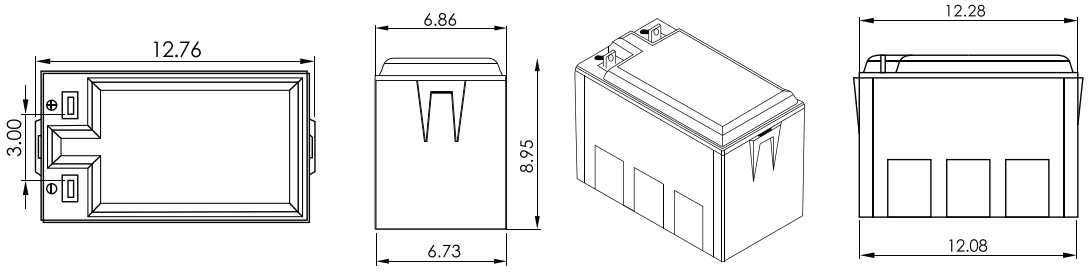
Proprietary battery management system (BMS) ensures user safety and product protection.

- High/Low Voltage Protection
- Short Circuit Protection
- High/Low Temperature Protection
- Cold Charging Protection (Low-Temp Cutoff)
- Automatic Cell Balancing at Top of Charge

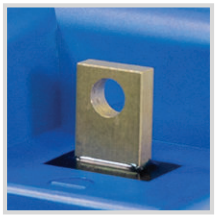
60 Amps Continuous | 100 Amps Surge for 30 Seconds | 1/2 Second Surge for Loads over 100 Amps

*Note: This built-in protection will reset after five seconds in most fault conditions. Disconnecting the battery from loads will also reset the BMS.

Drawing Specifications



Flag Terminals



Contact Information:

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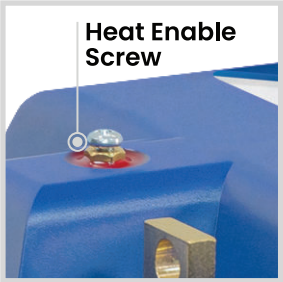
POWERED BY dragonfly® ENERGY

Optional Integrated Heating Technology

INTEGRATED HEATING

All Smart $LiFePO_4$ Batteries are available in models with optional Integrated Heating technology, which warms the battery pack's internal cells in cold temperatures.

- Allows for Cold Weather Charging
- Low Continuous Power Draw When Enabled
- Integrated Heating Technology Activated at Internal Temperature of ~35°F (*When Heat Function is Enabled)
- Operating Temperature Range of -4°F to 135°F



BB5024 Technical Specifications

Electrical Specifications

Voltage	24V
Capacity	50Ah
Operating Temperature	-4˚F to 135˚F (-20˚C to 57.2˚C)
Efficiency	99%
Self Discharge	2-3% per Month
Maximum Series Voltage	48V
Cycle	3K-5K
Built-in BMS	Internal
Resistance	25 mΩ
Usable Depth of Discharge	100%

Discharging Specifications

Max Discharge Current	50A
Peak Discharge Current	200A for 30 Seconds
Surge for Loads Over 500A	.5 Seconds
Recommended Low Voltage Disconnect	21V
BMS Discharge Voltage Cut-Off	20V
Reconnect Voltage	20V
Short Circuit Protection	Yes

Recognized Specifications

Battery Cell Certifications	UL 1642
Battery Pack Certifications	CE
Shipping Class	UN3480, Class 9

Temperature Specifications

Discharge Temperature	-4°F to 135°F (-20°C to 57.2°C)
Charge Temperature	25°F to 135°F
Storage Temperature	-10°F to 140°F (-23°C to 60°C)
BMS High Temperature Cut-Off	>135°F
BMS Reconnect Temperature	<135°F

Charging Specifications

Recommended Charge Current	.5c
Max Charge Current	25A
Absorption Voltage	28.4V to 29.2V
Float Voltage	26.8V to 27.6V
Equalization Voltage (if applicable)	28.8V
Absorption Time	15 Minutes per 50Ah Battery Bank
BMS Charge Current Cut-Off	.5C Recommended
Recharge/Rebulk Voltage	26.6V
BMS Cell Balancing Voltage Range	28.4V to 29.2V
High BMS Voltage Protection	29.4VDC
Temperature Compensation	No/Disable

Mechanical Specifications

Dimensions	12.76"L X 6.86"W X 8.95"H
Weight	31 lbs.
Terminal Type	.25" Brass
Terminal Hole	3/8" Hole and 3/8" or 5/16" Hardware is Suggested
Terminal Torque	9 to 11 Ft-lb.
Case Material	ABS Fire Rated
Cell Type	Cylindrical
Cell Chemistry	$LiFePO_4$ (Lithium Iron-Phosphate)
Sealed and Water Resistant Case	Non-Submersible

Integrated Heating Specifications (Model BB5024H Only)

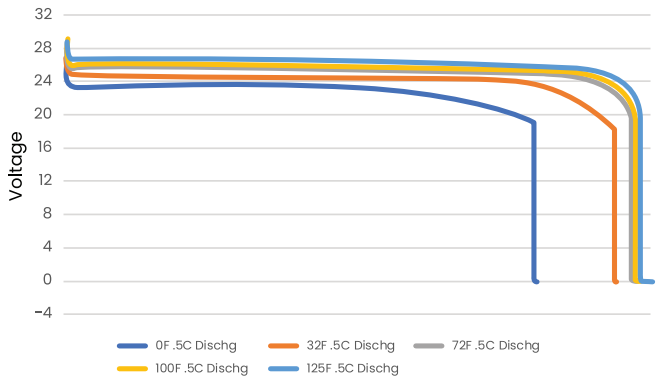
Heat	Integrated Heating Technology
Heat Enable Terminal	Female M4 Thread
Continuous Power Draw (When Enabled)	28W

*Note: The storage temperature range is -10°F to 140°F (-23°C to 60°C). We recommend bringing the batteries to a 100% charge and then disconnecting them completely for storage. After six months in storage, your batteries will remain 75 to 80% charged.

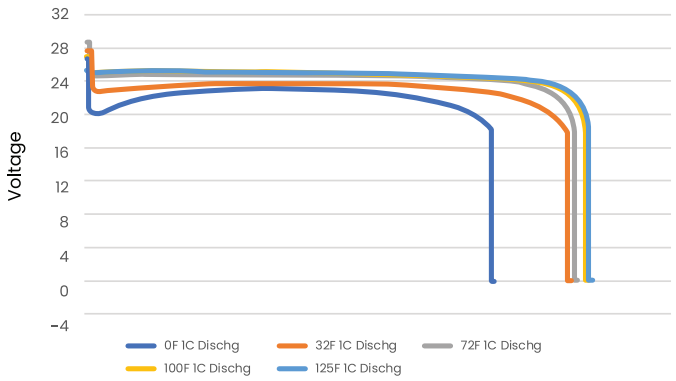
Storing batteries in subzero weather (-15°F or more) has the potential to crack the ABS plastic and more importantly could cause a faster loss of capacity, in some cases drastically more than the typical 2 to 4% per month loss.

Performed Operation Data

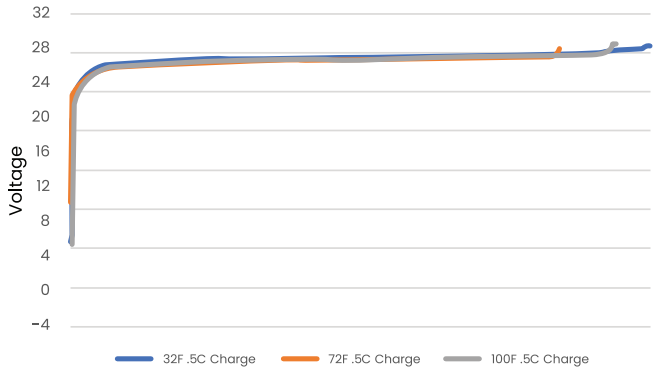
.5C Discharge with Temperature Variations



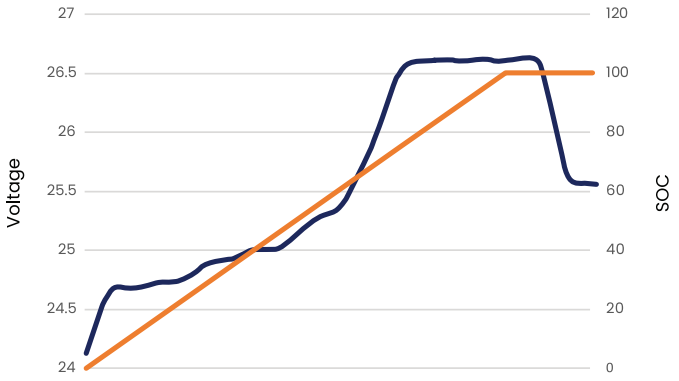
1C Discharge Voltage with Temperature Variations



.5C State of Charge with Temperature Variations

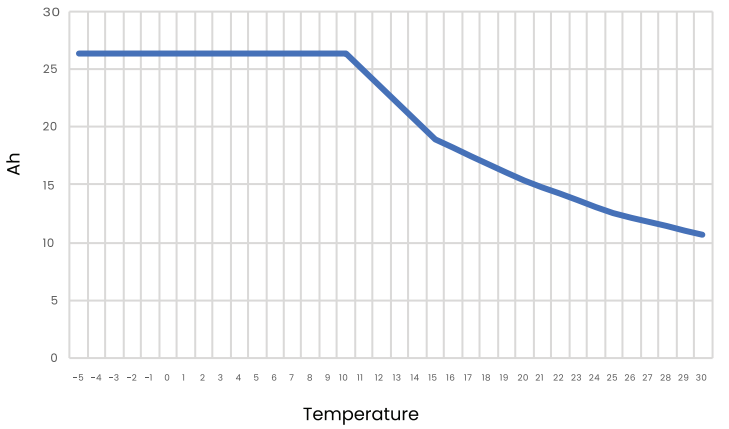


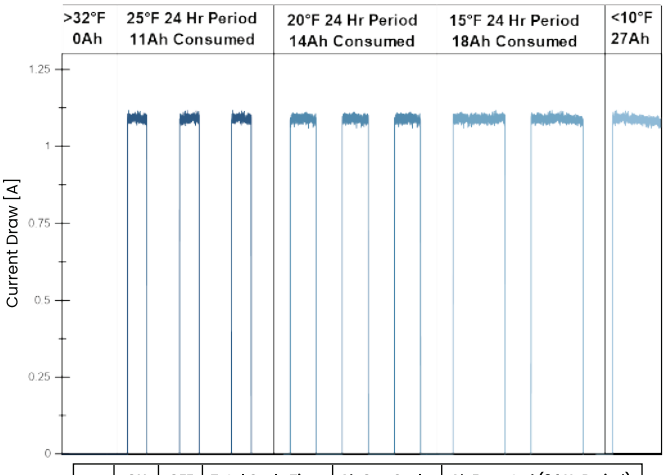
Standard Charge Curve with 3 Stage Charger



Performed Operation Data for Heated Batteries

BB5024H Integrated Heating Draw Expected in a 24Hr Period





	ON	OFF	Total Cycle Time	Ah One Cycle	Ah Expected (24 Hr Period)
15F	7.97	3.77	11.73	8.81	18.02
20F	4.66	4.21	8.86	5.15	5.15
25F	3.76	5.27	9.33	4.16	10.71