

RELi³ON[®]

NAVICO
GROUP

Explore the *POWER* of Li³thium



Challenge Your Li³mits[®]



OUR MISSION:
To power the world's transition to
Lithium energy storage, ethically.

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A BRAND WITHIN NAVICO GROUP BY BRUNSWICK

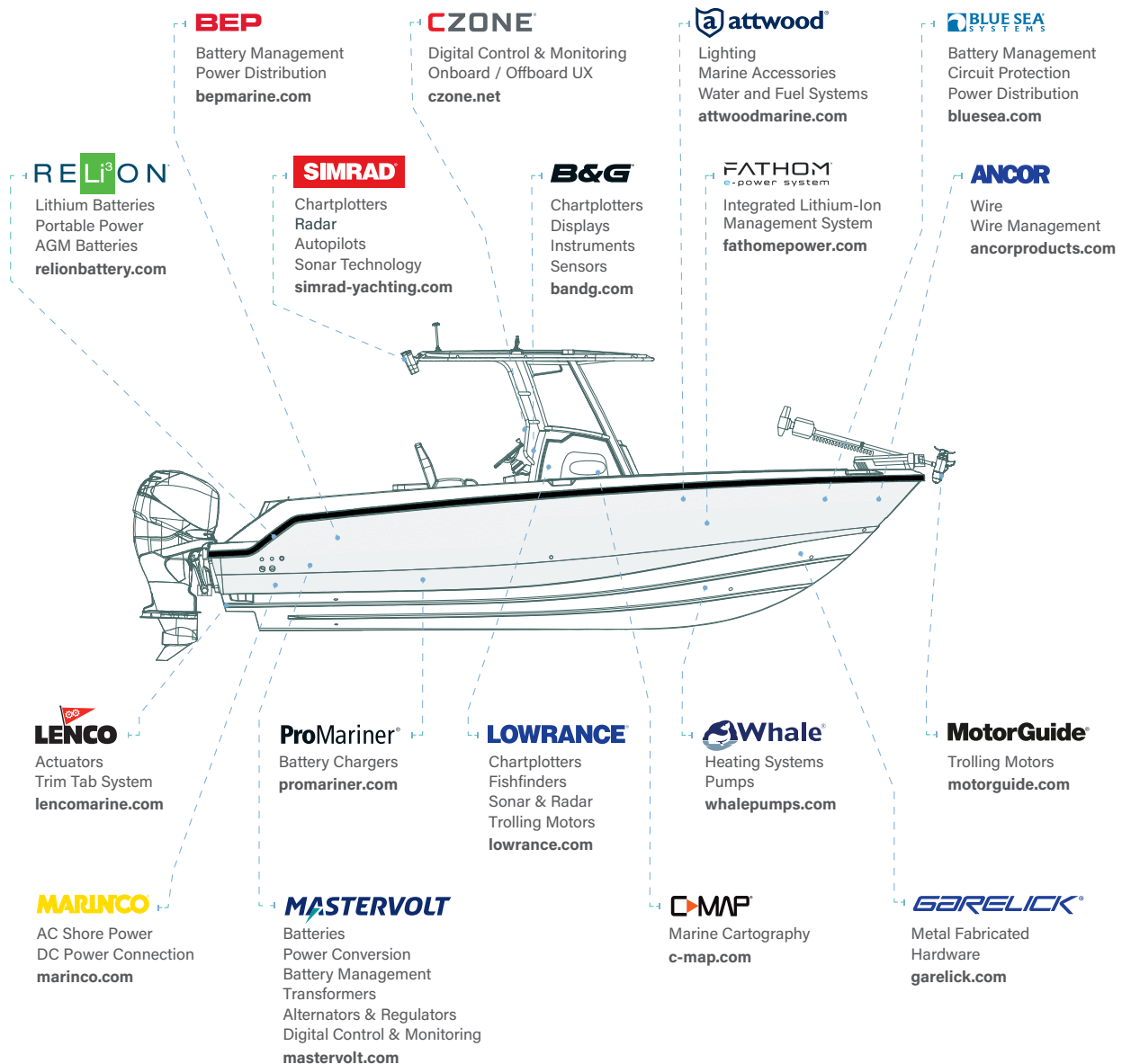
NAVICO
GROUP

Navico Group is the world's leading supplier of integrated systems and products to industries ranging from marine to recreational vehicles. We bring together the best brands, products and people to create groundbreaking innovations that reinvent the consumer experience. Our broad portfolio of the industry's leading brands in power management, digital control & monitoring, networked devices, and marine electronics are distributed globally to a diverse aftermarket and OEM customer base. Navico Group is driven, every day, to be the world's most trusted partner to the marine and mobile industries, and beyond.



THE MOST TRUSTED BRANDS IN THE INDUSTRY

Through the experience and knowledge of experts from industry-leading brands, we are able to provide unmatched solutions and service to our customers.



WHAT MAKES RELiON DIFFERENT:

FOUNDER'S VISION

RELiON was founded in 2014 with a goal of being the most sought after & admired lithium battery company in the world. Our motto, Challenge Your Limits, reflects our philosophy to push yourself to greatness. We, along with our customers, live and breathe adventure and relish the opportunities that our planet provides.

SELECTION

Today the industry demands innovation that delivers unmatched power, performance and life. RELiON batteries accomplish this due to our focus on product development. We have one of the largest LiFePO4 product offerings available with 12V, 24V, 36V and 48V options in a variety of common BCI sizes including Group 24, 27, 31 and 8D for easy drop-in replacement.

WORLDWIDE PRESENCE

We are a global team of battery experts who work together to create the best lithium batteries for a variety of applications. With representatives in each region, sharing information and expertise in real time, we can improve products, innovate together and create consistency among each of our product lines.



ENGINEERING EXPERTISE

Because lithium batteries contain much more sophisticated technology than their lead-acid counterparts, designing, engineering, testing, and manufacturing high quality lithium batteries requires niche and highly technical expertise, skills, and experience. RELiON's engineering and manufacturing teams have honed their lithium battery expertise over the past several decades and have a proven track record to stand behind.

INDUSTRY STANDARDS

Lithium batteries must have safeguards built in to withstand the physical and environmental hazards encountered during shipping and throughout their lifetimes. Our commitment to safety and environmental sustainability for all our products is why we spend the extra time and expense to certify our batteries to the highest standards, including UL, UKCA, CE, IEC and UN38.3.

QUALITY

Built into every RELiON lithium battery is a premium reputation we've worked years to develop. By developing innovative, efficient lithium power solutions that deliver on our promise of reliability, performance, and freedom, we know we can achieve our customer's long-term energy goals—while making the planet a better place.



PRODUCTS FOR ANY APPLICATION

From drop-in-ready products to custom solutions, RELiON lithium iron phosphate batteries are one of the most durable and reliable energy sources on the market. And, they're perfect for powering a wide variety of applications such as golf cars, sailboats, commercial equipment, and more.



CAMPING



GOLF/UTILITY



INDUSTRIAL EQUIPMENT



MARINE



OUTDOOR EQUIPMENT



RECREATIONAL VEHICLES



RENEWABLE ENERGY



COMMERCIAL VEHICLES



"Anyone that needs to save weight, space should own RELiON Lithium batteries. RELiON Lithium power output is unmatched when comparing to wet and AGM batteries. As a backwater guide saving weight and having unlimited power for my trolling motor makes my day easier. I will never go back to lead-based batteries again."

- CAPT. LEON DANA, FISHING GUIDE

LEGACY SERIES

RELiON's Legacy Series is the perfect combination of size and capacity for many applications such as RV, marine, solar energy systems and more. Legacy Series batteries come in a variety of standard BCI sizes including Group 24, 27, 31 and 8D for easy drop-in replacement.



"The RELiON batteries have a solid warranty and a stellar battery management system (BMS). Especially compared to lead acid batteries, which I've used in the past, the RELiON batteries are much lighter, which is crucial given van weight limitations. In addition to being very lightweight, they also come in a range of different, highly compact, sizes. They also use the safest battery chemistry: lithium iron phosphate, which is key if you're sleeping next to them."

- JARROD TOCCI



LEGACY SERIES PRODUCTS

PART NUMBER	BCI GROUP SIZE	CAPACITY @ 25°C (77°F)		ENERGY (WH)	CURRENT CAPABILITY		MAX MODULES IN SERIES	DIMENSIONS INCHES (MM)			WEIGHT LBS (KG)	TERMINAL TYPE	CASE MATERIAL
		AH	MIN @ 25A		CONTINUOUS (A)	PEAK (A)		LENGTH	WIDTH	HEIGHT			
12V - STANDARD													
RB5	NA	5	NA	64	5	10	1	5.9 (151)	2.6 (65)	3.9 (99)	2.0 (0.9)	F2	ABS
RB12	NA	12	NA	128	10	20	1	5.9 (151)	3.9 (98)	4.0 (101)	3.6 (1.65)	F2	ABS
RB10-PC	NA	10	NA	128	50	70	6	7.1 (181)	3.0 (76)	6.6 (168)	4.4 (2)	M6	ABS
RB10PVC	NA	10	NA	128	10	20	1	10.3 (262)	1.4 (36)	3.0 (77)	4.0 (1.8)	Wire Leads	PVC
RB20	NA	20	NA	256	20	40	3	7.1 (181)	3.0 (76)	6.7 (169)	5.6 (2.55)	M6	ABS
RB35	U1	35	84	448	35	70	3	7.7 (195)	5.2 (131)	6.7 (171)	9.9 (4.5)	M8	ABS
RB40	NA	40	96	512	40	80	4	7.8 (197)	6.5 (166)	6.8 (173)	11.9 (5.4)	M8	ABS
RB52	NA	52	120	640	50	100	4	7.8 (197)	6.5 (166)	6.8 (173)	13.7 (6.2)	M8	ABS
RB60	24	60	144	768	60	140	3	10.2 (260)	6.6 (168)	8.2 (210)	15.9 (7.20)	M8	ABS
RB75	24	75	180	960	75	150	4	10.2 (260)	6.6 (168)	8.2 (210)	23.6 (10.7)	M8	ABS
RB80	27	80	192	1024	80	160	4	12.0 (305)	6.6 (168)	8.2 (210)	24.9 (11.3)	M8	ABS
RB80-D	DIN	80	192	1024	80	160	4	13.2 (335)	6.9 (174)	7.5 (191)	24.9 (11.3)	M8	ABS
RB100	31	100	240	1280	100	200	6	13.0 (329)	6.8 (172)	8.4 (214)	26.4 (11.98)	M8	ABS
RB100-D	DIN	100	240	1280	100	200	4	13.2 (335)	6.9 (174)	7.5 (191)	30.2 (13.7)	M8	ABS
RB170	NA	170	408	2176	200	250	1	19.5 (495)	10.6 (268)	7.9 (201.5)	66.1 (30)	M8	STEEL
RB200	8D	200	480	2560	100	200	6	20.6 (522)	10.5 (267)	8.7 (220)	61.1 (27.7)	M8	ABS
RB300	8D	300	720	3840	100	200	6	20.6 (522)	10.5 (267)	8.7 (220)	75.8 (34.36)	M8	ABS
10-YEAR WARRANTY													

PART NUMBER	BCI GROUP SIZE	CAPACITY @ 25°C (77°F)		ENERGY (WH)	CURRENT CAPABILITY		MAX MODULES IN SERIES	DIMENSIONS INCHES (MM)			WEIGHT LBS (KG)	TERMINAL TYPE	CASE MATERIAL
		AH	MIN @ 25A		CONTINUOUS (A)	PEAK (A)		LENGTH	WIDTH	HEIGHT			
24V - STANDARD													
RB24V20	U1	20	48	512	30	60	1	7.7 (195)	5.2 (131)	6.7 (171)	11.9 (5.4)	M8	ABS
RB24V40	24	40	96	1024	30	70	1	10.2 (260)	6.6 (168)	8.2 (210)	28.7 (13)	M8	ABS
RB24V52	31	52	120	1280	50	100	1	13.0 (329)	6.8 (172)	8.4 (214)	29.1 (13.2)	M8	ABS
RB24V100	8D	100	240	2560	100	200	1	20.6 (522)	10.5 (267)	8.7 (220)	61.1 (27.7)	M8	ABS
36V - STANDARD													
RB36V40	31	40	96	1536	50	100	1	13.0 (329)	6.8 (172)	8.4 (214)	30.9 (14)	M8	ABS
48V - STANDARD													
RB48V25	24	25	NA	1280	20	25	1	10.2 (260)	6.6 (168)	8.2 (210)	27.6 (12.5)	M8	ABS
RB48V100	NA	100	240	5120	200	250	1	32.8 (832.4)	11.2 (285)	10 (255)	62 (136.7)	M10	STEEL
RB48V200	NA	200	480	10240	200	250	1	34.3 (867)	14.2 (358)	15.6 (393)	302 (137)	M10	STEEL
RB48V300	NA	300	720	15360	200	250	1	29.1 (740)	19.6 (497)	15.7 (398)	388 (176)	M10	STEEL
12V - X-SERIES (HIGH CONTINUOUS AND PEAK PERFORMANCE)													
RB20-X	NA	20	48	256	50	90	3	7.1 (181)	3.0 (76)	6.7 (169)	5.6 (2.55)	M6	ABS
RB35-X	U1	35	84	448	70	100	1	7.7 (195)	5.2 (131)	6.7 (171)	11 (4.8)	M8	ABS
12V - GOLF TROLLEY													
RBGT-16	NA	16	NA	205	16	25	1	6.6 (168)	5.0 (127)	2.9 (74)	5 (2.1)	ANDERSON	ABS
RBGT-19	NA	19	NA	243	16	25	1	7.1 (180)	3.0 (76)	6.5 (165)	6 (2.7)	ANDERSON	ABS
RBGT-22	NA	22	NA	282	16	25	1	6.6 (168)	5.0 (127)	4.0 (102)	6 (2.9)	ANDERSON	ABS
10-YEAR WARRANTY													

HIGH PERFORMANCE SERIES

A High Performance Series battery delivers a burst of high current for a short period of time making it the perfect battery for starting up a boat, generator motor or an air conditioning compressor. With these dynamic capabilities, a single HP battery can be used for starting then double as a house needs power source if necessary. Our High Performance Series batteries are the perfect compromise between the unique demands of starting service and deep cycling, low amp draw service.



"For me, the RB100-HP runs so many accessories off the cranking battery that I need to have multiple terminals to plug into. This is a unique trait of the RELiON battery because all other batteries have just one terminal to plug a cable into, but the RB100-HP has three terminals on each battery and is always getting a solid connection from the cable to the battery lead. This means less amperage is unnecessarily lost and less corrosion is likely to occur. All of this helps to free up my time to focus on fishing and improving during my practices and competitions."

- SKEET REESE, BASSMASTER PRO FISHERMAN

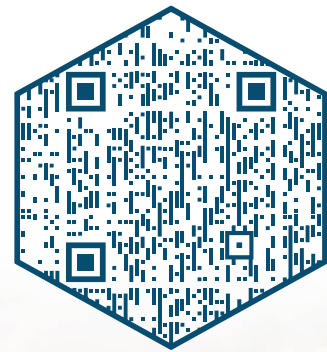


HIGH PERFORMANCE SERIES PRODUCTS

PART NUMBER	BCI GROUP SIZE	CAPACITY @ 25°C (77°F)		ENERGY (WH)	CURRENT CAPABILITY		DIMENSIONS INCHES (MM)			WEIGHT LBS (KG)	TERMINAL TYPE	CASE MATERIAL
		AH	MIN @ 25A		CONTINUOUS (A)	PEAK (A)	LENGTH	WIDTH	HEIGHT			
HIGH PERFORMANCE SERIES												
RB100-HP	31	100	240	1280	100	800	13.0 (329)	6.8 (172)	8.4 (214)	29.8 (13.5)	M8	ABS
RB100-DHP	DIN	100	240	1280	100	800	13.2 (335)	6.9 (174)	7.5 (191)	30.2 (13.7)	M8	ABS
RB300-HP	8D	300	720	3840	100	800	20.6 (522)	10.5 (267)	8.7 (220)	82.7 (37.5)	M8	ABS
10-YEAR WARRANTY												

MERCURY OUTBOARDS APPROVED FOR USE WITH SOME LITHIUM-ION BATTERIES

Only outboards listed here are approved for use with lithium-ion cranking batteries that meet the requirements in the table below. All other Mercury outboards, MerCruiser® engines and Mercury Diesel engines are not approved for use with lithium-ion cranking batteries.



Models Covered	Serial Number
2.1L 75-115hp FourStroke, Pro XS® and SeaPro™	All
3.0L 150hp FourStroke, Pro XS and SeaPro	All
4.6L V8 and 3.4L V6 175-300hp FourStroke, Pro XS, SeaPro and Verado®	All
2.6L L6 200-400hp Pro and Verado	All
7.6L V12 500-600hp SeaPro and Verado	All

NEW

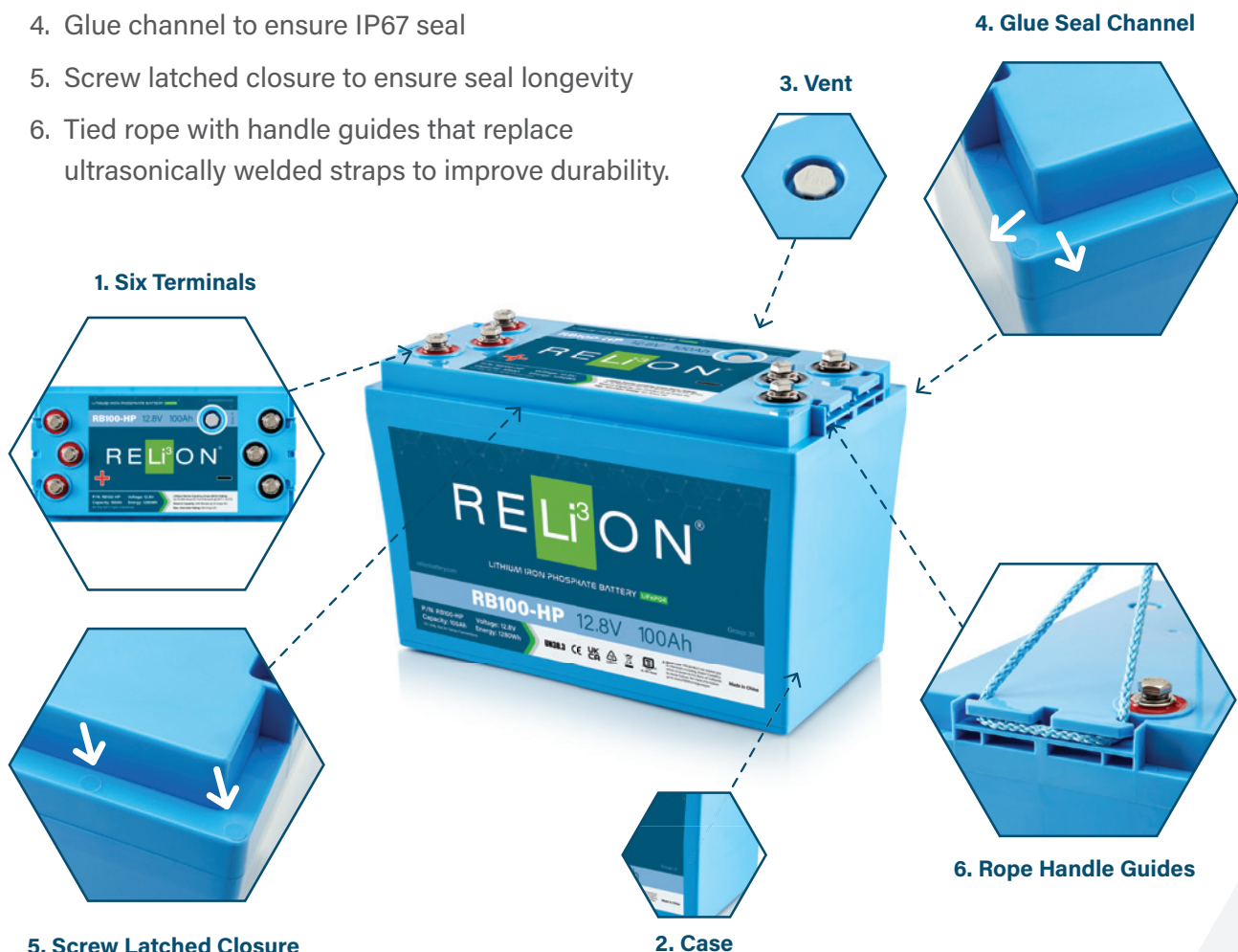
RB100-HP PRODUCT ENHANCEMENTS



A Group 31 12V, 100Ah deep cycle Lithium-ion battery built for starting and cycling applications.

The first Mercury Marine approved lithium-ion starting battery now with these product enhancements:

1. The RB100-HP now includes six battery terminals versus the two on standard batteries, offering users more flexibility when connecting electronics to the battery.
2. Flame retardant plastic case rated to UL94-V0
3. Atmospheric vent added to the top of the case that equalizes pressure while preventing contaminants from entering the battery
4. Glue channel to ensure IP67 seal
5. Screw latched closure to ensure seal longevity
6. Tied rope with handle guides that replace ultrasonically welded straps to improve durability.



LOW TEMPERATURE SERIES

RELiON's Low Temperature Series are cold weather performance batteries that can safely charge in temperatures down to -4°F. With a robust system that draws power from the charger itself, it does not require any additional components to function. LT Series batteries are ideal for remote monitoring, off-grid and RV enthusiasts, and more.



"As a full-time geek adventurer, my power system is critical. These batteries take a charge quickly and have an amazing amount of capacity as compared to my previous VLRA Gel Hybrids. My new RELiON setup is 200Ah and is charged by 200 Watts of solar. They're fully charged in no time. The ability to charge these "LT" batteries in cold temps was a huge selling point for me. I don't have to be constantly worrying about my usage or State of Charge."

"These are the only lithium batteries made for those of us who explore into truly wild areas that have unpredictable weather. All of your competition requires a significant amount of work to ensure the battery bank will stay warm."

- KEVIN J.



LOW TEMPERATURE SERIES PRODUCTS

PART NUMBER	BCI GROUP SIZE	CAPACITY @ 25°C (77°F)		ENERGY (WH)	CURRENT CAPABILITY		DIMENSIONS INCHES (MM)			WEIGHT LBS (KG)	TERMINAL TYPE	CASE MATERIAL
		AH	MIN @ 25A		CONTINUOUS (A)	PEAK (A)	LENGTH	WIDTH	HEIGHT			
LOW TEMPERTURE SERIES												
RB20-LT	NA	20	NA	256	20	40	7.1 (181)	3.0 (76)	6.7 (169)	6.6 (3)	M6	ABS
RB52-LT	NA	52	120	640	50	100	7.8 (197)	6.5 (166)	6.8 (173)	14.1 (6.38)	M8	ABS
RB100-LT	31	100	240	1280	100	200	13.0 (329)	6.8 (172)	8.4 (214)	27.9 (12.64)	M8	ABS
RB300-LT	8D	300	720	3840	100	200	20.6 (522)	10.5 (267)	8.7 (220)	76.1 (34.54)	M8	ABS
10-YEAR WARRANTY												

**LT models also available within the InSight Series line of batteries.*



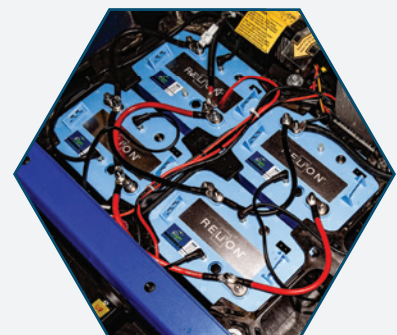
INSIGHT SERIES®

InSight Series batteries come in GC2/GC8 size with 12, 24 and 48V options used in golf cars, RVs, marine, material handling, floor care equipment and more. InSight batteries feature all of the benefits of lithium batteries – longer life, no maintenance and faster charging, with even more intelligent built-in features like SuperSmart BMS, intelligent cooling and a scalable system design.



"After my first couple month's use of the RELiON InSight Series lithium batteries, I have found that they perform perfectly. No matter how hard the cart is pushed, they never even get warm to the touch. They charge back to 100% and 120-amp hours in just a few hours. Even after driving around and playing 36 holes on my very hilly courses, the remaining charge is still in the mid 60% range."

- JEFF DAUM



THE FEATURES THAT MAKE INSIGHT SUPERIOR

From its superior battery design to its one-of-a-kind BMS, InSight batteries offer exclusive advantages you won't find in competitive products, giving you an exceptional return on investment for years to come.



EASY INSTALLATION

InSight batteries come in BCI group size GC2/GC8 allowing for easy installation without modifying trays or battery compartments.



SCALABLE SYSTEM

InSight batteries offer freedom and flexibility by utilizing parallel connections, so you can scale your system to provide increased power and energy as needed.



INTELLIGENT COOLING

InSight Series® uses a carefully engineered cooling management system to quickly remove heat from inside the battery during conditions of high discharge and recharge currents. This prevents overheating of critical components and extends the life of the battery.



SUPERSMART BMS™

The robust battery management system features a combined total of 48 charge and discharge MOSFETs that control current flow in and out of the battery, along with multilayer protective devices that prevent over/under voltage, current and temperature conditions. The multilayer protection allows InSight batteries to pass stringent UL safety standards.



ROBUST COMMUNICATION

CANbus connections allow batteries to communicate real-time operating statistics like the voltage, current, state of charge and state of health, making InSight batteries more user friendly. Plus, all batteries feature a sleep and pulse recovery operation mode to conserve power.

INSIGHT SERIES®

DESIGN FEATURES



INSIGHT SERIES® PRODUCTS

PART NUMBER	BCI GROUP SIZE	CAPACITY @ 25°C (77°F)		ENERGY (KWH)	CURRENT CAPABILITY		DIMENSIONS INCHES (MM)			WEIGHT LBS (KG)	TERMINAL TYPE	CASE MATERIAL
		AH	MIN @ 25A		CONTINUOUS (A)	PEAK (A)	LENGTH	WIDTH	HEIGHT			
INSIGHT SERIES												
12V120-GC2	GC2	120	288	1.536	160	400	10.2 (260)	7.1 (180)	10.9 (276)	34.4 (15.6)	M8	ABS
12V120-GC2-LT	GC2	120	288	1.536	160	400	10.2 (260)	7.1 (180)	10.9 (276)	34.4 (15.6)	M8	ABS
24V060-GC2	GC2	60	144	1.536	100	240	10.2 (260)	7.1 (180)	10.9 (276)	34.4 (15.6)	M8	ABS
24V060-GC2-LT	GC2	60	144	1.536	100	240	10.2 (260)	7.1 (180)	10.9 (276)	34.4 (15.6)	M8	ABS
48V030-GC2	GC2	30	72	1.536	100	200	10.2 (260)	7.1 (180)	10.9 (276)	34.4 (15.6)	M8	ABS
48V030-GC2-LT	GC2	30	72	1.536	100	200	10.2 (260)	7.1 (180)	10.9 (276)	34.4 (15.6)	M8	ABS
10-YEAR WARRANTY												

INDUSTRY CERTIFICATIONS

UL2580 (Cell)

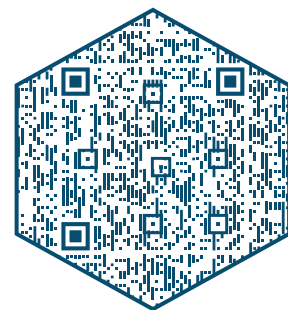
IEC 62133-2:2017 (Battery Pack)

UL2271 (Battery Pack)

UN38.3 (Battery Pack)

CE (Battery Pack)

UN38.3 **CE** **RA**®



INSIGHT SERIES® PLUG-N-PLAY ACCESSORIES

INSIGHT FUEL GAUGE

Real-Time Data on Your Battery Bank

The InSight Fuel Gauge is a low current draw (29 milliamps), constantly backlit battery gauge that will show the state of charge (SOC) for up to 10 InSight Batteries connected in parallel.

Over time, we've learned that voltage-based gauges are not accurate when measuring lithium-based chemistry. That is why we developed a fuel gauge that receives real-time current data from all parallel connected battery CANs and calculates the remaining amp hours as a percentage from 0-100%.



INSIGHT REMOTE BUTTON

The InSight Series Remote Button gives you the convenience to power on and off your InSight batteries without having to access the battery compartment. This high-quality plug-and-play accessory saves you time and energy.

INSIGHT BATTERY SPACER

InSight Battery Spacers are used to fill the empty battery slots when installing our InSight batteries. By using our Battery Spacers to fill the empty spots, you're able to use the existing battery hold-down that comes in your vehicle or equipment. This makes installation easier while ensuring your batteries are properly held down.



CUSTOM SOLUTIONS

Batteries are not one size fits all and at RELiON, we want to be able to help you come up with a custom solution that is the right battery for your needs. Stock batteries may not fit, or more energy or power is required to keep your applications running at top capacity. With our team of experienced engineers, we are able to design and manufacture a custom solution that works for you by utilizing design inputs to ensure proper chemistry, system design, safety and communications.



"We see the advantages of lithium iron phosphate motive power and the high-quality products RELiON produces. We look forward to helping our customers increase uptime and lower total cost of ownership of their material handling equipment through the availability of RELiON products in our aftersales program."

- CHAD SHIRLEY, AFTERSALES PRODUCT MANAGER



PORTABLE PRODUCTS

From family camping trips to off-road expeditions, our portable power solutions keep your gear charged so you can explore with ease. RELiON offers reliable lithium power products that you can take with you anywhere.

*EU & US
Versions
available



"Over the last two months, I've driven nearly 7,000 miles visiting four national parks and 10 states. I couldn't have done it without my wonder device, the portable RELiON Outlaw 1072S. To prepare for my road trip, I converted my car into a mini-camper. To access electricity, I use the Outlaw. Not only does the Outlaw provide ample power for several days, but it comes with myriad ports and adapters. I attached my Outlaw to a 160-watt solar panel on my roof rack and it charges as I drive."

- PAUL C.



Power Without **Li³**imits



The Outlaw® 1072S is a portable, renewable power source that puts lithium power right at the tips of your fingers. At only 32 lbs, the Outlaw is versatile enough to be used for a variety of applications. Take it with you on camping trips, use it as an alternative power source at home or have it ready in case of an emergency power outage. It can be used to charge a number of appliances and electronics, so you have safe, long-lasting power on-hand without the noise and fumes of a gas generator.



TAILGATING



OFF-GRID



BACKUP POWER



EVENTS



BOATING



CAMPING



HUNTING



PREPPING



ICE FISHING

POWER WHAT YOU NEED WHEN YOU NEED IT!



34 LAPTOP
RECHARGES



255 SMARTPHONE
RECHARGES



200+ HOURS



1 HOUR



12 HOURS



POV CAMERA



TV (42" LED)



PORTABLE
SHOWER



SATELLITE
DISH



PORTABLE
FAN



DSLR CAMERA



ELECTRIC
SKILLET



PORTABLE
FRIDGE



WIFI ROUTER



PELLET GRILL



PORTABLE
SPEAKERS



PRODUCTION
EQUIPMENT



PERSONAL
HEATER



POWER TOOLS



ELECTRIC
BLANKET

**Recharging and runtimes will vary depending on usage, power consumption rating of actual used devices and the number of devices connected to the Outlaw at one time.*

THE OUTLAW ADVANTAGE



LiFePO4 TECHNOLOGY

Developed with safe and long lasting lithium iron phosphate (LiFePO4) chemistry.



SAFE AND WORRY-FREE

Pure sine wave inverter to power sensitive devices and internal battery management system for layered protection.



UP TO 7X LONGER LIFE*

Long lasting, daily use with over 3,500 lifecycles.



ENVIRONMENTALLY FRIENDLY

Zero noise or carbon emissions during use. Recharge from the sun by connecting a compatible solar panel.



EASY TO TRANSPORT

Ergonomically designed carrying handle and lightweight for portability.



Features

1000 Watts | 921 Watt Hours
72 Amp Hours
Pure Sine Wave Inverter
Solar panel compatible 15-25V
160W (Max)
Elevated Vents for Internal Cooling
Internal Battery Management System



**When compared to other lithium options on the market.*

TECH INFORMATION

Lithium batteries are at the forefront of today's energy solutions. Are you ready to learn more about this evolving technology?

From lifespan, depth of discharge, lithium battery cold weather charging, to battery safety, there are a number of factors to consider when it comes to determining the best battery to power your next adventure. Let us share some of the most important facts to help simplify your decision to convert to RELiON lithium batteries.



Li³ THIUM ADVANTAGES

It's hard to beat a RELiON lithium iron phosphate (LiFePO₄) battery when they deliver everything you need to support life on the road, on the water or off the grid. Inherently safe and lightweight, you'll not only travel further more efficiently, you'll do it with less of a footprint and without sacrificing power, performance and reliability.

FEATURES AND BENEFITS



MORE USABLE CAPACITY

Lithium batteries allow you to use 100% of their capacity, regardless of the rate of discharge.



ECO-FRIENDLY AND SAFE

No gassing, no fumes and no pollution. Enjoy reliable power, while protecting the environment, using these non-hazardous batteries.



LONGER LIFE

RELiON lithium batteries provide up to 10 times longer life than lead-acid batteries, and they still provide 80% of rated capacity after 3,500 cycles.



LIGHTER WEIGHT

50-60% less weight than lead-acid equivalent.



PARTIAL STATE OF CHARGE TOLERANCE

Partial charging does not affect performance quality or battery life. A low self-discharge rate means worry-free storage so even occasional users can be assured of reliable performance.



MAINTENANCE-FREE

Plug, play and charge. No watering.



TEMPERATURE TOLERANCE

2.5X more efficient operation at low temperatures. Safely operational up to 149°F (65°C).



CONSTANT POWER

Full power available throughout discharge. Voltage does not drop like lead-acid.



INSTALLATION FLEXIBILITY

Can be installed upright or on its side.

LEAD IS DEAD

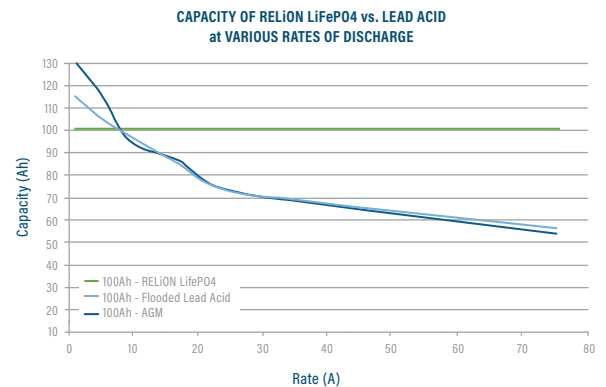
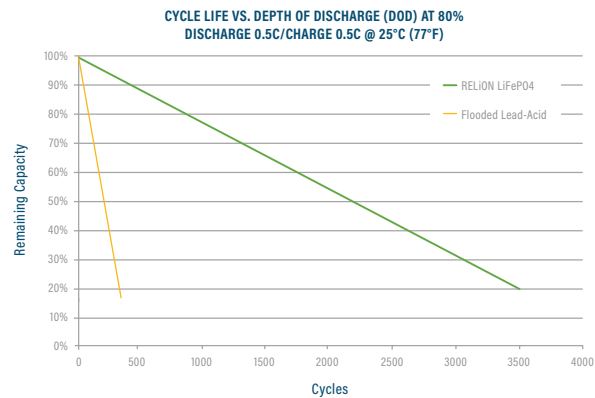
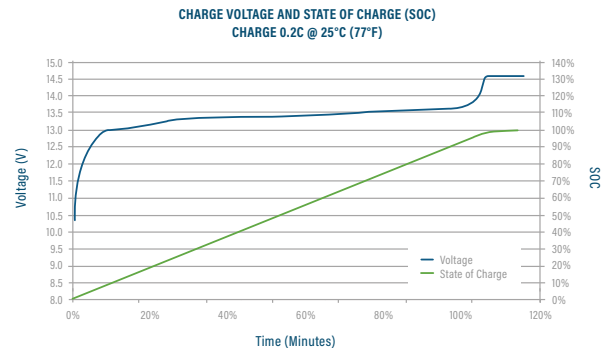
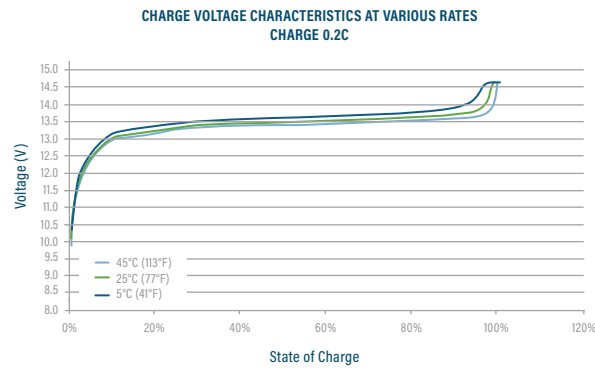
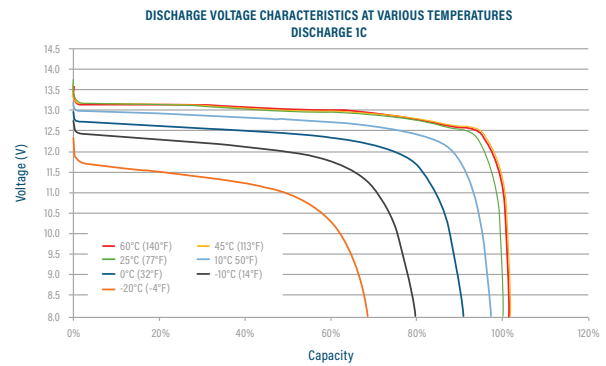
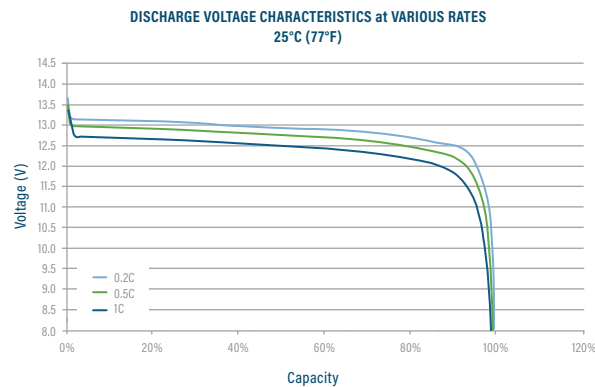
Check out the chart below to compare the performance advantages of advanced lithium technology versus traditional lead-acid batteries.

LITHIUM VS. LEAD-ACID COMPARISON

	FLOODED LEAD-ACID	AGM	RELiON LiFePO4
FEATURE			
Cycle Life	300 - 400 cycles	300 - 400 cycles	3,500
Max Usable Capacity	50%	50%	85%
Discharge Efficiency	50-90%	50-90%	99%
Maintenance	High	Medium	None
Charge Time	6 - 12 Hours	6 - 12 Hours	1 - 5 Hours
Partial Charging Capable	No	No	Yes
Weight Comparison	100%	100%	50%
Charge Efficiency	80%	85%	99%
Cost	\$	\$\$	\$\$\$



TYPICAL LITHIUM IRON PHOSPHATE CHARACTERISTICS












**Performance between applications and batteries may vary. All results should be independently verified by customer.*

WHY PAY MORE FOR LIFEPO4?

RELiON's long-lived LiFePO4 batteries reduce the inconvenience and expense of replacement and service calls, and they lend peace of mind to many users when it comes to demanding applications.

Our calculation compares the total cost of ownership of RELiON's RB100, a 12V 100Ah LiFePO4 battery, to three equivalent size (BCI Group 31) off-the-shelf lead-acid battery technologies. Using measured lifetimes taken from the manufacturer's published specifications of each battery, our analysis shows that the RB100 costs at least 51% less over life than even the most cost-effective lead-acid battery.

TOTAL COST OVER LIFE COMPARISON

COST FACTOR	FLA	AGM	GEL	RELiON
 PURCHASE COST	\$	\$ \$	\$ \$ +	\$ \$ \$ \$ \$
 INSTALLATION COST	\$	\$	\$	\$
 MAINTENANCE COST	\$ \$ \$	\$	\$...
 CHARGING COST	\$ \$ \$ \$ \$	\$ \$ \$ \$ \$	\$ \$ \$ \$ \$	\$ \$ \$ \$ \$
 REPLACEMENT COST	\$ \$ \$ \$ \$	\$ \$ \$ \$ \$ +	\$ \$ \$ \$ \$...
 REPLACEMENT LABOR	\$ \$ \$	\$ \$ \$ \$	\$ \$ \$...
 # OF REPLACEMENTS	■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	...
 CYCLE LIFE	↻ ↻ ↻	↻ ↻ ↻	↻ ↻ ↻	↻ ↻ ↻ ↻ ↻ +
 TOTAL COST OVER LIFE	\$ \$ \$ \$ \$	\$ \$ \$ \$ \$ \$ +	\$ \$ \$ \$ \$	\$ \$

FREQUENTLY ASKED QUESTIONS

I WANT TO UPGRADE TO LITHIUM IRON PHOSPHATE BATTERIES. WHAT DO I NEED TO KNOW?

As with any battery replacement, you need to consider your capacity, power, and size requirements, as well as making sure you have the right charger. Keep in mind, when upgrading from lead-acid to LiFePO₄, you may be able to downsize your battery (in some cases up to 50%) and keep the same runtime.

CAN YOU MOUNT THE BATTERIES IN ANY POSITION?

Yes, because there is no fluid inside of LiFePO₄ batteries. This gives you the flexibility to install the battery where it is best suited for your application.

WHAT'S THE DIFFERENCE BETWEEN PARALLEL AND SERIES CONNECTIONS?

Parallel connections involve connecting 2 or more batteries together to increase the capacity of the battery bank. In this case, the positive terminals are connected together and the negative terminals are connected together of all the batteries until you reach your desired capacity. Series connections involve connecting 2 or more batteries together to increase the voltage of the battery system. The positive of one battery is connected to the negative of another until the desired voltage is achieved. For example, if you connect 2 x 12V batteries in series, the battery system will be 24V.

WHAT IS THE EXPECTED LIFE OF A LIFEPO4 BATTERY?

Battery life is measured in life cycles and RELiON's LiFePO₄ is typically rated to deliver 3,500 cycles at 80% depth of discharge (DOD). Actual life expectancy is dependent on several variables based on your specific application. If used for the same application, a LiFePO₄ battery can last up to 10X longer than a lead-acid battery.

HOW LONG WILL IT TAKE TO CHARGE A LITHIUM BATTERY?

Lithium iron phosphate batteries can be charged in as fast as 1 hour. We recommend using a rate that charges our batteries in 2-5 hours. Please refer to the data sheet for your particular model, to find the recommended charge rates.

HOW DOES THE RATE OF DISCHARGE EFFECT CAPACITY?

The rate of discharge for LiFePO₄ batteries has virtually no effect on the delivered capacity. This is not the case with lead-acid batteries which have significantly reduced capacity of up to 50% as the rate of discharge increases.

CAN I USE MY EXISTING LEAD-ACID BATTERY CHARGER (WET, AGM OR GEL) TO CHARGE RELION LITHIUM IRON PHOSPHATE BATTERIES?

We encourage new Lithium battery owners to use a charger that has a lithium specific charge profile for LiFePO₄ batteries. However, some customers would like to continue using their existing lead-acid charger if possible. Although many existing lead-acid chargers will still charge our lithium battery, it is generally discouraged to do this. The risk is the lead-acid chargers may wind up in fault code condition at some point, despite the lithium battery probably having received a full recharge. The conditions incurred during the fault codes can cause issues and/or damage to other system electronics, and even the charger itself. Therefore, we strongly recommend you use a lithium battery charger. If this recommendation is neglected then it is best to choose AGM, Gel, sealed battery charge profiles to charge a lithium battery.

CAN I USE MY ALTERNATOR TO CHARGE MY LITHIUM IRON PHOSPHATE BATTERIES?

RELiON batteries can be charged with most alternators. Depending on the quality of the alternator, it should work with LiFePO₄ batteries. Low quality alternators with poor voltage regulation can cause the BMS to disconnect LiFePO₄ batteries. If the BMS disconnects the batteries, the alternator could be damaged. To protect your LiFePO₄ battery and alternator please be sure to use a compatible high-quality alternator or install a voltage regulator. Please contact RELiON technical support if you need assistance.

WE STAND BEHIND OUR PRODUCTS! 10 YEAR WARRANTY

HOW DO LIFEPO4 BATTERIES PERFORM IN COLD TEMPERATURES?

As with all batteries, cold temperatures will result in reduced performance. LiFePO₄ batteries have significantly more capacity and voltage retention in the cold when compared to lead-acid batteries. Important tips to keep in mind: When charging lithium iron phosphate batteries below 0°C (32°F), the charge current must be reduced to 0.1C and below -10°C (14°F) it must be reduced to 0.05C. Failure to reduce the current below freezing temperatures can cause irreversible damage to your battery. RELiON's LT Series is specifically designed for cold charging, utilizing charge current to heat the battery before allowing charge. With the LT series, you can start the charge below 0°C (32°F).

HOW DO LIFEPO4 BATTERIES PERFORM IN HOT TEMPERATURES?

LiFePO₄ batteries will provide their full capacity and performance until they reach the battery management system (BMS) protection level. The BMS maximum temperature ranges from 60-80°C (140-176°F). Refer to the data sheet for your particular model to find the exact upper temperature limit. LiFePO₄ batteries produce less heat than other lithium chemistries, but if they reach an upper limit, our BMS will protect the battery by shutting it off.

WHAT IS LITHIUM BATTERY PROTECTION MODE?

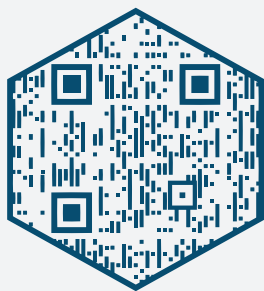
RELiON lithium batteries are manufactured with the safest lithium chemistry, lithium iron phosphate (LiFePO₄). LiFePO₄ batteries are best known for their strong safety profile, the result of extremely stable chemistry. However, to make sure the batteries stay within their safety specifications and ensure they cannot be damaged, they have an internal battery management system (BMS). A BMS makes sure each cell in the battery remains within safe limits. A well-designed battery management system can help maximize lifetime and ensure safe operation over a wide range of conditions.

WHAT IS A BMS? WHAT DOES IT DO AND WHERE IS IT LOCATED?

BMS stands for battery management system. The BMS protects the cells from getting damaged — most commonly from over or under-voltage, over current, high temperature or external short-circuiting. The BMS will shut off the battery to protect the cells from unsafe operating conditions. All RELiON batteries have a built-in BMS to manage and protect them against these types of issues.

ARE LITHIUM BATTERIES POORLY AFFECTED BY PARTIAL STATE OF CHARGE (PSOC)?

No! Drawing current from a lithium battery does not produce any harmful or undesirable byproducts. Charging and recharging simply moves lithium ions from one side of a membrane to another. Lithium batteries also have their peak performance when they spend their life at a partial state of charge. The ideal maximum charge for a lithium-ion battery is about 80-90%. This is much more practical in terms of the time and amperage necessary to recharge your battery, and it gives you a margin of error for when things don't go as planned.



ASK OUR EXPERTS

Have additional questions? We're here to help. Visit our Help Center to get answers to some of the most common questions about lithium batteries.

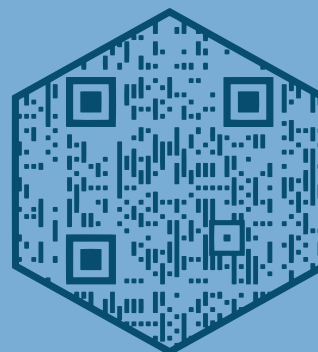
LITHIUM BATTERY SELECTOR

Find the Right Battery for Your Application

The Lithium Battery Selector is an online tool that makes it easy to determine which RELiON batteries are optimal for your setup based on your application. Simply input your application, voltage and usage to determine the recommended lithium batteries for you.



Lithium Battery Selector





Challenge Your **Li³**imits[®]

relionbattery.com

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ISO 9001:2015

ISO/TS 16949:2009

ISO 14001:2004

OHSAS 18001:2007

Quality Management System

Quality Management System

Environmental Management System

Occupational Health and Safety Management System

Certifications Applicable to the Design and Manufacture of Lithium Iron Phosphate Batteries

RELiON Battery provides our customers with the highest quality and safest lithium products, in compliance with all regulatory standards.

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CATALOG
07.12.23