RICH SOLAR | ALPHA™ Series Batteries

ALPHA 1 / LITE / PRO
LiFePO$_4$ BATTERIES 12.8V 100Ah



Safety & Structural Reliability

Automotive-grade LiFePO$_4$ cells ensure long-term stability and thermal safety.

Advanced BMS ensures comprehensive multi-level electrical and thermal protection.

UL94 V-0 flame-retardant housing and IP65 waterproof construction for enhanced durability.

All-Weather Operation & Cold Protection

Wide operating range: Charge 32–131°F | Discharge -4–140°F.

Built-in low-temperature charging protection with automatic recovery for safe winter operation.

Internal Heating System (Standard on ALPHA 1 & PRO; not available on LITE): Activates below 41°F and stops above 50°F to support safe charging in freezing climates.

Long Lifespan & Energy Efficiency

Industry-leading cycle life: LITE 4,000+ (80% DoD) | ALPHA 1 5,000+ (80% DoD) | PRO 7,000+ (70% DoD).

Delivers high usable energy output (1,280Wh) with ≤5% monthly self-discharge.

Maintenance-free LiFePO$_4$ chemistry provides clean, stable, and efficient power output.

Smart Integration & Expandability

Bluetooth Monitoring (Standard on ALPHA 1 & PRO; not available on LITE): Track SOC, voltage, current, temperature, cycle count, and system status via the RICH SOLAR App.

Supports up to 4 units in parallel (4P) for RVs, marine, off-grid cabins, and backup power systems, making the ALPHA 1 Series ideal for everyday power needs.

Long-term warranty: LITE 5-year | ALPHA 1 5-year | PRO 10-year.

Intertek FC CE UN38.3 MSDS

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SPECIFICATIONS

BATTERY

Model	RS-B121	RS-B121S	RS-B121SP
Product Name	ALPHA 1 LITE	ALPHA 1	ALPHA 1 PRO
Nominal Voltage	12.8V	12.8V	12.8V
Rated Capacity	100Ah	100Ah	100Ah
Nominal Energy	1,280Wh	1,280Wh	1,280Wh
Cell Chemistry	$LiFePO_4$	$LiFePO_4$	$LiFePO_4$
Cycle Life	4,000+ (80% DoD)	5,000+ (80% DoD)	7,000+ (70% DoD)
Parallel Expansion	Up to 4 units (4P)	Up to 4 units (4P)	Up to 4 units (4P)
Bluetooth	No	Yes	Yes
Internal Heating	No	Yes (100W)	Yes (100W)
Certifications	UN 38.3, MSDS	UN 38.3, MSDS	UL 1973, FCC, UN 38.3, MSDS

ELECTRICAL PERFORMANCE & CHARGING

Charging Method	CC/CV
Max Charge Voltage	14.4V
Recommended Charge Voltage	14.2V
Discharging Cutoff Voltage	10.0V
Recommended Charge Current	50A (0.5C)
Max Charge Current	100A
Max Continuous Discharge Current	100A
Max Output Power	1,280W

ENVIRONMENTAL

Charge Temperature	32°F to 131°F
Discharge Temperature	-4°F to 140°F
Storage Temperature	-22°F to 131°F (<1 Month) / 14°F to 113°F (>3 Months), ≤90% RH
Low-Temperature Charging Protection Auto Recovery	Yes
Ingress Protection	IP65

MECHANICAL

Terminals	M8
Housing Material	UL94 V-0 flame-retardant plastic
Dimensions (L × W × H)	10.2 × 6.6 × 8.3 in
Net Weight	24.0 lbs

MODEL COMPARISON SUMMARY

Model	ALPHA 1 LITE	ALPHA 1	ALPHA 1 PRO
Bluetooth	×	√	√
Internal Heating	×	√	√
Cycle Life	4,000+ (80% DoD)	5,000+ (80% DoD)	7,000+ (70% DoD)
Warranty	5-Year	5-Year	10-Year
Certifications	UN 38.3, MSDS	UN 38.3, MSDS	UL 1973, FCC, UN 38.3, MSDS

BMS CAPABILITIES (COMMON ACROSS ALL MODELS)

Voltage Protection	Over-Charge Protection	Yes
	Over-Discharge Protection	Yes
Current Protection	Charging Over-Current Protection	Yes
	Discharging Over-Current Protection	Yes
Circuit Protection	Short-Circuit Protection	Yes
Temperature Protection	High/Low Temperature Charging Protection	Yes
	High/Low Temperature Discharging Protection	Yes
	Internal FET Over-Temperature Protection	Yes
Cell Management	Passive Cell Balancing	Yes

SPECIFICATIONS INCLUDED IN THIS DATASHEET ARE SUBJECT TO CHANGE WITHOUT NOTICE.